ORDINANCE NO. xx – 21

AN ORDINANCE OF THE CITY COUNCIL
OF THE CITY OF DUBLIN
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AMENDING THE ZONING MAP AND APPROVING A PLANNED DEVELOPMENT ZONING DISTRICT WITH RELATED STAGE 2 DEVELOPMENT PLAN AND CEQA FINDINGS FOR THE EAST RANCH PROJECT
PLPA 2020-00028
(APNs 905-0002-001-01 and 905-0002-002-00)

The Dublin City Council does ordain as follows:

SECTION 1. RECITALS

A. The East Ranch Project site is located in the Fallon Village Project area. Through Ordinance No. 32-05, the City Council adopted a Stage 1 Planned Development Rezone Amendment for the Fallon Village Project area which, among other approvals, established the maximum number of residential units at 3,108 units.

B. The Applicant, Trumark Homes, is requesting a Planned Development Zoning Stage 2 Development Plan. The proposed Project includes up to 573 residential units, two public parks with one 5.5-acre park at the northwest corner and one 6.0-acre park south of the project's main entry, a 2.0-acre Public/Semi-Public site and 6.6 acres of open space. Requested land use approvals include Planned Development Zoning Stage 2 Development Plan, Vesting Tentative Tract Map No. 8563, and a Heritage Tree Removal Permit among other related actions. These planning and implementing actions are collectively known as the "East Ranch Project" or the "Project."

C. The 165.5-acre Project site (APN 905 -0002-002-00 and 905 -0002-001-01) is located in eastern Dublin, directly east of the Jordan Ranch development and south of Positano development, straddling the existing Croak Road.

D. To comply with the California Environmental Quality Act (CEQA), together with the CEQA Guidelines and City of Dublin CEQA Guidelines and Procedures, the City prepared a CEQA Analysis in Support of a Specific Plan Exemption ("CEQA Analysis").

E. Following a public hearing on November 9, 2021, the Planning Commission adopted Resolution No. 21-08, recommending approval of the East Ranch Project, which resolution is incorporated herein by reference and available for review at City Hall during normal business hours.

F. A Staff Report dated December 7, 2021, and incorporated herein by reference with all attachments, described and analyzed the Project, including the Planned Development Zoning Stage 2 Development Plan, for the City Council.

G. The City Council considered the CEQA Analysis, including the EDSP EIRs, prior related CEQA Documents, all above referenced reports, recommendations, and testimony prior to taking action on the Project.

SECTION 2: FINDINGS

A. Pursuant to Section 8.32.070 of the Dublin Municipal Code, the City Council finds as follows.

1. The East Ranch Project ("the Project") Planned Development zoning meets the purpose and intent of Chapter 8.32 in that it provides a comprehensive development plan that is consistent with the General Plan and Eastern Dublin Specific Plan and protects the integrity and character of the area by creating a desirable use of land that is sensitive to surrounding land uses by virtue of the layout and design of the site plan. The Project is planned comprehensively and will follow development standards tailored to the specific needs of the site. These standards will address issues such as building setbacks, architecture, landscaping and grading. The proposed community will blend with the natural features unique to the site through the use of design and planning. The Applicant proposes residential, park, open space, rural residential, and public/semi-public uses which are consistent with the land use designations in the Dublin General Plan and the provisions and regulations for development set forth therein. The Project proposes six residential neighborhood that are consistent with the use and density of the surrounding areas, the General Plan and Eastern Dublin Specific Plan. The Applicant will participate in the development of the necessary utility and circulation infrastructure for this development in conformance with the Eastern Dublin Specific Plan. The Project will be designed to address the uniqueness of the Specific Plan area, taking into account the proximity of the surrounding topography. The clustering of residential units will allow for continuity of open space area and more effective utilization of the property.

2. Development of the Project under the Planned Development zoning will be harmonious and compatible with existing and future development in the surrounding area in that the site will provide a mix of housing types and public amenities for the development. The Project site is in an area that has similar uses nearby and will tie into the existing street network.

B. Pursuant to Sections 8.120.050.A and B of the Dublin Municipal Code, the City Council finds as follows.

1. The Planned Development zoning for the Project will be harmonious and compatible with existing and potential development in the surrounding area in that the proposed site plan has taken into account adjacent land uses and will provide a wide range of amenities to and for the community within the development and the surrounding neighborhoods. The Project is consistent with the surrounding land uses and has been approved for residential development in the Stage I Planned Development.

2. The Project site conditions were documented in the EDSP EIRs and CEQA Analysis that have been prepared, and the environmental impacts that have been identified will be mitigated to the greatest degree possible. There are no site challenges that were identified in the EIR, which could not be mitigated, that will present an impediment to utilization of the site for the intended purposes. The site is a hillside development and generally slopes from the north east corner to the Croak Road and Central Parkway intersection. The denser development has been proposed to be in the flatter areas of the site, while the more conventional single-family homes have been located in areas that take advantage of the grade and step with the hillside. The grading proposed for

the Project will take into consideration the hilly terrain and will be designed to avoid excessive cuts and fills.

3. The Planned Development zoning is consistent with the Eastern Dublin Specific Plan policies and the City's Zoning Ordinances enacted for the public health, safety and welfare. The Project will not adversely affect the health or safety of persons residing or working in the vicinity or will it be detrimental to public health, safety or welfare. The Project will comply with all applicable development regulations and standards and will implement all adopted mitigation measures. Additionally, no noxious odors, hazardous materials, or excessive noises will be produced. In order to ensure adequate emergency vehicle access to all portions of the site, access is provided to the site from Croak Road.

4. The Planned Development zoning is consistent with and in conformance with the Dublin General Plan and Eastern Dublin Specific Plan in that the proposed residential, open space, park and semi-public uses are consistent with the existing land use designations for the site.

C. Pursuant to the California Environmental Quality Act, the City Council finds as follows:

1. The project is found to be exempt from CEQA pursuant to Government Code section 65457 for residential projects that are consistent with a Specific Plan. Prior CEQA analysis for the Project area includes: 1) the Eastern Dublin General Plan Amendment and Specific Plan EIR (1993); 2) the East Dublin Properties Stage 1 Development Plan and Annexation Supplemental EIR (2002); and 3) the Fallon Village Supplemental EIR (2005). Collectively, these three environmental review documents are referred to as the "EDSP EIRs." The CEQA Analysis prepared for the Project determined that the proposed project qualifies for an exemption from CEQA under Government Code Section 65457 and CEQA Guidelines Section 15182(c), which exempts residential projects that are consistent with a specific plan for which an EIR has been certified. The proposed project is consistent with the EDSP EIRs and the General Plan and Eastern Dublin Specific Plan land use designations for the project site. There is no part of the proposed project that triggers the need to prepare a subsequent EIR or negative declaration pursuant to CEQA Guidelines Section 15162 or Public Resources Code Section 21166. Therefore, the project qualifies for a specific plan exemption and does not require subsequent environmental review or the preparation of an additional CEQA document.

SECTION 3: ZONING MAP AMENDMENT

Pursuant to Chapter 8.32, Title 8 of the City of Dublin Municipal Code, the City of Dublin Zoning Map is amended to zone the property described below to a Planned Development Zoning District:

165.5-acres within APN 905 -0002-002-00 and 905 -0002-001-01 (the "Property")

A map of the rezoning area is shown below:

SECTION 4. APPROVAL OF STAGE 2 DEVELOPMENT PLAN

The regulations for the use, development, improvement, and maintenance of the Property are set forth in the following Stage 2 Development Plan for the entire 165.5-acre project area, which is hereby approved. Any amendments to the Stage 2 Development Plan shall be in accordance with Section 8.32.080 of the Dublin Municipal Code or its successors.

Stage 2 Development Plan

The following is a Stage 2 Development Plan pursuant to Chapter 8.32 of the Dublin Zoning Ordinance. This Development Plan meets all the requirements for a Stage 2 Development Plan and is adopted as part of the Planned Development rezoning for the East Ranch Project (PLPA-2020-00028).

The Planned Development Zoning District and this Stage 2 Development Plan provides flexibility to encourage innovative development while ensuring that the goals, policies, and action programs of the General Plan and provisions of Chapter 8.32 of the Zoning Ordinance are satisfied.

The Stage 2 Development Plan establishes the location and size Public/Semi-Public site, but not does establish applicable uses, density, or development standards. The Public/Semi-Public site is subject to a subsequent Stage 2 Development Plan.

1. **Statement of compatibility with the Stage 1 Development Plan.** The East Ranch Stage 2 Development Plan is consistent with the Stage 1 Development Plan for the Fallon Village Project area in that it provides for 573 residential units, two public parks with one 5.5-acre park at the northwest corner and one 6.0-acre park south of the project's main entry, a 2.0-acre public/semi-public site and 6.6 acres of open space, and other related improvements approved in Ordinance No. 32-05.

2. **Statement of Uses.** Permitted, conditional, accessory and temporary uses are allowed as set forth in the Stage 1 Planned Development for Fallon Village in Ordinance No. 32-05, incorporated herein by reference (PA-04-040) and the Stage 1 Planned Development Rezone amendment pertaining to the Public/Semi-Public parcel for Fallon Village in Ordinance No. 05-21, incorporated herein by reference (PLPA-2020-00054).

3. **Stage 2 Site Plan.** The Stage 2 Site Plan for East Ranch shall generally be as shown below:

4. **Site area, densities.** The site area and densities are as follows:

Land Use	Neighborhood	Maximum Number of Units	Gross Acreage±	Maximum Density (du/ac)
Single Family Residential	1	101	30.1	3.4
Single Family Residential	2	98	23.4	4.2
Single Family Residential	3	91	19.5	4.7
Single Family Residential	4	85	16.8	5.1
Single Family Residential	5	98	17.6	5.6
Medium Density Residential	6	100	10.4	9.6

Land Use	Neighborhood	Maximum Number of Units	Gross Acreage±	Maximum Density (du/ac)
Rural Residential/Agricultural	-	-	19.4	.01-.8
Neighborhood Park	-	-	11.5	-
Public/Semi-Public	-	-	2	-
Open Space	-	-	6.8	-
	Total	573	-	-

5. Development Regulations.

Single-Family Development Standards

CRITERIA	NH 1	NH 2	NH 3	NH 4	NH 5	NH 1, 2, 3, & 5
Product Type	Conventional SFD	Conventional SFD	Conventional SFD	Conventional SFD	Cluster SFD	Zero Lot Line SFD
Typical Neighborhood Lot Size (sf) (21)	6500	5225	5000	3960	3360	2500
Nominal Lot Dimensions (17)(21)	65' x 100'	55 'x 95'	50 'x 110'	49.5' x 80'	48' x 70'	-
Maximum Lot Coverage (12)	45% Two Story; 55% One Story	45% Two Story; 55% One Story	45% Two Story; 55% One Story	55%	55%	55%
Maximum Building Height (4)(21)	35'	35'	35'	35'	35'	35’
Maximum Stories	2	2	2	2	2	2
Minimum Front Yard Setbacks (1)(2)(15)(16)(20)						
Living Area	12'	12'	12'	10'	10' to ROW /8' to Court	10' to ROW/ 4' to PL
Porch	10'	10'	10'	10'	8' to ROW/ 6' to Court	10' to ROW/ 4' to PL
Front-on Garage	18'	18'	18'	18'	18'	18'(13)
Swing-In Garage (55' Lots or Wider) (7)	12'	12'	N/A	N/A	N/A	10' to ROW/ 7' to PL
Minimum Side Yard Setbacks (1)(2)(4)(9)(10)(16)						
Living Area	4'	4'	4'	4'	4'	0’
Garage	5’	5’	5’	4’	4’	4’
Porch	4'	4'	4'	4'	4'	0’ one side 4’ other side
Courtyard (5)	0'	0'	0'	0'	0'	0’
Encroachments(3)	2’	2’	2’	2’	2’	2’
Minimum Rear Yard Setbacks (1)(2)(9)(10)						
Living Area	20' avg.; 10' min (4)	15' avg.; 10' min (4)	15' avg.; 10' min (4)	10' avg.; 5' min (4)	10' avg.; 5' min (4)	10’

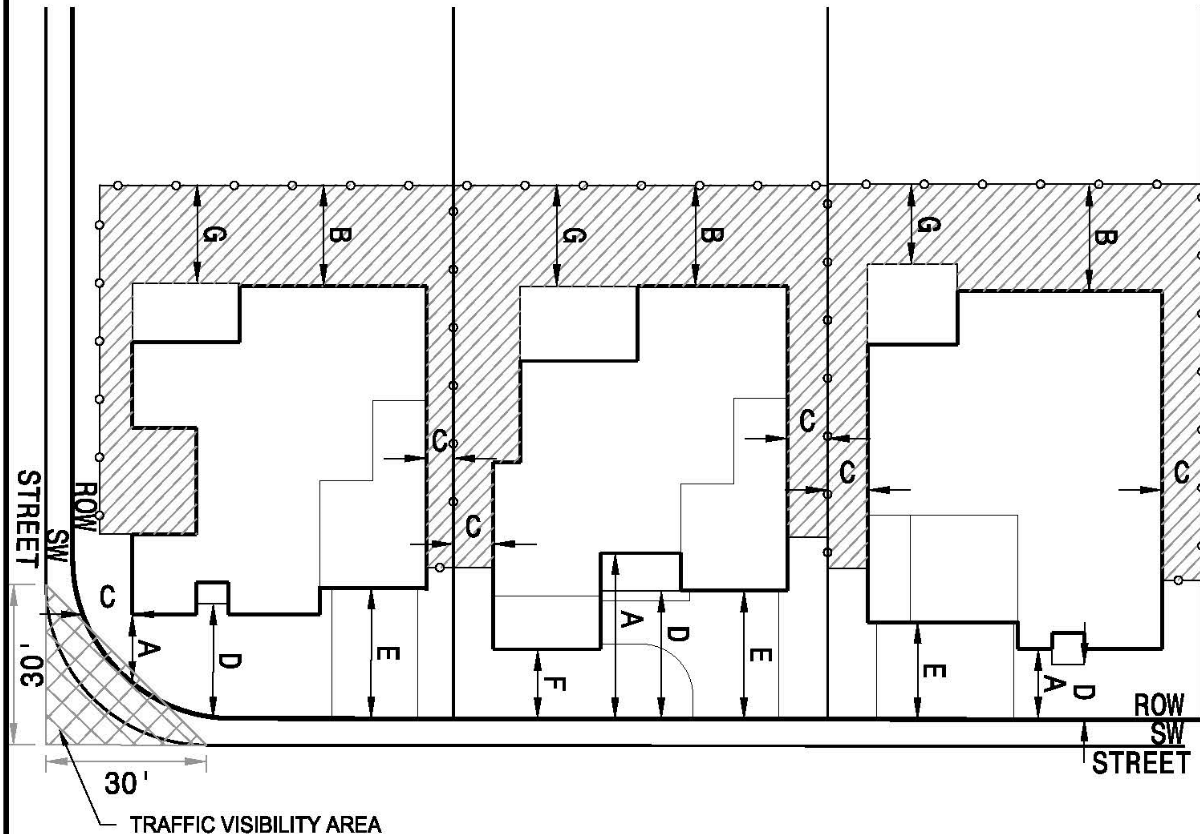
CRITERIA	NH 1	NH 2	NH 3	NH 4	NH 5	NH 1, 2, 3, & 5
Covered Patio	10'	10'	10'	5'	5'	5’
Garage	7.5’	7.5’	7.5’	7.5’	7.5’	7.5’
Accessory Structures	(14)	(14)	(14)	(14)	(14)	(14)
Parking Spaces Required Per Home (11)(12)	2 covered 1 guest	2 covered 1 guest	2 covered 1 guest	2 covered 1 guest	2 covered 1 guest	2 covered 1 guest
Minimum Usable Private Open Space (SF)	500 S.F with a min. dimension of 10 ft. Yard area may be provided in more than one location within a lot with a min of 80 SF yard or courtyard area.	400 S.F with a min. dimension of 10 ft. Yard area may be provided in more than one location within a lot with a min of 80 SF yard or courtyard area.	400 S.F with a min. dimension of 10 ft. Yard area may be provided in more than one location within a lot with a min of 80 SF yard or courtyard area.	300 S.F with a min. dimension of 10 ft	150 S.F with a min. dimension of 5 ft	150 S.F with a min. dimension of 5 ft

Multi-Family Development Standards

CRITERIA	NH 6	
Product Type	**Row Townhomes**	**Townhomes w/ Private Yards**
Maximum Building Height (4)(18)	40'	35'
Maximum Stories(6)	3	3
Minimum Setbacks (1) (2)		
Building to ROW	6'	10'
Porch to ROW	6'	6'
Living Space to Alley, Common Driveway, or Private Street	6'	4'
Porch to Alley, Common Driveway, or Private Street	4'	4'
Garage Face to Alley Back of Curb	4'	4'
Minimum Building Separation		
Garage Door to Garage Door (2-Story/3-Story)	28’/30'	28'/28’
Porch/Balcony to Porch/Balcony	12'	8'
Front to Front	20'	28'
Side to Side	10'	8'
Parking Spaces Required Per Home (11)	2 covered 1 guest	2 covered 1 guest
Minimum Usable Private Open Space (SF)	100 SF patio with a 10' min dimension or a 50 SF upper level deck with a 5' min inside dimension	400 SF Yard that includes an 18'x18' flat area or 150 S.F with a min. dimension of 5 ft(20)

Notes

(1)	Setbacks measured from property line or as otherwise noted. Setbacks to "Court" refer to back of curb.
(2)	See following pages for graphic depiction of above standards.
(3)	Items such as, but not limited to air conditioning condensers, porches, chimneys, bay windows, retaining walls less than 4' in height, media centers, etc. may encroach 2' into the required setback of one side yard, provided a minimum of a 3' flat and level area is maintained for access around the house.
(4)	Subject to Building Code requirements for access.
(5)	Maximum height of a front yard courtyard wall shall be 30" maximum (solid wall) or 42" maximum (transparent/fence)
(6)	The third floor must be stepped back a minimum of 2.5' from front and rear elevation to reduce building mass.
(7)	Three car side by side garages and swing in garages are prohibited on lots less than 55' wide. Swing-In Garage may be utilized on Zero-Lot Line Units
(8)	Retaining walls up to 4' high may be used to create a level usable area. Retaining walls in excess of 4' to create usable area are subject to review and approval of the Community Development Director. Retaining walls over 30" in height are subject to safety criteria as determined by the Building Official.
(9)	Where a minimum 5' HOA parcel lies between a lot and an adjacent street, the lot is not considered a corner lot and interior lot setback standards shall apply.
(10)	At cul-de-sac bulbs, knuckles and similar conditions where lot depths are less than the standard depth, minimum rear yard setback requirements may be reduced by an amount equal to the min. lot depth minus the actual depth of the lot (i.e.: 100'-90'=10'). In no case will the rear yard setback be reduced to less than 10'.
(11)	Curbside parking may be counted toward required number of guest spaces. 2 covered side-by-side spots shall be provided. Tandem spaces may not be utilized to meet the parking requirement.
(12)	An Accessory Dwelling Unit (ADU) , is permitted in neighborhoods of lots 5,000 square feet or greater only. Refer to Dublin Municipal Code for ADU setback and design requirements.
(13)	The driveway setback of the Zero Lot Line Product includes shared drive area. Products are not required to provide private driveway parking for each unit. Guest parking will be provided via street parking.
(14)	Accessory Structure Setbacks will follow the City Dublin Zoning Ordinance, Chapter 8.40 Accessory Structures and Uses Regulations
(15)	A low wall (30" or less) may encroach into the site line area. No solid structure above 30" shall be allowed; porch columns excluded.
(16)	Courtyard wall to return to side yard fence or front plane of main residential structure.
(17)	Lot width dimensions may vary to provide product diversity within each neighborhood, and atypical lot shapes (i.e. Pie lots)
(18)	Elevator overruns, stair coverings, decorative roof elements, and similar structures can exceed the building height limit by a maximum of 15 percent higher.
(19)	Minimum front / corner setback to living and porch may be subject to grading and specific location of top of pad hinge line (top of slope of graded pad). A minimum flat distance of 2' should be maintained between foundation and top of pad hinge.
(20)	Per the Eastern Dublin Specific Plan, 50% of the total Medium Density Market Rate units are required to have 400 SF private flat yard space, with a minimum dimension of 18'x18'; Once 50% of the total medium density units meet the required yard requirement, the excess units are exempt from the minimum 400 SF yard requirement, and shall provide a Minimum 150 SF with a minimum dimension of 5'
(21)	Typical Lot Size and Nominal Dimensions can be modified during SDR; If the Typical Lot Size is modified to 4000 SF or above, the neighborhood design must follow 45% Lot Coverage for a Two-Story Product. If the Typical Lot Size is modified to below 4000 SF, the neighborhood can be designed using the 55% Lot Coverage for all products.

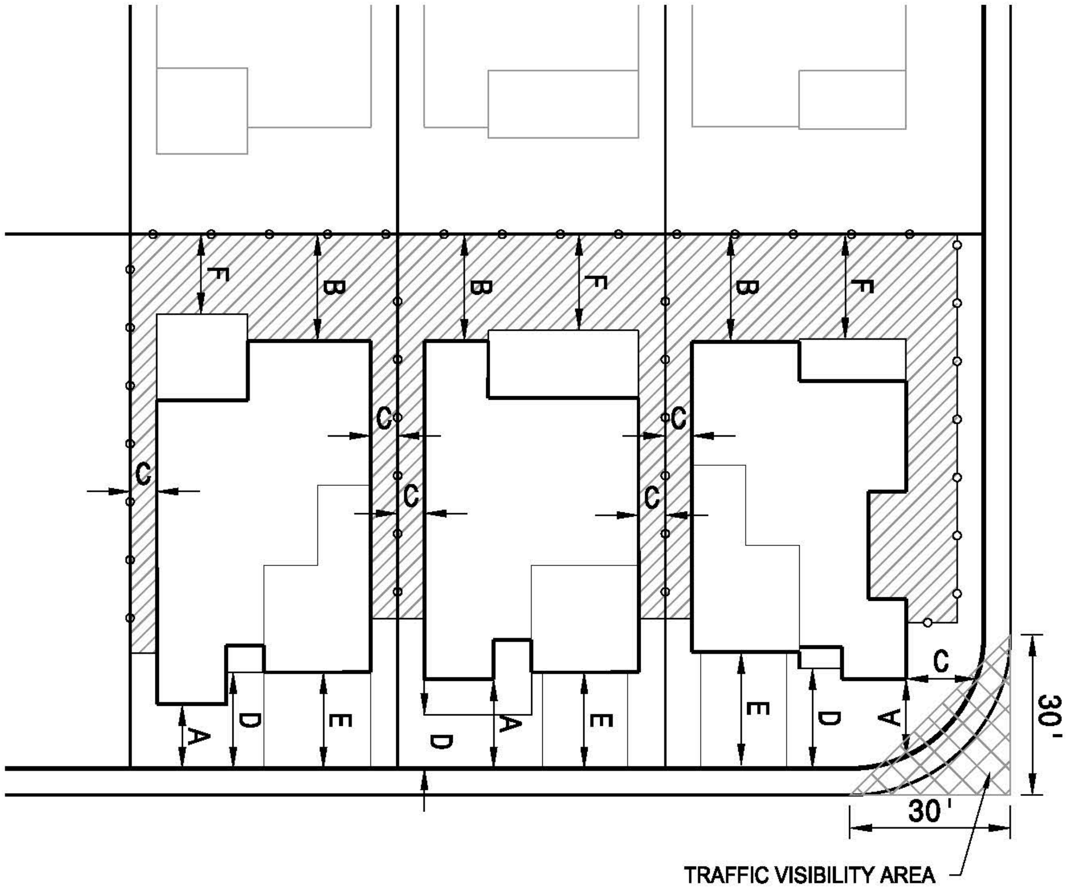


LEGEND

A	FRONT LIVING SETBACK
B	REAR LIVING SETBACK
C	SIDE SETBACK
D	PORCH FRONT SETBACK
E	GARAGE SETBACK
F	SWING-IN GARAGE
G	COVERED PATIO REAR SETBACK
ROW	RIGHT OF WAY
SW	SIDEWALK
(hatched)	PRIVATE YARD SPACE

NOTE:
FOOTPRINTS SHOWN ARE CONCEPTUAL. FINAL FOOTPRINT DESIGN WILL BE PROVIDED IN SDR APPLICATION
PROJECT IS SUBJECT TO CHAPTER 7.90 UNIVERSAL DESIGN OF THE DUBLIN MUNICIPAL CODE. DETAILS ON OPTIONS AND EXCEPTIONS TO BE PROVIDED DURING SDR APPLICATION.

TYPICAL PLOTTING CONCEPTS
NEIGHBORHOODS 1 & 2
CONVENTIONAL LOTS: 65'x100' & 55'x95'



LEGEND

A	FRONT LIVING SETBACK
B	REAR LIVING SETBACK
C	SIDE SETBACK
D	PORCH FRONT SETBACK
E	GARAGE SETBACK
F	COVERED PATIO REAR SETBACK
ROW	RIGHT OF WAY
SW	SIDEWALK
(hatched)	PRIVATE YARD SPACE

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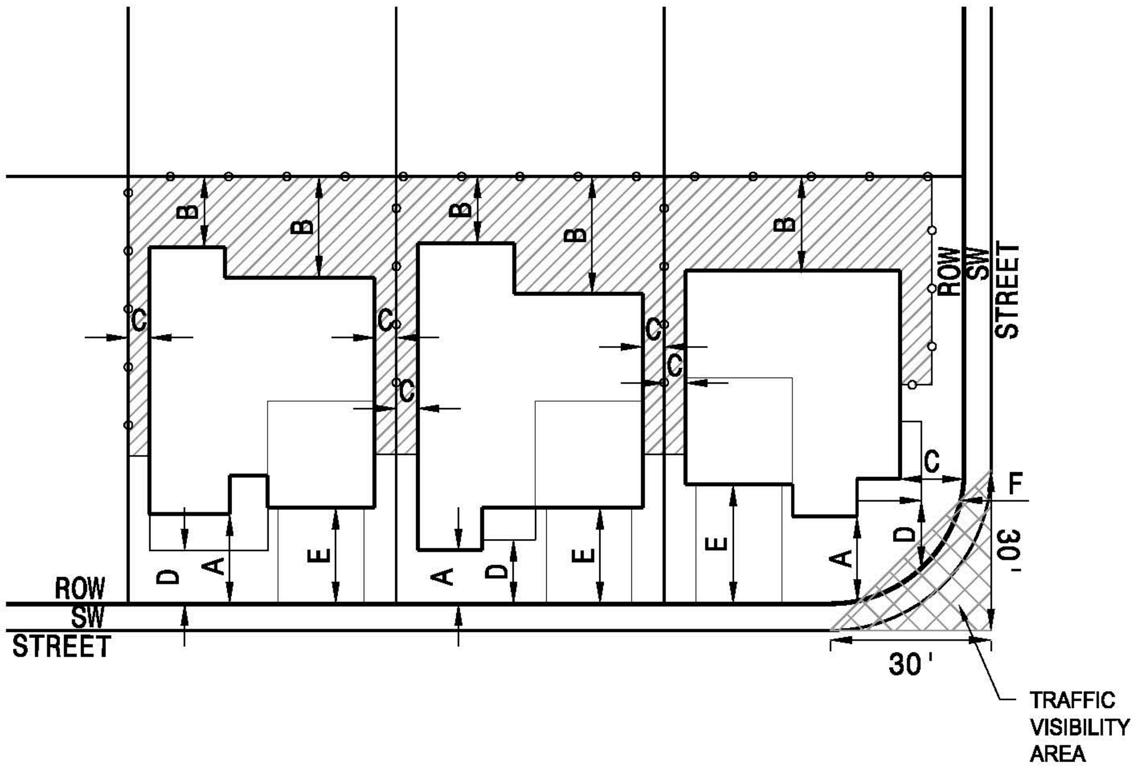
TYPICAL PLOTTING CONCEPTS
NEIGHBORHOOD 3
CONVENTIONAL LOTS: 50'x110'



LEGEND

A	FRONT LIVING SETBACK
B	REAR LIVING SETBACK
C	SIDE SETBACK
D	PORCH FRONT SETBACK
E	GARAGE SETBACK
F	PORCH SIDE SETBACK
ROW	RIGHT OF WAY
SW	SIDEWALK
▨	PRIVATE YARD SPACE

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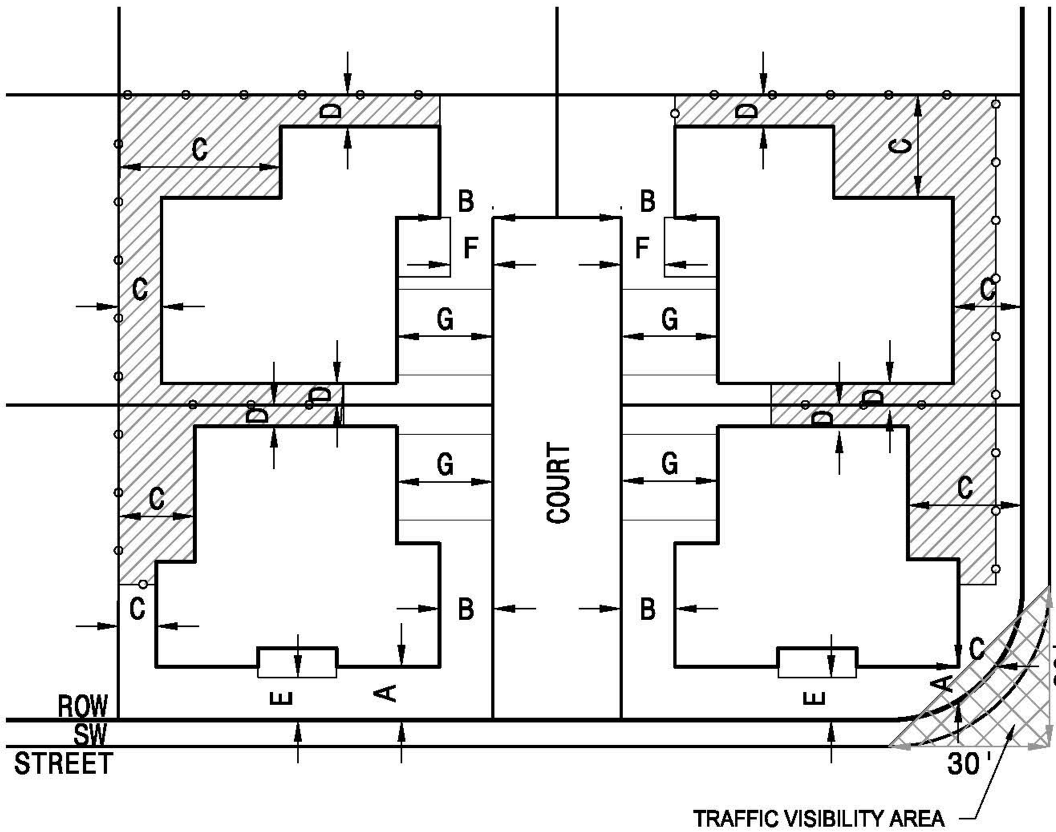
TYPICAL PLOTTING CONCEPTS
NEIGHBORHOOD 4
CONVENTIONAL LOTS: 49.5'x80'



LEGEND

A	FRONT LIVING SETBACK TO ROW
B	FRONT LIVING SETBACK TO COURT
C	REAR LIVING SETBACK
D	SIDE SETBACK
E	PORCH FRONT SETBACK TO ROW
F	PORCH SETBACK TO COURT
G	GARAGE SETBACK
ROW	RIGHT OF WAY
SW	SIDEWALK
	PRIVATE YARD SPACE

NOTE:
FOOTPRINTS SHOWN ARE CONCEPTUAL. FINAL FOOTPRINT DESIGN WILL BE PROVIDED IN SDR APPLICATION
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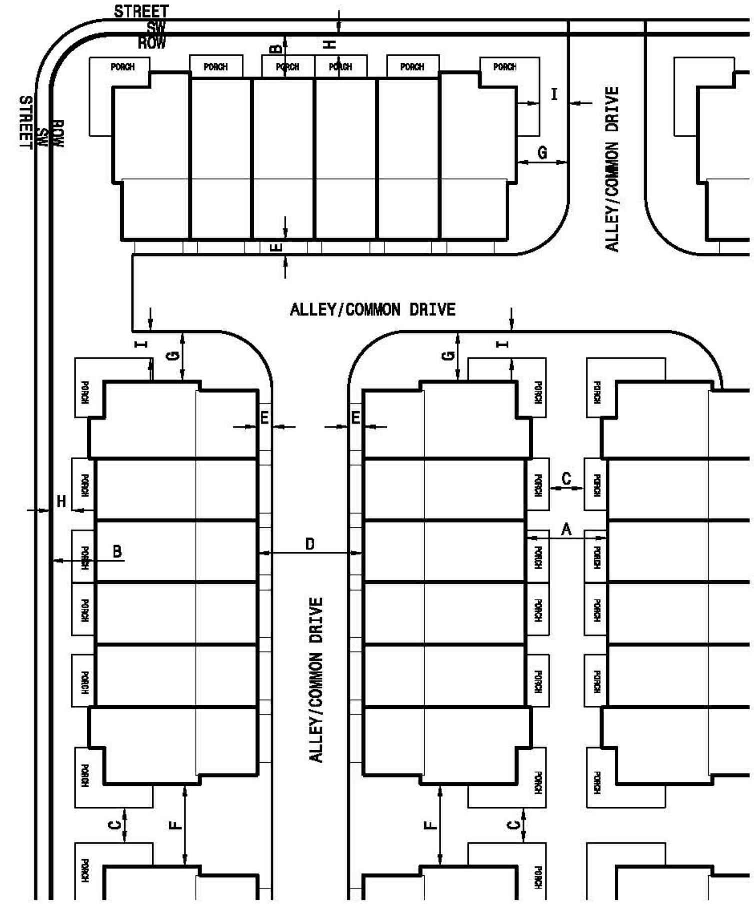
TYPICAL PLOTTING CONCEPTS
NEIGHBORHOOD 5
CLUSTER LOTS

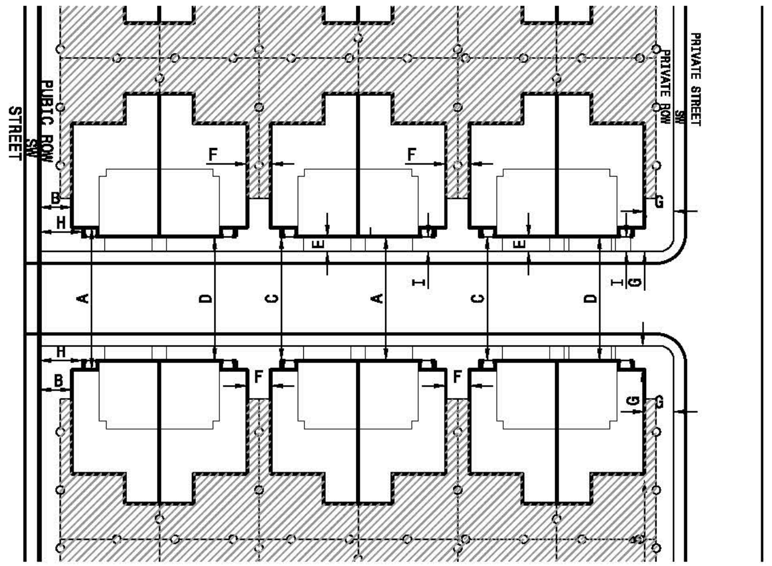


LEGEND

A	FRONT TO FRONT
B	BUILDING TO ROW
C	PORCH/BALCONY TO PORCH/BALCONY
D	GARAGE DOOR TO GARAGE DOOR
E	GARAGE TO ALLEY EDGE
F	SIDE TO SIDE
G	LIVING SPACE TO ALLEY/PRIVATE DRIVEWAY
H	PORCH TO ROW
I	PORCH TO ALLEY/PRIVATE DRIVEWAY
ROW	RIGHT OF WAY
SW	SIDEWALK

NOTE:
FOOTPRINTS SHOWN ARE CONCEPTUAL. FINAL FOOTPRINT DESIGN WILL BE PROVIDED IN SDR APPLICATION

TYPICAL PLOTTING CONCEPTS
NEIGHBORHOOD 6
ROW TOWNHOMES



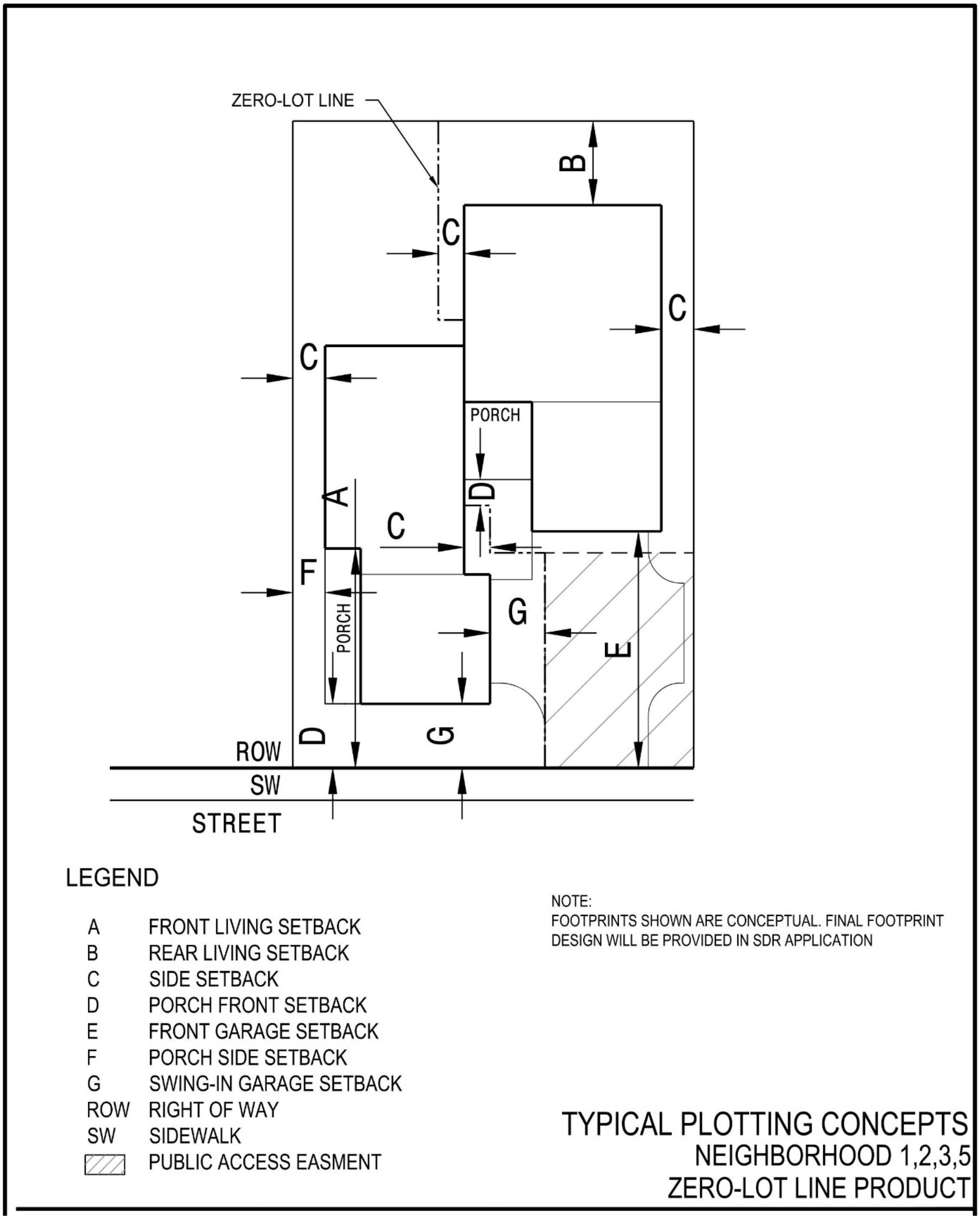
LEGEND

A	FRONT TO FRONT
B	BUILDING TO ROW
C	PORCH/BALCONY TO PORCH/BALCONY
D	GARAGE DOOR TO GARAGE DOOR
E	GARAGE TO ALLEY EDGE
F	SIDE TO SIDE
G	LIVING SPACE TO ALLEY/PRIVATE STREET
H	PORCH TO ROW
I	PORCH TO ALLEY/PRIVATE STREET
ROW	RIGHT OF WAY
SW	SIDEWALK
(hatched box)	PRIVATE YARD SPACE(1)

NOTE:
FOOTPRINTS SHOWN ARE CONCEPTUAL. FINAL FOOTPRINT DESIGN WILL BE PROVIDED IN SDR APPLICATION

(1) PRIVATE YARD SPACE TO FOLLOW THE REQUIREMENTS SET FORTH IN THE EASTERN DUBLIN SPECIFIC PLAN AND ORDINANCE 45-08 FOR MEDIUM DENSITY DEVELOPMENT ON THE CROAK (EAST RANCH) PROPERTY

TYPICAL PLOTTING CONCEPTS
NEIGHBORHOOD 6
TOWNHOMES W/ PRIVATE YARDS



6. **Architectural Standards.** The architecture of the development within East Ranch is characterized by high-quality design homes that promote both visual compatibility and variety. The architectural standards are organized into two sections: Architectural Components and Architectural Styles. These standards express desired design character, which in combination with the Preliminary Landscape Plan, conveys the overall East Ranch agrarian character and provides a pedestrian friendly community of neighborhoods. These guidelines and the graphic representations contained herein are for conceptual purposes only. Guidelines with the term

"shall" are required and to be implemented, and guidelines with the term "should" are highly recommended.

Architectural Components

Staggerd wall planes

One- and two-story forms help to break down the overall buildng scale

Gable roofs

ARCHITECTURAL COMPONENTS

The public realm architecture of a house is comprised of five basic components: Building Facades, Roofs, Garages, Architectural Details, and Materials and Colors. Together when appropriately designed these components can create visually interesting streetscapes and human scale environments. This section of the Architectural Design Guidelines is to be closely referenced with the Development Standards which dictate height and setback requirements that also shape streetscapes.

Building Facades

Building Facades constitute all vertical sides of the building: front, sides, and rear and together with the roof creates a building's mass and scale. A building's mass and scale directly impact the overall streetscape of a neighborhood. To encourage a pedestrian friendly environment and visually interesting streetscape, the following guidelines are encouraged:

- Stagger wall planes in the horizontal and/or vertical plane, where appropriate, to break up the elevation to avoid large building massing.
- Provide projections and recesses, appropriate to the architectural style of the home, in building elevations to create shadow and depth.
- Provide combinations of one- and two-story forms to help break down the overall scale of the building.
- Buildings shall be designed with "4-sided" architecture to create high-quality homes that are human-scale and enhances the public realm.

Roofs

The building roof provides an important function to the home and to shaping the skyline and a building's overall form.

- Roof design for maximum solar exposure shall take priority to guidelines that follow.
- Variation of roof forms shall occur to allow for the creation of an interesting roofscape and streetscape.
- Roof forms can include but are not limited to gable, shed, and hip. Flat roofs may be allowed under the Contemporary architectural style and should not be more than 60% of the roof form in this style.
- To help create building articulation, broken roof pitches extending over porches, patios or other similar features are encouraged where appropriate to the architectural style.
- Roof material and color shall complement the architectural style of the home and be non-reflective.

Garages

Garages provide a sheltered space for vehicles and when thoughtfully placed and designed in the home, will de-emphasize the vehicle and can add to the articulation of the overall building form.

- In general, architecture forward design in front-loaded lots is encouraged where garage doors and placement are located beyond habitable spaces.
- Garage door recesses into surrounding wall plans, and/or with 2nd floor above cantilever are encouraged to help de-emphasize the garage door.
- In general, it is encouraged for homes with 3-car garages to have the following configurations: the third garage is side-swing, recessed to back of the lot, or the space is part of a tandem configuration within a 2-car garage door width.
    - 3-car garages with all bays fronting the street are allowed on lots 55' or wider.
- Garage door designs shall vary along the streetscape, with no more than two homes using the same design and pattern and color next to each other.
    - Garage door window lites are allowed and should be appropriate to the architectural style of the home.

Garage door design is important and adds to the character of the streetscape

Architectural Details

The Architectural Details of a building helps complete the design vision and can mean the difference between a welcoming street scene with appeal and one that may be non-inviting and bland. This section includes guidelines for the following Architectural Details: entryways, windows and doors, trim and style details, and exterior lighting and mechanical equipment.

Entryways

- Entryways present the threshold between public and private spaces and thus is a focal point to the building's façade. The following examples are encouraged to be used to articulate the entryway as a focal point: Porch, Trellis, Portico, Trellis, Low entry court walls, Recessed Entryway.

Entryway portico

Windows and Doors

- Windows and doors shall be designed to reflect the overall architectural style of the building.
- Window and door materials shall not include reflective glass, as it creates glare. Opaque glass is not allowed without approval from City Staff.
- Window shutters, when used, should be proportionate in shape and size to the window opening.
- Window frames shall be appropriately colored to match or complement the house or trim colors for each color scheme.

Proportional window shutters to window size and opening

Window trim appropriately designed to window opening and shape

Building details: pipe vents, julient balcony with designed railings help enhance this elevation example

Mechanical equipment screen should be complementary to design and materials and colors of the building

Example of a diverse streetscene created through varitey in materials and colors

Trim and style details

- Trim elements around windows and on the buildings shall be designed to be proportional to the element they are enhancing.
- Style details include, but are not limited to: corbels, rafter tails, pipe vents, and planter boxes. Style details shall be complementary to the architectural style of the home, placed and installed appropriately to enhance the overall building design, and shall be made of high-quality and durable material.

Exterior Lighting and Mechanical Equipment

- Exterior lighting fixtures should be compatible with the architectural style of the building.
- Exterior lighting fixtures shall not create glare or spillover to adjacent neighbors.
- Mechanical equipment located on the ground shall be screened from view from the public to maintain a pedestrian friendly street scene. Screening can be landscape and/or with a hard material fencing screen.

Materials and Colors

The Materials and Colors of a building have a direct impact on the streetscape ambiance and overall neighborhood. The following guidelines are to be referenced with the materials allowed provided in each architectural style section.

- Material and colors shall be of high-quality and durable that will weather well and reflects the home's architectural style.
- Material and color blocking shall not terminate at outside corners and shall wrap to appropriate transition points of the building façade.
- Material and colors at the base of buildings should continue to the where the building meets grade so the building is well seated into the street; avoiding a "floating" look.
- Adjacent houses and facing facings across a street must use different color schemes for street scene variation.

Universal Design

The proposed buildings will adhere to the Universal Design Guidelines as outlined in Dublin Municipal Code Chapter 7.90: Universal Design.

Second Units

Second Units proposed in East Ranch will adhere to the Second Units standards and regulations as outlined in Dublin Municipal Code Chapter 8.80: Second Unit Regulations.

Architectural Styles

The architectural styles of East Ranch draw from the project site's agrarian setting of the rolling hills and its relationship to the surrounding area and existing residential neighborhoods. The following four architectural styles identified for East Ranch are a mixture of traditional and contemporary styles offering variation, under the Agrarian and California style umbrella, to create interesting streetscapes:

- Traditional Farmhouse
- Modern Farmhouse
- California Revival
- Contemporary

TRADITIONAL FARMHOUSE

The Traditional Farmhouse style dates back to 19th century America and encompasses a range of variations as it reflects local geograph and climate. Throughout America there are examples ranging from more simplified traditional farmhouses, to more ornate versions. All them reflecting the key concept of a functional home that effortlessly combines informal and formal spaces.

Fundamentally this style is defined by simply detailed, understated, and utilitarian features that reflect the concept of a simple agrarian lifestyle. Homes in this style are often simple in massing and can include a covered porch element, gable roof forms, and wood columns and posts.

	MINIMUM STANDARDS	ADDITIONAL ELEMENTS (A minimum of 2 elements should be selected from this column)
Roofs	-Gable Roof Forms -Shed Accent Roofs -40 Year Dimensional Composition Shingle Roofing -3:12 to 6:12 Pitch -12 to 18" Eaves -5 to 12" Rakes	-Varied Plate Heights -Standing Seam Metal Roofing -Steep or Pitched Gable Roof Forms
Exterior Finish	-Board and Batten Accent Siding -Lap Siding with 6 to 8 inch Exposure -Stucco Finish	-Board and Batten Accent Siding -Brick and/or Stone Veneer
Windows and Doors	- Single Hung Windows -Fixed Accent Windows -Accent Painted Entry Doors -Grid Patterned at Front Elevation and Around Entire Second Floor	-Sectional Garage Doors with appropriate style of Glazing -Window Shutters
Trim and Accents	-Wood Brackets and/or Kickers -Wood Porch Posts -Wood or Smooth Foam Trim	-Wood Railings




MODERN FARMHOUSE

The Modern Farmhouse style is an evolution of the Traditional Farmhouse style, building on the elements of basic comfort and practically with a modern lifestyle twist. This style embodies a clean and simple balanced design and uses more asymmetrical massing and forms and combines a palette of contemporary and traditional materials. Corrugated roofing, stone veneer and vertical board and batten siding are typical accents to this style.

	MINIMUM STANDARDS	ADDITIONAL ELEMENTS (A minimum of 2 elements should be selected from this column)
Roofs	-Gable Roof Forms -Shed Accent Roofs -40 Year Dimensional Composition Shingle Roofing -Standing Seam Metal Roofs and/ or awnings -3:12 to 6:12 Pitch -12 to 24" Eaves -5 to 12" Rakes	-Varied Plate Heights -Standing Seam Metal Roofing -Steeper pitched gable roof forms
Exterior Finish	-Lap Siding -Stucco Finish	-Board and Batten Accent Siding -Brick and/or Stone Veneer -Wood Trimmed Bay Windows
Windows and Doors	-Single Hung Windows -Fixed Accent Windows -Accent Painted Entry Doors	-Metal Sectional Garage Doors -Frosted Glass Garage Doors
Trim and Accents	-Wood Brackets and/or Kickers -Wood Porch Posts -Wood or Smooth Foam Trim	-Wood Built Out Smooth Porch Columns -Steel Cable Wire or Contemporary Wood Railings

CALIFORNIA REVIVAL

The California Revival style is a blend of European influences from Spain and the Mediterranean, found throughout California. In this style, balcony railings are typically styled in metal or wood, roofs are low pitched or gabled and covered with shingles, and exterior walls are constructed in stucco, brick, or wood.

	MINIMUM STANDARDS	ADDITIONAL ELEMENTS (A minimum of 2 elements should be selected from this column)
Roofs	-Low Pitched Gable Roof Forms -40 Year Dimensional Composition Shingle Roofing -4:12 to 5:12 Pitch -6 to 12" Eaves -12 to 18" Rakes	-Occasional Hipped Roof Forms -Gable Detail
Exterior Finish	-Stucco Walls with Smooth to Light Sand Finish -Wood Eave Details	-Brick Veneer and/or Stone Veneer
Windows and Doors	-Single hung with Mullions Arranged in Pairs or Single -Fixed Accent Windows -Shutters -Full Length Window Opening onto Balcony -Grid Patterned at Front Elevation and Around Entire Second Floor	-Paired Windows
Trim and Accents	-Wood Brackets and/or Kickers -Porch Posts	-Wood Balcony -Detailed Hand Rails (Metal, Wrought Iron) -Decorative Pot Shelves -Panel Shutters -Minimal Door and/or Window Surrounds -Decorative Vent details





CONTEMPORARY

The Contemporary style in East Ranch is deeply influenced by the mid-century modern architectural style occurring within California's Bay Area during the 1950s to 1960s . This Contemporary style emphasizes functional comfort design with open floor plans. This style is most recognizable by its use of shed roof, clean geometric lines, large glass windows and doors, and modern interpretations of detail elements.

	MINIMUM STANDARDS	ADDITIONAL ELEMENTS (A minimum of 2 elements should be selected from this column)
Roofs	-Low Pitched Shed Roof -40 Year Dimensional Composition Shingle Roofing -Broad Roof Overhangs -3:12 to 6:12 Pitch -12-18" Eaves -3" Rakes	-Varied Plate Heights -Exposed Rafters -Standing Seam Metal Roof
Exterior Finish	-Stucco (light to medium) Finish -Wood Veneer -Lap Siding -Asymmetrical Facade of Multiple Layers of Textures	-Board and Batten Accent Siding -Brick and/or Stone Veneer -Wood Trimmed Bay Windows
Windows and Doors	-Fixed Accent Windows -Large Glass Windows -Accent Painted Entry Doors	-Metal Sectional Garage Doors -Frosted Glass Garage Doors
Trim and Accents	-Geometric Lines -Simple Trim Details	-Accent Panels (Grooved or Smooth) -Steel Cable Wire Railing -Articulated and Expressive Joints





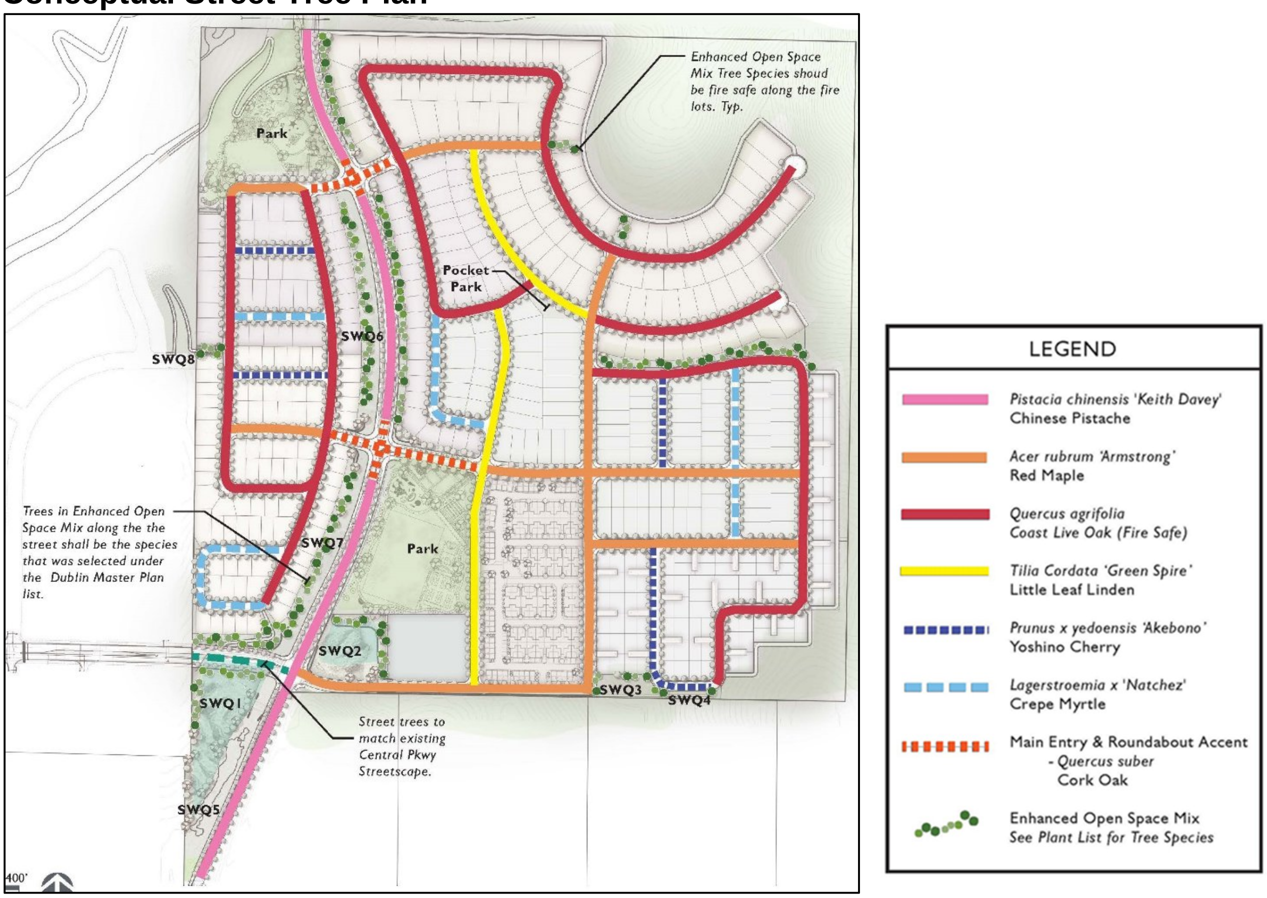
7. **Preliminary Landscaping Plan.** East Ranch emphasis is on getting outdoors and connecting with nature through the incorporation of neighborhood parks, pocket parks, multi-use trails,

restful overlooks and meandering footpaths that weave together the neighborhoods which culminate in a series of public and semi-public outdoor spaces. The landscape character defines the sense of place as refined yet rustic arcadian California. Materials and elements such as Mediterranean planting, low stone walls, a variety of fencing (good neighbor, split rail, view and open space), and rhythmic planting patterns will embellish an agrarian tone.

Basic Design Principles:

- The landscape design including the plant palette and design themes, shall be complimentary to the architecture in each neighborhood, unique to the neighborhood and also use design themes that tie the entire East Ranch community together.
- The streetscape and pathway network will provide recreation opportunity and reinforce a connection to nature.
- The community fencing and wall system will be designed to visually recede into the setting to the extent possible.
- Management of open space and maintenance of common areas will be an integral component of the landscape system.
- Plant material shall be consistent selected appropriately for location and microclimate. Provide a combination of evergreen, deciduous and flowering trees.
- Street trees shall be deciduous to demonstrate the seasons and patterns of nature. The street trees will be used to define the neighborhoods. Refer to conceptual tree plan below.

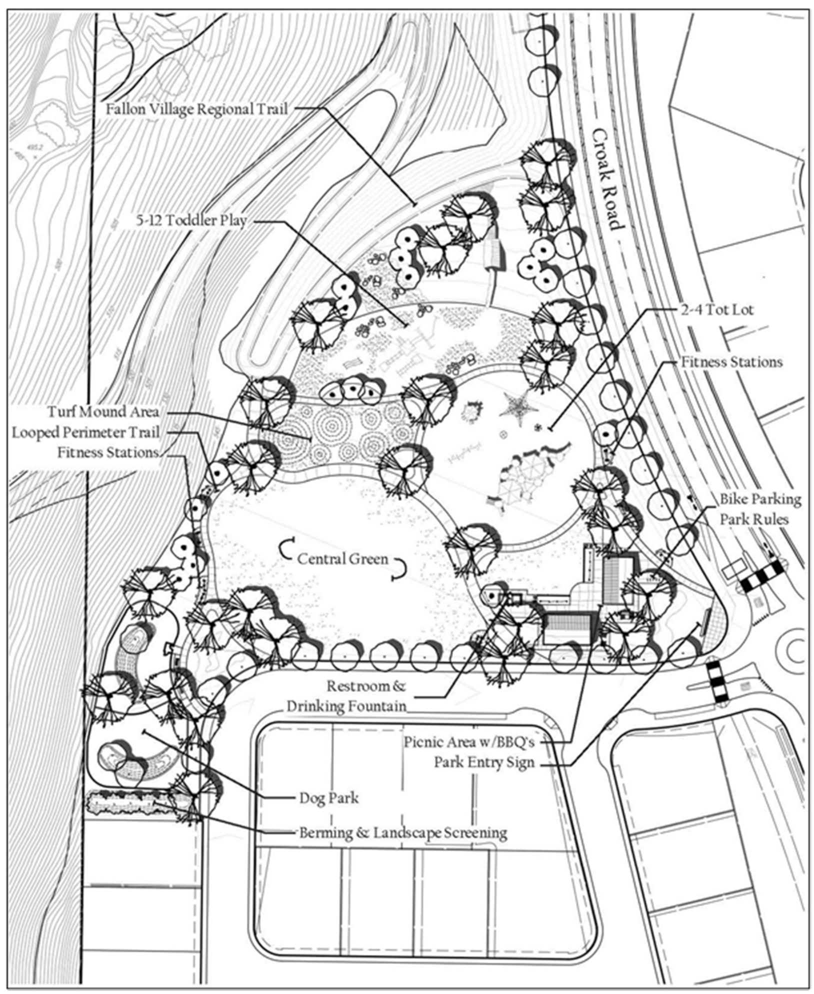
Conceptual Street Tree Plan



- The community is designed around four primary landscape features:

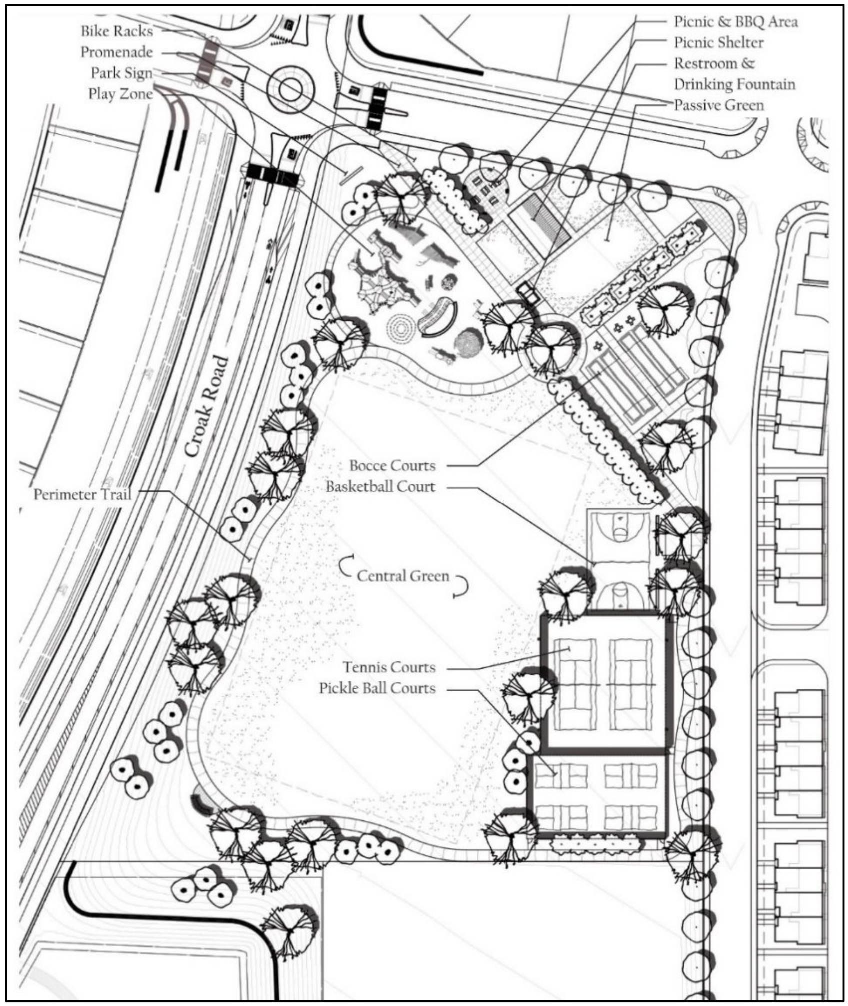
  - *The Main and Secondary Community Entries.* The Main Community Entry is the formal announcement of arrival to the East Ranch community. The Secondary Community Entries will be reminiscent of the Primary Entry overall character. They will be of a smaller scale but consist of similar materials and components.
  - *The Water Quality Bains.* The Water Quality Basins are a prominent feature at the arrival point to the community. The plant material found within will take on a mosaic effect that demonstrates the bloom and growth cycles of seasonal grasses in gentle patterns and large swaths. All plant material found within the basins shall conform with the Alameda County C.3 Stormwater Technical guidelines and requirements.
  - *The Main Spine (Croak Road).* The Main Spine of Croak Road connects the greater East Ranch community with its allee and greenbelt. The northern and southern parks bookend the community and are connected via this spine.
  - *Northern and Southern Parks*. East Ranch includes two neighborhood parks. The Northern and Southern Parks are recreation hubs for the East Ranch community and greater neighborhood. They anchor each end of the main spine along Croak Road and complete a central green corridor.

Northern Park:
Natural in its look and feel sitting just south of the riparian corridor, the Northern Park's proximity to the existing open space trail system is one of its most important features. The park completes the connection to Jordan Ranch and Positano neighborhoods and allows pedestrians from East Ranch a safe and easy way to access the greater Dublin trail network. The northern edge of the park has a fair amount of topography will remain natural and provide a gentle transition to the existing adjacent area. The more active areas of the park will include restrooms, tot lot and toddler play areas, BBQ area with shade structures and a fenced dog park with two separate areas for small and large dogs with their own respective entries. The overall park theming will take cues from the surrounding architecture of the community and is geared toward smaller groups, kids, and families. The following is a conceptual image of the Northern Park.

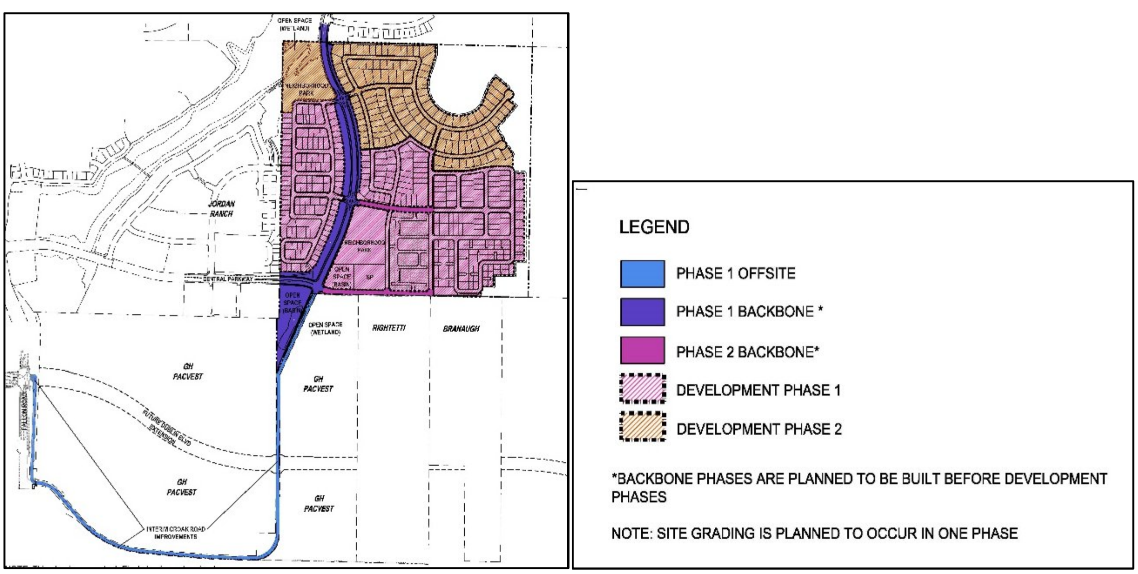


Southern Park:

The Southern Park serves as a gateway into the East Ranch community. Being centrally located and the open space anchor to the community, the programming for this park will include elements that appeal to a wide range of ages and mobilities. Those elements include a large central green space, perimeter trail system, basketball court, pickleball courts, tennis courts, bocce courts, tot lot and toddler play areas, picnic areas with shade structures and restrooms. The overall look of this open space area will work to solidify that rural agrarian character the community is built upon. The following is a conceptual image of the Southern Park.



8. **Phasing Plan.** The project is to be developed in two phases for the backbone streets and infrastructure and two phases for the development as shown the phasing plan below.



9. **Inclusionary Zoning Regulations.** The Project is subject to the Inclusionary Zoning Regulations (Chapter 8.68) for the provision of affordable housing as a residential development of 20 units or more. The City's Regulations also allow for exceptions commonly referred to as an "alternative method of compliance." These exceptions include the payment of fees in lieu of constructing affordable units, construction of off-site housing projects, land dedication, etc.

   The inclusionary housing requirement is 72 (71.6) units and will be satisfied as follows:

   - In-Lieu Fee: 35% (25 units) to be satisfied via payment of an "In-Lieu Fee" as provided by the City's fee schedule.
   - On-site Below Market Rate Units: 25% (18 units) to be satisfied by providing 18 "moderate" income zero-lot line single-family units dispersed throughout the various neighborhoods.
   - Land Contribution: 40% to be satisfied by dedicating two acres of stand-alone land (Public/Semi-Public parcel) to allow for future development of 77 units of affordable housing by an affordable housing developer.
   - On-site Accessory Dwelling Units/Second Units: 50 deed-restricted attached ADUs.

10. **Applicable Requirements of the Dublin Zoning Ordinance.** Except as specifically provided in this Stage 2 Development Plan or the Stage 1 Development Plan (Ordinance No. 32-05), the use, development, improvement and maintenance of the Property shall be governed by the provision of the Dublin Zoning Ordinance pursuant to 8.32.060C or its successor. The closest comparable zoning districts are as follows:

    R-1 Single Family Residential District for Neighborhoods 1-5
    R-M Multi-Family Residential District for Neighborhood 6

SECTION 5. POSTING OF ORDINANCE

The City Clerk of the City of Dublin shall cause this Ordinance to be posted in at least three public spaces in the City of Dublin in accordance with Section 36933 of the Government Code of the State of California.

SECTION 6. EFFECTIVE DATE

This Ordinance shall take effect 30 days following its adoption.

PASSED AND ADOPTED BY the City Council of the City of Dublin, on this ___ day of _______, by the following votes:

AYES:

NOES:

ABSENT:

ABSTAIN:

____

Mayor

ATTEST:

____
City Clerk

RESOLUTION NO. 21-08

A RESOLUTION OF THE PLANNING COMMISSION OF THE CITY OF DUBLIN

RECOMMENDING THAT THE CITY COUNCIL ADOPT AN ORDINANCE FINDING THE PROJECT EXEMPT FROM CEQA AND APPROVING A PLANNED DEVELOPMENT ZONING DISTRICT WITH RELATED STAGE 2 DEVELOPMENT PLAN, AND ADOPT A RESOLUTION APPROVING A VESTING TENTATIVE TRACT MAP NO. 8563 AND HERITAGE TREE REMOVAL PERMIT RELATED TO THE EAST RANCH PROJECT PLPA-2020-00068 (APNS 905-0002-001-01 AND 905-0002-002-00)

WHEREAS, the Applicant, Trumark Homes, LLC, proposes to develop a 573-unit residential project with six neighborhoods, two neighborhood parks totaling 11.5 acres, and a two-acre Public/Semi-Public site reserved for affordable housing located on Croak Road east of Fallon Road. Requested approvals include a Planned Development Stage 2 Development Plan, Vesting Tentative Tract Map No. 8563 and Heritage Tree Removal Permit. These planning and implementing actions are collectively known as the “East Ranch Project” or the “Project;” and

WHEREAS, the 165.5-acre Project site (APN 905 -0002-002-00 and 905 -0002-001-01) is located in eastern Dublin, directly east of the Jordan Ranch development and south of Positano development, straddling the existing Croak Road; and

WHEREAS, a Heritage Tree Removal Permit is required to remove four heritage trees (two coast live oaks, one river she-oak, and one cypress) necessary for the development of the Project; and

WHEREAS, the California Environmental Quality Act (CEQA), together with the CEQA Guidelines and City of Dublin CEQA Guidelines and Procedures require that certain projects be reviewed for environmental impacts and that environmental documents be prepared; and

WHEREAS, prior CEQA analysis for the Project area includes: 1) the Eastern Dublin General Plan Amendment and Specific Plan EIR (1993); 2) the East Dublin Properties Stage 1 Development Plan and Annexation Supplemental EIR (2002); and 3) the Fallon Village Supplemental EIR (2005). Collectively, these three environmental review documents are referred to as the “EDSP EIRs;”

WHEREAS, in compliance with CEQA, the City prepared a CEQA Analysis in Support of Specific Plan Exemption; and

WHEREAS, staff recommends the Project be found exempt from CEQA pursuant to Government Code Section 65457 and CEQA Guidelines Section 15182(c), which exempts residential projects that are consistent with a specific plan for which an EIR has been certified. The proposed Project is consistent with the EDSP EIRs and the General Plan and Eastern Dublin Specific Plan land use designations for the project site. The CEQA Analysis in Support of Specific Plan Exemption prepared for the Project determined that there is no part of the proposed Project that triggers the need to prepare a subsequent EIR or negative declaration pursuant to CEQA Guidelines Section 15162 or Public Resources Code section 21166. Therefore, the Project qualifies for a specific plan exemption and does not require subsequent environmental review or the preparation of an additional CEQA document (EIR or MND); and

WHEREAS, the Planning Commission held a properly noticed public hearing on the Project, on November 9, 2021, at which time all interested parties had the opportunity to be heard; and

WHEREAS, the Planning Commission considered all above-referenced reports, recommendations, and testimony to evaluate the Project.

NOW, THEREFORE, BE IT RESOLVED that the foregoing recitals are true and correct and made a part of this resolution.

BE IT FURTHER RESOLVED that the Planning Commission recommends that that the City Council find the project exempt from CEQA pursuant to Government Code Section 65457 and adopt an Ordinance, attached as **Exhibit A** and incorporated herein by reference, approving a Planned Development Zoning District and related Stage 2 Development Plan based on findings, as set forth in **Exhibit A**.

BE IT FURTHER RESOLVED that the Planning Commission recommends that the City Council approve the Resolution, attached as **Exhibit B** and incorporated herein by reference, approving Vesting Tentative Tract Map No. 8563 and a Heritage Tree Removal Permit, based on the findings and conditions of approval, as set forth in **Exhibit B**.

PASSED, APPROVED, AND ADOPTED this 9th day of November 2021 by the following vote:

AYES: **Dawn Benson, Catheryn Grier, Janine Thalblum,**

NOES: **Renata Tyler, Stephen Wright**

ABSENT:

ABSTAIN:

____
Planning Commission Chair

ATTEST:

____
Assistant Community Development Director

Agenda Item 6.1

STAFF REPORT
CITY COUNCIL

DATE: December 7, 2021

TO: Honorable Mayor and City Councilmembers

FROM: Linda Smith, City Manager

SUBJECT: East Ranch (PLPA-2020-00028)
Prepared by: Amy Million, Principal Planner

EXECUTIVE SUMMARY:

The City Council will consider a proposal to develop a 165.5-acre site with a 573-unit residential project consisting of six neighborhoods, two neighborhood parks totaling 11.5 acres, and a two-acre Public/Semi-Public site reserved for affordable housing located on Croak Road east of Fallon Road. The project site straddles existing Croak Road with Jordan Ranch to the west, Positano to the north and undeveloped land to the east and south with the Interstate 580 beyond. Requested approvals include a Planned Development Zoning Stage 2 Development Plan, Vesting Tentative Tract Map No. 8563 and a Heritage Tree Removal Permit. The City Council will also consider an exemption from the California Environmental Quality Act (CEQA).

STAFF RECOMMENDATION:

Conduct a public hearing, deliberate and take the following actions: a) find the project exempt from CEQA pursuant to Government Code Section 65457 and waive the reading and INTRODUCE an Ordinance Amending the Zoning Map and Approving a Planned Development Zoning District with a Stage 2 Development Plan and CEQA Findings for the East Ranch Project; and b) adopt the Resolution Approving Vesting Tentative Tract Map No. 8563 and a Heritage Tree Removal Permit Related to the East Ranch Project.

FINANCIAL IMPACT:

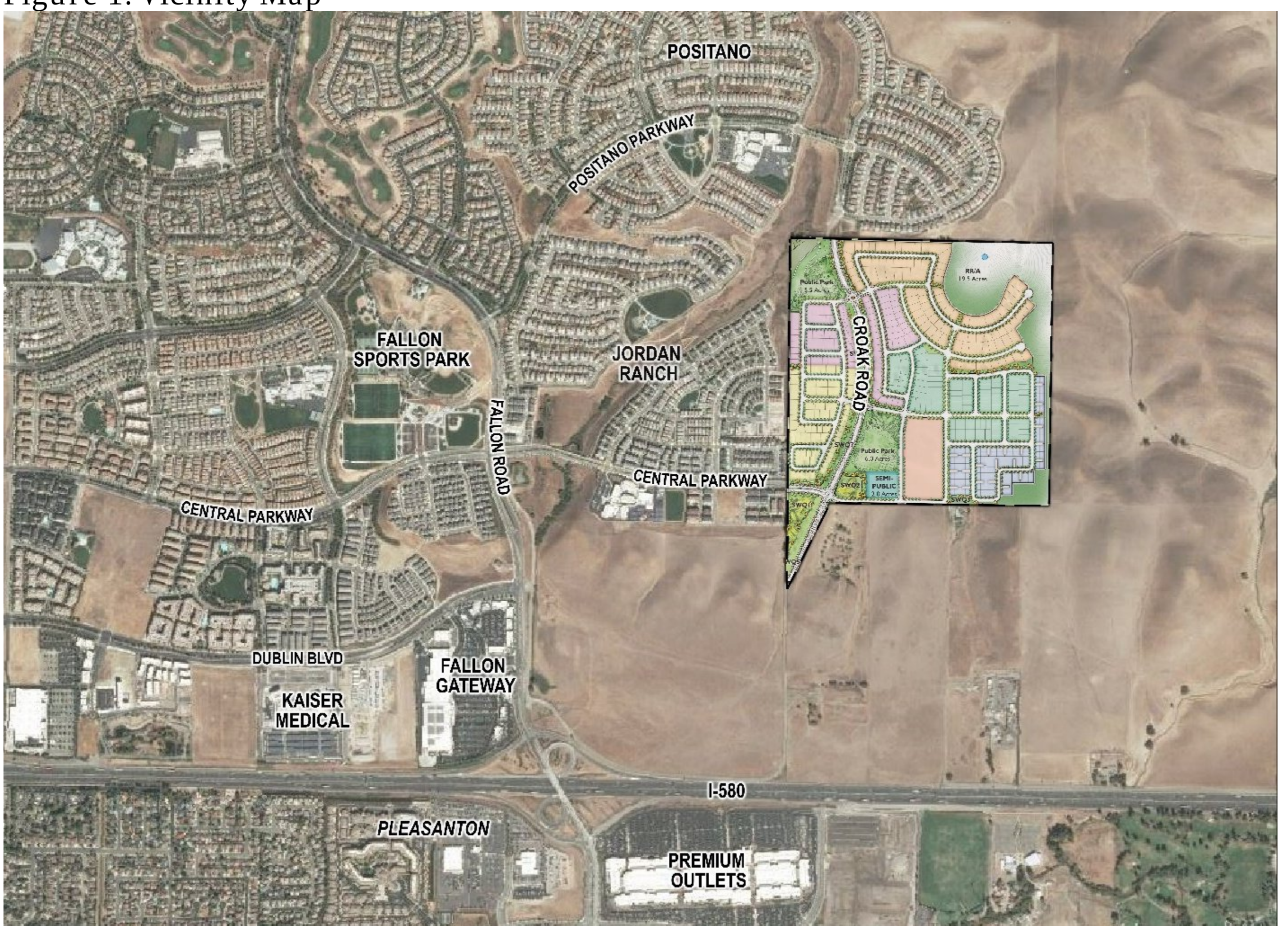
The costs associated with processing this request is borne by the Applicant. As part of the implementation of the project, a Community Facilities District (CFD) is proposed for the purpose of financing the maintenance, acquisition, and/or construction of public improvements on the property, including the two neighborhood parks. Condition of Approval No. 125 of the Vesting Tentative Tract Map (Attachment 2) lays out the formation of the CFD and states that if a CFD for maintenance is not formed, the City and Applicant will work together to establish a maintenance mechanism for neighborhood streets on the property (excluding the two public streets Croak Road and Central Parkway) for 20 years after City acceptance.

In addition, as stated within the report, the Applicant's inclusionary housing proposal includes the payment of in-lieu fees for 25 units (to satisfy 35% of the affordable requirement). Based on the current in-lieu fee of $217.696/unit (the in-lieu fee is calculated at the timing of building permit issuance and adjusted annually on July 1 for CPI), this payment would currently be $5,442,400.

DESCRIPTION:

The 165.5-acre East Ranch project site (formerly referred to as the Croak Property) is an undeveloped parcel located within the Fallon Village area of the Eastern Dublin Specific Plan (EDSP). The site is located north of Interstate 580, east of Fallon Road and the Jordan Ranch development, south of the Positano development, and adjacent to the City's eastern city limit as shown in Figure 1 below. The undeveloped site generally increases in elevation from south to north with large background hills in the northeast portion of the property.

Figure 1. Vicinity Map



<u>Background</u>

On January 7, 1994, the City Council adopted a General Plan Amendment and EDSP, which provides a comprehensive land use program for the planning area of roughly 3,300 acres, along with goals and policies to guide future public and private actions relating to the area's development.

On December 20, 2005, the City Council adopted a General Plan and EDSP Amendment for the Fallon Village area, which includes the East Ranch property. Related actions included adopting a Planned Development (PD) zoning district with a Stage 1 Development Plan (Ordinance No. 32-05) to establish regulations for the allowed land uses associated with development, improvement, and maintenance of the project area. The General Plan and EDSP assigned land use designations, as amended, for the East Ranch site are shown in Table 1 below. Development was generally assumed at the mid-point density for a total of 573 residential units.

Table 1. Existing Land Use Designations

Land Use Designation	Acres	Allowed Density Range	Allowed Unit Range	Assumed Density	Assumed # of Units
Single-Family Residential	115.4	0.9-6.0	10-692 units	4 du/acre	469
Medium Density Residential	10.4	6.1-14	62-146 units	10 du/acre	104
Rural Residential/Agricultural	19.4	0.01-0.8	--	--	--
Neighborhood Park	11.5	--	--	--	--
Public/Semi-Public	2	--	--	--	--
Open Space	6.8	--	--	--	--
Total	165.5	--	--	--	573

On December 2, 2008, the City Council amended the Stage 1 Development Plan (Ordinance No. 45-08) to establish development standards for private yards within the Medium Density Residential land use designation of the Fallon Village area. Standards require that at least 50% of the Medium Density units include private yards that meet the following minimum standards: a) minimum 400 square feet of contiguous private, flat yard area; b) minimum dimension of 18 feet by 18 feet; and c) include privacy fencing. Additionally, common areas shall be provided for units that do not have a private yard meeting the minimum standards.

On October 15, 2019, City Council held a Study Session and received a presentation on a Pre-Application submitted by Trumark Homes for the East Ranch project. The proposal included development of 573 residential units, including approximately 261 age-qualified units, two parks totaling 11.5 acres, and a two-acre Semi-Public site on 165.5 acres. The age restricted portion of the project was proposed for individuals of 55 years or older. Three home types were proposed, including 96 triplexes, 100 park court style single-family homes, and 65 single-family homes on standard lots.

On May 4, 2021, City Council held a second Study Session on the East Ranch project. The Study Session included a presentation on the proposed project, which had been refined, and feedback on the overall project, location of proposed parks, and the applicant’s proposal to satisfy the requirements of the Inclusionary Zoning Regulations.

On July 20, 2021, the City Council approved a General Plan and EDSP Amendment to change the land use designation of a portion of the GH PacVest and East Ranch properties from Semi-Public to

Public/Semi-Public to allow a broader range of uses, including the potential for affordable housing developed by a non-profit entity. In addition, the City Council adopted Ordinance No. 05-21, amending the Stage 1 Development Plan pertaining to the Public/Semi-Public sites on the GH PacVest and East Ranch properties.

Current Project

The proposed project includes 573 residential units in six neighborhoods, two public parks with one 5.5-acre park at the northwest corner of the site and one 6.0-acre park near the project's main entry east of Croak Road and north of Central Parkway, a two-acre Public/Semi-Public site that would be reserved for affordable housing, and 6.8 acres of open space (refer to Figure 2). The requested approvals include a Planned Development Zoning Stage 2 Development Plan, a Vesting Tentative Tract Map to subdivide the property, and a Heritage Tree Removal Permit.

Figure 2. Proposed Illustrative Site Plan

Planned Development Zoning

The application includes a Planned Development Zoning Stage 2 Development Plan. The Stage 2 Development Plan builds off the exiting Stage 1 Development Plan (Ordinance No. 32-05), which established the specific uses that are permitted by right, conditionally permitted, and prohibited as well as the overall development density and intensity.

The Stage 2 Development Plan focuses on the details and establishes the development standards and guidelines for East Ranch. The proposed Stage 2 Development Plan includes a site plan, development regulations (including density, setbacks, height, parking, etc.), architectural and landscape standards, a phasing plan, inclusionary housing requirements and a site plan for 573 residential units in six distinct neighborhoods. An overview of the Stage 2 Development Plan is provided below.

A Site Development Review Permit will be required prior to development of each neighborhood and would be subject to Planning Commission approval. Detailed design and elevation drawings would be provided at that time.

Stage 2 Site Plan and Circulation

The Stage 2 Site Plan for the East Ranch project as shown in Figure 2 above, provides the general location and layout the six neighborhoods, two public parks, the two-acre Public/Semi-Public site as well as the open space.

The Stage 2 Site Plan also shows the location and layout of streets including the completion of the public street connections planned as part of Fallon Village. The project includes improvements and widening of Croak Road that would complete the connection from the Positano neighborhood to the north to Central Parkway and would eventually be improved further south to connect with the future Dublin Boulevard extension. In the ultimate configuration, Croak Road will intersect the future Dublin Boulevard extension and provide primary access to East Ranch from the south. In the interim, until the Dublin Boulevard extension is constructed, proposed Croak Road improvements would connect Positano Parkway to Central Parkway. South of the project site, Croak Road would be improved and widened to provide interim access from the project site to the existing Fallon Road intersection. During this interim condition, primary access to East Ranch would come from the west, via Central Parkway, or from the north, via Positano Parkway.

In addition, the project would extend Central Parkway into the project and provide access to future development of the GH PacVest, Righetti, and Branaugh properties to the south. Both the Croak Road and Central Parkway extensions would be improved to their ultimate configuration within the project site. Primary access into the East Ranch neighborhoods and parks would be from Croak Road north of Central Parkway. In addition, the project proposes to optimize the signal timing at the intersection of Central Parkway and Sunset View Drive to improve existing traffic operations near Cottonwood Creek School, particularly during peak periods. These street improvements are further detailed in the Vesting Tentative Tract Map, Attachment 3.

Density

Project density would range from 3.4 to 9.6 dwelling units per acre. Single-family residential units are proposed within five neighborhoods totaling 473 residential units. Although the specific design of these homes is not proposed at this time, the Stage 2 Development Plan conceptual architecture includes a combination of one- and two-story homes, a variety of colors and materials, and a minimum two-car garage. With the single-family neighborhoods, the affordable housing units are proposed to be dispersed through neighborhoods 1, 2, 3 and 5. These units are proposed as zero lot line single-family homes and would be detached on three sides and share a side lot line on one side. Table 2 provides a summary of the unit breakdown and minimum lot size in each of the five single-family neighborhoods.

Table 2. Summary of Single-Family Neighborhoods

Neighborhood	No. of Conventional Single-Family Units	No. of Zero Lot Line Single-Family Affordable Units	Total No. of Units	Minimum Lot Size[1]
1	99	2	101	6,500 SF
2	96	2	98	5,225 SF
3	85	6	91	5,500 SF
4	85	0	85	3,960 SF
5	94	4	98	3,360 SF
TOTAL	459	14	473	

[1] Minimum lot size does not include the 14 zero lot line affordable units

For the sixth neighborhood, the Applicant proposes to develop 100 Medium-Density residential units. There are two options for development of this neighborhood: 1) Rowhomes; and 2) Rowhomes with a private yard. For either option, the neighborhood would be composed of a combination of two- and three-story townhomes. Similar to the single-family neighborhoods, the affordable housing units would be dispersed through the neighborhood.

Site and Development Standards
Development standards are proposed to create six distinct neighborhoods supporting homes of various sizes and styles. The size of the single-family lots would range from 2,500 to 6,500 square feet. Building off the existing Stage 1 Development Plan, the single-family homes would be a mix of one- and two-story buildings with a maximum height of 35 feet. The townhomes would be a combination of two- and three-story buildings with a maximum height of 45 feet. A minimum of two covered parking spaces and one guest parking space are required for every unit in the project area. A complete list of all development standards is included in the proposed Planned Development Ordinance (Attachment 1).

Architectural and Landscape Standards
The architectural and landscape standards provided in the Stage 2 Development Plan provide the framework for the future Site Development Review Permits. The architecture of the development within East Ranch is characterized by high-quality design that promote both visual compatibility and variety. The architectural standards are organized into two sections: Architectural Components and Architectural Styles. These standards express desired design character, which in combination with the Preliminary Landscape Plan, conveys the overall East Ranch agrarian character and provides a pedestrian friendly community of neighborhoods.

The architectural styles of East Ranch draw from the project site's agrarian setting of the rolling hills and its relationship to the surrounding area and existing residential neighborhoods. There are four architectural styles proposed and include a mixture of traditional and contemporary styles offering variation, under the Agrarian and California style umbrella, to create interesting streetscapes. According the Applicant, the four architectural styles are described as follows:

1. Traditional Farmhouse. This is the rootstock for many East Ranch neighborhoods, giving

itself over to a range of interpretations, hybrids and variations. At its simplest, it is defined by understated detail, utilitarian functionality and practical charm that reflect a back-to-nature lifestyle. Traditional Farmhouse homes are typically simple in massing, often with covered porches and gabled roofs, wood columns and posts.

2. Modern Farmhouse. An evolutionary iteration of the traditional farmhouse, this style builds on the cornerstones of comfort and practicality with a modern lifestyle twist. Massing and forms are more asymmetrical. Contemporary and traditional materials invent new harmonies and corrugated roofing, stone veneer and vertical board and batten siding, giving distinction and variety to the neighborhood.
3. California Revival. Like pages in California history, California Revival homes are a compilation of Ranch and Prairie styles that create a connection between interiors and exteriors. These homes are meant to blend with the landscape, with natural colors, simple, subtle design and elegant relationships between indoor and outdoor living areas. California Revival uses elements such as overhanging eaves, wide front porches framed by tapered columns and pop-up second floors. Stone, wood and stucco eclecticism, set in organic surroundings, deepen individual character.
4. Contemporary. Contemporary architecture shook-up the California style scene for decades in the mid-1900s and is returning with the high desire for single-story living with a strong connection to nature. As the need for large homes is replaced with the need for sunlight and breeze, New-Century Modern architecture will reintroduce clerestory windows, open-beam ceilings, and indoor/outdoor courtyards and atriums.

The landscape standards are proposed to complement and enhance the architecture through the development. The emphasis for East Ranch is getting outdoors and connecting with nature through the incorporation of neighborhood parks, pocket parks, multi-use trails, restful overlooks and meandering footpaths that weave together the neighborhoods which culminate in a series of public and semi-public outdoor spaces. The landscape character defines the sense of place as refined yet rustic arcadian California. Materials and elements such as Mediterranean planting, low stone walls, a variety of fencing (good neighbor, split rail, view and open space), and rhythmic planting patterns would embellish an agrarian tone.

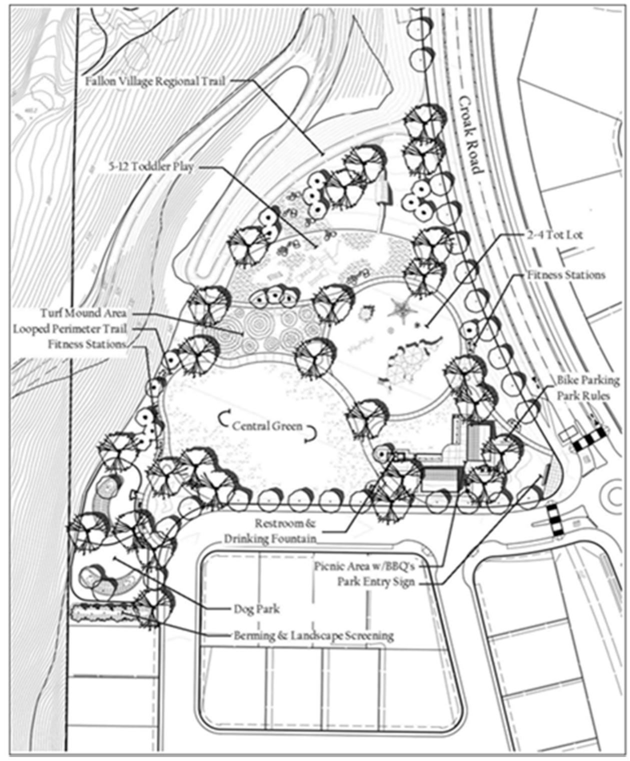
Examples of the architectural styles and the preliminary landscape plan are included in the proposed Planned Development Ordinance (Attachment 1).

Neighborhood Parks

East Ranch includes two neighborhood parks. The Northern and Southern Parks are recreation hubs for the East Ranch Community and greater neighborhood. They anchor each end of the main spine along Croak Road and complete a central green corridor. The following provides an overview of the conceptual designs for the Stage 2 Development Plan. The final designs are subject to the City's park planning and community input process.

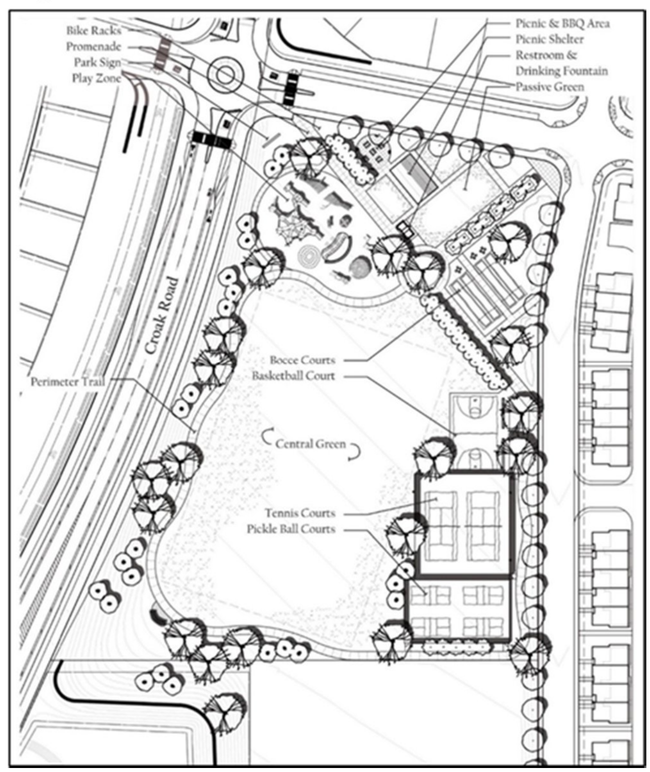
Northern Park: Natural in its look and feel sitting just south of the riparian corridor, the Northern Park's proximity to the existing open space trail system is one of its most important features. The park completes the connection to Jordan Ranch and Positano neighborhoods and allows pedestrians from East Ranch a safe and easy way to access the greater Dublin trail network. The northern edge of the park has a fair amount of topography. The area would remain natural and provide a gentle transition to the existing adjacent area. The more active areas of the park would include restrooms, tot lot and toddler play areas, BBQ area with shade structures and a fenced dog park with two separate areas for small and large dogs with their own respective entries. The overall park theming will take cues from the surrounding architecture of the community and is geared toward smaller groups, kids, and families. Figure 3 provides a conceptual image of the Northern Park.

Figure 3. Northern Park



Southern Park: The Southern Park serves as a gateway into East Ranch. Being centrally located and the open space anchor to the community, the programming for this park would include elements that appeal to a wide range of ages and mobilities. Those elements include a large central green space, perimeter trail system, basketball court, pickleball courts, tennis courts, bocce courts, tot lot and toddler play areas, picnic areas with shade structures and restrooms. The overall look of this open space area would work to solidify that rural agrarian character the community is built upon. Figure 4 provides a conceptual image of the Southern Park.

Figure 4. Southern Park



Permitted, Conditional and Temporary Land Uses
The Stage 1 Development Plan (Ordinance No. 32-05 as amended by Ordinance No. 05-21) established the permitted, conditional and temporary land uses allowed within Fallon Village, including the East Ranch site. The permitted and conditionally permitted uses vary between the different land use designations. Temporary uses are allowed as stated in the Zoning Ordinance. An overview of the types of uses for each land use designation is provided in Table 3 below. This is

not an exhaustive list but provides context as to the types of uses envisioned for Fallon Village. No changes to the existing allowable uses are proposed as part of the East Ranch project.

Table 3. Overview of Allowed Uses

Land Use Designation	Permitted Land Uses	Conditionally Permitted Land Uses
Single-Family Residential	Single Family Dwelling Accessory Dwelling Unit Accessory Structures/Uses Home Occupation Community Care Facility (small) Small/Large Day Care Home	Ambulance Service Bed and Breakfast Inn Boarding House Community Facility Day Care Center Plant Nursery Semi-Public Facilities
Medium Density Residential	Single Family Dwelling Accessory Dwelling Unit Accessory Structures/Uses Multi-Family Dwelling Home Occupation Small/Large Day Care Home	Bed and Breakfast Inn Boarding House Community Care Facility Day Care Center Semi-Public Facilities
Rural Residential/Agricultural	Agricultural Accessory Use – Office Animal Keeping – Residential Drainage and Water Quality Pools Single Family Dwelling Small/Large Day Care Home Stormwater Detention Ponds	Agricultural Housing Agricultural Processing Animal Keeping Agricultural Animal Keeping Commercial Horse Keeping Plan Nursery Recreational Facility-Outdoor
Neighborhood Park	Community Park Neighborhood Park Recreational and Educational Facility Trail Staging Area	
Public/Semi-Public	Public Schools Libraries Fire Stations Special Needs Program Facilities Community Centers Hospitals Housing developed by a non-profit entity (affordable housing)	
Open Space	Conservation Areas Drainage and Water Quality Pools Private or Public Infrastructure Resource Management Stormwater Detention Ponds Trails and Maintenance Roads	

Inclusionary Zoning

The City's Inclusionary Zoning Regulations (DMC Chapter 8.68) require all new residential projects of 20 units or more to construct 12.5% of the total number of units as affordable units or satisfy the requirement through exceptions or alternatives approved by the City Council. The units shall reflect the range of numbers of bedrooms provided in the project as a whole but may be smaller in size. The exceptions and alternatives allowed by the Inclusionary Zoning Regulations include the following: a) payment of fees in-lieu of constructing up to 40% of the units; b) off-site projects; c) land dedications; d) credit transfers; and e) waiver of requirements or alternative methods of compliance as approved by the City Council.

The City recently approved a General Plan Amendment (Resolution No. 85-21) to change the existing land use designation of two sites, including the two-acre site on the East Ranch property, from Semi-Public to Public/Semi-Public to allow a broader range of uses, including the potential for affordable housing developed by a non-profit entity. The new General Plan land use designation of the two sites increases the availability of land for affordable housing, contributing to the City's ability to meet its Regional Housing Needs Allocation (RHNA).

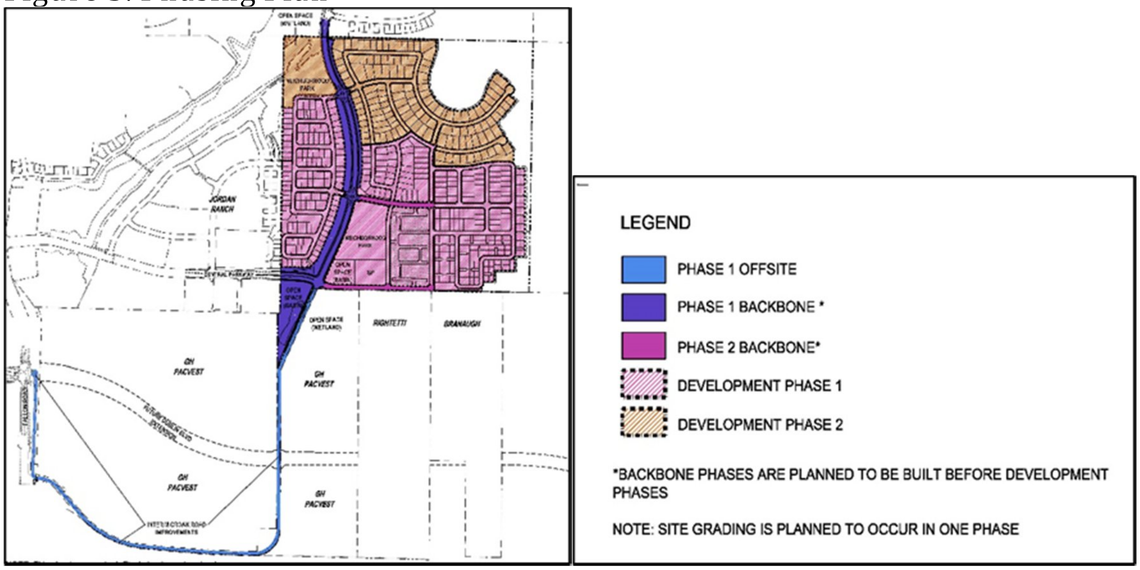
The proposed East Ranch project generates a requirement to provide 72 affordable units. The Applicant is proposing an alternative method of meeting this requirement as follows:

- Construction of 18 moderate income units reasonably dispersed throughout the various neighborhoods (to satisfy 25% of affordable requirement);
- Payment of in-lieu fees for 25 units (to satisfy 35% of the affordable requirement). Based on the current in-lieu fee of $217,696/unit (the in-lieu fee is calculated at the timing of building permit issuance and adjusted annually on July 1 for CPI) this payment would currently be $5,442,400;
- Dedication of the two-acre Public/Semi-Public site for a future affordable housing project. Preliminarily, this site would provide 77 units of very low/low-income affordable rental housing (to satisfy 40% of the affordable requirement); and
- Construction of 50 deed restricted accessory dwelling units affordable to low-income households.

Staff is supportive of the applicant's proposed alternative method. Staff believes that the proposed project will deliver superior affordable housing when contrasted with the type of affordable housing than would be provided if the project were fully compliant with the Inclusionary Zoning Regulations.

Project Phasing
The initial mass grading for the site is planned to occur in one phase. The project would be developed in two phases for the backbone streets and infrastructure and two phases for the development. Figure 5 below shows the phasing plan.

Figure 5. Phasing Plan



An Ordinance approving the proposed Planned Development Rezoning with a Stage 2 Development Plan is included as Attachment 1 to this staff report.

Vesting Tentative Tract Map

The application includes a request for Vesting Tentative Tract Map (VTTM) No. 8563 to create the individual development parcels, identify those areas that would be reserved as parks (such as the two neighborhood parks), open and/or common space, easements to provide access through the project site, preliminary grading, drainage, stormwater management and utilities. As stated in *Stage 2 Site Plan and Circulation* above, the project includes the completion of public street connections planned as part of Fallon Village. The VTTM defines the right-of-way improvements for Croak Road and Central Parkway as well as all the smaller internal streets.

Project implementation includes the proposal for a Community Facilities District (CFD) for the purpose of financing the maintenance, acquisition, and/or construction of public improvements on the property, including the two neighborhood parks. Condition of Approval No. 125 of the VTTM (Attachment 2) lays out the formation of the CFD and states that if a CFD for maintenance is not formed, the City and Applicant will work together to establish a maintenance mechanism for neighborhood streets on the property (excluding the two public streets Croak Road and Central Parkway) for 20 years after City acceptance.

Heritage Tree Removal Permit

The City encourages the preservation of heritage trees through its development review and permit approval process. DMC Chapter 5.60 “Heritage Trees” defines a heritage tree as any oak, bay, cypress, maple, redwood, buckeye and sycamore tree having a trunk or main stem of twenty-four (24) inches or more in diameter at four (4) feet six (6) inches above natural grade. The project includes a request for a Heritage Tree Removal Permit to remove four heritage trees (two coast live oaks, one river she-oak, and one cypress). The Applicant submitted an arborist report prepared by Live Oak Associates, attached to this report as Attachment 5. The heritage tree summary provided in the arborist report incorrectly states on page 9 that only three of the trees proposed for removal are heritage trees. As identified in Appendix A of the arborist report, there are four trees that meet the City's "heritage tree" definition. The four trees (designated as #222, #477, #488 and #516) are located near Croak Road and are highlighted in Figure 2a of the report.

In deciding whether to issue a Heritage Tree Removal Permit, the decision shall be based on the following criteria:

1. The condition of the tree or trees with respect to health, imminent danger of falling, proximity to existing or proposed structures and interference with utility services or public works projects;
2. The necessity to remove the tree or trees for reasonable development of the property;
3. The topography of the land and the effect of the removal of the tree on erosion, soil retention and diversion or increased flow of stream waters;
4. The number of trees existing in the neighborhood and the effect the removal would have upon shade, privacy impact, scenic beauty and the general welfare of the city as a whole.

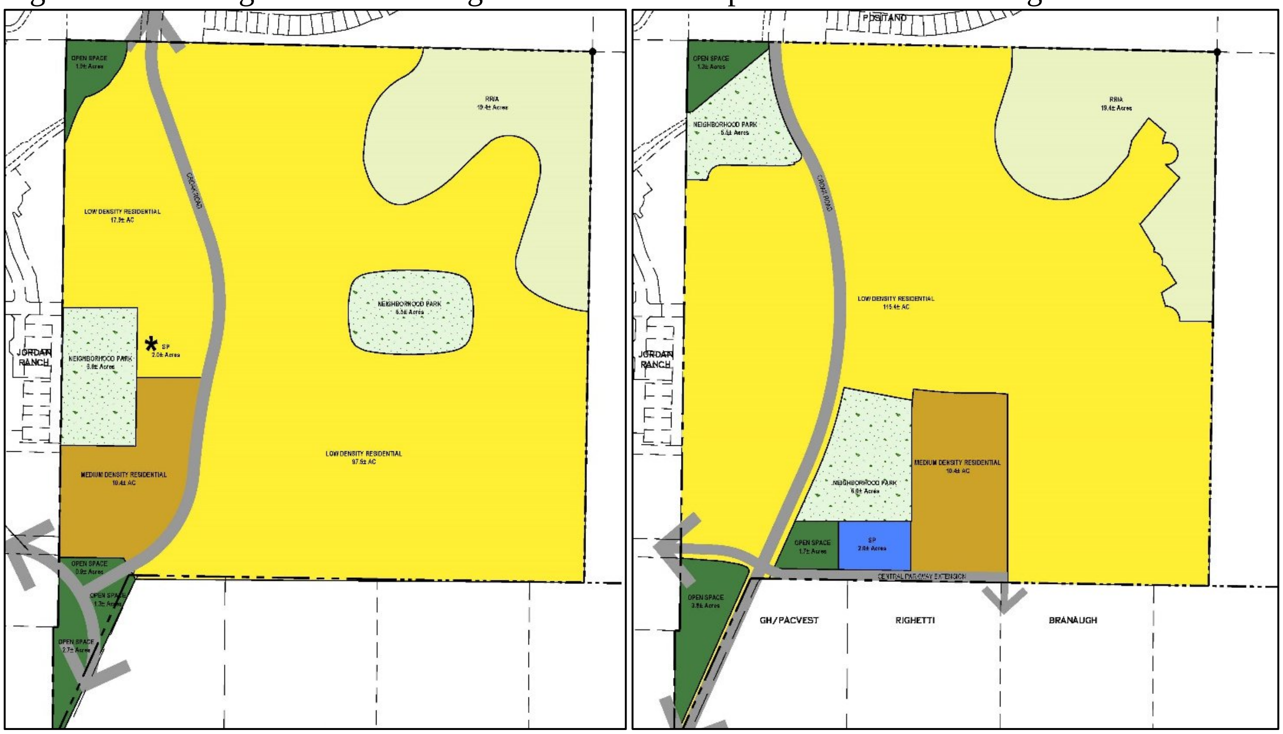
The trees were identified in the arborist report as being in "fair" or "good" condition, which means they have healthy foliage and minor or no defects. The East Ranch site generally slopes from the northeast corner to Croak Road and Central Parkway intersection. The grading proposed for the project takes into consideration the hilly terrain, which includes a 50-foot grade change on the south end of the project site. Staff believes that the removal of the heritage trees is necessary due to the required grading in order to create stable developable land, as well as the stormwater treatment area in the southwest corner of the project site. It is also in accordance with the General Plan, Eastern Dublin Specific Plan, and Stage 1 zoning. The proposed Planned Development Rezone Stage 2 Development Plan for the East Ranch project includes a preliminary landscape plan and a conceptual street tree plan creating a foundation for the landscape plan in the Site Development Review Permit. According to the Applicant, the landscape plan will include approximately 1,500 trees in addition to other low-lying plant material.

A Resolution approving the VTTM and a Heritage Tree Permit for the proposed project is included at Attachment 2 to this report with the VTTM included as Attachment 3.

<u>Consistency with General Plan, Eastern Dublin Specific Plan and Zoning Ordinance</u>
The project is consistent with the General Plan and EDSP land use designations of Single-Family Residential, Medium Density Residential, Rural Residential/Agricultural, Neighborhood Park, Public/Semi-Public, and Open Space, and consistent Planned Development Zoning. Section 1.8 of the General Plan states: "the Dublin General Plan Land Use Map identifies the location of land uses…Minor deviations in roadway alignments or open space configurations should not be considered inconsistent with the General Plan." Section 4.2 of the EDSP states that: "Due to the scale of the map, the location of road alignments and land use boundaries in Figure 4.1 are approximate. This generalized depiction of the planning area will require some flexibility when interpreting the plan. Minor adjustments to road alignments and boundaries may be necessary when individual applications for development are submitted." The project's proposed land use configurations include minor adjustments to roadway alignments, open space configurations, and boundaries, consistent with the General Plan and EDSP. Specifically, the location of the Medium Density Residential site has been shifted east, the two Neighborhood Parks have been shifted

adjacent to Croak Road to the northern and southern areas of the property, a portion of the Open Space designation shifted east of Croak Road and the location of the Public/Semi-Public parcel is designated. However, as shown in Table 1 above, the gross acres for each designation remains the same.

Figure 6. Existing Land Use Designation Proposed Land Use Designations



Project's Relationship to State Housing Laws and Policy.

The applicant has designed the project under state housing laws to limit the City's discretion on the project. The Housing Accountability Act (Government Code section 65589.5), the Housing Crisis Act of 2019 (Senate Bill 330), and various other state laws prevent or restrict the ability to deny projects that are consistent with applicable, objective standards in effect at a time when the application is deemed complete. The project is designed to be consistent with the applicable General Plan and Specific Plan designations, the applicable zoning regulations, and other policies, as a means of limiting the City's discretion. The one clear area where the City Council has significant discretion is on whether or not to approve the applicant's proposed alternative method of complying with the Inclusionary Zoning Regulations.

Despite the limits on the City's discretion, the applicant has agreed to a number of items that are not required by existing City policy. For example, the applicant has agreed to a condition of approval that will require the formation of a CFD to pay for infrastructure maintenance. In addition, the applicant proposes a voluntary $300,000 community benefit payment to the City specifically to assist with signage in the Downtown area.

ENVIRONMENTAL REVIEW:

Government Code Section 65457 and California Environmental Quality Act (CEQA) Guidelines Section 15182(c) exempts certain residential projects that are consistent with a specific plan for which an environmental impact report (EIR) has been certified from further environmental review. Prior CEQA analysis for the project area includes: 1) the Eastern Dublin General Plan Amendment and Specific Plan EIR (1993); 2) the East Dublin Properties Stage 1 Development Plan and Annexation Supplemental EIR (2002); and 3) the Fallon Village Supplemental EIR (2005). Collectively, these three documents are referred to as the "EDSP EIRs."

Pursuant to the requirements of the CEQA, the City has determined that the proposed project qualifies for an exemption under Government Code Section 65457 and CEQA Guidelines Section 15182(c). The proposed project is consistent with the EDSP EIRs and the General Plan and EDSP land use designations for the project site. There is no part of the proposed project that triggers the need to prepare a subsequent EIR or negative declaration pursuant to CEQA Guidelines Section 15162 or Public Resources Code section 21166. Therefore, the project qualifies for a specific plan exemption and does not require subsequent environmental review or the preparation of an additional CEQA document (EIR or MND). The CEQA Analysis in Support of Specific Plan Exemption is included as Attachment 6 to this staff report with all appendices included as Attachments 7-14.

PLANNING COMMISSION REVIEW:

On November 9, 2021, the Planning Commission held a public hearing to consider the proposed project and make a recommendation to the City Council.

As part of the public hearing, 11 members of the public provided comments regarding the project. The public expressed support for the inclusionary housing proposal and more specifically development of the two-acre Public/Semi-Public site for affordable housing. They also expressed concern regarding the biological impacts to the existing wildlife associated with the development, potential insufficient water supply, public safety's ability to serve this new community, reliance on the previous environmental impact report and the project's proximity to the Livermore Airport.

The Commission asked various questions and made comments regarding lot size and increasing the proposed density to accommodate more moderate- and low-income residents, the zero-lot line single-family homes blending in with the neighborhood, heritage tree removal and the proposed grading, fire safety and access, the inclusionary housing proposal and the use of in lieu fees, pedestrian paths and safe school access connections, the lack of attendance at the first community outreach meeting, and water allocation to ensure it is a viable project.

The Planning Commission adopted Resolution No. 21-08 recommending approval of the project by a 3-2 vote (refer to Attachment 4). The votes not in support of the project were based on the lack of variety of housing for lower income residents and need for additional detail and information to make a recommendation to the City Council.

STRATEGIC PLAN INITIATIVE:

None.

NOTICING REQUIREMENTS/PUBLIC OUTREACH:

Two City-led Community Meetings were held on September 8 and 9, 2021, to provide Dublin residents with information about the proposed East Ranch project. No residents attended the meeting on September 8. Six residents attended the meeting on September 9 along with members of the applicant team. Staff provided a presentation that included an overview of the new Community Meeting concept, the City's development review process, and the proposed project. Questions were asked about the affordable housing proposal and support for providing all the affordable housing units within project area.

In accordance with State law, a public notice was mailed to all property owners and occupants within 300 feet of the proposed project to advertise the project and the upcoming public hearing. A public notice also was published in the *East Bay Times* and posted at several locations throughout the City. The project was also included on the City's development projects webpage. A copy of this Staff Report has been provided to the Applicant.

ATTACHMENTS:

1) Ordinance Amending the Zoning Map and Approving a Planned Development Zoning District with a Stage 2 Development Plan and CEQA Findings for the East Ranch Project
2) Resolution Approving Vesting Tentative Tract Map No. 8563 and a Heritage Tree Removal Permit Related to the East Ranch Project
3) Exhibit A to Attachment 2 Vesting Tentative Tract Map
4) Planning Commission Resolution No. 21-08
5) Arborist Report
6) CEQA Analysis in Support of Specific Plan Exemption
7) Appendix A to CEQA Analysis – Biological Resources Assessment
8) Appendix B to CEQA Analysis – Preliminary Aquatic Resources Delineation Report
9) Appendix C to CEQA Analysis – Archeological and Historical Resources Survey Report
10) Appendix D-1 to CEQA Analysis – Due Diligence Level Geographical Investigation
11) Appendix D-2 to CEQA Analysis – Geotechnical and Geologic Review
12) Appendix E to CEQA Analysis – Phase 1 Environmental Site Assessment
13) Appendix F to CEQA Analysis – Stormwater Quality and Hydromodification
14) Appendix G to CEQA Analysis – Transportation Impact Analysis
15) Public Comment

Attachment 2

ORDINANCE NO. xx – 21

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF DUBLIN

* * * * * * * * * * * * * *

AMENDING THE ZONING MAP AND APPROVING A PLANNED DEVELOPMENT ZONING DISTRICT WITH RELATED STAGE 2 DEVELOPMENT PLAN AND CEQA FINDINGS FOR THE EAST RANCH PROJECT PLPA 2020-00028 (APNs 905-0002-001-01 and 905-0002-002-00)

The Dublin City Council does ordain as follows:

<u>SECTION 1</u>. <u>RECITALS</u>

A. The East Ranch Project site is located in the Fallon Village Project area. Through Ordinance No. 32-05, the City Council adopted a Stage 1 Planned Development Rezone Amendment for the Fallon Village Project area which, among other approvals, established the maximum number of residential units at 3,108 units.

B. The Applicant, Trumark Homes, is requesting a Planned Development Zoning Stage 2 Development Plan. The proposed Project includes up to 573 residential units, two public parks with one 5.5-acre park at the northwest corner and one 6.0-acre park south of the project's main entry, a 2.0-acre Public/Semi-Public site and 6.6 acres of open space. Requested land use approvals include Planned Development Zoning Stage 2 Development Plan, Vesting Tentative Tract Map No. 8563, and a Heritage Tree Removal Permit among other related actions. These planning and implementing actions are collectively known as the "East Ranch Project" or the "Project."

C. The 165.5-acre Project site (APN 905 -0002-002-00 and 905 -0002-001-01) is located in eastern Dublin, directly east of the Jordan Ranch development and south of Positano development, straddling the existing Croak Road.

D. To comply with the California Environmental Quality Act (CEQA), together with the CEQA Guidelines and City of Dublin CEQA Guidelines and Procedures, the City prepared a CEQA Analysis in Support of a Specific Plan Exemption ("CEQA Analysis").

E. Following a public hearing on November 9, 2021, the Planning Commission adopted Resolution No. 21-08, recommending approval of the East Ranch Project, which resolution is incorporated herein by reference and available for review at City Hall during normal business hours.

F. A Staff Report dated December 7, 2021, and incorporated herein by reference with all attachments, described and analyzed the Project, including the Planned Development Zoning Stage 2 Development Plan, for the City Council.

G. The City Council considered the CEQA Analysis, including the EDSP EIRs, prior related CEQA Documents, all above referenced reports, recommendations, and testimony prior to taking action on the Project.

SECTION 2: FINDINGS

A. Pursuant to Section 8.32.070 of the Dublin Municipal Code, the City Council finds as follows.

1. The East Ranch Project ("the Project") Planned Development zoning meets the purpose and intent of Chapter 8.32 in that it provides a comprehensive development plan that is consistent with the General Plan and Eastern Dublin Specific Plan and protects the integrity and character of the area by creating a desirable use of land that is sensitive to surrounding land uses by virtue of the layout and design of the site plan. The Project is planned comprehensively and will follow development standards tailored to the specific needs of the site. These standards will address issues such as building setbacks, architecture, landscaping and grading. The proposed community will blend with the natural features unique to the site through the use of design and planning. The Applicant proposes residential, park, open space, rural residential, and public/semi-public uses which are consistent with the land use designations in the Dublin General Plan and the provisions and regulations for development set forth therein. The Project proposes six residential neighborhood that are consistent with the use and density of the surrounding areas, the General Plan and Eastern Dublin Specific Plan. The Applicant will participate in the development of the necessary utility and circulation infrastructure for this development in conformance with the Eastern Dublin Specific Plan. The Project will be designed to address the uniqueness of the Specific Plan area, taking into account the proximity of the surrounding topography. The clustering of residential units will allow for continuity of open space area and more effective utilization of the property.

2. Development of the Project under the Planned Development zoning will be harmonious and compatible with existing and future development in the surrounding area in that the site will provide a mix of housing types and public amenities for the development. The Project site is in an area that has similar uses nearby and will tie into the existing street network.

B. Pursuant to Sections 8.120.050.A and B of the Dublin Municipal Code, the City Council finds as follows.

1. The Planned Development zoning for the Project will be harmonious and compatible with existing and potential development in the surrounding area in that the proposed site plan has taken into account adjacent land uses and will provide a wide range of amenities to and for the community within the development and the surrounding neighborhoods. The Project is consistent with the surrounding land uses and has been approved for residential development in the Stage I Planned Development.

2. The Project site conditions were documented in the EDSP EIRs and CEQA Analysis that have been prepared, and the environmental impacts that have been identified will be mitigated to the greatest degree possible. There are no site challenges that were identified in the EIR, which could not be mitigated, that will present an impediment to utilization of the site for the intended purposes. The site is a hillside development and generally slopes from the north east corner to the Croak Road and Central Parkway intersection. The denser development has been proposed to be in the flatter areas of the site, while the more conventional single-family homes have been located in areas that take advantage of the grade and step with the hillside. The grading proposed for

the Project will take into consideration the hilly terrain and will be designed to avoid excessive cuts and fills.

3. The Planned Development zoning is consistent with the Eastern Dublin Specific Plan policies and the City's Zoning Ordinances enacted for the public health, safety and welfare. The Project will not adversely affect the health or safety of persons residing or working in the vicinity or will it be detrimental to public health, safety or welfare. The Project will comply with all applicable development regulations and standards and will implement all adopted mitigation measures. Additionally, no noxious odors, hazardous materials, or excessive noises will be produced. In order to ensure adequate emergency vehicle access to all portions of the site, access is provided to the site from Croak Road.

4. The Planned Development zoning is consistent with and in conformance with the Dublin General Plan and Eastern Dublin Specific Plan in that the proposed residential, open space, park and semi-public uses are consistent with the existing land use designations for the site.

C. Pursuant to the California Environmental Quality Act, the City Council finds as follows:

1. The project is found to be exempt from CEQA pursuant to Government Code section 65457 for residential projects that are consistent with a Specific Plan. Prior CEQA analysis for the Project area includes: 1) the Eastern Dublin General Plan Amendment and Specific Plan EIR (1993); 2) the East Dublin Properties Stage 1 Development Plan and Annexation Supplemental EIR (2002); and 3) the Fallon Village Supplemental EIR (2005). Collectively, these three environmental review documents are referred to as the "EDSP EIRs." The CEQA Analysis prepared for the Project determined that the proposed project qualifies for an exemption from CEQA under Government Code Section 65457 and CEQA Guidelines Section 15182(c), which exempts residential projects that are consistent with a specific plan for which an EIR has been certified. The proposed project is consistent with the EDSP EIRs and the General Plan and Eastern Dublin Specific Plan land use designations for the project site. There is no part of the proposed project that triggers the need to prepare a subsequent EIR or negative declaration pursuant to CEQA Guidelines Section 15162 or Public Resources Code Section 21166. Therefore, the project qualifies for a specific plan exemption and does not require subsequent environmental review or the preparation of an additional CEQA document.

SECTION 3: ZONING MAP AMENDMENT

Pursuant to Chapter 8.32, Title 8 of the City of Dublin Municipal Code, the City of Dublin Zoning Map is amended to zone the property described below to a Planned Development Zoning District:

165.5-acres within APN 905 -0002-002-00 and 905 -0002-001-01 (the "Property")

A map of the rezoning area is shown below:

<u>SECTION 4</u>. <u>APPROVAL OF STAGE 2 DEVELOPMENT PLAN</u>

The regulations for the use, development, improvement, and maintenance of the Property are set forth in the following Stage 2 Development Plan for the entire 165.5-acre project area, which is hereby approved. Any amendments to the Stage 2 Development Plan shall be in accordance with Section 8.32.080 of the Dublin Municipal Code or its successors.

Stage 2 Development Plan

The following is a Stage 2 Development Plan pursuant to Chapter 8.32 of the Dublin Zoning Ordinance. This Development Plan meets all the requirements for a Stage 2 Development Plan and is adopted as part of the Planned Development rezoning for the East Ranch Project (PLPA-2020-00028).

The Planned Development Zoning District and this Stage 2 Development Plan provides flexibility to encourage innovative development while ensuring that the goals, policies, and action programs of the General Plan and provisions of Chapter 8.32 of the Zoning Ordinance are satisfied.

The Stage 2 Development Plan establishes the location and size Public/Semi-Public site, but not does establish applicable uses, density, or development standards. The Public/Semi-Public site is subject to a subsequent Stage 2 Development Plan.

1. **Statement of compatibility with the Stage 1 Development Plan.** The East Ranch Stage 2 Development Plan is consistent with the Stage 1 Development Plan for the Fallon Village Project area in that it provides for 573 residential units, two public parks with one 5.5-acre park at the northwest corner and one 6.0-acre park south of the project’s main entry, a 2.0-acre public/semi-public site and 6.6 acres of open space, and other related improvements approved in Ordinance No. 32-05.

2. **Statement of Uses.** Permitted, conditional, accessory and temporary uses are allowed as set forth in the Stage 1 Planned Development for Fallon Village in Ordinance No. 32-05, incorporated herein by reference (PA-04-040) and the Stage 1 Planned Development Rezone amendment pertaining to the Public/Semi-Public parcel for Fallon Village in Ordinance No. 05-21, incorporated herein by reference (PLPA-2020-00054).

3. **Stage 2 Site Plan.** The Stage 2 Site Plan for East Ranch shall generally be as shown below:

4. **Site area, densities.** The site area and densities are as follows:

Land Use	Neighborhood	Maximum Number of Units	Gross Acreage±	Maximum Density (du/ac)
Single Family Residential	1	101	30.1	3.4
Single Family Residential	2	98	23.4	4.2
Single Family Residential	3	91	19.5	4.7
Single Family Residential	4	85	16.8	5.1
Single Family Residential	5	98	17.6	5.6
Medium Density Residential	6	100	10.4	9.6

Land Use	Neighborhood	Maximum Number of Units	Gross Acreage±	Maximum Density (du/ac)
Rural Residential/Agricultural	-	-	19.4	.01-.8
Neighborhood Park	-	-	11.5	-
Public/Semi-Public	-	-	2	-
Open Space	-	-	6.8	-
	Total	573	-	-

5. Development Regulations.

Single-Family Development Standards

CRITERIA	NH 1	NH 2	NH 3	NH 4	NH 5	NH 1, 2, 3, & 5
Product Type	Conventional SFD	Conventional SFD	Conventional SFD	Conventional SFD	Cluster SFD	Zero Lot Line SFD
Typical Neighborhood Lot Size (sf) (21)	6500	5225	5000	3960	3360	2500
Nominal Lot Dimensions (17)(21)	65' x 100'	55 'x 95'	50 'x 110'	49.5' x 80'	48' x 70'	-
Maximum Lot Coverage (12)	45% Two Story; 55% One Story	45% Two Story; 55% One Story	45% Two Story; 55% One Story	55%	55%	55%
Maximum Building Height (4)(21)	35'	35'	35'	35'	35'	35’
Maximum Stories	2	2	2	2	2	2
Minimum Front Yard Setbacks (1)(2)(15)(16)(20)						
Living Area	12'	12'	12'	10'	10' to ROW /8' to Court	10' to ROW/ 4' to PL
Porch	10'	10'	10'	10'	8' to ROW/ 6' to Court	10' to ROW/ 4' to PL
Front-on Garage	18'	18'	18'	18'	18'	18'(13)
Swing-In Garage (55' Lots or Wider) (7)	12'	12'	N/A	N/A	N/A	10' to ROW/ 7' to PL
Minimum Side Yard Setbacks (1)(2)(4)(9)(10)(16)						
Living Area	4'	4'	4'	4'	4'	0’
Garage	5’	5’	5’	4’	4’	4’
Porch	4'	4'	4'	4'	4'	0’ one side 4’ other side
Courtyard (5)	0'	0'	0'	0'	0'	0’
Encroachments(3)	2’	2’	2’	2’	2’	2’
Minimum Rear Yard Setbacks (1)(2)(9)(10)						
Living Area	20' avg.; 10' min (4)	15' avg.; 10' min (4)	15' avg.; 10' min (4)	10' avg.; 5' min (4)	10' avg.; 5' min (4)	10’

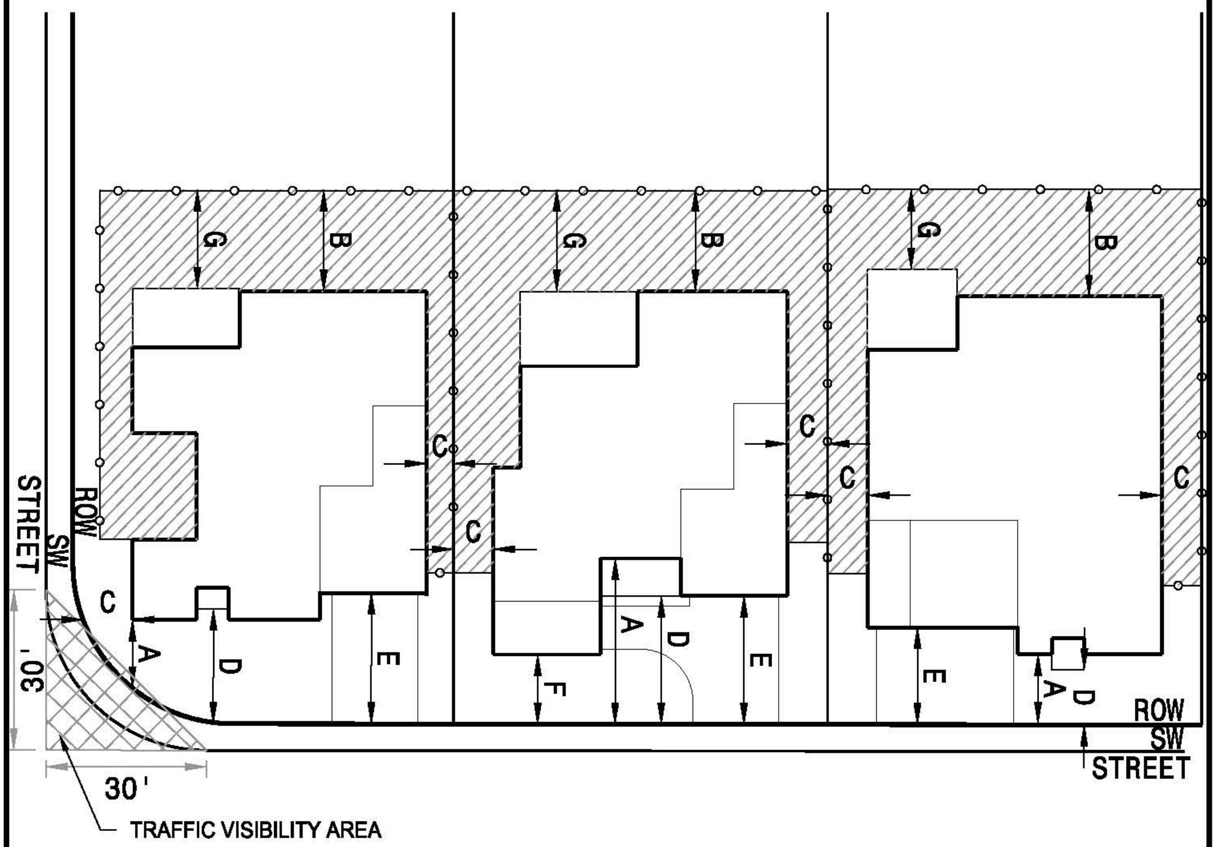
CRITERIA	NH 1	NH 2	NH 3	NH 4	NH 5	NH 1, 2, 3, & 5
Covered Patio	10'	10'	10'	5'	5'	5’
Garage	7.5’	7.5’	7.5’	7.5’	7.5’	7.5’
Accessory Structures	(14)	(14)	(14)	(14)	(14)	(14)
Parking Spaces Required Per Home (11)(12)	2 covered 1 guest	2 covered 1 guest	2 covered 1 guest	2 covered 1 guest	2 covered 1 guest	2 covered 1 guest
Minimum Usable Private Open Space (SF)	500 S.F with a min. dimension of 10 ft. Yard area may be provided in more than one location within a lot with a min of 80 SF yard or courtyard area.	400 S.F with a min. dimension of 10 ft. Yard area may be provided in more than one location within a lot with a min of 80 SF yard or courtyard area.	400 S.F with a min. dimension of 10 ft. Yard area may be provided in more than one location within a lot with a min of 80 SF yard or courtyard area.	300 S.F with a min. dimension of 10 ft	150 S.F with a min. dimension of 5 ft	150 S.F with a min. dimension of 5 ft

Multi-Family Development Standards

CRITERIA	NH 6	
Product Type	**Row Townhomes**	**Townhomes w/ Private Yards**
Maximum Building Height (4)(18)	40'	35'
Maximum Stories(6)	3	3
Minimum Setbacks (1) (2)		
Building to ROW	6'	10'
Porch to ROW	6'	6'
Living Space to Alley, Common Driveway, or Private Street	6'	4'
Porch to Alley, Common Driveway, or Private Street	4'	4'
Garage Face to Alley Back of Curb	4'	4'
Minimum Building Separation		
Garage Door to Garage Door (2-Story/3-Story)	28’/30'	28'/28’
Porch/Balcony to Porch/Balcony	12'	8'
Front to Front	20'	28'
Side to Side	10'	8'
Parking Spaces Required Per Home (11)	2 covered 1 guest	2 covered 1 guest
Minimum Usable Private Open Space (SF)	100 SF patio with a 10' min dimension or a 50 SF upper level deck with a 5' min inside dimension	400 SF Yard that includes an 18'x18' flat area or 150 S.F with a min. dimension of 5 ft(20)

Notes

(1)	Setbacks measured from property line or as otherwise noted. Setbacks to "Court" refer to back of curb.
(2)	See following pages for graphic depiction of above standards.
(3)	Items such as, but not limited to air conditioning condensers, porches, chimneys, bay windows, retaining walls less than 4' in height, media centers, etc. may encroach 2' into the required setback of one side yard, provided a minimum of a 3' flat and level area is maintained for access around the house.
(4)	Subject to Building Code requirements for access.
(5)	Maximum height of a front yard courtyard wall shall be 30" maximum (solid wall) or 42" maximum (transparent/fence)
(6)	The third floor must be stepped back a minimum of 2.5' from front and rear elevation to reduce building mass.
(7)	Three car side by side garages and swing in garages are prohibited on lots less than 55' wide. Swing-In Garage may be utilized on Zero-Lot Line Units
(8)	Retaining walls up to 4' high may be used to create a level usable area. Retaining walls in excess of 4' to create usable area are subject to review and approval of the Community Development Director. Retaining walls over 30" in height are subject to safety criteria as determined by the Building Official.
(9)	Where a minimum 5' HOA parcel lies between a lot and an adjacent street, the lot is not considered a corner lot and interior lot setback standards shall apply.
(10)	At cul-de-sac bulbs, knuckles and similar conditions where lot depths are less than the standard depth, minimum rear yard setback requirements may be reduced by an amount equal to the min. lot depth minus the actual depth of the lot (i.e.: 100'-90'=10'). In no case will the rear yard setback be reduced to less than 10'.
(11)	Curbside parking may be counted toward required number of guest spaces. 2 covered side-by-side spots shall be provided. Tandem spaces may not be utilized to meet the parking requirement.
(12)	An Accessory Dwelling Unit (ADU) , is permitted in neighborhoods of lots 5,000 square feet or greater only. Refer to Dublin Municipal Code for ADU setback and design requirements.
(13)	The driveway setback of the Zero Lot Line Product includes shared drive area. Products are not required to provide private driveway parking for each unit. Guest parking will be provided via street parking.
(14)	Accessory Structure Setbacks will follow the City Dublin Zoning Ordinance, Chapter 8.40 Accessory Structures and Uses Regulations
(15)	A low wall (30" or less) may encroach into the site line area. No solid structure above 30" shall be allowed; porch columns excluded.
(16)	Courtyard wall to return to side yard fence or front plane of main residential structure.
(17)	Lot width dimensions may vary to provide product diversity within each neighborhood, and atypical lot shapes (i.e. Pie lots)
(18)	Elevator overruns, stair coverings, decorative roof elements, and similar structures can exceed the building height limit by a maximum of 15 percent higher.
(19)	Minimum front / corner setback to living and porch may be subject to grading and specific location of top of pad hinge line (top of slope of graded pad). A minimum flat distance of 2' should be maintained between foundation and top of pad hinge.
(20)	Per the Eastern Dublin Specific Plan, 50% of the total Medium Density Market Rate units are required to have 400 SF private flat yard space, with a minimum dimension of 18'x18'; Once 50% of the total medium density units meet the required yard requirement, the excess units are exempt from the minimum 400 SF yard requirement, and shall provide a Minimum 150 SF with a minimum dimension of 5'
(21)	Typical Lot Size and Nominal Dimensions can be modified during SDR; If the Typical Lot Size is modified to 4000 SF or above, the neighborhood design must follow 45% Lot Coverage for a Two-Story Product. If the Typical Lot Size is modified to below 4000 SF, the neighborhood can be designed using the 55% Lot Coverage for all products.

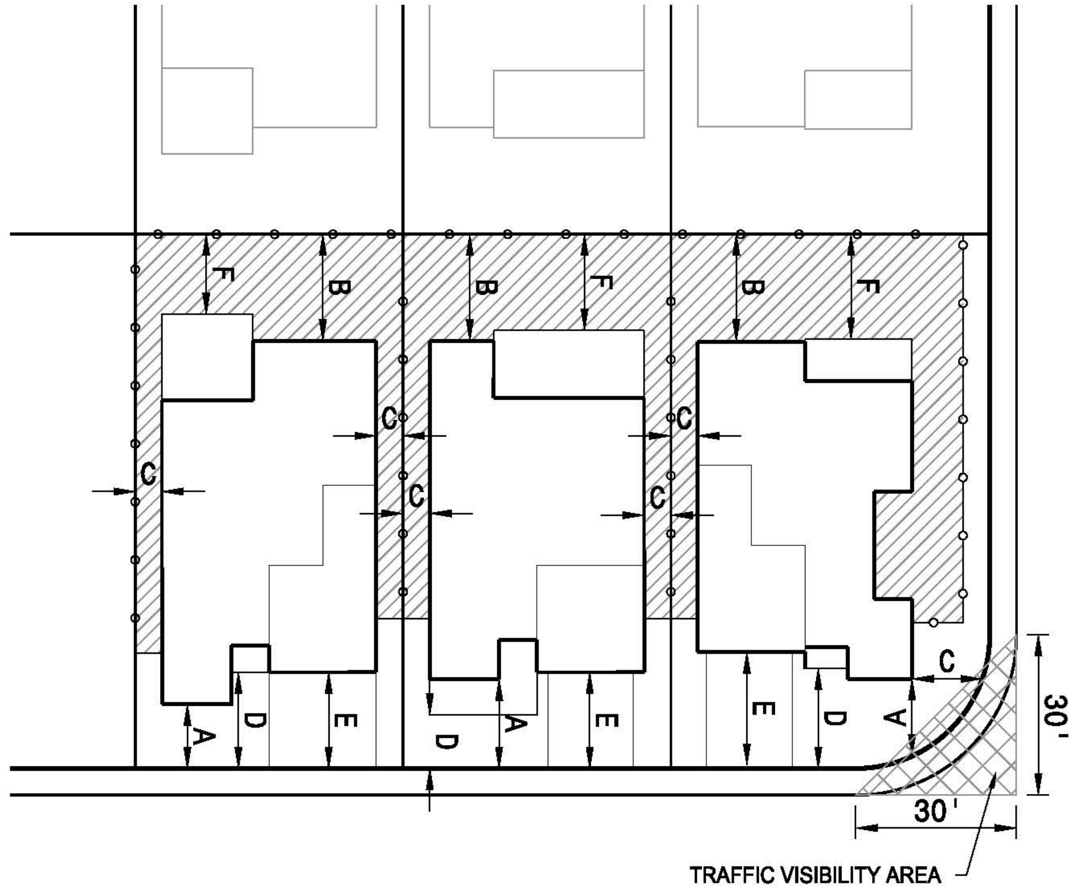


LEGEND

A	FRONT LIVING SETBACK
B	REAR LIVING SETBACK
C	SIDE SETBACK
D	PORCH FRONT SETBACK
E	GARAGE SETBACK
F	SWING-IN GARAGE
G	COVERED PATIO REAR SETBACK
ROW	RIGHT OF WAY
SW	SIDEWALK
(hatched box)	PRIVATE YARD SPACE

NOTE:
FOOTPRINTS SHOWN ARE CONCEPTUAL. FINAL FOOTPRINT DESIGN WILL BE PROVIDED IN SDR APPLICATION
PROJECT IS SUBJECT TO CHAPTER 7.90 UNIVERSAL DESIGN OF THE DUBLIN MUNICIPAL CODE. DETAILS ON OPTIONS AND EXCEPTIONS TO BE PROVIDED DURING SDR APPLICATION.

TYPICAL PLOTTING CONCEPTS
NEIGHBORHOODS 1 & 2
CONVENTIONAL LOTS: 65'x100' & 55'x95'



LEGEND

A	FRONT LIVING SETBACK
B	REAR LIVING SETBACK
C	SIDE SETBACK
D	PORCH FRONT SETBACK
E	GARAGE SETBACK
F	COVERED PATIO REAR SETBACK
ROW	RIGHT OF WAY
SW	SIDEWALK
	PRIVATE YARD SPACE

NOTE:
FOOTPRINTS SHOWN ARE CONCEPTUAL. FINAL FOOTPRINT DESIGN WILL BE PROVIDED IN SDR APPLICATION
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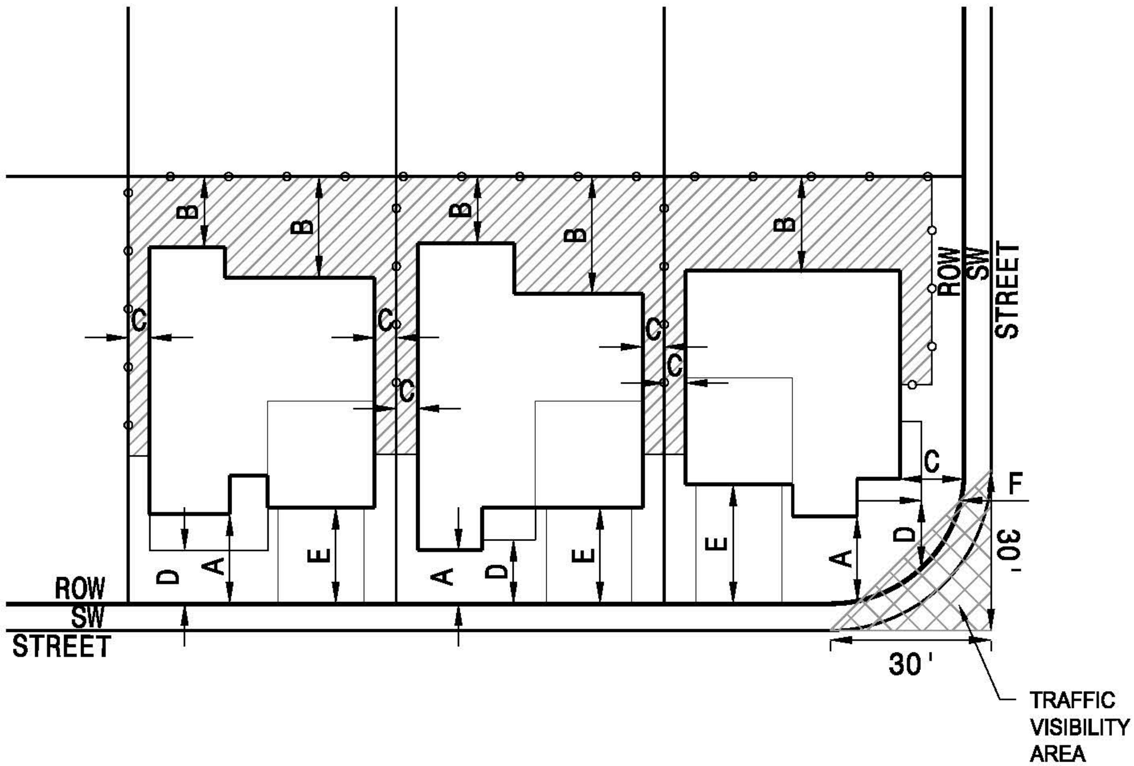
TYPICAL PLOTTING CONCEPTS
NEIGHBORHOOD 3
CONVENTIONAL LOTS: 50'x110'

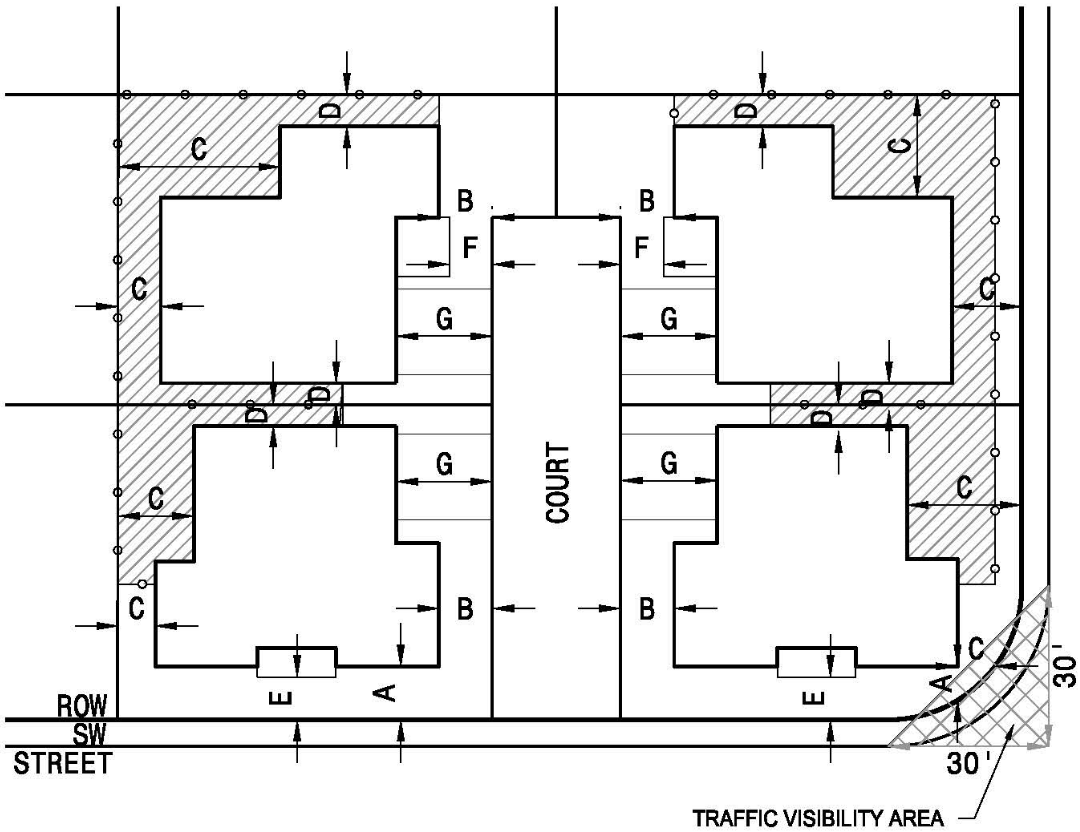


LEGEND

A	FRONT LIVING SETBACK
B	REAR LIVING SETBACK
C	SIDE SETBACK
D	PORCH FRONT SETBACK
E	GARAGE SETBACK
F	PORCH SIDE SETBACK
ROW	RIGHT OF WAY
SW	SIDEWALK
	PRIVATE YARD SPACE

NOTE:
FOOTPRINTS SHOWN ARE CONCEPTUAL. FINAL FOOTPRINT DESIGN WILL BE PROVIDED IN SDR APPLICATION
PROJECT IS SUBJECT TO CHAPTER 7.90 UNIVERSAL DESIGN OF THE DUBLIN MUNICIPAL CODE. DETAILS ON OPTIONS AND EXCEPTIONS TO BE PROVIDED DURING SDR APPLICATION.

TYPICAL PLOTTING CONCEPTS
NEIGHBORHOOD 4
CONVENTIONAL LOTS: 49.5'x80'

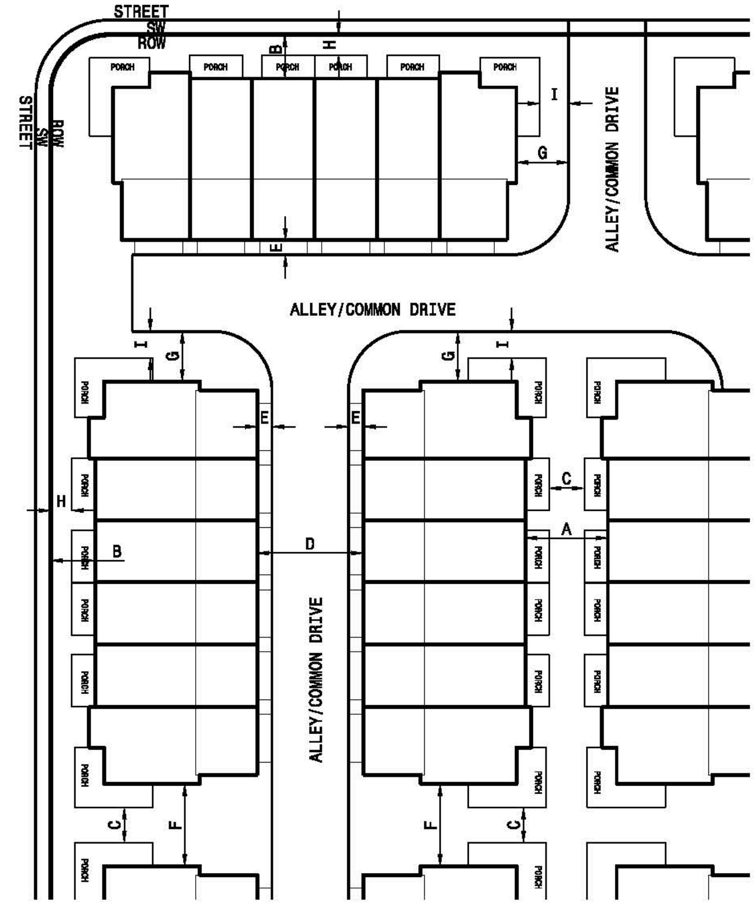


LEGEND

A	FRONT LIVING SETBACK TO ROW
B	FRONT LIVING SETBACK TO COURT
C	REAR LIVING SETBACK
D	SIDE SETBACK
E	PORCH FRONT SETBACK TO ROW
F	PORCH SETBACK TO COURT
G	GARAGE SETBACK
ROW	RIGHT OF WAY
SW	SIDEWALK
	PRIVATE YARD SPACE

NOTE:
FOOTPRINTS SHOWN ARE CONCEPTUAL. FINAL FOOTPRINT DESIGN WILL BE PROVIDED IN SDR APPLICATION
PROJECT IS SUBJECT TO CHAPTER 7.90 UNIVERSAL DESIGN OF THE DUBLIN MUNICIPAL CODE. DETAILS ON OPTIONS AND EXCEPTIONS TO BE PROVIDED DURING SDR APPLICATION.

TYPICAL PLOTTING CONCEPTS
NEIGHBORHOOD 5
CLUSTER LOTS



LEGEND

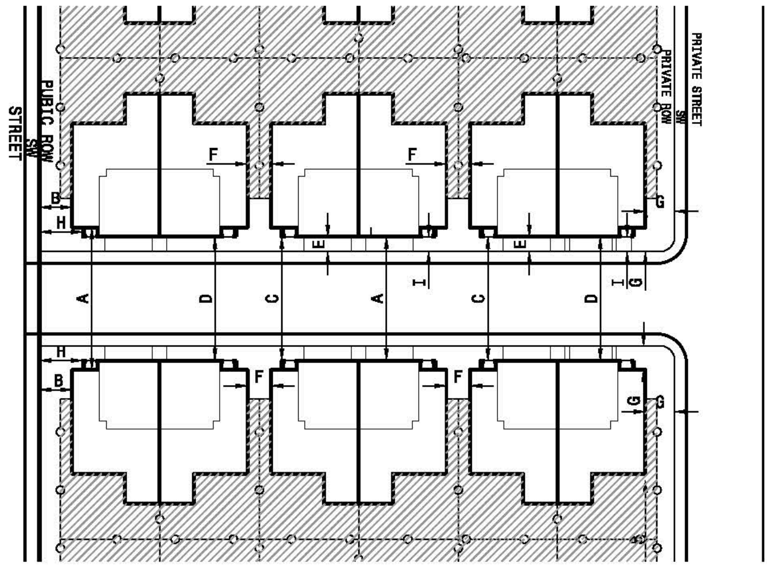
A	FRONT TO FRONT
B	BUILDING TO ROW
C	PORCH/BALCONY TO PORCH/BALCONY
D	GARAGE DOOR TO GARAGE DOOR
E	GARAGE TO ALLEY EDGE
F	SIDE TO SIDE
G	LIVING SPACE TO ALLEY/PRIVATE DRIVEWAY
H	PORCH TO ROW
I	PORCH TO ALLEY/PRIVATE DRIVEWAY
ROW	RIGHT OF WAY
SW	SIDEWALK

NOTE:
FOOTPRINTS SHOWN ARE CONCEPTUAL. FINAL FOOTPRINT DESIGN WILL BE PROVIDED IN SDR APPLICATION

TYPICAL PLOTTING CONCEPTS

NEIGHBORHOOD 6

ROW TOWNHOMES



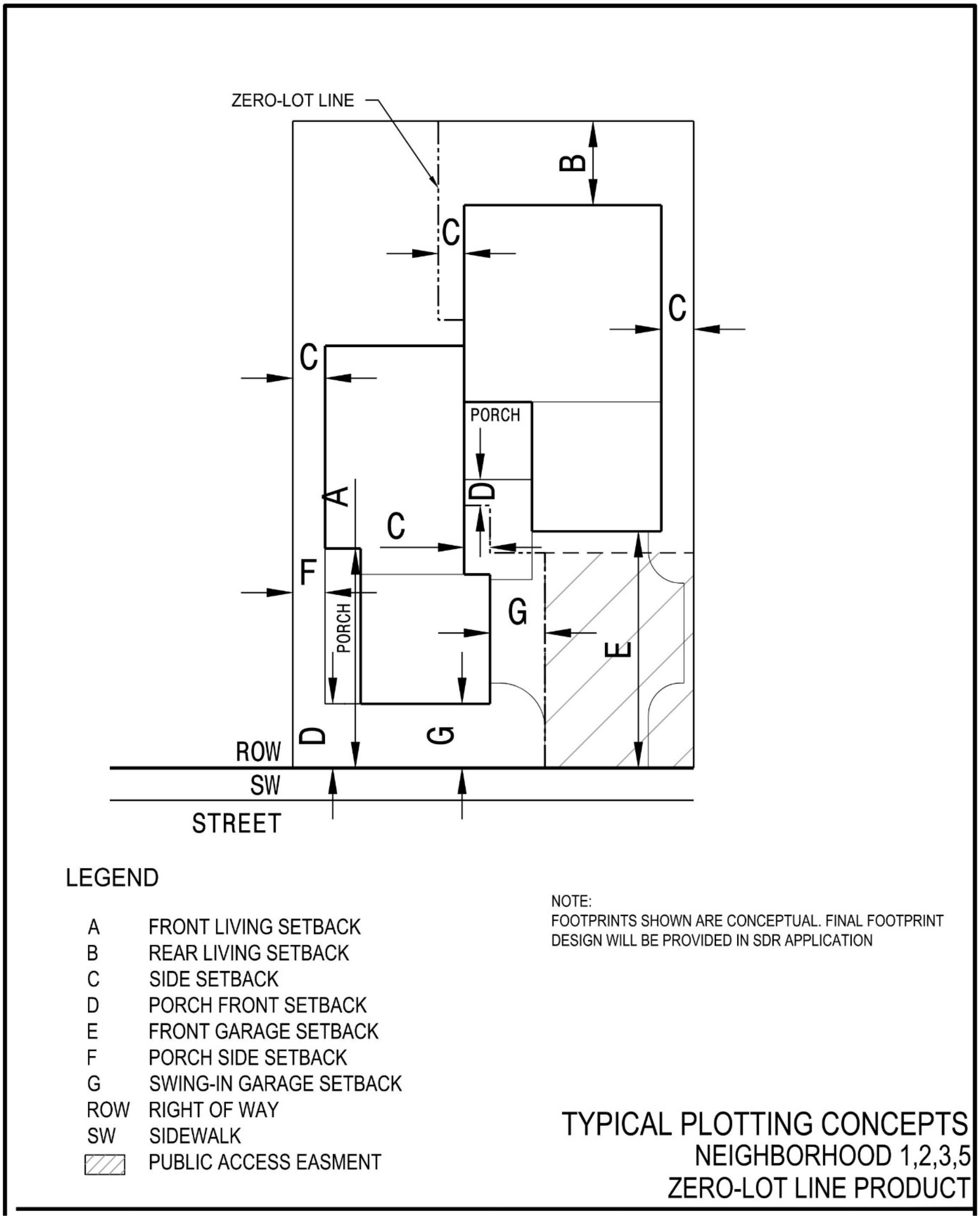
LEGEND

A	FRONT TO FRONT
B	BUILDING TO ROW
C	PORCH/BALCONY TO PORCH/BALCONY
D	GARAGE DOOR TO GARAGE DOOR
E	GARAGE TO ALLEY EDGE
F	SIDE TO SIDE
G	LIVING SPACE TO ALLEY/PRIVATE STREET
H	PORCH TO ROW
I	PORCH TO ALLEY/PRIVATE STREET
ROW	RIGHT OF WAY
SW	SIDEWALK
(hatched box)	PRIVATE YARD SPACE[(1)]

NOTE:
FOOTPRINTS SHOWN ARE CONCEPTUAL. FINAL FOOTPRINT DESIGN WILL BE PROVIDED IN SDR APPLICATION

(1) PRIVATE YARD SPACE TO FOLLOW THE REQUIREMENTS SET FORTH IN THE EASTERN DUBLIN SPECIFIC PLAN AND ORDINANCE 45-08 FOR MEDIUM DENSITY DEVELOPMENT ON THE CROAK (EAST RANCH) PROPERTY

TYPICAL PLOTTING CONCEPTS
NEIGHBORHOOD 6
TOWNHOMES W/ PRIVATE YARDS



6. **Architectural Standards.** The architecture of the development within East Ranch is characterized by high-quality design homes that promote both visual compatibility and variety. The architectural standards are organized into two sections: Architectural Components and Architectural Styles. These standards express desired design character, which in combination with the Preliminary Landscape Plan, conveys the overall East Ranch agrarian character and provides a pedestrian friendly community of neighborhoods. These guidelines and the graphic representations contained herein are for conceptual purposes only. Guidelines with the term

“shall” are required and to be implemented, and guidelines with the term “should” are highly recommended.

Architectural Components

Staggerd wall planes

One- and two-story forms help to break down the overall buildng scale

Gable roofs

ARCHITECTURAL COMPONENTS

The public realm architecture of a house is comprised of five basic components: Building Facades, Roofs, Garages, Architectural Details, and Materials and Colors. Together when appropriately designed these components can create visually interesting streetscapes and human scale environments. This section of the Architectural Design Guidelines is to be closely referenced with the Development Standards which dictate height and setback requirements that also shape streetscapes.

Building Facades

Building Facades constitute all vertical sides of the building: front, sides, and rear and together with the roof creates a building’s mass and scale. A building’s mass and scale directly impact the overall streetscape of a neighborhood. To encourage a pedestrian friendly environment and visually interesting streetscape, the following guidelines are encouraged:

- Stagger wall planes in the horizontal and/or vertical plane, where appropriate, to break up the elevation to avoid large building massing.
- Provide projections and recesses, appropriate to the architectural style of the home, in building elevations to create shadow and depth.
- Provide combinations of one- and two-story forms to help break down the overall scale of the building.
- Buildings shall be designed with “4-sided” architecture to create high-quality homes that are human-scale and enhances the public realm.

Roofs

The building roof provides an important function to the home and to shaping the skyline and a building’s overall form.

- Roof design for maximum solar exposure shall take priority to guidelines that follow.
- Variation of roof forms shall occur to allow for the creation of an interesting roofscape and streetscape.
- Roof forms can include but are not limited to gable, shed, and hip. Flat roofs may be allowed under the Contemporary architectural style and should not be more than 60% of the roof form in this style.
- To help create building articulation, broken roof pitches extending over porches, patios or other similar features are encouraged where appropriate to the architectural style.
- Roof material and color shall complement the architectural style of the home and be non-reflective.

Garages

Garages provide a sheltered space for vehicles and when thoughtfully placed and designed in the home, will de-emphasize the vehicle and can add to the articulation of the overall building form.

- In general, architecture forward design in front-loaded lots is encouraged where garage doors and placement are located beyond habitable spaces.
- Garage door recesses into surrounding wall plans, and/or with 2nd floor above cantilever are encouraged to help de-emphasize the garage door.
- In general, it is encouraged for homes with 3-car garages to have the following configurations: the third garage is side-swing, recessed to back of the lot, or the space is part of a tandem configuration within a 2-car garage door width.
    - 3-car garages with all bays fronting the street are allowed on lots 55' or wider.
- Garage door designs shall vary along the streetscape, with no more than two homes using the same design and pattern and color next to each other.
    - Garage door window lites are allowed and should be appropriate to the architectural style of the home.

Garage door design is important and adds to the character of the streetscape

Architectural Details

The Architectural Details of a building helps complete the design vision and can mean the difference between a welcoming street scene with appeal and one that may be non-inviting and bland. This section includes guidelines for the following Architectural Details: entryways, windows and doors, trim and style details, and exterior lighting and mechanical equipment.

Entryways

- Entryways present the threshold between public and private spaces and thus is a focal point to the building's façade. The following examples are encouraged to be used to articulate the entryway as a focal point: Porch, Trellis, Portico, Trellis, Low entry court walls, Recessed Entryway.

Entryway portico

Windows and Doors

- Windows and doors shall be designed to reflect the overall architectural style of the building.
- Window and door materials shall not include reflective glass, as it creates glare. Opaque glass is not allowed without approval from City Staff.
- Window shutters, when used, should be proportionate in shape and size to the window opening.
- Window frames shall be appropriately colored to match or complement the house or trim colors for each color scheme.

Proportional window shutters to window size and opening

Window trim appropriately designed to window opening and shape

Building details: pipe vents, julient balcony with designed railings help enhance this elevation example

Mechanical equipment screen should be complementary to design and materials and colors of the building

Example of a diverse streetscene created through varitey in materials and colors

Trim and style details

- Trim elements around windows and on the buildings shall be designed to be proportional to the element they are enhancing.
- Style details include, but are not limited to: corbels, rafter tails, pipe vents, and planter boxes. Style details shall be complementary to the architectural style of the home, placed and installed appropriately to enhance the overall building design, and shall be made of high-quality and durable material.

Exterior Lighting and Mechanical Equipment

- Exterior lighting fixtures should be compatible with the architectural style of the building.
- Exterior lighting fixtures shall not create glare or spillover to adjacent neighbors.
- Mechanical equipment located on the ground shall be screened from view from the public to maintain a pedestrian friendly street scene. Screening can be landscape and/or with a hard material fencing screen.

Materials and Colors

The Materials and Colors of a building have a direct impact on the streetscape ambiance and overall neighborhood. The following guidelines are to be referenced with the materials allowed provided in each architectural style section.

- Material and colors shall be of high-quality and durable that will weather well and reflects the home's architectural style.
- Material and color blocking shall not terminate at outside corners and shall wrap to appropriate transition points of the building façade.
- Material and colors at the base of buildings should continue to the where the building meets grade so the building is well seated into the street; avoiding a "floating" look.
- Adjacent houses and facing facings across a street must use different color schemes for street scene variation.

Universal Design

The proposed buildings will adhere to the Universal Design Guidelines as outlined in Dublin Municipal Code Chapter 7.90: Universal Design.

Second Units

Second Units proposed in East Ranch will adhere to the Second Units standards and regulations as outlined in Dublin Municipal Code Chapter 8.80: Second Unit Regulations.

Architectural Styles

The architectural styles of East Ranch draw from the project site's agrarian setting of the rolling hills and its relationship to the surrounding area and existing residential neighborhoods. The following four architectural styles identified for East Ranch are a mixture of traditional and contemporary styles offering variation, under the Agrarian and California style umbrella, to create interesting streetscapes:

- Traditional Farmhouse
- Modern Farmhouse
- California Revival
- Contemporary

TRADITIONAL FARMHOUSE

The Traditional Farmhouse style dates back to 19th century America and encompasses a range of variations as it reflects local geograph and climate. Throughout America there are examples ranging from more simplified traditional farmhouses, to more ornate versions. All them reflecting the key concept of a functional home that effortlessly combines informal and formal spaces.

Fundamentally this style is defined by simply detailed, understated, and utilitarian features that reflect the concept of a simple agrarian lifestyle. Homes in this style are often simple in massing and can include a covered porch element, gable roof forms, and wood columns and posts.

	MINIMUM STANDARDS	ADDITIONAL ELEMENTS (A minimum of 2 elements should be selected from this column)
Roofs	-Gable Roof Forms -Shed Accent Roofs -40 Year Dimensional Composition Shingle Roofing -3:12 to 6:12 Pitch -12 to 18" Eaves -5 to 12" Rakes	-Varied Plate Heights -Standing Seam Metal Roofing -Steep or Pitched Gable Roof Forms
Exterior Finish	-Board and Batten Accent Siding -Lap Siding with 6 to 8 inch Exposure -Stucco Finish	-Board and Batten Accent Siding -Brick and/or Stone Veneer
Windows and Doors	- Single Hung Windows -Fixed Accent Windows -Accent Painted Entry Doors -Grid Patterned at Front Elevation and Around Entire Second Floor	-Sectional Garage Doors with appropriate style of Glazing -Window Shutters
Trim and Accents	-Wood Brackets and/or Kickers -Wood Porch Posts -Wood or Smooth Foam Trim	-Wood Railings




MODERN FARMHOUSE

The Modern Farmhouse style is an evolution of the Traditional Farmhouse style, building on the elements of basic comfort and practically with a modern lifestyle twist. This style embodies a clean and simple balanced design and uses more asymmetrical massing and forms and combines a palette of contemporary and traditional materials. Corrugated roofing, stone veneer and vertical board and batten siding are typical accents to this style.

	MINIMUM STANDARDS	ADDITIONAL ELEMENTS (A minimum of 2 elements should be selected from this column)
Roofs	-Gable Roof Forms -Shed Accent Roofs -40 Year Dimensional Composition Shingle Roofing -Standing Seam Metal Roofs and/or awnings -3:12 to 6:12 Pitch -12 to 24" Eaves -5 to 12" Rakes	-Varied Plate Heights -Standing Seam Metal Roofing -Steeper pitched gable roof forms
Exterior Finish	-Lap Siding -Stucco Finish	-Board and Batten Accent Siding -Brick and/or Stone Veneer -Wood Trimmed Bay Windows
Windows and Doors	-Single Hung Windows -Fixed Accent Windows -Accent Painted Entry Doors	-Metal Sectional Garage Doors -Frosted Glass Garage Doors
Trim and Accents	-Wood Brackets and/or Kickers -Wood Porch Posts -Wood or Smooth Foam Trim	-Wood Built Out Smooth Porch Columns -Steel Cable Wire or Contemporary Wood Railings





CALIFORNIA REVIVAL

The California Revival style is a blend of European influences from Spain and the Mediterranean, found throughout California. In this style, balcony railings are typically styled in metal or wood, roofs are low pitched or gabled and covered with shingles, and exterior walls are constructed in stucco, brick, or wood.

	MINIMUM STANDARDS	ADDITIONAL ELEMENTS (A minimum of 2 elements should be selected from this column)
Roofs	-Low Pitched Gable Roof Forms -40 Year Dimensional Composition Shingle Roofing -4:12 to 5:12 Pitch -6 to 12" Eaves -12 to 18" Rakes	-Occasional Hipped Roof Forms -Gable Detail
Exterior Finish	-Stucco Walls with Smooth to Light Sand Finish -Wood Eave Details	-Brick Veneer and/or Stone Veneer
Windows and Doors	-Single hung with Mullions Arranged in Pairs or Single -Fixed Accent Windows -Shutters -Full Length Window Opening onto Balcony -Grid Patterned at Front Elevation and Around Entire Second Floor	-Paired Windows
Trim and Accents	-Wood Brackets and/or Kickers -Porch Posts	-Wood Balcony -Detailed Hand Rails (Metal, Wrought Iron) -Decorative Pot Shelves -Panel Shutters -Minimal Door and/or Window Surrounds -Decorative Vent details





CONTEMPORARY

The Contemporary style in East Ranch is deeply influenced by the mid-century modern architectural style occurring within California's Bay Area during the 1950s to 1960s . This Contemporary style emphasizes functional comfort design with open floor plans. This style is most recognizable by its use of shed roof, clean geometric lines, large glass windows and doors, and modern interpretations of detail elements.

	MINIMUM STANDARDS	ADDITIONAL ELEMENTS (A minimum of 2 elements should be selected from this column)
Roofs	-Low Pitched Shed Roof -40 Year Dimensional Composition Shingle Roofing -Broad Roof Overhangs -3:12 to 6:12 Pitch -12-18" Eaves -3" Rakes	-Varied Plate Heights -Exposed Rafters -Standing Seam Metal Roof
Exterior Finish	-Stucco (light to medium) Finish -Wood Veneer -Lap Siding -Asymmetrical Facade of Multiple Layers of Textures	-Board and Batten Accent Siding -Brick and/or Stone Veneer -Wood Trimmed Bay Windows
Windows and Doors	-Fixed Accent Windows -Large Glass Windows -Accent Painted Entry Doors	-Metal Sectional Garage Doors -Frosted Glass Garage Doors
Trim and Accents	-Geometric Lines -Simple Trim Details	-Accent Panels (Grooved or Smooth) -Steel Cable Wire Railing -Articulated and Expressive Joints





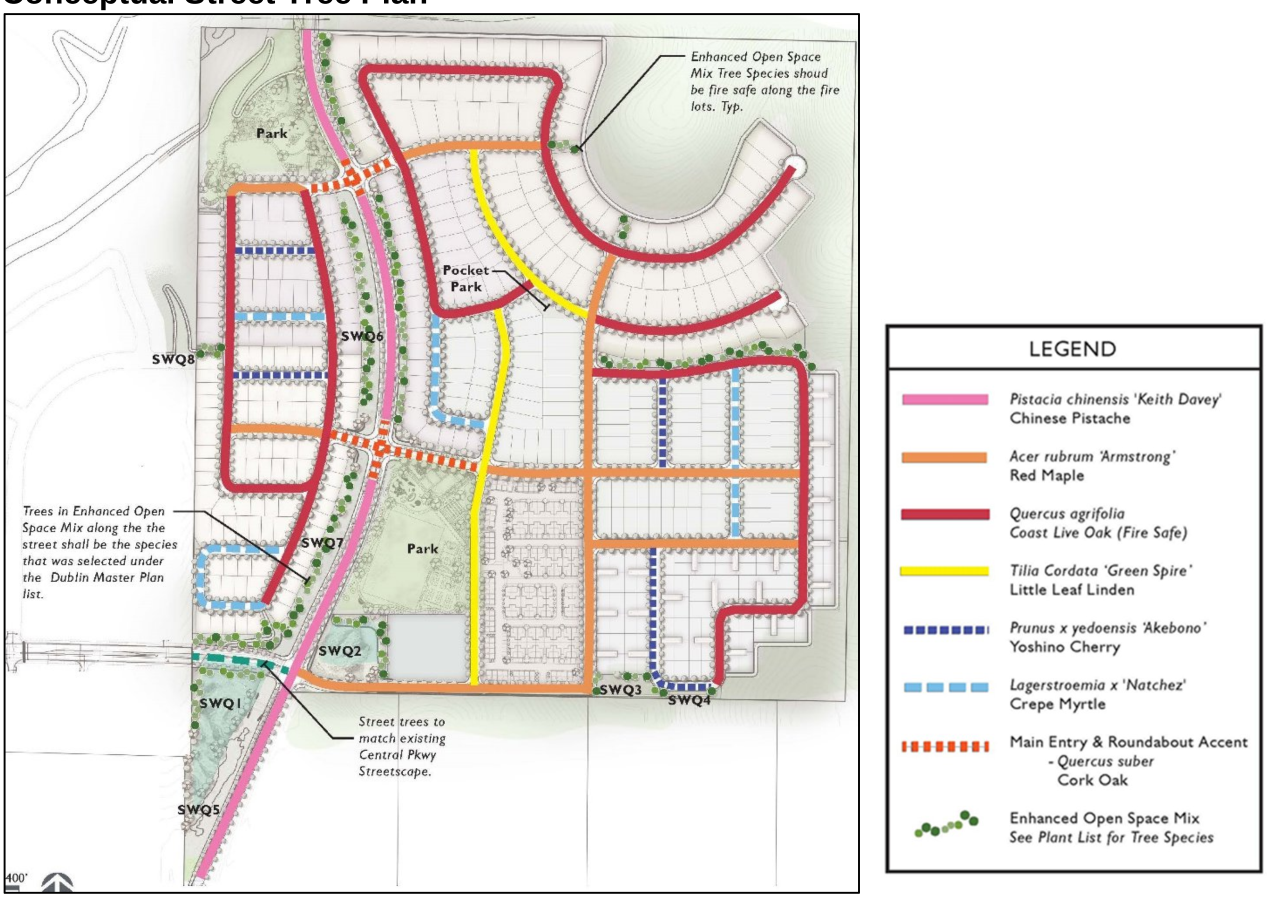
7. **Preliminary Landscaping Plan.** East Ranch emphasis is on getting outdoors and connecting with nature through the incorporation of neighborhood parks, pocket parks, multi-use trails,

restful overlooks and meandering footpaths that weave together the neighborhoods which culminate in a series of public and semi-public outdoor spaces. The landscape character defines the sense of place as refined yet rustic arcadian California. Materials and elements such as Mediterranean planting, low stone walls, a variety of fencing (good neighbor, split rail, view and open space), and rhythmic planting patterns will embellish an agrarian tone.

Basic Design Principles:

- The landscape design including the plant palette and design themes, shall be complimentary to the architecture in each neighborhood, unique to the neighborhood and also use design themes that tie the entire East Ranch community together.
- The streetscape and pathway network will provide recreation opportunity and reinforce a connection to nature.
- The community fencing and wall system will be designed to visually recede into the setting to the extent possible.
- Management of open space and maintenance of common areas will be an integral component of the landscape system.
- Plant material shall be consistent selected appropriately for location and microclimate. Provide a combination of evergreen, deciduous and flowering trees.
- Street trees shall be deciduous to demonstrate the seasons and patterns of nature. The street trees will be used to define the neighborhoods. Refer to conceptual tree plan below.

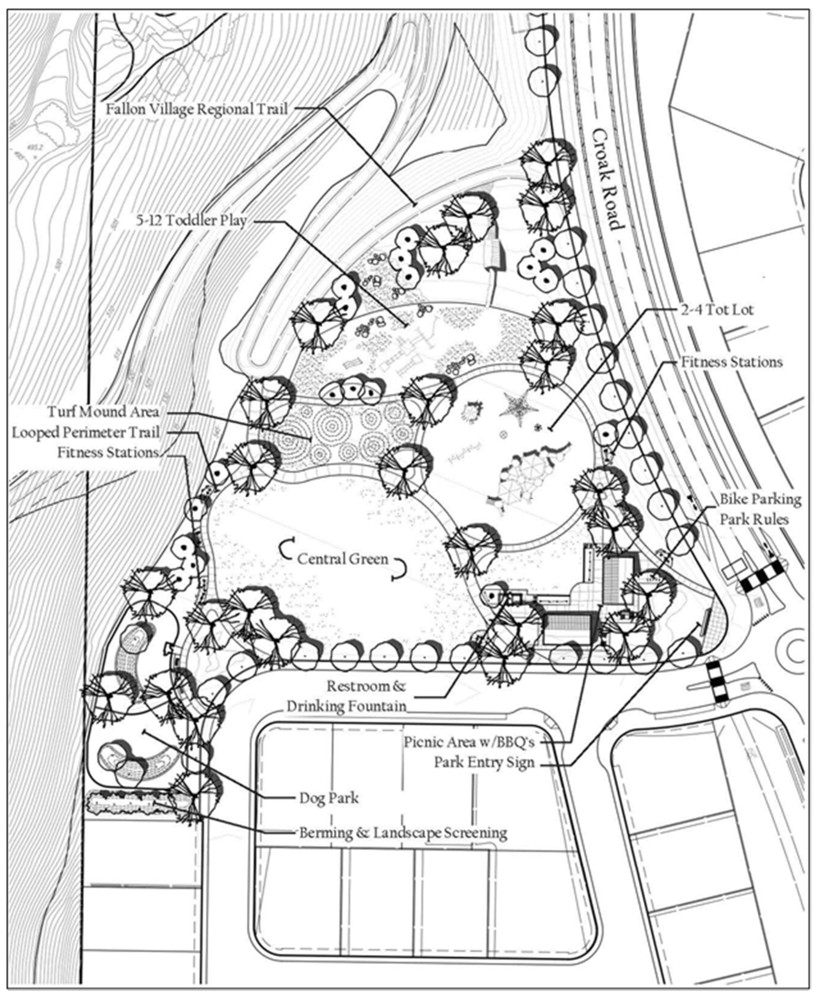
Conceptual Street Tree Plan



- The community is designed around four primary landscape features:
  - *The Main and Secondary Community Entries.* The Main Community Entry is the formal announcement of arrival to the East Ranch community. The Secondary Community Entries will be reminiscent of the Primary Entry overall character. They will be of a smaller scale but consist of similar materials and components.
  - *The Water Quality Bains.* The Water Quality Basins are a prominent feature at the arrival point to the community. The plant material found within will take on a mosaic effect that demonstrates the bloom and growth cycles of seasonal grasses in gentle patterns and large swaths. All plant material found within the basins shall conform with the Alameda County C.3 Stormwater Technical guidelines and requirements.
  - *The Main Spine (Croak Road).* The Main Spine of Croak Road connects the greater East Ranch community with its allee and greenbelt. The northern and southern parks bookend the community and are connected via this spine.
  - *Northern and Southern Parks*. East Ranch includes two neighborhood parks. The Northern and Southern Parks are recreation hubs for the East Ranch community and greater neighborhood. They anchor each end of the main spine along Croak Road and complete a central green corridor.

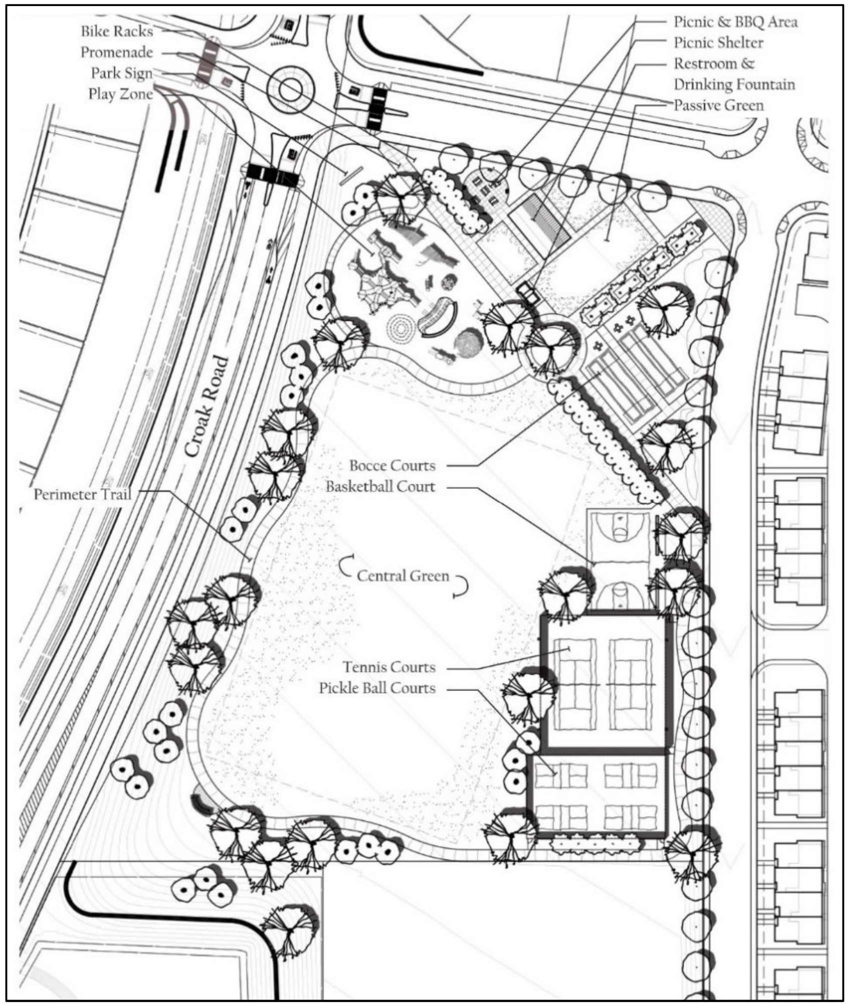
Northern Park:

Natural in its look and feel sitting just south of the riparian corridor, the Northern Park's proximity to the existing open space trail system is one of its most important features. The park completes the connection to Jordan Ranch and Positano neighborhoods and allows pedestrians from East Ranch a safe and easy way to access the greater Dublin trail network. The northern edge of the park has a fair amount of topography will remain natural and provide a gentle transition to the existing adjacent area. The more active areas of the park will include restrooms, tot lot and toddler play areas, BBQ area with shade structures and a fenced dog park with two separate areas for small and large dogs with their own respective entries. The overall park theming will take cues from the surrounding architecture of the community and is geared toward smaller groups, kids, and families. The following is a conceptual image of the Northern Park.

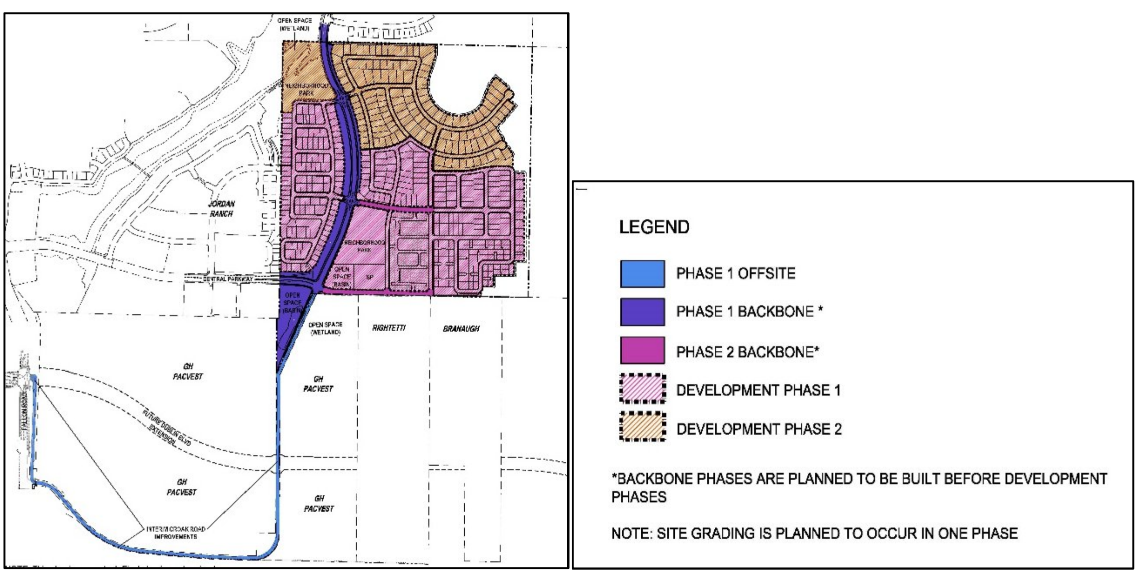


Southern Park:

The Southern Park serves as a gateway into the East Ranch community. Being centrally located and the open space anchor to the community, the programming for this park will include elements that appeal to a wide range of ages and mobilities. Those elements include a large central green space, perimeter trail system, basketball court, pickleball courts, tennis courts, bocce courts, tot lot and toddler play areas, picnic areas with shade structures and restrooms. The overall look of this open space area will work to solidify that rural agrarian character the community is built upon. The following is a conceptual image of the Southern Park.



8. **Phasing Plan.** The project is to be developed in two phases for the backbone streets and infrastructure and two phases for the development as shown the phasing plan below.



9. **Inclusionary Zoning Regulations.** The Project is subject to the Inclusionary Zoning Regulations (Chapter 8.68) for the provision of affordable housing as a residential development of 20 units or more. The City's Regulations also allow for exceptions commonly referred to as an "alternative method of compliance." These exceptions include the payment of fees in lieu of constructing affordable units, construction of off-site housing projects, land dedication, etc.

   The inclusionary housing requirement is 72 (71.6) units and will be satisfied as follows:

   - In-Lieu Fee: 35% (25 units) to be satisfied via payment of an "In-Lieu Fee" as provided by the City's fee schedule.
   - On-site Below Market Rate Units: 25% (18 units) to be satisfied by providing 18 "moderate" income zero-lot line single-family units dispersed throughout the various neighborhoods.
   - Land Contribution: 40% to be satisfied by dedicating two acres of stand-alone land (Public/Semi-Public parcel) to allow for future development of 77 units of affordable housing by an affordable housing developer.
   - On-site Accessory Dwelling Units/Second Units: 50 deed-restricted attached ADUs.

10. **Applicable Requirements of the Dublin Zoning Ordinance.** Except as specifically provided in this Stage 2 Development Plan or the Stage 1 Development Plan (Ordinance No. 32-05), the use, development, improvement and maintenance of the Property shall be governed by the provision of the Dublin Zoning Ordinance pursuant to 8.32.060C or its successor. The closest comparable zoning districts are as follows:

    R-1 Single Family Residential District for Neighborhoods 1-5
    R-M Multi-Family Residential District for Neighborhood 6

SECTION 5. POSTING OF ORDINANCE

The City Clerk of the City of Dublin shall cause this Ordinance to be posted in at least three public spaces in the City of Dublin in accordance with Section 36933 of the Government Code of the State of California.

SECTION 6. EFFECTIVE DATE

This Ordinance shall take effect 30 days following its adoption.

PASSED AND ADOPTED BY the City Council of the City of Dublin, on this ___ day of _______, by the following votes:

AYES:

NOES:

ABSENT:

ABSTAIN:

Mayor

ATTEST:

City Clerk

Attachment 2

RESOLUTION NO. xx-21

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF DUBLIN

APPROVING VESTING TENTATIVE TRACT MAP NO. 8563 AND HERITAGE TREE REMOVAL PERMIT RELATED TO THE EAST RANCH PROJECT PLPA 2020-00028 (APNS 905-0002-001-01 AND 905-0002-002-00)

WHEREAS, the Applicant, Trumark Homes, LLC, proposes to develop a 573-unit residential project with six neighborhoods, two neighborhood parks totaling 11.5 acres, and a two-acre Semi-Public site reserved for affordable housing located on Croak Road east of Fallon Road. Requested approvals include a Planned Development Stage 2 Development Plan, Vesting Tentative Tract Map No. 8563 and Heritage Tree Removal Permit. These planning and implementing actions are collectively known as the “East Ranch Project” or the “Project;” and

WHEREAS, the 165.5-acre Project site (APN 905 -0002-002-00 and 905 -0002-001-01) is located in eastern Dublin, directly east of the Jordan Ranch development and south of Positano development, straddling the existing Croak Road; and

WHEREAS, a Heritage Tree Removal Permit is required to remove four heritage trees (two coast live oaks, one river she-oak, and one cypress) necessary for the development of the project; and

WHEREAS, the California Environmental Quality Act (CEQA), together with the CEQA Guidelines and City of Dublin CEQA Guidelines and Procedures require that certain projects be reviewed for environmental impacts and that environmental documents be prepared; and

WHEREAS, prior CEQA analysis for the Project area includes: 1) the Eastern Dublin General Plan Amendment and Specific Plan EIR (1993); 2) the East Dublin Properties Stage 1 Development Plan and Annexation Supplemental EIR (2002); and 3) the Fallon Village Supplemental EIR (2005). Collectively, these three environmental review documents are referred to as the “EDSP EIRs;” and

WHEREAS, in compliance with CEQA, the City prepared a CEQA Analysis in Support of Specific Plan Exemption; and

WHEREAS, staff recommends the Project be found exempt from CEQA pursuant to Government Code Section 65457 and CEQA Guidelines Section 15182(c), which exempts residential projects that are consistent with a specific plan for which an EIR has been certified. The proposed Project is consistent with the EDSP EIRs and the General Plan and Eastern Dublin Specific Plan land use designations for the Project site. The CEQA Analysis in Support of Specific Plan Exemption prepared for the Project determined that there is no part of the proposed Project that triggers the need to prepare a subsequent EIR or negative declaration pursuant to CEQA Guidelines Section 15162 or Public Resources Code section 21166. Therefore, the Project qualifies for a specific plan exemption and does not require subsequent environmental review or the preparation of an additional CEQA document (EIR or MND); and

WHEREAS, following a public hearing on November 9, 2021, the Planning Commission adopted Resolution No. 21-08, recommending approval of the East Ranch Project, which resolution is incorporated herein by reference and available for review at City Hall during normal business hours; and

WHEREAS, a Staff Report dated December 7, 2021, and incorporated herein by reference, described and analyzed the Project, including the Planned Development Rezoning and related Stage 2 Development Plan, for the City Council; and

WHEREAS, on December 7, 2021, the City Council held a duly noticed public hearing on the Project at which time all interested parties had the opportunity to be heard; and

WHEREAS, following the public hearing, the City Council adopted Ordinance No. XX-21, finding the Project exempt from CEQA and approving the Planned Development Zoning District and related Stage 2 Development Plan. The above Ordinance is incorporated herein by reference and is available for review at City Hall during normal business hours; and

WHEREAS, the City Council did hear and use independent judgment and considered all said reports, recommendations, and testimony hereinabove set forth.

NOW, THEREFORE, BE IT RESOLVED that the foregoing recitals are true and correct and made a part of this Resolution.

BE IT FURTHER RESOLVED that the City Council of the City of Dublin does hereby make the following findings and determinations regarding the proposed Vesting Tentative Tract Map No. 8563 for the Project:

A. *The proposed subdivision map together with the provisions for its design and improvement is consistent with the general plan and any applicable specific plan* because: 1) the proposed Vesting Tentative Tract Map No. 8563 together with the provisions for the design and improvements comply with the development standards of the Eastern Dublin Specific Plan and the Stage 1 and Stage 2 Development Plan.

B. *The subdivision site is physically suitable for the type and proposed density of development* because: 1) the Project site is physically suitable for the type and proposed density of development is consistent with the land use designations of the Eastern Dublin Specific Plan and the Stage 1 and Stage 2 Development Plan; 2) the proposed development is consistent with the scale of other developments in the immediate vicinity; and 3) the Project site The site is a hillside development and generally slopes from the north east corner to the Croak Road and Central Parkway intersection. The denser development has been proposed to be in the flatter areas of the site, while the more conventional single-family homes have been located in areas that take advantage of the grade and step with the hillside. The grading proposed for the project will take into consideration the hilly terrain and will be designed to avoid excessive cuts and fills.

C. *The tentative tract map is consistent with the intent of applicable subdivision design or improvements of the tentative tract map are consistent with the city's general plan and any applicable specific plan* because: 1) the proposed Vesting Tentative Tract Map to create the parcels is consistent with the development densities of the Eastern Dublin Specific Plan and the Stage 1 and Stage 2 Development Plan.

D. *The subdivision design and proposed improvements will not cause substantial environmental damage or substantially and avoidably injure fish or wildlife or their habitat* because: 1) the proposed Vesting Tentative Tract Map are for the development of a relatively flat and vacant property which has been disturbed through vegetation management for years; and 2) pursuant to CEQA Guidelines the City prepared a CEQA Analysis in Support of Specific Plan Exemption and, therefore, the proposed subdivision will not result in environmental damage or substantially injure fish or wildlife or their habitat or cause public health concerns.

E. *The design of the subdivision or type of improvements will not cause serious public health concerns* because: 1) the design of the subdivision or type of improvements will not cause serious public health concerns as it has been conditioned to comply with all building codes and ordinances in effect at the time of permit issuance; 2) in addition, the City conducted a review to evaluate the Project's impacts; and 3) pursuant to CEQA Guidelines the City prepared a CEQA Analysis in Support of Specific Plan Exemption therefore, the proposed subdivision will not result in any potential impacts to public.

F. *The design of the subdivision or the type of improvements will not conflict with easements, acquired by the public at large, for access through or use of, property within the proposed subdivision; or alternate easements are provided pursuant to Government Code Section 66474(g)* because: 1) the City Engineer has reviewed the Vesting Tentative Tract Map and title report and has determined that the future proposed buildings will not conflict with existing or new easements nor with future property lines.

G. *The design or improvements of the tentative map are consistent with the city's general plan and any applicable specific plan* because: 1) the proposed Vesting Tentative Tract Map together with the provisions for their design and improvements comply with the development standards of the Stage 1 and Stage 2 Planned Development and the Eastern Dublin Specific Plan.

H. *The subdivision is designed to provide for future passive or natural heating or cooling opportunities* because: 1) the Project would be constructed in accordance with the latest building code and green building regulations/CalGreen; and 2) landscaping will be provided throughout the surface parking lot providing natural shading.

I. *The tentative tract map, including design and improvement, shall comply with all the applicable provisions and requirements of the zoning ordinance, the latest municipal stormwater permit issued to the city by the Regional Water Quality Control Board, this title, any other ordinance of the city, and the Subdivision Map Act* because: 1) the Project is compliant with the California Regional Water Quality Control Board San Francisco Bay Region Municipal Regional Stormwater NPDES Permit; 2) the Project would include bioretention areas and stormwater treatment vaults to ensure consistency with regional C.3 stormwater treatment; and 3) the Project would include full trash capture devices to ensure consistency with regional C.10 stormwater treatment requirements.

BE IT FURTHER RESOLVED that the City Council of the City of Dublin does hereby approve Heritage Tree Removal Permit for the East Ranch Project.

BE IT FURTHER RESOLVED that the City Council of the City of Dublin does hereby approve Vesting Tentative Map Tract No. 8563, attached **Exhibit A**, for the East Ranch Project, subject to the conditions included below.

CONDITIONS OF APPROVAL:

Unless stated otherwise, all Conditions of Approval shall be complied with prior to the issuance of building permits or establishment of use, and shall be subject to Planning Department review and approval. The following codes represent those departments/agencies responsible for monitoring compliance of the conditions of approval. [PL.] Planning, [B] Building, [PO] Police, [PW] Public Works [P&CS] Parks & Community Services, [ADM] Administration/City Attorney, [FIN] Finance, [F] Alameda County Fire Department, [DSR] Dublin San Ramon Services District, [CO] Alameda County Department of Environmental Health, [Z7] Zone 7.

#	CONDITION TEXT	RESPON. AGENCY	WHEN REQ'D Prior to:
General Conditions			
1.	**Approval.** This approval is for the East Ranch Vesting Tentative Map (PLPA-2020-00028). This approval shall be as generally depicted and indicated on the Vesting Tentative Map Tract No. 8563 prepared MacKay & Somps, dated September 2021, attached as Exhibit A and other plans, text, and diagrams relating to this project, and as specified as the following Conditions of Approval.	PL	Ongoing
2.	**Compliance.** Applicant/Developer shall comply with the Subdivision Map Act, the City of Dublin Subdivision and Zoning Ordinances, City of Dublin Title 7 Public Works Ordinance, which includes the Grading Ordinance, the City of Dublin Public Works Standards and Policies, the most current requirements of the State Code Title 24 and the Americans with Disabilities Act with regard to accessibility, and all building and fire codes and ordinances in effect at the time of building permit. Public improvements constructed by Applicant/Developer to be paid in whole or in part out of public funds and to be dedicated to the City are hereby identified as "public works" under Labor Code section 1771. Accordingly, Applicant/Developer, in constructing such improvements, shall comply with the Prevailing Wage Law (Labor Code. Sects. 1720 and following).	Various	Final Map Approval or Grading Permit
3.	**Hold Harmless/Indemnification.** Applicant/ Developer shall defend, indemnify, and hold harmless the City of Dublin and its agents, officers, and employees from any claim, action, or proceeding against the City of Dublin or its advisory agency, appeal board, Planning Commission, City Council,	ADM	On-going

	Community Development Director, Zoning Administrator, or any other department, committee, or agency of the City to the extent such actions are brought within the time period required by Government Code Section 66499.37 or other applicable law: provided, however, that the Applicant/Developer's duty to so defend, indemnify, and hold harmless shall be submitted to the City's promptly notifying or proceeding and the City's full cooperation in the defense of such actions or proceedings.		
4.	**Clarifications and Changes to the Conditions.** In the event that there needs to be clarification to these Conditions of Approval, the City Engineer and Community Development Director have the authority to clarify the intent without going to a public hearing. The City Engineer and Community Development Director also have the authority to make minor modifications to these conditions without going to a public hearing in order for the Applicant/Developer to fulfill needed improvements or mitigations resulting from impacts of this project.	PL, PW	On-going
Planning – Project Specific Conditions			
5.	**Mitigation Monitoring Program.** Applicant/ Developer shall comply with CEQA Analysis in Support of Specific Plan Exemption for East Ranch – Final Draft dated November 4, 2021, including all mitigation measures, action programs, and implementation measures contained in the Eastern Dublin General Plan Amendments and Specific Plan EIR, East Dublin Properties SEIR and Fallon Village SEIR. Applicant/Developer shall provide to the Planning Division and Public Works Department a copy of the mitigation measures maintenance manual and schedule for reference, including maintenance procedures and protocols to follow after mitigation reporting is complete.	PL, PW	Approval of Improvement Plans and On-going
6.	**Dedication of Parcel P to Affordable Housing Developer.** If the proposed land dedication of Parcel P (Public/Semi Public Parcel) is approved as part of the Inclusionary Zoning Regulations (Planned Development Stage 2 Development Plan), the developer shall provide proof that Parcel P has been deeded to an affordable housing developer.	PL, PW	Approval of First Neighborhood Map
7.	**Inclusionary Housing.** The proposed project shall comply with the City of Dublin Inclusionary Ordinance as detailed in the Planned Development.	PL	On-going

8.	In accordance with Government Code Section 66473.7(b)(1) the project shall be required to have a sufficient water supply.	PL	Approval of Final Map
Dublin San Ramon Services District			
9.	All easement dedications for Dublin San Ramon Services District (DSRSD) facilities shall be by separate instrument irrevocably offered to DSRSD or by offer of dedication on the Final Map. Prior to approval by the City for recordation, the Final Map shall be submitted to and approved by DSRSD for easement locations, widths, and restrictions.	DSRSD	Approval of Final Map
10.	Offsite easements for connection to DSRSD water facilities may be required. The applicant shall be responsible for acquiring all necessary off-site easements and constructing necessary off-site water mains in conformance with all DSRSD requirements.	DSRSD	Approval of Final Map
Public Works - General Conditions			
11.	**Conditions of Approval.** Applicant/Developer shall comply with the City of Dublin Public Works Standard Conditions of Approval contained below ("Standard Condition") unless specifically modified by Project Specific Conditions of Approval below.	PW	On-going
12.	**Street Lighting Maintenance Assessment District.** Applicant/Developer shall request the area to be annexed into the Dublin Ranch Street Lighting Maintenance Assessment District or within the City-wide Lighting Maintenance District (LMD), as appropriate, and shall provide any exhibits required for the annexation. In addition, Applicant/Developer shall pay all administrative costs associated with processing the annexation	PW	First Final Map
13.	**Geologic Hazard Abatement District (GHAD).** Prior to filing of the first Final Map, the annexation of the entire project into the Fallon Village Geologic Hazard Abatement District (GHAD) shall be completed. The GHAD shall be responsible for ongoing maintenance of slopes, existing wetlands (within GHAD jurisdiction), water quality basins, debris benches, EVA/Maintenance roads, developed trails, fencing, concrete-lined drainage ditches, storm drain system improvements (GHAD-owned parcels), developer constructed retaining walls, subdrains and subdrain outlets, fuel management on GHAD-owned parcels. Developer shall be responsible for preparing and submitting all documents necessary for annexation into the GHAD, including a petition of annexation, plan of control, and engineer's report that includes annual operating budget for buildout of the project. The plan of control and engineer's report	PW/GHAD	Prior to First Final Map Approval

	shall be adopted by the GHAD Board setting the annual assessment limit. Assessments shall be adjusted annually for inflation and supported by the GHAD Engineer's Report. Initial assessments against the property owners shall not be lower than ultimate assessments at buildout except as adjusted for inflation. The assessments shall be levied no sooner than the issuance of building permits. The assessment shall be levied no later than the first fiscal year following the issuance of a residential building permit for each parcel. Developer shall also be responsible for City's and GHAD's administration costs associated with processing the annexation		
14.	**Covenants, Conditions and Restrictions (CC&Rs).** A Homeowners' Association (HOA) shall be formed by recordation of a declaration of Covenants, Conditions, and Restrictions (CC&Rs) to govern use and maintenance of the landscape features within the public right-of-way contained in the Agreement for Long Term Encroachments along Croak Road, Central Parkway, interim Croak Road and interior public streets. Said declaration shall set forth the HOA name, bylaws, rules and regulations. The CC&Rs shall ensure that there is adequate provision for the maintenance, in good repair and on a regular basis, of the stormwater treatment, trash capture, hydromodification along interim Croak Road, landscaping and irrigation, decorative pavement, fences, walls, drainage, lighting, signs and other related improvements. The CC&Rs for the project shall also contain funding mechanisms, such as deed assessments, enforceable by the City to ensure that the property owners are obligated to pay the costs of maintenance in the event that the GHAD does not have sufficient resources to perform its obligations. The CC&Rs shall also provide provisions that require the HOA to pay the GHAD's or City Attorney's fees in the event that either enforces the HOA's obligation to fund maintenance of the GHAD's responsibilities defined in the adopted plan of control. The CC&Rs shall be reviewed and approved by the City Engineer and City Attorney to ensure compliance with this Condition of Approval. The CC&Rs shall also contain all other items required by these conditions. Developer shall submit a copy of the CC&R document to the City for review and approval.	PW	First Final Map
15.	**Maintenance of Interim Improvements within the Public Right-of-Way.** The HOA shall maintain bioretention, including irrigation and landscaping, along interim Croak Road.	PW	Approval of Interim Croak Road

	Developer’s maintenance obligation shall cease when either of the following occurs: • When property owners adjacent to the public right-of-way along interim Croak Road enter into a Long Term Encroachment Agreement with the City to allow the Property Owner’s Association/Property Managers to maintain the landscape features within the public right-of-way (i.e. bioretention, irrigation and landscape, etc.) along their respective property frontages, the Developer shall be released of the maintenance responsibilities of these specific areas, but will remain responsible for these features within the public right-of-way along their property frontage. • Interim Croak Road right-of-way south of Dublin Boulevard is vacated and public improvements (i.e. bioretention, irrigation and landscape, etc.) are removed. The Developer shall continue to maintain required improvements within the public right-of-way along their property frontage.		Improvement Plans
16.	**Phased Improvements.** Right-of-way dedication and installation of public improvements may be done in phases as indicated on the Vesting Tentative Map, subject to the review and approval of the City Engineer. With each phased Final Map, the City Engineer shall identify all improvements necessary to serve and access the phased lots created. All rights-of-way and improvements, including utilities and traffic signal installation and modifications, identified by the City Engineer for construction within the boundaries of each phase of the development shall be required with the Final Map for that phase. In addition, the City Engineer may require the Developer to perform off-site grading in order to conform site grading to the adjacent grade outside of the phase proposed for development.	PW	Final Map
17.	**Private Street and Common Area Subdivision Improvements.** Common area improvements, private streets, private alleys and all other subdivision improvements owned or maintained by the HOA are subject to review and approval by the City Engineer prior to Final Map approval and shall be included in the Tract Improvement Agreement for each respective tract. Such improvements include, but are not limited to: curbs and gutters, pavement areas,	PW	Final Map

	sidewalks, access ramps and driveways, enhanced street paving, parking spaces, street lights (wired underground) and appurtenances, drainage facilities, utilities, landscape and irrigation facilities, open space landscaping, stormwater treatment facilities, striping and signage, and fire hydrants.		
Public Works - Agreements			
18.	**Stormwater Management Maintenance Agreement.** The Property Owner and/or HOA shall enter into an Agreement with the City of Dublin that guarantees the property owner's perpetual maintenance obligation for all stormwater management measures installed as part of the project, including those on-site and within the public right-of-way. The Developer/HOA maintenance responsibility would be in effect until the GHAD accepts management and maintenance responsibilities for GHAD-maintained improvements as provided in the adopted Plan of Control. In addition to stormwater management measures and hydromodification (HM) facilities, v-ditch and j-ditch maintenance guidelines shall be included. Locations of mitigation facilities and existing wetlands shall be included for reference, as applicable. Said Agreement is required pursuant to Provision C.3 of the Municipal Regional Stormwater NPDES Permit, Order No. R2-2009-0074. Said permit requires the City to provide verification and assurance that all treatment devices will be properly operated and maintained. The Agreement shall be recorded against the property and shall run with the land.	PW	Approval of Final Map in which Stormwater Infrastructure is Associated
19.	**Improvement Agreement.** Applicant/Developer shall enter into an Improvement Agreement with the City for all public improvements including any required offsite storm drainage or roadway improvements that are needed to serve the development, as determined by the City Engineer.	PW	Approval of Appropriate Improvement Plans or Appropriate Final Map
20.	**Landscape Features within Public Right-of-Way.** Property Owner shall enter into an "Agreement for Long Term Encroachment for Landscape Features" with the City to require the Property Owner to maintain the landscape and decorative features within public right-of-way including frontage landscaping, decorative pavements and special features (i.e., walls, portals, benches, etc.). The Agreement shall identify the ownership of the special features and maintenance responsibilities. Property Owner will be responsible for maintaining the surface	PW	Grading Permit/Site Work Permit or Encroachment Permit Issuance

	of all decorative pavements including restoration required as the result of utility repairs.		
21.	**Right of Entry Agreement.** Applicant/Developer shall provide a copy of an executed right of entry agreement for any work off-site or on adjacent private property prior to construction of these off-site improvements. Privately maintained features/structures located within GHAD parcels will require right of entry agreement.	PW/GHAD	Acceptance of Improvements
Public Works – Permits and Bonds			
22.	**Encroachment Permit.** Applicant/Developer shall obtain an Encroachment Permit from the Public Works Department for all construction activity within the public right-of-way. At the discretion of the City Engineer, an Encroachment Permit for work specifically included in an Improvement Agreement may not be required.	PW	Permit Issuance
23.	**Grading Permit(s).** Applicant/Developer shall obtain a Grading Permit(s) from the Public Works Department for all grading.	PW	Permit Issuance
24.	**Security.** Applicant/Developer shall provide faithful performance and payment securities in accordance with the improvement agreements(s), approved by the City Engineer, prior to the execution of the Tract Improvement Agreement and approval of the Final Map.	PW	Permit Issuance/Final Map
25.	**Permits from Other Agencies.** Applicant/ Developer shall obtain all permits and/or approvals that may be required by other agencies including, but not limited to: • Army Corps of Engineers • US Fish and Wildlife • Regional Water Quality Control Board • Federal Emergency Management Agency • California Department of Fish and Wildlife • California Dept. of Transportation (Caltrans) • Bay Area Rapid Transit (BART) • Livermore-Amador Valley Transit Authority (LAVTA) • Tri-Valley-San Joaquin Valley Regional Rail Authority • Dublin San Ramon Services District (DSRSD) • Alameda County Flood Control and Water Conservation District Zone 7 (Zone 7)	PW	Permit Issuance
Public Works – Fees			
26.	**Parkland Dedication or In-Lieu Fees.** Applicant/Developer dedicate parkland or pay in-lieu fees in the amounts and at the times set forth in City	PW	First Final Map

	of Dublin Resolution No. 60-99, or in any resolution revising these amounts and as implemented by the Administrative Guidelines adopted by Resolution No. 109-99.		
27.	**Zone 7 Impervious Surface Fees.** Applicant/Developer shall complete a "Zone 7 Impervious Surface Fee Application" and submit an accompanying exhibit for review by the Public Works Department for all public and common area improvements. Fees generated by this application will be due at approval of Final Map.	PW	Appropriate Final Map
Public Works – Submittals			
28.	**Improvement Plan and Final Map Submittal Requirements.** All submittals of plans shall comply with the requirements of the "City of Dublin Public Works Department Improvement Plan Submittal Requirements," the "City of Dublin Improvement Plan Review Check List," and current Public Works and industry standards. A complete submittal of improvement plans shall include all civil improvements, joint trench, street lighting and on-site safety lighting, landscape plans, and all associated documents as required. Applicant/Developer shall not piecemeal the submittal by submitting various components separately.	PW	Grading Permit Issuance
29.	**Improvement Plan Requirements from Other Agencies.** Applicant/Developer will be responsible for submittals and reviews to obtain the approvals of all participating non-City agencies, including but not limited to: the Alameda County Fire Department and the Dublin San Ramon Services District.	PW	Grading/Site Work and Encroachment Permit Issuance
30.	**Composite Exhibit.** Construction plan set shall include a Composite Exhibit showing all site improvements, utilities, landscaping improvements and trees, etc. to be constructed to ensure that there are no conflicts among the proposed and existing improvements.	PW	Grading/Site Work and Encroachment Permit Issuance
31.	**Geotechnical Report.** Applicant/Developer shall submit a Design Level Geotechnical Report, which includes street pavement sections, grading, slope stability, removal of existing geogrid, and additional information and/or clarifications as determined by the City Engineer.	PW	Grading Permit Issuance
32.	**Ownership and Maintenance of Improvements.** Applicant/Developer shall submit an Ownership and Maintenance Exhibit for review and approval by Planning Division and Public Works Department. Terms of maintenance are subject to review and approval by the City Engineer.	PL, PW	Approval of Final Map

33.	**Building Pads, Slopes and Walls.** Applicant/Developer shall provide the Public Works Department with a letter from a registered civil engineer or surveyor stating that the building pads have been graded to within 0.1 feet of the grades shown on the approved Grading Plans, and that the top and toe of banks are at the locations shown on the approved Grading Plans.	PW	Acceptance of Improvements
34.	**Approved Plan Files.** Applicant/Developer shall provide the Public Works Department a PDF format file of approved site plans, including grading, improvement, landscaping and irrigation, joint trench and lighting.	PW	Grading and Encroachment Permit Issuance
35.	**Master Files.** Applicant/Developer shall provide the Public Works Department a digital vectorized file of the "master" files for the project, in a format acceptable to the City Engineer. Digital raster copies are not acceptable. The digital vectorized files shall be in AutoCAD 14 or higher drawing format. All objects and entities in layers shall be colored by layer and named in English. All submitted drawings shall use the Global Coordinate System of USA, California, NAD 83 California State Plane, Zone III, and U.S. foot.	PW	Acceptance of Improvements
36.	**Environmental Services Files**. Applicant/Developer shall provide to the Public Works Department in the file format specified in under the Master Files COA all MRP Provision C.3 stormwater features, trash capture devices, mitigation measures, wetlands, v-ditches and public waste containers.	PW	Acceptance of Improvements
37.	**SB 1383 Compliance Reporting.** To comply with SB 1383, Applicant/Developer shall provide to the Public Works Department records indicating where SB 1383 compliant mulch or compost was applied in the project, the source and type of product, quantity of each product, and invoices demonstrating procurement.	PW	Acceptance of Improvements
Public Works – Final Map, Easements and Access Rights			
38.	**Final Map(s).** The Final Maps shall be substantially in accordance with the Vesting Tentative Map approved with this application, unless otherwise modified by these conditions. Multiple Final Maps may be filed in phases, provided each phase is consistent with the Vesting Tentative Map, that phasing progresses in an orderly and logical manner and adequate infrastructure is installed with each phase to serve that phase as a stand-alone project that is no dependent upon future phasing for	PW	Final Map Approval

	infrastructure.		
39.	**Street Names.** Street names shall be assigned to each public/private street pursuant to Dublin Municipal Code Chapter 7.08. The approved street names shall be indicated on the Final Map after approval by the Building Division of the Community Development Department.	PW	Final Map Approval
40.	**Monuments.** The Final Map shall include the street monuments to be set in all public and private streets.	PW	To be Shown on Final Map and Installed Prior to Acceptance of Improvements
41.	**Dedications.** All rights-of-way and easement dedications required by these conditions or determined necessary by the City Engineer shall be shown on the Final Map.	PW	Approval of Final Map
42.	**Public Service Easements.** A Public Service Easement (PSE) shall be dedicated along the project's public street frontages to allow for the proper placement of public utility vaults, boxes, appurtenances or similar items behind the back-of-sidewalk. Private improvements such as fences, gates or trellises shall not be located within the PSE.	PW	Approval of Final Map
43.	**Emergency Vehicle Access Easements.** Applicant/Developer shall dedicate Emergency Vehicle Access Easements (EVAE) over the clear pavement width of all drive aisles as required by the Alameda County Fire Department and City Engineer.	PW	Approval of Final Map
44.	**Abandonment of Easements.** Applicant/Developer shall obtain abandonment from all applicable public agencies of existing easements and rights-of-way within the project site that will no longer be used. Prior to completion of abandonment, the improvement plans may be approved if the Applicant/Developer can demonstrate to the satisfaction of the City Engineer that the abandonment process has been initiated.	PW	Approval of Final Map
45.	**Acquisition of Easements.** Applicant/Developer shall be responsible for obtaining all on-site and off-site easements, and/or obtain rights-of-entry from the adjacent property owners for any grading or improvements not located on their property. Applicant/Developer shall prepare all required documentation for dedication of all easements on-site and off-site. The easements and/or rights-of-entry shall be in writing and copies furnished to the Public Works Department.	PW	Approval of Appropriate Final Map or Appropriate Permit Issuance

46.	**Approval by Others.** Applicant/Developer will be responsible for submittals and reviews to obtain the approvals of all applicable non-City agencies.	PW	Approval of Final Map
Public Works – Grading			
47.	**Grading Plan.** The Grading Plan shall be in conformance with the recommendation of the Geotechnical Report, the approved Vesting Tentative Map and Site Development Review, and the City design standards and ordinances. In case of conflict between the soil engineer's recommendation and the City ordinances, the City Engineer shall determine which shall apply.	PW	Grading Permit Issuance
48.	**Geotechnical Engineer Review and Approval**. The Project Geotechnical Engineer shall be retained to review all final grading plans and specifications. The Project Geotechnical Engineer shall approve all grading plans prior to City approval.	PW	Grading Permit Issuance
49.	**Bulk Grading.** The following bulk and rough grading shall be performed to the satisfaction of the City Engineer: • Grading as needed to construct the backbone roadway improvements • Grading required for all required stormwater management measures Grading for individual parcels and neighborhoods such that no additional earth-moving activities will be required across completed roadways to complete the final grading for individual tracts	PW	Grading Permit Issuance
50.	**Collect Runoff Upstream of Public Right-of-Way.** Runoff shall be collected and conveyed upstream of public rights-of-way. Upstream runoff shall not drain across public sidewalks other than in front yards of private lots to the extent possible.	PW	Grading Permit Issuance
51.	**Collect Runoff Upstream of Retaining Walls.** Runoff shall be collected and conveyed upstream of common area retaining walls.	PW	Grading Permit Issuance
52.	**Tiebacks or Structural Fabric for Retaining Walls.** Tiebacks or structural fabric for retaining walls shall not cross property lines, or shall be located a minimum of two feet below the finished grade of the upper lot.	PW	Grading Permit Issuance
53.	**Slope Bank.** Slope bank along public streets shall be no steeper than 3:1 unless otherwise shown on the Vesting Tentative Map Grading Plan exhibits. The toe of any slope along public streets shall be one foot back of walkway. The top of any slope along public streets shall be three feet back of sidewalk.	PW	Grading Permit Issuance

	Minor exception may be made in the above slope design criteria to meet unforeseen design constraints subject to the approval of the City Engineer.		
54.	**Grading Off-Haul.** The disposal site and haul truck route for any off-haul dirt materials shall be subject to the review and approval by the City Engineer prior to the issuance of a Grading Permit. If Applicant/Developer does not own the parcel on which the proposed disposal site is located, Applicant/Developer shall provide the City with a Letter of Consent signed by the current owner, approving the placement of off-haul material on their parcel. A Grading Plan may be required for the placement of the off-haul material.	PW	Grading Permit Issuance
55.	**Erosion Control Plan.** A detailed Erosion and Sediment Control Plan shall be included with the Grading Plan submittal. The plan shall include detailed design, location, and maintenance criteria of all erosion and sedimentation control measures. The plan shall also address site housekeeping best management practices.	PW	Grading Permit Issuance
56.	**Demolition Plan.** Applicant/Developer's Civil Engineer shall prepare a demolition plan for the project, which shall be submitted concurrent with the improvement plan package. The demolition plan shall address the following: • Pavement demolition, including streetlights and landscaped median islands • Landscaping and irrigation • Fencing to be removed and fencing to remain • Any items to be saved in place and/or protected, such as trees, water meters, sewer cleanouts, drainage inlets or backflow prevention devices.	PW	Grading and Encroachment Permit Issuance
Public Works – Storm Drainage and Other Utilities			
57.	**On-site Storm Drain System.** Storm drainage for the 10-year storm event shall be collected on-site and conveyed through storm drains to the public storm drain system. The size and location of existing and proposed storm drains and catch basins shall be shown on the site plan. The size and location of public storm drain lines and the points of connection for the on-site storm drain system shall also be shown.	PW	Grading Permit Issuance
58.	**Overland Release.** Grading and drainage shall be designed so that surplus drainage (above and beyond that of the 10-year storm event) not collected in site catch basins, is directed overland so as not to cause flooding of existing or proposed buildings.	PW	Grading Permit Issuance
59.	**Storm Drain Easements.** Private storm drain	PW	Grading Permit

	easements and maintenance roads shall be provided for all private storm drains or ditches that are located on private property. Applicant/Developer shall be responsible for the acquisition of all storm drain easements from off-site property owners which are required for the connection and maintenance of all offsite storm drainage improvements.		Issuance
60.	**Storm Drain Inlet Markers.** All public and private storm drain inlets must be marked with storm drain markers that read: "No dumping, drains to creek," and a note shall be shown on the improvement plans. The markers may be purchased from the Public Work Department.	PW	Acceptance of Improvements
61.	**Fire Hydrants.** Fire hydrant locations shall be approved by the Alameda County Fire Department. A raised reflector blue traffic marker shall be installed in the street opposite each hydrant and shown on the signing and striping plan.	PW	Acceptance of Improvements
62.	**Dry Utilities.** Applicant/Developer shall construct gas, electric, telephone, cable TV, and communication improvements within the fronting streets and as necessary to serve the project and the future adjacent parcels as approved by the City Engineer and the various public utility agencies.	PW	Certificate of Occupancy or Acceptance of Improvements
63.	**Dry Utility Locations.** All electric, telephone, cable TV, and communications utilities, shall be placed underground in accordance with City policies and ordinances. All utilities shall be located and provided within public utility easements or public services easements and sized to meet utility company standards.	PW	Certificate of Occupancy or Acceptance of Improvements
64.	**Utility Vaults and Boxes.** All utility vaults, boxes, and structures, unless specifically approved otherwise by the City Engineer, shall be underground and placed in landscaped areas and screened from public view. Landscape drawings shall be submitted to the City showing the location of all utility vaults, boxes, and structures and adjacent landscape features and plantings. The Joint Trench Intent Plans shall be submitted along with the rough grading and/or improvement plans.	PW	Certificate of Occupancy or Acceptance of Improvements
Public Works – Street Improvements			
65.	**Public Improvements.** Public improvements shall be constructed generally as shown on the Vesting Tentative Map and Stage 2 Development Plan. However, the approval of the Vesting Tentative Map and Stage 2 Development Plan is not an approval of the specific design of the drainage, traffic circulation, parking, stormwater treatment, sidewalks and street	PW	Grading Permit or Encroachment Permit Issuance

	improvements.		
66.	**Public Improvement Conformance.** All public improvements shall conform to the City of Dublin Standard Plans, current practices, and design requirements and as approved by the City Engineer.	PW	Grading Permit or Encroachment Permit Issuance
67.	**Public Street Slopes.** Public streets shall be a minimum 1% slope with minimum gutter flow of 0.7% around bulb outs. Private streets and alleys shall be at minimum 0.5% slope.	PW	Grading Permit or Encroachment Permit Issuance
68.	**Pavement Structural Sections.** Asphalt concrete pavement sections within the public right-of-way shall be designed using the Caltrans method for flexible pavement design (including the asphalt factor of safety), an assumed R-Value of 5. Final pavement sections shall be based on the actual R-Value obtained from pavement subgrade.	PW	Grading Permit or Encroachment Permit Issuance
69.	**Bus Stops.** Applicant/Developer shall construct bus stops and shelters at the locations designated and approved by the LAVTA and the City Engineer. Applicant/Developer shall pay the cost of procuring and installing these improvements.	PW	Improvement Plan Approval
70.	**Decorative Pavement.** Any decorative pavers/paving installed within City right-of-way shall be done to the satisfaction of the City Engineer. Where decorative paving is installed at signalized intersections, pre-formed traffic signal loops shall be put under the decorative pavement. Decorative pavements shall not interfere with the placement of traffic control devices, including pavement markings. All turn lane stripes, stop bars and crosswalks shall be delineated with concrete bands or colored pavers to the satisfaction of the City Engineer. Maintenance costs of the decorative paving shall be the responsibility of the Applicant/Developer or future property owner.	PW	Grading/Site Work or Encroachment Permit Issuance
71.	**Curb, Gutter and Sidewalk.** Applicant/Developer shall remove and replace any existing damaged, hazardous, or nonstandard curb, gutter and sidewalk along the project frontage or boundary. Contact the Public Works Department to mark the existing curb, gutter and sidewalk that will need to be removed and replaced.	PW	Grading/Site Work or Encroachment Permit Issuance
72.	**Curb Ramps**. City standard curb ramps are required at all intersections. All curb ramps shall include truncated domes and meet the most current City and ADA design standards. Curb ramp locations shall be shown on the plans. Please note that all curb returns	PW	Grading/Site Work Permit or Encroachment Permit Issuance

	on public streets shall have directional or dual ADA ramps – one for each crosswalk and oriented to align parallel with the crosswalk, to the extent feasible to the satisfaction of the City Engineer.		
73.	**Visibility Triangle.** All improvements within the sight visibility triangle at all intersections and driveways (excluding single-family driveways), including but not limited to walls and landscaping, shall be a maximum height of 30 inches from the roadway surface elevation at the nearest lane.	PW	Grading/Site Work or Encroachment Permit Issuance
74.	**Traffic Signing and Striping.** Applicant/Developer shall install all traffic signage, striping, and pavement markings as generally shown in the VTM, and stated in these conditions of approval, to the satisfaction of the City Engineer. Signing plans shall show street name and stop signs and any other regulatory signage appropriate for the project. Striping plans shall show stop bars, lane lines and channelization as necessary. Striping plans shall distinguish between existing striping to be removed and new striping to be installed. All striping shall be thermoplastic.	PW	Grading/Site Work or Encroachment Permit Issuance
75.	**Street Name Signs.** Applicant/Developer shall furnish and install street name signs for the project to the satisfaction of the City Engineer.	PW	Occupancy of Units or Acceptance of Improvements
Public Works – Construction			
76.	**Erosion Control Implementation.** The Erosion and Sediment Control Plan shall be implemented between October 1st and April 30th unless otherwise allowed in writing by the City Engineer. Applicant/Developer will be responsible for maintaining erosion and sediment control measures for one year following the City's acceptance of the improvements.	PW	Start of Construction and On-going
77.	**Archaeological Finds.** If archaeological materials are encountered during construction, construction within 100 feet of these materials shall be halted until a professional Archaeologist certified by the Society of Calif. Archaeology (SCA) or the Society of Professional Archaeology (SOPA) has had an opportunity to evaluate the significance of the find and suggest appropriate mitigation measures.	PW	Start of Construction and On-going
78.	**Construction Activities.** Construction activities, including the idling, maintenance, and warming up of equipment, shall be limited to Monday through Friday, and non-City holidays, between the hours of 7:30 a.m. and 6:00 p.m. except as otherwise approved by the City Engineer. Signage shall be	PW	Start of Construction and On-going

	clearly posted indicating that vehicle idling longer than 30 seconds is prohibited. Extended hours or Saturday work will be considered by the City Engineer on a case-by-case basis. Note that the construction hours of operation within the public right-of-way are more restrictive.		
79.	**Temporary Fencing.** Temporary construction fencing shall be installed along the construction work perimeter to separate the construction area from the public. All construction activities shall be confined within the fenced area. Construction materials and/or equipment shall not be operated/stored outside of the fenced area or within the public right-of-way unless approved in advance by the City Engineer.	PW	Start of Construction and On-going
80.	**Construction Noise Management Plan.** Applicant/Developer shall prepare a construction noise management plan that identifies measures to minimize construction noise on surrounding developed properties. The plan shall include hours of construction operation, use of mufflers on construction equipment, speed limit for construction traffic, haul routes and identify a noise monitor. Specific noise management measures shall be provided prior to project construction.	PW	Start of Construction Implementation, and On-going as needed
81.	**Traffic Control Plan.** Closing of any existing pedestrian pathway and/or sidewalk during construction shall be implemented through a City-approved Traffic Control Plan and shall be done with the goal of minimizing the impact on pedestrian circulation.	PW	Start of Construction and On-going as needed
82.	**Construction Traffic Interface Plan.** Applicant/Developer shall prepare a plan for construction traffic interface with public traffic on any existing public street. Construction traffic and parking may be subject to specific requirements by the City Engineer.	PW	Start of Construction; Implementation, and On-going as needed
83.	**Pest Control.** Applicant/Developer shall be responsible for controlling any rodent, mosquito, or other pest problem due to construction activities.	PW	On-going
84.	**Dust Control Measures.** Applicant/Developer shall be responsible for watering or other dust-palliative measures to control dust as conditions warrant or as directed by the City Engineer.	PW	Start of Construction; Implementation On-going as needed
85.	**Construction Traffic and Parking.** All construction-related parking shall be off-street in an area provided by the Applicant/Developer. Construction traffic and parking shall be provided in a manner approved by the City Engineer.	PW	Start of Construction and On-going

86.	**Dust Control/Street Sweeping.** Applicant/Developer shall provide adequate dust control measures at all times during the grading and hauling operations. All trucks hauling export and import materials shall be provided with tarp cover at all times. Spillage of haul materials and mud-tracking on the haul routes shall be prevented at all times. Applicant/Developer shall be responsible for sweeping of streets within, surrounding and adjacent to the project if it is determined that the tracking or accumulation of material on the streets is due to its construction activities.	PW	During Grading and Site Work
Public Works – Erosion Control and Stormwater Quality			
87.	**Stormwater Treatment.** Consistent with Provision C.3 of the Municipal Regional Stormwater NPDES Permit (MRP) Order No. R2-2015-0049 and any subsequent amendments of the applicable MRP issued thereof the Regional Water Quality Control Board prior to project approval, Applicant/Developer shall submit documentation including construction drawings demonstrating all stormwater treatment measures and hydromodification requirements as applicable are met.	PW	Grading/Site Work or Encroachment Permit Issuance
88.	**Stormwater Treatment Areas.** Stormwater treatment areas shall be located outside of public utility easements and public service easements.	PW	Grading/Site Work or Encroachment Permit Issuance
89.	**Maintenance Access.** Applicant/Developer shall design and construct maintenance access to all stormwater management measures and mitigation swales, as appropriate. Many of the facilities are large and one point of access may not be sufficient. Maintenance access for equipment and personnel to overflow risers, cleanouts and other structures is required. The final number, location, width, and surfacing of maintenance access points from public or private streets is subject to the approval of the City Engineer and GHAD Engineer, as applicable.	PW/GHAD	Grading/ Site Work or Encroachment Permit Issuance
90.	**Green Stormwater Infrastructure.** Applicant/Developer shall incorporate Green Infrastructure facilities within the public rights-of-way of newly constructed or widened streets, subject to the review of the Public Works Department. Green Stormwater Infrastructure facilities include, but are not limited to: infiltration basins, bioretention facilities, pervious pavements, etc.	PW	Grading Permit or Encroachment Permit Issuance
91.	**NOI and SWPPP.** Prior to any clearing or grading, Applicant/Developer shall provide the City evidence	PW	Start of Any Construction

	that a Notice of Intent (NOI) has been sent to the California State Water Resources Control Board per the requirements of the NPDES. An electronic copy of the Storm Water Pollution Prevention Plan (SWPPP) shall be provided to the Public Works Department and be kept at the construction site.		Activities
92.	**SWPPP.** The Storm Water Pollution Prevention Plan (SWPPP) shall identify the Best Management Practices (BMPs) appropriate to the project construction activities. The SWPPP shall include the erosion and sediment control measures in accordance with the regulations outlined in the most current version of the Association of Bay Area Governments (ABAG) Erosion and Sediment Control Handbook or State Construction Best Management Practices Handbook. Applicant/Developer is responsible for ensuring that all contractors implement all storm water pollution prevention measures in the SWPPP.	PW	SWPPP to be Prepared Prior to Grading Permit Issuance; Implementation Prior to Start of Construction and On-going as needed
93.	**Stormwater Management Plan.** A final Stormwater Management Plan shall be submitted for review and approval by the City Engineer. Approval is subject to the Applicant/Developer providing the necessary plans, details, and calculations that demonstrate the plan complies with the standards issued by the San Francisco Bay Regional Water Quality Control Board and Alameda Countywide Clean Water Program. Landscape Based Stormwater Management Measures shall be irrigated and meet WELO requirements.	PW	Grading/ Site Work or Encroachment Permit Issuance
94.	**SB 1383 Compliance.** To comply with SB 1383 procurement requirements, all mulch and compost used in stormwater management measures and general landscape areas shall meet SB 1383 procurement requirements. Specifically, compost must be produced at a permitted composting facility; digestate, biosolids, manure and mulch do not qualify as compost. Eligible mulch must be derived from organic materials and be produced at a permitted transfer station, landfill, or composting facility. Examples of allowed compost include arbor mulch and composted mulch.	PW	Grading/Site Work or Encroachment Permit Issuance
95.	**Trash Capture.** The project must include appropriate full trash capture devices for both private and public improvements. Specific details on the trash capture devices selected are required on the construction plan set demonstrating how MRP Provision C.10 (trash capture) requirements are met. A list of approved full trash capture devices may be	PW	Grading/ Site Work or Encroachment Permit Issuance

	found at the City's website at the following web address: https://dublin.ca.gov/1656/Development-Permits---Stormwater-Require Please note that lead time for trash capture device delivery can be substantial. The applicant/contractor shall plan accordingly.		
96.	**Phased Construction and Stormwater Management Measures.** Required stormwater treatment, hydromodification management, and trash capture devices shall be installed concurrent with construction of the first phase of improvements. Temporary facilities are not permitted.	PW	Grading/ Site Work or Encroachment Permit Issuance
Public Works – Special Conditions			
97.	**Neighborhood Park on Parcel D.** The Neighborhood Park on Parcel D shall contain a minimum of 5.5 acres and be shown on the Final Map as future parkland to be deeded to the City of Dublin by separate document. The City will not accept the future parkland parcel until the site is rough graded, including erosion control measures, and all associated improvements are completed as generally shown on Vesting Tentative Map 8563 to the satisfaction of the City Engineer and Parks & Community Services Director. Required improvements include, but are not limited to, street frontage improvements, curb and gutter, utility stubs to parcel. Neighborhood parkland and improvement credits to satisfy requirement in full will be provided at the completion of grading and street improvements or as specified in a Park Improvements agreement with the City	PW	Final Map and Improvement Plans
98.	**Neighborhood Park on Parcel O.** The Neighborhood Park on Parcel O shall contain a minimum of 6.0 acres and be shown on the Final Map as future parkland to be deeded to the City of Dublin by separate document. The City will not accept the future parkland parcel until the site is rough graded, including erosion control measures, and all associated improvements are completed as generally shown on Vesting Tentative Map 8563 to the satisfaction of the City Engineer and Parks & Community Services Director. Required improvements include, but are not limited to, street frontage improvements, curb and gutter, utility stubs to parcel. Neighborhood parkland and improvement credits to satisfy City requirement in full will be provided at the completion grading and street improvements or as specified in a Park Improvement	PW	Final Map and Improvement Plans

	agreement with the City.		
99.	**Project Signs.** All proposed project monument signs shall be placed on private property. Signs should be located outside of any easement areas unless specifically approved by the City Engineer. Any signage allowed to be located in an easement is subject to removal and replacement at the expense of the Applicant/Developer if required by the easement holder.	PW	Grading/ Site Work or Encroachment Permit Issuance
100.	**Solid Waste Requirements.** The project must comply with all requirements in Dublin Municipal Code Chapter 7.98, including the following requirements: • Install trash, recycling and organics collection containers community congregation areas. • Install pet waste disposal stations along pedestrian trails. • Construct solid waste enclosures at community congregation areas. A solid waste enclosure checklist is required to accompany the submission of enclosure drawings. • Install trash, recycling and organics collection containers along public and private sidewalks.	PW	Grading/ Site Work or Encroachment Permit Issuance
101.	**Garbage Truck Access**. Applicant/Developer shall provide plans and details on anticipated garbage truck access and routes, in addition to example set-out diagrams for waste carts/bins placement on garbage day demonstrating adequate space available for carts/bins. Carts and bins shall not block street or driveway access.	PW	Grading/ Site Work or Encroachment Permit Issuance
102.	**Bay Friendly Landscape Design**. All publicly owned landscape (e.g., parks, right-of-way, etc.) shall be designed and rated to meet Bay Friendly Landscape standards. Applicant/Developer is encouraged to design all other landscape areas according to Bay Friendly Landscape standards.	PW	Grading/ Site Work or Encroachment Permit Issuance
103.	**Street Restoration.** A pavement treatment, such as slurry seal or grind and overlay, will be required within the public streets fronting the site as determined by the Public Works Department. The type and limits of the pavement treatment shall be determined by the City Engineer based upon the number and proximity of trench cuts, extent of frontage and median improvements, extent of pavement striping and restriping, excessive wear and tear/damage due to construction traffic, etc.	PW	Certificate of Occupancy or Acceptance of Improvements
104.	**Overhead Utilities.** All new and existing overhead utilities shall be placed underground.	PW	Grading / Site Work Permit or

			Encroachment Permit Issuance
105.	**Hydromodification Management Standards.** This project is subject to hydromodification management measures. Applicant/Developer shall review the Bay Area Hydrology Model (BAHM) Review Worksheet for all projects that must meet Hydromodification Management Standards. The worksheet is available on the City's website at the following webpage: http://dublin.ca.gov/1656/Development-Permits---Stormwater-Require	PW	Grading / Site Work or Encroachment Permit Issuance
106.	**Electric-Preferred Construction.** To the extent feasible, Applicant/ Developer shall comply with the new construction electric-preferred Reach Code. East Bay Community Energy offers free technical assistance to the development community and can be reached through the EBCE contact Beckie Menten at bmenten@ebce.org or by telephone at (510) 988-1736.	PW	Grading/ Site Work Permit or Encroachment Permit Issuance and On-going
Public Works – Project Specific Conditions			
107.	**Park Agreement Execution.** The timing of park sites constructed by Applicant/Developer shall be dependent upon Park Agreement executed with the City.	PW	First Final Map
108.	**Park Utilities.** Utilities shall be provided to all park parcels.	PW	Improvement Plan Approval
109.	**Amenities and Semi-Public Parcels.** At a minimum, utility stubs shall be provided to the Amenities Parcel, Semi-Public Parcel, and HOA Parcels, including but not limited to storm drain with field inlet.	PW	Improvement Plan Approval
110.	**Positano Biocell #4.** Applicant/Developer shall coordinate with the property owner of Assessor's Parcel Number 985-109-1 to the north to complete construction of the stormwater treatment area at the Croak Road/S. Terracina Drive intersection (Positano Biocell #4). Applicant/Developer shall provide a 24-inch storm drainage connection for the high flow by-pass at existing Diversion Structure #4 to provide the ultimate storm drain connection per the Drainage Master Plan.	PW	Encroachment Permit Issuance
111.	**Graded Open Space North of Street V.** Grading and drainage in the open space north of Street V cul-de-sac shall be such to minimize ponding in the event of overland release of runoff, to the extent possible.	PW	Grading Permit Issuance
112.	**Diversion Structure Location.** Diversion structures shall be located outside the public right-of-way in private or HOA maintained areas to the extent	PW	Improvement Plan Approval

	feasible to the satisfaction of the City Engineer.		
113.	**Central Parkway Improvements.** Applicant/Developer shall provide 12-foot-wide minimum lanes on Central Parkway along all sections East of Croak Road. Along Central Parkway West of Croak Road, section of roadway shall match what was previously installed west of the project site. .	PW	Grading / Site Work or Encroachment Permit Issuance
114.	**Parcel D Park Frontage at Croak Road.** Applicant/Developer shall work with the City to provide a minimum five-foot separation from the parking to the shared use path along the park frontage at Parcel D on Croak Road, if feasible.	PW	Grading / Site Work Permit or Encroachment Permit Issuance
115.	**Wide Curb Ramps.** Applicant/Developer shall provide wider curb ramps with a minimum width of eight feet at all intersections along Central Parkway and Croak Road for the continuation of the shared use paths along these two streets.	PW	Improvement Plan Approval
116.	**Traffic Camera.** Applicant/Developer shall provide Econolite camera for video detection at the westbound Croak Road approach at the Dublin Boulevard/Croak Road traffic signal.	PW	Improvement Plan Approval
117.	**Traffic Signal Fiber Conduit.** Applicant/Developer shall provide traffic signal fiber conduit on Croak Road for future north-south fiber connection between Dublin Boulevard and Central Parkway.	PW	Improvement Plan Approval
118.	**Stone Theme Wall.** The stone theme wall at the intersections along Croak Road will need to comply with intersection sight distance requirements per AASHTO for vehicle speeds of 25 mph and corner sight distance requirements per the Dublin Municipal Code. Plans shall show sight distance triangles to the satisfaction of the City Engineer.	PW	Grading/ Site Work Permit Issuance
119.	**Existing Sign Replacement.** All existing signs along Croak Road not meeting retro-reflectivity standards shall be replaced with new signs.	PW	Acceptance of Improvements
120.	**Flashing Curve Warning Signs.** Applicant/Developer shall provide solar powered flashing curve warning signs or equivalent warning signs on off-site Croak Road at appropriate locations to warn vehicles of the approaching horizontal curves including but not limited to locations as generally shown on the VTM and to the satisfaction of the City Engineer.	PW	Improvement Plan Approval
121.	**Speed Feedback Signs.** Applicant/Developer shall provide solar powered speed feedback signs at critical locations on off-site Croak Road including but not limited to locations as generally shown on the VTM, and to the satisfaction of the City Engineer.	PW	Improvement Plan Approval
122.	**Street Lighting.** Street light standards and	PW	Improvement

	luminaires shall be designed and installed per approval of the City Engineer. The maximum voltage drop for street lights is 5%. Photometric plan shall be provided for review and approval.		Plan Approval
123.	**Barrier.** A k-rail barrier shall be provided between Fallon Road and Interim Croak Road to prevent vehicles from traveling across the gap between streets.	PW	Improvement Plan Approval
124.	**Subdrain Monitoring.** Design of subdrains shall allow for monitoring of subdrain flow from the Positano development separately from the Croak Property.	PW/GHAD	Grading Permit Issuance
125.	**Runoff from Existing MSE Wall.** Applicant/Developer's Civil Engineer shall evaluate the potential for erosion at runoff from the existing mechanically stabilized earth (MSE) retaining wall adjacent to Parcel H and provide slope protection as deemed necessary by the City Engineer and GHAD Engineer.	PW/GHAD	Grading Permit Issuance
126.	**Slope Stability Adjacent to Existing Fallon Village and Jordan Ranch.** Proposed grading adjacent to existing Fallon Village and Jordan Ranch projects shall be in conformance with the recommendations of the Geotechnical Report. .	PW/GHAD	Grading Permit Issuance
127.	**CFD Improvements & Maintenance.** Applicant/ Developer shall not object to the initiation of any Community Facilities District ("CFD"), formed pursuant to the provisions of California Government Code Sections 53311 *et seq*., for the purpose of financing the maintenance, acquisition, and/or construction of certain public improvements on the Property if Developer is in agreement with the Rate, Method of Apportionment and Manner of Collection of Special Tax ("RMA") as it relates to the Property. Developer shall pay its fair share of administrative costs incurred by the City associated with the formation of a CFD. Developer agrees that the boundaries of any CFD will include, but may not be limited to, all the Property. If a CFD for maintenance is not formed, City and Developer shall work together to establish a maintenance mechanism for neighborhood streets on the Property (excluding Croak Road and Central Parkway) for 20 years after City acceptance.	PW	Backbone Final Map
128.	**Panorama Pedestrian Connection.** Proposed trails to be located on Parcel D of Tract 8100 and Parcel I of Tract 8024 (Assessor's Parcel Numbers 985-108-4 and 985-98-8) are located on GHAD-owned	PW/GHAD	Grading Permit Issuance

	parcels. The Applicant/Developer shall secure approval from the Fallon Village GHAD for annexation into the GHAD. Proposed trail located in Parcel C of Tract 8100 (Assessor's Parcel Number 985-108-3) is located on a privately-owned parcel. The City of Dublin will work in cooperation with the Applicant/Developer in their good faith efforts to obtain rights of entry from property owner.		

PASSED, APPROVED, AND ADOPTED this 7th day of December 2021 by the following vote:

AYES:

NOES:

ABSENT:

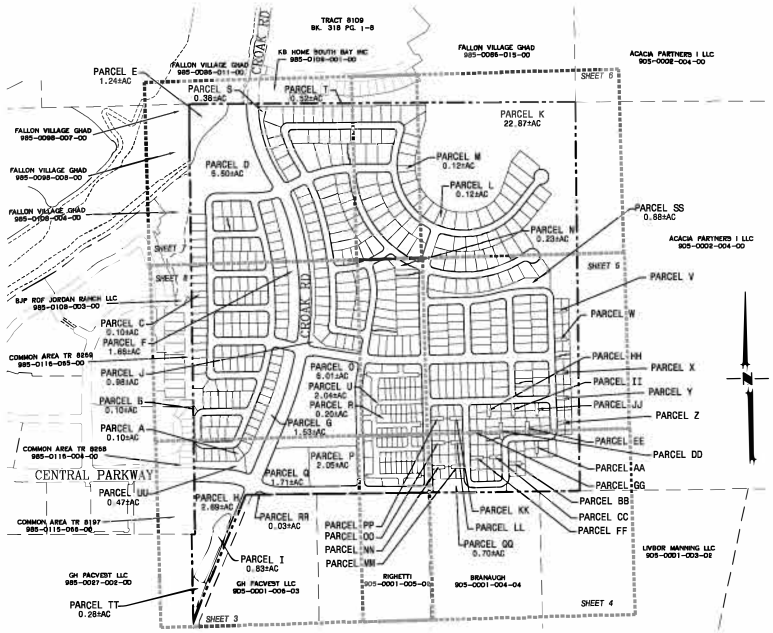
ABSTAIN:

____
Mayor

ATTEST:

____
City Clerk

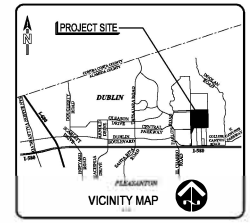
VESTING TENTATIVE MAP
TRACT 8563
EAST RANCH (CROAK PROPERTY)
CITY OF DUBLIN, ALAMEDA COUNTY, CALIFORNIA
SEPTEMBER 2021



LOCATION MAP
NOT TO SCALE

PARCEL	PROPOSED OWNER	MAINTAINED BY	PROPOSED USE
PARCEL A	HOA	HOA	LANDSCAPING/UTILITIES/OVERLAND RELEASE
PARCEL B	HOA	HOA	LANDSCAPING/DRAINAGE
PARCEL C	HOA	HOA	LANDSCAPING/PEDESTRIAN ACCESS (PUBLIC ACCESSESMT)
PARCEL D	CITYOF DUBLIN	CITY OFDUBLIN	NEIGHBORHOOD PARK (PUBLIC)
PARCEL E	GHAD	GHAD	OPENSPACE (AVOIDEDWETLANDS)
PARCEL F	GHAD	HOA-LANDSCAPE* GHAD-SLOPESTABILITY**	WATER QUALITY FACILITY
PARCEL G	GHAD	HOA-LANDSCAPE* GHAD-SLOPESTABILITY**	WATER QUALITY FACILITY
PARCEL H	GHAD	HOA-LANDSCAPE*, HM FACILITY GHAD-SLOPESTABILITY**	WATER QUALITY FACILITY/ HM FACILITY
PARCEL I	HOA	HOA	OPENSPACE (PRESERVEDWETLANDS)
PARCEL J	HOA	HOA	LANDSCAPING
PARCEL K	GHAD	GHAD	RURAL RESIDENTIAL/AGRICULTURE, EVAE, SDE
PARCEL L	HOA	HOA	LANDSCAPING/PEDESTRIAN ACCESS (PUBLICACCESS ESMT)
PARCEL M	HOA	HOA	LANDSCAPING/PEDESTRIANACCESS (PUBLICACCESSESMT)
PARCEL N	HOA	HOA	LANDSCAPING/POCKETPARK (PUBLICACCESS ESMT)
PARCEL O	CITY OF DUBLIN	CITY OFDUBLIN	NEIGHBORHOODPARK (PUBLIC)
PARCEL P	TRUMARK	TRUMARK	SEMI-PUBLIC
PARCEL Q	GHAD	HOA-LANDSCAPE* GHAD-SLOPESTABILITY**	WATER QUALITY FACILITY/OPEN SPACE
PARCELR	HOA	HOA	PRIVATE COMMON SPACE
PARCEL S	HOA	HOA	LANDSCAPING
PARCEL T	GHAD	GHAD	EVAE/SDE
PARCEL U	HOA	HOA	PRIVATE STREET
PARCEL V-Y	HOA	HOA	PRIVATE STREET
PARCEL Z-PP	HOA	HOA	PRIVATE STREET
PARCEL QQ	GHAD	HOA-LANDSCAPE* GHAD-SLOPESTABILITY**	LANDSCAPING/WATERQUALITY
PARCEL RR	TRUMARK	TRUMARK	FUTURE RESIDENTIAL
PARCEL SS	HOA	HOA	LANDSCAPING
PARCEL TT	GHAD	HOA-LANDSCAPE* GHAD-SLOPESTABILITY**	WATER QUALITY FACILITY
PARCEL UU	HOA	HOA	LANDSCAPING
LOTS 1-535	TRUMARK	TRUMARK	SINGLE FAMILY DETACHED LOTS
LOTS 536-546	TRUMARK	TRUMARK	AIRSPACE CONDOMINIUM PURPOSES

*HOA MAINTENANCE RESPONSIBILITY WILL BE FOR LANDSCAPE, IRRIGATION, AND GARBAGE REMOVAL.
**GHAD MAINTENANCE RESPONSIBILITY WILL BE FOR SLOPE STABILITY, FIRE MAINTENANCE ROAD, CONCRETE DRAINAGE DITCH, FUNCTIONAL REPAIR OF THE WATER QUALITY FACILITY, AND WEEDABATEMENT FOR FIRE SUPPRESSION. THE PROJECT WOULD BE ANNEXED INTO THE FALLON VILLAGE GHAD.



INDEX OF SHEETS

LEGEND

EXISTING / BY OTHERS — PROPOSED

- BOUNDARY LINE
- PARCEL LINE
- RIGHT OF WAY
- EASEMENT LINE
- TREATED STORM DRAIN, MANHOLE AND DRAINAGE INLET
- OPENSPACEANDHIGH FLOW BYPASS STORMDRAIN
- FIELD INLET
- WATER LINE
- WATERLINE (RECLAIMED)
- SANITARY SEWERANDMANHOLE
- FIRE HYDRANT
- 2:1 SLOPEUNLESS OTHERWISE NOTED
- RETAININGWALL
- CONCRETEDITCH
- EARTHEN DITCH
- DIRECTION OF STORM WATER OVERLAND RELEASE

ABBREVIATION

AC	ACRES	HOA	HOMEOWNERS' ASSOCIATION
AGG	AGGREGATE	LP	LOW POINT
B/C	BACK OF CURB	L/S	LANDSCAPE
BNDY	BOUNDARY	MAINT	MAINTENANCE
B/W	BACK OF SIDEWALK	MH	MANHOLE
C/L	CENTERLINE	P	PAD GRADE
DIA	DIAMETER	PAE	PRIVATE ACCESS EASEMENT
DIV.	DIVERSION STRUCTURE	P/L	PROPERTY LINE
DMA	DRAINAGE MANAGEMENT AREA	PSE	PUBLIC SERVICE EASEMENT
DSRSD	DUBLIN SAN RAMON SERVICES DISTRICT	PUE	PUBLIC UTILITY EASEMENT
ESMT	EASEMENT	RW	WATER LINE (RECLAIMED)
EVAE	EMERGENCY VEHICLE ACCESS EASEMENT	R/W	RIGHT OF WAY
EVA	EMERGENCY VEHICLE ACCESS	SD	STORM DRAIN
EX	EXISTING	SDE	STORM DRAIN EASEMENT
F/C	FACE OF CURB	SDO	OPEN SPACE STORM DRAIN
FF	FINISHED FLOOR	SS	SANITARY SEWER
FG	FINISH GRADE	SSE	SANITARY SEWER EASEMENT
FI	FIELD INLET	SW	SIDEWALK
GB	GRADE BREAK	S/W	SIDEWALK
GHAD	GEOLOGIC HAZARD ABATEMENT DISTRICT	SWQ	STORM WATER QUALITY
HM	HYDROMODIFICATION	TC	TOP OF CURB
HP	HIGHPOINT	W	WATER LINE (DOMESTIC)
		WLE	WATER LINE EASEMENT

TENTATIVE MAP NOTES:

1. OWNER: CROAK PROPERTIES LP
1262 GABRIELCT
SAN LEANDROCA 94577-6821
2. APPLICANT: TRUMARK COMMUNITIES
3001 BISHOP DRIVESUITE 100
SAN RAMON, CA 94583
CONTACT: PAMELA NIETING
3. ENGINEER/PLANNER: MACKAY & SOMPS
5142 FRANKLIN DR, SUITE B
PLEASANTON, CA 94588-3355
CONTACT: MARKMcCLELLAN / COLETTE L'HEUREUX
(925) 225-0690
4. GEOTECHNICAL CONSULTANTS: BERLOGAR STEVENS & ASSOCIATES
5587 SUNOL BLVD
PLEASANTON, CA 94566
CONTACT: FRANK BERLOGAR / NICK CARDANINI
(925) 484-0220
5. AREA SUBJECT TO INUNDATION: PER FEMA FIRM PANEL 06001 C0329 G. SITE IS IN ZONE X - AREAS SUBJECT TO MINIMAL FLOOD HAZARD.
6. SUBDIVIDEDAREA: 165± ACRES
7. ASSESSOR'S PARCEL NUMBER: 905 -0002-002-00 , 905 -0002-001-01
8. WATER/SEWER SYSTEM: TO BE INSTALLED IN CONFORMANCE WITH DUBLIN SAN RAMON SERVICES DISTRICT(DSRSD) STANDARDS.
9. DRAINAGE: TO BE INSTALLED IN CONFORMANCE WITH CITY OF DUBLIN STANDARDS.
10. GAS & ELECTRICITY: TO BE INSTALLED IN CONFORMANCE WITH STANDARDS OF PACIFIC GAS AND ELECTRIC CO.
11. TELEPHONE: TO BE INSTALLED IN CONFORMANCE WITH STANDARDS OF AT&T.
12. CABLE: TO BE INSTALLED N CONFORMANCE WITH STANDARDS OF COMCAST.
13. STREET IMPROVEMENTS: PER CITY OF DUBLIN STANDARDS AND P.D. APPROVALS STREETS TO BE PUBL IC. ALLEYWAYS WITHIN THE MEDIUM DENSITY SITE AND MOTORCOURTS INTENDED TO BE PRIVATE.
14. EXISTING ZONING: PREZONED PD-LOW DENSITY RESIDENTIAL, PD-MEDIUM DENSITY RESIDENTIAL, PD -RURAL RESIDENTIAL/AGRICULTURE, PD-NEIGHBORHOOD PARK, PD-OPEN SPACE, PD SEMI-PUBLIC
15. EXISTING LAND USE: RURAL RESIDENTIAL/AGRICULTURE
16. PROPOSED LAND USES: SINGLE FAMILY RESIDENTIAL - 473 LOTS, MULTI- FAMILY RESIDENTIAL - 100 CONDOMINIUMS, NEIGHBORHOOD PARK, SEMI-PUBLIC, OPEN SPACE, RURAL RESIDENTIAL/AGRICULTURE
17. CONTOUR INTERVAL IS 1 FOOT. THE ELEVATION DATUM IS BASED ON ALAMEDA COUNTY BENCHMARKS. TOPOGRAPHIC INFORMATION SHOWN IS BASED ON AERIAL FLIGHT DONE ON OCTOBER 30, 2019 BY GEOMAPS.
18. UNLESS OTHERWISE SPECIFICALLY STATED IN THE CONDITIONS OF APPROVAL, LOCAL AGENCY APPROVAL OF THIS MAP SHALL CONSTITUTE AN EXPRESSED FINDING THAT THE PROPOSED DIVISION AND DEVELOPMENT OF THE PROPERTY WILL NOT REASONABLY INTERFERE WITH THE FREE AND COMPL ETE EXERCISE OF OF RIGHTS DESCRIBED IN GOVERNMENT CODE SECTION 66436 (a)(3) (A) (i)
19. UTILITY SIZES AND LOCATION, STREET GRADES AND LOT DIMENSIONS ARE PREL IMINARY AND SUBJECT TO FINAL ENGINEERING DESIGN AND HOUSE PLOTTING
20. BUILDING SETBACKS ARE ESTABLISHED BY STAGE 2 PD. SITE DEVELOPMENT STANDARDS FOR THE PROJECT ESTABLISHED BYSTAGE 2 PD.
21. ALL SEWER AND WATER MAINS ARE 8" UNLESS NOTED. ALL STORM DRAINS ARE 24" OR LESS UNLESS NOTED OR AS DETERMINED BY FINAL ENGINEERING DESIGN.
22. THE APPLICANT RESERVES THE OPTION TO PHASE THE MAPPING AND CONSTRUCTION OF THIS PROJECT IN VARIOUS COMBINATIONS OF FINAL MAPS/TRACT DEVELOPMENT AGREEMENTSAND/OR IMPROVEMENT PLANS/IMPROVEMENT AGREEMENTS, ALL AS APPROVED BY THE DIRECTOR OF PUBL IC WORKS
23. IT IS THE INTENT OF THE DEVELOPER TO FILE AIRSPACE CONDOMINIUM PLANS FOR THE CONDOMINIUM UNITS AFTER THE FINAL MAP APPROVAL. LOTS 536-546 AND PARCEL R AND U MAY BE SUBDIVIDED BY FUTURE FINAL MAP INTO MULTIPLE PARCELS CONSISTENT WITH THE CONDOMINIUM BUILDING LAYOUT DETERMINED DURING THE SITE DEVELOPMENT REVIEW (SDR) PROCESS. TOTAL NUMBER OF CONDOMINIUMS NOTTO EXCEED 100 UNITS.
24. PROJECT INTENDS TO ANNEX INTO THE EXISTING FALLON VILLAGE GEOLOGICAL HAZARD ABATEMENT DISTRICT. SEE TABLE ABOVE FOR PARCELS PROPOSED TO BE GHAD OWNEDAND MAINTAINED. GHAD MAINTENANCE TO BE FUNDED BY GHAD ASSESSMENTS ON ANNEXED PROPERTIES.

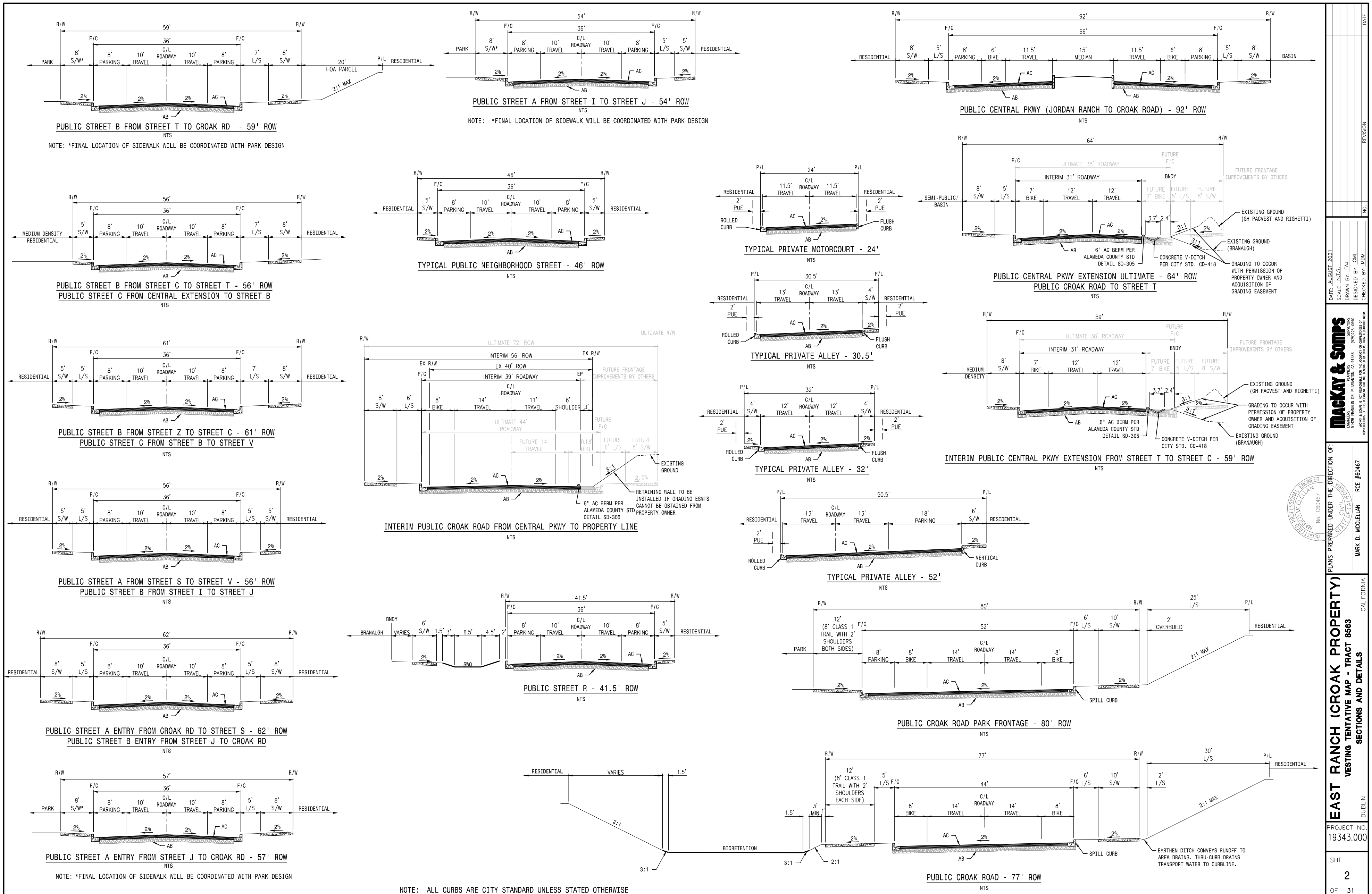
MACKAY & SOMPS

PLANS PREPARED UNDER THE DIRECTION OF: MARK D. McCLELLAN RCE 60467

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
COVER SHEET

PROJECT NO. 19343.000

SHT 1 OF 31



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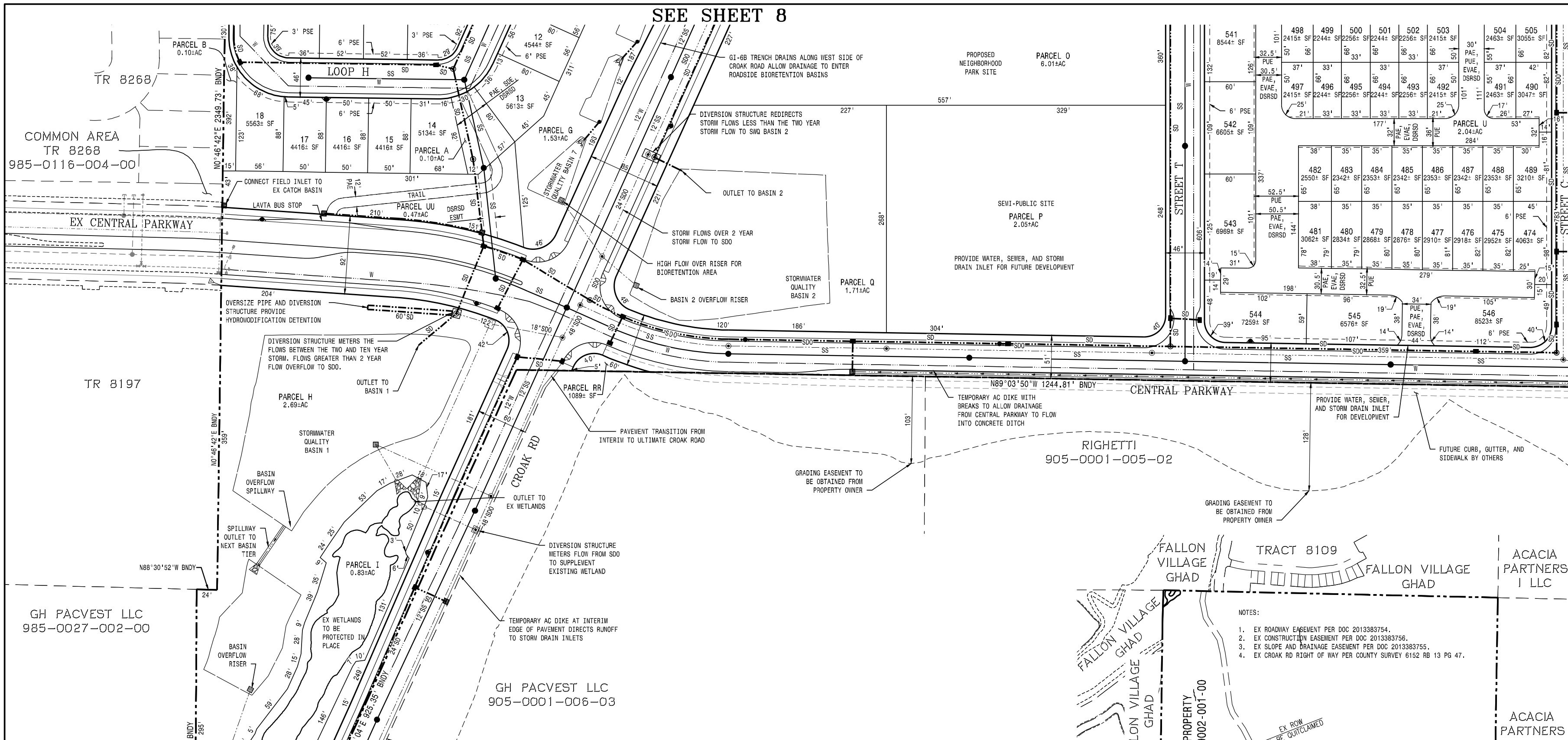
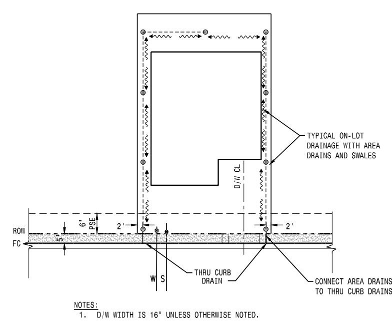
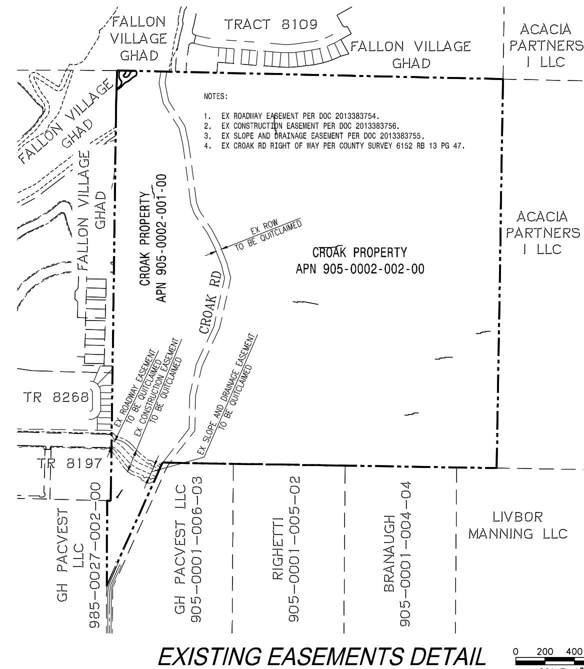




TYPICAL LOT SERVICES AND DRAINAGE

NTS



EXISTING EASEMENTS DETAIL

MACKAY & SOMPS

PLANS PREPARED UNDER THE DIRECTION OF:

MARK D. MCCLELLAN RCE #60467

DATE: AUGUST 2021
SCALE: 1" = 60'
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM

EAST RANCH (CROAK PROPERTY)

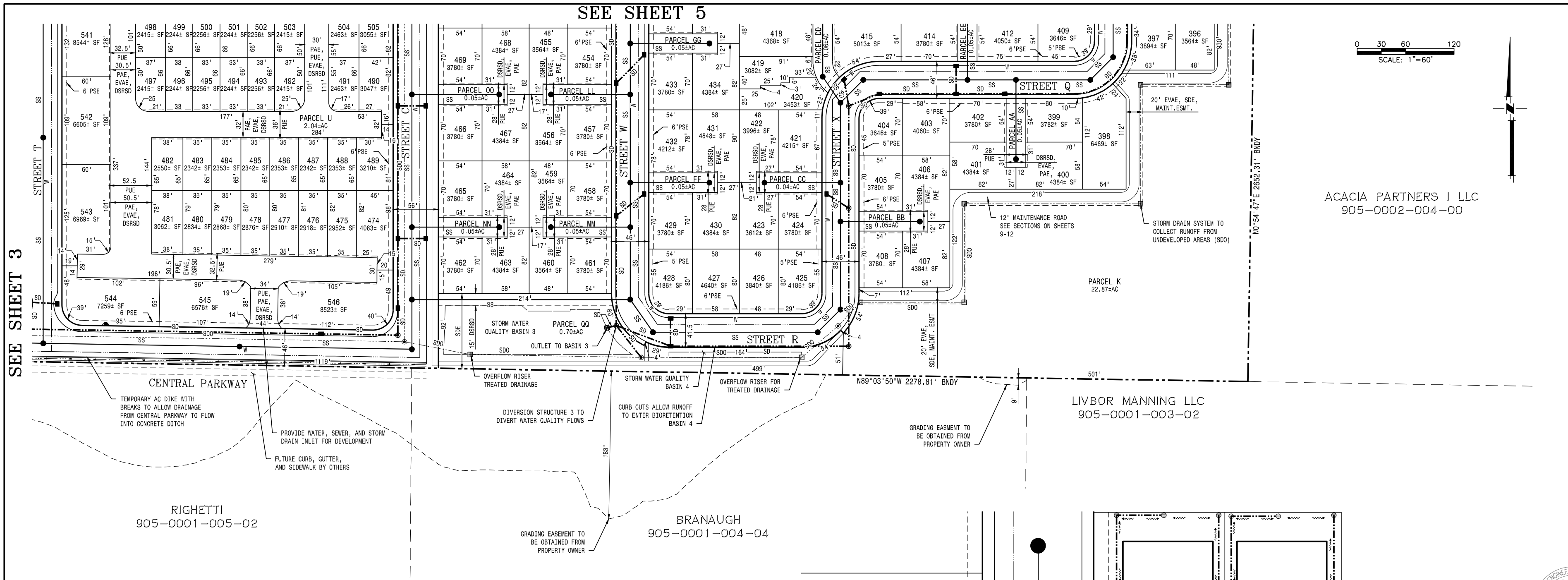
VESTING TENTATIVE MAP - TRACT 8563

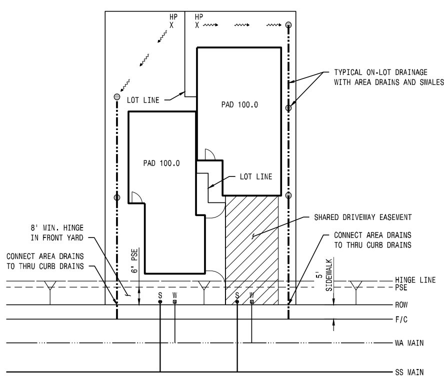
SITE PLAN AND PRELIMINARY UTILITY PLAN

DUBLIN CALIFORNIA

PROJECT NO. 19343.000

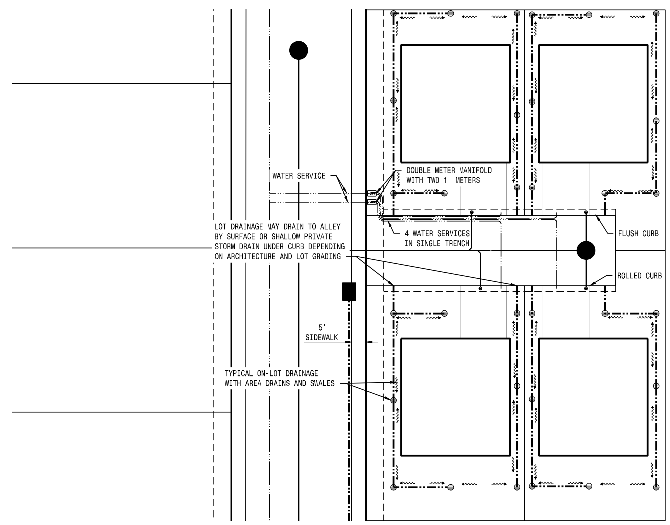
SHT 3 OF 31





TYPICAL ZERO LOT LINE SINGLE FAMILY GRADING & UTILITY DETAIL

NTS



4-PACK TYPICAL MOTORCOURT UTILITY DETAIL

NTS

NOTES:
1. D/W WIDTH IS 16' UNLESS OTHERWISE NOTED.
2. PROJECT IS PRELIMINARY AT THIS STAGE. THIS DETAIL MAY CHANGE WHEN THE PRODUCT IS FINALIZED IN THE SDR.

NO.	REVISION	DATE

DATE: AUGUST 2021
SCALE: 1" = 60'
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM

MacKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS

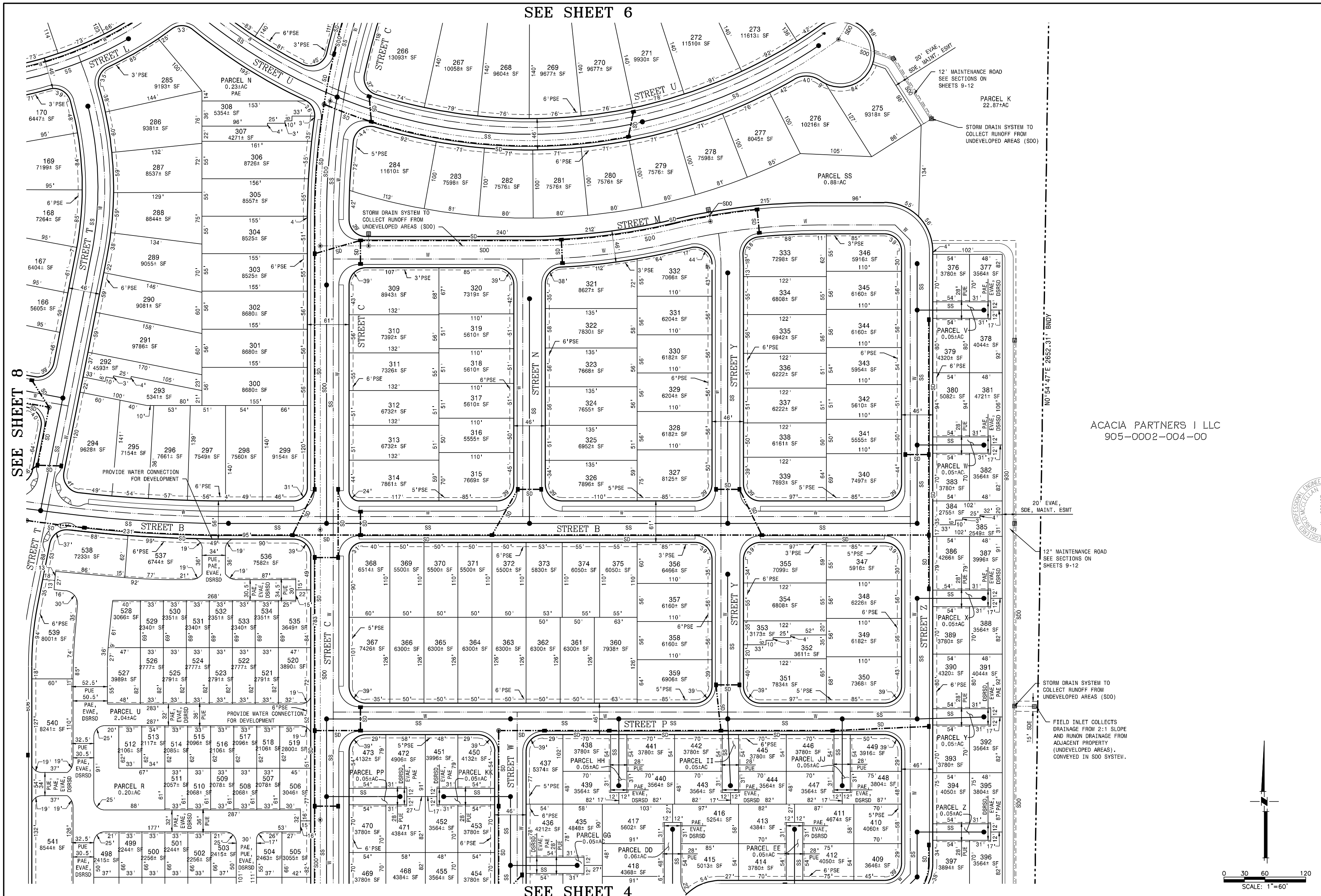
PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #C60467

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
SITE PLAN AND PRELIMINARY UTILITY PLAN
DUBLIN CALIFORNIA

PROJECT NO. 19343.000

SHT 4 OF 31

09-08-2021 11:41am Eric Joergensen P:\19343-T\PLN\TM\TM-04 SITE PLAN AND PRELIMINARY UTILITY PLAN.DWG



EAST RANCH (CROAK PROPERTY)

VESTING TENTATIVE MAP - TRACT 8563

SITE PLAN AND PRELIMINARY UTILITY PLAN

DUBLIN, CALIFORNIA

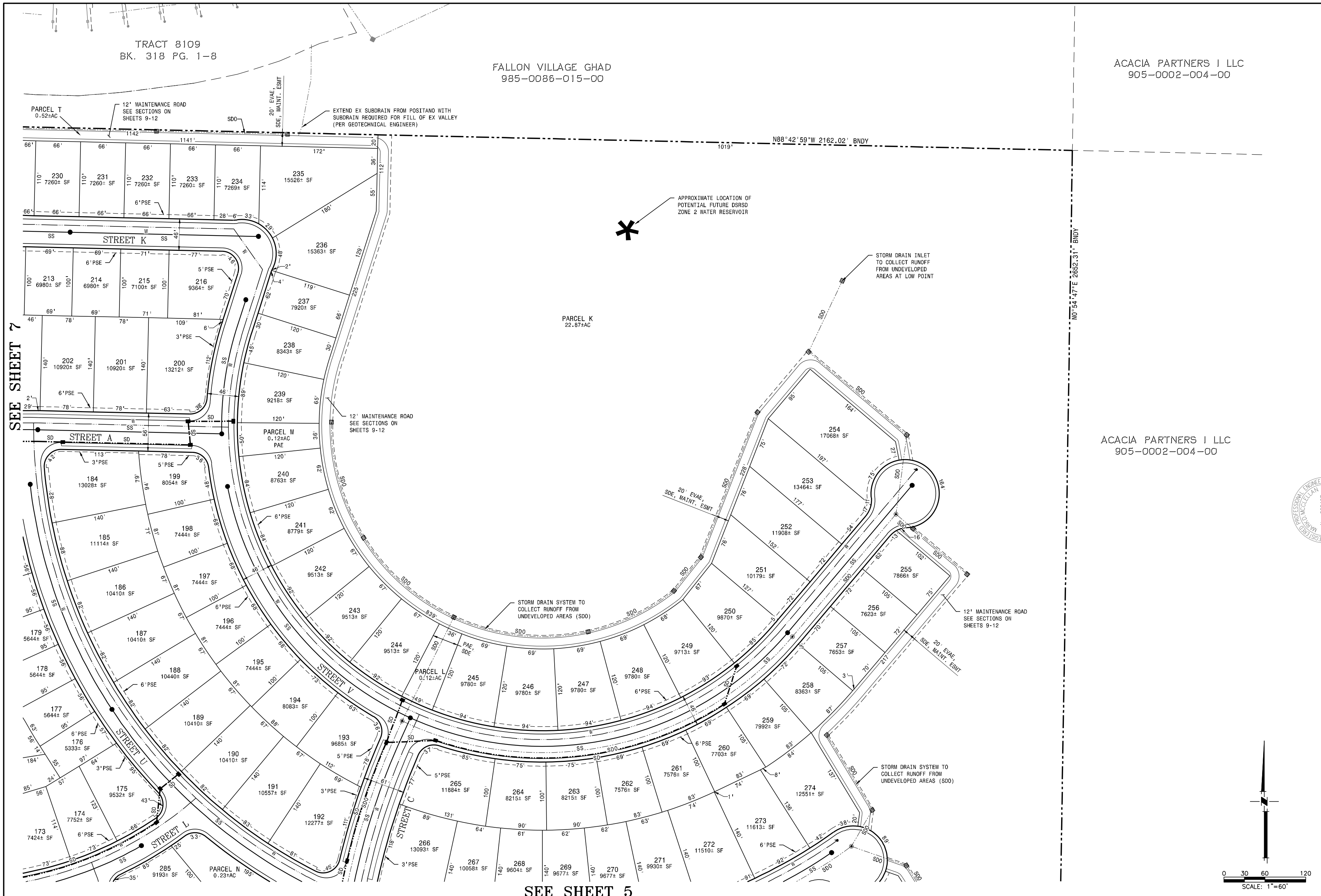
MacKay & Somps

PLANS PREPARED UNDER THE DIRECTION OF: MARK D. MCCLELLAN RCE #60467

DATE: AUGUST 2021
SCALE: 1" = 60'
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM

PROJECT NO. 19343.000

SHT 5 OF 31



EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
SITE PLAN AND PRELIMINARY UTILITY PLAN
DUBLIN CALIFORNIA

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
5142 FRANKLIN DR. PLEASANTON, CA 94588 (925)225-0690

DATE: AUGUST 2021
SCALE: 1" = 60'
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM

PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

NO.	REVISION	DATE

PROJECT NO. 19343.000

SHT 6 OF 31

08-06-2021 2:15pm Elliott Levitsky P:\19343-T\PLN\TM\TM-06 SITE PLAN AND PRELIMINARY UTILITY PLAN.DWG

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
SITE PLAN AND PRELIMINARY UTILITY PLAN
DUBLIN CALIFORNIA

MacKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS

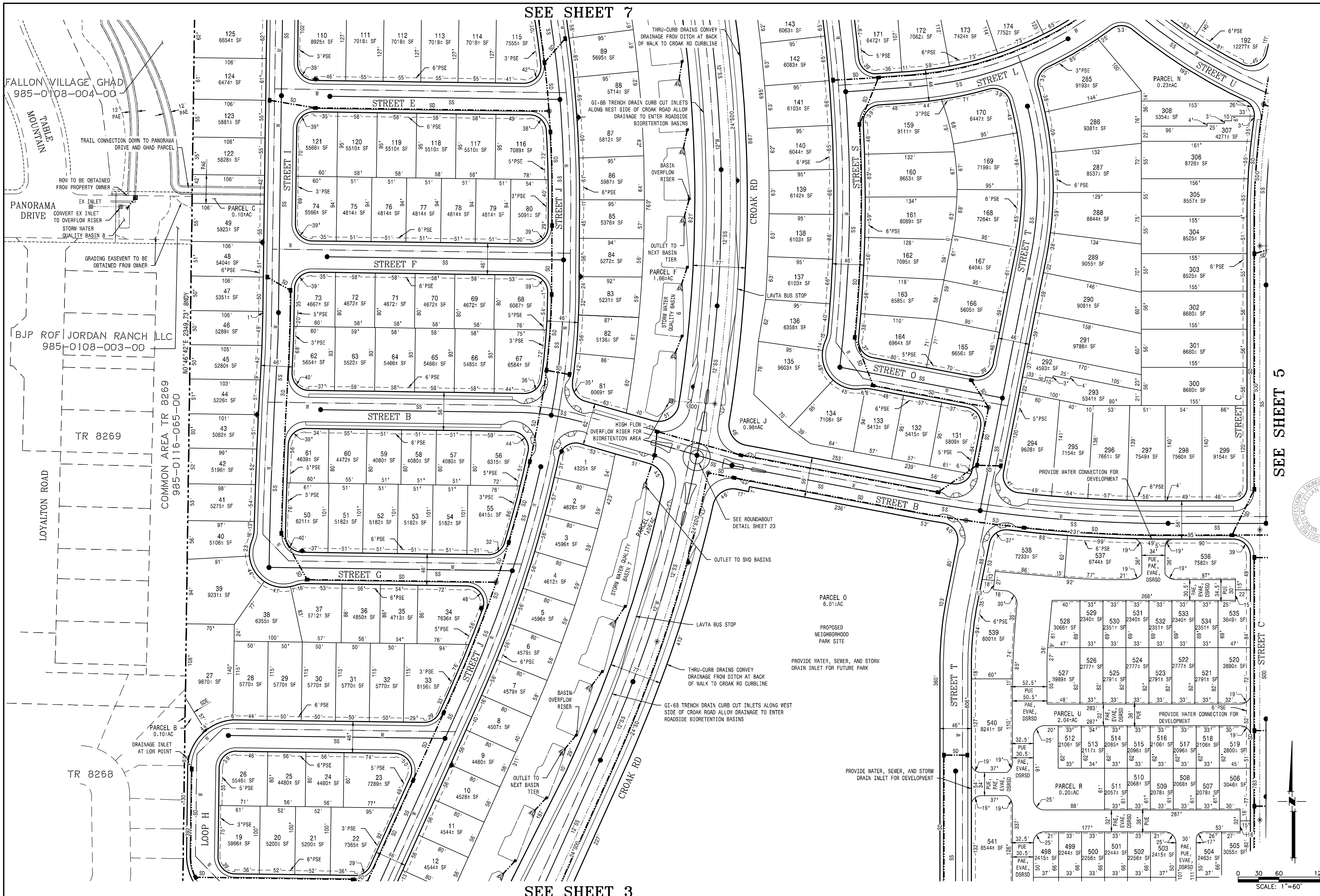
DATE: AUGUST 2021
SCALE: 1" = 60'
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM

PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

PROJECT NO. 19343.000

SHT 7 OF 31

08-06-2021 2:17pm Elliott Levitsky P:\19343-T\PLN\TM\TM-07 SITE PLAN AND PRELIMINARY UTILITY PLAN.DWG



EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
SITE PLAN AND PRELIMINARY UTILITY PLAN
DUBLIN CALIFORNIA

MacKay & Somps
ENGINEERS PLANNERS SURVEYORS

DATE: AUGUST 2021
SCALE: 1" = 60'
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM

PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

PROJECT NO. 19343.000
SHT 8 OF 31

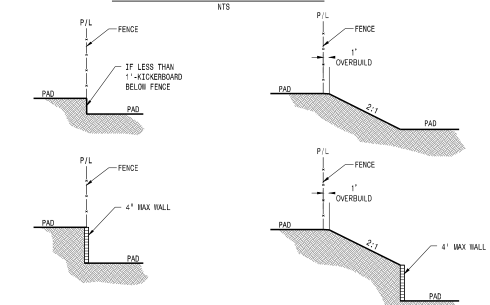
08-06-2021 2:18pm Elliott Levitsky P:\19343-T\PLN\TM\TM-08 SITE PLAN AND PRELIMINARY UTILITY PLAN.DWG

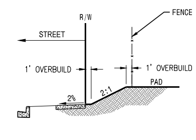
GRADING SHEET & SECTION INDEX

SCALE: 1"=200'

TYPICAL REAR YARD CONDITIONS:

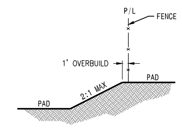
NTS





TYPICAL CORNER LOTS PAD ABOVE STREET

NTS



TYPICAL SIDE YARD CONDITION SLOPE ONLY

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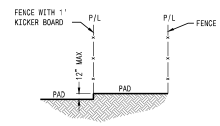

TYPICAL SIDE YARD CONDITION PAD DIFFERENCE 1' OR LESS

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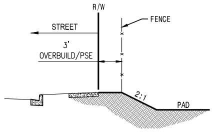
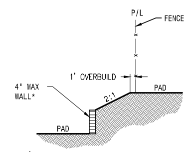


TYPICAL CORNER LOTS PAD BELOW STREET

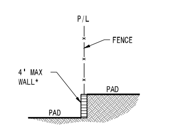
NTS



*WHEN NOT ENOUGH SPACE FOR ENTIRE PAD DIFFERENCE TO BE TAKEN UP BY 2:1 SLOPE

TYPICAL SIDE YARD CONDITION PAD DIFFERENCE 3' OR GREATER

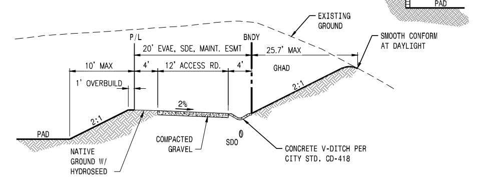
NTS



*WHEN NOT ENOUGH SPACE FOR ENTIRE PAD DIFFERENCE TO BE TAKEN UP BY 2:1 SLOPE

TYPICAL SIDE YARD CONDITION PAD DIFFERENCE 3' OR LESS

NTS



SECTION A

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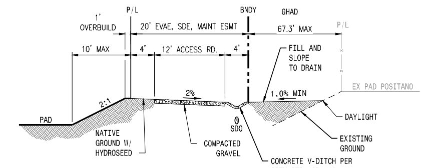

SECTION B

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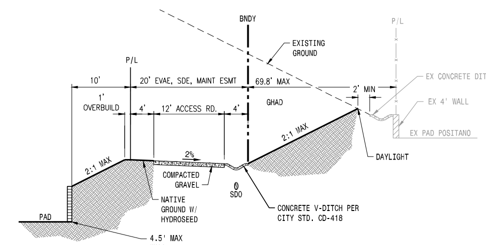

SECTION C

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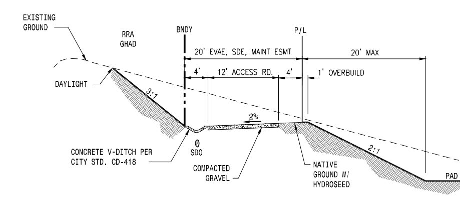


SECTION D

NTS

DATE:	AUGUST 2021
SCALE:	1" = 200'
DRAWN BY:	XXX
DESIGNED BY:	CML
CHECKED BY:	MDM

MacKay & Somps
ENGINEERS PLANNERS SURVEYORS

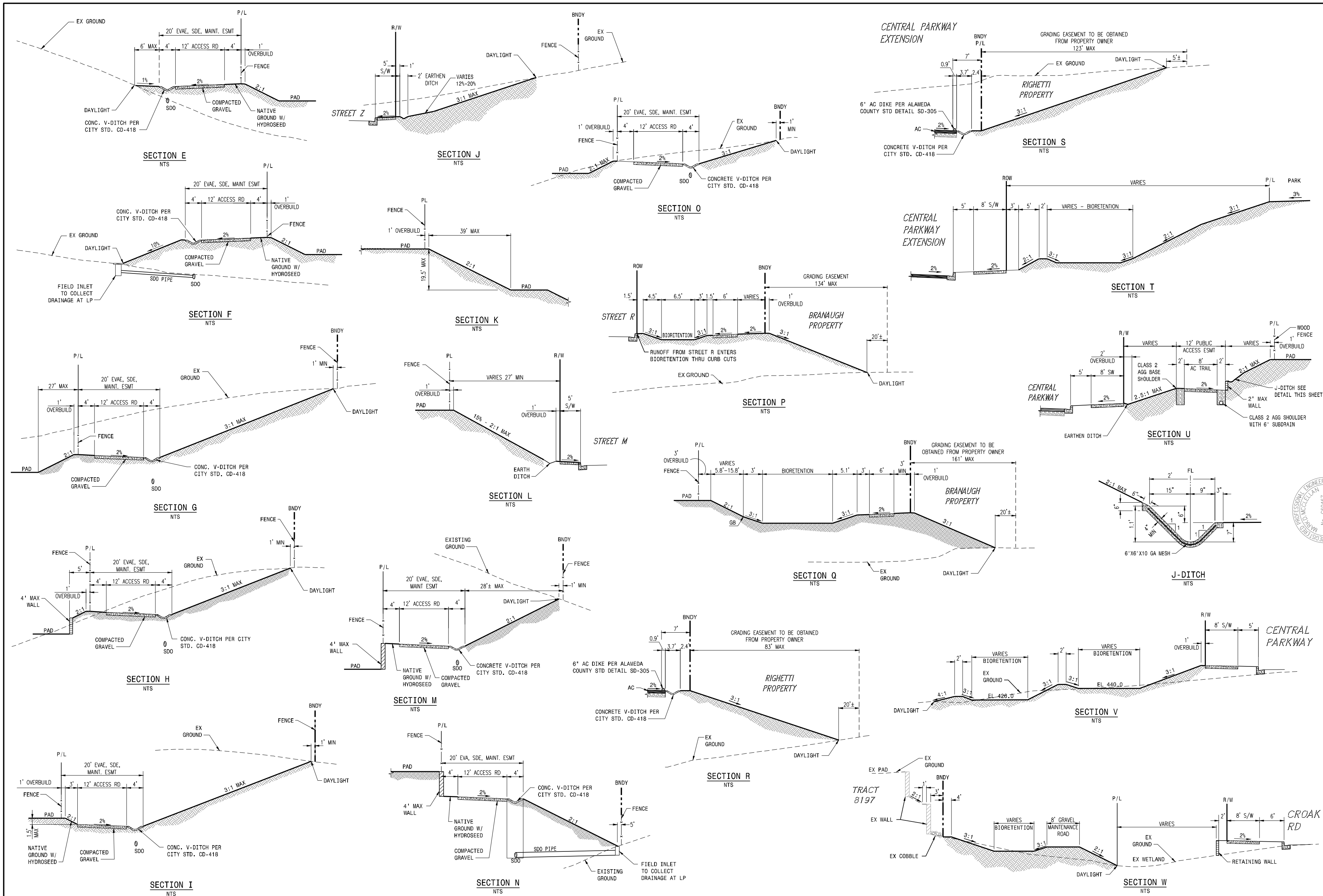
PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
GRADING INDEX AND SECTIONS

DUBLIN CALIFORNIA

PROJECT NO. 19343.000

SHT 9 OF 31



NO.	REVISION	DATE

DATE: AUGUST 2021
SCALE: N.T.S.
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
5142 FRANKLIN DR., PLEASANTON, CA 94588 (925)225-0690

PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

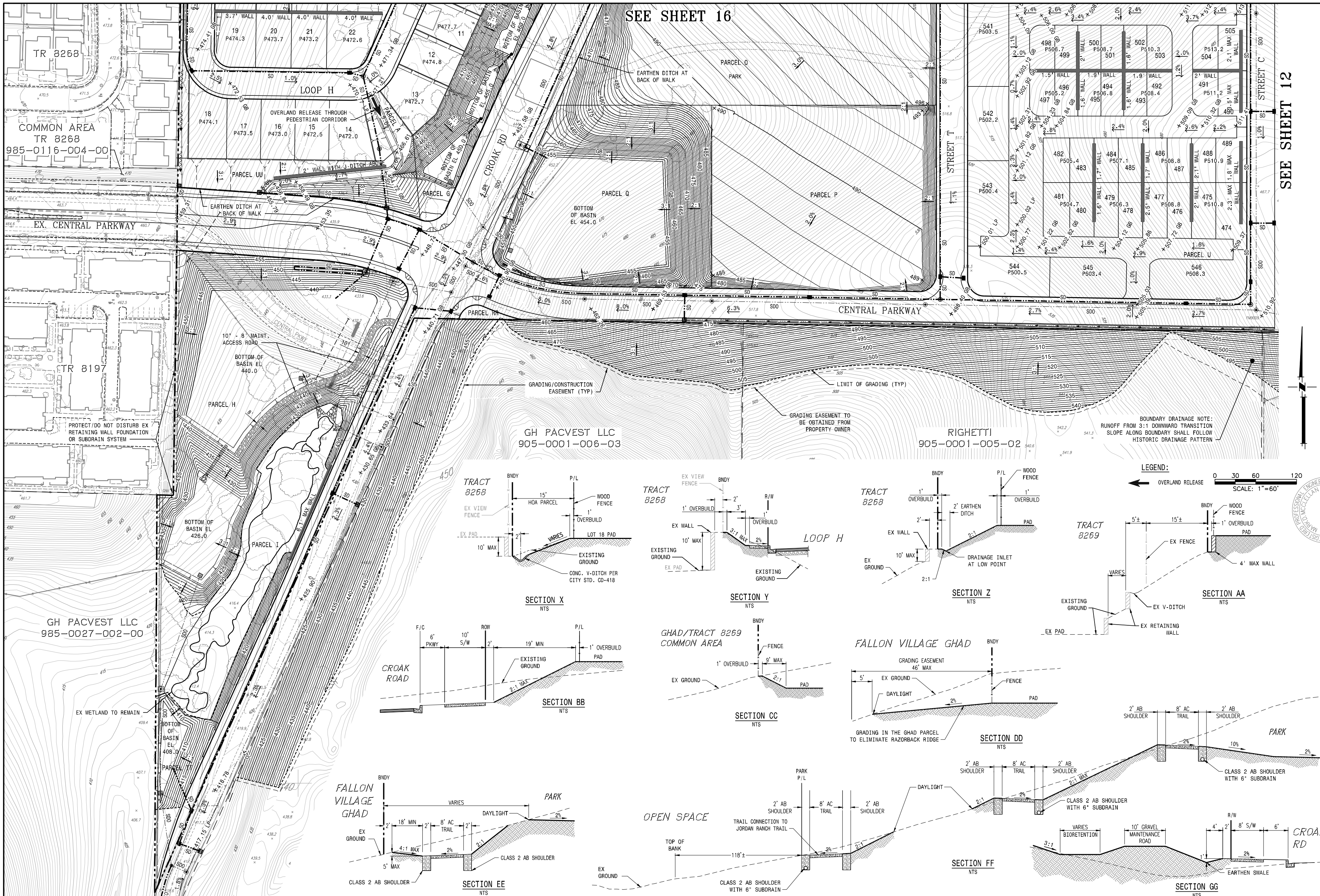
REGISTERED PROFESSIONAL ENGINEER MARK D. MCCLELLAN No. C60467 CIVIL STATE OF CALIFORNIA

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
GRADING SECTIONS AND DETAILS

DUBLIN CALIFORNIA

PROJECT NO. 19343.000

SHT 10 OF 31



MacKay & Somps

PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #C60467

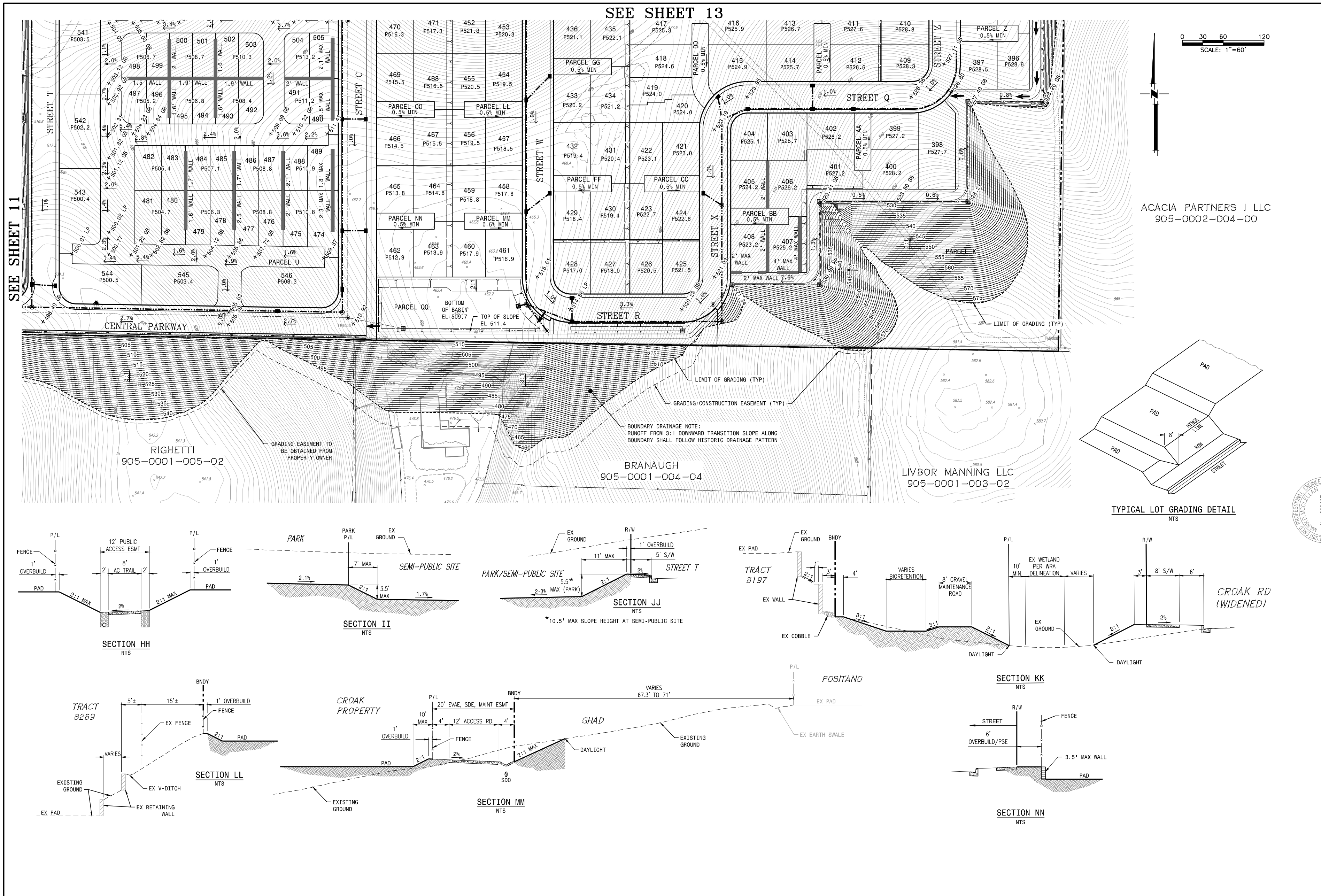
DATE: AUGUST 2021
SCALE: 1" = 60'
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
PRELIMINARY GRADING PLAN

DUBLIN CALIFORNIA

PROJECT NO. 19343.000

SHT 11 OF 31



PLANS PREPARED UNDER THE DIRECTION OF:

MARK D. MCCLELLAN RCE #60467

MacKay & Somps

DATE: AUGUST 2021
SCALE: 1" = 60'
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
PRELIMINARY GRADING PLAN

DUBLIN CALIFORNIA

PROJECT NO.
19343.000

SHT 12 OF 31

SEE SHEET 14

SEE SHEET 12

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
PRELIMINARY GRADING PLAN

DUBLIN CALIFORNIA

MacKay & Somps

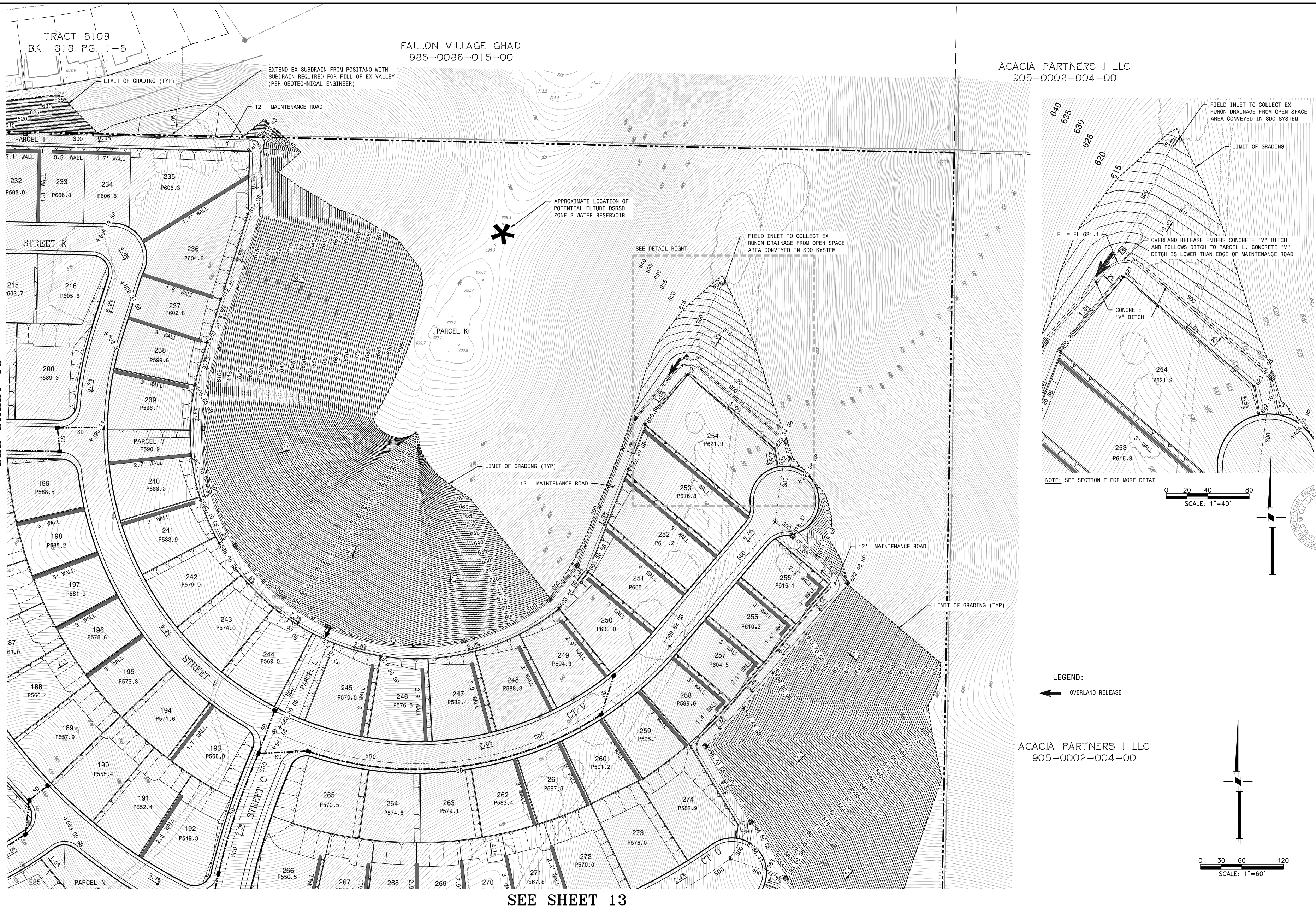
PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

DATE: AUGUST 2021
SCALE: 1" = 60'
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM

PROJECT NO. 19343.000

SHT 13 OF 31

08-06-2021 2:26pm Elliott Levitsky P:\19343-T\PLN\TM\TM-13 PRELIMINARY GRADING PLAN.DWG



EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
PRELIMINARY GRADING PLAN

DUBLIN CALIFORNIA

PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
5142B FRANKLIN DR, PLEASANTON, CA 94588 (925)225-0690
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PROJECT NO. 19343.000

SHT 14 OF 31

08-06-2021 2:28pm Elliott Levitsky P:\19343-T\PLN\TM\TM-14 PRELIMINARY GRADING PLAN.DWG

DATE: AUGUST 2021
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ENGINEERS PLANNERS SURVEYORS

PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
PRELIMINARY GRADING PLAN

DUBLIN CALIFORNIA

PROJECT NO. 19343.000

SHT 15 OF 31

08-06-2021 2:30pm Elliott Levitsky P:\19343-T\PLN\TM\TM-15 PRELIMINARY GRADING PLAN.DWG

DATE: AUGUST 2021
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MacKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS

PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
PRELIMINARY GRADING PLAN

DUBLIN CALIFORNIA

PROJECT NO. 19343.000

SHT 16 OF 31

08-06-2021 2:32pm Elliott Levitsky P:\19343-T\PLN\TM\TM-16 PRELIMINARY GRADING PLAN.DWG

LEGEND

- STRAW WATTLES
- PERIMETER SILT FENCE
- HYDROSEED (APPROXIMATE LIMITS)
- GRAVEL CONSTRUCTION ENTRANCE
- CATCH BASIN SEDIMENT BARRIER
- DRAINAGE DIRECTION

PRELIMINARY HYDROSEED MIX:

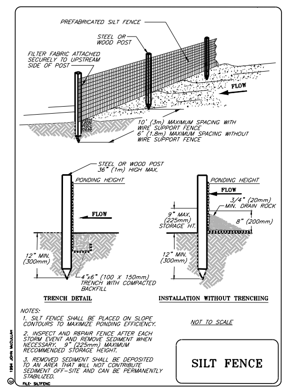
SEED VARIETY	LBS. PER ACRE
REGREEN	36
ZORRO	6
BLANDO	15
ROSE CLOVER	8
CAL POPPY	4
BLUE LUPINE	6
TOTAL	75

THE EROSION CONTROL MATERIALS SHALL BE MIXED AND APPLIED IN APPROXIMATELY THE FOLLOWING PROPORTIONS:

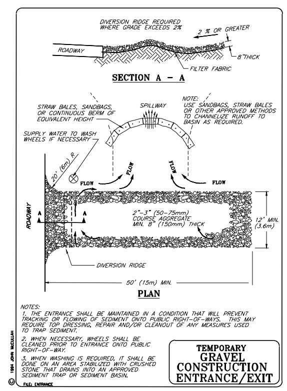
MATERIAL	LBS/AC. (SLOPE MEASURE.)
SEED	75 LBS
WOOD FIBER MULCH	2,000 LBS
R BINDER	60 LBS
FERTILIZER (20-20-10)	400 LBS
WATER	AS NEEDED FOR APPLICATION

NOTES:

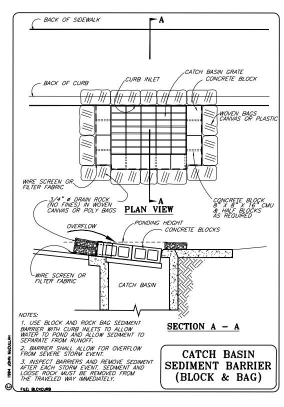
1. EROSION CONTROL PLAN IS BASED OFF OF PRELIMINARY GRADING AND IS SUBJECT TO CHANGE DURING FINAL DESIGN.
2. FIELD CONDITIONS MAY VARY AND ALTERNATIVE BMP's MAY BE REQUIRED. THIS PLAN SHALL BE MODIFIED BY THE CONTRACTOR/EROSION CONTROL SPECIALIST (QUALIFIED SWPPP DEVELOPER OR PRACTITIONER) TO ACCOUNT FOR ACTUAL FIELD CONDITIONS.
3. THIS EROSION CONTROL PLAN HAS BEEN PREPARED TO MEET CITY OF DUBLIN STANDARDS ONLY. IT REQUIRES A PROJECT SWPPP BE PREPARED BY A QUALIFIED SWPPP DEVELOPER(QSD), WHO WILL ASSUME RESPONSIBILITY FOR PROJECT COMPLIANCE WITH THE STATE GENERAL CONSTRUCTION PERMIT AND WHOSE RECOMMENDATIONS WILL SUPERSEDE THIS PLAN ACCORDINGLY.
4. THIS PLAN SHOWS TEMPORARY SEDIMENT BASINS. THE BASINS ARE TO BE CONSTRUCTED ONLY IF THE STREETS ARE NOT PAVED PRIOR TO THE RAINY SEASON. EROSION CONTROL FACILITIES SHOWN SHALL BE ADJUSTED IF THE BASINS ARE CONSTRUCTED.
5. ALL PADS TO BE COVERED WITH EROSION CONTROL PROTECTION PRIOR TO RAINY SEASON OR IF LEFT UNTOUCHED FOR 14 DAYS.
6. TEMPORARY PIPE USED FOR EROSION CONTROL MEASURES MAY BE HDPE (FLEXIBLE) PIPE OR REINFORCED CONCRETE PIPE.
7. INSTALL EROSION CONTROL MATTING IN DITCHES/SWALES PRIOR TO CONCRETE V-DITCH AND TRIBUTARY CREEK CONSTRUCTION.



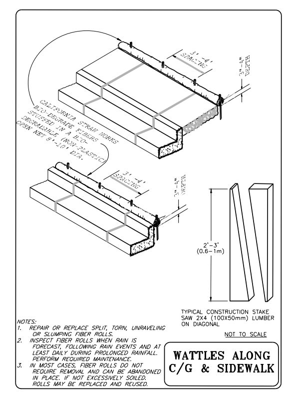
SILT FENCE



TEMPORARY GRAVEL CONSTRUCTION ENTRANCE/EXIT



CATCH BASIN SEDIMENT BARRIER (BLOCK & BAG)



WATTLES ALONG C/G & SIDEWALK

EAST RANCH (CROAK PROPERTY)

VESTING TENTATIVE MAP - TRACT 8563

PRELIMINARY EROSION CONTROL PLAN

DUBLIN CALIFORNIA

PLANS PREPARED UNDER THE DIRECTION OF:

MARK D. MCCLELLAN RCE #60467

REGISTERED PROFESSIONAL ENGINEER MARK D. MCCLELLAN No. C60467 CIVIL STATE OF CALIFORNIA

MACKAY & SOMPS ENGINEERS PLANNERS SURVEYORS 5142B FRANKLIN DR, PLEASANTON, CA 94588 (925)225-0690

DATE: AUGUST 2021
SCALE:
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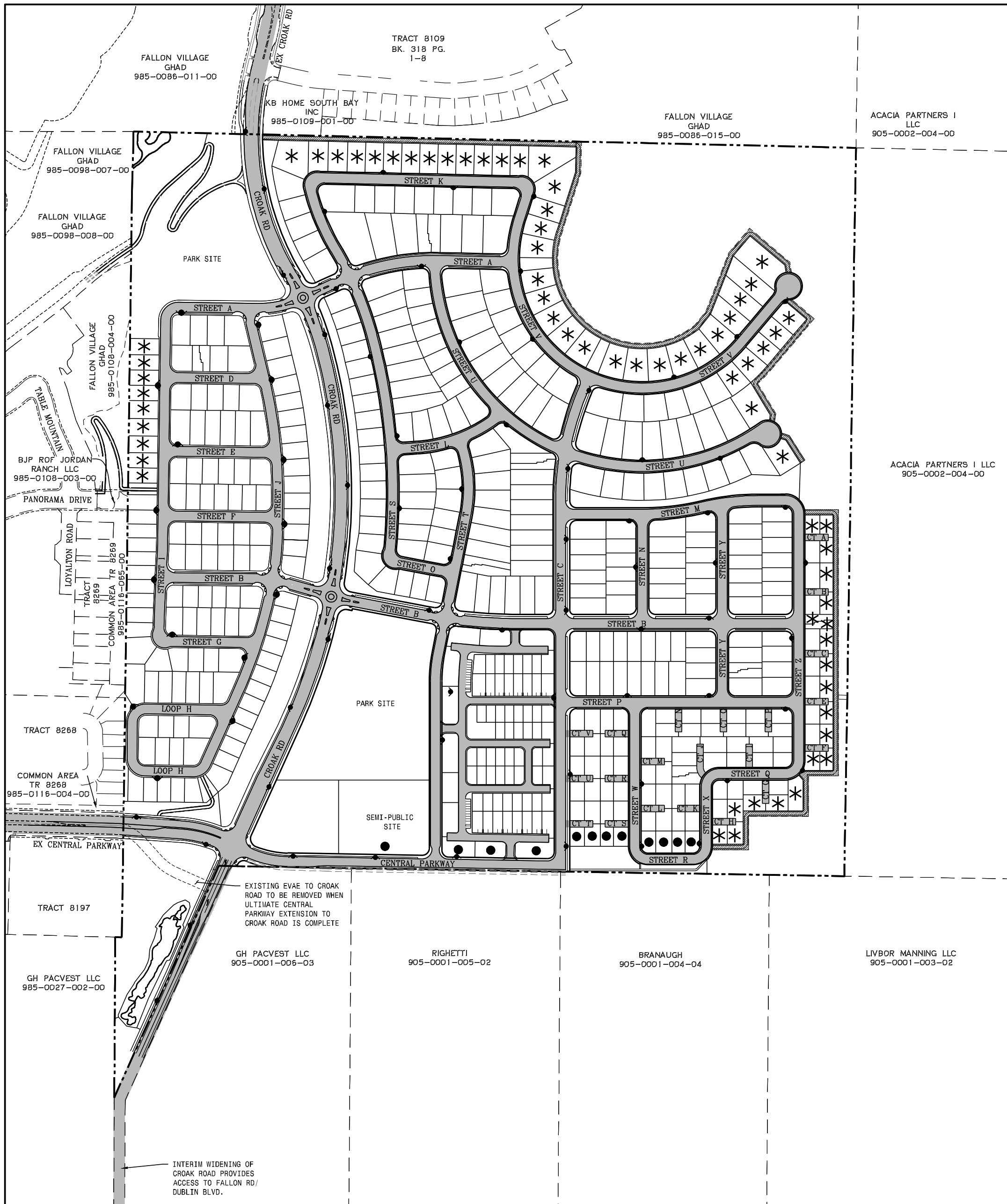
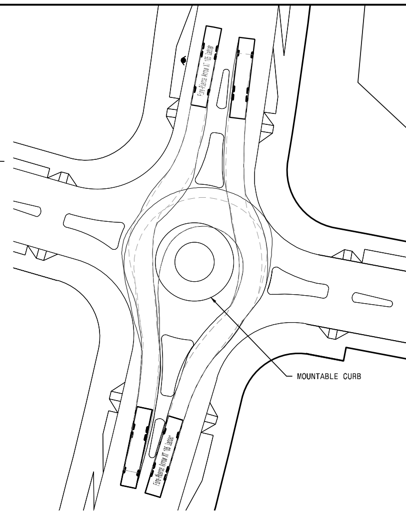
DESIGNED BY: CML
CHECKED BY: MDM

NO.	REVISION	DATE

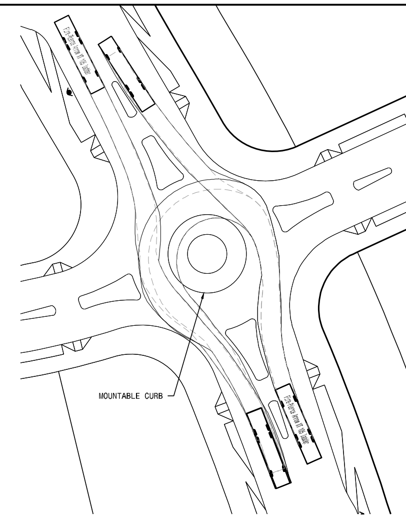
PROJECT NO. 19343.000

08-06-2021 2:34pm Elliott Levitsky P:\19343-T\PLN\TM\TM-17 PRELIMINARY EROSION CONTROL PLAN.DWG

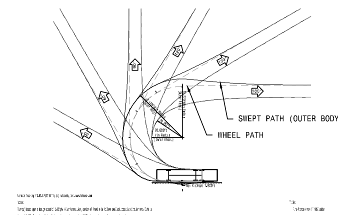


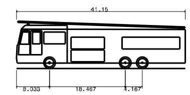


SOUTH ROUNDABOUT
SCALE: 1"=30'



NORTH ROUNDABOUT
SCALE: 1"=30'





Fire-Pierce Arrow XT 105 ladder

Overall Length	41.150ft
Overall Width	8.000ft
Overall Body Height	11.554ft
Min Body Ground Clearance	1.335ft
Track Width	8.000ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	39.90°

NOTE: ROUNDABOUT IS DESIGNED WITH MOUNTABLE CURB AND ADJACENT PAVING TO PROVIDE ACCESS FOR TURNING MANUEVERS BY OVERSIZED VEHICLES.

LEGEND:

- FIRE DEPARTMENT ACCESS ROUTE
- 20' MAINTENANCE BENCH
- FIRE HYDRANT
- WILDFIRE BUFFER LOT ADJACENT TO OPEN SPACE
- WILDFIRE BUFFER LOT ADJACENT TO UNDEVELOPED LANDS

NOTE: WILDFIRE LOTS ADJACENT TO UNDEVELOPED LAND MAY NOT BE SUBJECT TO THE WILDFIRE MANAGEMENT ORDINANCE IF THE ADJACENT PROPERTIES RECEIVE APPROVAL OF A TENTATIVE MAP, MASTER TENTATIVE MAP, OR DEVELOPMENT AGREEMENT.

0 100 200 400
SCALE: 1"=200'

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PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

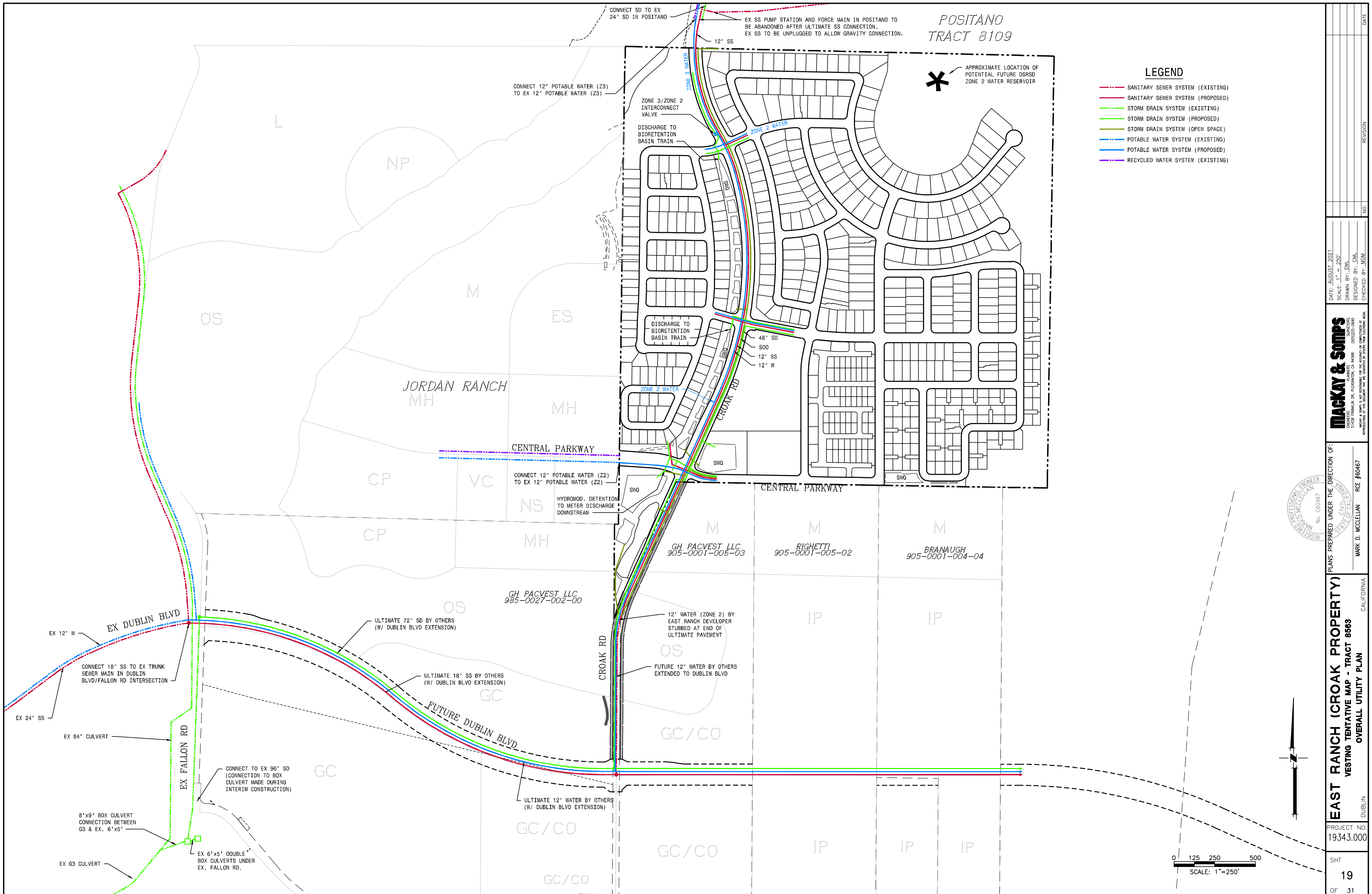
REGISTERED PROFESSIONAL ENGINEER MARK D. MCCLELLAN No. C60467 CIVIL STATE OF CALIFORNIA

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
FIRE ACCESS AND HYDRANT LOCATION PLAN
DUBLIN CALIFORNIA

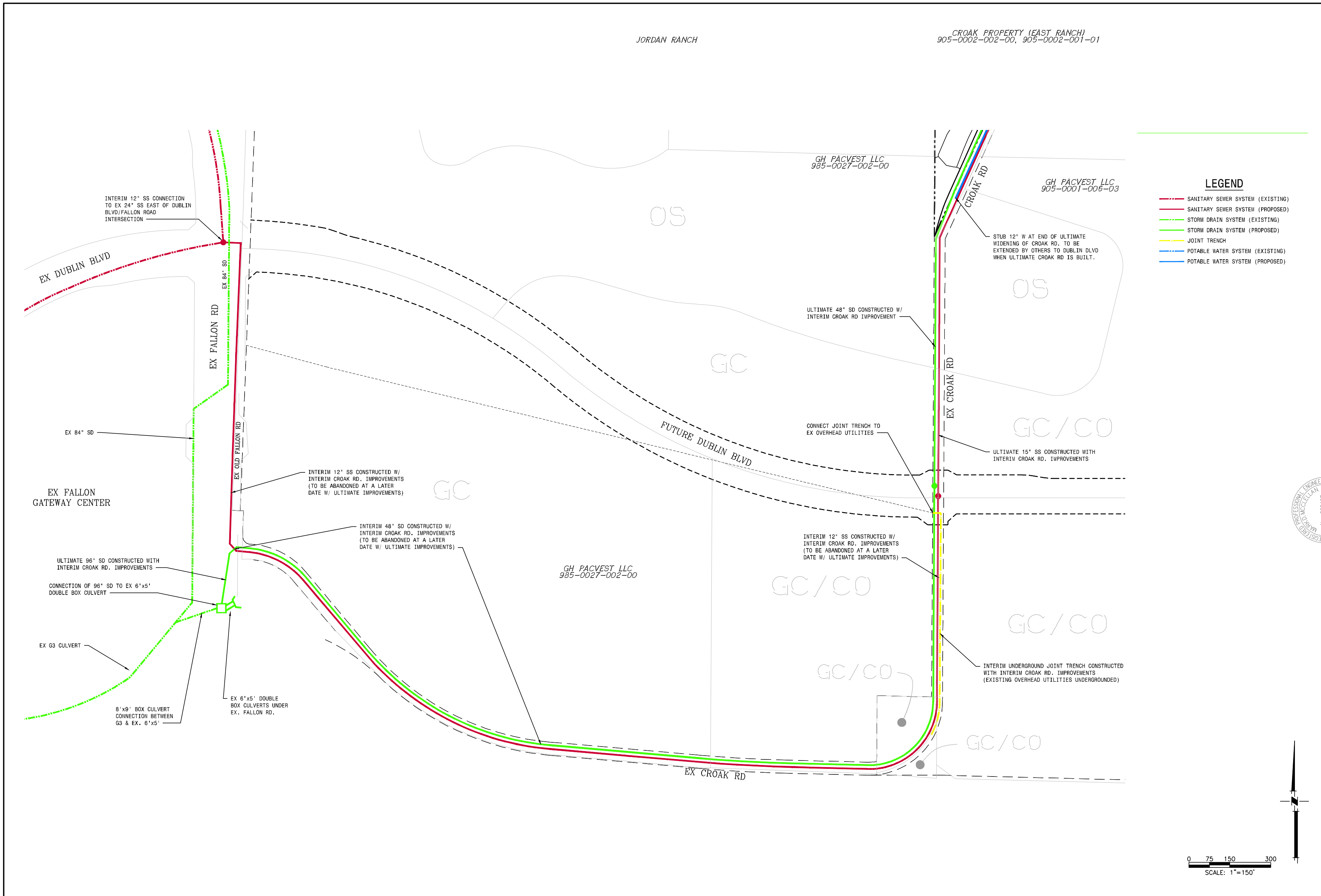
PROJECT NO. 19343.000

SHT 18 OF 31

08-06-2021 2:34pm Elliott Levitsky P:\19343-T\PLN\TM\TM-18 FIRE ACCESS AND HYDRANT LOCATION PLAN.DWG



08-06-2021 2:35pm Elliott Levitsky P:\19343-T\PLN\TM\TM-19 OVERALL UTILITY PLAN.DWG



MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS

PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

DATE: AUGUST 2021
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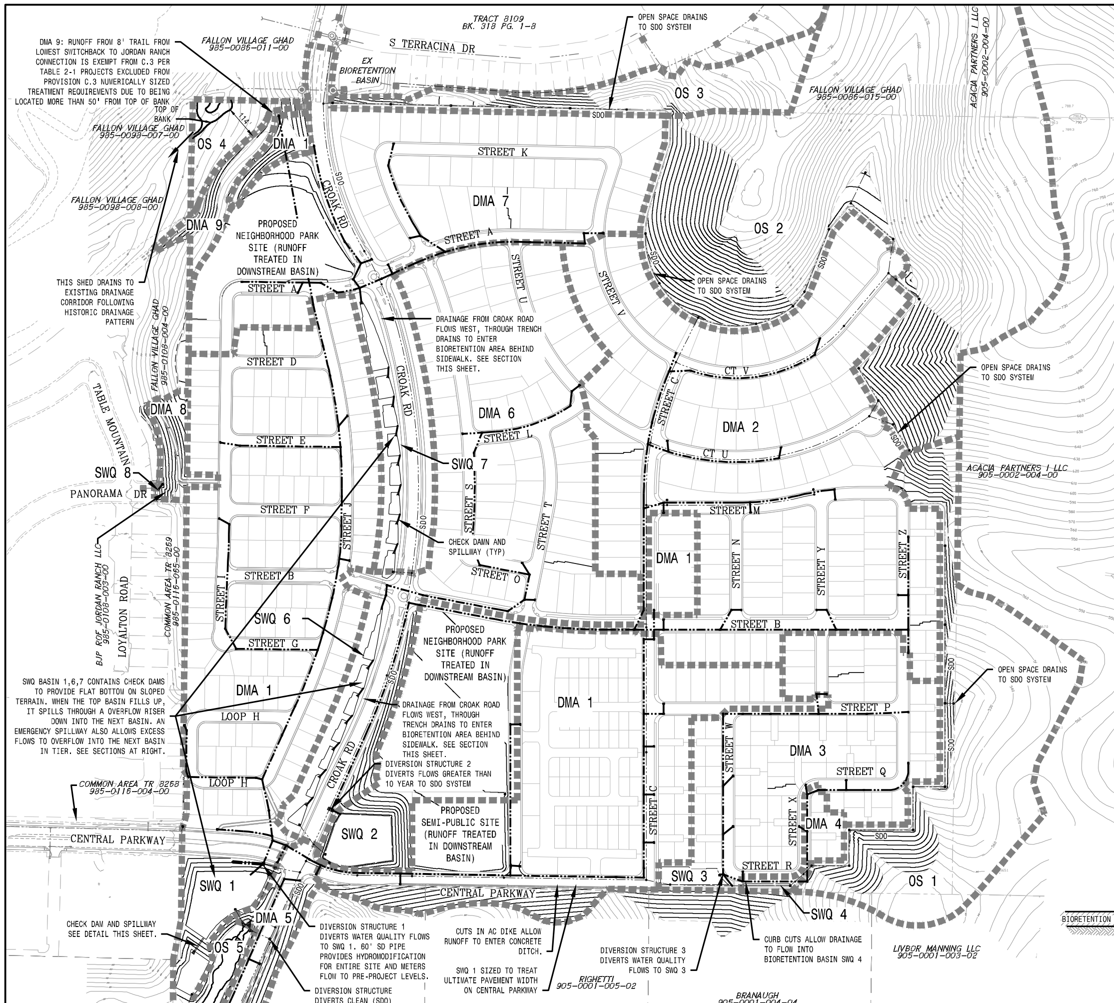
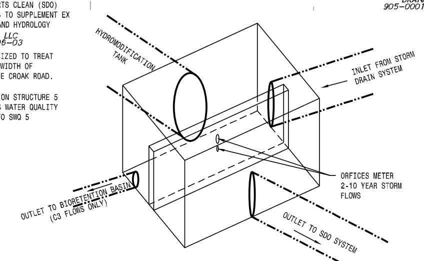
EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
INTERIM UTILITY PLAN

DUBLIN CALIFORNIA

PROJECT NO. 19343.000

SHT 20 OF 31





DIVERSION STRUCTURE 1 DETAIL

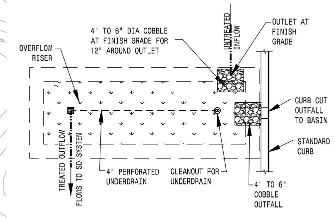
NTS

DMA	IMPERVIOUS RATIO	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	TOTAL AREA (SF)	EFFECTIVE IMPERVIOUS AREA (SF)	TREATMENT AREA REQUIRED (SF)	TREATMENT AREA PROVIDED (SF)
1	0.6	1,119,157	746,104	1,865,261	1,193,767	47,751	47,760
2	0.6	976,265	650,844	1,627,109	1,041,350	41,654	41,660
3	0.7	352,755	151,181	503,935	367,873	14,715	14,720
4	0.7	27,644	11,847	39,491	28,828	1,153	1,160
5	0.7	105,394	45,169	150,563	109,911	4,396	4,400
6	0.6	554,597	369,732	924,329	591,571	23,663	23,670
7	0.6	583,938	389,292	973,230	622,867	24,915	24,920
8	0.3	12,681	29,589	42,270	15,640	626	630

NOTES:

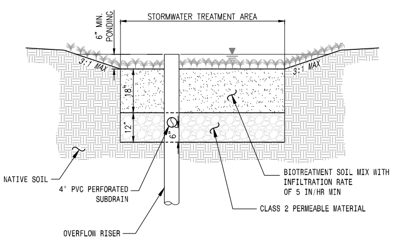
1. THE CALCULATIONS SHOWN IN TABLE HEREON ARE BASED ON ALAMEDA COUNTY CLEAN WATER PROGRAM, C.3 STORMWATER TECHNICAL GUIDANCE JANUARY 1, 2015.
2. EFFECTIVE IMPERVIOUS AREA = IMPERVIOUS AREA + 10% OF PERVIOUS AREA
3. RAINFALL INTENSITY = 0.2 IN/HR
4. BIORETENTION SOIL MIX TO HAVE A MINIMUM 5 IN/HR INFILTRATION RATE
5. THE PRELIMINARY BASIN SIZING IS BASED ON A SIZING CRITERIA OF (0.2 IN/HR)/(5 IN/HR)=0.04 (4%)
6. UNDEVELOPED OPEN SPACE SHEDS ENTER THE OPEN SPACE STORM DRAIN SYSTEM, WHICH BYPASSES STORMWATER QUALITY TREATMENT AREAS.
7. SWQ 1 AND SWQ 2 SIZED TO TREAT DEVELOPED PARK SITES.
8. PROJECT WILL COMPLY WITH THE C.10 TRASH CAPTURE PROVISION OF THE MMRP.
9. DMA 9: RUNOFF FROM 8' TRAIL FROM LOWEST SWITCHBACK TO JORDAN RANCH CONNECTION IS EXEMPT FROM C.3 PER TABLE 2-1 PROJECTS EXCLUDED FROM PROVISION C.3 NUMERICALLY SIZED TREATMENT REQUIREMENTS DUE TO BEING LOCATED MORE THAN 50' FROM TOP OF BANK.

DMA	DRAINAGE MANAGEMENT AREA
OS	OPEN SPACE SHED (UNDEVELOPED AREAS)
SWQ	STORMWATER QUALITY BASIN
■ ■ ■ ■	LIMITS OF DRAINAGE MANAGEMENT AREAS
—··—··—	STORM DRAIN (SD) CONVEYS: UNTREATED FLOWS
—·—·—	STORM DRAIN OPEN SPACE (SDO) CONVEYS: FLOWS FROM UNDEVELOPED AREAS THAT BYPASS TREATMENT, HIGH FLOW BYPASS FOR DEVELOPED FLOWS, AND TREATED BIORETENTION BASIN OUTFLOWS



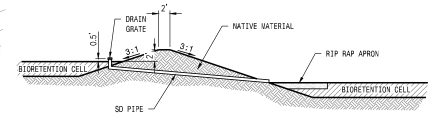
TYPICAL BIO-RETENTION BASIN PLAN VIEW

NTS



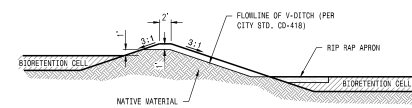
TYPICAL BIO-RETENTION BASIN SECTION

NTS



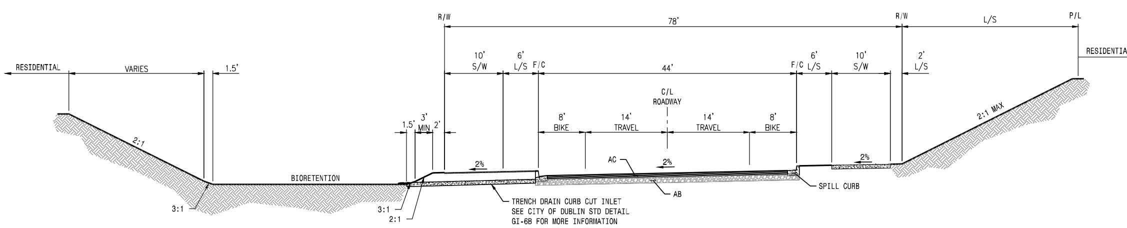
SWQ 1,6,7 - OVERFLOW RISER DETAIL

NTS



SWQ 1,6,7 - CONCRETE V-DITCH EMERGENCY SPILLWAY DETAIL

NTS



CROAK ROAD - 88' ROW

NTS

EAST RANCH (CROAK PROPERTY)

VESTING TENTATIVE MAP - TRACT 8563

PRELIMINARY STORMWATER QUALITY PLAN

DUBLIN CALIFORNIA

MacKAY & SOMPS

ENGINEERS PLANNERS SURVEYORS

PLANS PREPARED UNDER THE DIRECTION OF:

MARK D. McCLELLAN RCE #60467

REGISTERED PROFESSIONAL ENGINEER MARK D. McCLELLAN No. C60467 CIVIL STATE OF CALIFORNIA

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PROJECT NO. 19343.000

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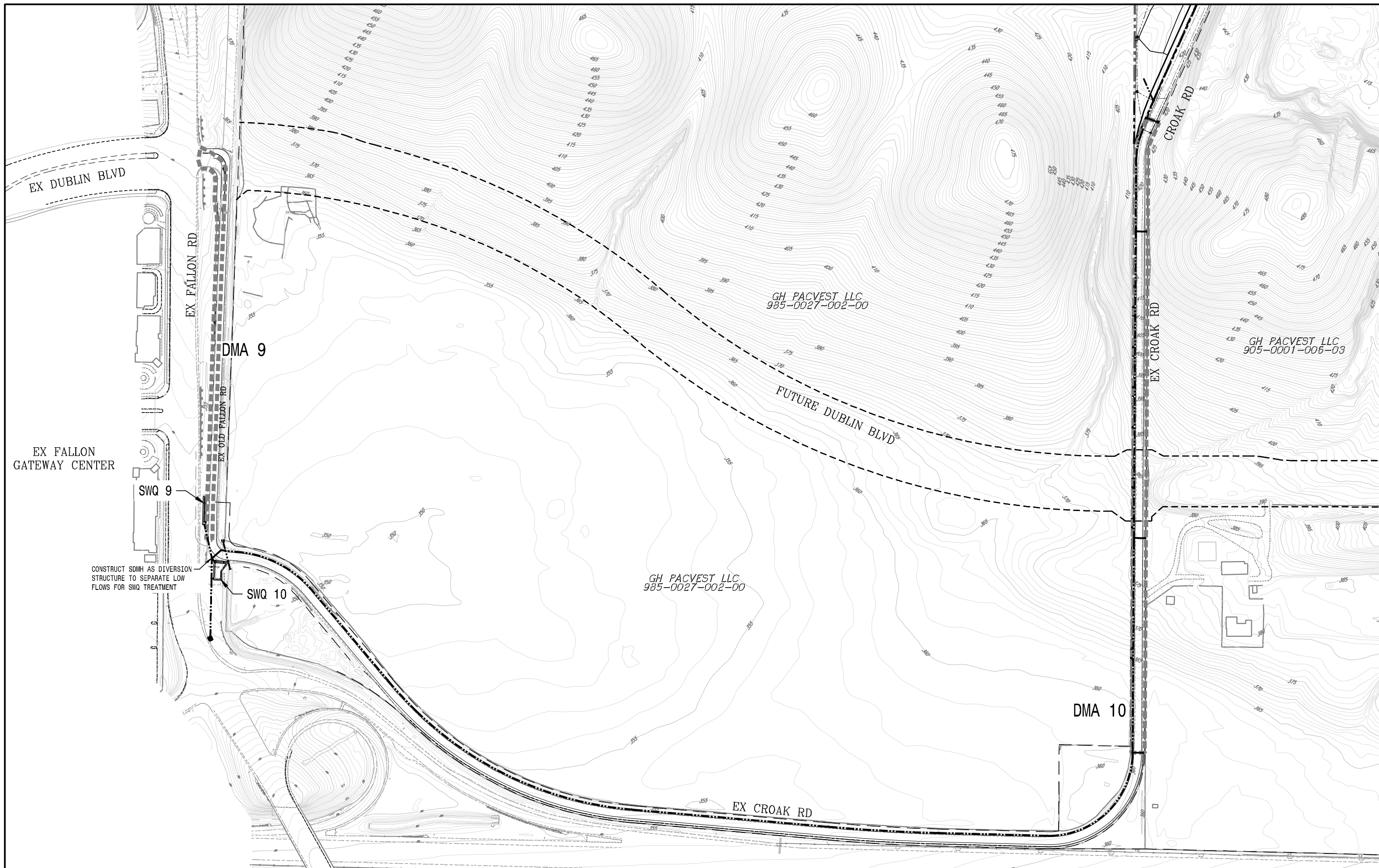

DMA	IMPERVIOUS RATIO	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	TOTAL AREA (SF)	EFFECTIVE IMPERVIOUS AREA (SF)	TREATMENT AREA REQUIRED (SF)	TREATMENT AREA PROVIDED (SF)
9	1	9,179	0	9,179	9,179	367	385
10	1	26,821	0	26,821	26,821	1,073	1,125

NOTES:
1. THE CALCULATIONS SHOWN IN TABLE HEREON ARE BASED ON ALAMEDA COUNTY CLEAN WATER PROGRAM, C.3 STORMWATER TECHNICAL GUIDANCE JANUARY 1, 2015.
2. EFFECTIVE IMPERVIOUS AREA = IMPERVIOUS AREA + 10% OF PERVIOUS AREA
3. RAINFALL INTENSITY = 0.2 IN/HR
4. BIORETENTION SOIL MIX TO HAVE A MINIMUM 5 IN/HR INFILTRATION RATE
5. THE PRELIMINARY BASIN SIZING IS BASED ON A SIZING CRITERIA OF (0.2 IN/HR)/(5 IN/HR)=0.04 (4%)

DMA	DRAINAGE MANAGEMENT AREA
OS	OPEN SPACE SHED (UNDEVELOPED AREAS)
SWQ	STORMWATER QUALITY BASIN
■■■■	LIMITS OF DRAINAGE MANAGEMENT AREAS
━··━··━	STORM DRAIN (SD) CONVEYS: UNTREATED FLOWS
—·-—·-—	STORM DRAIN OPEN SPACE (SDO) CONVEYS: FLOWS FROM UNDEVELOPED AREAS THAT BYPASS TREATMENT, HIGH FLOW BYPASS FOR DEVELOPED FLOWS, AND TREATED BIORETENTION BASIN OUTFLOWS

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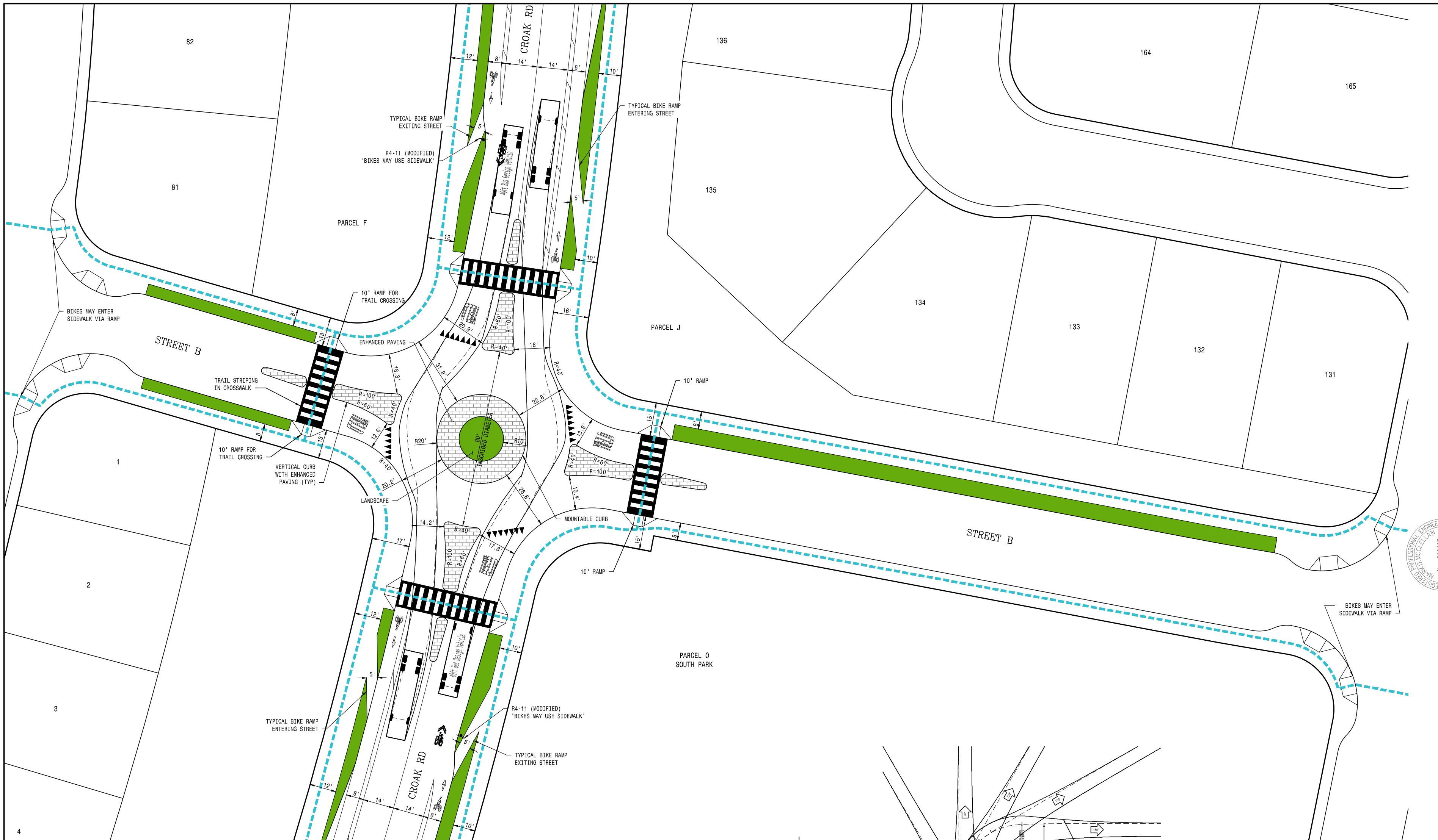
MARK D. MCCLELLAN RCE #60467

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
PRELIMINARY INTERIM STORMWATER QUALITY PLAN
DUBLIN CALIFORNIA

PROJECT NO. 19343.000

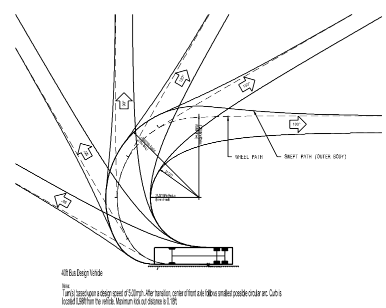
SHT 22 OF 31

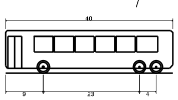
08-06-2021 2:38pm Elliott Levitsky P:\19343-T\PLN\TM\TM-22 PRELIMINARY INTERIM STORMWATER QUALITY PLAN.DWG



SOUTH ROUNDABOUT

SCALE: 1"=20'





40ft Bus Design Vehicle	
Overall Length	40.000ft
Overall Width	8.500ft
Overall Body Height	10.228ft
Min Body Ground Clearance	1.158ft
Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	41.00°

NOTE:
THE 40FT BUS VEHICLE TURNING MOVEMENTS ARE MORE CONSERVATIVE THAN ACFD FIRE TRUCK STANDARDS AND STANDARD WB40 SEMI-TRAILER TURNING MOVEMENTS

LEGEND:

- ENHANCED PAVING
- LANDSCAPE
- WHEEL PATH OF VEHICLE
- SWEPT PATH OF VEHICLE (OUTER BODY)
- TRAIL ACCESS

NOTES:
1. MODIFIED STANDARD MINI-ROUNDABOUT PER FHWA STANDARDS.
2. DESIGN SPEED OF 35-MPH.
3. STREET SECTION PER CITY REQUEST 14' TRAVEL LANES + 8' BIKE LANES.
4. ROUNDABOUT IS ONE LANE.
5. ROUNDABOUT IS DESIGNED WITH MOUNTABLE CURB AND ADJACENT PAVING TO PROVIDE ACCESS FOR TURNING MANUEVERS BY OVERSIZED VEHICLES.
6. REFER TO PAGE 18 FOR FIRE TRUCK TURNING TEMPLATES.

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DATE: AUGUST 2021
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MacKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS

PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. McCLELLAN RCE #60467

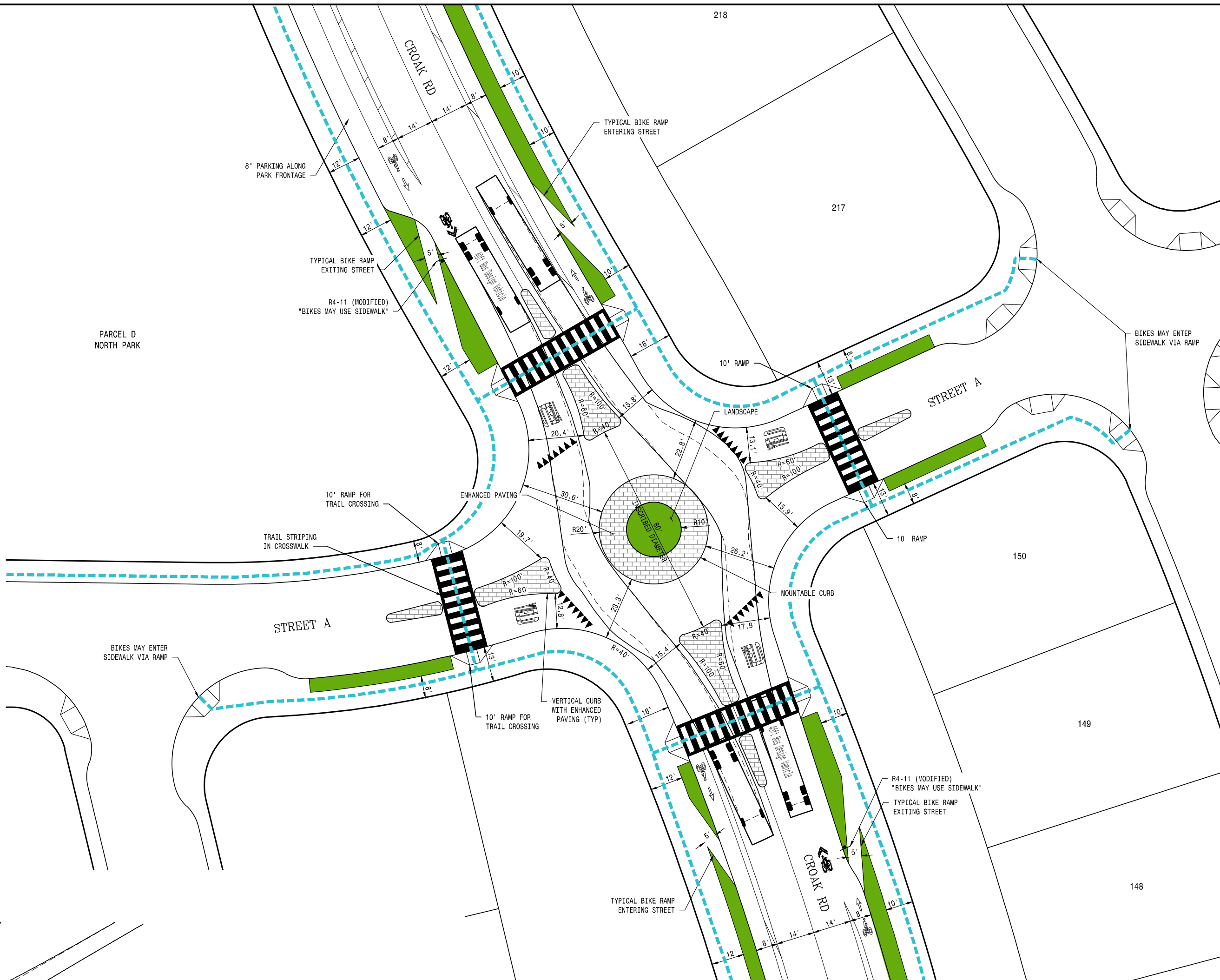
EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
ROUNDABOUT DETAILS

DUBLIN CALIFORNIA

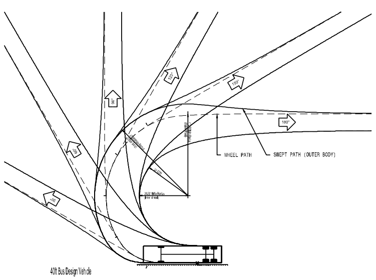
PROJECT NO. 19343.000

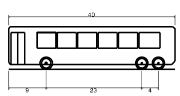
SHT 23 OF 31

08-06-2021 2:39pm Elliott Levitsky P:\19343-T\PLN\TM\TM-23 ROUNDABOUT DETAILS.DWG



NORTH ROUNDABOUT





40ft Bus Design Vehicle

Overall Length	40.000ft
Overall Width	8.500ft
Overall Body Height	10.228ft
Min Body Ground Clearance	1.158ft
Track Width	8.500ft
Lock-to-lock time	6.00s
Max Steering Angle (Virtual)	41.00°

LEGEND:

- ENHANCED PAVING
- LANDSCAPE
- WHEEL PATH OF VEHICLE
- SWEPT PATH OF VEHICLE (OUTER BODY)
- TRAIL ACCESS

NOTE:
THE 40FT BUS VEHICLE TURNING MOVEMENTS ARE MORE CONSERVATIVE THAN ACFD FIRE TRUCK STANDARDS AND STANDARD WB40 SEMI-TRAILER TURNING MOVEMENTS

0 10 20 40
SCALE: 1"=20'

NOTES:
1. MODIFIED STANDARD MINI-ROUNDABOUT PER FHWA STANDARDS.
2. DESIGN SPEED OF 35-MPH.
3. STREET SECTION PER CITY REQUEST 14' TRAVEL LANES + 8' BIKE LANES.
4. ROUNDABOUT IS ONE LANE.
5. ROUNDABOUT IS DESIGNED WITH MOUNTABLE CURB AND ADJACENT PAVING TO PROVIDE ACCESS FOR TURNING MANUEVERS BY OVERSIZED VEHICLES.
6. REFER TO PAGE 18 FOR FIRE TRUCK TURNING TEMPLATES.

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DATE: AUGUST 2021
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DESIGNED BY: CML
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ENGINEERS PLANNERS SURVEYORS
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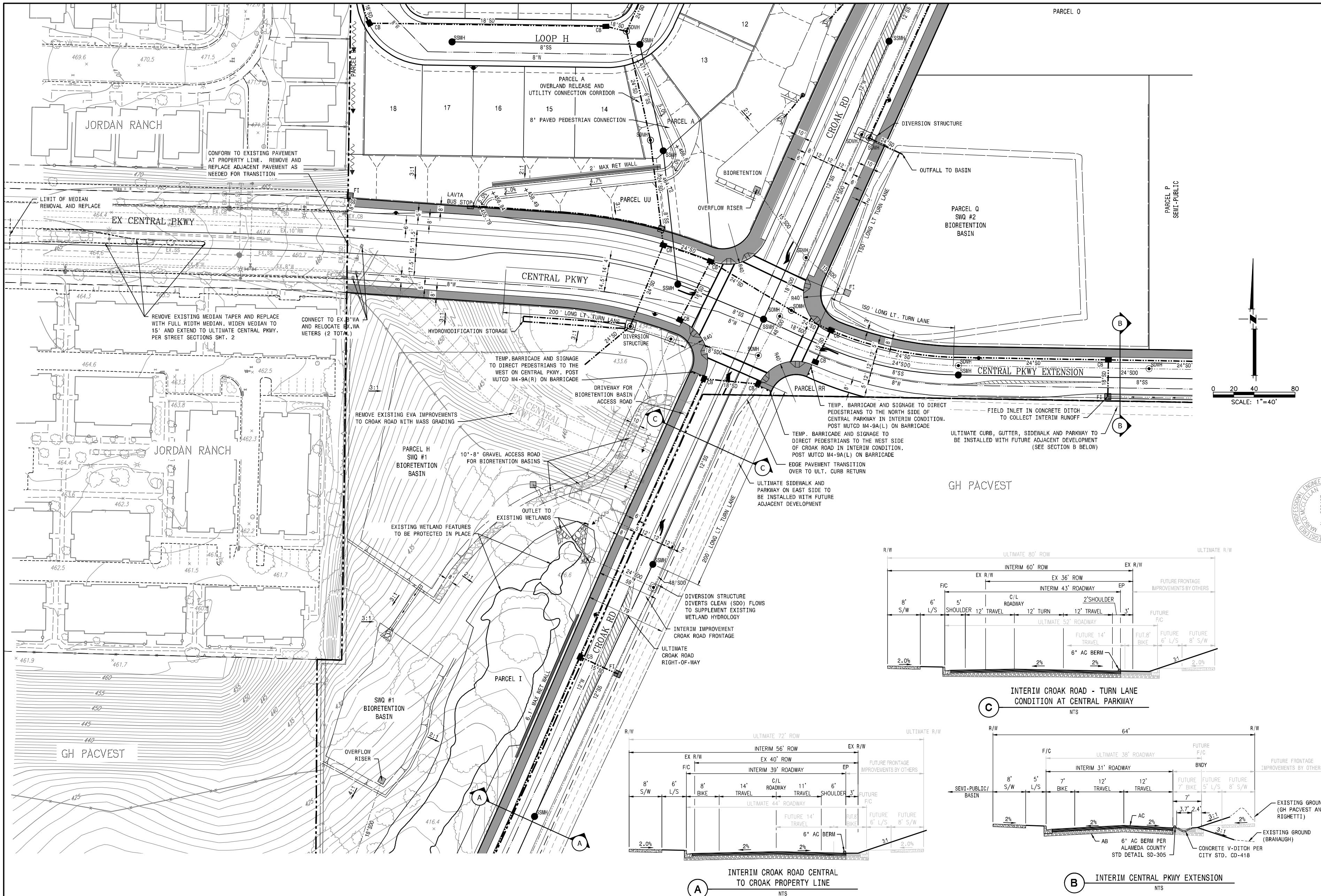
PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467
REGISTERED PROFESSIONAL ENGINEER MARK D. MCCLELLAN No. C60467 CIVIL STATE OF CALIFORNIA

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
ROUNDABOUT DETAILS
DUBLIN CALIFORNIA

PROJECT NO. 19343.000

SHT 24 OF 31

08-06-2021 2:40pm Elliott Levitsky P:\19343-T\PLN\TM\TM-24 ROUNDABOUT DETAILS.DWG



MacKay & Somps
ENGINEERS PLANNERS SURVEYORS

PLANS PREPARED UNDER THE DIRECTION OF:

MARK D. MCCLELLAN RCE #60467

DATE: AUGUST 2021
SCALE: 1" = 40'
DRAWN BY: EAJ
DESIGNED BY: CML
CHECKED BY: MDM

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
CENTRAL PKWY. CROAK RD.
CONNECTION DETAILS

DUBLIN CALIFORNIA

PROJECT NO. 19343.000

SHT 25 OF 31

08-06-2021 2:42pm Elliott Levitsky P:\19343-T\PLN\TM\TM-25 CENTRAL PKWY. CROAK RD. CONNECTION DETAILS.DWG

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
POSITANO CROAK RD CONNECTION PLAN
DUBLIN CALIFORNIA

PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

MACKAY & SOMPS
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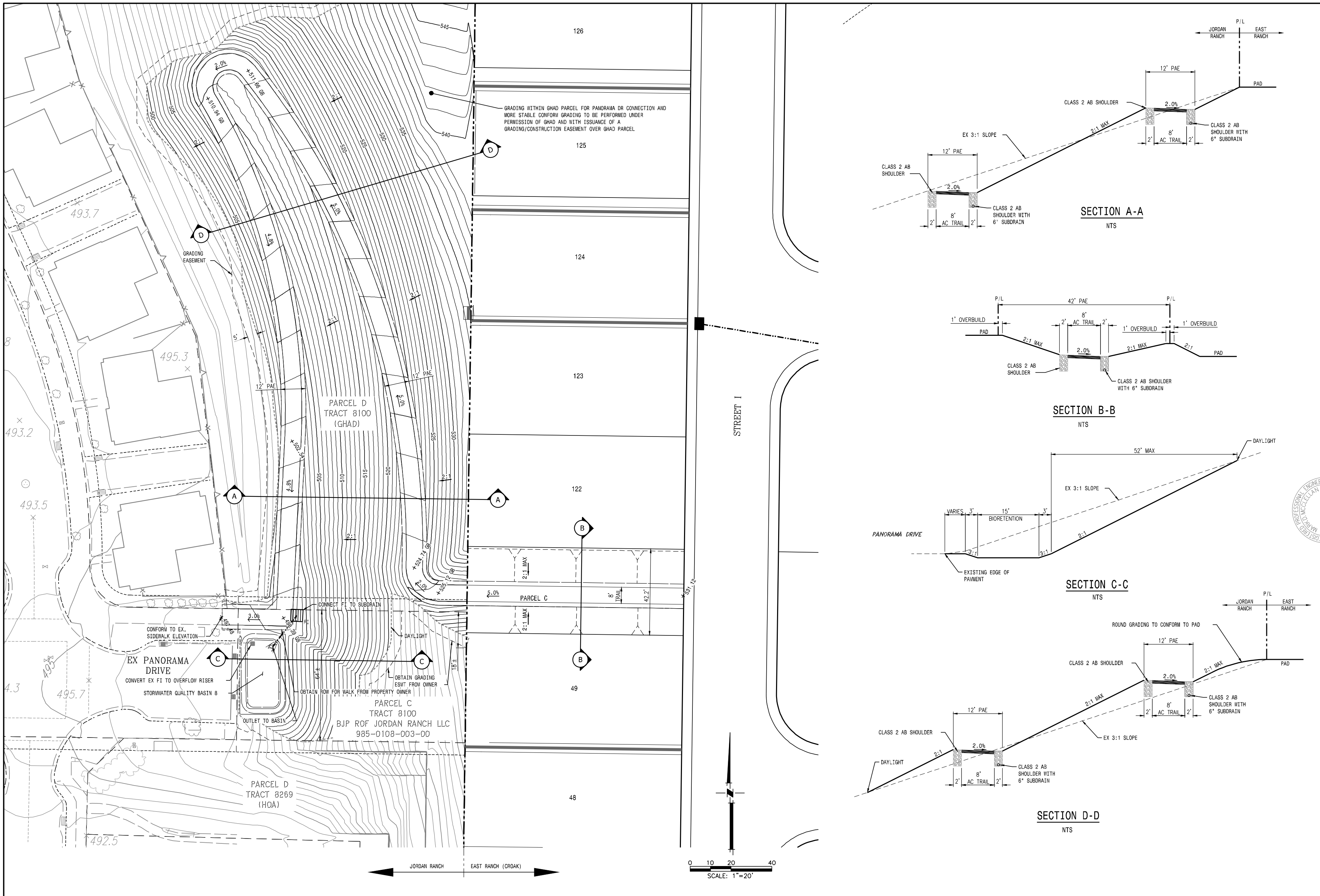
DATE: AUGUST 2021
SCALE: 1" = 40'
DRAWN BY: EAJ
DESIGNED BY: CML
CHECKED BY: MDM

NO.	REVISION	DATE

PROJECT NO. 19343.000

SHT 26 OF 31

08-06-2021 2:43pm Elliott Levitsky P:\19343-T\PLN\TM\TM-26 POSITANO CROAK RD CONNECTION PLAN.DWG



EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
PANARAMA DR. CONNECTION PLAN

DUBLIN CALIFORNIA

PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

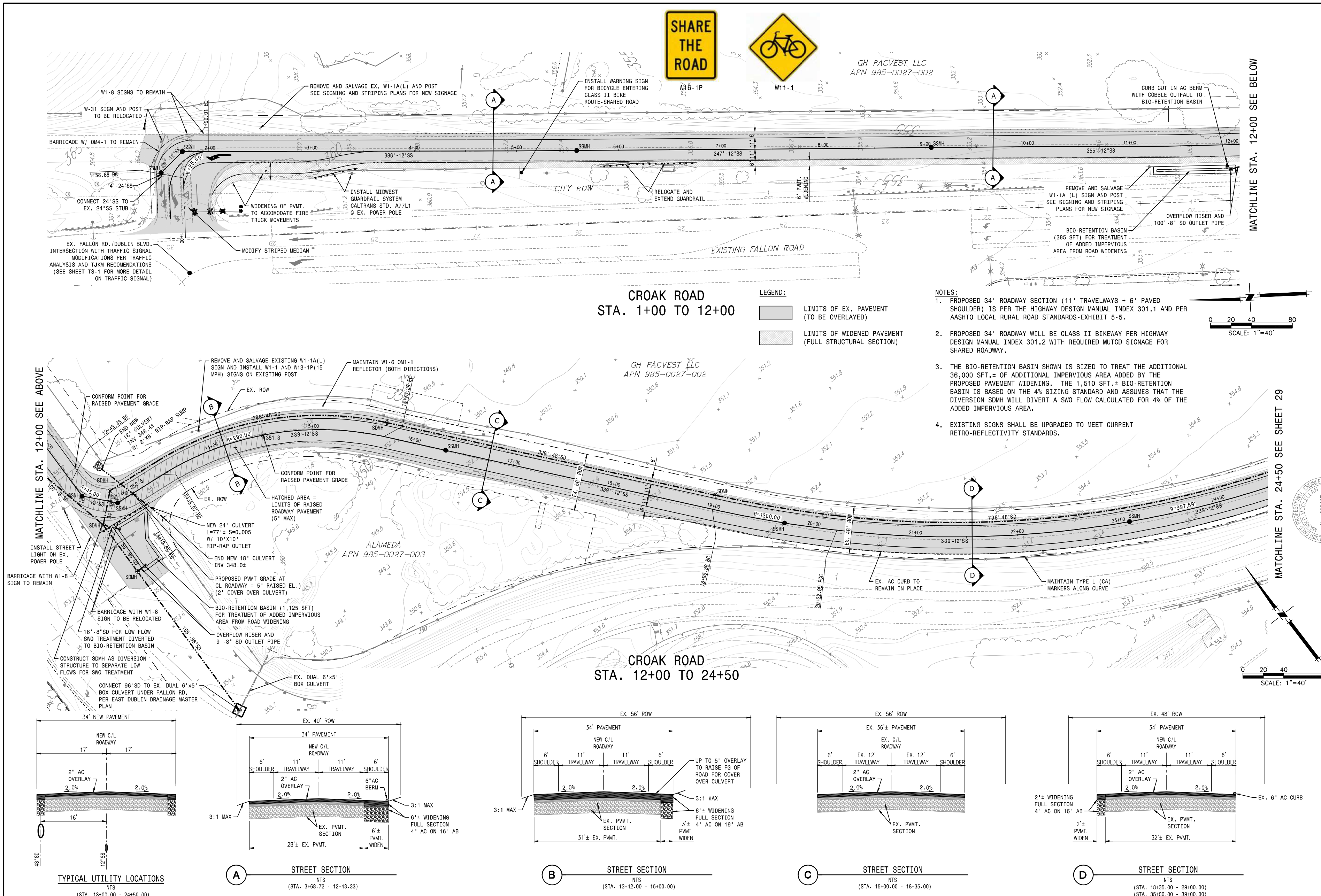
REGISTERED PROFESSIONAL ENGINEER MARK D. MCCLELLAN No. C60467 CIVIL STATE OF CALIFORNIA

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
5142B FRANKLIN DR, PLEASANTON, CA 94588 (925)225-0690

DATE: AUGUST 2021
SCALE: 1" = 20'
DRAWN BY: EAJ
DESIGNED BY: CML
CHECKED BY: MDM

NO.	REVISION	DATE

PROJECT NO. 19343.000



NOTES:

1. PROPOSED 34' ROADWAY SECTION (11' TRAVELWAYS + 6' PAVED SHOULDER) IS PER THE HIGHWAY DESIGN MANUAL INDEX 301.1 AND PER AASHTO LOCAL RURAL ROAD STANDARDS-EXHIBIT 5-5.
2. PROPOSED 34' ROADWAY WILL BE CLASS II BIKEWAY PER HIGHWAY DESIGN MANUAL INDEX 301.2 WITH REQUIRED MUTCD SIGNAGE FOR SHARED ROADWAY.
3. THE BIO-RETENTION BASIN SHOWN IS SIZED TO TREAT THE ADDITIONAL 36,000 SFT.± OF ADDITIONAL IMPERVIOUS AREA ADDED BY THE PROPOSED PAVEMENT WIDENING. THE 1,510 SFT.± BIO-RETENTION BASIN IS BASED ON THE 4% SIZING STANDARD AND ASSUMES THAT THE DIVERSION SDMH WILL DIVERT A SWQ FLOW CALCULATED FOR 4% OF THE ADDED IMPERVIOUS AREA.
4. EXISTING SIGNS SHALL BE UPGRADED TO MEET CURRENT RETRO-REFLECTIVITY STANDARDS.

DATE: AUGUST 2021
SCALE: 1" = 40'
DRAWN BY: EAJ
DESIGNED BY: CML
CHECKED BY: MDM

MacKay & Somps
ENGINEERS PLANNERS SURVEYORS

PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

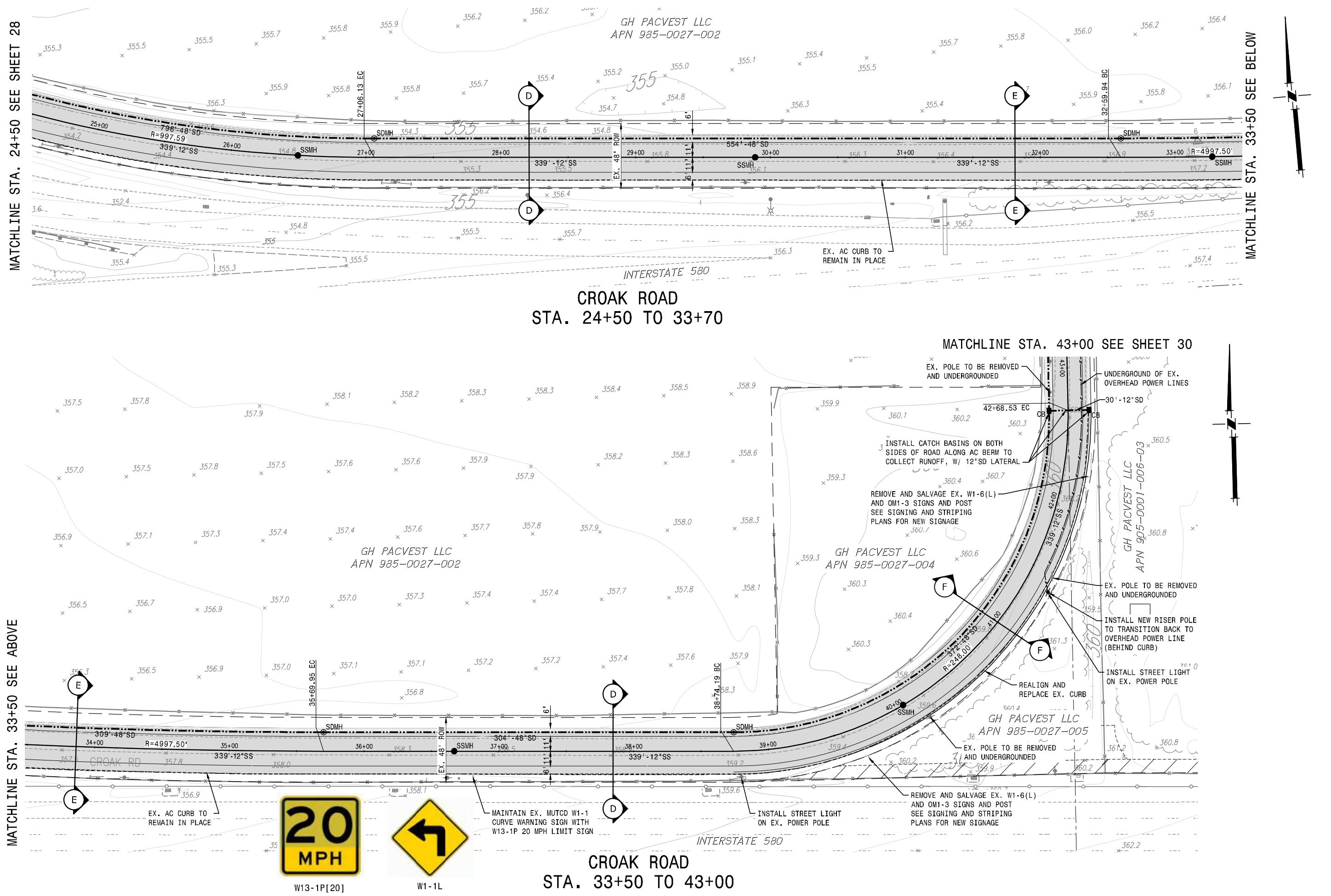
EAST RANCH (CROAK PROPERTY)

VESTING TENTATIVE MAP - TRACT 8563
INTERIM CROAK ROAD IMPROVEMENTS
(STA 1+00 - 24+50)

DUBLIN CALIFORNIA

PROJECT NO. 19343.000

SHT 28 OF 31



NOTES:

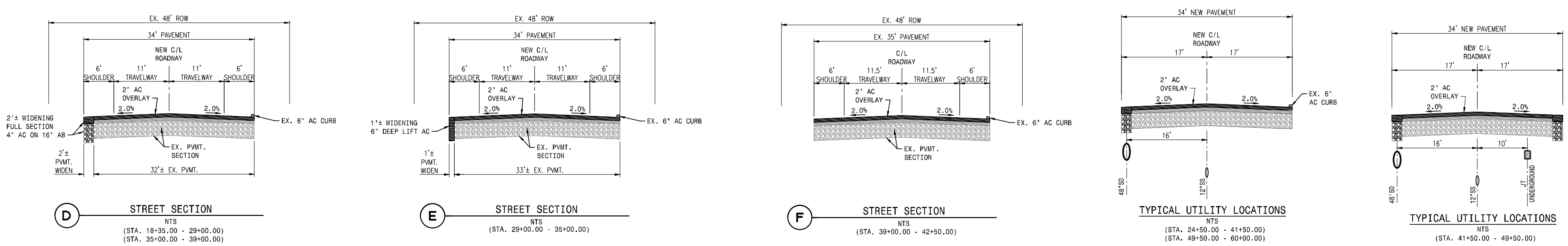
1. PROPOSED 34' ROADWAY SECTION (11' TRAVELWAYS + 6' PAVED SHOULDER) IS PER THE HIGHWAY DESIGN MANUAL INDEX 301.1 AND PER AASHTO LOCAL RURAL ROAD STANDARDS-EXHIBIT 5-5.
2. PROPOSED 34' ROADWAY WILL BE CLASS II BIKEWAY PER HIGHWAY DESIGN MANUAL INDEX 301.2 WITH REQUIRED MUTCD SIGNAGE FOR SHARED ROADWAY.
3. EXISTING SIGNS SHALL BE UPGRADED TO MEET CURRENT RETRO-REFLECTIVITY STANDARDS.

LEGEND:

LIMITS OF EX. PAVEMENT (TO BE OVERLAYED)

LIMITS OF WIDENED PAVEMENT (FULL STRUCTURAL SECTION)

0 20 40 80
SCALE: 1"=40'



D STREET SECTION
NTS
(STA. 18+35.00 - 29+00.00)
(STA. 35+00.00 - 39+00.00)

E STREET SECTION
NTS
(STA. 29+00.00 - 35+00.00)

F STREET SECTION
NTS
(STA. 39+00.00 - 42+50.00)

TYPICAL UTILITY LOCATIONS
NTS
(STA. 24+50.00 - 41+50.00)
(STA. 49+50.00 - 60+00.00)

TYPICAL UTILITY LOCATIONS
NTS
(STA. 41+50.00 - 49+50.00)

NO. | REVISION | DATE

DATE: AUGUST 2021
SCALE: 1" = 40'
DRAWN BY: EAJ
DESIGNED BY: CML
CHECKED BY: MDM

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS

PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

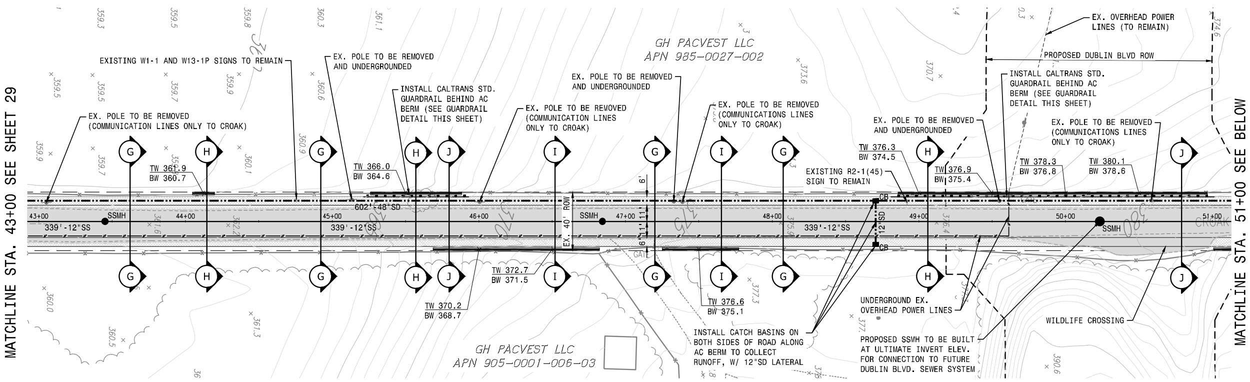
EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8583
INTERIM CROAK ROAD IMPROVEMENTS (STA 24+50 - 43+00)

DUBLIN CALIFORNIA

PROJECT NO. 19343.000

SHT 29 OF 31

08-06-2021 2:46pm Elliott Levitsky P:\19343-T\PLN\TM\TM-29 INTERIM CROAK ROAD IMPROVEMENTS (STA 24+50 - 43+00).DWG



CROAK ROAD
STA. 43+00 TO 51+00

SCALE: 1"=40'

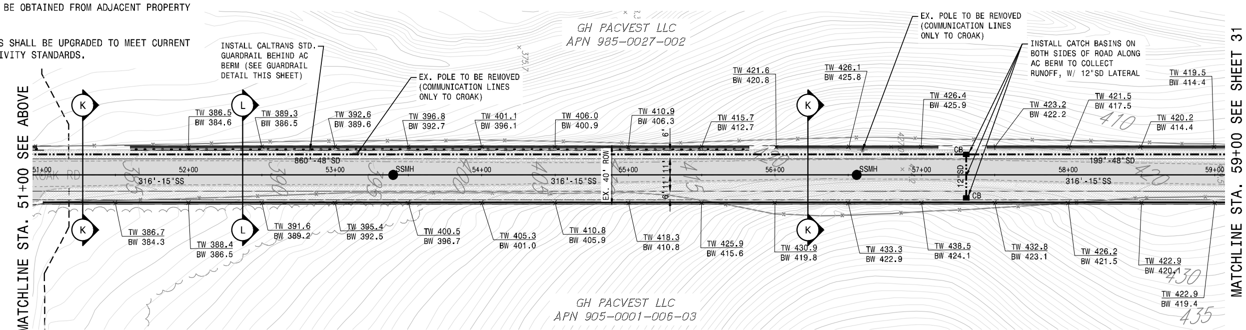
NOTES:

1. PROPOSED 34' ROADWAY SECTION (11' TRAVELWAYS + 6' PAVED SHOULDER) IS PER THE HIGHWAY DESIGN MANUAL INDEX 301.1 AND PER AASHTO LOCAL RURAL ROAD STANDARDS-EXHIBIT 5-5.
2. PROPOSED 34' ROADWAY WILL BE CLASS II BIKEWAY PER HIGHWAY DESIGN MANUAL INDEX 301.2 WITH REQUIRED MUTCD SIGNAGE FOR SHARED ROADWAY.
3. RETAINING WALLS WILL NOT BE INSTALLED IF GRADING EASEMENTS CAN BE OBTAINED FROM ADJACENT PROPERTY OWNERS.
4. EXISTING SIGNS SHALL BE UPGRADED TO MEET CURRENT RETRO-REFLECTIVITY STANDARDS.

LEGEND:

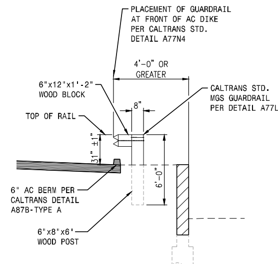
LIMITS OF EX. PAVEMENT (TO BE OVERLAYED)

LIMITS OF WIDENED PAVEMENT (FULL STRUCTURAL SECTION)

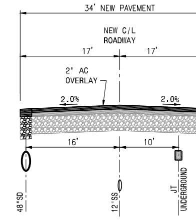


CROAK ROAD
STA. 51+00 TO 59+00

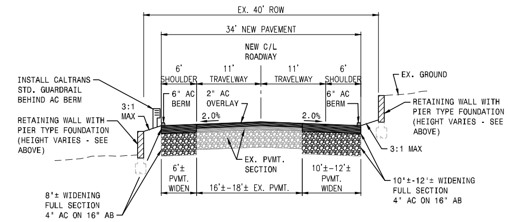
SCALE: 1"=40'



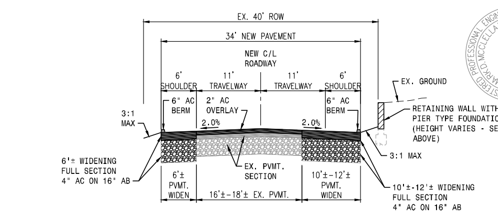
MIDWEST GUARDRAIL SYSTEM TYPICAL EMBEDMENT AND OFFSET DETAIL
(CALTRANS DETAIL A77N3)
NTS



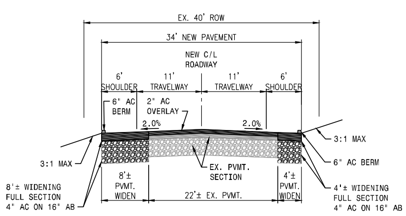
TYPICAL UTILITY LOCATIONS
NTS
(STA. 41+50.00 - 49+50.00)



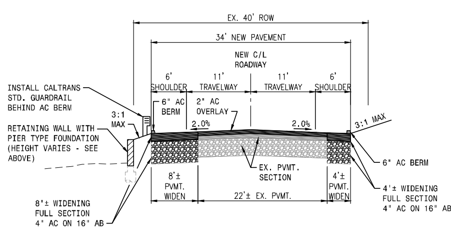
L — STREET SECTION
NTS
(STA. 51+60.27 - 55.82.37)



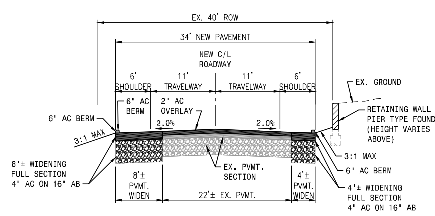
K — STREET SECTION
NTS
(STA. 50+96.56 - 51+60.27)
(STA. 55+82.37 - 59+00.00)



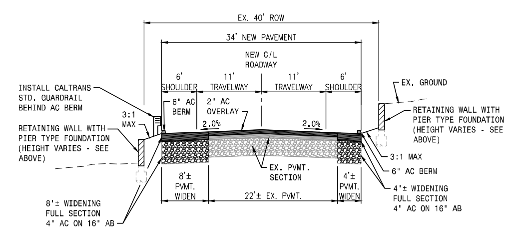
G — STREET SECTION
NTS
(STA. 43+00.00 - 44+04.68)
(STA. 44+19.75 - 45+26.17)
(STA. 46+82.35 - 47+25.06)
(STA. 47+77.28 - 48+95.91)



H — STREET SECTION
NTS
(STA. 44+04.68 - 44+19.75)
(STA. 45+26.17 - 45+68.78)
(STA. 48+95.91 - 50+24.74)



I — STREET SECTION
NTS
(STA. 45+88.27 - 46.82.35)
(STA. 47+25.06 - 47+77.28)



J — STREET SECTION
NTS
(STA. 45+68.78 - 45+88.27)
(STA. 50+24.74 - 50+96.56)

DATE: AUGUST 2021
SCALE: 1" = 40'
DRAWN BY: EAJ
DESIGNED BY: CML
CHECKED BY: MDM

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS

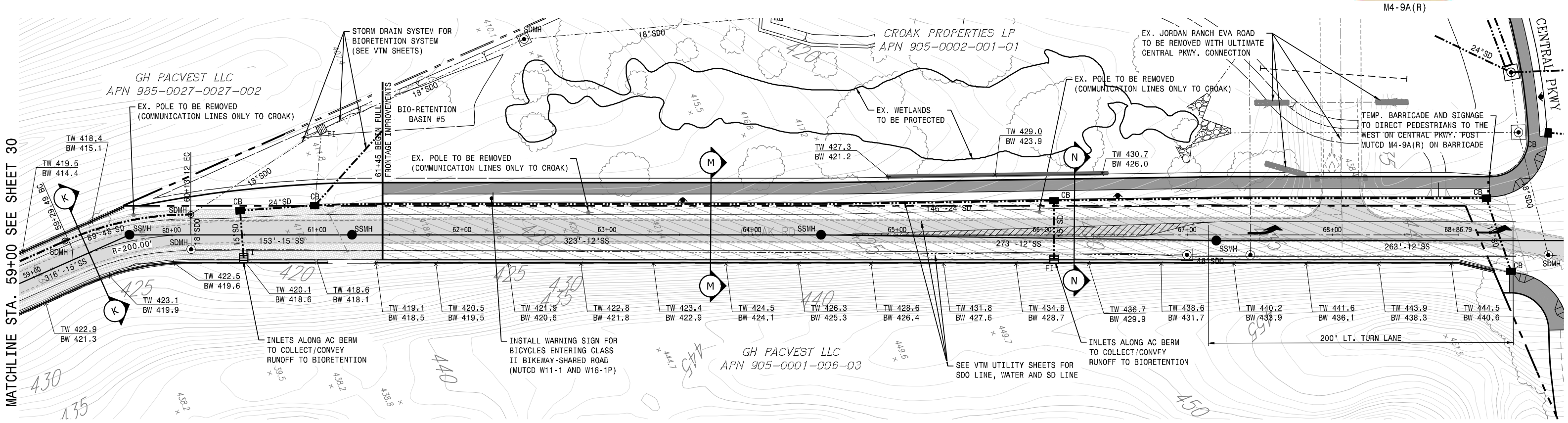
PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
INTERIM CROAK ROAD IMPROVEMENTS
(STA 43+00 - 59+00)
DUBLIN CALIFORNIA

PROJECT NO. 19343.000

SHT 30 OF 31

08-06-2021 2:47pm Elliott Levitsky P:\19343-T\PLN\TM\TM-30 INTERIM CROAK ROAD IMPROVEMENTS (STA 43+00 - 59+00).DWG



W16-1P

W11-1

CROAK ROAD
STA. 59+00 TO 68+87

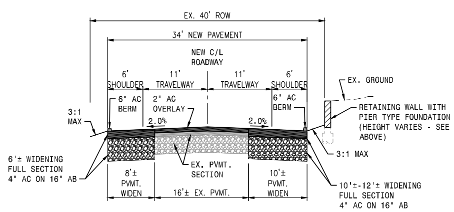
0 20 40 80
SCALE: 1"=40'

NOTES:

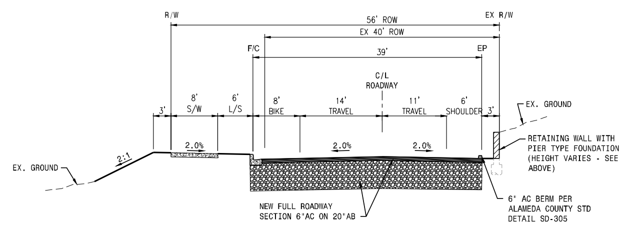
1. PROPOSED 34' ROADWAY SECTION (11' TRAVELWAYS + 6' PAVED SHOULDER) IS PER THE HIGHWAY DESIGN MANUAL INDEX 301.1 AND PER AASHTO LOCAL RURAL ROAD STANDARDS-EXHIBIT 5-5.
2. PROPOSED 34' ROADWAY WILL BE CLASS II BIKEWAY PER HIGHWAY DESIGN MANUAL INDEX 301.2 WITH REQUIRED MUTCD SIGNAGE FOR SHARED ROADWAY.
3. WALLS ON EASTERN SIDE OF CROAK ROAD WILL NOT BEING INSTALLED IF A GRADING EASEMENT CAN BE OBTAINED FROM ADJACENT PROPERTY OWNERS.
4. EXISTING SIGNS SHALL BE UPGRADED TO MEET CURRENT RETRO-REFLECTIVITY STANDARDS.

LEGEND:

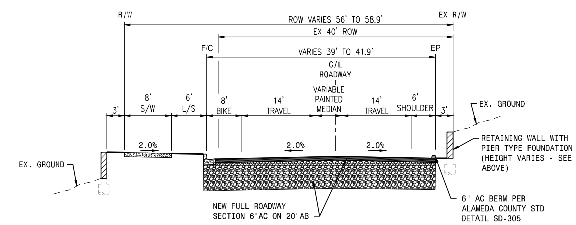
- LIMITS OF EX. PAVEMENT (TO BE OVERLAYED)
- LIMITS OF WIDENED PAVEMENT (FULL STRUCTURAL SECTION)
- LIMITS OF NEW PAVEMENT SECTION PER "INTERIM CROAK RD. FRONTAGE SECTION" SEE BELOW



K STREET SECTION
NTS
(STA. 50+96.56 - 51+60.27)
(STA. 55+82.37 - 59+00.00)



M STREET SECTION
NTS
INTERIM CROAK ROAD FRONTAGE



N STREET SECTION
NTS
INTERIM CROAK ROAD FRONTAGE

NO.	REVISION	DATE

DATE: AUGUST 2021
SCALE: 1" = 40'
DRAWN BY: EAJ
DESIGNED BY: CML
CHECKED BY: MDM

MacKay & Somps
ENGINEERS PLANNERS SURVEYORS
5142 FRANKLIN DR. PLEASANTON, CA 94588 (925)225-0690

PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

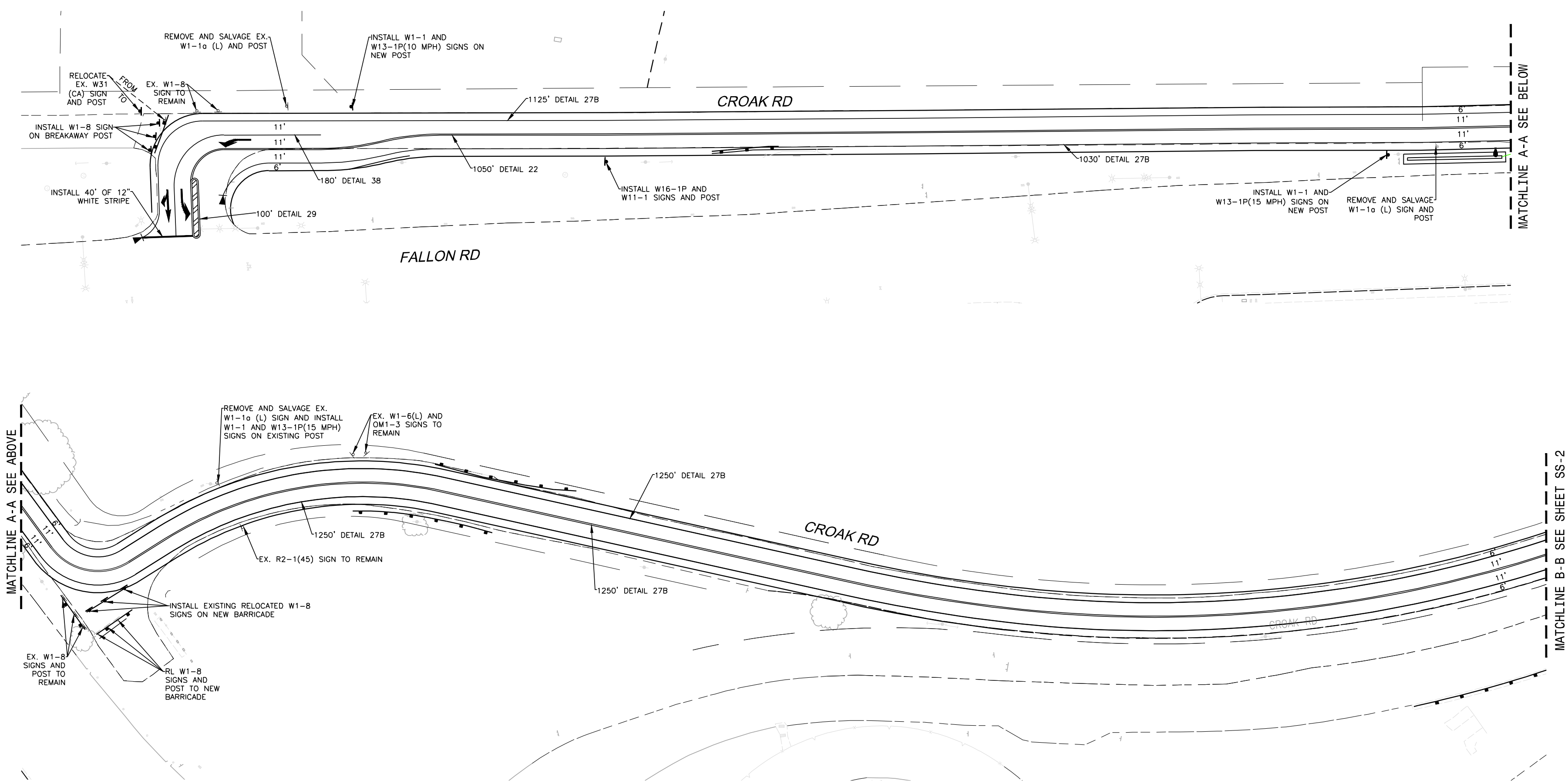
EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
INTERIM CROAK ROAD IMPROVEMENTS
(STA 59+00 - 68+87)

DUBLIN CALIFORNIA

PROJECT NO. 19343.000

SHT 31 OF 31

08-06-2021 2:49pm Elliott Levitsky P:\19343-T\PLN\TM\TM-31 INTERIM CROAK ROAD IMPROVEMENTS (STA 59+00 - 68+87).DWG



LEGEND (SIGNING AND STRIPING SHEETS SS-1, SS-2, & SS-3

- INSTALL NEW SIGN
- EXISTING SIGN
- INSTALL NEW ARROW PAVEMENT MARKING, TYPE III (LEFT OR RIGHT)
- INSTALL NEW ARROW PAVEMENT MARKING, TYPE II (RIGHT)
- INSTALL NEW THERMOPLASTIC STRIPING PER DETAIL NUMBER
- EXISTING STRIPING TO REMAIN
- REMOVE EXISTING STRIPING
- CONFORM/END/CHANGE DETAILS

NOTES (SIGNING AND STRIPING SHEET (SS-1, SS-2, & SS-3

1. SIGNING AND STRIPING SHALL CONFORM TO THE APPLICABLE DETAILS OF THE LATEST PROVISIONS OF THE CALIFORNIA DEPARTMENT OF TRANSPORTATION (CALTRANS) CA-MUTCD, AND THE SPECIAL PROVISIONS.
2. ALL PERMANENT PAVEMENT MARKINGS AND STRIPING SHALL BE THERMOPLASTIC.
3. EXISTING STRIPING, MARKINGS, PAVEMENT MARKERS, LANDSCAPING, IRRIGATION, CURB, SIDEWALK, ETC., DAMAGED BY THE CONTRACTOR SHALL BE REPLACED IN KIND, UNLESS OTHERWISE SHOWN ON THE PLAN.
4. UNLESS NOTED OTHERWISE, ALL EXISTING STRIPING AND SIGNING ARE TO REMAIN. LOCATION OF EXISTING SIGNS, STRIPING, AND PAVEMENT MARKINGS ARE APPROXIMATE ONLY.
5. ALL STRIPING, SIGN POSITIONS, AND PAVEMENT MARKINGS SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO INSTALLATION.
6. CONTRACTOR SHALL INSTALL BLUE FIRE HYDRANT PAVEMENT MARKERS AT ALL FIRE HYDRANT LOCATIONS PER THE CITY OF DUBLIN STANDARDS.
7. THE BOTTOM OF SIGN(S) SHALL BE A MINIMUM OF 7' FROM THE WALKING SURFACE IF INSTALLED IN PEDESTRIAN AREAS.
8. NO PARKING SIGNS SHALL BE INSTALLED AT A MAXIMUM OF 200' APART AND AT A 45 DEGREE ANGLE TO STREET.
9. SIGNING AND STRIPING ON PRIVATE DRIVEWAYS WILL BE INSTALLED BY OTHERS; I.E NOT PART OF THIS PROJECT PLANS.
10. INSTALL NEW SIGNS ON ELECTROLIERS AS MUCH AS POSSIBLE.
11. ALL CONFLICTING STRIPING AND/OR SIGNING SHALL BE REMOVED.
12. DIRECTIONAL ARROWS SHALL BE INSTALLED 10' PRECEDING LIMIT LINES.
13. ALUMINUM SIGNS AND POSTS TO BE REMOVED SHALL BE SALVAGED AND DELIVERED TO CITY OF DUBLIN MAINTENANCE CENTER.
14. PROPOSED STRIPING OR MARKINGS SHALL BE INSTALLED ON THE SAME DAY AS THE REMOVAL OF EXISTING CONFLICTING STRIPING/MARKINGS.
15. ALL SIGNS AT THE END OF MEDIANS SHALL BE INSTALLED 4' FROM NOSE.
16. THE CONTRACTOR SHALL PAINT ALL MEDIAN NOSES YELLOW FROM BEGINNING OR CURB RETURN TO END OF CURB RETURN

0 40' 80'

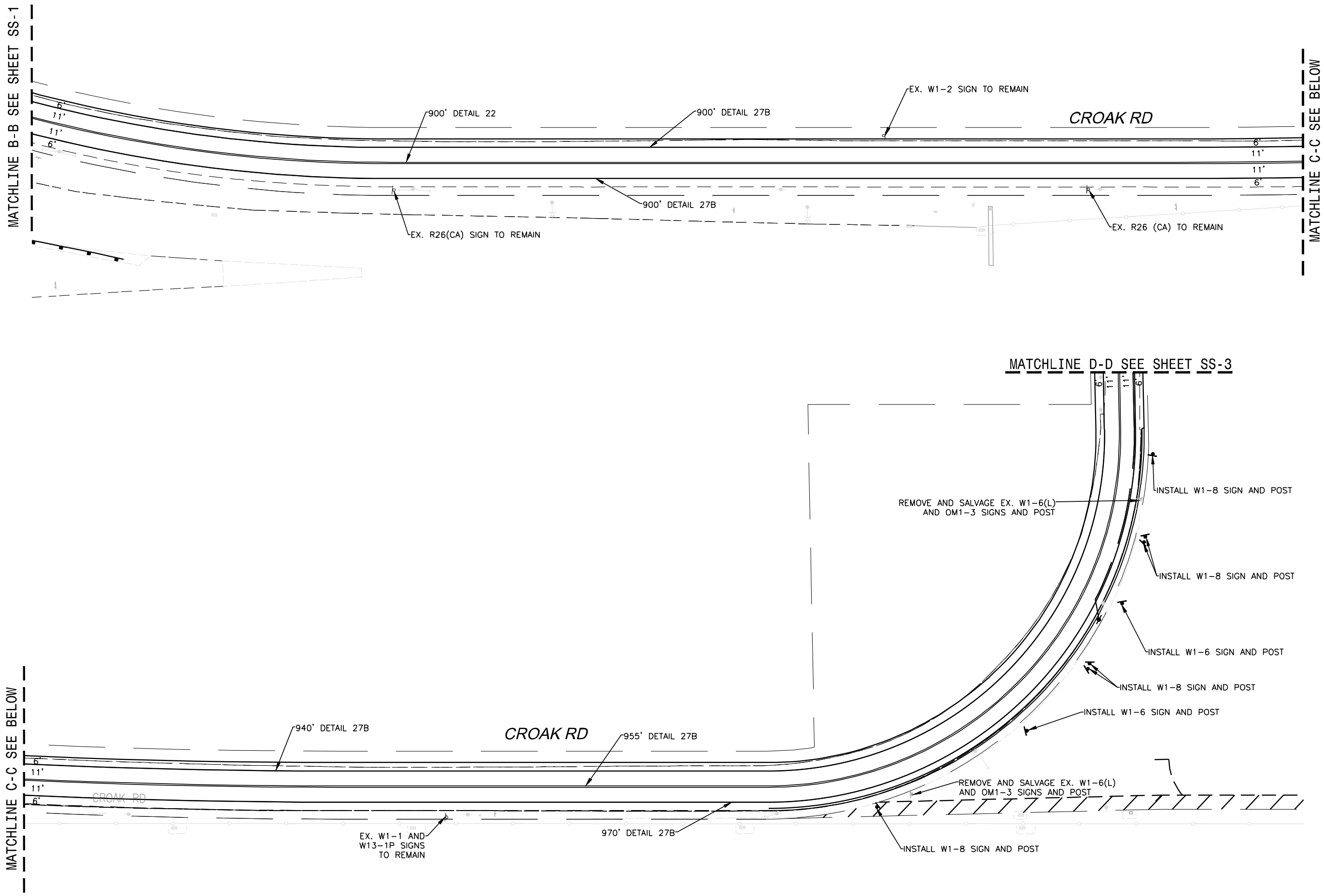
SCALE: 1"=40'

TJKM
4305 Hacienda Drive, Suite 550
Pleasanton, CA 94588
tjkm@tjkm.com

35%

R.C.E. 15347

DESIGNED: ESB	CITY OF DUBLIN	
DRAWN: AD	INTERIM CROAK ROAD IMPROVEMENTS	
CHECKED: ESB	SIGNING AND STRIPING	
	DRAWING NO. XXX-XXX	SHEET SS-1 OF
	DATE: 6/15/20 SCALE: 1"=40'	PROJECT NO. 157-XXX



0 40' 80'

SCALE: 1"=40'

TJKM
4305 Hacienda Drive, Suite 550
Pleasanton, CA 94588
tjkm@tjkm.com

35%

R.C.E. 15347

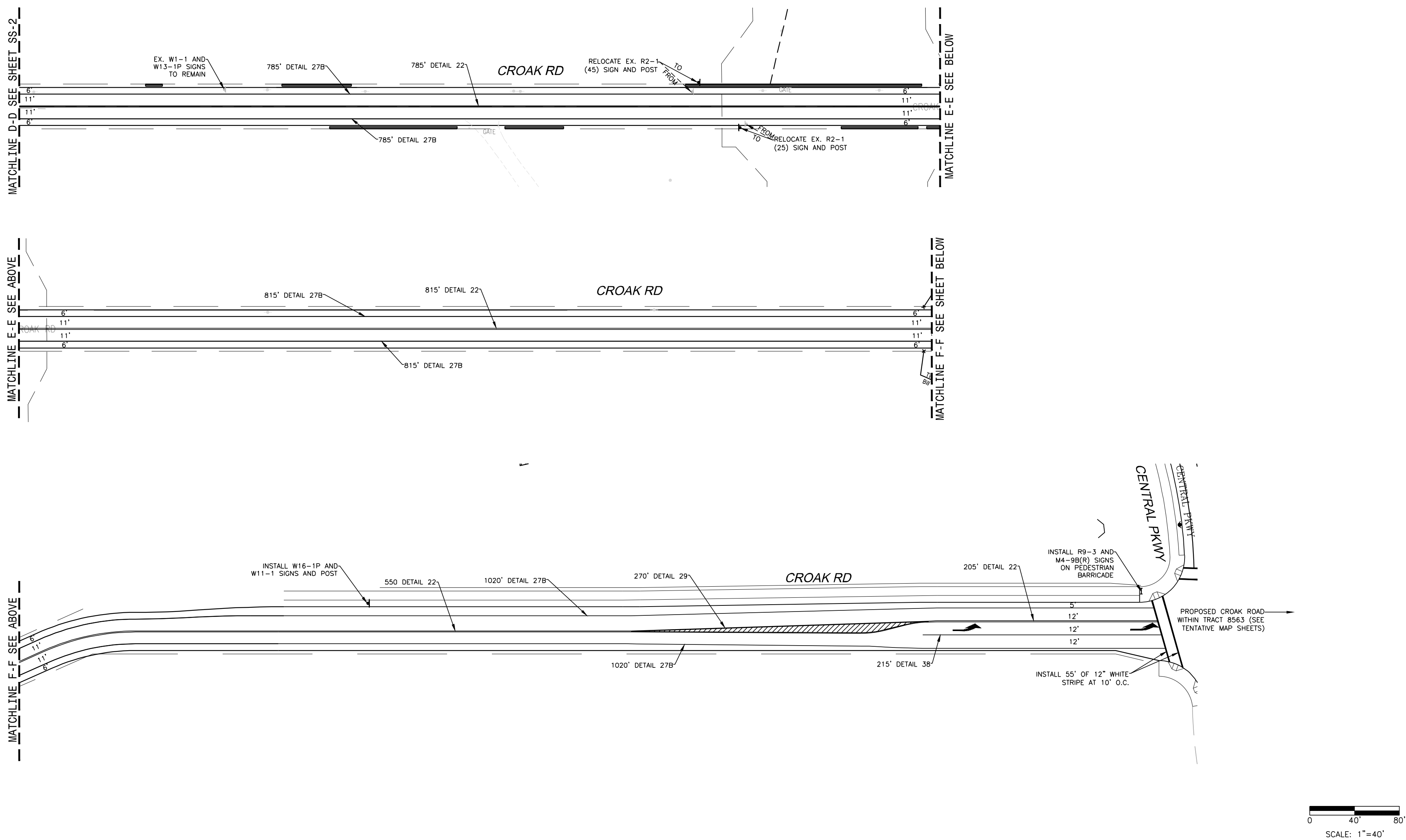
DESIGNED: ESB	
DRAWN: AD	
CHECKED: ESB	

CITY OF DUBLIN

INTERIM CROAK ROAD IMPROVEMENTS

SIGNING AND STRIPING

DRAWING NO. XXX-XXX	SHEET SS-2 OF	
DATE: 6/15/20	SCALE: 1"=40'	PROJECT NO. 157-XXX



TJKM
4305 Hacienda Drive, Suite 550
Pleasanton, CA 94588
tjkm@tjkm.com

35%

R.C.E. 15347
DESIGNED: ESB
DRAWN: AD
CHECKED: ESB

CITY OF DUBLIN

INTERIM CROAK ROAD IMPROVEMENTS

SIGNING AND STRIPING

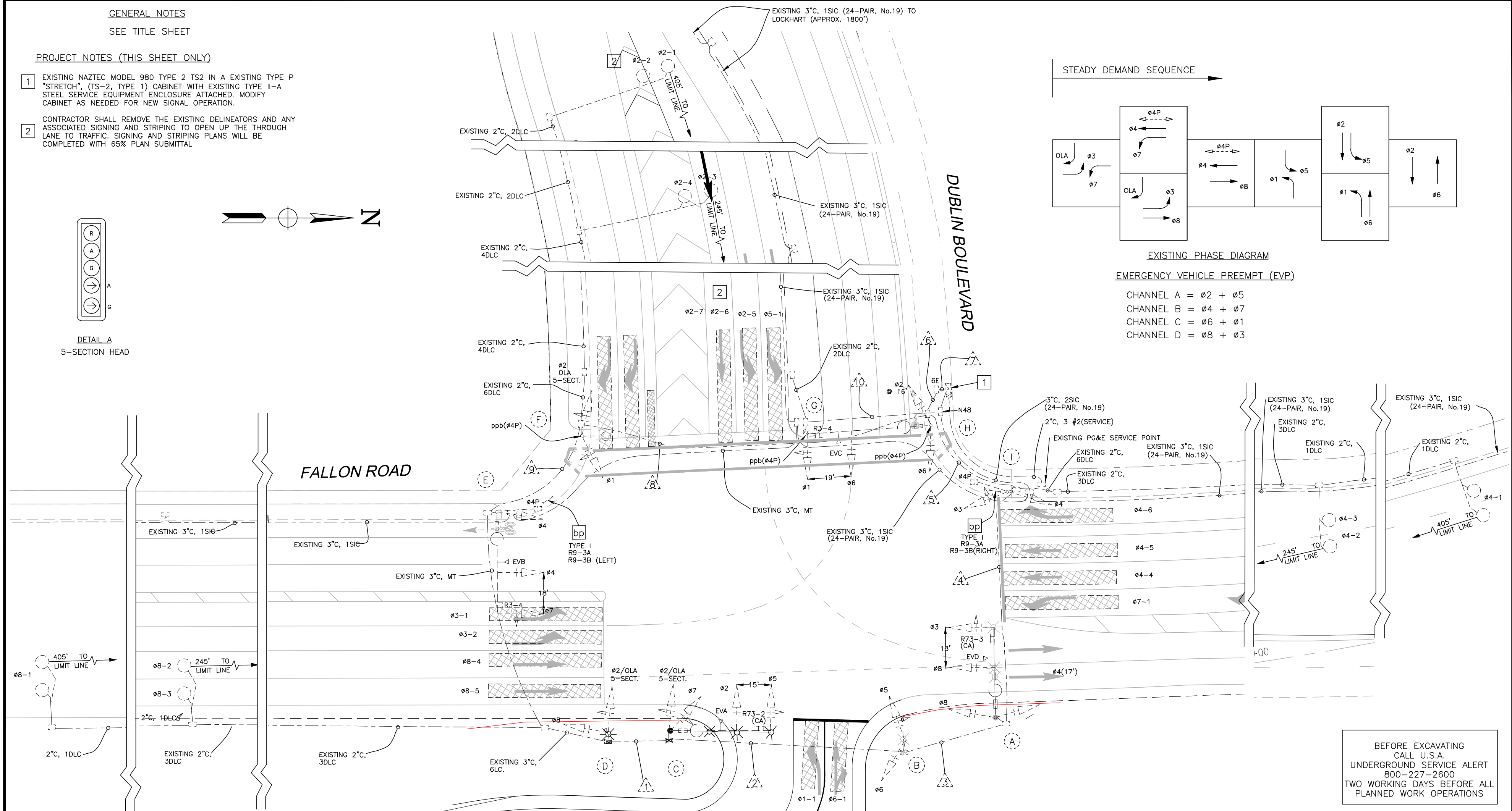
DRAWING NO. XXX-XXX		SHEET SS-3 OF	
DATE: 6/15/20	SCALE: 1"=40'		PROJECT NO. 157-XXX

GENERAL NOTES

SEE TITLE SHEET

PROJECT NOTES (THIS SHEET ONLY)

1. EXISTING NAZTEC MODEL 980 TYPE 2 TS2 IN A EXISTING TYPE P "STRETCH", (TS-2, TYPE 1) CABINET WITH EXISTING TYPE II-A STEEL SERVICE EQUIPMENT ENCLOSURE ATTACHED. MODIFY CABINET AS NEEDED FOR NEW SIGNAL OPERATION.
2. CONTRACTOR SHALL REMOVE THE EXISTING DELINEATORS AND ANY ASSOCIATED SIGNING AND STRIPING TO OPEN UP THE THROUGH LANE TO TRAFFIC. SIGNING AND STRIPING PLANS WILL BE COMPLETED WITH 65% PLAN SUBMITTAL



BEFORE EXCAVATING CALL U.S.A. UNDERGROUND SERVICE ALERT 800-227-2600 TWO WORKING DAYS BEFORE ALL PLANNED WORK OPERATIONS

TJKM 4305 Hacienda Drive, Suite 550 Pleasanton, CA 94586 tjkm@tjkm.com

35%

R.C.E. 15347

DESIGNED: ESB

DRAWN: ESB

CHECKED: ESB

CITY OF DUBLIN

FALLON ROAD AT DUBLIN BOULEVARD

PRELIMINARY SIGNAL & STRIPING PLAN

DRAWING NO. 157-XXX 35% SHEET TS-1 OF

DATE: 10/29/2020 SCALE: 1"=20' PROJECT NO. 157-XXX

RESOLUTION NO. 21-08

A RESOLUTION OF THE PLANNING COMMISSION
OF THE CITY OF DUBLIN

RECOMMENDING THAT THE CITY COUNCIL ADOPT AN ORDINANCE FINDING THE PROJECT EXEMPT FROM CEQA AND APPROVING A PLANNED DEVELOPMENT ZONING DISTRICT WITH RELATED STAGE 2 DEVELOPMENT PLAN, AND ADOPT A RESOLUTION APPROVING A VESTING TENTATIVE TRACT MAP NO. 8563 AND HERITAGE TREE REMOVAL PERMIT RELATED TO THE EAST RANCH PROJECT
PLPA-2020-00068
(APNS 905-0002-001-01 AND 905-0002-002-00)

WHEREAS, the Applicant, Trumark Homes, LLC, proposes to develop a 573-unit residential project with six neighborhoods, two neighborhood parks totaling 11.5 acres, and a two-acre Public/Semi-Public site reserved for affordable housing located on Croak Road east of Fallon Road. Requested approvals include a Planned Development Stage 2 Development Plan, Vesting Tentative Tract Map No. 8563 and Heritage Tree Removal Permit. These planning and implementing actions are collectively known as the “East Ranch Project” or the “Project;” and

WHEREAS, the 165.5-acre Project site (APN 905 -0002-002-00 and 905 -0002-001-01) is located in eastern Dublin, directly east of the Jordan Ranch development and south of Positano development, straddling the existing Croak Road; and

WHEREAS, a Heritage Tree Removal Permit is required to remove four heritage trees (two coast live oaks, one river she-oak, and one cypress) necessary for the development of the Project; and

WHEREAS, the California Environmental Quality Act (CEQA), together with the CEQA Guidelines and City of Dublin CEQA Guidelines and Procedures require that certain projects be reviewed for environmental impacts and that environmental documents be prepared; and

WHEREAS, prior CEQA analysis for the Project area includes: 1) the Eastern Dublin General Plan Amendment and Specific Plan EIR (1993); 2) the East Dublin Properties Stage 1 Development Plan and Annexation Supplemental EIR (2002); and 3) the Fallon Village Supplemental EIR (2005). Collectively, these three environmental review documents are referred to as the “EDSP EIRs;”

WHEREAS, in compliance with CEQA, the City prepared a CEQA Analysis in Support of Specific Plan Exemption; and

WHEREAS, staff recommends the Project be found exempt from CEQA pursuant to Government Code Section 65457 and CEQA Guidelines Section 15182(c), which exempts residential projects that are consistent with a specific plan for which an EIR has been certified. The proposed Project is consistent with the EDSP EIRs and the General Plan and Eastern Dublin Specific Plan land use designations for the project site. The CEQA Analysis in Support of Specific Plan Exemption prepared for the Project determined that there is no part of the proposed Project that triggers the need to prepare a subsequent EIR or negative declaration pursuant to CEQA Guidelines Section 15162 or Public Resources Code section 21166. Therefore, the Project qualifies for a specific plan exemption and does not require subsequent environmental review or the preparation of an additional CEQA document (EIR or MND); and

WHEREAS, the Planning Commission held a properly noticed public hearing on the Project, on November 9, 2021, at which time all interested parties had the opportunity to be heard; and

WHEREAS, the Planning Commission considered all above-referenced reports, recommendations, and testimony to evaluate the Project.

NOW, THEREFORE, BE IT RESOLVED that the foregoing recitals are true and correct and made a part of this resolution.

BE IT FURTHER RESOLVED that the Planning Commission recommends that that the City Council find the project exempt from CEQA pursuant to Government Code Section 65457 and adopt an Ordinance, attached as **Exhibit A** and incorporated herein by reference, approving a Planned Development Zoning District and related Stage 2 Development Plan based on findings, as set forth in **Exhibit A**.

BE IT FURTHER RESOLVED that the Planning Commission recommends that the City Council approve the Resolution, attached as **Exhibit B** and incorporated herein by reference, approving Vesting Tentative Tract Map No. 8563 and a Heritage Tree Removal Permit, based on the findings and conditions of approval, as set forth in **Exhibit B**.

PASSED, APPROVED, AND ADOPTED this 9th day of November 2021 by the following vote:

AYES: **Dawn Benson, Catheryn Grier, Janine Thalblum,**

NOES: **Renata Tyler, Stephen Wright**

ABSENT:

ABSTAIN:

____
Planning Commission Chair

ATTEST:

____
Assistant Community Development Director

LIVE OAK ASSOCIATES, INC.

an Ecological Consulting Firm

November 20, 2020

Marc R. Bruner
Partner
Perkins Coie LLP
505 Howard Street, Suite 1000
San Francisco, CA 94105

Pamela Salas Nieting
Director of Community Development
Trumark Homes, LLC
3001 Bishop Dr., Ste. 100
San Ramon, CA 94583

Subject: East Ranch (Croak) Project Tree Survey, Arborist Report and Preliminary Tree Protection Guidelines, City of Dublin, Alameda County, California (PN 2366-03)

Dear Mr. Bruner and Ms. Nieting,

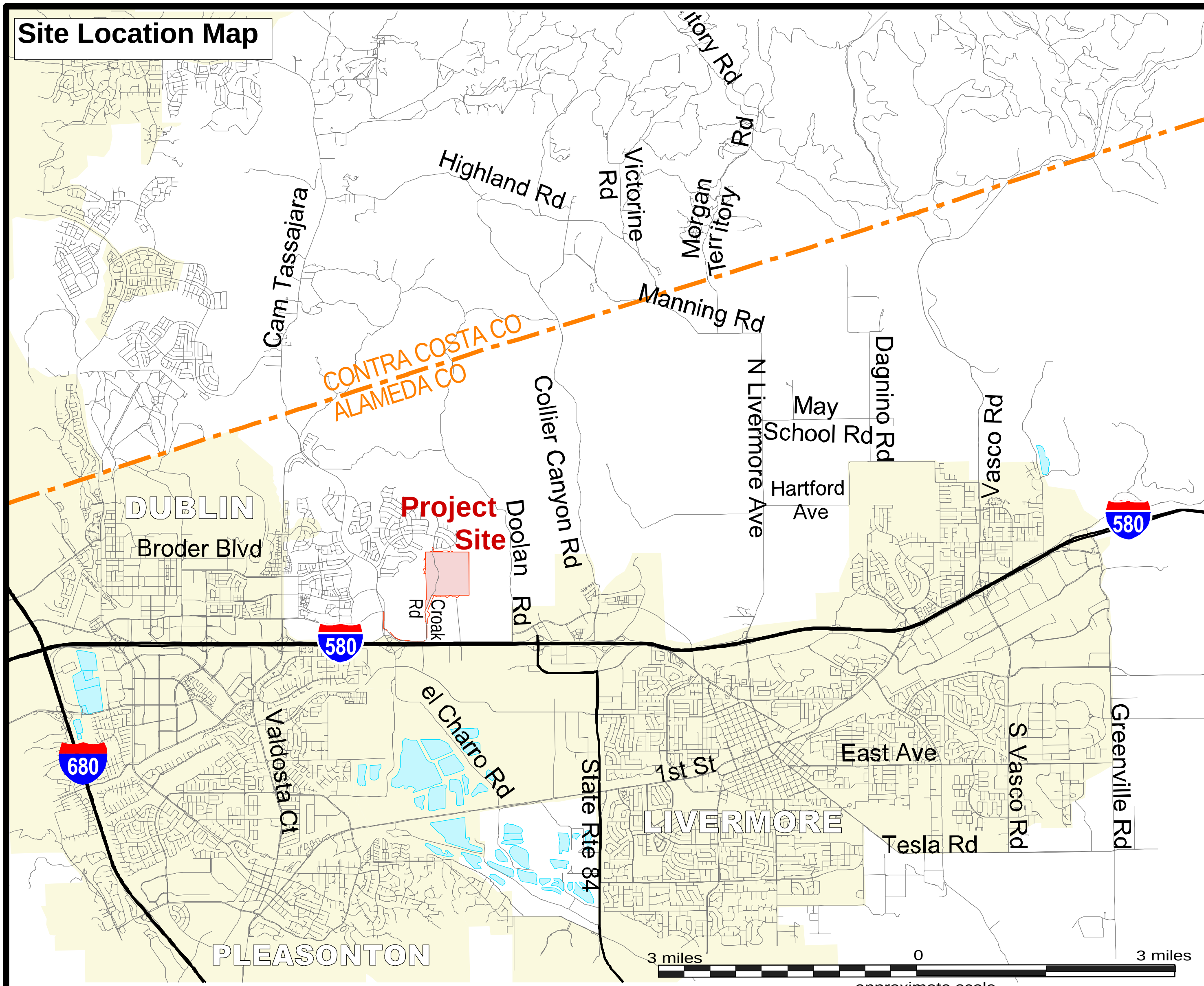
Per your request, Live Oak Associates (LOA) completed a tree survey on the Croak Ranch Property located along Croak Road in the eastern part of the City of Dublin, Alameda County, California (Figure 1). This report provides our methods and findings with regard to the survey, as well as discusses tree impacts (including impacts on trees that may be considered "Heritage Trees" by the City of Dublin) and provides tree protection measures for retained trees.

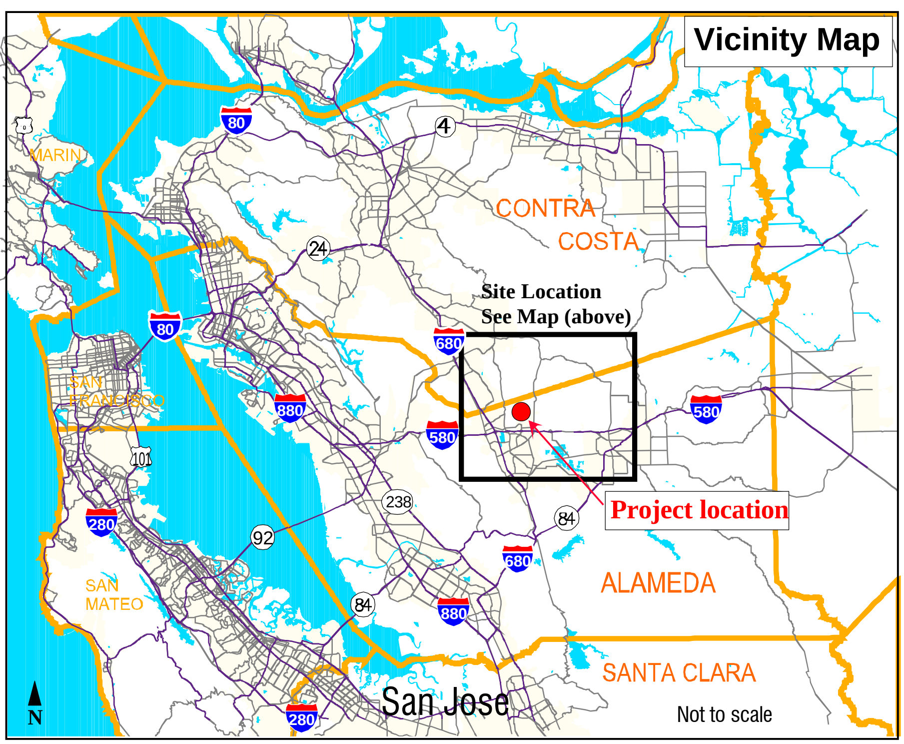
CITY OF DUBLIN HERITAGE TREE ORDINANCE

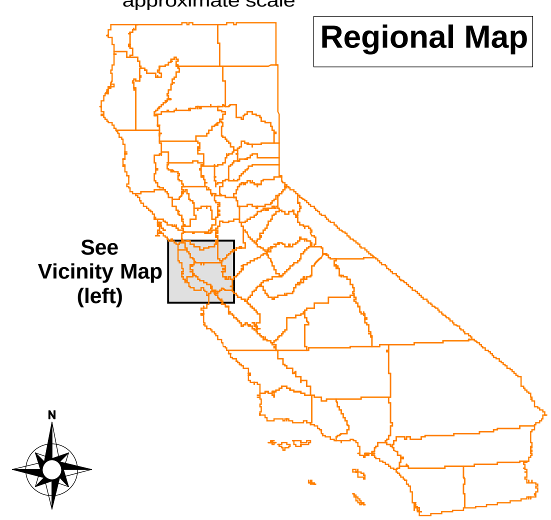
The City of Dublin has a Heritage Tree Ordinance. A "Heritage Tree" is defined by the ordinance as any of the following:

- Any oak, bay, cypress, maple, redwood, buckeye and sycamore tree having a trunk or main stem of twenty-four (24) inches or more in diameter measured at four (4) feet six (6) inches above natural grade;
- Any tree required to be preserved as part of an approved Development Plan, Plan, Zoning Permit, Use Permit, Site Development Review or Subdivision Map; or
- Any tree required to be planted as a replacement for an unlawfully removed tree.

Per Dublin Municipal Code Section 5.60.50(a) it is prohibited to remove, cause to be removed, or effectively remove any Heritage Tree from any property within the City of Dublin without first obtaining a removal permit from the Community Development Department.







Live Oak Associates, Inc.		
East Ranch (Croak) Site / Vicinity Map		
Date 6/30/2020	Project # 2366-02	Figure # 1

METHODS

The tree survey for this report was conducted by LOA Certified Arborist Neal Kramer on June 30; and July 1, 2, 3, 12, 13, 16, 17 and 18, 2020. An additional survey of trees occurring within the Central Parkway Extension grading footprint on the Branaugh Parcel was conducted by Mr. Kramer on September 17, 2020. Data, including species, trunk diameter, estimated height, estimated canopy spread, and general condition were recorded for all trees on the survey area having a trunk diameter of 6 inches or greater as measured at 4 ½ feet (54 inches) above grade.

A limited visual assessment of health and structure was used to assign a general condition rating for each tree according to the following scale:

- Good = 80-100% healthy foliage and no significant defects;
- Fair = 50-79% healthy foliage and/or minor defects:
- Poor = 5-49% healthy foliage and/or other significant defects; and
- Dead = less than 5% healthy foliage.

Standing tree skeletons with no live foliage were not included for this survey and report.

Each tree surveyed was marked with a numbered metal tag and an approximate location of each tree was mapped in the field using the ArcGIS Collector Application. ArcGIS Collector data was used to prepare tree survey maps.

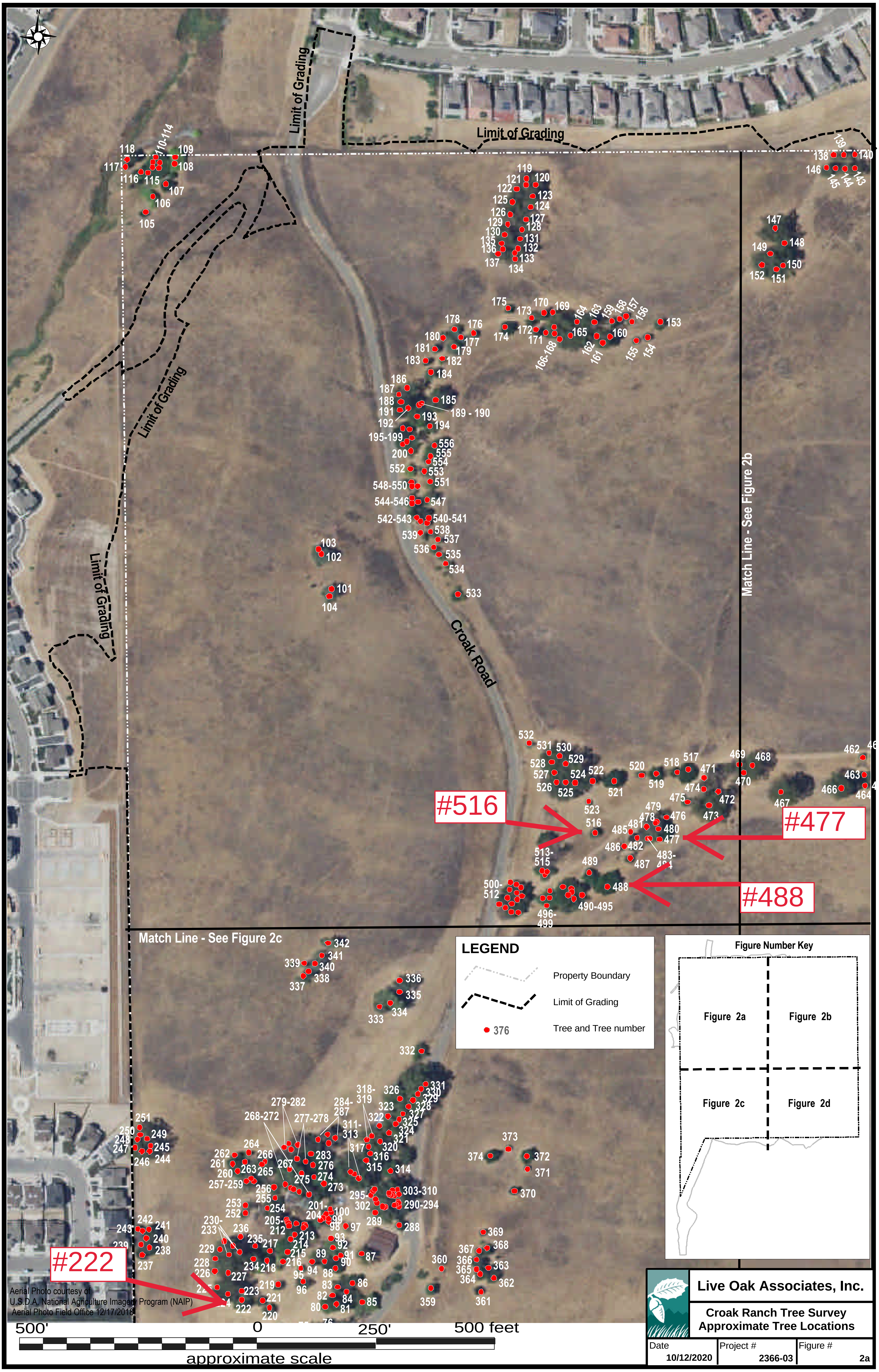
Photographs were taken of any trees that appeared to meet the definition of a Heritage Tree under the City of Dublin's Heritage Tree ordinance.

SURVEY RESULTS AND DISCUSSION

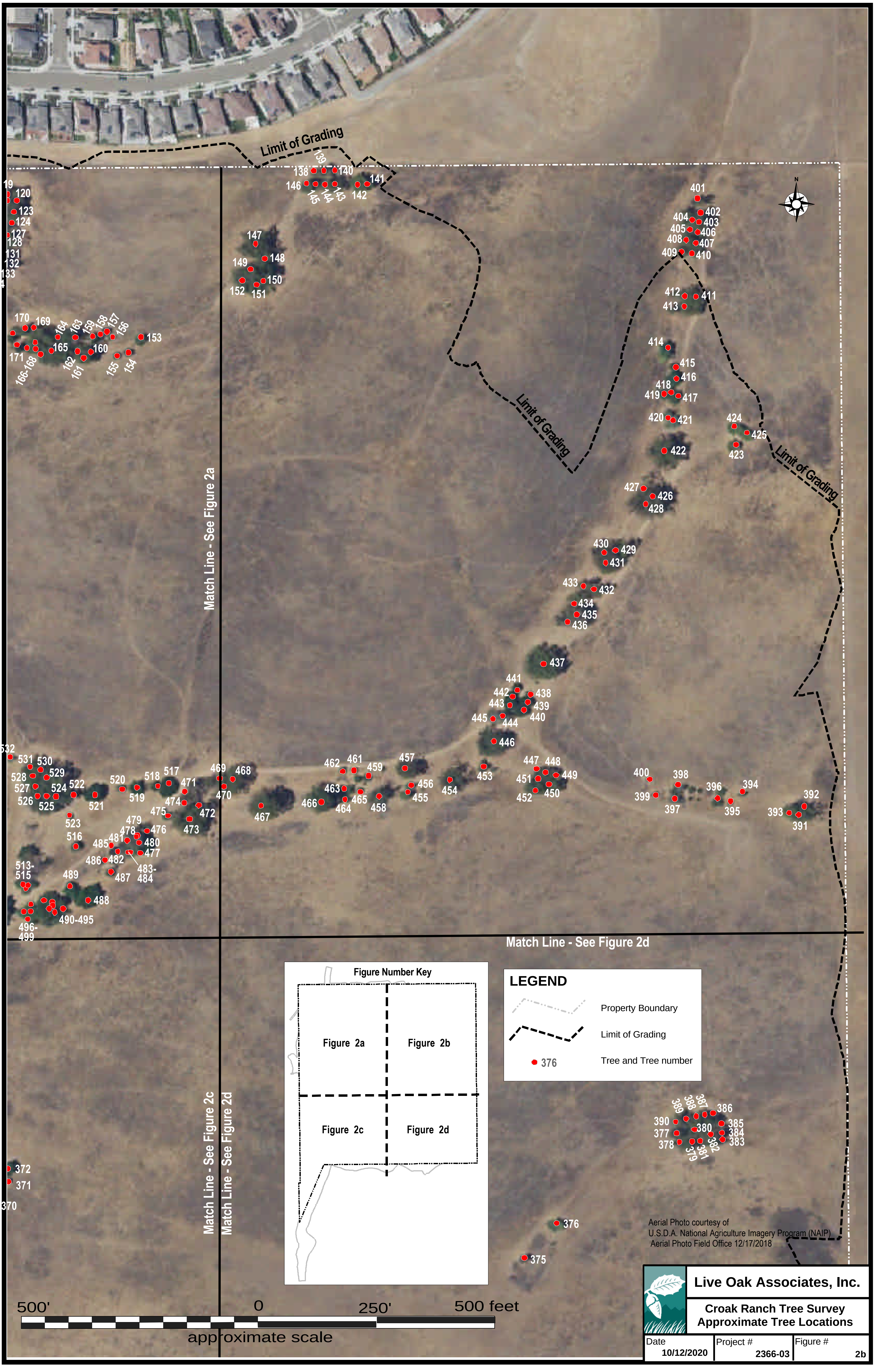
A total of 567 trees were documented on the Croak Ranch property during the June and July, 2020 tree survey (tree tags #1 through #568, with tree tag #460 not utilized). Approximate locations for all trees surveyed are shown on Figures 2a through 2d, and a summary of information collected for each tree is provided with this report in Table 1 as Appendix A.

The vast majority, i.e. more than 80%, of trees on the site were non-native, with the most prevalent being blue gum trees (*Eucalyptus globulus*) and black acacia (*Acacia melanoxylon*); although native trees also occur on the site, including, but not limited to, coast live oaks (*Quercus agrifolia*) and native trees such as red willow (*Salix laevigata*), Fremont's cottonwood (*Populus fremontii*) and boxelder (*Acer negundo*).

We understand from speaking with property owner family members on the site, that all, or most, of the trees occurring on the site, whether native or non-native, were planted. During a chance encounter between Mr. Kramer and three generations of property owner family members that happened to be visiting the site on July 1, 2020, they explained that their husband/ dad/ grandfather was passionate about collecting different trees and planting them on the property. They described how he filled 10-gallon milk cans with water and hauled them in the back of an old pickup truck to hand water all of the trees he planted.



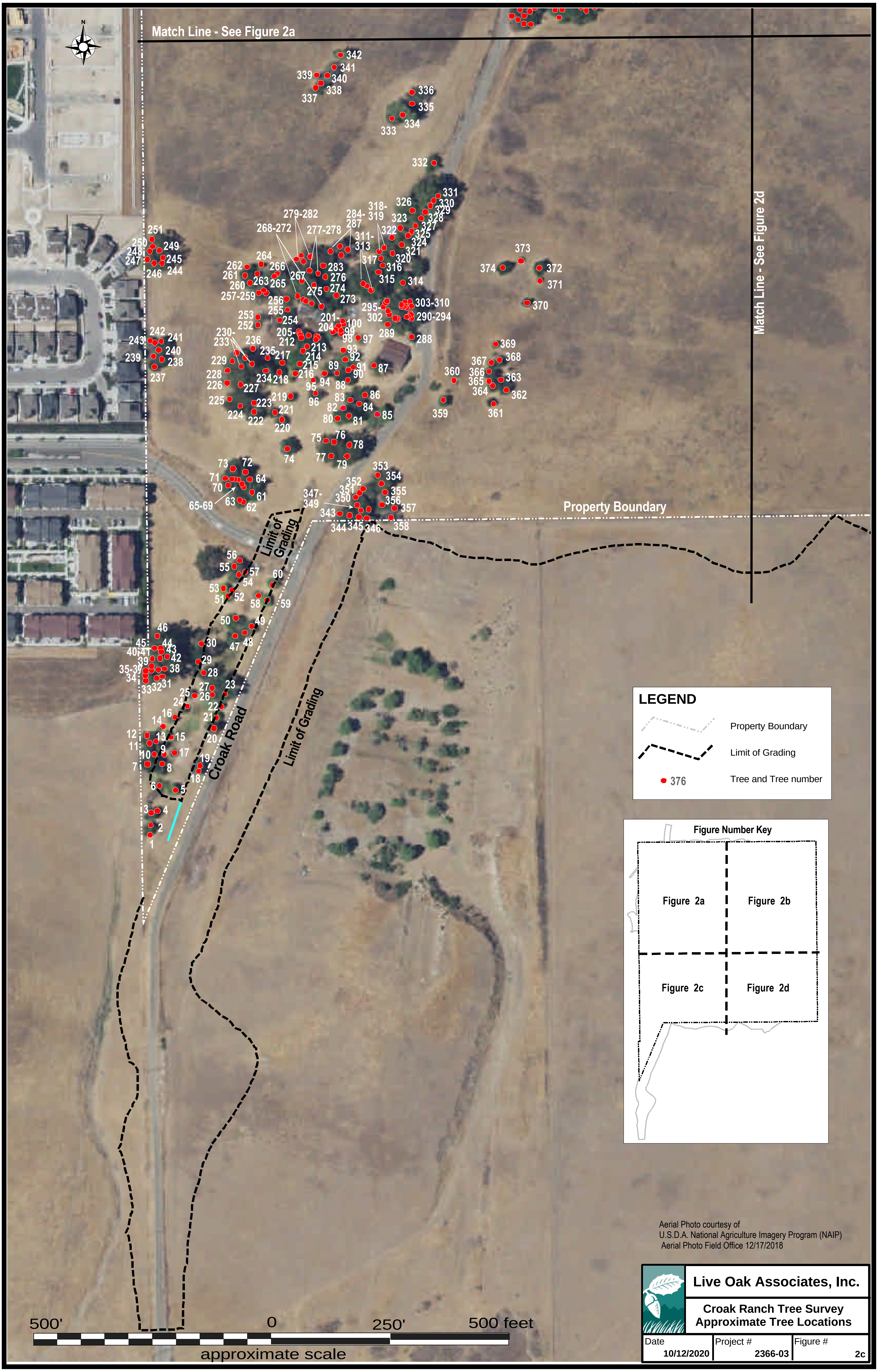
Limit of Grading
Limit of Grading
Limit of Grading
Limit of Grading
Croak Road
Match Line - See Figure 2b
Match Line - See Figure 2c
#516
#477
#488
#222
LEGEND
Property Boundary
Limit of Grading
376 Tree and Tree number
Figure Number Key
Figure 2a
Figure 2b
Figure 2c
Figure 2d
Aerial Photo courtesy of
U.S.D.A. National Agriculture Imagery Program (NAIP)
Aerial Photo Field Office 12/17/2018
500'
0
250'
500 feet
approximate scale
Live Oak Associates, Inc.
Croak Ranch Tree Survey
Approximate Tree Locations
Date
10/12/2020
Project #
2366-03
Figure #
2a



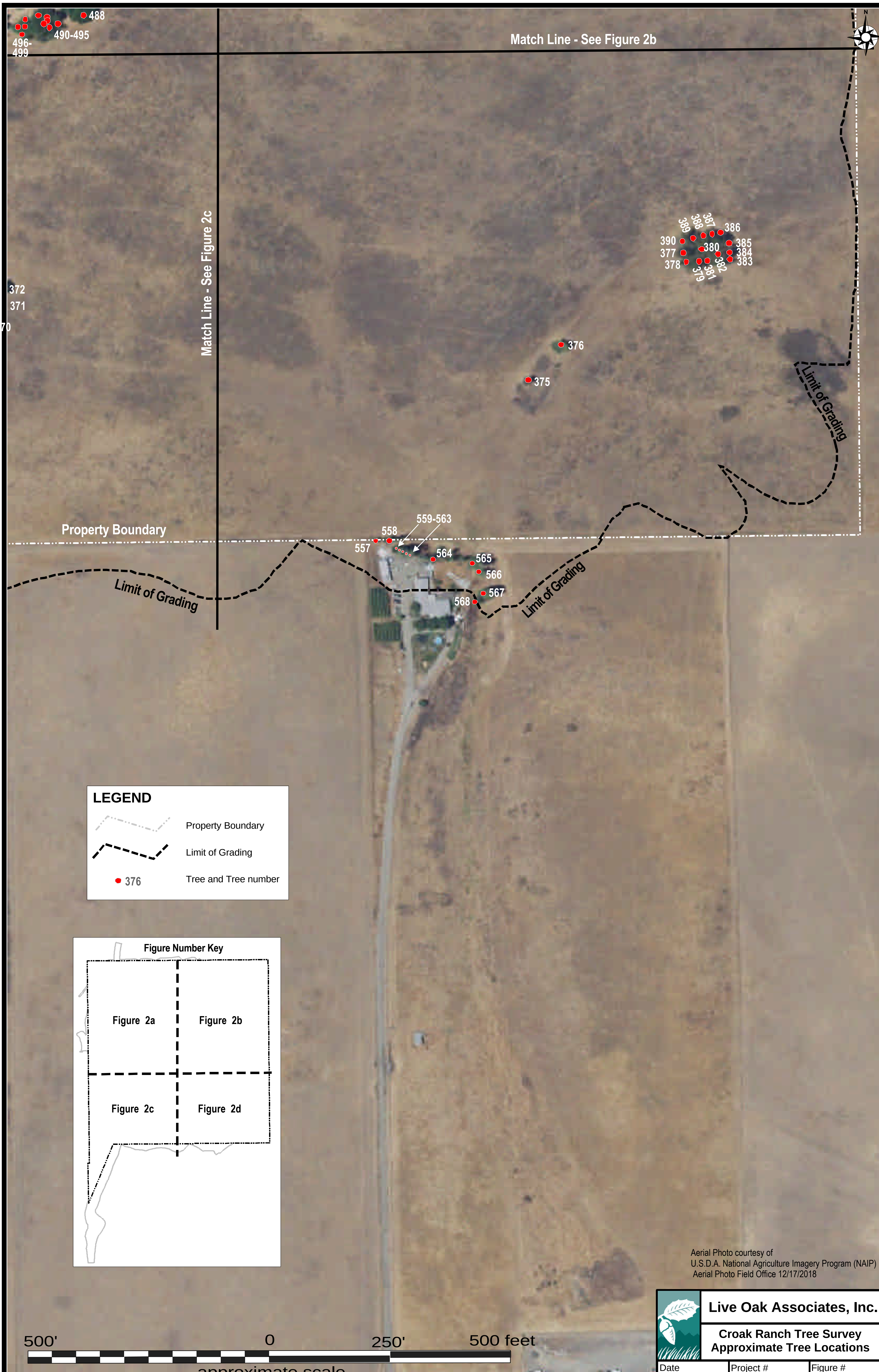
Live Oak Associates, Inc.

Croak Ranch Tree Survey
Approximate Tree Locations

Date	Project #	Figure #
10/12/2020	2366-03	2b



Match Line - See Figure 2a
Match Line - See Figure 2d
Property Boundary
Limit of Grading
Limit of Grading
Croak Road
LEGEND
Property Boundary
Limit of Grading
376
Tree and Tree number
Figure Number Key
Figure 2a
Figure 2b
Figure 2c
Figure 2d
Aerial Photo courtesy of
U.S.D.A. National Agricultural Imagery Program (NAIP)
Aerial Photo Field Office 12/17/2018
500'
0
250'
500 feet
approximate scale
Live Oak Associates, Inc.
Croak Ranch Tree Survey
Approximate Tree Locations
Date
10/12/2020
Project #
2366-03
Figure #
2c



Live Oak Associates, Inc.

Croak Ranch Tree Survey
Approximate Tree Locations

Date	Project #	Figure #
10/12/2020	2366-03	2d

Trees potentially being retained or being removed on the site are described in greater detail below.

Retained Trees. Of the 567 trees occurring on the site, 14 trees occurring in the very northwestern corner of the Croak Ranch property would be retained and would not be directly or indirectly impacted by the Croak (East Ranch) project as they occur well outside the grading footprint based on site plans prepared by Mackay & Somps dated May 29, 2020 (Figure 2a). These 14 trees (Trees #105 through #118) include four native trees (two coast live oaks and two boxelders) and nine non-native trees (two holly oaks (*Quercus ilex*), five Chinese elms (*Ulmus parvifolia*), and two black acacias (*Acacia melanoxylon*)).

Additionally, there are eight trees occurring in the northeastern corner of the site that would be retained (trees #401 through #408) which are all blue gum trees (Figure 2b). Another two trees in this location (trees #409 and #410), also blue gums, occur adjacent to the grading footprint and may be directly or indirectly impacted by the project.

There are 17 trees that will be retained in the southwestern corner of the site (Figure 2c), including Tree #5, 6, 8, 9, 15, 17, 24 thru 28, 47 thru 50, and 58 thru 60. These trees occur in an area that supports existing wetlands and that is not proposed for development. These 17 trees include 13 native trees including five boxelders, six red willows, and two Fremont's cottonwood; and four non-native trees including one black acacia (*Acacia melanoxylon*), two river she-oaks (*Casuarina cunninghamiana*), and one weeping willow (*Salix babylonica*).

Tree protection measures will be implemented for all retained trees that occur in the vicinity of project-related grading or mitigation areas and may be directly or indirectly impacted by these project activities.

Trees That Will Be Removed By the Project. Aside from the 39 trees that will be retained on the site, as described above, the remaining 528 trees occur within, or immediately adjacent to, the grading footprint and therefore will not be retained by the project. The latter include three trees that may be considered Heritage Trees by the City of Dublin, as described in greater detail below.

<u>*Native Trees That Will Be Removed*</u>. Of the 528 trees that will be removed or impacted by the project, 95 of these trees (or 18%) are considered to be native to the project region (although we understand all or most were planted on the site). These 95 trees include 29 coast live oaks, 28 Fremont's cottonwood, 12 Northern California black walnut (*Juglans hindsii*), eight boxelders, nine foothill pines (*Pinus sabiniana*), four coast redwoods (*Sequoia sempervirens*), three valley oaks (*Quercus lobata*), one red willow, and one California bay (*Umbellularia californica*). Two of the coast live oaks that will be removed would be considered Heritage Trees by the City of Dublin, as described below.

Non-native Trees That Will Be Removed. Approximately 82% or 433 trees that will be removed are non-native, and are primarily comprised of 180 blue gum trees; 39 black acacias (*Acacia melanoxylon*); 32 Monterey pines (*Pinus radiata*); 20 river she-oaks (*Casuarina cunninghamiana*); 18 Chinese elms (*Ulmus parvifolia*); and 11 holly oaks (*Quercus ilex*); and 10 Lombardy poplars (*Populus nigra italica*). Remaining non-native species that will be removed include, but are not limited to, red ironbark (*Eucalyptus sideroxylon*), silver dollar gum

(*Eucalyptus polyanthemos*), carob (*Ceratonia siliqua*), tree-of-heaven (*Ailanthus altissima*), and various non-native pines (*Pinus* spp.).

Potential Heritage Trees That Will Be Removed. Three of the trees that will be removed as a result of the project may be considered Heritage Trees by the City of Dublin (Tree #477, #488, and #516). Photographs of these three trees are provided with this report in Appendix B. Tree #477 is a coast live oak assessed in good condition with a trunk diameter of 24.8 inches. Tree #488 is a coast live oak assessed in good condition with co-dominant trunks having diameters of 27.5 and 28.2 inches. Tree #516 is a non-native cypress (*Cupressus* sp.) assessed in fair condition with a trunk diameter of 27.3 inches.

PROJECT IMPACTS TO TREES AND TREE PROTECTION

Based on information provided at the time of this report, including the site plans provided by Mackay and Somps as described above, at least 528 trees occur within, or immediately adjacent to, the project grading footprint and will be removed or impacted as a result of the project. The remaining 39 trees will be retained on the site as they occur outside of grading footprints.

During the design phase of the project, more current site and grading plans shall be reviewed by the project arborist to reevaluate potential impacts to trees to be retained. A Tree Protection Plan shall then be developed by the project arborist to minimize project impacts and insure the long term health and survival of trees to be retained. The Tree Protection Plan would include a Tree Protection Zone (TPZ) for all trees to be retained, where all grading, storage and construction activities would be prohibited unless such activities have been reviewed and approved by the project arborist in advance. Typically a TPZ would include all area under the canopy dripline of the tree. The Tree Protection Plan shall be implemented prior to commencement of any demolition, grading or construction activities on the project site.

Unless expressed otherwise, the evaluation of trees discussed in this report is limited to a visual examination of accessible parts without dissection, excavation, probing, or coring. There is no warranty or guarantee, expressed or implied, that problems or deficiencies of the trees in question may not arise in the future.

If you have questions regarding findings or other elements of this report, please feel free to contact me at either (650) 563-9943 or (650) 208-0061.

Sincerely,

Neal Kramer
Certified Arborist #WE-7833A

APPENDIX A:
TREE TABLE

TABLE 1. Results of the Croak Ranch Property Tree Survey. Trees meeting the City of Dublin's definition of a Heritage Tree are in bold. Native trees denoted with an asterisk.

Tree #	Species	Common Name	Trunk diameter @ 54" above grade (inches)	Approx. Height (feet)	Approx. Canopy Spread (feet)	General Condition**	Heritage Tree	Retained Tree	Comments
1	*Acacia melanoxylon*	Black acacia	12 @ 18"	26	14	Fair			
2	*Acacia melanoxylon*	Black acacia	19	30	35	Fair			
3	*Acacia melanoxylon*	Black acacia	8.5, 12.3, 12.3	32	24	Fair			
4	*Acacia melanoxylon*	Black acacia	6.9	22	16	Fair			
5	*Acer negundo**	Boxelder	6.4, 5.9, 8.3, 9.9	30	28	Fair		Yes	.
6	*Salix laevigata**	Red willow	28, 5.8, 11.6	16	20	Poor		Yes	90% dead canopy, beetle infested..
7	*Salix laevigata**	Red willow	27.8	22	18	Poor			90% dead canopy, water sprouts only.
8	*Salix laevigata**	Red willow	14.1	11	8	Poor		Yes	90% dead canopy, bark peeling.
9	*Acacia melanoxylon*	Black acacia	7.2	30	16	Fair		Yes	
10	*Acacia melanoxylon*	Black acacia	6.1, 17.4, 14.1	38	38	Fair			
11	*Acacia melanoxylon*	Black acacia	7.9, 10.1, 10.1, 8.3	40	30	Fair			
12	*Acacia melanoxylon*	Black acacia	17.1	30	28	Fair			
13	*Casuarina cunninghamiana*	River she-oak	6.9, 11.1, 9.2	42	26	Fair			
14	*Casuarina cunninghamiana*	River she-oak	7.4	24	12	Fair			
15	*Acer negundo**	Boxelder	9.4 @ 18"	20	15	Fair		Yes	.
16	*Casuarina cunninghamiana*	River she-oak	9.7	24	14	Fair			
17	*Salix laevigata**	Red willow	12 @ 4"	14	15	Fair		Yes	
18	*Eucalyptus globulus*	Blue Gum	26.6	42	20	Poor			80% dead canopy, brushy form
19	*Eucalyptus globulus*	Blue Gum	26.6	40	20	Poor			40% dead canopy, brushy form
20	*Casuarina cunninghamiana*	River she-oak	25.2	40	25	Fair			
21	*Acer negundo**	Boxelder	4.4, 4.7, 5.4, 4.7, 7.4, 3.8	26	22	Fair			
22	*Casuarina cunninghamiana*	River she-oak	25.2	28	15	Fair			
23	*Populus fremontii**	Fremont's cottonwood	39.9 @ 24"	55	45	Good			
24	*Casuarina cunninghamiana*	River she-oak	7.3, 5.9, 3.2, 12.3	22	18	Fair		Yes	.
25	*Casuarina cunninghamiana*	River she-oak	10.7, 5.2, 4.6	24	15	Fair		Yes	
26	*Populus fremontii**	Fremont's cottonwood	8.5, 11.9	42	15	Fair		Yes	

TABLE 1. Results of the Croak Ranch Property Tree Survey. Trees meeting the City of Dublin's definition of a Heritage Tree are in bold. Native trees denoted with an asterisk.									
Tree #	**Species**	**Common Name**	**Trunk diameter @ 54" above grade (inches)**	**Approx. Height (feet)**	**Approx. Canopy Spread (feet)**	**General Condition****	**Heritage Tree**	**Retained Tree**	**Comments**
27	*Populus fremontii**	Fremont's cottonwood	10, 12.4, 14.7	50	38	Fair		Yes	
28	*Populus fremontii**	Fremont's cottonwood	10.7, 12, 11.9	38	30	Fair		Yes	
29	*Pinus radiata*	Monterey pine	29, 10.5	40	35	Poor			85% dead canopy
30	*Cedrus deodara*	Deodar cedar	9.6	34	15	Fair			
31	*Eucalyptus globulus*	Blue Gum	16.8	72	30	Good			
32	*Eucalyptus globulus*	Blue Gum	16.7	72	35	Fair			
33	*Eucalyptus globulus*	Blue Gum	14, 11.2, 14.7, 17.7, 13.8, 9.8	70	30	Fair			
34	*Eucalyptus globulus*	Blue Gum	13.3	60	15	Fair			
35	*Eucalyptus globulus*	Blue Gum	10.3	45	12	Fair			
36	*Eucalyptus globulus*	Blue Gum	28.8	70	20	Good			
37	*Eucalyptus globulus*	Blue Gum	33.3, 41	80	50	Good			
38	*Eucalyptus globulus*	Blue Gum	16.9	50	30	Fair			
39	*Eucalyptus globulus*	Blue Gum	23.4	72	26	Fair			
40	*Eucalyptus globulus*	Blue Gum	14	80	18	Fair			
41	*Eucalyptus globulus*	Blue Gum	24	70	32	Fair			
42	*Eucalyptus globulus*	Blue Gum	11.5	36	18	Fair			
43	*Eucalyptus globulus*	Blue Gum	40.3	80	60	Good			
44	*Eucalyptus globulus*	Blue Gum	29.8	80	40	Good			
45	*Eucalyptus globulus*	Blue Gum	47.8	85	50	Good			
46	*Eucalyptus globulus*	Blue Gum	7.8, 7.5	36	26	Fair			
47	*Salix laevigata**	Red willow	6.3, 7.4, 16, 9.3	24	30	Fair		Yes	
48	*Salix laevigata**	Red willow	28.5	28	28	Poor		Yes	60% dead canopy.
49	*Salix laevigata**	Red willow	17.9	26	24	Poor		Yes	50% dead canopy.
50	*Salix babylonica*	Weeping willow	19	36	40	Good		Yes	
51	*Acer negundo**	Boxelder	6.1, 4	22	15	Poor			30% dead canopy, basal trunk decay
52	*Acer negundo**	Boxelder	6.1, 7, 5.6, 5	30	14	Poor			60% dead canopy
53	*Acer negundo**	Boxelder	9.7, 8, 7.5, 5.5	30	25	Fair			
54	*Casuarina cunninghamiana*	River she-oak	17, 10.5, 7.5	45	25	Fair			
55	*Casuarina cunninghamiana*	River she-oak	11.7, 12.9	40	20	Fair			
56	*Casuarina cunninghamiana*	River she-oak	11.7, 8.5, 18.5	40	28	Fair			
57	*Casuarina*	River she-oak	11.5, 17.1, 7	40	30	Fair			

TABLE 1. Results of the Croak Ranch Property Tree Survey. Trees meeting the City of Dublin's definition of a Heritage Tree are in bold. Native trees denoted with an asterisk.									
Tree #	**Species**	**Common Name**	**Trunk diameter @ 54" above grade (inches)**	**Approx. Height (feet)**	**Approx. Canopy Spread (feet)**	**General Condition****	**Heritage Tree**	**Retained Tree**	**Comments**
	cunninghamiana								
58	*Acer negundo**	Boxelder	5, 9, 5.5	18	15	Poor		Yes	60% dead canopy.
59	*Acer negundo**	Boxelder	8, 7.5, 5.5	28	25	Fair		Yes	
60	*Acer negundo**	Boxelder	5, 6.5, 8.2, 12, 7	30	25	Fair		Yes	
61	*Ulmus parvifolia*	Chinese elm	8.5, 10, 5.7	30	30	Fair			
62	*Pinus radiata*	Monterey pine	9.2, 4.6	15	12	Poor			Suppressed
63	*Ulmus parvifolia*	Chinese elm	9.8, 7, 6.5, 4.6, 8.2	28	32	Fair			
64	*Populus fremontii**	Fremont's cottonwood	13.3, 7	50	32	Fair			
65	*Populus fremontii**	Fremont's cottonwood	11.5, 12, 12.6	54	20	Fair			
66	*Ulmus parvifolia*	Chinese elm	12.5	28	25	Fair			
67	*Populus fremontii**	Fremont's cottonwood	14.4, 7.3, 12.4, 10.6	45	34	Fair			
68	*Pinus radiata*	Monterey pine	10.9, 16.6	58	18	Fair			
69	*Ulmus parvifolia*	Chinese elm	9, 5.4	20	28	Fair			
70	*Populus fremontii*	Fremont's cottonwood	13	54	24	Fair			
71	*Pinus radiata*	Monterey pine	22.8	54	30	Fair			
72	*Ulmus parvifolia*	Chinese elm	7.6, 10.2	30	26	Good			
73	*Pinus radiata*	Monterey pine	19.3	40	26	Fair			
74	*Quercus lobata**	Valley oak	18.3	38	36	Good			
75	*Eucalyptus camaldulensis.*	River red gum	21.5, 11.2, 13.8	50	40	Fair			
76	*Eucalyptus camaldulensis.*	River red gum	21.6, 32.5, 6	72	54	Good			
77	*Eucalyptus camaldulensis.*	River red gum	10.8	36	25	Fair			
78	*Eucalyptus camaldulensis.*	River red gum	22, 48.9	40	65	Good			
79	*Eucalyptus camaldulensis.*	River red gum	5.87, 19.6, 10.1, 9.8	80	24	Fair			
80	*Fraxinus sp.*	Ash	26.7	50	42	Good			
81	*Pinus radiata*	Monterey pine	17.5	36	35	Fair			
82	*Pinus radiata*	Monterey pine	10.9, 10.8	32	20	Fair			
83	*Pinus radiata*	Monterey pine	16.2	36	30	Poor			Pitch canker, bronze foliage
84	*Pinus radiata*	Monterey pine	20.9	20	36	Poor			Pitch canker, bronze foliage, 70° lean, root heave
85	*Pinus halepensis*	Aleppo pine	29.1, 19.8	30	40	Fair			
86	*Fraxinus sp.*	Ash	8.8, 7, 9.2	36	26	Fair			

TABLE 1. Results of the Croak Ranch Property Tree Survey. Trees meeting the City of Dublin's definition of a Heritage Tree are in bold. Native trees denoted with an asterisk.

Tree #	Species	Common Name	Trunk diameter @ 54" above grade (inches)	Approx. Height (feet)	Approx. Canopy Spread (feet)	General Condition**	Heritage Tree	Retained Tree	Comments
87	*Eucalyptus globulus*	Blue gum	6.5, 19.9, 6.5, 17.7, 7, 6	48	34	Fair			
88	*Quercus ilex*	Holly oak	10.3	26	28	Good			
89	*Quercus ilex*	Holly oak	13.4, 5.9	24	28	Good			
90	*Quercus ilex*	Holly oak	8.1	26	15	Fair			
91	*Juglans hindsii**	Northern California black walnut	9.2, 9.2	25	30	Poor			Suppressed, thin
92	*Pinus halepensis*	Aleppo pine	21.4, 13.3, 8	30	45	Poor			80° lean, root heave
93	*Populus fremontii**	Fremont's cottonwood	10.5	25	12	Poor			60% dead canopy, basal decay
94	*Eucalyptus camaldulensis.*	River red gum	4.5, 11.5, 9.3, 12.4	40	30	Fair			
95	*Prunus cerasifera*	Cherry plum	12.4 @ 12"	15	25	Fair			
96	*Quercus lobata**	Valley oak	14.3	35	30	Good			
97	*Acer negundo**	Boxelder	6.3, 6.9, 7, 7	18	24	Poor			Bark stripped on main stems
98	*Populus fremontii**	Fremont's cottonwood	7.5, 8.5	22	12	Poor			40% dead canopy, bark cracks
99	*Ceratonia siliqua*	Carob	6.4, 13.6, 8.9	18	28	Fair			
100	*Populus fremontii**	Fremont's cottonwood	6.2	30	10	Good			
101	*Pinus sabiniana**	Foothill pine	17.3, 11.5	45	36	Good			
102	*Pinus sabiniana**	Foothill pine	17.5, 15	45	38	Fair			
103	*Pinus canariensis*	Canary Island Pine	12.5	42	15	Good			
104	*Pinus canariensis*	Canary Island Pine	6.5	26	10	Fair			
105	*Quercus agrifolia**	Coast live oak	6, 9.2	20	20	Good		Yes	
106	*Acer negundo**	Boxelder	8.5, 8.6	26	25	Good		Yes	
107	*Quercus agrifolia**	Coast live oak	10.6, 16	30	32	Fair		Yes	
108	*Acer negundo**	Boxelder	7.2, 7	34	24	Fair		Yes	
109	*Acer negundo**	Boxelder	10.2, 10.3	40	36	Good		Yes	
110	*Ulmus parvifolia*	Chinese elm	9.0	35	30	Good		Yes	
111	*Ulmus parvifolia*	Chinese elm	9.9	35	25	Good		Yes	
112	*Ulmus parvifolia*	Chinese elm	8, 9.87	38	25	Good		Yes	
113	*Ulmus parvifolia*	Chinese elm	9.1, 7.5, 6	32	30	Good		Yes	
114	*Ulmus parvifolia*	Chinese elm	8.1	30	26	Good		Yes	
115	*Quercus ilex*	Holly oak	8.0	36	25	Fair		Yes	
116	*Quercus ilex*	Holly oak	7.5 @ 24"	26	15	Fair		Yes	
117	*Acacia melanoxylon*	Black acacia	7.7, 7.7	28	18	Fair		Yes	
118	*Acacia melanoxylon*	Black acacia	13, 20.3	42	32	Fair		Yes	
119	*Eucalyptus globulus*	Blue gum	35.7	55	50	Good			

TABLE 1. Results of the Croak Ranch Property Tree Survey. Trees meeting the City of Dublin's definition of a Heritage Tree are in bold. Native trees denoted with an asterisk.									
Tree #	**Species**	**Common Name**	**Trunk diameter @ 54" above grade (inches)**	**Approx. Height (feet)**	**Approx. Canopy Spread (feet)**	**General Condition****	**Heritage Tree**	**Retained Tree**	**Comments**
120	*Eucalyptus globulus*	Blue gum	19.5	36	36	Fair			
121	*Eucalyptus globulus*	Blue gum	23.2	60	36	Fair			
122	*Eucalyptus globulus*	Blue gum	6.0	36	16	Fair			
123	*Eucalyptus globulus*	Blue gum	22.5	72	35	Good			
124	*Eucalyptus globulus*	Blue gum	20.0	66	28	Fair			
125	*Eucalyptus globulus*	Blue gum	8.5, 9.3, 18.7, 12	72	45	Fair			
126	*Eucalyptus globulus*	Blue gum	27.0	60	45	Fair			
127	*Eucalyptus globulus*	Blue gum	18.5	66	30	Fair			
128	*Eucalyptus globulus*	Blue gum	20.0	84	36	Good			
129	*Eucalyptus globulus*	Blue gum	11.5	50	16	Fair			
130	*Eucalyptus globulus*	Blue gum	23.6	70	32	Good			
131	*Eucalyptus globulus*	Blue gum	18.4	66	25	Fair			
132	*Eucalyptus globulus*	Blue gum	32.4	72	50	Good			
133	*Eucalyptus globulus*	Blue gum	26.3	68	42	Fair			
134	*Eucalyptus globulus*	Blue gum	16.4	55	35	Fair			
135	*Eucalyptus globulus*	Blue gum	29.0	84	40	Good			
136	*Eucalyptus globulus*	Blue gum	21.8	70	40	Good			
137	*Eucalyptus globulus*	Blue gum	16.2	55	22	Good			
138	*Eucalyptus globulus*	Blue gum	23.0	56	28	Good			
139	*Eucalyptus globulus*	Blue gum	17.9	48	26	Fair			
140	*Eucalyptus globulus*	Blue gum	14.4	40	15	Poor			80% dead canopy
141	*Eucalyptus globulus*	Blue gum	20.0	52	32	Good			
142	*Eucalyptus globulus*	Blue gum	38.4	60	34	Good			
143	*Eucalyptus globulus*	Blue gum	23.5	60	32	Good			
144	*Eucalyptus globulus*	Blue gum	27.2	60	28	Good			
145	*Eucalyptus globulus*	Blue gum	11.8	42	30	Fair			
146	*Eucalyptus globulus*	Blue gum	15.3, 23, 11	60	36	Good			
147	*Eucalyptus globulus*	Blue gum	19.7, 8, 47.8	66	75	Good			
148	*Eucalyptus globulus*	Blue gum	33.5	80	36	Good			
149	*Eucalyptus globulus*	Blue gum	18.8	75	20	Fair			
150	*Eucalyptus globulus*	Blue gum	14.1	66	26	Fair			
151	*Eucalyptus globulus*	Blue gum	50.2	80	64	Good			
152	*Eucalyptus globulus*	Blue gum	42.5	84	58	Good			
153	*Robinia pseudoacacia*	Black locust	12.5	30	30	Fair			
154	*Quercus ilex*	Holly oak	9.0	20	18	Good			
155	*Quercus ilex*	Holly oak	7.7	14	15	Good			

TABLE 1. Results of the Croak Ranch Property Tree Survey. Trees meeting the City of Dublin's definition of a Heritage Tree are in bold. Native trees denoted with an asterisk.

Tree #	Species	Common Name	Trunk diameter @ 54" above grade (inches)	Approx. Height (feet)	Approx. Canopy Spread (feet)	General Condition**	Heritage Tree	Retained Tree	Comments
156	*Casuarina cunninghamiana*	River she-oak	8.3	28	14	Good			
157	*Quercus ilex*	Holly oak	10.8	22	20	Good			
158	*Robinia pseudoacacia*	Black locust	8.6	28	15	Fair			
159	*Eucalyptus globulus*	Blue gum	12.0	38	20	Good			
160	*Eucalyptus globulus*	Blue gum	11.0	36	20	Fair			
161	*Eucalyptus globulus*	Blue gum	28.5, 7.7	75	30	Good			
162	*Eucalyptus globulus*	Blue gum	37.0	80	32	Good			
163	*Eucalyptus globulus*	Blue gum	12, 7.1	25	10	Poor			80% dead canopy
164	*Eucalyptus globulus*	Blue gum	40.4	68	50	Good			
165	*Eucalyptus globulus*	Blue gum	20.4	80	36	Good			
166	*Eucalyptus globulus*	Blue gum	35.3	75	45	Fair			
167	*Eucalyptus globulus*	Blue gum	27.6	90	20	Fair			
168	*Eucalyptus globulus*	Blue gum	42.5	80	50	Good			
169	*Pinus radiata*	Monterey pine	8.9	32	18	Fair			
170	*Pinus radiata*	Monterey pine	15.7, 8.5	38	26	Fair			
171	*Pinus radiata*	Monterey pine	7.3	15	15	Fair			
172	*Pinus radiata*	Monterey pine	14.2	36	28	Fair			
173	*Pinus radiata*	Monterey pine	12.1	26	20	Fair			
174	*Pinus radiata*	Monterey pine	16.8	36	36	Fair			
175	*Pinus radiata*	Monterey pine	10.8	20	20	Fair			
176	*Cupressus arizonica*	Arizona cypress	10.0	26	18	Good			
177	*Cupressus arizonica*	Arizona cypress	13.5	20	24	Fair			
178	*Cupressus arizonica*	Arizona cypress	11.5, 6.9	30	25	Fair			
179	*Cupressus arizonica*	Arizona cypress	6, 18, 7.5, 6.3, 6.2	38	30	Fair			
180	*Cupressus arizonica*	Arizona cypress	11.3	30	25	Poor			Multiple failed stems at 2 feet
181	*Cupressus arizonica*	Arizona cypress	12.0	28	20	Good			
182	*Populus fremontii**	Fremont's cottonwood	7.8	26	15	Fair			
183	*Quercus lobata**	Valley oak	9.1	28	16	Good			
184	*Populus fremontii**	Fremont's cottonwood	7.8, 7.8, 6	40	20	Poor			Significant trunk decay
185	*Pinus radiata*	Monterey pine	21.5, 17.4	50	36	Fair			
186	*Pinus radiata*	Monterey pine	20.0	60	34	Fair			
187	*Pinus radiata*	Monterey pine	20.6	56	30	Fair			
188	*Pinus radiata*	Monterey pine	25.5	60	45	Fair			
189	*Cupressus arizonica*	Arizona cypress	15.4	46	25	Poor			70% dead canopy
190	*Ailanthus altissima*	Tree-of-heaven	6.2	36	20	Fair			

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Tree #	**Species**	**Common Name**	**Trunk diameter @ 54" above grade (inches)**	**Approx. Height (feet)**	**Approx. Canopy Spread (feet)**	**General Condition****	**Heritage Tree**	**Retained Tree**	**Comments**
191	*Gleditsia triacanthos*	Honey locust	9.5	24	18	Poor			60% dead canopy
192	*Gleditsia triacanthos*	Honey locust	8.4	24	20	Fair			
193	*Fraxinus sp.*	Ash	10.5, 10.3, 8.5, 12, 7	52	40	Fair			
194	*Schinus molle*	Peruvian pepper	8.8, 15.1, 12.2	25	36	Fair			
195	*Prunus cerasifera*	Cherry plum	13.4	26	25	Fair			
196	*Prunus cerasifera*	Cherry plum	6, 6.5	24	22	Poor			50° lean
197	*Populus fremontii**	Fremont's cottonwood	9, 8.3	40	20	Poor			Weak co-dominant trunk attachment, topped for power line
198	*Populus fremontii**	Fremont's cottonwood	15.5	32	16	Poor			Significant trunk decay, topped for power line
199	*Populus fremontii**	Fremont's cottonwood	7.2, 8	32	20	Poor			Weak co-dominant trunk attachment, topped for power line
200	*Casuarina cunninghamiana*	River she-oak	13.7, 24.3	28	28	Fair			
201	*Populus fremontii**	Fremont's cottonwood	8	25	12	Poor			55% dead canopy, trunk decay
202	*Populus fremontii**	Fremont's cottonwood	6.5	20	12	Poor			Basal decay, 25% dead canopy
203	*Populus fremontii**	Fremont's cottonwood	9.1	30	12	Poor			55% dead canopy, peeling bark
204	*Umbellularia californica**	California bay	9.3	35	18	Good			
205	*Prunus cerasifera*	Cherry plum	15.7	30	30	Fair			
206	*Prunus cerasifera*	Cherry plum	6.3, 7.3	14	25	Poor			65° lean, sucker growth
207	*Prunus cerasifera*	Cherry plum	6.9	12	25	Poor			80° lean, sucker growth
208	*Prunus cerasifera*	Cherry plum	16	30	36	Fair			
209	*Acacia melanoxylon*	Black acacia	6.8	36	10	Fair			
210	*Acacia melanoxylon*	Black acacia	15, 8.5	45	22	Fair			
211	*Acacia melanoxylon*	Black acacia	8, 5.8, 4.8	38	12	Fair			
212	*Schinus molle*	Peruvian pepper	8.8, 4.5	22	18	Fair			
213	*Ulmus parvifolia*	Chinese elm	18.8	40	36	Fair			
214	*Ulmus parvifolia*	Chinese elm	17.5	36	42	Fair			
215	*Acer negundo*	Boxelder	6.6	24	20	Fair			
216	*Populus fremontii**	Fremont's cottonwood	9.3	18	12	Poor			Top broken at 6', peeling bark
217	*Juglans hindsii*	Northern California black walnut	12	30	22	Good			
218	*Juglans hindsii**	Northern California black walnut	8.3, 11.8	34	28	Fair			
219	*Quercus ilex*	Holly oak	14.2, 4.5, 4.5	26	20	Fair			

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Tree #	Species	Common Name	Trunk diameter @ 54" above grade (inches)	Approx. Height (feet)	Approx. Canopy Spread (feet)	General Condition**	Heritage Tree	Retained Tree	Comments
220	*Quercus ilex*	Holly oak	6, 8.5, 7, 5, 5	24	25	Fair			
221	*Quercus ilex*	Holly oak	6, 4.5,5	21	20	Fair			
222	*Casuarina cunninghamiana*	River she-oak	14.8, 25.8	36	28	Fair			
223	*Casuarina cunninghamiana*	River she-oak	21.4	42	22	Fair			
224	*Casuarina cunninghamiana*	River she-oak	6.1, 10.8	25	20	Poor			50% dead canopy
225	*Eucalyptus camaldulensis*	Red river gum	11.4, 8.7, 25.7	45	30	Good			
226	*Eucalyptus camaldulensis*	Red river gum	12.6, 7.1	40	50	Fair			
227	*Eucalyptus camaldulensis*	Red river gum	37.5	72	34	Good			
228	*Eucalyptus camaldulensis*	Red river gum	18	40	18	Good			
229	*Eucalyptus camaldulensis*	Red river gum	30.5, 8	75	38	Good			
230	*Eucalyptus camaldulensis*	Red river gum	24.8	75	36	Fair			
231	*Eucalyptus camaldulensis*	Red river gum	36.7	66	36	Good			
232	*Eucalyptus camaldulensis*	Red river gum	33	75	38	Good			
233	*Quercus agrifolia*	Coast live oak	10.1	28	30	Good			
234	*Casuarina cunninghamiana*	River she-oak	21.2, 16.5, 17.7	54	32	Fair			
235	*Juglans hindsii**	Northern California black walnut	9.6	18	14	Poor			60% dead canopy
236	*Quercus agrifolia**	Coast live oak	6	16	15	Good			
237	*Quercus agrifolia**	Coast live oak	8.2, 10.9, 10.3	24	20	Good			
238	*Quercus agrifolia**	Coast live oak	17.4, 7.5	26	18	Fair			
239	*Eucalyptus globulus*	Blue gum	16.5 @ base	24	25	Poor			Brushy form from base
240	*Ailanthus altissima*	gumtree-of-heaven	10, 5.5, 7.1	32	25	Poor			Weak attachment of co-dominant stems
241	*Quercus agrifolia**	Coast live oak	18.7	32	25	Fair			

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Tree #	**Species**	**Common Name**	**Trunk diameter @ 54" above grade (inches)**	**Approx. Height (feet)**	**Approx. Canopy Spread (feet)**	**General Condition****	**Heritage Tree**	**Retained Tree**	**Comments**
242	*Eucalyptus globulus*	Blue gum	18.3 @ base	27	20	Poor			Brushy form from base
243	*Eucalyptus globulus*	Blue gum	9.8 @ base	20	15	Poor			Brushy form from base
244	*Eucalyptus globulus*	Blue gum	12.3, 12.6, 21.1	52	30	Fair			
245	*Eucalyptus globulus*	Blue gum	14.5, 22, 6	60	30	Fair			
246	*Eucalyptus globulus*	Blue gum	15.1	50	20	Fair			
247	*Eucalyptus globulus*	Blue gum	38 @ 24"	45	42	Good			
248	*Eucalyptus globulus*	Blue gum	25.7	55	40	Good			
249	*Eucalyptus globulus*	Blue gum	8.8	40	24	Fair			
250	*Eucalyptus globulus*	Blue gum	15.5	55	28	Good			
251	*Eucalyptus globulus*	Blue gum	17	50	26	Fair			
252	*Prunus cerasifera*	Cherry plum	12.2	18	15	Poor			60% dead canopy
253	*Fraxinus sp.*	Ash	6.9, 10.5, 10	35	16	Poor			60% dead canopy
254	*Acacia melanoxylon*	Black acacia	18.4	42	38	Fair			
255	*Ulmus parvifolia*	Chinese elm	8.5	30	25	Good			
256	*Ulmus parvifolia*	Chinese elm	9.4	26	26	Good			
257	*Eucalyptus polyanthemos*	Silver dollar gum	8.9	35	15	Fair			
258	*Eucalyptus polyanthemos*	Silver dollar gum	6.7	25	10	Poor			Bark splitting at base, thin canopy
259	*Eucalyptus globulus*	Blue gum	17.3, 19.7, 14.4, 10.7, 18.8	70	30	Fair			
260	*Quercus agrifolia**	Coast live oak	21 @ 36"	30	26	Good			
261	*Quercus agrifolia**	Coast live oak	16.5, 5.7	30	26	Good			
262	*Quercus agrifolia**	Coast live oak	9.2, 6.4	22	15	Fair			
263	*Quercus agrifolia**	Coast live oak	9.2 @ 24"	18	15	Fair			
264	*Sequoia sempervirens*	Coast redwood	9.5	28	14	Fair			
265	*Ailanthus altissima*	Tree-of-heaven	7	18	18	Poor			50% dead canopy
266	*Eucalyptus globulus*	Blue gum	36.2, 31, 9	75	48	Fair			
267	*Eucalyptus globulus*	Blue gum	93	85	75	Good			
268	*Acacia melanoxylon*	Black acacia	6.4, 6.4	34	20	Poor			Trunk decay from base
269	*Acacia melanoxylon*	Black acacia	7.1	38	14	Fair			
270	*Acacia melanoxylon*	Black acacia	17.1, 14.4	52	26	Poor			Significant trunk decay
271	*Acacia melanoxylon*	Black acacia	11.5, 12.4	48	25	Fair			
272	*Acacia melanoxylon*	Black acacia	18.9, 19	52	30	Poor			Weak attachments of co-dominant stems
273	*Prunus cerasifera*	Cherry plum	15.3	20	18	Poor			60% dead canopy

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Tree #	**Species**	**Common Name**	**Trunk diameter @ 54" above grade (inches)**	**Approx. Height (feet)**	**Approx. Canopy Spread (feet)**	**General Condition****	**Heritage Tree**	**Retained Tree**	**Comments**
274	*Fraxinus sp.*	Ash	20.3, 13.7, 18.5	66	45	Fair			
275	*Prunus cerasifera*	Cherry plum	13.5	35	22	Poor			Suppressed, beetle infested, cracked bark
276	*Ulmus parvifolia*	Chinese elm	15.5	50	35	Fair			
277	*Ulmus parvifolia*	Chinese elm	14.8	45	28	Fair			
278	*Schinus molle*	Peruvian pepper	10.5	14	12	Poor			80% dead canopy, severe trunk decay
279	*Eucalyptus sideroxylon*	Red ironbark	12.4, 13.7	38	26	Fair			
280	*Eucalyptus sideroxylon*	Red ironbark	28	36	16	Fair			
281	*Eucalyptus sideroxylon*	Red ironbark	12.6	55	36	Good			
282	*Eucalyptus sideroxylon*	Red ironbark	20	50	35	Fair			
283	*Fraxinus sp.*	Ash	12.7	56	25	Fair			
284	*Eucalyptus sideroxylon*	Red ironbark	19, 19.6	55	32	Fair			
285	*Eucalyptus sideroxylon*	Red ironbark	17.2, 20.3	50	32	Good			
286	*Eucalyptus sideroxylon*	Red ironbark	15.5	55	26	Fair			
287	*Eucalyptus sideroxylon*	Red ironbark	23.4	50	30	Fair			
288	*Quercus agrifolia**	Coast live oak	6.1, 9.8, 10.4	28	16	Fair			
289	*Eucalyptus globulus*	Blue gum	18, 8.2, 27.5, 23.4, 15.3	80	45	Good			
290	*Eucalyptus globulus*	Blue gum	20.2	75	30	Fair			
291	*Acacia melanoxylon*	Black acacia	9.5	80	14	Fair			
292	*Eucalyptus globulus*	Blue gum	20	45	22	Good			
293	*Acacia melanoxylon*	Black acacia	6.7	40	10	Fair			
294	*Acacia melanoxylon*	Black acacia	6.8	36	10	Fair			
295	*Eucalyptus globulus*	Blue gum	6.5	35	12	Fair			
296	*Eucalyptus globulus*	Blue gum	7.8	50	12	Fair			
297	*Eucalyptus globulus*	Blue gum	6.8	50	6	Dead			95% dead crown.
298	*Eucalyptus globulus*	Blue gum	9.5	60	12	Fair			
299	*Eucalyptus globulus*	Blue gum	17.5	70	20	Poor			Vertical stress crack, failed branches
300	*Eucalyptus globulus*	Blue gum	10.3	48	18	Fair			
301	*Eucalyptus globulus*	Blue gum	21.8	85	35	Good			
302	*Eucalyptus globulus*	Blue gum	16.3	85	20	Good			
303	*Eucalyptus globulus*	Blue gum	10.4	75	12	Fair			
304	*Eucalyptus globulus*	Blue gum	10.3	70	15	Fair			
305	*Eucalyptus globulus*	Blue gum	10.9	70	18	Fair			

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Tree #	Species	Common Name	Trunk diameter @ 54" above grade (inches)	Approx. Height (feet)	Approx. Canopy Spread (feet)	General Condition**	Heritage Tree	Retained Tree	Comments
306	*Eucalyptus globulus*	Blue gum	22.8	75	35	Good			
307	*Acacia melanoxylon*	Black acacia	18.2 @ 18"	40	24	Fair			
308	*Eucalyptus globulus*	Blue gum	8.4	48	18	Fair			
309	*Acacia melanoxylon*	Black acacia	7.9	42	15	Fair			
310	*Acacia melanoxylon*	Black acacia	9.0	44	12	Fair			
311	*Eucalyptus globulus*	Blue gum	18, 12.9	70	25	Fair			
312	*Eucalyptus globulus*	Blue gum	42.9	70	38	Fair			
313	*Eucalyptus globulus*	Blue gum	69.0	85	80	Good			
314	*Fraxinus sp.*	Ash	31.0	50	38	Fair			
315	*Eucalyptus globulus*	Blue gum	13.5, 18.9, 11.8, 8.6	75	40	Fair			
316	*Eucalyptus globulus*	Blue gum	9.5, 7.5, 8.7, 7, 31	75	38	Good			
317	*Eucalyptus camaldulensis*	Red river gum	27.0	70	42	Good			
318	*Eucalyptus camaldulensis*	Red river gum	17.4	40	12	Poor			60% dead canopy
319	*Eucalyptus camaldulensis*	Red river gum	18.8, 16.1	70	22	Fair			
320	*Eucalyptus camaldulensis*	Red river gum	40 @ 24"	75	48	Fair			
321	*Eucalyptus globulus*	Blue gum	22, 7	55	26	Fair			
322	*Eucalyptus globulus*	Blue gum	18.0	70	20	Fair			
323	*Eucalyptus globulus*	Blue gum	16.0	60	22	Fair			
323	*Eucalyptus globulus*	Blue gum	13.8, 37.3, 8.2, 16.8	80	64	Fair			
325	*Eucalyptus globulus*	Blue gum	25.2	75	48	Fair			
326	*Eucalyptus globulus*	Blue gum	52.2	75	45	Good			
327	*Eucalyptus globulus*	Blue gum	13.2	40	35	Poor			60% dead canopy
328	*Eucalyptus globulus*	Blue gum	53.3	85	50	Good			
329	*Eucalyptus globulus*	Blue gum	56.8	80	35	Good			
330	*Eucalyptus globulus*	Blue gum	10, 14.8, 16, 31.7, 25.5, 7	65	38	Fair			
331	*Eucalyptus globulus*	Blue gum	6, 6.7, 7, 6.5	18	16	Poor			40% dead canopy, brushy form from base
332	*Schinus molle*	Peruvian pepper	35.4	25	35	Fair			
333	*Pinus radiata*	Monterey pine	16.6	35	18	Poor			Canopy very thin, damage from adjacent tree fall
334	*Pinus halepensis*	Aleppo pine	18.3	32	18	Fair			

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Tree #	**Species**	**Common Name**	**Trunk diameter @ 54" above grade (inches)**	**Approx. Height (feet)**	**Approx. Canopy Spread (feet)**	**General Condition****	**Heritage Tree**	**Retained Tree**	**Comments**
335	*Pinus halepensis*	Aleppo pine	19.2	14	15	Poor			Crushed by adjacent tree fall
336	*Pinus radiata*	Monterey pine	18.0	42	28	Poor			Pitch chanker, 90% bronze canopy
337	*Pinus halepensis*	Aleppo pine	7.1, 8	10	20	Fair			
338	*Pinus radiata**	Monterey pine	8, 15	24	22	Fair			
339	*Pinus canariensis*	Canary Island Pine	10.4	28	9	Fair			
340	*Pinus sabiniana**	Foothill pine	13.3	36	26	Fair			
341	*Pinus sabiniana**	Foothill pine	13.9	35	26	Fair			
342	*Pinus halepensis*	Aleppo pine	15.0	36	16	Fair			
343	*Eucalyptus globulus*	Blue gum	6.5, 11, 13, 10, 15, 17, 6, 8, 14, 18, 14, 8, 12, 8, 12	48	40	Fair			
344	*Eucalyptus globulus*	Blue gum	7.5	25	25	Poor			Suppressed, 30% dead canopy
345	*Eucalyptus globulus*	Blue gum	7, 7.3, 9.5	36	18	Fair			
346	*Eucalyptus globulus*	Blue gum	6.5, 8, 7.3, 6, 8.3, 8.1	35	26	Poor			Brushy form, 30% dead canopy
347	*Eucalyptus globulus*	Blue gum	6.0	40	12	Poor			60% dead canopy, brushy form
348	*Ailanthus altissima*	Tree-of-heaven	7.3, 8.6	42	15	Fair			
349	*Eucalyptus globulus*	Blue gum	7.2, 19.3	40	20	Poor			50% dead canopy
350	*Eucalyptus globulus*	Blue gum	25, 8.6, 6.3, 16.2	38	35	Fair			
351	*Eucalyptus globulus*	Blue gum	12.3	30	15	Poor			90% dead canopy
352	*Ailanthus altissima*	Tree-of-heaven	8, 8.4, 17	35	28	Fair			
353	*Eucalyptus globulus*	Blue gum	43 @ 36"	55	38	Good			
354	*Eucalyptus globulus*	Blue gum	6.4	25	22	Poor			30% dead canopy, unbalanced
355	*Eucalyptus globulus*	Blue gum	9.9	36	18	Poor			50% dead canopy, brushy form
356	*Eucalyptus globulus*	Blue gum	7.2, 8	38	20	Poor			50% dead canopy, brushy form
357	*Eucalyptus globulus*	Blue gum	6.2, 7	32	20	Poor			60% dead canopy
358	*Eucalyptus globulus*	Blue gum	8.4, 7, 6, 6.5	30	20	Poor			70% dead canopy, brushy form
359	*Fraxinus sp.*	Ash	12.7, 9.1, 10	32	35	Good			
360	*Fraxinus sp.*	Ash	6.1	15	6	Poor			60% dead canopy
361	*Quercus agrifolia**	Coast live oak	12.4, 7	22	20	Good			
362	*Pinus radiata*	Monterey pine	15.8	30	28	Fair			
363	*Pinus radiata*	Monterey pine	12	30	18	Poor			Pitch canker, 60% bronze canopy
364	*Pinus radiata*	Monterey pine	9.6, 10.8	30	26	Poor			50% dead canopy, 20° lean
365	*Pinus radiata*	Monterey pine	11.9, 9.2	38	18	Fair			
366	*Pinus radiata*	Monterey pine	16.7	34	28	Fair			
367	*Pinus radiata*	Monterey pine	10.2	30	15	Fair			

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Tree #	**Species**	**Common Name**	**Trunk diameter @ 54" above grade (inches)**	**Approx. Height (feet)**	**Approx. Canopy Spread (feet)**	**General Condition****	**Heritage Tree**	**Retained Tree**	**Comments**
368	*Pinus radiata*	Monterey pine	12, 6.7, 12.5	34	24	Fair			
369	*Quercus agrifolia**	Coast live oak	10.1	16	14	Good			
370	*Quercus agrifolia**	Coast live oak	16.0	28	15	Good			
371	*Quercus agrifolia**	Coast live oak	7.8	20	12	Good			
372	*Quercus agrifolia**	Coast live oak	16.5, 15.2	28	28	Good			
373	*Quercus agrifolia**	Coast live oak	9.5 @ 12"	14	10	Fair			
374	*Quercus agrifolia**	Coast live oak	13, 13.4, 9.3	32	32	Good			
375	*Pinus radiata*	Monterey pine	13.9	34	16	Fair			
376	*Pinus halepensis*	Aleppo pine	16.0	34	28	Fair			
377	*Eucalyptus globulus*	Blue gum	18.9	80	32	Good			
378	*Eucalyptus globulus*	Blue gum	12.3	42	12	Good			
379	*Eucalyptus globulus*	Blue gum	24.0	55	30	Good			
380	*Eucalyptus globulus*	Blue gum	16.0	65	28	Fair			
381	*Eucalyptus globulus*	Blue gum	10.0	42	30	Good			
382	*Eucalyptus globulus*	Blue gum	33.3, 12.1, 16.2	75	15	Fair			
383	*Eucalyptus globulus*	Blue gum	9, 7.8	40	22	Good			
384	*Eucalyptus globulus*	Blue gum	12.2	48	15	Fair			
385	*Eucalyptus globulus*	Blue gum	8.3	40	20	Fair			
386	*Eucalyptus globulus*	Blue gum	14.5	50	18	Fair			
387	*Eucalyptus globulus*	Blue gum	26.2	70	45	Good			
388	*Eucalyptus globulus*	Blue gum	29.2	80	40	Good			
389	*Eucalyptus globulus*	Blue gum	7.4	36	18	Fair			
390	*Eucalyptus globulus*	Blue gum	20.5	66	30	Good			
391	*Eucalyptus globulus*	Blue gum	25.0	55	36	Poor			Fire scorch 60% of canopy
392	*Eucalyptus globulus*	Blue gum	7.2	25	12	Poor			Fire scorch 80% of canopy
393	*Eucalyptus globulus*	Blue gum	6, 11.1, 12.5, 16.4	48	30	Fair			
394	*Pinus canariensis*	Canary Island Pine	12.0	28	14	Fair			
395	*Pinus sabiniana**	Foothill pine	6.5	22	8	Fair			
396	*Ailanthus altissima*	Tree-of-heaven	6.4	24	15	Poor			Fire scorch 40% of canopy
397	*Pinus sabiniana**	Foothill pine	6.6, 10.1, 6.7	32	20	Fair			
398	*Pinus sabiniana**	Foothill pine	11.0	30	18	Fair			
399	*Quercus agrifolia**	Coast live oak	7.4	20	12	Fair			
400	*Pinus canariensis*	Canary Island Pine	6.9	20	10	Fair			
401	*Eucalyptus globulus*	Blue gum	20.7	60	24	Fair		Yes	
402	*Eucalyptus globulus*	Blue gum	10.0	20	6	Poor		Yes	Fire scorch 90% of canopy
403	*Eucalyptus globulus*	Blue gum	10.5	55	8	Poor		Yes	Fire scorch 90% of canopy

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Tree #	Species	Common Name	Trunk diameter @ 54" above grade (inches)	Approx. Height (feet)	Approx. Canopy Spread (feet)	General Condition**	Heritage Tree	Retained Tree	Comments
404	*Eucalyptus globulus*	Blue gum	39.0	80	42	Fair		Yes	
405	*Eucalyptus globulus*	Blue gum	10.0	50	12	Poor		Yes	Fire scorch 60% of canopy
406	*Eucalyptus globulus*	Blue gum	8.9	6	6	Poor		Yes	Fire scorch 95% of canopy
407	*Eucalyptus globulus*	Blue gum	17.0	52	22	Fair		Yes	
408	*Eucalyptus globulus*	Blue gum	25.5	75	22	Fair		Yes	
409	*Eucalyptus globulus*	Blue gum	14.2, 8.4	48	18	Poor		Possibly	Fire scorch 60% of canopy; tree occurs adjacent to grading footprint and may be directly/ indirectly impacted by grading.
410	*Eucalyptus globulus*	Blue gum	8, 12	48	15	Poor		Possibly	Fire scorch 50% of canopy; tree occurs adjacent to grading footprint and may be directly/ indirectly impacted by grading.
411	*Eucalyptus globulus*	Blue gum	39.0	75	48	Fair			
412	*Eucalyptus globulus*	Blue gum	6.5	30	6	Poor			Fire scorch 70% of canopy
413	*Eucalyptus globulus*	Blue gum	6.4, 8.1, 6.6	30	8	Poor			Fire scorch 80% of canopy
414	*Robinia pseudoacacia*	Black locust	14.4	32	24	Good			
415	*Quercus ilex*	Holly oak	7.3	25	12	Poor			Fire scorch 90% of canopy
416	*Robinia pseudoacacia*	Black locust	8.9, 9.5	34	24	Fair			
417	*Robinia pseudoacacia*	Black locust	12.9	28	22	Fair			
418	*Ailanthus altissima*	Tree-of-heaven	7.7	3	4	Poor			Fire scorch, basal sprouts only
419	*Ailanthus altissima*	Tree-of-heaven	9.0	3	4	Poor			Fire scorch, basal sprouts only
420	*Cupressus arizonica*	Arizona cypress	11.1	36	16	Poor			Fire scorch 50% of canopy
421	*Cupressus arizonica*	Arizona cypress	13.4	30	18	Poor			Fire scorch 60% of canopy
422	*Eucalyptus globulus*	Blue gum	59.4	85	54	Fair			
423	*Pinus halepensis*	Aleppo pine	13.7	38	22	Fair			
424	*Pinus halepensis*	Aleppo pine	19.6	38	26	Fair			
425	*Pinus halepensis*	Aleppo pine	14.3	36	28	Fair			
426	*Eucalyptus globulus*	Blue gum	9.8	12	8	Poor			Fire scorch 95% of canopy
427	*Eucalyptus globulus*	Blue gum	13.8	48	10	Poor			Fire scorch 70% of canopy
428	*Eucalyptus globulus*	Blue gum	60.0	80	60	Poor			Fire scorch 75% of canopy
429	*Eucalyptus globulus*	Blue gum	17.0	72	20	Poor			Fire scorch 75% of canopy
430	*Eucalyptus globulus*	Blue gum	55.0	65	55	Poor			Fire scorch 60% of canopy
431	*Eucalyptus globulus*	Blue gum	7, 10.5, 7.5	36	12	Poor			Fire scorch 50% of canopy
432	*Eucalyptus globulus*	Blue gum	11, 16.2, 12.7, 6.9	45	22	Poor			Fire scorch 80% of canopy
433	*Eucalyptus globulus*	Blue gum	13.8	45	12	Poor			Fire scorch 80% of canopy

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Tree #	**Species**	**Common Name**	**Trunk diameter @ 54" above grade (inches)**	**Approx. Height (feet)**	**Approx. Canopy Spread (feet)**	**General Condition****	**Heritage Tree**	**Retained Tree**	**Comments**
434	*Eucalyptus globulus*	Blue gum	18.6	65	24	Poor			Fire scorch 60% of canopy
435	*Eucalyptus globulus*	Blue gum	48.0	68	30	Poor			Fire scorch 90% of canopy
436	*Eucalyptus globulus*	Blue gum	22.2	42	15	Poor			Fire scorch 90% of canopy
437	*Eucalyptus globulus*	Blue gum	55.0	80	60	Fair			
438	*Quercus ilex*	Holly oak	8.1 @ 24"	16	10	Poor			Fire scorch 70% of canopy
439	*Quercus agrifolia**	Coast live oak	14.7	25	20	Poor			Fire scorch 60% of canopy
440	*Quercus agrifolia**	Coast live oak	11.4, 12.5	24	25	Fair			
441	*Quercus agrifolia**	Coast live oak	12.7 @ 24"	18	14	Fair			
442	*Quercus agrifolia**	Coast live oak	9.3	24	14	Fair			
443	*Quercus agrifolia**	Coast live oak	14.8	25	30	Good			
444	*Pinus sabiniana**	Foothill pine	12.5	42	20	Fair			
445	*Pinus sabiniana**	Foothill pine	17.9	56	25	Fair			
446	*Eucalyptus globulus*	Blue gum	46.0	70	55	Poor			Fire scorch 80% of canopy
447	*Eucalyptus globulus*	Blue gum	11.6	40	15	Poor			Fire scorch 80% of canopy
448	*Eucalyptus globulus*	Blue gum	6.2	4	6	Poor			Fire scorch 95% of canopy
449	*Eucalyptus globulus*	Blue gum	12.3, 15.4	58	25	Fair			
450	*Eucalyptus globulus*	Blue gum	12.3	48	25	Fair			
451	*Eucalyptus globulus*	Blue gum	23.3, 9.5	60	38	Fair			
452	*Eucalyptus globulus*	Blue gum	27.5	56	36	Fair			
453	*Ailanthus altissima*	Tree-of-heaven	6.3, 7.4	24	15	Poor			Fire scorch 80% of canopy
454	*Eucalyptus globulus*	Blue gum	38.0	60	48	Fair			
455	*Sequoia sempervirens**	Coast redwood	14.5, 12.3	36	18	Fair			
456	*Sequoia sempervirens**	Coast redwood	12.8	36	15	Poor			Fire scorch 50% of canopy
457	*Eucalyptus globulus*	Blue gum	34.0	60	35	Fair			
458	*Eucalyptus globulus*	Blue gum	30.1	60	42	Fair			
459	*Juglans hindsii**	Northern California black walnut	6.3 + 5.7	18	12	Poor			Fire scorch 80% of canopy
460	Number intentionally skipped	-	-	-	-	-	-	-	
461	*Juglans hindsii**	Northern California black walnut	5.8	16	10	Poor			Fire scorch 40% of canopy
462	*Juglans hindsii**	Northern California black walnut	6.7	16	14	Fair			
463	*Juglans hindsii**	Northern California black walnut	7.3, 12.1	22	15	Poor			Fire scorch 50% of canopy
464	*Juglans hindsii**	Northern California	5.5, 4.8	18	10	Fair			

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Tree #	Species	Common Name	Trunk diameter @ 54" above grade (inches)	Approx. Height (feet)	Approx. Canopy Spread (feet)	General Condition**	Heritage Tree	Retained Tree	Comments
		black walnut							
465	*Juglans hindsii**	Northern California black walnut	7.3, 5.1	20	12	Poor			Fire scorch 60% of canopy
466	*Eucalyptus globulus*	Blue gum	52, 24.4	80	48	Fair			
467	*Eucalyptus globulus*	Blue gum	67.7	75	62	Fair			
468	*Eucalyptus globulus*	Blue gum	46.0	75	55	Fair			
469	*Eucalyptus globulus*	Blue gum	11.4, 12.1	55	20	Good			
470	*Eucalyptus globulus*	Blue gum	7, 7	36	15	Poor			Fire scorch 70% of canopy
471	*Eucalyptus camaldulensis*	Red river gum	15.3	45	22	Fair			
472	*Eucalyptus camaldulensis*	Red river gum	13.5	45	20	Fair			
473	*Eucalyptus camaldulensis*	Red river gum	9, 9.2, 82	48	22	Fair			
474	*Eucalyptus globulus*	Blue gum	20.5, 72.3	85	65	Fair			
475	*Ulmus parvifolia*	Chinese elm	6.6	18	16	Fair			
476	*Schinus molle*	Peruvian pepper	11.1	16	15	Poor			Fire scorch 50% of canopy
477	***Quercus agrifolia****	**Coast live oak**	**24.8**	**30**	**40**	**Good**	**Yes**		**Fire scorch <10%, canopy full and green**
478	*Eucalyptus polyanthemos*	Silver dollar gum	23.8	48	**20**	Good			
479	*Eucalyptus polyanthemos*	Silver dollar gum	10.2, 8.2	55	20	Fair			
480	*Eucalyptus polyanthemos*	Silver dollar gum	14.8, 13.9	48	26	Good			
481	*Eucalyptus polyanthemos*	Silver dollar gum	17, 6.1	60	26	Good			
482	*Eucalyptus polyanthemos*	Silver dollar gum	17.7	56	25	Good			
483	*Eucalyptus polyanthemos*	Silver dollar gum	22.8	68	25	Fair			
484	*Eucalyptus polyanthemos*	Silver dollar gum	13.4, 6.1	65	28	Good			
485	*Prunus cerasifera*	Cherry plum	8.9	22	22	Fair			
486	*Prunus cerasifera*	Cherry plum	7.3	18	10	Poor			
487	*Prunus cerasifera*	Cherry plum	6.8	20	20	Fair			
488	***Quercus agrifolia****	**Coast live oak**	**27.5, 28.2**	**35**	**55**	**Good**	**Yes**		**Open grown, canopy full and**

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Tree #	Species	Common Name	Trunk diameter @ 54" above grade (inches)	Approx. Height (feet)	Approx. Canopy Spread (feet)	General Condition**	Heritage Tree	Retained Tree	Comments
									green
489	*Juglans hindsii**	Northern California black walnut	16.0	30	32	Good			
490	*Acacia melanoxylon*	Black acacia	8.6, 15.5	40	20	Fair			
491	*Ulmus parvifolia*	Chinese elm	14, 5.6	36	32	Fair			
492	*Acacia melanoxylon*	Black acacia	6.4, 6.8, 6.3	24	25	Poor			Weak attachments at base, 20% dead canopy
493	*Ulmus parvifolia*	Chinese elm	8.2, 8.6	34	28	Fair			
494	*Acacia melanoxylon*	Black acacia	8.7	42	15	Fair			
495	*Acacia melanoxylon*	Black acacia	6.3, 6.7, 8.9, 6.9, 5.9, 15.9	42	20	Poor			Trunk decay, weak attachments at base
496	*Fraxinus sp.*	Ash	17.9	40	20	Fair			
497	*Ulmus parvifolia*	Chinese elm	6.8	40	18	Fair			
498	*Fraxinus sp.*	Ash	20.5	15	38	Fair			
499	*Fraxinus sp.*	Ash	7, 6, 5.7	26	18	Fair			
500	*Acacia melanoxylon*	Black acacia	5.3, 11.2	35	16	Fair			
501	*Acacia melanoxylon*	Black acacia	8.2	40	14	Fair			
502	*Acacia melanoxylon*	Black acacia	8.4, 6.6	28	15	Fair			
503	*Acacia melanoxylon*	Black acacia	7.8, 8.1, 5.5	40	20	Fair			
504	*Acacia melanoxylon*	Black acacia	11.1, 8	32	20	Fair			
505	*Acacia melanoxylon*	Black acacia	7.7	40	18	Fair			
506	*Acacia melanoxylon*	Black acacia	6.0	22	16	Fair			
507	*Acacia melanoxylon*	Black acacia	8.1, 10.5, 12.8, 6.5, 6.5	55	30	Fair			
508	*Acacia melanoxylon*	Black acacia	23.5 @ 24"	50	28	Fair			
509	*Acacia melanoxylon*	Black acacia	6.9, 5.3	26	12	Fair			
510	*Acacia melanoxylon*	Black acacia	7.7, 6.6	28	18	Fair			
511	*Acacia melanoxylon*	Black acacia	10.1	30	14	Fair			
512	*Acacia melanoxylon*	Black acacia	6.7, 6.2	38	15	Fair			
513	*Ulmus parvifolia*	Chinese elm	10.0	22	20	Fair			
514	*Ulmus parvifolia*	Chinese elm	8.7	18	20	Fair			
515	*Ulmus parvifolia*	Chinese elm	7.9, 6.1	28	26	Fair			
516	***Cupressus sp.***	**Cypress**	**27.3**	**28**	**18**	**Fair**	**Possible**		**Species of cypress is uncertain but believed to be C. arizonica. 20% dead canopy, deep trunk scar at base.**
517	*Quercus agrifolia**	Coast live oak	14.7, 12.5, 12.5, 15.1	28	42	Good			26.6" @ base. Open grown,

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Tree #	**Species**	**Common Name**	**Trunk diameter @ 54" above grade (inches)**	**Approx. Height (feet)**	**Approx. Canopy Spread (feet)**	**General Condition****	**Heritage Tree**	**Retained Tree**	**Comments**
									canopy full and green
518	*Quercus agrifolia**	Coast live oak	7.7, 10	20	18	Fair			
519	*Quercus agrifolia**	Coast live oak	9.7, 14, 9, 8.5	25	26	Good			
520	*Sequoia sempervirens*	Coast redwood	9.5, 5.7	22	15	Fair			
521	*Quercus agrifolia**	Coast live oak	21, 22	34	38	Good			Open grown, canopy full and green
522	*Schinus molle*	Peruvian pepper	8.9	16	16	Fair			
523	*Juglans hindsii**	Northern California black walnut	7.8	14	14	Fair			
524	*Eucalyptus globulus*	Blue gum	29.5	72	28	Good			
525	*Eucalyptus globulus*	Blue gum	19.8	68	32	Fair			
526	*Eucalyptus globulus*	Blue gum	48.8	85	70	Good			
527	*Eucalyptus globulus*	Blue gum	12.8	52	30	Fair			
528	*Eucalyptus globulus*	Blue gum	14.2, 20	80	40	Good			
529	*Eucalyptus globulus*	Blue gum	21.3	80	36	Good			
530	*Eucalyptus globulus*	Blue gum	29.0	85	45	Good			
531	*Eucalyptus globulus*	Blue gum	42.8, 6, 13	84	55	Good			
532	*Cupressus arizonica*	Arizona cypress	9.3	18	18	Fair			
533	*Ailanthus altissima*	Tree-of-heaven	9.0	22	26	Fair			
534	*Casuarina cunninghamiana*	River she-oak	9, 9.3	15	18	Fair			
535	*Casuarina cunninghamiana*	River she-oak	12.2 @ 42"	15	18	Fair			
536	*Casuarina cunninghamiana*	River she-oak	9.1, 8.4	15	15	Fair			
537	*Casuarina cunninghamiana*	River she-oak	10.0	28	15	Good			
538	*Casuarina cunninghamiana*	River she-oak	6.4, 8.5	16	15	Fair			
539	*Populus nigra* var. *italica*	Black poplar	16.4	14	10	Fair			
540	*Prunus cerasifera*	Cherry plum	6.0	15	12	Fair			
541	*Prunus cerasifera*	Cherry plum	8.4	18	20	Good			
542	*Prunus cerasifera*	Cherry plum	6.5 @ 24"	22	18	Fair			
543	*Populus fremontii**	Fremont's cottonwood	11.8, 12.5	30	24	Poor			Trunk decay at base, failed branches, topped for power line
544	*Populus fremontii**	Fremont's cottonwood	8.3, 7.5	20	22	Poor			Decay throughout, topped at 10'

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									for power line
545	*Populus fremontii**	Fremont's cottonwood	12.5	40	18	Fair			
546	*Populus fremontii**	Fremont's cottonwood	10.1	24	15	Poor			70% dead canopy
547	*Populus fremontii**	Fremont's cottonwood	21.8	32	26	Poor			50% dead canopy, failed branches
548	*Populus fremontii**	Fremont's cottonwood	9.5	18	12	Poor			60% dead canopy, trunk decay throughout, topped for power line
549	*Populus fremontii**	Fremont's cottonwood	8.2	18	12	Poor			60% dead canopy, failed branches
550	*Populus fremontii**	Fremont's cottonwood	14.9	24	20	Poor			Trunk decay, failed branches, topped at 15' for power line
551	*Schinus molle*	Peruvian pepper	9.8, 10.2, 6.7	28	30	Fair			
552	*Acer negundo**	Boxelder	9.8, 11, 9.9	22	20	Fair			
553	*Populus fremontii**	Fremont's cottonwood	25.0	38	38	Fair			
554	*Populus fremontii**	Fremont's cottonwood	8.5	24	12	Fair			
555	*Fraxinus sp.*	Ash	22.8	42	30	Good			
556	*Pinus radiata*	Monterey pine	30 @ 24"	50	28	Fair			
557	*Populus nigra italica*	Lombardy Poplar	9	15	5	Poor			Multi-stem brushy base, trunk rot, 70% dead canopy
558	*Populus nigra italica*	Lombardy Poplar	12, 11, 8	40	15	Poor			Multi-stem brushy base,trunk rot 50% dead canopy
559	*Populus nigra italica*	Lombardy Poplar	12, 6, 7	44	16	Poor			Multi-stem brushy base,trunk rot 30% dead canopy
560	*Populus nigra italica*	Lombardy Poplar	6, 14	26	12	Poor			Multi-stem brushy base, 60% dead canopy
561	*Populus nigra italica*	Lombardy Poplar	7.5, 14	38	14	Poor			Multi-stem brushy base, 30% dead canopy
562	*Populus nigra italica*	Lombardy Poplar	10, 6	46	18	Fair			
563	*Populus nigra italica*	Lombardy Poplar	7	21	8	Poor			Multi-stem brushy base,trunk rot, 60% dead canopy
564	*Populus nigra italica*	Lombardy Poplar	11.5	30	12	Poor			Multi-stem brushy base, 60% dead canopy
565	*Populus nigra italica*	Lombardy Poplar	15, 9.5, 10, 8	48	20	Fair			
566	*Populus nigra italica*	Lombardy Poplar	6, 6, 7	36	15	Fair			
567	*Populus nigra italica*	Lombardy Poplar	12, 13, 13, 12	48	25	Fair			
568	*Populus nigra italica*	Lombardy Poplar	9, 7, 8, 6	30	12	Fair			

* Tree species considered native to the site's vicinity, although the tree may have been planted on the site.
**General Condition: Good (80 to 100% healthy foliage); Fair (50 to 79% healthy foliage); Poor (5 to 49% healthy foliage and/or other significant defects); D = Dead (less than 5% healthy foliage).

APPENDIX B:
PHOTOGRAPHS OF POTENTIAL HERITAGE TREES

Photo 1. Tree #477, a coast live oak (*Quercus agrifolia*) with trunk diameter of 24.8 inches.

Photo 2. Tree #488, a coast live oak (*Quercus agrifolia*) with co-dominant trunks of diameters 27.2 and 28.2 inches.

Photo 3. Tree #516, a non-native cypress (*Cupressus* sp.) with trunk diameter of 27.3 inches.

Attachment 6

East Ranch

CEQA Analysis in Support of Specific Plan Exemption

November 4, 2021
Final Draft
Planning Application Number: PLPA-2020-00028

East Ranch

CEQA Specific Plan Exemption

PLPA-2020-00028

November 4, 2021

Project Overview

The East Ranch project (the project) proposes the development of 573 residential units (473 low-density and 100 medium-density) on an approximately 165.5-acre site, located at 4038 Croak Road (APNs 905-0002-0002-01 and 905-0002-002-00). Two neighborhood parks, one 5.5-acre park at the northwest corner and one 6.0-acre park south of the project's main entry, 6.6 acres of open space, 19.4 acres of rural residential/agricultural, and a two-acre semi-public site are also proposed. In addition, the project proposes to optimize the signal timing at the intersection of Central Parkway and Sunset View Drive to improve existing traffic operations, particularly during peak periods.

The project site is located directly east of the Jordan Ranch development and south of Positano, straddling the existing Croak Road. The project includes the improvements and widening of Croak Road as a primary north to south access road that would complete the connection from Positano Parkway to Central Parkway. South of the property boundary, the existing Croak Road would be improved in an interim condition south to the future Dublin Boulevard extension and to the connection with Fallon Road. The project is also proposing to extend Central Parkway into the project site providing access to planned future development to the south.

The project site is located in the Eastern Dublin Specific Plan (EDSP) area. The project is substantially consistent with the City's General Plan, EDSP, the Planned Development Zoning designation and the Stage 1 Development Plan approved on December 20, 2005 for Fallon Village (PA 04-040), as amended by Ordinance No. 45-08.

The project requires approval of a Stage II Planned Development and a Vesting Tentative Tract Map. The project applicant is seeking an exemption from further California Environmental Quality Act (CEQA) review and documentation requirements on the grounds that the project is substantially consistent with previous approvals and does not trigger any requirement for further CEQA documentation.

Prior CEQA Analysis

Prior CEQA analysis includes: 1) the Eastern Dublin General Plan Amendment and Specific Plan EIR (1993), 2) the East Dublin Properties Stage I Development Plan and Annexation Supplemental EIR (2002), and 3) the Fallon Village Supplemental EIR (2005). Collectively, these three environmental review documents are referred to as the "EDSP EIRs" or "previous CEQA findings," and are described below.

Eastern Dublin General Plan Amendment and Specific Plan EIR (1993)

The Eastern Dublin General Plan Amendment and Specific Plan Environmental Impact Report (EIR) and an addendum (1993 GPA/SP EIR) were certified by the City Council on August 22, 1994. This EIR analyzed General Plan Amendments affecting a 6,920-acre area and the adoption of the Eastern Dublin Specific Plan (EDSP), which encompassed a 3,328-acre area and provides a comprehensive planning framework for future development in Eastern Dublin. The area considered in this EIR included the project site within the General Plan Amendment area.

The 1993 GPA/SP EIR identified the following significant and unavoidable impacts: cumulative loss of agriculture and open space land, cumulative traffic, extension of natural gas, electric, and telephone service community facilities, consumption of non-renewable natural resources, increases in energy uses through increased water treatment and disposal and through operation of the water distribution system, inducement of substantial growth and concentration of population, earthquake ground shaking, loss/degradation of botanically sensitive habitat, regional air quality, noise, and aesthetics.

Pursuant to Resolution No. 53-93, the City adopted a Mitigation Measures and Monitoring Program, which mitigation measures and monitoring program continue to apply to development in Eastern Dublin. The Council also adopted a Statement of Overriding Considerations in connection with their certification of the 1993 GPA/SP EIR.

East Dublin Properties Stage I Development Plan and Annexation Supplemental EIR (2002)

In 2002, the City of Dublin approved an annexation, pre-zoning, and related PD-Planned Development District Stage I Development Plan for the East Dublin Properties area (same area later named “Fallon Village”). The East Dublin Properties project site consists of 1,132 acres within the EDSP area and includes in its entirety the 165-acre East Ranch project site.

An Initial Study (IS) was prepared to determine if the East Dublin Properties project required additional environmental review beyond that analyzed in the 1993 GPA/SP EIR. The IS found that many of the anticipated impacts of the East Dublin Properties project were adequately addressed in the 1993 GPA/SP EIR given: 1) the comprehensive planning for the development area; 2) the 1993 GPA/SP EIR‘s analysis of buildout under the EDSP land use designations and policies; 3) the long term 20-30 year focus of the EDSP and the 1993 GPA/SP EIR; 4) the fact that the East Dublin Properties project was specifically contemplated in the 1993 GPA/SP EIR; and 5) the fact that the East Dublin Properties project consisted of the same land uses analyzed in the 1993 GPA/SP EIR.

Although the IS concluded that the 1993 GPA/SP EIR adequately analyzed most of the potential environmental impacts of the East Dublin Properties project, it also identified the potential for some new significant impacts or substantially intensified impacts beyond those previously analyzed. As a result, the 1993 GPA/SP EIR was updated and supplemented by the Programmatic East Dublin Properties Stage I Development Plan and Annexation Supplemental

EIR (2002 Supplemental EIR) which updated the analyses of agricultural resources, biology, air quality, noise, traffic and circulation, schools, and utilities.

In certifying the 2002 Supplemental EIR, the City adopted a Mitigation Measures and Monitoring Program and a Statement of Considerations for cumulative air quality and traffic impacts that continues to apply to development in Eastern Dublin, including the project site.

Fallon Village Supplemental EIR (2005)

In 2005, the City of Dublin considered additional approvals for the 1,132-acre Fallon Village area. These requested approvals had three components:

1. Amendments to the General Plan and EDSP to include the entire 1,132-acre Fallon Village area into the EDSP and to reflect changes to the land use designations on the site;
2. Revisions to the 2002 approval of the Stage I Planned Development Planned Zoning and Stage I Development Plan to increase the number of dwellings units by 582 to a total of 3,108 units and increase non-residential uses from 1,081,725 square feet to 2,503,175 square feet of commercial and office uses; and
3. A Stage II Development Plan, Vesting Tentative Map, Development Agreement, and Lot Line Adjustment for the development of the northernly 488 acres of the Fallon Village area to allow 1,078 dwelling units, a school, parks and associated use.

The City approved all three components of the Fallon Village project request.

On December 6, 2005, the City certified the Final Supplemental Fallon Village Project Environmental Impact Report (2005 Supplemental EIR) that analyzed the new uses and revisions to the previous approvals for the Fallon Village project.

The 2005 Supplemental EIR identified potentially significant environmental impacts and related mitigation measures. The City adopted a Mitigation Measures and Monitoring Program for this approval that continues to apply to development in the Fallon Village area, including the project site. In addition, as part of Resolution No. 222-05, the City adopted a Statement of Overriding Considerations for the following significant and unavoidable impacts: traffic impact to Dublin/Dougherty intersection, cumulative impacts to local roadways, consistent with the Alameda County Congestion Management Plan, demolition of the Fallon Ranch House and an increase in regional emissions beyond Bay Area Air Quality Management District (BAAQMD) thresholds.

With respect to project site, the 2005 Supplemental EIR analyzed what is being proposed in the Stage 2 Development Plan for the East Ranch project site, namely: 573 dwelling units, 11.5 acres of neighborhood park and 6.8 acres of open space.

The City intended this 2005 Supplemental EIR to be used by state or regional agencies in their review of permits required for development in the Fallon Village area (e.g., California Department of Fish and Wildlife Streambed Alteration Agreements, California Endangered Species Act permits, Water Quality Certification or waiver by the Regional Water Quality Control Board under the Clean Water Act) (see, Draft 2005 Supplemental EIR, p. 27).

CEQA Exemptions and Streamlining Provisions

Government Code section 65457 and CEQA Guidelines Section 15182(c) exempts certain residential projects that are consistent with a specific plan from further environmental review. If an EIR was prepared after January 1, 1980 for a specific plan, a residential project undertaken pursuant to and in conformity with a specific plan that has a prepared EIR is exempt from CEQA unless there is an event that triggers the need to prepare a subsequent EIR or negative declaration pursuant to CEQA Guidelines Section 15162. Residential projects covered by this exemption include zoning changes, subdivisions, and planned unit developments.

The EDSP acknowledges this streamlining provision and specifically states that pursuant to Section 15182 of the CEQA Statutes and Guidelines, residential projects which are in conformity with the EDSP are exempt from subsequent environmental documentation, eliminating the need for additional EIRs.

The EDSP EIRs were all prepared and certified after 1980 and the project site was specifically analyzed in the 2005 Supplemental EIR. The project is consistent with and implements the EDSP as it relates to the project site. In addition, the project does not trigger any requirements causing the need to prepare a subsequent EIR or negative declaration as no substantial changes are proposed in the project that would require major revisions to the EDSP EIRs, no substantial changes have occurred in the circumstances under which the project would be undertaken that would require major revisions in the EDSP EIRs, and no new information of substantial importance to the project that was not known and could not have been know at that time the EDSP EIRs were certified has become available.

The finding that no additional environmental documentation is required for the project is consistent with the review and approval of the Jordan Ranch Stage 2 Development Plan in 2010 and the revised Stage II Development Plan in 2012. This finding can also be made for the project since it is nearly identical to the 2005 approval of the Stage I Development Plan. Unlike the Jordan Ranch approvals, no amendments to the General Plan or EDSP are proposed and no amendment to the existing Stage I Development Plan is required for the project. Also, the number of residential units remain the same as in the 2005 Stage I Development Plan approval, whereas for Jordan Ranch, the number of units increased by 184.

Proposed CEQA Specific Plan Exemption

The City of Dublin has determined that the proposed project qualifies for an exemption from CEQA under Government Code section 65457 and CEQA Guidelines Section 15182(c) for residential projects that are consistent with a specific plan for which an EIR has been certified. The proposed project is consistent with the EDSP EIRs and the General Plan land use designations for the project site. There is no part of the proposed project that triggers the need to prepare a subsequent EIR or negative declaration pursuant to CEQA Guidelines Section 15162 as outlined below. Therefore, the project qualifies for a specific plan exemption and does not require subsequent environmental review or the preparation of an additional CEQA document (EIR or MND).

Public Resources Code Section 21166 and CEQA Guidelines Section 15162

Public Resources Code Section 21166 and CEQA Guidelines Section 15162 identify the conditions that trigger the requirement of subsequent environmental review and documentation for a project. After a review of these conditions, the City of Dublin has determined that no subsequent EIR or negative declaration is required for this project. This is based on the following analysis:

a) *Are there substantial changes to the project requiring major revisions to the EIR due to new or substantially more severe significant impacts than previously identified?*

   There are no substantial changes to the project compared to what was analyzed in the EDSP EIRs. The proposed land uses within the project site are not changed from those previously proposed and analyzed beyond the conversion of four residential units from low density to medium density with no increase in the total number of residential units and would not result in additional significant impacts. No additional or different mitigation measures are required as documented in the Environmental Analysis section of this document.

b) *Are there substantial changes in the conditions which the project is undertaken requiring major revisions to the EIR due to new or substantially more severe significant impacts than previously identified?*

   There are no substantial changes in the conditions assumed in EDSP EIRs that would result in new or substantially more severe significant impacts from the project than were previously identified in the EDSP EIRs as documented in the Environmental Analysis section of this document.

c) *Is there new information of substantial importance, which was not known and could not have been known at the time of the previous EIR was complete that shows the project will have a significant effect not addressed in the previous EIR; or previous effects are more severe; or, previously infeasible mitigation measures or alternatives are now feasible but the Applicant declined to adopt them; or mitigation measures or alternatives considerably different from those in the previous EIR would substantially reduce significant effects but the Applicant declines to adopt them?*

There is no new information showing a new or more severe significant effect beyond those identified in the EDSP EIRs. Similarly, there are no new or different feasible mitigation measures or alternatives to reduce significant effects of the project which the applicant declines to adopt. All previously adopted mitigations continue to apply to the project. The EDSP EIRs adequately describe the impacts and mitigations associated with the project as documented in the Environmental Analysis section of this document.

d) *Should a subsequent EIR or negative declaration be prepared?*

No subsequent EIR, Negative Declaration or Mitigated Negative Declaration, is required because there are no impacts, significant or otherwise, of the project beyond those previously identified in the EDSP EIRs.

Conclusion

The project was adequately analyzed in the EDSP EIRs and specifically in the Fallon Village Supplemental EIR (2005) wherein the Stage 1 Development Plan was analyzed for the project site. These analyses are adequate to allow the discretionary approvals associated with the project exemptions described above from additional CEQA review.

The attached CEQA analysis evaluates the potential environmental effects of the project, and whether such impacts were adequately analyzed and addressed in the EDSP EIRs to allow the CEQA exemptions and streamlining provisions to apply. The project is required to incorporate and/or comply with any applicable mitigation measures adopted by the City in certifying the EDSP EIRs.

In addition, the project would be subject to regulatory requirements and the objective standard conditions of approval that are imposed on similar residential projects in the EDSP area. Some of these conditions have the effect of mitigating potentially significant environmental effects (e.g., dust prevention measures, noise level requirements). Consistent with CEQA, a determination of whether a project would have a significant impact is made prior to the approval of the project, which includes those applicable mitigation measure and conditions.

This is consistent with the language and purpose of Public Resources Code Section 21166 and CEQA Guidelines Section 15162, which was intended to promote finality and efficiency by limiting the circumstances under which environmental review is required following project approval.

East Ranch

CEQA Analysis in Support of a Specific Plan Exemption

November 4, 2021
Planning Application Number: PLPA-2020-00028

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Appendices

List of Figures

Note: All figures are included at the end of the document.

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East Ranch
CEQA Analysis

Project Background

Project Title

East Ranch

Lead Agency

City of Dublin
Community Development Department
100 Civic Plaza
Dublin, CA 94568

Contact

Amy Million

Principal Planner
Phone: 925-833-6610
Amy.Million@dublin.ca.gov

Project Location & Setting

The 165.5-acre project site (APN 905 -0002-002-00 and 905 -0002-001-01) is located in eastern Dublin, directly east of the Jordan Ranch development and south of Positano development, straddling the existing Croak Road. See Figure 1: Project Location.

The project site generally slopes from the northeast corner to the Croak Road and Central Parkway intersection. It is currently vacant and was dry-farmed 30-40 years ago. The previous homestead and barn were destroyed by fire in May of 2021.

The existing vegetation consists of mostly grasses with a large number of non-native trees that were planted by the Croak family. According to the "East Ranch (Croak) Project Tree Survey, Arborist Report and Preliminary Tree Protection Guidelines, dated November 20, 2020 prepared by Live Oak Associates, Inc., the trees present on the project site include native trees and non-native, landscape/ornamental trees associated with the existing residences on the property.

As shown in Figure 1: Project Location, the project site is surrounded to the north and west by low, medium, and medium-high density residential development. The property to the north and west (Jordan Ranch and Positano) is existing residential development. The properties to the south are zoned medium and medium high residential in anticipation of future development.

The property to the east is within the City of Livermore and is currently zoned Resource Management.

Project Applicant

Trumark Homes
3001 Bishop Drive, Suite 100
San Ramon, CA 94583

Pamela Neiling
Director of Community Development
925-757-1321

General Plan Designation

Low and Medium Density Residential

Zoning

PD Planned Development (Ordinance No. 21-02)

Project Description

Land Use Plan

As shown in Figure 2: Land Use Plan, the approximately 165.5-acre site is within the Eastern Dublin Specific Plan area. The project is proposing six residential neighborhoods along with common areas, trails, open space, semi-public use, and two neighborhood parks. The neighborhoods are composed of 573 residential units, of which 473 would be low density units, and 100 medium density units. The net building area of the project is 125.8 acres, with an average density of 4.6 units per acre.

Two neighborhood parks are also proposed; one 5.5-acre park at the northwest corner and one six-acre park south of the project's main entry. The project also includes 6.6 acres of open space, 19.4 acres of rural residential/agricultural, and a two-acre public/semi-public site.

The project applicant has applied for a Planned Development Rezone with a Stage II Development Plan and Vesting Tentative Map 8563. In 2005, the Fallon Village Planned Development Zoning with a Stage I Development Plan and EIR was approved, outlining the land uses and projected units for the Fallon Village properties. The project proposes to maintain the land uses and associated acreages as described within the Stage I Planned Development.

As shown in Table 1: East Ranch Development & Entitlements, the total number of units constructed would be 573 units, the same number of units allocated in the Stage I Planned Development, Eastern Dublin Specific Plan, and the Dublin General Plan. The only difference is to change four units from low density to medium density residential.

Table 1: East Ranch Development & Entitlements

	Proposed Stage II Planned Development Land Use			Existing Stage I Planned Development Land Use		
Land Use	**Acreage**	**Proposed Units**	**Proposed Density**	**Acreage**	**Units**	**Density (Per General Plan)**
Low Density Residential (LDR)	115.4	473	4.1 du/ac	115.4	469	**0.9-6.0 du/ac**
Medium Density Residential (MDR)	10.4	100	9.6 du/ac	10.4	104	6.1-14.0 du/ac
Rural Residential/Agriculture (RR/A)	19.4	-	-	19.4	-	1 du/100 ac
Neighborhood Park (NP)	11.5	-	-	11.5	-	-
Open Space (OS)	6.6	-	-	6.8	-	-
Public/Semi Public (SP)	2.0	-	-	2.0	-	-
Total	**165.5**	**573**	**3.5 du/ac**	**165.5**	**573**	**3.5 du/ac**

As shown in Table 1: East Ranch Development and Entitlements, the project is consistent with Stage I Planned Development, Eastern Dublin Specific Plan, and the General Plan, and is, therefore, consistent with the previously prepared environmental documents; namely, the Eastern Dublin General Plan Amendment and Specific Plan EIR (1993), the East Dublin Properties Stage 1 Development Plan and Annexation Supplemental EIR (2002), and the Fallon Village Supplemental EIR (2005), collectively referred to as the EDSP EIRs.

Building Program and Design

As shown in Figure 3: Neighborhood Plan, the development plan identifies six neighborhoods. Lot size and floorplan would vary by neighborhood. The project massing would be consistent with the scale of nearby existing housing development, with a maximum building height range of 35-40 feet, depending on neighborhood.

All of the residential units would include a ground level two-car parking garage.

The project includes four architectural styles, with the detailed design to be approved as part of a subsequent Site Development Review Permit, namely: 1) Traditional Farmhouse; 2) Modern Farmhouse; 3) California Revival; and 4) Contemporary. Each style would include minimum development standards and incorporate a variety of roofs, exterior finishes, windows doors, trim and accents. All proposed buildings would adhere to the Universal Guidelines as outlined in Dublin Municipal Code Chapter 7.90: Universal Design.

Renderings of the architectural styles included in each neighborhood of the project are shown in Figure 4: Architectural Styles. Views of the project site are shown in Figure 5a-b: Existing Views of the Project Site.

Park Facilities

As shown in Figure 6: Northern Park Conceptual Plan, the 5.5-acre northern park will include a central green, tot lot, fitness stations, a toddler play area, picnic area with BBQs and shade structures, a fenced off-leash dog park, and restrooms. It will also include an eight-foot trail that connects to the Fallon Village Regional Trail to the north. The northern park completes the connection to Jordan Ranch and Positano neighborhoods and allows pedestrians from East Ranch pedestrian and bike access the greater Dublin trail network.

As shown in Figure 7: Southern Park Conceptual Plan, the six-acre southern park serves as a gateway into the project site. Being centrally located and the open space anchor to the East Ranch community, programing will include a playground, central green, restrooms, four pickleball courts, two tennis courts, a basketball court, and a perimeter trail. The pickle ball and tennis courts will be lighted, using downward-facing LED lights mounted on low poles to minimize light dispersion. Consistent with other courts in Dublin, the lights will not be functional past 10:00 PM.

Landscape Design

As shown in Figure 8: Tree Plan, street trees would be incorporated throughout all six neighborhoods. Accent and screening trees, shrubs, grasses, groundcover, and vines are also integrated into the project landscape framework.

As shown in Figure 9: Wildfire Management Plan, residential lots located on the north and south perimeter are designated as “fire lots” and would incorporate fire safe landscaping as well as a 12-foot-wide emergency access road.

The project would include low water using, climate adapted, and deer-resistant plants in the landscaping approaches throughout the project site. Irrigation throughout the public rights-of-way, and landscape setbacks would be automatically controlled using spray, bubbler, and drip irrigation systems and would meet the water efficient requirements of the adopted Water Efficient Landscape Ordinance. Irrigation systems that use recycled water would conform to the Dublin San Ramon Services District Recycled Water Use Guidelines. All irrigation systems would be efficiently designed to reduce overspray onto walks, walls, fences, pilasters, street and other non-landscaped areas.

Street lighting, benches, trash and recycling receptacles, and public art would be located throughout the landscaped spaces in the project.

Vehicular and Pedestrian Access

As shown in Figure 10: Vehicular Circulation, the project includes improvements and widening of Croak Road that would complete the connection from Positano Parkway to Central Parkway and would extend further south to the future Dublin Boulevard extension. The project is also proposing to extend Central Parkway into the project, which would provide access to future development of the GH PacVest, Righetti, and Branaugh properties to the south. Primary access into the East Ranch neighborhoods and parks would be from Croak Road north of Central Parkway. In addition, the project proposes to optimize the signal timing at the intersection of Central Parkway and Sunset View Drive to improve existing traffic operations, particularly during peak periods.

Ultimate Project Access

Croak Road is planned to ultimately be accessed from the Dublin Boulevard extension east of Fallon Road. Croak Road would intersect the future Dublin Boulevard extension and provide primary access to East Ranch from the south. The proposed Croak Road improvements would connect within Positano to the north and extend south to Central Parkway. Central Parkway would be extended east from Jordan Ranch into the project site. Both Croak Road and Central Parkway extensions would be improved to their ultimate configuration within the project site.

Interim Project Access

Croak Road (south of the project site) would be improved and widened to provide interim access from the project site to the existing Fallon Road intersection prior to completion of the Dublin Boulevard extension. During this interim condition, primary access to East Ranch would come from the west, via Central Parkway, or from the north, via Positano Parkway.

Internal Street and Neighborhood Access

Croak Road bisects the site into east and west neighborhoods. The main entrances into the neighborhoods would intersect Croak Road using two roundabouts with a third roundabout centrally located on Croak Road. Internal circulation within the west neighborhoods would include two entry roads, and a secondary internal loop road system. The eastern neighborhoods have one main entry road, and two secondary entry roads, including the Central Parkway eastern extension. The main entry road would provide access to all easterly neighborhoods and park. Enhanced landscaping would lead pedestrians along the main entry road to a common space node located at the eastern edge of the development.

As shown in Figure11: Pedestrian Connectivity Plan, pedestrian access would be provided by sidewalks throughout the development including a Class I trail on Croak Road.

As shown in Figure 12: Bicycle Circulation Plan, bicycle access would be via shared road lanes throughout all neighborhoods and via multi-use trails along some roads. Along Croak Road and Central Parkway, bike lanes and multi-use trails would also be constructed.

Project Engineering

Grading

The project site generally slopes from the northeast corner to the Croak Road and Central Parkway intersection. Higher density residential development is proposed in the flatter areas of the project site, while low density lots would be located in areas that take advantage of the grade and step with the hillside. The grading proposed for the project would take into consideration the hilly terrain and would be designed to avoid excessive cuts and fills.

Regrading would result in elevations contours changing from 537 feet (above mean sea level) to 510 feet along the southern boundary, and from 643 feet to 610 feet along the northern boundary. The project would require the cut of 2,816,000 cubic yards of soil, and the fill of 2,816,000 cubic yards of soil for a net balance. See Figure 13: Preliminary Grading Plan.

The project site is located within an area of minimal flood hazard (Zone X), as defined by the Federal Emergency Management Agency (FEMA).

Water, Sewer and Stormwater

The project site is currently serviced by gravity utility systems that generally flow from north to south with primary mains being located in Croak Road. Water system connections and looping is provided by master planned connections to existing potable water and recycled water mains located in Central Parkway to the west and in improved Croak Road to the north.

The ultimate utility plan for the project site involves connecting the proposed 12-inch sanitary sewer in Croak Road to the existing sanitary sewer system in the Positano development to the north and the master planned sewer and storm drain trunk lines in Dublin Boulevard that would be extended to Croak Road as part of the Dublin Boulevard extension project to the south. See Figure 14: Preliminary Utility Plan.

If the Dublin Boulevard extension project is not completed by the time the project needs to connect, the gravity utilities, sanitary sewer, and storm drain would all be extended south of the project site within the existing Croak Road right-of-way. The interim storm drain would be a temporary line that follows the existing Croak Road west to Fallon Road and then turn south to connect into the existing dual six-foot by five-foot box culvert north of the Fallon Road interchange as planned in the East Dublin Drainage Master Plan.

The interim sanitary sewer would be installed along the existing Croak Road alignment as with the storm drain but would continue north in Croak Road to a connection to the existing 24-inch sewer trunk line in the Dublin Boulevard/Fallon Road intersection. The interim connections of potable water and recycled water as well as a joint trench would be made to existing utilities in Central Parkway and existing improved Croak Road to provide sufficient service levels and system looping.

The project site is currently vacant grassland. The previous homestead and barn were destroyed by fire in May of 2021. The increase in impervious surface as a result of the project would increase the amount of stormwater runoff from the project site. The project includes the addition of the storm drain system and bio retention basins along the west side of Croak Road to effectively manage stormwater within the project site.

The project would treat all its storm drain runoff for water quality and hydromodification detention internal to the project and on the interim Croak Road to meet current Regional Water Quality Control Board (RWQCB) C.3 requirements. See Figure 15: Preliminary Stormwater Control Plan.

Erosion Control

During construction wattles would be installed along curb and gutter and sidewalks, and block and bag sediment barriers would be installed over catch basin grates within the project site. Silt fences would also be placed along project site contours and a temporary gravel construction entrance/exit would be used during construction to access the project site. See Figure 16: Preliminary Erosion Control Plan.

Project Phasing

As shown in Figure 17: Preliminary Phasing Plan, the project would be constructed in two backbone phases for the major streets and two development phases for the neighborhoods. The backbone phases are planned to be built before the development phases. Development Phase 1 would construct the residential units in Neighborhoods 1 and a portion of Neighborhood 2. Croak Road would be improved in its entirety. Development Phase 2 would construct the remaining residential lots in Neighborhood 2 and the residential lots in Neighborhoods 3 through 6. Site grading is planned to occur in one phase, although final phasing will be determined at the final design.

Project Entitlements

Project entitlements include a Stage II Planned Development and Vesting Tentative Tract Map 8563. The project will also require a Heritage Tree Removal Permit for the removal of four heritage trees.

The Planning Commission would make a recommendation to the City Council regarding the approvals required for the project. City Council action would include adoption of the Exemption for CEQA review and approval of the Stage II Planned Development and Vesting Tentative Tract Map 8563.

CEQA Analysis

The discussion below analyzes the potential environmental impacts of the project per the criteria as described in Public Resources Code Section 21166 and CEQA Guidelines Section 15162. For convenience, this analysis uses the Appendix G of the CEQA Guidelines as a framework. The main difference from the standard CEQA checklist included in Appendix G of the CEQA Guidelines are the impact options included in this analysis.

Prior CEQA analysis includes: 1) the Eastern Dublin General Plan and Specific Plan EIR (1993); 2) the East Dublin Properties Stage I Development Plan and Annexation Supplemental EIR (2002); and 3) the Fallon Village Supplemental EIR (2005). Collectively, these three environmental review documents are referred to as the “EDSP EIRs” or “previous CEQA findings,” and are described below.

The impact check-boxes indicate that the project would not result in a new impact, a substantial increase in the severity of an impact, or an equal to or less severe impact, than those identified in previous CEQA findings.

As such, no new environmental review is required because none of the standards under Public Resources Code Section 21166 and CEQA Guidelines Section 15162 are met which would trigger the need for additional CEQA documentation. There are no significant project changes, new information, or change in circumstances that result in a new or substantial increase in severity of a significant impact from those identified in the EDSP EIRs. Therefore, no standards for requiring supplemental environmental review or documentation under CEQA are met and none are required for the project.

Aesthetics

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
1.	**AESTHETICS. Would the project:**			
a)	Have a substantial adverse effect on a scenic vista?			X
b)	Substantially damage scenic resources, including but not limited to trees, rock outcroppings, and historic buildings within a state scenic highway?			X
c)	Substantially degrade the existing visual character or quality of the site and its surroundings?			X
d)	Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?			X

Previous CEQA Documents

The previous EDSP EIRs identified the following impacts and mitigations for visual resources:

Eastern Dublin General Plan Amendment and Specific Plan EIR

- Impact 3.8/A**:** Standardized "Tract" Development within the project area which did not respond to natural site conditions could cause a significant impact. Adherence to Mitigation Measure 3.8/1.0, which requires consistency with EDSP Goal 6.3.4, reduces this impact to an insignificant level.
- Impact 3.8/B: Alteration of Rural/Open Space Visual Character was identified as a significant and unavoidable impact even with adherence to Mitigation Measure 3.8/ 2, which would implement the EDSP with retention of predominant natural features and encourages a sense of place in Eastern Dublin.
- Impact 3.8/C: Obscuring Distinctive Natural Features identifies the potential of EDSP buildings and related improvements to obscure or alter existing features and reduce the visual uniqueness of the Eastern Dublin area. Implementation of Mitigation Measure 3.8/3.0, which would implement EDSP Policy 6-28, reduces this impact to an insignificant level.
- Impact 3.8/D: Alteration of Visual Quality of Hillsides notes that grading and excavation of building sites in hillside areas would compromise the visual quality of the EDSP area. Mitigation Measures 3.8/4.0 through 3.8/4.5 are included in the Eastern Dublin EIR to reduce Impact 3.8/D to an insignificant level. These mitigation measures require implementation of EDSP Policies 6-32 through 6-38.
- Impact 3.8/E: Alteration of Visual Quality of Ridges states that structures built in proximity to ridges may obscure or fragment the profile of visually sensitive ridgelines. Implementation of Mitigation Measures 3.8/5.0 through 3.8/5.2 would reduce this impact to a less-than-significant level. These measures require the implementation of EDSP Policies 6-29 and 5-30 and General Plan Amendment Guiding Policy E.
- Impact 3.8/F: Alteration of Visual Character of Flatlands is identified as a significant and unavoidable impact. No mitigation measure has been identified which can either fully or partially reduce this impact.
- Impact 3.8/G: Alteration of the Visual Character of Watercourses which involves the potential for elimination of the visibility and function of watercourses would be mitigated to an insignificant level by adherence to Mitigation Measure 3.8/ 6.0, which requires future development to implement EDSP Policy 6-39.
- Impact 3.8/H: Alteration of Dublin's Visual Identity as a Freestanding City is mitigated to a level of insignificance by implementation of the EDSP land use plan (Mitigation Measure 3.8/5.0).
- Impact 3.8/I: Scenic Vistas includes the alteration of the character of existing scenic vistas and important sightlines. With implementation of Mitigation Measures 3.8/7.0 and 3.8/7.1 this impact would be reduced to an insignificant level. Mitigation Measure 3.8/7.0 requires adherence to EDSP Policy 6-5 and Mitigation Measure 3.8/7.1 requires

the City to conduct a visual survey of the EDSP site and to identify and map viewsheds of scenic vistas.

- Impact 3.8/J: Scenic Routes identifies that the urban development of the EDSP will significantly alter the visual experience of travelers on scenic routes in Eastern Dublin. Implementation of Mitigation Measures 3.8 / 8.8 and 8.1 will reduce this impact to an insignificant level. These two measures require implementation of EDSP Action Programs 6Q and 6R.

No additional impacts or mitigation were identified in either the 2002 or 2005 Supplemental EIRs.

The project would be required to adhere to applicable mitigation measures as set forth in the EDSP EIRs.

Project Impacts and Mitigation Measures

(a) Scenic vistas, views

As shown in Figure 5a-b: Existing Views of the Project Site, the project site is vacant and as part of the EDSP area, has been classified by the EDSP EIR as “dry-farming rotational cropland.” The EDSP identifies certain ridgelands and ridgelines as visually sensitive and the City pursuant to EDSP Policy 6-5 and Action Program 6Q adopted the Eastern Dublin Scenic Corridor Policies and Standards as means to preserve scenic vistas.

Previous CEQA findings found potentially significant impacts to scenic vistas and views. The impact was addressed with Mitigation Measures 3.8/3.0, 3.8/4.0-4.5, 3.8/5.0-5.2, 3.8/6.0, 3.8/7.0 and 3.8/7.1, which implement Policies 6-29 through 6-38 and provide guidelines for grading and building design to preserve scenic vistas and view corridors. Additionally, the project would tie-into an open space corridor and is consistent with the modifications to Visually Sensitive Ridgelines and re- designation of Open Space in the EDSP.

(b) Scenic resources

The EDSP EIRs found potentially significant impacts to scenic resources. The impact was addressed with Mitigation Measures 3.8/8.0 and 3.8/8, which implement Policies 6-30 through 6-31, and are implemented at a project level as means to preserve scenic vistas and view corridors. Additionally, the project would tie into an open space corridor and is consistent with the modifications to Visually Sensitive Ridgelines and re-designation of Open Space in the EDSP.

No scenic resources exist on the project site, including but not limited to significant stands of trees, rock outcroppings or bodies of water, so there would be no impact.

(c) Substantially degrade the visual character of the site or surrounding area

The EDSP EIRs found that development within the EDSP area would alter the existing visual characters of the upland grasses and fields. No mitigation measure could be identified to fully or partially reduce this impact to a less than significant level. The City adopted a Statement of

Overriding Considerations for this impact, and, thus, no additional analysis was found necessary.

(d) Create a new source of substantial light or glare

Previous CEQA findings found less than significant impacts at both the program and development level. The project would not increase the amount of light and glare that was not previously anticipated in the EDSP and would comply with adopted City of Dublin regulations for lighting.

The proposed southern park would contain lighted tennis and pickleball courts. These lights would incorporate downward projecting LED lighting designed to minimize light dispersion and would be required to be turned off by 10:00 PM, consistent with existing City regulations.

Conclusion

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified aesthetic/visual impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in EDSP EIRs, there would be no new or substantially more severe significant impacts to aesthetic resources beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Agricultural and Forestry Resources

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
2. AGRICULTURE RESOURCES. In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1997) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agriculture and farmland. Would the project:			
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?			X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?			X

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220(g)), timberland (as defined by Public Resources Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104(g))?			X
d) Result in the loss of forest land or conversion of forest land to non-forest use?			X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?			X

Previous CEQA Documents

The previous EDSP EIRs identified the following impacts and mitigations for agricultural resources:

Eastern Dublin General Plan Amendment and Specific Plan EIR

- Impact 3.1/C Discontinuation of Agricultural Uses states that agricultural uses within the area would be decreased as a result of the implementation of the EDSP. However, since most land owners at the time the ESDP EIR was written had filed non-renewal notices for their Williamson Act contracts it was assumed that agricultural uses would decline independent of the implementation of the EDSP so the impact was insignificant and no mitigation was required.
- Impact 3.1/D Loss of Farmland of Local Importance states that agricultural lands of local importance would be lost as a result of the EDSP. Since these agricultural lands of local importance were not classified as prime farmland however, the impact was insignificant and no mitigation was required.

No additional impacts or mitigation were identified in either the 2002 or 2005 Supplemental EIRs.

The project site was dry-farmed 30-40 years ago and has been abandoned by the Croak family for over 15 years. The previous EDSP EIRs evaluated if the soils were considered as “prime agricultural soils” through the adopted of criteria established by the Cortese-Knox-Hertzberg Local Government Reorganization Act (Government Code Section 56064, referred to as Assembly Bill 2838). It was determined that no additional prime or agricultural lands beyond those identified in previous EIRs were found.

Project Impacts and Mitigation Measures

(a-e) Convert farmland or conflict with zoning

Previous CEQA findings found there were no significant impacts with respect to agricultural resources. No new conditions have been identified for the project with respect to conversion of prime farmland to a non-agricultural use. No new or more severe significant impacts would result from the project than were previously analyzed.

The City has previously zoned the project site for residential uses. No agricultural zoning or Williamson Act contracts presently exist on the project site nor are any agricultural operations on-going. There is no forest land within the project site.

Conclusion

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified agricultural impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements, there would be no new or substantially more severe significant impacts to agricultural resources beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Air Quality

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
a)	Conflict with or obstruct implementation of the applicable air quality plan?			X
b)	Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard?			X
c)	Expose sensitive receptors to substantial pollutant concentrations?			X
e)	Result in other emissions (such as those leading to odors) adversely affecting a substantial number of people?			X

Previous CEQA Documents

The EDSP EIRS identified the following impacts and mitigation measures for air quality:

Eastern Dublin General Plan Amendment and Specific Plan EIR

- Impact 3.11/A: Dust Deposition from Construction Activity states that project construction will generate respirable particulate matter that could potentially impact nearby areas significantly. Mitigation Measures 3.11/1.0 mitigates this impact to an insignificant level but dust emissions remain a potentially significant cumulative impact.
- Impact 3.11/B: Construction Equipment/Vehicle Emissions acknowledges that operating construction equipment will generate exhaust pollutants. Since the build out of the EDSP is long-term the impact of these emissions is potentially significant. Mitigation Measures 3.11/2.0 through 3.11/4.0 do not sufficiently reduce the anticipated ozone precursor emission to within the Bay Area Air Quality Management District (BAAQMD) so air quality impacts remain potentially significant and contribute to a potentially significant cumulative impact.
- Impact 3.11/C: Mobile Source Emissions: ROG or NO_x states that as a result of vehicle trips generated by the full build out of the EDSP ROG and NO_x emissions will exceed the BAAQMD threshold causing a significant impact. Mitigation Measures 3.11/5.0 through 3.11/11.0 reduce this impact but not sufficiently to reduce it to an insignificant level.
- Impact 3.11/D: Mobile Source Emissions CO_2 notes that the EDSP will not cause any new CO_2 emission standard violations and, therefore, has an insignificant impact.
- Impact 3.11/E: Stationary Source Emissions notes that project related NO_x emissions from fuel consumption for energy demand exceeds the BAAQMD significance threshold causing a significant impact. Mitigation Measures 3.11/12.0 and 3.11/13.0 reduce this impact but not sufficiently to reduce it to an insignificant level. This impact also contributes to a potentially significant cumulative impact for the area.

The 1993 GP/SPA EIR found a significant and unavoidable impact (AQ-2) associated with regional emissions. The EIR analysis determined that project would exceed the BAAQMD's thresholds of significance for reactive organic gases and nitrogen and, thus, the project would have a significant effect on regional ozone air quality. The lowered national eight-hour standard for ozone would maintain the impact significant and unavoidable. The mitigation measures Mitigation Measures 3.11/5.0-11.0 include bicycle/land paths as well as extension of transit service, which are being implemented as part of the project.

The 1993 GP/SPA EIR found a significant and unavoidable cumulative impact (AQ-3) associated with project contributions to regional air quality. The City adopted a Statement of Overriding Considerations for this impact, which includes the project.

In addition to Mitigation Measure 3.11/1.0 of the 1993 GP/SPA EIR, the 2005 Supplemental EIR included Supplemental Mitigation SM-AQ-1 which requires compliance with BAAQMD CEQA Guidelines for construction contractors including: to water or cover stockpiles of debris, soil, and sand; sweep daily impervious surfaces and staging areas; and installing erosion control measures to prevent silt runoff.

The project would be required to adhere to applicable mitigation measures as set forth in the EDSP EIRs.

Project Impacts and Mitigation Measures

(a) Consistent with air quality plans

The project would not conflict with the Clean Air Plan adopted by the BAAQMD since the proposed amount of development has been included in Dublin's planned growth as previously analyzed and is consistent with the City's General Plan, which is the basis of the Clean Air Plan.

(b) Violate air quality standards or cause cumulatively considerable air pollutants

The project is set within the Livermore-Amador Valley. Per the BAAQMD, air pollution is high in the Livermore Valley. High temperatures increase the potential for ozone and there is a transport of pollutants that occur between Livermore Valley and the San Joaquin Valley to the east. Since certification of the EDSP EIRs, the thresholds with respect to air quality have been revised. The U.S. EPA also lowered the national eight-hour standard for ozone from 0.075 ppm to 0.070 ppm in 2015. The California Air Resources Board also lowered the state one-hour standard for nitrogen dioxide to 0.18 ppm and retained the national average standard of 0.030 ppm. The new thresholds do not represent "new information" as specifically defined under CEQA as the information used to develop these new thresholds was known, or could have been known, when the EDSP EIRs were prepared.

The previous CEQA findings found that proposed development would result in a significant and unavoidable emission of air pollutants exceeding the applicable BAAQMD standards. Mitigation Measures 3.11/2.0 through 3.11/4.0, 3.11/5.0 through 3.11/11.0, 3.11/12.0, and 3.11/13.0 were recommended to reduce impacts to a less than significant level but were insufficient to reduce impacts to a less than significant level.

The City has adopted a Statement of Overriding Considerations for these significant and unavoidable impacts that applies to the project.

(c-d) Expose sensitive receptors to pollutant concentrations or create objectionable odors

The health risk of diesel exhaust from roadway traffic was previously analyzed. The 1999 BAAQMD CBQA Guidelines (1999 Guidelines) identified diesel engine particulate matter as a toxic air contaminant based on California Air Resources Board (CARB) findings. There were several studies published prior to 2002 that demonstrated potential health impacts to residences living close to freeways. (See studies cited in CARB's 2005 "Air Quality and Land Use Handbook".) The 1999 Guidelines encourage Lead Agencies to address impacts to sensitive receptors (such as residences) to exposure of high levels of diesel exhaust from sources such as a high-volume freeway (1999 BAAQMD CBQA Guidelines, p. 47). The project site is located more than a mile from the closest freeway and, therefore, not subject to potential impacts.

Conclusion

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified air quality impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in EDSP EIRs, there would be no new or substantially more severe significant impacts to air quality resources beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Biological Resources

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
4.	**BIOLOGICAL RESOURCES. Would the project:**			
a)	Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?			X
b)	Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Wildlife or U.S. Fish and Wildlife Service?			X
c)	Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?			X
d)	Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			X
e)	Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?			X

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
f)	Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?			X

Previous CEQA Documents

The EDSP EIRs identified the following impacts and mitigation measures for biological resources:

Eastern Dublin General Plan Amendment and Specific Plan EIR

- Impact 3.7/A: Direct Habitat Loss found that the implementation of the EDSP would result in substantial reduction of habitat and range, a potentially significant impact. Mitigation Measures 3.7/1.0 through 3.7/4.0 reduce this impact to an insignificant level though the project does still contribute to a potentially significant cumulative impact and does result in a significant irreversible change.
- Impact 3.7/B: Indirect Impacts of Vegetation Removal recognizes that dust generation from construction, increased erosion, sedimentation, and potential for slope failure, and alteration of drainage patterns could cause a potentially significant impact. Mitigation Measures 3.7/5.0, 3.6/ 18.0, 3.6/22.0, 3.6/23.0, and 3.11/8 reduce this impact to an insignificant level.
- Impact 3.7/C: Loss or Degradation of Botanically Sensitive Habitat recognizes that habitat could be lost directly or indirectly as a result of the implementation of the EDSP resulting in potentially significant impacts. Mitigation Measures 3.7/6.0 through 3.7/17.0 reduce this impact to a level of insignificance.
- Impacts 3.7/D and 3.7/E pertain to threatened and endangered species. Mitigation Measures 3.7/18.0 and 3.7/19.0 reduce these impacts to an insignificant level.
- Impacts 3.7/F through 3.7/I pertain to species who are federal candidates for listing as endangered or threatened. Mitigation Measures 3.7/20.0 through 3.7/22.0 reduce these impacts to an insignificant level.
- Impacts 3.7/J through 3.7/R pertain to California species of special concern. Mitigation Measures 3.7/23.0 through 3.7/28.0, 3.4/42.0, 3.7/6.0 through 3.7/17, and 3.7/21.0 reduce all impacts to less than significant.

The 2002 Supplemental EIR and the 2005 SEIR discussed potential impacts to special-status plants and included mitigation to address these impacts. See, e.g., 2002 Mitigation Measure SM-BIO-2; 2005 Mitigation Measure SSM-BIO-1 (revising 2002 SM-BIO-4). The previously adopted mitigation would be applied to the current project.

The 2002 Supplemental EIR and the 2005 SEIR discussed potential impacts to California Red-legged frog (CRLF) and California Tiger Salamander (CTS) and included mitigation. See, e.g., 2005 Supplemental Mitigation Measure SSM-BIO-2 (revising 2002 SM-BIO-14) for CLRF. See, e.g., 2005 Supplemental Mitigation Measures SSM-BIO-3 & SSM-BIO-4 (revising 2002 SM-BIO-19) for CTS. The previously adopted mitigation would be applied to the current project.

The 2002 Supplemental EIR also included mitigation for impacts to aquatic features. See, e.g., 2002 Mitigation Measures SM-BIO-5 and SM-BIO-6.

The project would be required to adhere to applicable mitigation measures as set forth in the EDSP EIRs.

Project Impacts and Mitigation Measures

(a) Substantial adverse effect on candidate, sensitive, or special status species

No changes have occurred to the planned use of the project site since certification of the EDSP EIRs.

As described in Appendix A: Biological Resources Assessment (WRA, September 2020), a biological assessment for the project site identified potential habitat for the San Joaquin Kit Fox and that Western-Burrowing Owls are present within the project site. No indication of special status plants, CRLF, or CTS were found within the project site. However, within the project area, both CRLF and CTS have the potential to be present. Approximately 1.03 acre of CRLF upland habitat and 140 acres of dispersal habitat were found to be present as part of the site assessment for the 2005 Supplemental EIR (Haag 2005). In addition, approximately 97 acres of CTS upland habitat were also identified in the 2005 Supplemental EIR (Haag 2005). Upland habitat has the potential to support aestivation by both these species during the dry season, meaning that individuals may be present year-round in subterranean refugia. In addition, dispersal habitat (specific to CRLF) may be used by individuals when migrating away from breeding locations looking for non-breeding aquatic sites.

The current project proposes a similar type and density of development as compared to what was evaluated in the 2005 Supplemental EIR and site conditions have not changed substantially since that time. With application of the previously adopted mitigation, the current project would not present a new or substantially more severe significant impact as compared to what was evaluated in the 2005 Supplemental EIR.

Regarding cumulative direct habitat loss, the City adopted a Statement of Overriding Considerations for this impact as part of their certification of the 1993 GPA/SP EIR, and, thus, no additional analysis was found necessary.

(b, c) Substantial adverse effect on any riparian habitat, natural community, or wetlands

As described in Appendix B: Preliminary Aquatic Resources Delineation Report (WRA, July 2020) a preliminary wetland assessment was performed to determine estimated impacts to existing aquatic resources. The assessment found approximately 0.40-acre of seasonal wetland, 0.15-

acre of seasonal wetland swale and 0.08-acre of drainage swale located in the southwest corner and northern edge of the project site (see Appendix B, Figure 4 Aquatic Resources Delineation).

The project will permanently impact both drainage swales (totaling 0.08 acres), but it will avoid the larger wetland features on the site (seasonal wetland swale and seasonal wetland). The drainage swales are potentially jurisdictional for the Corps and the RWQCB.

In addition to the mitigation measures included in the EDSP EIRs, the following city conditions and standardized protocols ensure there are no impacts to the wetland features that are being avoided by the project development:

- Prior to construction, delineated wetland boundaries will be clearly demarcated in the field by a qualified biologist, using flags and/or stakes to ensure areas are clearly identifiable to the construction personnel.
- Construction personnel will be informed of the avoidance areas and shown the precise boundary locations to ensure they are completely avoided.
- Grading activities will be performed by hand equipment to the extent that is practical.
- Standard construction Best Management Practices (BMPs) will be implemented between the preserved/avoided wetlands and the work areas. These BMPs will include the use of one or more of the following: construction fencing, wattles, and/or other appropriate stormwater pollution prevention measures to be placed around the wetland to minimize sediment and/or pollutants from entering the wetland.

(d) Interfere or impede the movement of migratory fish or wildlife

The existing vegetation within the project site consists of mostly grasses with some non-native trees that were planted by the Croak family as ornamental landscape trees that are non-native habitat for migratory species. There are no creeks or streams on the project site that would allow for migration of fish species. Impacts to migratory fish would be insignificant.

The project area contains core habitat areas for CRLF and CTS, which use offsite breeding habitat and as such may migrate between these areas. No suitable breeding habitat were found within the project area for either of these species (WRA, July 2020). While these animals may migrate between core habitat areas, uplands are not the limiting factor to amphibian survival in east Alameda County as documented by the 2005 SEIR (Haag 2005). Breeding habitat is more of a limiting factor, and no breeding habitat is present or being impacted by project activities. Therefore, migration through the most important habitat (breeding) is not being obstructed and impacts to uplands within the project area would be mitigated in accordance with the previous EDSP EIRs mitigation measures, as adopted by the City pursuant to CEQA.

(e) Conflict with local policies or ordinance include tree preservation or any adopted habitat conservation or natural community conservation plans.

The existing vegetation within the project site consists of mostly grasses with some non-native trees that were planted by the Croak family as ornamental landscape trees. There are four "heritage" trees (two Coast live oaks, one River she-oak, and one Cypress) proposed to be removed.

The City encourages the preservation of heritage trees through its development review and permit approval process. Chapter 5.60 "Heritage Trees" of the City of Dublin Municipal Code defines a heritage tree as any oak, bay, cypress, maple, redwood, buckeye and sycamore tree having a trunk or main stem of twenty-four (24) inches or more in diameter at four (4) feet six (6) inches above natural grade; a tree required to be preserved as part of an approved development plan, zoning permit, use permit, site development review of subdivision map; or a tree required to be planted as a replacement for an unlawfully removed tree.

The project will be required to comply with the City's tree permitting requirements under the Code and compliance with the City's established permitting requirements.

Conclusion

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified biological resources impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in EDSP EIRs, there would be no new or substantially more severe significant impacts to biological resources beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Cultural Resources

	ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
5.	**CULTURAL RESOURCES. Would the project:**			
a)	Cause a substantial adverse change in the significance of a historical resource as defined in CEQA Guidelines section 15064.5?			X
b)	Cause a substantial adverse change in the significance of an archaeological resource pursuant to section 15064.5?			X
c)	Disturb any human remains, including those interred outside of dedicated cemeteries?			X

Previous CEQA Documents

The EDSP EIRs identified the following impacts and mitigation measures for cultural resources:

Eastern Dublin General Plan Amendment and Specific Plan EIR

- Impact 3.9/A: Disruption or Destruction of Identified Prehistoric Resources recognized impacts associated with the disruption or destruction of identified prehistoric resources which would be reduced to an insignificant level by adherence to Mitigation Measures 3.9/1.0-4.0, which require a program of mechanical or hand subsurface testing for midden deposits, recordation of identified cultural resources on State of California site survey forms, preparing a plan testing of each resource and, if required, having the City retain the services of a qualified archeologist to develop a cultural resource protection program.
- Impact 3.9/B: Disruption or Destruction of Unidentified Pre-Historic Resources identified an impact related to the disruption or destruction of unidentified pre-historic resources. Mitigation Measures 3.9/5.0 and 6.0 would reduce this impact to an insignificant level by requiring a halt to development activities that could impact unidentified cultural resources and completion of follow-on site surveys within Eastern Dublin.
- Impact 3.9/C: Disruption or Destruction of Identified Historic Resources would be mitigated to an insignificant level by adherence to Mitigation Measures 3.9/7.0 through 3.9/12.0 that requires in-depth analysis of properties with cultural resources, encouragement of adaptive reuse of historic structures to the extent feasible, review of potential historic resources by an architectural historian and development of a preservation program for historic sites and disruption or destruction of unidentified historic resources.
- Impact 3.9/D: Disruption or Destruction of Unidentified Historic Resources would be reduced to an insignificant level by adherence to Mitigation Measures M 3.9 / 5.0, 6.0, 7.0, 9.0, 10.0, and 12.0.

The project would be required to adhere to applicable mitigation measures as set forth in the EDSP EIRs.

Project Impacts and Mitigation Measures

(a) Historic resources

Previous CEQA findings found a significant impact and mitigation could be required should the Croak Ranch Homestead site be eligible for the California Register of Historical Resources (CRHP).

As described in Appendix C: Archeological and Historical Resources Survey Report (Alta Archeological Consulting and Yarbrough Architectural Resources, October 2020), Croak Ranch, as an architectural resource, is not an historical resource for purposes of CEQA. Although the evaluation found that the Croak Ranch is historically significant as representative of vernacular late-19th Century to early 20th Century ranches in the region, the agricultural complex has lost the historical integrity to convey that significance due to advanced deterioration and partial demolition from neglect of maintenance and, therefore, is not eligible for the CRHP.

Regardless, on May 23, 2021, the structures on the Croak Ranch Homestead burned completely and no longer exist.

(b) Archaeological resources

The Archeological and Historical Resources Survey Report did not result in the identification of any significant archaeological resource. Given the steep and undulating terrain and the lack of permanent water sources within this area suggests that the potential for substantial prehistoric deposits is low. However, a dilapidated privy or outhouse was identified just outside the main residence of the Croak Ranch that does have potential to yield further information regarding California agricultural development and early settlement. Closer inspection of the area surrounding the privy did not identify any surface manifestation of an historical deposit at this location. However, a subsurface deposit may exist in this area and surrounding the main house structure that may contain significant resources. The report recommended that a qualified archaeologist be retained to monitor any ground-disturbing activities within the Archaeologically Sensitive area as shown in Figure 6 of the report.

Previous CEQA findings require adherence to Mitigation Measures 3.9/5.0 and 6.0 would reduce this impact to an insignificant level by requiring a halt to development activities that could impact unidentified cultural resources and completion of follow-on site surveys.

(d) Human remains

The project is subject to existing cultural resource mitigation measures contained in the previous EDSP EIRs regarding potential impacts to human remains.

Conclusion

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified cultural resources impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in EDSP EIRs, there would be no new or substantially more severe significant impacts to cultural resources beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Energy

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
6.	**Energy. Would the project:**			
a)	Result in potentially significant environmental impact due to wasteful, inefficient, or unnecessary consumption of energy resources, during project construction or operation??			X
b)	Conflict with or obstruct a state or local plan for renewable energy or energy efficiency?			X

Previous CEQA Documents

The EDSP EIRs did not specifically analyze impacts to energy as it was not a separate topic for analysis when the EIRs were completed. Utilities and service systems impacts and mitigation measures, some of which are related to the demand for energy of additional service systems, were identified and can be found in the utilities and service systems section of this document. Additional impacts and mitigations for energy from the EDSP EIRs include:

Eastern Dublin General Plan Amendment and Specific Plan EIR

- Impact 3.4/Q: Demand for Utilities Extensions notes that the build out of the GP/EDSP will significantly increase demand for gas, electric and telephone services. To supply adequate electrical service to the Project, PG&E estimates that a new distribution system will have to be constructed. Extension of utility lines are necessary if the GP/EDSP is approved and built. There is no mitigation to this impact and it remained an unavoidable adverse impact.
- Impact 3.4/S: Consumption of Non-Renewable Natural Resources noted that the provision of adequate natural gas and electrical service will require the consumption of non-renewable natural resources. This impact is considered a significant and unavoidable impact. Mitigation Measures 3.4/45.0 and 3.4/46.0 were still implemented to reduce the impact as much as possible.

The City adopted a Statement of Overriding Considerations for the significant unavoidable impacts of the GP/EDSP, which includes the project.

The project would be required to adhere to applicable mitigation measures as set forth in the EDSP EIRs.

Project Impacts and Mitigation Measures

(a) Consumption of energy

The EDSP EIRs identified that the development of the Eastern Dublin area would result in a significant and unavoidable impact on the consumption of non-renewable natural resources, including energy consumption. Mitigation measures identified in the EDSP EIRs would help mitigate this impact.

Furthermore, since preparation of the EDSP EIRs, the California Building Energy Efficiency Standards contained in 24 Cal Code Regs pt. 6 have been revised and updated and includes more stringent requirements to prevent the unnecessary consumption of energy. The project would be required to comply with these codes. In addition, the City's Chapter 7.94 Green Building Code encourages sustainable construction practices in planning, design, energy and water efficiency and conservation, material conservation, resource efficiency and environmental quality.

(b) State or local plan for renewable energy or energy efficiency

The project does not contain any features that would conflict with or obstruct a state or local plan for renewable energy or energy efficiency and is required to comply with state and local energy regulations, as described above.

Conclusion

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified energy impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in EDSP EIRs, there would be no new or substantially more severe significant impacts to energy beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Geology and Soils

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
7.	**GEOLOGY AND SOILS. Would the project:**			
a)	Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:			X

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault?			X
ii) Strong seismic ground shaking?			X
iii) Seismic-related ground failure, including liquefaction?			X
iv) Landslides?			X
b) Result in substantial soil erosion or the loss of topsoil?			X
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?			X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for the disposal of waste water?			X
f) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X

Previous CEQA Documents

The EDSP EIRs identified the following impacts and mitigation measures for geology and soils:

Eastern Dublin General Plan Amendment and Specific Plan EIR

- Impact 3.6/A: Fault Ground Rupture was found to be an insignificant impact since no known active or potentially active faults traverse the EDSP area and no Alquist-Priolo Special Studies Zones are located within the EDSP area.
- Impact 3.6/B: Earthquake Ground Shaking: Primary Effects identified potentially significant and unavoidable impacts from primary effects of seismic ground shaking that were insufficiently mitigated by Mitigation Measure 3.6/1.0.

- Impacts 3.6/C through 3.6/L were identified as potentially significant but mitigatable by Mitigation Measures 3.6 / 2.0 through 3.6/28.0 to a level of insignificance.

The 2005 Supplemental EIR Mitigation Measure SM-GEO-1 requires that prior to construction, design level geotechnical report(s) and corrective grading plan(s) depicting the locations and depths of landslide repairs, keyways, and subsurface drains be prepared and submitted to the City for review.

The City adopted a Statement of Overriding Considerations for the significant unavoidable impacts of the GP/EDSP, which includes the project.

The project would be required to adhere to applicable mitigation measures as set forth in EDSP EIRs.

Project Impacts and Mitigation Measures

(a) Seismic hazards

As described in Appendix D-1: Due Diligence Level Geotechnical Investigation (Berloger Stevens & Associates, 2019) and Appendix D-2: Geotechnical and Geologic Review (Cal Engineering, 2020), the project site is located in the Coast Range geomorphic province of California. The project site is not located within an Alquist-Priolo Earthquake Fault Zoning Map. No faults and/or their traces have been mapped at the site. The previous EDSP EIRs used applicable building code data which included Peak Ground Accelerations of 0.6g. The 2019 California Building Code (CBC) increased Peak Ground Acceleration, a seismic design parameter used in the previous CEQA analysis, to 0.77g.

The EDSP EIRs analyzed and found potentially significant and unavoidable impacts associated with primary effects of seismic ground shaking (Impact 3.6/B; MM 3.6/1.0) and potentially significant but mitigable secondary effects of seismic ground shaking including seismically induced settlement, land sliding, and compaction (Impact 3.5/c; MM 3.6/2.0- 8.0); alterations of site landforms (Impact 3.6/D; MM 3.6/9-10); groundwater (Impacts 3.6/F and 3.6/G; MM 3.6/11-13); expansive soils (Impact 3.6/H; MM 3.6/14-16); natural slope stability (Impact 3.6/I; MM 3.6/17-19); cut-and-fill slope stability (Impact 3.6/J; MM 3.6/20-26) and erosion and sedimentation (Impacts 3.6/K and L; MM 3.6/27-28).

The EDSP EIRs analyzed and found potentially significant and unavoidable impacts associated with primary effects of seismic ground shaking. The project would over excavate potentially liquefiable soils and replace with engineered fill.

Previous geotechnical field explorations have determined there are no mapped landslides on the project site.

(b) Erosion/topsoil loss

Construction of the project would modify the existing ground surface and alter patterns of surface runoff and infiltration and could result in a short-term increase in erosion and sedimentation caused by grading activities. The project would be required to implement the erosion control measures from the Regional Water Quality Control Board (RWQCB) as enforced by the City in addition to any mitigation measures included in the EDSP EIRs. The City's requirement to implement site-specific erosion and other controls would reduce erosion impacts on the project site. The project would also implement erosion control measures such as soil covering vegetation and landscaping after completion of construction.

(c-d) Soil stability

Previous geotechnical investigations did not identify any unstable geologic or soil units or those that would be unstable after the project site is developed.

Previous geotechnical investigations did identify expansive soils within the project site. Per the requirements in the EDSP EIRs remedial grading, including over-excavation, keyways, subdrains and engineering fill per geotechnical engineer direction would be implemented within the project site

(e) Soil capability to support waste water disposal, including septic

The project would not use a septic tank or alternative wastewater disposal systems.

(f) Unique paleontological resource or site or unique geologic feature

The EDSP EIRs analyzed and found that no potential of buried prehistoric sites with undisturbed or partially disturbed sources cultural deposits are associated with the project site.

Conclusion

The geotechnical investigation described in Appendix D-1: Due Diligence Level Geotechnical Investigation (Berloger Stevens & Associates, 2019) contains a number of recommendations regarding; cut and fill slopes, preliminary grading, subdrains, remedial grading and subdrain quantities and earthwork volumes, and various construction recommendations. These recommendations will be implemented as part of the project construction as a required under Mitigation Measure SM-GEO-1 and will be included as a condition of approval of the Stage II Planned Development and Vesting Tentative Tract Map 8563.

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified geology and soil impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements, and mitigation measures identified in EDSP EIRs, -and project conditions of approval as required under Mitigation Measure SM-GEO-1, there would be no new or substantially more severe significant impacts to geology and soil beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Greenhouse Gas Emissions

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
8. GREENHOUSE GAS EMISSIONS. Would the project:			
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X
b) Conflict with applicable plan, policy or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X

Previous CEQA Documents

Since certification of the EDSP EIRs the issue of the contribution of greenhouse gasses to climate change has become a more prominent issue of concern as evidenced by passage of AB 32 in 2006 and SB 32 in 2016.

Because the EDSP EIRs have been certified, the determination of whether greenhouse gasses and climate change need to be analyzed for this project is governed by the law on supplemental or subsequent EIRs (Public Resources Code section 21166 and CEQA Guidelines, Sections 15162 and 15163). Greenhouse gas and climate change is not required to be analyzed under those standards unless it constitutes "new information of substantial importance, which was not known and could not have been known at the time the previous EIRs were certified as complete" (CEQA Guidelines Sec. 15162 (a) (3)).

Greenhouse gas and climate change impacts were not analyzed specifically in the prior EIRs (related impacts were analyzed under air quality); however, these impacts are not new information that was not known or could not have been known at the time these previous EIRs were certified. The issue of climate change and greenhouse gasses was widely known prior to the certification of these EIRs. The United Nations Framework Convention on Climate Change was established in 1992. The regulation of greenhouse gas emissions to reduce climate change impacts was extensively debated and analyzed throughout the early 1990s. The studies and analyses of this issue resulted in the adoption of the Kyoto Protocol in 1997.

Therefore, the impact of greenhouse gases on climate change was known at the time of the certification of the EDSP EIRs. Under CEQA standards, it is not new information that requires analysis in a supplemental EIR or Negative Declaration. No supplemental environmental analysis of the project's impacts on this issue is required under CEQA.

Project Impacts and Mitigation Measures

(a, b) Generate greenhouse gas (GHG) emissions or conflict with GHG plans or regulations

As discussed above, no additional environmental analysis is required under CEQA Section 21166 and CEQA Guidelines section 15162.

Hazards and Hazardous Materials

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
9.	**HAZARDS AND HAZARDOUS MATERIALS. Would the project:**			
a)	Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X
b)	Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X
c)	Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within ¼ mile of an existing or proposed school?			X
d)	Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?			X
e)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project result in a safety hazard for people residing or working in the project area?			X
f)	Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?			X
g)	Expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires?			X

Previous CEQA Documents

The 1993 GP/SPA EIR did not include an analysis of impacts to hazards and hazardous materials. However, the 2005 Supplemental EIR identified potential hazard impacts. Supplemental Mitigation Measure SM-HAZ-1 requires project developers to survey for asbestos and lead-based paints (which no longer apply as there are no structures on the project site). Supplemental Mitigation Measure SM-HAZ-2 and -3 addresses procedures for the removal of soil/groundwater contamination, if present.

Project Impacts and Mitigation Measures

(a) Transport, use or disposal of hazardous materials

A Phase I Environmental Site Assessment (ESA) was performed by ENGEO Inc. in 2000 and another completed in 2019 (see Appendix E: Phase 1 ESA and Preliminary Soil Quality Evaluation (Cornerstone, July 2019). Both Phase 1 ESAs included a review of federal, state and local regulatory agency databases provided by Environmental Data Resources (EDR) in accordance with the requirements of ASTM E 1527-13, and determined that the project site was not listed for hazardous materials and found no significant Controlled or Historical Recognized Environmental Conditions.

The project site was previously used for rural residential and ranching purposes. If soil reports find residual pesticides, termiticides, lead, asbestos, and petroleum hydrocarbons in the soil, then a Site Management Plan (SMP) would be implemented that presents appropriate protocol for the evaluation, handling, and removal of subsurface structures or other suspect conditions if encountered during demolition or earthwork/construction activities.

Because the project would not include any commercial development, there would be no impact to the transport, use or disposal of hazardous materials. Proposed land uses on the project site would not use, store or transport significant quantities of hazardous materials. To the extent there are potentially hazardous materials used in construction, the impacts would be less than significant due to compliance with regulatory requirements.

There would be no new or substantially more severe significant impacts to transport, use or disposal of hazardous materials beyond what has been analyzed in the EDSP EIRs and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

(b) Potential release of hazardous materials into the environment

The project would not create a significant hazard to the pubic or environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment as it is a residential project.

(c) Emit hazardous materials within one-quarter mile of an existing or proposed school

The project would not emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school since it is a residential project and emissions or handling of hazardous materials is not anticipated.

(d) Listed as a hazardous materials site

As described in Appendix E: Phase 1 Environmental Site Assessment, the project site is not included on any list of hazardous materials.

(e) Proximity to a public or private airport

The project would not result in safety hazard or excessive noise for people working in the project area as only residential and park/open space uses are proposed. The project site is located partially within the Airport Influence Area of Livermore Municipal Airport but is not located within the Airport Protection Area (APA) of the airport (Livermore Executive Airport, Airport Land Use Compatibility Plan, 2012)

(f) Impair implementation of an emergency response plan or emergency evacuation plan

The project would include the construction of residential units and parks/open space on private land. No emergency evacuation plan would be affected since no roadways would be blocked.

(h) Expose people or structures to wildland fires

As further discussed in the Wildfire section below, the project would not expose people or structures, either directly or indirectly, to a significant risk of loss, injury or death involving wildland fires.

Conclusion

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified hazards and hazardous materials impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in EDSP EIRs, there would be no new or substantially more severe significant impacts to hazards and hazardous materials beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Hydrology and Water Quality

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
10. HYDROLOGY AND WATER QUALITY. Would the project:			
a) Violate any water quality standards or waste discharge requirements or otherwise substantially degrade surface or ground water quality?			X
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that the project may impede sustainable groundwater management of the basin??			X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river through the addition of impervious surfaces, in a manner which would:			X
i) Result in substantial erosion or siltation on- or off-site?			X
ii) Substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or offsite?			X
iii) Create or contribute runoff water which would exceed the capacity of existing or planned stormwater drainage systems or provide substantial additional sources of polluted runoff?			X
iv) Impede or redirect flood flows?			X
d) In flood hazard, tsunami, or seiche zones, risk release of pollutants due to project inundation?			X
e) Conflict with or obstruct implementation of a water quality control plan or sustainable groundwater management plan?			X

Previous CEQA Documents

The EDSP EIRs identified the following impacts and mitigation measures for hydrology and water quality:

Eastern Dublin General Plan Amendment and Specific Plan EIR

- Impact 3.5/P identified significant impacts related to the supply of water to the Eastern Dublin area. Mitigation Measures 3.5/24.0-3.5/40.0 were adopted to prevent overdraft of ground water resources by requiring or encouraging annexation and connection to DSRSD, minimize the effect of additional demand for water by encouraging water recycling and conservation and by encouraging the development of new facilities and supplies, and to ensure the development of a water distribution system by generally preventing development until such facilities are constructed by developers.
- Impact 3.5/Q noted that the EDSP build out would increase demand to serve development at build-out under the then-applicable General Plan and required an additional 25,000 acre-feet annually. Mitigation Measures 3.5/26.0 through 3.5/31.0 reduced the impact to an insignificant level.
- Impact 3.5/V was in regard to flooding as a result of water storage reservoir failure but was mitigated to an insignificant level by Mitigation Measure 3.5/41.0.
- Impact 3.5/Y: Potential Flooding was found to be potentially significant but was reduced to an insignificant level by Mitigation Measures 3.5/44.0 through 3.5/48.0.
- Impact 3.5/Z: Reduced Groundwater Recharge was a potentially significant impact but Mitigation Measures 3.5/49.0 and 3.5/50.0 reduced the impact to an insignificant level.
- Impact 3.5/AA: Non-Point Sources of Pollution was found to be a potentially significant impact but was reduced to an insignificant level by Mitigation Measures 3.5/51.0 and 3.5/52.0.

The 2005 Supplemental EIR identified potential impacts related to "cumulative stormwater generation/capacity of local channels" and "changes in non-point source water quality regulations." Supplemental Mitigation Measures SM-SD-1 and SM-SD-2 were adopted to reduce these potential supplemental impacts to less than significant. SM-SD-1 required water quality and hydrologic design recommendations including implementation of bio-retention/filtration facilities with all subsequent individual development projects in the Fallon Village project area. SM-SD-2 required future individual development projects within the project area to comply with the water quality and hydromodification provisions of the Alameda County Clean Water Program as administered by the City.

The project would be required to adhere to applicable mitigation measures as set forth in the EDSP EIRs.

Project Impacts and Mitigation Measures

(a) Violate water quality or waste discharge requirements

As described in Appendix F: Stormwater Quality and Hydromodification (Mackay & Somps, June 2020), the project has been designed to treat all of its storm drain runoff for water quality and hydromodification detention internal to the project site and along the interim Croak Road to meet current RWQCB C.3 requirements as prescribed in the Alameda County Clean Water Program Municipal Regional Permit. As a result, the project would meet the requirements of current RWQCB C.3 guidelines, which are more stringent than those considered in the EDSP EIRs.

(b) Substantially deplete or interfere with groundwater supplies

The project site provides minimal groundwater recharge. Although the currently vacant site would be converted to an urban use, a small portion of the project site would remain as open space, which would allow some recharge of the underground aquifer.

The proposed water source for this project would rely on surface water supplies from the Dublin San Ramon Services District (DSRSD) and not local groundwater supplies. The project is required to support Zone 7's groundwater recharge program to only pump groundwater it artificially recharges using its imported surface water or locally-stored runoff from Arroyo del Valley. Compliance with this would maintain groundwater at a no net loss for the Livermore Valley Groundwater Basin. As a result, the project would not result in a net increase in groundwater extraction from Livermore Valley Groundwater Basin.

(c) Substantially alter existing drainage patterns

Construction of the project would not significantly change drainage patterns and proposed storm drain facilities would be adequately sized for project runoff. The project incorporates and complies with the drainage system master planned improvements as they were designed and approved in the Dublin Ranch Drainage Master Plan with appropriate sizing and construction of downstream facilities such as the G3 Culvert Regional Conveyance facility constructed with the Dublin Ranch project, extended by the Fallon Village project with proposed additional extensions by the project. The project would also be required to pay fees to the Dublin Ranch East Side Storm Drain Benefit District for construction of the downstream regional facilities. Per SM-SD-2, the project would also pay required Zone 7 Special Drainage fees (SDA-7-1) for regional storm drain facilities.

(g) Inundation by seiche, tsunami, or mudflow

The site is not located near a major body of water that could result in a seiche. The risk of potential mudflow is considered low since no historic landslides or mudflows have been identified on the project site. There would be no impact with implementation of the project.

There would be no new or substantially more severe significant impacts to seiche, tsunami, or mudflow beyond what has been analyzed in the EDSP EIRs and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

(h) Conflict with water quality control or groundwater management plan

The design of the project incorporates and complies with the drainage system master planned improvements as they were designed and approved in the Dublin Ranch Drainage Master Plan.

Conclusion

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified hydrology and water quality impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in EDSP EIRs, there would be no new or substantially more severe significant impacts to hydrology and water quality beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Land Use and Planning

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
11. LAND USE AND PLANNING. Would the project:			
a) Physically divide an established community?			X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?			X

Previous CEQA Documents

The EDSP EIRs identified the following impact for land use and planning:

Eastern Dublin General Plan Amendment and Specific Plan EIR

- Impact 3.1/A found that there were significant impacts from the EDSP as a result of the loss of agricultural and open space lands. The City adopted a Statement of Overriding Considerations for this significant unavoidable impact, which includes the project.

Project Impacts and Mitigation Measures

(a) Physically divide an established community

The project is a continuation of the development in adjacent land uses. The project is consistent with these existing land uses and would not divide an established community.

(b) Conflict with general plan

The project is a part of the EDSP and would be consistent with environmental goals and policies contained in the City's General Plan.

As shown in Table 1: East Ranch Development & Entitlements, the total acreage, number of proposed units, and proposed density of the project are the same as those proposed in the Stage I Planned Development. The project is consistent with the EDSP and the General Plan.

Conclusion

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified land use and planning impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements, there would be no new or substantially more severe significant impacts to land use and planning beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Mineral Resources

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
12.	**MINERAL RESOURCES. Would the project:**			
a)	Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?			X
b)	Result in the loss of availability of a locally-important mineral resource recovery site delineated on a local general plan, specific plan, or other land use plan?			X

Previous CEQA Documents

The EDSP EIRs did not include an analysis of impacts to mineral resources.

Project Impacts and Mitigation Measures

(a-b) Loss of known or identified mineral resource

The City does not have any mineral extraction areas so there would be no new or substantially more severe significant impacts to mineral resources that would occur beyond what has been previously analyzed in the EDSP EIRs and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Noise

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
13.	**NOISE. Would the project result in:**			
a)	Generation of a substantial temporary or permanent increase in ambient noise levels in the vicinity of the project in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X
b)	Generation of excessive groundborne vibration or groundborne noise levels?			X
c)	For a project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the project expose people residing or working in the project area to excessive noise levels?			X

Previous CEQA Documents

The EDSP EIRs identified the following impacts and mitigation measures for noise:

Eastern Dublin General Plan Amendment and Specific Plan EIR

- Impact 3.10/A: Exposure of Proposed Housing to Future Roadway Noise identified future vehicular traffic associated with development proposed in Eastern Dublin as potentially significant to future residents of Eastern Dublin. This impact would be mitigated to an insignificant level through adherence to Mitigation Measure 3.10/1.0 that requires acoustic studies for all future residential development in the Eastern Dublin area.
- Impact 3.10/B: Exposure of Existing Residences to Future Roadway Noise would be a potentially significant impact to existing residents in the Eastern Dublin area as development occurs in accord with the Eastern Dublin General Plan Amendment and Specific Plan. This impact would be reduced through adherence to Mitigation Measure 3.10/2.0, which required future development projects to provide noise protection to existing residential uses in Eastern Dublin; however, noise impacts to existing residents along Fallon Road would remain significant and unavoidable.
- Impact 3.10/C: Exposure of Existing and Proposed Development to Airport Noise was considered an insignificant impact and no mitigation was required.
- Impact 3.10/D: Exposure of Proposed Residential Development to Noise from Future Military Training Activities at Parks Reserve Forces Training Area (RFTA) and the County Jail identified potentially significant noise for future residents within 6,000 feet of Parks

RFTA. This impact would be reduced through adherence to Mitigation Measure 3.10/3.0 that requires acoustic studies for development near Parks RFT A and the Alameda County Government facility; however, reduction of noise from Parks RFTA may not be feasible, so this impact would be significant and unavoidable.

- Impact 3.10/E: Exposure of Existing and Proposed Residences to Construction Noise would be a potentially significant impact related to noise associated with construction of the EDSP, including but not limited to buildings, roads, and utilities. Adherence to Mitigation Measures 3.10/4.0 and 3.10/5.0 would reduce construction noise impacts to a level of insignificance through preparation and submittal of Construction Noise Management Plans and compliance with local noise standards.
- Impact 3.10/F: Noise Conflicts due to the Adjacency of Diverse Land Uses Permitted by Plan Policies Supporting Mixed-Use Development would result from close proximity of different land use types that may result in potentially significant impacts. Mitigation Measure 3.10 /6.0 requires the preparation of noise management plans for all mixed-use developments within the Eastern Dublin area. This measure would reduce noise generated by mixed-use development to a level of insignificance.

The City of Dublin adopted a Statement of Overriding Considerations for the significant unavoidable impacts described above, which includes the project.

The 2002 Supplemental EIR identified potential noise impacts associated with commercial land uses. Supplemental Mitigation Measure SM-NOISE-1 requires a noise insulation plan for commercial and industrial uses. Supplemental Mitigation Measure SM-NOISE-2 restricts heavy truck traffic to designated arterial roadways and truck routes.

The 2005 Supplemental EIR identified potential noise impacts associated with aircraft flyovers and roadway noise. Supplemental Mitigation Measure SM-NOISE-1 requires written notification to occupants of residential dwellings of the potential for aircraft overflights within the Fallon Village project area. Supplemental Mitigation Measures SM-NOISE -2 through -4 address measures associated with reducing roadway noise that may affect sensitive noise receptors such as residential, schools, and parks.

The project would be required to adhere to applicable mitigation measures as set forth in the EDSP EIRs.

Project Impacts and Mitigation Measures

(a) Exposure to or generate noise exceeding standards

The EDSP EIRs identified the sources of major noise affecting the EDSP area to be vehicular traffic stemming from Interstate 580 (I-580), aircraft flyovers from the Livermore Municipal Airport, Parks RFTA, and Alameda County Sheriff Department. The short-term noise measurement results noted that other than site grading associated with the construction of the development the roadway noise and aircraft flyovers would dominate any noise levels generated by the project. Compliance with the Supplemental Mitigation Measures identified in the 2005 Supplemental EIR would reduce this impact to less than significant.

(b) Exposure to ground borne vibration or ground borne noise

The EDSP EIRs identified a potentially significant impact for future roadway noise as well as construction noise as a result of the build out of the EDSP which includes the project. Implementation of mitigation measures within the EDSP EIRs reduces this impact to an insignificant level.

(c) Excessive noise level near a public or private airport

The project would not result in safety hazard or excessive noise for people working in the project area as only residential and park/open space uses are proposed. The project site is located partially within the Airport Influence Area (AIA) of Livermore Municipal Airport but is not located within the Airport Protection Area (APA) of the airport (Livermore Executive Airport, Airport Land Use Compatibility Plan, 2012). The project site would be subjected to periodic aircraft noise from this airport. Compliance with Supplemental Mitigation Measure SM-NOISE-1 of the 2005 Supplemental EIR would reduce this impact to less than significant.

Conclusion

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified noise impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in EDSP EIRs, there would be no new or substantially more severe significant impacts to noise beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Population and Housing

ENVIRONMENTAL IMPACTS Issues		New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
14.	**POPULATION AND HOUSING. Would the project:**			
a)	Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?			X
b)	Displace substantial numbers of existing people or housing, necessitating the construction of replacement housing elsewhere?			X

Previous CEQA Documents

The EDSP EIRs did not identify any significant impacts or mitigation measures for population and housing.

Project Impacts and Mitigation Measures

(a) Population growth

Approval of the project would not induce substantial additional population growth in the Eastern Dublin area since development on the affected properties has long been envisioned in the Dublin General Plan and EDSP. Approval of the project would result in the same number of residential units being constructed as approved in the Stage I Planned Development.

(b) Housing and resident displacement

Since the project site is vacant, no housing units or people would be displaced as a result of the project.

Conclusion

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified population and housing impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements, there would be no new or substantially more severe significant impacts to population and housing beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Public Services

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
15. PUBLIC SERVICES. Would the project result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities or need for new or physical altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times, or other performance objectives for any of the public services:			
a) Fire protection?			X
b) Police protection?			X
c) Schools?			X

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
d) Parks?			X
e) Other public facilities?			X

Previous CEQA Documents

The EDSP EIRs identified the following impacts and mitigation measures for public services:

Eastern Dublin General Plan Amendment and Specific Plan EIR

- Impacts 3.4/A and 3.4/B are related to the provision of police services. One notes that there would be a demand for increased police services with implementation of the Eastern Dublin General Plan Amendment and Specific Plan and the other identifies an impact related to the hilly topography of the Eastern Dublin area that could present accessibility and crime-prevention issues. Adherence to Mitigation Measures 3.4/1.0 through 3.4/ 5.0 would reduce impacts to the Dublin Police Department to an insignificant level.
- Impacts 3.4/C through 3.4/E are related to the provision of fire services. The build out of the GP/EDSP would increase the demand for fire services and the outlying areas of the GP/EDSP were beyond the fire response area at the time resulting in extended fire response times. The build out of the GP/EDSP would also result in the settlement of population and construction of new communities in proximity to high fire hazard open space areas. This would pose an increasing wildfire hazard to people and property if open space areas are not maintained for fire safety. Mitigation Measures 3.4/6.0 through 3.4/13.0 reduce these impacts to an insignificant level.
- Impacts 3.4/F through 3.4/J are related to schools. The buildout of the GP/EDSP will increase the demand for new classroom space and school facilities in proportion to the number of residential units constructed, far exceeding the current available capacity of either school district at the time. Overcrowding at existing schools could occur if insufficient new classroom space is provided. Development of eastern Dublin under existing jurisdictional boundaries would result in the area's being served by two different school districts. The division of the project site by two different school districts would adversely affect financing of schools in eastern Dublin and complicate provision of education to planning area students. The cost of providing new school facilities proposed in the General Plan Amendment and Specific Plan could adversely impact local school districts by creating an unwieldy financial burden unless some form of financing is identified. Mitigation Measures 3.4/13.0 through 3.4/19.0 reduce these impacts to an insignificant level.

- Impacts 3.4/K through 3.4/N are related to parks and public facilities. Without the addition of new parks and facilities, the increased demand for new park and recreation facilities resulting from buildout of the GP/EDSP would create potentially significant impacts. Acquisition and improvement of new park and recreation facilities may place a financial strain on existing City revenue sources causing a potentially significant impact. Development of residential and commercial areas in eastern Dublin without adequate provision of trail easements may thwart efforts to develop a regional trail system. Urban development along project stream corridors and ridgelines would adversely impact outdoor recreational opportunities for future Dublin residents and obstruct the formation of an interconnected open space system. Mitigation Measures 3.4/20.0 through 3.4/36.0 would reduce this impact to an insignificant level.

The 2002 Supplemental EIR covered the proposed detachment of the Fallon Village project area from the Livermore Area Recreation and Parks District and annexation into the City of Dublin. This reorganization was approved by Alameda County Local Formation Agency in 2002.

The 2005 Supplemental EIR analyzed the adequacy of park acreage within the Fallon Village project area and found it to be consistent with the number, size and locations of parks within the Program level Stage 1 PD and with the City of Dublin Parks and Recreation Master Plan.

The project would be required to adhere to applicable mitigation measures as set forth in the EDSP EIRs.

Project Impacts and Mitigation Measures

(a) Fire

Construction of the project would increase demand for fire and emergency services by increasing the amount of permanent daytime population on the project site. Features would be incorporated into the project as part of existing City ordinances and development requirements which assist in reducing impacts. These features include installation of on-site fire protection measures such as fire sprinklers and installation of new fire hydrants that meet the minimum fire flow requirements contained in the Uniform Building Code and Uniform Fire Code.

As part of the City's Development Fee Program, the project would be required to pay an impact fee for fire facilities to serve new development in the City. This impact fee relates to funding new fire facilities in Eastern Dublin, ensuring adequate water supplies and pressure for fire suppression, and minimizing wildland fire hazards.

(b) Police

Incremental increases in the demand for police service could be expected should the project be approved and constructed. This increase in calls for service would be off-set through adherence to City safety requirements from the Dublin Police Services, including the Non-Residential Security Ordinance.

(c) Schools

No new impacts to schools are anticipated since payment of mandated statutory impact fees at the time of issuance of building permits would provide mitigation for the project pursuant to State law. The project would result in the same number of school- aged children to be accommodated in school facilities assumed in the Stage I Planned Development.

(d, e) Parks and other public facilities

The project proposes the same size and number of neighborhood parks totaling 11.5 acres as what is shown in the EDSP and Stage 1 Planned Development and analyzed in the EDSP EIRs. The project also proposes to complete the regional trail connection around the Fallon Village central drainage corridor in compliance with the Parks and Recreation Master Plan. The project would comply with all prior mitigation measures and would pay the required Park Fees as part of the Public Facility fees due with the project development.

Approval and construction of the project would incrementally increase the long-term maintenance demand for roads and other public facilities. However, such additional maintenance demands would be off-set by additional City fees and property tax revenues accruing to the City and, therefore, impacts would be less-than-significant.

Conclusion

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified public services impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in EDSP EIRs, there would be no new or substantially more severe significant impacts to public services beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Recreation

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
16. RECREATION. Would the project:			
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?			X

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?			X

Previous CEQA Documents

The EDSP EIRs identified the following impacts and mitigation measures for recreation:

Eastern Dublin General Plan Amendment and Specific Plan EIR

- Impact 3.4/K indicated that increased demand for parks as a result of buildout of the GP/EDSP would represent a significant impact on the ability of the City to provide park service for future residents. It would also be a potentially significant cumulative impact for the community due to lack of sufficient city-wide park facilities that would not meet a standard of five acres of parkland per 1,000 population. Mitigation Measures 3.4/20.0-28 reduce this impact to an insignificant level.
- Impact 3.4/L identified a park facility fiscal impact on the City. The fiscal strain of providing new park facilities would be a potentially significant impact. Mitigation Measures 3.4/ 29.0-31.0 would require that each new development in Eastern Dublin provide a fair share of parks and open space facilities. Development of a parks implementation plan was also called for. Finally, adoption of a park in-lieu fee program was required. These mitigation measures reduce this impact to an insignificant level.
- Impacts 3.4/ M and N dealt with the regional trail system and open space connections. Development of residential and commercial areas in Eastern Dublin was anticipated to have a potentially significant impact to the construction of a regional trail system. Adherence to Mitigation Measure 3.4/ 32.0 would require the establishment of a trail system with connections to planned regional and sub-regional trails, which would reduce this impact to an insignificant level.
- Impact 3.4/N notes that urban development along stream corridors and ridgelines would adversely impact outdoor recreational opportunities for future Dublin residents and potentially obstruct the formation of an interconnected open space system. Mitigation Measures 3.4 / 33.0-36.0 would reduce this impact to an insignificant level.

The project would be required to adhere to applicable mitigation measures as set forth in EDSP EIRs.

Project Impacts and Mitigation Measures

(a, b) Increase the use of existing recreation facilities causing deterioration or require new recreation facilities

The City's park and recreational facilities are comprised of neighborhood facilities, community facilities, community parks and community center. The EDSP identified 46.8 acres of parkland for the Fallon Ranch project area of which the project site would contain 11.5 acres. The number, location and size of parks is consistent with the approved Stage 1 Development Plan as well as the City of Dublin Parks and Recreation Master Plan. The 11.5 acres of parkland within the project site meets the City of Dublin 2015 Parks and Recreation Master Plan ratio of 5.0 acres of parkland per 1,000 residents. Since the project includes sufficient park land it would not increase the use of existing neighborhood and/or regional parks such that a substantial physical deterioration of the facility would occur or be accelerated, nor would it require the construction/expansion of a recreational facility elsewhere which would have an adverse physical effect on the environment.

Conclusion

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified recreation impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in EDSP EIRs, there would be no new or substantially more severe significant impacts to recreation beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Transportation

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
17. TRANSPORTATION. Would the project:			
a) Conflict with a program, plan, ordinance, or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?			X
b) Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)??			X
c) Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?			X

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
d) Result in inadequate emergency access?			X

Previous CEQA Documents

The EDSP EIRs identified the following impacts and mitigation measures for transportation and traffic:

Eastern Dublin General Plan Amendment and Specific Plan EIR

- Impacts3.3/A through 3.3/E identified significant, significant cumulative, and significant and unavoidable adverse impacts related to daily traffic volumes on I-580 for Year 2010 with and without build-out of the GP/EDSP and under a Year 2010 cumulative build-out scenario. Mitigation Measures 3.3/1.0 through 3.3/5.0 reduced these impacts but not sufficiently to avoid significant cumulative impacts.
- Impacts 3.3/F through 3.3/N identified impacts to levels of service and PM peak hour traffic volumes at 18 intersections with roads and I-580 ramps. Mitigation Measures 3.3/6.0 through 3.3/8.0 and 3.3/10.0 through 3.3/14.0 were adopted to reduce these impacts. Impacts 3.3/I, 3.3/M and 3.3/N could not be reduced to an insignificant level.
- Impacts 3.3/O and 3.3/P identified significant impacts related to transit service extensions and the provision of safe street crossings for pedestrians and bicycles. Mitigation Measures 3.3/15.0-15.3 and 3.3/16.0-16.1 were adopted which reduced these impacts to a level of insignificance.

The 2002 Supplemental EIR identified a number of additional transportation impacts related to the project area. Supplemental mitigation measures to reduce impacts to less than significant include:

- Supplemental Mitigation Measure SM-Traffic-1 requires future project developers to contribute a pro-rata share to the widening of the I-580 eastbound off-ramp approach at Hacienda Drive to add a third eastbound left turn lane.
- Supplemental Mitigation Measure SM-Traffic-2 requires future project developers to contribute a pro-rata share to the widening of the northbound Hacienda Drive overcrossing from three lanes to four lanes including three through lanes and one auxiliary lane that leads exclusively to the 1-580 westbound loop on-ramp. The westbound loop on-ramp shall be modified as necessary to meet Caltrans' standards and design criteria. Project developers also shall contribute to widening the westbound off ramp approach to add a third westbound left-tum lane.

- Supplemental Mitigation Measure SM-Traffic-3 requires future project developers to contribute a pro-rata share to construction which converts the eastbound Santa Rita off-ramp through lane to a shared left tum/through lane. Project developers also shall contribute to a traffic signal upgrade which includes a westbound right-turn overlap from Pimlico Drive.
- Supplemental Mitigation Measure SM-Traffic-4 requires that future project developers to install a traffic signal at the Dublin Boulevard/Street D intersection at the time development occurs in this area utilizing this intersection.
- Supplemental Mitigation Measure SM-Traffic-5 requires that future project developers to install a traffic signal at the Fallon Road/Project Road intersection at the time development occurs in this area utilizing this intersection.
- Supplemental Mitigation Measure SM-Traffic-6 requires that future project developers to contribute a pro-rata share to configure the eastbound Dublin Boulevard approach to include one left-tum lane, three through lanes and two right tum lanes.
- Supplemental Mitigation Measure SM-Traffic-7 requires future project developers to construct an additional through lane on northbound Fallon Road (for a total of four through lanes), construct an additional left-tum lane on westbound Dublin Boulevard (for a total of three left-tum lanes) and construct an additional through lane on southbound Fallon Road (for a total of four through lanes). In addition, the City will monitor the intersection for peak hour volumes on a periodic basis, as described.
- Supplemental Mitigation Measure SM-Traffic-8 requires future project developers to pay studies to assess the feasibility of locating the Fallon Road/Dublin Boulevard intersection farther north to allow for a signalized Project intersection between the I-580 westbound ramps/Fallon Road intersection and the Fallon Road/Dublin Boulevard intersection (the "auxiliary intersection").
- Supplemental Mitigation Measure SM-Traffic-9 requires future project developers to be responsible for widening Fallon Road between 1-580 and Dublin Road to its ultimate eight lanes and shall be responsible for widening Fallon Road between Dublin Boulevard and Central Parkway to its ultimate six lane width.
- Supplemental Mitigation Measure SM-Traffic-10 requires future project developers to be responsible for widening Central Parkway between Tassajara Road and Fallon Road from two lanes to four lanes.

The 2005 Supplemental EIR identified a number of additional transportation impacts related to the project area. Supplemental mitigation measures to reduce impacts to less than significant include:

- Supplemental Mitigation Measure SM-TRA-1 requires future project developers to make a project contribution to Dublin/Dougherty intersection.

- Supplemental Mitigation Measure SM-TRA-2 requires future project developers to contribute a pro-rata share to the widening of the northbound Hacienda Drive overcrossing from 3 lanes to 4 lanes including three through lanes and one auxiliary lane that leads exclusively to the 1-580 westbound loop on-ramp.
- Supplemental Mitigation Measure SM-TRA-3 requires future project developers to contribute a pro-rata share to construction which converts the eastbound Santa Rita off-ramp through lane to a shared left tum/through lane.
- Supplemental Mitigation Measure SM-TRA-4 requires future project developers to install a traffic signal at the Dublin Boulevard/Street D intersection at the time development occurs in this area utilizing this intersection.
- Supplemental Mitigation Measure SM-TRA-5 requires future project developers to install a traffic signal at the Fallon Road/Project Road intersection at the time development occurs in this area utilizing this intersection.
- Supplemental Mitigation Measure SM-TRA-6 requires future project developers to contribute a pro-rata share to configure the eastbound Dublin Boulevard approach to include 1 left-tum lane, three through lanes and two right tum lanes.
- Supplemental Mitigation Measure SM-TRA-7 requires future project developers to construct an additional through lane on northbound Fallon Road (for a total of four through lanes), construct an additional left-tum lane on westbound Dublin Boulevard (for a total of three left-tum lanes) and construct an additional through lane on southbound Fallon Road (for a total of four through lanes).
- Supplemental Mitigation Measure SM-TRA-8 requires future project developers to pay studies to assess the feasibility of locating the Fallon Road/Dublin Boulevard intersection farther north to allow for a signalized Project intersection between the I-580 westbound ramps/Fallon Road intersection and the Fallon Road/Dublin Boulevard intersection (the "auxiliary intersection").
- Supplemental Mitigation Measure SM-TRA-9 requires future project developers to responsible for widening Fallon Road between 1-580 and Dublin Road to its ultimate eight lanes and shall be responsible for widening Fallon Road between Dublin Boulevard and Central Parkway to its ultimate six lane width.
- Supplemental Mitigation Measure SM-TRA-10 requires future project developers to responsible for widening Central Parkway between Tassajara Road and Fallon Road from two lanes to four lanes.

The City adopted a Statement of Overriding Considerations for the remaining significant and unavoidable cumulative impacts of Impacts 3.3/B, 3.3/E, 3.3/I, 3.3/M and 3.3/N, which apply to the project.

The project would be required to adhere to applicable mitigation measures as set forth in the EDSP EIRs.

Project Impacts and Mitigation Measures

(a) Conflict with applicable transportation circulations plans/standards

As described in Appendix G: Transportation Impact Analysis (Kimley-Horn, August 2021), a transportation impact analysis (TIA) was prepared to determine potential impacts related to the project based on standards and methodologies set forth by the City of Dublin (City), City of Pleasanton, Alameda County Transportation Commission (ACTC), Tri-Valley Transportation Council (TVTC), and California Department of Transportation (Caltrans). The TIA includes intersection level of service (LOS) and queuing analyses of the weekday AM and PM peak hour traffic conditions for thirteen (13) intersections and an ACTC Land Use analysis. Note that this analysis of LOS is provided here to allow comparison of the proposed Project impacts to those identified in the prior EDSP EIRs even though LOS is no longer considered an impact under CEQA.

Project Trip Estimates

The number of net new project trips anticipated to be added to the roadway system surrounding the project site was estimated based on data published in the Institute of Transportation Engineer's (ITE) Trip Generation Manual, 10th Edition. The proposed project is anticipated to generate 374 trips in the AM peak hour (94 trips in and 280 trips out) and 492 trips in the PM peak hour (309 trips in and 183 trips out). It should be noted that the previous 2005 Fallon Village SIER also analyzed the same 573 residential units within the project site.

Intersection Level of Service

A level of service (LOS) analysis of the AM and PM peak hour traffic conditions for thirteen (13) intersections was analyzed under Existing, Existing Plus Project, and Cumulative Conditions. Since the Cumulative Condition assumes full buildout of the Fallon Village SEIR, which assumes the same 573 residential units to be constructed on the project site, a Cumulative Plus Project Condition would result in the same traffic conditions as the Cumulative without Project conditions and, therefore, was not analyzed.

Under Existing and Existing Plus Project Conditions, all study intersections operate at an acceptable LOS. This includes intersection #6 – Central Parkway / Sunset View Drive, which will be improved by the project applicant by optimizing the signal timing.

Under Cumulative Conditions, the following study intersections are expected to operate at an unacceptable LOS:

#1 – Fallon Road / Central Parkway (AM Peak Hour)
#2 – Fallon Road / Dublin Boulevard (PM Peak Hour)
#5 – El Charro Road / Stoneridge Drive (AM and PM Peak Hours)
#6 – Central Parkway / Sunset View Drive (AM Peak Hour)
#12 – Dublin Boulevard / Tassajara Road (AM and PM Peak Hours)
#13 – Dublin Boulevard / Hacienda Drive (PM Peak Hour)

Although these intersections operate at an unacceptable LOS, Cumulative Conditions assume the full buildout of the Fallon Village SEIR, which includes the 573-residential unit project site. Therefore, the project was previously analyzed as the same size and would not create a new significant impact to these intersections under Cumulative Conditions.

Regarding intersections #12 and #13, the 1993 GPA/SP EIR identified a cumulative impact and the City adopted a Statement of Overriding Considerations for this impact.

Alameda County Transportation Commission (ACTC) Land Use Analysis Program

The TIA includes an ACTC Land Use analysis during the PM peak hour to determine the project's impact along Metropolitan Transportation System (MTS) roadways and was evaluated based on volume to capacity (v/c) ratio. Similar to the intersection LOS analysis, Cumulative Conditions was analyzed and not Cumulative Plus Project Conditions.

Under Existing and Existing Plus Project Conditions, the following roadway segments operate at an unacceptable LOS F:

- Eastbound I-580 between:
  - Tassajara Road and Fallon Road
  - Fallon Road and Airway Boulevard
- Eastbound Dublin Boulevard:
  - Hacienda Drive and Hibernia Drive
  - Hibernia Drive and Myrtle Drive
  - Myrtle Drive and John Monego Court
  - John Monego Court and Glynnis Rose Drive
  - Glynnis Rose Drive to Tassajara Road

Although the roadway segments continue to operate at an unacceptable LOS F in Existing Plus Project Conditions during the PM peak hour, the roadway segments were not significantly impacted since the increase in v/c ratio is less than the ACTC threshold of 0.02. Therefore, the project has a less than significant impact on the MTS roadway segments under Existing Plus Project Conditions.

Under Cumulative Conditions, the following MTS roadway segments operate at an unacceptable LOS F:

- Eastbound I-580 between:
  - Hacienda Drive to Tassajara Road
  - Tassajara Road and Fallon Road
  - Fallon Road and Airway Boulevard
- Eastbound Dublin Boulevard:
  - Iron Horse Parkway to Arnold Road

- Arnold Road to Hacienda Drive
- Hacienda Drive and Hibernia Drive
- Hibernia Drive and Myrtle Drive
- Myrtle Drive and John Monego Court
- John Monego Court and Glynnis Rose Drive
- Glynnis Rose Drive to Tassajara Road

- Westbound Dublin Boulevard:
  - Demarcus Boulevard to Scarlett Drive
  - Scarlett Drive to Dougherty Road

Although these MTS roadways operate at an unacceptable LOS, Cumulative Conditions assume the full buildout of the Fallon Village SEIR, which includes the 573-residential unit project site. Therefore, the project was previously analyzed as the same size and would not create a new significant impact to these MTS roadways under Cumulative Conditions.

(b) Conflict with CEQA Guidelines Section 15064.3

Since certification of the EDSP EIRs, the issue of vehicle miles traveled (VMT) has become a more prominent issue of concern as evidenced by passage of SB 743 in 2013. Previously, CEQA analysis was conducted using a level of service (LOS) measurement that evaluated traffic delay. As specified under SB 743 and implemented under Section 15064.3 of the State CEQA Guidelines (effective December 28, 2018), VMT is the required metric to be used for identifying CEQA impacts and mitigation. In December 2018, the Office of Planning and Research (OPR) published a Technical Advisory on Evaluating Transportation Impacts, including guidance for VMT analysis. The Office of Administrative Law approved the updated CEQA Guidelines and lead agencies were given until July 1, 2020, to implement the updated guidelines for VMT analysis.

Because EDSP EIRs have been certified, the determination of whether VMT needs to be analyzed for this project is governed by the law on supplemental or subsequent EIRs (Public Resources Code section 21166 and CEQA Guidelines, Sections 15162 and 15163). VMT is not required to be analyzed under those standards unless it constitutes "new information of substantial importance, which was not known and could not have been known at the time the previous EIRs were certified as complete” (CEQA Guidelines Sec. 15162 (a) (3)).

VMT impacts were not analyzed in the prior EIRs; however, these impacts are not new information that was not known or could not have been known at the time these previous EIRs were certified. The issue of VMT as a metric for analyzing traffic was widely known prior to the certification of these EIRs.

Therefore, the impact of VMT was known at the time of the certification of the EDSP EIRs. Under CEQA standards, it is not new information that requires analysis in a supplemental EIR or Negative Declaration. No supplemental environmental analysis of the project's impacts on this issue is required under CEQA.

(c) Substantially increase hazards due to a design feature

As described in the TIA, project plans were analyzed with respect to turning movements for emergency vehicles and school bus, as well as bicycle and pedestrian circulation and no hazards due to a design feature were identified.

Approval of the project would add sidewalks and other vehicular and pedestrian travel ways where none currently exist. The project would be required to comply with current City engineering design standards and other safety standards to ensure that no safety hazards would be created or exacerbated.

(d) Result in inadequate emergency access

As shown in the Stage II Planned Development application, all roadways would be designed consistent with City roadway design standards. As shown in Figure 9: Wildfire Management Plan, residential lots located on the north and south perimeter are designated as "fire lots" and would incorporate fire safe landscaping as well as a 12-foot-wide emergency access road.

Conclusion

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified transportation impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in EDSP EIRs, there would be no new or substantially more severe significant impacts to transportation beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Tribal Cultural Resources

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
18. TRIBAL CULTURAL RESOURCES. Would the project cause a substantial adverse change in the significance of a tribal cultural resource, defined in Public Resources Code section 21074 as either a site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, and that is:			
a) Listed or eligible for listing in the California Register of Historical Resources, or in a local register of historical resources as defined in Public Resources Code section 5020.1(k), or			X
b) A resource determined by the lead agency, in its discretion and supported by substantial evidence, to be			X

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1. In applying the criteria set forth in subdivision (c) of Public Resource Code Section 5024.1, the lead agency shall consider the significance of the resource to a California Native American tribe.			

Previous CEQA Documents

The EDSP EIRs did not specifically analyze impacts to tribal cultural resources as it was not a separate topic for analysis when the EIRs were completed. The impacts to tribal cultural resources are not new information that was not known or could not have been known at the time these previous EIRs were certified. Cultural resource impacts and mitigation measures, some of which could pertain to tribal resources, were identified and can be found in the cultural resources section of this document.

Project Impacts and Mitigation Measures

(a) Listed or eligible for listing in the California Register of Historical Resources

As described in the Cultural Resources section above, an Archeological and Historical Resources Survey Report was prepared for the project site by Alta Archeological Consulting and Yarbrough Architectural Resources (October 2020) and is included as Appendix C Archeological and Historical Resources Survey Report. The report concluded that the Croak Ranch, as an architectural resource, is not an historical resource for purposes of CEQA and, therefore, is not eligible for the CRHP.

Regardless, on May 23, 2021, the structures on the Croak Ranch Homestead burned completely and no longer exist.

(b) Significant pursuant to criteria set forth in subdivision (c) of Public Resources Code Section 5024.1

The project site was not identified as containing any archaeological resources in the EDSP EIRs. Therefore, the City, in its role as lead agency, has determined that the project site is not a resource significant to a California Native American tribe.

Conclusion

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified tribal cultural resource impacts, nor result in new significant impacts. No places, objects, etc. with cultural value to a California Native American Tribe were identified and are unlikely to be present.

With adherence to applicable regulatory requirements and mitigation measures identified in EDSP EIRs, there would be no new or substantially more severe significant impacts to tribal cultural resources beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Utilities and Service Systems

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
19. UTILITIES AND SERVICE SYSTEMS. Would the project:			
a) Require or result in the relocation or construction of new or expanded water, wastewater treatment or storm water drainage, electric power, natural gas, or telecommunications facilities, the construction or relocation of which could cause significant environmental effects?			X
b) Have sufficient water supplies available to serve the project and reasonably foreseeable future development during normal, dry and multiple dry years?			X
c) Result in a determination by the wastewater treatment provider which serves or may serve the project that it has adequate capacity to serve the project projected demand in addition to the provider's existing commitments?			X
d) Generate solid waste in excess of State or local standards, or in excess of the capacity of local infrastructure, or otherwise impair the attainment of solid waste reduction goals?			X
e) Comply with federal, state, and local statutes and regulations related to solid waste?			X

Previous CEQA Documents

The EDSP EIRs identified the following impacts and mitigation measures for utilities and service systems:

Eastern Dublin General Plan Amendment and Specific Plan EIR

- Impact 3.5/B identified the lack of a collection system as a significant impact. Mitigation Measures 3.5/1.0-3.5/5.0, generally preventing development until such facilities are constructed by developers, were adopted to mitigate this impact to an insignificant level.
- Impact 3.5/C noted potential growth-inducing impacts of pipeline construction. These impacts were mitigated by Mitigation Measure 3.5/6.0, preventing the construction of facilities greater than those required for the GPA/EDSP, to an insignificant level.
- Impacts 3.5/D, 3.5/E, and 3.5/G identified current and future inadequate treatment plant capacity in the Dublin San Ramon Services District (DSRSD) treatment plan and inadequate disposal capacity as significant impacts. All were mitigated to an insignificant level by Mitigation Measures 3.5/7.0 through 3.5/9.0 and 3.5/11.0 through 3.5/14.
- Impacts 3.5/F and 3.5/H relate to the increased energy usage as a result of Impacts 3.5/D, E and G. These impacts were mitigated by Mitigation Measures 3.5/10.0, 3.5/15.0, and 3.5/16.0 but remained potentially significant impacts
- Impact 3.5/I noted that a failure of the export disposal system could have a potentially significant impact but Mitigation Measure 3.5/17.0 reduce this impact to an insignificant level.
- Impact 3.5/L noted that the proposed recycled water system must be constructed and operated properly in order to prevent any potential contamination of or cross-connection with potable water supply systems. Mitigation Measure 3.5/20.0 reduced this impact to an insignificant level.
- Impact 3.5/P identified significant impacts related to the supply of water to the Eastern Dublin area. Mitigation Measures 3.5/24.0-3.5/40.0 were adopted to prevent overdraft of ground water resources by requiring or encouraging annexation and connection to DSRSD, minimize the effect of additional demand for water by encouraging water recycling and conservation and by encouraging the development of new facilities and supplies, and to ensure the development of a water distribution system by generally preventing development until such facilities are constructed by developers.
- Impact 3.5/Q noted that buildout of the GP/EDSP will increase water demand. Mitigation Measures 3.5/26.0 through 3.5/31.0 reduced this impact to an insignificant level.
- Impact 3.5/R noted that there would be a significant impact since the increase in water demands through development of the GP/EDSP will require an expansion of existing water treatment facilities in order to deliver safe and potable water. Mitigation Measures 3.5/32.0 and 33.0 reduced this impact to an insignificant level.
- Impact 3.5/S noted that at the time there was no water service in the area, with the exception of a Zone 7 water supply connection to Alameda County for the old Santa Rita Jail. With the development of the GP/EDSP, a water distribution system and storage system would be required. If a water distribution system was not constructed, this would be a significant impact. Mitigation Measures 3.5/34.0 through 3.5/38.0 reduced this impact to an insignificant level.

- Impact 3.5/U accounted for the increased energy requirement as a result of increased water demands requiring a water distribution system. Mitigation Measure 3.5/40.0 mitigated this impact but was insufficient to reduce the impact to a less than significant level.
- Impact 3.5/Z: Reduced Groundwater Recharge was a potentially significant impact but Mitigation Measures 3.5/49.0 and 3.5/50.0 reduced the impact to an insignificant level.

The City adopted a Statement of Overriding Considerations for the remaining impacts of Impacts 3.3/F and H, which includes the project.

The 2005 Supplemental EIR analyzed supplemental impacts of wastewater collection and disposal capacity as changed conditions since the 2002 Supplemental EIR. There were found to be no supplemental impacts to wastewater collection based on the latest 2005 Wastewater Collection System Master Plan Update by DSRSD using the latest sewer generation rates and long-term wastewater planning. Wastewater disposal capacity was found to be adequate based on completion of a 2005 Livermore-Amador Valley Water Management Agency export pipeline expansion project and no supplemental impacts were found with regard to wastewater disposal.

The project would be required to adhere to applicable mitigation measures as set forth in EDSP EIRs.

Project Impacts and Mitigation Measures

(a, c) Wastewater treatment requirements and facilities

DSRSD is the water and sewer provider for the project site. DSRSD has master planned the wastewater collection system, treatment capacity and disposal capacity in accordance with the General Plan and EDSP demand levels as documented in the latest 2017 Wastewater Collection System and Treatment Facilities Master Plans.

The project is included within the build out of the GP/EDSP and, therefore, was accounted for. Connection fees are based on these master plans and also account for the proposed level of development on the project site as the total number of proposed residential units included in the project is the same as the total in the Stage I Planned Development. Previous potential impacts due to growth inducing system expansion no longer apply as the project is located at the far eastern edge of DSRSD's service area and would not require expansion of the system. Therefore, no supplemental impacts have been identified.

(b) Sufficient water supplies

DSRSD has master planned their water supply capacity, water distribution system, reservoirs and pumping in the project area in accordance with the General Plan and EDSP demand levels as documented in the current Urban Water Management Plan (2016). The project is included within the build out of the GP/EDSP and, therefore, was accounted for. Connection fees are based on these master plans and also account for the proposed level of development on the project site as the total number of proposed residential units included in the project is the same as the total in the Stage I Planned Development. Therefore, no supplemental impacts have been identified.

Per SB 221, the project would be required to obtain written verification from DSRSD that sufficient water supply is available for the project. Previous potential impacts due to growth inducing system expansion no longer apply as the project site is located within DSRSD's service area.

(d, e) Solid waste disposal and regulatory compliance

Approval of the project would incrementally increase the generation of solid waste. Over the long term, the amount of solid waste reaching the landfill would decrease as statewide regulations mandating increased recycling and composting take effect.

The EDSP EIRs found that there would be adequate capacity within the local landfill to accommodate increases in the amount of solid waste.

Conclusion

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified utilities and service system impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in EDSP EIRs, there would be no new or substantially more severe significant impacts to utilities and service systems beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Wildfires

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
20. Wildfires. If located in or near state responsibility areas or lands classified as very high fire hazard severity zones, would the project:			
a) Substantially impair an adopted emergency response plan or emergency evacuation plan??			X
b) Due to slope, prevailing winds, and other factors, exacerbate wildfire risks, and thereby expose project occupants to, pollutant concentrations from a wildfire or the uncontrolled spread of a wildfire?			X

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
c) Require the installation or maintenance of associated infrastructure (such as roads, fuel breaks, emergency water sources, power lines or other utilities) that may exacerbate fire risk or that may result in temporary or ongoing impacts to the environment			X
d) Expose people or structures to significant risks, including downslope or downstream flooding or landslides, as a result of runoff, post-fire slope instability, or drainage changes?			X

Previous CEQA Documents

The EDSP EIRs did not specifically analyze impacts for wildfires as it was not a separate topic for analysis when the EIRs were completed. Public services impacts and mitigation measures, some of which related to the provision of fire services pertain to wildfires, were identified and are discussed in the public services section.

The project would be required to adhere to applicable mitigation measures as set forth in the EDSP EIRs.

Project Impacts and Mitigation Measures

(a) Impair emergency response plan

The City has a Wildfire Management Plan. In accordance with this plan and Chapter 7.32 and/or Chapter 7.34 of the Dublin Municipal Code, all residential lots adjacent to open space shall be constructed with special materials and have a 20-foot-wide emergency access road behind them in the buffer zone.

As shown in Figure 9: Wildfire Management Plan, residential lots located on the north and south perimeter are designated as "fire lots" and would incorporate fire safe landscaping as well as a 12-foot-wide emergency access road. As such, the project would not impair the City's emergency response plan.

(b) Pollutants or uncontrolled spread

The project design has not changed substantially beyond what was included in the Stage I Planned Development. Therefore, the project would not result in any pollutant concentrations or wildfire risk as a result of slope, prevailing winds, or other factors that exacerbate wildfire risks beyond what was analyzed in the EDSP EIRs.

(c) Infrastructure

The proposed design of infrastructure that address fire risks or ongoing impacts to the environment is not substantially changed from what was included in the Stage I Planned Development as considered by the EDSP EIRs. There would be no additional impacts beyond that previously analyzed.

(d) Slope instability resulting in post-fire slope instability

As discussed in the Hydrology and Water Quality section, the project includes an erosion control plan that implements slope erosion control measures during and post-construction and does not change historic drainage patterns outside of the project site. The project would not result in changes to drainage or slopes beyond what was previously analyzed in the EDSP EIRs.

Conclusion

The project does not propose changes that were not previously analyzed in the EDSP EIRs that would require major changes to the EIRs. Based on the information in EDSP EIRs and this environmental analysis, the project would not substantially increase the severity of the previously identified wildfire impacts, nor result in new significant impacts.

With adherence to applicable regulatory requirements and mitigation measures identified in EDSP EIRs, there would be no new or substantially more severe significant impacts from wildfires beyond what has been analyzed in the previous EDSP EIRs, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required.

Mandatory Findings of Significance

ENVIRONMENTAL IMPACTS Issues	New Significant Impact	Substantial Increase in the Severity of an Impact Identified in the EDSP EIRs	Equal or Less Severe Impact than Identified in the EDSP EIRs
21 MANDATORY FINDINGS OF SIGNIFICANCE. Does the project:			
a) Have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?			X
b) Have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of the past projects, the effects of other current projects, and the effects of probable future projects.)			X
c) Have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?			X

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal, or eliminate important examples of the major periods of California history or prehistory?

No New Impact. As discussed and analyzed in this document, the proposed project would not degrade the quality of the environment. Additionally, for the reasons discussed in the Biological Resources section, the proposed project, with mitigation, would not substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, or reduce the number or restrict the range of a rare or endangered plant or animal. Further, for the reasons identified in the Cultural Resources section, the project site does not contain any significant cultural resources, and no impacts to such resources would occur. Therefore, implementation of the proposed project would not result in any new impacts or increase the severity of a previously identified significant impact as previously analyzed, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required for this impact area.

b) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects)?

No New Impact. The proposed project has the potential to result in incremental environmental impacts that are part of a series of approvals that were anticipated under the EDSP EIRs. The EDSP EIRs considered the project's cumulatively considerable impacts where effects had the potential to degrade the quality of the environment as a result of build-out of the EEDSP. Implementation of the proposed project, with mitigation, would not result in any new cumulative impacts or increase the severity of a previously identified significant cumulative impact as previously analyzed, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required for this impact area.

c) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?

No New Impact. The proposed project would not create adverse environmental effects that would cause substantial adverse effects on human beings, either directly or indirectly. The proposed project would allow for development of new residential dwelling units, parks, and open space. None of these uses or activities would result in any substantial adverse effects on human beings, either directly or indirectly, as discussed throughout this document. Therefore, implementation of the proposed project would not result in any new impacts or increase the severity of a previously identified significant impact as previously analyzed, and no other CEQA standards for supplemental review are met. Therefore, no further environmental review is required for this impact area.

Source: East Ranch Stage II Planned Development Second Submittal

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Not to scale

Figure 1: Project Location

East Ranch

CEQA Analysis

Source: East Ranch Stage II Planned Development Second Submittal

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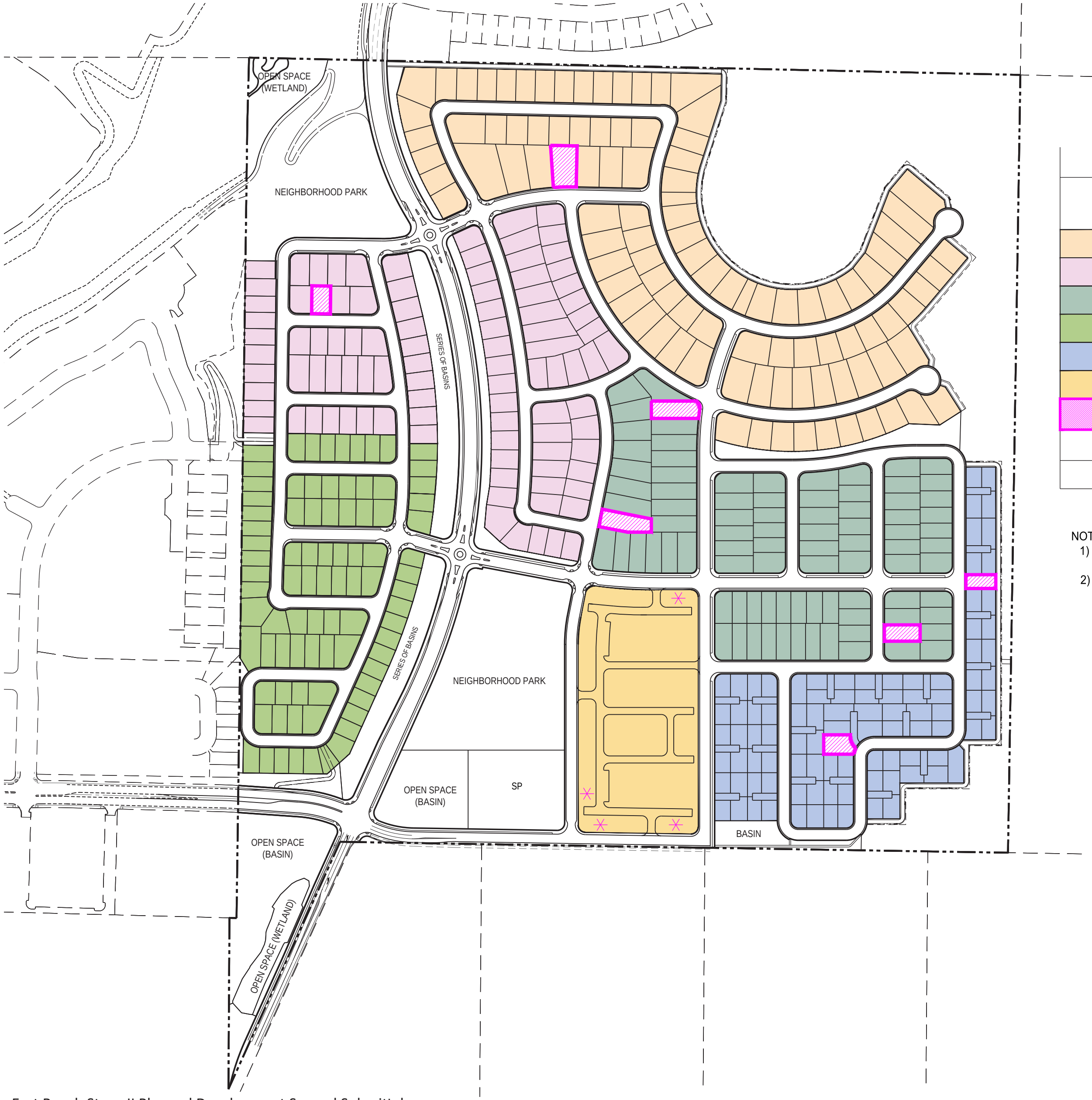
Figure 2: Land Use Plan

East Ranch

CEQA Analysis



NEIGHBORHOOD SUMMARY

	NEIGHBORHOOD	TYPICAL LOT SIZE	UNITS	GROSS ACREAGE (±)	DENSITY
	1	65'x100'	99	30.1	3.3 DU/AC
	2	55'x95'	96	23.4	4.1 DU/AC
	3	50'x110'	85	19.5	4.5 DU/AC
	4	49.5'x80'	85	16.8	5.1 DU/AC
	5	48'x70' Cluster	94	17.6	5.4 DU/AC
	6	Attached Multi-Family	100 (Includes 4 Affordable Units)	10.4	9.6 DU/AC
	1, 2, 3, & 5	Zero-Lot Single Family Units (Affordable)	14	(2)	
	Croak Rd and Central Pkwy Extension			8.0	
	TOTAL		573	125.8	4.5 du/ac

NOTE:
1) UNIT MIX SHOWN IS PRELIMINARY. FINAL NEIGHBORHOOD UNIT COUNT WILL BE DETERMINED DURING SDR PROCESS, BUT THE TOTAL NUMBER OF UNITS WILL NOT EXCEED 573.
2) ZERO-LOT LINE AFFORDABLE UNITS ARE TO BE DISPERSED THROUGHOUT SITE PLAN AND INCLUDED IN THE TOTAL LOT COUNT

Source: East Ranch Stage II Planned Development Second Submittal

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Figure 3: Neighborhood Plan

East Ranch

CEQA Analysis

Neighborhood 1

ELEVATION 3D - MODERN FARMHOUSE ELEVATION 2A - TRADITIONAL FARMHOUSE ELEVATION 1D - MODERN FARMHOUSE

Neighborhood 2

ELEVATION 4C - TRADITIONAL FARMHOUSE ELEVATION 3D - MODERN FARMHOUSE ELEVATION 2C - TRADITIONAL FARMHOUSE ELEVATION 1D - MODERN FARMHOUSE

Neighborhood 3

ELEVATION 1A - TRADITIONAL FARMHOUSE ELEVATION 2B - CONTEMPORARY ELEVATION 3C - CALIFORNIA REVIVAL ELEVATION 4D - MODERN FARMHOUSE

Neighborhood 4

ELEVATION 2C - CALIFORNIA REVIVAL ELEVATION 4A - TRADITIONAL FARMHOUSE ELEVATION 3C - CALIFORNIA REVIVAL ELEVATION 4A - TRADITIONAL FARMHOUSE ELEVATION 1C - CALIFORNIA REVIVAL

Neighborhood 5

ELEVATION 1A - TRADITIONAL FARMHOUSE ELEVATION 3D - MODERN FARMHOUSE ELEVATION 2A - TRADITIONAL FARMHOUSE ELEVATION 1C - CALIFORNIA REVIVAL

Neighborhood 6

6 PLEX ELEVATION - B - CONTEMPORARY

6PLEX ELEVATION - D - MODERN FARMHOUSE

Source: East Ranch Stage II Planned Development Second Submittal

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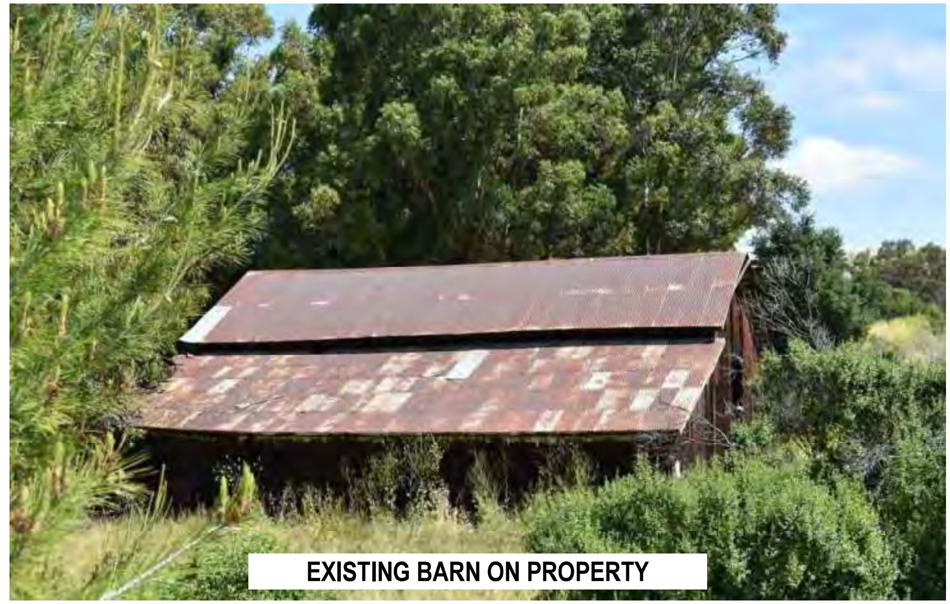
Figure 4: Architectural Styles

East Ranch

CEQA Analysis

EXISTING CROAK ROAD



EXISTING BARN ON PROPERTY

VIEW OF BARN FROM EXISTING CROAK ROAD

VIEW NORTH FROM EXISTING CROAK ROAD

Source: East Ranch Stage II Planned Development Second Submittal

Figure 5a: Existing Views of the Project Site

East Ranch

CEQA Analysis

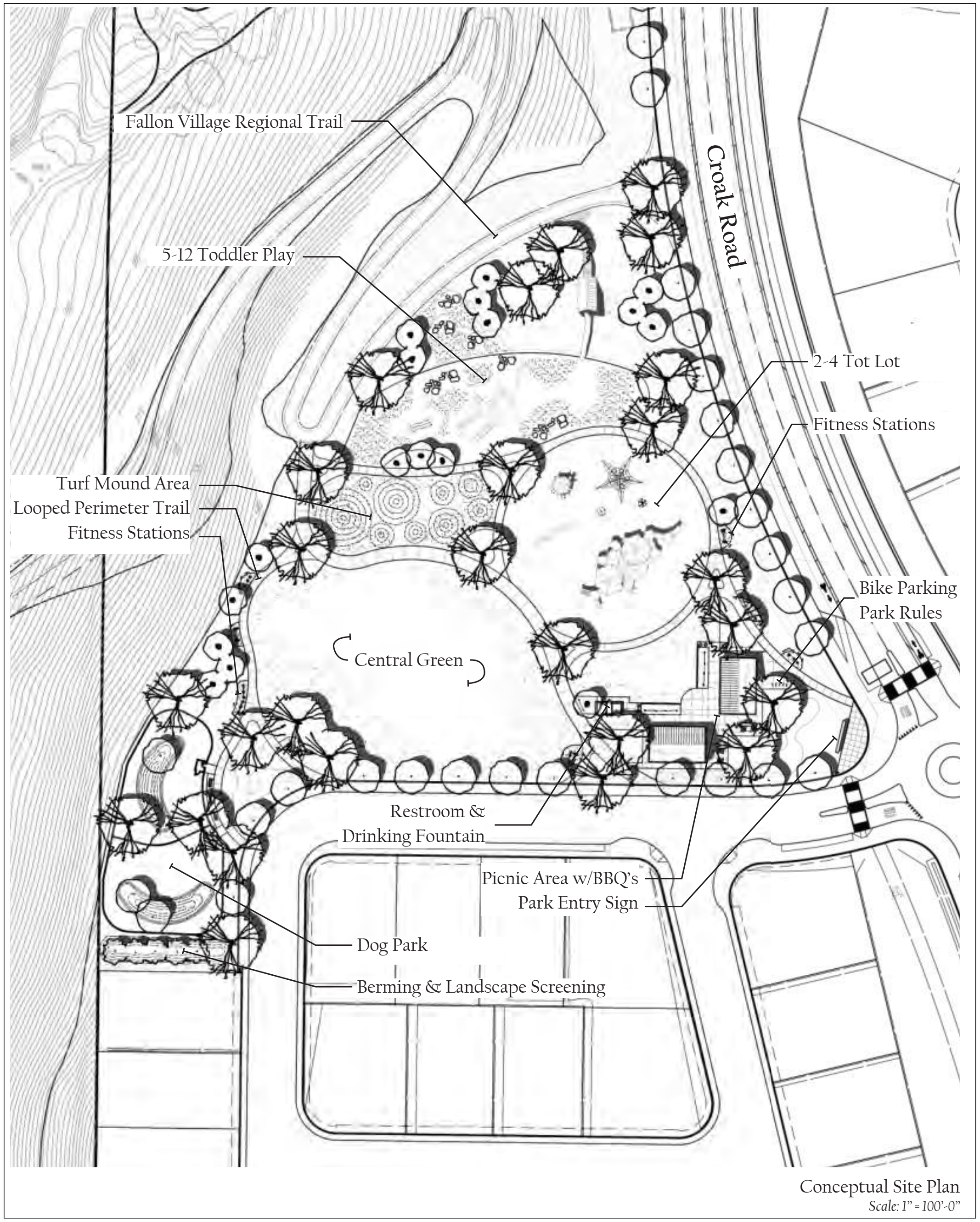

VIEW FROM CENTRAL PARKWAY TOWARD CROAK PROPERTY


EXISTING VEGETATION


VIEW AT END OF CENTRAL PARKWAY TOWARD JORDAN RANCH


VIEW AT END OF CENTRAL PARKWAY TOWARD CROAK PROPERTY

Source: East Ranch Stage II Planned Development Second Submittal



Source: East Ranch Stage II Planned Development Second Submittal

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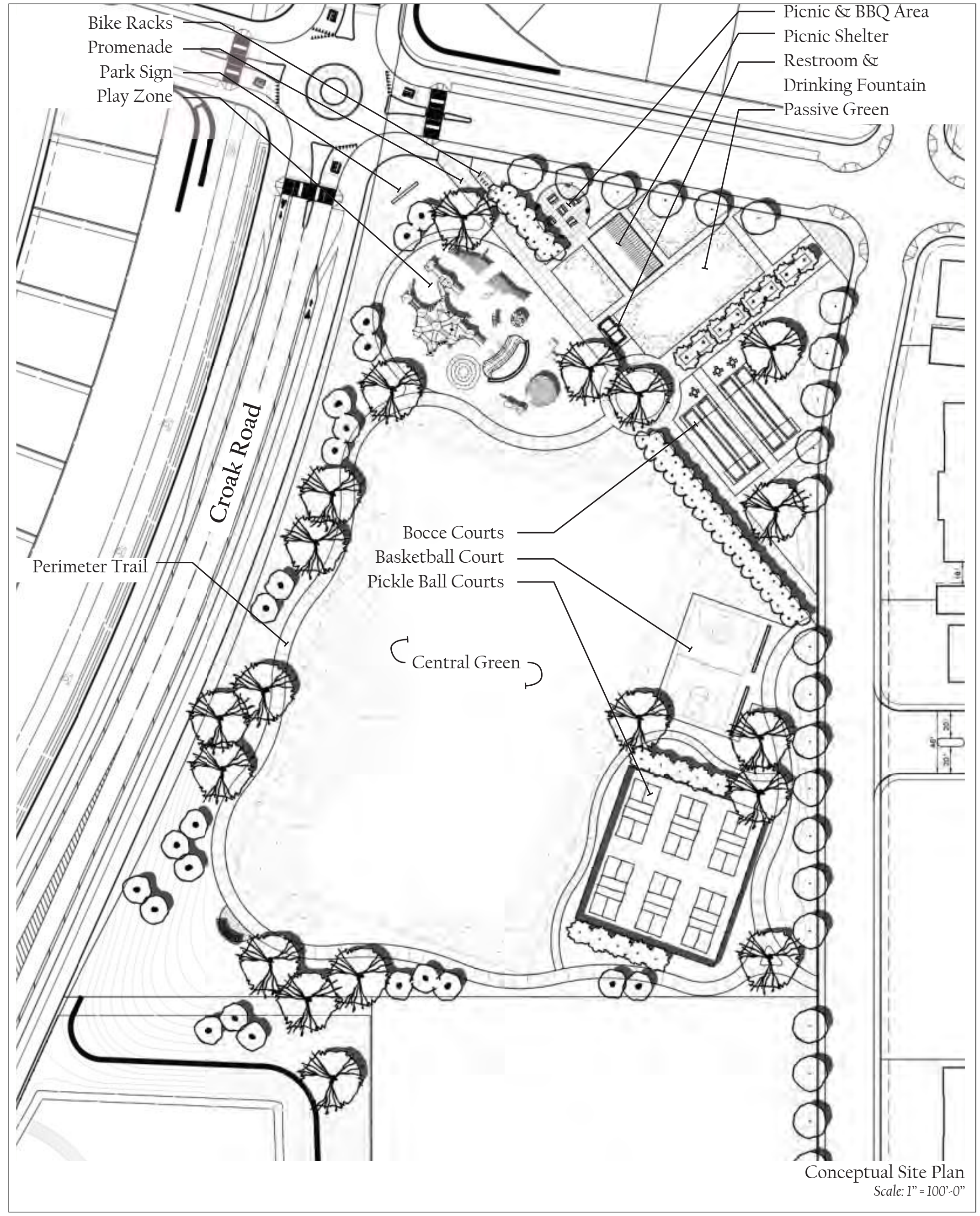
Figure 6: Northern Park Conceptual Plan

East Ranch

CEQA Analysis



Source: East Ranch Stage II Planned Development Second Submittal

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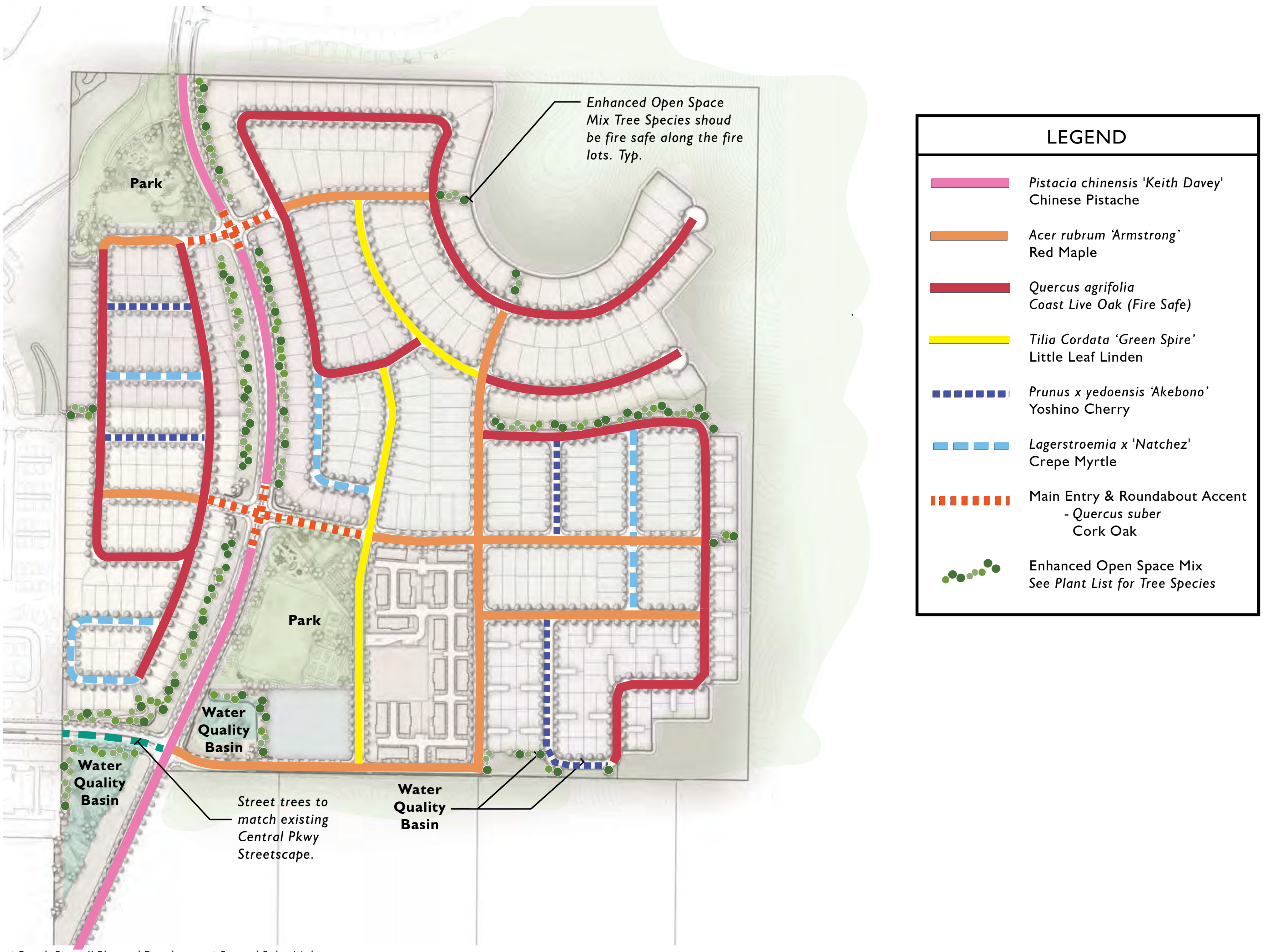
Figure 7: Southern Park Conceptual Plan

East Ranch
CEQA Analysis



Source: East Ranch Stage II Planned Development Second Submittal

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Figure 8: Tree Plan

East Ranch

CEQA Analysis

Source: East Ranch Stage II Planned Development Second Submittal

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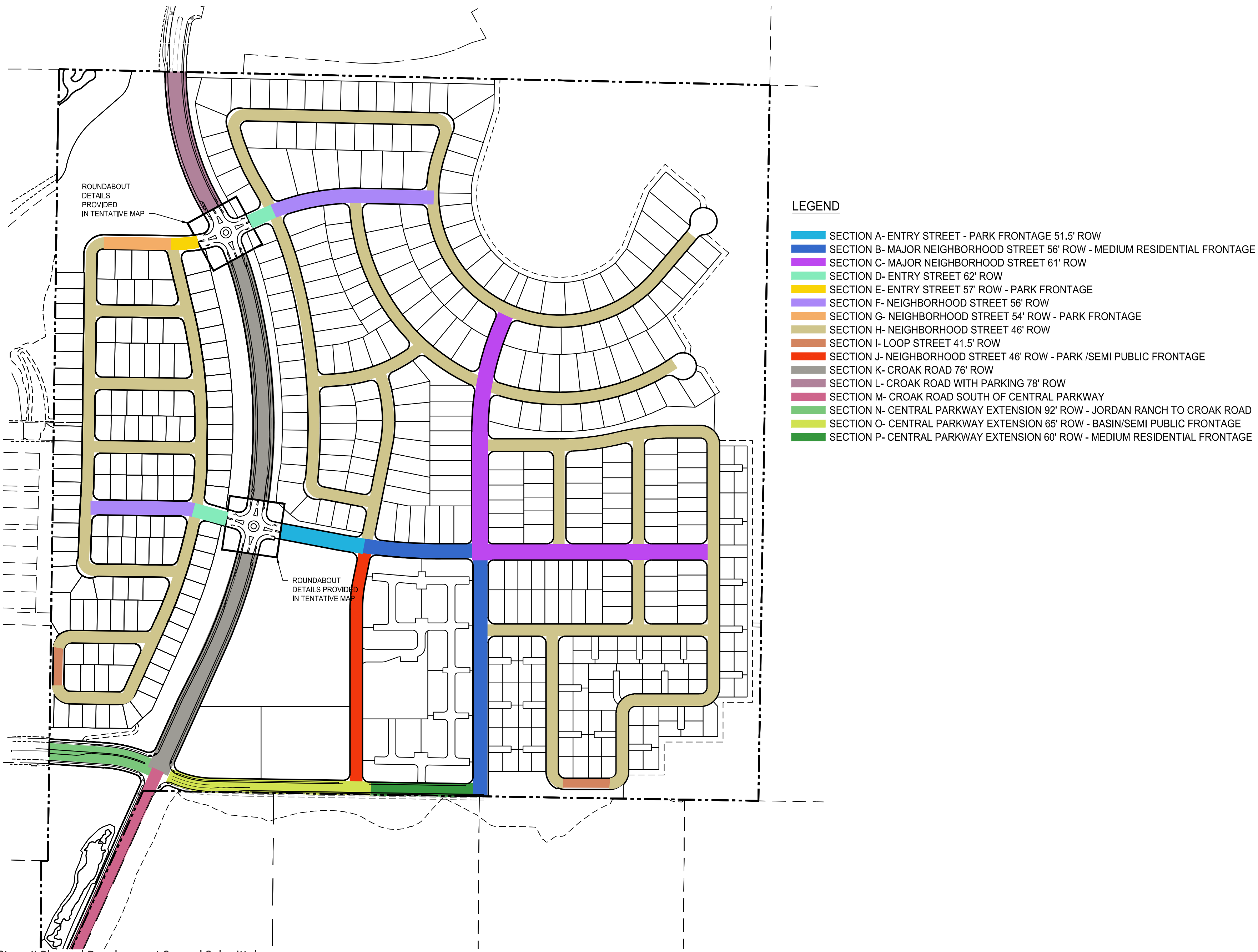
Figure 9: Wildfire Management Plan

East Ranch

CEQA Analysis



Source: East Ranch Stage II Planned Development Second Submittal

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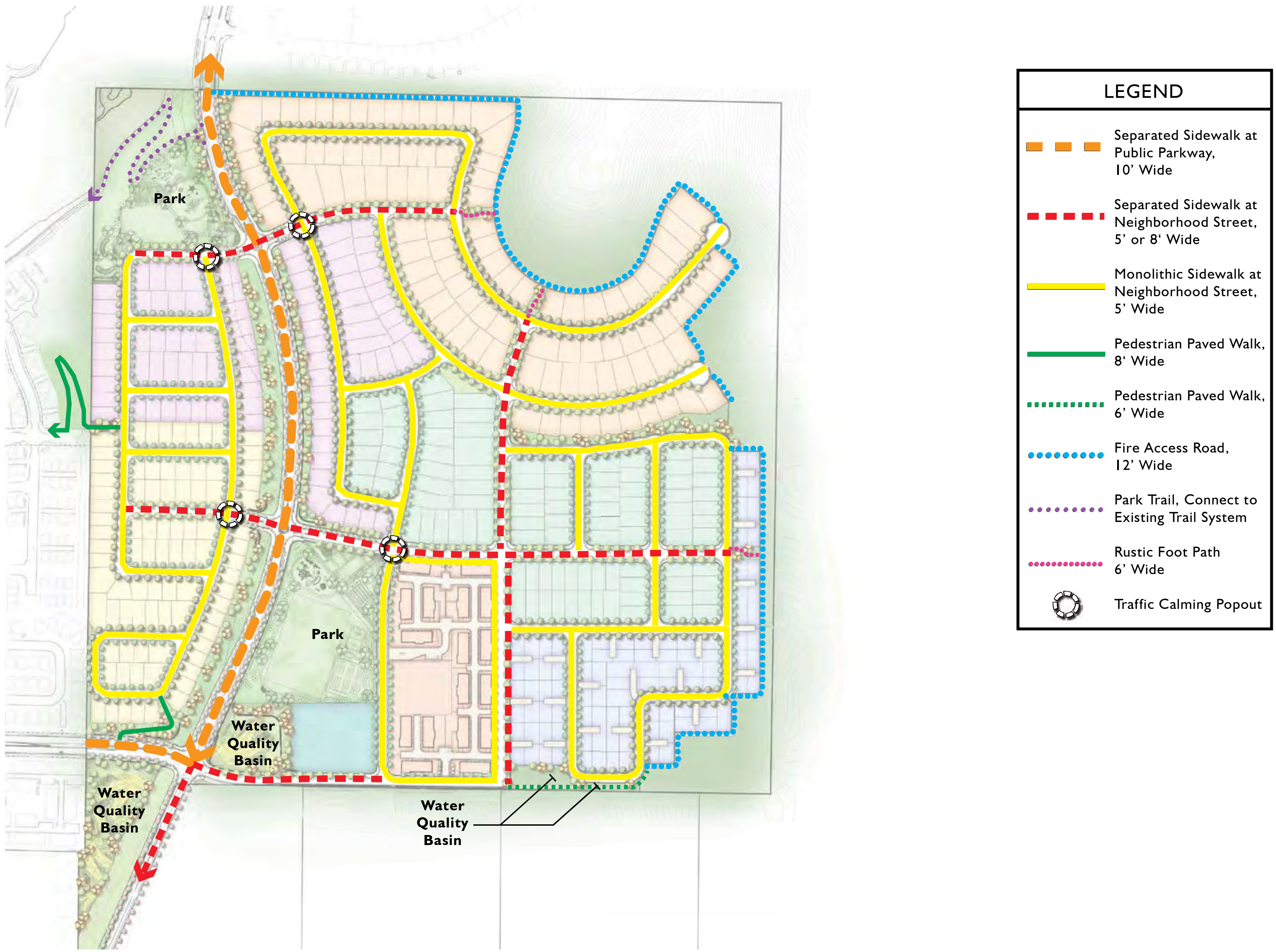
Figure 10: Vehicular Circulation

East Ranch

CEQA Analysis



Source: East Ranch Stage II Planned Development Second Submittal

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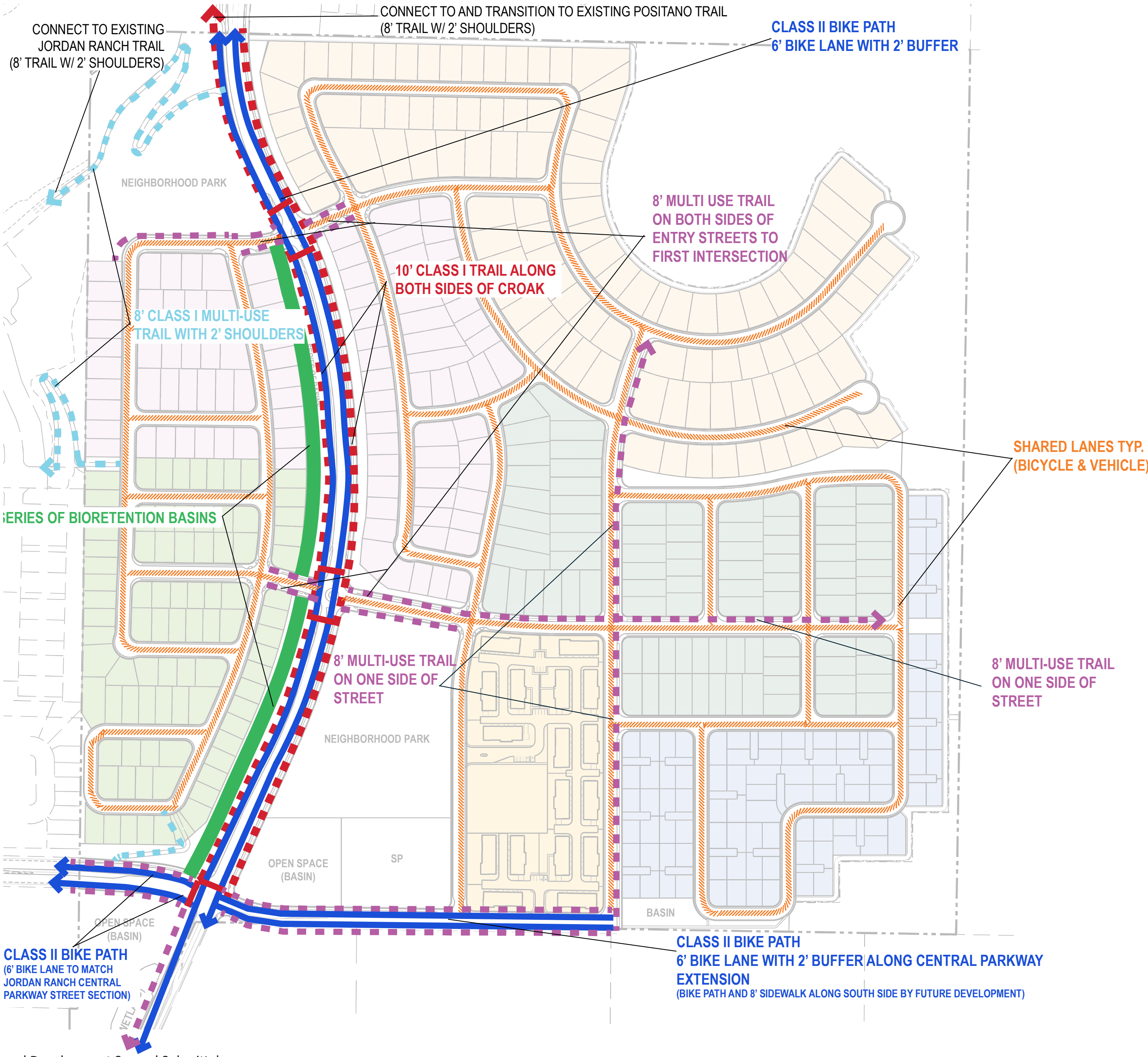
Figure 11: Pedestrian Connectivity Plan

East Ranch

CEQA Analysis

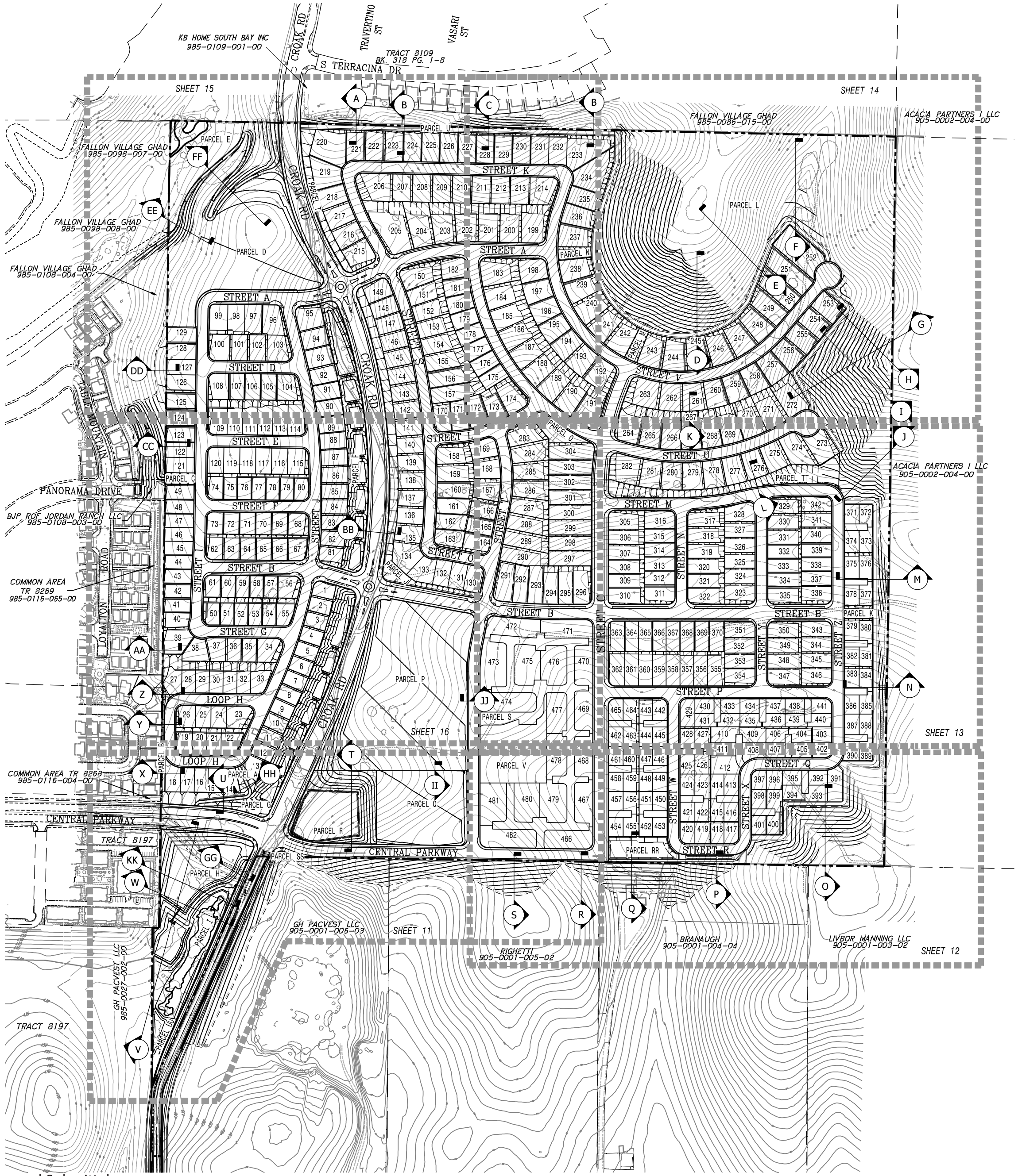


Source: East Ranch Stage II Planned Development Second Submittal

Figure 12: Bicycle Circulation Plan

East Ranch

CEQA Analysis



Source: East Ranch Stage II Planned Development Second Submittal

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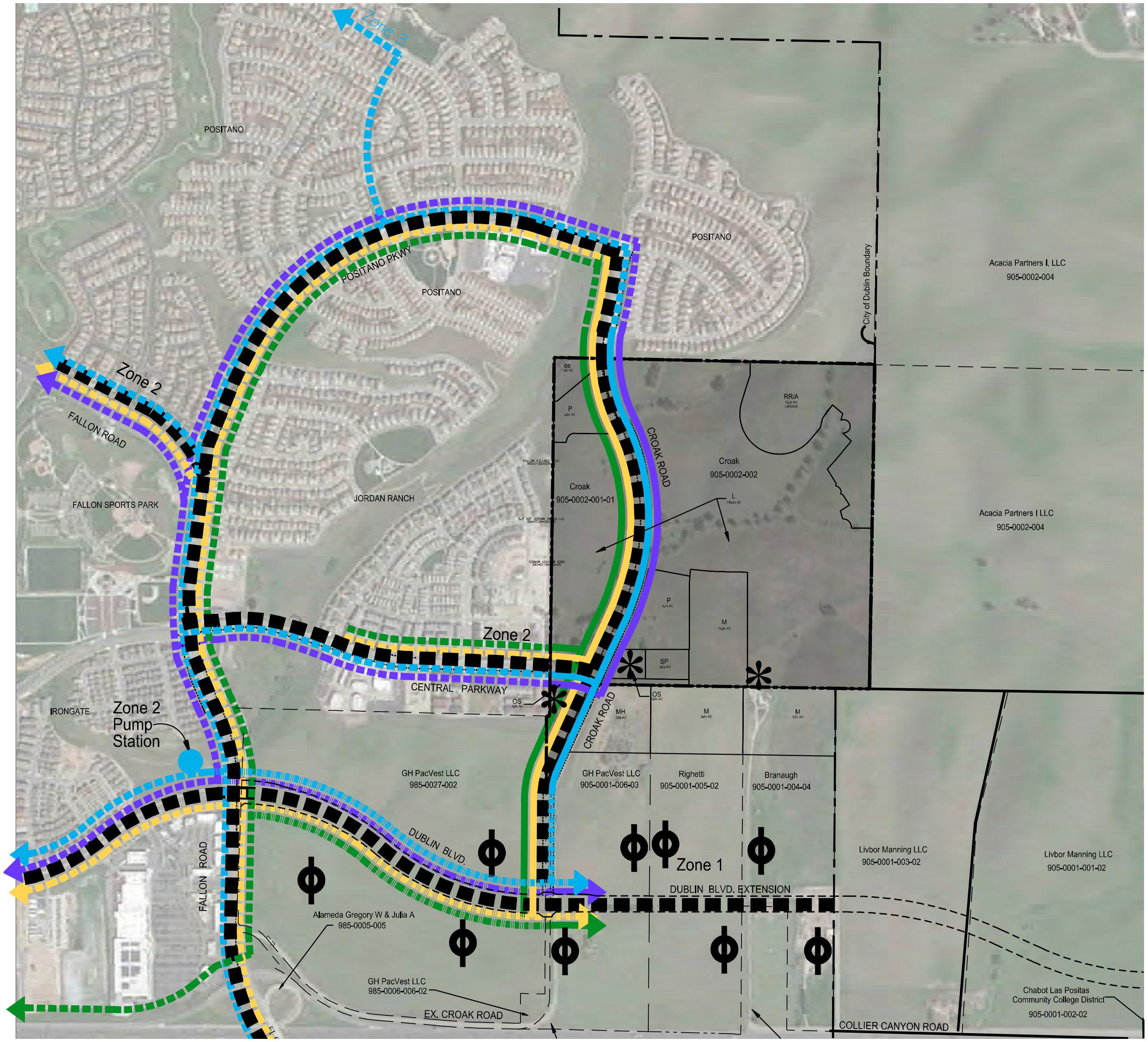
Figure 13: Preliminary Grading Plan

East Ranch

CEQA Analysis



LEGEND

- Water System (by East Ranch developer)
- Future Water System (by others)
- Existing Water System
- Recycled Water System (by East Ranch developer)
- Future Recycled Water System (by others)
- Existing Recycled Water System
- Sewer System (by East Ranch developer)
- Future Sewer System (by others)
- Existing Sewer System
- Storm Drain System (by East Ranch developer)
- Future Storm Drain System (by others)
- Existing Storm Drain System
- Vehicular Circulation
- Pump Station / Turnout / Tank Site
- Existing Property Lines
- Project Site Boundary

NOTE: This plan is conceptual and based on DSRSD's Master Plan. Size and location of utilities will be verified as land plans and demands are developed.

WATER QUALITY FEATURES:

* Approximate location of proposed offline bioretention facilities (basin)

ϕ Commercial/non residential areas may utilize bioretention in parking landscape strips, mechanical devices, water qualtiy basins, or a combination of methods.

Major roadways (those shown with main line utilities) may also utilize street bioretention located in parkway strips.

Source: East Ranch Stage II Planned Development Second Submittal

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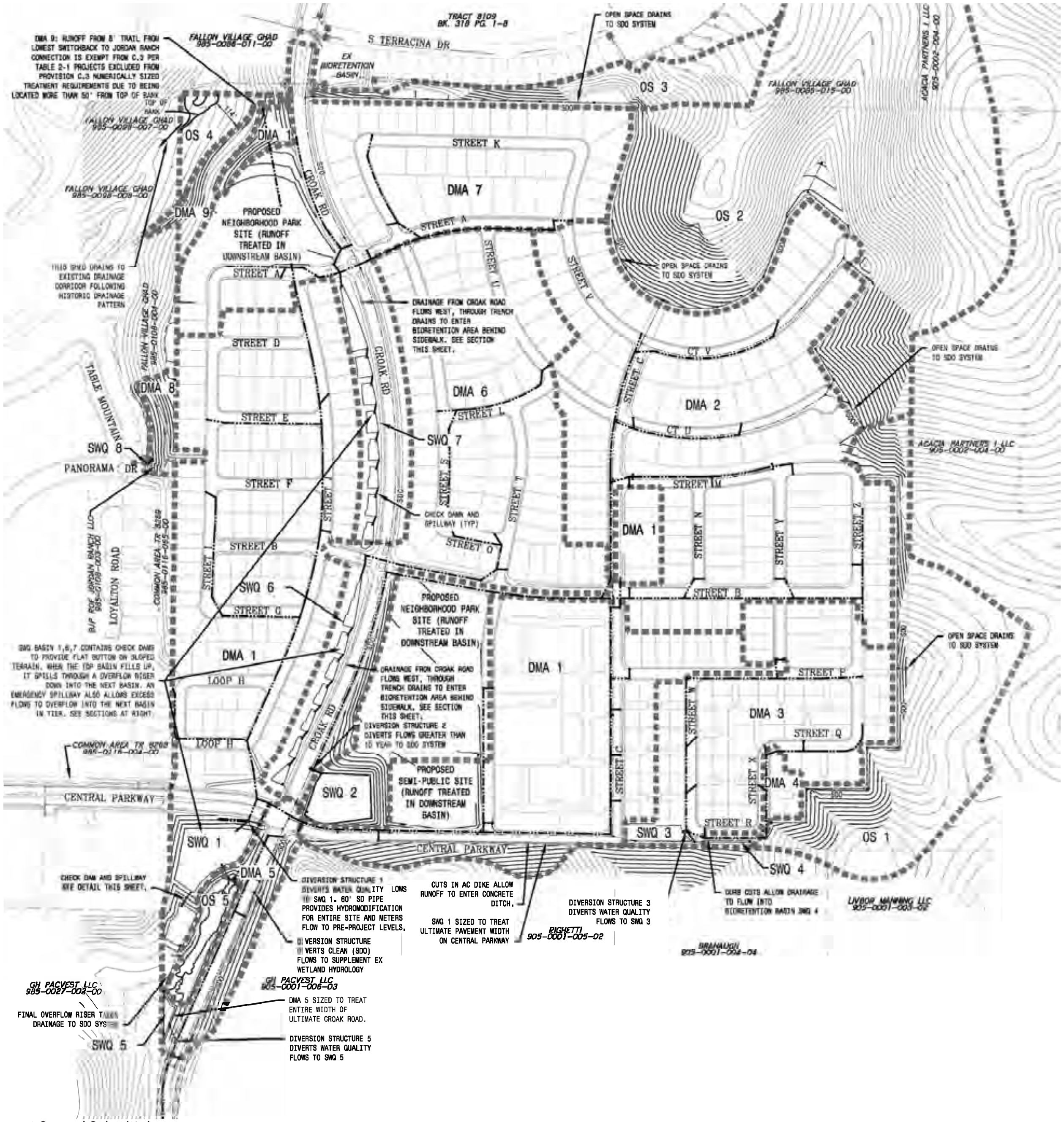
Figure 14: Preliminary Utility Plan

East Ranch

CEQA Analysis



Source: East Ranch Stage II Planned Development Second Submittal

Source: East Ranch Stage II Planned Development Second Submittal

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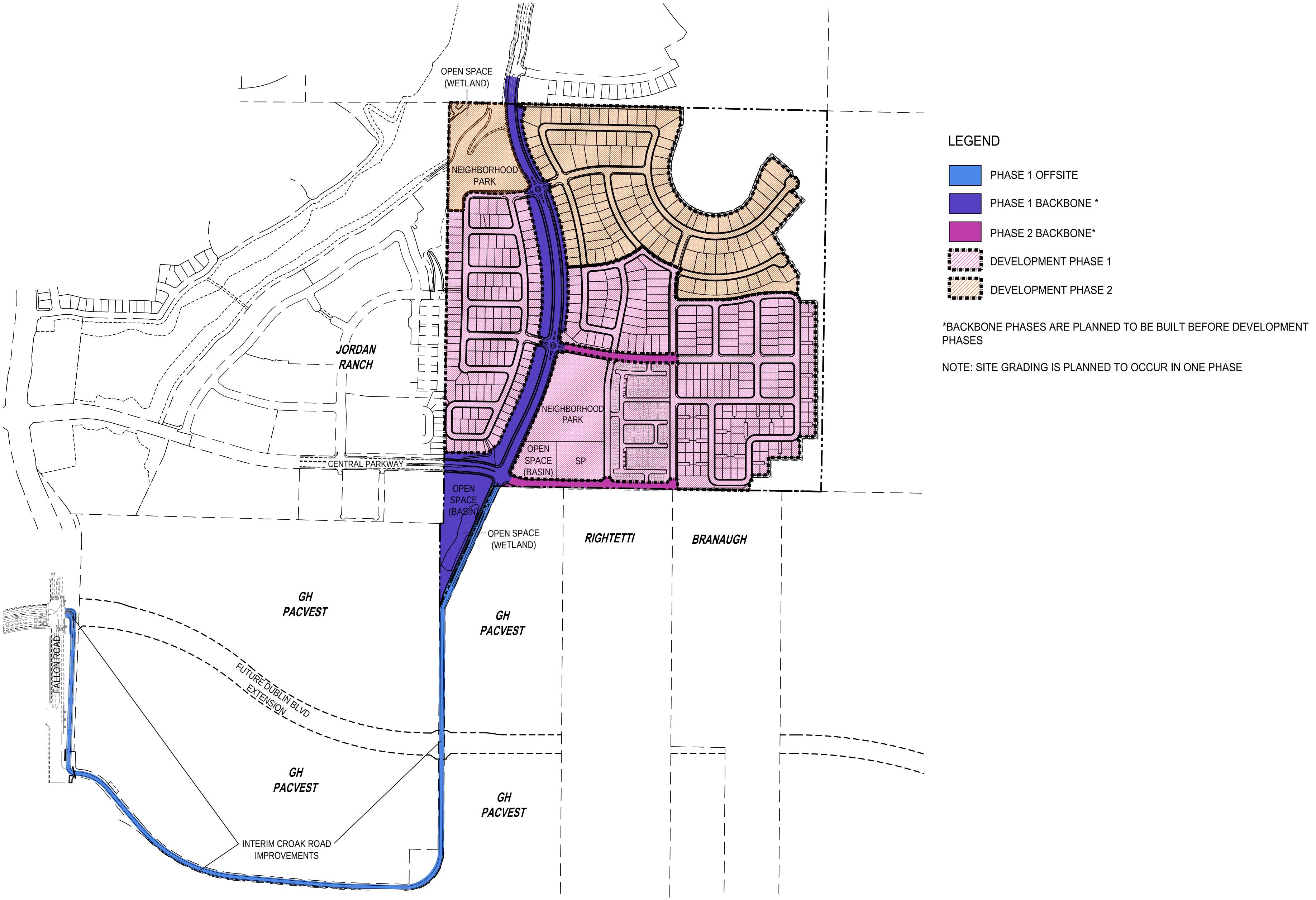
Figure 16: Preliminary Erosion Control Plan

East Ranch

CEQA Analysis



Source: East Ranch Stage II Planned Development Second Submittal

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Figure 17: Preliminary Phasing Plan

East Ranch

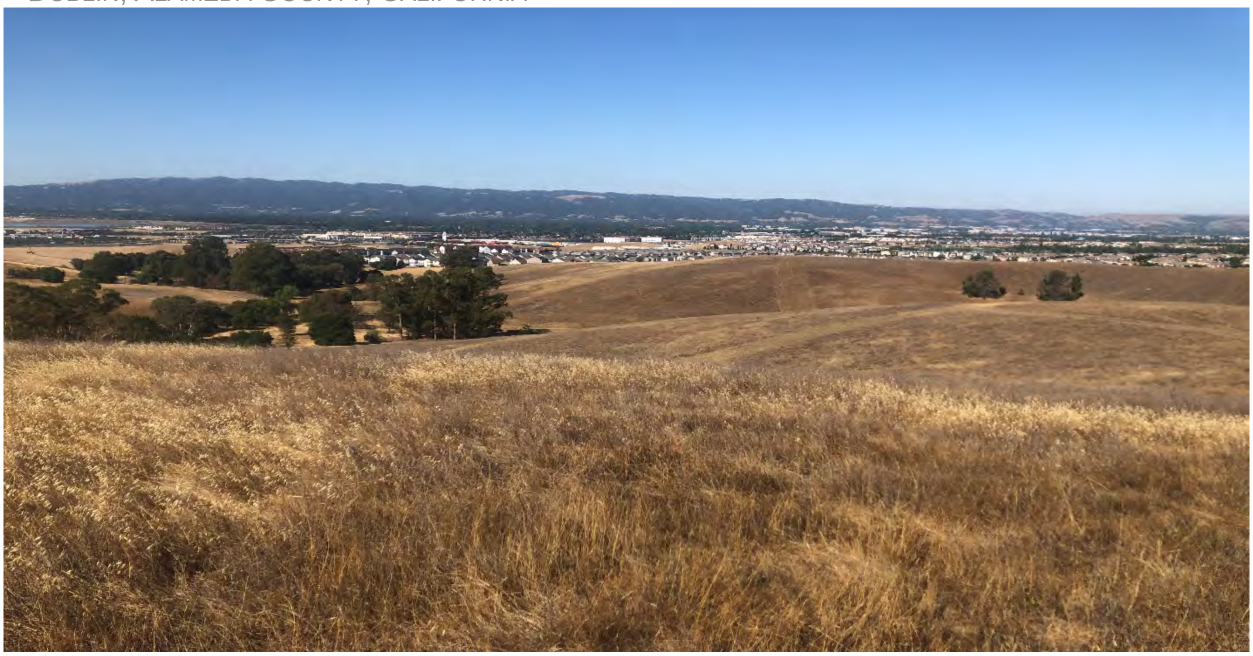
CEQA Analysis

Attachment 7

BIOLOGICAL RESOURCE ASSESSMENT

EAST RANCH DEVELOPMENT PROJECT

DUBLIN, ALAMEDA COUNTY, CALIFORNIA



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WRA #30149
SEPTEMBER 3, 2020

wra ENVIRONMENTAL CONSULTANTS

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LIST OF APPENDICES

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Geoff Smick – Principal-in-Charge
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Nick Brinton – Associate Wildlife Biologist
Ra'am Akiba-Hajim – Plant Biologist
Neal Jander – GIS Analyst

DEFINITIONS

Study Area: The area throughout which the assessment was performed covering approximately 175 acres.
Project Area: The approximately 140-acre portion of the Study Area which is proposed for development.

LIST OF ACRONYMS

BCC	USFWS Birds of Conservation Concern
BGEPA	Bald and Golden Eagle Protection Act
BIOS	Biogeographic Information and Observation System
BRA	Biological Resources Assessment
CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CESA	California Endangered Species Act
CEQA	California Environmental Quality Act
CFGC	California Fish and Game Code
CFP	California Fully Protected Species
CFR	Code of Federal Regulations
CNDDB	California Natural Diversity Database
CNPPA	California Native Plant Protection Act
CNPS	California Native Plant Society
County	County of San Benito
Corps	U.S. Army Corps of Engineers
CRLF	California Red-legged Frog
CSRL	California Soils Resources Lab
CTS	California Tiger Salamander
CWA	Clean Water Act
EFH	Essential Fish Habitat
EIR	Environmental Impact Report
EPA	U.S. Environmental Protection Agency
ESA	Federal Endangered Species Act
Magnusen-Stevens Act	Magnuson-Stevens Fishery Conservation & Management
MBTA	Migratory Bird Treaty Act
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
NRCS	Natural Resource Conservation Service
NWI	National Wetland Inventory
NWPL	National Wetland Plant List
OHWM	Ordinary High Water Mark
Quarry	A.R. Wilson Graniterock Quarry
Rank	California Rare Plant Ranks
RWQCB	Regional Water Quality Control Board
SSC	Species of Special Concern
SSI	Special-status Invertebrates
SWRCB	State Water Resource Control Board
TOB	Top of Bank
USDA	U.S. Department of Agriculture

USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
WBWG	Western Bat Working Group
WRA	WRA, Inc.

1.0 INTRODUCTION

This Biological Resource Assessment evaluates existing biological resources within the 175-acre Study Area located in eastern Dublin, Alameda County, California (Figure 1, Appendix A), and potential impacts to these resources resulting from the development of approximately 573 residences and associated infrastructure for the proposed Croak Ranch project (Project). The area to be developed by the Project (Project Area) consists of approximately 140 acres located within the 175-acre study area. This report supersedes the Biological Resources Assessment submitted to the City of Dublin dated July 15, 2020.

1.1 Overview and Purpose

The purpose of this Biological Resources Assessment is to support an evaluation of whether the proposed Project presents a new significant impact to biological resources, or a substantial increase in the severity of a previously identified significant impact, as compared to the prior environmental reviews conducted pursuant to the California Environmental Quality Act (CEQA) that have evaluated potential development of the Project Area. These prior CEQA reviews certified by the City of Dublin consist of the 1993 Final Environmental Impact Report for the Eastern Dublin General Plan Amendment and Specific Plan (1993 EIR), the 2002 Supplemental EIR for the East Dublin Properties Stage 1 Development Plan (2002 SEIR), and the 2005 Supplemental EIR for the Fallon Village Project (2005 SEIR). This Biological Resources Assessment includes a review of the previous special-status species surveys conducted within the Study Area in connection with the City's prior EIRs (EDGP 1992 & Haag 2005). These prior surveys assessed various special-status species with respect to the Study Area, including but not limited to burrowing owl (*Athene cunicularia*), California red-legged frog (CRLF; *Rana draytonii*), California tiger salamander (CTS; *Ambystoma californiense*). In addition, WRA conducted site assessments on June 25, 2020 and September 2, 2020 to map vegetation, aquatic communities, unvegetated land cover types, document plant and wildlife species present, and evaluate habitat on site for the potential to support special-status species. The analyses and findings in this Biological Resources Assessment are based on currently available studies and information, the conditions observed during the June and September 2020 site assessments, and the professional judgment of the biologists who completed this report.

This Biological Resources Assessment has not identified any new or substantially more severe significant impact to biological resources as compared to the impacts identified in the City's prior CEQA reviews. Conditions within the Study Area have not changed substantially with respect to biological resources since the time the 2005 SEIR was completed. In addition, there are no new circumstances or information that have arisen since completion of the 2005 SEIR that would give rise to a new or substantially more significant impact on biological resources resulting from the proposed Project. In fact, the proposed Project has been revised since the 2005 SEIR was completed to ***reduce*** impacts to biological resources.

1.2 Project Description

The Project proposes to construct approximately 573 homes (465 low density units and 108 medium density units) within six residential neighborhoods. The Project would develop approximately 140 acres, including approximately 126 acres of housing, two neighborhood parks totaling 11.5 acres, and 2 acres for community facilities and other semi-public uses. The Project also would include 6.8 acres of open space and an area of 19.4 acres designated for Rural Residential/Agricultural use, which is not proposed for development as part of the Project.

Additional aspects of the Project would include landscaping and bioretention areas for stormwater flows.

The current proposed Project entails a similar type and density of development for the Project Area as compared to the previously proposed Project evaluated in the 2005 SEIR. However, there are some revisions to the proposed Project that would reduce the impacts to biological resources. The Stage I Planned Development for the Project evaluated in the 2005 SEIR envisioned a roadway intersection that would have impacted a seasonal wetland feature in the southwest corner of the Study Area. This intersection has been realigned and reconfigured to avoid the seasonal wetland, which would be preserved under the current proposed Stage II Planned Development for the Project. Additionally, the current proposed Project would relocate a park area to provide more of a buffer to protect a seasonal wetland swale in the northwest corner of the Study Area, as compared to the previously evaluated development plan for the Project.

2.0 REGULATORY BACKGROUND

The following sections explain the regulatory context of the biological resource assessment, including applicable laws and regulations that were applied to the field investigations and analysis of potential project impacts. Table 1 shows the correlation between these regulations and each Biological Resources question in the Environmental Checklist Form (Appendix G) of the CEQA guidelines.

2.1 Federal and State Regulatory Setting

2.1.1 Vegetation and Aquatic Communities

CEQA review involves evaluation of particular vegetation types defined as sensitive by the California Department of Fish and Wildlife (CDFW), and aquatic communities regulated by laws and regulations administered by the U.S Army Corps of Engineers (Corps), State Water Resources Control Board (SWRCB), and Regional Water Quality Control Boards (RWQCB). The laws and regulations that regulate these resources are summarized below.

<u>Sensitive Natural Communities</u>: Sensitive natural communities include habitats that fulfill special functions or have special values. Natural communities considered sensitive are those identified in local or regional plans, policies, regulations, or by the CDFW. CDFW ranks sensitive communities as "threatened" or "very threatened" (CDFG 2010, CDFW 2020a) and keeps records of their occurrences in its California Natural Diversity Database (CNDDB; CDFW 2020a). CNDDB vegetation alliances are ranked 1 through 5 based on NatureServe's (2020) methodology, with those alliances ranked globally (G) or statewide (S) as 1 through 3 considered sensitive. Impacts to sensitive natural communities identified in local or regional plans, policies, or regulations or those identified by the CDFW or U.S. Fish and Wildlife Service (USFWS) must be considered and evaluated under CEQA (CCR Title 14, Div. 6, Chap. 3, Appendix G). In addition, this general class includes oak woodlands that are protected by local ordinances under the Oak Woodlands Protection Act.

<u>Waters of the United States, Including Wetlands</u>: The United States Army Corps of Engineers (Corps) regulates “Waters of the United States” under Section 404 of the Clean Water Act (CWA). Waters of the United States are defined in the Code of Federal Regulations (CFR) as including the territorial seas, and waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce; tributaries; lakes and ponds; and adjacent

wetlands. (33 CFR Section 328.3). Potential wetland areas, according to the three criteria used to delineate wetlands as defined in the Corps Wetlands Delineation Manual (Environmental Laboratory 1987), are identified by the presence of (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Unvegetated waters including lakes, rivers, and streams may also be subject to Section 404 jurisdiction and are characterized by an ordinary high water mark (OHWM) identified based on field indicators such as the lack of vegetation, sorting of sediments, and other indicators of flowing or standing water. The placement of fill material into Waters of the United States generally requires a permit from the Corps under Section 404 of the CWA.

Table 1. Summary of Biological Resources Evaluation

CEQA Assessment Category[1] IV. -Biological Resources	Biological Resources Considered	Relevant Laws and Regulations	Responsible Regulatory Agency	Summary of Findings & Report Section[2]
Question A. Special-status species	Special-status Plants Special-status Wildlife Designated Critical Habitat	Federal Endangered Species Act (ESA) California Endangered Species Act (CESA) California Native Plant Protection Act (CNPPA) Migratory Bird Treaty Act (MBTA) Bald and Golden Eagle Protection Act (BGEPA)	U.S. Fish and Wildlife Service (USFWS) National Marine Fisheries Service (NMFS) California Department of Fish and Wildlife (CDFW)	No new or substantially more severe significant impacts to special-status plants and wildlife or designated critical habitat were identified, as compared to the City's prior CEQA reviews evaluating the impacts from development of the Project Area. Mitigation measures from the City's prior CEQA reviews would be applied. **See Sections 7.1.1, 7.1.2, and 7.5 for more information**
Question B. Sensitive natural communities & Riparian habitat	Sensitive Natural Communities Streams, Lakes, & Riparian Habitat	California Fish and Game Code (CFGC) Oak Woodland Conservation Act Porter-Cologne Act Clean Water Act (CWA)	California Department of Fish and Wildlife (CDFW) U.S. Army Corps of Engineers (Corps) U.S. Environmental Protection Agency (EPA) State Water Resources Control Board Regional Water Quality Control Board	No new or substantially more severe significant impacts to sensitive natural communities or riparian habitat were identified, as compared to the City's prior CEQA reviews. Mitigation measures from the City's prior CEQA reviews would be applied. **See Section 7.3 for more information**

[1] *CEQA Questions have been summarized here; see Section 6.2 for details.*
[2] *As given in this report; see Section 5.0 subheadings*

CEQA ASSESSMENT CATEGORY[1] IV. -BIOLOGICAL RESOURCES	BIOLOGICAL RESOURCES CONSIDERED	RELEVANT LAWS AND REGULATIONS	RESPONSIBLE REGULATORY AGENCY	SUMMARY OF FINDINGS & REPORT SECTION[2]
Question C. State and federally protected wetlands	Wetlands Unvegetated surface waters	Clean Water Act (CWA) Sections 404/401 Rivers and Harbors Act Section 10 Porter Cologne Act	U.S. Army Corps of Engineers (Corps) U.S. Environmental Protection Agency (EPA) State Water Resources Control Board Regional Water Quality Control Board	No new or substantially more severe significant impacts to jurisdictional waters were identified, as compared to the City's prior CEQA reviews. Mitigation measures from the City's prior CEQA reviews would be applied. **See Section 7.3 for more information**
Question D. Fish & wildlife corridors	Essential Fish Habitat Wildlife Corridors	California Fish and Game Code	California Department of Fish and Wildlife (CDFW)	No new or substantially more severe significant impacts to wildlife corridors were identified, as compared to the City's prior CEQA reviews. Mitigation measures from the City's prior CEQA reviews would be applied. **See Section 7.4 for more information**

CEQA Assessment Category[1]IV. -Biological Resources	Biological Resources Considered	Relevant Laws and Regulations	Responsible Regulatory Agency	Summary of Findings & Report Section[2]
Question E. Local policies	Protected Trees Coastal zone resources Other biological protections	Local Tree Ordinance General Plan (e.g., Stream & Wetland Setbacks) Local ordinances	Local and regional agencies California Coastal Commission San Francisco Bay Conservation and Development Commission	No new or substantially more severe significant impacts were identified with respect to local policies regarding biological resources, as compared to the City's prior CEQA reviews. Compliance with the mandatory requirements of the City's Heritage Tree Ordinance would avoid any significant impacts to the extent any heritage trees would be affected by development. **See Section 7.6 for more information**
Question F. Local, state, federal conservation plans	Habitat Conservation Plans Natural Community Conservation Plans	Federal Endangered Species Act (ESA) Natural Community Conservation Planning Act (NCCPA)	U.S. Fish and Wildlife Service (USFWS) California Department of Fish and Wildlife (CDFW)	No Impacts **See 7.7 for more information**

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Waters of the State, Including Wetlands: The California Porter-Cologne Water Quality Control Act (Porter-Cologne Act) regulates discharges of fill material into “Waters of the State,” which is defined as “any surface water or groundwater, including saline waters, within the boundaries of the state.” The Porter-Cologne Act is implemented by the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCB). In April 2019, the SWRCB adopted the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State*. In addition to the state law provisions of the Porter-Cologne Act, the SWRCB and RWQCB also regulate discharges of fill material into surface waters pursuant to Section 401 of the CWA, which requires a state Water Quality Certification for activities permitted by the Corps under Section 404 of the CWA.

Sections 1600-1616 of California Fish and Game Code: Sections 1600-1616 of California Fish and Game Code (CFGC) regulate activities impacting the bed, channel, or bank of, any river, stream, or lake. Such activities may require approval by CDFW of a Streambed Alteration Agreement. CDFW regulations in the California Code of Regulations (CCR) define the term “stream,” which includes creeks and rivers, as “a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life [including] watercourses having a surface or subsurface flow that supports or has supported riparian vegetation” (14 CCR Section 1.72). The term “stream” can include ephemeral streams, dry washes, watercourses with subsurface flows, canals, aqueducts, irrigation ditches, and other means of water conveyance if they support aquatic life, riparian vegetation, or stream-dependent terrestrial wildlife (CDFG 1994). Riparian vegetation has been defined as “vegetation which occurs in and/or adjacent to a stream and is dependent on, and occurs because of, the stream itself” (CDFG 1994).

2.1.2 Special-status Species

Endangered and Threatened Plants, Fish and Wildlife. Specific species of plants, fish, and wildlife species may be designated as threatened or endangered under the federal Endangered Species Act (ESA), or under the California Endangered Species Act (CESA). The list of protected species, and the specific protections and permitting mechanisms for listed species, differ under each of these two laws.

The ESA (16 USC 1531 et seq.) is implemented by the United States Fish and Wildlife Service (USFWS) and the National Marine Fisheries Service (NMFS). The USFWS and NMFS maintain lists of "endangered" and "threatened" plant and animal species (referred to as "listed species"). "Proposed" or "candidate" species are those that are being considered for listing, and are not protected until they are formally listed as threatened or endangered. Under the ESA, authorization must be obtained from the USFWS or NMFS prior to take of any listed species. Take under the ESA is defined as “harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct.” Take under the ESA includes direct injury or mortality to individuals, actions that create the likelihood of injury to wildlife by significantly disrupting normal behavioral patterns, and actions that significantly modify the species’ habitat where such modification kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering. Actions that may result in “take” of an ESA-listed species may obtain authorization through the interagency consultation process under ESA Section 7 or through a permit issued under ESA Section 10. Protections for federally listed plant species are more limited than for federally listed animal species. Lastly, the federal ESA also provides for the designation of critical habitat, which consists of specific geographic areas containing physical or biological features “essential to the conservation of the species.” Impacts to critical habitat are addressed through the Section 7 interagency consultation process for actions that require a federal permit or approval.

The CESA (California Fish and Game Code 2050 et seq.) generally prohibits a "take" of any plant or animal species that the California Fish and Game Commission determines to be an endangered or threatened species in California. The CESA take prohibition also applies to “candidate species” that are proposed for state listing as threatened or endangered. The definition of a "take" under CESA ("hunt, pursue, catch, capture, or kill, or attempt to hunt, pursue, catch, capture, or kill") only applies to direct impact to individuals, and does not extend to habitat impacts or harassment. CDFW may issue an Incidental Take Permit under CESA to authorize take if it is incidental to otherwise lawful activity and if specific criteria are met. Take of these species is also authorized if the geographic area is covered by a Natural Community Conservation Plan (NCCP), as long as the NCCP covers that activity.

<u>Fully Protected Species and Designated Rare Plant Species.</u> This category includes specific plant and wildlife species that are designated in the CFGC as “Fully Protected” even if not listed under CESA or the ESA. Fully Protected species includes specific lists of birds, mammals, reptiles, amphibians, and fish designated in the CFGC. Fully protected species may not be taken or possessed at any time, and no licenses or permits may be issued for take of fully protected species, except for necessary scientific research and conservation purposes. The definition of "take" is the same under the California Fish and Game Code and the CESA.

Under the California Native Plant Protection Act (NPPA), CDFW has listed 64 “rare” or “endangered” plant species, and prevents “take”, with few exceptions, of these species. CDFW may authorize take of species protected by the NPPA through the Incidental Take Permit process, or under a NCCP.

<u>Special Protections for Nesting Birds and Bats.</u> The federal Bald and Golden Eagle Protection Act provides protections to both of North America’s eagle species (bald [*Haliaeetus leucocephalus*] and golden eagle [*Aquila chrysaetos*)] that in some regards are similar to those provided by the ESA. In addition to regulations for special-status species, most native birds in the United States, including non-status species, have baseline legal protections under the Migratory Bird Treaty Act of 1918 and under the CFGC, i.e., sections 3503, 3503.5 and 3513. Under these laws/codes, the harm or collection of adult birds as well as the collection or destruction of active nests, eggs, and young is generally prohibited. For bat species, the Western Bat Working Group (WBWG) designates conservation status for species of bats, and those with a high or medium-high priority are typically given special consideration under CEQA.

<u>Species of Special Concern, Movement Corridors, and Other Special Status Species Under CEQA.</u> In addition to the categories discussed above, CDFW has developed a list of special species as “a general term that refers to all of the taxa the CNDDB is interested in tracking, regardless of their legal or protection status.” This list includes lists developed by other organizations, including for example, the Audubon Watch List Species, the Bureau of Land Management Sensitive Species, and USFWS Birds of Special Concern. Plant species on the California Native Plant Society (CNPS) Rare and Endangered Plant Inventory (Inventory) with California Rare Plant Ranks (Rank) of 1, 2, and 3 are generally considered special-status plant species under CEQA. Rank 4 species are typically considered under CEQA only when such species are particularly unique to the locale (e.g., range limit, low abundance/low frequency, limited habitat) or are otherwise considered locally rare. Additionally, any species listed as sensitive within local plans, policies and ordinances are likewise considered sensitive. Movement and migratory

corridors for native wildlife (including aquatic corridors) as well as wildlife nursery sites are also typically considered under CEQA.

2.2 Local Regulatory Setting

East Alameda County Conservation Strategy

Although not formally adopted as a Habitat Conservation Plan, the East Alameda County Conservation Strategy (EACCS) is intended to provide an effective framework to protect, enhance, and restore natural resources. In this document, conservation priorities are given as guidelines to protect the resources known to occur in the conservation zones. The priorities for the Conservation Zone 2 (CZ-2), which the Study Area is located in, are listed below:

Select Policies from the East Alameda County Conservation Strategy

- Protection of burrowing owl nesting and foraging habitat.
- Surveys for Congdon's tarplant (*Centromadia parryi* ssp. *congdonii*) and protection of extant populations.
- Protection of vernal pool habitat.

City of Dublin Heritage Tree Ordinance

The City of Dublin encourages the preservation of heritage trees through its development review and permit approval process. Chapter 5.60, "Heritage Trees", of the City of Dublin Municipal Code defines a heritage tree as any oak, bay, cypress, maple, redwood, buckeye and sycamore tree having a trunk or main stem of twenty-four (24) inches or more in diameter at four (4) feet six (6) inches above natural grade; a tree required to be preserved as part of an approved development plan, zoning permit, use permit, site development review of subdivision map; or a tree required to be planted as a replacement for an unlawfully removed tree. A tree permit is required for the removal of any heritage tree as defined above on public or private property. Furthermore, the City may require additional conditions barring the issuance of a tree removal permit including that one (1) or more replacement trees be planted of a designated species, size and location.

City of Dublin General Plan

The *City of Dublin General Plan* (City General Plan) contains goals, objectives, and policies associated with preservation and management of biological resources within the City. A listing of policies with potential relevance to this analysis is provided below.

Select Policies from the City General Plan Conservation Element

- Policy 7.3.1 A-1: Maintain natural hydrologic systems.

Previous Environmental Impact Reports

As noted above, the City completed and certified three prior EIRs that have evaluated development of the Project Area. First, in August 1994, the City certified the 1993 EIR (entitled the Eastern Dublin General Plan Amendment and Specific Plan Environmental Impact Report), which analyzed general plan amendments encompassing a 6,920-acre area and a specific plan encompassing a 3,328-acre area. The specific plan provides a comprehensive planning framework for future development in Eastern Dublin and it was last updated on September 20, 2016. The 1993 EIR examined the direct and indirect effects, cumulative impacts, broad policy alternatives, and area wide mitigation measures for developing Eastern Dublin, which includes the Project Area.

Second, in March 2002, the City certified a Supplemental EIR (2002 SEIR) evaluating the PD-Planned Development Stage 1 Development Plan for Fallon Village. Fallon Village consists of 1,132 acres within the Eastern Dublin Specific Plan Area and includes the current Project Area.

The 2002 SEIR provided an updated analysis of biological resources impacts and mitigation measures.

Third, in 2005, the City prepared a second Supplemental EIR (2005 SEIR) evaluating development of the Fallon Village Area. As part of the 2005 SEIR, multiple intensive biological assessments were conducted, including protocol-level species surveys, which covered the Project Area. These surveys did not identify any new special-status species or sensitive habitats that were not previously considered. The 2005 SEIR updated species distribution information and regulatory circumstances (e.g. listing of the California tiger salamander, and proposed critical habitat for the California red-legged frog). The City adopted additional mitigation measures as part of its certification the 2005 SEIR.

3.0 ASSESSMENT METHODOLOGY

On June 25, 2020 and September 2, 2020, WRA biologists visited the Study Area to map vegetation, aquatic communities, unvegetated land cover types, document plant and wildlife species present, and evaluate habitat on site for the potential to support special status species. Prior to the site visits, WRA biologists reviewed literature resources and performed database searches to assess the potential for sensitive biological communities (e.g., wetlands) and special-status species (e.g., endangered plants), including:

- Soil Survey of Livermore Area, California (USDA 1910)
- Livermore 7.5-minute quadrangle (USGS 2020)
- Contemporary aerial photographs (Google Earth 2020)
- Historical aerial photographs (Historical Aerials 2020)
- National Wetlands Inventory (USFWS 2020a)
- California Natural Diversity Database (CNDDB, CDFW 2020a)
- California Native Plant Society Electronic Inventory (CNPS 2020a)
- Consortium of California Herbaria (CCH 2020)
- USFWS List of Federal Endangered and Threatened Species (USFWS 2020b)
- eBird Online Database (eBird 2020)
- CDFW Publication, California Bird Species of Special Concern in California (Shuford and Gardali 2008)
- CDFW and University of California Press publication California Amphibian and Reptile Species of Special Concern (Thomson et al. 2016)
- A Field Guide to Western Reptiles and Amphibians (Stebbins 2003)
- A Manual of California Vegetation, 2nd Edition (Sawyer et al. 2009)
- A Manual of California Vegetation Online (CNPS 2020b)
- Preliminary Descriptions of the Terrestrial Natural Communities (Holland 1986)
- California Natural Community List (CDFW 2020b)

Database searches (i.e., CNDDB, CNPS) focused on the Livermore USGS 7.5-minute quadrangle as well as the surrounding eight quadrangles (La Costa Valley, Niles, Dublin, Diablo, Tassajara, Byron Hot Springs, Altamont and Mendenhall Springs) for special-status plants. The special-status wildlife evaluation was based on database searches for these same USGS quadrangle areas. Figure 4 and Figure 5 in Appendix A show observations of special-status plant and wildlife species (respectively) documented within a five-mile radius of the Study Area.

Following the remote assessment, WRA biologists completed a field review over the course of one day to document: (1) land cover types (e.g., terrestrial communities, aquatic resources), (2) existing conditions and to determine if such provide suitable habitat for any special-status plant or wildlife species, (3) if and what type of aquatic natural communities (e.g., wetlands) are present, and (4) if special-status species are present[3].

3.1 Vegetation Communities and Other Land Cover Types

During the site visits, WRA evaluated the species composition and area occupied by distinct vegetation communities, aquatic communities, and other land cover types. Mapping of these classifications utilized a combination of aerial imagery and ground surveys. In most instances, communities are characterized and mapped based on distinct shifts in plant assemblage (vegetation), and follow the California Natural Community List (CDFW 2020b), Preliminary Descriptions of the Terrestrial Natural Communities of California (Holland 1986), and A Manual of California Vegetation, Online Edition (CNPS 2020b). These vegetation manuals cannot anticipate every component of every potential vegetation assemblage in California, and so in some cases, it is necessary to identify other appropriate vegetative classifications based on best professional judgment of WRA biologists. When undescribed variants are used, it is noted in the description. Vegetation alliances (natural communities) with a CDFW Rank of 1 through 3 (globally critically imperiled (S1/G1), imperiled (S2/G2), or vulnerable (S3/G3), were evaluated as sensitive as part of this evaluation.

The site was delineated on June 25, 2020 for the presence of wetlands and other aquatic resources according to the methods described in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* ("Corps Manual"; Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West* ("Arid West Supplement"; Corps 2008), and A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States (Lichvar and McColley 2008). Areas meeting these indicators were mapped as aquatic resources and categorized using the vegetation community classification methods described above. The presence of riparian habitat was evaluated based on woody plant species meeting the definition of riparian provided in *A Field Guide to Lake and Streambed Alteration Agreements, Section 1600-1607, California Fish and Game Code* (CDFG 1994) and based on best professional judgement of biologists completing the field surveys.

3.2 Special-status Species

3.2.1 General Assessment

Potential occurrence of special-status species in the Study Area was evaluated by first determining which special-status species occur in the vicinity of the Study Area through a literature and database review as described above. Presence of suitable habitat for special-status species was evaluated during the site visits based on physical and biological conditions of the site, as well as the professional expertise of the investigating biologists. The potential for each special-status species to occur in the Study Area was then determined according to the following criteria:

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[3] Due to the timing of the assessment, it may or may not constitute protocol-level species surveys; see Section 4.2 if the site assessment would constitute a formal or protocol-level species survey.

- No Potential. Habitat on and adjacent to the site is clearly unsuitable for the species requirements (foraging, breeding, cover, substrate, elevation, hydrology, plant community, site history, disturbance regime).

- Unlikely. Few of the habitat components meeting the species requirements are present, and/or the majority of habitat on and adjacent to the site is unsuitable or of very poor quality. The species is not likely to be found on the site.

- Moderate Potential. Some of the habitat components meeting the species requirements are present, and/or only some of the habitat on or adjacent to the site is unsuitable. The species has a moderate probability of being found on the site.

- High Potential. All of the habitat components meeting the species requirements are present and/or most of the habitat on or adjacent to the site is highly suitable. The species has a high probability of being found on the site.

- Present. Species is observed on the site or has been recorded (i.e. CNDDB, other reports) on the site in the recent past.

If a special-status species was observed during the site visits, its presence was recorded and discussed below in Section 5.2. If designated critical habitat is present for a species, the extent of critical habitat present and an evaluation of critical habitat elements is provided as part of the species discussions below.

3.2.2 Special-status Plants

For this assessment, no species-specific surveys were conducted, only a general habitat survey during the June and September site visits. After assessing the condition of the site, and reviewing conditions reported during previous surveys as part of the 2005 SEIR, conditions were determined to be functionally the same as they were when the previous surveys were conducted. As such, the results of those assessments were still considered valid as the current habitat conditions have not significantly changed from the previous assessments such that any species previously detected or assessed as having potential to occur may still be present, and no conditions were noted that might otherwise have excluded previously documented species.

3.2.3 Special-status Wildlife

For this assessment, no species-specific surveys were conducted, only a general habitat survey during the June and September site visits. After assessing the condition of the site, and reviewing conditions reported during previous focused surveys as part of the 2005 SEIR, conditions were functionally the same as they were when the previous species-specific surveys were conducted. As such, the results of those focused assessments were still considered valid as the current habitat conditions have not significantly changed from the previous assessments such that any species previously detected or assessed as having potential to occur may still be present, and no conditions were noted that might otherwise have excluded previously documented species.

3.3 Wildlife Corridors and Native Wildlife Nursery Sites

To account for potential impacts to wildlife movement/migratory corridors, biologists reviewed maps from the California Essential Connectivity Project (CalTrans 2010), and habitat connectivity data available through the CDFW Biogeographic Information and Observation System (BIOS)

(Rustigian-Romsos 2017, Gogol-Prokurat 2014). Additionally, aerial imagery (Google 2020) for the local area was referenced to assess if local core habitat areas were present within, or connected to the Study Area. This assessment was refined based on observations of on-site physical and/or biological conditions, including topographic and vegetative factors that can facilitate wildlife movement, as well as on-site and off-site barriers to connectivity.

The potential presence of native wildlife nursery sites is evaluated as part of the site visits and discussion of individual wildlife species below. Examples of native wildlife nursery sites include nesting sites for native bird species (particularly colonial nesting sites), marine mammal pupping sites, and colonial roosting sites for other species (such as for monarch butterfly).

3.4 Critical Habitat

Critical habitat is a term defined in the ESA as a specific and formally designated geographic area that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. The ESA requires federal agencies to consult with the USFWS to conserve listed species on their lands and to ensure that any activities or projects they fund, authorize, or carry out will not jeopardize the survival of a threatened or endangered species. In consultation for those species with designated critical habitat, federal agencies must also ensure that their activities or projects do not adversely modify designated critical habitat to the point that it will no longer aid in the species' recovery. In many cases, this level of protection is similar to that already provided to species by the ESA jeopardy standard. However, areas within designated critical habitat that are currently unoccupied by the species, but which are needed for the species' recovery, are protected by the prohibition against adverse modification of critical habitat.

4.0 ECOLOGICAL SETTING

The approximately 175-acre Study Area is located in the City of Dublin, Alameda County, California. The Study Area is approximately 0.5 mile north of I-580, and directly abuts developments to the west and north. The Study Area includes all areas within the Croak parcel, though not all areas will be developed or disturbed as part of the Project. Additional details for the local setting are below.

4.1 Soils and Topography

The overall topography of the Study Area is steep hills with some flat or gentle slopes along the western portion, with elevations ranging from approximately 415 to 730 feet above sea level. Seven soils are mapped in the Study Area and can be seen on Figure 2 in Appendix A: (1) Linne clay loam, 15 to 30 percent slopes (54.48 percent of the Study Area); (2) Linne clay loam, 3 to 15 percent (31.90 percent of the Study Area); (3) Linne clay loam, 30 to 45 percent slopes, eroded (5.79 percent of the Study Area); (4) Pescadero clay (3.82 percent of the Study Area); (5) Diablo clay, very deep, 3 to 15 percent slopes (3.64 percent of the Study Area); (6) Clear Lake clay, drained, 0 to 2 percent slopes, MLRA 14 (0.25 percent of the Study Area); and (7) Rincon clay loam, 3 to 7 percent slopes (0.12 percent of the Study Area) slopes (CSRL 2020). Only one of the soils Clear Lake clay is considered a hydric soils (CSRL 2020).

The Linne series consists of moderately deep, well drained soils that formed in material weathered from fairly soft shale and sandstone. Pescadero clay consists very deep, poorly drained soils that formed in alluvium from sedimentary rocks. Diablo clay consists well drained with slow runoff and slow permeability. Clear Lake clay consists of very deep, poorly drained soils that formed in fine textured alluvium derived from mixed rock sources. Rincon clay loam consists of deep, well drained soils that formed in alluvium from sedimentary rocks.

4.2 Climate and Hydrology

The Study Area is located in the inland region of Dublin, Alameda County. The average monthly maximum temperature in the area is 73 degrees Fahrenheit, while the average monthly minimum temperature is 47.4 degrees Fahrenheit. Predominantly, precipitation falls as rainfall between November and March with an annual average precipitation of 13.78 inches. The local watershed is split between Lower Arroyo Las Positas (HUC 12: 180500040203) and Lower Arroyo Mocho (HUC 12: 180500040302), and the regional watershed is San Francisco Bay (HUC 8: 18050004. There is a single linear feature in the National Wetlands Inventory (NWI; USFWS 2020a) described as palustrine, emergent freshwater, temporarily flooded wetland that runs from the northeast to the southwest before continuing south outside the boundary. Detailed descriptions of aquatic resources are provided in Section 5.1 below.

4.3 Land-use

The majority of the Study Area is undeveloped grassland covering steep hillslopes. Undeveloped areas consist primarily of grassland with some non-native planted tree cover, while developed areas include roadways and an abandoned home site. Detailed plant community descriptions are included in Section 5.1 below, and all observed plants are included in Appendix B-1. Surrounding land uses include housing development and ranching (Google Earth 2020). Historically, the Study Area was grassland and used for dry farming, but was planted with predominantly non-native trees in the early 1980's and has been ungrazed for at least the last 5 years (Historic Aerials 2020). A series of five buildings are located within the western portion of the Study Area, and are associated with former ranching operations including: the ranch home, tack room, barn, garage and a coop. Most of the buildings are currently in a state of disrepair and are at least partially collapsing.

5.0 ASSESSMENT RESULTS

5.1 Vegetation Communities and Other Land Cover

WRA observed six land cover types within the Study Area: drainage swale, seasonal wetland, seasonal wetland swale, eucalyptus woodland, non-native annual grassland, and developed/ruderal. Land cover types within the Study Area are illustrated in Figure A-4 (Appendix A). The non-sensitive land cover types in the Study Area and Study Area include eucalyptus woodland, non-native annual grassland and developed/ruderal, while the sensitive communities include the drainage swales, seasonal wetland swale, and a seasonal wetland.

Table 2. Land Cover Types

Community/Land Covers	Sensitive Status	Rarity Ranking	Acres within Study Area
Terrestrial Community/Land Cover			
Eucalyptus woodland	Non-sensitive	N/A	8.53
Non-native Annual Grassland	Non-sensitive	N/A	161.25
Developed/Ruderal	Non-sensitive	N/A	4.27
Aquatic Resources			
Drainage Swale	Sensitive	N/A	0.08
Seasonal Wetland	Sensitive	N/A	0.40
Seasonal Wetland Swale	Sensitive	N/A	0.15

5.1.1 Terrestrial Land Cover

There are three terrestrial land covers in the Study Area including eucalyptus woodland, non-native annual grassland, and developed/ruderal. None of the terrestrial land covers are considered sensitive, photographs of these land covers can be seen in Appendix D Site Photos.

<u>Non-native Grassland. CDFW Rank: None.</u> Non-native annual grasslands are the dominant habitat and comprise approximately 161 acres within the Study Area. The grassland areas have been ungrazed for at least five years. Characteristic plant species consist of introduced grasses including wild oat, ripgut brome (Bromus hordeaceus), Mediterranean barley (Hordeum murinum), and soft chess.

<u>Non-native Eucalyptus Woodland. CDFW Rank: None</u>. Eucalyptus woodland is present in several areas within the Study Area in separate groves that run between hillslopes. Eucalyptus woodland is not a naturally occurring plant community and these woodlands were planted by the Croak family in the 1980s. Eucalyptus woodlands within the Study Area consisted of planted blue gum eucalyptus (*Eucalyptus globulus*) with understory of non-native annual species such as oat (*Avena* spp.), soft chess (*Bromus hordeaceus*), Italian thistle (*Carduus pycnocephalus*), and bristly ox tongue (*Helminthotheca echioides*). This community is not considered sensitive by the City of Dublin, CDFW, or any other regulatory entity.

Developed/Ruderal. CDFW Rank: None. Developed/ruderal areas include Croak Road and Central Parkway within the Study Area, in addition to five old farm buildings that are no longer in use within the southwest portion of the Study Area. Surrounding the buildings includes both planted eucalyptus woodlands and other planted ornamental trees. This community is not considered sensitive by the City of Dublin, CDFW, or any other regulatory entity.

5.1.2 Aquatic Resources

Drainage Swale. CDFW Rank: Sensitive. Drainage swales are present along the north central boundary of the Study Area. Two drainage swales begin at separate geotechnical subdrains that flow out from the Positano residential community just to the north of the Study Area and flow south downhill before dissipating into eucalyptus woodlands. These drainage swales are dominated by watercress (*Nasturtium officinale*), Italian rye grass (*Festuca perennis*), and rabbitsfoot grass (*Polypogon monspeliensis*). Drainage swales are a sensitive biological community.

Seasonal Wetlands. CDFW Rank: Sensitive. A seasonal wetland is present in the southwest corner of the Study Area. The seasonal wetland begins at the southern edge of a culvert that crosses under Central Parkway and continues southwest before dissipating into dense vegetation, however this feature existed prior to the development that established the culvert under Central Parkway (Google Earth 2020). This seasonal wetland is surrounded by non-native grasslands, and tree species such as non-native blue gum eucalyptus, cottonwood (*Populus fremontii*), coast live oak (*Quercus agrifolia*), and non-native weeping willow (*Salix babylonica*). This seasonal wetland contains species such as irisleaf rush (*Juncus xiphioides*), pacific rush (*Juncus effusus* ssp. *pacificus*), and Italian rye grass. Seasonal wetlands are sensitive biological communities.

Prior to the delineation on June 25, 2020, the NWI was used to determine the potential presence of wetlands and/or non-wetland waters within the Study Area. NWI analyzes aerial imagery and uses photographic signatures to identify wetland or waters features at an approximately 1:65,000 scale. But to determine whether wetland or other aquatic features identified via aerial imagery are actually present, requires a field assessment that corroborates the signature of wetland habitat to wetland indicators (USFWS 2020). NWI mapped features within the Project Area based on an image from 1985. As part of the delineation on June 25, 2020, WRA did a field visit and assessed the conditions of the area mapped by the NWI to determine the presence or lack thereof of wetland indicators. The seasonal wetland feature was partially mapped by the NWI from an aerial image from 1985 as a linear feature that flowed from northeast to southwest (USFWS 2020) through the middle of the site within a low point between the slopes of large hills. During the site assessment, WRA examined the northeastern area for wetland indicators or other indicators of flow, but found no evidence that flow or wetlands were present. This area contains a uniform row of planted blue gum eucalyptus (UPL) on either side of the low point that gradually slopes down the hill. Dense upland vegetation including oat (UPL) and Italian thistle (UPL) was present in the understory.

Seasonal Wetland Swale. CDFW Rank: Sensitive. A seasonal wetland swale is located in the northwest corner of the Study Area and extends out of the boundary to the west before flowing into an intermittent stream present outside of the Study Area. This swale existed prior to the development of the surrounding area, and hydrology for this feature consists of precipitation and sheet flow from the surrounding topography and a culvert from the adjacent Positano development. This seasonal wetland swale is surrounded on both sides by sloping hillsides filled with invasive species, but immediately surrounding the feature are trees such as box elder (*Acer negundo*), Chinese elm (*Ulmus parvifolia*), and coast live oak (*Quercus agrifolia*). This seasonal wetland swale is dominated by yerba mansa (*Anemopsis californica*) and pacific rush. Seasonal wetlands swales are sensitive biological communities.

5.2 Special-status Species

5.2.1 Special-status Plants

Based upon a review of the resource databases listed in Section 3.0, 62 special-status plant species have been documented in the vicinity of the Study Area. Three of these plants, Congdon's tarplant, San Joaquin spearscale, and vernal pool navarretia, have the potential to occur in the Study Area. The remaining species documented from the greater vicinity are unlikely or have no potential to occur for one or more of the following reasons:

- Hydrologic conditions (e.g., tidal, riverine) necessary to support the special-status plant species are not present in the Study Area;
- Edaphic (soil) conditions (e.g., volcanic tuff, serpentine) necessary to support the special-status plant species are not present in the Study Area;
- Topographic conditions (e.g., north-facing slope, montane) necessary to support the special-status plant species are not present in the Study Area;
- Unique pH conditions (e.g., alkali scalds, acidic bogs) necessary to support the special-status plant species are not present in the Study Area;
- Associated natural communities (e.g., interior chaparral, tidal marsh) necessary to support the special-status plant species are not present in the Study Area;
- The Study Area is geographically isolated (e.g. below elevation, coastal environ) from the documented range of the special-status plant species;
- The historical landscape and/or habitat(s) of the Study Area were not suitable habitat prior to land/type conversion (e.g., reclaimed shoreline) to support the special-status plant species;
- Land use history and contemporary management (e.g., grading, intensive grazing) has degraded the localized habitat necessary to support the special-status plant species.

None of the three rare plants with potential to occur within the Study Area were observed to be present during the June 25, 2020 or September 2, 2020 site visits, though neither visit constituted a protocol-level plant survey. Further, protocol-level rare plant surveys conducted by Live Oak Associates did not find any rare plants in the Project Area during surveys in 2019 or the spring of 2020. Additional surveys will be conducted in the fall of 2020 with results forthcoming in December 2020.

Table 3. Potential Special-status Plants

SCIENTIFIC NAME	COMMON NAME	CONSERVATION STATUS	POTENTIAL HABITAT IN THE STUDY AREA
Centromadia parryi ssp. *congdonii*	Congdon's tarplant	Rank 1B.1	Although the grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which offers poor habitat for sensitive species, Congdon's tarplant has been observed within habitat similarly invaded by non-native species in the surrounding area. There are many CNDDB occurrences within five miles of the Study Area (CDFW 2020a).
Extriplex joaquinana	San Joaquin spearscale	Rank 1B.2	Although the Study Area does not contain high quality suitable habitats for this species, San Joaquin spearscale has the potential to be present within the non-native grasslands on Pescadero clay. There are multiple CNNDB occurrences within 1.5 miles of the Study Area (CDFW 2020a).
Navarretia prostrata	prostrate vernal pool navarretia	Rank 1B.1	Although the Study Area does not contain high quality suitable habitats for this species, vernal pool navarretia may be present within the non-native grasslands on Pescadero clay. There is a CNNDB occurrence within 1.2 miles of the Study Area from 2010 (CDFW 2020a).

Congdon's tarplant (Centromadia parryi ssp. congdonii). Rank 1B.1. Moderate Potential. Congdon's tarplant is an annual herb in the sunflower family (Asteraceae) that blooms from May to October (November). It typically occurs on alkaline soils, sometimes described as heavy white clay in valley and foothill grassland habitats ranging from 0 to 755 feet (CDFW 2020a, CNPS 2020a). Known associated species include hyssop loosestrife (*Lythrum hyssopifolia*), coyote thistle (*Eryngium* sp.), rabbit's-foot grass, and Bermuda grass (*Cynodon dactylon*) (CDFWa).

Congdon's tarplant has moderate potential to occur within the Study Area due to the presence of suitable alkaline habitat. Additionally, this species has been documented in similar conditions within 1.5 miles of the Study Area (CNDDB 2020). This species was not observed during protocol-level surveys conducted by Live Oak Associates in fall 2019 or early summer 2020 surveys (pers. comm.).

San Joaquin spearscale (*Extriplex joaquinana*). Rank 1B.2. Moderate potential. San Joaquin spearscale is an annual herb in the goosefoot family (Chenopodiaceae) that blooms from April to October. It typically occurs in seasonal alkali sink scrub and wetlands in chenopod scrub, alkali meadow, and valley and foothill grassland habitat at elevations ranging from 0 to 2,740 feet (CDFW 2020a, CNPS 2020a). Known associated species include salt grass, alkali heath (*Frankenia salina*), Mediterranean barley Italian ryegrass, bird's-foot trefoil (*Lotus corniculatus*), docks (*Rumex* spp.), tarplants (*Centromadia parryi, C. pungens*), pickleweed (*Salicornia pacifica*), and fat hen (*Atriplex triangularis*) (CDFW 2020a).

San Joaquin spearscale has moderate potential to occur within the Study Area due to the presence of suitable alkaline habitat. Additionally, this species has been documented in similar conditions near the Study Area (CDFW 2020a).

Prostrate vernal pool navarretia (*Navarretia prostrata*). Rank 1B.1. Moderate Potential. Prostrate vernal pool navarretia (*Navarretia prostrata*) is an annual herb in the phlox family (Polemoniaceae) that blooms from April to July. It typically occurs in mesic and alkaline meadows, seeps and vernal pools within coastal scrub, valley and foothill grassland habitat at elevations ranging from 10 to 3,970 feet (CDFW 2020a, CNPS 2020a). Known associated species include brome grasses (*Bromus* ssp.), saltbushes, oats (*Avena* ssp.), flatface calicoflower (*Downingia pulchella*), woolly marbles (*Psilocarphus* spp.), and popcorn flowers (*Plagiobothrys* spp.) (CNDDB 2020).

Although there are no vernal pools present within the Study Area, prostrate vernal pool navarretia has moderate potential to occur within the Study Area due to the presence of suitable alkaline habitat and known associated species as well as being documented within 1.2 miles of the Study Area (CDFWa).

5.2.2 Special-status Wildlife

Based upon a review of the resources databases listed in Section 3.0, 53 special-status wildlife species have been documented in the vicinity of the Study Area (i.e., within the nine USGS 7.5-minute quadrangles). Of these, 16 species have also been documented in the CNDDB (CDFW 2020) as occurring within a 5-mile radius of the Study Area. The locations of these records are depicted in Figure 5. Appendix C summarizes the potential for each of these species to occur within the Study Area. Those species found to have a moderate, or high potential, or those that are considered present within the Study Area are included below in Table 4. Eleven special-status wildlife species have been observed or have the potential to occur in the Study Area and are discussed below. The remaining 42 species are considered unlikely, or have no potential to occur in the Study Area for one or more of the following reasons:

- The Study Area is outside of the known or historical range of the species;
- The Study Area lacks suitable aquatic habitat (e.g. rivers, streams, vernal pools);
- The Study Area lacks suitable topography (e.g. flat grasslands);
- No mine shafts, caves or rock outcroppings are present;
- There is a lack of connectivity with suitable habitat.

5.2.2.1 Special-status Wildlife with Potential to Occur in the Study Area

While the aforementioned factors contribute to the absence of many special-status wildlife species from the Study Area, the following 7 species were determined to have adequate conditions and locality to warrant a moderate, or high potential to occur. These species are discussed in greater detail below.

Table 4. Potential Special-status Wildlife

Common Name	Scientific Name	Conservation Status	Potential Habitat in the Study Area
Formally Listed Wildlife (FESA, CESA)			
California red-legged frog	*Rana draytonii*	Federal Threatened, State Threatened	This species has been documented in the vicinity around the Study Area and may use the Study Area as either upland dispersal, or upland aestivation habitat. No breeding features are present. The Study Area is also designated as critical habitat for the species.
California tiger salamander	*Ambystoma californiense*	Federal Threatened, State Threatened	This species has been documented breeding in nearby seasonal wetlands. While features within the Study Area are not suitable for breeding, the species may use uplands, especially burrows as upland habitat.
Other Special-status Wildlife (CEQA, other)			
American badger	*Taxidea taxus*	SSC, EACCS	Badgers were observed during spotlight surveys and badger diggings were found in the northeastern portion of the GPA (1992). Ground squirrels are present throughout much of the Study Area, as are grasslands with friable soils. No signs of badger occupation were observed during the site assessment, or during previous focused surveys. The area is also regularly traversed by hikers, and dog walkers making the area less suitable. However, the presence of prey, grassland and friable soils mean there is a moderate potential for the species to occur.
burrowing owl	*Athene cunicularia*	SSC, EACCS	During surveys for the 2005 SEIR, burrowing owl were observed within the Study Area (Haag 2005). As ground squirrel burrows and grasslands are still present throughout the site, it is possible that the species may continue to utilize the Study Area.
grasshopper sparrow	*Ammodramus savannarum*	SSC	The majority of the Study Area is composed of grassland covered hills which may be used by the species for nesting. This species has been observed in the local area surrounding the Study Area (eBird 2020).

loggerhead shrike	*Lanius ludovicianus*	SSC	Open grassland is present within the Study Area to support foraging, and shrubs or trees are present to support nesting. The species has also been observed in the vicinity (eBird 2020).
white-tailed kite	*Elanus leucurus*	CFP	This species has been observed in the local area (eBird 2020). Grasslands like those within the Study Area are typical foraging habitat for the species. Trees and shrubs within the Study Area also may support nesting by the species.

California Red-legged Frog (*Rana draytonii*), Federal-Threatened, CDFW Species of Special Concern. High Potential. The current distribution of this species includes only isolated localities in the Sierra Nevada, northern Coast and Northern Traverse Ranges. It is still common in the San Francisco Bay Area and along the central coast (USFWS 2002). This species requires four habitat components: aquatic breeding, upland, aquatic non-breeding, and dispersal habitats. Aquatic breeding habitat consists of low-gradient freshwater bodies, including natural and manmade ponds, backwaters within streams, and marshes. Upland habitats include areas within 300 feet of aquatic and riparian habitat and are comprised of grasslands, woodlands, and/or vegetation that provide shelter, forage, and predator avoidance. These upland features provide feeding and sheltering habitat for juvenile and adult frogs (e.g. shelter, shade, moisture, cooler temperatures, a prey base, foraging opportunities, and areas for predator avoidance). Upland habitat can include structural features such as boulders, rocks, and organic debris (e.g. downed trees, logs), as well as small mammal burrows and moist leaf litter (USFWS 2010). Aquatic non-breeding habitat may or may not hold water long enough for this species to hatch and complete its aquatic life cycle, but it provides shelter, foraging, predator avoidance, and aquatic dispersal for juvenile and adult CRLF. Dispersal habitat includes upland or riparian habitats within 2 miles of breeding habitat that allow for movement between these sites. Dispersal habitat includes various natural and altered habitats, such as agricultural fields, which do not contain barriers to dispersal. Moderate to high density urban or industrial developments, large reservoirs, and heavily traveled roads without bridges or culverts are considered barriers to dispersal (USFWS 2010).

During previous assessments in connection with the City’s prior EIRs covering the Study Area, breeding habitat was identified for this species between the adjacent Anderson and Chen Parcels along Croak Road, but no breeding habitat was documented within the Study Area (EDGP 1992, Haag 2005). After conducting an additional assessment of the Study Area in June 2020, conditions were similar to when the previous, species specific assessments occurred. The aquatic features within the Study Area do not serve as suitable habitat for either breeding or non-breeding, and no other potential breeding habitat was identified onsite. However, offsite breeding habitat was still extant. The City’s previous studies in connection with its CEQA reviews covering the Project Area noted that areas within 100 meters of aquatic breeding habitat were assumed suitable upland habitats and areas within 1,100 meters were suitable dispersal habitat (Figure 6, Appendix A). In this case approximately 1.03 acres of upland habitat is present within the Study Area (along Croak Road), and approximately 140 acres of dispersal habitat are present (Haag 2005). The species is considered to have a high potential for presence as it may be present permanently (within uplands) or seasonally (during dispersal events).

California Tiger Salamander (*Ambystoma californiense*), Federal Threatened, State Threatened. High Potential. CTS is a California endemic species that historically occurred in grassland habitats throughout much of the state. This species inhabits valley and foothill grasslands and the grassy understory of open woodlands, usually within one mile of water (Jennings and Hayes 1994). CTS requires two primary habitat components: aquatic breeding sites and upland terrestrial refuge sites. Adult CTS spend most of their time underground in upland subterranean refugia. Underground retreats usually consist of ground-squirrel burrows but may also be beneath logs and piles of lumber (Holland et al. 1990, Trenham 2001). CTS emerge from underground to breed and lay eggs primarily in vernal pools and other ephemeral water bodies. These sites must remain inundated for at least 10 weeks, the minimum time needed for larvae to complete metamorphosis. Adults migrate from upland habitats to aquatic breeding sites during the first major rainfall events, between November and February (Shaffer and Fisher 1991, Barry and Shaffer 1994), and return to upland habitats after breeding. This species may disperse up to 1.3 miles from a breeding site (Orloff 2007).

During previous assessments in connection with the City's prior EIRs covering the Study Area, breeding habitat was identified for this species in surrounding parcels (i.e., quarry pond on the Anderson parcel), but not within the Study Area (EDGP 1992, Haag 2005). After conducting an assessment of the Study Area in June 2020, conditions were similar and potential breeding habitat was still absent within the site. The aquatic features within the Study Area do not serve as suitable habitat, and no other potential breeding habitat was identified onsite. Offsite breeding habitat is still extant and in close proximity to the Study Area such that this species is likely to use portions of the Study Area for upland aestivation habitat. The 2005 SEIR identified areas within 670 meters of breeding habitat as upland aestivation habitat, according to local dispersal distance studies (Haag 2005). The 2005 SEIR concluded that up to 97 acres of the Study Area may be used as upland habitat by CTS (Haag 2005). Given that conditions today are similar to when the previous assessment was performed, the potential presence of the species is still high.

American badger (*Taxidea taxus*). CDFW Species of Special Concern. Moderate Potential. The American badger is a large, semi-fossorial member of the Mustelidae (i.e. weasel family). It is found uncommonly within the region in drier open stages of most scrub, forest, and herbaceous habitats where friable soils and prey populations are present. Badgers are typically solitary and nocturnal, digging burrows to provide refuge during daylight hours. Burrow entrances are usually elliptical (rather than round), and each burrow generally has only one entrance. Young are born in the spring and independent by the end of summer. Badgers are carnivores, preying on a variety of fossorial mammals (especially ground squirrels) and occasionally other vertebrates and their eggs. Home ranges for this species tend to be large, depending on the habitat available; population density averages one badger per square mile in prime open country (Long 1973).

No sign of badger occupation was observed during the June or September 2020 site visits. However, the East Dublin General Plan identifies grasslands within the Study Area as potentially suitable for occupation. Ground squirrels (*Otospermophilus beecheyi*), the primary prey source for badgers are present throughout the Study Area. Friable soils suitable for excavating dens are also present throughout much of the Study Area. Because the species has been determined likely to be present previously, and has been identified in the local area (Figure 5, Appendix A) and suitable habitat as well as prey species are present, this species has a moderate potential for presence in the Study Area.

Burrowing owl (*Athene cunicularia*). CDFW Species of Special Concern; USFWS Bird of Conservation Concern. High Potential. The burrowing owl occurs as a year-round resident and winter visitor in much of California's lowlands, inhabiting open areas with sparse or non-existent tree or shrub canopies. Typical habitat is annual or perennial grassland, although human-modified areas such as agricultural lands and airports are also used (Poulin et al. 1993). This species is dependent on burrowing mammals to provide the burrows that are characteristically used for shelter and nesting, and in northern California is typically found in close association with California ground squirrels (*Otospermophilus beecheyi*). Manmade substrates such as pipes or debris piles may also be occupied in place of burrows. Prey consists of insects and small vertebrates. Breeding typically takes place from March to July.

During the assessments conducted as part of the 2005 SEIR, burrowing owl surveys were conducted throughout the Study Area. This species was documented nesting within the Study Area (Haag 2005). After conducting an additional assessment of the Study Area in June 2020, conditions were similar to when the previous, species specific assessments occurred. Because ground squirrels and short stature grasslands are still present, the species still has a high potential to be present.

Grasshopper sparrow (*Ammodramus savannarum*), CDFW Species of Special Concern. Moderate Potential. The grasshopper sparrow is a summer resident in California, wintering in Mexico and Central America. This species occurs in open grassland and prairie-like habitats with short- to moderate-height vegetation, and often scattered shrubs (Shuford and Gardali 2008). Both perennial and annual (non-native) grasslands are used. Nests are placed on the ground and well concealed, often adjacent to grass clumps (Shuford and Gardali 2008). Grasshopper sparrows are secretive and generally detected by voice. Insects comprise the majority of the diet.

The majority of the Study Area is composed of grassland covered hills which may be used by the species for nesting. This species has been observed in the local area surrounding the Study Area (eBird 2020).

Loggerhead shrike (*Lanius ludovicianus*), CDFW Species of Special Concern, USFWS Bird of Conservation Concern. Moderate Potential. The loggerhead shrike is a year-round resident and winter visitor in lowlands and foothills throughout California. This species is associated with open country with short vegetation and scattered trees, shrubs, fences, utility lines and/or other perches. Although they are songbirds, shrikes are predatory and forage on a variety of invertebrates and small vertebrates. Captured prey items are often impaled for storage purposes on suitable substrates, including thorns or spikes on vegetation, and barbed wire fences. Nests in trees and large shrubs; nests are usually placed three to ten feet off the ground (Shuford and Gardali 2008).

Open grassland is present within the Study Area to support foraging, and shrubs or trees are present to support nesting. The species has also been observed in the vicinity (eBird 2020).

White-tailed kite (*Elanus leucurus*). CDFW Fully Protected Species. Moderate Potential. The white-tailed kite is resident in open to semi-open habitats throughout the lower elevations of California, including grasslands, savannahs, woodlands, agricultural areas and wetlands. Vegetative structure and prey availability seem to be more important habitat elements than associations with specific plants or vegetative communities (Dunk 1995). Nests are constructed mostly of twigs and placed in trees, often at habitat edges. Nest trees are highly variable in size, structure, and immediate surroundings, ranging from shrubs to trees greater than 150 feet tall (Dunk 1995). This species preys upon a variety of small mammals, as well as other vertebrates and invertebrates.

This species has been observed in the local area (eBird 2020). Grasslands like those within the Study Area are typical foraging habitat for the species. Trees and shrubs within the Study Area also may support nesting by the species.

5.2.2.2 Special-status Wildlife which are not likely to Occur

San Joaquin kit fox (*Vulpes macrotis*). Federally Endangered. State Threatened. Unlikely. The San Joaquin kit fox is an uncommon to rare, permanent resident of arid regions of the southern half of the state. It generally lives in annual grasslands or open stages of vegetation with scatted shrubby vegetation. They are primarily carnivorous, choosing to feed on prey including black-tailed jackrabbits and desert cottontails, rodents, insects, reptiles, and some birds, bird eggs and vegetation. The kit fox digs dens in open, level areas with loose-textures soils to provide cover and a place to birth pups. Furthermore, cultivation has eliminated much of the kit fox habitat. This species is also vulnerable to many human activities, such as hunting, use of rodenticides and other poisons, off-road vehicles and trapping.

Since the 2005 SEIR (Haag 2005), evaluations for San Joaquin kit fox following the USFWS protocol (USFWS 1999) were conducted for the Croak and surrounding parcels (Haag 2005). The conclusion of these evaluations was that while there is marginally or potentially suitable habitat for San Joaquin kit fox in the vicinity, the Study Area is outside the geographic range of the species (Haag 2005). Sites considered to have potential dens (Righetti, Fallon Enterprises, Braddock & Logan, Anderson and Chen) based only on suitable size, were monitored to the extent that tracking media and remote cameras were used to detect any kit fox use, with negative results (Townsend & Sycamore Associates 2002 a-c). The Croak parcel (Study Area) was never considered to have potential for the species. The consistent conclusion is that the Study Area and surrounding parcels are outside of the current geographical range of the species. Therefore, the species is still unlikely to occur.

5.3 Wildlife Corridors and Native Wildlife Nursery Sites

Wildlife movement between suitable habitat areas can occur via open space areas lacking substantial barriers. The terms “landscape linkage” and “wildlife corridor” are often used when referring to these areas. The key to a functioning corridor or linkage is that it connects two larger habitat blocks, also referred to as core habitat areas (Beier 1992; Soule and Terborgh 1999). It is useful to think of a “landscape linkage” as being valuable in a regional planning context, a broad scale mapping of natural habitat that functions to join two larger habitat blocks. The term “wildlife corridor” is useful in the context of smaller, local area planning, where wildlife movement may be facilitated by specific local biological habitats or passages and/or may be restricted by barriers to movement. Above all, wildlife corridors must link two areas of core habitat and should not direct wildlife to developed areas or areas that are otherwise void of core habitat (Hilty et al. 2006).

The Study Area does not fall within areas mapped by the CDFW BIOS Database as a Natural Landscape Block, or an Essential Connectivity Area (CDFW 2020b). However, on a smaller scale, the creek offsite to the west is likely to serve as a wildlife movement corridor, but not necessarily between core habitats as the creek primarily runs between developed housing tracks. Additionally, the Study Area is potential upland habitat for both CRLF and CTS, making some portion of the Study Area a core habitat, which is also connected to another core habitat (offsite breeding habitat). Therefore, while the Study Area is not mapped on a larger scale as a wildlife corridor, it may serve to connect or function as a core habitat area for local amphibians.

No nursery sites are present within the Study Area. There are no breeding locations for amphibians, or associated ponds that may be used as nursery sites for such species. No expansive ponds with wetland vegetation are present to support colonially roosting species such as egrets, herons or blackbirds. Therefore, none of the components are present to support colonial roosting species or their nursery sites.

5.4 Critical Habitat

After reviewing the USFWS critical habitat mapper, the entire Study Area falls within critical habitat block ALA-2 for CRLF. Critical Habitat within the Study Area and those portions that will be disturbed during the Project are shown in Figure 7 (Appendix A).

6.0 ANALYTICAL METHODOLOGY AND SIGNIFICANCE THRESHOLD CRITERIA

Pursuant to Appendix G, Section IV of the State CEQA Guidelines, a project would have a significant impact on biological resources if it would:

a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;

b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;

c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;

e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance; and/or,

f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.

For the purposes of this analysis, a “substantial adverse effect” is generally interpreted to mean that a potential impact could directly or indirectly affect the resiliency or presence of a local biological community or species population. Potential impacts to natural processes that support biological communities and special-status species populations that can produce similar effects are also considered potentially significant. Impacts to individuals of a species or small areas of existing biological communities may be considered less than significant if those impacts are speculative, beneficial, *de minimis*, and/or would not affect the resiliency of a local population.

Since the City already has conducted three CEQA reviews covering potential development of the Project Area, items a) through f) above should be assessed with regard to whether the current proposed Project presents any new significant impact due to new information or circumstances or project changes, or any substantial increase in the severity of a previously identified significant impact, as compared to what was identified in the City's prior EIRs. This report does not identify any new or substantially more severe significant impacts to biological resources, as compared to the impacts the City already has evaluated and addressed in its prior CEQA reviews through the adoption of mitigation measures that would be applied to the proposed Project. In fact, the Project has been revised since completion of the 2005 SEIR to reduce impacts to biological resources, by avoiding the seasonal wetland in the southwest corner of the Study Area and by providing a greater buffer from development for the seasonal wetland swale in the northwest corner of the Study Area.

7.0 IMPACT EVALUATION

This section assesses potentially significant impacts to biological resources within the Study Area. No new or substantially more severe significant impacts to biological resources were identified, as compared to the impacts that the City previously evaluated in its 1993 EIR, 2002 SEIR and 2005 SEIR. The City adopted various mitigation measures addressing impacts to biological resources, which would be applied to the proposed Project as set forth below.

In addition to the analysis of impacts and mitigation pursuant to CEQA, the Project likely will require authorization under the federal Endangered Species Act and the California Endangered Species Act. The CESA requires that when an Incidental Take Permit is issued for a state-listed species, the impact to the species "shall be minimized and fully mitigated." CFGC Section 2081(b)(2). To streamline authorizations from CDFW and USFWS, specific conservation and mitigation strategies may be applied from the East Alameda County Conservation Strategy (EAACS) (Oct. 2010), which provides guidance for addressing project-level impacts on covered species. The EAACS provides for standardized mitigation ratios as a general guideline, but the details may vary depending on site-specific factors such as the quality of the impacted habitat or the value of the mitigation habitat. These issues will be addressed through the permit and authorization process in consultation with the resources agencies.

7.1 Special-status Species

This section analyzes potential impacts to special-status species in reference to the significance threshold outlined in CEQA Appendix G, Part IV(a), as applied to a project that has been previously evaluated in an EIR under CEQA:

> *Does the project have the potential to cause a new significant impact, or a substantial increase in the severity of a previously identified significant impact, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?*

7.1.1 Special-status Plants

Within the Project Area, three special-status plant species have moderate potential to be present. Project activities including grading and vegetation removal could impact any of these species, if present.

The 2002 SEIR and the 2005 SEIR discussed potential impacts to special-status plants and included mitigation to address these impacts. See, e.g., 2002 Mitigation Measure SM-BIO-2;

2005 Mitigation Measure SSM-BIO-1 (revising 2002 SM-BIO-4). The previously adopted mitigation would be applied to the current Project.

The current Project proposes a similar type and density of development as compared to what was evaluated in the 2005 SEIR and site conditions have not changed substantially since that time. With application of the previously adopted mitigation, the current Project would not present a new or substantially more severe significant impact as compared to what was evaluated in the 2005 SEIR.

> **Finding**: No new significant impact; no substantial increase in severity of previously identified significant impact.

7.1.2 Wildlife

California Red-legged frog and California Tiger Salamander

Impacts and mitigation measures specific to CRLF and CTS are similar and accordingly these two species are discussed together.

Within the Project Area, both CRLF and CTS have the potential to be present. Approximately 1.03 acre of CRLF upland habitat and 140 acres of dispersal habitat were found to be present as part of the site assessment for the 2005 SEIR (Haag 2005). In addition, approximately 97 acres of CTS upland habitat were also identified in the 2005 SEIR (Haag 2005). Upland habitat has the potential to support aestivation by both of these species during the dry season, meaning that individuals may be present year-round in subterranean refugia. In addition, dispersal habitat (specific to CRLF) may be used by individuals when migrating away from breeding locations looking for non-breeding aquatic sites.

The 2002 SEIR and the 2005 SEIR discussed potential impacts to both species and included mitigation. See, e.g., 2005 Supplemental Mitigation Measure SSM-BIO-2 (revising 2002 SM-BIO-14) for CLRF. See, e.g., 2005 Supplemental Mitigation Measures SSM-BIO-3 & SSM-BIO-4 (revising 2002 SM-BIO-19) for CTS. The previously adopted mitigation would be applied to the current Project.

The current Project proposes a similar type and density of development as compared to what was evaluated in the 2005 SEIR and site conditions have not changed substantially since that time. With application of the previously adopted mitigation, the current Project would not present a new or substantially more severe significant impact as compared to what was evaluated in the 2005 SEIR.

> **Finding**: No new significant impact; no substantial increase in severity of previously identified significant impact.

American Badger

Grasslands within the Project Area support populations of ground squirrels which are the primary prey source for American badger. In addition, grasslands within the Project Area support friable soils which are required for denning sites for badger. Project activities such as grading and grubbing have the potential to disturb badgers and to destroy occupied badger burrows, if badgers are present.

The 1993 EIR discussed impacts to this species and included mitigation. See, e.g., 1993 Mitigation Measure 3.7/27.0. The previously adopted mitigation would be applied to the current Project, such that there would be no new or substantially more severe significant impact as compared to the City's prior CEQA analyses.

> **Finding**: No new significant impact; no substantial increase in severity of previously identified significant impact.

Roosting Bats

All buildings with the Project Area were surveyed for the potential to support bat roosting during the June and September 2020 site visits. The existing buildings, including the ranch house, tack room, barn, garage, and chicken coop are too open, or do not have roofs/interstitial spaces that are conducive to bat roosting. All trees on the site were surveyed by a biologist familiar with bats and no suitable snags, hollows, cracks, crevices or interstitial spaces were observed that could support bat roosting. Additionally, large native tree species used by surface roosting bats are not present as the majority of trees were planted in the 1980's by the Croak family, and are likely too young to have formed natural cavities. Further, many of the trees that were planted consist of ornamental species which are not native to the area and are unlikely to be used by bats.

The 2002 SEIR addressed impacts to bat species and included mitigation. See, e.g., 2002 Mitigation Measures SM-BIO-43 and SM-BIO-44. The previously adopted mitigation would be applied to the current Project, such that there would be no new or substantially more severe significant impact as compared to the City's prior CEQA analyses.

> **Finding**: No new significant impact; no substantial increase in severity of previously identified significant impact.

Burrowing Owl

Burrowing owl was detected within the Study Area during the species-specific surveys for the 2005 SEIR (Haag 2005). Because burrowing owl has been documented within the Study Area, Project activities including vegetation removal and ground disturbance may affect this species by causing auditory, vibratory, and/or visual disturbance of a sufficient level to cause abandonment of the site or active nests or by removing foraging habitat or access to burrows which are required to support nesting.

The 2005 SEIR included extensive mitigation for potential impacts to this species. See 2005 Measures SSM-BIO-2, SSM-BIO-3, SSM-BIO-4 and SSM-BIO-5 (revising 2002 SM-BIO-28 to SM-BIO-37). With application of the previously adopted mitigation, the current Project would not present a new or substantially more severe significant impact as compared to what the City evaluated previously.

> **Finding**: No new significant impact; no substantial increase in severity of previously identified significant impact.

Nesting Birds

Vegetation removal and ground disturbance have the potential to impact special-status and non-special-status native nesting birds protected by the MBTA and/or California Fish and Game Code, particularly during the nesting season, which extends from February through August. The 2002 SEIR addressed impacts to nesting birds and included mitigation. See, e.g., 2002 Mitigation

Measures SM-BIO-20 to SM-BIO-25. The previously adopted mitigation would be applied to the current Project, such that there would no new or substantially more severe significant impacts as compared to the impacts that the City previously has considered under CEQA.

Finding: No new significant impact; no substantial increase in severity of previously identified significant impact.

7.2 Sensitive Land Cover Types

This section addresses the question:

b) Would the Project cause a new significant impact, or a substantial increase in the severity of previously identified significant impact, with respect to any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service;

Sensitive natural communities within the Study Area include only those aquatic features discussed below in Section 7.3. No other sensitive land cover types are present within the Project Area.

7.3 Aquatic Resources

This section analyzes potential impacts to jurisdictional waters in reference to the significance threshold outlined in CEQA Appendix G, Part IV(c):

c) Does the Project have the potential to cause a new significant impact, or a substantial increase in the severity of previously identified significant impact, with regard to federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means;

The project will permanently impact both drainage swales (totaling 0.08 acres), but it will avoid the larger wetland features on the site (seasonal wetland swale and seasonal wetland). The drainage swales are potentially jurisdictional for the Corps and the RWQCB.

The City's 1992 EIR included mitigation for impacts to aquatic features (see, e.g., Mitigation Measures 3.7/6.0 and MM 3.7/11.0), including obtaining the requisite permit approvals from the applicable federal and state regulatory agencies. The 2002 SEIR also included mitigation for impacts to aquatic features. See, e.g., 2002 Mitigation Measures SM-BIO-5 and SM-BIO-6. The previously adopted mitigation would be applied to the current Project, and the current assessment has not identified any new or substantially more severe significant impacts as compared to the City's prior CEQA analyses.

In addition to the mitigation measures, the following standardized protocols will be incorporated into the project design and procedures to ensure there are no impacts to the wetland features that are being avoided by the Project development.

- Prior to construction, delineated wetland boundaries will be clearly demarcated in the field by a qualified biologist, using flags and/or stakes to ensure areas are clearly identifiable to the construction personnel.

- Construction personnel will be informed of the avoidance areas and shown the precise boundary locations to ensure they are completely avoided.
- Grading activities will be performed by hand equipment to the extent that is practical.
- Standard construction Best Management Practices (BMPs) will be implemented between the preserved/avoided wetlands and the work areas. These BMPs will include the use of one or more of the following: construction fencing, wattles, and/or other appropriate stormwater pollution prevention measures to be placed around the wetland to minimize sediment and/or pollutants from entering the wetland.

Finding: No new significant impact; no substantial increase in severity of previously identified significant impact.

7.4 Wildlife Corridors and Native Wildlife Nursery Sites

This section analyzes the Project's potential impacts to habitat corridors and linkages in reference to the significance threshold outlined in CEQA Appendix G, Part IV(d):

> *d) Does the Project have the potential to cause a new significant impact, or a substantial increase in the severity of previously identified significant impact, by substantially interfering with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites;*

The 2005 SEIR analyzed the potential impact to wildlife corridors and included mitigation for CRLF and CTS, as referenced above in Section 7.1.2. The previously adopted mitigation would be applied to the current project.

Conditions within the Project Area are similar to when the City prepared its 2005 SEIR. The current site assessment did not identify any new significant impacts, or any substantial increase in the severity of a previously identified significant impact, as compared to the City's prior CEQA analyses.

The current Study Area and Project Area contain core habitat areas for CRLF and CTS, which use offsite breeding habitat and as such may migrate between these areas. No suitable breeding habitat is present within the boundaries of the Study Area for either of these species. While these animals may migrate between core habitat areas, uplands are not the limiting factor to amphibian survival in east Alameda County as documented by the 2005 SEIR (Haag 2005). Breeding habitat is more of a limiting factor, and no breeding habitat is present or being impacted by Project activities. Therefore, migration through the most important habitat (breeding) is not being obstructed, and impacts to uplands within the Project Area would be mitigated in accordance with the previous mitigation measures adopted by the City pursuant to CEQA.

As noted above, in addition to CEQA mitigation, the Project may seek authorization from CDFW and be subject to consultation between the Corps and USFWS under the ESA. These processes may involve implementation of conservation and mitigation strategies from the EAACS, including specified mitigation ratios determined in consultation with the resources agencies.

No nursery sites are present to be impacted by Project related activities, therefore the Project will have no effect on nursery sites.

> **Finding**: No new significant impact; no substantial increase in severity of previously identified significant impact.

7.5 Critical Habitat

The current Study Area and Project Area occur within critical habitat, specifically unit ALA-2 for CRLF (Figure 7, Appendix A). Critical habitat contains areas essential to the survival of a species by providing physical and biological elements required for survival and recovery of the species. The Project Area contains upland and dispersal habitat for CRLF. Between 1993 and 2002, USFWS designated critical habitat for the CRLF under the ESA (Haag 2005). Impacts to critical habitat were considered in the 2005 SEIR in connection with the mitigation for CRLF referenced above in Section 7.1.2. The City's previously adopted mitigation would be applied to the current Project.

Conditions within the Project Area are similar to when the City prepared its 2005 SEIR. The current site assessments did not identify any new significant impacts, or any substantial increase in the severity of a previously identified significant impact, as compared to the City's prior CEQA analyses.

> **Finding**: No new significant impact; no substantial increase in severity of previously identified significant impact.

7.6 Local Policies and Ordinances

This section analyzes potential impacts based on conflicts with local policies and ordinances in reference to the significance threshold outlined in CEQA Appendix G, Part IV(e):

> *e) Does the Project have the potential to cause a new significant impact, or a substantial increase in the severity of a previously identified significant impact, with respect to a conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance;*

The City of Dublin encourages the preservation of heritage trees through its development review and permit approval process. Chapter 5.60 "Heritage Trees" of the City of Dublin Municipal Code defines a heritage tree as any oak, bay, cypress, maple, redwood, buckeye and sycamore tree having a trunk or main stem of twenty-four (24) inches or more in diameter at four (4) feet six (6) inches above natural grade; a tree required to be preserved as part of an approved development plan, zoning permit, use permit, site development review of subdivision map; or a tree required to be planted as a replacement for an unlawfully removed tree. The Project Area contains some coast live oak that may potentially be classified as "Heritage Trees" within the areas to be graded during Project activities. The potential removal of any oaks classified as "Heritage Trees" under Chapter 5.60 of the City of Dublin Municipal Code would be required to comply with the City's tree permitting requirements under the Code; compliance with the City's established permitting requirements and conditions would ensure there is no new or different significant impact from the Project as compared to the City's prior CEQA analyses.

> **Finding**: No new significant impact; no substantial increase in severity of previously identified significant impact.

7.7 Habitat Conservation Plans

This section analyzes potential conflicts with any adopted local, regional, and state habitat conservation plans in reference to the significance threshold outlined in CEQA Appendix G, Part IV(f):

> *f) Does the Project have the potential to cause a new significant impact, or a substantial increase in the severity of a previously identified significant impact, with regard to a conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan.*

The current Study Area and Project Area fall within the areas identified by the East Alameda County Conservation Strategy (EACCS). The EACCS is not an adopted habitat conservation plan or natural community conservation plant. Rather, it is a guidance document that provides recommendations for addressing species impacts for the purpose of streamlining project-specific authorizations needed under the federal and California Endangered Species Acts. Thus, there is no conflict with any adopted habitat conservation plan or natural community conservation plan. Further, as noted above, the Project may use the streamlined FESA and ESA processes available by incorporating specific conservation and mitigation strategies of the EACCS, in consultation with the applicable federal and state agencies.

> **Finding**: No new significant impact; no substantial increase in severity of previously identified significant impact.

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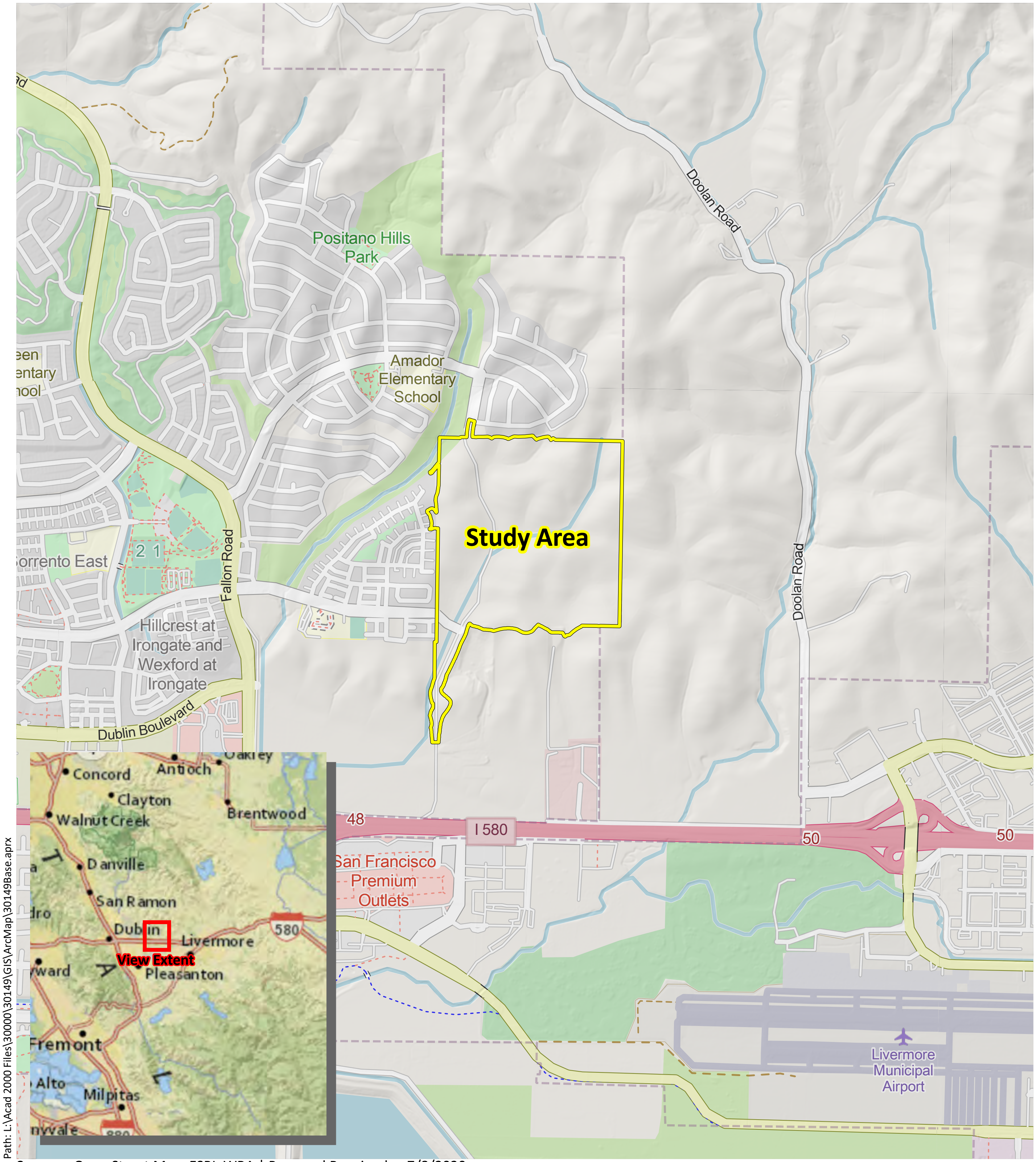
APPENDIX A – FIGURES



Sources: Open Street Map, ESRI, WRA | Prepared By: njander, 7/8/2020

Figure 1. Study Area Regional Location Map

Biological Resource Assessment
East Ranch (Croak) Development Project
4038 Croak Road, Dublin, California

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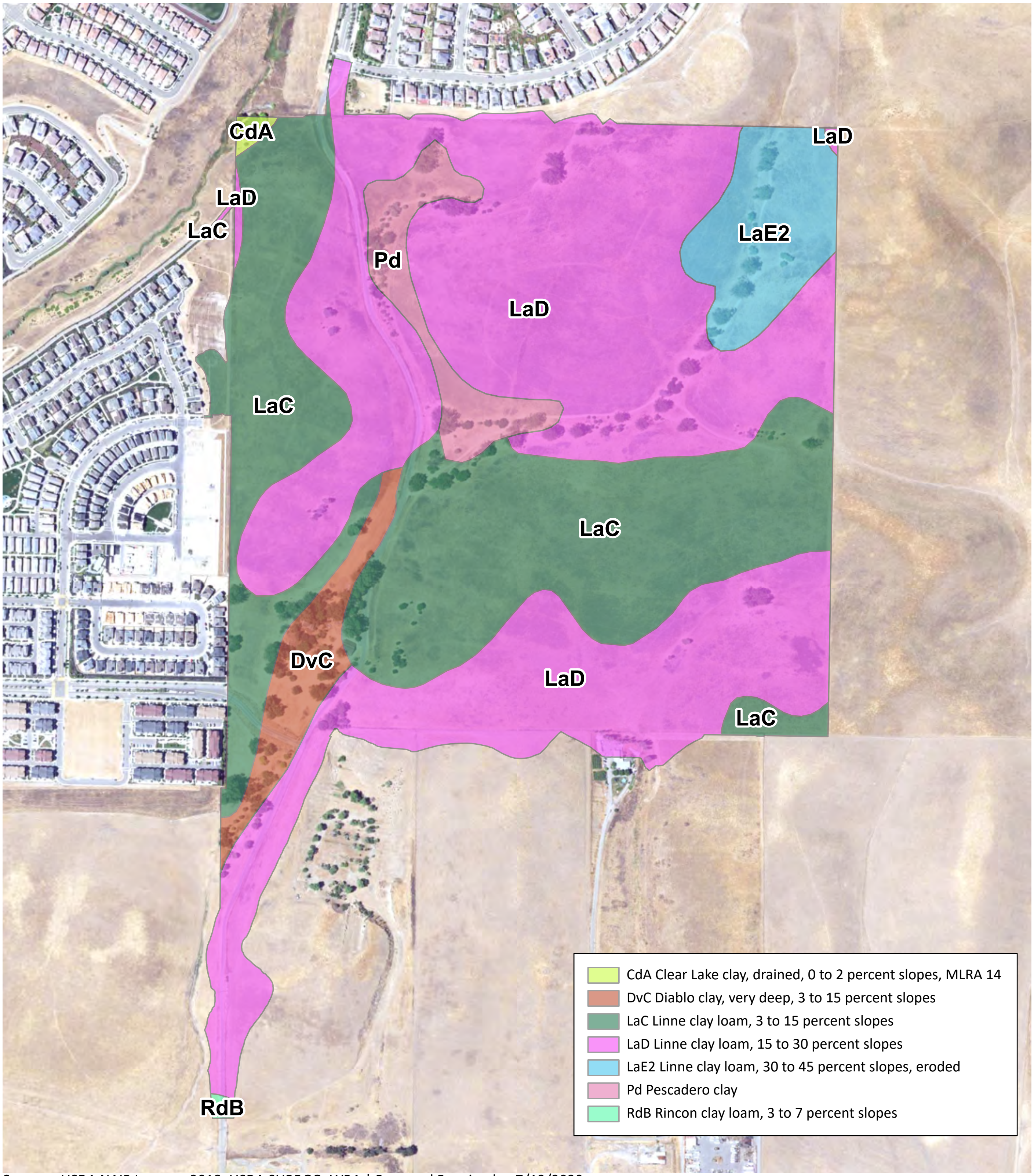
ENVIRONMENTAL CONSULTANTS



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Sources: USDA NAIP Imagery 2018, USDA SURRGO, WRA | Prepared By: njander, 7/13/2020

Figure 2. Soils

Biological Resource Assessment
East Ranch (Croak) Development Project
4038 Croak Road, Dublin, California

0 250 500 Feet

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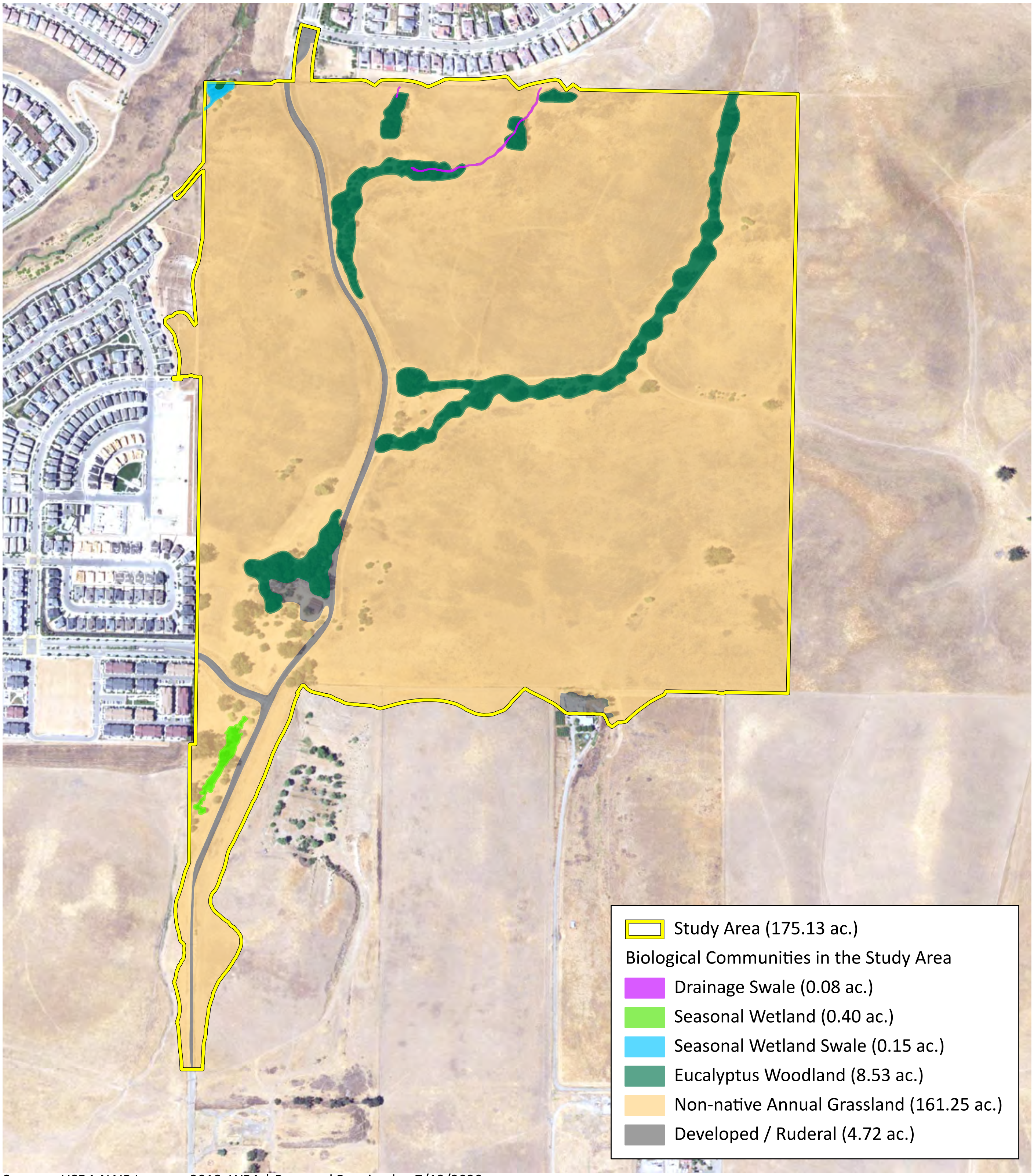

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Sources: USDA NAIP Imagery 2018, WRA | Prepared By: njander, 7/13/2020

Figure 3. Biological Communities in the Study Area

Biological Resource Assessment
East Ranch (Croak) Development Project
4038 Croak Road, Dublin, California

0 250 500 US Feet

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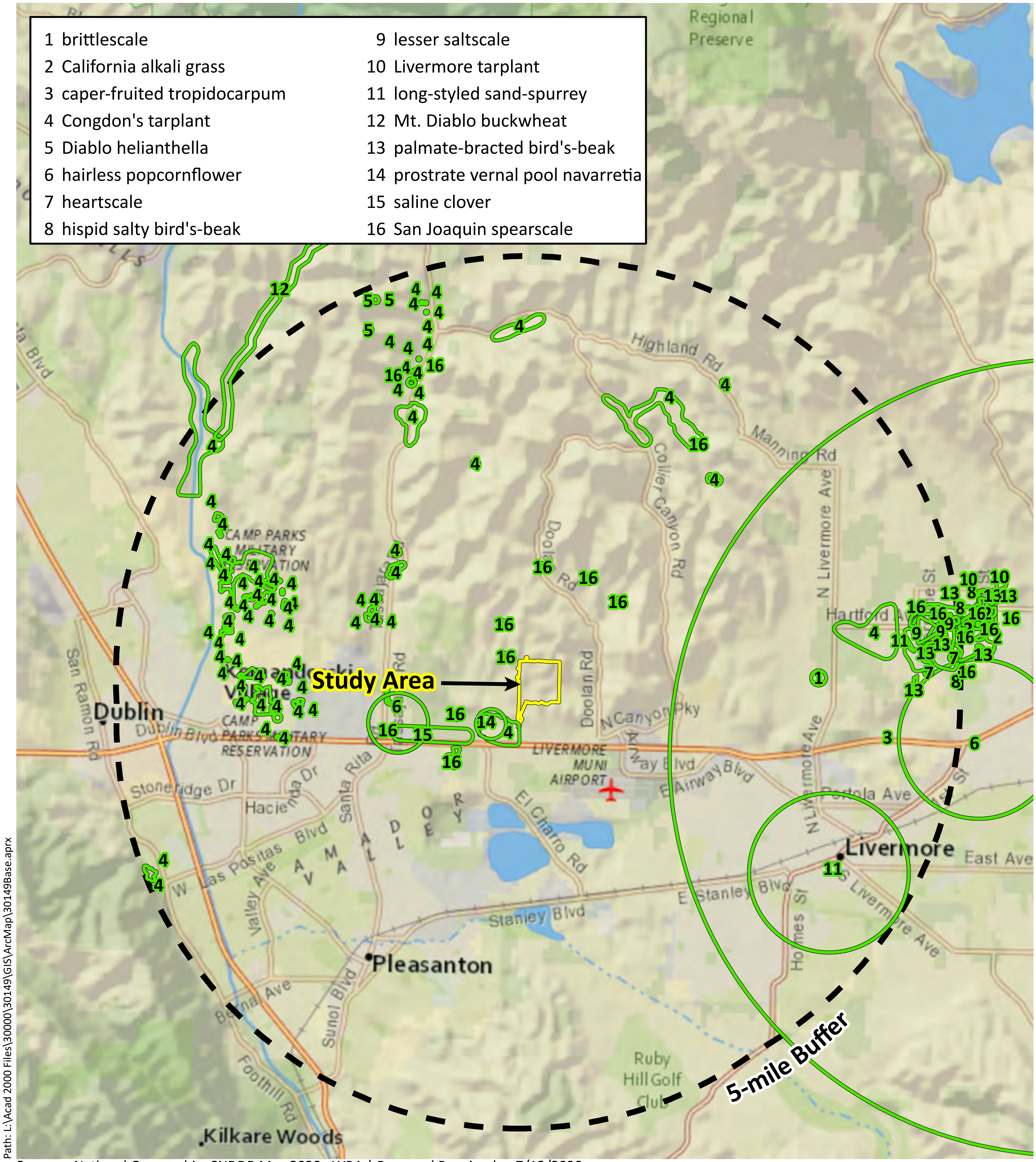
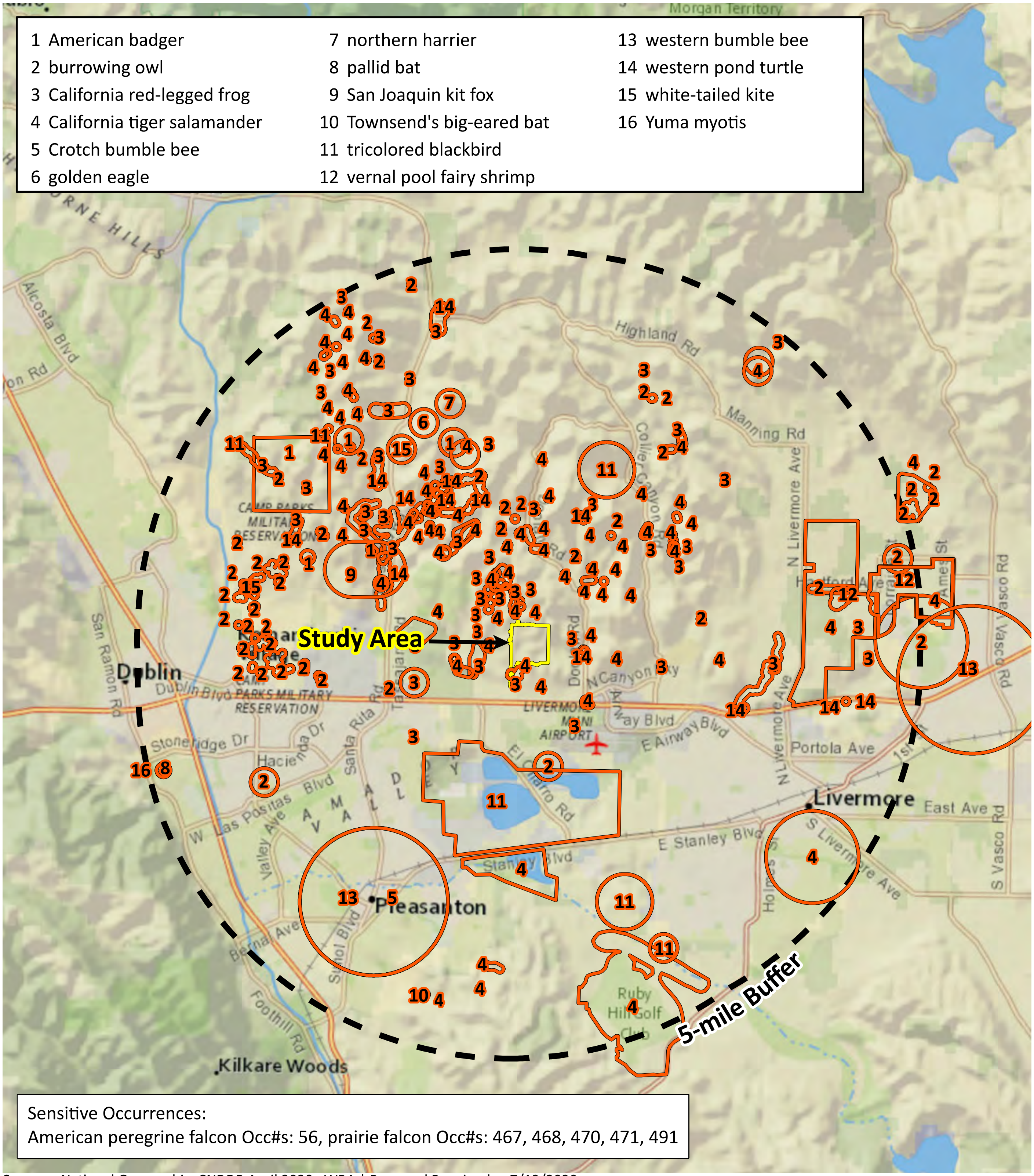


Sources: National Geographic, CNDDB May 2020, WRA | Prepared By: njander, 7/13/2020

Figure 4. Special-Status Plant Species Documented within 5-miles of the Study Area

Biological Resource Assessment
East Ranch (Croak) Development Project
4038 Croak Road, Dublin, California

ENVIRONMENTAL CONSULTANTS



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Sources: National Geographic, CNDDB April 2020, WRA | Prepared By: njander, 7/13/2020

Figure 5. Special-Status Wildlife Species Documented within 5-miles of the Study Area

Biological Resource Assessment
East Ranch (Croak) Development Project
4038 Croak Road, Dublin, California

0 1 2 Miles
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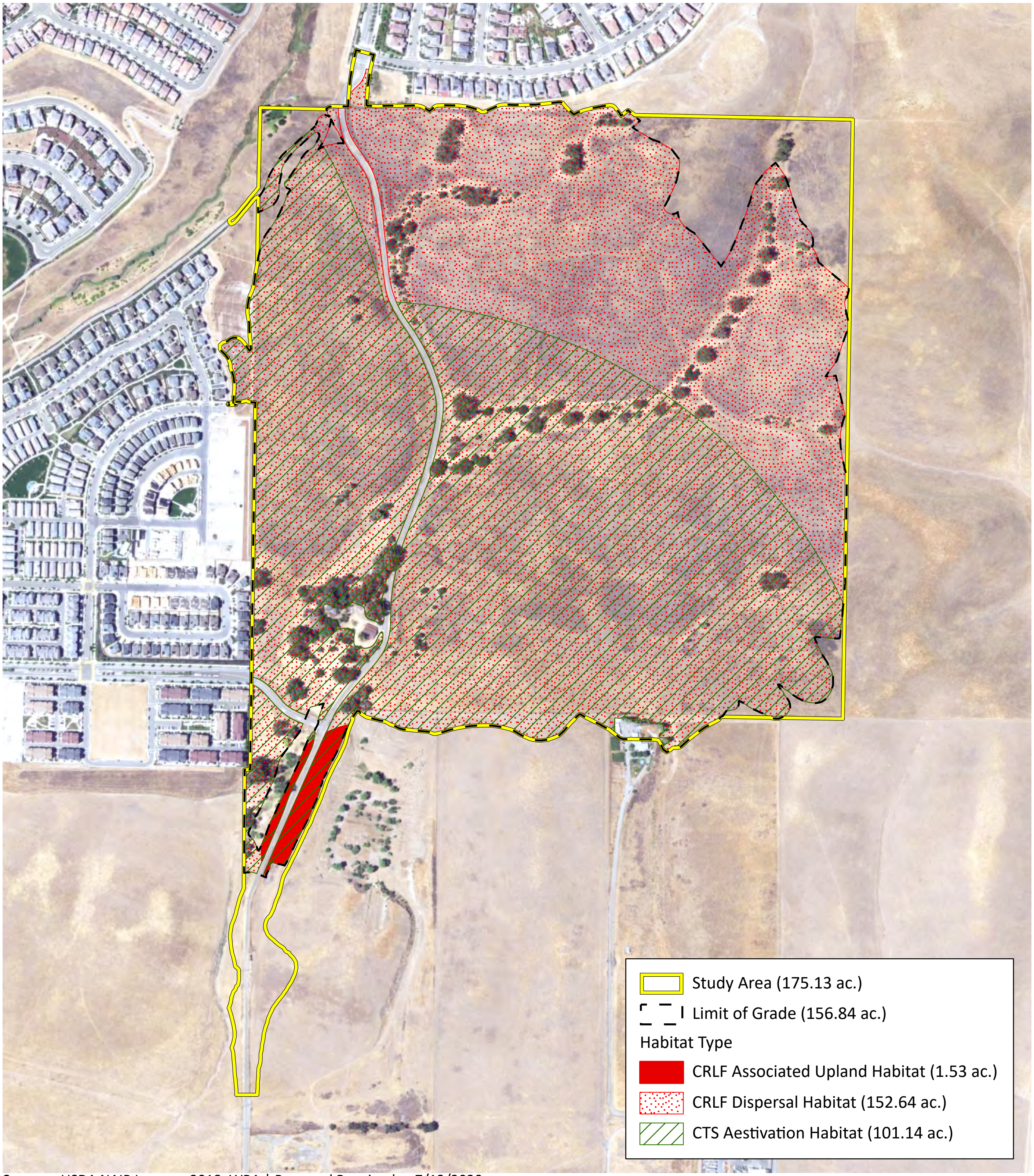

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Sources: USDA NAIP Imagery 2018, WRA | Prepared By: njander, 7/13/2020

Figure 6. CRLF and CTS habitats within the Study Area

Biological Resource Assessment
East Ranch (Croak) Development Project
4038 Croak Road, Dublin, California

0 500 1,000 Feet

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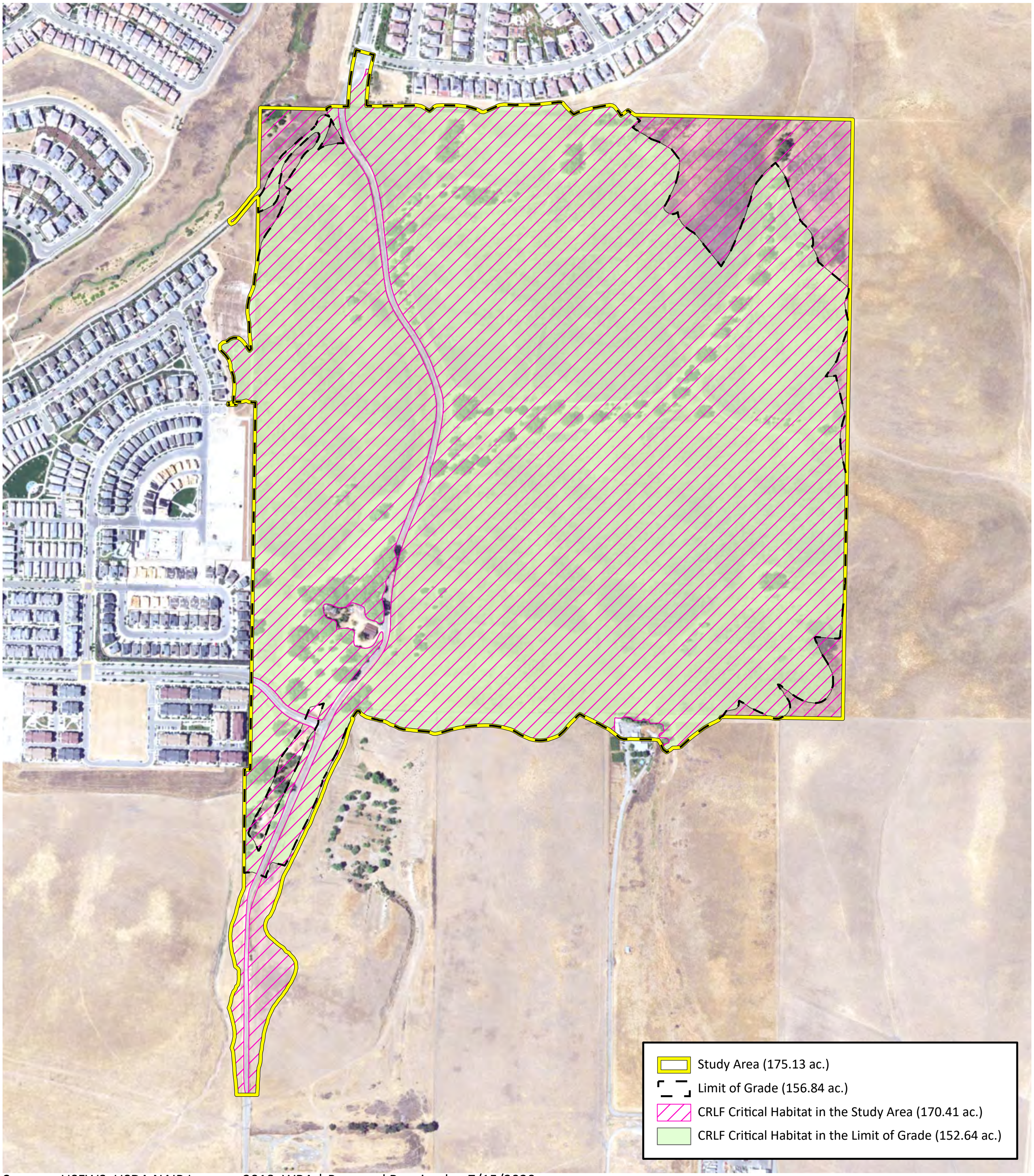

Sources: USFWS, USDA NAIP Imagery 2018, WRA | Prepared By: njander, 7/15/2020

Figure 7. CRLF Critical Habitat within the Study Area

Biological Resource Assessment
East Ranch (Croak) Development Project
4038 Croak Road, Dublin, California

0 500 1,000 Feet

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APPENDIX B – SPECIES OBSERVED IN AND AROUND THE STUDY AREA

Appendix B-1. Plant species observed in the Study Area, June 25, 2020.

Scientific Name	Family	Common Name	Origin	Form	CAL-IPC[1] Status	Wetland Status (AW 2016) [2]
Acer negundo	Sapindaceae	Boxelder	native	tree	-	FACW
Anemopsis californica	Saururaceae	Yerba mansa	native	perennial herb	-	OBL
Asclepias fascicularis	Apocynaceae	Milkweed	native	perennial herb	-	FAC
Avena barbata	Poaceae	Slim oat	non-native (invasive)	annual, perennial grass	Moderate	-
Avena fatua	Poaceae	Wildoats	non-native (invasive)	annual grass	Moderate	-
Bromus diandrus	Poaceae	Ripgut brome	non-native (invasive)	annual grass	Moderate	-
Bromus hordeaceus	Poaceae	Soft chess	non-native (invasive)	annual grass	Limited	FACU
Carduus pycnocephalus ssp. pycnocephalus	Asteraceae	Italian thistle	non-native	annual herb	-	-
Centaurea solstitialis	Asteraceae	Yellow starthistle	non-native (invasive)	annual herb	High	-
Cirsium vulgare	Asteraceae	Bullthistle	non-native (invasive)	perennial herb	Moderate	FACU
Convolvulus arvensis	Convolvulaceae	Field bindweed	non-native (invasive)	perennial herb, vine	-	-
Cynara cardunculus ssp. cardunculus	Asteraceae	Artichoke	non-native	perennial herb	-	-
Elymus triticoides	Poaceae	Beardless wild rye	native	perennial grass	-	FAC
Eucalyptus globulus	Myrtaceae	Blue gum	non-native (invasive)	tree	Limited	-
Festuca perennis	Poaceae	Italian rye grass	non-native	annual, perennial grass	-	FAC
Foeniculum vulgare	Apiaceae	Fennel	non-native (invasive)	perennial herb	High	-
Gleditsia triacanthos	Fabaceae	Honeylocust	non-native (invasive)	tree, shrub	-	FAC
Helminthotheca echioides	Asteraceae	Bristly ox-tongue	non-native (invasive)	annual, perennial herb	-	FAC
Hirschfeldia incana	Brassicaceae	Mustard	non-native (invasive)	perennial herb	Moderate	-
Hordeum marinum ssp. gussoneanum	Poaceae	Barley	non-native	annual grass	-	FAC

Hordeum murinum	Poaceae	Foxtail barley	non-native (invasive)	annual grass	-	FACU
Juncus effusus ssp. pacificus	Juncaceae	Pacific rush	native	perennial grasslike herb	-	FACW
Juncus mexicanus	Juncaceae	Mexican rush	native	perennial grasslike herb	-	FACW
Juncus xiphioides	Juncaceae	Iris leaved rush	native	perennial grasslike herb	-	OBL
Lupinus bicolor	Fabaceae	Lupine	native	annual, perennial herb	-	-
Mentha pulegium	Lamiaceae	Pennyroyal	non-native (invasive)	perennial herb	Moderate	OBL
Nasturtium officinale	Brassicaceae	Watercress	native	perennial herb (aquatic)	-	OBL
Polypogon monspeliensis	Poaceae	Annual beard grass	non-native (invasive)	annual grass	Limited	FACW
Populus fremontii ssp. fremontii	Salicaceae	Cottonwood	native	tree	-	FAC
Quercus agrifolia	Fagaceae	Coast live oak	native	tree	-	-
Quercus ilex	Fagaceae	Holly oak	non-native	tree	-	-
Raphanus sativus	Brassicaceae	Jointed charlock	non-native (invasive)	annual, biennial herb	Limited	-
Rumex crispus	Polygonaceae	Curly dock	non-native (invasive)	perennial herb	Limited	FAC
Silybum marianum	Asteraceae	Milk thistle	non-native (invasive)	annual, perennial herb	Limited	-
Sonchus arvensis	Asteraceae	Perennial sow thistle	non-native (invasive)	perennial herb	-	FACU
Sonchus oleraceus	Asteraceae	Sow thistle	non-native	annual herb	-	UPL
Typha latifolia	Typhaceae	Broadleaf cattail	native	perennial herb (aquatic)	-	OBL
Ulmus parvifolia	Ulmaceae	Siberian elm	non-native	tree	-	UPL

[1]Invasive Status: California Invasive Plant Inventory (Cal-IPC 2006)

High: Severe ecological impacts; high rates of dispersal and establishment; most are widely distributed ecologically.

Moderate: Substantial and apparent ecological impacts; moderate-high rates of dispersal, establishment dependent on disturbance; limited moderate distribution ecologically

Limited: Minor or not well documented ecological impacts; low-moderate rate of invasiveness; limited distribution ecologically

Assessed: Assessed by Cal-IPC and determined to not be an existing current threat

[2]Wetland Status: National List of Plant Species that Occur in Wetlands, Arid West Region (Lichvar et al. 2016)

OBL:	Almost always a hydrophyte, rarely in uplands
FACW:	Usually a hydrophyte, but occasionally found in uplands
FAC:	Commonly either a hydrophyte or non-hydrophyte
FACU:	Occasionally a hydrophyte, but usually found in uplands
UPL:	Rarely a hydrophyte, almost always in uplands
NL:	Rarely a hydrophyte, almost always in uplands
NI:	No information; not factored during wetland delineation

Appendix A-2. Wildlife Species Observed in the Project Area on June 25, 2020

Common Name (status if applicable)	**Species**
BIRDS	
American kestrel	*Falco sparverius*
Barn owl	*Tyto alba*
Black -necked stilt	*Himantopus mexicanus*
Brewer's blackbird	*Euphagus cyanocephalus*
Bushtit	*Psaltriparus minimus*
California quail	*Callipepla californica*
California scrub-jay	*Aphelocoma californica*
European starling	*Sturnus vulgaris*
Great horned owl	*Bubo virginianus*
Killdeer	*Charadrius vociferous*
Lesser goldfinch	*Spinus psaltria*
Mallard	*Anas platyrhynchos*
Red-tailed hawk	*Buteo jamaicensis*
Rock pigeon	*Columba livia*
Say's phoebe	*Sayornis saya*
Turkey vulture	*Cathartes aura*
Wild turkey	*Meleagris gallopavo*
FISH	
Mosquitofish	*Gambusia affinis*
INVERTABRETS	
Carpenter bee	*Xylocopa species*
Yellow jacket wasp	*Genus: Vespula*
Dragonfly	*Order: Odonata*
MAMMALS	
Black-tailed deer	*Odocoileus hemionus ssp. columbianus*
Black-tailed jackrabbit	*Lepus californicus*
California ground squirrel	*Otospermophilus beecheyi*
Cottontail rabbit	*Sylvilagus auduboni*
Coyote	*Canis latrans*
REPTILES	
Southern alligator lizard	*Elgaria multicarinata*

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APPENDIX C – SPECIAL-STATUS SPECIES POTENTIAL TABLE

Appendix C. List compiled from U.S. Fish and Wildlife Service IPaC Trust Report (USFWS 2020), a search of the California Department of Fish and Wildlife Natural Diversity Database (CDFW 2020) and the California Native Plant Society Inventory of Rare and Endangered Plants (CNPS 2020) for the Livermore USGS 7.5' quadrangle and eight surrounding quadrangles.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Mammals				
American badger *Taxidea taxus*	SSC, EACCS	Most abundant in drier open stages of most shrub, forest, and herbaceous habitats, with friable soils. Requires friable soils and open, uncultivated ground. Preys on burrowing rodents.	**Moderate Potential.** Ground squirrels are present throughout much of the Study Area, as are grasslands with friable soils. No signs of badger occupation were observed during the site assessment, or during previous focused surveys. The area is also regularly traversed by hikers, and dog walkers making the area less suitable. However the presence of prey, grassland and friable soils mean there is a moderate potential for the species to occur.	See Section 5.2.2 for further discussion concerning this species.
big free-tailed bat *Nyctinomops macrotis*	SSC, WBWG med-high	Occurs rarely in low-lying arid areas. Requires high cliffs or rocky outcrops for roosting sites.	**No Potential.** No rocky cliffs, caves or mines are present to support roosting by this species.	No further discussion of this species is required.
California leaf-nosed bat *Macrotus californicus*	SSC, WBWG High	Desert riparian, desert wash, desert scrub, desert succulent scrub, alkali scrub and palm oasis habitats. Needs rocky, rugged terrain with mines or caves for roosting.	**No Potential.** No rocky cliffs, caves or mines are present to support roosting by this species.	No further discussion of this species is required.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
fringed myotis *Myotis thysanodes*	WBWG High	Associated with a wide variety of habitats including dry woodlands, desert scrub, mesic coniferous forest, grassland, and sage-grass steppes. Buildings, mines and large trees and snags are important day and night roosts.	**No Potential.** No rocky cliffs, caves or mines are present to support roosting by this species. No suitable snags or other features are present to support roosting by this species.	No further discussion of this species is required.
hoary bat *Lasiurus cinereus*	WBWG: Medium	Prefers open forested habitats or habitat mosaics, with access to trees for cover and open areas or habitat edges for feeding. Roosts in dense foliage of medium to large trees. Feeds primarily on moths.	**No Potential.** This species has not been documented within 5-miles of the Project Area. Additionally large native trees used by this species are not present.	No further discussion of this species is required.
long-legged myotis *Myotis volans*	WBWG High	Primarily found in coniferous forests, but also occurs seasonally in riparian and desert habitats. Large hollow trees, rock crevices and buildings are important day roosts. Other roosts include caves, mines and buildings.	**Low Potential.** No rocky cliffs, caves or mines are present to support roosting by this species. No suitable snags or other features are present to support roosting by this species.	No further discussion of this species is required.
pallid bat *Antrozous pallidus*	SSC, WBWG: High	Found in deserts, grasslands, shrublands, woodlands, and forests. Most common in open, forages along river channels. Roost sites include crevices in rocky outcrops and cliffs, caves, mines, trees and various human structures such as bridges, barns, and buildings (including occupied buildings). Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites.	**Low Potential.** No rocky cliffs, caves or mines are present to support roosting by this species. No suitable snags or other features are present to support roosting by this species.	No further discussion of this species is required.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
ringtail *Bassariscus astutus*	CFP	Widely distributed throughout most of California; absent from some portions of the Central Valley and northeastern California. Found in a variety of habitats including riparian areas, semi-arid country, deserts, chaparral, oak woodlands, pinyon pine woodlands, juniper woodlands and montane conifer forests usually under 4,600 ft. elevation. Typically uses cliffs or large trees for shelter.	**No Potential.** No suitable riparian forest is present to support this species.	No further discussion of this species is required.
San Francisco dusky-footed woodrat *Neotoma fuscipes annectens*	SSC	Forest habitats of moderate canopy and moderate to dense understory. Also in chaparral habitats. Constructs nests of shredded grass, leaves, and other material. May be limited by availability of nest-building materials.	**No Potential**. This species requires thick oak, or scrub habitats to build nests. No such scrub is present and no nests were observed during site visits.	No further discussion of this species is required.
San Joaquin kit fox *Vulpes macrotis mutica*	FE, ST, EACCS	Annual grasslands or grassy open stages with scattered shrubby vegetation. Need loose-textured sandy soils for burrowing, and suitable prey base.	**Unlikely.** This species was surveyed for originally during surveys for an EIR in 2006, and was found unlikely to occur as steep terrain is not favorable to SJKF denning and the site is primarily steep slopes. Conditions at the site are similar today, therefore no change in likelihood of occurrence is warranted.	No further discussion of this species is required.

SPECIES	**STATUS***	**HABITAT**	**POTENTIAL FOR OCCURRENCE**	**RECOMMENDATIONS**
silver-haired bat *Lasionycteris noctivagans*.	WBWG Medium Priority	Primarily a forest dweller, feeding over streams, ponds, and open brushy areas. Summer habitats include a variety of forest and woodland types, both coastal and montane. Roosts in hollow trees, snags, buildings, rock crevices, caves, and under bark.	**No Potential.** No rocky cliffs, caves or mines are present to support roosting by this species. No suitable snags are present to support roosting by this species. This species has not been documented within 5-miles of the Project Area.	No further discussion of this species is required.
spotted bat *Euderma maculatum*	SSC, WBWG High	Occupies a wide variety of habitats from arid deserts and grasslands through mixed conifer forests. Feeds over water and along washes. Needs rock crevices in cliffs or caves for roosting.	**No Potential**. No caves or rocky outcrops are present to support roosting by this species.	No further discussion of this species is required.
Townsend's big-eared bat *Corynorhinus townsendii*	SSC, WBWG High	Associated with a wide variety of habitats from deserts to mid-elevation mixed coniferous-deciduous forest. Females form maternity colonies in buildings, caves and mines and males roost singly or in small groups. Foraging typically occurs in open forests.	**Low Potential.** No rocky cliffs, caves or mines are present to support roosting by this species. No suitable snags or other features are present to support roosting by this species.	No further discussion of this species is required.
western mastiff bat *Eumops perotis*	SSC, WBWG High	Found in a wide variety of open, arid and semi-arid habitats. Distribution appears to be tied to large rock structures which provide suitable roosting sites, including cliff crevices and cracks in boulders.	**No Potential**. No caves or rocky outcrops are present to support roosting by this species.	No further discussion of this species is required.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
western red bat *Lasiurus blossevillii*	SSC, WBWG High	Highly migratory and typically solitary, roosting primarily in the foliage of trees or shrubs. Roosts are usually in broad-leaved trees including cottonwoods, sycamores, alders, and maples. Day roosts are commonly in edge habitats adjacent to streams or open fields, in orchards, and sometimes in urban areas.	**No Potential.** No suitable dense riparian trees are present to support roosting by this species.	No further discussion of this species is required.
Yuma myotis *Myotis yumanensis*	WBWG - Low	Known for its ability to survive in urbanized environments. Also found in heavily forested settings. Day roosts in buildings, trees, mines, caves, bridges and rock crevices. Night roosts associated with man-made structures.	**Low Potential.** No rocky cliffs, caves or mines are present to support roosting by this species. No suitable snags or other features are present to support roosting by this species.	No further discussion of this species is required.
Birds				
American peregrine falcon *Falco peregrinus anatum*	FD, SD, CFP	Year-round resident and winter visitor. Occurs in a wide variety of habitats, though often associated with coasts, bays, marshes and other bodies of water. Nests on protected cliffs and also on man-made structures including buildings and bridges. Preys on birds, especially waterbirds. Forages widely.	**No Potential.** No large waterbodies (lakes or bays) are present to support foraging by this species. No suitably tall structures (cliffs, transmission towers etc) are present to support nesting by this species.	No further discussion of this species is required

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
bald eagle *Haliaeetus leucocephalus*	FD, SE, CFP	Occurs year-round in California, but primarily a winter visitor; breeding population is growing. Nests in large trees in the vicinity of larger lakes, reservoirs and rivers. Wintering habitat somewhat more variable but usually features large concentrations of waterfowl or fish.	**Unlikely.** While observations of this species are present approximately 1 to 2 miles south of the Project Area around The Chain of Lakes and Shadow Cliffs Regional Parks (EBird 2020), no foraging habitat is present within the Project Area and it is highly unlikely the species would nest so far from its preferred foraging sources when potentially suitable nesting substrates are found much closer to suitable foraging areas. The species may occasionally be observed flying over the Project Area but is unlikely to nest.	No further discussion of this species is required
burrowing owl *Athene cunicularia*	SSC, EACCS	Year-round resident and winter visitor. Occurs in open, dry grasslands and scrub habitats with low-growing vegetation, perches and abundant mammal burrows. Preys upon insects and small vertebrates. Nests and roosts in old mammal burrows, most commonly those of ground squirrels.	**High Potential**. During surveys in 2006 for a nearby EIR, burrowing owl were observed within the Project Area. As ground squirrel burrows and grasslands are still present throughout the site, it is probable that the species may continue to nest in the Project Area.	See Section 5.2.2 for further discussion concerning this species.
California black rail *Laterallus jamaicensis coturniculus*	ST, CFP	Year-round resident in marshes (saline to freshwater) with dense vegetation within four inches of the ground. Prefers larger, undisturbed marshes that have an extensive upper zone and are close to a major water source. Extremely secretive and cryptic.	**No Potential.** No expansive tidal of freshwater marsh habitats are present to support this species.	No further discussion of this species is required

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
California least tern *Sternula antillarum browni*	FE, SE, CFP	Summer resident along the coast from San Francisco Bay south to northern Baja California; inland breeding also very rarely occurs. Nests colonially on barren or sparsely vegetated areas with sandy or gravelly substrates near water, including beaches, islands, and gravel bars. In San Francisco Bay, has also nested on salt pond margins.	**No Potential.** No sandy beaches, dunes or similar substrates, which are also adjacent to water bodies are present to support nesting by the species.	No further discussion of this species is required
golden eagle *Aquila chrysaetos*	CFP, EACCS	Occurs year-round in rolling foothills, mountain areas, sage-juniper flats, and deserts. Cliff-walled canyons provide nesting habitat in most parts of range; also nests in large trees, usually within otherwise open areas.	**Unlikely (Nesting).** Several observations of this species have been recorded in the vicinity over the last 10 years (eBird 2020). Habitats within the Project Area have been identified under EACCS as foraging habitat with nesting habitat likely to occur in less urbanized areas to the south and west. Due to the developed nature of areas surrounding the Project Area nesting is unlikely but the species may be observed foraging within or adjacent to the Project Area, especially to the east.	No further discussion of this species is required
grasshopper sparrow *Ammodramus savannarum*	SSC	Summer resident. Breeds in open grasslands in lowlands and foothills, generally with low- to moderate-height grasses and scattered shrubs. Well-hidden nests are placed on the ground.	**Moderate Potential.** The majority of the Project Area is composed of grassland covered hills which may be used by the species for nesting. This species has been observed in the local area surrounding the Project Area (eBird 2020).	See Section 5.2.2 for further discussion concerning this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
great blue heron *Ardea herodias*	none (breeding sites protected by CDFW); CDF sensitive	Year-round resident. Nests colonially or semi-colonially in tall trees and on cliffs, also sequested terrestrial substrates. Breeding sites usually in close proximity to foraging areas: marshes, lake margins, tidal flats, and rivers. Forages primarily on fishes and other aquatic prey, also smaller terrestrial vertebrates.	**No Potential.** No water sources are present in close proximity to support a breeding colony for this species.	No further discussion of this species is required
loggerhead shrike *Lanius ludovicianus*	SSC	Year-round resident in open woodland, grassland, savannah and scrub. Prefers areas with sparse shrubs, trees, posts, and other suitable perches for foraging. Preys upon large insects and small vertebrates. Nests are well-concealed in densely-foliaged shrubs or trees.	**High Potential.** Open grassland is present within the Study Area to support foraging, and shrubs or trees are present to support nesting. The species has also been observed in the vicinity (eBird 2020).	See Section 5.2.2 for further discussion concerning this species.
northern harrier *Circus cyaneus*	SSC	Year-round resident and winter visitor. Found in open flat habitats including grasslands, prairies, marshes and agricultural areas. Nests on the ground in dense vegetation, typically near water or otherwise moist areas. Preys on small vertebrates.	**Unlikely.** The Project Area does not support wetlands or moist areas typically required for nesting by this species. Additionally the steep hills are not favored by the species for nesting or foraging. Suitable habitat may occur offsite and as such it is likely the species may be seen flying over the Project Area occasionally or foraging in small select areas.	No further discussion of this species is required.
song sparrow - “Alameda” population *Melospiza melodia pusillula*	SSC	Year-round resident of salt marshes bordering the south arm of San Francisco Bay. Inhabits primarily pickleweed marshes; nests placed in marsh vegetation, typically shrubs such as gumplant.	**No Potential.** The Project Area is outside of the typical and known range for this species (Shuford and Gardali 2008).	No further discussion of this species is required

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
song sparrow –"Modesto" Population *Melospiza melodia*	SSC	Restricted to the Sacramento and extreme northern San Joaquin Valleys from Colusa County south to Stanislaus County. Associated with woody riparian habitat and freshwater marshes.	**No Potential.** The Project Area is outside of the typical and known range for this species (Shuford and Gardali 2008).	No further discussion of this species is required
Swainson's hawk *Buteo swainsoni*	ST, BCC	Summer resident in California's Central Valley and limited portions of the southern California interior. Nests in tree groves and isolated trees in riparian and agricultural areas, including near buildings. Forages in grasslands and scrub habitats as well as agricultural fields, especially alfalfa. Preys on arthropods year-round as well as smaller vertebrates during the breeding season.	**Unlikely.** The species has not been documented within 5-miles of the Project Area (CDFW 2020). However, Swainson's hawk has been identified nesting within an urbanized neighborhood approximately 6 miles southeast of the Project Area in 2017 (CDFW 2017). No other accounts of this species are known within the vicinity making this occurrence an oddity. While grasslands are present within the Project Area, it is unlikely that the steep hills would provide good foraging habitat as preferred agricultural lands are nearby to support higher quality foraging by the species.	No further discussion of this species is required
tricolored blackbird *Agelaius tricolor*	ST, SSC, EACCS	Nearly endemic to California, where it is most numerous in the Central Valley and vicinity. Highly colonial, nesting in dense aggregations over or near freshwater in emergent growth or riparian thickets. Also uses flooded agricultural fields. Abundant insect prey near breeding areas essential.	**No Potential.** This species requires large marshes and cattail stands to establish a colony. No such marsh or emergent vegetation is present to support this species.	No further discussion of this species is required

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
white-tailed kite *Elanus leucurus*	CFP	Year-round resident in coastal and valley lowlands with scattered trees and large shrubs, including grasslands, marshes and agricultural areas. Nests in trees, of which the type and setting are highly variable. Preys on small mammals and other vertebrates.	**High Potential.** This species has been observed in the local area (eBird 2020). Grasslands like those within the Study Area are typical foraging habitat for the species. Trees and shrubs within the Study Area also may support nesting by the species.	See Section 5.2.2 for further discussion concerning this species.
Fish				
Delta smelt *Hypomesus transpacificus*	FT, SE, RP	Lives in the Sacramento-San Joaquin estuary in areas where salt and freshwater systems meet. Occurs seasonally in Suisun Bay, Carquinez Strait and San Pablo Bay. Seldom found at salinities > 10 ppt; most often at salinities < 2 ppt.	**No Potential.** No aquatic features such as bays or estuaries are present to support this species.	No further discussion of this species is required.
steelhead - central CA coast DPS *Oncorhynchus mykiss irideus*	FT	Occurs from the Russian River south to Soquel Creek and Pajaro River. Also in San Francisco and San Pablo Bay Basins. Adults migrate upstream to spawn in cool, clear, well-oxygenated streams. Juveniles remain in fresh water for 1 or more years before migrating downstream to the ocean.	**No Potential.** No aquatic features such as streams, rivers, bays or estuaries are present to support this species.	No further discussion of this species is required.
Reptiles and Amphibians				

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Alameda whipsnake *Masticophis lateralis euryxanthus*	FT, ST, EACCS	Inhabits chaparral and foothill-hardwood habitats in the eastern Bay Area. Prefers south-facing slopes and ravines with rock outcroppings where shrubs form a vegetative mosaic with oak trees and grasses and small mammal burrows provide basking and refuge.	**Unlikely.** Under the EACCS modeled habitat for this species only occurs more than 5-miles from the Project Area (ICF 2010). No recorded observations have been documented within 5-miles of the Project Area (CDFW 2020).	No further discussion of this species is required.
Blainville's (Coast) horned lizard *Phrynosoma blainvillii (coronatum)*	SSC	Frequents a wide variety of habitats, most common in lowlands along sandy washes with scattered low bushes. Prefers friable, rocky, or shallow sandy soils for burial; open areas for sunning; bushes for cover; and an abundant supply of ants and other insects.	**Unlikely.** This species requires dry creek beds, with sandy or rocky substrates. No such dry creek beds are present to support the species.	No further discussion of this species is required
California glossy snake *Arizona elegans occidentalis*	SSC	Ranges from Contra Costa to San Diego Counties along the western foothills of the Central Valley and from the coast to inland areas in Ventura to San Diego Counties. Found in a variety of habitat types including grasslands, fields, chaparral, and coastal sage scrub within its geographic range.	**No Potential.** The Project Area is outside the known range for this species.	No further discussion of this species is required
California red-legged frog *Rana draytonii*	FT, SSC, EACCS	Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation. Requires 11 to 20 weeks of permanent water for larval development. Associated with quiet perennial to intermittent ponds, stream pools and wetlands. Prefers shorelines with extensive vegetation. Disperses through upland habitats after rains.	**High Potential.** This species has been documented in the vicinity around the Study Area and may use the Study Area as either upland dispersal, or upland aestivation habitat. No breeding features are present. The Study Area is also designated as critical habitat for the species.	See Section 5.2.2 for further discussion concerning this species

SPECIES	**STATUS***	**HABITAT**	**POTENTIAL FOR OCCURRENCE**	**RECOMMENDATIONS**
California tiger salamander *Ambystoma californiense*	FT, ST, RP, EACCS	Populations in Santa Barbara and Sonoma counties currently listed as endangered; threatened in remainder of range. Inhabits grassland, oak woodland, ruderal and seasonal pool habitats. Adults are fossorial and utilize mammal burrows and other subterranean refugia. Breeding occurs primarily in vernal pools and other seasonal water features.	**High Potential.** This species has been documented breeding in nearby seasonal wetlands. While features within the Study Area are not suitable for breeding, the species may use uplands, especially burrows as upland habitat.	See Section 5.2.2 for further discussion concerning this species
foothill yellow-legged frog *Rana boylii*	SE, EACCS	Found in or adjacent to rocky streams in a variety of habitats. Prefers partly-shaded, shallow streams and riffles with a rocky substrate; requires at least some cobble-sized substrate for egg-laying. Needs at least 15 weeks to attain metamorphosis. Feeds on both aquatic and terrestrial invertebrates..	**No Potential.** No suitable natural perennial streams are present to support the species.	No further discussion of this species is required
Pacific (western) pond turtle *Actinemys marmorata*	SSC	A thoroughly aquatic turtle of ponds, marshes, rivers, streams and irrigation ditches with aquatic vegetation. Require basking sites such as partially submerged logs, vegetation mats, or open mud banks, and suitable upland habitat (sandy banks or grassy open fields) for egg-laying.	**No Potential.** No suitable ponds, lakes, or similar features are present to support the species.	No further discussion of this species is required
San Joaquin whipsnake *Masticophis flagellum ruddocki*	SSC	Found in valley grassland and saltbush scrub in the San Joaquin Valley in open, dry habitats with little or no tree cover. Requires mammal burrows for refuge and breeding sites.	**Unlikely.** The Project Area is outside of the current distribution of this species (Calherps 2020). No occurrences are documented within 5-miles of the Project Area (CDFW 2020).	No further discussion of this species is required

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
silvery legless lizard *Anniella pulchra pulchra*	SSC	Fossorial species, inhabiting sandy or loose loamy soils under relatively sparse vegetation. Suitable habitat includes dunes, stream terraces, and scrub and chaparral. Adequate soil moisture is essential.	**Unlikely.** The Project Area is dry with little or no moisture except for small wetland sections fed by urban runoff.	No further discussion of this species is required
western spadefoot *Spea (=Scaphiopus) hammondii*	SSC	Occurs primarily in grassland habitats, but can be found in valley-foothill hardwood woodlands. Shallow temporary pools formed by winter rains are essential for breeding and egg-laying.	**Unlikely.** This species has not been documented within 5-miles of the Project Area (CDFW 2020) despite numerous large scale development Projects in recent years occurring in close proximity to the Project Area. In addition, no vernal pools or other similar habitats are present to support breeding by this species.	No further discussion of this species is required
Invertebrates				
conservancy fairy shrimp *Branchinecta conservatio*	FE	Endemic to the grasslands of the northern two-thirds of the Central Valley; found in large, turbid pools. Inhabit astatic pools located in swales formed by old, braided alluvium; filled by winter/spring rains, last until June.	**No Potential.** No vernal pools are present to support this species.	No further discussion of this species is required

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Crotch bumblebee *Bombus crotchii*	SC	Range largely restricted to California (Richardson and Schweitzer 2018). Recent occurrence information restricts the majority of occurrences to Southern California. Favors grassland and scrub habitats. Typical of bumble bees, nests are usually constructed underground.	**Unlikely.** This species has been documented within 5-miles of the Project Area but dates from 1932, and is within previously developed areas (CDFW 2020). No recent observations of the species are known in the vicinity (Hatfield et al 2018). Richardson and Schweitzer (2018) state that most occurrences of this species are limited to southern California coastal areas. Therefore the Project Area is outside the current range, and typical habitat conditions required for the species.	No further discussion of this species is required
Callippe silverspot butterfly *Speyeria callippe callippe*	FE, SSI	Two populations in San Bruno mountain and the Cordelia Hills are recognized. Hostplant is Viola pedunculata, which is found on serpentine soils. Most adults found on east-facing slopes; males congregate on hilltops in search of females.	**No Potential.** No serpentine outcrops are present to support host plants for the species, no host plants were observed during the site visit. No adults were observed despite conducting a site visit during the middle of the adult flight season under ideal survey conditions. The species has no potential to occur.	No further discussion of this species is required

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
longhorn fairy shrimp *Branchinecta longiantenna*	FE	Endemic to the eastern margin of the central coast mountains in seasonally astatic grassland vernal pools. Inhabit small, clear-water depressions in sandstone and clear-to-turbid clay/grass-bottomed pools in shallow swales.	**No Potential.** The only known population in this area is within Brushy Park Preserve and adjacent lands (ICF 2010). The Project Area is more than 5-miles from this population and no known populations have been documented closer (CDFW 2020). The Project Area does not occur within modeled habitat for this species (ICF 2010).	No further discussion of this species is required
monarch butterfly *Danaus plexippus*		Winter roost sites extend along the coast from northern Mendocino to Baja California, Mexico. Roosts located in wind-protected tree groves (eucalyptus, Monterey pine, Monterey cypress), with nectar and water sources nearby.	**No Potential.** No protected groves of trees are present to support roosting. Those trees which are present are typically dispersed lines of trees. Nectar and water sources are extremely limited within the project Area and are unlikely to support roosting by monarchs.	No further discussion of this species is required
San Bruno elfin butterfly *Callophrys mossii bayensis*	FE	Limited to the vicinity of San Bruno Mountain, San Mateo County. Colonies are located on in rocky outcrops and cliffs in coastal scrub habitat on steep, north-facing slopes within the fog belt. Species range is tied to the distribution of the larval host plant, Sedum spathulifolium.	**No Potential.** The Project Area is outside of the known range for this species. No north facing slopes with rocky outcrops to support the host plants are present.	No further discussion of this species is required

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
valley elderberry longhorn beetle *Desmocerus californicus dimorphus*	FT, RP	Occurs only in the central valley of California, in association with blue elderberry (*Sambucus* spp.). Prefers to lay eggs in elderberrry 2 to 8 inches in diameter; some preference shown for "stressed" elderberry.	**No Potential.** No elderberry (*Sambuccus sp.)* shrubs were observed during the site visit, therefore no host plants are present to support the species.	No further discussion of this species is required
vernal pool fairy shrimp *Branchinecta lynchi*	FT, EACCS	Endemic to the grasslands of the Central Valley, central coast mountains, and south coast mountains, in astatic rain-filled pools. Inhabit small, clear-water sandstone-depression pools and grassed swale, earth slump, or basalt-flow depression pools.	**No Potential.** No occurrences of this species are documented within waterways or watersheds connected to the Project Area. Any known occurrences of this species are located east of the Project Area more than 5-miles away (CDFW 2020). Any potentially suitable habitat modeled for this species under the EACCS is also not within the bounds of the Project Area (ICF 2010).	No further discussion of this species is required
vernal pool tadpole shrimp *Lepidurus packardi*	FE	Inhabits vernal pools and swales in the Sacramento Valley containing clear to highly turbid water. Pools commonly found in grass bottomed swales of unplowed grasslands. Some pools are mud-bottomed and highly turbid.	**No Potential.** No occurrences of this species are documented within waterways or watersheds connected to the Project Area. Any known occurrences of this species are located east of the Project Area more than 5-miles away (CDFW 2020). Any potentially suitable habitat modeled for this species under the EACCS is also not within the bounds of the Project Area (ICF 2010). No vernal pools are present to support this species.	No further discussion of this species is required

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
western bumble bee *Bombus occidentalis*	SC	Formerly common throughout much of western North America; populations from southern British Columbia to central California have nearly disappeared (Xerces 2020). Occurs in a wide variety of habitat types. Nests are constructed annually in pre-existing cavities, usually on the ground (e.g. mammal burrows). Many plant species are visited and pollinated.	**Unlikely.** Only one occurrence of this species is documented within 5-miles of the Project Area (CDFW 2020). This occurrence dates from 1932, and is mapped within what is now dense urban sprawl, making it unlikely to be extant (CDFW 2020). The species has no current observations (since 2003) in the Dublin area making it unlikely that the species is present (Hatfield et al 2018)	No further discussion of this species is required
Plants				
Santa Clara thorn-mint *Acanthomintha lanceolata*	Rank 4.2	Chaparral (often serpentine), cismontane woodland, coastal scrub. Elevation ranges from 260 to 3935 feet (80 to 1200 meters). Blooms Mar-Jun.	**Unlikely.** The Study Area does not contain any chaparral (or serpentine chaparral), cismontane woodland, or coastal scrub. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
large-flowered fiddleneck *Amsinckia grandiflora*	FE, SE, Rank 1B.1	Cismontane woodland, valley and foothill grassland. Elevation ranges from 885 to 1805 feet (270 to 550 meters). Blooms (Mar)Apr-May.	**Unlikely.** The Study Area does not contain any cismontane woodland. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
bent-flowered fiddleneck *Amsinckia lunaris*	Rank 1B.2	Coastal bluff scrub, cismontane woodland, valley and foothill grassland. Elevation ranges from 5 to 1640 feet (3 to 500 meters). Blooms Mar-Jun.	**Unlikely.** The Study Area does not contain any coastal bluff scrub or cismontane woodland. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
California androsace *Androsace elongata* ssp. *acuta*	Rank 4.2	Chaparral, cismontane woodland, coastal scrub, meadows and seeps, pinyon and juniper woodland, valley and foothill grassland. Elevation ranges from 490 to 4280 feet (150 to 1305 meters). Blooms Mar-Jun.	**Unlikely.** The Study Area does not contain any chaparral, meadows, seeps, coastal bluff scrub, juniper woodland, pinyon woodland, or cismontane woodland. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
slender silver moss *Anomobryum julaceum*	Rank 4.2	Broadleafed upland forest, lower montane coniferous forest, north coast coniferous forest. Elevation ranges from 325 to 3280 feet (100 to 1000 meters).	**Unlikely.** The Study Area does not contain any north coast coniferous forest, broadleafed upland forest, or montane coniferous forest. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
Mt. Diablo manzanita *Arctostaphylos auriculata*	Rank 1B.3	Chaparral (sandstone), cismontane woodland. Elevation ranges from 440 to 2135 feet (135 to 650 meters). Blooms Jan-Mar.	**Unlikely.** The Study Area does not contain any sandstone chaparral or cismontane woodland. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Contra Costa manzanita *Arctostaphylos manzanita* ssp. *laevigata*	Rank 1B.2	Chaparral (rocky). Elevation ranges from 1410 to 3610 feet (430 to 1100 meters). Blooms Jan-Mar(Apr).	**Unlikely.** The Study Area does not contain any rocky chaparral. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
alkali milk-vetch *Astragalus tener* var. *tener*	Rank 1B.2	Playas, valley and foothill grassland (adobe clay), vernal pools. Elevation ranges from 0 to 195 feet (1 to 60 meters). Blooms Mar-Jun.	**Unlikely.** The Study Area does not contain any playas, adobe clay valley or foothill grasslands, or vernal pools. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which provide poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
heartscale *Atriplex cordulata* var. *cordulata*	Rank 1B.2	Chenopod scrub, meadows and seeps, valley and foothill grassland (sandy). Elevation ranges from 0 to 1835 feet (0 to 560 meters). Blooms Apr-Oct.	**Unlikely.** The Study Area does not contain any chenopod scrub, meadows, seeps, sandy valley or foothill grasslands. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which provide poor habitat for sensitive species. However there is a nearby occurrence from 1999 approximately 4.5 miles east of the Study Area in a alkali scald (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
crownscale *Atriplex coronata* var. *coronata*	Rank 4.2	Chenopod scrub, valley and foothill grassland, vernal pools. Elevation ranges from 0 to 1935 feet (1 to 590 meters). Blooms Mar-Oct.	**Unlikely.** The Study Area does not contain any chenopod scrub, vernal pools, valley or foothill grasslands. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which provide poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
brittlescale *Atriplex depressa*	Rank 1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland, vernal pools. Elevation ranges from 0 to 1050 feet (1 to 320 meters). Blooms Apr-Oct.	**Unlikely.** The Study Area does not contain any chenopod scrub, vernal pools, playas valley or foothill grasslands. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which provide poor habitat for sensitive species. However there is a nearby occurrence from 2000 approximately 3.2 miles east of the Study Area in grassland with other *Atriplex* spp. (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
lesser saltscale *Atriplex minuscula*	Rank 1B.1	Chenopod scrub, playas, valley and foothill grassland. Elevation ranges from 45 to 655 feet (15 to 200 meters). Blooms May-Oct.	**Unlikely.** The Study Area does not contain any chenopod scrub, playas. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which provide poor habitat for sensitive species. However there is a nearby occurrence from 2000 approximately 4.3 miles east of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
big-scale balsamroot *Balsamorhiza macrolepis*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 145 to 5100 feet (45 to 1555 meters). Blooms Mar-Jun.	**Unlikely.** The Study Area does not contain any chaparral or cismontane woodland. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
big tarplant *Blepharizonia plumosa*	Rank 1B.1	Valley and foothill grassland. Elevation ranges from 95 to 1655 feet (30 to 505 meters). Blooms Jul-Oct.	**Unlikely.** Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which offers poor habitat for sensitive species. Big tarplant is found on clay soils in annual grasslands that the Study Area contains, however no observations species have been observed in either the Livermore or Amador Valley (CNDDB 2020).	No further recommendations are necessary for this species.
Mt. Diablo fairy-lantern *Calochortus pulchellus*	Rank 1B.2	Chaparral, cismontane woodland, riparian woodland, valley and foothill grassland. Elevation ranges from 95 to 2755 feet (30 to 840 meters). Blooms Apr-Jun.	**No Potential.** This species is limited to a specific mountainous region way outside the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
Oakland star-tulip *Calochortus umbellatus*	Rank 4.2	Broadleafed upland forest, chaparral, cismontane woodland, lower montane coniferous forest, valley and foothill grassland. Elevation ranges from 325 to 2295 feet (100 to 700 meters). Blooms Mar-May.	**No Potential.** This species is limited to a specific mountainous region way outside the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
chaparral harebell *Campanula exigua*	Rank 1B.2	Chaparral (rocky, usually serpentine). Elevation ranges from 900 to 4100 feet (275 to 1250 meters). Blooms May-Jun.	**No Potential.** The Study Area does not contain any rocky or serpentine chaparral There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Congdon's tarplant *Centromadia parryi* ssp. *congdonii*	Rank 1B.1	Valley and foothill grassland (alkaline). Elevation ranges from 0 to 755 feet (0 to 230 meters). Blooms May-Oct(Nov).	**Moderate Potential.** While the grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which offers poor habitat for sensitive species, Congdon's tarplant has been observed within habitat similarly invaded by non-native species in the surrounding area. There are many CNDDB occurrences within five miles of the Study Area (CNDDB 2020).	Protocol level surveys are recommended during this species blooming period.
hispid bird's-beak *Chloropyron molle* ssp. *hispidum*	Rank 1B.1	Meadows and seeps, playas, valley and foothill grassland. Elevation ranges from 0 to 510 feet (1 to 155 meters). Blooms Jun-Sep.	**Unlikely.** This species is found in alkaline sinks and scrubs with accompanying species such as iodine bush scrub which are not found in the Study Area. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which offers poor habitat for sensitive species. There is one CNNDB occurrence approximately 4.3 miles northeast of the Study Area from 2003 (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
palmate-bracted bird's-beak *Chloropyron palmatum*	FE, SE, Rank 1B.1	Chenopod scrub, valley and foothill grassland. Elevation ranges from 15 to 510 feet (5 to 155 meters). Blooms May-Oct.	**Unlikely.** This species is found in alkaline sinks and scrubs with accompanying species such as iodine bush scrub which are not found in the Study Area. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which offers poor habitat for sensitive species. There is CNNDB occurrences approximately 4.3 miles east of the Study Area from 2018 (CNDDB 2020).	No further recommendations are necessary for this species.
Santa Clara red ribbons *Clarkia concinna* ssp. *automixa*	Rank 4.3	Chaparral, cismontane woodland. Elevation ranges from 295 to 4920 feet (90 to 1500 meters). Blooms (Apr)May-Jun(Jul).	**Unlikely.** The Study Area does not contain any chaparral or cismontane woodland. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
small-flowered morning-glory *Convolvulus simulans*	Rank 4.2	Chaparral (openings), coastal scrub, valley and foothill grassland. Elevation ranges from 95 to 2430 feet (30 to 740 meters). Blooms Mar-Jul.	**Unlikely.** The Study Area does not contain any serpentine soils which this species is found on in addition to there being no coastal scrub or chaparral. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which provide poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
Livermore tarplant *Deinandra bacigalupii*	SE, Rank 1B.1	Meadows and seeps (alkaline). Elevation ranges from 490 to 605 feet (150 to 185 meters). Blooms Jun-Oct.	**Unlikely.** This species is found in alkaline sinks and scrubs with accompanying species such as iodine bush scrub which are not found in the Study Area. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which offers poor habitat for sensitive species. There is CNNDB occurrences approximately 4.3 miles east of the Study Area from 2015 (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Hospital Canyon larkspur *Delphinium californicum* ssp. *interius*	Rank 1B.2	Chaparral (openings), cismontane woodland (mesic), coastal scrub. Elevation ranges from 635 to 3595 feet (195 to 1095 meters). Blooms Apr-Jun.	**Unlikely.** The Study Area does not contain any chaparral, cismontane woodland, or coastal scrub. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
recurved larkspur *Delphinium recurvatum*	Rank 1B.2	Chenopod scrub, cismontane woodland, valley and foothill grassland. Elevation ranges from 5 to 2590 feet (3 to 790 meters). Blooms Mar-Jun.	**Unlikely.** The Study Area does not contain any chenopod scrub, cismontane, valley or foothill grasslands. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
western leatherwood *Dirca occidentalis*	Rank 1B.2	Broadleafed upland forest, closed-cone coniferous forest, chaparral, cismontane woodland, north coast coniferous forest, riparian forest, riparian woodland. Elevation ranges from 80 to 1395 feet (25 to 425 meters). Blooms Jan-Mar(Apr).	**Unlikely.** The Study Area does not contain any chaparral. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
Mt. Diablo buckwheat *Eriogonum truncatum*	Rank 1B.1	Chaparral, coastal scrub, valley and foothill grassland. Elevation ranges from 5 to 1150 feet (3 to 350 meters). Blooms Apr-Sep(Nov-Dec).	**No Potential.** This species is limited to a specific mountainous region way outside the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
Jepson's woolly sunflower *Eriophyllum jepsonii*	Rank 4.3	Chaparral, cismontane woodland, coastal scrub. Elevation ranges from 655 to 3365 feet (200 to 1025 meters). Blooms Apr-Jun.	**Unlikely.** The Study Area does not contain any chaparral, cismontane woodlands, or coastal scrub. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Jepson's coyote thistle *Eryngium jepsonii*	Rank 1B.2	Valley and foothill grassland, vernal pools. Elevation ranges from 5 to 985 feet (3 to 300 meters). Blooms Apr-Aug.	**Unlikely.** The Study Area does not contain any vernal pools. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which provide poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
diamond-petaled California poppy *Eschscholzia rhombipetala*	Rank 1B.1	Valley and foothill grassland (alkaline, clay). Elevation ranges from 0 to 3200 feet (0 to 975 meters). Blooms Mar-Apr.	**Unlikely.** The Study Area does contain grasslands on alkaline clay however this species has not been observed in the Livermore or Amador Valley (CNNDB 2020)>	No further recommendations are necessary for this species.
San Joaquin spearscale *Extriplex joaquinana*	Rank 1B.2	Chenopod scrub, meadows and seeps, playas, valley and foothill grassland. Elevation ranges from 0 to 2740 feet (1 to 835 meters). Blooms Apr-Oct.	**Moderate Potential.** While the Study Area does not contain some of the habitats for this species, San Joaquin spearscale may be present within grasslands. There are multiple CNNDB occurrences within 1.5 miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
stinkbells *Fritillaria agrestis*	Rank 4.2	Chaparral, cismontane woodland, pinyon and juniper woodland, valley and foothill grassland. Elevation ranges from 30 to 5100 feet (10 to 1555 meters). Blooms Mar-Jun.	**Unlikely.** The Study Area does not contain any chaparral. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
fragrant fritillary *Fritillaria liliacea*	Rank 1B.2	Cismontane woodland, coastal prairie, coastal scrub, valley and foothill grassland. Elevation ranges from 5 to 1345 feet (3 to 410 meters). Blooms Feb-Apr.	**Unlikely.** The Study Area does not contain any coastal prairie and coastal scrub. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Diablo helianthella *Helianthella castanea*	Rank 1B.2	Broadleafed upland forest, chaparral, cismontane woodland, coastal scrub, riparian woodland, valley and foothill grassland. Elevation ranges from 195 to 4265 feet (60 to 1300 meters). Blooms Mar-Jun.	**No Potential.** This species is limited to a specific mountainous region way outside the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
hogwallow starfish *Hesperevax caulescens*	Rank 4.2	Valley and foothill grassland (mesic, clay), vernal pools (shallow). Elevation ranges from 0 to 1655 feet (0 to 505 meters). Blooms Mar-Jun.	**Unlikely.** The Study Area does not contain any vernal pools. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which provide poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
Brewer's western flax *Hesperolinon breweri*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 95 to 3100 feet (30 to 945 meters). Blooms May-Jul.	**Unlikely.** The Study Area does not contain any chaparral. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Contra Costa goldfields *Lasthenia conjugens*	FE, Rank 1B.1	Cismontane woodland, playas (alkaline), valley and foothill grassland, vernal pools. Elevation ranges from 0 to 1540 feet (0 to 470 meters). Blooms Mar-Jun.	**Unlikely.** The Study Area does not contain any vernal pools or playas. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
legenere *Legenere limosa*	Rank 1B.1	Vernal pools. Elevation ranges from 0 to 2885 feet (1 to 880 meters). Blooms Apr-Jun.	**No Potential.** The Study Area does not contain any vernal pools. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
bristly leptosiphon *Leptosiphon acicularis*	Rank 4.2	Chaparral, cismontane woodland, coastal prairie, valley and foothill grassland. Elevation ranges from 180 to 4920 feet (55 to 1500 meters). Blooms Apr-Jul.	**Unlikely.** The Study Area does not contain any chaparral or coastal prairie. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
serpentine leptosiphon *Leptosiphon ambiguus*	Rank 4.2	Cismontane woodland, coastal scrub, valley and foothill grassland. Elevation ranges from 390 to 3705 feet (120 to 1130 meters). Blooms Mar-Jun.	**Unlikely.** The Study Area does not contain any coastal scrub. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Mt. Hamilton coreopsis *Leptosyne hamiltonii*	Rank 1B.2	Cismontane woodland (rocky). Elevation ranges from 1800 to 4265 feet (550 to 1300 meters). Blooms Mar-May.	**No Potential.** The Study Area does not contain any rocky cismontane woodland. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
Hall's bush-mallow *Malacothamnus hallii*	Rank 1B.2	Chaparral, coastal scrub. Elevation ranges from 30 to 2495 feet (10 to 760 meters). Blooms (Apr)May-Sep(Oct).	**No Potential.** The Study Area does not contain any chaparral or coastal scrub. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
San Antonio Hills monardella *Monardella antonina* ssp. *antonina*	Rank 3	Chaparral, cismontane woodland. Elevation ranges from 1045 to 3280 feet (320 to 1000 meters). Blooms Jun-Aug.	**Unlikely.** The Study Area does not contain any chaparral. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
woodland woolythreads *Monolopia gracilens*	Rank 1B.2	Broadleafed upland forest (openings), chaparral (openings), cismontane woodland, north coast coniferous forest (openings), valley and foothill grassland. Elevation ranges from 325 to 3935 feet (100 to 1200 meters). Blooms (Feb)Mar-Jul.	**Unlikely.** The Study Area does not contain any chaparral. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
little mousetail *Myosurus minimus* ssp. *apus*	Rank 3.1	Valley and foothill grassland, vernal pools (alkaline). Elevation ranges from 65 to 2100 feet (20 to 640 meters). Blooms Mar-Jun.	**Unlikely.** The Study Area does not contain any vernal pools. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
adobe navarretia *Navarretia nigelliformis* ssp. *nigelliformis*	Rank 4.2	Valley and foothill grassland vernally mesic, vernal pools sometimes. Elevation ranges from 325 to 3280 feet (100 to 1000 meters). Blooms Apr-Jun.	**Unlikely.** The Study Area does not contain any vernal pools. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
shining navarretia *Navarretia nigelliformis* ssp. *radians*	Rank 1B.2	Cismontane woodland, valley and foothill grassland, vernal pools. Elevation ranges from 210 to 3280 feet (65 to 1000 meters). Blooms (Mar)Apr-Jul.	**Unlikely.** The Study Area does not contain any vernal pools. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
prostrate vernal pool navarretia *Navarretia prostrata*	Rank 1B.1	Coastal scrub, meadows and seeps, valley and foothill grassland (alkaline), vernal pools. Elevation ranges from 5 to 3970 feet (3 to 1210 meters). Blooms Apr-Jul.	**Moderate Potential.** The Study Area does not contain any coastal scrub, meadows, seeps, or vernal pools. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which offers poor habitat for sensitive species. However there is a CNNDB occurrence within 1.2 miles of the Study Area from 2010 (CNDDB 2020).	Protocol level rare plant surveys are recommend during this species blooming period.
Mt. Diablo phacelia *Phacelia phacelioides*	Rank 1B.2	Chaparral, cismontane woodland. Elevation ranges from 1640 to 4495 feet (500 to 1370 meters). Blooms Apr-May.	**No Potential.** This species is limited to a specific mountainous regions way outside the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
hairless popcornflower *Plagiobothrys glaber*	Rank 1A	Meadows and seeps (alkaline), marshes and swamps (coastal salt). Elevation ranges from 45 to 590 feet (15 to 180 meters). Blooms Mar-May.	**Unlikely.** The Study Area does not contain any alkaline meadows, seeps, or coastal salt marshes or swamps. The nearest CNDDB occurrence is from approximately 2.2 miles southwest of the Study Area from 2002 but is potentially extirpated (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
Oregon polemonium *Polemonium carneum*	Rank 2B.2	Coastal prairie, coastal scrub, lower montane coniferous forest. Elevation ranges from 0 to 6005 feet (0 to 1830 meters). Blooms Apr-Sep.	**Unlikely.** The Study Area does not contain any coastal prairie or coastal scrub. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (Eucalyptus globulus) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	Protocol level surveys are recommended during this species blooming period.
California alkali grass *Puccinellia simplex*	Rank 1B.2	Chenopod scrub, meadows and seeps, valley and foothill grassland, vernal pools. Elevation ranges from 5 to 3050 feet (2 to 930 meters). Blooms Mar-May.	**Unlikely.** The Study Area does not contain any chenopod scrub, meadows, seeps, or vernal pools. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
rock sanicle *Sanicula saxatilis*	SR, Rank 1B.2	Broadleafed upland forest, chaparral, valley and foothill grassland. Elevation ranges from 2030 to 3855 feet (620 to 1175 meters). Blooms Apr-May.	**Unlikely.** The Study Area does not contain any chaparral. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
chaparral ragwort *Senecio aphanactis*	Rank 2B.2	Chaparral, cismontane woodland, coastal scrub. Elevation ranges from 45 to 2625 feet (15 to 800 meters). Blooms Jan-Apr(May).	**Unlikely.** The Study Area does not contain any chaparral or coastal scrub. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
long-styled sand-spurrey	Rank 1B.2	Meadows and seeps, marshes and swamps. Elevation ranges from 0 to 835 feet (0 to 255 meters). Blooms Feb-May(Jun).	**Unlikely.** The Study Area does not contain any marshes, meadows or seeps. However this is a CNDDB occurrence approximately 4.3 miles east of the Study Area from 2003 in the Springtown Preserve, a alkali scald habitat (CNDDB 2020).	No further recommendations are necessary for this species.
most beautiful jewelflower *Streptanthus albidus* ssp. *peramoenus*	Rank 1B.2	Chaparral, cismontane woodland, valley and foothill grassland. Elevation ranges from 310 to 3280 feet (95 to 1000 meters). Blooms (Mar)Apr-Sep(Oct).	**Unlikely.** The Study Area does not contain any chaparral. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
Mt. Diablo jewelflower *Streptanthus hispidus*	Rank 1B.3	Chaparral, valley and foothill grassland. Elevation ranges from 1195 to 3935 feet (365 to 1200 meters). Blooms Mar-Jun.	**No Potential.** This species is limited to a specific region way outside the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
slender-leaved pondweed *Stuckenia filiformis* ssp. *alpina*	Rank 2B.2	Marshes and swamps (assorted shallow freshwater). Elevation ranges from 980 to 7055 feet (300 to 2150 meters). Blooms May-Jul.	**No Potential.** The Study Area does not contain any freshwater marshes. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
saline clover *Trifolium hydrophilum*	Rank 1B.2	Marshes and swamps, valley and foothill grassland (mesic, alkaline), vernal pools. Elevation ranges from 0 to 985 feet (0 to 300 meters). Blooms Apr-Jun.	**Unlikely.** The Study Area does not contain any marshes or vernal pools. Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which offers poor habitat for sensitive species. There is a CNNDB occurrence 2.2 miles southwest of the Study Area from 2006, but its possibly extirpated (CNDDB 2020).	No further recommendations are necessary for this species.
coastal triquetrella *Triquetrella californica*	Rank 1B.2	Coastal bluff scrub, coastal scrub. Elevation ranges from 30 to 330 feet (10 to 100 meters).	**No Potential.** The Study Area does not contain any coastal bluff scrub or coastal scrub. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.
caper-fruited tropidocarpum *Tropidocarpum capparideum*	Rank 1B.1	Valley and foothill grassland (alkaline hills). Elevation ranges from 0 to 1495 feet (1 to 455 meters). Blooms Mar-Apr.	**Unlikely.** Grasslands present within the Study Area are dominated by non-native invasive grasses and herbs which offers poor habitat for sensitive species. However there is a CNNDB occurrence approximately 2 miles east of the Study Area but it was observed in 1897 (CNDDB 2020).	No further recommendations are necessary for this species.

SPECIES	STATUS*	HABITAT	POTENTIAL FOR OCCURRENCE	RECOMMENDATIONS
oval-leaved viburnum *Viburnum ellipticum*	Rank 2B.3	Chaparral, cismontane woodland, lower montane coniferous forest. Elevation ranges from 705 to 4595 feet (215 to 1400 meters). Blooms May-Jun.	**Unlikely.** The Study Area does not contain any chaparral. Tree species within woodlands in the Study Area are primarily composed of ornamental non-natives or blue gum eucalyptus (*Eucalyptus globulus*) which offers poor habitat for sensitive species. There are no CNNDB occurrences within five miles of the Study Area (CNDDB 2020).	No further recommendations are necessary for this species.

*** Key to status codes:**

FE	Federal Endangered
FT	Federal Threatened
BCC	USFWS Birds of Conservation Concern
SE	State Endangered
ST	State Threatened
SSC	CDFW Species of Special Concern
SSI	CDFW Special-Status Invertebrate
CFP	CDFW Fully Protected Animal
WBWG	Western Bat Working Group (High or Medium) Priority species
RP	Species included in a USFWS Recovery Plan or Draft Recovery Plan
Rank 1A	CRPR Rank 1A: Presumed extirpated in California and either rare or extinct elsewhere
Rank 1B	CRPR Rank 1B: Plants rare, threatened or endangered in California and elsewhere
Rank 2B	CRPR Rank 2B: Plants rare, threatened, or endangered in California, but more common elsewhere
Rank 3	CRPR Rank 3: Plants about which CNPS needs more information (a review list)
EACCS	Final East Alameda County Conservation Strategy (2010) Proposed Focal Species

Species Evaluations:
See evaluation definitions in Section 3.2.2 of the report.

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APPENDIX D – SITE PHOTOS

Photo 1: Croak Road through the northern portion of the study Area.

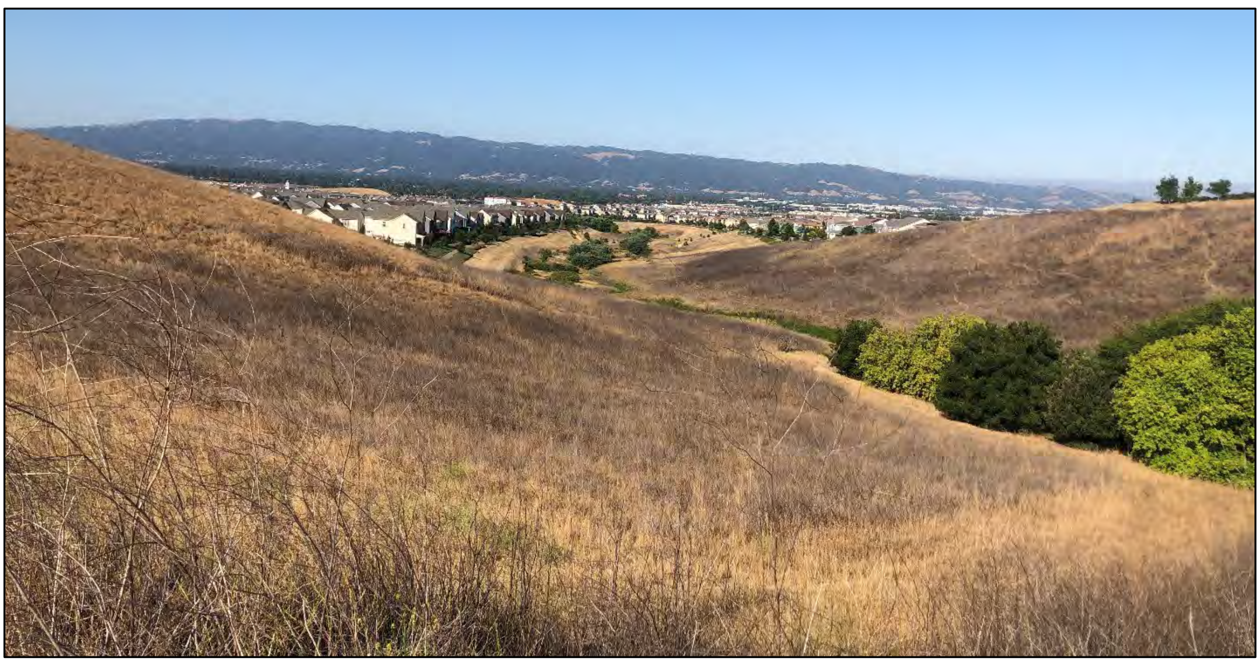

Photo 2: Looking southwest at the seasonal wetland which occurs in the northwestern corner of the Study Area. The creek runs adjacent to the wetland and south into the Open Space corridor.

Photo 3: Planted eucalyptus trees within the center of the Study Area. While these trees are large, none had any hollows, or basal cavities that might support roosting bats or other wildlife that require internal cavities for roosting.

Photo 4: The drainage swale fed by a geotechnical subdrain draining the adjacent development. Water within the drainage was between approximately 0.25 and 1 inch deep at the time of the June 2020 survey.

Photo 5: Many of the trees on site had old cattle exclusion fencing held in place with t-posts to protect the planted trees.

Photo 6: The ranch house. The biologist is pointing to an open window in the attic and deteriorating roof.

Photo 7: Wetland in the southwestern corner of the Study Area, view looking south.

Photo 8: Seasonal wetland near the southwestern edge of the Study Area, view looking north.

Photo 9: The former ranch barn. The large openings in both sides, as well as lack of solid wooden roof paneling inside make the structure unsuitable for bats.

Photo 10: Grasslands on steep hillslopes surround patches of planted non-native trees throughout the the Study Area.

Preliminary Aquatic Resources Delineation Report

EAST RANCH (CROAK) DEVELOPMENT PROJECT DUBLIN, ALAMEDA COUNTY, CALIFORNIA

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LIST OF ACRONYMS AND ABBREVIATIONS

CCR	California Code of Regulations
CDFW	California Department of Fish and Wildlife
CFGC	California Fish and Game Code
CFR	Code of Federal Regulations
Corps	U.S. Army Corps of Engineers
CSRL	California Soil Resource Lab
CWA	Clean Water Act
DS	Drainage Swale
EIR	Environmental Impact Report
EPA	Federal Environmental Protection Agency
FAC	Facultative Plant
FACU	Facultative Upland Plant
FACW	Facultative Wetland Plant
NWI	National Wetland Inventory
OBL	Obligate Wetland Plant
OHWM	Ordinary High Water Mark
RWQCB	Regional Water Quality Control Board
SP	Sample Point
SW	Seasonal Wetland
SWS	Seasonal Wetland Swale
SWRCB	State Water Resources Control Board
UPL	Upland Plant
USGS	U.S. Geological Survey
WRA	WRA, Inc.

1.0 INTRODUCTION

WRA has prepared this Aquatic Resources Delineation Report (Report) for the East Ranch Development Project (Project), located on the Croak property at 4038 Croak Rd (Study Area) in Dublin, Alameda County, California. The Project site consists of approximately 175.13 acres and is shown in Appendix A, Figures 1 and 2. The Study Area is bounded to the north by the Positano residential development, to the south by a largely undeveloped parcel that extends approximately half a mile before reaching Arthur H. Breed, Jr Hwy (Highway 580), to the east by undeveloped land, and to the west by the Jordan Ranch residential development.

This Report represents the preliminary findings for the delineation of “Waters of the United States” and “Waters of the State” on the Project site based on the June 2020 site assessment by WRA Inc. (WRA). The findings contained in this Report have not been verified by the U.S. Army Corps of Engineers (Corps) or the San Francisco Bay Regional Water Quality Control Board (RWQCB). The findings in this Report may be modified based on subsequent discussions with the federal and state regulatory agencies.

On June 25, 2020 WRA conducted a formal wetland delineation in the Study Area to determine the presence of potential wetlands and non-wetland waters that may be subject to jurisdiction by the Corps under Section 404 of the Clean Water Act (CWA), and/or that may be subject to jurisdiction by the RWQCB under Section 401 of the Clean Water Act (CWA) and the California Porter-Cologne Water Quality Control Act. In addition, the field delineation effort sought to identify any top of bank and riparian vegetation potentially subject to jurisdiction of the California Department of Fish and Wildlife (CDFW) under Section 1602 of the California Fish and Game Code (CFGC). The delineation assessed potentially jurisdictional aquatic features both in the field and via historic aerial imagery captured during the wet season.

WRA believes that the features identified in this report also meet the wetland definition adopted by the State Water Resources Control Board (SWRCB) in April of 2019 (SWRCB 2019). The report utilizes the methodologies adopted by the Board to delineate wetlands as “waters of the State”.

2.0 REGULATORY BACKGROUND

2.1 Waters of the U.S.

Section 404 of the CWA regulates the discharge of dredged or fill material into “navigable waters,” which the CWA defines as “waters of the United States, including territorial seas.” Recently adopted federal regulations implementing the CWA (33 C.F.R. Section 328.3) define “waters of the United States” to include the following four categories:

> (1) The territorial seas, and waters which are currently used, or were used in the past, or may susceptible to use in interstate or foreign commerce, including waters which are subject to the ebb and flow of the tide (this category is commonly known as “traditional navigable waters”);
> (2) Perennial and intermittent tributaries that contribute surface water flow to a traditional navigable water;
> (3) Certain lakes, ponds, and impoundments of jurisdictional waters;
> (4) Wetlands adjacent to jurisdictional waters.

The new final federal regulations clarify that the following are not considered "waters of the United States":

(a) Groundwater, including groundwater drained through subsurface drainage systems;
(b) Ephemeral features that flow only in direct response to precipitation, including ephemeral streams, swales, gullies, rills, and pools;
(c) Diffuse stormwater runoff and directional sheet flow over upland;
(d) Ditches that are not traditional navigable waters, tributaries, or that are not constructed in adjacent wetlands, subject to certain limitations.
(e) Prior converted cropland;
(f) Artificially irrigated areas that would revert to upland if artificial irrigation ceases;
(g) Artificial lakes and ponds that are not jurisdictional impoundments and that are constructed or excavated in upland or non-jurisdictional waters;
(h) Water-filled depressions constructed or excavated in upland or in non-jurisdictional waters incidental to mining or construction activity, and pits excavated in upland or in non-jurisdictional waters for the purpose obtaining fil, sand, or gravel;
(i) Stormwater control features constructed or excavated in upland or in non-jurisdictional waters to convey, treat, infiltrate, or store stormwater run-off;
(j) Groundwater recharge, water reuse, and wastewater recycling structures constructed or excavated in upland or in non-jurisdictional waters;
(k) Waste treatment systems.

2.1.1 Wetlands

Wetlands are defined in the federal regulations as:

> *…those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas.*

The basis for determining whether a given area is a wetland for the purposes of Section 404 of the CWA is outlined in the Corps *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Delineation Manual: Arid West Region* (Version 2.0, Sept. 2008).

2.1.2 Non-Wetland Waters

The limit of federal jurisdiction in intermittent or perennial non-tidal, non-wetland waters extends to the Ordinary High Water Mark (OHWM), which is defined in the federal regulations as:

> *...that line on the shore established by the fluctuations of water and indicated by physical characteristics such as clear, natural line impresses on the bank, shelving, changes in the characteristics of the soil, destruction of terrestrial vegetation, the presence of litter and debris, or other appropriate means that consider the characteristics of the surrounding areas.*

2.2 Waters of the State

The California Porter-Cologne Water Quality Control Act regulates the discharge of dredge or fill material into the "waters of the State," which are defined under the Act as "any surface water or groundwater, including saline waters, within the boundaries of the state." In April 2019, the State Water Resources Control Board (SWRCB) adopted the *State Wetland Definition and Procedures for Discharges of Dredged or Fill Material to Waters of the State* (State Wetland Definition and Procedures) (SWRCB 2019). The State Wetland Definition and Procedures define the term wetland as follows:

> *An area is wetland if, under normal circumstances, (1) the area has continuous or recurrent saturation of the upper substrate caused by groundwater, or shallow surface water, or both; (2) the duration of such saturation is sufficient to cause anaerobic conditions in the upper substrate; and (3) the area's vegetation is dominated by hydrophytes or the area lacks vegetation.*

The State Wetland Definition and Procedures utilize existing Corps delineation guidance (Environmental Laboratory 1987, Corps 2008b, Corps 2010) and considers any "Waters of the United States" as identified in an aquatic resource report verified by the Corps to meet the state definition of "Waters of the State." Further, while the state law definition of wetlands may include areas that lack vegetation and that therefore do not meet the federal definition of wetlands, all of the potential wetland features on the Project site contain vegetation such that this distinction between the state and federal definition of a wetland is not relevant at the site.

2.3 Section 1602 of the California Fish and Game Code

Section 1602 of the CFGC regulates activities impacting the bed, channel or bank of a river, stream or lake. Such activities may require as Streambed Alteration Agreement with the CDFW. CDFW regulations define the term stream, which includes creeks and rivers, as "a body of water that flows at least periodically or intermittently through a bed or channel having banks and supports fish or other aquatic life. This includes watercourses having a surface or subsurface flow that supports or has supported riparian vegetation" (14 C.C.R. Section 1.72).

3.0 STUDY AREA DESCRIPTION

The Study Area (37.712778 degrees North, -121.838056 degrees West) is approximately 175.13 acres in size and is located in Dublin, Alameda County, California (Appendix A, Figures 1 and 2). Elevations in the Study Area range from approximately 415 to 730 feet WGS84 (Google Earth 2020). The Study Area straddles Croak Road, and is bounded to the north by the Positano residential development, to the south by a largely undeveloped parcel that extends approximately half a mile before reaching Arthur H. Breed, Jr Hwy (Highway 580), to the east by undeveloped land, and to the west by the Jordan Ranch residential development. The Study Area is largely undeveloped apart from a homesite consisting of a house, barn and outbuilldlings in the southwestern portion of the parcel. Portions of the Study Area adjacent to the roadway and fence lines are regularly mowed for fire suppression.

The Study Area consists of four distinct habitats: seasonal wetland swale, drainage swale, seasonal wetland, and upland. A majority of the Study Area is comprised of annual grassland upland habitat on large, steep-sloped hills. A seasonal wetland swale is confined to the northwestern corner of the Study Area fed by a culvert north of the property line. Two drainage swales are found along the center of the northern border of the Study Area, and are fed by small-diameter geotechnical subdrains that drain the Positano residential community to the north. One seasonal wetland is located in the southwestern corner of the Study Area.

The National Wetland Inventory (NWI) has mapped one wetland type as occurring in the Study Area: a single linear feature classified as palustrine, emergent freshwater, temporarily flooded wetland runs from the northeast to the southwest before continuing south outside the boundary (U.S. Fish and Wildlife Service [USFWS] 2020). WRA's observations of this feature are discussed below in Section 5.1.1.

3.1 Vegetation

Vegetation within the aquatic features was dominated by Italian rye grass (*Festuca perennis*, facultative [FAC]), Pacific rush (*Juncus effusus* ssp. *pacificus*, facultative wetland [FACW]), yerba mansa (*Anemopsis californica*, obligate [OBL]), rabbitsfoot grass (*Polypogon monspeliensis*, FACW), watercress (*Nasturtium officinale*, OBL), irisleaf rush (*Juncus xiphioides*, OBL), and curly dock (*Rumex crispus*, FAC).

The upland plant community was composed of nonnative grasses, such as species of oat grass (*Avena fatua* and *A. barbata*, upland [UPL]), Italian thistle (*Carduus pycnocephalus*, UPL), ripgut brome (*Bromus diandrus*, UPL), field bindweed (*Convolvulus arvensis,* UPL), Italian rye grass (FAC), and bristly ox tongue (*Helminthotheca echioides*, FAC). Planted, non-native trees were present in several areas within the Study Area in separate groves that run between hillslopes and included blue gum eucalyptus (*Eucalyptus globulus,* UPL), honey locust (*Gleditsia triacanthos,* FAC), and pines (*Pinus* spp., UPL).

3.2 Soils

Seven soils are mapped in the Study Area and can be seen on Figure 3 in Appendix A: (1) Linne clay loam, 15 to 30 percent slopes (54.48 percent of the Study Area); (2) Linne clay loam, 3 to 15 percent (31.90 percent of the Study Area); (3) Linne clay loam, 30 to 45 percent slopes, eroded (5.79 percent of the Study Area); (4) Pescadero clay (3.82 percent of the Study Area); (5) Diablo clay, very deep, 3 to 15 percent slopes (3.64 percent of the Study Area); (6) Clear Lake clay, drained, 0 to 2 percent slopes, MLRA 14 (0.25 percent of the Study Area); and (7) Rincon clay loam, 3 to 7 percent slopes (0.12 percent of the Study Area) slopes (CSRL 2020). Only one of soils Clear Lake clay considered a hydric soils (CSRL 2020).

The Linne series consists moderately deep, well drained soils that formed in material weathered from fairly soft shale and sandstone. Pescadero clay consists very deep, poorly drained soils that formed in alluvium from sedimentary rocks. Diablo clay consists well drained with slow runoff and slow permeability. Clear Lake clay consists of very deep, poorly drained soils that formed in fine textured alluvium derived from mixed rock sources. Rincon clay loam consists of deep, well drained soils that formed in alluvium from sedimentary rocks.

3.3 Hydrology

The Study Area is located entirely within the San Francisco Bay Watershed (HUC8 18050004). Aquatic features within the Study Area do not have any apparent direct surface connectivity to the San Francisco Bay and are assumed to be are isolated in terms of surface flow under typical rainfall conditions. Natural hydrological sources for the Study Area include precipitation, surface run-off from adjacent lands, and treated water from the residential communities nearby.

A hydrologic analysis (i.e., WETS analysis, U.S. Department of Agriculture [USDA] 1997, Sprecher and Warne 2000) was conducted to determine whether precipitation levels during the three months prior to each aerial image assessed by WRA (and prior to the delineation) were above, below, or within the 30-year average for the region (Appendix B). Precipitation for the three months prior to the delineation showed that the area received 5.33 inches of precipitation, which is approximately 148 percent of the 30-year average for this same period which is considered wetter than normal (3.58 inches; 1990-2020) (National Oceanic and Atmospheric Administration [NOAA] 2020). The 30-year average precipitation for this area is 13.78 inches with the majority of rainfall occurring from December to March. A majority of the rain occurring in the last three months was in the month prior (May) which saw 2.97 inches approximately 150% of average rainfall for that month (1.97).

4.0 METHODS

WRA biologists performed a delineation of potentially jurisdictional aquatic resources within the Study Area on June 25, 2020. Prior to conducting the delineation, WRA reviewed a range of background materials, including the previous wetland assessment conducted for the Fallon Village Environmental Impact Report (EIR; Haag 2005), the California Soil Resource Lab's (CSRL) online soil viewer (CSRL 2020), the *Soil Survey of Alameda Area* (USDA 2020), the NWI (USFWS 2020), and the U.S. Geological Survey (USGS) Mendota Dam 7.5-minute quadrangle maps (USGS 2020). WRA also reviewed historic aerial imagery from Google Earth (2020) and NETR (2020).

During the on-site evaluation, WRA followed the methods outlined in *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Corps Manual; Environmental Laboratory 1987), the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Arid West Supplement; Corps 2008b), and *A Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States* ("OHWM Guide"; Corps 2005, Lichvar and McColley 2008). Potentially jurisdictional wetlands were identified and their boundaries mapped using the Routine Method described in the Corps Manual. The jurisdictional limits of non-wetland waters were mapped based on a combination of field indicators described in the OHWM Guide.

4.1 Wetlands

Routine Method

WRA followed the Routine Method to evaluate the Study Area for the presence or absence of indicators of the three wetland parameters described in the Corps Manual (Environmental Laboratory 1987) and Arid West Supplement (Corps 2008b). Data on vegetation, hydrology, and soils were collected at sample points within potential wetland communities and adjacent upland areas. Sample points that contained positive indicators for hydrophytic vegetation, hydric soils, and wetland hydrology were considered to be wetland. Except in cases of atypical or problematic wetland situations (i.e., difficult wetland situations, as described below), sample points that lacked one or more indicators were considered to be upland. Sample point data were reported on Arid West Supplement data forms. Sample point locations were recorded using a handheld GPS unit with sub-meter accuracy.

Prior to the delineation in 2020, historic aerial imagery and topographic data were evaluated (Google Earth 2020, NETR 2020). The delineation assessed on-site conditions and potentially jurisdictional features relative to those discussed in a previously mapped by H.T. Harvey and Associates (Haag 2005).

Difficult Wetland Situations

The Arid West Supplement (Corps 2008b) includes recommended procedures for completing wetland delineations in areas of “difficult wetland situations” in which wetlands may lack one or more indicators due to natural or anthropogenic factors. Although the Corps Manual and Arid West Supplement were utilized in the wetland determination, they do not provide exhaustive lists of the difficult situations and problem areas that can arise during delineations in the Arid West. In these situations, the Corps Manual and Regional Supplements stress the importance of using best professional judgment and knowledge of the ecology of the wetlands in the region during the collection and interpretation of data in difficult sites.

Due to the lack of hydrological indicators at the time of the delineation, aerial imagery from Google Earth was utilized to verify seasonal inundation in areas that displayed hydrophytic vegetation and soil indicators (Google Earth 2020, NETR 2020). A WETS analysis was conducted for these aerial images (found in Appendix B) and was used to ensure that hydrological indicators persisted annually during relatively normal conditions (NOAA 2020).

USFWS NWI

Prior to the delineation on June 25, 2020 the NWI was used to determine the presence of wetlands and/or non-wetland waters within the Study Area. NWI analyzes aerial imagery and uses photographic signatures to identify wetland or waters features at an approximately 1:65,000 scale. Features identified via aerial imagery require a field assessment that corroborates the signature of wetland habitat to wetland indicators discussed above (USFWS 2020). NWI mapped features within the Project Area based on an image from 1985. As part of the delineation on June 25, 2020 WRA assessed the conditions of the area mapped by the NWI to determine the presence or lack thereof of wetland indicators.

4.2 Non-Wetland Waters

This delineation also evaluated the presence of non-wetland waters potentially subject to Corps jurisdiction under Section 404 of the CWA and RWQCB jurisdiction under the California Porter-Cologne Water Quality Control Act. Non-wetland jurisdictional waters include lakes, rivers, and streams (including intermittent and ephemeral streams), in addition to all areas below the OHWM.

4.3 CDFW Jurisdiction

As noted above, Section 1602 of the CFGC regulates activities impacting the bed, channel or bank of a river, stream or lake. CDFW maintains that its Section 1602 jurisdiction extends to the top-of-bank of any river, stream or lake; to the outer dripline of any adjacent riparian vegetation, if present; and to any seasonal or perennial wetlands immediately adjacent to the top-of-bank, if present.

5.0 RESULTS

As described above, the Study Area contains three distinct aquatic resources (seasonal wetland swale, drainage swales, seasonal wetland) that receive water from various culverts, subdrains, and natural features from within and adjacent to the Study Area. The entirety of the Study Area is located within the watershed of the San Francisco Bay.

Descriptions of the potentially jurisdictional (federal and state) aquatic resources identified within the Study Area are provided in the following sections. A summary of potentially jurisdictional aquatic resource acreages is provided in Table 1. Maps depicting the location and extent of aquatic resources mapped within the Study Area are provided on Figures 4 and 5 of Appendix A. WETS analyses for aerial imagery and fieldwork dates are included as Appendix B. Wetland determination forms are provided as Appendix C. A list of observed plant species identified during the delineation are provided as Appendix D. Photographs of the Study Area are provided as Appendix E.

Table 1. Summary of Potentially Jurisdictional Features Mapped within the Study Area

Habitat Type	Classification*	Potential Waters of the U.S./State (acres [linear feet])	Potential CDFW-regulated features (acres [linear feet])
Seasonal Wetland	PEM1C	0.40	0.00
Drainage Swale	PEM1E	0.08	0.00
Seasonal Wetland Swale	PEM1C	0.15	0.15
	Total Wetlands:	**0.63**	**0.15**
	Total Wetlands and Non-Wetland Waters:	**0.63**	**0.15**

*See Federal Geographic Data Committee (2013)

5.1 Waters of the U.S./State

5.1.1 Wetlands

<u>Seasonal Wetland</u>

Seasonal wetland (SW-1) was present in the southwest corner of the Study Area. This seasonal wetland feature was partially mapped by the NWI from an aerial image from 1985 as a linear feature that flowed from northeast to southwest (USFWS 2020) through the middle of the site within a low point between the slopes of large hills. The NWI mapped feature joins with the mapped SW-1, and then extends offsite to the southwest. During the delineation, WRA examined the northeastern area for wetland indicators or other indicators of flow, but found no evidence that flow or wetlands were present. This area contained a uniform row of planted blue gum eucalyptus (UPL) on either side of the low point that gradually slopes down the hill. Dense upland vegetation including oat (UPL) and Italian thistle (UPL) was present in the understory.

SW-1 begins at the southern edge of a culvert that crosses under Central Parkway and continues southwest before dissipating into dense vegetation, however this feature existed prior to the development that established the culvert under Central Parkway (Google Earth 2020). This seasonal wetland was surrounded by upland grasslands, and tree species such as blue gum eucalyptus (*UPL*), cottonwood (*Populus fremontii,* UPL), coast live oak (*Quercus agrifolia*, UPL), and weeping willow (*Salix babylonica*, FAC). The wetland boundary was determined based on slight changes in topography and a shift in vegetation from the rushes and yerba mansa to non-native grass species. Sample points (SP) SP07 and SP09 were collected within the seasonal wetland. This wetland is fed by precipitation, sheet flow, and occasional flows from the culvert mentioned above. This wetland was dominated by irisleaf rush (OBL), pacific rush (FACW), and Italian rye grass. Hydric soils observed within this wetland include Redox Dark Surface (F6) or were naturally problematic since the dark color may mask redoximorphic features. Primary hydrological indicators of wetland hydrology were not observed during the delineation, but Inundation Visible on Aerial Imagery (B7) was observed on aerial imagery during years with normal rainfall conditions (Google Earth 2020, NETR 2020).

The seasonal wetland mapped in the Study Area is potentially jurisdictional for the Corps and RWQCB. No unvegetated areas (with less than 5 percent vegetation) were observed that met criteria for wetland hydrology and hydric soils, and that therefore might be considered potential wetlands under the State wetland definition but not the federal definition. Seasonal wetlands were classified as PEM1C: Palustrine (P), emergent (EM), persistent (1), and seasonally flooded (C). Seasonal wetland mapped in the Study Area is depicted on Figure 4 of Appendix A. Photos of the seasonal wetland can be found in Appendix E (Photographs 25-36).

<u>Drainage Swale</u>

Drainage swales (DS-1 & DS-2) were present along the north central boundary of the Study Area. Two drainage swales began at separate geotechnical subdrains that flow out from the residential community just to the north of the Study Area and flow south downhill before dissipating into upland vegetation. These drainage swales were surrounded by upland grasslands with blue gum eucalyptus around or adjacent to the feature. The drainage swale boundaries were determined based on slight changes in topography and a shift in vegetation from hydrophytic vegetation to non-native grass species. Sample points SP03 and SP05 were within the drainage swales. These drainage swales are fed by precipitation, sheet flow, and predominantly from perennial flows from the subdrains mentioned above. These drainage swales were dominated by watercress (OBL), Italian rye grass (FAC), and rabbitsfoot grass (FACW). Hydric soil indicators observed within these drainage swales were Depleted Matrix (F3) and Depleted Dark Surface (F7). Hydrological indicators of wetland hydrology observed were Surface Water (A1), High Water Table (A2), Saturation (A3), and Inundation Visible on Aerial Imagery (B7) was observed on aerial imagery during years with normal rainfall conditions (Google Earth 2020, NETR 2020).

Drainage swales mapped in the Study Area are potentially jurisdictional for the Corps and RWQCB. No unvegetated areas (with less than 5 percent vegetation) were observed that met criteria for wetland hydrology and hydric soils, and that therefore might be considered potential wetlands under the State wetland definition but not the federal definition. Drainage swales were classified as PEM1E: Palustrine (P), emergent (EM), persistent (1), and seasonally flooded/saturated (E). Drainage swales mapped in the Study Area are depicted on Figure 4 of Appendix A. Photos of the drainage swales can be found in Appendix E (Photographs 9-24).

<u>Seasonal Wetland Swale</u>

A seasonal wetland swale (SWS-1) is present within the northwestern corner of the Study Area and extends out of the boundary to the west before flowing into an intermittent stream present outside of the Study Area. This swale is naturally occurring existing prior to the development of the surrounding area, this feature is fed by precipitation and sheet flow from the surrounding topography. This seasonal wetland swale is surrounded on both sides by sloping hillsides filled with invasive species, but surrounding the feature are trees such as box elder (FACW), Chinese elm (*Ulmus parvifolia*, UPL), and coast live oak (*Quercus agrifolia*, UPL). The wetland boundary was determined based on slight changes in topography and a shift in vegetation from yerba mansa to non-native grass species. Sample point SP01 was collected within the seasonal wetland swale. This seasonal wetland swale was dominated by yerba mansa (OBL) and pacific rush (FACW). Soils observed within this feature were black (2.5Y 2.5/1) Clear Lake clay that were naturally problematic due to their color potentially masking redoximorphic features. However these soils were considered hydric due to the presence of obligate hydrophytic vegetation and a primary wetland hydrology indicator discussed below. Primary hydrological indicators of wetland hydrology were not observed during the delineation, but Inundation Visible on Aerial Imagery (B7) was observed on aerial imagery during years with normal rainfall conditions (Google Earth 2020, NETR 2020).

The seasonal wetland swale mapped within the Study Area is potentially jurisdictional of the Corps and RWQCB. No unvegetated areas (with less than 5 percent vegetation) were observed that met criteria for wetland hydrology and hydric soils, and that therefore might be considered potential wetlands under the State wetland definition but not the federal defintion. The seasonal wetland swale is classified as PEM1C: Palustrine (P), emergent (EM), persistent (1), and seasonally flooded (C). Seasonal wetlands mapped in the Study Area are depicted on Figure 4 of Appendix A. Photos of this seasonal wetland can be found in Appendix E (Photographs 1-8).

5.1.2 Non-Wetland Waters

No non-wetland waters were observed within the Study Area.

5.2 CDFW-regulated Habitat

No riparian habitat was observed within the Study Area, however the seasonal wetland swale discussed above in Section 5.1.1 is both adjacent to an intermittent stream and ephemerally flows into the stream. Therefore SWS-1 is potentially jurisdictional under Section 1602 of the CFGC.

6.0 CONCLUSION

The results of this delineation of aquatic resources were based on conditions observed at the time of the delineation and information provided in the Fallon Village EIR (Haag 2005). This delineation uses the federal methodology to determine the potential boundaries of wetlands and non-wetland features, and is consistent with the approach used by the RWQCB to determine wetlands subject to the State definition of wetlands.

7.0 REFERENCES

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APPENDIX A

FIGURES

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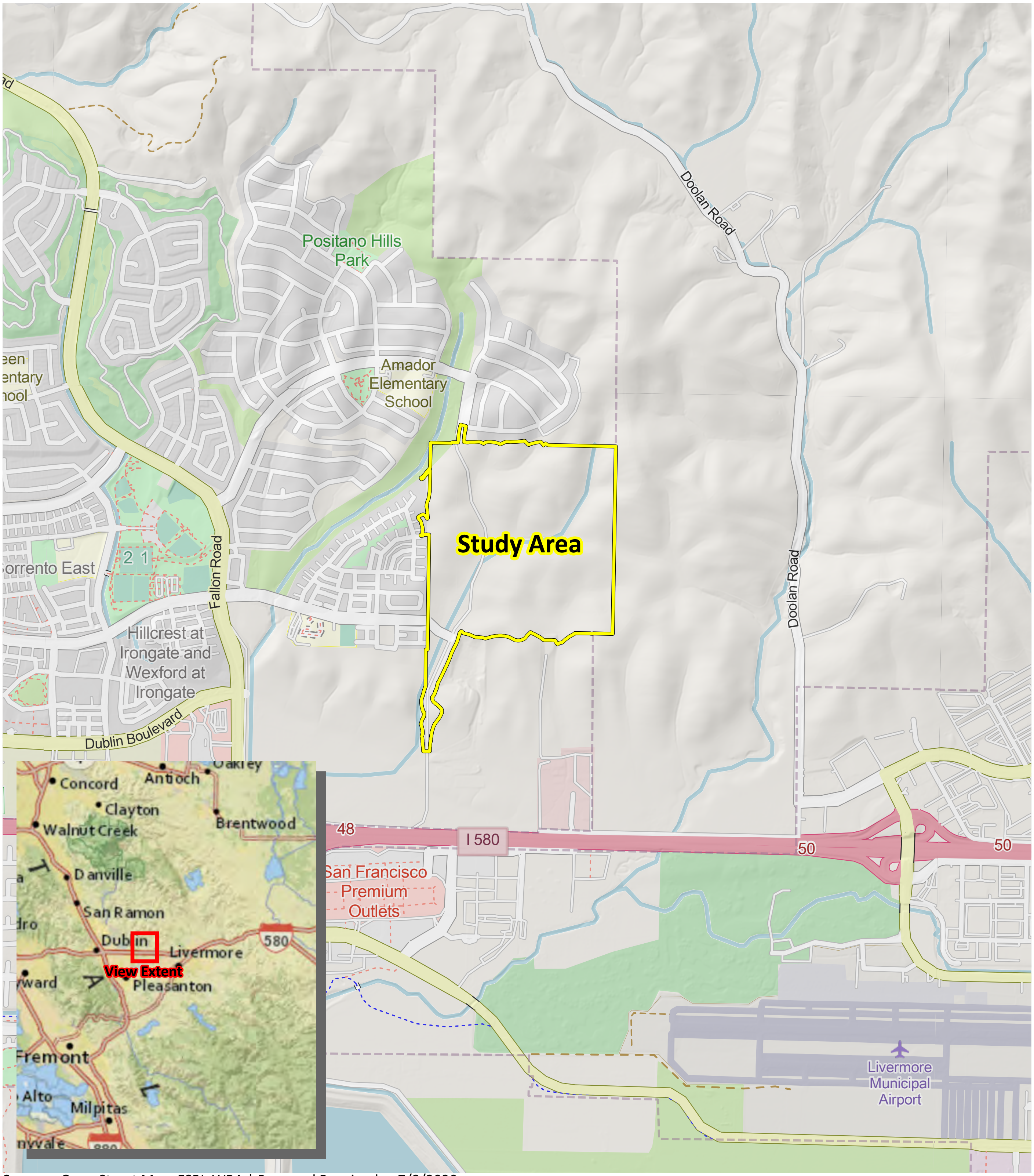

Sources: Open Street Map, ESRI, WRA | Prepared By: njander, 7/8/2020

Figure 1. Study Area Regional Location Map

Aquatic Resources Delineation Report
East Ranch (Croak) Development Project
4038 Croak Road, Dublin, California

0 0.25 0.5 Miles

N

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Sources: USDA NAIP Imagery 2018, WRA | Prepared By: njander, 6/25/2020

Figure 2. Project Area Figure

Aquatic Resources Delineation Report
East Ranch (Croak) Development Project
4038 Croak Road, Dublin, California

0 500 1,000 Feet

N

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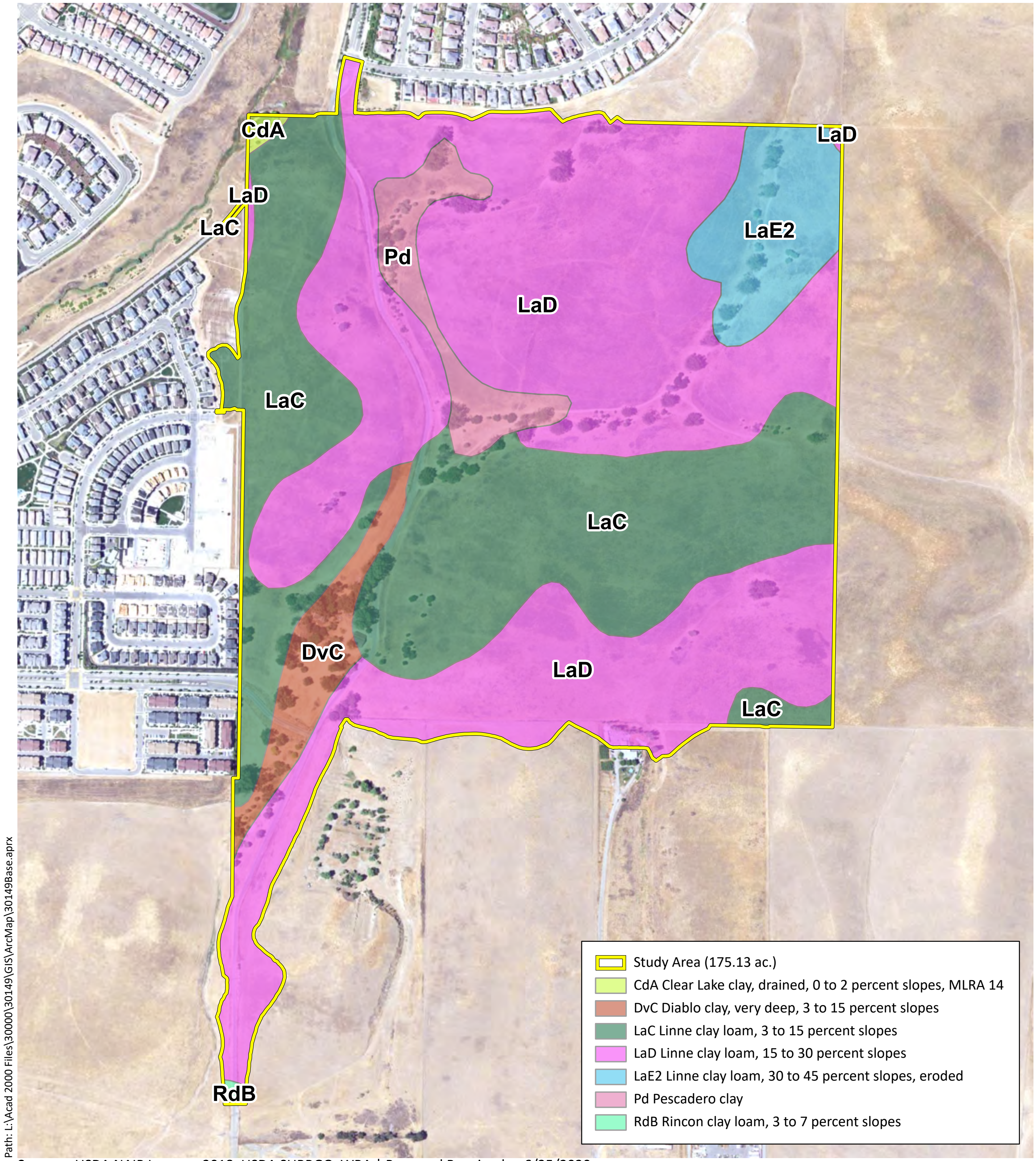
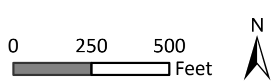


Sources: USDA NAIP Imagery 2018, USDA SURRGO, WRA | Prepared By: njander, 6/25/2020

Figure 3. Soils

Aquatic Resources Delineation Report
East Ranch (Croak) Development Project
4038 Croak Road, Dublin, California



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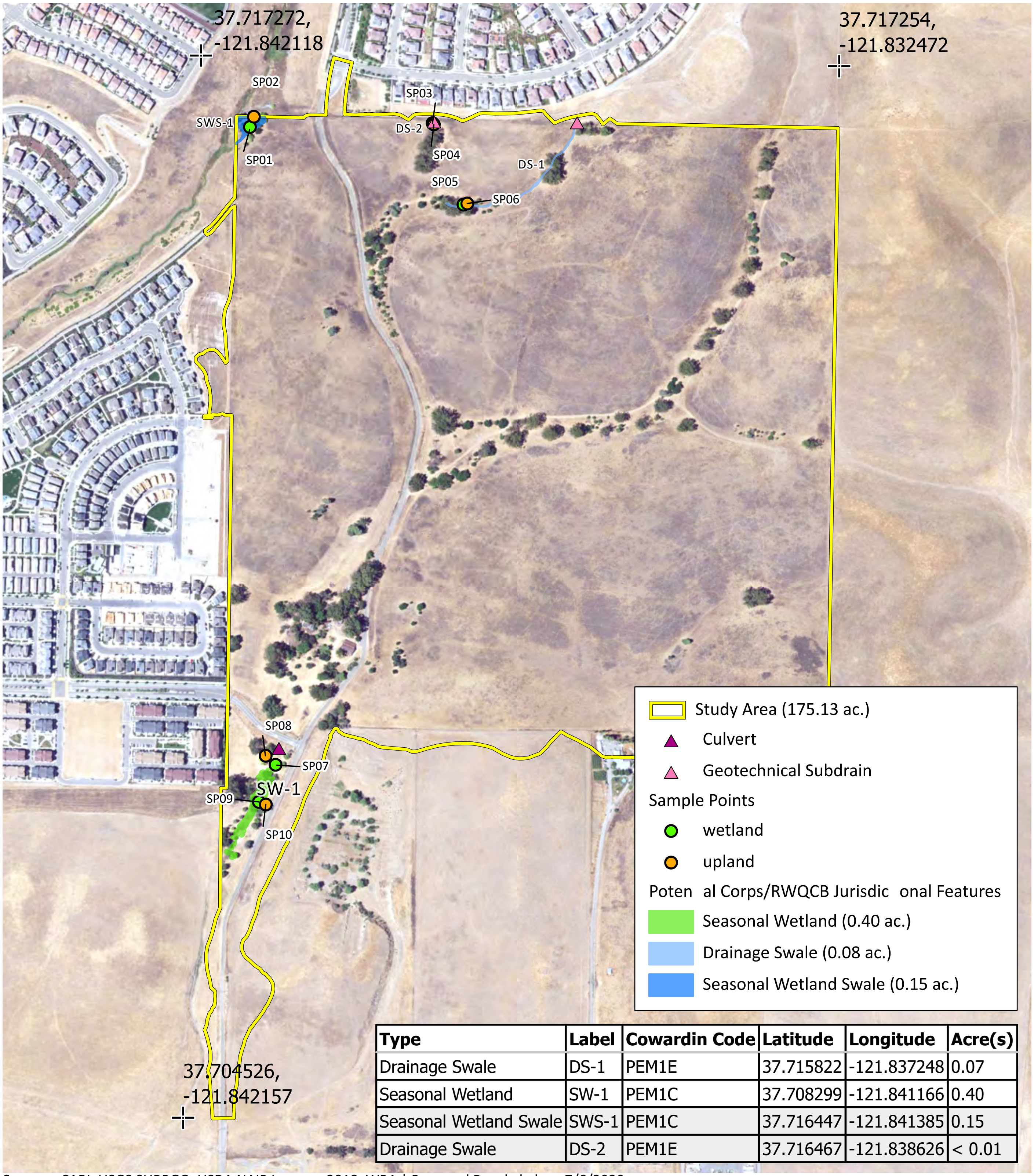

Type	Label	Cowardin Code	Latitude	Longitude	Acre(s)
Drainage Swale	DS-1	PEM1E	37.715822	-121.837248	0.07
Seasonal Wetland	SW-1	PEM1C	37.708299	-121.841166	0.40
Seasonal Wetland Swale	SWS-1	PEM1C	37.716447	-121.841385	0.15
Drainage Swale	DS-2	PEM1E	37.716467	-121.838626	< 0.01

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Sources: CARI, USGS SURRGO, USDA NAIP Imagery 2018, WRA | Prepared By: pkobylarz, 7/6/2020

Figure 4. Aquatic Resources Delineation (Sheet 1)

Aquatic Resources Delineation Report
East Ranch (Croak) Development Project
4038 Croak Road, Dublin, California

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US Feet

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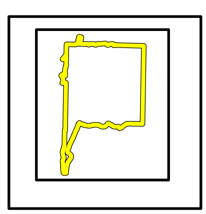

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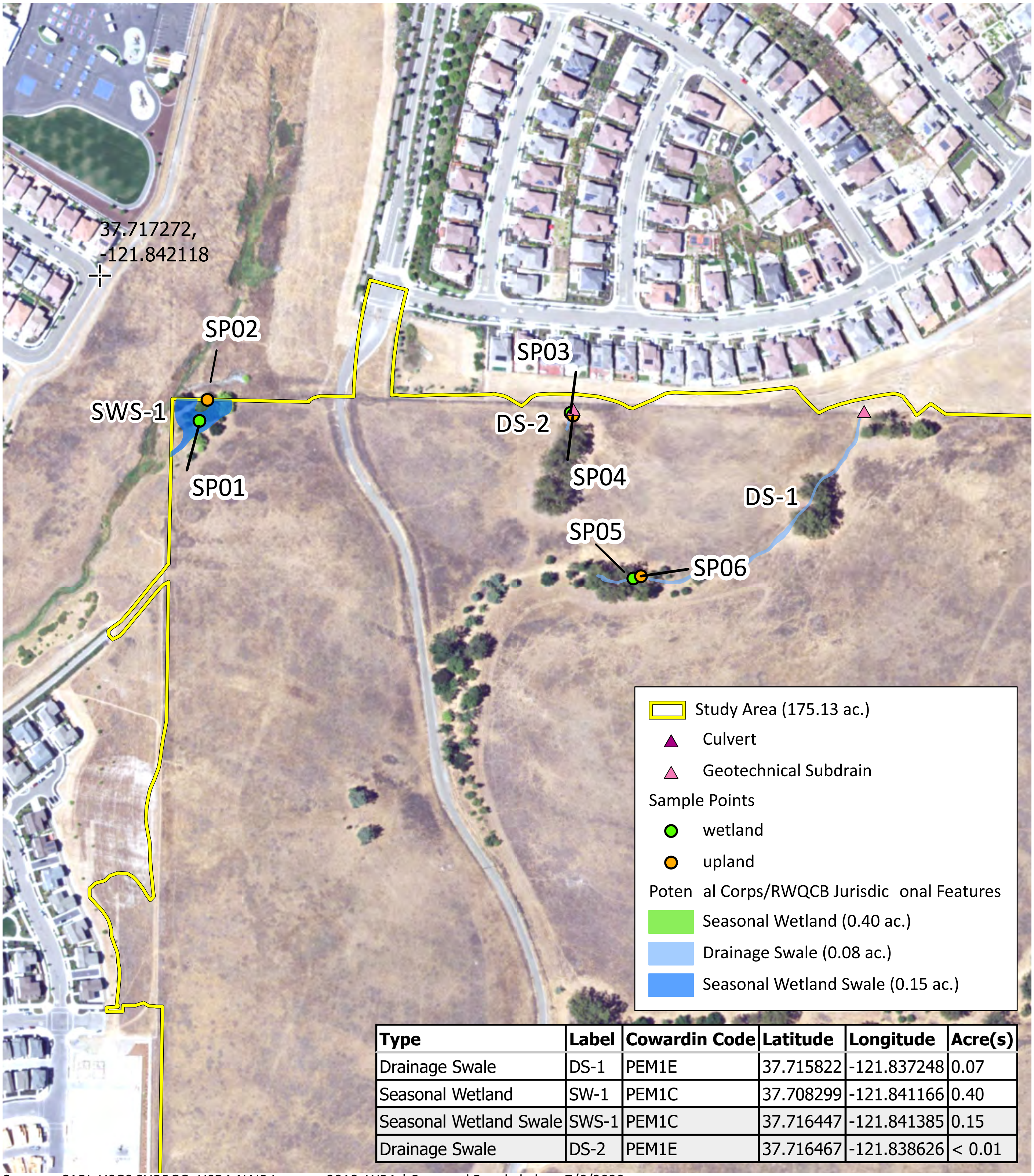

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Drainage Swale	DS-2	PEM1E	37.716467	-121.838626	< 0.01

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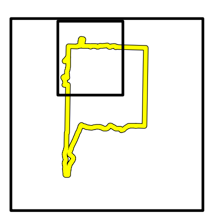
Sources: CARI, USGS SURRGO, USDA NAIP Imagery 2018, WRA | Prepared By: pkobylarz, 7/6/2020

Figure 4. Aquatic Resources Delineation (Sheet 2)

Aquatic Resources Delineation Report
East Ranch (Croak) Development Project
4038 Croak Road, Dublin, California



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Type	Label	Cowardin Code	Latitude	Longitude	Acre(s)
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Sources: CARI, USGS SURRGO, USDA NAIP Imagery 2018, WRA | Prepared By: pkobylarz, 7/6/2020

Figure 4. Aquatic Resources Delineation (Sheet 3)

Aquatic Resources Delineation Report
East Ranch (Croak) Development Project
4038 Croak Road, Dublin, California

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US Feet

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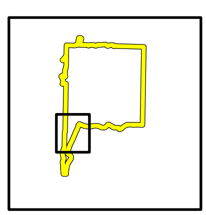

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APPENDIX B

WETS ANALYSES

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WETS historic data from climate station: Livermore Municipal AP, CA
2020 observed rainfall data from climate stati Livermore Municipal AP, CA
Date of site visit: 6/25/2020

	Month	Rainfall Data from WETS: 3 yrs in 10 less than	Rainfall Data from WETS: Average	Rainfall Data from WETS: 3 yrs in 10 more than	Observed rainfall (inches)	Condition (dry, wet, normal)	Condition Value	Weighting factor	product of previous two columns
1st month prior	May	0.15	0.49	0.5	0.64	wet	3	3	9
2nd month prior	April	0.35	1.12	1.33	1.72	wet	3	2	6
3rd month prior	March	0.91	1.97	2.4	2.97	wet	3	1	3
								SUM=	**18**

Note: If sum is:
6-9 prior period has been drier than normal
10-14 prior period has been normal
15-18 prior period has been wetter than normal

Condition Values: Dry=1
Normal=2
Wet=3

APPENDIX C

WETLAND DETERMINATION FORMS

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Wetland Determination Data Form - Arid West Region

Project/Site East Ranch (Croak) Development City Dublin County Alameda Sampling Date 6/25/2020

Applicant/Owner Trumark Homes, LLC State CA Sampling Point **SP01**

Investigator(s) R. Akba-Hajim, K. Dupler, WRA, Inc. Section,Township,Range 34 02S 01E

Landform (hillslope, terrace, etc.) depressional swale Local Relief (concave, convex, none) concave Slope(%) 2

Subregion(LRR) LRR C (Medit. CA) Lat: 37.716423 Long: -121.841362 Datum: WGS 84

Soil Map Unit Name Clear Lake clay, drained, 0 to 2 percent slopes, MLRA 14 NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☒ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☒ Yes	☐ No	**Is the Sampled Area within a Wetland?**	**☒ Yes ☐ No**
Hydric Soil Present?	☒ Yes	☐ No		
Wetland Hydrology Present?	☒ Yes	☐ No		

Remarks: SP01 is within the northwestern corner of the Study Area and paired with upland point SP02. The wetland boundary was based on a slight shift in topography, changes in vegetation, and changes visible on aerial imagery (Google Earth 2020). SP01 contained hydrophytic vegetation and wetland hydrology. Soils were naturally problematic (dark colors), but were assumed to by hydric based on the presence of obligate wetland vegetation and a primary hydrological indicator. Rainfall for the last three months is considered wetter than normal with the a majority of the rain occuring in March

VEGETATION (use scientific names)

TREE STRATUM Plot Size: 5'	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:	0		
SAPLING/SHRUB STRATUM Plot Size: 5'			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:	0		
HERB STRATUM Plot Size: 5'			
1. *Juncus effusus* ssp. *pacificus*	45	Yes	FACW
2. *Anemopsis californica*	25	Yes	OBL
3. *Avena barbata*	5	No	UPL
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	75		
WOODY VINE STRATUM Plot Size: 5'			
1.			
2.			
Woody Vines Total Cover:	0		

% Bare ground in herb stratum 15 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC?	2	(A)
Total number of dominant species across all strata?	2	(B)
% of dominant species that are OBL, FACW, or FAC?	100	(A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ Problematic hydrophytic vegetation[1] (explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present ? ☒ Yes ☐ No

Remarks: SP01 passes the dominance test and therefore has hydrophytic vegetation. Approximately ten percent of the ground cover is leaf litter from the surrounding trees.

SOIL

Sampling Point SP01

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[1]	Texture	Remarks
0-9	2.5Y 2.5/1	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)(LRR C)
- ☐ 1cm Muck (A9)(LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Soils were naturally problematic (dark colors may mask redox features), but were assumed to be hydric based on the presence of obligate hydrophytic vegetation and a primary hydrological indicator.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)(Nonriverine)
- ☐ Sediment Deposits (B2)(Nonriverine)
- ☐ Drift Deposits (B3)(Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in PLowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1)(Riverine)
- ☐ Sediment Deposits (B2)(Riverine)
- ☐ Drift Deposits (B3)(Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface water present?	☐ Yes	☒ No	Depth (inches): -
Water table present?	☐ Yes	☒ No	Depth (inches): -
Saturation Present? (includes capillary fringe)	☐ Yes	☒ No	Depth (inches): -

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.
Google Earth (2020)

Remarks: SP01 meets indicator B7 Inundation Visible on Aerial Imagery, therefore wetland hydrology is present.

Wetland Determination Data Form - Arid West Region

Project/Site East Ranch (Croak) Development City Dublin County Alameda Sampling Date 6/25/2020

Applicant/Owner Trumark Homes, LLC State CA Sampling Point **SP02**

Investigator(s) R. Akba-Hajim, K. Dupler, WRA, Inc. Section,Township,Range 34 02S 01E

Landform (hillslope, terrace, etc.) flat Local Relief (concave, convex, none) concave Slope(%) 1

Subregion(LRR) LRR C (Medit. CA) Lat: 37.716548 Long: -121.841304 Datum: WGS 84

Soil Map Unit Name Clear Lake clay, drained, 0 to 2 percent slopes, MLRA 14 NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☐ Yes ☒ No	**Is the Sampled Area within a Wetland?** ☐ **Yes** ☒ **No**
Hydric Soil Present?	☐ Yes ☒ No	
Wetland Hydrology Present?	☐ Yes ☒ No	

Remarks: SP02 is within the northwestern corner of the Study Area and paired with wetland point SP01. The wetland boundary was based on a slight shift in topography, changes in vegetation, and changes visible on aerial imagery (Google Earth 2020). SP02 did not contain hydrophytic vegetation, hydric soils, or wetland hydrology. Rainfall for the last three months is considered wetter than normal with the a majority of the rain occuring in March.

VEGETATION (use scientific names)

	Absolute % cover	Dominant Species?	Indicator Status
TREE STRATUM **Plot Size:** 5'			
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:	0		
SAPLING/SHRUB STRATUM **Plot Size:** 5'			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:	0		
HERB STRATUM **Plot Size:** 5'			
1. *Bromus diandrus*	42	Yes	UPL
2. *Avena barbata*	35	Yes	UPL
3. *Juncus effusus* ssp. *pacificus*	10	No	FACW
4. *Convolvulus arvensis*	8	No	UPL
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	92		
WOODY VINE STRATUM **Plot Size:** 5'			
1.			
2.			
Woody Vines Total Cover:	0		

% Bare ground in herb stratum 5 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 0 (A)

Total number of dominant species across all strata? 2 (B)

% of dominant species that are OBL, FACW, or FAC? 0 (A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:	
OBL species		x1	
FACW species		x2	
FAC species		x3	
FACU species		x4	
UPL species		x5	
Column Totals		(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ Problematic hydrophytic vegetation[1] (explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present ? ☐ Yes ☒ No

Remarks: SP02 did not pass the dominance test and therefore hydrophytic vegetaion was not present.

SOIL

Sampling Point SP02

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[1]	Texture	Remarks
0-9	2.5Y 2.5/1	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)(LRR C)
- ☐ 1cm Muck (A9)(LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: SP02 did not contain any hydric soil indicators and therefore hydric soil is not present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)(Nonriverine)
- ☐ Sediment Deposits (B2)(Nonriverine)
- ☐ Drift Deposits (B3)(Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in PLowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1)(Riverine)
- ☐ Sediment Deposits (B2)(Riverine)
- ☐ Drift Deposits (B3)(Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface water present?	☐ Yes	☒ No	Depth (inches): -
Water table present?	☐ Yes	☒ No	Depth (inches): -
Saturation Present? (includes capillary fringe)	☐ Yes	☒ No	Depth (inches): -

Wetland Hydrology Present ? ☐ **Yes** ☒ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.
Google Earth (2020)

Remarks: SP02 did not containy any wetland hydrology indicators and therefore wetland hydrology is not present.

Wetland Determination Data Form - Arid West Region

Project/Site: East Ranch (Croak) Development | City: Dublin | County: Alameda | Sampling Date: 6/25/2020

Applicant/Owner: Trumark Homes, LLC | State: CA | Sampling Point: **SP03**

Investigator(s): R. Akba-Hajim, K. Dupler, WRA, Inc. | Section,Township,Range: 34 02S 01E

Landform (hillslope, terrace, etc.): hillslope lowpoint | Local Relief (concave, convex, none): concave | Slope(%):

Subregion(LRR): LRR C (Medit. CA) | Lat: 37.716502 | Long: -121.838603 | Datum: WGS 84

Soil Map Unit Name: Linne clay loam, 15 to 30 percent slopes | NWI classification: N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present? ☒ Yes ☐ No

Hydric Soil Present? ☒ Yes ☐ No

Wetland Hydrology Present? ☒ Yes ☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: SP03 is within the north central portion of the Study Area and paired with upland point SP04. The wetland boundary was based on a slight shift in topography, changes in vegetation, and changes visible on aerial imagery (Google Earth 2020). SP03 contained hydrophytic vegetation, hydric soils, and wetland hydrology. Rainfall for the last three months is considered wetter than normal with the a majority of the rain occuring in March.

VEGETATION (use scientific names)

	Absolute % cover	Dominant Species?	Indicator Status
TREE STRATUM Plot Size: 5'			
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:	0		
SAPLING/SHRUB STRATUM Plot Size: 5'			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:	0		
HERB STRATUM Plot Size: 5'			
1. *Nasturtium officinale*	60	Yes	OBL
2. *Avena barbata*	30	Yes	UPL
3. *Festuca perennis*	5	No	FAC
4. *Polypogon monspeliensis*	2	No	FACW
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	97		
WOODY VINE STRATUM Plot Size: 5'			
1.			
2.			
Woody Vines Total Cover:	0		

% Bare ground in herb stratum: 3 | % cover of biotic crust: 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC? 1 (A)

Total number of dominant species across all strata? 1 (B)

% of dominant species that are OBL, FACW, or FAC? 50 (A/B)

Prevalence Index Worksheet

Total % cover of:			Multiply by:
OBL species	60	x1	60
FACW species	2	x2	4
FAC species	5	x3	15
FACU species	0	x4	
UPL species	30	x5	150
Column Totals	97 (A)		229 (B)

Prevalence Index = B/A = 2.36

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☒ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ Problematic hydrophytic vegetation[1] (explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present ? ☒ Yes ☐ No

Remarks: SP03 passes the prevalance index and therefore hydrophytic vegetation was present.

SOIL

Sampling Point SP03

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[1]	Texture	Remarks
0-9	2.5Y 2.5/1	93	Gley 1 5/10Y	10	D	M	Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)(LRR C)
- ☐ 1cm Muck (A9)(LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☒ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: SP03 meets indicator F7 Depleted Dark Surface, therefore hydric soils is present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)(Nonriverine)
- ☐ Sediment Deposits (B2)(Nonriverine)
- ☐ Drift Deposits (B3)(Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in PLowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1)(Riverine)
- ☐ Sediment Deposits (B2)(Riverine)
- ☐ Drift Deposits (B3)(Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface water present?	☒ Yes	☐ No	Depth (inches): 0.5
Water table present?	☒ Yes	☐ No	Depth (inches): 8
Saturation Present? (includes capillary fringe)	☒ Yes	☐ No	Depth (inches): 0-9

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.
Google Earth (2020)

Remarks: SP03 meets indicator A1 Surface Water, A2 High Water Table, A3 Saturation, and B7 Inundation Visible on Aerial Imagery, therefore wetland hydrology is present.

Wetland Determination Data Form - Arid West Region

Project/Site East Ranch (Croak) Development City Dublin County Alameda Sampling Date 6/25/2020

Applicant/Owner Trumark Homes, LLC State CA Sampling Point **SP04**

Investigator(s) R. Akba-Hajim, K. Dupler, WRA, Inc. Section,Township,Range 34 02S 01E

Landform (hillslope, terrace, etc.) hillslope Local Relief (concave, convex, none) convex Slope(%) 6

Subregion(LRR) LRR C (Medit. CA) Lat: 37.716486 Long: -121.838584 Datum: WGS 84

Soil Map Unit Name Linne clay loam, 15 to 30 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☐ Yes ☒ No	**Is the Sampled Area within a Wetland?** ☐ **Yes** ☒ **No**
Hydric Soil Present?	☐ Yes ☒ No	
Wetland Hydrology Present?	☐ Yes ☒ No	

Remarks: SP04 is within the north central portion of the Study Area and paired with wetland point SP03. The wetland boundary was based on a slight shift in topography, changes in vegetation, and changes visible on aerial imagery (Google Earth 2020). SP04 did not contain hydrophytic vegetation, hydric soils, or wetland hydrology. Rainfall for the last three months is considered wetter than normal with the a majority of the rain occuring in March.

VEGETATION (use scientific names)

	Absolute % cover	Dominant Species?	Indicator Status
TREE STRATUM **Plot Size:** 5'			
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:	0		
SAPLING/SHRUB STRATUM **Plot Size:** 5'			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:	0		
HERB STRATUM **Plot Size:** 5'			
1. *Avena fatua*	40	Yes	UPL
2. *Festuca perennis*	28	Yes	FAC
3. *Bromus diandrus*	22	Yes	UPL
4. *Helmenthotheca echioides*	10	No	FAC
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** 5'			
1.			
2.			
Woody Vines Total Cover:	0		

% Bare ground in herb stratum 0 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC?	1	(A)
Total number of dominant species across all strata?	3	(B)
% of dominant species that are OBL, FACW, or FAC?	33	(A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ Problematic hydrophytic vegetation[1] (explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present ? ☐ Yes ☒ No

Remarks: SP04 did not pass the dominance test and therefore hydrophytic vegetaion was not present.

SOIL

Sampling Point SP04

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[1]	Texture	Remarks
0-9	10YR 3/1	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)(LRR C)
- ☐ 1cm Muck (A9)(LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: SP04 did not contain any hydric soil indicators and therefore hydric soil is not present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)(Nonriverine)
- ☐ Sediment Deposits (B2)(Nonriverine)
- ☐ Drift Deposits (B3)(Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in PLowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1)(Riverine)
- ☐ Sediment Deposits (B2)(Riverine)
- ☐ Drift Deposits (B3)(Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface water present?	☐ Yes	☒ No	Depth (inches): -
Water table present?	☐ Yes	☒ No	Depth (inches): -
Saturation Present? (includes capillary fringe)	☐ Yes	☒ No	Depth (inches): -

Wetland Hydrology Present ? ☐ **Yes** ☒ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.
Google Earth (2020)

Remarks: SP04 did not containy any wetland hydrology indicators and therefore wetland hydrology is not present.

Wetland Determination Data Form - Arid West Region

Project/Site: East Ranch (Croak) Development City: Dublin County: Alameda Sampling Date: 6/25/2020

Applicant/Owner: Trumark Homes, LLC State: CA Sampling Point: **SP05**

Investigator(s): R. Akba-Hajim, K. Dupler, WRA, Inc. Section,Township,Range: 34 02S 01E

Landform (hillslope, terrace, etc.): flat Local Relief (concave, convex, none): none Slope(%):

Subregion(LRR): LRR C (Medit. CA) Lat: 37.715529 Long: -121.838119 Datum: WGS 84

Soil Map Unit Name: Linne clay loam, 15 to 30 percent slopes NWI classification: N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☒ Yes	☐ No
Hydric Soil Present?	☒ Yes	☐ No
Wetland Hydrology Present?	☒ Yes	☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: SP05 is within the north central portion of the Study Area and paired with upland point SP06. The wetland boundary was based on a slight shift in topography, changes in vegetation, and changes visible on aerial imagery (Google Earth 2020). SP05 contained hydrophytic vegetation, hydric soils, and wetland hydrology. Rainfall for the last three months is considered wetter than normal with the a majority of the rain occuring in March.

VEGETATION (use scientific names)

	Absolute % cover	Dominant Species?	Indicator Status
TREE STRATUM **Plot Size:** 5'			
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:	0		
SAPLING/SHRUB STRATUM **Plot Size:** 5'			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:	0		
HERB STRATUM **Plot Size:** 5'			
1. *Festuca perennis*	54	Yes	FAC
2. *Nasturtium officinale*	10	No	OBL
3. *Convolvulus arvensis*	2	No	UPL
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	66		
WOODY VINE STRATUM **Plot Size:** 5'			
1.			
2.			
Woody Vines Total Cover:	0		

% Bare ground in herb stratum: 29 % cover of biotic crust: 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC?	1	(A)
Total number of dominant species across all strata?	1	(B)
% of dominant species that are OBL, FACW, or FAC?	100	(A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:	
OBL species		x1	
FACW species		x2	
FAC species		x3	
FACU species		x4	
UPL species		x5	
Column Totals		(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ Problematic hydrophytic vegetation[1] (explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present ? ☒ Yes ☐ No

Remarks: SP05 passes the dominance test and therefore has hydrophytic vegetation. Approximately three percent of the ground cover is leaf litter from the surrounding trees.

SOIL

Sampling Point SP05

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[1]	Texture	Remarks
0-9	5Y 4/1	55					Loamy clay	
0-9	Gley 1 5/10Y	40	10Y 5/2	5			Clay loam	
9-10+	5Y 3/1	100					Loamy clay	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)(LRR C)
- ☐ 1cm Muck (A9)(LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☒ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: SP05 meets indicator F3 Depleted Matrix, therefore hydric soils is present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☒ Surface Water (A1)
- ☒ High Water Table (A2)
- ☒ Saturation (A3)
- ☐ Water Marks (B1)(Nonriverine)
- ☐ Sediment Deposits (B2)(Nonriverine)
- ☐ Drift Deposits (B3)(Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in PLowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1)(Riverine)
- ☐ Sediment Deposits (B2)(Riverine)
- ☐ Drift Deposits (B3)(Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface water present?	☒ Yes	☐ No	Depth (inches): 0.25
Water table present?	☒ Yes	☐ No	Depth (inches): 5
Saturation Present? (includes capillary fringe)	☒ Yes	☐ No	Depth (inches): 0

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.
Google Earth (2020)

Remarks: SP05 meets indicator A1 Surface Water, A2 High Water Table, A3 Saturation, and B7 Inundation Visible on Aerial Imagery, therefore wetland hydrology is present.

Wetland Determination Data Form - Arid West Region

Project/Site: East Ranch (Croak) Development | City: Dublin | County: Alameda | Sampling Date: 6/25/2020

Applicant/Owner: Trumark Homes, LLC | State: CA | Sampling Point: **SP06**

Investigator(s): R. Akba-Hajim, K. Dupler, WRA, Inc. | Section,Township,Range: 34 02S 01E

Landform (hillslope, terrace, etc.): hillslope | Local Relief (concave, convex, none): concave | Slope(%): 1

Subregion(LRR): LRR C (Medit. CA) | Lat: 37.715543 | Long: -121.838062 | Datum: WGS 84

Soil Map Unit Name: Linne clay loam, 15 to 30 percent slopes | NWI classification: N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology | Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☐ Yes ☒ No	**Is the Sampled Area within a Wetland?** ☐ **Yes** ☒ **No**
Hydric Soil Present?	☐ Yes ☒ No	
Wetland Hydrology Present?	☐ Yes ☒ No	

Remarks: SP06 is within the north central portion of the Study Area and paired with wetland point SP05. The wetland boundary was based on a slight shift in topography, changes in vegetation, and changes visible on aerial imagery (Google Earth 2020). SP06 did not contain hydrophytic vegetation, hydric soils, or wetland hydrology. Rainfall for the last three months is considered wetter than normal with the a majority of the rain occuring in March.

VEGETATION (use scientific names)

	Absolute % cover	Dominant Species?	Indicator Status
TREE STRATUM **Plot Size:** 5'			
1. *Eucalyptus globulus*	20	Yes	UPL
2.			
3.			
4.			
Tree Stratum Total Cover:	20		
SAPLING/SHRUB STRATUM **Plot Size:** 5'			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:	0		
HERB STRATUM **Plot Size:** 5'			
1. *Avena barbata*	30	Yes	UPL
2. *Festuca perennis*	30	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	60		
WOODY VINE STRATUM **Plot Size:** 5'			
1.			
2.			
Woody Vines Total Cover:	0		

% Bare ground in herb stratum: 0 | % cover of biotic crust: 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC?	1	(A)
Total number of dominant species across all strata?	3	(B)
% of dominant species that are OBL, FACW, or FAC?	33	(A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:
OBL species		x1
FACW species		x2
FAC species		x3
FACU species		x4
UPL species		x5
Column Totals	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ Problematic hydrophytic vegetation[1] (explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present ? ☐ Yes ☒ No

Remarks: SP06 did not pass the dominance test and therefore hydrophytic vegetaion was not present. Approximately twenty percent of the ground cover is leaf litter from the surrounding trees.

SOIL

Sampling Point SP06

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[1]	Texture	Remarks
0-9	10YR 3/1	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)(LRR C)
- ☐ 1cm Muck (A9)(LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: SP06 did not contain any hydric soil indicators and therefore hydric soil is not present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)(Nonriverine)
- ☐ Sediment Deposits (B2)(Nonriverine)
- ☐ Drift Deposits (B3)(Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in PLowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1)(Riverine)
- ☐ Sediment Deposits (B2)(Riverine)
- ☐ Drift Deposits (B3)(Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface water present? ☐ Yes ☒ No Depth (inches): -

Water table present? ☐ Yes ☒ No Depth (inches): -

Saturation Present? (includes capillary fringe) ☐ Yes ☒ No Depth (inches): -

Wetland Hydrology Present ? ☐ **Yes** ☒ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.
Google Earth (2020)

Remarks: SP06 did not containy any wetland hydrology indicators and therefore wetland hydrology is not present.

Wetland Determination Data Form - Arid West Region

Project/Site East Ranch (Croak) Development City Dublin County Alameda Sampling Date 6/25/2020

Applicant/Owner Trumark Homes, LLC State CA Sampling Point **SP07**

Investigator(s) R. Akba-Hajim, K. Dupler, WRA, Inc. Section,Township,Range 34 02S 01E

Landform (hillslope, terrace, etc.) flat Local Relief (concave, convex, none) none Slope(%) 1

Subregion(LRR) LRR C (Medit. CA) Lat: 37.70861111 Long: -121.84055556 Datum: WGS 84

Soil Map Unit Name Diablo Clay, very deep, 3 to 15 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☒ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☒ Yes ☐ No	**Is the Sampled Area within a Wetland?** ☒ **Yes** ☐ **No**
Hydric Soil Present?	☒ Yes ☐ No	
Wetland Hydrology Present?	☒ Yes ☐ No	

Remarks: SP07 is within the southwest corner of the Study Area and paired with upland point SP08. The wetland boundary was based on a slight shift in topography, changes in vegetation, and changes visible on aerial imagery (Google Earth 2020). SP07 contained obligate hydrophytic vegetation and wetland hydrology. Soils were naturally problematic (dark colors), but were assumed to by hydric based on the presence of hydrophytic vegetation and a primary hydrological indicator. Rainfall for the last three months is considered wetter than normal with the a majority of the rain occuring in March

VEGETATION (use scientific names)

	Absolute % cover	Dominant Species?	Indicator Status
TREE STRATUM **Plot Size:** 5'			
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:	0		
SAPLING/SHRUB STRATUM **Plot Size:** 5'			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:	0		
HERB STRATUM **Plot Size:** 5'			
1. *juncus xiphioides*	48	Yes	OBL
2. *Festuca perennis*	25	Yes	FAC
3. *Avena barbata*	17	No	UPL
4. *Rumex crispus*	10	No	FAC
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** 5'			
1.			
2.			
Woody Vines Total Cover:	0		

% Bare ground in herb stratum 0 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC?	2	(A)
Total number of dominant species across all strata?	2	(B)
% of dominant species that are OBL, FACW, or FAC?	100	(A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:	
OBL species		x1	
FACW species		x2	
FAC species		x3	
FACU species		x4	
UPL species		x5	
Column Totals		(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ Problematic hydrophytic vegetation[1] (explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present ? ☒ Yes ☐ No

Remarks: SP07 passes the dominance test and therefore has hydrophytic vegetation.

SOIL

Sampling Point SP07

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[1]	Texture	Remarks
0-9	2.5Y 2.5/1	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)(LRR C)
- ☐ 1cm Muck (A9)(LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☒ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: Soils were naturally problematic (dark colors may mask redox features), but were assumed to be hydric based on the presence of obligate hydrophytic vegetation and a primary hydrological indicator.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)(Nonriverine)
- ☐ Sediment Deposits (B2)(Nonriverine)
- ☐ Drift Deposits (B3)(Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in PLowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1)(Riverine)
- ☐ Sediment Deposits (B2)(Riverine)
- ☐ Drift Deposits (B3)(Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface water present? ☐ Yes ☒ No Depth (inches): -

Water table present? ☐ Yes ☒ No Depth (inches): -

Saturation Present? (includes capillary fringe) ☐ Yes ☒ No Depth (inches): -

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.
Google Earth (2020)

Remarks: SP07 meets indicator B7 Inundation Visible on Aerial Imagery, therefore wetland hydrology is present.

Wetland Determination Data Form - Arid West Region

Project/Site East Ranch (Croak) Development City Dublin County Alameda Sampling Date 6/25/2020

Applicant/Owner Trumark Homes, LLC State CA Sampling Point **SP08**

Investigator(s) R. Akba-Hajim, K. Dupler, WRA, Inc. Section,Township,Range 34 02S 01E

Landform (hillslope, terrace, etc.) flat Local Relief (concave, convex, none) none Slope(%) 1

Subregion(LRR) LRR C (Medit. CA) Lat: 37.70888889 Long: -121.84027778 Datum: WGS 84

Soil Map Unit Name Diablo Clay, very deep, 3 to 15 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☐ Yes ☒ No	**Is the Sampled Area within a Wetland?** ☐ **Yes** ☒ **No**
Hydric Soil Present?	☐ Yes ☒ No	
Wetland Hydrology Present?	☐ Yes ☒ No	

Remarks: SP08 is within the southwest corner of the Study Area and paired with wetland point SP07. The wetland boundary was based on a slight shift in topography, changes in vegetation, and changes visible on aerial imagery (Google Earth 2020). SP08 did not contain hydrophytic vegetation, hydric soils, or wetland hydrology. Rainfall for the last three months is considered wetter than normal with the a majority of the rain occuring in March.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: 5'	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:	0		
SAPLING/SHRUB STRATUM Plot Size: 5'			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:	0		
HERB STRATUM Plot Size: 5'			
1. *Carduus pycnocephalus*	35	Yes	UPL
2. *Bromus diandrus*	25	Yes	UPL
3. *Festuca perennis*	20	Yes	FAC
4. *Avena fatua*	15	No	UPL
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	95		
WOODY VINE STRATUM Plot Size: 5'			
1.			
2.			
Woody Vines Total Cover:	0		

% Bare ground in herb stratum 5 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC?	1	(A)
Total number of dominant species across all strata?	3	(B)
% of dominant species that are OBL, FACW, or FAC?	33	(A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:
OBL species	x1	
FACW species	x2	
FAC species	x3	
FACU species	x4	
UPL species	x5	
Column Totals	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

☐ Dominance Test is >50%

☐ Prevalence Index is </= 3.0[1]

☐ Morphological adaptations (provide supporting data in remarks)

☐ Problematic hydrophytic vegetation[1] (explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present ? ☐ Yes ☒ No

Remarks: SP08 did not pass the dominance test and therefore hydrophytic vegetaion was not present.

SOIL

Sampling Point SP08

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox %	Type[1]	Loc[1]	Texture	Remarks
0-9	2.5Y 2.5/1	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)(LRR C)
- ☐ 1cm Muck (A9)(LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: SP08 did not contain any hydric soil indicators and therefore hydric soil is not present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)(Nonriverine)
- ☐ Sediment Deposits (B2)(Nonriverine)
- ☐ Drift Deposits (B3)(Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in PLowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1)(Riverine)
- ☐ Sediment Deposits (B2)(Riverine)
- ☐ Drift Deposits (B3)(Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface water present?	☐ Yes	☒ No	Depth (inches): -
Water table present?	☐ Yes	☒ No	Depth (inches): -
Saturation Present? (includes capillary fringe)	☐ Yes	☒ No	Depth (inches): -

Wetland Hydrology Present ? ☐ **Yes** ☒ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.
Google Earth (2020)

Remarks: SP08 did not containy any wetland hydrology indicators and therefore wetland hydrology is not present.

Wetland Determination Data Form - Arid West Region

Project/Site: East Ranch (Croak) Development   City: Dublin   County: Alameda   Sampling Date: 6/25/2020

Applicant/Owner: Trumark Homes, LLC   State: CA   Sampling Point: **SP09**

Investigator(s): R. Akba-Hajim, K. Dupler, WRA, Inc.   Section,Township,Range: 34 02S 01E

Landform (hillslope, terrace, etc.): flat   Local Relief (concave, convex, none): concave   Slope(%): 1

Subregion(LRR): LRR C (Medit. CA)   Lat: 37.70833333   Long: -121.84083333   Datum: WGS 84

Soil Map Unit Name: Diablo Clay, very deep, 3 to 15 percent slopes   NWI classification: N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology   Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology   (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☒ Yes	☐ No
Hydric Soil Present?	☒ Yes	☐ No
Wetland Hydrology Present?	☒ Yes	☐ No

Is the Sampled Area within a Wetland? ☒ **Yes** ☐ **No**

Remarks: SP09 is within the southwest corner of the Study Area and paired with upland point SP10. The wetland boundary was based on a slight shift in topography, changes in vegetation, and changes visible on aerial imagery (Google Earth 2020). SP10 contained hydrophytic vegetation, hydric soils, and wetland hydrology. Rainfall for the last three months is considered wetter than normal with the a majority of the rain occuring in March.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: 5'	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:	0		
SAPLING/SHRUB STRATUM **Plot Size:** 5'			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:	0		
HERB STRATUM **Plot Size:** 5'			
1. *juncus xiphioides*	40	Yes	OBL
2. *Juncus effusus* ssp. *pacificus*	38	Yes	FACW
3. *Anemopsis californica*	12	No	OBL
4. *Avena barbata*	10	No	UPL
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	100		
WOODY VINE STRATUM **Plot Size:** 5'			
1.			
2.			
Woody Vines Total Cover:	0		

% Bare ground in herb stratum 0   % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC?	2	(A)
Total number of dominant species across all strata?	2	(B)
% of dominant species that are OBL, FACW, or FAC?	100	(A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:	
OBL species		x1	
FACW species		x2	
FAC species		x3	
FACU species		x4	
UPL species		x5	
Column Totals		(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

- ☒ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ Problematic hydrophytic vegetation[1] (explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present ? ☒ Yes ☐ No

Remarks: SP09 passes the dominance test and therefore has hydrophytic vegetation.

SOIL

Sampling Point SP09

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[1]	Texture	Remarks
0-9	2.5Y 2.5/1	96	10YR 4/4	4			Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)(LRR C)
- ☐ 1cm Muck (A9)(LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☒ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present ? ☒ **Yes** ☐ **No**

Remarks: SP09 meets indicator F6 Redox Dark Surface, therefore hydric soils is present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)(Nonriverine)
- ☐ Sediment Deposits (B2)(Nonriverine)
- ☐ Drift Deposits (B3)(Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☒ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in PLowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1)(Riverine)
- ☐ Sediment Deposits (B2)(Riverine)
- ☐ Drift Deposits (B3)(Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface water present?	☐ Yes	☒ No	Depth (inches): -
Water table present?	☐ Yes	☒ No	Depth (inches): -
Saturation Present? (includes capillary fringe)	☐ Yes	☒ No	Depth (inches): -

Wetland Hydrology Present ? ☒ **Yes** ☐ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.
Google Earth (2020)

Remarks: SP07 meets indicator B7 Inundation Visible on Aerial Imagery, therefore wetland hydrology is present.

Wetland Determination Data Form - Arid West Region

Project/Site East Ranch (Croak) Development City Dublin County Alameda Sampling Date 6/25/2020

Applicant/Owner Trumark Homes, LLC State CA Sampling Point **SP10**

Investigator(s) R. Akba-Hajim, K. Dupler, WRA, Inc. Section,Township,Range 34 02S 01E

Landform (hillslope, terrace, etc.) flat Local Relief (concave, convex, none) none Slope(%) 1

Subregion(LRR) LRR C (Medit. CA) Lat: 37.70833333 Long: -121.84083333 Datum: WGS 84

Soil Map Unit Name Diablo Clay, very deep, 3 to 15 percent slopes NWI classification N/A

Are climatic/hydrologic conditions on-site typical for this time of year? ☐ Yes ☒ No (If no, explain in remarks)

Are any of the following significantly disturbed? ☐ Vegetation ☐ Soil ☐ Hydrology Are "Normal Circumstances" present? ☒ Yes ☐ No

Are any of the following naturally problematic? ☐ Vegetation ☐ Soil ☐ Hydrology (If needed, explain any answers in remarks)

SUMMARY OF FINDINGS - Attach site map showing sample point locations, transects, important features, etc.

Hydrophytic Vegetation Present?	☐ Yes	☒ No
Hydric Soil Present?	☐ Yes	☒ No
Wetland Hydrology Present?	☐ Yes	☒ No

Is the Sampled Area within a Wetland? ☐ **Yes** ☒ **No**

Remarks: SP10 is within the southwest corner of the Study Area and paired with wetland point SP09. The wetland boundary was based on a slight shift in topography, changes in vegetation, and changes visible on aerial imagery (Google Earth 2020). SP10 did not contain hydrophytic vegetation, hydric soils, or wetland hydrology. Rainfall for the last three months is considered wetter than normal with the a majority of the rain occuring in March.

VEGETATION (use scientific names)

TREE STRATUM Plot Size: 5'	Absolute % cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Tree Stratum Total Cover:	0		
SAPLING/SHRUB STRATUM Plot Size: 5'			
1.			
2.			
3.			
4.			
Sapling/Shrub Stratum Total Cover:	0		
HERB STRATUM Plot Size: 5'			
1. *Avena barbata*	50	Yes	UPL
2. *Festuca perennis*	25	Yes	FAC
3. *Bromus diandrus*	20	Yes	UPL
4. *Juncus effusus* ssp. *pacificus*	5	No	FACW
5.			
6.			
7.			
8.			
Herb Stratum Total Cover:	95		
WOODY VINE STRATUM Plot Size: 5'			
1.			
2.			
Woody Vines Total Cover:	0		

% Bare ground in herb stratum 5 % cover of biotic crust 0

Dominance Test Worksheet

Number of Dominant Species that are OBL, FACW, or FAC?	1	(A)
Total number of dominant species across all strata?	3	(B)
% of dominant species that are OBL, FACW, or FAC?	33	(A/B)

Prevalence Index Worksheet

Total % cover of:		Multiply by:
OBL species		x1
FACW species		x2
FAC species		x3
FACU species		x4
UPL species		x5
Column Totals	(A)	(B)

Prevalence Index = B/A =

Hydrophytic Vegetation Indicators

- ☐ Dominance Test is >50%
- ☐ Prevalence Index is </= 3.0[1]
- ☐ Morphological adaptations (provide supporting data in remarks)
- ☐ Problematic hydrophytic vegetation[1] (explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present ? ☐ Yes ☒ No

Remarks: SP10 did not pass the dominance test and therefore hydrophytic vegetaion was not present.

SOIL

Sampling Point SP10

Profile description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)

Depth (inches)	Matrix Color (moist)	Matrix %	Redox Features Color (moist)	Redox Features %	Type[1]	Loc[1]	Texture	Remarks
0-9	5Y 2.5/1	100					Clay loam	

[1]Type: C=Concentration, D=Depletion, RM=Reduced Matrix. [2]Location: PL=Pore Lining, RC=Root Channel, M=Matrix

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5)(LRR C)
- ☐ 1cm Muck (A9)(LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Mucky Mineral (S1)
- ☐ Sandy Gleyed Matrix (S4)
- ☐ Sandy Redox (S5)
- ☐ Stripped Matrix (S6)
- ☐ Loamy Mucky Mineral (F1)
- ☐ Loamy Gleyed Matrix (F2)
- ☐ Depleted Matrix (F3)
- ☐ Redox Dark Surface (F6)
- ☐ Depleted Dark Surface (F7)
- ☐ Redox Depressions (F8)
- ☐ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ☐ 1cm Muck (A9) (LRR C)
- ☐ 2cm Muck (A10)(LRR B)
- ☐ Reduced Vertic (F18)
- ☐ Red Parent Material (TF2)
- ☐ Other (explain in remarks)

[3]Indicators of hydric vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: N/A

Depth (inches): N/A

Hydric Soil Present ? ☐ **Yes** ☒ **No**

Remarks: SP10 did not contain any hydric soil indicators and therefore hydric soil is not present.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1)(Nonriverine)
- ☐ Sediment Deposits (B2)(Nonriverine)
- ☐ Drift Deposits (B3)(Nonriverine)
- ☐ Surface Soil Cracks (B6)
- ☐ Inundation Visible on Aerial Imagery (B7)
- ☐ Water-Stained Leaves (B9)
- ☐ Salt Crust (B11)
- ☐ Biotic Crust (B12)
- ☐ Aquatic Invertebrates (B13)
- ☐ Hydrogen Sulfide Odor (C1)
- ☐ Oxidized Rhizospheres along Living Roots (C3)
- ☐ Presence of Reduced Iron (C4)
- ☐ Recent Iron Reduction in PLowed Soils (C6)
- ☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ☐ Water Marks (B1)(Riverine)
- ☐ Sediment Deposits (B2)(Riverine)
- ☐ Drift Deposits (B3)(Riverine)
- ☐ Drainage Patterns (B10)
- ☐ Dry-Season Water Table (C2)
- ☐ Thin Muck Surface (C7)
- ☐ Crayfish Burrows (C8)
- ☐ Saturation Visible on Aerial Imagery (C9)
- ☐ Shallow Aquitard (D3)
- ☐ FAC-Neutral Test (D5)

Field Observations:

Surface water present?	☐ Yes	☒ No	Depth (inches): -
Water table present?	☐ Yes	☒ No	Depth (inches): -
Saturation Present? (includes capillary fringe)	☐ Yes	☒ No	Depth (inches): -

Wetland Hydrology Present ? ☐ **Yes** ☒ **No**

Describe recorded data (stream guage, monitoring well, aerial photos, etc.) if available.
Google Earth (2020)

Remarks: SP10 did not containy any wetland hydrology indicators and therefore wetland hydrology is not present.

APPENDIX D

PLANT SPECIES OBSERVED IN THE STUDY AREA

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Appendix D. Plant species observed in the Study Area, June 25, 2020

Scientific Name	Family	Common Name	Origin	Form	CAL-IPC[1] Status	Wetland Status (AW 2016)[2]
Acer negundo	Sapindaceae	Boxelder	native	tree	-	FACW
Anemopsis californica	Saururaceae	Yerba mansa	native	perennial herb	-	OBL
Asclepias fascicularis	Apocynaceae	Milkweed	native	perennial herb	-	FAC
Avena barbata	Poaceae	Slim oat	non-native (invasive)	annual, perennial grass	Moderate	-
Avena fatua	Poaceae	Wildoats	non-native (invasive)	annual grass	Moderate	-
Bromus diandrus	Poaceae	Ripgut brome	non-native (invasive)	annual grass	Moderate	-
Bromus hordeaceus	Poaceae	Soft chess	non-native (invasive)	annual grass	Limited	FACU
Carduus pycnocephalus ssp. pycnocephalus	Asteraceae	Italian thistle	non-native	annual herb	-	-
Centaurea solstitialis	Asteraceae	Yellow starthistle	non-native (invasive)	annual herb	High	-
Cirsium vulgare	Asteraceae	Bullthistle	non-native (invasive)	perennial herb	Moderate	FACU
Convolvulus arvensis	Convolvulaceae	Field bindweed	non-native (invasive)	perennial herb, vine	-	-
Cynara cardunculus ssp. cardunculus	Asteraceae	Artichoke	non-native	perennial herb	-	-
Elymus triticoides	Poaceae	Beardless wild rye	native	perennial grass	-	FAC
Eucalyptus globulus	Myrtaceae	Blue gum	non-native (invasive)	tree	Limited	-
Festuca perennis	Poaceae	Italian rye grass	non-native	annual, perennial grass	-	FAC
Foeniculum vulgare	Apiaceae	Fennel	non-native (invasive)	perennial herb	High	-
Gleditsia triacanthos	Fabaceae	Honeylocust	non-native (invasive)	tree, shrub	-	FAC
Helminthotheca echioides	Asteraceae	Bristly ox-tongue	non-native (invasive)	annual, perennial herb	-	FAC
Hirschfeldia incana	Brassicaceae	Mustard	non-native (invasive)	perennial herb	Moderate	-
Hordeum marinum ssp. gussoneanum	Poaceae	Barley	non-native	annual grass	-	FAC

Hordeum murinum	Poaceae	Foxtail barley	non-native (invasive)	annual grass	-	FACU
Juncus effusus ssp. pacificus	Juncaceae	Pacific rush	native	perennial grasslike herb	-	FACW
Juncus mexicanus	Juncaceae	Mexican rush	native	perennial grasslike herb	-	FACW
Juncus xiphioides	Juncaceae	Iris leaved rush	native	perennial grasslike herb	-	OBL
Lupinus bicolor	Fabaceae	Lupine	native	annual, perennial herb	-	-
Mentha pulegium	Lamiaceae	Pennyroyal	non-native (invasive)	perennial herb	Moderate	OBL
Nasturtium officinale	Brassicaceae	Watercress	native	perennial herb (aquatic)	-	OBL
Polypogon monspeliensis	Poaceae	Annual beard grass	non-native (invasive)	annual grass	Limited	FACW
Populus fremontii ssp. fremontii	Salicaceae	Cottonwood	native	tree	-	FAC
Quercus agrifolia	Fagaceae	Coast live oak	native	tree	-	-
Quercus ilex	Fagaceae	Holly oak	non-native	tree	-	-
Raphanus sativus	Brassicaceae	Jointed charlock	non-native (invasive)	annual, biennial herb	Limited	-
Rumex crispus	Polygonaceae	Curly dock	non-native (invasive)	perennial herb	Limited	FAC
Silybum marianum	Asteraceae	Milk thistle	non-native (invasive)	annual, perennial herb	Limited	-
Sonchus arvensis	Asteraceae	Perennial sow thistle	non-native (invasive)	perennial herb	-	FACU
Sonchus oleraceus	Asteraceae	Sow thistle	non-native	annual herb	-	UPL
Typha latifolia	Typhaceae	Broadleaf cattail	native	perennial herb (aquatic)	-	OBL
Ulmus parvifolia	Ulmaceae	Siberian elm	non-native	tree	-	UPL

[1]Invasive Status: California Invasive Plant Inventory (Cal-IPC 2006)

High: Severe ecological impacts; high rates of dispersal and establishment; most are widely distributed ecologically.

Moderate: Substantial and apparent ecological impacts; moderate-high rates of dispersal, establishment dependent on disturbance; limited moderate distribution ecologically

Limited: Minor or not well documented ecological impacts; low-moderate rate of invasiveness; limited distribution ecologically

Assessed: Assessed by Cal-IPC and determined to not be an existing current threat

[2]Wetland Status: National List of Plant Species that Occur in Wetlands, Arid West Region (Lichvar et al. 2016)

OBL:	Almost always a hydrophyte, rarely in uplands
FACW:	Usually a hydrophyte, but occasionally found in uplands
FAC:	Commonly either a hydrophyte or non-hydrophyte
FACU:	Occasionally a hydrophyte, but usually found in uplands
UPL:	Rarely a hydrophyte, almost always in uplands
NL:	Rarely a hydrophyte, almost always in uplands
NI:	No information; not factored during wetland delineation

APPENDIX E

STUDY AREA PHOTOGRAPHS

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Photograph 2. Representative photograph of SWS-1 within the Study Area, facing southwest.

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Attachment 9

ARCHAEOLOGICAL AND HISTORICAL RESOURCES SURVEY REPORT

EAST RANCH (CROAK PROPERTY) PROJECT, CITY OF DUBLIN, ALAMEDA COUNTY, CALIFORNIA

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Project No: ALTA2020-54

Key Words: USGS 7.5' Livermore; Township 2 South, Range 1 East, Section 35, Mount Diablo Base and Meridian; Positive Archaeological Survey.

October 09, 2020

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I. SUMMARY OF FINDINGS

This document reports the findings of the cultural resources assessment that was conducted for the proposed project area and provides the inventory methods and results as required for compliance with State of California regulations designed for the protection of cultural resources. The Croak family ranch complex was recorded and evaluated for historical significance. The report recommends that the ranch complex no longer retains sufficient historical integrity to convey its historical significance and, therefore, is not eligible to the CRHP. However, the potential exists for significant archaeological resources to occur within the area of direct impact associated with the proposed actions.

The cultural resource inventory was performed based on information obtained at the Northwest Information Center of the California Historical Resources Information System, as well as on direct observation of site conditions and other information generally available as of September 2020. The conclusions and recommendations herein are based on information available at the time of the records search and field survey. Further information may be identified in the future that could substantially change the conclusions found herein.

Information obtained from these sources in this timeframe is assumed to be correct and complete. Alta Archaeological Consulting (ALTA) and Yarbrough Architectural Resources (YAR) does not assume any liability for findings or lack of findings based upon misrepresentation of information presented to ALTA or for items that are not visible, made visible, accessible, or present at the time of the project area inventory.

II. INTRODUCTION

ALTA and YAR were retained to conduct a cultural resources inventory to support the permit process associated with the East Ranch (Croak Property) Project (the Project), located in Dublin, California. The City of Dublin are serving as the California Environmental Quality Act (CEQA) lead agencies. A cultural resources inventory was conducted to satisfy requirements of the CEQA, and the responsibilities codified in Public Resource Code sections 5097, and it's implementing guidelines 21082 and 21083. An archaeological field survey and historical resource identification were completed by ALTA and YAR, respectively, on September 24, 2020 for the purpose of identifying cultural resources and recording the ranch complex within the project area. The resulting document addresses these regulatory responsibilities.

Qualifications of Preparers

Dean Martorana, M.A., RPA, holds a master's degree in anthropology from California State University, Long Beach. He served as the lead archaeologist on the project. Mr. Martorana has 20 years of experience in both historic and prehistoric archaeology. Mr. Martorana specializes in GIS and geophysical techniques applied to archaeology. Attachment A provides a resume for Mr. Martorana.

Edward Yarbrough, M.S. Historic Preservation, Principal of Yarbrough Architectural Resources is the Principal Investigator/Senior Architectural Historian for the analysis of the Croak Ranch property. For over 29-years Yarbrough developed documentation for projects subject to federal and state historic preservation mandates. Yarbrough exceeds the Historic Preservation Professional Qualification Standards for Architectural History, as set forth by U.S. Secretary of the Interior (SOI).

III. PROJECT LOCATION AND AREA OF POTENTIAL EFFECTS

The project is situated in Alameda County in the City of Dublin (Figure 1). The project site is located on the USGS 7.5' Livermore Quadrangle in Section 14 of Township 1 North, Range 1 West of the Mount Diablo Base and Meridian (MDBM) (Figure 2). The physical address is 4038 Croak Road, Dublin, California.

For the purposes of this undertaking, the archaeological Area of Potential Effects (APE) [1]consists of the physical extent of the project footprint. At the time of this writing, no further information regarding the subsurface extent of construction is available. However, it is assumed that ground disturbance would require excavation of 5 to 10-feet.

Project Description

The East Ranch (Croak Property) project consists of approximately 165.5 acres within the East Dublin Specific Plan. The project is proposing 6 diverse residential neighborhoods along with common areas, trails, open space, a semipublic use, and 2 neighborhood parks. The East Ranch project is located directly east of the Jordan Ranch development and south of Positano, straddling the existing Croak Road. The proposed East Ranch project includes the improvements and widening of Croak Road that will complete the connection from Positano Parkway to Central Parkway, and will extend further south to the future Dublin Boulevard extension. The project is also proposing to extend Central Parkway into the project, which will provide access to the future developments of the GH PacVest, Righetti, and Branaugh properties to the south.

In 2005, the Fallon Village Stage I PD and Supplemental EIR was approved, outlining the land uses and projected units for the Fallon Village properties, including the Croak Property. The East Ranch project proposes to maintain the land uses and associated acreages as described for the Croak Property within the approved Stage I PD.

[1] This report principally reflects efforts to address the requirements for cultural resource identification and evaluation under CEQA, while additional level of effort, such as the subsequent development of an architectural resources APE and possible further identification efforts, for the purposes of compliance with Section 106, will likely be needed per consultation with the Federal lead agency and may require augmentation of this report.

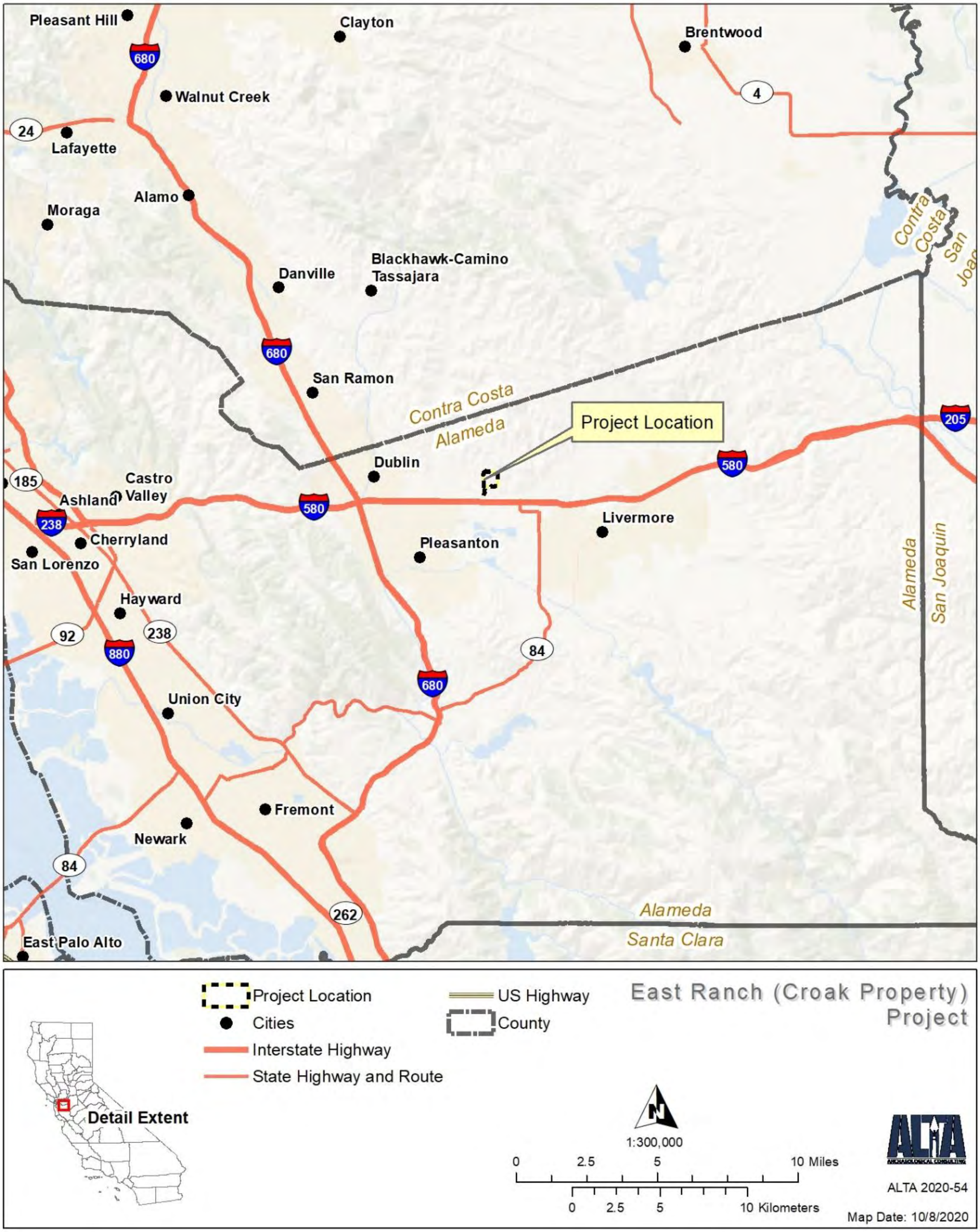

Figure 1. Project Vicinity

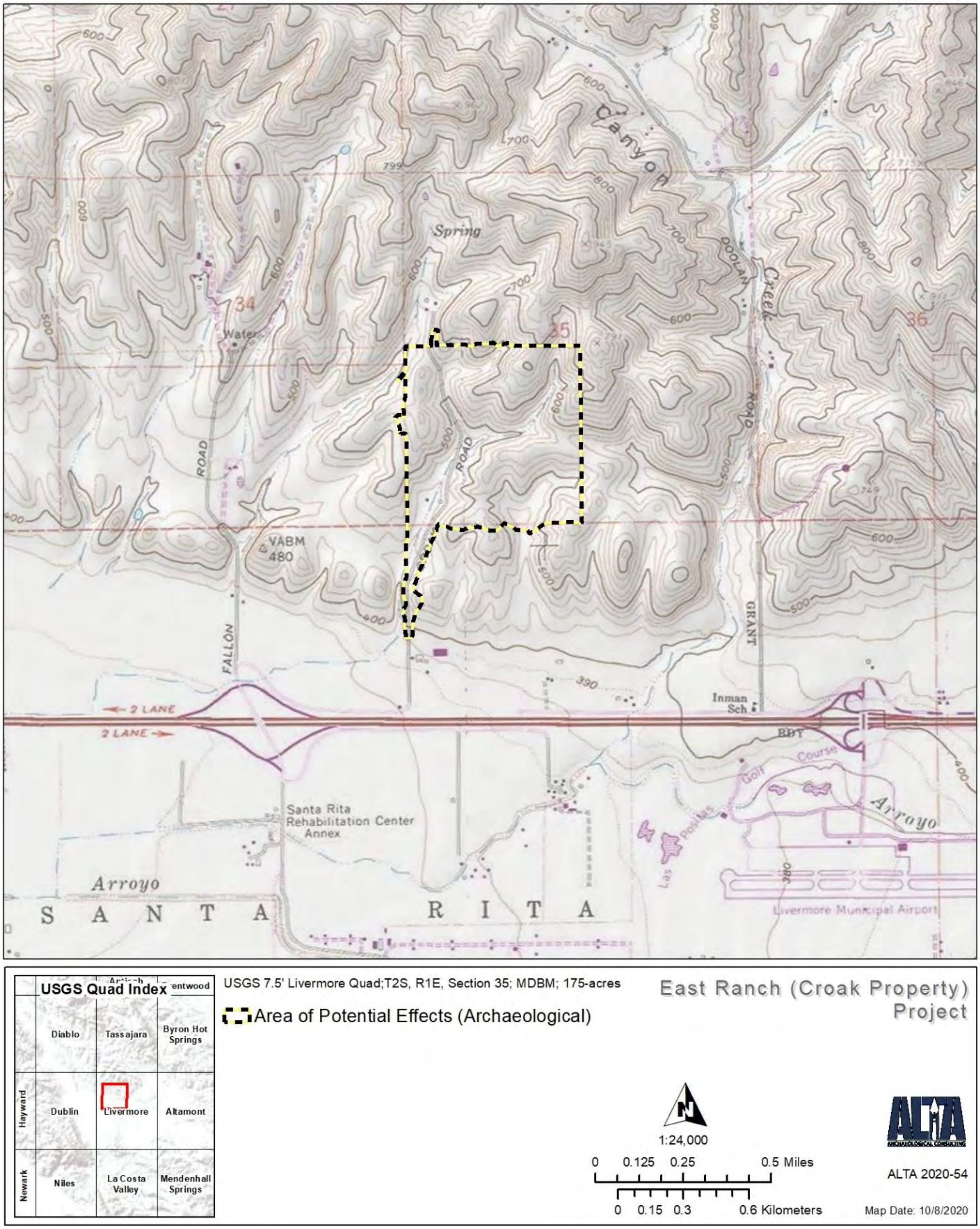

Figure 2. Project Location

Regulatory Context

This section briefly discusses the nature and extent of State regulations that apply to the Project. As part of the compliance process the Project must comply with CEQA as amended; and its implementing regulations and guidelines, codified in Title 14 of the California Code of Regulations (CCR), which provide agencies guidance for compliance with environmental regulations.

The CEQA applies to certain projects requiring approval by State and/or local agencies. Property owners, planners, developers, as well as State and local agencies, are responsible for complying with CEQA's requirements regarding the identification and treatment of historical resources. Applicable California regulations are found in California PRC Sections 5020 through 5029.5 and Section 21177, and in CEQA (CCR Sections 15000 through 15387). CEQA equates a substantial adverse change in the significance of a historical resource with a significant effect on the environment (PRC Section 21084.1). A substantial adverse change includes demolition, destruction, relocation, or alteration that would impair the historical significance of a resource (PRC Section 5020.1). PRC Section 21084.1 stipulates that any resource listed in, or eligible for listing in, the California Register of Historical Resource (CRHR) is presumed to be historically or culturally significant. If a resource is determined *ineligible* for listing on the CRHR, the resource is released from management responsibilities and a project can proceed without further cultural resource considerations.

Under CEQA, cultural resources that will be affected by an undertaking must be evaluated to determine their eligibility for listing in the CRHR (PRC Section 5024.1(c)). For a cultural resource to be deemed eligible for listing, it must meet at least one of the following criteria:

1. is associated with events that have made a significant contribution to the broad patterns of California History and cultural heritage; or
2. is associated with the lives of persons important to our past; or
3. embodies the distinctive characteristics of a type, period, region, or method of construction, or represents the work of an important creative individual, or possess high artistic value; or
4. has yielded or is likely to yield, information important to prehistory or history.

The eligibility of archaeological sites is usually evaluated under Criterion 4 –its potential to yield information important to prehistory or history. Whether or not a site is considered important is determined by the capacity of the site to address pertinent local and regional research themes. The process for considering cultural resources on CEQA projects is essentially linear, although in practice it may overlap or be compressed. Evaluating prehistoric properties involves four basic tasks: (1) development of an archaeological research design (2) field excavations, (3) laboratory analysis, and (4) report preparation and eligibility determination.

In addition to meeting the above listed criteria, resources must also demonstrate sufficient integrity to be considered eligible for listing on the CRHR. The following is summarized from National Register Bulletin 15 How to the National Register Criteria for Evaluation (NPS 1991). Integrity is the ability of a property to convey its significance. The National Register traditionally recognizes a property's integrity through seven aspects or qualities: location, design, setting, materials, workmanship, feeling, and association. Location is the place where the historic property was constructed or the place where the historic event took place. Design is the composition of elements that constitute the form, plan, space, structure, and style of a property. Setting is the physical environment of a historic property that illustrates the character of the place. Materials are the physical elements combined in a particular pattern or configuration to form the aid during a period in the past. Workmanship is the physical evidence of the crafts of a particular culture or people during any given period of history. Feeling is the quality that a historic property has in evoking the aesthetic or historic sense of a past period of time. Association is the direct link between a property and the event or person for which the property is significant.

All properties must be able to convey their significance. The evaluation of integrity must always be grounded in an understanding of a property's physical features and how they relate to its significance. Assessment of integrity is fundamental and includes four basic steps (Hardesty and Little 2009:60):

1. Determine if the essential physical qualities that must be present if the property is to represent its significant.
2. Determine if those qualities are discernable enough to convey their significance.
3. With reference to relevant historic context(s), determine if the property needs to be compared with similar properties, which might be necessary within particularly rare properties.
4. Based on the significant and physical qualities, determine what aspects of integrity are vital to the property and whether they are present.

It is not necessary for a property to retain all its historic physical features or characteristics. The property must retain, however, the essential physical features that enable it to convey its historic identity. The retention of specific aspects of integrity is paramount for a property to convey its significance. Properties eligible under Criteria 1, 2, and 3 must not only retain their essential physical features, but the features must be visible enough to convey their significance (Hardesty and Little 2009:60). This means that even if a property is physically intact, its integrity is questionable if, for instance, its significant features are concealed under modern construction. Archeological properties are often the exception to this; by their nature they usually do not require visible features to convey their significance.

IV. BACKGROUND

As the significance of cultural resources is best assessed with regard to environmental and cultural contexts, descriptions of the natural and cultural setting of the project region are presented below.

Environment

The project area is situated within the Coast Range geologic province (Jenkins 1969). The northern Coast Ranges are a geologic province comprised of numerous rugged north-south trending ridges and valleys that run parallel to a series of faults and folds. Formation of these ranges is generally attributed to events associated with subduction of the Pacific Plate beneath the western border of North America. The bedrock that underlies the region is a complex assemblage of highly deformed, fractured, and weathered sedimentary, igneous, and metamorphic rocks. The bedrock geology of the project area consists of Jurassic-Cretaceous age Franciscan Formation rock (Schoenherr 1995:7). Rocks of this formation, the oldest in the area, are often weakly metamorphosed, and consist of greywacke shale interspersed with discontinuous bodies of ultramafic rock such as greenstone, schist, and serpentine. The repeated folding and faulting is reflected in the complex structure of Franciscan rocks and area topography (Schoenherr 1995:265).

The study area is within the subregions of Coast live oak woodland as well as California steppe grasslands indicative of the East Bay Hills region. The project parcel has undergone a long history of cattle ranching and many Eucalyptus tree groves and other non-native ornamental trees are present on the parcel that were likely used for shade and wind breaks. Cottonwood Creek is about 2,000-feet east of the project APE. A series of drainages intersect the property that likely flow during heavy rain events but remain dry most of the year.

Geoarchaeological Review

In general, most Pleistocene-age landforms have little potential for harboring buried archaeological resources, as they developed prior to human migration into North America (ca. 13,000 years before the present [B.P.]). However, Pleistocene surfaces buried below younger Holocene deposits do have a potential for containing archaeological deposits. Holocene alluvial deposits may contain buried soils (paleosols) that represent periods of landform stability before renewed deposition. The identification of paleosols within Holocene-age landforms is of particular interest because they represent formerly stable surfaces that have a potential for preserving archaeological deposits. Indeed, the majority of the landform associated with the project area is younger, Holocene alluvial deposits; however, in many cases archaeological deposits in these contexts are deeply buried or differentially preserved depending on the local conditions and depositional patterns.

The majority of the APE is underlain by Linne series soils consisting of moderately deep, well drained soils that formed in material weathered from fairly soft shale and sandstone. Linne soils are on hills and have slopes of 5 to 75 percent (USDA 2001). According to Witter et al. (2006), the majority of the APE is located within Pre-Pleistocene (bedrock) deposits, and, as such, these areas are considered to have a very low probability of containing buried archaeological deposits given the lack of substantial deposition to cause site burial by alluvium.

Prehistory

Three major taxonomic systems have been developed for the San Francisco Bay Area. These include (1) the Central California Taxonomic System, (2) the Archaic-Emergent Culture History Scheme, and (3) a Hybrid System that combines aspects of several schemes. The Central California Taxonomic System (CCTS) attempted to create *horizons* based on temporally diagnostic artifacts and mortuary customs (Beardsley 1948, 1954; Lillard et al. 1939; Gerow 1954). Three horizons were defined- Early, Middle, and Late. After the advent of radiocarbon dating technology in the 1950s, archaeologists attempted to test the relative sequence of the CCTS with chronometric dates (Fredrickson 1973, 1974; Heizer 1958; Ragir 1972). These studies found that the horizon system in the CCTS did not allow for regional and cultural inconsistencies, and overstated the relationship between region and temporal change in artifacts (White et al. 2002).

The Archaic-Emergent Culture History Scheme (AECHS) attempted to refine the variation of relative chronologies into defined cultural units. *Patterns* are basic economic/cultural adaptations that are bound geographically, as were the three horizons of CCTS. *Aspects* are smaller-scale variants of patterns, which represent regional adaptations and styles and are bound more temporally. *Phases* are smaller scale variants of aspects, based on similarities and differences within related artifact types and trends (Bennyhoff and Fredrickson 1969). This taxonomic system has largely defined Bay

Area archaeology, and can be broken into four distinct patterns: the Borax Lake Pattern (8000-6000 BP), the Windmiller Pattern (6000-2000 BP), the Berkeley Pattern (6000-1500 BP), and the Augustine Pattern (1450-150 BP). These patterns define distinct temporal regional trends in diet, tool manufacture, trade, and ceremonial artifacts.

Later studies have advocated for a hybrid of CCTS and AECHS. This system utilizes the Early-Middle-Late structure proposed in CCTS, while including cultural units of patterns, aspects and phases. These specific cultural units have been demonstrated through current shell bead chronology studies within the Bay Area, referred to as Dating Scheme D (Groza 2002; Groza et al 2011). Temporally distinct shell beads made of the purple olive snail (*Olivella spp.*) were widely traded beginning in the middle Holocene, extending as far as the central Great Basin. Because these are widely-distributed, relatively resilient organic artifacts, they have served as subjects for radiometric dating studies in order to solidify dates within relative chronologies throughout California and the Great Basin (e.g. Bennyhoff and Hughes 1987; Vellanoweth 2001). These radiometric studies have resulted in the development of relative and exact chronologies, known widely as *dating schemes.*

Dating Scheme D refines Bennyhoff and Hughes's (1987) Scheme B1, which itself refined Heizer's (1958) Scheme A. While Scheme A was based on radiocarbon dates from 17 samples, and Scheme B was based on 180 uncalibrated dates from varied artifacts, Scheme D is based on 140 AMS radiocarbon dates from beads made of *Olivella* shells and radiometric dates from five mass bead-lots. Groza's work advanced the chronology of many bead types by as much as 200 years forward (Milliken et al. 2007). Scheme D has refined the chronology of certain beads into 200 to 300-year discrete time periods. These beads only represent units of time. Accordingly, they have no implications for cultures specifically, but are used to identify relative chronology. These units of time are referred to as *bead style horizons* (Groza et al. 2011:18). In the present investigation, we intend to use this hybrid system that adopts conventional terminology consistent with the Scheme D dating sequence, with bead style horizons labeled within the Early, Middle, and Late Periods and based on the bead type nomenclature established by Milliken et al. (2007) and Groza et al. (2011).

Ethnography

The project area falls within the ancestral aboriginal territory of the Ohlone, once referred to by the Spanish as the Coastanos (meaning "coastal people"). The following ethnographic review is not a thorough summary of Ohlone (Costanoan) culture. It provides an ethnographic background for the present anthropological investigation with specific references to the project area. Descendants of speakers of "Costanoan" languages prefer to refer to themselves as "Ohlone", a term first applied to the group by C. Hart Merriam (1907).

Based on linguistic and archaeological evidence, Penutian-speaking peoples are believed to have entered the Bay Area from the Sacramento–San Joaquin River Delta (Delta) region, displacing or replacing speakers of Hokan stock languages of the Bay Area such as Esselen (Kroeber 1925; Moratto 1984:552). The proto-Costanoan homeland was probably located in the East Bay, possibly in the Carquinez Strait vicinity (Moratto 1984:554).

Currently, many Ohlone groups have strong cultural and social identities in the Bay Area and environs (see papers in Bean 1994; Teixeira 1997) despite drastic changes occurring during the historic period (see Milliken 1995). The Ohlone were hunter/gatherer/fisher peoples. Acorns were probably the most important plant food. They were gathered in great numbers in the fall, stored in above-ground granaries, leached to remove tannic acids, and either baked into a bread loaf or served as mush. Other important tree crops included buckeye, hazel nuts, and California laurel. Grass seeds, berries, geophytes, and young shoots were eaten. The pollen from common tule was made into balls and baked.

History

Dublin and the Amador-Livermore Valley

The City of Dublin was not incorporated until 1983. Dublin, formerly Amador and Dougherty's Station is a suburban city of the East (San Francisco) Bay and Tri-Valley regions of Alameda County, California, United States. It is located along the north side of Interstate 580 at the intersection with Interstate 680, roughly 23-miles east of downtown Oakland.

But development began in 1835 in the early years of the Republic of Mexico when Jose Maria Amador received a land grant of 16,517-acres in the valley for his years of service as a soldier and as administrator of Mission San Jose’s Native American laborers. Amador built several adobe homes and many small buildings that were used as shops where his workers, many presumably liberated from slave-labor under the Mission system to similar circumstances under ranch-owners, made soap, blankets, shoes, farm tools, other implements needed to operate a vast ranch.

In 1850, Michael Murray and Jeremiah Fallon came to this area from Ireland. They purchased 1,000 acres of land from Jose Amador and built homes for their families. The area began to grow as many settled in the area. Amongst them the Croak family whose ranch abuts a Fallon property’s eastern boundary.

In 1853, Alameda County was created from parts of Contra Costa and Santa Clara counties. Both Murray and Fallon served on the Alameda County Board of Supervisors. Townships were established the next year and Murray's name was chosen for this area. In Amador-Livermore Valley at Dublin’s location development began quickly and included construction of St. Raymond's Church (1859) and the historic cemetery where members of the Donner Party Expedition are buried, two hotels, Green's Store (1860; see Figure 1), the Murray Schoolhouse (1856), a wagon and blacksmith shop, and a shoemaker's shop. Mail was delivered to the Dougherty Station Hotel. Thus, the area became known as Dougherty's Station and as more and more Irish immigrants settled, became known as Dublin. After almost 150 years as an unincorporated village, Dublin incorporated as a city with a population of 15,000 on February 1, 1982, becoming the 14th city in Alameda County.

Early Ranch Settlement, California and Amador Valley

The beginnings of Anglo-American settlement within Alameda County began in earnest after 1848, although development in the Amador-Livermore Valley occurred more slowly and followed established transportation corridors (see *Transportation* subsection). Like much of inland northern California, rapid settlement of the mining districts, Sacramento and the Central Valley, and the Bay Area drove inflated food prices and encouraged agriculture and ranching to feed miners, merchants, and other immigrants to the state.

The following ranching history is adapted and quoted from *A Historical Context and Archaeological Research Design for Agricultural Properties in California* (California Department of Transportation 2007).

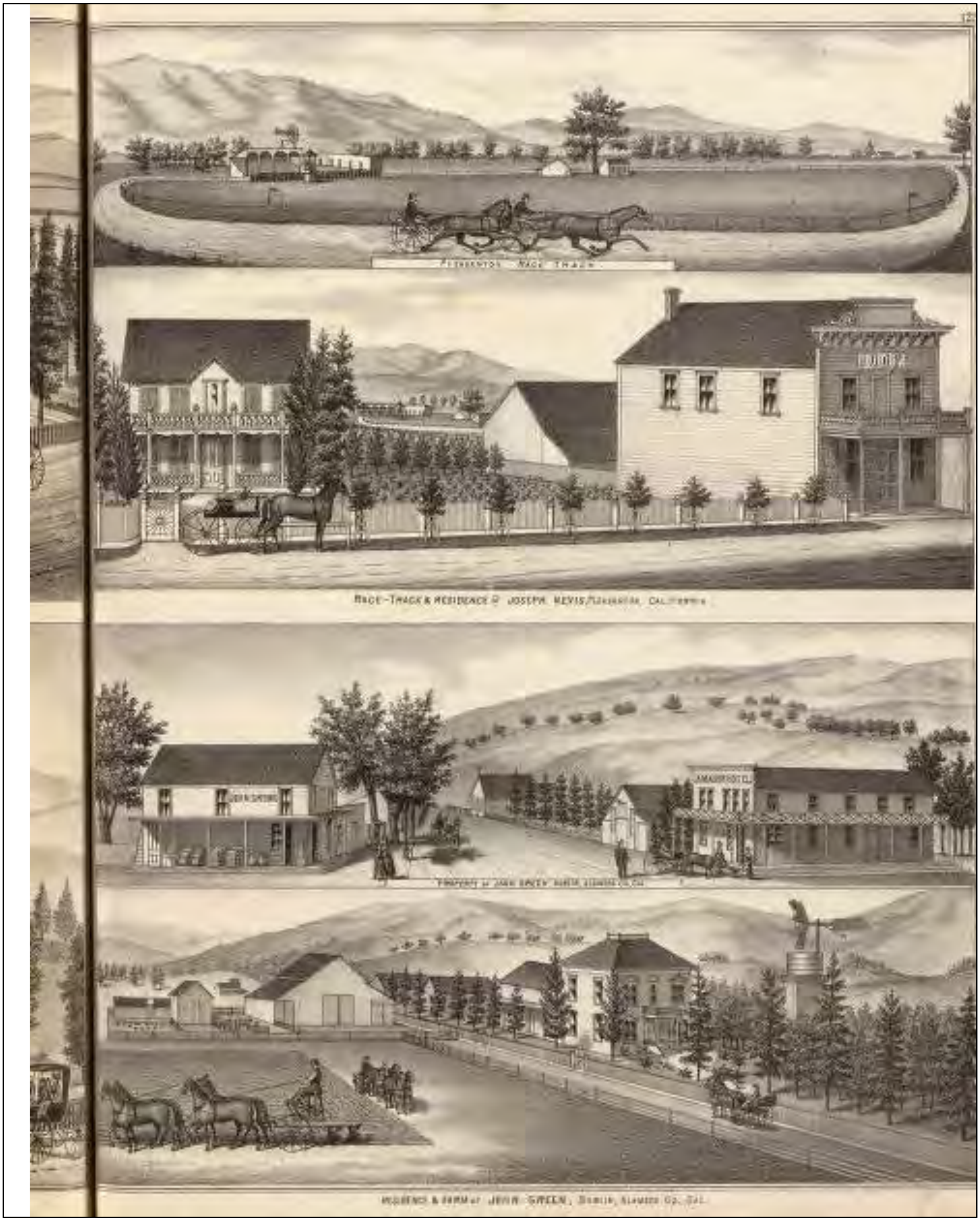

Figure 3 The lower two panels are engravings of "Dublin, Alameda Co." Above on the left is Green's Store (1860) and to the right the Amador Hotel. Below is the "Residence & Farm of John Green" from Thompson & West 1878. (Courtesy of the David Rumsey Collection, Stanford University)

Under Mexican governance, the consumption and export of hides, dairy, and meat products from cattle, sheep, and hogs represented Alta California's economic foundation. Commodities were created from sheep's wool and meat, goat's milk and meat, and cattle's meat, tallow, hides, butter, cheese, and milk. After the Mexican-American War and the discovery of gold at Sutter's Mill, the influx of immigrants further drove demand for meat products and other animal by-products and demand outstripped supply. As stated in the California Department of Transportation's *A Historical Context and Archaeological Research Design for Agricultural Properties in California*, "ranchers, recognizing the shortages of meat products in the state, drove cattle, sheep, and hogs overland or transported them aboard ships bound for California, along with other live animals, including poultry. During the 1850s, emigrants drove large herds of sheep overland into California. Kit Carson receives credit for bringing a large herd into California in 1853-1854. Carson purchased the sheep in New Mexico for 50 cents a head and sold them in California for $5.50 a head, making a handsome profit. Because of the rapid immigration into California during the 1850s, meat products were in high demand, and sheep constituted one of the principal sources of food, although not always the most desirable form of food.

By the 1860s, much of the northern end of the San Joaquin Valley and eastward into the foothills of the Sierra Nevada had well-established herds of sheep. As forage diminished in the lower foothills during the late spring, herders brought their sheep into the higher elevations of the Sierra where sufficient browse grew. In the Sierra, seasonal sheep camps were established, evidenced by rock cairns, holding pens, and trail markers. In some instances, they included a simple wood-framed cabin, while in other cases they consisted of canvas tents or simply a sheltered location where the flock spent the night to avoid loss to predators, particularly coyotes. The home ranch was generally much more substantial, often including a shearing barn or shed, feed barn, ranch house, lambing sheds, corrals, and other outbuildings, such as a slaughterhouse, if the sheep and lambs were raised for consumption.

American sheep, such as Merinos, did not replace what some people considered inferior New Mexico and Arizona sheep (sheep introduced from Spain in the early 1800s) until the 1860s and 1870s. One of the state's earliest and most successful breeders was William Wells Hollister. Hollister traveled to Ohio and purchased six thousand Merino sheep that he herded to California, although only two thousand survived the long journey. By 1875, records suggest that seven million head of sheep ranged through California's mountains, hills, and valleys. The completion of the Transcontinental Railroad in 1869 allowed for the shipping of sheep and wool to points east, opening new markets and increasing the profitability for ranchers.

Irish and Welsh sheepherders enjoyed some success establishing sizeable herds and ranches. During the latter half of the nineteenth century in El Dorado County, the Quinn brothers operated a large sheep operation, moving their animals from the foothills east along present-day State Highway 88 to the public domain that they considered their grazing lands. During the 1860s, sustained drought resulted in feuds between sheepherders and cattlemen as each sought out the best grazing land in the Sierra. According to Forest Service records, an incident within the present-day El Dorado National Forest resulted in the murder of several sheepherders by cattlemen. The sheepherders were reportedly from the British Isles and were buried in unmarked graves near the site of their murder.

For cattlemen, drought and disease were the two most serious threats to their livelihood. Nonetheless, ranchers employed creative methods to sustain themselves during episodes of drought and disease. For example, during the drought of 1863-1865, herders drove out both cattle and sheep from their home range into the foothills or coastal mountains in search of feed. During the drought, hundreds of thousands of cattle and sheep perished or were slaughtered for their meat. The greatest losses reportedly occurred in the San Joaquin Valley and in Southern California. Between 1876 and 1877, another drought struck California resulting in the loss of thousands of cattle "on the ranges in Fresno, Tulare, and Kern counties, and during that drought hundreds of cattle were slaughtered to save the hides." During the 1870s and 1880s irrigated pastures or wells helped sustain feed within home ranges when droughts occurred.

There appear to be three levels of ranches that evolved in California associated with the cattle industry: the large corporate or company ranch (generally exceeded 160 acres), the mid-sized ranch (from 40 to 160 acres on average), and the small ranch (from 1 to 40 acres). Generally, the privatization of most of the state's grazing lands by the 1870s rarely allowed for the upward mobility from the mid-sized ranch to the large corporate ranch. In addition, large companies or corporations such as the notorious Miller and Lux, the largest landowner in California. In 1857, Henry Miller (1827-1916) and Charles Lux (1823-1887), both German immigrant butchers, formed the partnership of Miller & Lux. Miller & Lux both arrived in San Francisco separately around 1850 and began acquiring land and cattle. Henry Miller controlled the largest tracts of land and had the advantages of better capitalization, control of policing and courts to control labor, and market dominance. Small ranchers and farmers, however, sometimes had opportunities to expand their land holdings and acquire larger herds or greater acreage, generally through mortgaging their property. Examples of each level of ranch appear throughout the state's grazing lands, as do ancillary properties, which were needed to facilitate patterns of transhumance and the marketing of products. Small ranches generally created by individual homesteads, may consist of the main ranch house, barn, a windmill, slaughterhouse, corrals and pastures. Mid-sized ranches may comprise multiple homesteads joined to form one large parcel or discontinuous ranches with the primary or home ranch and then grazing land located elsewhere. Large or corporate or company ranches may include multiple barns, feed lots, elaborate water systems, loading chutes, slaughterhouses, and bunkhouses for workers. Large ranches often consume thousands of acres that may be separated by hundreds of miles. The smallest property types are ranchettes, which became popular after the turn of the century, and were generally less than 40 acres and often as little as five acres.

Owners of these properties practiced more intensive forms of agriculture but had to purchase virtually all of their feed from another source, because the land base was inadequate to sustain their livestock. During the 1930s small dairy farms emerged throughout the Central Valley, providing dairy products to the local community or selling products to cooperatives or large corporate farms.

Even the most successful ranches were unsuccessful at preventing disease during much of the nineteenth century. As Pulling points out, the greatest scourge among California cattle herds was that of Texas or Southern fever. In 1866, the president of the State Board of Agriculture warned California cattlemen of the possibility that the cattle then arriving from Texas might introduce the disease to California herds. Yet, no quarantine occurred. By 1887, losses from the disease had become so great in the state that the United States Department of Agriculture sent a special investigator to determine the nature, and if possible, the cause of the disease. Other diseases include blackleg, anthrax, and those produced by cattle ticks. Together, these diseases, if not kept in check, could wreak havoc for cattlemen.

The creation of cattle and sheep ranches followed a similar pattern, as did the creation of farms, often taking advantage of the current land laws. Ranchers often abused regulations governing public land disposal, particularly where marginal lands existed within the Central and San Joaquin valleys. Miller and Lux, among others, monopolized vast tracts of land within the San Joaquin Valley. Acquiring large acreages helped sustain herds of cattle and sheep because of the unpredictability of rainfall and the uncertainty of forage or browse each year.

Whereas farmers generally concentrated their improvements, cattle and sheep ranchers spread their improvements over large areas of land and frequently moved from one location to another as the need arose. This pattern of land use required an adequate labor force and a general knowledge of husbandry if large herds of animals were involved. A similar pattern of land ownership evolved in other parts of California where the predominant industry was grazing livestock. Most of the western San Joaquin Valley was consolidated into vast ranches, particularly those owned by Miller & Lux. With the advent of the railroad, shipping cattle between states became more pragmatic, but due to rough handling, cattle often arrived in poor condition.

As Breschini notes, "the shift in economic dominance from cattle raising to grain farming was marked by a shift in political clout from the stockmen to the farmers with the passage of the 'No-Fence Law' in 1872." Where livestock formerly roamed freely, the new law required fencing them in so they would not damage crops. The law did not apply uniformly to all California counties, and regular enforcement most likely never occurred.

Unlike cattle and sheep operations, hog farms never attained the size and economic value of other industries, although there were apparently more hogs than cattle in the state according to the U.S Census for 1890.

The lack of literature regarding hog farming in California during the nineteenth century may be a result of the general view that hog farmers were a lower class than cattle ranchers. The sheer number of escaped domestic hogs that later became feral indicates that hogs were a ubiquitous part of California's farm and ranch industry. Pork remained a popular food through the nineteenth and twentieth century and was a staple on many menus in restaurants throughout the state.

During the nineteenth century, virtually every farm kept a few hogs for domestic consumption. Farms devoted solely to hog production do not appear to be as common as farms that devoted part of their operation to hog farming, perhaps because of the stigma of being labeled as "hog farmers," or it may have been more economically viable to diversify the livestock on any single farm. California's Chinese [communities] are well known to have consumed large quantities of pork, but little information is available that discusses the source of the meat, that is whether they owned the hogs or acquired them from local farmers or ranchers.

By the early 1900s, the commercial meat industry shifted to a more industrial model, away from butchering at farms and corner butcher shops in cities to one that emphasized larger packing plants. This trend resulted in greater emphasis on feedlots as an intermediary stage of production. Range animals together with hogs were an important part of California's economy during the nineteenth and twentieth centuries. The cattle industry was well entrenched in the state by the 1880s, and large ranchers, such as Miller and Lux, held control over vast acreages of land in the San Joaquin Valley.

California was also a leader in the production of dairy products during the 1870s, particularly butter and cheese. In 1870-71, Sonoma County produced 850,250 pounds of butter and 200,250 pounds of cheese. Santa Clara County, however, exceeded Sonoma County in cheese production, having produced 2,375,440 pounds in 1870-71.212 Other dairy regions in the state included San Luis Obispo County, San Bernardino County, the San Gabriel Valley, and by the 1900s, portions of the San Joaquin Valley. Although the Croak family ranch likely produced dairy products for their own consumption, like many agricultural families, the lack of a dairy barn suggests a production focused on cattle or possibly other ranching for meat and hide products.

Transportation

Often based on prehistoric routes, imperial road networks began in the eighteenth century during the subjugation of Native Americans to the Spanish Empire's Mission system in California. Several of these roads evolved into primary routes throughout the 19th Century, and hence to the interstate highway system. The Amador-Livermore Valley lays on the eastern side of the East Bay mountain range.

A crossroads of the eastern Bay Area, Dublin lays at the intersection of the west-east Oakland-Stockton Road and of the north-south Martinez-San Jose Road, which follows the path used by Pedro Fages' expedition of 16-mounted soldiers to find a land-route to Drake's Bay in 1772. These roads were important stagecoach routes and fresh horses were available at Dougherty's Station. A settlement at what would become Dublin centered on the Alamilla Spring, a freshwater source for people, horses, and livestock. When the U.S. Department of Transportation laid plans for Interstate 580 and Interstate 680, intersecting at Dublin, they followed the roads' long-established circulation patterns and existing settlements with infrastructure.

The boundaries of the Croak Ranch property have not changed since at least 1906, based on the U.S. Geological Service quadrangle of that year (see Figure 2). The map illustrates a hatch-line dirt or gravel road or driveway as the primary access to the ranch complex from the north and then east before connecting to a larger north-south road in Donlan Canyon by Cottonwood Creek.

V. SOURCES CONSULTED

The records search and literature review for this study were done to: (1) determine whether known cultural resources had been recorded within or adjacent to the study area; and (2) to assess the likelihood of unrecorded cultural resources based on archaeological, ethnographic, historical documents and literature, and the environmental setting of nearby sites.

Records Search

On August 13, 2020, Dean Martorana, archaeologist with ALTA, submitted a request for a records search (File Number 20-0285) at the Northwest Information Center (NWIC) located on the campus of Sonoma State University. The NWIC, an affiliate of the State of California Office of Historic Preservation, is the official state repository of archaeological and historical records and reports for an 18-county area that includes Alameda County. The records search request included a review of all study reports on file within a quarter-mile radius of the project area. Sources consulted in the request included archaeological site and survey base maps, survey reports, site records, historic General Land Office (GLO) maps, and local historical listings. The results were provided on Sept 4, 2020.

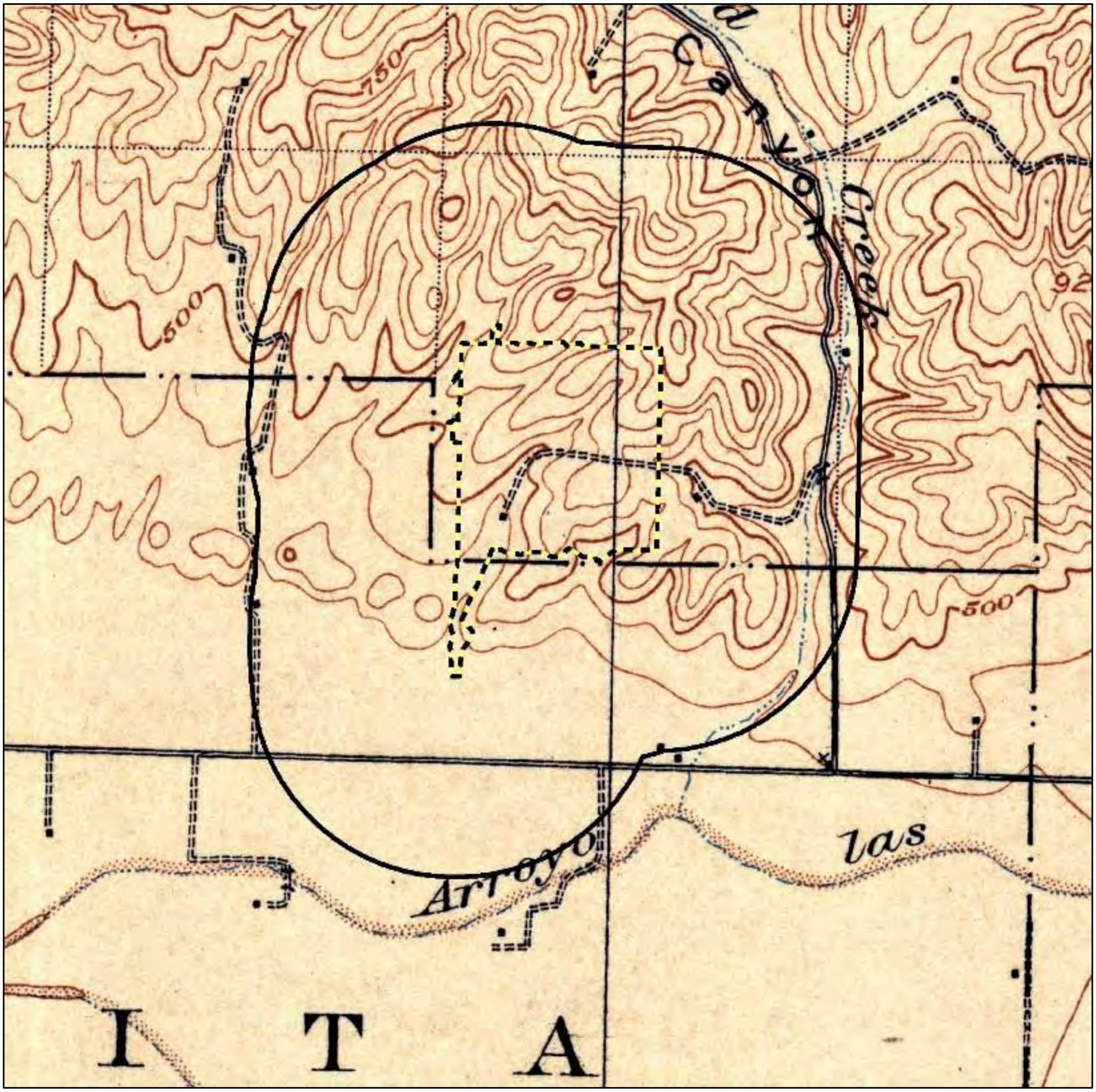

Figure 4 1906 USGS Quad. showing the Croak Ranch property outlined in yellow and black hatch marks.

Included in the review were:

- *California Inventory of Historical Resources* (California Department of Parks and Recreation 1976)
- *California Historical Landmarks* for Alameda County (CA-OHP 1990)
- California Points of Historical Interest (CA-OHP 1992)
- Built Environment Resource Directory (BERD) (CA-OHP January 2020)
- *BERD* includes the National Register of Historic Places (April 2012) of the California Historical Landmarks and California Points of Historical Interest

Review of historic registers and inventories indicate that no historical resources are present in the project area.

A review of archaeological site and survey maps at the NWIC reveal that fourteen cultural resources studies have been conducted within a half-mile radius of the APE (See Table 1). Seven studies have been previously conducted in small portions of the APE (see Table 2). Approximately 10% of the APE has been previously surveyed for cultural resources—mostly along the outer boundaries where adjacent development projects intersect with the current APE.

Table 1. Summary of Previous Cultural Resource Studies within Search Radius

Report	Authors	Year	Report Title
S-000898	Edward M. Love, Miley Paul Holman, and David Chavez	1976	An Archaeological Reconnaissance of the Proposed Pipeline Routes and Reservoir Locations, Livermore-Amador Valley Water Management Agency, Alameda County, California
S-007379	Miley Paul Holman	1985	Archaeological Reconnaissance of Lands of Chang Su O Lin, Alameda County, California (letter report)
S-007380	Miley Paul Holman	1985	Archaeological Field Inspection of SMP-12, Redgwick Quarry, Alameda County,California. (letter report)
S-008893	Miley Paul Holman	1985	A Report of Findings for the Johnson Prezoning No. 2-313, Annexation No. 150-84, Tentative Tract Map No. 5393, Alameda County, California
S-023085	Colin I. Busby	1999	Preliminary Constraints Analysis - Proposed Improvements of Two I-580 Interchanges, Pleasanton/Livermore Area, Alameda County, California (letter report)
S-023378	Colin I. Busby and Stuart A. Guedon	2000	Constraints Analysis-Proposed Improvements of the Fallon Road/El Charro Road Interchange, City of Dublin/Unincorporated Alameda County (letter report)
S-027407	Colin I. Busby and Stuart A. Guedon	2003	Cultural Resources Investigations for Livermore Zone 1 Water Systems Improvement Project, City of Livermore, Alameda County, California
S-029681	Colin I. Busby and Stuart A. Guedon	2003	Cultural Resources Investigation for Livermore, Zone 1 Water System Improvement Project, City of Livermore, Alameda County,California.
S-031701	M. Kate Lewis	2006	Historic Property Survey Report: I-580 Eastbound HOV Lane Project: Hacienda Drive to East of Greenville Road, 04-Ala-580 KP 12.6/30.7 (PM R7.8/19.1), EA 04258-290810, Alameda County, California
S-031701	Jeffrey Rosenthal and Brian F. Byrd	2006	Archaeological Survey Report for the I-580 Eastbound High Occupancy Vehicle Lane Project, East of Greenville Road to Hacienda Drive, Livermore Valley, Alameda County, California

Report	Authors	Year	Report Title
S-031701	Toni Webb	2006	Historical Resources Evaluation Report: I-580 Eastbound HOV Lane Project from East of Greenville Road to Hacienda Drive
S-032276	Lorna Billat	2006	Collocation ("CO") Submission Packet, FCC Form 621, Driving Range, BA-02129A
S-035826	Brian F. Byrd	2008	Historic Property Survey Report for the I-580 Westbound High Occupancy Vehicle Lane Project, Greenville Road to San Ramon/Foothill Roads, Alameda County, California: 4-Ala-580, P.M. 8.29/21.43, EA 29082K
S-039062	Colin I. Busby	2009	Results, Field Inventory and Mechanically Assisted Presence/Absence Archeological Testing within CA-Ala-508/H, Dublin, Alameda County

Table 2: Summary of Previous Cultural Resource Studies within the APE

Report	Authors	Year	Report Title
S-004924	Robert Cartier	1982	Cultural Resource Evaluation of the Bezley Mining Project on Croak Road and Highway 580 in the County of Alameda
S-007105	Randy S. Wiberg	1984	Archaeological Reconnaissance of the SMP-18 Quarry Area (APN 99 B-3200-4-4) Near Livermore, Alameda County, California.
S-007376	Miley Paul Holman	1985	Archaeological Inspection of Proposed Righetti Quarry, Alameda County, California (letter report)
S-020335	Randy S. Wiberg, Randall Dean, and Miley P. Holman	1998	A Cultural Resources Study for the North Livermore Master Plan/Specific Plan, Environmental Impact Report, Alameda County, California
S-030607	Colin I Busby	2004	Cultural Resources Assessment Report - Archaeology and Built Environment Fallon Villages (Bankhead and Mandeville Properties), City of Dublin, Alameda County
S-030607	Ward Hill	2004	Historic Evaluation Report Fallon Ranch
S-030611	Colin I. Busby	2004	1881 Collier Canyon Road, Livermore (Collier Ranch), Eastern Dublin Properties Resource Management Plan, Supplemental Cultural Resources Review - Built Environment, City of Dublin, Alameda County (APN 905-0001-004-04) (letter report)

One prehistoric site has been previously identified within the half-mile search radius, P-01-002114 (CA-ALA-508)—also known as the 4J Ranch Site. The site is described a seasonal resource procurement site that contained artifacts related to seed processing, such as mortar and pestle. Some historic artifacts were also identified (Doty et al. 1988). The site is located east of Fallon Road, about 2,000-feet west of the project APE.

Historic Map and Aerial Photography Review

Review of historic maps and aerial imagery of the area was completed to better understand the timing of development within the project area and recognize historic features. The following historic maps and aerials were reviewed as part of this investigation.

General Land Office

1862 Santa Rita Rancho Plat
1865 Plat T02S, T01E, MDM, 0001

University of California, Santa Barbara

1939 Aerial Imagery, Flight C-5750, Frame 288-54, 1:20K Scale

1965 Aerial Imagery, Flight CAS-65-130, Frame 13-151, 1:12K Scale

United States Geological Survey

1906 Pleasanton Map, 1:62500 scale.

1940 Pleasanton Topographic Map, 1:62,500 scale.

1953 LivermoreTopographic Map, 1:24,000 scale.

1961 Livermore Topographic Map, 1:24,000 scale.

1968 Livermore Topographic Map, 1:24,000 scale

1980 Clayton Topographic Map, 1:24,000 scale.

The earliest maps of the area, from 1862 and 1865, depict mostly open space in this section and no development. The aerial photo from 1939 does depict the barn and home in the southeast corner of the parcel (see Figure 3). The review of historic maps for this area indicated are consistent with the history of the parcel in terms of development; the barn and home appears on the earliest Quadrangle produced, 1906. No other development of the area is shown up to the most recent USGS Quadrangle in 1980. Subsequent development is evident on the most current aerials beginning in 1993.

Ethnographic Literature Review

Available ethnographic literature was reviewed to identify cultural resources in the project vicinity. The following sources were consulted.

Milliken, Randall

1995 *A Time of Little Choice: The Disintegration of Tribal Culture in the San Francisco Bay Area 1769-1810*. Ballena Press Anthropological Papers No. 43, Menlo Park, CA.

Milliken, Randall, Laurence H. Shoup, and Beverly R. Ortiz.

2009. *Ohlone/Costanoan Indians of the San Francisco Peninsula and their Neighbors, Yesterday and Today*. Prepared for National Park Service, Golden Gate National Recreation Area, San Francisco, California.

Levy, Richard

1978 Costanoan. In *Handbook of the Indians of North America, Volume 8 California*. Ed. By R.F. Heizer. Smithsonian Institution, Washington, D.C.

Based on demographic analysis of mission records, the area of present-day Livermore Valley and east Dublin was within the tribelet territory of the Costanoan *Ssouyen* tribelet (Milliken 1995). The *Ssouyen* were most closely related by marriage, and probably by other social ties, to the Ohlone *Causen* to the southwest and the Bay Miwok *Volvon* to the north, within the Los Vaqueros watershed that were likely inhabitated at a (Milliken 2009; Byrd et al. 2017). Milliken et al. (2009) suggests that given the dry and hummocky terrain indicative of the northern Livermore Valley, the *Ssouyen* settlement pattern probably consisted of two or three semi-permanent villages containing 40 to 100 residents that formed during the winter, and then dispersed in more temporary, mobile camps during the peak food acquisition period of late-spring to fall

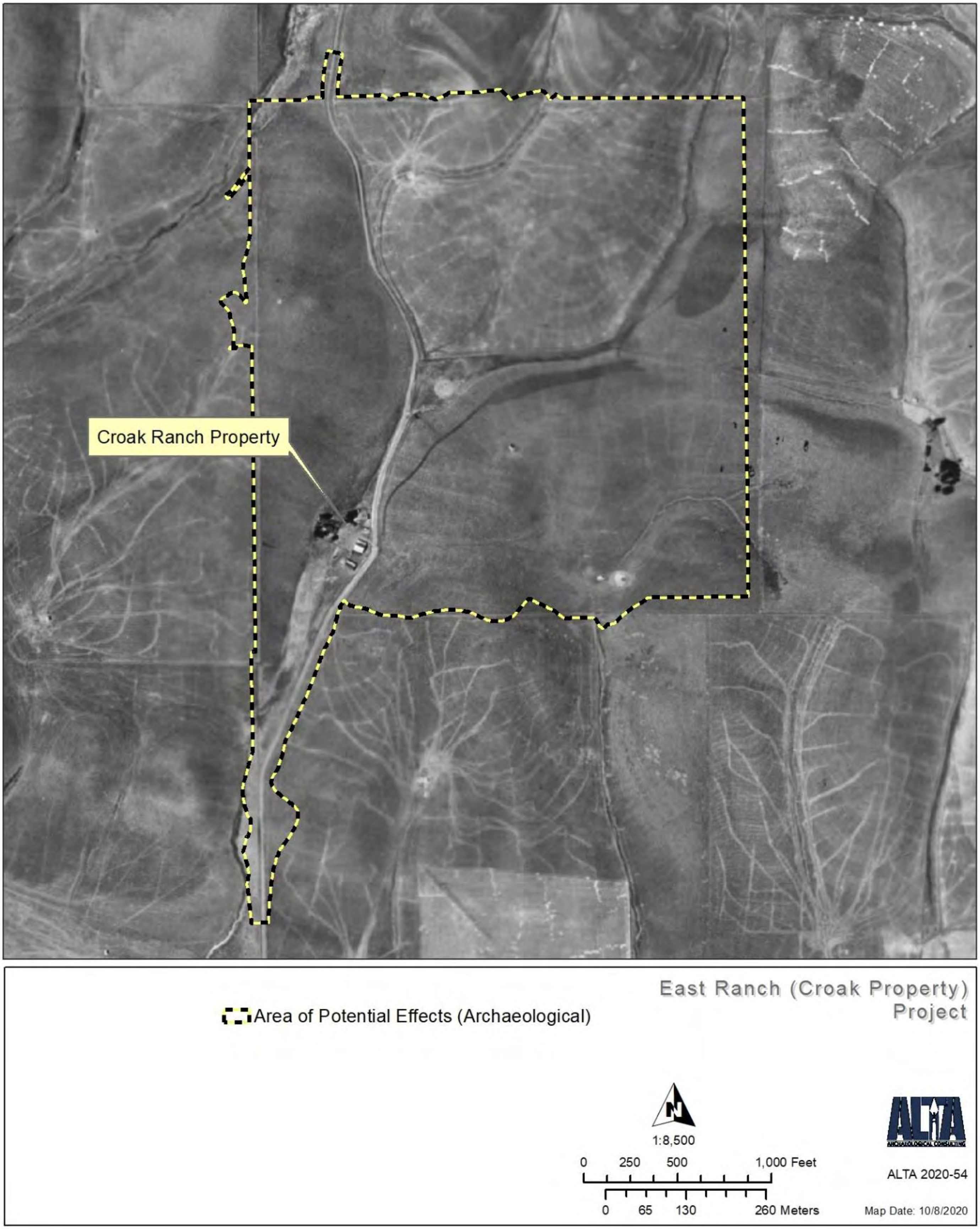

Figure 5: Aerial Photo of APE, 1939 (UCSB Aerial Photography Collection)

Native American Consultation

Assembly Bill 52, which went into effect in July 2015, is an amendment to CEQA Section 5097.94 of the Public Resources Code. AB52 established a consultation process with all California Native American tribes identified by the Native American Heritage Commission (NAHC) with cultural ties to an area and created a new class of resources under CEQA known as Tribal Cultural Resource. Contra Costa County, as the Lead Agency under CEQA, is responsible for complying with the requirements of CEQA Section 5097.94 of the Public Resources Code.

The Native American Heritage Commission (NAHC) was contacted via email to request a review of the Sacred Lands file and to request a list of Native American contacts in this area on August 14, 2020. The response letter (via email) dated August 18, 2020 by Sarah Fonseca (Cultural Resource Analyst) indicated that the search of the Sacred Lands File had a **negative** result. The NAHC response letter suggested that the Lead Agency contact the local tribes to provide further information regarding this result and to inquire about any further consultation. On September 3, 2020, a notification letter was sent via certified mail to the Chairperson of each tribal group associated with the Project Area as provided by the NAHC. No response has been received to date. Any further communication with local tribes will be conducted by the Lead Agency. Attachment B contains the results of the Native American communication.

VI. FIELD METHODS

On September 24, 2020, Alta Archaeological Consulting staff archaeologists Dean Martorana, Alex DeGeorgey, and Sarah King Lyne Narasimha conducted a field survey of the APE (see Figure 4). Edward Yarbrough, architectural historian for Yarbrough Architectural Resources, also conducted a site visit this same day, taking photographs and notes of the ranch's building complex. Yarbrough had access to all the buildings and structures within the building complex. In consultation WRA, it was confirmed that no other architectural features are located within the direct APE.

Project Maps and aerial imagery were used to correctly identify the APE boundaries and topographic changes using ArcGIS Collector. Ground surface visibility was generally poor, or around 20% due to heavy grass cover and leaf litter in some areas. Due to the highly variable topography and low visibility of the ground surface, a stratified survey strategy was employed; areas that exhibited a slope above 15% were surveyed at a cursory level, which is where only a quick inspection of the area was employed and focused on higher probability areas (61-acres at a cursory level were surveyed). All other areas within the APE were inspected using a general reconnaissance, which systematically inspects the surface with wide transects of 20-meters (161-acres were surveyed at a general level). No archaeological resources or other elements of the built environment were identified as a result of this archaeological pedestrian survey. Digital photos were taken of the project area and surroundings (see Attachment C).

VII. PHYSICAL DESCRIPTION OF IDENTIFIED RESOURCES

Architectural Resources (contributed by YAR)

The Croak Ranch complex is comprised of a residence, outbuildings, and structures to support a livestock operation and likely limited farming, including the remnants of walnut trees. Fast-growing eucalyptus trees were planted for shade in this semi-arid climate east of the East Bay's coastal range. The complex's access road (see Figure 2), now partially contiguous with Croak Road, led from the east and the first visible structure was the barn, clad in vertical board (see Attachment E – Site Record).

Barn

The barn consists of a central, steep front-gable unit with side-eave shed extensions. The central until is comprised of a light-lumber post-and-beam structure with brackets for triangulation. The shed additions at each eave further compress and support the outward forces of the central truss, assisted by a compression chain between the eave beams.

On the barn's façade, a crane-beam extends approximately 6-feet from under the roof ridge and retains a hanging hook used for hoisting bales and heavy equipment from carts and trucks. A tall bay on the central unit's façade is centered under the crane-beam with a vertical-board doorway rising up to 4-feet, leaving the upper portion of the fenestration open. To the right and north of the central opening, double doors are set to the right on the central unit and on the shed wing to the right and north. The rear elevation of the barn sits across a large open area across from the residence's entry porch. The rear elevation's north shed wing has an opening for vehicular storage with a steel rail above the lintel, suggesting a sliding door that is now missing. A pedestrian-size sliding door is located on the rear of the south wing.

The barn's vertical board cladding is not sealed with battens but allows for airflow to prevent hay mold. Whitewash paint remains protected from precipitation under the modestly extending eaves.

Residence

Set back from the barn, the single-story, T-plan residence appears to have been built in two units, evidenced by separate but abutting beam-on-pier foundations. The front unit is a side-gable and at the eave formerly transitioned to a front porch that ran the full width of the façade. The rear addition extends from the center of the rear eave end. The front porch and porch floor are fully collapsed. Only the façade itself and the rear gable end are clad in shiplap siding while the side elevations are clad in board-and-batten. Molding on the shiplap-clad walls are broad, most notably as frieze boards, a characteristic usually associated with architecture from the third-quarter of the 19^{th} Century.

The residence's rear extension housed the kitchen and a dining room with a recessed side mud porch on the south with a large sink room to the west of the porch and across from the tack house.

Tack House

The tack house is clad in board-and-batten siding with a side-gable entry across from the residence's side porch. Inside, the building has a small closet for riding gear and two stands for saddles. The northwest corner of the roof has failed and the building is open to precipitation.

Garage

The garage appears to have been a shop building on a poured-concrete foundation with a later shed addition to the rear, north gable-end that sheltered a farming vehicle. Clad in board-and-batten, the front-gable building faces east with a small square window opening within the gable. Roofing and sheathing are missing above the south eave.

Windmill, Well & Cistern, and Privy
Crushed under a fallen tree, only portions of the windmill pump are visible. The windmill was supported on an open truss stand and had a 12-blade tin sail, now crushed. To the west-southwest of the windmill was a pump and buried cistern. These mostly buried features appear to be mid to late 20th Century additions with corrugated tin pipes with caps rising above ground level.

The shed-roof privy is located to the rear and northwest of the residence. The vertical board structure has collapsed and the septic pit appears to be subsiding.

Archaeological Resources

The archaeological survey did not result in the identification of any significant archaeological resource. Given the steep and undulating terrain and the lack of permanent water sources within this area suggests that the potential for substantial prehistoric deposits withing the APE is low. However, a dilapidated privy or outhouse was identified just outside the main residence of the Croak Ranch that does have potential to yield further information regarding California agricultural development and early settlement. Closer inspection of the area surrounding the privy did not identify any surface manifestation of an historical deposit at this location. However, a subsurface deposit may exist in this area and surrounding the main house structure that may contain significant resources (see Figure 6).

VIII. SIGNIFICANCE EVALUATION (contributed by YAR)

This evaluation of the Croak Ranch as a potential historical resource is conducted as an architectural or built-environment consideration of significance but does not reflect archaeological data that may arise at a later time, such as during construction activities. The Croak Ranch is a rural and agricultural ranch complex.

CEQA considers properties eligible to the CRHR to be “historical resources.” Historical resources are environmental resources and subject to certain processes and protections under the law. For a property to be an historical resource it must first qualify as significant under at least one of the criteria and retain the historical integrity to convey that significance. Therefore, this section is divided into an application of the significance criteria and followed by a consideration of the seven aspects of historical integrity.

Application of the Significance Criteria to the Croak Ranch

The CRHR criteria are parallel in concept and content and, therefore, are routinely addressed in tandem, as here.

CRHR Criterion 1 - *Recommend Not Eligible*

> To qualify for listing under Criterion 1 of the CRHR, a resource must be identified with an important event in history. In review of historical documentation of Dublin, the Croak Ranch was not found to be mentioned in connection with a significant historical event. Therefore, this resource is recommended as ineligible under Criterion 1.

CRHR Criterion 2 - *Recommend Not Eligible*

To qualify for listing under Criterion 2 of the CRHR, a resource must be identified with a person important in history. Although the Croak family emigrated from Ireland to Dublin, California, they are not found amongst the names of community founders, such as Murray, Fallon, or Dougherty. Therefore, this resource is recommended as not eligible under CRHR Criterion 2.

CRHR Criterion 3 - *Recommend Eligible*

To qualify for listing under Criterion 3 of the CRHR, a resource must be identified with important movements in, or masters of, design and construction or as representative of n historically significant architectural type. This resource is illustrative of a vernacular ranch type of the mid and late-19th Century. A T-plan residence with gamble ends and a full-length porch (collapsed) at the front eave end, the main residence, barn, and other ranch complex structures show few modifications since construction. The use of shiplap siding on the residence's façade and rear gable but vernacular board-and-batten on secondary elevations is a feature rarely retained over time. The Tack House and Shop buildings are clad in board-and-batten and the barn also appears largely unmodified since construction. Therefore, this resource is recommended as eligible under CRHR Criterion 3.

CRHR Criterion 4 - *Recommend Not Eligible*

To qualify for listing under Criterion 4 of the CRHR, a resource must have yielded or be likely to yield information important to prehistory or history. This historic-era resource is not likely to yield further information. Therefore, this resource is not recommended as eligible under CRHR Criterion 4.

Historical Integrity Assessment

The Department of Interior, National Park Service recognizes seven aspects of historical integrity that of location, setting, design, workmanship, materials, feeling, and association. The Croak Ranch complex retains aspects of historical integrity of location, setting, materials, and association. However, the ranch complex has not been maintained, suffers from vandalism, and is left in a state of partial demolition by neglect. All windows, including sashes and many frames are removed from the residence. All exterior and most interior doors were removed and lay in pieces around the yard. The front porch roof and floor, which were primary design features of the façade, have collapsed. All of the ranch buildings and structures are generally in a state of rot due to exposure to moisture from leaking roofs and open fenestration. There are only remnants of the windmill pump that lies crushed beneath a fallen tree. As a cumulative result of its poor condition, the property has lost its historical integrity of design, workmanship, and, to a lesser extent, feeling.

The Croak Ranch is a rural cultural landscape that has lost its historical integrity due to its very poor condition. Therefore, the Croak Ranch can no longer convey its historical significance under CRHR Criterion 3.

IX. FINDINGS AND RECOMMENDATIONS

A cultural resources field investigation was conducted of the proposed project area on September 24, 2020. As previously discussed in section IV, this cultural resource inventory was conducted to satisfy the requirements of CEQA, as codified in Public Resource Code sections 5097, and its implementing guidelines 21082 and 21083.2.

This study recommends that the Croak Ranch, as an architectural resource, is not an historical resource for purposes of CEQA. Although the evaluation finds that the Croak Ranch is historically significant as representative of vernacular late-19th Century to early 20th Century ranches in the region, the agricultural complex has lost the historical integrity to convey that significance due to advanced deterioration and partial demolition from neglect of maintenance. However, from an archaeological perspective, the potential exists for significant resources to be identified within the area surrounding the identified privy and main residence that may be impacted by project actions.

Therefore, the project activities are not anticipated to cause a substantial adverse change in the significance of a Tribal cultural resource, defined in Public Resources Code section 21074 as either site, feature, place, cultural landscape that is geographically defined in terms of the size and scope of the landscape, sacred place, or object with cultural value to a California Native American tribe, nor is it anticipated the project activities will result in causing a substantial adverse change in the significance of a historical resource as defined in § 15064.5. The following recommendations are provided as mitigation for addressing the potential to significantly impact archaeological resources and

Management Recommendations

While in general the survey results were negative, the existence of the Croak Ranch, an example of early agricultural settlement in California, and although the physical structures being considered ineligible as historical resources or properties, the potential exists for historic archaeological resources to occur within the project APE. Therefore, the following recommendations are provided as mitigation and should be implemented as part of the project environmental documentation.

Figure 6. Survey Coverage and APE

Conduct Archaeological Monitoring
Ground-disturbing activities will occur in an area that has been determined to be sensitive for the presence of buried archaeological remains; therefore, a qualified archaeologist shall be retained to monitor those activities within the Archaeologically Sensitive area (see Figure 6). Archaeological monitoring is recommended in this area where there is a likelihood that archaeological remains may be discovered but where those remains are not visible on the surface. If, during ground disturbing activity a resource is identified, the archaeologist shall assess the significance of the find, according to CEQA Guidelines Section 15064.5, and any work may proceed on other parts of the project site while mitigation for historical resources or unique archaeological resources is being carried out. Monitoring shall not be considered a substitute for efforts to identify and evaluate cultural resources prior to the project initiation.

Unanticipated Discovery of Cultural Resources
If previously unidentified cultural resources are encountered during project implementation, avoid altering the materials and their stratigraphic context. A qualified professional archaeologist should be contacted to evaluate the situation. Project personnel should not collect cultural resources. Prehistoric resources include, but are not limited to, chert or obsidian flakes, projectile points, mortars, pestles, and dark friable soil containing shell and bone dietary debris, heat-affected rock, or human burials. Historic resources include stone or abode foundations or walls; structures and remains with square nails; and refuse deposits or bottle dumps, often located in old wells or privies.

Encountering Native American Remains
Although unlikely, if human remains are encountered, all work must stop in the immediate vicinity of the discovered remains and the County Coroner and a qualified archaeologist must be notified immediately so that an evaluation can be performed. If the remains are deemed to be Native American and prehistoric, the Native American Heritage Commission must be contacted by the Coroner so that a "Most Likely Descendant" can be designated and further recommendations regarding treatment of the remains is provided.

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Attachment A – Preparers Resumes

EAST RANCH (CROAK PROPERTY) PROJECT, CITY OF DUBLIN, ALAMEDA COUNTY, CALIFORNIA

Confidential Information

This report contains confidential information. The distribution of material contained in this report is restricted to a need to know basis. To deter vandalism, artifact hunting, and other activities that can damage cultural resources, the location of cultural resources should be kept confidential. The provision protecting the confidentially of archaeological resources is in California Government Code 6245 and 6245.10, and the National Historic Preservation Act of 1996, Section 304.

Alta Archaeological Consulting, LLC
15 Third Street
Santa Rosa, CA 95401
office (707) 544-4206
fax (707) 546-2135
www.altaac.com

Dean Martorana, MA, RPA

(916) 205-6087 — dean@altaac.com

Current Position	Discipline	Qualifications
▪ Archaeologist ▪ Project Manager	▪ Cultural Resource Management ▪ Prehistoric Archaeology	▪ Registered Professional Archaeologist ▪ MA Anthropology

Summary of Experience

Mr. Martorana has developed expertise in historical ecology, geophysical archaeology, archaeological field methods, geoarchaeology, and GIS applications. He is principally responsible for conducting cultural resource field research and analysis to determine site significance under California Environmental Quality Act (CEQA), National Environmental Protection Agency (NEPA) and Section 106 criteria, as well as develop mitigation strategies designed to help resolve adverse effects upon historical properties. Mr. Martorana has further developed expertise in satisfying the specific cultural resource research and documentation requirements of various large agencies, such as Caltrans, the California Environmental Protection Agency, Federal Emergency Management Agency (FEMA), and the U.S. Army Corps of Engineers. Moreover, he has drafted many types of cultural resource compliance documents, such as memoranda of agreement, in consultation with the State Historic Preservation Officer. Mr. Martorana meets the Secretary of the Interior's standard for cultural resource specialists involved in preservation activities at all levels of government involving historic-era and prehistoric-era archaeological resources.

Education

2009	Certificate, Geographic Information Systems, San Francisco State University
2000	Master of Arts, Anthropology, Long Beach State University
1995	Bachelor of Arts, Psychology, Long Beach State University

Professional Experience

Principal Archaeologist 2019—Present
Alta Archaeological Consulting, LLC - Santa Rosa, California

Duties include: Manage projects subject to CEQA and Section 106 compliance by developing cultural resource assessments and inventories and providing evaluation documentation; Native American consultation; project planning; project budgeting; field work coordination; pre- and post-field research; archaeological survey; site recordation; site mapping; writing research designs; supervising archaeological surveys; archaeological site evaluation; writing technical reports; graphic production; report production; develop and maintain GIS databases; prepare maps for technical reports; conduct geospatial analysis; prepare field data collection applications.

Senior Archaeologist 2016—2019
Horizon Water & Environment – Oakland, California

Managed projects subject to National Historic Preservation Act (Section 106), as well as with CEQA, and NEPA compliance, for variety of projects, with multiple Federal and State agencies and clients throughout California. Developed and completed a variety of archaeological inventories, survey reports, excavation and evaluation investigations, as well as research designs and assisted in the development of Programmatic Agreements (PA) and Memorandum of Agreements (MOAs); Conducted archaeological research on Department of Defense property in areas with known unexploded ordinance; Prepared and managed Geographic Information Systems (GIS) infrastructure and develop data visualization strategies for multiple disciplines within the organization; Develop ArcGIS Collector applications for field data collection in biology, archaeology, and planning purposes; Manage GIS figure development for a variety of technical documents, e.g. EIR/EIS, Biological Assessments, Cultural Resource Assessments, Wetland Delineations; Conduct spatial analysis and develop models within GIS environments to contribute to data-driven conclusions regarding resource impacts or for cartographic purposes.

Archaeologist/ Project Manager 2007—2014
URS Corporation (AECOM) - Oakland, California

Managed Federal and State environmental protection compliance (e.g. CEQA and National Environmental Protection Act, National Historic Preservation Act, Endangered Species Act, etc.) for large infrastructure projects. Conducted literature reviews, records searches, lead field surveys, archaeological excavations and evaluations, MOAs, and PAs per CEQA and NEPA regulations. Authored numerous large scale Section 106 and CEQA compliance documents for a number of Federal agencies, including Army Corps of Engineers, U.S. Bureau of Reclamation, and the U.S. Fish and Wildlife Service. Developed and organized Geographic Information System (GIS) services. Provided construction monitoring services in sensitive cultural resource areas. Completed Certified Project Manager coursework. Prepare proposals, budgets, and provide general project management. Manage laboratory and curation for various projects.

Archaeologist 2000—2007
Environmental Science Associates - Oakland, California

Identified and evaluated cultural resources on the basis of CEQA/NEPA and Section 106 criteria; conducted Extended Phase I Studies and Phase II studies. Prepared cultural resource inventory reports and EIR/EIS sections pertaining to cultural resources; analyzed archaeological datasets using GIS/GPS. Prepared archaeological monitoring plans and management plans. Conducted construction monitoring in archaeological sensitive areas in a variety of urban and remote locations throughout California.

Graduate Assistant 1997-1999
Long Beach State University

Responsible for managing field activities and lab operations. Field duties included performing archaeological surveys and data recovery excavations and assisting the development and implementation of electromagnetic (EM) geophysical surveys. Lab duties included lab crew supervision; establishing lab facilities; creating curation data base; ordering lab equipment; coordinating with curation facilities.

Yarbrough Architectural Resources

Edward Yarbrough, MSHP, Assoc AIA

Sr Architectural Historian | Cultural Resources Manager
2150 Silverado Trail N, St. Helena, CA 94574
131 Central Ave, Ste 1, San Francisco, CA 94117
edwardbyarbrough@gmail.com; tel. (415) 819-7995
www.yarchitecturalresources.com

PROFESSIONAL PROFILE

Edward Yarbrough is an architectural historian with over 29-years of experience in historical and architectural evaluation, survey, quality assurance to establish a responsive process, quality control of technical studies (QA/QC), and environmental analysis and documentation. Yarbrough's related skills include survey, evaluation, impact analysis, findings of effect, resolution of adverse effects, treatment plan development and implementation, preservation policy, and agreement document development.

Yarbrough meets the Secretary of the Interior Standards (36 CFR 61) as a Qualified Architectural Historian. He developed regulatory compliance programs, technical and compliance documentation, interpretive text, and plans and agreements for public utilities and planning departments, NPS, USACE, HUD, The Presidio Trust, affordable housing and other developers, school districts, universities, and dozens of other federal, state, territorial, county and civic government agencies.

EDUCATION

M.S., Historic Preservation, School of Architecture
University of Oregon, 1996

B.A., Classical Architecture
University of California, Berkeley, 1989

California Preservation Foundation
Preservation Design Award for Historical Documentation
Recipient 2016

EXPERIENCE

- **Downtown Reconnaissance Survey, Town of Fairfax. 2020.** Conduct reconnaissance survey to assist Town planning including development of Objective Design Development Standards with County of Marin in response to recent California Senate Bill 35 objectivity requirements.
- **Upper York Creek Dam Removal, Historic American Engineering Record (HAER), City of St. Helena. 2020.** Complete, submit archival HAER of 1900/1935 dam to the NPS and Library of Congress.
- **Bolinas Lagoon Wye Wetland Project, Marin Open Space District & Golden Gate National Park Conservancy. St. Helena. 2020.** Section 106 for Army Corps & CEQA compliance, cultural landscape study.
- **Sulphur Creek Fish Passage Improvement, Napa Regional Conservation District & WRA. St. Helena. 2020.** Evaluate and develop protection measures for early 20th-C. caste-in-place bridge.
- **Old Oliver Brothers Salt Works, U-Haul. Hayward. 2020.** Bring Section 106 and City CEQA processes into alignment; develop Built Environment Treatment Plan.
- **Berkeley Pier: University, Marina, Spinnaker Improvement Project, City of Berkeley & NCE. 2019.** CEQA analysis of Berkeley Pier, led by City of Berkeley Dept. of Planning & Development
- **Golden Gate National Parks Conservancy, Crissy Field Next Project, San Francisco. 2018-2022.** Section 106 for highly scrutinized redesign of SF's iconic Crissy Field at the northern beach of the Presidio of SF, avoiding or resolving adverse effects to the Presidio of SF Natl Hist. Landmark District.
- **HABS Photography of Opae'ula 15 Reservoir, Kamehameha Schools, Hale'iwa, Oahu, Hawaii. 2017.** Develop Physical Description section and Record of Photography following the Historic American Engineering Record (HAER) guidelines.
- **Sacramento Housing and Redevelopment Agency & NCE, Arden Way Affordable Housing Project. 2019.** Evaluated and considered effects under Section 106 of the National Historic Preservation Act (Section 106), led by HUD, and pursuant to CEQA, led by City of Sacramento.
- **Los Angeles County Dept. of Public Works (LACDPW), Willow Street Invert Access Ramps. 2019.** Evaluation, effects under Section 106 for USACE, and pursuant to CEQA for segment of the LA River.
- **Placer County Government Center & Mercy Housing Auburn North. 2019.** DeWitt Hospital Historic District, Section 106 led by HUD, pursuant to CEQA for Placer Co. Planning Services Division.

- **Town of Portola Valley & Thomas Worth, Friedman McCubbin Law Group LLP of San Francisco. 2019.** *Historic Resource Evaluation* for Bill & Jean Lane Estate, founders of *Sunset Magazine* pursuant to CEQA and local Historic Resources Element (GMP) and related ordinances.
- **Canyon Tunnel/Kirkwood Powerhouse & Penstock HRE and Holm Powerhouse and Penstock HRE—San Francisco Public Utilities Commission (SFPUC), Hetch-Hetchy, Moccasin, California. 2016.** Lead author of two Historic Resource Evaluations (HRE) peer-reviewed by JRP Consulting and SFPUC cultural resources staff and approved.
- **San Gabriel Mission Historic American Building Survey (HABS) Update & Condition Assessment—Altamont Corridor Express, Los Angeles, California. 2014.** Record and prevent damage to the eighteenth- and early nineteenth-century Arcángel San Gabriel Mission.
- **Central Villages, Guam Historical Architecture Survey, Part 1 of 2. – National Park Service, Pacific West Regional Office & Government of Guam, Guam Historic Resources Division, Guam. 2017/2019.** Survey and co-authored Central Villages Guam Historical Architecture Survey, Part 1 of 2.
- **Sacramento Transportation Department, Sacramento Intermodal Transit Facility Track Relocation Project Environmental Documents, Depot Architectural Guidelines & HABS Report. 2009–2012.** Supported and lead broad Section 106 and CEQA analyses and mitigation implementation for improvements to the Sacramento Railyards and the Sacramento Depot and Platforms.
- **Marin Municipal Water District, Golden Gate National Parks Conservancy & Golden Gate National Recreation Area. West Peak Restoration Project (One Tam). 2019.** CEQA analysis and Section 106 update and amendment of 1995 EA for Mill Valley Air Force Station atop Mt. Tamalpais.
- **US-80/Central Avenue Local Road Improvement Project, City of Richmond. 2019.** Caltrans local assistance improvements requiring CEQA and Section 106 review.
- **Dunsmuir Trail, Chabot Lake Regional Park, East Bay Regional Park District, Oakland & San Leandro, California. 2018.** CEQA/Section 106 analysis of new trail with CCC camp structures.
- **Kamehameha Heights Reconnaissance Survey, Water System Improvement Project, Honolulu Board of Water Supply, Oahu, Hawaii 2018.** Reconnaissance survey 315 properties,2- bridges.
- **San Francisco County Transportation Authority, Presidio Parkway Project. 2014–2016**. Project Manager/Section 106 Compliance Panelist: Serving as treatment oversight panel representative for SFCTA overseeing compliance with the cultural resources' laws.
- **San Francisco County Transportation Authority, Doyle Drive Replacement Project. 2008-2014.** PM/Architectural Historian for 115-acre Historic American Landscape Survey – HALS-CA-9, six Historic American Building Surveys – HABS, and two Historic American Engineering Records – HAER. Authored 88 Condition Assessments, including Palace of Fine Arts, for Presidio of SF NHL.
- **Main Post Cultural Resources Consultation—The Presidio Trust, San Francisco, California. 2011–2012.** Wrote two HABS reports for two buildings as mitigation measures at the Main Post Master.
- **City and County of San Francisco Public Works & Planning departments, Better Market Street. 2015–2016**. Redesign of the City's grand boulevard CEQA, led by City, and Section 106, led by FTA.
- **HABS Photography for Flag Circle Tennis/Basketball Court and Road, Nimitz Hill, U. S. Naval Base, Guam 2016.** HALS-format, archival photographs and Architectural History Assessment for Fleet Admiral Chester Nimitz and senior staff of Pacific Fleet, constructed in 1945.
- **Menlo Park Planning, Stanford University & SRI International. Campus Update. 2015.** CEQA analysis for master plan update.
- **City of San Mateo, Central Park Improvement Project. 2016**. Evaluated key resources in National Register-eligible Central Park as potential contributors to the historic district's significance under CEQA.
- **Rogers Ranch, Pacific Gas & Electric, Point Reyes National Seashore, California. 2016.** Assess effects to National Historic Landmark District from new utility development.
- **Bridge Demolition over East Canal, Pacific Gas & Electric, Bakersfield, California. 2016.** Record canal segment with bridge for a PGE Cultural Resources Constraints Report prior to demolition.
- **Evergreen Mabury Project, Pacific Gas & Electric, Milpitas and San Jose, California. 2016.** Record and evaluate two substations as potential historic resources.
- **Black Butte Dam Erosion Control Project, Section 106 Inventory Report. Orland, California. 2016.** With Army Corps of Engineers federal as lead agency, evaluated the 1958 dam complex as a potential historic property.

Attachment B – Records Search Results

EAST RANCH (CROAK PROPERTY) PROJECT, CITY OF DUBLIN, ALAMEDA COUNTY, CALIFORNIA

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CALIFORNIA HISTORICAL RESOURCES INFORMATION SYSTEM

ALAMEDA
COLUSA
CONTRA COSTA
DEL NORTE
HUMBOLDT
LAKE
MARIN
MENDOCINO
MONTEREY
NAPA
SAN BENITO
SAN FRANCISCO
SAN MATEO
SANTA CLATA
SANTA CRUZ
SOLANO
SONOMA
YOLO

Northwest Information Center
Sonoma State University
150 Professional Center Drive, Suite E
Rohnert Park, California 94928-3609
Tel: 707.588.8455
nwic@sonoma.edu
http://www.sonoma.edu/nwic

9/4/2020 NWIC File No.: 20-0285

Dean Martorana
ALTA Archaeological Consulting
15 3rd Street
Santa Rosa, CA 95401

Re: ALTA2020-54 East Ranch Development Project

The Northwest Information Center received your record search request for the project area referenced above, located on the Livermore USGS 7.5' quad(s). The following reflects the results of the records search for the project area and a ½ mi. radius:

Resources within project area:	None listed
Resources within ½ mi. radius:	P-01-002114
Reports within project area:	S-4924, 7105, 7376, 20335, 30607, 30611
Reports within ½ mi. radius:	S-898, 7379, 7380, 8893, 23085, 23378, 27407, 29681, 31701, 32276, 35826, 39062

Resource Database Printout (list): ☐ enclosed ☒ not requested ☐ nothing listed

Resource Digital Database Records: ☒ enclosed ☐ not requested ☐ nothing listed

Report Database Printout (list): ☐ enclosed ☒ not requested ☐ nothing listed

Report Digital Database Records: ☒ enclosed ☐ not requested ☐ nothing listed

Resource Record Copies: ☒ enclosed ☐ not requested ☐ nothing listed

Report Copies: ☒ enclosed ☐ not requested ☐ nothing listed

OHP Built Environment Resources Directory: ☒ enclosed ☐ not requested ☒ nothing listed

Archaeological Determinations of Eligibility: ☐ enclosed ☐ not requested ☒ nothing listed

CA Inventory of Historic Resources (1976): ☒ enclosed ☐ not requested ☐ nothing listed

Historical Literature: ☐ enclosed ☐ not requested ☒ nothing listed

Historical Maps: ☒ enclosed ☐ not requested ☐ nothing listed

Local Inventories: ☐ enclosed ☐ not requested ☒ nothing listed

GLO and/or Rancho Plat Maps: ☒ enclosed ☐ not requested ☐ nothing listed

Please forward a copy of any resulting reports from this project to the office as soon as possible. Due to the sensitive nature of archaeological site location data, we ask that you do not include resource location maps and resource location descriptions in your report if the report is for public distribution. If you have any questions regarding the results presented herein, please contact the office at the phone number listed above.

The provision of CHRIS Data via this records search response does not in any way constitute public disclosure of records otherwise exempt from disclosure under the California Public Records Act or any other law, including, but not limited to, records related to archeological site information maintained by or on behalf of, or in the possession of, the State of California, Department of Parks and Recreation, State Historic Preservation Officer, Office of Historic Preservation, or the State Historical Resources Commission.

Due to processing delays and other factors, not all of the historical resource reports and resource records that have been submitted to the Office of Historic Preservation are available via this records search. Additional information may be available through the federal, state, and local agencies that produced or paid for historical resource management work in the search area. Additionally, Native American tribes have historical resource information not in the CHRIS Inventory, and you should contact the California Native American Heritage Commission for information on local/regional tribal contacts.

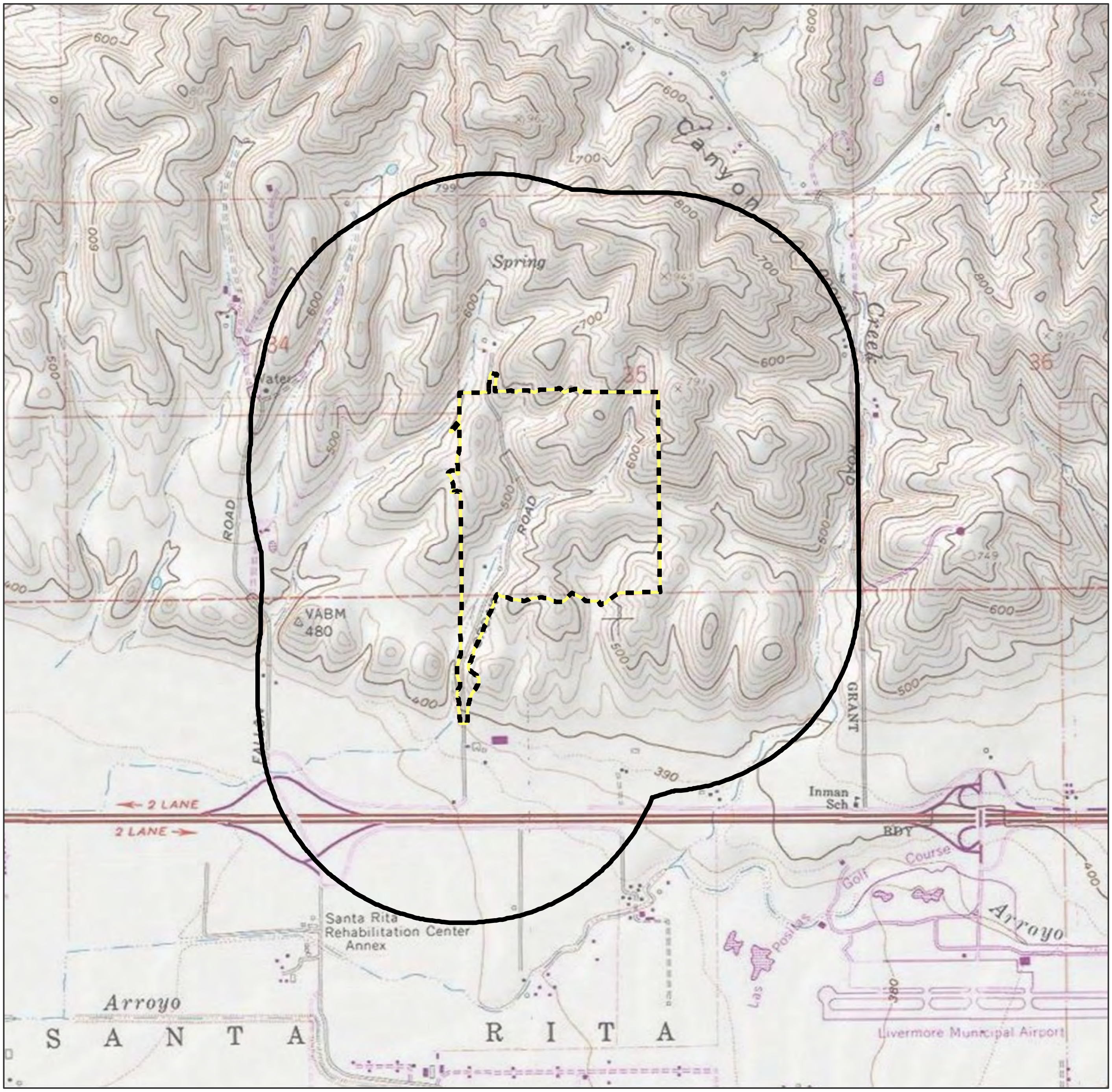
Should you require any additional information for the above referenced project, reference the record search number listed above when making inquiries. Requests made after initial invoicing will result in the preparation of a separate invoice.

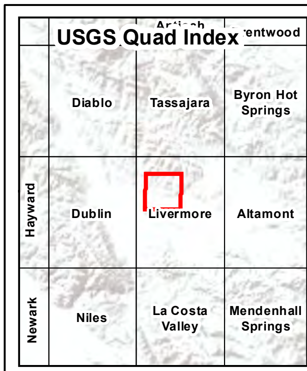
Thank you for using the California Historical Resources Information System (CHRIS).

Sincerely,

Annette Neal

Researcher





USGS 7.5' Livermore Quad;T2S, R1E, Section 35; MDBM

Project Area

Half-Mile Buffer

East Ranch
Development Project

1:24,000

0 0.125 0.25 0.5 Miles

0 0.15 0.3 0.6 Kilometers

ALTA 2020-54

Map Date: 8/13/2020

Attachment C – Native American Communication

EAST RANCH (CROAK PROPERTY) PROJECT, CITY OF DUBLIN, ALAMEDA COUNTY, CALIFORNIA

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Local Government Tribal Consultation List Request

NATIVE AMERIAN HERITAGE COMMISSION

915 Capitol Mall, RM 364
Sacramento, CA 95814
(916) 373-3710
(916) 373-5471 – Fax
nahc@nahc.ca.gov

08/14/2020

Type of List Requested

- ■ **CEQA Tribal Consultation List (AB 52) –** ***Per Public Resource Code §21080.3, subs. (b), (d), (e) and 21080.3.2***

- ☐ **General Plan (SB 18) –** ***Per Government Code §65352.3.***

  Local Action Type:
  __General Plan __General Plan Element__General Plan Amendment
  __Specific Plan __Specific Plan Amendment __Pre-planning Outreach

Required Information

Project Title: East Ranch Development
Local Government/Lead Agency: Alameda County
Contact Person: Dean Martorana (Alta Archaeological Consulting)
Street Address: 15 Third Street
City: Santa Rosa Zip: 95404
Phone: (707) 544-4206 Fax: (707) 546-2135
Email: dean@altaac.com

Specific Area Subject to Proposed Action

County: Alameda **City/Community:** Dublin

Project Description: The project applicant is proposing to develop about 175-acres for housing and mixed use (Map 1).

Additional Request

- ■ ***Sacred Lands File Search – Required Information***

  USGS 7.5’ Quadrangle(s USGS 7. USGS 7.5' Livermore Quad;T2S, R1E, Section 35; total of 175-acres; MDBM, M.D.B.M.

NATIVE AMERICAN HERITAGE COMMISSION

NAHC HEADQUARTERS
1550 Harbor Boulevard
Suite 100
West Sacramento,
California 95691
(916) 373-3710
nahc@nahc.ca.gov
NAHC.ca.gov

August 18, 2020

Dean Martorana, MA, RPA, Staff Archaeologist
Alta Archaeological Consulting, LLC

Via Email to: dean@altaac.com

Re: Native American Tribal Consultation, Pursuant to the Assembly Bill 52 (AB 52), Amendments to the California Environmental Quality Act (CEQA) (Chapter 532, Statutes of 2014), Public Resources Code Sections 5097.94 (m), 21073, 21074, 21080.3.1, 21080.3.2, 21082.3, 21083.09, 21084.2 and 21084.3, East Ranch Development Project, Alameda County

Dear Mr. Martorana:

Pursuant to Public Resources Code section 21080.3.1 (c), attached is a consultation list of tribes that are traditionally and culturally affiliated with the geographic area of the above-listed project. Please note that the intent of the AB 52 amendments to CEQA is to avoid and/or mitigate impacts to tribal cultural resources, (Pub. Resources Code §21084.3 (a)) ("Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource.")

Public Resources Code sections 21080.3.1 and 21084.3(c) require CEQA lead agencies to consult with California Native American tribes that have requested notice from such agencies of proposed projects in the geographic area that are traditionally and culturally affiliated with the tribes on projects for which a Notice of Preparation or Notice of Negative Declaration or Mitigated Negative Declaration has been filed on or after July 1, 2015. Specifically, Public Resources Code section 21080.3.1 (d) provides:

Within 14 days of determining that an application for a project is complete or a decision by a public agency to undertake a project, the lead agency shall provide formal notification to the designated contact of, or a tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, which shall be accomplished by means of at least one written notification that includes a brief description of the proposed project and its location, the lead agency contact information, and a notification that the California Native American tribe has 30 days to request consultation pursuant to this section.

The AB 52 amendments to CEQA law does not preclude initiating consultation with the tribes that are culturally and traditionally affiliated within your jurisdiction prior to receiving requests for notification of projects in the tribe's areas of traditional and cultural affiliation. The Native American Heritage Commission (NAHC) recommends, but does not require, early consultation as a best practice to ensure that lead agencies receive sufficient information about cultural resources in a project area to avoid damaging effects to tribal cultural resources.

The NAHC also recommends, but does not require that agencies should also include with their notification letters, information regarding any cultural resources assessment that has been completed on the area of potential effect (APE), such as:

1. The results of any record search that may have been conducted at an Information Center of the California Historical Resources Information System (CHRIS), including, but not limited to:

- A listing of any and all known cultural resources that have already been recorded on or adjacent to the APE, such as known archaeological sites;
- Copies of any and all cultural resource records and study reports that may have been provided by the Information Center as part of the records search response;
- Whether the records search indicates a low, moderate, or high probability that unrecorded cultural resources are located in the APE; and
- If a survey is recommended by the Information Center to determine whether previously unrecorded cultural resources are present.

2. The results of any archaeological inventory survey that was conducted, including:

   - Any report that may contain site forms, site significance, and suggested mitigation measures.

     All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum, and not be made available for public disclosure in accordance with Government Code section 6254.10.

3. The result of any Sacred Lands File (SLF) check conducted through the Native American Heritage Commission was negative.

4. Any ethnographic studies conducted for any area including all or part of the APE; and

5. Any geotechnical reports regarding all or part of the APE.

Lead agencies should be aware that records maintained by the NAHC and CHRIS are not exhaustive and a negative response to these searches does not preclude the existence of a tribal cultural resource. A tribe may be the only source of information regarding the existence of a tribal cultural resource.

This information will aid tribes in determining whether to request formal consultation. In the event that they do, having the information beforehand will help to facilitate the consultation process.

If you receive notification of change of addresses and phone numbers from tribes, please notify the NAHC. With your assistance, we can assure that our consultation list remains current.

If you have any questions, please contact me at my email address: Sarah.Fonseca@nahc.ac.gov.

Sincerely,

Sarah Fonseca
Cultural Resources Analyst

Attachment

Native American Heritage Commission
Tribal Consultation List
Alameda County
8/18/2020

Amah MutsunTribal Band of Mission San Juan Bautista
Irenne Zwierlein, Chairperson
789 Canada Road
Woodside, CA, 94062
Phone: (650) 851 - 7489
Fax: (650) 332-1526
amahmutsuntribal@gmail.com
Costanoan

Costanoan Rumsen Carmel Tribe
Tony Cerda, Chairperson
244 E. 1st Street
Pomona, CA, 91766
Phone: (909) 629 - 6081
Fax: (909) 524-8041
rumsen@aol.com
Costanoan

Indian Canyon Mutsun Band of Costanoan
Ann Marie Sayers, Chairperson
P.O. Box 28
Hollister, CA, 95024
Phone: (831) 637 - 4238
ams@indiancanyon.org
Costanoan

Muwekma Ohlone Indian Tribe of the SF Bay Area
Charlene Nijmeh, Chairperson
20885 Redwood Road, Suite 232
Castro Valley, CA, 94546
Phone: (408) 464 - 2892
cnijmeh@muwekma.org
Costanoan

Muwekma Ohlone Indian Tribe of the SF Bay Area
Monica Arellano,
20885 Redwood Road, Suite 232
Castro Valley, CA, 94546
Phone: (408) 205 - 9714
marellano@muwekma.org
Costanoan

North Valley Yokuts Tribe
Katherine Perez, Chairperson
P.O. Box 717
Linden, CA, 95236
Phone: (209) 887 - 3415
canutes@verizon.net
Costanoan
Northern Valley Yokut

North Valley Yokuts Tribe
Timothy Perez, MLD Contact
P.O. Box 717
Linden, CA, 95236
Phone: (209) 662 - 2788
huskanam@gmail.com
Costanoan
Northern Valley Yokut

The Ohlone Indian Tribe
Andrew Galvan,
P.O. Box 3388
Fremont, CA, 94539
Phone: (510) 882 - 0527
Fax: (510) 687-9393
chochenyo@AOL.com
Bay Miwok
Ohlone
Patwin
Plains Miwok

The Confederated Villages of Lisjan
Corrina Gould, Chairperson
10926 Edes Avenue
Oakland, CA, 94603
Phone: (510) 575 - 8408
cvltribe@gmail.com
Bay Miwok
Ohlone
Delta Yokut

This list is current only as of the date of this document. Distribution of this list does not relieve any person of statutory responsibility as defined in Section 7050.5 of the Health and Safety Code, Section 5097.94 of the Public Resources Code and section 5097.98 of the Public Resources Code.

This list is only applicable for consultation with Native American tribes under Public Resources Code Sections 21080.3.1 for the proposed East Ranch Development Project, Alameda County.

Alta Archaeological Consulting, LLC
15 Third Street
Santa Rosa, CA 95401
office (707) 544-4206
fax (707) 546-2135
www.altaac.com

September 3, 2020

Chairperson Irene Zwierlein
Amah Mutsun Tribal Band of Mission San Juan Bautista
789 Canada Road
Woodside, CA 94062

Re: ALTA2020-54 East Ranch Development

Dear Chairperson Zwierlein,

Alta Archaeological Consulting (ALTA) has been retained by a private developer who is proposing to develop an area of about 175-acres for housing and mixed use (see attached map).

The project is located at 4058 Croak Road, Pleasanton, CA in Alameda County. The project is located on the Livermore Quad; T2S, R1E, Section 35; total of 175-acres, of the Mount Diablo Base and Meridian.

We are contacting you to provide notification of this project pursuant Section 5 of Public Resources Code 21080.3.1(d). The regulations require that you contact us within 30 days from your receipt of this letter to request a consultation regarding any potential impacts of this project on tribal cultural resources. If you do not contact us within 30 days following receipt of this letter, the County will proceed with the project with the assumption that the project will not have a potential effect on tribal cultural resources (an archaeological survey of the parcels will be conducted in support of the permit process). If consultation is requested, please provide the name and contact information of the designated lead contact person as part of your request. The County will contact the designated person to set a meeting date to begin consultation within 30 days of our receipt of your request. Thank you in advance for your efforts.

Sincerely,

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Staff Archaeologist
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dean@altaac.com
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(707) 546-2135 fax

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September 3, 2020

Chairperson Ann Marie Sayers
Indian Canyon Mutsun Band of Costanoan
P.O. Box 28
Hollister, CA 95024

Re: ALTA2020-54 East Ranch Development

Dear Chairperson Sayers,

Alta Archaeological Consulting (ALTA) has been retained by a private developer who is proposing to develop an area of about 175-acres for housing and mixed use (see attached map).

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September 3, 2020

Chairperson Katherine Erolinda Perez
North Valley Yokuts Tribe
P.O. Box 717
Linden, CA 95236

Re: ALTA2020-54 East Ranch Development

Dear Chairperson Perez,

Alta Archaeological Consulting (ALTA) has been retained by a private developer who is proposing to develop an area of about 175-acres for housing and mixed use (see attached map).

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September 3, 2020

Chairperson Monica Arellano
Muwekma Ohlone Indian Tribe of the SF Bay Area
20885 Redwood Road, Suite 232
Castro Valley, CA 94546

Re: ALTA2020-54 East Ranch Development

Dear Chairperson Arellano,

Alta Archaeological Consulting (ALTA) has been retained by a private developer who is proposing to develop an area of about 175-acres for housing and mixed use (see attached map).

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September 3, 2020

Timothy Perez
North Valley Yokuts Tribe
P.O. Box 717
Linden, CA 95236

Re: ALTA2020-54 East Ranch Development

Dear Timothy Perez,

Alta Archaeological Consulting (ALTA) has been retained by a private developer who is proposing to develop an area of about 175-acres for housing and mixed use (see attached map).

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September 3, 2020

Chairperson Corrina Gould
The Confederated Villages of Lisjan
10926 Edes Avenue
Oakland, CA 94603

Re: ALTA2020-54 East Ranch Development

Dear Chairperson Gould,

Alta Archaeological Consulting (ALTA) has been retained by a private developer who is proposing to develop an area of about 175-acres for housing and mixed use (see attached map).

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September 3, 2020

Mr. Andrew Galvan
The Ohlone Indian Tribe
P.O. Box 3388
Fremont, CA 94539

Re: ALTA2020-54 East Ranch Development

Dear Mr. Galvan,

Alta Archaeological Consulting (ALTA) has been retained by a private developer who is proposing to develop an area of about 175-acres for housing and mixed use (see attached map).

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September 3, 2020

Chairperson Charlene Nijmeh
Muwekma Ohlone Indian Tribe of the SF Bay Area
20885 Redwood Road, Suite 232
Castro Valley, CA 94546

Re: ALTA2020-54 East Ranch Development

Dear Chairperson Nijmeh,

Alta Archaeological Consulting (ALTA) has been retained by a private developer who is proposing to develop an area of about 175-acres for housing and mixed use (see attached map).

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September 3, 2020

Chairperson Tony Cerda
Costanoan Rumsen Carmel Tribe
244 E. 1st Street
Pomona, CA 91766

Re: ALTA2020-54 East Ranch Development

Dear Chairperson Cerda,

Alta Archaeological Consulting (ALTA) has been retained by a private developer who is proposing to develop an area of about 175-acres for housing and mixed use (see attached map).

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Staff Archaeologist
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(707) 544-4206 office
(707) 546-2135 fax

Attachment D – Photographic Record

EAST RANCH (CROAK PROPERTY) PROJECT, CITY OF DUBLIN, ALAMEDA COUNTY, CALIFORNIA

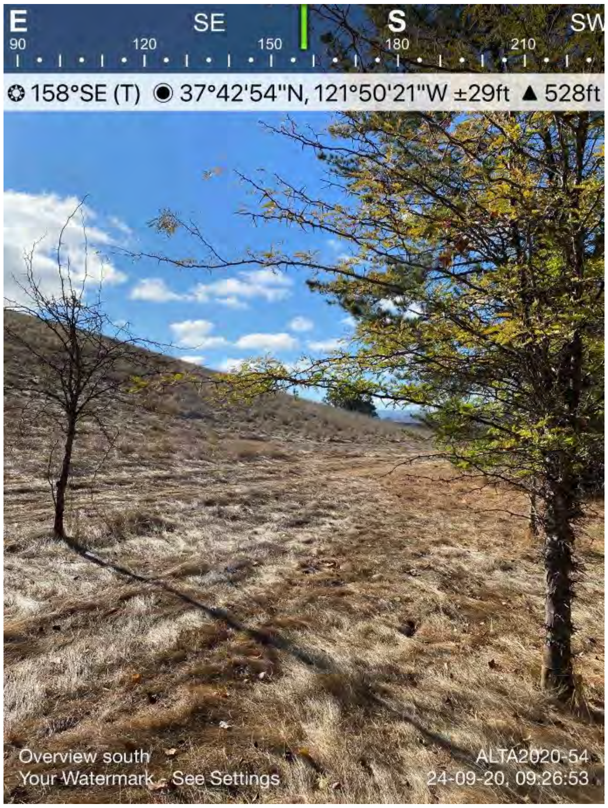
Confidential Information

This report contains confidential information. The distribution of material contained in this report is restricted to a need to know basis. To deter vandalism, artifact hunting, and other activities that can damage cultural resources, the location of cultural resources should be kept confidential. The provision protecting the confidentially of archaeological resources is in California Government Code 6245 and 6245.10, and the National Historic Preservation Act of 1996, Section 304.

PHOTO LOG

Project Name: ALTA2020-54 East Ranch (Croak Property) Project
Photographer: Dean Martorana
Camera Type: iPhone 11 (Solocator App)
Lens Size: variable
Images on File: Alta Archaeological Consulting

Photo file Name	Date	Time	Capture Mode Detail	Photo Description
ALTA2020-54_2020-09-24_09-26-53	24-Sep-20	9:26:53	Bearing: 158° SE	Overview south
ALTA2020-54_2020-09-24_09-44-34	24-Sep-20	9:44:34	Bearing: 93° E	Overview east
ALTA2020-54_2020-09-24_10-00-49	24-Sep-20	10:00:49	Bearing: 332° NW	Privy
ALTA2020-54_2020-09-24_10-01-21	24-Sep-20	10:01:21	Bearing: 73° E	Privy
ALTA2020-54_2020-09-24_10-36-26	24-Sep-20	10:36:26	Bearing: 343° N	Overview north from east parcel
ALTA2020-54_2020-09-24_10-56-54	24-Sep-20	10:56:54	Bearing: 260° W	Overview west from east parcel
ALTA2020-54_2020-09-24_11-12-27	24-Sep-20	11:12:27	Bearing: 200° S	View South of drainage from North parcel
ALTA2020-54_2020-09-24_11-26-58	24-Sep-20	11:26:58	Bearing: 274° W	View west along drainage
ALTA2020-54_2020-09-24_12-56-58	24-Sep-20	12:56:58	Bearing: 231° SW	View South from settlement
ALTA2020-54_2020-09-24_13-35-36	24-Sep-20	13:35:36	Bearing: 178° S	View South at extreme southern end



ALTA2020-54_2020-09-24_09-26-53, 09-24-20, Overview South

ALTA2020-54_2020-09-24_09-44-34, 09-24-20, Overview East

ALTA2020-54_2020-09-24_10-01-21, 09/24/20, View privy

ALTA2020-54_2020-09-24_12-56-58, 09/24/20, View of area south of Croak Ranch structures

Attachment E – Site Record

EAST RANCH (CROAK PROPERTY) PROJECT, CITY OF DUBLIN, ALAMEDA COUNTY, CALIFORNIA

Confidential Information

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State of California – The Resources Agency DEPARTMENT OF PARKS AND RECREATION **PRIMARY RECORD**	Primary # HRI # Trinomial NRHP Status Code	
Other Listings Review Code	Reviewer	Date

 ***Resource Name or #:** Croak Ranch

P1. Other Identifier: Croak Homestead Complex and Ranch
***P2. Location:** ☐ **Not for Publication** ■ **Unrestricted**
***a. County** Alameda **and** (P2c, P2e, and P2b or P2d. .
***b. USGS 7.5' Quad**:Livermore **Date:** 1980 **T2S**; **R1E**;SW **of** SW **of Sec 35**;_**B.M.**
c. Address 4038 Croak Road City Dublin Zip
d. UTM: Zone:10, 602153mE/ 4174223 mN
e. Other Locational Data:

***P3a. Description:**

The Croak Ranch complex is comprised of a residence, outbuildings, and structures to support a livestock operation and likely limited farming, including the remnants of walnut trees. Fast-growing eucalyptus trees were planted for shade in this semi-arid climate east of the East Bay's coastal range. The complex's access road, now partially contiguous with Croak Road, led from the east and the first visible structure was the barn, clad in vertical board

***P3b. Resource Attributes: HP-2 Single Family property; HP-4 Ancillary Bldg; HP-33 Farm Ranch**
***P4. Resources Present:** ■ Building ■ Structure ■ Object ☐ Site ☐ District ☐ Element of District ☐ Other (Isolates, etc.)
P5b. Description of Photo: View to the North, 9-24-2020; Showing side-gable residence facade
***P6. Date Constructed/Age and Source:**

■ Historic ☐ Prehistoric ☐ Both

***P7. Owner and Address:**
Trumark, Inc.
3001 Bishop Dr. #100
San Ramone, CA 94583

***P8. Recorded by:**
Edward Yarbrough, MSHP
Yarbrough Architectural Resources
2150 Silverado Trail North
St. Helena, CA 94574

***P9. Date Recorded:** 9-24-20

***P10. Survey Type:** Pedestrian survey

***P11. Report Citation**: Historic Resources Survey Report, East Ranch (Croak Property) Project, Yarbrough Architectural Resources and ALTA Archaeological Consulting. Dublin, Alameda Co., CA. October 2020.

***Attachments:** ☐ NONE ■ Location Map ■ Continuation Sheet ■ Building, Structure, and Object Record
☐ Archaeological Record ☐ District Record ☐ Linear Feature Record ☐ Milling Station Record ☐ Rock Art Record
☐ Artifact Record ☐ Photograph Record ■ Other (List): Sketch Map

BUILDING, STRUCTURE, AND OBJECT RECORD

 ***NRHP Status Code:** 6Y ***Resource Name or #:** Croak Ranch

B1. Historic Name: Croak Ranch
B2. Common Name: Croak Ranch
B3. Original Use: Ranch B4. Present Use: Abandoned

***B5. Architectural Style:** Vernacular Farm/Ranch Complex, turn of the 20th Century

***B6. Construction History:** Croak Ranch appears on 1906 USGS Quad. but no records of construction or alteration are on file.
***B7. Moved?** ■ No ☐ Yes ☐ Unknown **Date:** N/A **Original Location:** N/A
***B8. Related Features:** Residence, barn, garage, tack house, privy, windmill (collapsed), well/cistern (below grade), domestic plantings (e.g., eucalyptus for shade, day lilies, walnut tree...), and original acreage fenced.
B9a. Architect: vernacular b. Builder: F. Croak (resident)
***B10. Significance:** see Continuation Sheets **Theme:** Farm/Ranch, vernacular architecture **Area:** Amador-Livermore Valley
Period of Significance: ca. 1890-1906 **Property Type:** Ranch Complex **Applicable Criteria:** C/3

The vernacular T-plan residence, barn, tack house, and other associated structures are representative of farm and ranch complexes of the period. Although the property shows few alterations since the early 20th-C., partial demolition by neglect, vandalism, and collapsing, failing wood materials renders the property no long able to convey its significance.

B11. Additional Resource Attributes: HP2- single family residence, HP4 Ancillary building; HP33 Farm/ranch

***B12. References:**

B13. Remarks:
Barn

The barn consists of a central, steep front-gable unit with side-eave shed extensions. The central until is comprised of a light-lumber post-and-beam structure with brackets for triangulation. The shed additions at each eave further compress and support the outward forces of the central truss, assisted by a compression chain between the eave beams.

On the barn's façade, a crane-beam extends approximately 6-feet from under the roof ridge and retains a hanging hook used for hoisting bales and heavy equipment from carts and trucks. A tall bay on the central unit's façade is centered under the crane-beam with a vertical-board doorway rising up to 4-feet, leaving the upper portion of the fenestration open. To the right and north of the central opening, double doors are set to the right on the central unit and on the shed wing to the right and north. The rear elevation of the barn sits across a large open area across from the residence's entry porch. The rear elevation's north shed wing has an opening for vehicular storage with a steel rail above the lintel, suggesting a sliding door that is now missing. A pedestrian-size sliding door is located on the rear of the south wing.

The barn's vertical board cladding is not sealed with battens but allows for airflow to prevent hay mold. Whitewash paint remains protected from precipitation under the modestly extending eaves (see Continuation sheets)

.
***B14. Evaluator:** Edward Yarbrough, MSHP, Yarbrough Architectural Resources

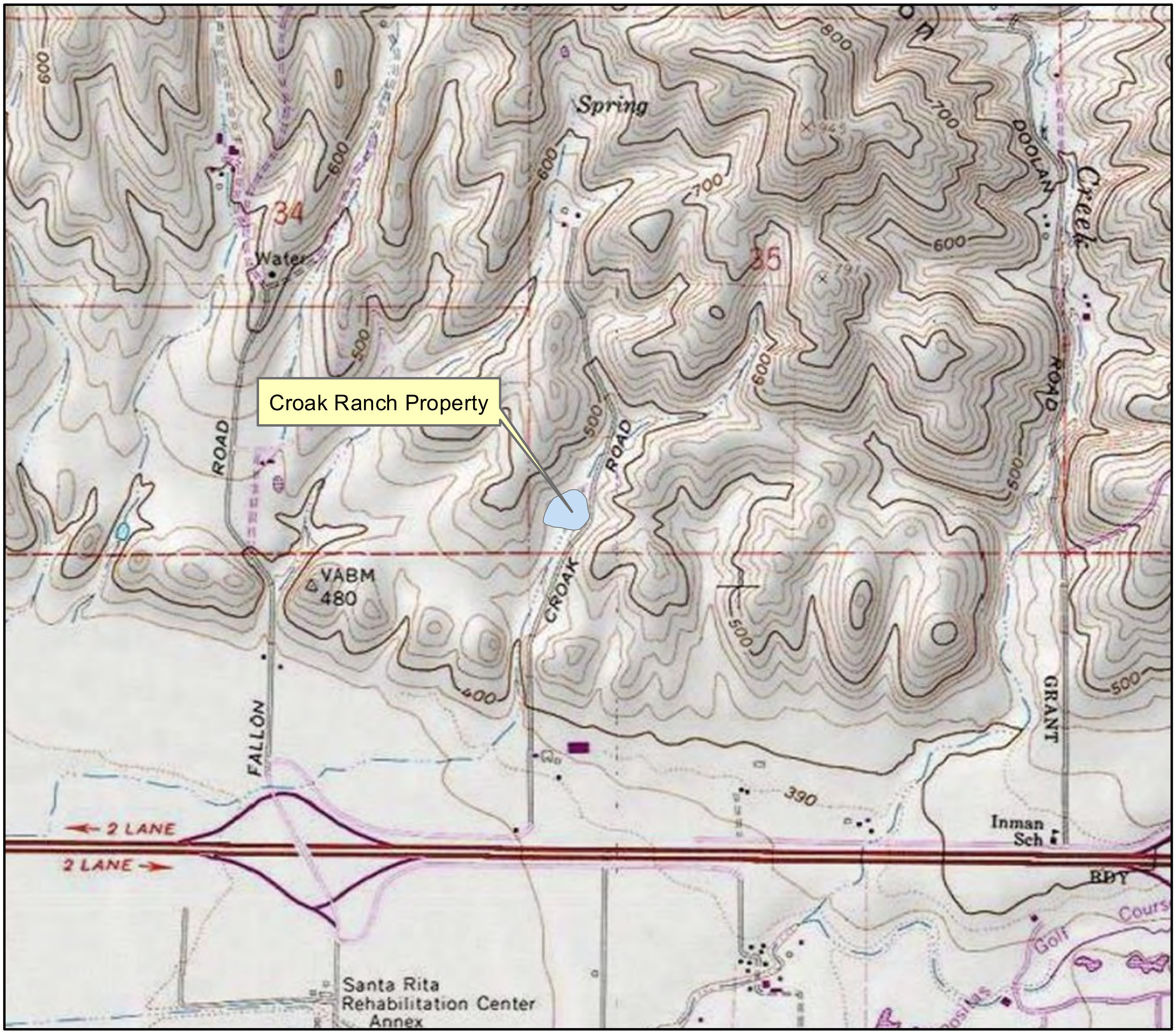
***Date of Evaluation:** 10-9-20

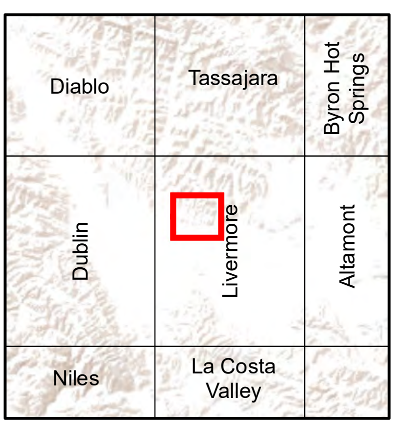
See DPR 523J Sketch Map (attached)

(This space reserved for official comments.)

LOCATION MAP

*Resource Name or #: Croak Ranch





Ranch Boundaries

USGS Quad Index

N

1:24,000

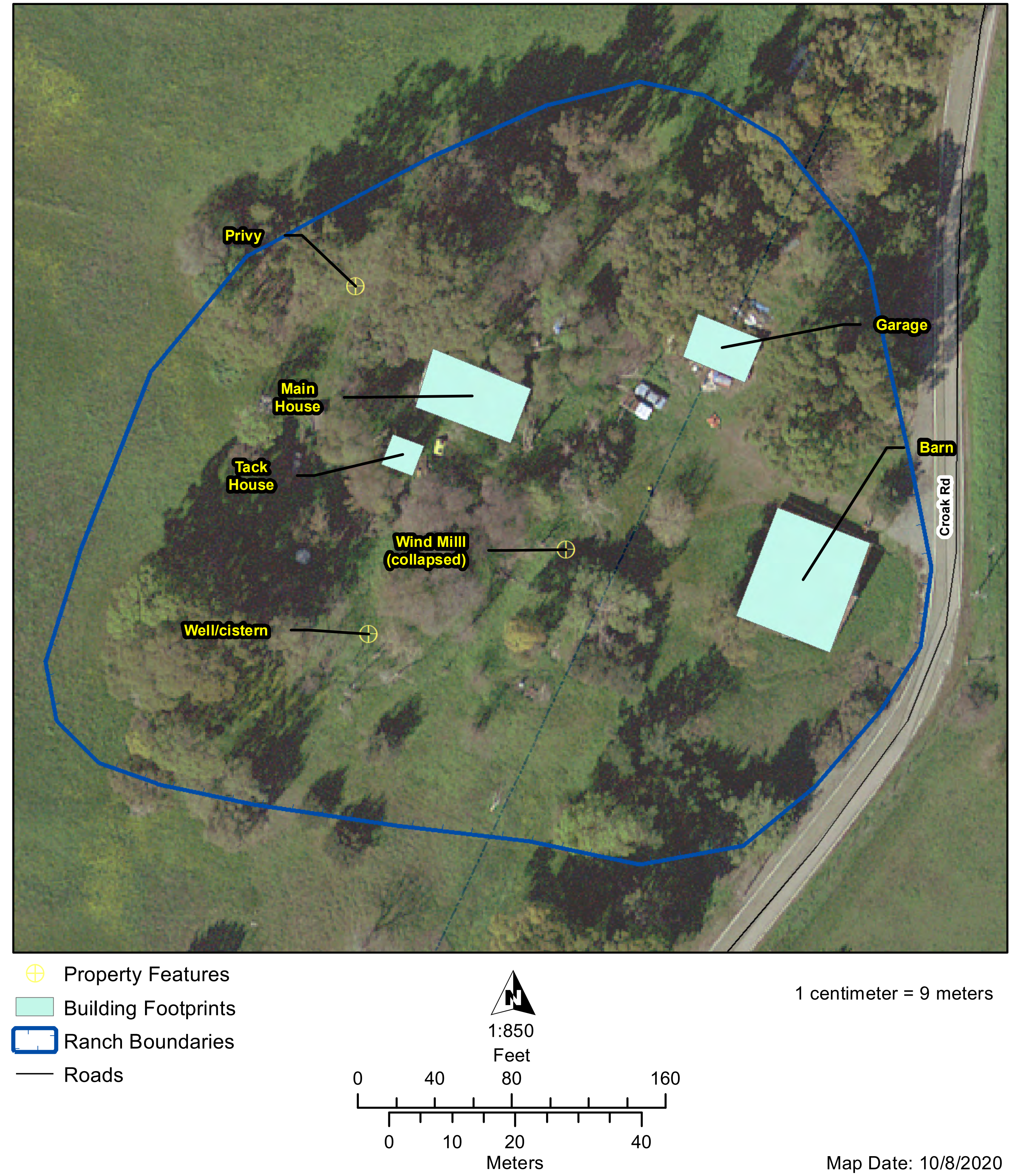
Miles

0 0.25 0.5 1

0 0.25 0.5 1

Kilometers

Map Date: 10/1/2020



Map Date: 10/8/2020

B10. Significance (continued): The residence's rear extension housed the kitchen and a dining room with a recessed side mud porch on the south with a large sink room to the west of the porch and across from the tack house.

Tack House

The tack house is clad in board-and-batten siding with a side-gable entry across from the residence's side porch. Inside, the building has a small closet for riding gear and two stands for saddles. The northwest corner of the roof has failed and the building is open to precipitation.

Garage

The garage appears to have been a shop building on a poured-concrete foundation with a later shed addition to the rear, north gable-end that sheltered a farming vehicle. Clad in board-and-batten, the front-gable building faces east with a small square window opening within the gable. Roofing and sheathing are missing above the south eave.

Windmill, Well & Cistern, and Privy

Crushed under a fallen tree, only portions of the windmill pump are visible. The windmill was supported on an open truss stand and had a 12-blade tin sail, now crushed. To the west-southwest of the windmill was a pump and buried cistern. These mostly buried features appear to be mid to late 20th Century additions with corrugated tin pipes with caps rising above ground level.

The shed-roof privy is located to the rear and northwest of the residence. The vertical board structure has collapsed and the septic pit appears to be subsiding.

The residence has suffered serious vandalism with all doors and windows, including sash removed and smashed on site. The front porch roof, posts, and floor have collapsed. Rot from water intrusion has destroyed most of the interior flooring. The windmill is under a fallen tree. The tack house and garage have large holes in their roofs and are in advanced stages of decay. The privy is toppled and collapsing on itself.

Evaluation:

The NRHP and CRHR's criteria are parallel in concept and content and, therefore, are routinely addressed in tandem, as here.

NRHP Criterion A/CRHR Criterion 1 - *Recommend Not Eligible*

> To qualify for listing under Criterion A/1 of the NRHP/CRHR, a resource must be identified with an important event in history. In review of historical documentation of Dublin, the Croak Ranch was not found to be mentioned in connection with a significant historical event. Therefore, this resource is recommended as ineligible under the criteria of both the NRHP under Criterion A and CRHR under Criterion 1.

NRHP Criterion B/CRHR Criterion 2 - *Recommend Not Eligible*

> To qualify for listing under Criterion B/2 of the NRHP/CRHR, a resource must be identified with a person important in history. Although the Croak family emigrated from Ireland to Dublin, California, they are not found amongst the names of community founders, such as Murray, Fallon, or Dougherty. Therefore, this resource is recommended as eligible under the both the NRHP under Criterion B and CRHR under Criterion 2.

NRHP Criterion C/CRHR Criterion 3 - *Recommend Eligible*

> To qualify for listing under Criterion C/3 of the NRHP/CRHR, a resource must be identified with important movements in, or masters of, design and construction or as representative of an historically significant architectural type. This resource is illustrative of a vernacular ranch type of the mid and late-19th Century. A T-plan residence with gamble ends and a full-length porch (collapsed) at the front eave end, the main residence, barn, and other ranch complex structures show few modifications since construction. The use of shiplap siding on the residence's façade and rear gable but vernacular board-and-batten on secondary elevations is a feature rarely retained over time. The Tack House and Shop buildings are clad in

***Recorded by:** Edward Yarbrough ***Date:** 10-8-20 ■ Continuation ☐ Update

board-and-batten and the barn also appears largely unmodified since construction. Therefore, this resource is recommended as eligible under both the NRHP under Criterion C and CRHR under Criterion 3.

NRHP Criterion D/CRHR Criterion 4 - *Recommend Not Eligible*

To qualify for listing under Criterion D/4 of the NRHP/CRHR, a resource must have yielded or be likely to yield information important to prehistory or history. This historic-era resource is not likely to yield further information. Therefore, this resource is not recommended as eligible under NRHP Criterion D nor under CRHR Criterion 4.

Historical Integrity Assessment

The Department of Interior, National Park Service recognizes seven aspects of historical integrity, that of location, setting, design, workmanship, materials, feeling, and association. The Croak Ranch complex retains aspects of historical integrity of location, setting, materials, and association. However, the ranch complex has not been maintained, suffers from vandalism, and is left in a state of partial demolition by neglect. All windows, including sashes and many frames are removed from the residence. All exterior and most interior doors were removed and lay in pieces around the yard. The front porch roof and floor, which were primary design features of the façade, have collapsed. All of the ranch buildings and structures are generally in a state of rot due to exposure to moisture from leaking roofs and open fenestration. There are only remnants of the windmill pump that lies crushed beneath a fallen tree. As a cumulative result of its poor condition, the property has lost its historical integrity of design, workmanship, and, to a lesser extent, feeling.

The Croak Ranch is a rural cultural landscape that has lost its historical integrity due to its very poor condition. Therefore, the Croak Ranch can no longer convey its historical significance under NRHP Criterion C nor under CRHR Criterion 3.

Photographs:

***Recorded by:** Edward Yarbrough ***Date:** 10-8-20 ■ Continuation ☐ Update

Figure 1. Barn. View to the Southwest. Photograph by Edward Yarbrough.

***Recorded by:** Edward Yarbrough ***Date:** 10-8-20 ■ Continuation ☐ Update

Figure 2 Barn's hoist beam. View to the West. Photograph by Edward Yarbrough.

***Recorded by:** Edward Yarbrough ***Date:** 10-8-20 ■ Continuation ☐ Update

Figure 3 Barn interior. View to the West. Photograph by Edward Yarbrough.

***Recorded by:** Edward Yarbrough ***Date:** 10-8-20 ■ Continuation ☐ Update

Figure 4 Barn. View to the South-Southwest. Photograph by Edward Yarbrough.

Figure 5 Garage. View to the Southwest. Photograph by Edward Yarbrough.

Figure 6 Garage. View to the Northeast. Photograph by Edward Yarbrough.

***Recorded by:** Edward Yarbrough ***Date:** 10-8-20 ■ Continuation ☐ Update

Figure 7 Residence. View to the Southwest. Photograph by Edward Yarbrough.

***Recorded by:** Edward Yarbrough ***Date:** 10-8-20 ■ Continuation ☐ Update

Figure 8 Residence. View to the West. Photograph by Edward Yarbrough.

***Resource Name or #:** Croak Ranch

***Recorded by:** Edward Yarbrough ***Date:** 10-8-20 ■ Continuation ☐ Update

Figure 9 Residence. View of South front room to central hall to the North. Photograph by Edward Yarbrough.

***Recorded by:** Edward Yarbrough ***Date:** 10-8-20 ■ Continuation ☐ Update

Figure 10 Residence. View to the North-Northeast. Photograph by Edward Yarbrough.

***Recorded by:** Edward Yarbrough ***Date:** 10-8-20 ■ Continuation ☐ Update

Figure 11 Residence. View to the East-Southeast of the rear elevation. Photograph by Edward Yarbrough.

State of California – The Resources Agency DEPARTMENT OF PARKS AND RECREATION **CONTINUATION SHEET**	Primary #: HRI #: Trinomial:

 ***Resource Name or #:** Croak Ranch

***Recorded by:** Edward Yarbrough ***Date:** 10-8-20 ■ Continuation ☐ Update

Figure 12 Residence. View to the South. Photograph by Edward Yarbrough.

***Recorded by:** Edward Yarbrough ***Date:** 10-8-20 ■ Continuation ☐ Update

Figure 13 Residence. View to the South of beam-on-pier foundation. Photograph by Edward Yarbrough.

***Recorded by:** Edward Yarbrough ***Date:** 10-8-20 ■ Continuation ☐ Update

Figure 14 Residence. View to the East-Southeast of the kitchen passthrough to dining room. Photograph by Edward Yarbrough.

*Recorded by: Edward Yarbrough *Date: 10-8-20 ■ Continuation ☐ Update

Figure 15 Tack House. View to the Southwest. Photograph by Edward Yarbrough.

Figure 16 Privy. View to the East. Photograph by Edward Yarbrough.

Figure 17 Well/cistern. View to the North. Photograph by Edward Yarbrough.

***Resource Name or #:** Croak Ranch

***Recorded by:** Edward Yarbrough ***Date:** 10-8-20 ■ Continuation ☐ Update

Figure 18 Windmill (collapsed). View to the West. Photograph by Edward Yarbrough.

Attachment 10

DUE DILIGENCE LEVEL GEOTECHNICAL INVESTIGATION
CROAK PROPERTY
DUBLIN, CALIFORNIA

For

TRUMARK HOMES, LLC.

November 27, 2019

Job No. 4044.100

BERLOGAR STEVENS & ASSOCIATES

DUE DILIGENCE LEVEL GEOTECHNICAL INVESTIGATION
CROAK PROPERTY
DUBLIN, CALIFORNIA

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Plate 3 – Geologic Map
Plate 4 – Earthquake Zones of Required Investigation – Livermore Quadrangle (CGS)

APPENDICES

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Appendix B – Laboratory Test Results
Appendix C – Corrosion Test Results

Via E-Mail

BERLOGAR
STEVENS &
ASSOCIATES

November 27, 2019
Job No. 4044.100

Mr. Brian Steele
Trumark Homes, LLC.
3001 Bishop Drive, Suite 100
San Ramon, California, 94584

Subject: Due Diligence Level Geotechnical Investigation
Croak Property
Dublin, California

Dear Mr. Steele:

Berlogar Stevens & Associates (BSA) is pleased to submit this report documenting our Due Diligence Level Geotechnical Investigation for the proposed Croak Property Residential Development in Dublin, California. The scope of this investigation, our geotechnical engineering conclusions regarding the soils, groundwater and geologic conditions at the site, and our recommendations are presented below. The site is located as shown on Plate 1, Vicinity Map.

1. PROJECT UNDERSTANDING

The proposed project is currently in the pre-application phase. The current proposed plan consists of approximately 573 residential units. Approximately 11.5 acres on the northwestern portion of the site is planned for use as a park. Proposed Sheet Grading ranges from about elevation 600 feet in the north to approximately 440 feet in the south. Proposed cuts are up to about 80 feet in depth and fills are up to about 55 feet in height. There is an approximately 70-foot-high 3 horizontal to 1 vertical (3H:1V) cut slope located on the north eastern portion of the site.

2. PURPOSE AND SCOPE OF SERVICES

The purpose of this investigation was to explore and evaluate site soil and groundwater conditions, geologic hazards, and to develop geotechnical preliminary design and construction recommendations for use in assessment of the feasibility of the project.

The scope of services performed was in general accordance with our proposal of January 21, 2019 and included the following tasks:

- Review of readily available published geologic maps relating to the site and vicinity,
- Review of the State published Seismic Hazard Maps and Reports,

- Review of Regional Landslide Maps,
- Review of the following documents for the proposed development:
    - Conceptual Grading Plan titled “Croak Property” by MacKay & Somps, dated June 18, 2019.
    - Illustrative Site Plan titled “Croak Property” by Gates + Associates and dated June 18, 2019.
- Site reconnaissance by a member of our engineering staff and an Engineering Geologist,
- Subsurface exploration consisting of excavating test pits,
- Geotechnical laboratory testing to assess the physical properties of selected soil samples,
- Engineering analysis of the geotechnical data, and
- Preparation of this report.

3. GEOLOGY

3.1. Geologic Setting

The site is situated in the Coast Range geomorphic province of California and is seismically dominated by the presence of the active San Andreas fault system. The San Andreas fault system is the general boundary between the northward moving Pacific Plate and the southward moving North American Plate. In the San Francisco Bay Area, relative plate movement is distributed across a complex system of generally strike-slip, right lateral parallel and sub-parallel faults, which include the San Andreas, Hayward and Calaveras faults, among others.

Regional geologic mapping by Dibblee, JR. et al. (2006), maps the lower lying swales as being Holocene aged alluvium consisting of gravel, sand and clay. The hills are mapped as being part of the Livermore Gravels geologic formation. This formation is typically characterized as sandstone, siltstone and claystone.

4. SITE INVESTIGATION

4.1. Field Exploration

Field exploration for this investigation consisted of excavating thirty-two exploratory test pits with an excavator. The test pits were excavated between September 30th through October 2nd, 2019. The test pits were excavated between depths of 5 and 10 feet. Test pits 1 through 14 were logged by a State of California Certified Engineering Geologist. Test Pits 15 through 32 were logged by a member of our engineering staff. The soils encountered were classified in accordance with the USCS. Where geologic contacts were exposed in the test pits, the strike and dip were recorded. Bulk samples of the materials encountered were collected. The Test Pit Logs are presented in Appendix A.

5. SITE CONDITIONS

5.1. Surface Conditions

The project site is undeveloped except for a small barn and outbuilding located on the southwestern portion of the site. The site is vegetated with trees in and along the swale. The remainder of the site is covered with grasses.

There are two large swales located in near the center of the site. The first is located on the western third on the site and generally flows from the north property line to the southern property line. The second swale enters the site near the northeast corner, flows south to the center on the site and then flows southwest until the confluence with the first swale.

Large knobs are located on the northern portion of the site, near the western property line and near the southern property line. The northern knob ranges in elevation from approximately 490 feet to 700 feet, the western knob ranges from approximately 470 feet to 575 feet and the southern knob ranges from approximately 470 feet to 530 feet. The natural slope gradients are approximately 3.5H:1V.

5.2. Subsurface Conditions

Materials encountered in our test pits generally consisted of 3 to 4 feet residual clays. These residual clays are highly expansive. Underlying the clays are sandstone, siltstone and claystone bedrocks. While the bedrock encountered in our test pits were predominantly sandstones, it is likely that siltstones and claystones will be predominant during grading. The claystone can be very highly expansive.

Groundwater was not encountered in our test pits.

5.3. Laboratory Testing

Laboratory testing consisted of performing two Atterberg Limits and one R-value test. The Atterberg Limits testing resulted in Liquid Limits (LL) of 50 and 89 and Plasticity Indices (PI) of 29 and 59. The R-value testing was performed on a sample created by mixing bedrocks encountered together. The test resulted in a value of less than 5. The results of our Atterberg Limits tests are presented in Appendix B.

6. GEOLOGIC HAZARDS

6.1. Surface Fault Ground Rupture

We have reviewed the Alquist-Priolo Earthquake Fault Zone maps issued by the California Geological Survey (formerly the California Division of Mines and Geology). These maps were issued in response to the Alquist-Priolo Act. The site is not located within a designated State of California Alquist-Priolo Earthquake Fault Zone for active faults. According to the California Geological Survey (CGS), no known fault traces cross the site.

The closest fault included in an Alquist-Priolo Earthquake Fault Zone is the Pleasanton fault, located at a distance of about 3.3 miles to the west. It is our opinion that the potential for fault rupture at the site appears to be very low.

6.2. Seismicity And Seismic Ground Shaking

The site is located at approximately 37.7127 degrees north latitude and 121.8372 degrees west longitude. Based on current practices (2019 CBC & ASCE 7-16), the peak ground acceleration – geometric mean (PGA_M), obtained using an on-line tool provided by the Structural Engineers Association of California (SEAOC) and the Office of Statewide Health Planning and Development (OSHPD) (https://seismicmaps.org/ link available on the U.S. Geological Survey Earthquake Hazards Program website) is 0.77 g.

6.3. Seismic Hazards

Earthquake Zones of Required Investigation are produced by the California Geologic Survey (CGS). The site is located within the Livermore Quadrangle. Portions of the site are mapped of areas of required investigation for liquefaction and earthquakes induced landsliding as shown on Plate 4.

6.3.1. Liquefaction

The two larger swales are identified as potentially being liquefiable during a major earthquake. In our experience with the east Dublin hills is that the clayey soils located in the swales are generally not liquefiable, Further exploration should be performed in the areas to confirm if soils are susceptible to liquefaction.

6.3.2. Landsliding

During our field exploration we did not identify areas of instability. Materials encountered in our test pits generally consisted on competent sandstone and claystone bedrock.

7. CONCLUSIONS AND PRELIMINARY RECOMMENDATIONS

7.1. General

Based on the information collected during this investigation and the results of our analyses, it is our opinion that proposed development is feasible from a geotechnical engineering perspective, provided that the conclusions and recommendations in this geotechnical investigation are incorporated into the project design.

7.2. Cut Slopes

During our field exploration where our engineering geologist was able measure bedding on the large northeast cut slope; bedding was generally favorable in relationship to the proposed grading. We recommend that cut slopes generally be constructed at slope gradients no steeper than 3H:1V. The stability of cut slopes in bedrock materials is largely dependent on the planned cut location and the orientation of the cut slope with respect to bedrock structure or other planes of geologic weakness. We recommend that all cut slope exposures be carefully examined by an engineering geologist during grading for adverse bedding.

7.3. Fill Slopes

Fill slopes should have a gradient not exceeding 3H:1V. Should fill slopes be constructed at a 2H:1V gradient, it should be constructed with select sandstone and sandy siltstone materials. Fill slopes should be constructed with proper keyways. Keyway widths will likely be 20 feet or half the height of the slope, whichever is greater. Keyways should extend at least 4 feet into competent bedrock. Where the slope is greater than 20 feet in height, there is a planned 8 foot wide bench and v-ditch.

7.4. Preliminary Grading Recommendations

Based on our experience with projects in the east Dublin hills, we expect the grading recommendations to be similar to the following:

1. In the swale areas to receive fill, the upper 2 to 3 feet of colluvium along the center line of the swale should be removed.

2. Along cut/fill transition lines, the residual soils and colluvium should be removed to at least 10 feet below finished grade and replaced with engineered fill.

3. Fill should be placed in thin lifts (normally 8 to 12 inches thick), uniformly moisture conditioned and compacted in accordance with the criteria presented in the table below.

Within the 20 feet of finished grade	85 to 90 percent relative compaction at not less than 5 percent above optimum moisture content.
Between 20 and 40 feet below finished grade	At least 90 percent relative compaction at not less than 5 percent above optimum moisture content.
At greater than 40 feet below finished grade	At least 95 percent relative compaction at not less than 3 percent above optimum moisture content

4. Where claystone bedrock is exposed in cut building pads, the exposed bedrock should be evaluated by the project geotechnical engineer for variations of expansion potential. Expansive claystone may require overexcavation to depth between 5 and 10 feet and replacement with less expansive engineered fill.

7.5. Subdrains

Subdrains should be installed in the bottom of swales. Subdrains should also be installed at 20 foot intervals of fill depth. Subdrain should consist of a minimum 4 inch diameter perforated pipe bedded on 2 inches of Class 2 Permeable Material. The sides of the pipe should be have at least 6 inches of Class 2 Permeable Material cover and the top of the pipe should be shaded with at least 12 of Class 2 Permeable Material. SDR 23.5 pipe should be used at depths greater than 25 feet. SDR 35 pipe can be used at depth less than 25 feet.

7.6. Estimated Remedial Grading And Subdrain Quantities

The following table presents an estimation of remedial grading and subdrain quantities. These subdrain quantities do not include a contingency. We recommend a minimum contingency of 20%.

	Description	Quantity
	Remedial Grading (including Keyways)	450,000 cu. yds.
Subdrains	6 inch diameter SDR 35 pipe w/Class 2 Perm.	16,000 ft.
	6 inch diameter SDR 23.5 pipe w/Class 2 Perm.	9,000 ft.

7.7. Earthwork Volume Changes

Based on our prior experience in East Dublin, we estimate that soil quantities during grading could swell between 5 to 7 percent. We recommend that during the Design Level Geotechnical Investigation, testing be performed to confirm or refine the above percentages.

7.8. EXCAVATION CHARACTERISTICS

Subsurface conditions encountered at the test pit as well as our experience in the area suggest that the on-site earth materials can generally be excavated to planned grades using conventional earth moving equipment.

7.9. POST-TENSIONED SLAB FOUNDATIONS

Due to the proposed grading with large cuts and fills and the presence of expansive soils, Post-Tensioned (PT) slab foundation recommendations should be provided for the proposed homes after completion of grading. Samples in the upper 10 feet of building pads should be collected and Atterberg Limits tests and hydrometer tests should be performed to develop design criteria. Based on our experience with similar projects within the vicinity of the site and the more stringent CBC design criteria, we anticipate PT slab thickness to be approximately 11 to 12 inches.

7.10. SEISMIC DESIGN PARAMETERS

We are providing the following 2019 California Building Code seismic design criteria for the site using the SEAOC/OSHPD Seismic Design Maps Tool:

2019 California Building Code	
Latitude (Degrees North)	37.7127
Longitude (Degrees West)	-121.8372
Risk Category	I/II/III
Peak Ground Acceleration (PGA_M)	0.77
Mapped Spectral Acceleration for Short Periods, Ss	1.583
Mapped Spectral Acceleration for 1-Second Period, S1	0.6
Site Class	B
Site Coefficient Fa (for Site Class C)	1.2
Site Coefficient Fv (for Site Class C)	1.4
Acceleration Parameter SMS (adjusted for Site Class C)	1.899
Acceleration Parameter, SM1 (adjusted for Site Class C)	0.84
Acceleration Parameter, SDS (adjusted for Site Class C)	1.266
Acceleration Parameter, SD1 (adjusted for Site Class C)	0.56
Seismic Design Category	D

7.11. PRELIMINARY PAVEMENT RECOMMENDATIONS

7.11.1. Flexible Pavement Section – Asphalt Concrete

R-value testing on a bulk sample collected during our investigation resulted in a value of less than 5. The following preliminary pavement analyses are based upon an assumed R-value of 5 for the subgrade soil, the Caltrans Design Method for Flexible Pavement, and traffic indices (TI), which are indications of load frequency and intensity.

Preliminary Pavement Sections			
Traffic Index	AC (in)	Class 2 AB (in)	Total (in)
4.5	3	8	11
5	3	10	13
6	4	12	16
7	4	15	19

7.12. CORROSION TESTING

Corrosion testing was performed on three samples. The samples were classified as corrosive to all buried iron, steel and iron based upon their 100% resistivity measurement. One sample had a sulfate ion concentration of 640 mg/kg and was described as potentially detrimental to reinforced concrete structures. The test results are attached as Appendix C. The results should be forwarded to the underground utility and foundation designers.

The Pacific Gas & Electric (PG&E) Requirements for Allowing Installation of Subsurface Transformers dated July 31, 2015 requires that the soil strata(s) in which the transformers are located have chloride levels less than 5,000 ppm. The corrosion test results were below this threshold. Due to the large cut and fills proposed, confirmation samples should be collected for chloride testing at the proposed transformer locations after completion of grading.

8. ADDITIONAL GEOTECHNICAL ENGINEERING SERVICES

The following additional work should be performed:

- A Design Level Geotechnical Investigation should be performed prior to start of construction.
- Corrosion testing should be performed near or after completion of grading.
- Upper 10 feet of building pads should be sampled and laboratory testing performed to develop PT slab foundation design criteria.

We would appreciate the opportunity to perform the above described work, along with any other geotechnical needs for Trumark Home, LLC. For a proposal please contact the undersigned at (925) 484-0220.

9. LIMITATIONS

The conclusions and recommendations presented in this report are based upon the project information provided to us, information obtained from published geologic reports, subsurface conditions encountered at the test pit locations and professional judgment. Site conditions described in this report are those existing at the times of our field explorations and are not necessarily representative of such conditions at other locations or times. The test pit logs show subsurface conditions at the locations and on the dates indicated. It is not warranted that they are representative of such conditions elsewhere or at other times. The locations of the field explorations were estimated by pacing from existing surface features at the site; they should be considered approximate only.

The information provided herein was developed for use by Trumark Homes, LLC for the project as described herein. In the event that changes in the nature, design or location of the proposed project are planned, if subsurface conditions differ from those described in this report, or revisions are made to the Building Code that are related to Geotechnical Engineering, the conclusions and recommendations in this report shall be considered invalid, unless the changes are reviewed and the conclusions and recommendations are confirmed or modified in writing by BSA. In light of this, there is a practical limit to the usefulness of this report without critical review. Although the time limit for this review is strictly arbitrary, it is suggested that two years from the date of this report be considered a reasonable time for the usefulness of this report.

This geotechnical investigation has been conducted, and the opinions, conclusions and recommendations presented in this report were developed, in accordance with accepted geotechnical engineering practices that exist in the project area at the time this report was prepared. No warranty, expressed or implied, is offered, inferred or made, by or through our performance of professional services.

We trust that this report provides the information that you require at this time. If you have any questions, please contact the undersigned at (925) 484-0220.

Respectfully submitted,

BERLOGAR STEVENS & ASSOCIATES

N. Cardanini

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Copies: Mr. Robin Miller, Mr. Trevor [illegible], Mr. Gil Calvillo

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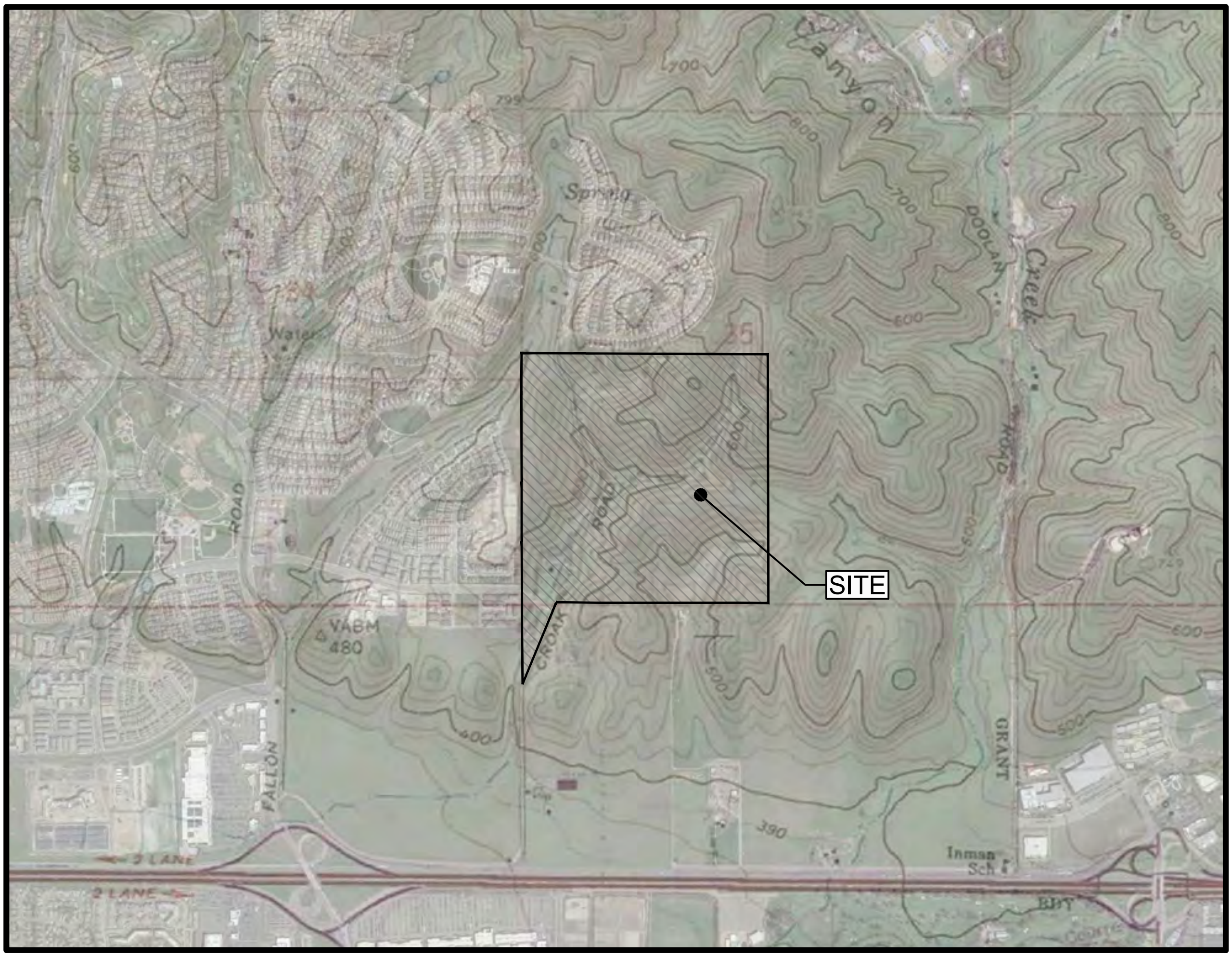
PLATES

JOB NUMBER: 4044.100 DATE: 10-7-19 BY: CC



N

0 2000'

1"=2000'

VICINITY MAP

CROAK PROPERTY

CROAK ROAD

DUBLIN, CALIFORNIA

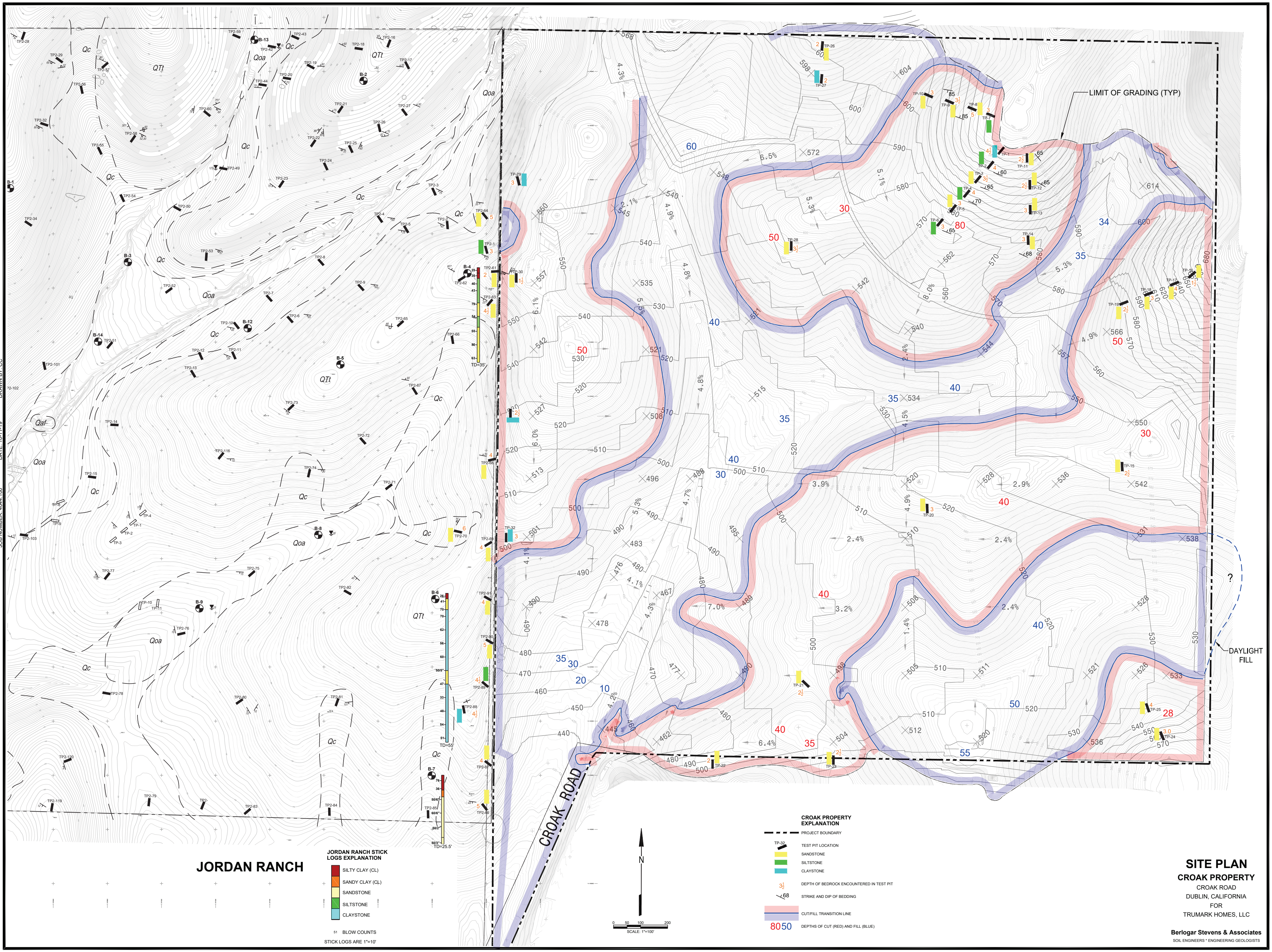
FOR

TRUMARK HOMES, LLC

BASE: PORTION OF U.S.G.S. 7.5 MINUTE TOPOGRAPHIC QUADRANGLE, LIVERMORE, CA

PLATE 1

JOB NUMBER: 4044.100 DATE: 10-11-19 DRAWN BY: CC



PLATE

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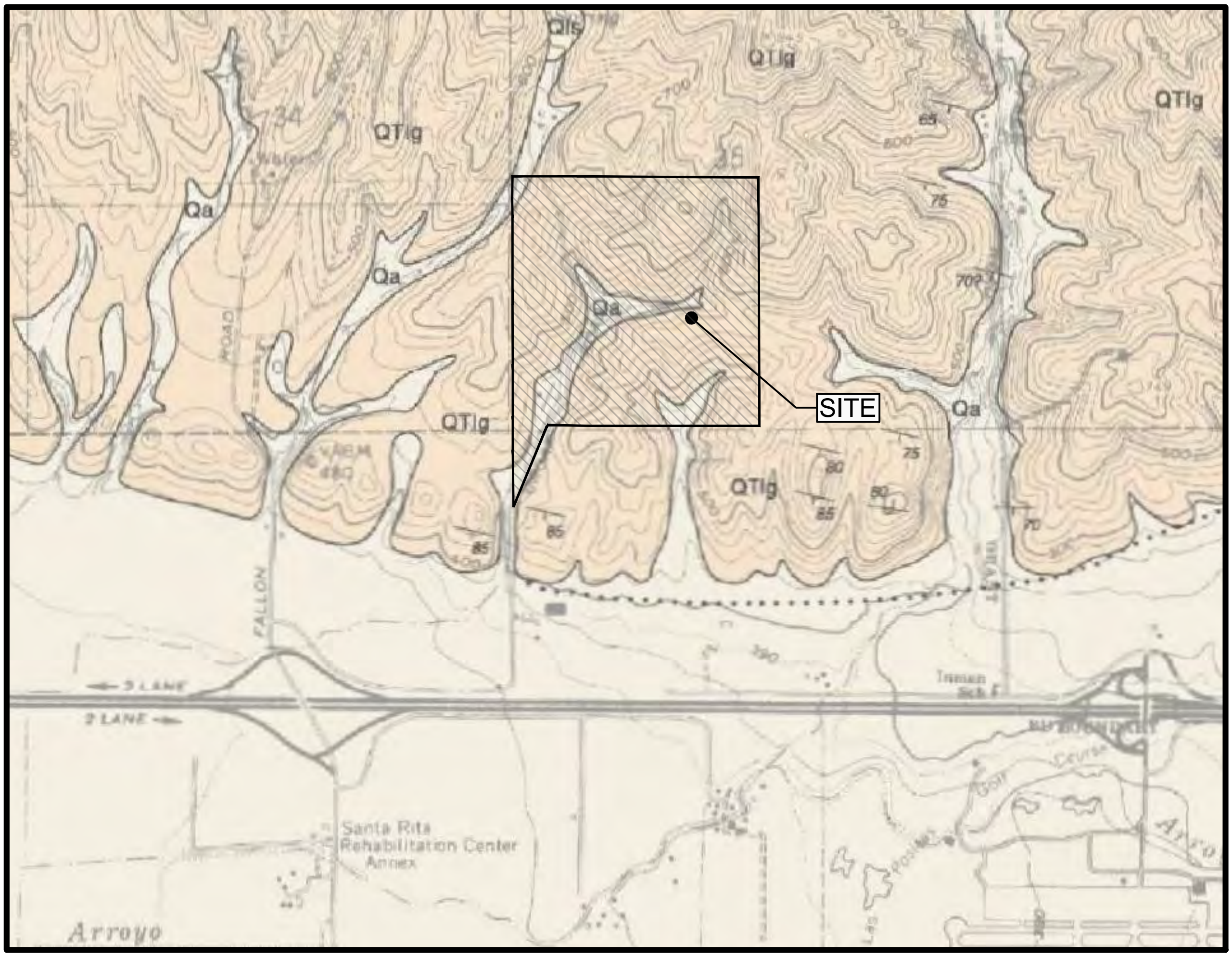

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1"=2000'

EXPLANATION

CONTACT - DEPOSITIONAL OR INTRUSIVE CONTACT, DASHED WHERE APPROXIMATELY LOCATED, DOTTED WHERE CONCEALED

FAULT - DASHED WHERE APPROXIMATELY LOCATED, DOTTED WHERE CONCEALED

STRIKE AND DIP OF BEDDING

STRIKE AND DIP OF OVERTURNED BEDDING

Qa — ALLUVIAL GRAVEL, SAND AND CLAY OF VALLEY AREAS

QTig — REDDISH COBBLE-PEBBLE GRAVEL AND SAND OF FRANCISCAN DETRITUS, COARSE, LOCALLY CALLED TASSAJERO FORMATION, GRAY PEBBLE GRAVEL, SAND AND CLAY, IN LARGE PART CLAY, POORLY EXPOSED

REGIONAL GEOLOGIC MAP

CROAK PROPERTY

CROAK ROAD

DUBLIN, CALIFORNIA

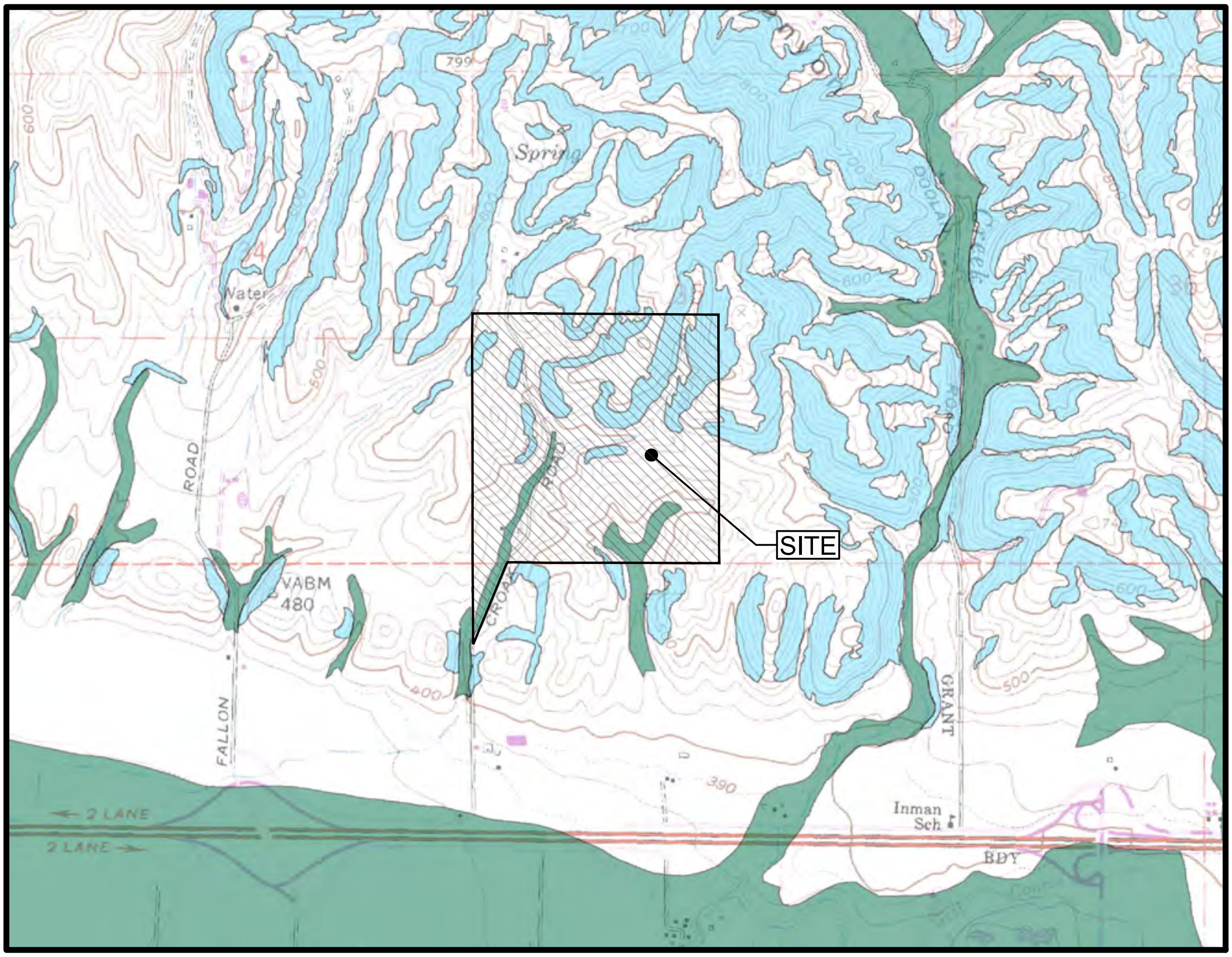
FOR

TRUMARK HOMES, LLC

BASE: PORTION OF GEOLOGIC MAPS OF THE LIVERMORE QUADRANGLE, CONTRA COSTA AND ALAMEDA COUNTIES, CALIFORNIA, BY: DIBBLEE, T.W., AND MINCH, J.A., DIBBLEE FOUNDATION MAPS DF-196 PUBLICATION DATE: 2006

PLATE 3

JOB NUMBER: 4044.100 DATE: 10-7-19 BY: CC



N

SEISMIC HAZARD ZONES

Liquefaction Zones
Areas where historical occurrence of liquefaction, or local geological, geotechnical and ground water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

Earthquake-Induced Landslide Zones
Areas where previous occurrence of landslide movement, or local topographic, geological, geotechnical and subsurface water conditions indicate a potential for permanent ground displacements such that mitigation as defined in Public Resources Code Section 2693(c) would be required.

ZONES OF REQUIRED INVESTIGATION

CROAK PROPERTY

CROAK ROAD
DUBLIN, CALIFORNIA
FOR
TRUMARK HOMES, LLC

0 2000
1"=2000'

BASE: PORTION OF STATE OF CALIFORNIA EARTHQUAKE ZONES OF REQUIRED INVESTIGATION, LIVERMORE QUADRANGLE, CALIFORNIA AT A SCALE OF 1:24,000

PLATE 4

APPENDIX A

Test Pit Logs

Job No. 4044.100
Croak Property
Dublin, California

Test Pit Logs 10/1/2019

TP-1

0.0’ – 3.0’	Silty Clay, dark gray-brown, moist, stiff, blocky ped structure
3.0’ – 4.5’	Silty Clay, yellow-brown, moist, stiff , trace carbonate
4.5’ – 7.0’	Claystone, olive-brown, highly weathered, friable, crushed

TP-2

0.0’ – 4.0’	Silty Clay, dark gray-brown, moist, stiff, blocky ped structure
4.0’ – 6.0’	Claystone, olive-brown, highly weathered, friable, crushed
6.0’ – 7.0’	Siltstone, tan-brown, highly weathered, weak, highly fractured, abundant carbonate coatings
	BEDDING N70W 60N

TP-3

0.0’ – 3.5’	Silty Clay, dark gray-brown, moist, stiff, blocky ped structure
3.5’ – 7.0’	Sandstone bedded with Siltstone
	Sandstone - fine grained sand, tan-brown, highly weathered, friable
	Siltstone - olive-brown, highly weathered, weak, highly fractured
	BEDDING N70W 65N

TP-4

0.0’ – 3.0’	Silty Clay, dark gray-brown, moist, stiff, blocky ped structure
3.0’ – 4.0’	Silty Clay, brown, moist, stiff, carbonate filaments
4.0’ – 8.0’	Siltstone budded with sandstone
	Siltstone – Olive-brown, highly weathered, weak, highly fractured with carbonate coating.
	Sandstone – Fine grained, tan-brown, highly weathered
	BEDDING N65W 70N

TP-5

0.0’ – 3.0’	Silty Clay, dark gray-brown, moist, stiff, blocky ped structure
3.0’ – 6.0’	Sandstone, fine grained, yellow-brown, highly weathered, friable, faintly jointed with carbonate coating

TP-6

0.0’ – 3.0’	Silty Clay, dark gray-brown, moist, stiff, blocky ped structure
3.0’ – 6.0’	Claystone, olive-brown, highly weathered, friable, crushed, trace carbonate
6.0’ – 7.0’	Siltstone, olive-brown, highly weathered, weak, highly fractured
	BEDDING N68W 65N

TP-7

0.0’ – 3.0’	Silty Clay, dark gray-brown, moist, stiff, blocky ped structure
3.0’ – 7.0’	Sandy Siltstone, yellow-brown, highly weathered, friable, highly fractured with carbonate coatings

TP-8

0.0' – 3.0'	Silty Clay, dark gray-brown, moist, stiff, blocky ped structure
3.0' – 5.0'	Silty Clay, dark yellow-brown, moist, stiff, trace carbonate filaments
5.0' – 8.0'	Sandstone and Siltstone, tan-brown, highly weathered, friable to weak
	BEDDING N70W 85S

TP-9

0.0' – 3.5'	Silty Clay, dark gray-brown, moist, stiff, faint blocky ped structure
3.5' – 6.5'	Sandstone, fine grained, tan-brown, highly weathered, thinly bedded
	BEDDING N80W 85S

TP-10

0.0' – 3.0'	Silty Clay, dark gray-brown, moist, stiff, blocky ped structure
3.0' – 7.0'	Sandstone, fine grained, tan-brown, highly weathered, friable to weak, highly fractured

TP-11

0.0' – 2.5'	Silty Clay, dark gray-brown, moist, stiff
2.5' – 6.0'	Sandstone, bedded with siltstone, tan-brown to yellow-brown, highly weathered, friable to weak, trace carbonate coatings
	BEDDING N40W 65N

TP-12

0.0’ – 2.5’ Fat Clay, dark brown, dry, stiff, trace fine to coarse grained sand. (CH)

2.5’ – 4.0’ Sandy Clay, medium gray-brown, moist, stiff, trace fine to medium grained sand. (CL)

4.0’ – 6.0’ Silty Sand, medium brown, moist, loose, fine to coarse grained sand. (SM)

TP-13

0.0’ – 3.0’ Silty Clay, dark gray-brown, moist, stiff, blocky ped structure

3.0’ – 7.0’ Silty Sandstone, yellow-brown, highly weathered, friable, carbonate coatings

TP-14

0.0’ – 3.0’ Silty Clay, dark gray-brown, moist, stiff, blocky pad structure

3.0’ – 5.0’ Siltstone, olive-brown, highly weathered, weak, crushed

5.0’ – 8.0’ Sandstone, fine grained, yellow-gray, highly weathered, friable, moderately fractured

BEDDING N65W 68N

TP-15

0.0’ – 2.0’ CL Sandy Clay, dark brown, dry to moist, stiff, fine to coarse grained sand

2.0’ – 3.5’ Claystone, olive brown with black mottling, moderately weathered, moist, weak

3.5’ – 6.0’ Sandstone, light brown, very highly weathered, moist, friable

TP-16

0.0’ – 1.5’ Sandy Clay, dark brown, moist, stiff, dry fine to coarse grained sand (CL)

1.5’ – 4.8’ Sandstone, light brown, highly weathered, dry to moist, friable, fine to coarse grained sand with caliche

TP-17

0.0’ – 2.0’ Sandy Clay, dark brown, moist, stiff, dry, fine to coarse grained sand (CL)

2.0’ – 4.0’ Sandy Clay, medium brown, moist, stiff, fine to coarse grained sand (CL)

4.0’ – 7.0’ Sandstone, light brown, very highly weathered, dry to moist, friable, fine to coarse sand

TP-18

0.0’ – 2.0’ Sandy Clay, dark brown, moist, stiff, dry, fine to coarse grained sand (CL)

2.0’ – 3.0’ Sandy Clay, light brown, medium stiff, moist, fine to coarse grained sand (CL)

3.0’ – 6.0’ Sandstone, light brown, highly weathered, friable, moist, fine to coarse sand with some caliche

TP-19

0.0’ – 2.5’ Sandy Clay, dark brown, moist, stiff, dry, fine to coarse grained sand (CL)

2.5’ – 4.5’ Sandstone, highly weathered, light brown, moist, weak, some caliche

4.5’ – 5.5’ Sandstone, light brown, very highly weathered, dry to moist, friable

TP-20

0.0’ – 3.5’	Sandy Clay, dark brown, dry to moist, stiff, fine to coarse grained sand (CL)
3.5’ – 6.0’	Claystone, olive-brown, moderately weathered, moist, friable
	Sandstone, very highly weathered, light brown, moist, friable

TP-21

0.0’ – 2.5’	Sandy Clay, dark brown, dry to moist, stiff, fine to coarse grained sand (CL)
2.5’ – 4.5’	Sandstone, light brown, highly weathered, dry to moist, dense, friable, some caliche

TP-22

0.0’ – 2.5’	Sandy Clay, dark brown, dry to moist, stiff, fine to coarse grained sand (CL)
2.5’ – 5.0’	Sandstone, light brown, highly weathered, moist, friable

TP-23

0.0’ – 2.5’	Sandy Clay, dark brown, dry to moist, stiff, fine to coarse grained sand (CL)
2.5’ – 3.5’	Sandstone, light brown, highly weathered, dry to moist, dense, fine to coarse sand with caliche, friable
3.5’ – 5.8’	Sandstone, light brown, very highly weathered, moist, friable

TP-24

0.0’ – 2.0’	Sandy Clay, brown, medium stiff, dry, fine to coarse grained sand (CL)
2.0’ – 3.0’	Sandy Clay, light brown, dry to moist, fine to coarse grained sand (CL)
3.0’ – 5.0’	Sandstone, light brown, moderately weathered, moist, friable, massive

TP-25

0.0’ – 3.0’	Sandy Clay, brown, medium stiff, dry, fine to coarse grained sand (CL)
3.0’ – 4.0’	Sandy Clay, light brown, medium stiff, moist, fine to coarse grained sand (CL)
4.0’ – 6.0’	Sandstone, light brown, highly weathered, moist, friable

TP-26

0.0’ – 2.0’	Sandy Clay, dark brown, dry to moist, stiff, fine to coarse grained sand (CL)
2.0’ – 3.0’	Claystone, brown, veryhighly weathered, moist, weak, caliche
3.0’ – 3.5’	Sandstone, light brown, highly weathered, moist, friable, fine to coarse sand, massive
3.5’ – 5.0’	Claystone, brown, highly weathered, moist, friable, caliche

TP-27

0.0’ – 2.0’	Sandy Clay, dark brown, dry to moist, stiff, fine to coarse grained sand (CL)
2.0’ – 3.0’	Claystone, brown, moist, highly weathered, weak, some caliche
3.0’ – 5.0’	Claystone, brown, dry to moist, highly weathered, friable, caliche

TP-28

0.0’ – 3.5’	Sandy Clay, dark brown, dry to moist, stiff, fine to coarse grained sand (CL)
3.5’ – 4.5’	Claystone, brown, dry to moist, highly weathered, friable, some caliche
4.5’ – 5.5’	Sandstone, light brown, highly weathered, friable, dry to moist

TP-29

0.0' – 3.0' Sandy Clay, dark brown, moist, stiff, dry, fine to coarse grained sand (CL)

3.0' – 8.0' Claystone, olive-brown, highly weathered, moist, weak

TP-30

0.0' – 1.5' Sandy Clay, dark brown, moist, stiff, dry, fine to coarse grained sand (CL)

1.5' – 3.0' Sandstone, moderately weathered, dry to moist, friable

3.0' – 5.3' Sandstone, light brown, highly weathered, moist, friable

TP-31

0.0' – 2.5' Sandy Clay, dark brown, dry to moist, stiff, fine to coarse grained sand (CL)

2.5' – 4.5' Claystone, light brown, highly weathered, friable, dry to moist, some caliche

TP-32

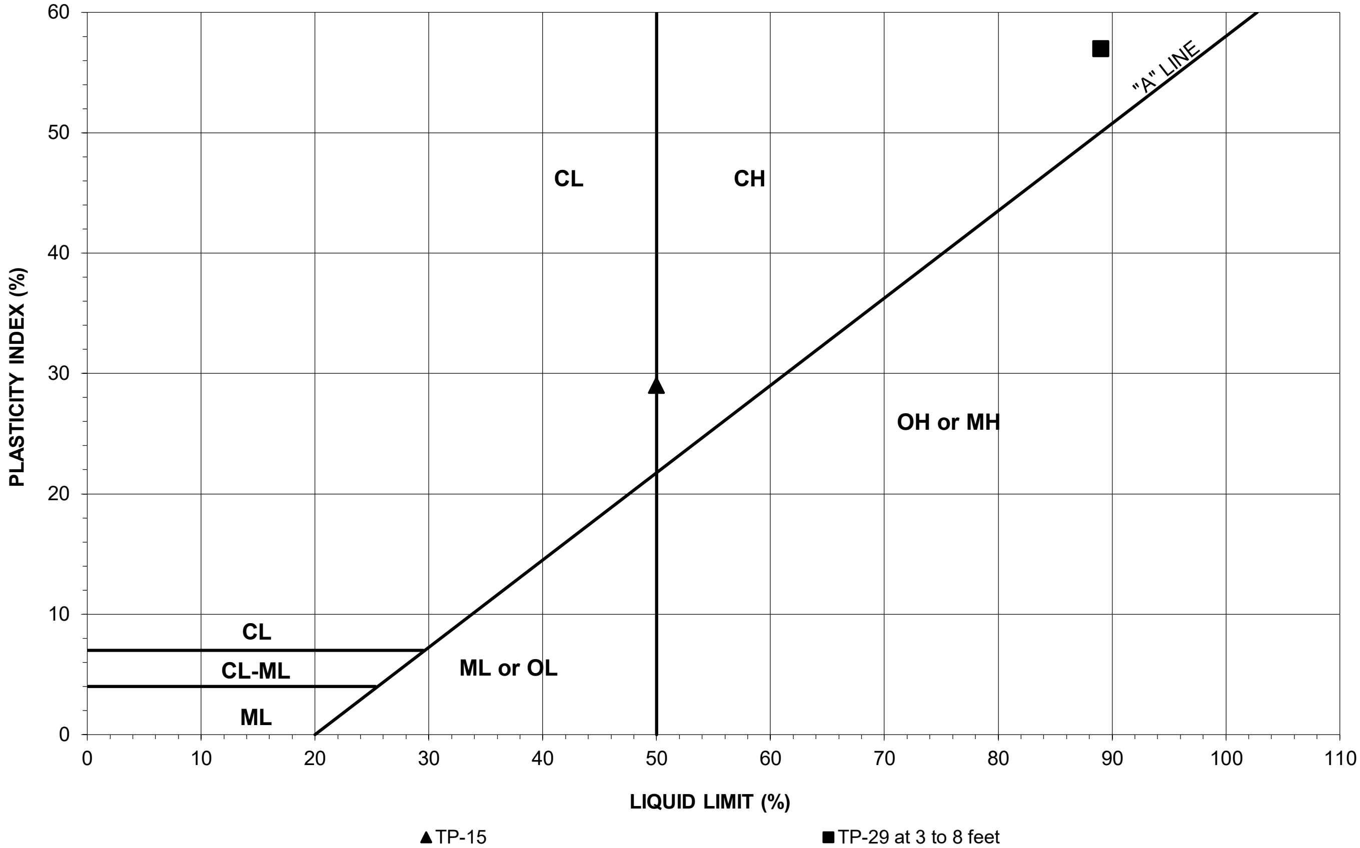
0.0' – 3.0' Sandy Clay, dark brown, dry to moist, stiff, fine to coarse grained sand (CL)

3.0' – 5.5' Claystone, light brown, highly weathered, friable, dry to moist, some caliche

APPENDIX B

Laboratory Test Results

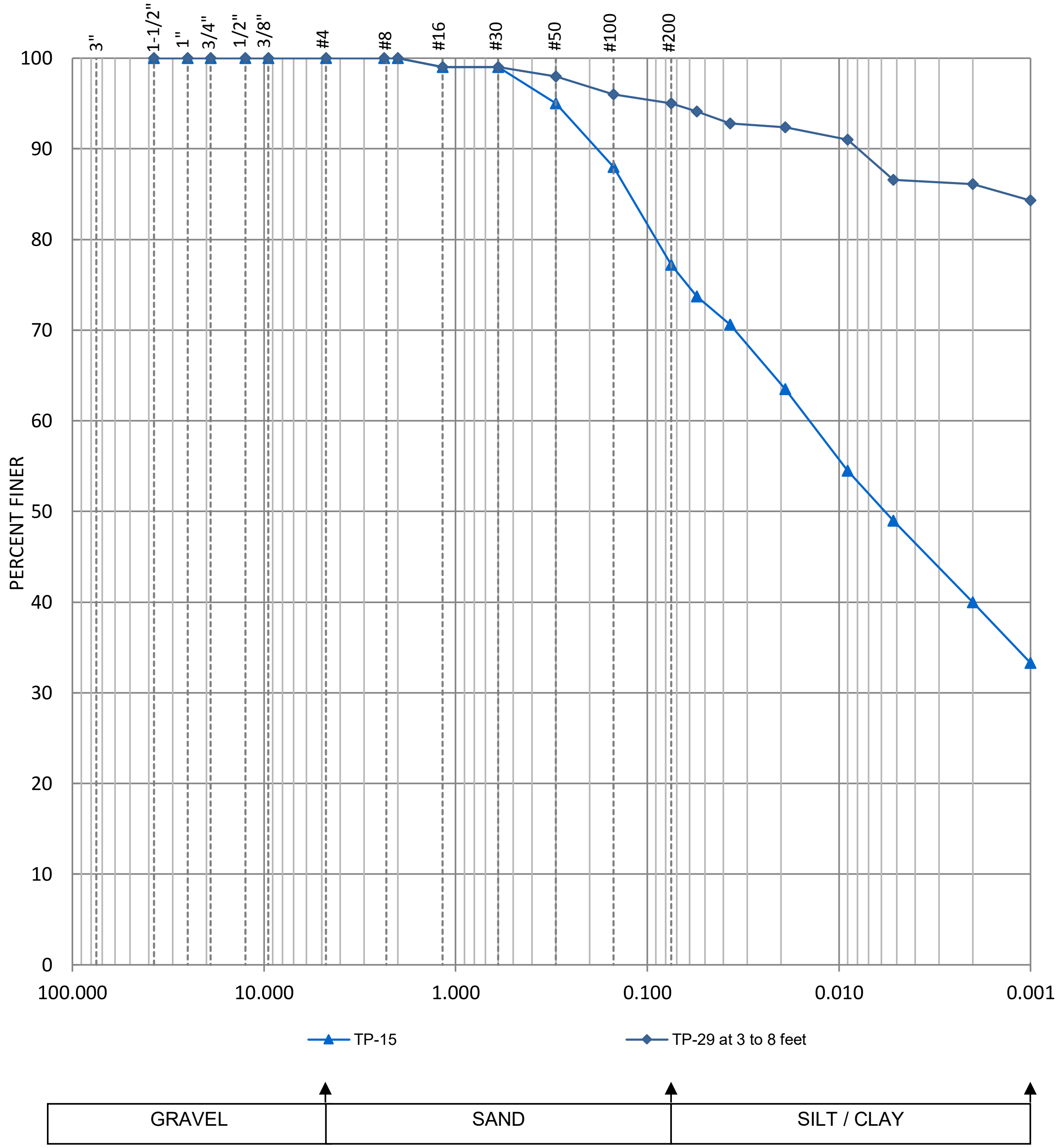
JOB NUMBER: 4044.100 DATE: 10-18-19 BY: CC



LOCATION	LIQUID LIMIT	PLASTICITY INDEX	USCS CLASSIFICATION
TP-15	50	29	**C H**
TP-29 at 3 to 8 feet	89	57	**C H**

ATTERBERG LIMITS TEST

JOB NUMBER: 4044.100 DATE: 10-18-19 BY: CC



LOCATION	DESCRIPTION
TP-15	CLAYSTONE, brown
TP-29 at 3 to 8 feet	CLAYSTONE, light gray

GRADATION TEST DATA

APPENDIX C

Corrosion Test Results

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

25 October 2019

Job No. 1910071
Cust. No. 10598

Mr. Nicholas Cardanini
Berlogar Stevens & Associates
5587 Sunol Blvd.
Pleasanton, CA 94566

Subject: Project No.: 4044.100
Project Name: Crook Property
Corrosivity Analysis – ASTM Test Methods with Brief Evaluation

Dear Mr. Cardanini:

Pursuant to your request, CERCO Analytical has analyzed the soil sample submitted on October 09, 2019. Based on the analytical results, this brief corrosivity evaluation is enclosed for your consideration.

Based upon the 100% resistivity measurement, this sample is classified as "corrosive". All buried iron, steel, cast iron, ductile iron, galvanized steel and dielectric coated steel or iron should be properly protected against corrosion depending upon the critical nature of the structure. All buried metallic pressure piping such as ductile iron firewater pipelines should be protected against corrosion.

The chloride ion concentration reflects none detected with a reporting limit of 15 mg/kg.

The sulfate ion concentration reflects none detected with a reporting limit of 15 mg/kg.

The sulfide ion concentration reflects none detected with a reporting limit of 50 mg/kg.

The pH of the soil is 8.30, which does not present corrosion problems for buried iron, steel, mortar-coated steel and reinforced concrete structures.

The redox potential is 230-mV and is indicative of potentially "slightly corrosive" soils resulting from anaerobic soil conditions.

This corrosivity evaluation is based on general corrosion engineering standards and is non-specific in nature. For specific long-term corrosion control design recommendations or consultation, please call *JDH Corrosion Consultants, Inc. at (925) 927-6630.*

We appreciate the opportunity of working with you on this project. If you have any questions, or if you require further information, please do not hesitate to contact us.

Very truly yours,
CERCO ANALYTICAL, INC.

Cheryl McMillen for

J. Darby Howard, Jr., P.E.
President

JDH/jdl
Enclosure

California State Certified Laboratory No. 2153

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

Client: Berlogar Stevens & Associates
Client's Project No.: 4044.100
Client's Project Name: Crook Property
Date Sampled: 2-Oct-19
Date Received: 9-Oct-19
Matrix: Soil
Authorization: Signed Chain of Custody

Date of Report: 25-Oct-2019

Job/Sample No.	Sample I.D.	Redox (mV)	pH	Resistivity (As Received) (ohms-cm)	Resistivity (100% Saturation) (ohms-cm)	Sulfide (mg/kg)*	Chloride (mg/kg)*	Sulfate (mg/kg)*
1910071-001	S-1	230	8.30	-	1,200	N.D.	N.D.	N.D.

Method:	ASTM D1498	ASTM D4972	ASTM G57	ASTM G57	ASTM D4658M	ASTM D4327	ASTM D4327
Reporting Limit:	-	-	10	-	50	15	15
Date Analyzed:	23-Oct-2019	23-Oct-2019	-	22-Oct-2019	22-Oct-2019	23-Oct-2019	23-Oct-2019

* Results Reported on "As Received" Basis

N.D. - None Detected

Cheryl McMillen
Laboratory Director

Quality Control Summary - All laboratory quality control parameters were found to be within established limits

1910071

Chain of Custody

1100 Willow Pass Court
Concord, CA 94520-1006
462 2771
462 2775
CERCO analytical

Job No.	CU#		Client Project I.D.
4044.100	10598		Crook Property

Schedule
Analyte

Date Sampled	Date Due
	Standard

Full Name Nicholas Cardanini

Phone 925 ~~484~~ x 0220

Fax

Company and/or Mailing Address Berlogar Stevens & Associates

Cell ☒

Sample Source

ANALYSIS / ASTM

Lab No.	Sample I.D.	Date	Time	Matrix	Contain.	Size	Preserv.	Qty.	Redox Potential	pH	Sulfate	Chloride	Resistivity-100% Saturated	Sulfide		Brief Evaluation						
001	S-1	10/2	12:00	S	bag		n/a	1	x	x	x	x	x	X		X						

MATRIX
DW - Drinking Water
GW - Ground Water
SW - Surface Water
WW - Waste Water
Water
SL - Sludge
S - Soil
Product

ABBREVIATIONS
HB - Hosebib
PV - Petcock Valve
PT - Pressure Tank
PH - Pump House
RR - Restroom
GL - Glass
PL - Plastic
ST - Sterile

SAMPLE RECEIPT

Total No. of Containers	
Rec'd Good Cond/Cold	
Conforms to Record	
Temp. a t Lab -°C	
Sampler	

		Date	Time
Relinquished By:	M Chapman	10/9/19	1:31pm
Received By:	[signature]	10/9/19	1330
Relinquished By:	[signature]	10/9/19	1415
Received By:	[signature]	10/9/19	1415
Relinquished By:			
Received By:			

Comments:

THERE IS AN ADDITIONAL CHARGE FOR EXTRUDING SOIL FROM METAL TUBES

Email Address: ncardanini@berlogar.com

1910071

Chain of Custody

Page 1 of 1

1100 Willow Pass Court
Concord, CA 94520-1006
462 2771
462 2775
CERCO analytical

Job No.	CU#	Client Project I.D.	Schedule / Analyte	Date Sampled	Date Due
4044.100	10598	Crook Property			Standard

Full Name Nicholas Cardanini

Phone 925 ~~484~~ × 0220

Fax

Company and/or Mailing Address Berlogar Stevens & Associates

Cell ☒

Sample Source

ANALYSIS / ASTM

Lab No.	Sample I.D.	Date	Time	Matrix	Contain.	Size	Preserv.	Qty.	Redox Potential	pH	Sulfate	Chloride	Resistivity-100% Saturated	Sulfide		Brief Evaluation						
001	S-1	10/2	12:00	S	bag		n/a	1	x	x	x	x	x	X		X						

MATRIX
DW - Drinking Water
GW - Ground Water
SW - Surface Water
WW - Waste Water
Water
SL - Sludge
S - Soil
Product

ABBREVIATIONS
HB - Hosebib
PV - Petcock Valve
PT - Pressure Tank
PH - Pump House
RR - Restroom
GL - Glass
PL - Plastic
ST - Sterile

SAMPLE RECEIPT
Total No. of Containers
Rec'd Good Cond/Cold
Conforms to Record
Temp. a t Lab -°C
Sampler

Relinquished By: M Chapman	Date 10/9/19	Time 1:31pm
Received By: [signature]	Date 10/9/19	Time 1330
Relinquished By: [signature]	Date 10/9/19	Time 1415
Received By: [signature]	Date 10/9/19	Time 1415
Relinquished By:	Date	Time
Received By:	Date	Time

Comments:

THERE IS AN ADDITIONAL CHARGE FOR EXTRUDING SOIL FROM METAL TUBES

Email Address: ncardanini@berlogar.com

California State Certified Laboratory No. 2153

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

Client:	Berlogar Stevens & Associates
Client's Project No.:	4044.100
Client's Project Name:	Crook Property
Date Sampled:	2-Oct-19
Date Received:	15-Oct-19
Matrix:	Soil
Authorization:	Signed Chain of Custody

Date of Report: 28-Oct-2019

Job/Sample No.	Sample I.D.	Redox (mV)	pH	Resistivity (As Received) (ohms-cm)	Resistivity (100% Saturation) (ohms-cm)	Sulfide (mg/kg)*	Chloride (mg/kg)*	Sulfate (mg/kg)*
1910101-001	TP15	25	8.04	-	330	N.D.	200	640
1910101-002	TP24	34	8.29	-	1,100	N.D.	N.D.	N.D.
Method:		ASTM D1498	ASTM D4972	ASTM G57	ASTM G57	ASTM D4658M	ASTM D4327	ASTM D4327
Reporting Limit:		-	-	10	-	50	15	15
Date Analyzed:		23-Oct-2019	23-Oct-2019	-	24-Oct-2019	22-Oct-2019	23-Oct-2019	23-Oct-2019

* Results Reported on "As Received" Basis

N.D. - None Detected

Cheryl McMillen
Laboratory Director

Quality Control Summary - All laboratory quality control parameters were found to be within established limits

1910101

Chain of Custody

Page of

1100 Willow Pass Court
Concord, CA 94520-1006
925 462 2771
Fax 925 462 2775

CERCO analytical

Job No.	CU#	Client Project I.D.
4044.100	1030	Croak Property

Schedule
Analyte

Date Sampled | Date Due

Full Name: Nicholas Cardanzo

Fax: 925-846-9645
Phone: 925-484-0220
Cell

Company: Berlogar Stevens & Associates ☒

Sample Source: Croak Property

ASTM w/Brief Evaluation — ANALYSIS

Lab No.	Sample I.D.	Date	Time	Matrix	Contain.	Size	Preserv.	Qty.	Redox Potential	pH	Sulfate	Chloride	Resistivity-100% Saturated	Sulfide	Brief Evaluation
001	TP15	10/2	12:30	S	bag		n/a	1	x	x	x	x	x	x	x
002	TP24	10/2	2:30	S	bag		n/a	1	x	x	x	x	x	x	x

MATRIX: DW - Drinking Water; GW - Ground Water; SW - Surface Water; WW - Waste Water; Water; SL - Sludge; S - Soil; Product

ABBREVIATIONS: HB - Hosebib; PV - Petcock Valve; PT - Pressure Tank; PH - Pump House; RR - Restroom; GL - Glass; PL - Plastic; ST - Sterile

SAMPLE RECEIPT:
Total No. of Containers
Rec'd Good Cond/Cold
Conforms to Record
Temp. a t Lab -°C
Sampler

	Date	Time
Relinquished By:	10/15/19	1:20
Received By:	10/15/19	1320
Relinquished By:	10/15/19	1435
Received By:	10/15/19	1435
Relinquished By:		
Received By:		

Comments:
THERE IS AN ADDITIONAL CHARGE FOR METAL/POLY TUBES

8/6/2009

California State Certified Laboratory No. 2153

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

28 October 2019

Job No. 1910101
Cust. No. 10598

Mr. Nicholas Cardanini
Berlogar Stevens & Associates
5587 Sunol Blvd.
Pleasanton, CA 94566

Subject: Project No.: 4044.100
Project Name: Crook Property
Corrosivity Analysis – ASTM Test Methods with Brief Evaluation

Dear Mr. Cardanini:

Pursuant to your request, CERCO Analytical has analyzed the soil samples submitted on October 15, 2019. Based on the analytical results, this brief corrosivity evaluation is enclosed for your consideration.

Based upon the 100% resistivity measurements, Sample No.001 is classified as "severely corrosive" and Sample No.002 is classified as "corrosive". All buried iron, steel, cast iron, ductile iron, galvanized steel and dielectric coated steel or iron should be properly protected against corrosion depending upon the critical nature of the structure. All buried metallic pressure piping such as ductile iron firewater pipelines should be protected against corrosion.

The chloride ion concentrations are none detected & 200 mg/kg and are determined to be insufficient to attack steel embedded in a concrete mortar coating.

The sulfate ion concentrations are none detected & 640 mg/kg and are determined to be sufficient to potentially be detrimental to reinforced concrete structures and cement mortar-coated steel at these locations. Therefore, concrete that comes into contact with this soil should use sulfate resistant cement such as Type II, with a maximum water-to-cement ratio of 0.55.

The sulfide ion concentrations reflect none detected with a detection limit of 50 mg/kg.

The pH of the soils are 8.04 & 8.29, which does not present corrosion problems for buried iron, steel, mortar-coated steel and reinforced concrete structures.

The redox potentials are 25 & 34-mV, which are indicative of potentially "severely corrosive" soils resulting from anaerobic soil conditions.

This corrosivity evaluation is based on general corrosion engineering standards and is non-specific in nature. For specific long-term corrosion control design recommendations or consultation, please call *JDH Corrosion Consultants, Inc. at (925) 927-6630.*

We appreciate the opportunity of working with you on this project. If you have any questions, or if you require further information, please do not hesitate to contact us.

Very truly yours,
CERCO ANALYTICAL, INC.

Cheryl McMillen for

J. Darby Howard, Jr., P.E.
President

JDH/jdl
Enclosure

CERCO analytical
1100 Willow Pass Court, Suite A
Concord, CA 94520-1006
925 462 2771 Fax. 925 462 2775
www.cercoanalytical.com

Client: Berlogar Stevens & Associates
Client's Project No.: 4044.100
Client's Project Name: Crook Property
Date Sampled: 2-Oct-19
Date Received: 15-Oct-19
Matrix: Soil
Authorization: Signed Chain of Custody

Date of Report: 28-Oct-2019

Job/Sample No.	Sample I.D.	Redox (mV)	pH	Resistivity (As Received) (ohms-cm)	Resistivity (100% Saturation) (ohms-cm)	Sulfide (mg/kg)*	Chloride (mg/kg)*	Sulfate (mg/kg)*
1910101-001	TP15	25	8.04	-	330	N.D.	200	640
1910101-002	TP24	34	8.29	-	1,100	N.D.	N.D.	N.D.
Method:		ASTM D1498	ASTM D4972	ASTM G57	ASTM G57	ASTM D4658M	ASTM D4327	ASTM D4327
Reporting Limit:		-	-	10	-	50	15	15
Date Analyzed:		23-Oct-2019	23-Oct-2019	-	24-Oct-2019	22-Oct-2019	23-Oct-2019	23-Oct-2019

* Results Reported on "As Received" Basis

N.D. - None Detected

Cheryl McMillen
Laboratory Director

Quality Control Summary - All laboratory quality control parameters were found to be within established limits

1910101

Chain of Custody

1100 Willow Pass Court
Concord, CA 94520-1006
925 462 2771
Fax 925 462 2775

CERCO analytical

Page of

Job No.	CU#	Client Project I.D.
4044.100	1020	Croak Property

Schedule
Analyte

Full Name: Nicholas Cardanzo
Fax: 925-846-9645
Phone: 925-484-0220
Company: Berlogar Stevens & Associates
Cell ☒
Sample Source: Croak Property

Lab No.	Sample I.D.	Date	Time	Matrix	Contain.	Size	Preserv.	Qty.	Redox Potential	pH	Sulfate	Chloride	Resistivity-100% Saturated	Sulfide	Brief Evaluation							Date Sampled	Date Due
001	TP15	10/2	12:30	S	bag		n/a	1	x	x	x	x	x	x	x								
002	TP24	10/2	2:30	S	bag		n/a	1	x	x	x	x	x	x	x								

ASTM w/Brief Evaluation — ANALYSIS

MATRIX: DW - Drinking Water, GW - Ground Water, SW - Surface Water, WW - Waste Water, SL - Sludge, S - Soil, Product

ABBREVIATIONS: HB - Hosebib, PV - Petcock Valve, PT - Pressure Tank, PH - Pump House, RR - Restroom, GL - Glass, PL - Plastic, ST - Sterile

SAMPLE RECEIPT: Total No. of Containers; Rec'd Good Cond/Cold; Conforms to Record; Temp. at Lab -°C; Sampler

		Date	Time
Relinquished By:	M Chapman	10/15/19	1:20
Received By:	[signature]	10/15/19	1320
Relinquished By:	[signature]	10/15/19	1435
Received By:	[signature]	10/15/19	1435
Relinquished By:			
Received By:			

Comments:
THERE IS AN ADDITIONAL CHARGE FOR METAL/POLY TUBES

8/6/2009

Attachment 11

CE&G
CAL ENGINEERING & GEOLOGY
Pragmatic Expertise™

CAL ENGINEERING & GEOLOGY
785 Ygnacio Valley Rd. | Walnut Creek | CA 94596
6455 Almaden Expwy., Suite 100| San José | CA 95120
23785 Cabot Blvd., Suite 321 | Hayward | CA 94545
www.caleng.com

30 November 2020

Mary Coulson
City of Dublin Public Works
100 Civic Plaza
Dublin, California 94568

RE: Geotechnical and Geologic Review
East Ranch – Croak Property (Tract 8563)
Dublin, California
Project Finance Control 0284
CE&G Document Number: 200850.001

Dear Ms. Coulson:

At your request, we have completed our review of the geotechnical and geologic aspects of the recent submittal documents for the proposed East Ranch project. The following documents were reviewed:

1. Geotechnical report prepared by Berlogar Stevens & Associates (BSA) and titled, *Due Diligence Level Geotechnical Investigation, Croak Property, Dublin, California* dated 27 November 2019;

2. Vesting Tentative Map prepared by MacKay & Somps, (MS) dated October 2020;

3. Preliminary and Final Application for East Ranch-Croak property, Stage II Planned Development Dated October 30, 2020; and

4. Title Report by First American Title, Updated/Amended 9-23-2019.

PROJECT DESCRIPTION

The proposed project will consist of mass grading of the Croak Property to develop the site with 573 residential units. The site grading will include cuts up to 80 feet deep and fills up to about 55 feet thick.

The project will also include park sites, asphalt paved roads, concrete driveways and sidewalks, graded pads for home construction, underground utilities, landscape areas, and surface water detention/infiltration basins.

REVIEW COMMENTS.

Our review comments pertaining to the referenced documents are contained below.

BSA Report

Review of the BSA report indicates that it is generally complete with respect to a preliminary assessment of the geologic and geotechnical constraints likely to impact the proposed project. The report provides generalized preliminary recommendations for mitigation of the identified geologic and geotechnical conditions of the site.

The BSA report also indicates that a design level report will be completed at a future stage of the project. CE&G concurs with BSA's recommendation for a design level report. It is anticipated that the design level report will include supplemental subsurface exportation, laboratory testing, and additional analysis of the collected data. Additional subsurface exploration should focus on the soil conditions in the swale area, probable locations of the required keyways and subdrains, and the proposed grading on the adjoining properties.

It is also recommended that the project geotechnical engineer and the project civil engineer work closely together to further refine the design recommendations for the project. BSA should review future submittals of the grading, improvement, structural, landscape, drainage, and utility plans, etc. for conformance with the geotechnical recommendation in their design level report. These reviews should be documented in writing.

MS Vesting Tentative Map

The Vesting Tentative Map submittal included but was not limited to preliminary utility, grading, erosion control, stormwater quality, signing, and striping plans. Interim improvement plans for Croak Road were also included in the submittal.

Our review of the geologic and geotechnical aspects of the vesting tentative map submittal indicates the plans are generally consistent with the recommendations from the BSA report. It is anticipated that these plans will be refined at future stages of the project. It is recommended that the project civil engineer will work closely with the project geotechnical engineer to refine the development plans for the project.

Preliminary and Final Application and Title Report

We do not have any geologic and geotechnical comments regarding these documents.

CLOSURE

This review has been performed by request of the City of Dublin. Our role has been to provide technical advice to assist the City in its discretionary permit decisions, and we are afforded the same protections under state law. Our services have been limited to the review of the referenced report and a visual review of the property. We have no control over the future construction on this property and make no representations regarding its future condition.

We have employed accepted geologic and geotechnical engineering procedures, and our professional opinions and conclusions are made in accordance with generally accepted geologic and geotechnical engineering principles and practices. This standard is in lieu of all other warranties, either expressed or implied.

Sincerely,

CAL ENGINEERING & GEOLOGY, INC.

REGISTERED PROFESSIONAL ENGINEER
MARK W. MYERS
No. Geo GE 2580
No. Civil C 57494
CIVIL-GEOTECHNICAL
STATE OF CALIFORNIA

Mark Myers, P.E., G.E.
Principal Engineer

Attachment 12

CORNERSTONE
EARTH GROUP

Type of Services	**Phase I Environmental Site Assessment**
Location	**4038 Croak Road** **Dublin, California**
Client	**Trumark Homes**
Client Address	**3001 Bishop Drive, Suite 100** **San Ramon, California 94582**
Project Number	**206-56-1**
Date	**July 14, 2019**

DRAFT

Prepared by

Sarah E. Kalika, P.G.
Senior Project Geologist

Peter M. Langtry, P.G.
Senior Principal Geologist

Table of Contents

Type of Services	**Phase I Environmental Site Assessment**
Location	**4038 Croak Road** **Dublin, California**

SECTION 1: INTRODUCTION

This report presents the results of the Phase I Environmental Site Assessment (ESA) performed for the property described as 4038 Croak Road in Dublin, California (Site) and as shown on Figures 1 and 2. This work was performed for Trumark Homes in accordance with our June 14, 2019 Agreement (Agreement).

1.1 PURPOSE

The scope of work presented in the Agreement was prepared in general accordance with ASTM E 1527-13 titled, "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process" (ASTM Standard). The ASTM Standard is in general compliance with the Environmental Protection Agency (EPA) rule titled, "Standards and Practices for All Appropriate Inquiries; Final Rule" (AAI Rule). The purpose of this Phase I ESA is to strive to identify, to the extent feasible pursuant to the scope of work presented in the Agreement, Recognized Environmental Conditions at the property.

As defined by ASTM E 1527-13, the term Recognized Environmental Condition means the presence or likely presence of any hazardous substances or petroleum products in, on, or at a property: (1) due to any release to the environment; (2) under conditions indicative of a release to the environment; or (3) under conditions that pose a material threat of a future release to the environment. De minimis conditions are not Recognized Environmental Conditions.

Cornerstone Earth Group, Inc. (Cornerstone) understands that Trumark Homes intends to purchase the property for residential development. We performed this Phase I ESA to support Trumark Homes in evaluation of Recognized Environmental Conditions at the Site. This Phase I ESA is intended to reduce, but not eliminate, uncertainty regarding the potential for Recognized Environmental Conditions at the Site.

1.2 SCOPE OF WORK

As presented in our Agreement, the scope of work performed for this Phase I ESA included the following:

- A reconnaissance of the Site to note readily observable indications of significant hazardous materials releases to structures, soil or ground water.
- Drive-by observation of adjoining properties to note readily apparent hazardous materials activities that have or could significantly impact the Site.

- Acquisition and review of a regulatory agency database report of public records for the general area of the Site to evaluate potential impacts to the Site from reported contamination incidents at nearby facilities.
- Review of readily available information on file at selected governmental agencies to help evaluate past and current Site use and hazardous materials management practices.
- Review of readily available maps and aerial photographs to help evaluate past and current Site uses.
- Interviews with persons reportedly knowledgeable of existing and prior Site uses, including the current Site operator(s).
- Preparation of a written report summarizing our findings and recommendations.

The limitations for the Phase I ESA are presented in Section 10; the terms and conditions of our Agreement are presented in Appendix A.

1.3 ASSUMPTIONS

In preparing this Phase I ESA, Cornerstone assumed that all information received from interviewed parties is true and accurate. In addition, we assumed that all records obtained by other parties, such as regulatory agency databases, maps, related documents and environmental reports prepared by others are accurate and complete. We also assumed that the boundaries of the Site, based on information provided by Trumark Homes are as shown on Figure 2. We have not independently verified the accuracy or completeness of any data received.

1.4 ENVIRONMENTAL PROFESSIONAL

This Phase I ESA was performed by Sarah E. Kalika, P.G. and Peter M. Langtry, P.G., Environmental Professionals who meet the qualification requirements described in ASTM E 1527-13 and 40 CFR 312 § 312.10 based on professional licensing, education, training and experience to assess a property of the nature, history and setting of the Site.

SECTION 2: SITE DESCRIPTION

This section describes the Site as of the date of this Phase I ESA. The location of the Site is shown on Figures 1 and 2. Tables 1 through 3 summarize general characteristics of the Site and adjoining properties. The Site is described in more detail in Section 7, based on our on-Site observations.

2.1 LOCATION AND OWNERSHIP

Table 1 describes the physical location, and ownership of the property, based in part on information provided by Trumark Homes.

Table 1. Location and Ownership

Assessor's Parcel No. (APN)	905-0002-001-01 and 905-0002-002
Reported Address/Location	4038 Croak Road, Dublin, California
Owner	Croak Properties, LP
Approximate Lot Size	162 total acres
Approximate Bldg. Size	Unknown (no building permits found for residence, barn, and three outbuildings)
Construction Date	Prior to 1940, possibly before 1906

2.2 CURRENT/PROPOSED USE OF THE PROPERTY

The current and proposed uses of the property are summarized in Table 2.

Table 2. Current and Proposed Uses

Current Use	Rural residential and undeveloped land
Proposed Use	High density single and multi-family residential

2.3 SITE SETTING AND ADJOINING SITE USE

Land use in the general Site vicinity appears to be primarily commercial undeveloped land and residential properties. Based on our Site vicinity reconnaissance, adjoining Site uses are summarized below in Table 3.

Table 3. Adjoining Site Uses

North	Undeveloped property and single-family residential
South	Undeveloped property
East	Undeveloped property
West	Residential

SECTION 3: USER PROVIDED INFORMATION

The ASTM standard defines the User as the party seeking to use a Phase I ESA to evaluate the presence of Recognized Environmental Conditions associated with a property. For the purpose of this Phase I ESA, the Users are Trumark Homes. The "All Appropriate Inquiries" Final Rule (40 CFR Part 312) requires specific tasks be performed by or on behalf of the party seeking to qualify for Landowner Liability Protection under CERCLA liability (*i.e*, the User).

Per the ASTM standard, if the User has information that is material to Recognized Environmental Conditions, such information should be provided to the Environmental Professional. This information includes: 1) specialized knowledge or experience of the User, 2) commonly known or reasonably ascertainable information within the local community, and 3) knowledge that the purchase price of the Site is lower than the fair market value due to contamination. A search of title records for environmental liens and activity and use limitations also is required.

3.1 CHAIN OF TITLE

A chain-of-title was not provided for our review.

3.2 ENVIRONMENTAL LIENS OR ACTIVITY AND USE LIMITATIONS

An environmental lien is a financial instrument that may be used to recover past environmental cleanup costs. Activity and use limitations (AULs) include other environmental encumbrances, such as institutional and engineering controls. Institutional controls (ICs) are legal or regulatory restrictions on a property's use, while engineering controls (ECs) are physical mechanisms that restrict property access or use.

The regulatory agency database report described in Section 4.1 did not identify the Site as being in 1) US EPA databases that list properties subject to land use restrictions (*i.e.*, engineering and institutional controls) or Federal Superfund Liens or 2) lists maintained by the California Department of Toxic Substances Control (DTSC) of properties that are subject to AULs or environmental liens where the DTSC is a lien holder.

Cornerstone reviewed a Title Insurance Commitment prepared for APNs: 905-0002-001-01 and 905-0002-002 (the Site) by First American Title Insurance Company dated August 20, 2018. No environmental liens or records of ownership (including leases) indicative of significant hazardous materials use associated with the Site were listed in the title report.

A summary of easements reported:
- Public street, granted to the City of Dublin, recorded December 2013
- Slope and drainage, granted to City of Dublin, recorded December 2013
- Temporary construction of Central Parkway, granted to the City of Dublin, recorded December 2013

A copy of the title report is included in Appendix B.

3.3 SPECIALIZED KNOWLEDGE AND/OR COMMONLY KNOWN OR REASONABLY ASCERTAINABLE INFORMATION

Based on information provided by or discussions with Trumark Homes we understand that Trumark Homes does not have such specialized knowledge or experience, commonly known or reasonably ascertainable information regarding the Site, or other information that is material to Recognized Environmental Conditions.

3.4 DOCUMENT PROVIDED BY TRUMARK HOMES

To help evaluate the presence of Recognized Environmental Conditions at the Site, Cornerstone reviewed and relied upon the document provided by Trumark Homes listed in Table 4. Please note that Cornerstone cannot be liable for the accuracy of the information presented in these documents. ASTM E1527-13 does not require the Environmental Professional to verify independently the information provided; the Environmental Professional may rely on the information unless they have actual knowledge that certain information is incorrect. A summary of the provided documents is provided in below in Table 4. Selected documents are discussed in more detail below this table; please refer to the original reports for complete details (Appendix F).

Table 4. Documents Provided by Trumark Homes

Date	Author	Title
2018	MacKay & Somps	Croak Property – land use summary (proposed residential plot plan)

Cornerstone reviewed the Croak Road proposed residential plan to confirm Site boundaries. No additional information was provided for our review.

SECTION 4: RECORDS REVIEW

4.1 STANDARD ENVIRONMENTAL RECORD SOURCES

Cornerstone conducted a review of federal, state and local regulatory agency databases provided by Environmental Data Resources (EDR) to evaluate the likelihood of contamination incidents at and near the Site. The database sources and the search distances are in general accordance with the requirements of ASTM E 1527-13. A list of the database sources reviewed, a description of the sources, and a radius map showing the location of reported facilities relative to the project Site are attached in Appendix C.

The purpose of the records review is to obtain reasonably available information that will help identify Recognized Environmental Conditions. Accuracy and completeness of record information varies among information sources, including government sources. Record information is often inaccurate or incomplete. The Environmental Professional is not obligated to identify mistakes or insufficiencies or review every possible record that might exist with the Site. The customary practice is to review information from standard sources that is reasonably available within reasonable time and cost constraints.

4.1.1 On-Site Database Listings

The Site was not identified on regulatory agency databases reported by EDR.

4.1.2 Adjoining Property Database Listings and Nearby Spill Incidents

No adjoining properties were listed on the regulatory databases reported by EDR.

Based on the presumed ground water flow direction, no other off-Site spill incidents were reported that appear likely to significantly impact soil, soil vapor, or ground water beneath the Site. The potential for impact was based on our interpretation of the types of incidents, the locations of the reported incidents in relation to the Site and the assumed ground water flow direction.

4.2 ADDITIONAL ENVIRONMENTAL RECORD SOURCES

The following additional sources of readily ascertainable public information for the Site also were reviewed during this Phase I ESA.

4.2.1 City and County Agency File Review

Cornerstone requested available files pertaining to the site addresses and parcel numbers at the following public agencies: the City of Dublin Building Department (DBD), Alameda County

Building Department (ACBD), Alameda County Environmental Health (ACEH), and San Francisco Bay Regional Water Quality Control Board (Water Board).

No files were available for the Site on the DBD and ACBD online database search systems.

No files were available for the Site on ACEH's online database search system.

The Water Board reported that they did not have files for the Site.

4.2.2 Radon

Elevated levels of radon in indoor air are a result of radon moving into buildings from the soil, either by diffusion or flow due to air pressure differences. The ultimate source of radon is the uranium that is naturally present in rock, soil, and water. Some types of rocks are known to have uranium concentrations greater than others and, consequently, there is an increased chance of elevated radon concentrations in soils and weathered bedrock where they are located. Areas down-slope which received sediments and/or surface and ground water from rock units with above average uranium content also have an increased likelihood of elevated radon concentrations in soil gas. In California, bedrock that can contain above average uranium concentrations includes the Monterey formation, asphaltic rocks, marine phosphatic rocks, granitic rocks, felsic volcanic rocks, and certain metamorphic rocks.

The federal EPA has established an action level of 4 pCi/L, above which the EPA recommends taking action to reduce radon levels in structures. To help local, state, and federal agencies prioritize resources and implement radon-control building codes, the EPA published maps of radon hazards for each county in California (www.epa.gov/radon/zonemap/california.htm).

The Site is located in Alameda County, which is designated by the EPA as Zone 2 with a moderate potential (between 2 pCi/L and 4 pCi/L). It is important to note that EPA has identified structures with elevated levels of radon in all three zones, and the EPA recommends Site-specific testing in order to determine radon testing at a specific location.

Based on information present in the regulatory agency database report, radon screening results in the Site vicinity (zip code 94588) are summarized in Table 5.

Table 5. Reported Radon Screening Test Results

Agency	Number of Tests	Zip Code	Results (pCi/l)
State	25	94588	0 results >4 pCi/L
Federal	49	94588	Average Activity: 0.776 pCi/L, measured within the first floor living area -0.400 pCi/L, measured within the second floor living area 1.338 pCi/L, measured within the basement

4.2.3 Division of Oil, Gas and Geothermal Resources Maps

To evaluate the presence of oil or gas wells on-Site and in the immediate Site vicinity, maps available on-line at the California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) (http://www.consrv.ca.gov/dog) were reviewed. No wells were found within Township 02S, Range 01E, Section 35 and Township 03S, Range 01E, Section 2.

SECTION 5: PHYSICAL SETTING

We reviewed readily available geologic and hydrogeologic information to evaluate the likelihood that chemicals of concern released on a nearby property could pose a significant threat to the Site and/or its intended use.

5.1 RECENT USGS TOPOGRAPHIC MAP

A 2012 USGS 7.5 minute topographic map was reviewed to evaluate the physical setting of the Site. The Site's elevation is approximately 500 feet above mean sea level; topography in the vicinity of the Site slopes gently downward to the south-southwest.

5.2 HYDROGEOLOGY

Based on information reviewed for a nearby closed LUST case, Jordan Ranch (approximately 2,660 feet west of the Site), ground water was measured at approximately 7 to 18 feet and the flow direction was measured locally toward the south (Alameda County Health Care Services Agency, Environmental Health Services, 2017).

SECTION 6: HISTORICAL USE INFORMATION

The objective of the review of historical use information is to develop a history of the previous uses of the Site and surrounding area in order to help identify the likelihood of past uses having led to Recognized Environmental Conditions at the property. The ASTM standard requires the identification of all obvious uses of the property from the present back to the property's first developed use, or back to 1940, whichever is earlier, using reasonably ascertainable standard historical sources.

6.1 HISTORICAL SUMMARY OF SITE

The historical sources reviewed are summarized below. The results of our review of these sources are summarized in Table 6.

- **Historical Aerial Photographs:** We reviewed aerial photographs dated between 1940 and 2016 obtained from EDR of Milford, Connecticut; copies of aerial photographs reviewed are presented in Appendix D.

- **Historical Topographic Maps:** We reviewed USGS 15-minute and 7.5-minute historic topographic maps dated 1906, 1941, 1947, 1953, 1961, 1968, 1973, 1980, and 2012; copies of historic topographic maps reviewed are presented in Appendix D.

- **Historical Fire Insurance Maps:** EDR reported that the Site was not within the coverage area of fire insurance maps.

- **Local Street Directories:** We reviewed city directories obtained from EDR that were researched at approximately 5 year intervals between 1975 and 2014 to obtain information pertaining to past Site occupants. The city directory summary is presented in Appendix E.

Table 6. Summary of Historical Source Information for Site

Date	Source	Comment
1906, 1941, 1947	Topographic Maps	Site is depicted with a structure alongside an unpaved roadway in the southwestern corner.
1940, 1949	Aerial Photographs	The southwest portion of the Site is developed with a rural residence, barn, and smaller outbuildings. A roadway is observed roughly north-south through the west-central portion of the Site.
1953	Topographic Map	A structure is depicted along the western side of Croak Road. An intermittent stream roughly parallels Croak Road on-Site.
1958	Aerial photograph	A long rectangular structure is observed north of the residential portion of the Site, along the western side of the roadway.
1961, 1968, 1973, 1980	Topographic Map	An additional structure is depicted slightly southeast of the previously depicted structure on-Site.
1966, 1968, 1979, 1982	Aerial Photographs	The rectangular structure is no longer observed.
1993, 1998, 2006, 2009	Aerial Photographs	A square excavation is observed off-Site across the roadway to the southeast.
2012	Aerial Photograph	A residential development is observed to be under construction adjacent to the north.
2012	Topographic Map	Croak Road is depicted on-Site, no specific structures are depicted.
2016	Aerial Photograph	A residential development is observed to be under construction adjacent to the west.

City Directory search results noted a backhoe operator at 4037 Croak Road. It is not clear whether this listing is related to the Site. The backhoe operator was identified in 1987 and 1992.

6.2 HISTORICAL SUMMARY OF SITE VICINITY

Based on our review of the information described in Section 6.1, the general Site vicinity has been developed with scattered rural residences since at least 1906. An additional rural residence and an area of excavation (noted on the City Directory report as a quarry) was constructed by 1993 across Croak Road to the southeast. Single family residential development began to the north by 2012 and to the west by 2016.

SECTION 7: SITE RECONNAISSANCE

We performed a Site reconnaissance to evaluate current Site conditions and to attempt to identify Site Recognized Environmental Conditions. The results of the reconnaissance are discussed below. Additional Site observations are summarized in Table 7 in Section 7.2. Photographs of the Site are presented in Section 7.2.1.

7.1 METHODOLOGY AND LIMITING CONDITIONS

To observe current Site conditions (readily observable environmental conditions indicative of a significant release of hazardous materials), Cornerstone staff Sarah E. Kalika visited the Site on June 14, 2019 and was accompanied by Peter Langtry of Cornerstone and a representative of Trumark Homes. The Site reconnaissance was conducted by walking representative areas of the Site, including the Site periphery. Cornerstone staff only observed those areas that were reasonably accessible, safe, and did not require movement of equipment, debris, or other objects.

7.2 OBSERVATIONS

At the time of our Site visit, the Site was primarily observed to be undeveloped land, covered with tall grass and sparse trees. A residential area was observed in the southwest corner, north of the newer Central Parkway and west of Croak Road. Croak Road was observed to extend in an approximately north-south direction along the western 1/3 of the Site.

The residential area of the Site was developed with a dilapidated rural residential structure, barn, and several wood-frame outbuildings, including an equipment shed, possible garden shed, and wood shed (which was mostly collapsed). Several abandoned cars and two tractors were observed on-Site. One of the tractors was parked in an equipment shed northeast of the residence. This shed contained several containers (5-gallons or less) of gasoline and motor oil; staining was observed around some of the containers, and a steel gasoline container appeared corroded and leaking. The concrete floor of this shed was heavily cracked.

Metal (non-motorized) plowing equipment was observed west of the equipment shed.

A small wooden shed was observed south of the residence. Debris including several 1-gallon paint cans was observed on the interior. Paint cans appeared to be empty.

A wooden barn was observed to the east of the residence. The barn was divided into three sections including a portion used for storage of hay, another portion divided into animal stalls, and the third portion an open space area with various household furniture and farm-related tools. An approximately 5-gallon can labeled “gear lubricant” (presumed empty) was observed within the furniture and hay storage area. Approximately 200 empty plastic planting containers and 5-gallon buckets were observed in stacks within the barn. It is unknown whether fluid remained in some of the containers, as Cornerstone did not attempt to move them.

A domestic well was observed southwest of the residence. Four steel pipe-like structures with makeshift metal lids were observed near the well and domestic water storage tank.

An empty yellow-colored apparent septic tank (approximately 200-300 gallons) was observed laying on the ground surface, south of the residence. A larger green-colored apparent water storage tank (approximately 1,000+ gallons) was observed southwest of the residence. It is unknown whether the green storage tank contained any liquids.

A steel drum was observed north of the residence, alongside an abandoned microwave oven and refrigerator. A portion of the sidewall had been removed to create a fireplace and ash was observed within the bottom of the drum. Several other steel and blue plastic drums were observed in the vicinity of the barn, equipment shed, and residence. All appeared to be empty.

Northeast of the residential area, on the east side of Croak Road where an unpaved roadway extends through a portion of the eastern part of the Site, Cornerstone observed a pile of concrete debris, as identified on Figure 2.

Table 7. Summary of Readily Observable Site Features

General Observation	Comments
Aboveground Storage Tanks	Two storage containers, as noted above. One of the containers appeared to be a septic tank resting on the ground surface.
Agricultural / Domestic Wells	One well was observed, as described above
Air Emission Control Systems	Not Observed
Boilers	Not Observed
Burning Areas	Steel drum observed with ash
Chemical Mixing Areas	Not Observed
Chemical Storage Areas	Within equipment shed and barn
Clean Rooms	Not Observed
Drainage Ditches	Not Observed
Elevators	Not Observed
Emergency Generators	Not Observed
Equipment Maintenance Areas	Possible tractor and equipment maintenance near equipment shed and barn
Fill Placement	Not Observed
Ground Water Monitoring Wells	Not Observed
High Power Transmission Lines	Not Observed
Hoods and Ducting	Not Observed
Hydraulic Lifts	Not Observed
Incinerator	Not Observed
Petroleum Pipelines	Not Observed
Petroleum Wells	Not Observed
Ponds or Streams	Not Observed
Railroad Lines	Not Observed
Row Crops or Orchards	Not Observed
Stockpiles of Soil or Debris	Stockpiles of debris, including household and farm-related items and concrete, as described above
Sumps or Clarifiers	Not Observed
Transformers	Not Observed
Underground Storage Tanks	Not Observed
Vehicle Maintenance Areas	Possible near barn and equipment shed
Vehicle Wash Areas	Not Observed
Wastewater Neutralization Systems	Not Observed

The comment "Not Observed" does not warrant that these features are not present on-Site; it only indicates that these features were not readily observed during the Site visit.

7.2.1 Site Photographs

Photograph 1. View looking south along western portion of Site.

Photograph 2. View looking north along western boundary of Site from Central Parkway.

Photograph 3. View looking south along Croak Road at intersection with Central Parkway.

Photograph 4. View looking west across central portion of Site.

Photograph 5. View looking southwest across southwest portion of Site, note roof of barn.

Photograph 6. View looking northeast along one of several unpaved roads within central portion of Site.


Photograph 7. Concrete debris pile along southern side of unpaved road, near intersection with Croak Road in central portion of Site (approximate location noted on Figure 2).


Photograph 8. View of wooden barn with metal roof.

Photograph 9. Interior of north side of barn. Note lubricant oil can (presumed empty).


Photograph 10. Former animal stall area on south side of barn.

Photograph 11. Hundreds of buckets and planting containers within animal stall area.

Photograph 12. Wood and metal debris within central portion of barn.

Photograph 13. View looking north across northeastern portion of developed area.

Photograph 14. Eastern portion of wooden equipment shed.

Photograph 15. Interior of central portion of equipment shed.

Photograph 16. Alternate view: interior of central portion of equipment shed.


Photograph 17. Western portion of equipment shed.


Photograph 18. Closer view of leaking gasoline can within western portion of equipment shed.

Photograph 19. Antifreeze containers and a small container of motor oil.

Photograph 20. Additional vehicle maintenance fluids within western portion of equipment shed.

Photograph 21. Tractor parked north of equipment shed.

Photograph 22. Farm-related plowing equipment.

Photograph 23. Wooden shed, located northeast of equipment shed.

Photograph 24. Abandoned car and truck, south of equipment shed.

Photograph 25. Wooden debris, tarps, microwave oven, and mini-refrigerator located north of residence.

Photograph 26. Steel drum, modified as a fire pit, located in vicinity of debris identified within Photo 25.

Photograph 27. Gasoline can in vicinity of debris identified within Photo 25.

Photograph 28. Wooden shed located south of residence.

CORNERSTONE EARTH GROUP

Photograph 29. Interior of wooden shed.

Photograph 30. Empty apparent septic tank, located south of residence.

Photograph 31. Abandoned car and trailer, located southwest of residence.

Photograph 32. View of south-facing side of residence.


Photograph 33. Heavily peeling paint within residence.


Photograph 34. Oven and debris within residence.

Photograph 35. Water heater and various debris within residence.

Photograph 36. Kitchen porch area of residence.

Photograph 37. Gas line stub (protruding from floor) and hole cut through wall, indicating possible gas fireplace within residence.

Photograph 38. Water tank located south of residence.


Photograph 39. Water well, storage tank, and four steel structures located south of the residence.

SECTION 8: ENVIRONMENTAL QUESTIONNAIRE AND INTERVIEWS

8.1 ENVIRONMENTAL QUESTIONNAIRE / OWNER INTERVIEW

To help obtain information on current and historical Site use and use/storage of hazardous materials on-Site, a questionnaire was provided to Trumark to be forwarded to the property owner. As of the date of this report, the completed questionnaire had not been provided to Cornerstone.

8.2 INTERVIEWS WITH PERSON(S) KNOWLEDGEABLE OF SITE USE

As noted above, an environmental questionnaire was provided to Trumark to be forwarded to the property owner. A completed copy of the questionnaire was not returned prior to publication.

8.3 INTERVIEWS WITH PREVIOUS OWNERS AND OCCUPANTS

Contact information for previous Site owners and occupants was not provided to us. Therefore, interviews with previous Site owners and occupants could not be performed.

SECTION 9: FINDINGS, OPINIONS AND CONCLUSIONS (WITH RECOMMENDATIONS)

Cornerstone performed this Phase I ESA in general accordance to ASTM E1527-13 to support Trumark Homes in evaluation of Recognized Environmental Conditions. Our findings, opinions and conclusions are summarized below.

9.1 HISTORICAL SITE USAGE

Based on the information obtained during this study, the Site appears to have been developed as a rural residence since at least 1906, with possible cattle grazing and ranching activities.

The Site vicinity has consisted of primarily undeveloped land with rural residential properties to the north and south, and a gravel quarry developed adjacent to the south in the 1990's. Dense development of single-family houses began to the north by 2012, and to the west by 2016.

9.2 CHEMICAL STORAGE AND USE

Household and rural farm quantities of paints and automotive and equipment maintenance fluids were observed within the residentially developed portion of the Site.

9.3 POTENTIAL HISTORIC AGRICULTURAL USE

The Site does not appear to have been historically used for agriculture purposes. Ranching/grazing activities appear to have been conducted on-Site. Pesticides historically were used in ranching operations to control pests on livestock. We recommend evaluating soil beneath the barn area, where apparent livestock enclosures were observed, for the presence of pesticides and pesticide-related metals.

9.4 IMPORTED SOIL

If the planned development will require importing soil for Site grading, we recommend documenting the source and quality of imported soil. The DTSC's October 2001 Clean Fill Advisory provides useful guidance on evaluating imported fill.

9.5 ASBESTOS CONTAINING MATERIALS (ACM)

Due to the age of the on-Site structures, building materials may contain asbestos, including subsurface asbestos-cement pipe. If demolition or renovation of the buildings are planned, an asbestos survey is required by local authorities and/or National Emissions Standards for Hazardous Air Pollutants (NESHAP) guidelines. NESHAP guidelines require the removal of potentially friable ACM prior to building demolition or renovation that may disturb the ACM.

9.6 TERMITICIDE AND LEAD-BASED PAINT

The Consumer Product Safety Commission banned the use of lead as an additive in paint on toys and furniture in 1978. Based on the age of the buildings, lead-based paint may be present. If demolition is planned, the removal of lead-based paint isn't required if it is bonded to the building materials. However, if the lead-based paint is flaking, peeling, or blistering (as observed within the residence), it should be removed prior to demolition. In either case, applicable OSHA regulations must be followed; these include requirements for worker training, air monitoring and dust control, among others. Lead paint can weather and flake into the soil adjacent to the building foundation. Elevated concentrations of lead within soil and any debris containing lead must be disposed appropriately.

Termiticides may have been applied around the building perimeters. Previous applications of termiticides can contain now-banned substances that remain persistent in the soil. Termiticides in soil around building foundations may require special handling and/or disposal.

We recommend collecting soil samples from the perimeters of the existing buildings for lead and pesticide analyses.

9.7 WATER WELLS

At least one domestic well appeared to be associated with the on-Site residence.

Water well completion records, if available, can only be accessed by the property owner or a governmental agency. This well should be destroyed by permit from Alameda County.

9.8 SUBSURFACE STRUCTURES

One residence, a barn, and three shed structures were observed on-Site historic photographs and topographic maps since at least 1940 and possibly as early as 1906. The residence was likely connected to a septic tank and/or heating oil tanks. An apparent septic tank was observed resting on the ground surface. It is not clear whether a sub-surface septic tank remains in-place. Removal of septic tanks, if present, should be performed under permit from the local permitting agency. Removal of heating oil and other subsurface fuel tanks, if encountered, should be performed under permit from the Alameda County Environmental Health Department.

We recommend preparing a Site Management Plan (SMP) that presents appropriate protocol for the evaluation, handling, and removal of subsurface structures or other suspect conditions if encountered during demolition or earthwork/construction activities.

9.9 DATA GAPS

ASTM Standard Designation E 1527-13 requires the Environmental Professional to comment on significant data gaps that affect our ability to identify Recognized Environmental Conditions. A data gap is a lack of or inability to obtain information required by ASTM Standard Designation E 1527-13 despite good faith efforts by the Environmental Professional to gather such information. A data gap by itself is not inherently significant; it only becomes significant if it raises reasonable concerns. The following data gaps were identified:

- The environmental questionnaire provided for completion by the Site owner was not returned to us as of the date of this report. The general environmental setting of the Site appears to have been established based on the information reviewed from other data sources. We do not consider this data gap to be significant.

- Contact information for the former owners of the Site were not provided to us. Thus, former occupants and owners were not interviewed during this study. The general environmental setting of the Site appears to have been established based on the information reviewed from other data sources. We do not consider this data gap to be significant.

9.10 DATA FAILURES

As described by ASTM Standard Designation E 1527-13, a data failure occurs when all of the standard historical sources that are reasonably ascertainable and likely to be useful have been reviewed and yet the historical research objectives have not been met. Data failures are not uncommon when attempting to identify the use of a Site at five-year intervals back to the first use or to 1940 (whichever is earlier). ASTM Standard Designation E 1527-13 requires the Environmental Professional to comment on the significance of data failures and whether the data failure affects our ability to identify Recognized Environmental Conditions. A data failure by itself is not inherently significant; it only becomes significant if it raises reasonable concerns.

- Building permit history was not available for the Site. Based on review of aerial photographs and topographic maps, we do not consider this data failure to be significant.

9.11 RECOGNIZED ENVIRONMENTAL CONDITIONS

Cornerstone has performed a Phase I ESA in general conformance with the scope and limitations of ASTM E 1527-13 of 4038 Croak Road in Dublin, California, California.

This assessment identified the following Recognized Environmental Conditions[1]:

- The Site has been used for rural residential and ranching purposes. There is a potential that residual pesticides, termiticides, lead, asbestos, and petroleum hydrocarbons may exist in Site soil. If present, soil in the vicinity of the residentially-developed portion of the Site will require appropriate management.

This assessment did not identify any significant Controlled Recognized Environmental Conditions[2] or Historical Recognized Environmental Conditions[3].

As noted in ASTM E 1527-13, the term Recognized Environmental Condition is not intended to include de minimis conditions that generally do not present a significant threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies.

SECTION 10: LIMITATIONS

Cornerstone performed this Phase I ESA to support Trumark Homes in evaluation of Recognized Environmental Conditions associated with the Site. Trumark Homes understands that no Phase I ESA can wholly eliminate uncertainty regarding the potential for Recognized Environmental Conditions to be present at the Site. This Phase I ESA is intended to reduce, but not eliminate, uncertainty regarding the potential for Recognized Environmental Conditions.

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[1] The presence or likely presence of hazardous substances or petroleum products on the Site: 1) due to significant release to the environment; 2) under conditions indicative of a significant release to the environment; or 3) under conditions that pose a material threat of a future significant release to the environment.

[2] A Recognized Environmental Condition that has been addressed to the satisfaction of the applicable regulatory agency with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls or restrictions.

[3] A past Recognized Environmental Condition has been addressed to the satisfaction of the applicable regulatory agency or meeting of unrestricted use criteria established by the applicable regulatory agency without subjecting the Site to required controls or restrictions.

Trumark Homes understands that the extent of information obtained is based on the reasonable limits of time and budgetary constraints.

Findings, opinions, conclusions and recommendations presented in this report are based on readily available information, conditions readily observed at the time of the Site visit, and/or information readily identified by the interviews and/or the records review process. Phase I ESAs are inherently limited because findings are developed based on information obtained from a non-intrusive Site evaluation. Cornerstone does not accept liability for deficiencies, errors, or misstatements that have resulted from inaccuracies in the publicly available information or from interviews of persons knowledgeable of Site use. In addition, publicly available information and field observations often cannot affirm the presence of Recognized Environmental Conditions; there is a possibility that such conditions exist. If a greater degree of confidence is desired, soil, ground water, soil vapor and/or air samples should be collected by Cornerstone and analyzed by a state-certified laboratory to establish a more reliable assessment of environmental conditions.

Cornerstone acquired an environmental database of selected publicly available information for the general area of the Site. Cornerstone cannot verify the accuracy or completeness of the database report, nor is Cornerstone obligated to identify mistakes or insufficiencies in the information provided (ASTM E 1527-13, Section 8.1.3). Due to inadequate address information, the environmental database may have mapped several facilities inaccurately or could not map the facilities. Releases from these facilities, if nearby, could impact the Site.

Trumark Homes may have provided Cornerstone environmental documents prepared by others. Trumark Homes understands that Cornerstone reviewed and relied on the information presented in these reports and cannot be responsible for their accuracy.

This report, an instrument of professional service, was prepared for the sole use of Trumark Homes and may not be reproduced or distributed without written authorization from Cornerstone. It is valid for 180 days. An electronic transmission of this report may also have been issued. While Cornerstone has taken precautions to produce a complete and secure electronic transmission, please check the electronic transmission against the hard copy version for conformity.

Cornerstone makes no warranty, expressed or implied, except that our services have been performed in accordance with the environmental principles generally accepted at this time and location.

CORNERSTONE EARTH GROUP

Vicinity Map	Project Number 206-56-1
Croak Ranch **4038 Croak Road** **Dublin, CA**	Figure Number Figure 1
	Date July 2019 / Drawn By RRN

Base by Google Earth, dated 4/2/2018

Project Number: 206-56-1

Figure Number: Figure 2

Drawn By: RRN

Date: July 2019

Site Plan

Croak Ranch
4038 Croak Road
Dublin, CA

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APPENDIX A – TERMS AND CONDITIONS

CORNERSTONE EARTH GROUP

APPENDIX B – USER-PROVIDED INFORMATION

APPENDIX C – DATABASE SEARCH REPORT

CORNERSTONE EARTH GROUP

APPENDIX D – HISTORIC AERIAL PHOTOGRAPHS AND TOPOGRAPHIC MAPS

APPENDIX E – LOCAL STREET DIRECTORY SEARCH RESULTS

CORNERSTONE EARTH GROUP

APPENDIX F – RECORDS REVIEW DOCUMENTS

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS

Project Number: 19343.00T

MEMORANDUM

Date: June 15, 2020

To: City of Dublin – Planning / Public Works Department

From: MacKay & Somps

Subject: Croak Property – Stormwater Quality and Hydromodification

1. Background

1-1. Purpose

The following Technical Memorandum describes the preliminary stormwater quality (SWQ) and hydromodification (HM) design for the approximately 164-acre East Ranch Croak Property ("Croak Project") located in the City of Dublin, California. The stormwater calculations and modeling are being submitted in support of the Project's Vesting Tentative Map (VTM) for Tract 8653, dated June 2020, prepared by MacKay & Somps.

This analysis will demonstrate the Croak Project satisfies the C.3 Provisions of the Municipal Regional Stormwater NPDES Permit (MRP) in terms of stormwater quality (SWQ) and hydromodification (HM). In addition, to satisfy the *City of Dublin's Stormwater Controls for Development Projects*, the "Stormwater Requirements Checklist" has also been included in **Appendix A**.

1-2. Drainage Setting

1-2-1. Existing Condition

The existing ("pre-development") Croak Project 196.3-acre watershed consists of natural grassland with hillside slopes exceeding 20%. The existing site has less than 1% impervious cover and native soils composed of predominately hydrologic soil groups "C" and "D" types. A pre-development drainage map is shown on **Figure 1**.

1-2-2. Proposed Condition

The proposed ("post-development") Croak Project 199.2-acre watershed will have about 40% impervious landuse, and include single-family detached lots, medium density lots, neighborhood parks, open space, and semi-public space. The proposed grading shows street/sidewalk slopes in the 5% range. A post-development drainage map is shown on **Figure 2**.

2. Overview

2-1. Stormwater Quality (SWQ) Overview

2-1-1. General SWQ Overview

SWQ involves the implementation of post-construction ("post-development") stormwater controls for project sites to fulfill local and State requirements in the Municipal Regional Stormwater NPDES Permit (MRP). Post-construction stormwater controls represent permanent features for a developed project site that minimize pollutants in stormwater runoff. These permanent features may be treatment measures (bioretention areas, tree well filters, pervious paving, etc.), which apply natural processes such as filtration, infiltration, flotation, and sedimentation to improve SWQ.

2-1-2. Croak Project SWQ Overview

The Croak Project will treat post-development stormwater runoff through a series of bioretention facilities which act as natural infiltration systems that remove pollutants via physical, biological, and chemical treatment processes. Stormwater will be routed to the Project's bioretention facilities by overland flow and subsurface conduit systems.

Additional information pertaining to typical bioretention basin details and facility locations are shown on Sheet 21 ("*Preliminary Stormwater Quality Plan*") of East Ranch Croak Property VTM for Tract 8653, dated June 2020. Furthermore, a summary of the bioretention treatment areas for the Croak Project are shown in **Table 1** and the layout of post-development drainage management area (DMA) boundaries are delineated on **Figure 2**.

Table 1. Croak Project Bioretention Treatment Areas

Bioretention #	Proposed Treatment Area [1]	Tributary Drainage Area(s) [2]
Bioret SWQ 1	46,217 sf	DMA 1A,1B,1C,1D,1E,1F, & OS4
Bioret SWQ 2	35,906 sf	DMA 2A,2B
Bioret SWQ 3	12,915 sf	DMA 3A
Bioret SWQ 4	1,586 sf	DMA 4A
Bioret SWQ 5	3,291 sf	DMA 5A
Bioret SWQ 6	4,236 sf	DMA 6A
Bioret SWQ 7	4,817 sf	DMA 7A

Notes:
[1] Refer to Sheet 21 of East Ranch Croak Property VTM for Tract 8653, dated June 2020.
[2] Refer to Figure 2 of this Memorandum for post-development DMA boundaries.

2-2. Hydromodification (HM) Overview

2-2-1. General HM Overview

HM represents a stormwater attenuation technique for handling increased post-development site runoff via methods of retention, detention, or infiltration of runoff. The requirement for HM is founded on the following concept: new development and redevelopment projects increasing impervious landuse results in stormwater runoff of larger volumes and higher flowrates. These increases in volume and flowrate from the post-development site will cause damage to the "natural" downstream receiving waters through stream erosion, habitat destruction, and sediment transport/deposition.

2-2-2. Croak Project HM Overview

The Croak Project will fulfill HM requirements for post-development runoff by constructing cylindrical storage tanks at two locations to provide **operational storage detention**. These storage tanks include the following: (i) "Tank 1" (100 lineal feet of 48-inch pipe) located at the northern edge of "Parcel H" which is southwest of the Central Parkway / Croak Road intersection, and (ii) "Tank 2" (150 lineal feet of 72-inch pipe) located at the southern edge of proposed “South Neighborhood Park”. For location of “Tank 1” and “Tank 2”, refer to Sheet 3 (“*Site Plan and Preliminary Utility Plan*”) of East Ranch Croak Property VTM for Tract 8653, dated June 2020.

The storage pipes in “Parcel H” and “South Neighborhood Park” satisfy HM management by providing high flow attenuation before runoff is treated by a downstream bioretention facility. More specifically, flows up to the 10-year storm are diverted (“Diversion 1” and “Diversion 2”) to their respective storage tank (“Tank 1” and “Tank 2”) and detained to achieve HM requirements of the MRP**.**

The HM “Tank” is sized to provide **operational storage detention**, low flow orifice outlet hydraulic control, and metered outflow of the required SWQ flows at a reduced flowrate (“adjusted WQ flow”). Each “Tank” meters “adjusted WQ flow” to their respective downstream bioretention area (“Bioret SWQ 1” and “Bioret SWQ 2”) at a flowrate matching the treatment capacity of the bioretention area. Higher flows up to the 10-year storm are also metered from the “Tank” to comply with the HM standard.

The “Required Treatment Area” calculated by the simplified four (4) percent method for “Bioret SWQ 1” and “Bioret SWQ 2” is greater than the available treatment area (“Proposed Treatment Area”) – refer to *Section 3-1.* of this Memorandum. Due to site constraints and the preservation of existing wetlands, both “Bioret SWQ 1” and “Bioret SWQ 2” are under-sized to accommodate the full WQ runoff from the **upstream tributary drainage area** (A_{full}) and therefore can only receive a reduced runoff volume (“adjusted WQ flow”) corresponding to an equivalent **reduced upstream tributary drainage area** ($A_{reduced}$). The corresponding “adjusted WQ flow” is computed by an iterative process using equations [1] through [3].

[1] Effective Impervious Area = (Required Treatment Area) / (4%)

[2] Effective Impervious Area = ($\%_{impervious}$) x ($A_{reduced}$) + (10%) x (100% − ($\%_{impervious}$)) x ($A_{reduced}$)

[3] Adjusted WQ Flow = (Runoff Coefficient, C) x (0.20 inches/hour) x ($A_{reduced}$)

The incorporation of HM prior to SWQ treatment is a recognized stormwater management design strategy as detailed in the **C.3 Stormwater Technical Guidance** Handbook (“C.3 Handbook”) for the County of Alameda (Version 7, 2019). This design strategy has two primary benefits: (i) the bioretention basin filtrates larger volumes of runoff as the metered flow allows for less runoff to bypass through the high-flow riser outlet structure, and (ii) the life of the bioretention basin soil mix is extended as the “Tank” will minimize sediment-laden flow and high velocity flow from entering the basin.

3. Analysis

3-1. Stormwater Quality (SWQ) Calculations

Calculations for the Project’s stormwater quality (SWQ) requirements are performed following the “C.3 Handbook”. According to the “C.3 Handbook”, the simplified four (4) percent method is suitable for sizing bioretention treatment areas, which is computed using equations [4] and [5]. These sizing calculations are presented in **Table 2**.

[4] Effective Impervious Area = (Impervious Area) + (10%) x (Pervious Area)

[5] Required Treatment Area = (4%) x (Effective Impervious Area)

Table 2. Croak Project SWQ Calculations

Bioretention #	Effective Impervious Area [1]	Required Treatment Area [2]	Proposed Treatment Area [3]
Bioret SWQ 1	1,266,563 sf	50,663 sf	46,217 sf [4]
Bioret SWQ 2	1,598,087 sf	63,923 sf	35,906 sf [4]
Bioret SWQ 3	317,395 sf	12,696 sf	12,915 sf
Bioret SWQ 4	25,682 sf	1,027 sf	1,586 sf
Bioret SWQ 5	74,661 sf	2,986 sf	3,291 sf
Bioret SWQ 6	72,031 sf	2,881 sf	4,236 sf
Bioret SWQ 7	86,634 sf	3,465 sf	4,817 sf

Notes:
[1] Computed as "Impervious Area Total" plus "10% of Pervious Area Total".
[2] Computed as 4% of "Effective Impervious Area".
[3] Refer to Sheet 21 of East Ranch Croak Property VTM for Tract 8653, dated June 2020.
[4] Refer to discussion in *Section 2-2-2.* of this Memorandum regarding **operational storage detention** being implemented for "Bioret SWQ 1" and "Bioret SWQ 2".

3-2. Hydromodification Modeling

3-2-1. Software

Determination of the Project's compliance with hydromodification (HM) is verified using the computer software **BAHM 2013** (Bay Area Hydrology Model), created by Clear Creek Solutions. BAHM applies the computational engine of EPA's HSPF (Environmental Protection Agency's Hydrological Simulation Program – Fortran), which has been utilized for over 20 years to model watershed hydrology and water quality. BAHM analyzes pre-development and post-development project-site runoff using continuous hydrologic simulations with long-term rainfall records. The software compares pre-development and post-development flow duration curves for 100 flow levels between the lower threshold of 10% of the 2-year storm and the upper threshold of the 10-year storm. The model assesses the pre-development and post-development curves at the "Point of Compliance" ("POC") which represents the downstream flow confluence location.

3-2-2. Model Setup: General

The BAHM modeling created for the East Ranch Croak Property includes both the pre-development project watershed and post-development project watershed. The pre-development and post-development drainage maps are shown on **Figure 1** and **Figure 2**.

The Project BAHM modeling includes the following model elements:

- Basin Element – drainage area with a combination of soils, vegetation, and land cover
- Flow Splitter Element – diversion structure which directs flows to a primary outlet and secondary outlet
- Bioretention Element – LID (low impact development) treatment feature which consists of a soil and landscape filtration system
- Tank Element – storage structure which detains runoff volume and meters outflow

- Channel Element – natural or synthetic open channel to convey flow (representing the onsite mitigation channels)

A schematic layout of the pre-development and post-development modeling scenarios are depicted on **Figure 3**.

- <u>Pre-Development</u>: The pre-development BAHM model consists of runoff from a single watershed draining to the "POC".
- <u>Post-Development</u>: The post-development BAHM model consists of multiple developed subareas ("DMA") and undeveloped open space areas ("OS") with one of the following conveyance pathways:
    - o DMA runoff routed to a diversion structure with low discharges up to the 10-year entering a HM "Tank" for operational storage and high discharges bypassing to the "POC"
        - HM "Tank" meters outflow of the required HM flows and reduced SWQ flows at lowered rates with larger flows discharging to the "POC"
    - o DMA runoff routed to a diversion structure with low WQ flows going to a bioretention area and high flows bypassing to the "POC"
    - o DMA runoff flows directly to a bioretention area with higher overflows exiting to the "POC"
    - o OS runoff enters a mitigation channel which routes flows to the "POC"
    - o OS runoff routed directly to the "POC"

All BAHM model input data is included in **Appendix B**.

3-2-3. Model Setup: Basin

The pre-development BAHM drainage area (196.3-acre) landuse is nearly all "grass cover with soil types C/D" and ground slopes above 20%. The post-development BAHM drainage area (199.2-acre) landuse consists of about 136-acres of developed area and about 63-acres of undeveloped natural area. Among the 136-acres of developed area only about 55% of the land cover (75 acres) is impervious surface consisting of around 36-acres "flat roads" with slopes averaging 5% or less and around 39-acres of "roof areas".

The determination of impervious percentages for the post-development condition is based on engineering judgement of the zoning density and lot size. For post-development, a summary of drainage areas and impervious percentages for developed subareas ("DMA") and undeveloped open space areas ("OS") are shown in **Table 3**.

Additionally, the drainage routes of stormwater runoff form the undeveloped open space areas ("OS") is graphically depicted on **Figure 4**.

Table 3. Croak Project BAHM Model Drainage Areas

Area ID	Total Area (ac)	Impervious Area (ac)	Impervious Percentage (%)
DMA 1A	0.55	0.47	85.0%
DMA 1B	23.84	14.30	60.0%
DMA 1C	4.48	0.45	10.0%
DMA 1D	1.95	1.17	60.0%
DMA 1E	2.03	1.52	75.0%
DMA 1F	13.02	9.11	70.0%
DMA 2A	6.51	0.65	10.0%
DMA 2B	59.58	32.77	55.0%
DMA 3A	10.64	6.91	65.0%
DMA 4A	0.86	0.56	65.0%
DMA 5A	3.12	1.56	50.0%
DMA 6A	4.79	2.87	60.0%
DMA 7A	4.57	2.74	60.0%
OS1	12.21	0.00	0.0%
OS2	36.82	0.00	0.0%
OS3	4.12	0.00	0.0%
OS4	1.66	0.00	0.0%
OS5	1.53	0.00	0.0%
OS6 [1]	2.38	0.00	0.0%
WQ1 [2]	2.13	0.06	3.0%
WQ2 [2]	1.45	0.04	3.0%
WQ3 [2]	0.47	0.01	3.0%
WQ4 [2]	0.21	0.01	3.0%
WQ5 [2]	0.28	0.01	3.0%
Total	199.20	75.21	37.8%

Notes:
[1] The open space area “OS6” does not drain to “POC”.
[2] The cumulative 4.5-acres of pervious subareas (“WQ1” to ‘WQ5”) utilized for WQ treatment have negligible contribution to “POC”.

3-2-4. Model Setup: Flow Splitter

The post-development model includes a series of diversion structures to route flows to bioretention areas for treatment and tanks for operational storage. To simplify the modeling process to be in line with the present Croak Project stage (Vesting Tentative Map), diversion structures in BAHM use the “flow threshold” criteria where the user specifies a controlling flowrate “$Q_{threshold}$”, where low flows up to “$Q_{threshold}$” are routed through a primary exit structure “Outlet 1” (typically an orifice) and high flows above “$Q_{threshold}$” are routed through a secondary exit structure “Outlet 2” (typically a weir). A summary of the model diversion structures with the associated “$Q_{threshold}$” rate and corresponding downstream receiving element of “Outlet 1” and “Outlet 2” are shown in **Table 4**.

All "$Q_{threshold}$" rates are computed by using the rational method:

- 10-Year Flows (Diversions 1 and 2) are based on assuming time of concentrations and applying the "Alameda County Hydrology & Hydraulics Manual" 10-Year rainfall intensity chart.
- Adjusted WQ Flows (Diversions 1A and 2A) use the typical 0.20 inches per hour intensity and an iterative calculation where the "Proposed Treatment Area" (bioretention area) is converted to the **reduced upstream tributary drainage area** ($A_{reduced}$) corresponding to a reduced "adjusted WQ flow" that is matched to the available treatment area ("Proposed Treatment Area").
- WQ Flows (Diversions 3 and 5) use the typical 0.20 inches per hour intensity and the **upstream tributary drainage area** (A_{full}).

Table 4. Croak Project BAHM Model Diversion Structures

Diversion #	$Q_{threshold}$	Outlet 1	Outlet 2
Diversion 1	10-Year Flow	Tank 1	Point of Compliance
Diversion 1A	Adjusted WQ Flow	Bioret SWQ 1	Point of Compliance
Diversion 2	10-Year Flow	Tank 2	Point of Compliance
Diversion 2A	Adjusted WQ Flow	Bioret SWQ 2	Point of Compliance
Diversion 3	WQ Flow	Bioret SWQ 3	Point of Compliance
Diversion 5	WQ Flow	Bioret SWQ 5	Point of Compliance

3-2-5. Model Setup: Bioretention

As mentioned previously in *Section 3-1.*, the bioretention treatment areas are sized following the simplified four (4) percent method from the **C.3 Stormwater Technical Guidance** Handbook ("C.3 Handbook") for the County of Alameda (Version 7, 2019). Refer to **Table 2** above for bioretention "Proposed Treatment Area".

The seven (7) bioretention facilities for the Croak Project have the same general design adhering to the "C.3 Handbook" in terms of biotreatment soil mix, rock underlayer, riser structure, and underdrain. For the BAHM modeling, the Project's bioretention outflow elements are as follows— riser structures consisting of either 12-inch or 18-inch square grates at 6-inches above the basin bottom and perforated underdrains sized as 4-inch or 6-inch diameter with a 3.5-inch or 5.5-inch orifice restriction. Given the low permeability of the Project's existing native soils, bioretention elements are modeling with an in-situ infiltration rate of **0.2 inches per hour** with a factor of safety of two (2), as guided by the Project's preliminary geotechnical investigation.

3-2-6. Model Setup: Tank

The HM "Tank" operation and purpose for "Tank 1" and "Tank 2" is described previously in *Section 2-2-2.* above, however the sizing of the "Tank" dimensions and outlet configurations (low-level orifice and high-level weir) is based on numerous BAHM modeling iterations to ensure the "Tank" available volume capacity is not overburdened at peak flows. The "finalized" results of BAHM modeling resulted in the following "Tank" design, as shown in **Table 5** and **Table 6**.

Table 5. Croak Project BAHM Model Storage Pipes "Tank 1" Design

Design Category	Dimension / Description
Tank 1 Location	Parcel H (southwest of Central / Croak)
Tank 1 Diameter	4 ft (48-inch)
Tank 1 Length	100 ft
Outlet 1 (Orifice)	8-inch Diameter Orifice at 0.0-ft Height
	10-inch Diameter Orifice at 1.0-ft Height
Outlet 2 (Weir)	5-ft Weir Length at 2.0-ft Height

Table 6. Croak Project BAHM Model Storage Pipes "Tank 2" Design

Design Category	Dimension / Description
Tank 2 Location	South Neighborhood Park
Tank 2 Diameter	6 ft (72-inch)
Tank 2 Length	150 ft
Outlet 1 (Orifice)	3-inch Diameter Orifice at 0.0-ft Height
	10-inch Diameter Orifice at 1.5-ft Height
Outlet 2 (Weir)	6-ft Weir Length at 4.0-ft Height

3-2-7. Model Setup: Channel

The Croak Project will route treated low flows and open space area ("OS") flows to a "Mitigation Channel" which parallels the Croak Road alignment. In effort to preserve and protect hydrologic processes of the natural wetlands, the "Mitigation Channel" discharges flow to the wetlands. A typical channel cross-section of the "Mitigation Channel" is shown on Sheet 2 ("*Sections and Details*") of East Ranch Croak Property VTM for Tract 8653, dated June 2020.

The "Mitigation Channel" is an earthen trapezoidal channel with 2:1 side slope, 10-foot basewidth, max depth of 6 feet, and longitudinal slope of about 4.8%. The channel also includes a meandering low-flow swale, but to simplify the BAHM modeling, the channel is conservatively represented as a flat-bottom prismatic trapezoidal channel.

3-2-8. Model Results

The BAHM model for the Croak Project is run to confirm that post-development stormwater flowrates and durations match pre-development flowrates and durations from 10% of the 2-year pre-development peak discharge up to the 10-year pre-development peak discharge. The flow duration curves and cumulative probability curves for the pre-development and post-development runoff at the "POC" are analyzed over 40-years of historical rainfall to verify compliance with the HM standard from the Municipal Regional Stormwater NPDES Permit (MRP). A summary of peak flows for 2-year, 5-year, 10-year, and 25-year frequency intervals are summarized in **Table 7**.

Table 7. Croak Project BAHM Model Flow Frequency

Frequency	Pre-Development	Post-Development
2-Year	50 cfs	39 cfs
5-Year	87 cfs	77 cfs
10-Year	102 cfs	92 cfs
25-Year	132 cfs	112 cfs

All BAHM model output data is included in **Appendix C**.

4. Conclusion

The Technical Memorandum for the East Ranch Croak Property demonstrated the Project fulfills the C.3 Provisions of the Municipal Regional Stormwater NPDES Permit (MRP) from the standpoint of stormwater quality (SWQ) treatment criteria and hydromodification (HM) mitigation measures. The SWQ calculations and HM modeling were presented herein to be consistent with the current preliminary design presented in the Project's Vesting Tentative Map (VTM) for Tract 8653.

Best Regards,

MacKay & Somps Civil Engineers, Inc.

By: ....
Mark McClellan

cc: Colette L'Heureux, MacKay & Somps
Kenneth Hyman, MacKay & Somps
Garret Hinds, Trumark
Pam Nieting, Trumark

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EAST RANCH-CROAK PROPERTY
FIGURE 1
PRE-DEVELOPMENT DRAINAGE MAP

CITY OF DUBLIN CALIFORNIA

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
5142B FRANKLIN DR, PLEASANTON, CA 94588 (925)225-0690

MACKAY & SOMPS IS NOT RESPONSIBLE FOR THE ACCURACY OR COMPLETENESS OF REPRODUCTIONS OF THIS DOCUMENT THAT ARE GENERATED BY OTHERS FROM ELECTRONIC MEDIA

OFFICE	SCALE	DATE	JOB NO.
PLEASANTON	1" = 100'	06-15-2020	19343.00T

SHEET 1 OF 1

EAST RANCH-CROAK PROPERTY

FIGURE 2

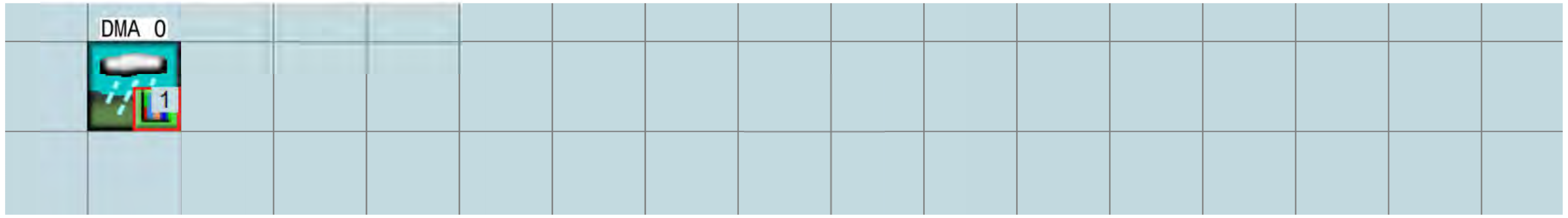
POST-DEVELOPMENT DRAINAGE MAP

CITY OF DUBLIN CALIFORNIA

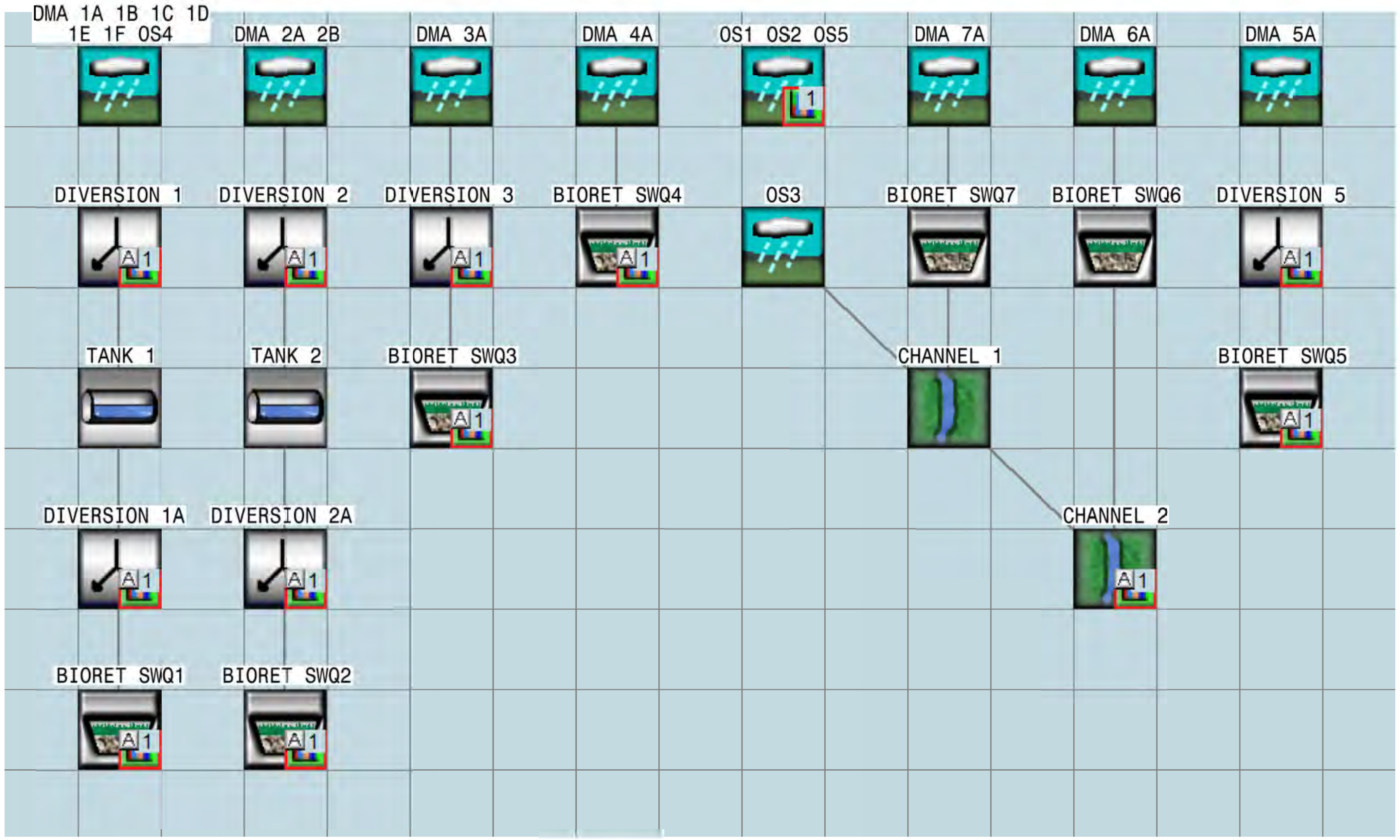
MACKAY & SOMPS

PLEASANTON	1" = 100'	06-15-2020	19343.00T
OFFICE	SCALE	DATE	JOB NO.

PRE-DEVELOPMENT BAHM MODEL



POST-DEVELOPMENT "MITIGATED" BAHM MODEL



LEGEND

BASIN ELEMENT

FLOW SPLITTER ELEMENT

BIORETENTION ELEMENT

TANK ELEMENT

CHANNEL ELEMENT

SHEET 1 OF 1

EAST RANCH-CROAK PROPERTY

FIGURE 3

BAHM MODEL SCHEMATIC

CITY OF DUBLIN CALIFORNIA

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PLEASANTON	N.T.S.	06-15-2020	19343.00T
OFFICE	SCALE	DATE	JOB NO.

LEGEND

(green)	OPEN SPACE SHED DRAINS TO ACCESS/MAINT. BENCH, CONVEYED BY CONCRETE V-DITCH AND OPEN SPACE STORM DRAIN LINE, ROUTED THROUGH DEVELOPMENT IN SEPARATE SDO LINE (SDO LINE SHOWN IN COLOR), ULTIMATELY DISCHARGES TO EX. DUAL 6'x5' BOX CULVERT AT FALLON ROAD INTERCHANGE SHED AREA = 40.8± AC
(orange)	OPEN SPACE SHED DRAINS TO ACCESS/MAINT. BENCH, CONVEYED BY CONCRETE V-DITCH AND OPEN SPACE STORM DRAIN LINE, ROUTED THROUGH DEVELOPMENT IN SEPARATE SDO LINE (SDO LINE SHOWN IN COLOR), ULTIMATELY DISCHARGES TO EX. DUAL 6'x5' BOX CULVERT AT FALLON ROAD INTERCHANGE SHED AREA = 10.7± AC
(yellow)	OPEN SPACE SHED DRAINS TO ACCESS/MAINT. BENCH, CONVEYED BY CONCRETE V-DITCH AND OPEN SPACE STORM DRAIN LINE, ROUTED THROUGH DEVELOPMENT IN SEPARATE SDO LINE (SDO LINE SHOWN IN COLOR), ULTIMATELY DISCHARGES TO EX. DUAL 6'x5' BOX CULVERT AT FALLON ROAD INTERCHANGE SHED AREA = 2.0± AC
(blue)	OPEN SPACE SHED DRAINS TO ACCESS/MAINT. BENCH, CONVEYED BY CONCRETE V-DITCH AND OPEN SPACE STORM DRAIN LINE TO A DISCHARGE POINT IN THE MITIGATION SWALE. FLOW IS ROUTED THROUGH THE PROJECT IN THE MITIGATION SWALE AND ULTIMATELY DISCHARGES WITH THE IN-TRACT STORM DRAIN SYSTEM AT THE SOUTH END OF THE PROJECT. SHED AREA = 4.1± AC
(purple)	OPEN SPACE SHED DRAINS TO EXISTING OPEN SPACE DRAINAGE CORRIDOR PER THE HISTORICAL DRAINAGE PATTERN SHED AREA = 1.4± AC

0 125 250 500
SCALE: 1"=250'

SHEET 1 OF 1

EAST RANCH-CROAK PROPERTY
FIGURE 4
OPEN SPACE STORM DRAIN EXHIBIT

CITY OF DUBLIN CALIFORNIA

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OFFICE	SCALE	DATE	JOB NO.
PLEASANTON	1" = 250'	06-12-2020	19343

Appendix A.

Stormwater Requirements Checklist

Stormwater Requirements Checklist

Municipal Regional Stormwater Permit (MRP)
Stormwater Controls for Development Projects

Part ONE Enter Project Data

1	Project Name: East Ranch		
2	Project Address (include cross street): Dublin Boulevard and Croak Road		
3	APN or parcel/tract #: 905-0002-002-00, 905-0002-001-01		
4	Project Watershed (creek or receiving water): Arroyo Mocho	Depth to seasonal high groundwater: 8+ ft	
5	Property Owner's Name: Croak Properties LP		
6	Applicant name and role: Mark McClellan	☐ Owner ☒ Engineer/Architect ☐ Developer	
7	Applicant signature (Required):	Date: 6/15/20	
8	Applicant Address: 5142 Franklin Dr, Pleasanton CA		
9	Applicant Phone: 925-225-0690	Applicant Email Address: mmclellan@msce.com	
10	Development type: (check all that apply)	☒ Residential Subdivision ☐ Commercial/Industrial ☐ Mixed-Use ☐ Road Project ☐ Single family home ☐ Public Project ☐ Gas Station ☐ Auto-service facility ☐ Restaurant ☐ Parking lot	
11	Project Description: (Also note any past or future phases of the project.)	465 single family buildings and 108 condominium units	
12	☐ Check box if other permit applications have been submitted in the past year.		
13	Total Area of Site: 164.22 acres		
14	Total Area of land disturbed during construction (include clearing, grading, excavating and stockpile area): 156.92 acres.		
15	Average slope on site: ______		

Part TWO Impervious and Pervious Surfaces Table

Enter the amount of impervious surface created and/or replaced by the project:

	Type of Impervious Surface	a Pre-Project Impervious Surface (sq.ft.)	b Existing Impervious Surface to be Replaced[1] (sq.ft.)	c New Impervious Surface to be Created (sq.ft.)
16	Impervious surfaces (Roof area(s), patios, paths, trails, driveways, decks, sidewalks)[2]	4,733	0	1,598,774
17	Parking lots	0	0	0
18	Streets (private)	0	0	113,851
19	Streets (public)	68,061	0	1,462,566
20	*Totals:*	72,794	0	3,175,191
21	Area of Existing Impervious Surface to remain in place	0	N/A	
22	Total Impervious Surface Created/Replaced (*sum of totals for columns b and c*):			3,175,191
23	If new pervious[2] hardscape is included, indicate the type of surface: ☐ Asphalt ☐ Concrete ☐ Pavers			
24	Total square feet of new pervious landscape: 2,658,625			

[1] Replace" means to install new impervious surface where existing impervious surface is removed. "Create" means to install new impervious surface where there is currently no impervious surface.
[2] Per the MRP, landscaped soil and pervious pavement, including pavers with pervious openings and seams, underlain with pervious soil or pervious storage materials, such as a gravel layer sufficient to hold at least the C.3.d volume of rainfall runoff are not impervious surfaces.

Part THREE Is the project a "C.3 Regulated Project" per MRP Provision C.3.b?

		Yes	No	N/A
25	Is the total impervious surface created/replaced ≥ 5,000 ft.², (reported in row 23 above) AND is the project a gas station, restaurant, automotive facility or parking lot?	☐	☒	☐
26	Is the total impervious surface created/replaced ≥10,000 ft.² (reported in row 23 above)?	☒	☐	☐
27	If the project is a road project, does it create/replace ≥10,000 ft.² of impervious surface AND is the road being widened to add a travel or parking lane?	☒	☐	☐
28	If the project is a new road project, does it create/replace ≥10,000 ft.² of impervious surface?	☒	☐	☐
29	If the project includes a trail, is it greater than 10 feet wide or creekside?	☐	☒	☐
30	If the answer to any question above is yes, then the project is a **C.3 Regulated Project**. Mark YES and answer *question 31; if NO, continue to question 32.*	☒	☐	☐
31	Is the total amount of replaced impervious surface ≥ 50 percent of the pre-project impervious surface (reported in row 22 above)? *If YES, stormwater treatment requirements apply to the entire site; if NO, these requirements apply only to the impervious surface created and/or replaced.*	☒	☐	☐

Part FOUR Identify C.6 Construction-Phase Stormwater Requirements

		Yes	N/A
32	Does the project disturb 1.0 acre (43,560 sq.ft.) or more of land? (Reported in row 14 above). *If Yes, obtain coverage under the state's Construction General Permit at https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp. Submit your WDID# and evidence of Notice of Intent coverage before grading or building permits are issued.*	☒	☐
33	Does the site disturb 5000 ft² or more of land area with slope 15% or greater?	☒	☐
34	Include the Clean Bay Blueprint in plan set (all projects)	☒	☐
35	Include an erosion/sediment control plan sheet in plan set if the project scope includes land disturbing activities (clearing, grading, excavating or material stockpiling).	☒	☐
36	If the project disturbs less than 1.0 acres, submit an Urban Runoff Requirement Acknowledgement Form.	☐	☒

Part FIVE Select Appropriate Site Design Measures

- *Any project that creates and/or replaces **greater than 2,500 square feet** of impervious surface, including stand-alone single family homes, **must include at least one** of site design measures a. through e. listed below.*
- *C.3 regulated projects (determined in Part THREE above) must include site design measures applicable to the particular project.*

Mark the site design measures included in the project plans.

Yes	No	
☒	☐	a. Direct roof runoff onto vegetated areas via disconnected downspouts, unless it is a C.3 regulated project discharging runoff to a low impact development treatment measure.
☐	☒	b. Direct roof runoff into cisterns or rain barrels and use rainwater for irrigation or other non-potable use.
☒	☐	c. Direct runoff from sidewalks, walkways, and/or patios onto vegetated areas.
☒	☐	d. Direct runoff from driveways and/or uncovered parking lots onto vegetated areas.
☐	☒	e. Construct sidewalks, walkways, patios, driveways, bike lanes and/or parking lots with permeable surfaces.
☐	☒	f. Minimize land disturbance and impervious surface creation (especially parking lots).
☒	☐	g. Maximize permeability by clustering development and preserving open space.
☐	☒	h. Use micro-detention, including distributed landscape-based detention.
☒	☐	i. Protect sensitive areas, such as wetland and riparian areas; minimize changes to the natural topography.

☒	☐	j. Use self-treating area (see Section 4 of C.3 Technical Manual)
☒	☐	k. Use self-retaining area(s) (see Section 4.2 of the C.3 Technical Manual)
☒	☐	l. Plant or preserve interceptor trees (Section 4.5, C.3 Technical Manual)

Part SIX Select Stormwater Source Controls

- All projects must include the relevant stormwater source controls.

Features that Require source controls	Source Control Included? Mark Yes or Not Applicable (N/A)	Yes	N/A
Storm Drains (excluding single family homes)	Mark public and private storm drain inlets with the words "No Dumping Drains to Creek."	☒	☐
Refuse Areas	▪ Provide a roofed and enclosed area designed to prevent stormwater run-on and runoff for dumpsters, recycling containers, tallow containers and other waste handling containers. ▪ Connect any drains in or beneath dumpsters, compactors, and tallow bin areas to the sanitary sewer (except for industrial uses). Contact Dublin San Ramon Services District for connection requirements. ▪ Industrial uses must transport wastewater generated to the appropriate waste facility.	☐	☒
Parking garage	Plumb interior parking garage floor drains to a stormwater treatment measure or the sanitary sewer, with approval from Dublin San Ramon Services District (www.dsrsd.com or 9525-858-0515).	☐	☒
Pool/Spa/ Fountain	Provide a sanitary sewer clean out within 10 feet of pool, spa or fountain to facilitate draining. Contact Dublin San Ramon Services District for connection requirements.	☐	☒
Food Service Equipment (non-residential)	Provide sink or other area for equipment cleaning, which is: ▪ Connected to an oil-water separator prior to discharge to sanitary sewer. ▪ Large enough for the largest mat or piece of equipment to be cleaned. ▪ Indoors or in an outdoor roofed area designed to prevent stormwater run-on and run-off, and signed to require equipment washing in this area. Contact Dublin San Ramon Services District for connection requirements.	☐	☒
Outdoor Process Activities	Perform process activities either indoors or in roofed outdoor area, designed to prevent stormwater run-on and runoff, and to drain to the sanitary sewer. Contact Dublin San Ramon Services District for connection requirements.	☐	☒
Outdoor Equipment/ Materials Storage	▪ Cover the area or design to avoid pollutant contact with stormwater runoff. ▪ Locate area only on paved and contained areas. ▪ Process equipment areas must not discharge to the storm drain system. Dublin San Ramon Services District may accept discharges from some process equipment areas depending on the process. Contact Dublin San Ramon Services District for connection requirements.	☐	☒
Vehicle/ Equipment Cleaning	▪ Roof, pave and berm wash area to prevent stormwater run-on and runoff, plumb to the sanitary sewer, and sign as a designated wash area. ▪ Commercial car wash facilities shall discharge to the sanitary sewer. ▪ Contact Dublin San Ramon Services District for connection requirements.	☐	☒
Vehicle/ Equipment Repair and Maintenance	▪ Designate repair/maintenance area indoors, or an outdoors area designed to prevent stormwater run-on and runoff and provide secondary containment. Do not install drains in the secondary containment areas. ▪ Tanks, containers or sinks used for parts cleaning/rinsing shall not connect to the storm drain system. These units/sinks may only connect to the sanitary sewer system if allowed by an industrial waste discharge permit. Contact Dublin San Ramon Services District for discharge requirements.	☐	☒
Architectural Copper	Discharge rinse water to the sanitary sewer per Dublin San Ramon Services District requirements or collect and dispose properly offsite. Contact the Environmental Coordinator to obtain the flyer entitled "Requirements for Architectural Copper."	☐	☒
Metal roofs	Coat all metal roofs, including galvanized roofs, with rust-inhibitive paint.	☐	☒
Fire Sprinklers	▪ Design for discharge to landscape area or sanitary sewer. Contact Dublin San Ramon Services District for connection requirements. For landscape discharge, refer to the City of Dublin Fire Sprinkler Test Water Fact Sheet.	☒	☐

Features that Require source controls	Source Control Included? Mark Yes or Not Applicable (N/A)	Yes	N/A
Miscellaneous Drain or Wash Water	▪ Drain condensate from air conditioning units to appropriately sized landscaping area. ▪ Discharge boiler drain lines, roof top equipment, and all wash water to the sanitary sewer. Contact Dublin San Ramon Services District for connection requirements.	☒	☐
Fuel Dispensing Areas	Fueling areas must be Portland cement concrete or equivalent smooth impervious surface that are: ▪ Graded at the minimum slope necessary to prevent ponding, and separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable. ▪ The fueling area is defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater. ▪ Must be covered by a canopy that extends a minimum of ten feet in each direction from each pump. The canopy must not drain onto the fueling area. Rainwater from the canopy must be discharged to a landscaped area or to a stormwater treatment measure prior to discharge to the storm drain system. ▪ Design the fuel dispensing and transfer area pads with no slope (flat), if possible. ▪ Do not place a storm drain inlet in or near the fuel dispensing area. ▪ Hydraulically isolate the fuel dispensing and transfer areas from the rest of the site to contain spills, prevent run-on, and prevent stormwater runoff from carrying pollutants away. Locate drains around the perimeter of the pad, and drain accumulated water to an on-site containment system (for eventual pump-out and off-site disposal). ▪ Post signs explaining the operation of shut-off valves to employees, if applicable. ▪ The fueling station must have a spill cleanup plan and all employees must be trained on proper spill response procedures. Dispensing equipment must be inspected routinely for proper functioning and leak prevention.	☐	☒
Loading Docks	▪ Pave the loading area with an impervious paving that is compatible with materials that will be loaded/unloaded. For example, use Portland Cement Concrete if gasoline or other materials that react with asphalt will be loaded/unloaded. ▪ Cover. Implement one of the following methods: a If feasible, design the facility so loading/unloading occurs in an indoor loading bay. Provide a 10-foot no obstruction zone within the building to allow trucks to extend inside and to provide a staging area. Clearly identify the no obstruction zone on the building plan. Clearly mark the no obstruction zone at an interior transfer area using bright floor paint. b For buildings with less than 10 bays, provide a roof overhang that extends at least 10 feet beyond the loading dock (or building face if there isn't a loading dock). If the building includes 10 or more bays, or a cover is deemed otherwise infeasible, consider the next option. c Install door skirts between the trailers and the building. ▪ Position roof downspouts to direct stormwater away from the loading area. ▪ Hydraulically separate stormwater runoff from loading dock and direct to a stormwater treatment measure prior to discharge to the storm drain system. ▪ Equip the drainage system with an emergency spill shut-off diversion valve. The bypass on the shut-off valve must flow to an adequately-sized spill containment vault. The size of the spill containment vault should be equal to 125% of the volume of the largest container handled at the facility. ▪ Post signs explaining the location and operation of shut-off valves to employees.	☐	☒
Conditionally Exempted Non-Stormwater Discharges	Certain discharges are exempt from stormwater discharge requirements if it is determined the non-stormwater discharge is not polluted. Refer to the Municipal Regional Permit Provision C15 for specific requirements for the following discharges: ▪ pumped groundwater, water from foundation drains/crawl space pumps/footing drains ▪ pumped groundwater from non-drinking water aquifers	☐	☒

PROJECTS THAT ARE <u>NOT</u> C.3 REGULATED PROJECTS STOP HERE!

(Projects that had all "No's" in Part THREE above)

Part SEVEN Proposed Stormwater Treatment Measures and Hydraulic-Sizing (Applies to C.3 Regulated Projects)

37 Complete the table below & provide a Stormwater Management Plan in the plan set.

	Low Impact Development Measures	Lined or unlined facility?	Hydraulic-sizing Method[3]
	☒ Bioretention area	unlined	4%
	☐ Flow-through planter	lined	
	☐ Rainwater harvesting and use	N/A	
	☒ Infiltration	unlined	Bioretention basins will be
	☐ Other (specify):		unlined and will allow for

infiltration into native soils below

Part EIGHT Hydromodification Management (HM) Project? (Applies to C.3 Regulated Projects)

38	Does the project create and/or replace 1 acre (43,560 sq. ft.) or more of impervious surface? (Refer to Question 22)
	☒ Yes. *Continue to Question 38.*
	☐ No. *The project is NOT required to incorporate HM measures. Skip to Question 42 and check "No."*
39	Is the total impervious area increased over the pre-project condition?
	☒ Yes. *Total post-project impervious surface area (Question 22) is greater than pre-project impervious surface area (Question 20.a.) Continue to Question 39.*
	☐ No. *Total post-project impervious surface area (Question 22) is the same as or less than pre-project impervious surface area (Question 20.a.). The project is NOT required to incorporate HM measures. Skip to Line 42 and check "No."*
40	Is the site located in a tidally influenced area? *(See HM Susceptibility Map in Appendix I of the C.3 Technical Guidance.)*
	☐ Yes. *Project is exempt from HM requirements. Attach map indicating project location. Skip to Line 42 and check "No".*
	☒ No. *Continue to Question 40.*
41	Is the site located in a high slope zone or special consideration watershed, as shown on the HM Susceptibility Map?
	☒ Yes. *Project is subject to HM requirements. Attach map indicating project location. Skip to Question 42 and check "Yes."*
	☐ No. *Continue to Question 41.*
42	For sites located in a white area on the HM Susceptibility Map, has an engineer or qualified environmental professional determined that runoff from the project flows only through a hardened channel or enclosed pipe from the point of discharge all the way to the tidally influenced area?
	☐ Yes. *Project is exempt from HM requirements. Attach signed statement by qualified professional. Go to Question 42 and check "No."*
	☒ No. *Project is subject to HM requirements. Attach map indicating project location. Go to Item 42 and check "Yes."*
43	Is the project a Hydromodification Management Project?
	☒ Yes. *The project is subject to HM requirements in Provision C.3.g of the Municipal Regional Stormwater Permit.*
	☐ No. *The project is EXEMPT from HM requirements.*

Part NINE Stormwater Management Maintenance Agreement

44	A Stormwater Management Maintenance Agreement (O&M Agreement) between the property owner and the City is required for all projects incorporating stormwater treatment, trash capture, and/or flow duration controls. The O&M Agreement runs with the land and must be recorded with Alameda County Recorder's Office. ➢ *An approved, notarized O&M Agreement must be received with the final tract map or prior to permit issuance, whichever comes first (as applicable).* ➢ *Title report must be provided to verify property ownership.* ➢ *Appropriate documents must be provided to verify signing authority of the person executing the O&M Agreement.*
☒	Mark box to acknowledge that final tract map will not be approved, or permits issued, without an approved O&M Agreement.

[3] **Hydraulic Sizing Method:** Indicate which of the following MRP Provision C.3.d.i hydraulic-sizing methods were used:
1. Volume based approach – 80% capture approach (recommended volume-based approach. See C.3 Technical Manual Chapter 5).
2. Flow-based approach – 0.2-Inch-per-hour intensity approach
3. Combination hydraulic sizing approach – See Chapter 5 of the C.3 Technical Manual.

Appendix B.

BAHM Modeling Input

Pre-Development – Landuse

Area ID	Total Area (ac)	Impervious Area (ac)	Impervious Percentage (%)
DMA 0	196.30	1.67	0.9%

Post-Development – Landuse

Area ID	Total Area (ac)	Impervious Area (ac)	Impervious Percentage (%)
DMA 1A	0.55	0.47	85.0%
DMA 1B	23.84	14.30	60.0%
DMA 1C	4.48	0.45	10.0%
DMA 1D	1.95	1.17	60.0%
DMA 1E	2.03	1.52	75.0%
DMA 1F	13.02	9.11	70.0%
DMA 2A	6.51	0.65	10.0%
DMA 2B	59.58	32.77	55.0%
DMA 3A	10.64	6.91	65.0%
DMA 4A	0.86	0.56	65.0%
DMA 5A	3.12	1.56	50.0%
DMA 6A	4.79	2.87	60.0%
DMA 7A	4.57	2.74	60.0%
OS1	12.21	0.00	0.0%
OS2	36.82	0.00	0.0%
OS3	4.12	0.00	0.0%
OS4	1.66	0.00	0.0%
OS5	1.53	0.00	0.0%
OS6	2.38	0.00	0.0%
WQ1	2.13	0.06	3.0%
WQ2	1.45	0.04	3.0%
WQ3	0.47	0.01	3.0%
WQ4	0.21	0.01	3.0%
WQ5	0.28	0.01	3.0%
Total	199.20	75.21	37.8%

Pre-Development – Landuse (Continued)

Area ID	Existing Landuse Type	Area (ac)
DMA 0	Roof Area	0.11
	Roads, Moderate (5-10%)	1.56
	C/D Grass, Very (>20%)	194.63
	∑ Areas	196.30

Post-Development – Landuse (Continued)

Area ID	Proposed Landuse Type	Area (ac)	% of Impervious
DMA 1A	Roads, Flat (0-5%)	0.12	40.0%
	Roof Area	0.17	60.0%
	C/D Grass, Flat (0-5%)	0.26	----
	∑ Areas	0.55	----
DMA 1B	Roads, Flat (0-5%)	5.03	40.0%
	Roof Area	7.54	60.0%
	C/D Grass, Flat (0-5%)	11.27	----
	∑ Areas	23.84	----
DMA 1C	Roads, Flat (0-5%)	0.95	40.0%
	Roof Area	1.42	60.0%
	C/D Grass, Flat (0-5%)	2.12	----
	∑ Areas	4.48	----
DMA 1D	Roads, Flat (0-5%)	1.17	100.0%
	Roof Area	0.00	0.0%
	C/D Grass, Flat (0-5%)	0.78	----
	∑ Areas	1.95	----
DMA 1E	Roads, Flat (0-5%)	1.01	70.0%
	Roof Area	0.43	30.0%
	C/D Grass, Flat (0-5%)	0.60	----
	∑ Areas	2.03	----
DMA 1F	Roads, Flat (0-5%)	6.44	70.0%
	Roof Area	2.76	30.0%
	C/D Grass, Flat (0-5%)	3.81	----
	∑ Areas	13.02	----

Post-Development – Landuse (Continued)

Area ID	Proposed Landuse Type	Area (ac)	% of Impervious
DMA 2A	Roads, Flat (0-5%)	1.15	35.0%
	Roof Area	2.14	65.0%
	C/D Grass, Flat (0-5%)	3.22	----
	∑ Areas	6.51	----
DMA 2B	Roads, Flat (0-5%)	10.55	35.0%
	Roof Area	19.58	65.0%
	C/D Grass, Flat (0-5%)	29.45	----
	∑ Areas	59.58	----
DMA 3A	Roads, Flat (0-5%)	2.42	35.0%
	Roof Area	4.49	65.0%
	C/D Grass, Flat (0-5%)	3.72	----
	∑ Areas	10.63	----
DMA 4A	Roads, Flat (0-5%)	0.20	35.0%
	Roof Area	0.36	65.0%
	C/D Grass, Flat (0-5%)	0.30	----
	∑ Areas	0.86	----
DMA 5A	Roads, Flat (0-5%)	1.56	100.0%
	Roof Area	0.00	0.0%
	C/D Grass, Flat (0-5%)	1.56	----
	∑ Areas	3.12	----
DMA 6A	Roads, Flat (0-5%)	2.87	100.0%
	Roof Area	0.00	0.0%
	C/D Grass, Flat (0-5%)	1.91	----
	∑ Areas	4.78	----
DMA 7A	Roads, Flat (0-5%)	2.74	100.0%
	Roof Area	0.00	0.0%
	C/D Grass, Flat (0-5%)	1.83	----
	∑ Areas	4.57	----

Post-Development – Landuse (Continued)

Area ID	Proposed Landuse Type	Area (ac)	% of Impervious
OS1	C/D Grass, Very (>20%)	12.21	----

OS2	C/D Grass, Very (>20%)	36.82	----

OS3	C/D Grass, Very (>20%)	4.12	----

OS4	C/D Grass, Very (>20%)	1.66	----

OS5	C/D Grass, Very (>20%)	1.53	----

OS6	C/D Grass, Very (>20%)	2.38	----

Post-Development – Diversion Structure “$Q_{threshold}$” Calculation for **10-Year Flow** and **WQ Flow**

Diversion #	$Q_{threshold}$	Tributary Areas	Total Area, A (ac)	Impervious Area (ac)	Impervious (%)	Approx. Runoff Coeffic, C	Rainfall Intensity, i (in/hr)	$Q_{threshold}$ Calculated [3]
Diversion 1	10-Year Flow	DMA 1A,1B,1C,1D,1E,1F, & OS4	47.53 ac	27.03 ac	56.9%	0.569	1.53 in/hr [1]	41.4 cfs
Diversion 2	10-Year Flow	DMA 2A,2B	66.09 ac	33.42 ac	50.6%	0.506	1.30 in/hr [1]	43.5 cfs
Diversion 3	WQ Flow	DMA 3A	10.63 ac	6.91 ac	65.0%	0.650	0.20 in/hr [2]	1.38 cfs
Diversion 5	WQ Flow	DMA 5A	3.12 ac	1.56 ac	50.0%	0.500	0.20 in/hr [2]	0.31 cfs

Notes:

[1] 10-Year rainfall intensity determined from “Attachment 6” for “Mean Annual Precipitation” and “Attachment 7” for “Rainfall Intensity - 10 Year Storm” from Alameda County Hydrology and Hydraulics Manual (2016).
Assumed Time of Concentration equals 15 minutes for the 47.53-acre tributary drainage area composed of “DMA 1A,1B,1C,1D,1E,1F, & OS4”
Assumed Time of Concentration equals 20 minutes for the 66.09-acre tributary drainage area composed of “DMA 2A,2B”

[2] Water Quality rainfall intensity taken as **0.20 inches per hour**, which follows the **C.3 Stormwater Technical Guidance** Handbook for the County of Alameda (Version 7, 2019).

[3] $Q_{threshold}$ computed using rational method.

$Q_{threshold}$ = (Runoff Coefficient, C) x (Rainfall Intensity, i) x (Total Area, A)

Post-Development – Diversion Structure "$A_{reduced}$" Calculation for **Adjusted WQ Flow**

Diversion #	Proposed Treatment Area (sf) [1]	Total Area, $A_{reduced}$ (sf) [2]	Impervious (%) [3]	Impervious Area (sf) [4]	Pervious Area (sf) [5]	Effective Impervious Area (sf) [6]	Required Treatment Area (sf) [7]
Diversion 1A	46,217 sf	1,887,641 sf	56.9%	1,074,068 sf	813,573 sf	1,155,425 sf	46,217 sf
Diversion 2A	35,906 sf	1,616,223 sf	50.6%	817,809 sf	798,414 sf	897,650 sf	35,906 sf

See Note [8]

Notes:

[1] Proposed Treatment Area is based on Sheet 21 ("*Preliminary Stormwater Quality Plan*") of East Ranch Croak Property VTM for Tract 8653, dated June 2020.

[2] Total Area, $A_{reduced}$ is the "reduced upstream tributary drainage area" which is solved using an iterative calculation.

[3] Impervious (%) is based on the "upstream tributary drainage area" (A_{full}).
Diversion 1A receives flows from the 47.53-acre (2,070,327 sf) tributary drainage area (56.9% impervious) composed of "DMA 1A,1B,1C,1D,1E,1F, & OS4"
Diversion 2A receives flows from the 66.09-acre (2,878,984 sf) tributary drainage area (50.6% impervious) composed of "DMA 2A,2B".

[4] Impervious Area = (% impervious) x ($A_{reduced}$)

[5] Previous Area = (100% − (% impervious)) x ($A_{reduced}$)

[6] Effective Impervious Area = (Impervious Area) + (10%) x (Pervious Area)

[7] Required Treatment Area = (4%) x (Effective Impervious Area)

[8] Solve for "$A_{reduced}$" until the Required Treatment Area computed using the simplified four (4) percent method equals the Proposed Treatment Area based on Sheet 21 of VTM.

Post-Development – Diversion Structure "$Q_{threshold}$" Calculation for **Adjusted WQ Flow**

Diversion #	$Q_{threshold}$	Tributary Areas [1]	Total Area, $A_{reduced}$ (ac) [2]	Impervious Area (ac)	Impervious (%)	Approx. Runoff Coeffic, C	Rainfall Intensity, i (in/hr)	$Q_{threshold}$ Calculated [4]
Diversion 1A	Adjusted WQ Flow	DMA 1A,1B,1C,1D,1E,1F, & OS4	43.33 ac	24.66 ac	56.9%	0.569	0.20 in/hr [3]	4.93 cfs
Diversion 2A	Adjusted WQ Flow	DMA 2A,2B	37.10 ac	33.42 ac	50.6%	0.506	0.20 in/hr [3]	3.75 cfs

Notes:

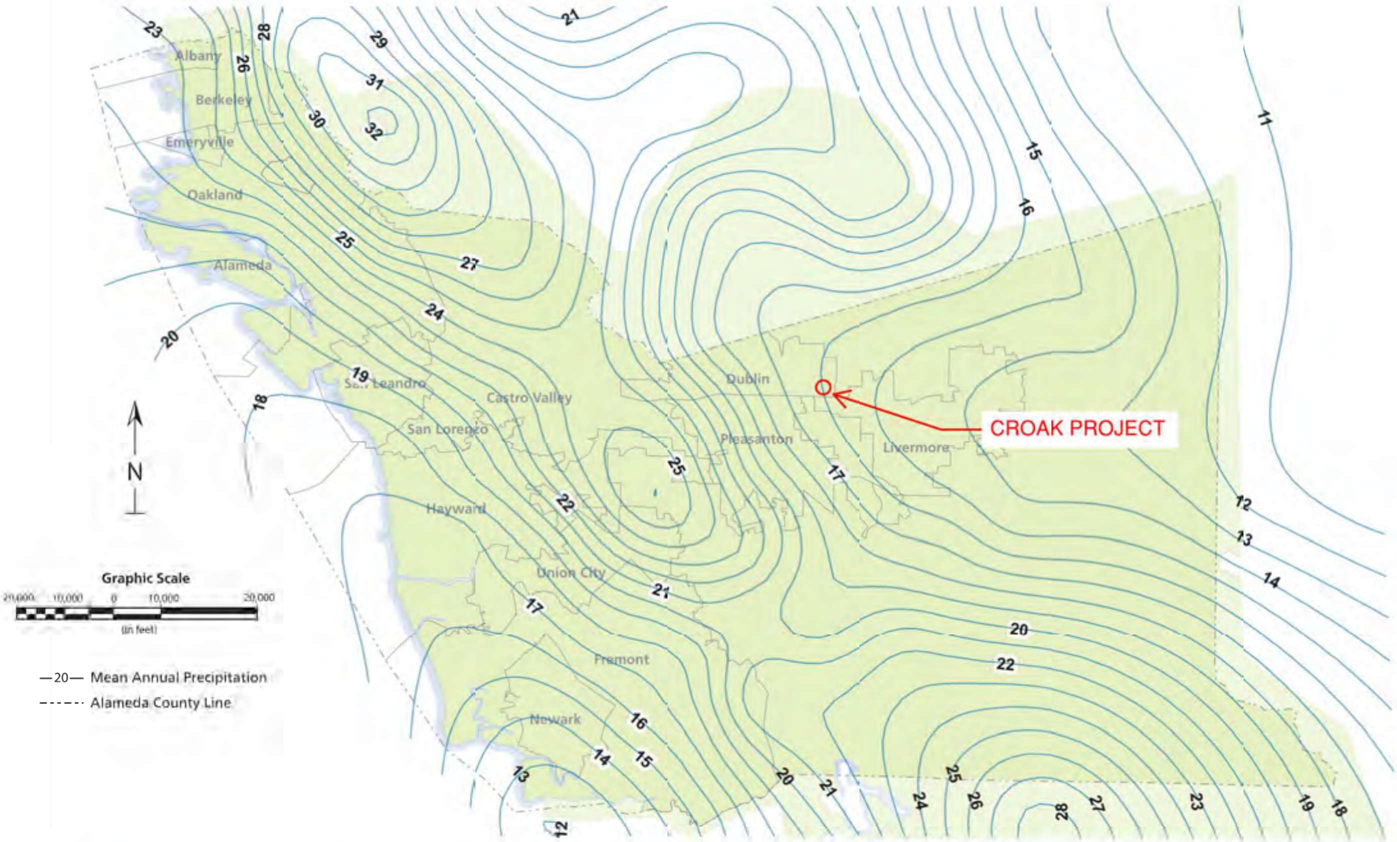
[1] Calculations based on the "reduced upstream tributary drainage area" ($A_{reduced}$).

[2] Total Area, $A_{reduced}$ is from value computed above, converted to acres.

[3] Water Quality rainfall intensity taken as **0.20 inches per hour**, which follows the **C.3 Stormwater Technical Guidance** Handbook for the County of Alameda (Version 7, 2019).

[4] $Q_{threshold}$ computed using rational method.

$Q_{threshold}$ = (Runoff Coefficient, C) x (0.20 inches/hour) x (Total Area, $A_{reduced}$)



Attachment 6 available for download as a GIS file from the Alameda County Flood Control District website.

(District 2011)

Flood Control & Water Conservation District	Alameda County Hydrology & Hydraulics Manual 2016 Mean Annual Precipitation	**Attachment 6**

T_c	Mean Annual Precipitation (in)																					
(min)	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
1	5.28	5.64	6.00	6.36	6.73	7.09	7.45	7.81	8.17	8.53	8.90	9.26	9.62	9.98	10.34	10.71	11.07	11.43	11.79	12.15	12.52	12.88
2	3.56	3.81	4.05	4.30	4.54	4.78	5.03	5.27	5.52	5.76	6.00	6.25	6.49	6.74	6.98	7.23	7.47	7.71	7.96	8.20	8.45	8.69
3	2.83	3.02	3.22	3.41	3.61	3.80	4.00	4.19	4.38	4.58	4.77	4.97	5.16	5.35	5.55	5.74	5.94	6.13	6.32	6.52	6.71	6.91
4	2.40	2.57	2.73	2.90	3.06	3.23	3.39	3.56	3.72	3.89	4.05	4.22	4.38	4.55	4.71	4.88	5.04	5.21	5.37	5.54	5.70	5.87
5	2.12	2.26	2.41	2.55	2.70	2.84	2.99	3.14	3.28	3.43	3.57	3.72	3.86	4.01	4.15	4.30	4.44	4.59	4.73	4.88	5.02	5.17
6	1.91	2.04	2.17	2.30	2.43	2.57	2.70	2.83	2.96	3.09	3.22	3.35	3.48	3.61	3.74	3.88	4.01	4.14	4.27	4.40	4.53	4.66
7	1.75	1.87	1.99	2.11	2.23	2.35	2.47	2.59	2.71	2.83	2.95	3.07	3.19	3.31	3.43	3.55	3.67	3.79	3.91	4.03	4.15	4.27
8	1.62	1.73	1.85	1.96	2.07	2.18	2.29	2.40	2.51	2.62	2.74	2.85	2.96	3.07	3.18	3.29	3.40	3.51	3.63	3.74	3.85	3.96
9	1.52	1.62	1.73	1.83	1.93	2.04	2.14	2.25	2.35	2.45	2.56	2.66	2.77	2.87	2.98	3.08	3.18	3.29	3.39	3.50	3.60	3.70
10	1.43	1.53	1.63	1.72	1.82	1.92	2.02	2.12	2.21	2.31	2.41	2.51	2.61	2.70	2.80	2.90	3.00	3.10	3.19	3.29	3.39	3.49
11	1.35	1.45	1.54	1.63	1.73	1.82	1.91	2.00	2.10	2.19	2.28	2.38	2.47	2.56	2.66	2.75	2.84	2.93	3.03	3.12	3.21	3.31
12	1.29	1.38	1.47	1.55	1.64	1.73	1.82	1.91	2.00	2.09	2.17	2.26	2.35	2.44	2.53	2.62	2.70	2.79	2.88	2.97	3.06	3.15
13	1.23	1.32	1.40	1.49	1.57	1.65	1.74	1.82	1.91	1.99	2.08	2.16	2.25	2.33	2.42	2.50	2.58	2.67	2.75	2.84	2.92	3.01
14	1.18	1.26	1.34	1.42	1.51	1.59	1.67	1.75	1.83	1.91	1.99	2.07	2.15	2.23	2.32	2.40	2.48	2.56	2.64	2.72	2.80	2.88
15	1.14	1.21	1.29	1.37	1.45	1.53	1.60	1.68	1.76	1.84	1.92	1.99	2.07	2.15	2.23	2.30	2.38	2.46	2.54	2.62	2.69	2.77
16	1.10	1.17	1.25	1.32	1.40	1.47	1.55	1.62	1.70	1.77	1.85	1.92	2.00	2.07	2.15	2.22	2.30	2.37	2.45	2.52	2.60	2.67
17	1.06	1.13	1.20	1.28	1.35	1.42	1.49	1.57	1.64	1.71	1.78	1.86	1.93	2.00	2.07	2.15	2.22	2.29	2.36	2.44	2.51	2.58
18	1.02	1.09	1.17	1.24	1.31	1.38	1.45	1.52	1.59	1.66	1.73	1.80	1.87	1.94	2.01	2.08	2.15	2.22	2.29	2.36	2.43	2.50
19	0.99	1.06	1.13	1.20	1.27	1.33	1.40	1.47	1.54	1.61	1.67	1.74	1.81	1.88	1.95	2.02	2.08	2.15	2.22	2.29	2.36	2.42
20	0.97	1.03	1.10	1.16	1.23	1.30	1.36	1.43	1.49	1.56	1.63	1.69	1.76	1.83	1.89	1.96	2.02	2.09	2.16	2.22	2.29	2.35
21	0.94	1.00	1.07	1.13	1.20	1.26	1.33	1.39	1.45	1.52	1.58	1.65	1.71	1.78	1.84	1.90	1.97	2.03	2.10	2.16	2.23	2.29
22	0.91	0.98	1.04	1.10	1.17	1.23	1.29	1.35	1.42	1.48	1.54	1.60	1.67	1.73	1.79	1.85	1.92	1.98	2.04	2.11	2.17	2.23
23	0.89	0.95	1.01	1.08	1.14	1.20	1.26	1.32	1.38	1.44	1.50	1.56	1.63	1.69	1.75	1.81	1.87	1.93	1.99	2.05	2.11	2.18
24	0.87	0.93	0.99	1.05	1.11	1.17	1.23	1.29	1.35	1.41	1.47	1.53	1.59	1.65	1.71	1.77	1.83	1.88	1.94	2.00	2.06	2.12
25	0.85	0.91	0.97	1.03	1.08	1.14	1.20	1.26	1.32	1.38	1.43	1.49	1.55	1.61	1.67	1.73	1.78	1.84	1.90	1.96	2.02	2.08
26	0.83	0.89	0.95	1.00	1.06	1.12	1.17	1.23	1.29	1.34	1.40	1.46	1.52	1.57	1.63	1.69	1.74	1.80	1.86	1.92	1.97	2.03
27	0.81	0.87	0.93	0.98	1.04	1.09	1.15	1.20	1.26	1.32	1.37	1.43	1.48	1.54	1.60	1.65	1.71	1.76	1.82	1.87	1.93	1.99
28	0.80	0.85	0.91	0.96	1.02	1.07	1.13	1.18	1.23	1.29	1.34	1.40	1.45	1.51	1.56	1.62	1.67	1.73	1.78	1.84	1.89	1.95
29	0.78	0.84	0.89	0.94	1.00	1.05	1.10	1.16	1.21	1.26	1.32	1.37	1.43	1.48	1.53	1.59	1.64	1.69	1.75	1.80	1.85	1.91
30	0.77	0.82	0.87	0.92	0.98	1.03	1.08	1.13	1.19	1.24	1.29	1.35	1.40	1.45	1.50	1.56	1.61	1.66	1.71	1.77	1.82	1.87
31	0.75	0.80	0.86	0.91	0.96	1.01	1.06	1.11	1.17	1.22	1.27	1.32	1.37	1.42	1.48	1.53	1.58	1.63	1.68	1.73	1.79	1.84
32	0.74	0.79	0.84	0.89	0.94	0.99	1.04	1.09	1.14	1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.65	1.70	1.75	1.80
33	0.73	0.78	0.83	0.88	0.93	0.98	1.03	1.08	1.13	1.17	1.22	1.27	1.32	1.37	1.42	1.47	1.52	1.57	1.62	1.67	1.72	1.77
34	0.71	0.76	0.81	0.86	0.91	0.96	1.01	1.06	1.11	1.16	1.20	1.25	1.30	1.35	1.40	1.45	1.50	1.55	1.60	1.64	1.69	1.74
35	0.70	0.75	0.80	0.85	0.90	0.94	0.99	1.04	1.09	1.14	1.18	1.23	1.28	1.33	1.38	1.43	1.47	1.52	1.57	1.62	1.67	1.71
36	0.69	0.74	0.79	0.83	0.88	0.93	0.98	1.02	1.07	1.12	1.17	1.21	1.26	1.31	1.36	1.40	1.45	1.50	1.55	1.59	1.64	1.69
37	0.68	0.73	0.77	0.82	0.87	0.91	0.96	1.01	1.05	1.10	1.15	1.19	1.24	1.29	1.33	1.38	1.43	1.47	1.52	1.57	1.61	1.66
38	0.67	0.72	0.76	0.81	0.85	0.90	0.95	0.99	1.04	1.08	1.13	1.18	1.22	1.27	1.31	1.36	1.41	1.45	1.50	1.54	1.59	1.64
39	0.66	0.71	0.75	0.80	0.84	0.89	0.93	0.98	1.02	1.07	1.11	1.16	1.20	1.25	1.30	1.34	1.39	1.43	1.48	1.52	1.57	1.61
40	0.65	0.70	0.74	0.79	0.83	0.87	0.92	0.96	1.01	1.05	1.10	1.14	1.19	1.23	1.28	1.32	1.37	1.41	1.46	1.50	1.54	1.59
41	0.64	0.69	0.73	0.77	0.82	0.86	0.91	0.95	0.99	1.04	1.08	1.13	1.17	1.22	1.26	1.30	1.35	1.39	1.44	1.48	1.52	1.57
42	0.63	0.68	0.72	0.76	0.81	0.85	0.89	0.94	0.98	1.02	1.07	1.11	1.16	1.20	1.24	1.29	1.33	1.37	1.42	1.46	1.50	1.55
43	0.63	0.67	0.71	0.75	0.80	0.84	0.88	0.93	0.97	1.01	1.05	1.10	1.14	1.18	1.23	1.27	1.31	1.35	1.40	1.44	1.48	1.53
44	0.62	0.66	0.70	0.74	0.79	0.83	0.87	0.91	0.96	1.00	1.04	1.08	1.12	1.17	1.21	1.25	1.29	1.34	1.38	1.42	1.46	1.51
45	0.61	0.65	0.69	0.73	0.78	0.82	0.86	0.90	0.94	0.99	1.03	1.07	1.11	1.15	1.19	1.24	1.28	1.32	1.36	1.40	1.44	1.49
46	0.60	0.64	0.68	0.73	0.77	0.81	0.85	0.89	0.93	0.97	1.01	1.06	1.10	1.14	1.18	1.22	1.26	1.30	1.34	1.39	1.43	1.47
47	0.59	0.64	0.68	0.72	0.76	0.80	0.84	0.88	0.92	0.96	1.00	1.04	1.08	1.12	1.17	1.21	1.25	1.29	1.33	1.37	1.41	1.45
48	0.59	0.63	0.67	0.71	0.75	0.79	0.83	0.87	0.91	0.95	0.99	1.03	1.07	1.11	1.15	1.19	1.23	1.27	1.31	1.35	1.39	1.43
49	0.58	0.62	0.66	0.70	0.74	0.78	0.82	0.86	0.90	0.94	0.98	1.02	1.06	1.10	1.14	1.18	1.22	1.26	1.30	1.34	1.38	1.42
50	0.57	0.61	0.65	0.69	0.73	0.77	0.81	0.85	0.89	0.93	0.97	1.01	1.05	1.09	1.13	1.16	1.20	1.24	1.28	1.32	1.36	1.40
51	0.57	0.61	0.65	0.68	0.72	0.76	0.80	0.84	0.88	0.92	0.96	1.00	1.03	1.07	1.11	1.15	1.19	1.23	1.27	1.31	1.35	1.38
52	0.56	0.60	0.64	0.68	0.72	0.75	0.79	0.83	0.87	0.91	0.95	0.98	1.02	1.06	1.10	1.14	1.18	1.22	1.25	1.29	1.33	1.37
53	0.56	0.59	0.63	0.67	0.71	0.75	0.78	0.82	0.86	0.90	0.94	0.97	1.01	1.05	1.09	1.13	1.16	1.20	1.24	1.28	1.32	1.36
54	0.55	0.59	0.62	0.66	0.70	0.74	0.78	0.81	0.85	0.89	0.93	0.96	1.00	1.04	1.08	1.11	1.15	1.19	1.23	1.27	1.30	1.34
55	0.54	0.58	0.62	0.66	0.69	0.73	0.77	0.80	0.84	0.88	0.92	0.95	0.99	1.03	1.07	1.10	1.14	1.18	1.21	1.25	1.29	1.33
56	0.54	0.58	0.61	0.65	0.69	0.72	0.76	0.80	0.83	0.87	0.91	0.94	0.98	1.02	1.05	1.09	1.13	1.17	1.20	1.24	1.28	1.31
57	0.53	0.57	0.61	0.64	0.68	0.72	0.75	0.79	0.83	0.86	0.90	0.93	0.97	1.01	1.04	1.08	1.12	1.15	1.19	1.23	1.26	1.30
58	0.53	0.56	0.60	0.64	0.67	0.71	0.74	0.78	0.82	0.85	0.89	0.93	0.96	1.00	1.03	1.07	1.11	1.14	1.18	1.22	1.25	1.29
59	0.52	0.56	0.59	0.63	0.67	0.70	0.74	0.77	0.81	0.85	0.88	0.92	0.95	0.99	1.02	1.06	1.10	1.13	1.17	1.20	1.24	1.28
60	0.52	0.55	0.59	0.62	0.66	0.70	0.73	0.77	0.80	0.84	0.87	0.91	0.94	0.98	1.01	1.05	1.09	1.12	1.16	1.19	1.23	1.26

Flood Control & Water Conservation DISTRICT

Rainfall Intensity – 10 Year Storm

(inches/hour)

Attachment 7

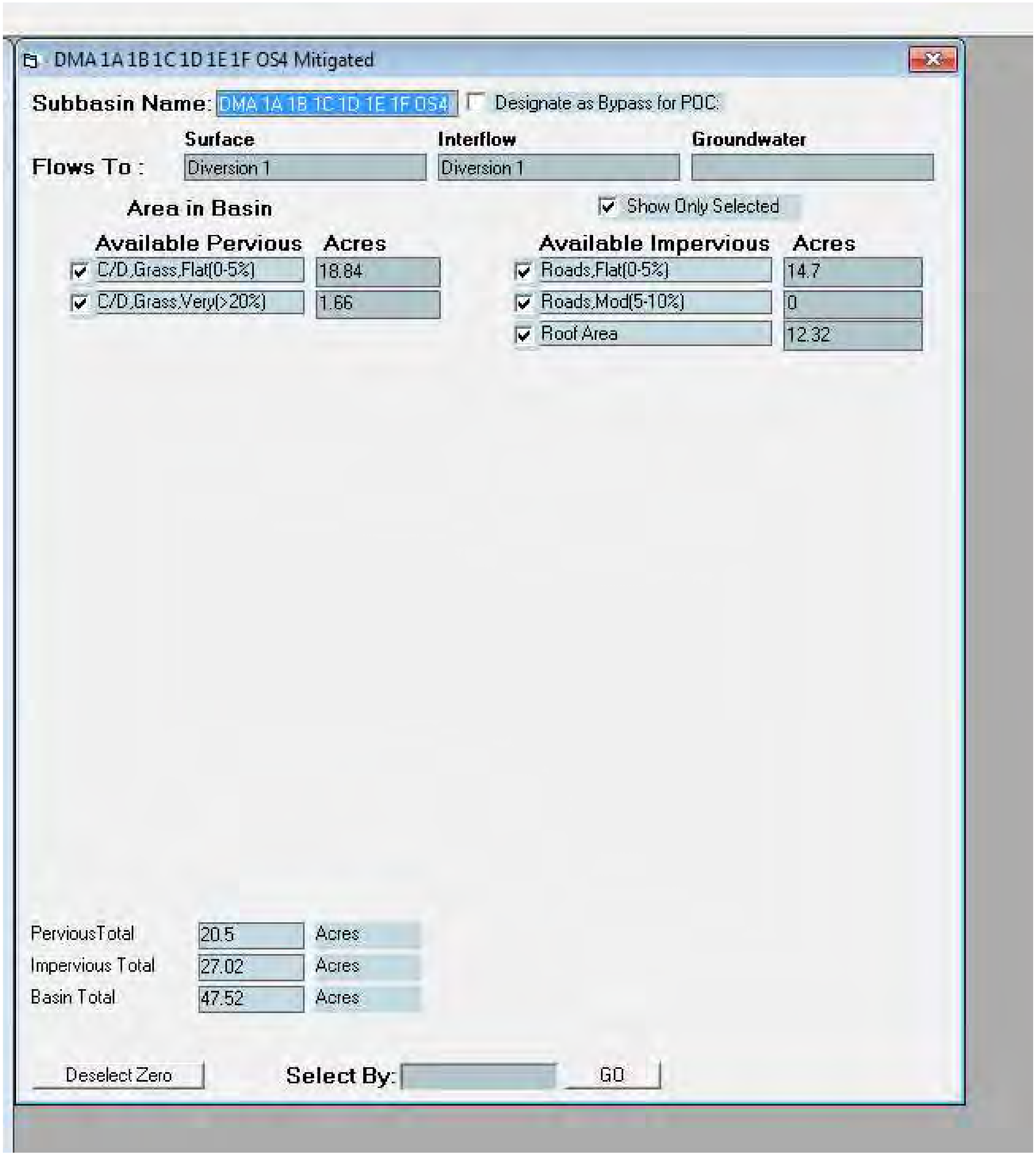
Post-Development – Outlet Structure: “Riser Circular/Rectangular Grate / Overflow Weir” Conversion

Riser Grate	Riser Length	Area	Equiv. Diameter	Equiv. Weir Length
12" x 12"	12 in	144 sq in	13.54 in	4.00 ft
15" x 15"	15 in	225 sq in	16.93 in	5.00 ft
18" x 18"	18 in	324 sq in	20.31 in	6.00 ft

Post-Development – Bioretention

Bioret ID	Basin Bottom Area	Basin Bottom Length	Basin Bottom Width
SWQ1	44,158 sf	298.36 ft	148.00 ft
SWQ2	34,807 sf	207.18 ft	168.00 ft
SWQ3	12,055 sf	207.84 ft	58.00 ft
SWQ4	1,066 sf	164.00 ft	6.50 ft
SWQ5	2,781 sf	123.00 ft	22.61 ft
SWQ6	1,920 sf	43.82 ft	43.82 ft
SWQ7	1,688 sf	41.09 ft	41.09 ft


DMA 0 Predeveloped
Subbasin Name: DMA 0
Flows To :
Surface
Interflow
Groundwater
Area in Basin
Show Only Selected
Available Pervious
Acres
C/D,Grass,Flat(0-5%)
0
C/D,Grass,Very(>20%)
194.63
Available Impervious
Acres
Roads,Flat(0-5%)
0
Roads,Mod(5-10%)
1.56
Roof Area
.11
PerviousTotal
194.63
Acres
Impervious Total
1.67
Acres
Basin Total
196.3
Acres
Deselect Zero
Select By:
GO


DMA 1A 1B 1C 1D 1E 1F OS4 Mitigated

Subbasin Name: DMA 1A 1B 1C 1D 1E 1F OS4

Designate as Bypass for POC:

Flows To :

Surface	Interflow	Groundwater
Diversion 1	Diversion 1	

Area in Basin

Show Only Selected

Available Pervious	Acres
C/D,Grass,Flat(0-5%)	18.84
C/D,Grass,Very(>20%)	1.66

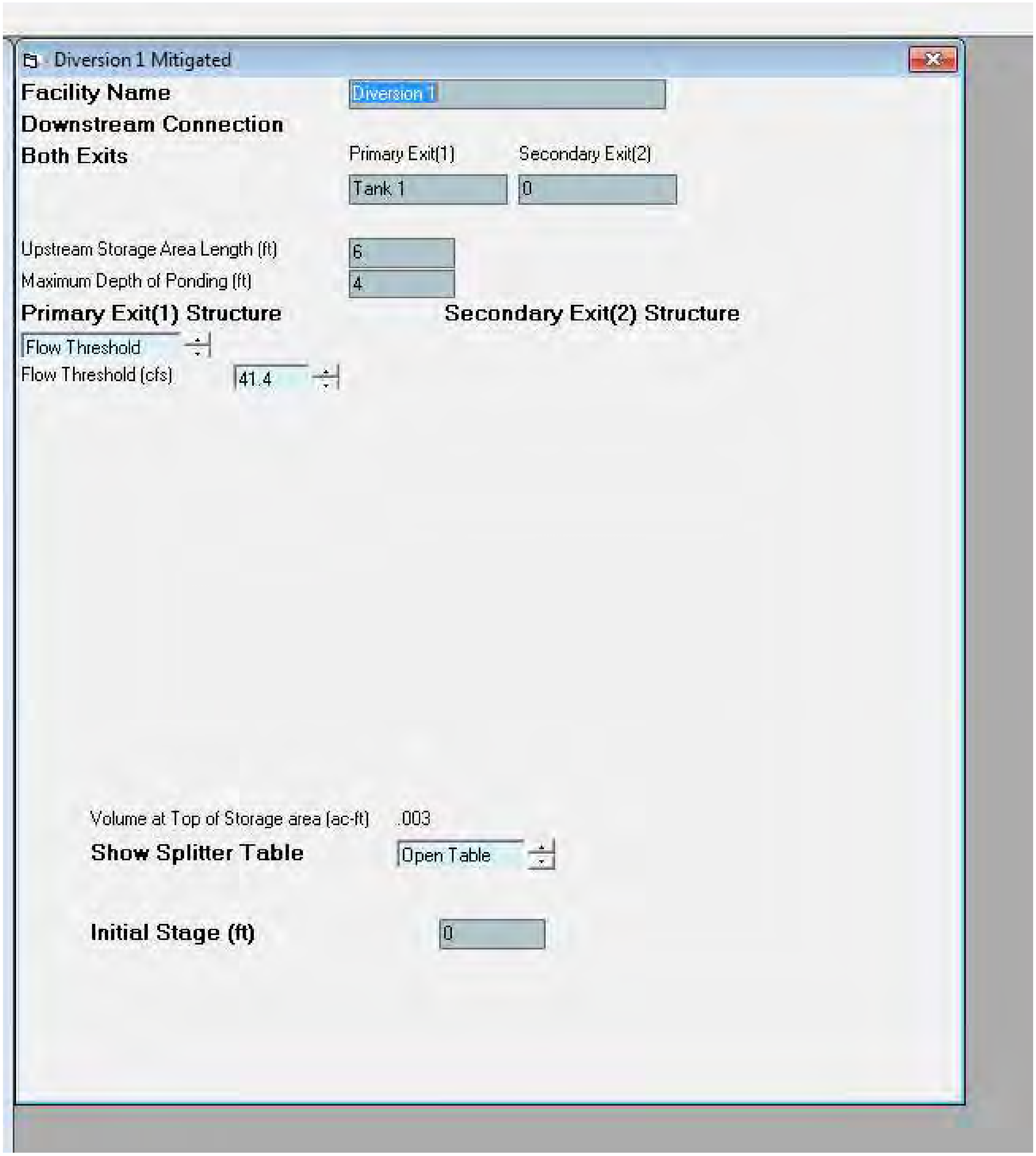
Available Impervious	Acres
Roads,Flat(0-5%)	14.7
Roads,Mod(5-10%)	0
Roof Area	12.32

PerviousTotal	20.5	Acres
Impervious Total	27.02	Acres
Basin Total	47.52	Acres

Deselect Zero

Select By:

GO


Diversion 1 Mitigated

Facility Name: Diversion 1

Downstream Connection

Both Exits — Primary Exit(1): Tank 1 — Secondary Exit(2): 0

Upstream Storage Area Length (ft): 6

Maximum Depth of Ponding (ft): 4

Primary Exit(1) Structure

Secondary Exit(2) Structure

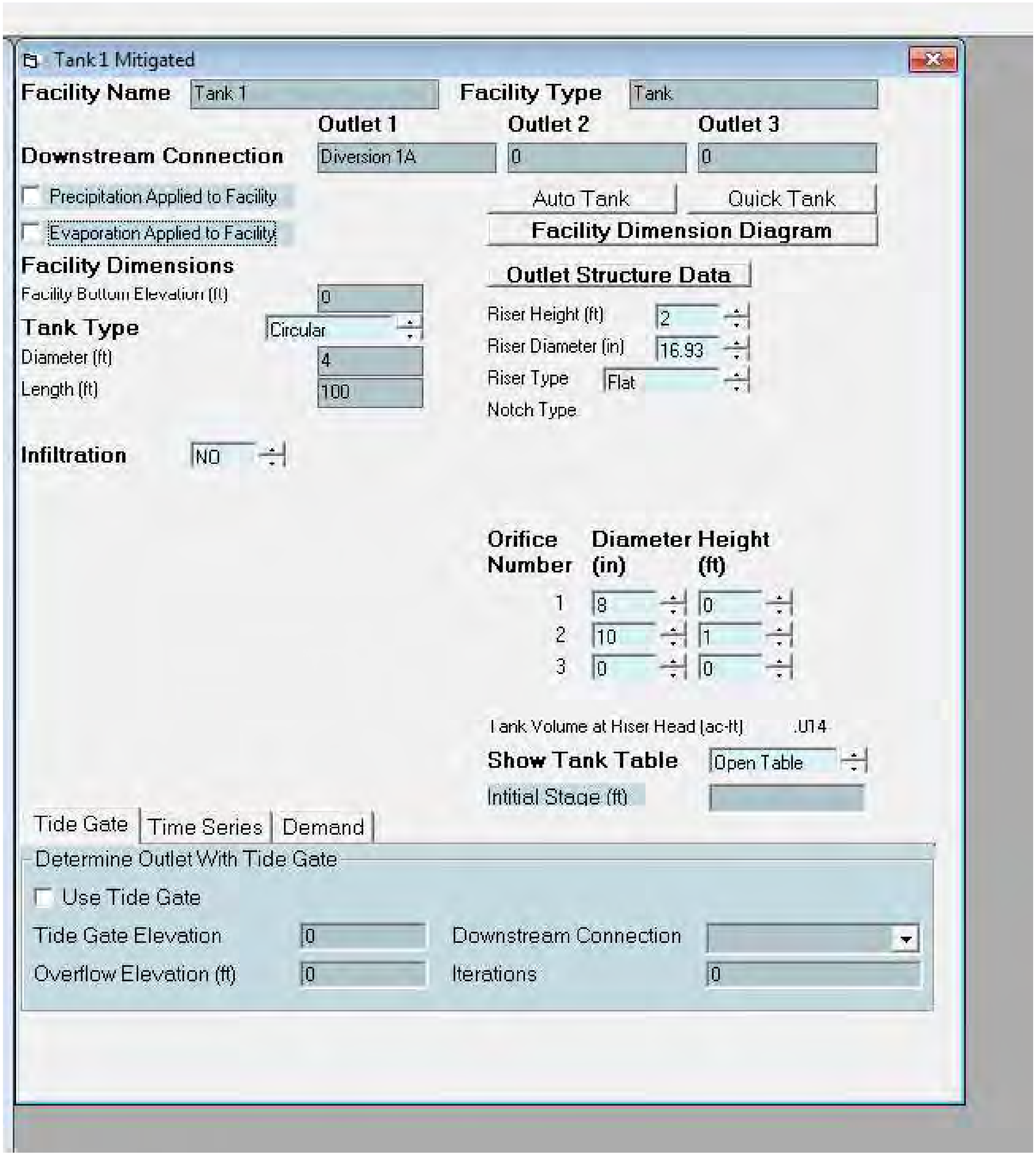
Flow Threshold

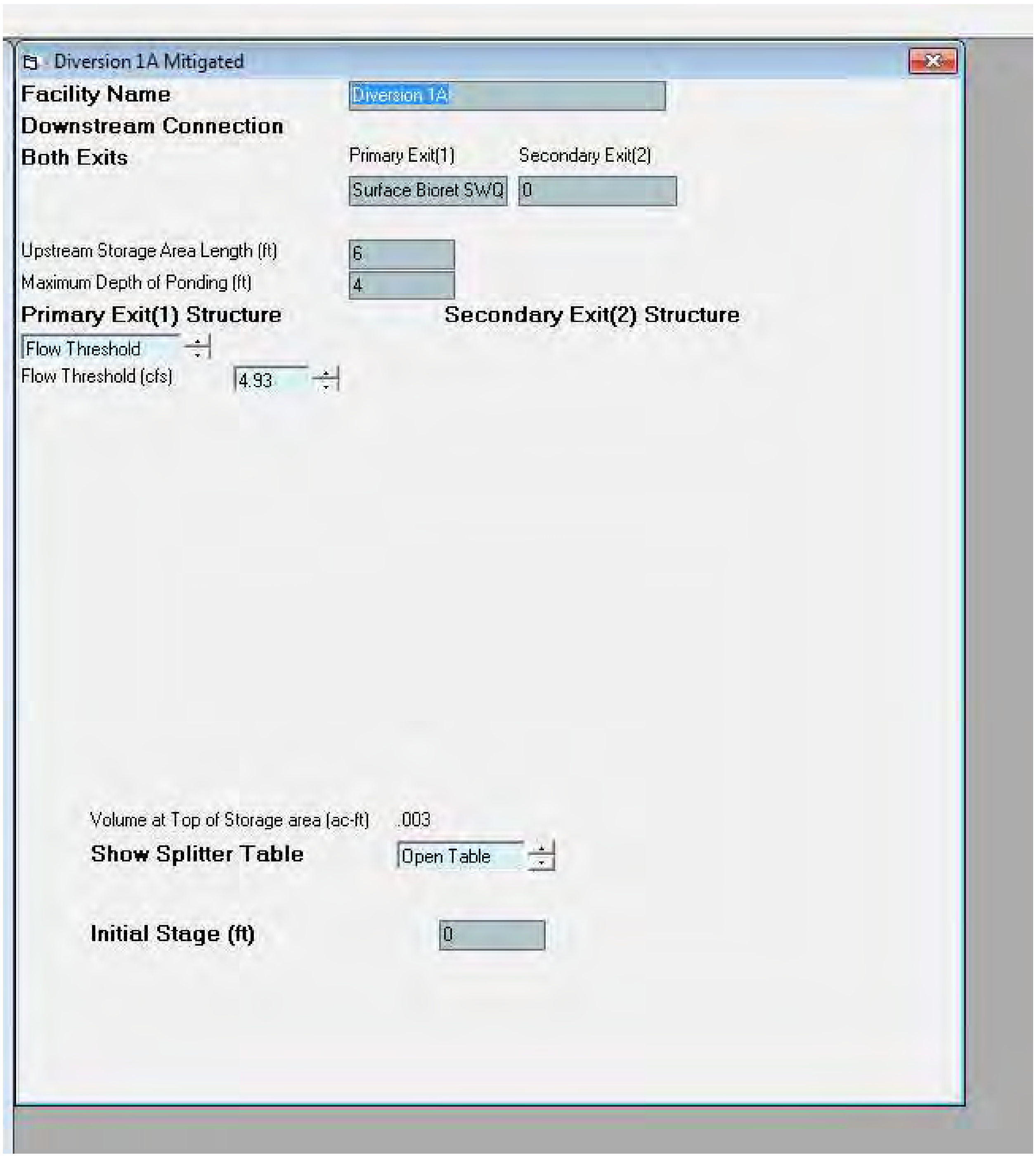
Flow Threshold (cfs): 41.4

Volume at Top of Storage area (ac-ft): .003

Show Splitter Table: Open Table

Initial Stage (ft): 0


Tank 1 Mitigated
Facility Name
Tank 1
Facility Type
Tank
Outlet 1
Outlet 2
Outlet 3
Downstream Connection
Diversion 1A
0
0
Precipitation Applied to Facility
Evaporation Applied to Facility
Auto Tank
Quick Tank
Facility Dimension Diagram
Facility Dimensions
Facility Bottom Elevation (ft)
0
Tank Type
Circular
Diameter (ft)
4
Length (ft)
100
Outlet Structure Data
Riser Height (ft)
2
Riser Diameter (in)
16.93
Riser Type
Flat
Notch Type
Infiltration
NO
Orifice Number
Diameter (in)
Height (ft)
1
8
0
2
10
1
3
0
0
Tank Volume at Riser Head (ac-ft)
.014
Show Tank Table
Open Table
Initial Stage (ft)
Tide Gate
Time Series
Demand
Determine Outlet With Tide Gate
Use Tide Gate
Tide Gate Elevation
0
Downstream Connection
Overflow Elevation (ft)
0
Iterations
0


Diversion 1A Mitigated

Facility Name Diversion 1A

Downstream Connection

Both Exits

Primary Exit(1)	Secondary Exit(2)
Surface Bioret SWQ	0

Upstream Storage Area Length (ft) 6

Maximum Depth of Ponding (ft) 4

Primary Exit(1) Structure **Secondary Exit(2) Structure**

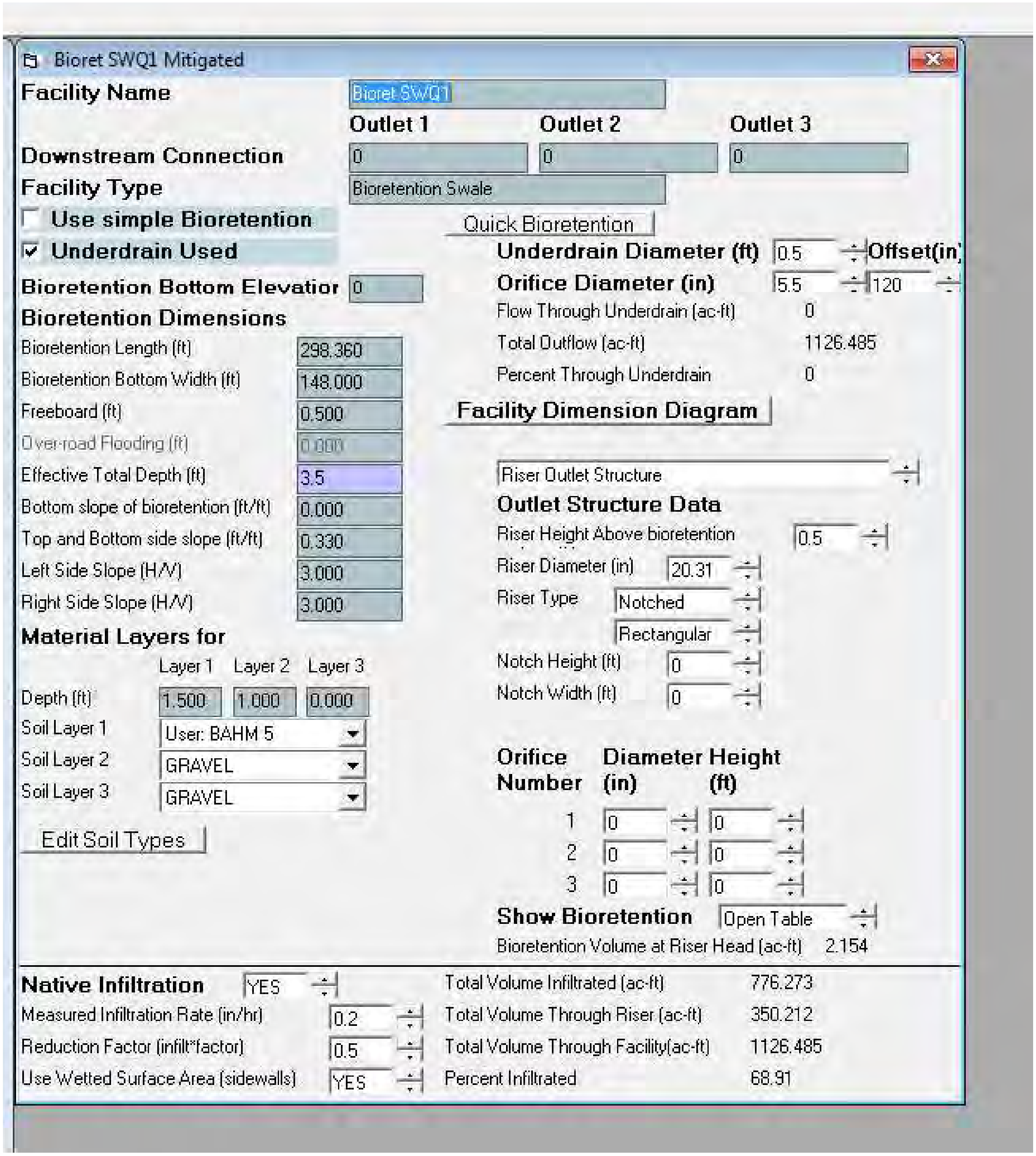
Flow Threshold

Flow Threshold (cfs) 4.93

Volume at Top of Storage area (ac-ft) .003

Show Splitter Table Open Table

Initial Stage (ft) 0



Bioret SWQ1 Mitigated

Facility Name	Bioret SWQ1		
	Outlet 1	Outlet 2	Outlet 3
Downstream Connection	0	0	0
Facility Type	Bioretention Swale		

☐ Use simple Bioretention

☑ Underdrain Used

Quick Bioretention

Underdrain Diameter (ft)	0.5	Offset(in)
Orifice Diameter (in)	5.5	120
Flow Through Underdrain (ac-ft)	0	
Total Outflow (ac-ft)	1126.485	
Percent Through Underdrain	0	

Facility Dimension Diagram

Bioretention Bottom Elevatior 0

Bioretention Dimensions

Bioretention Length (ft)	298.360
Bioretention Bottom Width (ft)	148.000
Freeboard (ft)	0.500
Over-road Flooding (ft)	0.000
Effective Total Depth (ft)	3.5
Bottom slope of bioretention (ft/ft)	0.000
Top and Bottom side slope (ft/ft)	0.330
Left Side Slope (H/V)	3.000
Right Side Slope (H/V)	3.000

Riser Outlet Structure

Outlet Structure Data

Riser Height Above bioretention	0.5
Riser Diameter (in)	20.31
Riser Type	Notched
	Rectangular
Notch Height (ft)	0
Notch Width (ft)	0

Material Layers for

	Layer 1	Layer 2	Layer 3
Depth (ft)	1.500	1.000	0.000

Soil Layer 1	User: BAHM 5
Soil Layer 2	GRAVEL
Soil Layer 3	GRAVEL

Edit Soil Types

Orifice Number	Diameter (in)	Height (ft)
1	0	0
2	0	0
3	0	0

Show Bioretention: Open Table

Bioretention Volume at Riser Head (ac-ft) 2.154

Native Infiltration	YES	Total Volume Infiltrated (ac-ft)	776.273
Measured Infiltration Rate (in/hr)	0.2	Total Volume Through Riser (ac-ft)	350.212
Reduction Factor (infilt*factor)	0.5	Total Volume Through Facility(ac-ft)	1126.485
Use Wetted Surface Area (sidewalls)	YES	Percent Infiltrated	68.91


DMA 2A 2B Mitigated

Subbasin Name: DMA 2A 2B Designate as Bypass for POC:

	Surface	Interflow	Groundwater
Flows To :	Diversion 2	Diversion 2	

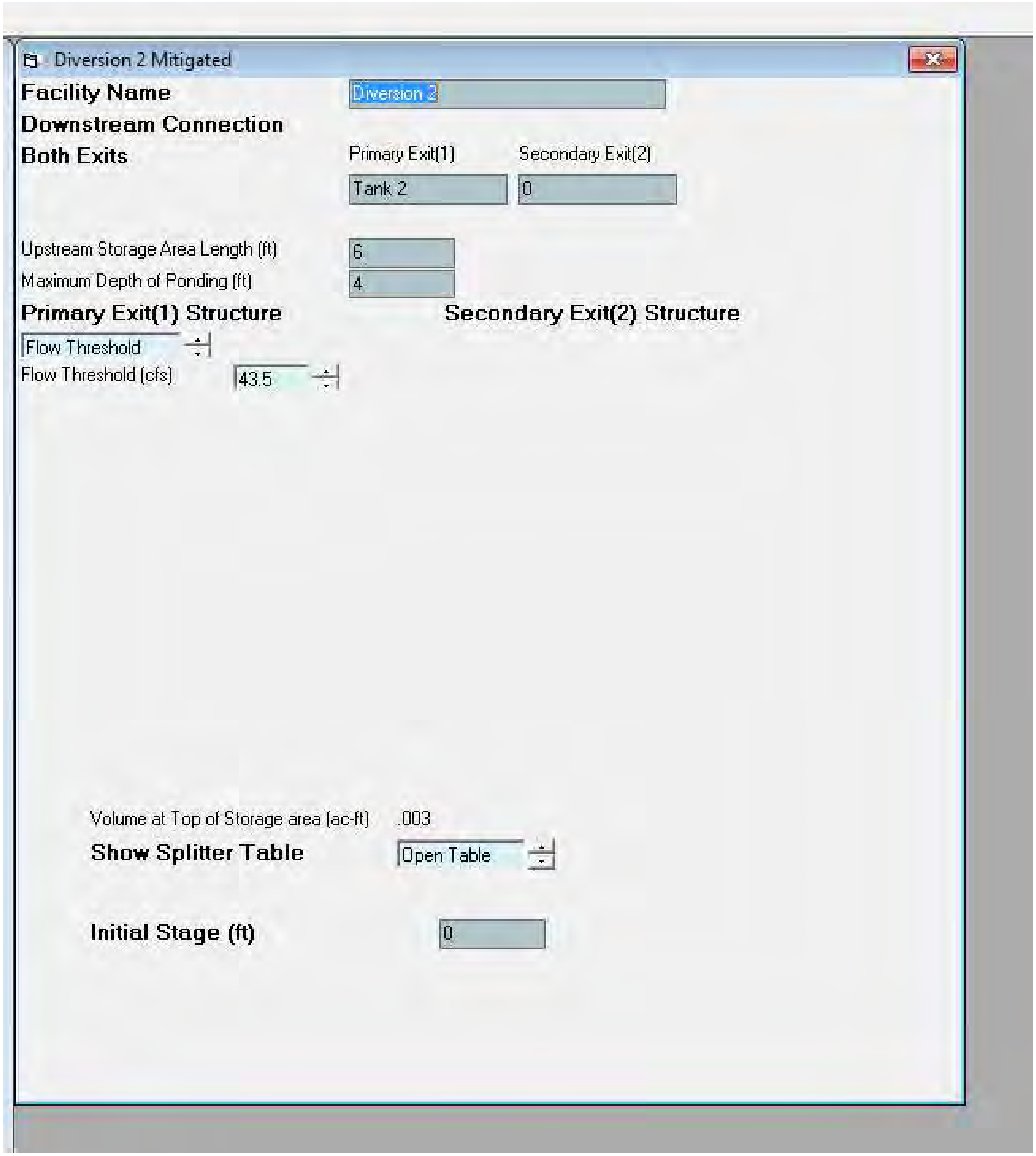
Area in Basin Show Only Selected

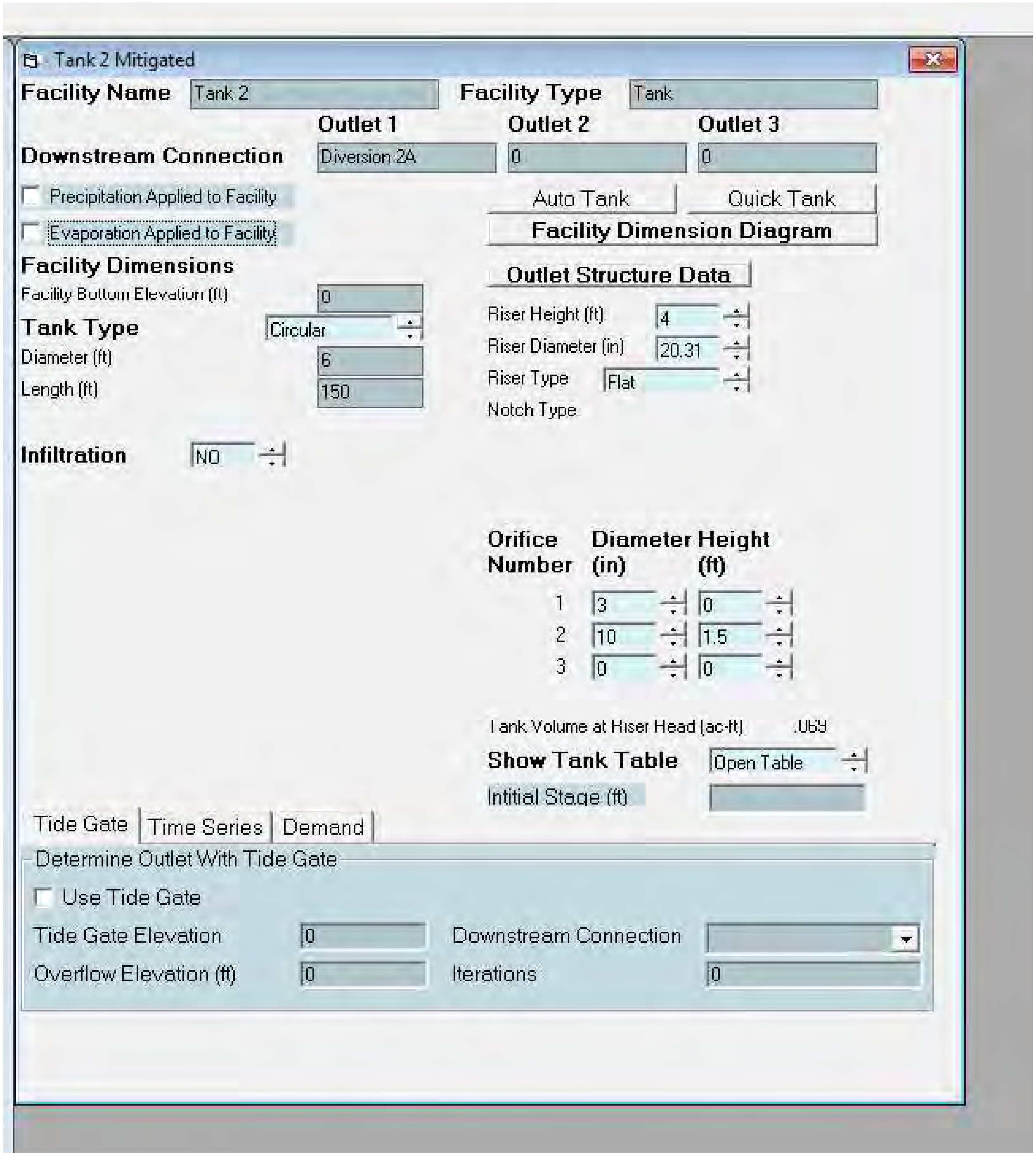
Available Pervious	Acres
C/D,Grass,Flat(0-5%)	32.67
C/D,Grass,Very(>20%)	0

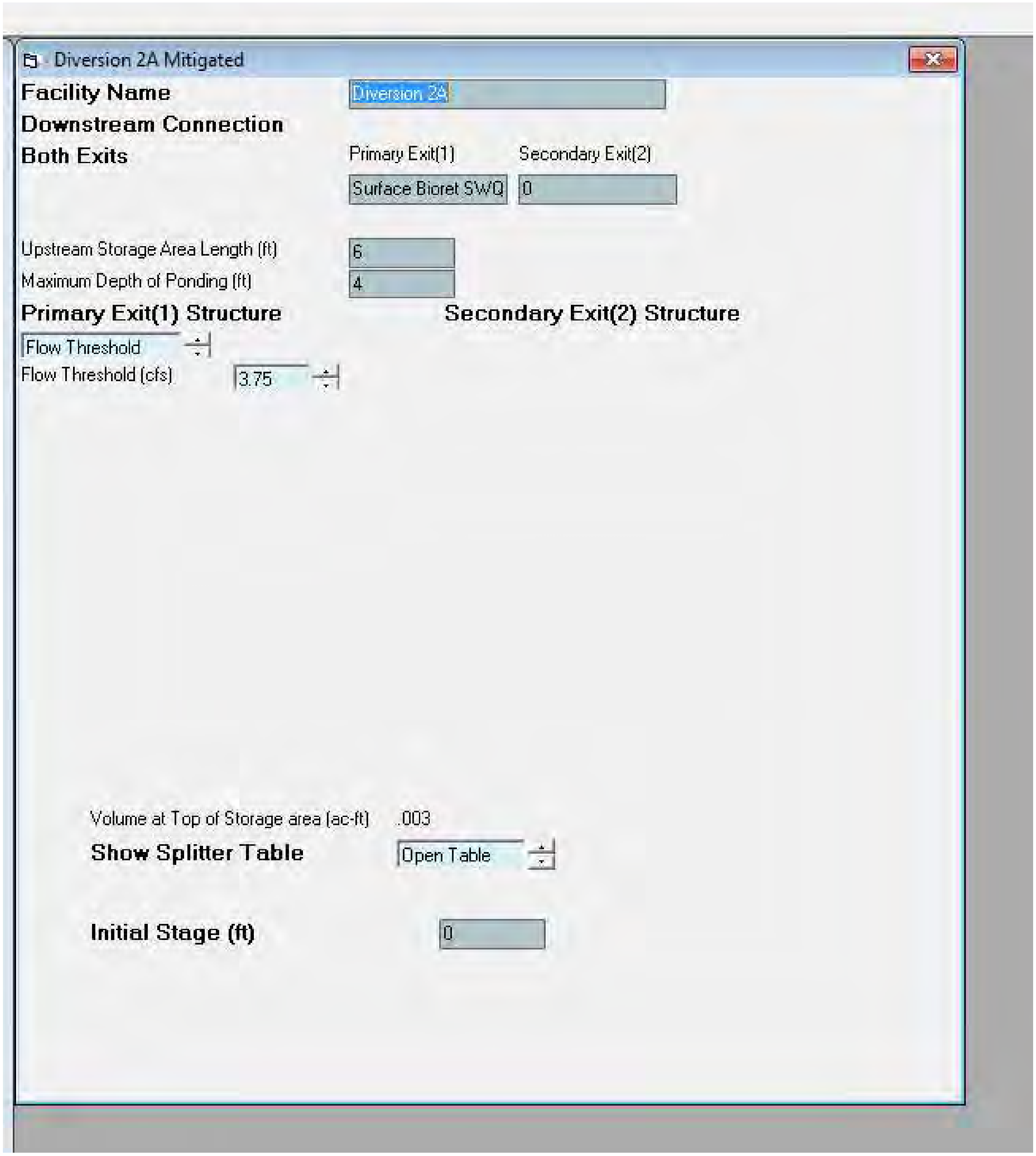
Available Impervious	Acres
Roads,Flat(0-5%)	11.7
Roads,Mod(5-10%)	0
Roof Area	21.72

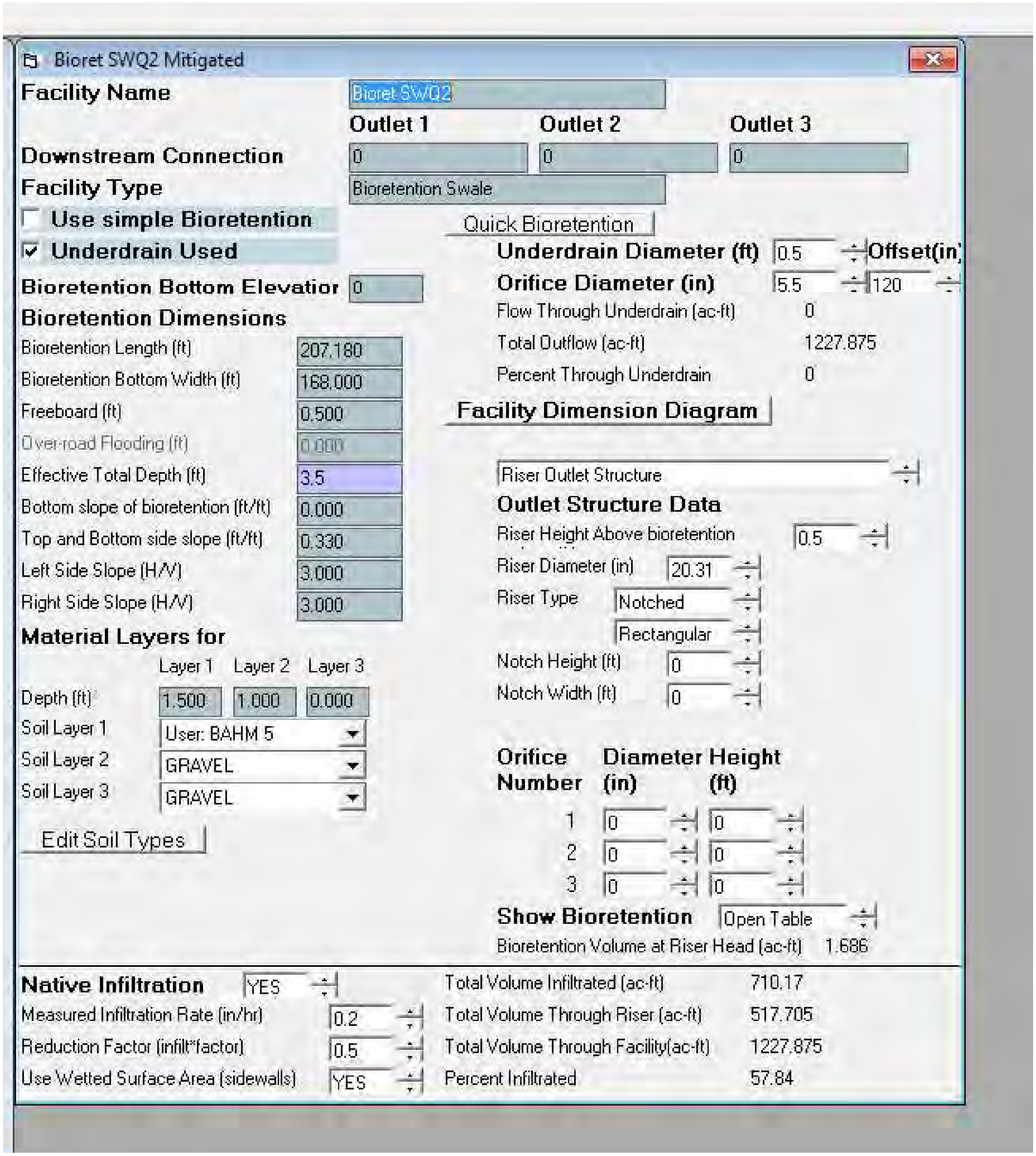
PerviousTotal	32.67	Acres
Impervious Total	33.42	Acres
Basin Total	66.09	Acres

Deselect Zero Select By: GO


Diversion 2 Mitigated
Facility Name
Diversion 2
Downstream Connection
Both Exits
Primary Exit(1)
Secondary Exit(2)
Tank 2
0
Upstream Storage Area Length (ft)
6
Maximum Depth of Ponding (ft)
4
Primary Exit(1) Structure
Secondary Exit(2) Structure
Flow Threshold
Flow Threshold (cfs)
43.5
Volume at Top of Storage area (ac-ft)
.003
Show Splitter Table
Open Table
Initial Stage (ft)
0


Tank 2 Mitigated
Facility Name
Tank 2
Facility Type
Tank
Outlet 1
Outlet 2
Outlet 3
Downstream Connection
Diversion 2A
0
0
Precipitation Applied to Facility
Evaporation Applied to Facility
Auto Tank
Quick Tank
Facility Dimension Diagram
Facility Dimensions
Facility Bottom Elevation (ft)
0
Tank Type
Circular
Diameter (ft)
6
Length (ft)
150
Outlet Structure Data
Riser Height (ft)
4
Riser Diameter (in)
20.31
Riser Type
Flat
Notch Type
Infiltration
NO
Orifice Number
Diameter (in)
Height (ft)
1
3
0
2
10
1.5
3
0
0
Tank Volume at Riser Head (ac-ft)
.069
Show Tank Table
Open Table
Initial Stage (ft)
Tide Gate
Time Series
Demand
Determine Outlet With Tide Gate
Use Tide Gate
Tide Gate Elevation
0
Downstream Connection
Overflow Elevation (ft)
0
Iterations
0


Diversion 2A Mitigated
Facility Name
Diversion 2A
Downstream Connection
Both Exits
Primary Exit(1)
Secondary Exit(2)
Surface Bioret SWQ
0
Upstream Storage Area Length (ft)
6
Maximum Depth of Ponding (ft)
4
Primary Exit(1) Structure
Secondary Exit(2) Structure
Flow Threshold
Flow Threshold (cfs)
3.75
Volume at Top of Storage area (ac-ft)
.003
Show Splitter Table
Open Table
Initial Stage (ft)
0



Bioret SWQ2 Mitigated

Facility Name Bioret SWQ2

	Outlet 1	Outlet 2	Outlet 3
Downstream Connection	0	0	0

Facility Type Bioretention Swale

☐ **Use simple Bioretention**

☑ **Underdrain Used**

Bioretention Bottom Elevatior 0

Quick Bioretention

Underdrain Diameter (ft) 0.5 **Offset(in)**

Orifice Diameter (in) 5.5 120

Flow Through Underdrain (ac-ft) 0

Total Outflow (ac-ft) 1227.875

Percent Through Underdrain 0

Bioretention Dimensions

Bioretention Length (ft)	207.180
Bioretention Bottom Width (ft)	168.000
Freeboard (ft)	0.500
Over-road Flooding (ft)	0.000
Effective Total Depth (ft)	3.5
Bottom slope of bioretention (ft/ft)	0.000
Top and Bottom side slope (ft/ft)	0.330
Left Side Slope (H/V)	3.000
Right Side Slope (H/V)	3.000

Facility Dimension Diagram

Riser Outlet Structure

Outlet Structure Data

Riser Height Above bioretention		0.5
Riser Diameter (in)	20.31	
Riser Type	Notched	
	Rectangular	
Notch Height (ft)	0	
Notch Width (ft)	0	

Material Layers for

	Layer 1	Layer 2	Layer 3
Depth (ft)	1.500	1.000	0.000

Soil Layer 1	User: BAHM 5
Soil Layer 2	GRAVEL
Soil Layer 3	GRAVEL

Edit Soil Types

Orifice Number	Diameter (in)	Height (ft)
1	0	0
2	0	0
3	0	0

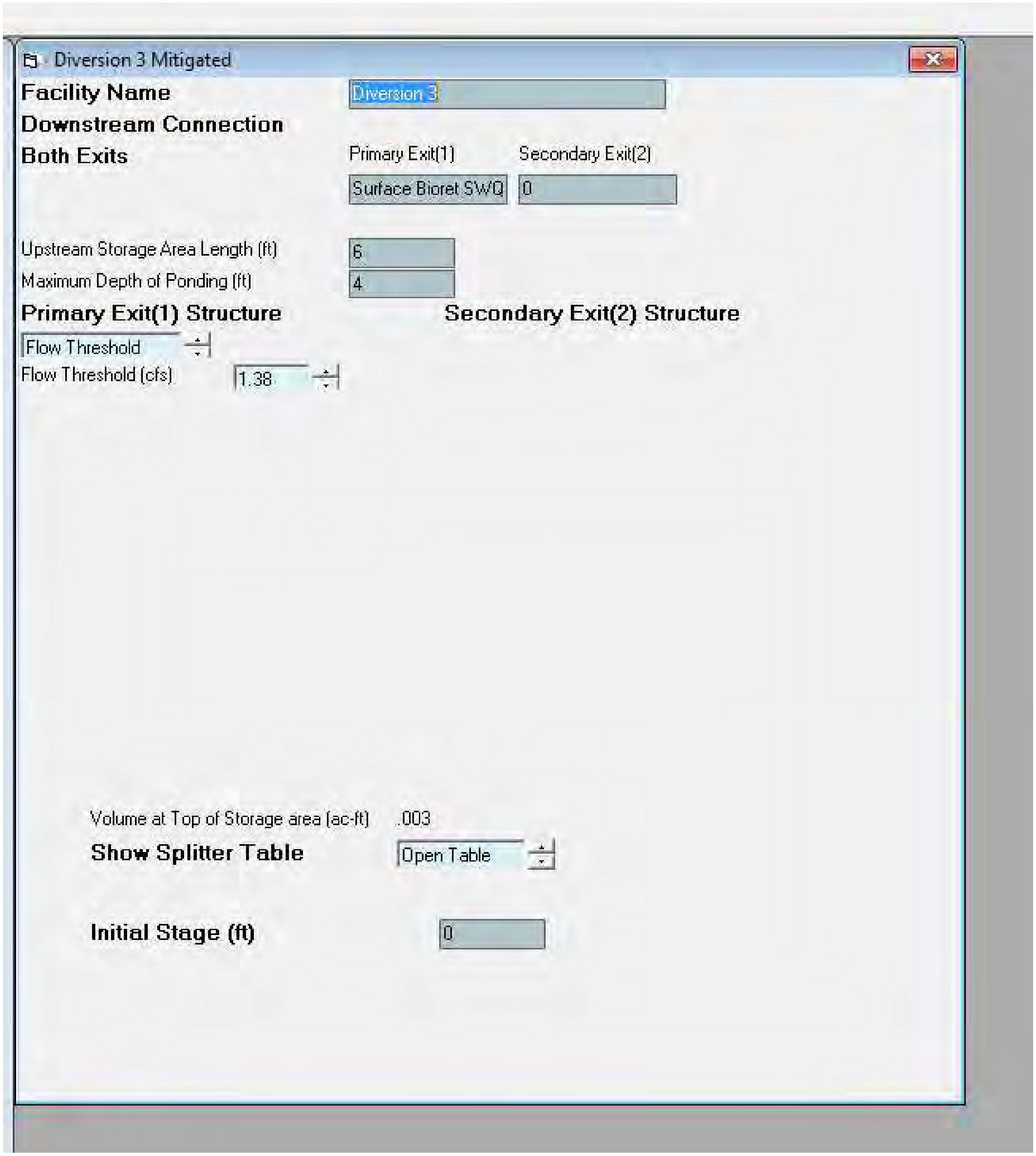
Show Bioretention Open Table

Bioretention Volume at Riser Head (ac-ft) 1.686

Native Infiltration	YES
Measured Infiltration Rate (in/hr)	0.2
Reduction Factor (infilt*factor)	0.5
Use Wetted Surface Area (sidewalls)	YES

Total Volume Infiltrated (ac-ft)	710.17
Total Volume Through Riser (ac-ft)	517.705
Total Volume Through Facility(ac-ft)	1227.875
Percent Infiltrated	57.84


DMA 3A Mitigated
Subbasin Name: DMA 3A
Designate as Bypass for POC:
Surface
Interflow
Groundwater
Flows To :
Diversion 3
Diversion 3
Area in Basin
Show Only Selected
Available Pervious
Acres
C/D,Grass,Flat(0-5%)
3.72
C/D,Grass,Very(>20%)
0
Available Impervious
Acres
Roads,Flat(0-5%)
2.42
Roads,Mod(5-10%)
0
Roof Area
4.49
PerviousTotal
3.72
Acres
Impervious Total
6.91
Acres
Basin Total
10.63
Acres
Deselect Zero
Select By:
GO


Diversion 3 Mitigated
Facility Name
Diversion 3
Downstream Connection
Both Exits
Primary Exit(1)
Secondary Exit(2)
Surface Bioret SWQ
0
Upstream Storage Area Length (ft)
6
Maximum Depth of Ponding (ft)
4
Primary Exit(1) Structure
Secondary Exit(2) Structure
Flow Threshold
Flow Threshold (cfs)
1.38
Volume at Top of Storage area (ac-ft)
.003
Show Splitter Table
Open Table
Initial Stage (ft)
0

Bioret SWQ3 Mitigated

Facility Name	Bioret SWQ3		
	Outlet 1	**Outlet 2**	**Outlet 3**
Downstream Connection	0	0	0
Facility Type	Bioretention Swale		

☐ **Use simple Bioretention**

Quick Bioretention

☑ **Underdrain Used**

Underdrain Diameter (ft)	0.333	**Offset(in)**
Orifice Diameter (in)	3.5	120
Flow Through Underdrain (ac-ft)	0	
Total Outflow (ac-ft)	287.053	
Percent Through Underdrain	0	

Bioretention Bottom Elevatior 0

Bioretention Dimensions

Bioretention Length (ft)	207.840
Bioretention Bottom Width (ft)	58.000
Freeboard (ft)	0.500
Over-road Flooding (ft)	0.000
Effective Total Depth (ft)	3.5
Bottom slope of bioretention (ft/ft)	0.000
Top and Bottom side slope (ft/ft)	0.330
Left Side Slope (H/V)	3.000
Right Side Slope (H/V)	3.000

Facility Dimension Diagram

Riser Outlet Structure

Outlet Structure Data

Riser Height Above bioretention	0.5
Riser Diameter (in)	13.54
Riser Type	Notched
	Rectangular
Notch Height (ft)	0
Notch Width (ft)	0

Material Layers for

	Layer 1	Layer 2	Layer 3
Depth (ft)	1.500	1.000	0.000

Soil Layer 1	User: BAHM 5
Soil Layer 2	GRAVEL
Soil Layer 3	GRAVEL

Edit Soil Types

Orifice Number	**Diameter (in)**	**Height (ft)**
1	0	0
2	0	0
3	0	0

Show Bioretention Open Table

Bioretention Volume at Riser Head (ac-ft) .662

Native Infiltration	YES	Total Volume Infiltrated (ac-ft)	220.805
Measured Infiltration Rate (in/hr)	0.2	Total Volume Through Riser (ac-ft)	66.248
Reduction Factor (infilt*factor)	0.5	Total Volume Through Facility(ac-ft)	287.053
Use Wetted Surface Area (sidewalls)	YES	Percent Infiltrated	76.92

DMA 4A Mitigated

Subbasin Name: DMA 4A

Designate as Bypass for POC:

Flows To :

	Surface	Interflow	Groundwater
Flows To :	Surface Bioret SWQ4	Surface Bioret SWQ4	

Area in Basin

Show Only Selected

Available Pervious	Acres
C/D,Grass,Flat(0-5%)	.3
C/D,Grass,Very(>20%)	0

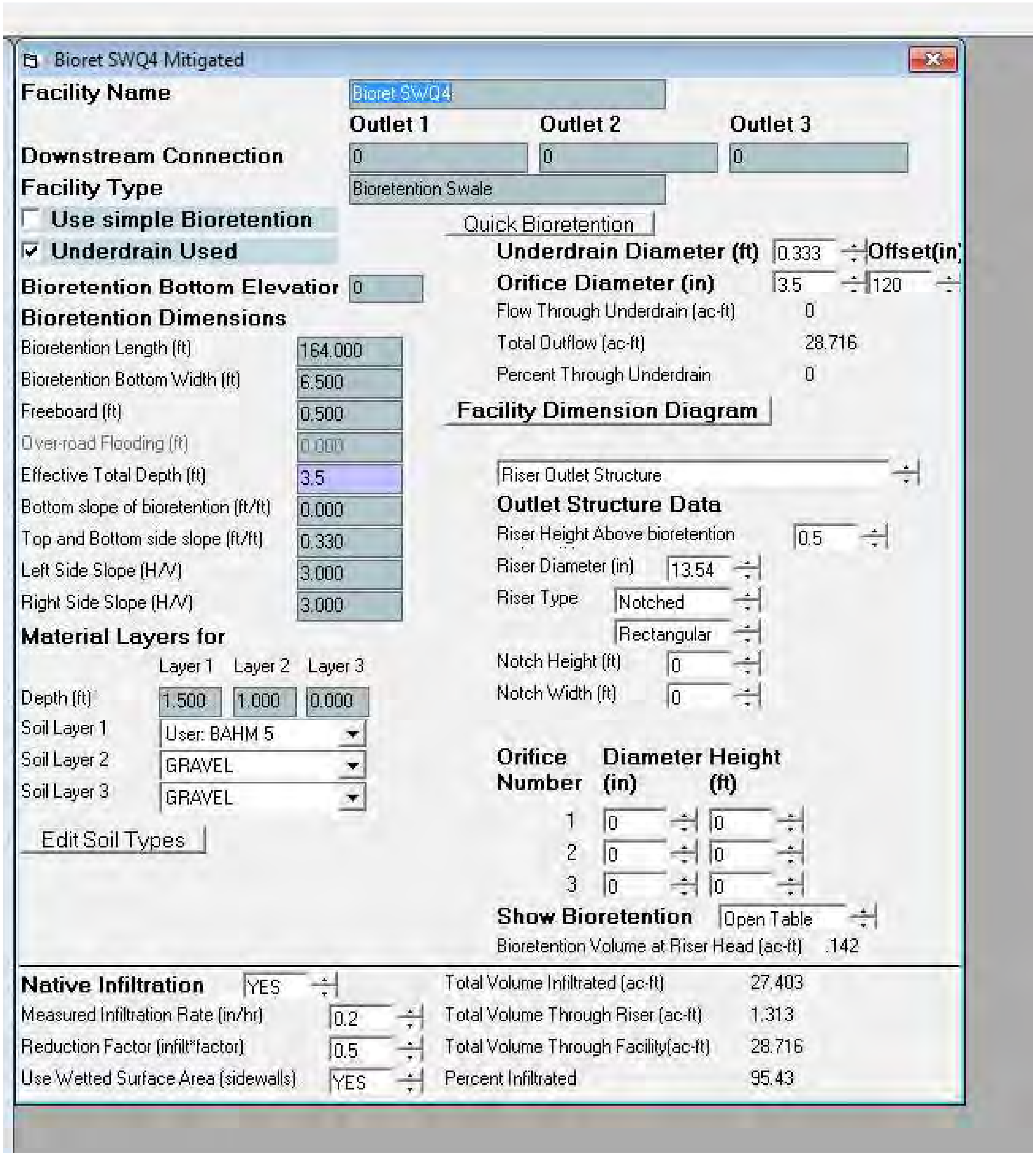
Available Impervious	Acres
Roads,Flat(0-5%)	.2
Roads,Mod(5-10%)	0
Roof Area	.36

PerviousTotal	0.3	Acres
Impervious Total	0.56	Acres
Basin Total	0.86	Acres

Deselect Zero

Select By:

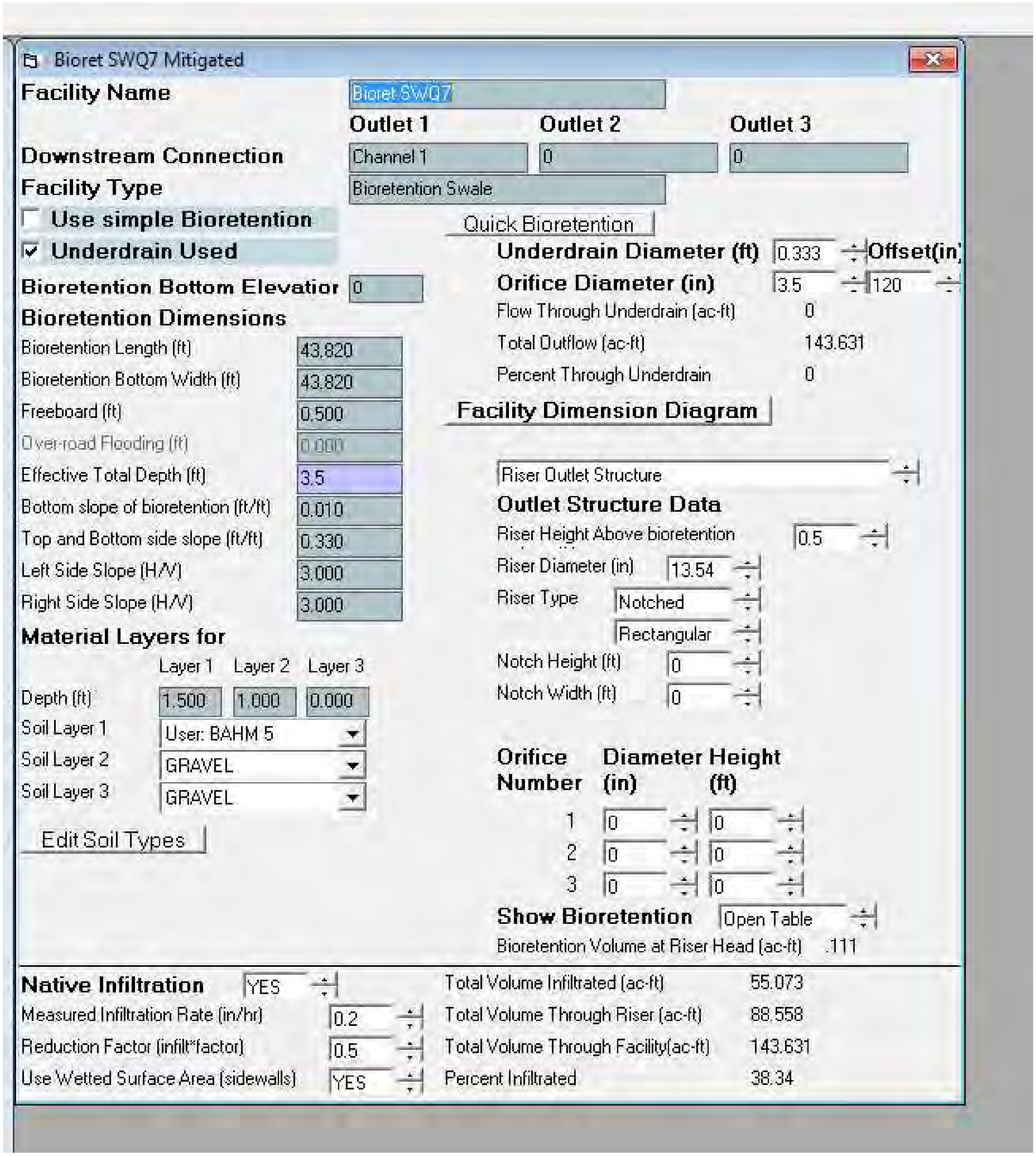
GO


Bioret SWQ4 Mitigated
Facility Name
Bioret SWQ4
Outlet 1
Outlet 2
Outlet 3
Downstream Connection
0
0
0
Facility Type
Bioretention Swale
Use simple Bioretention
Underdrain Used
Quick Bioretention
Underdrain Diameter (ft)
0.333
Offset(in)
Orifice Diameter (in)
3.5
120
Flow Through Underdrain (ac-ft)
0
Total Outflow (ac-ft)
28.716
Percent Through Underdrain
0
Bioretention Bottom Elevatior
0
Bioretention Dimensions
Bioretention Length (ft)
164.000
Bioretention Bottom Width (ft)
6.500
Freeboard (ft)
0.500
Over-road Flooding (ft)
0.000
Effective Total Depth (ft)
3.5
Bottom slope of bioretention (ft/ft)
0.000
Top and Bottom side slope (ft/ft)
0.330
Left Side Slope (H/V)
3.000
Right Side Slope (H/V)
3.000
Facility Dimension Diagram
Riser Outlet Structure
Outlet Structure Data
Riser Height Above bioretention
0.5
Riser Diameter (in)
13.54
Riser Type
Notched
Rectangular
Notch Height (ft)
0
Notch Width (ft)
0
Material Layers for
Layer 1
Layer 2
Layer 3
Depth (ft)
1.500
1.000
0.000
Soil Layer 1
User: BAHM 5
Soil Layer 2
GRAVEL
Soil Layer 3
GRAVEL
Edit Soil Types
Orifice Number
Diameter (in)
Height (ft)
1
0
0
2
0
0
3
0
0
Show Bioretention
Open Table
Bioretention Volume at Riser Head (ac-ft)
.142
Native Infiltration
YES
Measured Infiltration Rate (in/hr)
0.2
Reduction Factor (infilt*factor)
0.5
Use Wetted Surface Area (sidewalls)
YES
Total Volume Infiltrated (ac-ft)
27.403
Total Volume Through Riser (ac-ft)
1.313
Total Volume Through Facility(ac-ft)
28.716
Percent Infiltrated
95.43


OS1 OS2 OS5 Mitigated
Subbasin Name: OS1 OS2 OS5
Designate as Bypass for POC:
Surface
Interflow
Groundwater
Flows To :
Area in Basin
Show Only Selected
Available Pervious
Acres
C/D,Grass,Flat(0-5%)
0
C/D,Grass,Very(>20%)
50.55
Available Impervious
Acres
Roads,Flat(0-5%)
0
Roads,Mod(5-10%)
0
Roof Area
0
PerviousTotal
50.55
Acres
Impervious Total
0
Acres
Basin Total
50.55
Acres
Deselect Zero
Select By:
GO

OS3 Mitigated
Subbasin Name: OS3
Designate as Bypass for POC:
Surface
Interflow
Groundwater
Flows To :
Channel 1
Channel 1
Area in Basin
Show Only Selected
Available Pervious
Acres
C/D,Grass,Flat(0-5%)
0
C/D,Grass,Very(>20%)
4.12
Available Impervious
Acres
Roads,Flat(0-5%)
0
Roads,Mod(5-10%)
0
Roof Area
0
PerviousTotal
4.12
Acres
Impervious Total
0
Acres
Basin Total
4.12
Acres
Deselect Zero
Select By:
GO


DMA 7A Mitigated
Subbasin Name: DMA 7A
Designate as Bypass for POC:
Surface
Interflow
Groundwater
Flows To :
Surface Bioret SWQ7
Surface Bioret SWQ7
Show Only Selected
Area in Basin
Available Pervious
Acres
C/D,Grass,Flat(0-5%)
1.83
C/D,Grass,Very(>20%)
0
Available Impervious
Acres
Roads,Flat(0-5%)
2.74
Roads,Mod(5-10%)
0
Roof Area
0
PerviousTotal
1.83
Acres
Impervious Total
2.74
Acres
Basin Total
4.57
Acres
Deselect Zero
Select By:
GO


Bioret SWQ7 Mitigated
Facility Name
Bioret SWQ7
Outlet 1
Outlet 2
Outlet 3
Downstream Connection
Channel 1
0
0
Facility Type
Bioretention Swale
Use simple Bioretention
Quick Bioretention
Underdrain Used
Underdrain Diameter (ft)
0.333
Offset(in)
Orifice Diameter (in)
3.5
120
Bioretention Bottom Elevation
0
Flow Through Underdrain (ac-ft)
0
Bioretention Dimensions
Total Outflow (ac-ft)
143.631
Bioretention Length (ft)
43.820
Bioretention Bottom Width (ft)
43.820
Percent Through Underdrain
0
Freeboard (ft)
0.500
Facility Dimension Diagram
Over-road Flooding (ft)
0.000
Effective Total Depth (ft)
3.5
Riser Outlet Structure
Bottom slope of bioretention (ft/ft)
0.010
Outlet Structure Data
Top and Bottom side slope (ft/ft)
0.330
Riser Height Above bioretention
0.5
Left Side Slope (H/V)
3.000
Riser Diameter (in)
13.54
Right Side Slope (H/V)
3.000
Riser Type
Notched
Material Layers for
Rectangular
Layer 1
Layer 2
Layer 3
Notch Height (ft)
0
Depth (ft)
1.500
1.000
0.000
Notch Width (ft)
0
Soil Layer 1
User: BAHM 5
Soil Layer 2
GRAVEL
Soil Layer 3
GRAVEL
Orifice Number
Diameter (in)
Height (ft)
1
0
0
2
0
0
3
0
0
Edit Soil Types
Show Bioretention
Open Table
Bioretention Volume at Riser Head (ac-ft)
.111
Native Infiltration
YES
Total Volume Infiltrated (ac-ft)
55.073
Measured Infiltration Rate (in/hr)
0.2
Total Volume Through Riser (ac-ft)
88.558
Reduction Factor (infilt*factor)
0.5
Total Volume Through Facility(ac-ft)
143.631
Use Wetted Surface Area (sidewalls)
YES
Percent Infiltrated
38.34


DMA 6A Mitigated

Subbasin Name: DMA 6A   Designate as Bypass for POC:

	Surface	Interflow	Groundwater
Flows To :	Surface Bioret SWQ6	Surface Bioret SWQ6	

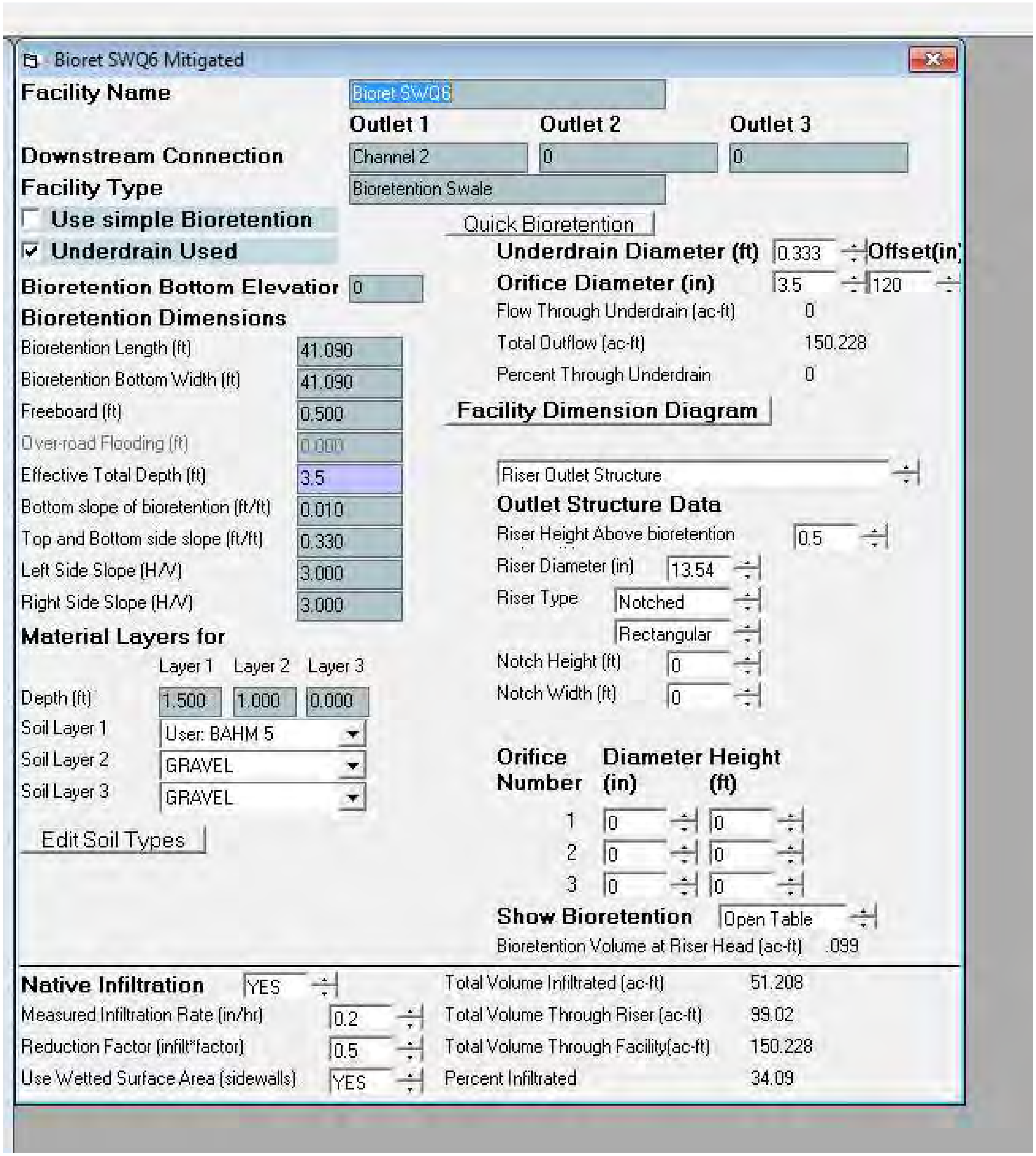
Area in Basin   Show Only Selected

Available Pervious	Acres
C/D,Grass,Flat(0-5%)	1.91
C/D,Grass,Very(>20%)	0

Available Impervious	Acres
Roads,Flat(0-5%)	2.87
Roads,Mod(5-10%)	0
Roof Area	0

PerviousTotal	1.91	Acres
Impervious Total	2.87	Acres
Basin Total	4.78	Acres

Deselect Zero   Select By: GO


Bioret SWQ6 Mitigated

Facility Name	Bioret SWQ6		
	Outlet 1	Outlet 2	Outlet 3
Downstream Connection	Channel 2	0	0
Facility Type	Bioretention Swale		

Use simple Bioretention

Underdrain Used

Quick Bioretention

Underdrain Diameter (ft)	0.333	Offset(in)	
Orifice Diameter (in)	3.5	120	
Flow Through Underdrain (ac-ft)	0		
Total Outflow (ac-ft)	150.228		
Percent Through Underdrain	0		

Bioretention Bottom Elevatior 0

Bioretention Dimensions

Bioretention Length (ft)	41.090
Bioretention Bottom Width (ft)	41.090
Freeboard (ft)	0.500
Over-road Flooding (ft)	0.000
Effective Total Depth (ft)	3.5
Bottom slope of bioretention (ft/ft)	0.010
Top and Bottom side slope (ft/ft)	0.330
Left Side Slope (H/V)	3.000
Right Side Slope (H/V)	3.000

Facility Dimension Diagram

Riser Outlet Structure

Outlet Structure Data

Riser Height Above bioretention	0.5
Riser Diameter (in)	13.54
Riser Type	Notched
	Rectangular
Notch Height (ft)	0
Notch Width (ft)	0

Material Layers for

	Layer 1	Layer 2	Layer 3
Depth (ft)	1.500	1.000	0.000

Soil Layer 1	User: BAHM 5
Soil Layer 2	GRAVEL
Soil Layer 3	GRAVEL

Edit Soil Types

Orifice Number	Diameter (in)	Height (ft)
1	0	0
2	0	0
3	0	0

Show Bioretention Open Table

Bioretention Volume at Riser Head (ac-ft) .099

Native Infiltration	YES	Total Volume Infiltrated (ac-ft)	51.208
Measured Infiltration Rate (in/hr)	0.2	Total Volume Through Riser (ac-ft)	99.02
Reduction Factor (infilt*factor)	0.5	Total Volume Through Facility(ac-ft)	150.228
Use Wetted Surface Area (sidewalls)	YES	Percent Infiltrated	34.09

Channel 1 Mitigated

Facility Name	Channel 1
	Outlet 1 / **Outlet 2** / **Outlet 3**
Downstream Connection	Channel 2 / 0 / 0
Facility Type	Channel
	Use X-Sections
	Quick Channel
User Defined	
	Facility Dimension Diagram
	Browse for file.

Channel Dimensions

General Channel Data

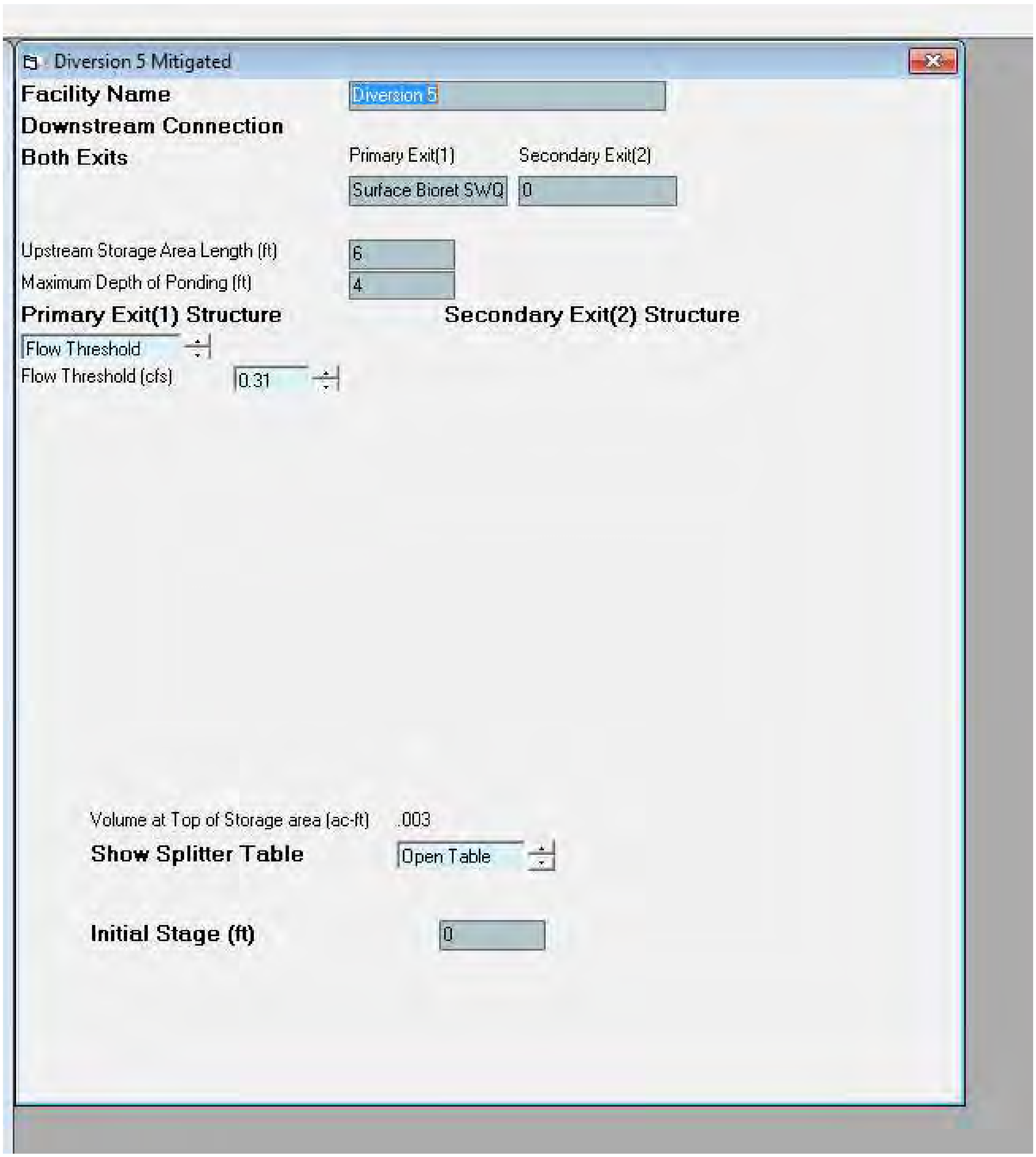
Channel Bottom width (ft)	10
Channel Length (ft)	992
Manning n coefficient	0.035
Slope of Channel (ft/ft)	0.048
Left Side Slope (H/V)	2
Right Side Slope (H/V)	2
Maximum Channel Depth (ft)	6

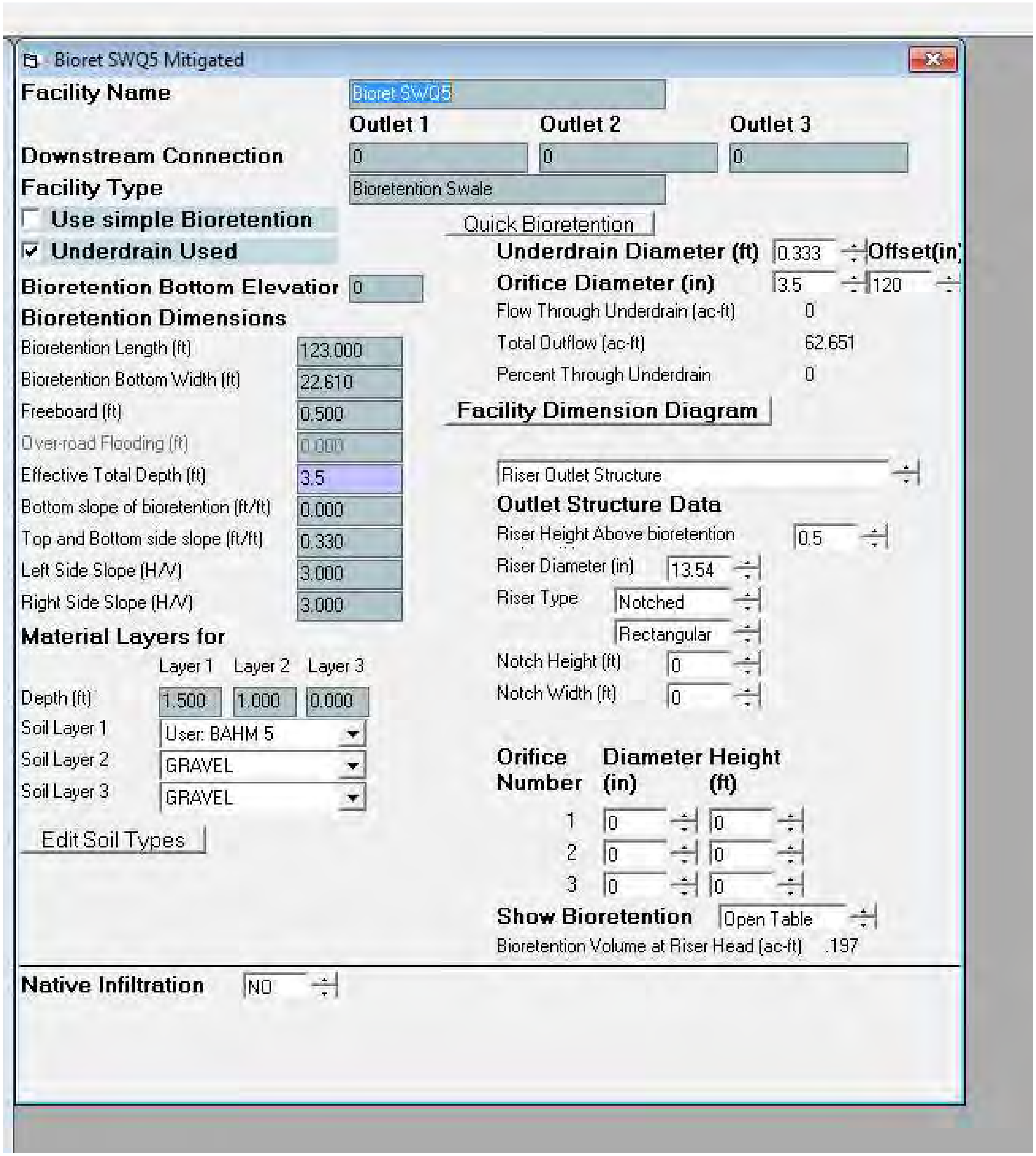
Infiltration NO

Show Channel Table Open Table


Channel 2 Mitigated
Facility Name
Channel 2
Outlet 1
Outlet 2
Outlet 3
Downstream Connection
0
0
0
Facility Type
Channel
Use X-Sections
Quick Channel
Facility Dimension Diagram
User Defined
Browse for file.
Channel Dimensions
General Channel Data
Channel Bottom width (ft) 10
Channel Length (ft) 878
Manning n coefficient 0.035
Slope of Channel (ft/ft) 0.048
Left Side Slope (H/V) 2
Right Side Slope (H/V) 2
Maximum Channel Depth (ft) 6
Infiltration NO
Show Channel Table
Open Table


DMA 5A Mitigated
Subbasin Name: DMA 5A
Designate as Bypass for POC:
Flows To :
Surface
Diversion 5
Interflow
Diversion 5
Groundwater
Area in Basin
Show Only Selected
Available Pervious
Acres
C/D,Grass,Flat(0-5%)
1.56
C/D,Grass,Very(>20%)
0
Available Impervious
Acres
Roads,Flat(0-5%)
1.56
Roads,Mod(5-10%)
0
Roof Area
0
PerviousTotal
1.56
Acres
Impervious Total
1.56
Acres
Basin Total
3.12
Acres
Deselect Zero
Select By:
GO

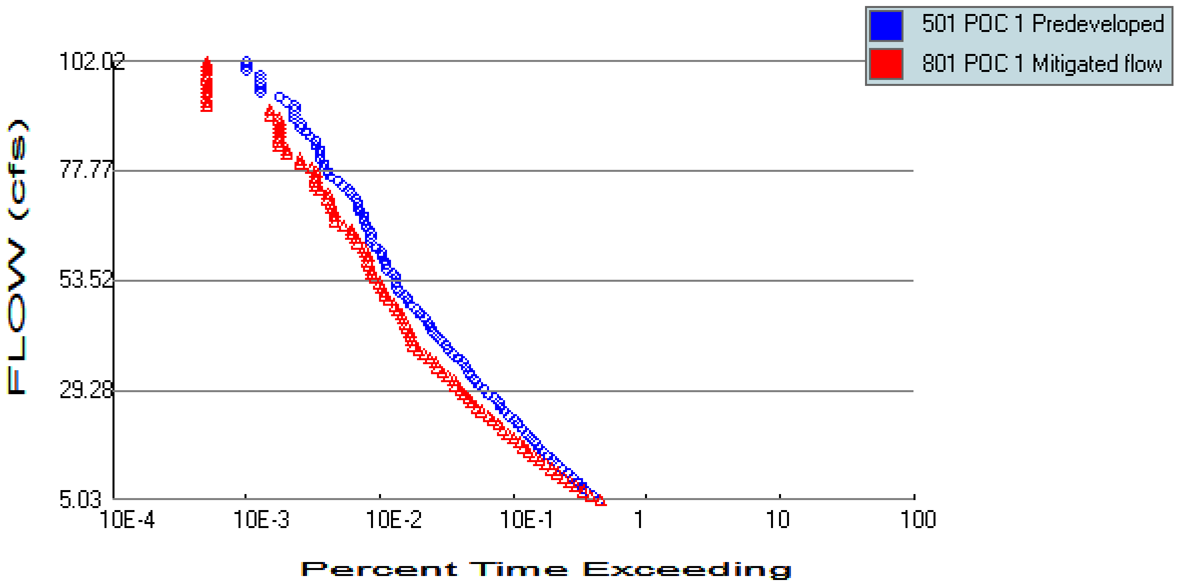

Diversion 5 Mitigated
Facility Name
Diversion 5
Downstream Connection
Both Exits
Primary Exit(1)
Secondary Exit(2)
Surface Bioret SWQ
0
Upstream Storage Area Length (ft)
6
Maximum Depth of Ponding (ft)
4
Primary Exit(1) Structure
Secondary Exit(2) Structure
Flow Threshold
Flow Threshold (cfs)
0.31
Volume at Top of Storage area (ac-ft)
.003
Show Splitter Table
Open Table
Initial Stage (ft)
0


Bioret SWQ5 Mitigated
Facility Name
Bioret SWQ5
Outlet 1
Outlet 2
Outlet 3
Downstream Connection
0
0
0
Facility Type
Bioretention Swale
Use simple Bioretention
Quick Bioretention
Underdrain Used
Underdrain Diameter (ft)
0.333
Offset(in)
Orifice Diameter (in)
3.5
120
Bioretention Bottom Elevation
0
Flow Through Underdrain (ac-ft)
0
Bioretention Dimensions
Total Outflow (ac-ft)
62.651
Percent Through Underdrain
0
Bioretention Length (ft)
123.000
Bioretention Bottom Width (ft)
22.610
Freeboard (ft)
0.500
Facility Dimension Diagram
Over-road Flooding (ft)
0.000
Effective Total Depth (ft)
3.5
Riser Outlet Structure
Bottom slope of bioretention (ft/ft)
0.000
Outlet Structure Data
Top and Bottom side slope (ft/ft)
0.330
Riser Height Above bioretention
0.5
Left Side Slope (H/V)
3.000
Riser Diameter (in)
13.54
Right Side Slope (H/V)
3.000
Riser Type
Notched
Material Layers for
Rectangular
Layer 1
Layer 2
Layer 3
Notch Height (ft)
0
Depth (ft)
1.500
1.000
0.000
Notch Width (ft)
0
Soil Layer 1
User: BAHM 5
Soil Layer 2
GRAVEL
Soil Layer 3
GRAVEL
Orifice Number
Diameter (in)
Height (ft)
1
0
0
2
0
0
3
0
0
Edit Soil Types
Show Bioretention
Open Table
Bioretention Volume at Riser Head (ac-ft)
.197
Native Infiltration
NO

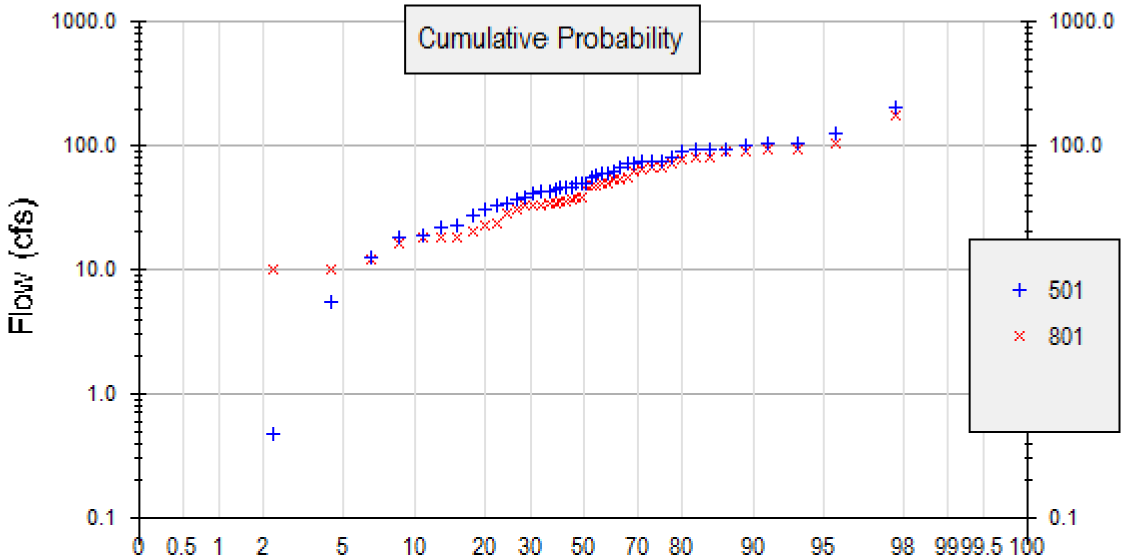
Appendix C.

BAHM Modeling Output

BAHM Results – Flow Durations Plot



BAHM Results – Flow Frequency Plot



Bay Area Hydrology Model (BAHM)

BAHM2013
PROJECT REPORT

Project Name: 19343-T Croak BAHM (June 12 2020)
Site Name: Croak Property
Site Address: Croak Road & Central Parkway
City : Dublin, CA
Report Date: 6/15/2020
Gage : LIVERMORE
Data Start : 1959/10/01
Data End : 2004/09/30
Precip Scale: 1.07
Version : 2014/02/10

Low Flow Threshold for POC 1 : 10 Percent of the 2 Year

High Flow Threshold for POC 1: 10 year

Tank 1 Output

Tank 2 Output

Bay Area Hydrology Model (BAHM)

Name : Tank 1
Tank Name: Tank 1

Dimensions
Depth: 4 ft.
Tank Type : Circular
Diameter : 4 ft.
Length : 100 ft.
Discharge Structure
Riser Height: 2 ft.
Riser Diameter: 16.93 in.
Orifice 1 Diameter: 8 in. **Elevation:** 0 ft.
Orifice 2 Diameter: 10 in. **Elevation:** 1 ft.

Element Flows To:
Outlet 1 **Outlet 2**
Diversion 1A

Tank Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	Infilt(cfs)
0.0000	0.000	0.000	0.000	0.000
0.0444	0.001	0.000	0.354	0.000
0.0889	0.002	0.000	0.501	0.000
0.1333	0.003	0.000	0.613	0.000
0.1778	0.003	0.000	0.708	0.000
0.2222	0.004	0.000	0.792	0.000
0.2667	0.004	0.000	0.868	0.000
0.3111	0.004	0.001	0.937	0.000
0.3556	0.005	0.001	1.002	0.000
0.4000	0.005	0.001	1.063	0.000
0.4444	0.005	0.001	1.120	0.000
0.4889	0.006	0.002	1.175	0.000
0.5333	0.006	0.002	1.227	0.000
0.5778	0.006	0.002	1.277	0.000
0.6222	0.006	0.002	1.325	0.000
0.6667	0.006	0.003	1.372	0.000
0.7111	0.007	0.003	1.417	0.000
0.7556	0.007	0.003	1.461	0.000
0.8000	0.007	0.004	1.503	0.000
0.8444	0.007	0.004	1.544	0.000
0.8889	0.007	0.004	1.584	0.000
0.9333	0.007	0.005	1.623	0.000
0.9778	0.007	0.005	1.662	0.000
1.0222	0.008	0.005	2.091	0.000
1.0667	0.008	0.006	2.414	0.000
1.1111	0.008	0.006	2.647	0.000
1.1556	0.008	0.006	2.842	0.000
1.2000	0.008	0.007	3.015	0.000
1.2444	0.008	0.007	3.173	0.000
1.2889	0.008	0.008	3.319	0.000
1.3333	0.008	0.008	3.457	0.000
1.3778	0.008	0.008	3.587	0.000
1.4222	0.008	0.009	3.711	0.000
1.4667	0.008	0.009	3.829	0.000
1.5111	0.008	0.010	3.943	0.000
1.5556	0.009	0.010	4.054	0.000
1.6000	0.009	0.010	4.160	0.000
1.6444	0.009	0.011	4.263	0.000
1.6889	0.009	0.011	4.364	0.000
1.7333	0.009	0.012	4.462	0.000

1.7778	0.009	0.012	4.557	0.000
1.8222	0.009	0.012	4.650	0.000
1.8667	0.009	0.013	4.741	0.000
1.9111	0.009	0.013	4.830	0.000
1.9556	0.009	0.014	4.917	0.000
2.0000	0.009	0.014	5.003	0.000
2.0444	0.009	0.014	5.216	0.000
2.0889	0.009	0.015	5.534	0.000
2.1333	0.009	0.015	5.920	0.000
2.1778	0.009	0.016	6.360	0.000
2.2222	0.009	0.016	6.848	0.000
2.2667	0.009	0.016	7.378	0.000
2.3111	0.009	0.017	7.947	0.000
2.3556	0.009	0.017	8.550	0.000
2.4000	0.009	0.018	9.187	0.000
2.4444	0.009	0.018	9.855	0.000
2.4889	0.008	0.018	10.55	0.000
2.5333	0.008	0.019	11.27	0.000
2.5778	0.008	0.019	12.03	0.000
2.6222	0.008	0.020	12.81	0.000
2.6667	0.008	0.020	13.61	0.000
2.7111	0.008	0.020	14.44	0.000
2.7556	0.008	0.021	15.29	0.000
2.8000	0.008	0.021	16.16	0.000
2.8444	0.008	0.021	17.06	0.000
2.8889	0.008	0.022	17.98	0.000
2.9333	0.008	0.022	18.92	0.000
2.9778	0.008	0.023	19.87	0.000
3.0222	0.007	0.023	20.85	0.000
3.0667	0.007	0.023	21.85	0.000
3.1111	0.007	0.024	22.87	0.000
3.1556	0.007	0.024	23.91	0.000
3.2000	0.007	0.024	24.96	0.000
3.2444	0.007	0.025	26.03	0.000
3.2889	0.007	0.025	27.12	0.000
3.3333	0.006	0.025	28.23	0.000
3.3778	0.006	0.026	29.36	0.000
3.4222	0.006	0.026	30.50	0.000
3.4667	0.006	0.026	31.66	0.000
3.5111	0.006	0.026	32.83	0.000
3.5556	0.005	0.027	34.02	0.000
3.6000	0.005	0.027	35.23	0.000
3.6444	0.005	0.027	36.45	0.000
3.6889	0.004	0.027	37.69	0.000
3.7333	0.004	0.028	38.94	0.000
3.7778	0.004	0.028	40.21	0.000
3.8222	0.003	0.028	41.49	0.000
3.8667	0.003	0.028	42.79	0.000
3.9111	0.002	0.028	44.10	0.000
3.9556	0.001	0.028	45.43	0.000
4.0000	0.000	0.028	46.77	0.000
4.0444	0.000	0.000	48.12	0.000

Bay Area Hydrology Model (BAHM)

Name : Tank 2
Tank Name: Tank 2

Dimensions
Depth: 6 ft.
Tank Type : Circular
Diameter : 6 ft.
Length : 150 ft.
Discharge Structure
Riser Height: 4 ft.
Riser Diameter: 20.31 in.
Orifice 1 Diameter: 3 in. **Elevation:** 0 ft.
Orifice 2 Diameter: 10 in. **Elevation:** 1.5 ft.

Element Flows To:
Outlet 1 **Outlet 2**
Diversion 2A

Tank Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	Infilt(cfs)
0.0000	0.000	0.000	0.000	0.000
0.0667	0.004	0.000	0.061	0.000
0.1333	0.006	0.000	0.086	0.000
0.2000	0.007	0.001	0.105	0.000
0.2667	0.008	0.001	0.122	0.000
0.3333	0.009	0.002	0.136	0.000
0.4000	0.010	0.002	0.149	0.000
0.4667	0.011	0.003	0.161	0.000
0.5333	0.011	0.004	0.172	0.000
0.6000	0.012	0.005	0.183	0.000
0.6667	0.013	0.005	0.193	0.000
0.7333	0.013	0.006	0.202	0.000
0.8000	0.014	0.007	0.211	0.000
0.8667	0.014	0.008	0.220	0.000
0.9333	0.015	0.009	0.228	0.000
1.0000	0.015	0.010	0.236	0.000
1.0667	0.015	0.011	0.244	0.000
1.1333	0.016	0.012	0.251	0.000
1.2000	0.016	0.013	0.258	0.000
1.2667	0.016	0.015	0.266	0.000
1.3333	0.017	0.016	0.272	0.000
1.4000	0.017	0.017	0.279	0.000
1.4667	0.017	0.018	0.286	0.000
1.5333	0.018	0.019	0.772	0.000
1.6000	0.018	0.020	1.129	0.000
1.6667	0.018	0.022	1.377	0.000
1.7333	0.018	0.023	1.579	0.000
1.8000	0.018	0.024	1.755	0.000
1.8667	0.019	0.025	1.913	0.000
1.9333	0.019	0.027	2.057	0.000
2.0000	0.019	0.028	2.191	0.000
2.0667	0.019	0.029	2.316	0.000
2.1333	0.019	0.031	2.435	0.000
2.2000	0.019	0.032	2.548	0.000
2.2667	0.020	0.033	2.655	0.000
2.3333	0.020	0.035	2.758	0.000
2.4000	0.020	0.036	2.857	0.000
2.4667	0.020	0.037	2.953	0.000
2.5333	0.020	0.039	3.046	0.000
2.6000	0.020	0.040	3.135	0.000

2.6667	0.020	0.041	3.222	0.000
2.7333	0.020	0.043	3.307	0.000
2.8000	0.020	0.044	3.390	0.000
2.8667	0.020	0.045	3.470	0.000
2.9333	0.020	0.047	3.549	0.000
3.0000	0.020	0.048	3.626	0.000
3.0667	0.020	0.050	3.701	0.000
3.1333	0.020	0.051	3.775	0.000
3.2000	0.020	0.052	3.847	0.000
3.2667	0.020	0.054	3.918	0.000
3.3333	0.020	0.055	3.987	0.000
3.4000	0.020	0.056	4.056	0.000
3.4667	0.020	0.058	4.123	0.000
3.5333	0.020	0.059	4.189	0.000
3.6000	0.020	0.061	4.254	0.000
3.6667	0.020	0.062	4.318	0.000
3.7333	0.020	0.063	4.381	0.000
3.8000	0.019	0.065	4.443	0.000
3.8667	0.019	0.066	4.505	0.000
3.9333	0.019	0.067	4.565	0.000
4.0000	0.019	0.069	4.625	0.000
4.0667	0.019	0.070	4.968	0.000
4.1333	0.019	0.071	5.545	0.000
4.2000	0.018	0.072	6.274	0.000
4.2667	0.018	0.074	7.126	0.000
4.3333	0.018	0.075	8.085	0.000
4.4000	0.018	0.076	9.138	0.000
4.4667	0.018	0.077	10.27	0.000
4.5333	0.017	0.078	11.49	0.000
4.6000	0.017	0.080	12.79	0.000
4.6667	0.017	0.081	14.15	0.000
4.7333	0.016	0.082	15.58	0.000
4.8000	0.016	0.083	17.08	0.000
4.8667	0.016	0.084	18.64	0.000
4.9333	0.015	0.085	20.25	0.000
5.0000	0.015	0.086	21.92	0.000
5.0667	0.015	0.087	23.65	0.000
5.1333	0.014	0.088	25.42	0.000
5.2000	0.014	0.089	27.25	0.000
5.2667	0.013	0.090	29.13	0.000
5.3333	0.013	0.091	31.06	0.000
5.4000	0.012	0.092	33.04	0.000
5.4667	0.011	0.093	35.06	0.000
5.5333	0.011	0.093	37.12	0.000
5.6000	0.010	0.094	39.23	0.000
5.6667	0.009	0.095	41.39	0.000
5.7333	0.008	0.095	43.58	0.000
5.8000	0.007	0.096	45.82	0.000
5.8667	0.006	0.096	48.09	0.000
5.9333	0.004	0.097	50.41	0.000
6.0000	0.000	0.097	52.77	0.000
6.0667	0.000	0.000	55.16	0.000

Bioret SWQ1 Output

Bioret SWQ2 Output

Bioret SWQ3 Output

Bioret SWQ4 Output

Bioret SWQ5 Output

Bioret SWQ6 Output

Bioret SWQ7 Output

Bay Area Hydrology Model (BAHM)

Name : Bioret SWQ1
Bottom Length: 298.36 ft.
Bottom Width: 148.00 ft.
Material thickness of first layer: 1.5
Material type for first layer: BAHM 5
Material thickness of second layer: 1
Material type for second layer: GRAVEL
Material thickness of third layer: 0
Material type for third layer: GRAVEL
Infiltration On
Infiltration rate: 0.2
Infiltration safety factor: 0.5
Wetted surface area On
Total Volume Infiltrated (ac-ft): 776.273
Total Volume Through Riser (ac-ft): 350.212
Total Volume Through Facility (ac-ft): 1126.485
Percent Infiltrated: 68.91
Underdrain used
Underdrain Diameter (ft): 0.5
Orifice Diameter (in): 5.5
Offset (in): 120
Flow Through Underdrain (ac-ft): 0
Total Outflow (ac-ft): 1126.485
Percent Through Underdrain: 0
Discharge Structure
Riser Height: 0.5 ft.
Riser Diameter: 20.31 in.
Notch Type: Rectangular
Notch Width: 0.000 ft.
Notch Height: 0.000 ft.

Element Flows To:
Outlet 1 **Outlet 2**

Bioret SWQ1 Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	Infilt(cfs)
0.0000	1.1226	0.0000	0.0000	0.0000
0.0385	1.1226	0.0148	0.0000	0.0000
0.0769	1.1209	0.0297	0.0000	0.0000
0.1154	1.1193	0.0446	0.0000	0.0000
0.1538	1.1176	0.0595	0.0000	0.0000
0.1923	1.1159	0.0744	0.0000	0.0000
0.2308	1.1142	0.0893	0.0000	0.1032
0.2692	1.1125	0.1043	0.0000	0.1034
0.3077	1.1108	0.1193	0.0000	0.1036
0.3462	1.1092	0.1343	0.0000	0.1037
0.3846	1.1075	0.1494	0.0000	0.1039
0.4231	1.1058	0.1644	0.0000	0.1041
0.4615	1.1041	0.1795	0.0000	0.1042
0.5000	1.1024	0.1947	0.0000	0.1044
0.5385	1.1008	0.2098	0.0000	0.1046
0.5769	1.0991	0.2250	0.0000	0.1047
0.6154	1.0974	0.2402	0.0000	0.1049
0.6538	1.0957	0.2554	0.0000	0.1051
0.6923	1.0940	0.2706	0.0000	0.1052
0.7308	1.0924	0.2859	0.0000	0.1054
0.7692	1.0907	0.3012	0.0000	0.1056
0.8077	1.0890	0.3165	0.0000	0.1058
0.8462	1.0873	0.3318	0.0000	0.1059

0.8846	1.0856	0.3472	0.0000	0.1061
0.9231	1.0840	0.3626	0.0000	0.1063
0.9615	1.0823	0.3780	0.0000	0.1064
1.0000	1.0806	0.3935	0.0000	0.1066
1.0385	1.0789	0.4089	0.0000	0.1068
1.0769	1.0772	0.4244	0.0000	0.1069
1.1154	1.0756	0.4399	0.0000	0.1071
1.1538	1.0739	0.4555	0.0000	0.1073
1.1923	1.0722	0.4710	0.0000	0.1074
1.2308	1.0705	0.4866	0.0000	0.1076
1.2692	1.0689	0.5022	0.0000	0.1078
1.3077	1.0672	0.5178	0.0000	0.1079
1.3462	1.0655	0.5335	0.0000	0.1081
1.3846	1.0638	0.5492	0.0000	0.1083
1.4231	1.0622	0.5649	0.0000	0.1085
1.4615	1.0605	0.5806	0.0000	0.1086
1.5000	1.0588	0.5978	0.0000	0.1088
1.5385	1.0571	0.6151	0.0000	0.1090
1.5769	1.0555	0.6323	0.0000	0.1091
1.6154	1.0538	0.6496	0.0000	0.1093
1.6538	1.0521	0.6669	0.0000	0.1095
1.6923	1.0504	0.6843	0.0000	0.1096
1.7308	1.0488	0.7016	0.0000	0.1098
1.7692	1.0471	0.7190	0.0000	0.1100
1.8077	1.0454	0.7365	0.0000	0.1101
1.8462	1.0438	0.7539	0.0000	0.1103
1.8846	1.0421	0.7714	0.0000	0.1105
1.9231	1.0404	0.7889	0.0000	0.1107
1.9615	1.0387	0.8064	0.0000	0.1108
2.0000	1.0371	0.8240	0.0000	0.1110
2.0385	1.0354	0.8416	0.0000	0.1112
2.0769	1.0337	0.8592	0.0000	0.1113
2.1154	1.0321	0.8768	0.0000	0.1115
2.1538	1.0304	0.8945	0.0000	0.1117
2.1923	1.0287	0.9122	0.0000	0.1118
2.2308	1.0271	0.9299	0.0000	0.1120
2.2692	1.0254	0.9476	0.0000	0.1122
2.3077	1.0237	0.9654	0.0000	0.1123
2.3462	1.0220	0.9832	0.0000	0.1125
2.3846	1.0204	1.0010	0.0000	0.1127
2.4231	1.0187	1.0189	0.0000	0.1129
2.4615	1.0170	1.0367	0.0000	0.1130
2.5000	1.0154	1.0546	0.0000	0.1132
2.5000	1.0137	1.0546	0.0000	0.1132

Surface Bioret SWQ1 Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	To Amended(cfs)	Wetted Surface
2.5000	1.1226	1.0546	0.0000	5.8138	0.0112
2.5385	1.1243	1.0979	0.0000	5.8138	0.0113
2.5769	1.1260	1.1411	0.0000	5.9680	0.0115
2.6154	1.1277	1.1845	0.0000	6.1227	0.0117
2.6538	1.1294	1.2279	0.0000	6.2779	0.0118
2.6923	1.1311	1.2713	0.0000	6.4335	0.0120
2.7308	1.1327	1.3149	0.0000	6.5895	0.0122
2.7692	1.1344	1.3585	0.0000	6.7460	0.0123
2.8077	1.1361	1.4021	0.0000	6.9028	0.0125
2.8462	1.1378	1.4459	0.0000	7.0602	0.0127
2.8846	1.1395	1.4897	0.0000	7.2180	0.0129
2.9231	1.1412	1.5335	0.0000	7.3762	0.0130
2.9615	1.1429	1.5775	0.0000	7.5348	0.0132
3.0000	1.1445	1.6214	0.0000	7.6939	0.0134
3.0385	1.1462	1.6655	0.1243	7.8534	0.0135
3.0769	1.1479	1.7096	0.3517	8.0134	0.0137

3.1154	1.1496	1.7538	0.6460	8.1738	0.0139
3.1538	1.1513	1.7980	0.9947	8.3346	0.0140
3.1923	1.1530	1.8424	1.3901	8.4959	0.0142
3.2308	1.1547	1.8867	1.8273	8.6576	0.0144
3.2692	1.1564	1.9312	2.3027	8.8198	0.0146
3.3077	1.1581	1.9757	2.8133	8.9824	0.0147
3.3462	1.1597	2.0203	3.3570	9.1454	0.0149
3.3846	1.1614	2.0649	3.9317	9.3089	0.0151
3.4231	1.1631	2.1096	4.5360	9.4728	0.0152
3.4615	1.1648	2.1544	5.1684	9.6372	0.0154
3.5000	1.1665	2.1992	5.8277	9.8019	0.0154

Bay Area Hydrology Model (BAHM)

Name : Bioret SWQ2
Bottom Length: 207.18 ft.
Bottom Width: 168.00 ft.
Material thickness of first layer: 1.5
Material type for first layer: BAHM 5
Material thickness of second layer: 1
Material type for second layer: GRAVEL
Material thickness of third layer: 0
Material type for third layer: GRAVEL
Infiltration On
Infiltration rate: 0.2
Infiltration safety factor: 0.5
Wetted surface area On
Total Volume Infiltrated (ac-ft): 710.17
Total Volume Through Riser (ac-ft): 517.705
Total Volume Through Facility (ac-ft): 1227.875
Percent Infiltrated: 57.84
Underdrain used
Underdrain Diameter (ft): 0.5
Orifice Diameter (in): 5.5
Offset (in): 120
Flow Through Underdrain (ac-ft): 0
Total Outflow (ac-ft): 1227.875
Percent Through Underdrain: 0
Discharge Structure
Riser Height: 0.5 ft.
Riser Diameter: 20.31 in.
Notch Type: Rectangular
Notch Width: 0.000 ft.
Notch Height: 0.000 ft.

Element Flows To:
Outlet 1 **Outlet 2**

Bioret SWQ2 Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	Infilt(cfs)
0.0000	0.8773	0.0000	0.0000	0.0000
0.0385	0.8773	0.0117	0.0000	0.0000
0.0769	0.8761	0.0234	0.0000	0.0000
0.1154	0.8749	0.0351	0.0000	0.0000
0.1538	0.8737	0.0469	0.0000	0.0000
0.1923	0.8725	0.0586	0.0000	0.0000
0.2308	0.8713	0.0704	0.0000	0.0813
0.2692	0.8700	0.0822	0.0000	0.0814
0.3077	0.8688	0.0940	0.0000	0.0815
0.3462	0.8676	0.1058	0.0000	0.0817
0.3846	0.8664	0.1177	0.0000	0.0818
0.4231	0.8652	0.1295	0.0000	0.0819
0.4615	0.8640	0.1414	0.0000	0.0820
0.5000	0.8628	0.1533	0.0000	0.0821
0.5385	0.8616	0.1652	0.0000	0.0823
0.5769	0.8604	0.1771	0.0000	0.0824
0.6154	0.8592	0.1891	0.0000	0.0825
0.6538	0.8579	0.2011	0.0000	0.0826
0.6923	0.8567	0.2130	0.0000	0.0827
0.7308	0.8555	0.2250	0.0000	0.0829
0.7692	0.8543	0.2371	0.0000	0.0830
0.8077	0.8531	0.2491	0.0000	0.0831
0.8462	0.8519	0.2612	0.0000	0.0832

0.8846	0.8507	0.2732	0.0000	0.0833
0.9231	0.8495	0.2853	0.0000	0.0835
0.9615	0.8483	0.2974	0.0000	0.0836
1.0000	0.8471	0.3096	0.0000	0.0837
1.0385	0.8459	0.3217	0.0000	0.0838
1.0769	0.8447	0.3339	0.0000	0.0840
1.1154	0.8435	0.3460	0.0000	0.0841
1.1538	0.8423	0.3582	0.0000	0.0842
1.1923	0.8410	0.3704	0.0000	0.0843
1.2308	0.8398	0.3827	0.0000	0.0844
1.2692	0.8386	0.3949	0.0000	0.0846
1.3077	0.8374	0.4072	0.0000	0.0847
1.3462	0.8362	0.4195	0.0000	0.0848
1.3846	0.8350	0.4318	0.0000	0.0849
1.4231	0.8338	0.4441	0.0000	0.0850
1.4615	0.8326	0.4564	0.0000	0.0852
1.5000	0.8314	0.4699	0.0000	0.0853
1.5385	0.8302	0.4834	0.0000	0.0854
1.5769	0.8290	0.4970	0.0000	0.0855
1.6154	0.8278	0.5105	0.0000	0.0857
1.6538	0.8266	0.5241	0.0000	0.0858
1.6923	0.8254	0.5377	0.0000	0.0859
1.7308	0.8242	0.5513	0.0000	0.0860
1.7692	0.8230	0.5649	0.0000	0.0861
1.8077	0.8218	0.5785	0.0000	0.0863
1.8462	0.8206	0.5922	0.0000	0.0864
1.8846	0.8194	0.6059	0.0000	0.0865
1.9231	0.8182	0.6196	0.0000	0.0866
1.9615	0.8170	0.6333	0.0000	0.0868
2.0000	0.8158	0.6471	0.0000	0.0869
2.0385	0.8146	0.6608	0.0000	0.0870
2.0769	0.8134	0.6746	0.0000	0.0871
2.1154	0.8122	0.6884	0.0000	0.0872
2.1538	0.8110	0.7022	0.0000	0.0874
2.1923	0.8098	0.7161	0.0000	0.0875
2.2308	0.8086	0.7299	0.0000	0.0876
2.2692	0.8074	0.7438	0.0000	0.0877
2.3077	0.8062	0.7577	0.0000	0.0879
2.3462	0.8050	0.7716	0.0000	0.0880
2.3846	0.8038	0.7856	0.0000	0.0881
2.4231	0.8026	0.7995	0.0000	0.0882
2.4615	0.8014	0.8135	0.0000	0.0883
2.5000	0.8002	0.8275	0.0000	0.0885
2.5000	0.7990	0.8275	0.0000	0.0885

Surface Bioret SWQ2 Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	To Amended(cfs)	Wetted Surface
2.5000	0.8773	0.8275	0.0000	4.5428	0.0080
2.5385	0.8785	0.8612	0.0000	4.5428	0.0081
2.5769	0.8797	0.8951	0.0000	4.6628	0.0083
2.6154	0.8810	0.9289	0.0000	4.7831	0.0084
2.6538	0.8822	0.9628	0.0000	4.9038	0.0085
2.6923	0.8834	0.9968	0.0000	5.0247	0.0086
2.7308	0.8846	1.0308	0.0000	5.1460	0.0087
2.7692	0.8858	1.0648	0.0000	5.2676	0.0089
2.8077	0.8870	1.0989	0.0000	5.3895	0.0090
2.8462	0.8882	1.1330	0.0000	5.5117	0.0091
2.8846	0.8895	1.1672	0.0000	5.6342	0.0092
2.9231	0.8907	1.2015	0.0000	5.7570	0.0094
2.9615	0.8919	1.2358	0.0000	5.8802	0.0095
3.0000	0.8931	1.2701	0.0000	6.0037	0.0096
3.0385	0.8943	1.3045	0.1243	6.1275	0.0097
3.0769	0.8955	1.3389	0.3517	6.2516	0.0099

3.1154	0.8968	1.3733	0.6460	6.3760	0.0100
3.1538	0.8980	1.4079	0.9947	6.5007	0.0101
3.1923	0.8992	1.4424	1.3901	6.6258	0.0102
3.2308	0.9004	1.4770	1.8273	6.7512	0.0103
3.2692	0.9016	1.5117	2.3027	6.8769	0.0105
3.3077	0.9028	1.5464	2.8133	7.0029	0.0106
3.3462	0.9041	1.5811	3.3570	7.1292	0.0107
3.3846	0.9053	1.6159	3.9317	7.2558	0.0108
3.4231	0.9065	1.6508	4.5360	7.3828	0.0110
3.4615	0.9077	1.6857	5.1684	7.5101	0.0111
3.5000	0.9089	1.7206	5.8277	7.6377	0.0111

Bay Area Hydrology Model (BAHM)

Name : Bioret SWQ3
Bottom Length: 207.84 ft.
Bottom Width: 58.00 ft.
Material thickness of first layer: 1.5
Material type for first layer: BAHM 5
Material thickness of second layer: 1
Material type for second layer: GRAVEL
Material thickness of third layer: 0
Material type for third layer: GRAVEL
Infiltration On
Infiltration rate: 0.2
Infiltration safety factor: 0.5
Wetted surface area On
Total Volume Infiltrated (ac-ft): 220.805
Total Volume Through Riser (ac-ft): 66.248
Total Volume Through Facility (ac-ft): 287.053
Percent Infiltrated: 76.92
Underdrain used
Underdrain Diameter (ft): 0.333
Orifice Diameter (in): 3.5
Offset (in): 120
Flow Through Underdrain (ac-ft): 0
Total Outflow (ac-ft): 287.053
Percent Through Underdrain: 0
Discharge Structure
Riser Height: 0.5 ft.
Riser Diameter: 13.54 in.
Notch Type: Rectangular
Notch Width: 0.000 ft.
Notch Height: 0.000 ft.

Element Flows To:
Outlet 1 **Outlet 2**

Bioret SWQ3 Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	Infilt(cfs)
0.0000	0.3511	0.0000	0.0000	0.0000
0.0385	0.3511	0.0041	0.0000	0.0000
0.0769	0.3499	0.0081	0.0000	0.0000
0.1154	0.3488	0.0122	0.0000	0.0000
0.1538	0.3476	0.0163	0.0000	0.0000
0.1923	0.3465	0.0204	0.0000	0.0000
0.2308	0.3453	0.0246	0.0000	0.0286
0.2692	0.3442	0.0287	0.0000	0.0287
0.3077	0.3430	0.0329	0.0000	0.0288
0.3462	0.3419	0.0371	0.0000	0.0289
0.3846	0.3407	0.0413	0.0000	0.0291
0.4231	0.3396	0.0455	0.0000	0.0292
0.4615	0.3384	0.0497	0.0000	0.0293
0.5000	0.3373	0.0540	0.0000	0.0294
0.5385	0.3361	0.0583	0.0000	0.0295
0.5769	0.3350	0.0625	0.0000	0.0296
0.6154	0.3338	0.0668	0.0000	0.0297
0.6538	0.3327	0.0712	0.0000	0.0299
0.6923	0.3315	0.0755	0.0000	0.0300
0.7308	0.3304	0.0798	0.0000	0.0301
0.7692	0.3292	0.0842	0.0000	0.0302
0.8077	0.3281	0.0886	0.0000	0.0303
0.8462	0.3269	0.0930	0.0000	0.0304

0.8846	0.3258	0.0974	0.0000	0.0305
0.9231	0.3246	0.1019	0.0000	0.0307
0.9615	0.3235	0.1063	0.0000	0.0308
1.0000	0.3223	0.1108	0.0000	0.0309
1.0385	0.3212	0.1153	0.0000	0.0310
1.0769	0.3201	0.1198	0.0000	0.0311
1.1154	0.3189	0.1243	0.0000	0.0312
1.1538	0.3178	0.1288	0.0000	0.0313
1.1923	0.3166	0.1334	0.0000	0.0315
1.2308	0.3155	0.1379	0.0000	0.0316
1.2692	0.3143	0.1425	0.0000	0.0317
1.3077	0.3132	0.1471	0.0000	0.0318
1.3462	0.3120	0.1517	0.0000	0.0319
1.3846	0.3109	0.1564	0.0000	0.0320
1.4231	0.3098	0.1610	0.0000	0.0322
1.4615	0.3086	0.1657	0.0000	0.0323
1.5000	0.3075	0.1708	0.0000	0.0324
1.5385	0.3063	0.1760	0.0000	0.0325
1.5769	0.3052	0.1811	0.0000	0.0326
1.6154	0.3041	0.1863	0.0000	0.0327
1.6538	0.3029	0.1915	0.0000	0.0329
1.6923	0.3018	0.1967	0.0000	0.0330
1.7308	0.3006	0.2019	0.0000	0.0331
1.7692	0.2995	0.2072	0.0000	0.0332
1.8077	0.2983	0.2124	0.0000	0.0333
1.8462	0.2972	0.2177	0.0000	0.0334
1.8846	0.2961	0.2230	0.0000	0.0335
1.9231	0.2949	0.2283	0.0000	0.0337
1.9615	0.2938	0.2337	0.0000	0.0338
2.0000	0.2927	0.2390	0.0000	0.0339
2.0385	0.2915	0.2444	0.0000	0.0340
2.0769	0.2904	0.2498	0.0000	0.0341
2.1154	0.2892	0.2552	0.0000	0.0342
2.1538	0.2881	0.2606	0.0000	0.0344
2.1923	0.2870	0.2661	0.0000	0.0345
2.2308	0.2858	0.2715	0.0000	0.0346
2.2692	0.2847	0.2770	0.0000	0.0347
2.3077	0.2836	0.2825	0.0000	0.0348
2.3462	0.2824	0.2880	0.0000	0.0349
2.3846	0.2813	0.2936	0.0000	0.0351
2.4231	0.2801	0.2991	0.0000	0.0352
2.4615	0.2790	0.3047	0.0000	0.0353
2.5000	0.2779	0.3103	0.0000	0.0354
2.5000	0.2767	0.3103	0.0000	0.0354

Surface Bioret SWQ3 Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	To Amended(cfs)	Wetted Surface
2.5000	0.3511	0.3103	0.0000	1.8213	0.0076
2.5385	0.3522	0.3238	0.0000	1.8213	0.0077
2.5769	0.3534	0.3374	0.0000	1.8730	0.0078
2.6154	0.3545	0.3510	0.0000	1.9249	0.0080
2.6538	0.3557	0.3647	0.0000	1.9772	0.0081
2.6923	0.3568	0.3784	0.0000	2.0297	0.0082
2.7308	0.3580	0.3921	0.0000	2.0826	0.0083
2.7692	0.3591	0.4059	0.0000	2.1357	0.0084
2.8077	0.3603	0.4198	0.0000	2.1891	0.0085
2.8462	0.3615	0.4336	0.0000	2.2429	0.0087
2.8846	0.3626	0.4476	0.0000	2.2969	0.0088
2.9231	0.3638	0.4615	0.0000	2.3513	0.0089
2.9615	0.3649	0.4755	0.0000	2.4059	0.0090
3.0000	0.3661	0.4896	0.0000	2.4609	0.0091
3.0385	0.3672	0.5037	0.0829	2.5161	0.0092
3.0769	0.3684	0.5179	0.2344	2.5716	0.0094

3.1154	0.3695	0.5320	0.4307	2.6275	0.0095
3.1538	0.3707	0.5463	0.6631	2.6836	0.0096
3.1923	0.3719	0.5606	0.9267	2.7401	0.0097
3.2308	0.3730	0.5749	1.2182	2.7968	0.0098
3.2692	0.3742	0.5893	1.5351	2.8539	0.0099
3.3077	0.3753	0.6037	1.8755	2.9112	0.0101
3.3462	0.3765	0.6181	2.2380	2.9689	0.0102
3.3846	0.3776	0.6326	2.6211	3.0268	0.0103
3.4231	0.3788	0.6472	3.0240	3.0851	0.0104
3.4615	0.3800	0.6618	3.4456	3.1437	0.0105
3.5000	0.3811	0.6764	3.8851	3.2025	0.0105

Bay Area Hydrology Model (BAHM)

Name : Bioret SWQ4
Bottom Length: 164.00 ft.
Bottom Width: 6.50 ft.
Material thickness of first layer: 1.5
Material type for first layer: BAHM 5
Material thickness of second layer: 1
Material type for second layer: GRAVEL
Material thickness of third layer: 0
Material type for third layer: GRAVEL
Infiltration On
Infiltration rate: 0.2
Infiltration safety factor: 0.5
Wetted surface area On
Total Volume Infiltrated (ac-ft): 27.403
Total Volume Through Riser (ac-ft): 1.313
Total Volume Through Facility (ac-ft): 28.716
Percent Infiltrated: 95.43
Underdrain used
Underdrain Diameter (ft): 0.333
Orifice Diameter (in): 3.5
Offset (in): 120
Flow Through Underdrain (ac-ft): 0
Total Outflow (ac-ft): 28.716
Percent Through Underdrain: 0
Discharge Structure
Riser Height: 0.5 ft.
Riser Diameter: 13.54 in.
Notch Type: Rectangular
Notch Width: 0.000 ft.
Notch Height: 0.000 ft.

Element Flows To:
Outlet 1 **Outlet 2**

Bioret SWQ4 Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0818	0.0000	0.0000	0.0000
0.0385	0.0818	0.0004	0.0000	0.0000
0.0769	0.0809	0.0007	0.0000	0.0000
0.1154	0.0800	0.0011	0.0000	0.0000
0.1538	0.0791	0.0015	0.0000	0.0000
0.1923	0.0782	0.0019	0.0000	0.0000
0.2308	0.0773	0.0024	0.0000	0.0030
0.2692	0.0764	0.0028	0.0000	0.0031
0.3077	0.0755	0.0033	0.0000	0.0032
0.3462	0.0746	0.0037	0.0000	0.0033
0.3846	0.0738	0.0042	0.0000	0.0033
0.4231	0.0729	0.0047	0.0000	0.0034
0.4615	0.0720	0.0052	0.0000	0.0035
0.5000	0.0711	0.0057	0.0000	0.0036
0.5385	0.0702	0.0063	0.0000	0.0037
0.5769	0.0693	0.0068	0.0000	0.0038
0.6154	0.0684	0.0074	0.0000	0.0039
0.6538	0.0676	0.0079	0.0000	0.0040
0.6923	0.0667	0.0085	0.0000	0.0041
0.7308	0.0658	0.0091	0.0000	0.0041
0.7692	0.0649	0.0097	0.0000	0.0042
0.8077	0.0640	0.0103	0.0000	0.0043
0.8462	0.0631	0.0110	0.0000	0.0044

0.8846	0.0622	0.0116	0.0000	0.0045
0.9231	0.0614	0.0123	0.0000	0.0046
0.9615	0.0605	0.0129	0.0000	0.0047
1.0000	0.0596	0.0136	0.0000	0.0048
1.0385	0.0587	0.0143	0.0000	0.0049
1.0769	0.0578	0.0150	0.0000	0.0049
1.1154	0.0569	0.0158	0.0000	0.0050
1.1538	0.0561	0.0165	0.0000	0.0051
1.1923	0.0552	0.0172	0.0000	0.0052
1.2308	0.0543	0.0180	0.0000	0.0053
1.2692	0.0534	0.0188	0.0000	0.0054
1.3077	0.0525	0.0196	0.0000	0.0055
1.3462	0.0517	0.0204	0.0000	0.0056
1.3846	0.0508	0.0212	0.0000	0.0057
1.4231	0.0499	0.0220	0.0000	0.0057
1.4615	0.0490	0.0228	0.0000	0.0058
1.5000	0.0481	0.0238	0.0000	0.0059
1.5385	0.0473	0.0247	0.0000	0.0060
1.5769	0.0464	0.0257	0.0000	0.0061
1.6154	0.0455	0.0266	0.0000	0.0062
1.6538	0.0446	0.0276	0.0000	0.0063
1.6923	0.0437	0.0286	0.0000	0.0064
1.7308	0.0429	0.0296	0.0000	0.0065
1.7692	0.0420	0.0307	0.0000	0.0065
1.8077	0.0411	0.0317	0.0000	0.0066
1.8462	0.0402	0.0328	0.0000	0.0067
1.8846	0.0393	0.0338	0.0000	0.0068
1.9231	0.0385	0.0349	0.0000	0.0069
1.9615	0.0376	0.0360	0.0000	0.0070
2.0000	0.0367	0.0371	0.0000	0.0071
2.0385	0.0358	0.0383	0.0000	0.0072
2.0769	0.0350	0.0394	0.0000	0.0073
2.1154	0.0341	0.0406	0.0000	0.0073
2.1538	0.0332	0.0417	0.0000	0.0074
2.1923	0.0323	0.0429	0.0000	0.0075
2.2308	0.0315	0.0441	0.0000	0.0076
2.2692	0.0306	0.0453	0.0000	0.0077
2.3077	0.0297	0.0466	0.0000	0.0078
2.3462	0.0288	0.0478	0.0000	0.0079
2.3846	0.0280	0.0491	0.0000	0.0080
2.4231	0.0271	0.0503	0.0000	0.0081
2.4615	0.0262	0.0516	0.0000	0.0082
2.5000	0.0253	0.0529	0.0000	0.0082
2.5000	0.0245	0.0529	0.0000	0.0082

Surface Bioret SWQ4 Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	To Amended(cfs)	Wetted Surface
2.5000	0.0818	0.0529	0.0000	0.4274	0.0059
2.5385	0.0827	0.0561	0.0000	0.4274	0.0060
2.5769	0.0835	0.0593	0.0000	0.4428	0.0060
2.6154	0.0844	0.0625	0.0000	0.4584	0.0061
2.6538	0.0853	0.0658	0.0000	0.4743	0.0062
2.6923	0.0862	0.0691	0.0000	0.4904	0.0063
2.7308	0.0871	0.0724	0.0000	0.5067	0.0064
2.7692	0.0880	0.0758	0.0000	0.5233	0.0065
2.8077	0.0889	0.0792	0.0000	0.5401	0.0066
2.8462	0.0898	0.0826	0.0000	0.5571	0.0067
2.8846	0.0907	0.0861	0.0000	0.5744	0.0068
2.9231	0.0916	0.0896	0.0000	0.5919	0.0069
2.9615	0.0925	0.0931	0.0000	0.6096	0.0069
3.0000	0.0934	0.0967	0.0000	0.6275	0.0070
3.0385	0.0942	0.1003	0.0829	0.6457	0.0071
3.0769	0.0951	0.1039	0.2344	0.6642	0.0072

3.1154	0.0960	0.1076	0.4307	0.6828	0.0073
3.1538	0.0969	0.1113	0.6631	0.7017	0.0074
3.1923	0.0978	0.1151	0.9267	0.7208	0.0075
3.2308	0.0987	0.1188	1.2182	0.7402	0.0076
3.2692	0.0996	0.1227	1.5351	0.7598	0.0077
3.3077	0.1005	0.1265	1.8755	0.7796	0.0078
3.3462	0.1014	0.1304	2.2380	0.7997	0.0078
3.3846	0.1023	0.1343	2.6211	0.8200	0.0079
3.4231	0.1032	0.1383	3.0240	0.8405	0.0080
3.4615	0.1041	0.1422	3.4456	0.8612	0.0081
3.5000	0.1050	0.1463	3.8851	0.8822	0.0081

Bay Area Hydrology Model (BAHM)

Name : Bioret SWQ5
Bottom Length: 123.00 ft.
Bottom Width: 22.61 ft.
Material thickness of first layer: 1.5
Material type for first layer: BAHM 5
Material thickness of second layer: 1
Material type for second layer: GRAVEL
Material thickness of third layer: 0
Material type for third layer: GRAVEL
Underdrain used
Underdrain Diameter (ft): 0.333
Orifice Diameter (in): 3.5
Offset (in): 120
Flow Through Underdrain (ac-ft): 0
Total Outflow (ac-ft): 62.651
Percent Through Underdrain: 0
Discharge Structure
Riser Height: 0.5 ft.
Riser Diameter: 13.54 in.
Notch Type: Rectangular
Notch Width: 0.000 ft.
Notch Height: 0.000 ft.

Element Flows To:
Outlet 1 **Outlet 2**

Bioret SWQ5 Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	Infilt(cfs)
0.0000	0.1076	0.0000	0.0000	0.0000
0.0385	0.1076	0.0009	0.0000	0.0000
0.0769	0.1069	0.0019	0.0000	0.0000
0.1154	0.1063	0.0028	0.0000	0.0000
0.1538	0.1056	0.0038	0.0000	0.0000
0.1923	0.1049	0.0048	0.0000	0.0000
0.2308	0.1042	0.0058	0.0000	0.0000
0.2692	0.1035	0.0068	0.0000	0.0000
0.3077	0.1029	0.0078	0.0000	0.0000
0.3462	0.1022	0.0088	0.0000	0.0000
0.3846	0.1015	0.0098	0.0000	0.0000
0.4231	0.1008	0.0109	0.0000	0.0000
0.4615	0.1001	0.0119	0.0000	0.0000
0.5000	0.0995	0.0130	0.0000	0.0000
0.5385	0.0988	0.0140	0.0000	0.0000
0.5769	0.0981	0.0151	0.0000	0.0000
0.6154	0.0974	0.0162	0.0000	0.0000
0.6538	0.0967	0.0173	0.0000	0.0000
0.6923	0.0961	0.0184	0.0000	0.0000
0.7308	0.0954	0.0195	0.0000	0.0000
0.7692	0.0947	0.0206	0.0000	0.0000
0.8077	0.0940	0.0217	0.0000	0.0000
0.8462	0.0934	0.0229	0.0000	0.0000
0.8846	0.0927	0.0240	0.0000	0.0000
0.9231	0.0920	0.0252	0.0000	0.0000
0.9615	0.0913	0.0264	0.0000	0.0000
1.0000	0.0907	0.0276	0.0000	0.0000
1.0385	0.0900	0.0287	0.0000	0.0000
1.0769	0.0893	0.0299	0.0000	0.0000
1.1154	0.0886	0.0312	0.0000	0.0000
1.1538	0.0880	0.0324	0.0000	0.0000

1.1923	0.0873	0.0336	0.0000	0.0000
1.2308	0.0866	0.0349	0.0000	0.0000
1.2692	0.0859	0.0361	0.0000	0.0000
1.3077	0.0853	0.0374	0.0000	0.0000
1.3462	0.0846	0.0386	0.0000	0.0000
1.3846	0.0839	0.0399	0.0000	0.0000
1.4231	0.0832	0.0412	0.0000	0.0000
1.4615	0.0826	0.0425	0.0000	0.0000
1.5000	0.0819	0.0439	0.0000	0.0000
1.5385	0.0812	0.0454	0.0000	0.0000
1.5769	0.0805	0.0468	0.0000	0.0000
1.6154	0.0799	0.0483	0.0000	0.0000
1.6538	0.0792	0.0498	0.0000	0.0000
1.6923	0.0785	0.0513	0.0000	0.0000
1.7308	0.0779	0.0528	0.0000	0.0000
1.7692	0.0772	0.0543	0.0000	0.0000
1.8077	0.0765	0.0558	0.0000	0.0000
1.8462	0.0759	0.0573	0.0000	0.0000
1.8846	0.0752	0.0588	0.0000	0.0000
1.9231	0.0745	0.0604	0.0000	0.0000
1.9615	0.0738	0.0620	0.0000	0.0000
2.0000	0.0732	0.0635	0.0000	0.0000
2.0385	0.0725	0.0651	0.0000	0.0000
2.0769	0.0718	0.0667	0.0000	0.0000
2.1154	0.0712	0.0683	0.0000	0.0000
2.1538	0.0705	0.0699	0.0000	0.0000
2.1923	0.0698	0.0715	0.0000	0.0000
2.2308	0.0692	0.0732	0.0000	0.0000
2.2692	0.0685	0.0748	0.0000	0.0000
2.3077	0.0678	0.0765	0.0000	0.0000
2.3462	0.0672	0.0782	0.0000	0.0000
2.3846	0.0665	0.0798	0.0000	0.0000
2.4231	0.0658	0.0815	0.0000	0.0000
2.4615	0.0652	0.0832	0.0000	0.0000
2.5000	0.0645	0.0849	0.0000	0.0000
2.5000	0.0638	0.0849	0.0000	0.0000

Surface Bioret SWQ5 Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	To Amended(cfs)	Wetted Surface
2.5000	0.1076	0.0849	0.0000	0.3301	0.0000
2.5385	0.1083	0.0891	0.0000	0.3301	0.0000
2.5769	0.1090	0.0933	0.0000	0.3384	0.0000
2.6154	0.1097	0.0975	0.0000	0.3466	0.0000
2.6538	0.1104	0.1017	0.0000	0.3549	0.0000
2.6923	0.1110	0.1060	0.0000	0.3631	0.0000
2.7308	0.1117	0.1102	0.0000	0.3714	0.0000
2.7692	0.1124	0.1146	0.0000	0.3797	0.0000
2.8077	0.1131	0.1189	0.0000	0.3879	0.0000
2.8462	0.1138	0.1233	0.0000	0.3962	0.0000
2.8846	0.1145	0.1276	0.0000	0.4044	0.0000
2.9231	0.1151	0.1321	0.0000	0.4127	0.0000
2.9615	0.1158	0.1365	0.0000	0.4209	0.0000
3.0000	0.1165	0.1410	0.0000	0.4292	0.0000
3.0385	0.1172	0.1455	0.0829	0.4374	0.0000
3.0769	0.1179	0.1500	0.2344	0.4457	0.0000
3.1154	0.1186	0.1545	0.4307	0.4539	0.0000
3.1538	0.1193	0.1591	0.6631	0.4622	0.0000
3.1923	0.1199	0.1637	0.9267	0.4704	0.0000
3.2308	0.1206	0.1683	1.2182	0.4787	0.0000
3.2692	0.1213	0.1730	1.5351	0.4869	0.0000
3.3077	0.1220	0.1777	1.8755	0.4952	0.0000
3.3462	0.1227	0.1824	2.2380	0.5035	0.0000
3.3846	0.1234	0.1871	2.6211	0.5117	0.0000

3.4231	0.1241	0.1919	3.0240	0.5200	0.0000
3.4615	0.1248	0.1966	3.4456	0.5282	0.0000
3.5000	0.1255	0.2015	3.8851	0.5365	0.0000

Bay Area Hydrology Model (BAHM)

Name : Bioret SWQ6
Bottom Length: 41.09 ft.
Bottom Width: 41.09 ft.
Material thickness of first layer: 1.5
Material type for first layer: BAHM 5
Material thickness of second layer: 1
Material type for second layer: GRAVEL
Material thickness of third layer: 0
Material type for third layer: GRAVEL
Infiltration On
Infiltration rate: 0.2
Infiltration safety factor: 0.5
Wetted surface area On
Total Volume Infiltrated (ac-ft): 51.208
Total Volume Through Riser (ac-ft): 99.02
Total Volume Through Facility (ac-ft): 150.228
Percent Infiltrated: 34.09
Underdrain used
Underdrain Diameter (ft): 0.333
Orifice Diameter (in): 3.5
Offset (in): 120
Flow Through Underdrain (ac-ft): 0
Total Outflow (ac-ft): 150.228
Percent Through Underdrain: 0
Discharge Structure
Riser Height: 0.5 ft.
Riser Diameter: 13.54 in.
Notch Type: Rectangular
Notch Width: 0.000 ft.
Notch Height: 0.000 ft.

Element Flows To:

Outlet 1	**Outlet 2**
Channel 2	

Bioret SWQ6 Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0550	0.0000	0.0000	0.0000
0.0385	0.0550	0.0003	0.0000	0.0000
0.0769	0.0548	0.0006	0.0000	0.0000
0.1154	0.0545	0.0009	0.0000	0.0000
0.1538	0.0543	0.0011	0.0000	0.0000
0.1923	0.0540	0.0014	0.0000	0.0000
0.2308	0.0537	0.0017	0.0000	0.0041
0.2692	0.0535	0.0020	0.0000	0.0041
0.3077	0.0532	0.0023	0.0000	0.0041
0.3462	0.0530	0.0026	0.0000	0.0041
0.3846	0.0527	0.0029	0.0000	0.0042
0.4231	0.0525	0.0035	0.0000	0.0042
0.4615	0.0522	0.0041	0.0000	0.0042
0.5000	0.0519	0.0047	0.0000	0.0042
0.5385	0.0517	0.0054	0.0000	0.0043
0.5769	0.0514	0.0060	0.0000	0.0043
0.6154	0.0512	0.0066	0.0000	0.0043
0.6538	0.0509	0.0072	0.0000	0.0043
0.6923	0.0507	0.0079	0.0000	0.0044
0.7308	0.0504	0.0085	0.0000	0.0044
0.7692	0.0502	0.0091	0.0000	0.0044
0.8077	0.0499	0.0098	0.0000	0.0044
0.8462	0.0497	0.0104	0.0000	0.0045

0.8846	0.0494	0.0111	0.0000	0.0045
0.9231	0.0491	0.0117	0.0000	0.0045
0.9615	0.0489	0.0124	0.0000	0.0045
1.0000	0.0486	0.0130	0.0000	0.0046
1.0385	0.0484	0.0137	0.0000	0.0046
1.0769	0.0481	0.0143	0.0000	0.0046
1.1154	0.0479	0.0150	0.0000	0.0046
1.1538	0.0476	0.0157	0.0000	0.0047
1.1923	0.0474	0.0164	0.0000	0.0047
1.2308	0.0471	0.0170	0.0000	0.0047
1.2692	0.0469	0.0177	0.0000	0.0047
1.3077	0.0466	0.0184	0.0000	0.0048
1.3462	0.0464	0.0191	0.0000	0.0048
1.3846	0.0461	0.0198	0.0000	0.0048
1.4231	0.0459	0.0205	0.0000	0.0048
1.4615	0.0456	0.0212	0.0000	0.0049
1.5000	0.0454	0.0220	0.0000	0.0049
1.5385	0.0451	0.0227	0.0000	0.0049
1.5769	0.0449	0.0235	0.0000	0.0049
1.6154	0.0446	0.0243	0.0000	0.0050
1.6538	0.0444	0.0251	0.0000	0.0050
1.6923	0.0441	0.0259	0.0000	0.0050
1.7308	0.0439	0.0267	0.0000	0.0050
1.7692	0.0436	0.0275	0.0000	0.0051
1.8077	0.0434	0.0283	0.0000	0.0051
1.8462	0.0432	0.0291	0.0000	0.0051
1.8846	0.0429	0.0299	0.0000	0.0051
1.9231	0.0427	0.0307	0.0000	0.0052
1.9615	0.0424	0.0315	0.0000	0.0052
2.0000	0.0422	0.0323	0.0000	0.0052
2.0385	0.0419	0.0332	0.0000	0.0052
2.0769	0.0417	0.0340	0.0000	0.0053
2.1154	0.0414	0.0348	0.0000	0.0053
2.1538	0.0412	0.0357	0.0000	0.0053
2.1923	0.0409	0.0365	0.0000	0.0053
2.2308	0.0407	0.0374	0.0000	0.0054
2.2692	0.0405	0.0382	0.0000	0.0054
2.3077	0.0402	0.0391	0.0000	0.0054
2.3462	0.0400	0.0399	0.0000	0.0054
2.3846	0.0397	0.0408	0.0000	0.0055
2.4231	0.0395	0.0417	0.0000	0.0055
2.4615	0.0392	0.0425	0.0000	0.0055
2.5000	0.0390	0.0434	0.0000	0.0055
2.5000	0.0388	0.0434	0.0000	0.0055

Surface Bioret SWQ6 Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	To Amended(cfs)	Wetted Surface
2.5000	0.0550	0.0434	0.0000	0.2859	0.0017
2.5385	0.0553	0.0455	0.0000	0.2859	0.0017
2.5769	0.0556	0.0477	0.0000	0.2944	0.0017
2.6154	0.0558	0.0498	0.0000	0.3030	0.0017
2.6538	0.0561	0.0520	0.0000	0.3117	0.0018
2.6923	0.0563	0.0541	0.0000	0.3204	0.0018
2.7308	0.0566	0.0563	0.0000	0.3292	0.0018
2.7692	0.0569	0.0585	0.0000	0.3381	0.0019
2.8077	0.0571	0.0607	0.0000	0.3470	0.0019
2.8462	0.0574	0.0629	0.0000	0.3560	0.0019
2.8846	0.0576	0.0651	0.0000	0.3651	0.0019
2.9231	0.0579	0.0673	0.0000	0.3743	0.0020
2.9615	0.0582	0.0695	0.0000	0.3835	0.0020
3.0000	0.0584	0.0718	0.0000	0.3927	0.0020
3.0385	0.0587	0.0740	0.0829	0.4021	0.0020
3.0769	0.0590	0.0763	0.2344	0.4115	0.0021

3.1154	0.0592	0.0786	0.4307	0.4210	0.0021
3.1538	0.0595	0.0808	0.6631	0.4306	0.0021
3.1923	0.0597	0.0831	0.9267	0.4402	0.0021
3.2308	0.0600	0.0854	1.2182	0.4499	0.0022
3.2692	0.0603	0.0878	1.5351	0.4597	0.0022
3.3077	0.0605	0.0901	1.8755	0.4695	0.0022
3.3462	0.0608	0.0924	2.2380	0.4794	0.0022
3.3846	0.0611	0.0948	2.6211	0.4894	0.0023
3.4231	0.0613	0.0971	3.0240	0.4995	0.0023
3.4615	0.0616	0.0995	3.4456	0.5096	0.0023
3.5000	0.0619	0.1018	3.8851	0.5198	0.0023

Bay Area Hydrology Model (BAHM)

Name : Bioret SWQ7
Bottom Length: 43.82 ft.
Bottom Width: 43.82 ft.
Material thickness of first layer: 1.5
Material type for first layer: BAHM 5
Material thickness of second layer: 1
Material type for second layer: GRAVEL
Material thickness of third layer: 0
Material type for third layer: GRAVEL
Infiltration On
Infiltration rate: 0.2
Infiltration safety factor: 0.5
Wetted surface area On
Total Volume Infiltrated (ac-ft): 55.073
Total Volume Through Riser (ac-ft): 88.558
Total Volume Through Facility (ac-ft): 143.631
Percent Infiltrated: 38.34
Underdrain used
Underdrain Diameter (ft): 0.333
Orifice Diameter (in): 3.5
Offset (in): 120
Flow Through Underdrain (ac-ft): 0
Total Outflow (ac-ft): 143.631
Percent Through Underdrain: 0
Discharge Structure
Riser Height: 0.5 ft.
Riser Diameter: 13.54 in.
Notch Type: Rectangular
Notch Width: 0.000 ft.
Notch Height: 0.000 ft.

Element Flows To:

Outlet 1	Outlet 2
Channel 1	

Bioret SWQ7 Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	Infilt(cfs)
0.0000	0.0614	0.0000	0.0000	0.0000
0.0385	0.0614	0.0003	0.0000	0.0000
0.0769	0.0611	0.0006	0.0000	0.0000
0.1154	0.0608	0.0010	0.0000	0.0000
0.1538	0.0606	0.0013	0.0000	0.0000
0.1923	0.0603	0.0016	0.0000	0.0000
0.2308	0.0600	0.0020	0.0000	0.0046
0.2692	0.0598	0.0023	0.0000	0.0046
0.3077	0.0595	0.0026	0.0000	0.0047
0.3462	0.0592	0.0030	0.0000	0.0047
0.3846	0.0589	0.0033	0.0000	0.0047
0.4231	0.0587	0.0037	0.0000	0.0047
0.4615	0.0584	0.0043	0.0000	0.0048
0.5000	0.0581	0.0050	0.0000	0.0048
0.5385	0.0578	0.0057	0.0000	0.0048
0.5769	0.0576	0.0064	0.0000	0.0048
0.6154	0.0573	0.0071	0.0000	0.0049
0.6538	0.0570	0.0078	0.0000	0.0049
0.6923	0.0568	0.0086	0.0000	0.0049
0.7308	0.0565	0.0093	0.0000	0.0049
0.7692	0.0562	0.0100	0.0000	0.0050
0.8077	0.0559	0.0107	0.0000	0.0050
0.8462	0.0557	0.0114	0.0000	0.0050

0.8846	0.0554	0.0122	0.0000	0.0050
0.9231	0.0551	0.0129	0.0000	0.0051
0.9615	0.0549	0.0136	0.0000	0.0051
1.0000	0.0546	0.0144	0.0000	0.0051
1.0385	0.0543	0.0151	0.0000	0.0052
1.0769	0.0541	0.0159	0.0000	0.0052
1.1154	0.0538	0.0166	0.0000	0.0052
1.1538	0.0535	0.0174	0.0000	0.0052
1.1923	0.0533	0.0181	0.0000	0.0053
1.2308	0.0530	0.0189	0.0000	0.0053
1.2692	0.0527	0.0197	0.0000	0.0053
1.3077	0.0525	0.0204	0.0000	0.0053
1.3462	0.0522	0.0212	0.0000	0.0054
1.3846	0.0519	0.0220	0.0000	0.0054
1.4231	0.0517	0.0228	0.0000	0.0054
1.4615	0.0514	0.0236	0.0000	0.0055
1.5000	0.0511	0.0244	0.0000	0.0055
1.5385	0.0509	0.0253	0.0000	0.0055
1.5769	0.0506	0.0262	0.0000	0.0055
1.6154	0.0503	0.0271	0.0000	0.0056
1.6538	0.0501	0.0279	0.0000	0.0056
1.6923	0.0498	0.0288	0.0000	0.0056
1.7308	0.0496	0.0297	0.0000	0.0056
1.7692	0.0493	0.0306	0.0000	0.0057
1.8077	0.0490	0.0315	0.0000	0.0057
1.8462	0.0488	0.0324	0.0000	0.0057
1.8846	0.0485	0.0333	0.0000	0.0058
1.9231	0.0482	0.0342	0.0000	0.0058
1.9615	0.0480	0.0352	0.0000	0.0058
2.0000	0.0477	0.0361	0.0000	0.0058
2.0385	0.0475	0.0370	0.0000	0.0059
2.0769	0.0472	0.0379	0.0000	0.0059
2.1154	0.0469	0.0389	0.0000	0.0059
2.1538	0.0467	0.0398	0.0000	0.0059
2.1923	0.0464	0.0408	0.0000	0.0060
2.2308	0.0462	0.0417	0.0000	0.0060
2.2692	0.0459	0.0427	0.0000	0.0060
2.3077	0.0456	0.0436	0.0000	0.0061
2.3462	0.0454	0.0446	0.0000	0.0061
2.3846	0.0451	0.0455	0.0000	0.0061
2.4231	0.0449	0.0465	0.0000	0.0061
2.4615	0.0446	0.0475	0.0000	0.0062
2.5000	0.0443	0.0485	0.0000	0.0062
2.5000	0.0441	0.0485	0.0000	0.0062

Surface Bioret SWQ7 Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	To Amended(cfs)	Wetted Surface
2.5000	0.0614	0.0485	0.0000	0.3189	0.0018
2.5385	0.0617	0.0508	0.0000	0.3189	0.0018
2.5769	0.0619	0.0532	0.0000	0.3283	0.0018
2.6154	0.0622	0.0556	0.0000	0.3379	0.0019
2.6538	0.0625	0.0580	0.0000	0.3474	0.0019
2.6923	0.0628	0.0604	0.0000	0.3571	0.0019
2.7308	0.0631	0.0628	0.0000	0.3668	0.0019
2.7692	0.0633	0.0652	0.0000	0.3766	0.0020
2.8077	0.0636	0.0677	0.0000	0.3865	0.0020
2.8462	0.0639	0.0701	0.0000	0.3964	0.0020
2.8846	0.0642	0.0726	0.0000	0.4064	0.0021
2.9231	0.0644	0.0751	0.0000	0.4165	0.0021
2.9615	0.0647	0.0776	0.0000	0.4267	0.0021
3.0000	0.0650	0.0801	0.0000	0.4369	0.0021
3.0385	0.0653	0.0826	0.0829	0.4473	0.0022
3.0769	0.0656	0.0851	0.2344	0.4576	0.0022

3.1154	0.0658	0.0876	0.4307	0.4681	0.0022
3.1538	0.0661	0.0901	0.6631	0.4786	0.0023
3.1923	0.0664	0.0927	0.9267	0.4892	0.0023
3.2308	0.0667	0.0952	1.2182	0.4999	0.0023
3.2692	0.0670	0.0978	1.5351	0.5107	0.0023
3.3077	0.0672	0.1004	1.8755	0.5215	0.0024
3.3462	0.0675	0.1030	2.2380	0.5324	0.0024
3.3846	0.0678	0.1056	2.6211	0.5434	0.0024
3.4231	0.0681	0.1082	3.0240	0.5545	0.0024
3.4615	0.0684	0.1108	3.4456	0.5656	0.0025
3.5000	0.0686	0.1135	3.8851	0.5768	0.0025

Channel 1 Output

Channel 2 Output

Bay Area Hydrology Model (BAHM)

Name : Channel 1
Bottom Length: 992.00 ft.
Bottom Width: 10.00 ft.
Manning's n: 0.035
Channel bottom slope 1: 0.048 To 1
Channel Left side slope 0: 2 To 1
Channel right side slope 2: 2 To 1
Discharge Structure
Riser Height: 0 ft.
Riser Diameter: 0 in.

Element Flows To:

Outlet 1	**Outlet 2**
Channel 2	

Channel Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	Infilt(cfs)
0.0000	0.227	0.000	0.000	0.000
0.0667	0.233	0.015	1.024	0.000
0.1333	0.239	0.031	3.262	0.000
0.2000	0.246	0.047	6.432	0.000
0.2667	0.252	0.064	10.42	0.000
0.3333	0.258	0.081	15.17	0.000
0.4000	0.264	0.098	20.63	0.000
0.4667	0.270	0.116	26.77	0.000
0.5333	0.276	0.134	33.58	0.000
0.6000	0.282	0.153	41.03	0.000
0.6667	0.288	0.172	49.12	0.000
0.7333	0.294	0.191	57.83	0.000
0.8000	0.300	0.211	67.15	0.000
0.8667	0.306	0.231	77.09	0.000
0.9333	0.312	0.252	87.63	0.000
1.0000	0.318	0.273	98.78	0.000
1.0667	0.324	0.294	110.5	0.000
1.1333	0.331	0.316	122.8	0.000
1.2000	0.337	0.338	135.8	0.000
1.2667	0.343	0.361	149.4	0.000
1.3333	0.349	0.384	163.5	0.000
1.4000	0.355	0.408	178.3	0.000
1.4667	0.361	0.432	193.6	0.000
1.5333	0.367	0.456	209.6	0.000
1.6000	0.373	0.481	226.2	0.000
1.6667	0.379	0.506	243.4	0.000
1.7333	0.385	0.531	261.3	0.000
1.8000	0.391	0.557	279.7	0.000
1.8667	0.397	0.583	298.8	0.000
1.9333	0.403	0.610	318.5	0.000
2.0000	0.410	0.637	338.8	0.000
2.0667	0.416	0.665	359.8	0.000
2.1333	0.422	0.693	381.4	0.000
2.2000	0.428	0.721	403.6	0.000
2.2667	0.434	0.750	426.5	0.000
2.3333	0.440	0.779	450.1	0.000
2.4000	0.446	0.809	474.3	0.000
2.4667	0.452	0.839	499.2	0.000
2.5333	0.458	0.869	524.7	0.000
2.6000	0.464	0.900	550.9	0.000
2.6667	0.470	0.931	577.8	0.000
2.7333	0.476	0.962	605.3	0.000
2.8000	0.482	0.994	633.5	0.000

2.8667	0.489	1.027	662.5	0.000
2.9333	0.495	1.060	692.1	0.000
3.0000	0.501	1.093	722.4	0.000
3.0667	0.507	1.126	753.4	0.000
3.1333	0.513	1.160	785.1	0.000
3.2000	0.519	1.195	817.5	0.000
3.2667	0.525	1.230	850.7	0.000
3.3333	0.531	1.265	884.5	0.000
3.4000	0.537	1.301	919.1	0.000
3.4667	0.543	1.337	954.4	0.000
3.5333	0.549	1.373	990.5	0.000
3.6000	0.555	1.410	1027.	0.000
3.6667	0.561	1.447	1064.	0.000
3.7333	0.568	1.485	1103.	0.000
3.8000	0.574	1.523	1142.	0.000
3.8667	0.580	1.561	1181.	0.000
3.9333	0.586	1.600	1222.	0.000
4.0000	0.592	1.640	1263.	0.000
4.0667	0.598	1.679	1305.	0.000
4.1333	0.604	1.719	1348.	0.000
4.2000	0.610	1.760	1392.	0.000
4.2667	0.616	1.801	1436.	0.000
4.3333	0.622	1.842	1482.	0.000
4.4000	0.628	1.884	1528.	0.000
4.4667	0.634	1.926	1574.	0.000
4.5333	0.641	1.968	1622.	0.000
4.6000	0.647	2.011	1670.	0.000
4.6667	0.653	2.055	1720.	0.000
4.7333	0.659	2.098	1770.	0.000
4.8000	0.665	2.143	1821.	0.000
4.8667	0.671	2.187	1872.	0.000
4.9333	0.677	2.232	1925.	0.000
5.0000	0.683	2.278	1978.	0.000
5.0667	0.689	2.323	2032.	0.000
5.1333	0.695	2.369	2088.	0.000
5.2000	0.701	2.416	2143.	0.000
5.2667	0.707	2.463	2200.	0.000
5.3333	0.713	2.510	2258.	0.000
5.4000	0.720	2.558	2316.	0.000
5.4667	0.726	2.606	2376.	0.000
5.5333	0.732	2.655	2436.	0.000
5.6000	0.738	2.704	2497.	0.000
5.6667	0.744	2.753	2559.	0.000
5.7333	0.750	2.803	2622.	0.000
5.8000	0.756	2.854	2686.	0.000
5.8667	0.762	2.904	2751.	0.000
5.9333	0.768	2.955	2816.	0.000
6.0000	0.774	3.007	2883.	0.000
6.0667	0.780	3.058	2950.	0.000

Bay Area Hydrology Model (BAHM)

Name : Channel 2
Bottom Length: 878.00 ft.
Bottom Width: 10.00 ft.
Manning's n: 0.035
Channel bottom slope 1: 0.048 To 1
Channel Left side slope 0: 2 To 1
Channel right side slope 2: 2 To 1
Discharge Structure
Riser Height: 0 ft.
Riser Diameter: 0 in.

Element Flows To:
Outlet 1 **Outlet 2**

Channel Hydraulic Table

Stage(ft)	Area(ac)	Volume(ac-ft)	Discharge(cfs)	Infilt(cfs)
0.0000	0.201	0.000	0.000	0.000
0.0667	0.206	0.013	1.024	0.000
0.1333	0.212	0.027	3.262	0.000
0.2000	0.217	0.041	6.432	0.000
0.2667	0.223	0.056	10.42	0.000
0.3333	0.228	0.071	15.17	0.000
0.4000	0.233	0.087	20.63	0.000
0.4667	0.239	0.102	26.77	0.000
0.5333	0.244	0.119	33.58	0.000
0.6000	0.250	0.135	41.03	0.000
0.6667	0.255	0.152	49.12	0.000
0.7333	0.260	0.169	57.83	0.000
0.8000	0.266	0.187	67.15	0.000
0.8667	0.271	0.205	77.09	0.000
0.9333	0.276	0.223	87.63	0.000
1.0000	0.282	0.241	98.78	0.000
1.0667	0.287	0.260	110.5	0.000
1.1333	0.293	0.280	122.8	0.000
1.2000	0.298	0.299	135.8	0.000
1.2667	0.303	0.320	149.4	0.000
1.3333	0.309	0.340	163.5	0.000
1.4000	0.314	0.361	178.3	0.000
1.4667	0.319	0.382	193.6	0.000
1.5333	0.325	0.403	209.6	0.000
1.6000	0.330	0.425	226.2	0.000
1.6667	0.336	0.448	243.4	0.000
1.7333	0.341	0.470	261.3	0.000
1.8000	0.346	0.493	279.7	0.000
1.8667	0.352	0.516	298.8	0.000
1.9333	0.357	0.540	318.5	0.000
2.0000	0.362	0.564	338.8	0.000
2.0667	0.368	0.588	359.8	0.000
2.1333	0.373	0.613	381.4	0.000
2.2000	0.379	0.638	403.6	0.000
2.2667	0.384	0.664	426.5	0.000
2.3333	0.389	0.689	450.1	0.000
2.4000	0.395	0.716	474.3	0.000
2.4667	0.400	0.742	499.2	0.000
2.5333	0.405	0.769	524.7	0.000
2.6000	0.411	0.796	550.9	0.000
2.6667	0.416	0.824	577.8	0.000
2.7333	0.422	0.852	605.3	0.000
2.8000	0.427	0.880	633.5	0.000

2.8667	0.432	0.909	662.5	0.000
2.9333	0.438	0.938	692.1	0.000
3.0000	0.443	0.967	722.4	0.000
3.0667	0.449	0.997	753.4	0.000
3.1333	0.454	1.027	785.1	0.000
3.2000	0.459	1.058	817.5	0.000
3.2667	0.465	1.088	850.7	0.000
3.3333	0.470	1.120	884.5	0.000
3.4000	0.475	1.151	919.1	0.000
3.4667	0.481	1.183	954.4	0.000
3.5333	0.486	1.215	990.5	0.000
3.6000	0.492	1.248	1027.	0.000
3.6667	0.497	1.281	1064.	0.000
3.7333	0.502	1.314	1103.	0.000
3.8000	0.508	1.348	1142.	0.000
3.8667	0.513	1.382	1181.	0.000
3.9333	0.518	1.416	1222.	0.000
4.0000	0.524	1.451	1263.	0.000
4.0667	0.529	1.486	1305.	0.000
4.1333	0.535	1.522	1348.	0.000
4.2000	0.540	1.558	1392.	0.000
4.2667	0.545	1.594	1436.	0.000
4.3333	0.551	1.630	1482.	0.000
4.4000	0.556	1.667	1528.	0.000
4.4667	0.562	1.705	1574.	0.000
4.5333	0.567	1.742	1622.	0.000
4.6000	0.572	1.780	1670.	0.000
4.6667	0.578	1.819	1720.	0.000
4.7333	0.583	1.857	1770.	0.000
4.8000	0.588	1.896	1821.	0.000
4.8667	0.594	1.936	1872.	0.000
4.9333	0.599	1.976	1925.	0.000
5.0000	0.605	2.016	1978.	0.000
5.0667	0.610	2.056	2032.	0.000
5.1333	0.615	2.097	2088.	0.000
5.2000	0.621	2.138	2143.	0.000
5.2667	0.626	2.180	2200.	0.000
5.3333	0.631	2.222	2258.	0.000
5.4000	0.637	2.264	2316.	0.000
5.4667	0.642	2.307	2376.	0.000
5.5333	0.648	2.350	2436.	0.000
5.6000	0.653	2.393	2497.	0.000
5.6667	0.658	2.437	2559.	0.000
5.7333	0.664	2.481	2622.	0.000
5.8000	0.669	2.526	2686.	0.000
5.8667	0.675	2.570	2751.	0.000
5.9333	0.680	2.616	2816.	0.000
6.0000	0.685	2.661	2883.	0.000
6.0667	0.691	2.707	2950.	0.000

Analysis Results

Summary

Bay Area Hydrology Model (BAHM)

ANALYSIS RESULTS

Predeveloped Landuse Totals for POC #1
Total Pervious Area:194.63
Total Impervious Area:1.67

Mitigated Landuse Totals for POC #1
Total Pervious Area:117.16
Total Impervious Area:75.08

Flow Frequency Return Periods for Predeveloped. POC #1

Return Period	Flow(cfs)
2 year	50.295
5 year	87.030635
10 year	102.017261
25 year	132.342261

Flow Frequency Return Periods for Mitigated. POC #1

Return Period	Flow(cfs)
2 year	38.8653
5 year	77.060039
10 year	91.885109
25 year	112.139348

Annual Peaks for Predeveloped and Mitigated. POC #1

Year	Predeveloped	Mitigated
1960	42.510	34.709
1961	31.219	20.504
1962	50.561	38.729
1963	55.320	48.167
1964	72.017	66.502
1965	42.112	35.544
1966	36.398	23.903
1967	207.714	178.566
1968	75.458	52.642
1969	70.954	66.053
1970	60.691	49.222
1971	61.706	49.050
1972	5.457	11.991
1973	125.164	105.813
1974	94.757	78.651
1975	46.682	32.985
1976	0.343	7.416
1977	0.473	9.863
1978	66.638	54.572
1979	75.225	65.172
1980	50.295	47.077
1981	33.237	23.164
1982	105.809	92.167
1983	80.066	71.332
1984	46.157	36.500
1985	27.928	18.394
1986	99.995	91.873
1987	34.386	30.140
1988	18.356	10.200
1989	19.197	17.877
1990	46.139	28.558
1991	37.934	33.067

1992	44.373	35.767
1993	49.750	38.865
1994	22.191	18.028
1995	88.965	81.157
1996	105.872	91.908
1997	58.536	53.690
1998	94.813	80.595
1999	60.899	48.600
2000	40.549	33.451
2001	12.360	34.898
2002	22.706	16.556
2003	73.848	61.842
2004	93.202	89.536

Ranked Annual Peaks for Predeveloped and Mitigated. POC #1

Rank	Predeveloped	Mitigated
1	207.7140	178.5660
2	125.1640	105.8130
3	105.8720	92.1674
4	105.8090	91.9080
5	99.9950	91.8729
6	94.8125	89.5357
7	94.7571	81.1569
8	93.2023	80.5946
9	88.9652	78.6513
10	80.0662	71.3315
11	75.4576	66.5021
12	75.2245	66.0534
13	73.8478	65.1718
14	72.0170	61.8415
15	70.9537	54.5717
16	66.6383	53.6896
17	61.7056	52.6415
18	60.8993	49.2220
19	60.6911	49.0501
20	58.5361	48.6004
21	55.3203	48.1666
22	50.5609	47.0773
23	50.2950	38.8653
24	49.7499	38.7286
25	46.6820	36.4999
26	46.1572	35.7672
27	46.1391	35.5437
28	44.3727	34.8978
29	42.5096	34.7086
30	42.1119	33.4508
31	40.5485	33.0669
32	37.9343	32.9850
33	36.3984	30.1395
34	34.3857	28.5575
35	33.2365	23.9033
36	31.2191	23.1637
37	27.9277	20.5043
38	22.7058	18.3940
39	22.1906	18.0284
40	19.1971	17.8771
41	18.3559	16.5556
42	12.3601	11.9906
43	5.4567	10.1997
44	0.4735	9.8626
45	0.3432	7.4164

POC #1
The Facility PASSED.

The Facility PASSED.

Flow(cfs)	Predev	Mit	Percentage	Pass/Fail
5.0295	1745	1775	101	Pass
6.0092	1568	1508	96	Pass
6.9888	1407	1316	93	Pass
7.9685	1297	1169	90	Pass
8.9482	1200	1047	87	Pass
9.9279	1095	947	86	Pass
10.9075	1016	841	82	Pass
11.8872	928	767	82	Pass
12.8669	845	697	82	Pass
13.8466	783	621	79	Pass
14.8262	720	565	78	Pass
15.8059	657	516	78	Pass
16.7856	615	476	77	Pass
17.7653	576	436	75	Pass
18.7449	541	396	73	Pass
19.7246	504	358	71	Pass
20.7043	465	330	70	Pass
21.6840	430	305	70	Pass
22.6636	402	275	68	Pass
23.6433	368	257	69	Pass
24.6230	345	226	65	Pass
25.6027	322	210	65	Pass
26.5823	305	192	62	Pass
27.5620	285	182	63	Pass
28.5417	254	168	66	Pass
29.5214	238	159	66	Pass
30.5010	219	146	66	Pass
31.4807	204	142	69	Pass
32.4604	192	128	66	Pass
33.4401	183	116	63	Pass
34.4197	174	108	62	Pass
35.3994	164	102	62	Pass
36.3791	152	93	61	Pass
37.3588	139	84	60	Pass
38.3384	128	77	60	Pass
39.3181	123	71	57	Pass
40.2978	112	68	60	Pass
41.2775	105	67	63	Pass
42.2571	99	66	66	Pass
43.2368	96	64	66	Pass
44.2165	91	62	68	Pass
45.1961	85	59	69	Pass
46.1758	79	57	72	Pass
47.1555	75	53	70	Pass
48.1352	67	51	76	Pass
49.1148	64	46	71	Pass
50.0945	61	43	70	Pass
51.0742	55	43	78	Pass
52.0539	53	41	77	Pass
53.0335	52	39	75	Pass
54.0132	52	36	69	Pass
54.9929	49	34	69	Pass
55.9726	45	34	75	Pass
56.9522	44	33	75	Pass
57.9319	43	32	74	Pass
58.9116	41	32	78	Pass

59.8913	40	31	77	Pass
60.8709	37	30	81	Pass
61.8506	34	27	79	Pass
62.8303	34	26	76	Pass
63.8100	34	24	70	Pass
64.7896	33	24	72	Pass
65.7693	31	21	67	Pass
66.7490	30	18	60	Pass
67.7287	30	18	60	Pass
68.7083	28	18	64	Pass
69.6880	27	17	62	Pass
70.6677	27	17	62	Pass
71.6474	26	16	61	Pass
72.6270	24	16	66	Pass
73.6067	23	14	60	Pass
74.5864	21	13	61	Pass
75.5661	19	13	68	Pass
76.5457	17	13	76	Pass
77.5254	16	13	81	Pass
78.5051	15	12	80	Pass
79.4848	15	10	66	Pass
80.4644	14	10	71	Pass
81.4441	14	8	57	Pass
82.4238	14	8	57	Pass
83.4034	13	7	53	Pass
84.3831	13	7	53	Pass
85.3628	12	7	58	Pass
86.3425	11	7	63	Pass
87.3221	10	7	70	Pass
88.3018	10	7	70	Pass
89.2815	9	7	77	Pass
90.2612	9	6	66	Pass
91.2408	9	6	66	Pass
92.2205	9	2	22	Pass
93.2002	8	2	25	Pass
94.1799	7	2	28	Pass
95.1595	5	2	40	Pass
96.1392	5	2	40	Pass
97.1189	5	2	40	Pass
98.0986	5	2	40	Pass
99.0782	5	2	40	Pass
100.0579	4	2	50	Pass
101.0376	4	2	50	Pass
102.0173	4	2	50	Pass

Drawdown Time Results

Perlnd and Implnd Changes

No changes have been made.

Attachment 14

TRANSPORTATION IMPACT ANALYSIS

Dublin East Ranch – Croak Road Property

PREPARED FOR:

CITY OF DUBLIN

AUGUST 2021 | FINAL

Prepared By:

Kimley»Horn

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EXECUTIVE SUMMARY

The East Ranch Stage II Development Plan ("Project") proposes to construct 573 residential units consisting of 465 single family dwelling units and 108 multi-family dwelling units on the vacant land located along Croak Road, north of Central Parkway, in the City of Dublin, CA. The Stage II Development Plan proposes minor adjustments to the location of some of the residential and open space areas and setbacks of the previously approved Stage I Development Plan for Fallon Village. The Stage I Development Plan was approved on December 20, 2005 within the 2005 Fallon Village Project Draft Supplement Environment Impact Report (SEIR), which is an amendment to the previously approved 2002 East Dublin Properties Stage I Development Plan and Annexation Draft SEIR (East Dublin Properties SEIR) and its previously approved 1992 Eastern Dublin General Plan Amendment and Specific Plan Draft Environment Impact Report (Eastern Dublin EIR). The purpose of this transportation impact analysis (TIA) is to determine whether significant impacts would occur as a result of the project due to changes in the current traffic conditions and were not identified in the previously analyzed environment impact reports (EIR).

This traffic study was prepared to determine potential impacts related to the project based on standards and methodologies set forth by the City of Dublin (City), City of Pleasanton, Alameda County Transportation Commission (ACTC), Tri-Valley Transportation Council (TVTC), and California Department of Transportation (Caltrans). This study includes intersection level of service (LOS) and queuing analyses of the weekday AM and PM peak hour traffic conditions for thirteen (13) intersections, an ACTC Land Use analysis, and a peak hour traffic signal warrant analysis. This study also addresses the potential transportation impacts of the proposed project that were not identified within the previous California Environmental Quality Act (CEQA) documents.

PROJECT TRIP ESTIMATES

The number of net new project trips anticipated to be added to the roadway system surrounding the project site was estimated based on data published in the Institute of Transportation Engineer's (ITE) *Trip Generation Manual, 10th Edition*. The proposed project is anticipated to generate 374 trips in the AM peak hour (94 trips in and 280 trips out) and 492 trips in the PM peak hour (309 trips in and 183 trips out). It should be noted that the previous 2005 Fallon Village SIER also analyzed the same 573 residential units within the project site.

INTERSECTION LEVEL OF SERVICE

This study includes a level of service (LOS) analysis of the AM and PM peak hour traffic conditions for thirteen (13) intersections and was analyzed in *Synchro* software under Existing, Existing Plus Project, and Cumulative Conditions. Since the Cumulative Condition assumes full buildout of the Fallon Village SEIR, which assumes the same 573 residential units to be constructed on the project site, a Cumulative Plus Project Condition would result in the same traffic conditions as the Cumulative without Project conditions, and therefore, was not analyzed.

EXISTING AND EXISTING PLUS PROJECT CONDITIONS

Under Existing and Existing Plus Project Conditions, all study intersections operate at an acceptable LOS.

CUMULATIVE CONDITIONS

Under Cumulative Conditions, the following study intersections are expected to operate at an unacceptable LOS:

- #1 – Fallon Road / Central Parkway (AM Peak Hour)
- #2 – Fallon Road / Dublin Boulevard (PM Peak Hour)
- #5 – El Charro Road / Stoneridge Drive (AM and PM Peak Hours)
- #6 – Central Parkway / Sunset View Drive (AM Peak Hour)
- #12 – Dublin Boulevard / Tassajara Road (AM and PM Peak Hours)
- #13 – Dublin Boulevard / Hacienda Drive (PM Peak Hour)

Although these intersections operate at an unacceptable LOS, Cumulative Conditions assume the full buildout of the Fallon Village SEIR, which includes the 573-residential unit project site. Therefore, the project was previously analyzed as the exact same size and would not create a significant impact to these intersections under Cumulative Conditions.

TRAFFIC SIGNAL WARRANT

The peak hour signal warrant for Intersection #10 (Central Parkway and Croak Road) were not met under Existing Plus Project Conditions and Cumulative Conditions.

ALAMEDA COUNTY TRANSPORTATION COMMISSION LAND USE ANALYSIS PROGRAM

This study includes an ACTC Land Use analysis during the PM peak hour to determine the project's impact along Metropolitan Transportation System (MTS) roadways and was evaluated based on volume to capacity (v/c) ratio. Similar to the intersection LOS analysis, Cumulative Conditions was analyzed and not Cumulative Plus Project Conditions since the project is assumed in the Fallon Village SEIR which is assumed to be built out with the same number of residential units under Cumulative Conditions.

EXISTING CONDITIONS

Under Existing Conditions, the following roadway segments operate at an unacceptable LOS F:

- Eastbound I-580 between:
  - Tassajara Road and Fallon Road
  - Fallon Road and Airway Boulevard
- Eastbound Dublin Boulevard:
  - Hacienda Drive and Hibernia Drive
  - Hibernia Drive and Myrtle Drive
  - Myrtle Drive and John Monego Court
  - John Monego Court and Glynnis Rose Drive
  - Glynnis Rose Drive to Tassajara Road

EXISTING PLUS PROJECT CONDITIONS

Under Existing Plus Conditions, the following roadway segments operate at an unacceptable LOS F:

- Eastbound I-580 between:

    - Tassajara Road and Fallon Road
    - Fallon Road and Airway Boulevard
- Eastbound Dublin Boulevard:
    - Hacienda Drive and Hibernia Drive
    - Hibernia Drive and Myrtle Drive
    - Myrtle Drive and John Monego Court
    - John Monego Court and Glynnis Rose Drive
    - Glynnis Rose Drive to Tassajara Road

Although the roadway segments continue to operate at an unacceptable LOS F in Existing Plus Project Conditions during the PM peak hour, the roadway segments were not significantly impacted since the increase in v/c ratio is less than the threshold of 0.02. Therefore, the project has **less than a significant impact** on the MTS roadway segments under Existing Plus Project Conditions.

CUMULATIVE CONDITIONS

Under Cumulative Conditions, the following MTS roadway segments operate at an unacceptable LOS F:

- Eastbound I-580 between:
    - Hacienda Drive to Tassajara Road
    - Tassajara Road and Fallon Road
    - Fallon Road and Airway Boulevard
- Eastbound Dublin Boulevard:
    - Iron Horse Parkway to Arnold Road
    - Arnold Road to Hacienda Drive
    - Hacienda Drive and Hibernia Drive
    - Hibernia Drive and Myrtle Drive
    - Myrtle Drive and John Monego Court
    - John Monego Court and Glynnis Rose Drive
    - Glynnis Rose Drive to Tassajara Road
- Westbound Dublin Boulevard:
    - Demarcus Boulevard to Scarlett Drive
    - Scarlett Drive to Dougherty Road

Although these MTS roadways operate at an unacceptable LOS, Cumulative Conditions assume the full buildout of the Fallon Village SEIR which includes the 573-residential unit project site. Therefore, the project was previously analyzed as the exact same size and would not create a significant impact to these MTS roadways under Cumulative Conditions.

INTERSECTION VEHICLE QUEUING

Vehicle queuing for each study intersection was analyzed using the Synchro methodology for signalized intersections and Highway Capacity Manual, 2010 (HCM) methodology for unsignalized intersections in the Synchro software. HCM 2010 methodology was used to determine queues for unsignalized intersections since HCM 2000 methodology does not report 95th percentile queues. The 95th percentile queue length for each scenario was compared to the turn pocket storage length to determine if queues would exceed the storage length. The City of Dublin does not have a standard for queuing impacts but considers queuing issues as operational deficiencies. Operational deficiencies were determined for queues that exceed a left-turn pocket.

The analysis showed that a queuing storage deficiency would occur at the following intersection due to the proposed project traffic in the Existing Plus Project Conditions at the following intersection:

- #1 Fallon Road / Central Parkway – (westbound left turn)

Extending the outer westbound left-turn storage would provide sufficient storage length to accommodate the 95th percentile queue in the Existing Plus Project Conditions. This improvement would require removal of a portion of the median. Implementation of this improvement would alleviate the queuing deficiency.

SITE ACCESS AND CIRCULATION

Based on the site plan provided by the project applicant, evaluation of the site access and site circulation were reviewed to determine the adequacy of vehicle, bicycle, and pedestrian circulation.

VEHICLE CIRCULATION

The site would be accessible by three project intersections along Croak Road; two intersection roundabouts to the north of Central Parkway and an all-way stop-controlled intersection at Croak Road and Central Parkway. The two roundabouts provide access to the project on both the east and west legs of the roundabout while the all-way stop-controlled intersection at Croak Road and Central Parkway provides access to the project on the east leg. These driveways provide access to the internal side-streets within the project site. It is recommended that adequate sight distance be provided at the project driveways to ensure objects such as landscaping would not obstruct the view of oncoming vehicles.

Turning templates were provided at the two roundabouts to determine whether the design of the roundabouts could accommodate emergency vehicles and buses. Emergency vehicles can access the site using all three driveways along Croak Road. A design vehicle for fire trucks (Fire-Pierce Arrow XT 105 Ladder) is shown to be able to make a northbound through, a southbound through, and a U-turn at each of the two roundabouts by using the proposed mountable aprons for the center islands when making U-turns. Turning templates for a 40-foot bus design vehicle were also provided and shows the vehicle can make a northbound and southbound through at both roundabouts. Although turning maneuvers are not provided to show that the fire truck and bus can make turns entering and exiting the side-streets from both the north and south leg of Croak Road, each roundabout has a mountable apron for the center island and adjacent paving to allow oversized vehicles to make these turns.

BICYCLE CIRCULATION

A Class I multi-use trail is proposed along the west side of Croak Road between Central Parkway and connecting to the existing Positano Trail. In addition, Class II bicycle lanes are proposed along both sides of Croak Road and Central Parkway. Along Croak Road, bicycle lanes would begin on the north end of the project site, connecting to the existing Class II bicycle lanes at Terracina Drive. The bicycle lanes would continue past Central Parkway to the south during full buildout of the project. During the interim phase, when Croak Road to the south of Central Parkway would be improved prior to the Dublin Boulevard extension, a Class III bicycle route is proposed in the interim to the south of Central Parkway on the east side of Croak Road. This would eventually become a Class II bicycle lane in full buildout. In addition, in the interim phase, on the west side of Croak Road and to the south of Central Parkway, a Class II bicycle lane is proposed for only 800 feet south of Central Parkway, in which it then transitions to a Class III bicycle route heading southward. Warning signs would be placed along Croak Road during this interim phase to warn vehicles that the roadway is to be shared with bicycles. Class II bicycle lanes are proposed on both sides of Central Parkway beginning approximately 700 feet to the east of Panorama Drive, connecting to the existing Class II bicycle lanes, to the west of Croak Road. To the east of Croak Road, bicycle lanes would be proposed on the north side of Central Parkway along the project frontage. It is assumed that the developments to the south of Central Parkway would construct bicycle lanes along their project frontages.

At the proposed roundabouts, bike ramps are proposed on the north and south approaches along both sides of Croak Road. These bike ramps would allow bicycles to enter the multi-use path from the Class II bicycle lanes as a means of entering the roundabout by using the sidewalks and crosswalks. Once bicycles have passed the roundabout, the bicycles could use the bike ramps proposed on the other side of the roundabout to enter the bicycle lane.

Internal to the project site, multi-use trails are proposed on some roadways while the remaining roadways would be shared between bicycles and vehicles.

PEDESTRIAN CIRCULATION

Sidewalks are proposed along both sides of Croak Road from Central Parkway to the north of the project limits. During full build-out of the project, the sidewalks on both sides of Croak Road would continue south, past Central Parkway. During the interim phase of the project, the sidewalk on the west side of Croak Road would continue south past Central Parkway for approximately 800 feet before sidewalks are no longer provided. Therefore, during the interim phase, pedestrians should access Fallon Road using Central Parkway rather than using Croak Road to the south of Central Parkway. Sidewalks are proposed on both sides of Central Parkway beginning approximately 700 feet to the east of Panorama Drive, connecting to the existing sidewalks, to the west of Croak Road. To the east of Croak Road, sidewalks are proposed on the north side of Central Parkway along the project frontage. It is assumed that the developments to the south of Central Parkway would construct sidewalks along their project frontages.

Internal to the project site, a separated sidewalk is proposed along each east-west roadway that connects to the two proposed roundabouts. Each of these would extend across the entire span of the project. In addition, there is a separated sidewalk running north-south that separates Neighborhood 6 and Neighborhood 5. This north-south separated sidewalk extends across the entire span of the project. Sidewalks are proposed along all neighborhood streets for pedestrian circulation. In addition, traffic calming popouts are proposed on the adjacent intersections to the east and west of both roundabouts, for a total of four internal intersections with traffic calming popouts.

Crosswalks are proposed on all four legs of each proposed roundabout (i.e. Intersections 8 and 9. The proposed sidewalks and crosswalks would allow pedestrians to access Cottonwood Creek School to the west of the project site. For those taking transit, pedestrians can use the existing and proposed sidewalks/crosswalks to access the nearby transit stops located at the intersection of Central Parkway and Panorama Drive which serves Tri-Valley Wheels Route 502 and at the intersection of Positano Parkway and Valentano Drive which serves Tri-Valley Wheels Routes 2 and 501.

1. INTRODUCTION

This report presents the results of the transportation impact analysis (TIA) for the residential development of the proposed East Ranch Stage II Development Plan ("Project") in the City of Dublin, CA. The project is located along both sides of Croak Road, north of Central Parkway, and is proposing to construct 573 residential units consisting of 465 single family dwelling units and 108 multi-family dwelling units. The Stage II Development Plan proposes minor adjustments to the location of some of the residential and open space areas and setbacks of the previously approved Stage I Development Plan for Fallon Village. The Stage I Development Plan was approved on December 20, 2005 within the 2005 Fallon Village Project Draft Supplement Environment Impact Report (SEIR), which is an amendment to the previously approved 2002 East Dublin Properties Stage I Development Plan and Annexation Draft SEIR (East Dublin Properties SEIR) and its previously approved 1992 Eastern Dublin General Plan Amendment and Specific Plan Draft EIR (Eastern Dublin EIR). The purpose of this TIA is to determine whether significant impacts would occur as a result of the project due to changes in the current traffic conditions and were not identified in the previously analyzed environment impact reports (EIR).

Significant impacts from the previous California Environmental Quality Act (CEQA) documents were reviewed and are summarized below. Impacts identified as part of this TIA were compared to the previously identified significant impacts.

1992 Eastern Dublin EIR

- Intersection Impacts
    - Dougherty Road / Dublin Boulevard – Year 2010 + Project
    - Hacienda Drive / I-580 EB Ramps – Year 2010 + Project
    - Tassajara Road / I-580 WB Ramps – Year 2010 + Project
    - Santa Rita Road / I-580 EB Ramps – Year 2010 + Project
    - Airway Boulevard / Dublin Boulevard – Year 2010 + Project
    - Airway Boulevard / I-580 WB Ramps – Year 2010 + Project
    - Dublin Boulevard / Tassajara Road – Cumulative Buildout + Project
    - Dublin Boulevard / Hacienda Drive – Cumulative Buildout + Project
    - Tassajara Road / Fallon Road – Cumulative Buildout + Project
    - Tassajara Road / Gleason Road – Cumulative Buildout + Project
    - Tassajara Road /Transit Spine – Cumulative Buildout + Project
- Roadway Segment Impacts
    - I-580 between Tassajara Road and Fallon Road – Year 2010 (Cumulative impact)
    - I-580 between I-680 to Hacienda Drive – Year 2010 + Project
    - I-580 between Tassajara Road and Airway Boulevard – Year 2010 + Project
    - I-680 north of I-580 – Year 2010 + Project
    - El Charro Road south of I-580 – Year 2010 + Project (potentially significant)
    - I-580 west of I-680 – Cumulative Buildout + Project
    - I-580 east of Airway Boulevard – Cumulative Buildout + Project

2002 East Dublin Properties SEIR

- Supplemental Intersection Impacts
    - Hacienda Drive / I-580 EB Ramps – Year (2005) + Project
    - Hacienda Drive / I-580 WB Ramps – Year (2005) + Project
    - Santa Rita Road / I-580 EB Ramps – Year (2005) + Project

  - Dublin Boulevard / Street D – Year (2005) + Project
  - Fallon Road / Project Road – Year (2005) + Project
  - Dougherty Road / Dublin Boulevard – Cumulative (2025) Buildout + Project
  - Dublin Boulevard / Hacienda Drive – Cumulative (2025) Buildout + Project
  - Dublin Boulevard / Fallon Road – Cumulative Buildout + Project

    Note: AP = Approved and Pending Projects
- Supplemental Roadway Segment Impacts
  - Fallon Road between I-580 to Dublin Boulevard – Year (2005) + Project
  - Fallon Road between I-580 EB and I-580 WB off-ramp – Year (2005) + Project
  - Fallon Road between Dublin Boulevard and Central Parkway – Year (2005) + Project
  - Fallon Road between Central Parkway and Project Road – Year (2005) + Project
  - Central Parkway between Fallon Road and Tassajara Road – Year (2005) + Project
  - I-580 WB between east of Airway Boulevard and I-680 – Cumulative (2025) Buildout + Project
  - I-580 EB between Tassajara Road and east of Airway Boulevard – Cumulative (2025) Buildout + Project
  - I-580 EB between I-680 and Dougherty Road – Cumulative (2025) Buildout + Project

2005 Fallon Village SEIR

- Supplemental Intersection Impacts
  - Dublin Boulevard / Dougherty Road – Year (2025) + Project
  - Santa Rita Road / I-580 EB Ramps – Year (2025) + Project
  - Central Parkway / Hacienda Drive – Year (2025) + Project
- Supplemental Roadway Segment Impacts
  - WB I-580 between Dougherty Road and Hacienda Drive – Year (2030) + Project
  - EB/WB I-580 between Hacienda Drive and Tassajara Road – Year (2030) + Project
  - EB I-580 between Tassajara Road and Fallon Road – Year (2030) + Project
  - EB I-580 between Fallon Road and Airway Boulevard – Year (2030) + Project
  - SB I-680 between Acosta Boulevard and I-580 – Year (2030) + Project
  - NB I-680 south of I-580– Year (2030) + Project

Figure 1 illustrates the location of the project site in relation to the adjacent roadway network. The site would be accessible by three project intersections along Croak Road; two intersection roundabouts to the north of Central Parkway and an all-way stop-controlled intersection at Croak Road and Central Parkway. The two roundabouts provide access to the project on both the east and west legs of the roundabout while the all-way stop-controlled intersection at Croak Road and Central Parkway provides access to the project on the east leg.

This traffic study was prepared to determine potential impacts related to the project based on standards and methodologies set forth by the City of Dublin (City), City of Pleasanton, Alameda County Transportation Commission (ACTC), Tri-Valley Transportation Council (TVTC), and California Department of Transportation (Caltrans). This study includes intersection level of service (LOS) and queuing analyses of the weekday AM and PM peak hour traffic conditions for thirteen (13) intersections and an ACTC Land Use analysis. This study also addresses the potential transportation impacts of the proposed project that were not identified within the previous CEQA documents.

STUDY AREA

The proposed project would generate vehicular trips that would increase traffic volumes on the existing nearby street network. To assess changes in traffic conditions associated with the proposed project, the following intersections in **Table 1** were evaluated. Study freeway segments and roadway segments were also evaluated as required by the ACTC Land Use Analysis Program and are shown in **Table 2** and **Table 3**, respectively. These study intersections were selected because the project would contribute a significant number of vehicle trips to the intersections and were determined based on discussion with the City. The study segments were selected as required by the ACTC Land Use Analysis Program to determine impacts on roadways within the 2002 Metropolitan Transportation System (MTS). It should be noted that the ACTC CMP network for routes of regional significance is utilized for monitoring conformance based on LOS standards while the MTS network is used for the Land Use Analysis Program. Therefore, this study will focus on the MTS network and not the CMP network. **Figure 1** illustrates the location of each intersection relative to the project site.

Table 1 - Study Intersections

#	Intersection	Existing or Future Intersection
1	Fallon Road / Central Parkway [DUB/TVTC]	Existing
2	Fallon Road / Dublin Boulevard [DUB/TVTC]	Existing
3	Fallon Road / I-580 WB ramps [CAL/PLS/TVTC]	Existing
4	Fallon Road / I-580 EB ramps [CAL/PLS/TVTC]	Existing
5	El Charro Road / Stoneridge Drive-Jack London Boulevard [PLS/TVTC]	Existing
6	Central Parkway / Sunset View Drive [DUB]	Existing
7	Central Parkway / Panorama Drive [DUB]	Existing
8	Croak Road / North Project Access [DUB]	Future
9	Croak Road / South Project Access [DUB]	Future
10	Central Parkway / Croak Road [DUB]	Future
11	Dublin Boulevard / Croak Road [DUB/TVTC]	Future
12	Dublin Boulevard / Tassajara Road [DUB/TVTC]	Existing
13	Dublin Boulevard / Hacienda Drive [DUB/TVTC]	Existing

Note: [DUB] - City of Dublin, [PLS] - City of Pleasanton, [CAL] – Caltrans, [TVTC] – Tri-Valley Transportation Council

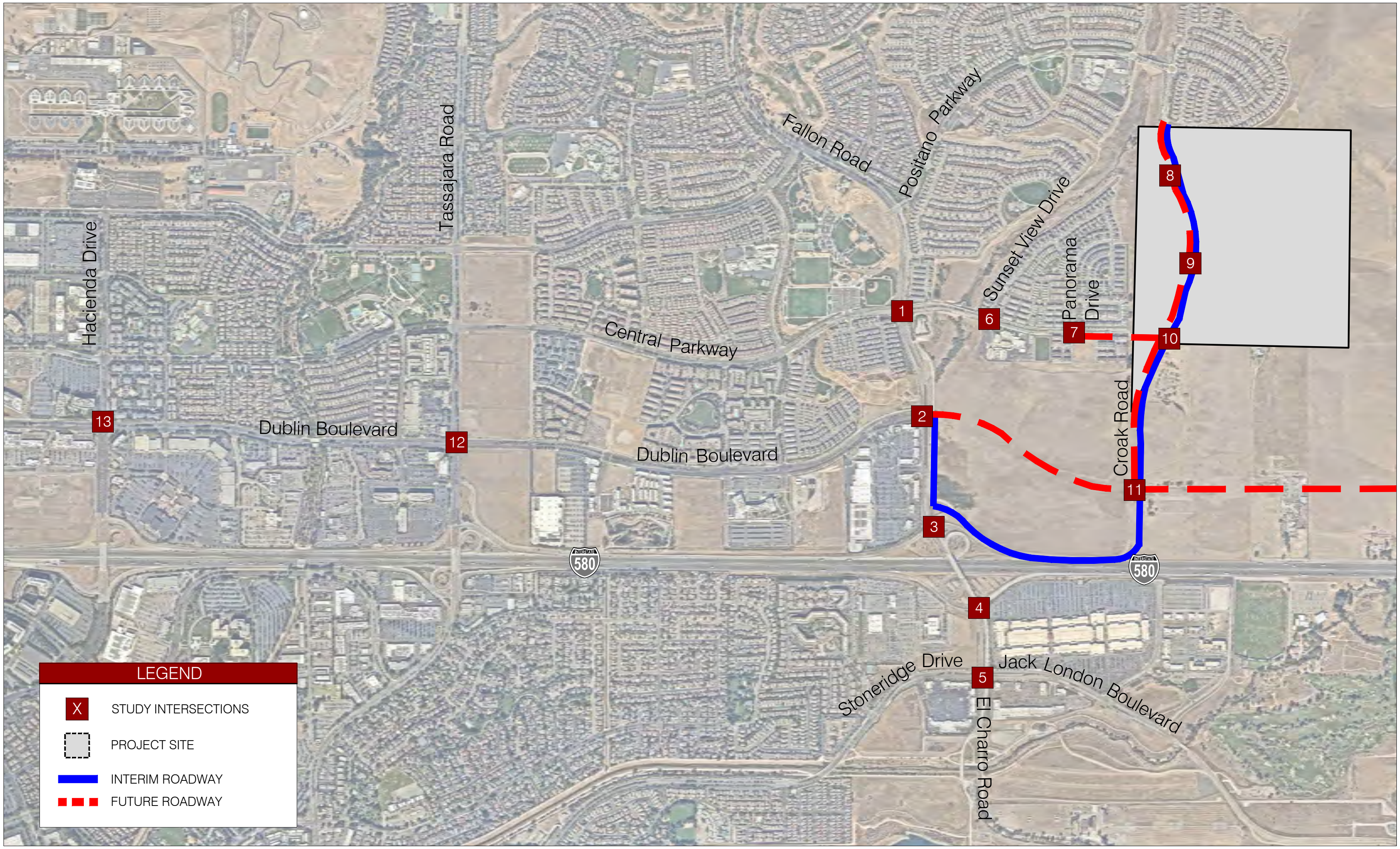
Table 2 - Study MTS Freeway Segments

#	Freeway Segments
1	I-580 from I-680 to Dougherty Road [CAL]
2	I-580 from Dougherty Road to Hacienda Drive [CAL]
3	I-580 from Hacienda Drive to Tassajara Road [CAL]
4	I-580 from Tassajara Road to Fallon Road [CAL]
5	I-580 from Fallon Road to Airway Boulevard [CAL]

Table 3 - Study MTS Roadway Segments

#	Roadway Segments	Limits
1	Dublin Boulevard (EB and WB)	Hacienda Drive to Tassajara Road

Note: EB – Eastbound, WB – Westbound



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NOT TO SCALE

Kimley»Horn

FIGURE 1

PROJECT LOCATION AND STUDY INTERSECTIONS

097059313 AUGUST 2021

DUBLIN EAST RANCH TIA

TRAFFIC CONDITIONS

This TIA evaluates the following traffic scenarios:

- Existing Conditions – Based on historical traffic counts (pre-COVID-19) derived from previous traffic studies which were then adjusted to develop existing traffic counts. Based on existing roadway geometry and traffic control.
- Existing Plus Project Conditions – Based on traffic generated by the Project added to existing traffic volumes. This scenario includes roadway improvements anticipated to be constructed with the project including the project intersections and the interim Croak Road access, which connects to Dublin Boulevard.
- Cumulative (2040) Full Buildout Conditions – Based on future (2040) traffic volumes from the City's travel demand model and full buildout of the Fallon Village properties, including the project. This scenario assumes roadway improvements to be in place in the future year (2040).

Since the Cumulative (2040) Condition assumes full buildout of the Fallon Village SEIR, which assumes the same 573 residential units to be constructed on the project site, a Cumulative Plus Project Condition would result in the same traffic conditions as the Cumulative without Project conditions, and therefore, was not analyzed for redundancy.

STUDY METHODOLOGY

Analysis of significant environmental impacts at intersections were based on the concept of Level of Service (LOS). The LOS of an intersection is a qualitative measure used to describe operational conditions. LOS ranges from A (best), which represents minimal delay, to F (worst), which represents heavy delay and a facility that is operating at or near its functional capacity. Levels of service for this study were determined using methods defined in the *Highway Capacity Manual 2000* (HCM) for study intersections. Initially, the HCM 6th Edition methodology was used for the traffic analysis. However, in discussion with the City, it was determined that the HCM 6th Edition methodology and even the HCM 2010 methodology were not accurately calculating the incremental delay at some of the study intersections. Therefore, the HCM 2000 methodology results within Synchro were reported for signalized and unsignalized intersections and roundabouts were analyzed in SIDRA software. ACTC MTS roadway and freeway study segments were analyzed based on methodology within the ACTC Congestion Management Program (CMP)[1] Land Use Analysis Program.

Intersection Level of Service

The HCM includes procedures for analyzing side-street stop controlled (SSSC), all-way stop controlled (AWSC), and signalized intersections. The SSSC procedure defines LOS as a function of average control delay for the worst minor street movement or major street left-turn. Conversely, the AWSC and signalized intersection procedures define LOS as a function of average control delay for the intersection as a whole. **Table 4** relates the operational characteristics associated with each LOS category for signalized and unsignalized intersections.

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[1] *Congestion Management Program*, Alameda County Transportation System, September 2019.

Table 4 - Intersection Level of Service Definitions

Level of Service	Description	Average Control Delay (Seconds Per Vehicle)	
		Signalized	Unsignalized
A	Free flow with no delays. Users are virtually unaffected by others in the traffic stream	≤ 10	≤ 10
B	Stable traffic. Traffic flows smoothly with few delays.	> 10 – 20	> 10 – 15
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays.	> 20 – 35	> 15 – 25
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours.	> 35 – 55	> 25 – 35
E	Unstable flow with operating conditions at or near the capacity level. Long delays and vehicle queuing.	> 55 – 80	> 35 – 50
F	Forced or breakdown flow that causes reduced capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.	> 80	> 50

Sources: Transportation Research Board, Highway Capacity Manual 2000, National Research Council, 2000.

Alameda CTC Freeway and Roadway Segments

Freeway and roadway segments were analyzed based on volume to capacity (v/c) methodology consistent with the 2019 Alameda CTC CMP Land Use Analysis Program. **Table 5** and **Table 6** shows the LOS category based on the v/c ratio for freeway segments and roadway segments, respectively.

Table 5 - Freeway Segment Level of Service Criteria

Level of Service	Volume to Capacity (v/c) Ratio
A	≤ 0.35
B	> 0.35 to 0.58
C	> 0.58 to 0.75
D	> 0.75 to 0.90
E	> 0.90 to 1.0
F	> 1.0

Source: Alameda CTC Congestion Management Program, 2019

Table 6 - Roadway Segment Level of Service Criteria

Level of Service	Volume to Capacity (v/c) Ratio
A	≤ 0.60
B	> 0.61 to 0.70
C	> 0.70 to 0.80
D	> 0.81 to 0.90
E	> 0.91 to 1.0
F	> 1.0

SIGNIFICANCE CRITERIA

Changes to CEQA, due to the passing of Senate Bill 743 (SB 743), recognizes vehicle miles traveled (VMT) as the primary methodology of determining transportation impacts as opposed to LOS. However, since the TIA is tiering off the previous CEQA documents, which determined impacts based on LOS rather than VMT, this analysis was consistent with the previous methodology and analyzed impacts based on LOS.

City of Dublin

As outlined in the City of Dublin *General Plan*[2] the LOS standard is LOS D for all intersections except for those located within the Downtown Dublin Specific Plan area which may operate at a LOS E or worse. Since all study intersections located within the City of Dublin jurisdiction are outside of the Downtown Dublin Specific Plan area, a standard of LOS D applies.

The City does not have official guidelines to determine significant impacts due to proposed projects. Therefore, based on the *Dublin IKEA Draft Transportation Assessment,* a significant impact would occur if:

- The project conflicts with an applicable plan, ordinance, or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit. A significant impact could be identified:
    - If a signalized intersection is projected to operate at an acceptable LOS D or better without the project and the project is expected to cause the intersection to operate at a LOS E or F;
    - If a signalized intersection is projected to operate at an unacceptable LOS E without the project and the project would cause an increase in the average delay for any of the critical movements by six (6) seconds or more;
    - If a signalized intersection is projected to operate at an unacceptable LOS F without the project and the project would cause (a) the overall v/c ratio to increase by 0.03 or more or (b) the critical movement v/c ratio to increase by 0.05 or more;

[2] *City of Dublin General Plan, Land Use and Circulation Element,* City of Dublin, November 2017.

- If the operations of an unsignalized intersection is projected to worsen with the addition of project traffic, and if the installation of a traffic signal based on the Manual on Uniform Traffic Control Devices (MUTCD) Peak-Hour Signal Warrant (Warrant 3) would be warranted.

Impacts to transit, bicycle, or pedestrian facilities could be identified if the project conflicts with adopted policies, plans, or programs regarding public transit, bicycle or pedestrian facilities, or otherwise decrease the performance or safety of such facilities; specifically:

- A pedestrian impact is considered significant if it would:
    - Disrupt existing pedestrian facilities;
    - Interfere with planned pedestrian facilities; or
    - Create inconsistencies with adopted pedestrian system plans, guidelines, policies, or standards.
- A bicycle impact is considered significant if it would:
    - Disrupt existing bicycle facilities;
    - Interfere with planned bicycle facilities;
    - Create inconsistencies with adopted bicycle system plans, guidelines, policies, or standards; or
    - Not provide secure and safe bicycle parking in adequate proportion to anticipated demand.
- A transit impact is considered significant if it would result in development that is inaccessible to transit riders or would generate transit demand that cannot be met by existing or planned transit in the area.
- Transportation-related impacts could also be identified if:
    - The project substantially increases traffic hazards due to a design feature (e.g. sharp curves or dangerous intersections) or incompatible uses.
    - The project results in inadequate emergency access.

City of Pleasanton

As outlined in the City of Pleasanton *General Plan*[3] the LOS standard is LOS D for all intersections except for those located within Downtown Pleasanton and gateway intersections.

The City of Pleasanton does not have official guidelines to determine significant impacts due to proposed projects. Therefore, based on the *Dublin IKEA Draft Transportation Assessment,* a significant impact would occur at intersections outside of Downtown Pleasanton and non-gateway intersections:

- If a signalized intersection is projected to operate at an acceptable LOS D or better without the project and the project is expected to cause the facility to operate at a LOS E or F;
- If a signalized intersection is projected to operate at an unacceptable LOS E or F without the project and the project adds 10 or more peak hour trips.

Gateway intersections, including Intersection #3 (Fallon Road and I-580 WB ramps) and Intersection #4 (Fallon Road and I-580 EB ramps), are exempt from the LOS D standard and may have a LOS below LOS D if no reasonable mitigation exists or if the necessary mitigation is contrary to other goals and policies of the City of Pleasanton.

[3] *Pleasanton General Plan, Circulation Element,* City of Pleasanton, August 2019.

Mitigations for these significant impacts would be required to improve the intersection to without project conditions or to better than without project conditions.

Alameda County Transportation Commission

The Alameda CTC does not have adopted thresholds of significance for CMP land use analysis purposes. Past analyses within the City of Dublin have used the following criteria to assess roadway segment impacts:

- For a roadway segment of the Alameda CTC CMP Network, the project would cause (a) the LOS to degrade from LOS E or better to LOS F or (b) the v/c ratio to increase by 0.02 or more for a roadway segment that would operate at LOS F without the project.

Tri-Valley Transportation Council

Impacts to intersections on Routes of Regional Significance as defined by the TVTC would be considered significant if:

- If a signalized intersection is projected to operate at an acceptable LOS E or better without the project and the project is expected to cause the facility to operate at a LOS F;
- If a signalized intersection is projected to operate at an unacceptable LOS F without the project and the project would cause (a) the overall v/c ratio to increase by 0.03 or more or (b) the critical movement v/c ratio to increase by 0.05 or more.

Intersections in downtown areas and/or specifically exempted by local jurisdictions are exempt from this TVTC standard.

California Department of Transportation

The California Department of Transportation (Caltrans) endeavors to maintain a target LOS at the transition between LOS C and LOS D on State Highway facilities (Caltrans 2002); however, Caltrans recognizes that achieving LOS C/LOS D may not always be feasible. A standard of LOS E or better on a peak-hour basis was used as the planning objective for the evaluation of potential impacts of this development on Caltrans facilities, as that is the standard set for Caltrans facilities in the study area by the Alameda CTC.

QUEUING

The effects of vehicle queuing were analyzed and the 95th percentile queue is reported for all study intersections. The 95th percentile queue length represents a condition where 95 percent of the time during the peak hour, traffic queues will be less than or equal to the queue length determined by the analysis. This is referred to as the “95th percentile queue.” Average queuing is generally less.

Queues that exceed the turn pocket length can create potentially hazardous conditions by blocking or disrupting through traffic in adjacent travel lanes. The City of Dublin and the City of Pleasanton does not have standards for queuing and for the purpose of this analysis, queuing deficiencies would be considered as operational issues. Thus, operational deficiencies were considered to occur under conditions where project traffic causes the queue to extend beyond the turn pocket by 25 feet or more (i.e. the length of one vehicle) into adjacent traffic lanes that operate separately from the left turn lane. Where the vehicle queue already exceeds that turn pocket length under pre-project conditions, a queuing deficiency would occur if project traffic lengthens the queue by 25 feet or more.

SIGNAL WARRANTS

Traffic volumes at the unsignalized intersection of Intersection #10 (Croak Road and Central Parkway) were compared against the peak hour warrant in the 2014 California Manual of Uniform Traffic Control Devices (CA MUTCD)[4]. Traffic Signal Warrant #3 – Peak Hour Volume Warrant is satisfied when traffic volumes on the major and minor approaches exceed thresholds for one hour of the day. The Peak Hour Warrant is generally the first warrant to be satisfied. Other warrants such as those for minimum vehicle volumes, interruption of continuous traffic, and traffic progression were not evaluated because they generally require higher traffic volumes to be satisfied.

REPORT ORGANIZATION

The remainder of the report is divided into the following chapters:

- Chapter 2: Existing Conditions – describes existing conditions on the roadway network, transit system, pedestrian facilities, and bicycle facilities.
- Chapter 3: Existing Plus Project Conditions – describes the proposed project, trip generation, and estimated impact on the transportation system under Existing Plus Project Conditions.
- Chapter 4: Cumulative Full Buildout Conditions – describes the traffic conditions under Cumulative Conditions with full buildout of the Fallon Village properties, including the project.
- Chapter 5: Alameda CTC Land Use Analysis – describes the existing and future conditions of the Metropolitan Transportation System (MTS) roadway segments and estimated impact on the roadways segments as a result of the project.
- Chapter 6: Vehicle Queuing and Site Access and Circulation - describes vehicle queuing analysis at project driveways, as well as site access and circulation for the project.
- Chapter 7: Summary of Impacts and Recommended Improvements – summarizes potential impacts of the proposed project and mitigations, if necessary.
- Chapter 8: Summary of Queuing Deficiencies and Recommended Improvements – summarizes potential queuing deficiencies of the proposed project and recommendations for improvements, if necessary.

[4] California Manual of Uniform Traffic Control Devices Revision 6, (FHWA's MUTCD 2009 Edition, as amended for use in California, March 30, 2021.

2. EXISTING CONDITIONS

This chapter describes the existing conditions of the roadway network, transit service, pedestrian facilities, and bicycle facilities within the vicinity of the project site. The chapter also presents existing turning movement volumes and intersection levels of service.

EXISTING ROADWAY NETWORK

This section provides a description of the specific roadways included in this study.

Interstate 580 (I-580) is part of the interstate freeway system and is located to the south of the project site. I-580 extends east-west connecting the project to the San Francisco Bay Area in the west and the City of Livermore in the east. The posted speed limit on I-580 is 65 miles per hour (mph) in the project area. I-580 eastbound and westbound express lanes are in operation Monday through Friday from 5:00 AM to 8:00 PM. I-580 is a designated route of regional significance in the Tri-Valley Transportation Plan and Action Plan for Routes of Regional Significance. In addition, I-580 within the study area is part of the ACTC MTS roadway network for the Land Use Analysis Program.

Dublin Boulevard is a six-lane divided east-west roadway that extends west of the project site and serves residential, retail, and medical land uses. Dublin Boulevard is classified as an arterial between its western limits and Tassajara Road and classified as a collector between Tassajara Road and Fallon Road. On-street parking is not permitted along this roadway and the posted speed limit is 45 mph in the project area. Dublin Boulevard is a designated route of regional significance between San Ramon Road and Fallon Road in the Tri-Valley Transportation Plan and Action Plan for Routes of Regional Significance. In addition, Dublin Boulevard between San Ramon Road and Tassajara Road is part of the ACTC MTS roadway network for the Land Use Analysis Program.

Central Parkway is a two-lane divided east-west roadway that extends west of the project site and serves residential, school, and office land uses. The roadway also provides access to Cottonwood Creek K-8 School located just west of the project site. Central Parkway is classified as a collector between Sterling Street and Tassajara Road and between Fallon Road and its eastern limits. Central Parkway is classified as an arterial between Tassajara Road and Fallon Road. Central Parkway serves as one of the primary roadways to access the project site. On-street parking is not permitted along this roadway except for a few short segments near residential uses on the east end of the roadway. The posted speed limit is 25 mph in the project area.

Croak Road is a north-south rural road that is currently not an accessible roadway with the exception of Croak Road between Positano Parkway and Terracina Drive to the north of the project site. Croak Road is classified as a local residential roadway between Positano Parkway and Central Parkway. The project is proposing to reconstruct this roadway into a two-lane collector street and will serve as one of the primary roadways to access the project site.

Fallon Road/El Charro Road is a north-south divided roadway that varies from four lanes between the I-580 interchange and south of Central Parkway and six lanes from south of Central Parkway to the north. Fallon Road is classified as an arterial between its northern limits and Stoneridge Drive. The roadway primarily serves residential land uses, with retail located at the south end near Dublin Boulevard and the I-580 ramps including Fallon Gateway and the San Francisco Premium Outlets. Fallon Road transitions into El Charro Road at the I-580 ramps and continues south within the limits of the City of Pleasanton. On-street parking is not permitted along this roadway and the posted speed limit is 45 mph north of the I-580 ramps.

Stoneridge Drive/Jack London Boulevard is an east-west roadway that serves retail, residential and office land uses within the City of Pleasanton. Stoneridge Drive is classified as an arterial between Foothill Road and its eastern limits. Stoneridge Drive transitions into Jack London Boulevard at El Charro Road and serves retail, residential, and warehouse land uses within the City of Livermore. On-street parking is not permitted along this roadway and the posted speed limit is 40 mph to the west of El Charro Road and 45 mph to the east of El Charro Road near the project site. Stoneridge Drive is a four to six lane roadway while Jack London Boulevard is a two to six lane roadway.

Tassajara Road is a north-south roadway that provides access to Camino Tassajara to the north, which connects to the City of San Ramon and unincorporated Contra Costa County. Tassajara Road is classified as an arterial between its north limits and the I-580 ramps. Tassajara Road transitions into Santa Rita Road at the I-580 interchange and provides access to the City of Pleasanton to the south. The roadway serves residential and retail uses and varies from two lanes to five lanes. On-street parking is not permitted along this roadway and the posted speed limit is 35 mph within the study area.

Hacienda Drive is a north-south roadway that provides access to nearby offices, corporate campuses, residential homes, and retail centers such as Hacienda Crossings and Persimmon Place. Hacienda Drive is classified as an arterial between its north limits and the I-580 ramps. Hacienda Drive ranges from three lanes to six lanes within the study area. On-street parking is not permitted along this roadway and the posted speed limit is 35 mph within the study area.

EXISTING TRANSIT FACILITIES

Tri-Valley Wheels provides transit services within the City of Dublin and nearby cities of Pleasanton and Livermore. Many routes (such as Route 1, 14 580X, etc.) operate within the project area, but do not operate near the project site. Only routes that service the nearby area of the proposed project are described in this section. Existing transit services within the study area are shown in **Figure 2**.

Route 2 is a local bus route that operates between the East Dublin/Pleasanton BART Station to Positano Hills. In the project area, Route 2 operates on Central Parkway, Fallon Road, and Positano Parkway. On weekdays, Route 2 operates one single trip between 7:33 AM to 8:13 AM and one single trip between 12:35 PM to 1:06 PM. Route 2 does not operate on Wednesdays or on the weekends. The closest bus stop is located near Positano Parkway and Valentano Drive. This schedule is in effect as of April 12, 2021 due to the effects of COVID-19.

Route 30R is a rapid bus route that operates between the West Dublin/Pleasanton BART Station to the Sandia Laboratory in Livermore, CA. In the vicinity of the project site, Route 30R operates on Dublin Boulevard and Fallon Road. On weekdays, Route 30R operates between 5:06 AM to 10:45 PM in 30-minute to 60-minute headways. On weekends, Route 30R operates between 5:09 AM to 10:42 AM in 60-minute headways. Due to the COVID-19, the hours of operation were adjusted to restrict service past 11:00 PM. The closest bus stop is located along near Dublin Boulevard and Fallon Road.

Route 501 is a Dublin School Route that operates between Dublin High School to Positano Hills and consists of Routes 501A and 501B. In the vicinity of the project site, Route 501 operates on Fallon Road and Positano Hill. Route 501A operates between 7:42 AM to 8:10 AM and between 12:45 PM to 1:20 PM. Route 501B operates between 7:43 AM to 8:10 AM and between 12:45 PM to 1:16 PM. The service is only provided on school days with the exception of Wednesdays. The closest bus stop is located near Positano Parkway and Valentano Drive.

Route 502 is a Dublin School Route that operates between Dublin High School to the intersection of Central Parkway and Chancery Lane. In the vicinity of the project site, Route 502 operates on Central Parkway and Fallon Road. It operates one morning and one afternoon bus from 7:32 AM to 8:10 AM and 12:45 PM to 1:24 PM, respectively. The service is only provided on school days with the exception of Wednesdays. Near the project site, there is a bus stop along Central Parkway and Panorama Drive.

It should be noted that transit route schedules may have been adjusted due to COVID-19 and is subject to change in the future.

EXISTING PEDESTRIAN FACILITIES

Sidewalks and crosswalks are mostly provided throughout the study area in Dublin to allow pedestrians access to nearby transit stops, residential uses, and commercial uses. There are existing sidewalks present along both sides of Central Parkway from Croak Road to west of Fallon Road near the project site. Sidewalks also exist on the west side of Fallon Road for pedestrian access to the Fallon Gateway retail center and along both sides of Dublin Boulevard. However, there are gaps in the pedestrian facility on the east side of Fallon Road just south of Central Parkway and along both sides of Fallon Road, approximately 400 feet south of Fallon Gateway to the I-580 WB ramps.

EXISTING BICYCLE FACILITIES

Figure 3 shows existing bicycle facilities within the study area. Class II bicycle lanes exist along both sides of Central Parkway between Sunset View Drive and Croak Road. Along Central Parkway between Fallon Road and Sunset View Drive, a Class II bicycle lane exists on the north side while a Class III bicycle route exists on the south side. Future bicycle facilities are proposed along the Dublin Boulevard extension to the east of Fallon Road and along Croak Road.

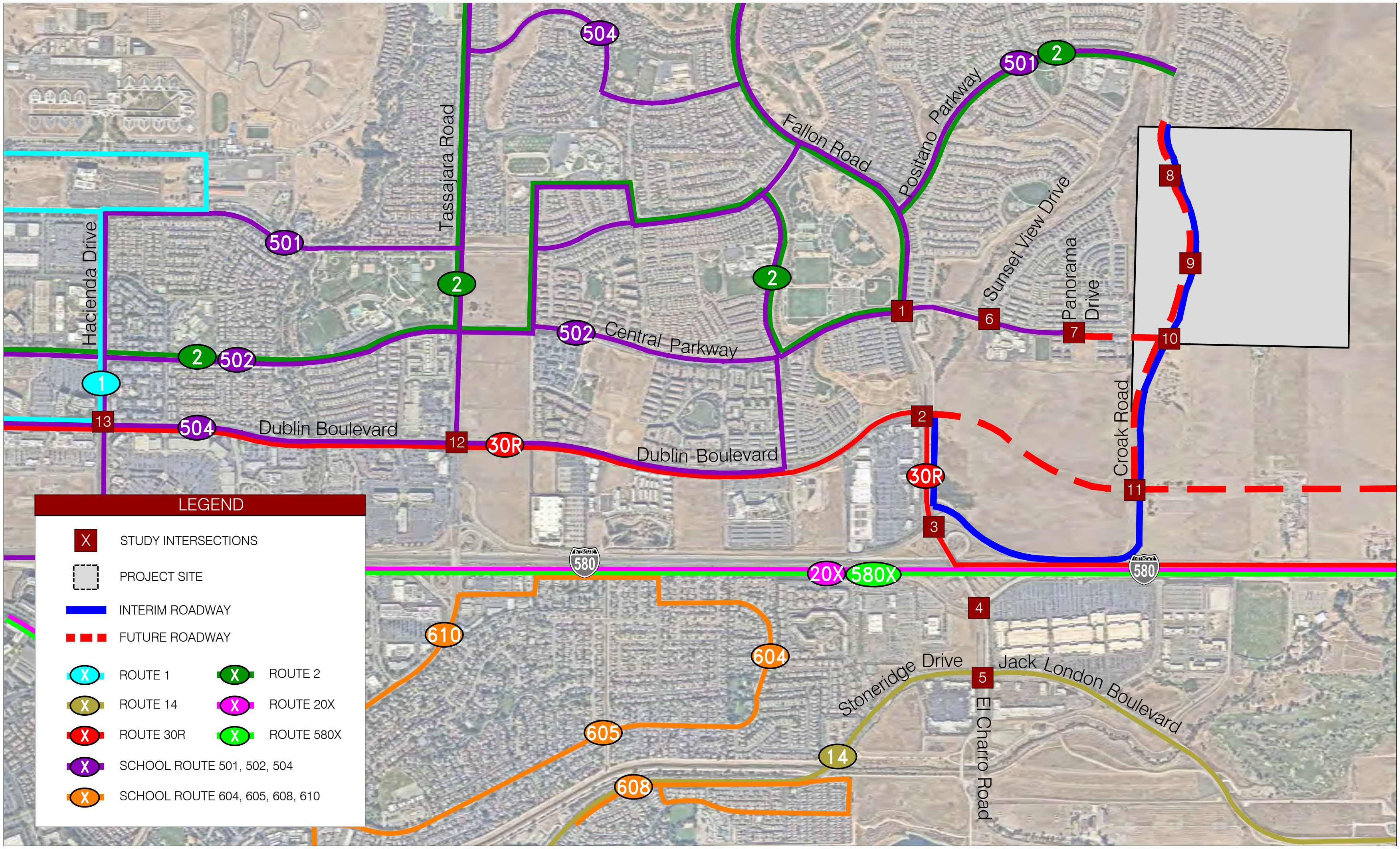

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FIGURE 2

EXISTING TRANSIT FACILITIES

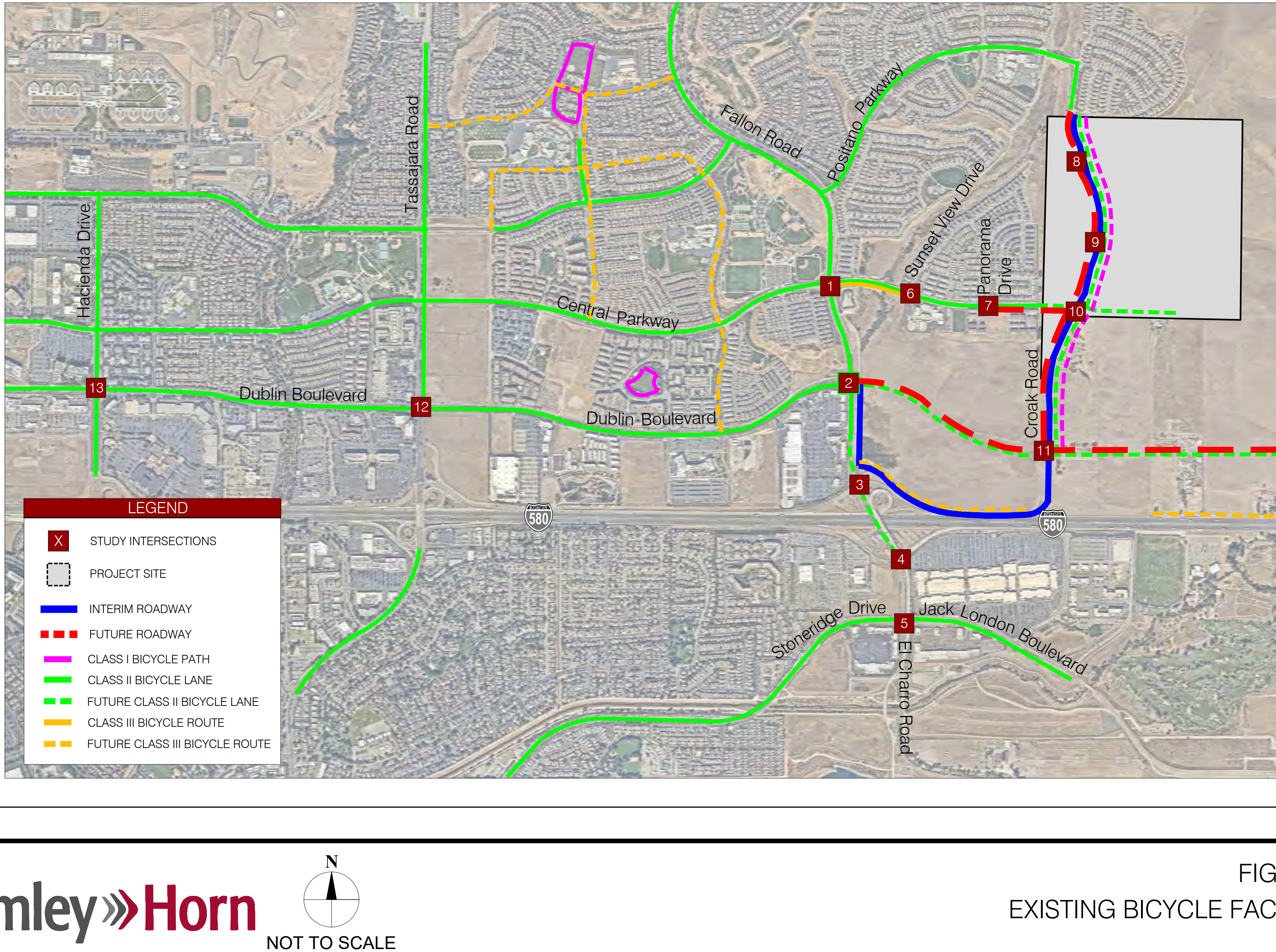

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FIGURE 3

EXISTING BICYCLE FACILITIES

EXISTING LANE CONFIGURATION AND TRAFFIC CONTROL

Existing intersection lane configuration and traffic controls are illustrated in **Figure 4**. **Table 7** lists the existing traffic control for each study intersection.

Table 7 - Study Intersection and Traffic Control

#	Intersection	Existing or Future Intersection	Traffic Control
1	Fallon Road / Central Parkway	Existing	Signal
2	Fallon Road / Dublin Boulevard	Existing	Signal
3	Fallon Road / I-580 WB ramps	Existing	Signal
4	Fallon Road / I-580 EB ramps	Existing	Signal
5	El Charro Road / Stoneridge Drive-Jack London Boulevard	Existing	Signal
6	Central Parkway / Sunset View Drive	Existing	Signal
7	Central Parkway / Panorama Drive	Existing	AWSC
8	Croak Road / North Project Access	Future	Roundabout
9	Croak Road / South Project Access	Future	Roundabout
10	Central Parkway / Croak Road	Future	AWSC
11	Dublin Boulevard / Croak Road	Future	Signal
12	Dublin Boulevard / Tassajara Road	Existing	Signal
13	Dublin Boulevard / Hacienda Drive	Existing	Signal

Note: AWSC – All-way stop-control, SSSC – side-street stop-control

EXISTING PEAK-HOUR TURNING MOVEMENT VOLUMES

Weekday intersection turning movement volumes were not collected due to the COVID-19 shelter-in-place restrictions. Therefore, turning movement volumes for study intersections were derived from the various traffic studies including the *At Dublin DEIR, Kaiser Medical Office Building DEIR, IKEA DEIR, and the Fallon Road Signal Coordination Memorandum.* These counts were collected in May and June 2016; January, March and December 2017; and November and December 2019. Intersection volumes collected from 2019 were used as the existing counts since little to no growth is expected to have occurred from 2019 to 2020. Remaining intersections with volumes collected prior to 2019 were grown using a growth rate derived from these historical counts. Volumes were reviewed to determine whether the adjustments were reasonable and to ensure adjacent intersections were balanced where necessary.

Since no historical volumes are provided for Intersection #7 (Central Parkway and Panorama Drive), existing turning movement volumes were estimated using the Institute of Transportation Engineer's (ITE), *Trip Generation Manual, 10th Edition*[5] and balancing the volumes from the adjacent intersection of Central Parkway and Sunset View Drive. Residential trips entering and exiting Panorama Drive were estimated based on the average rate for ITE Land Use 220 (Multifamily Housing (Low-Rise)).

Intersection volume data sheets and calculations are provided in the **Appendix**. Peak hour turning movement volumes are shown in **Figure 5**.

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[5] *Trip Generation, 10th Edition*, Institute of Transportation Engineers, 2017.

EXISTING INTERSECTION LEVEL OF SERVICE

Traffic operations were evaluated at the study intersections under Existing traffic conditions. Results of the analysis are presented in **Table 8** and locations operating unacceptably are bolded. **Table 8** lists the LOS criteria, municipal jurisdiction, intersection control, and LOS/delay for each intersection. All study intersections function within acceptable LOS standards under this analysis scenario.

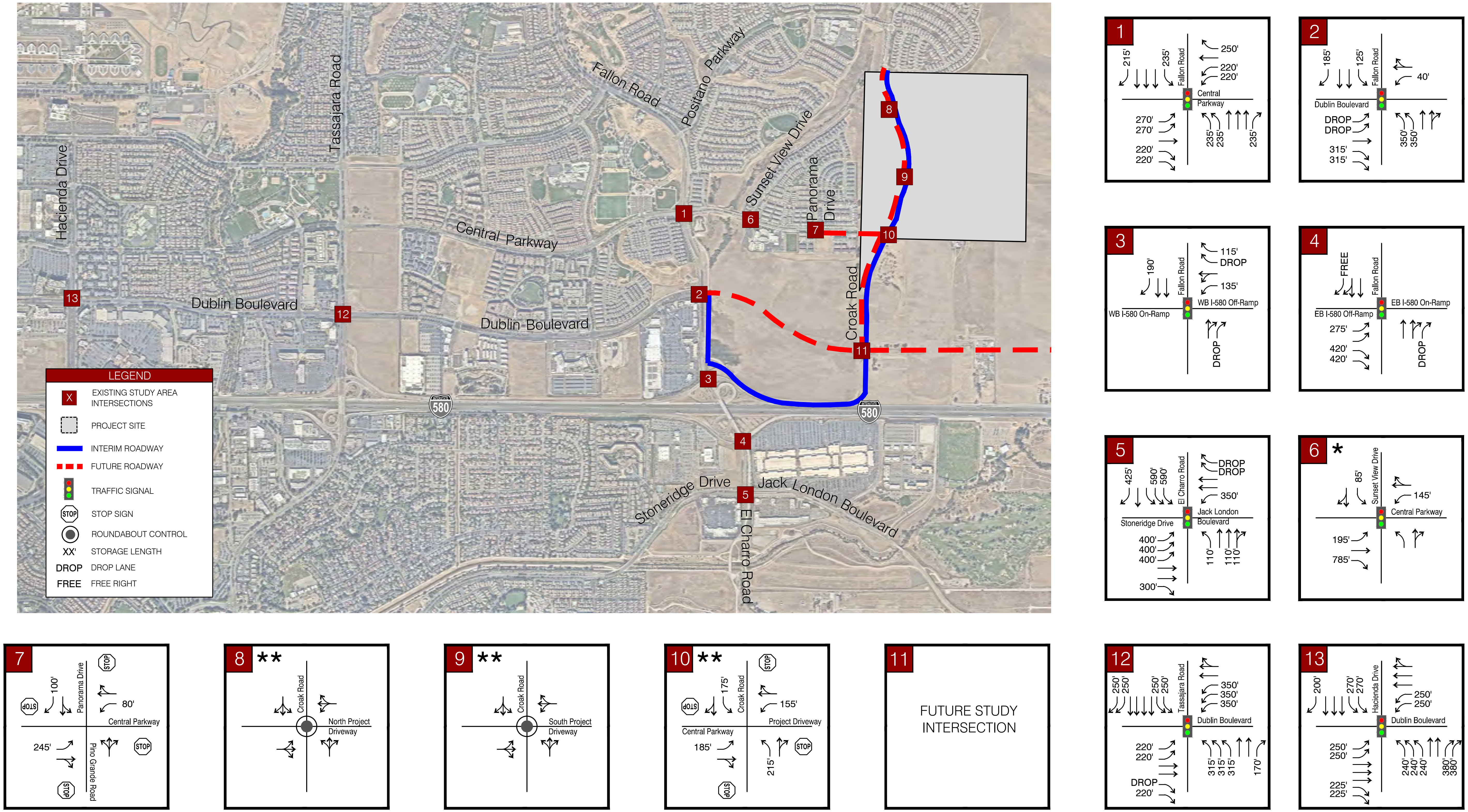
Analysis sheets are provided in the **Appendix**.

Table 8 - Existing Intersection Level of Service Summary

#	Intersection	LOS Criteria	Jurisdiction	Control	Existing			
					AM Peak		PM Peak	
					LOS	Delay[1] (sec)	LOS	Delay[1] (sec)
1	Fallon Road / Central Parkway	D	Dublin	Signal	D	35.4	C	22.3
2	Fallon Road / Dublin Boulevard	D	Dublin	Signal	B	16.1	B	14.8
3	Fallon Road / I-580 WB ramps	D	Caltrans/Pleasanton	Signal	A	6.6	B	11.4
4	Fallon Road / I-580 EB ramps	D	Caltrans/Pleasanton	Signal	A	6.2	A	6.9
5	El Charro Road / Stoneridge Drive	D	Pleasanton	Signal	C	22.5	C	26.2
6	Central Parkway / Sunset View Drive	D	Dublin	Signal	C	29.9	B	19.3
7	Central Parkway / Panorama Drive	D	Dublin	AWSC	A	9.4	A	7.3
8	Croak Road / North Project Access	D	Dublin	Roundabout	Future Project Intersection			
9	Croak Road / South Project Access	D	Dublin	Roundabout	Future Project Intersection			
10	Central Parkway / Croak Road	D	Dublin	SSSC	Future Project Intersection			
11	Dublin Boulevard / Croak Road	D	Dublin	Signal	Future Intersection			
12	Dublin Boulevard / Tassajara Road	D	Dublin	Signal	D	40.9	D	47.0
13	Dublin Boulevard / Hacienda Drive	D	Dublin	Signal	D	43.8	D	37.4

Note: Intersections that are operating below acceptable levels of service are shown in **BOLD**.

1 The average control delay is reported for signalized and AWSC intersections.



* Westbound (WB) approach for Intersection #6 is analyzed as one WBL, one WBT, and one WBR turn lane for analysis purposes, however the intersection is striped as one WBL and one shared WBT/R turn.

** Future intersection to be constructed with the project in Existing Plus Project Conditions.

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FIGURE 4

EXISTING CONDITION LANE GEOMETRY AND TRAFFIC CONTROL

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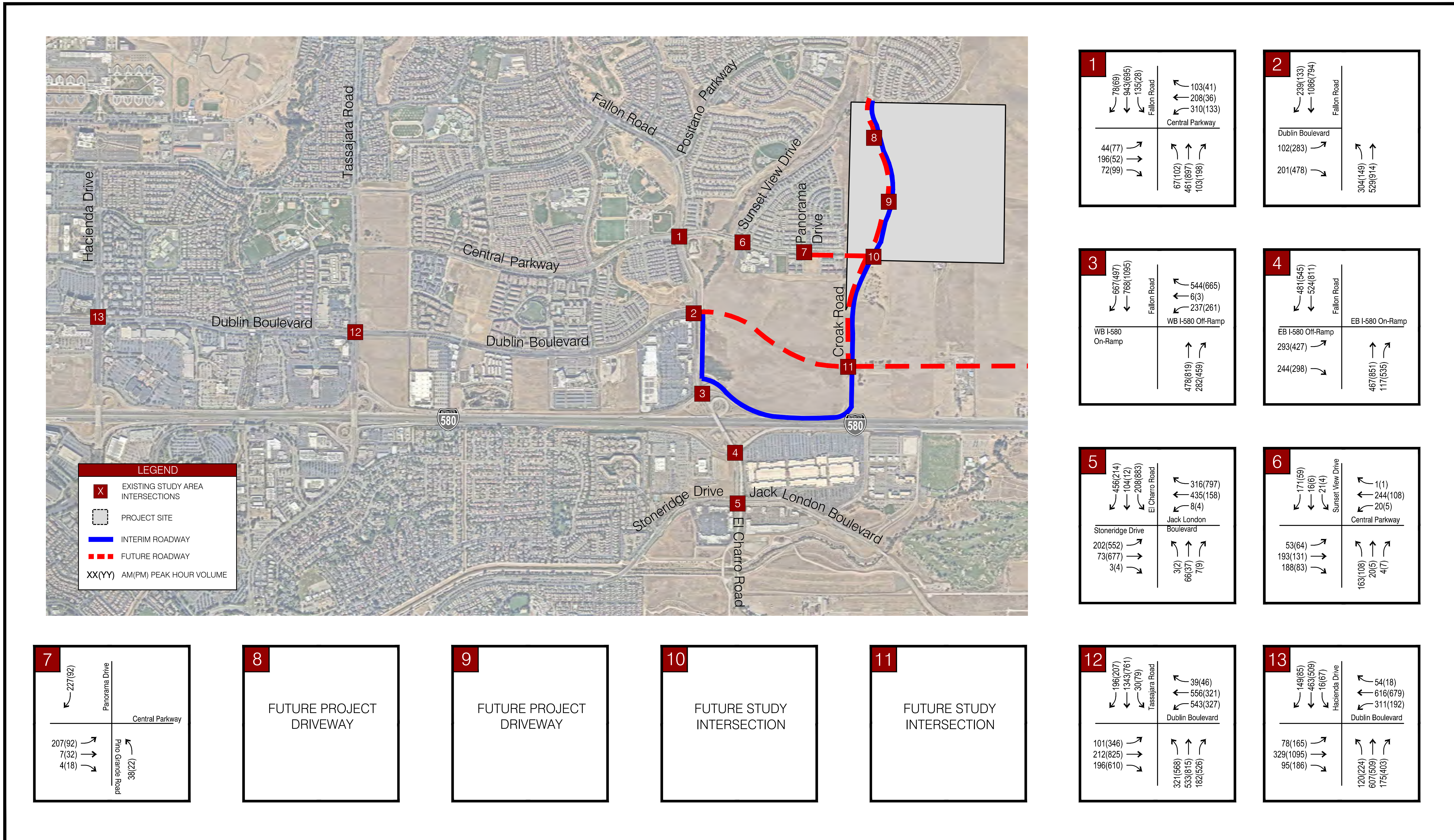

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FIGURE 5
EXISTING CONDITION PEAK HOUR TURNING MOVEMENT VOLUMES

DUBLIN EAST RANCH TIA

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3. EXISTING PLUS PROJECT CONDITIONS

This chapter presents a description of the proposed site use, trip generation, trip distribution, and trip assignment, as well as potential impacts of the proposed project on the transportation system.

PROPOSED SITE USE

The proposed project would construct 573 residential units along both sides of Croak Road, north of Central Parkway, consisting of 465 single family dwelling units and 108 multi-family dwelling units. **Figure 6** illustrates the site plan for the proposed building, as provided by Gates + Associates Landscape Architecture.

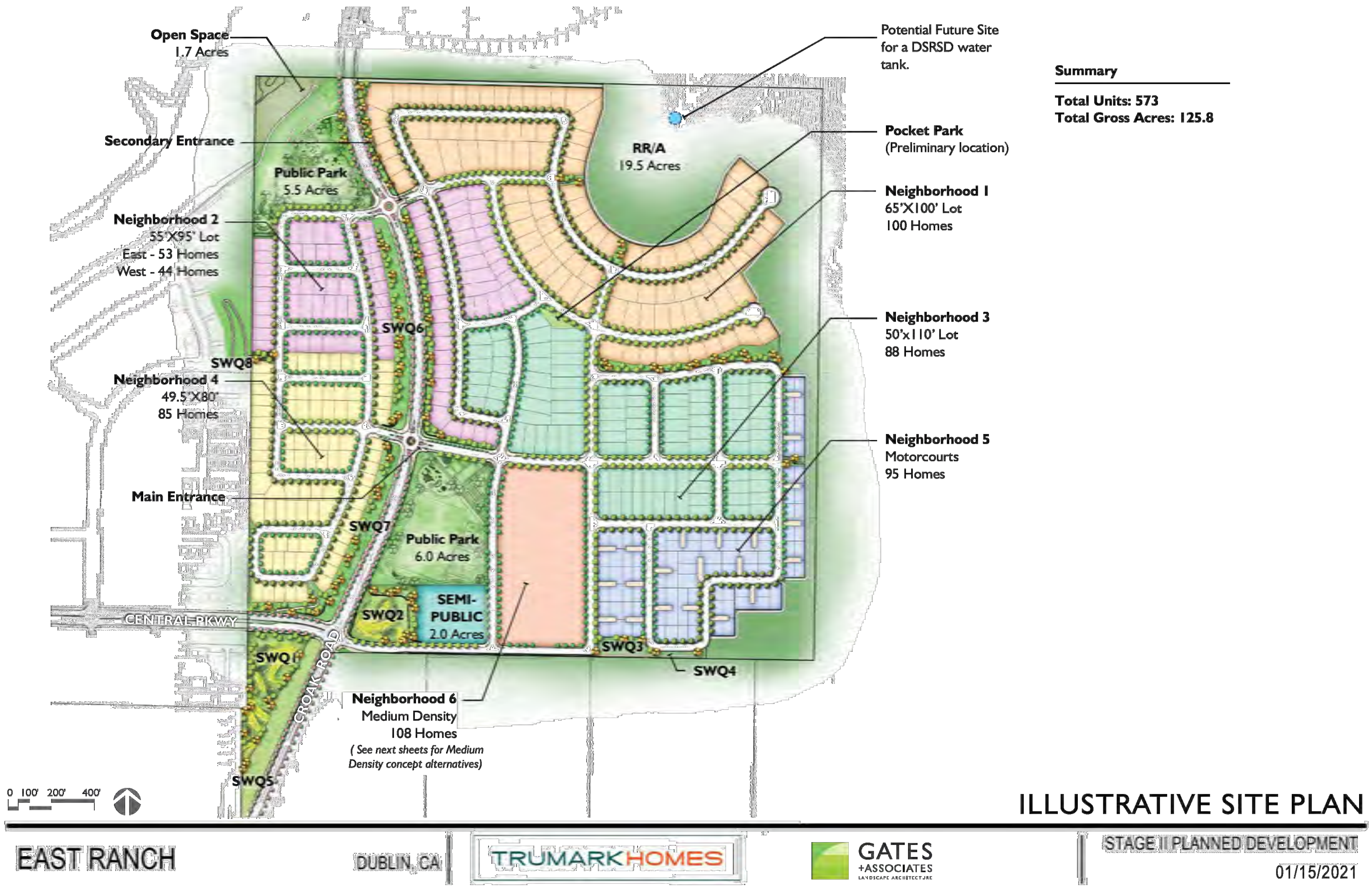
The site would be accessible by three intersections along Croak Road; two intersection roundabouts to the north of Central Parkway and an all-way stop controlled intersection at Croak Road and Central Parkway. The two roundabouts would provide access to the project on both the east and west legs of the roundabout while the all-way stop controlled intersection at Croak Road and Central Parkway would provide access to the project on the east leg. The project is proposing to construct roadway improvements along Croak Road as an interim access to the project site prior to the Dublin Boulevard extension being built. This Croak Road interim access would provide improvements along the existing Croak Road that connects Dublin Boulevard at Fallon Road to Central Parkway. This interim roadway is shown in **Figure 4** of the existing lane geometry configuration. In addition, the project proposes signal timing optimization at Intersection #6 (Central Parkway / Sunset View Drive).

TRIP GENERATION

Trip generation for projects is typically calculated based on information contained in the Institute of Transportation Engineer's (ITE) publication, *Trip Generation, 10th Edition*. The manual is a standard reference used by jurisdictions throughout the country for the estimation of trip generation potential of proposed projects. A trip is defined in the *Trip Generation Manual* as a single or one-directional vehicle movement with either the origin or destination at the project site. In other words, a trip can be either "to" or "from" the site and therefore, a single visitor to a site is counted as two trips.

For purposes of determining the worst-case impacts of traffic on the surrounding street network, the trips generated by a proposed project are estimated for the AM peak hour (between the hours of 7:00 AM and 9:00 AM), and for the PM peak hour (between 4:00 PM and 6:00 PM) on a typical weekday. Trips generated by the single-family residential units were based on the fitted curve equation for ITE Land Use 210 (Single-Family Detached Housing) and trips associated with the multifamily units were based on the average rate for ITE Land Use Code 221 (Multifamily Housing (Mid-Rise)).

Table 9 presents the trip generation for the proposed project. The project would generate 374 trips (94 In / 280 Out) in the AM peak hour and 492 trips (309 In / 183 Out) in the PM peak hour. It should be noted that the previous 2005 Fallon Village SIER also analyzed the same 573 residential units within the project site.



Source: Gates+Associates Landscape Architecture

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FIGURE 6
SITE PLAN

Table 9 - Project Trip Generation

ITE Land Use Code	Land Uses	Size	Units	Daily Trips	AM Peak Total	AM Peak In / Out	PM Peak Total	PM Peak In / Out
210	Single-Family Detached Housing[1]	465	Dwelling Units	4,276	335	84 / 251	444	280 / 164
221	Multifamily Housing (Mid-Rise)[2]	108	Dwelling Units	588	39	10 / 29	48	29 / 19
Total Project Trips				**4,864**	**374**	**94 / 280**	**492**	**309 / 183**

Note: ITE Trip Generation Manual, 10th Edition (2017) used to develop project trip generation.
[1] Fitted curve equation used for ITE Land Use Code 210.
[2] Average rate used for ITE Land Use Code 221.

PROJECT TRIP DISTRIBUTION AND ASSIGNMENT

Project trip distribution for the proposed project was based on existing traffic count information, a select zone analysis using the City of Dublin Travel Demand Model, and the general orientation of population sources to the site. The distribution was reviewed by the City and approved for use in this TIA. **Figure 7** presents the traffic distribution assumed for the Existing Plus Project analysis.

Based on the assumed trip distribution, the net new vehicle trips generated by the project were assigned to the street network. It is assumed that in addition to the trip distribution of five percent in the AM peak hour and one percent in the PM peak hour at the Cottonwood Elementary school, additional pass-by trips were assumed to pass-by the school and continue to west I-580. **Figure 8** presents the trip assignment for Existing Plus Project Conditions.

EXISTING PLUS PROJECT INTERSECTION LEVEL OF SERVICE

Existing Plus Project traffic conditions were evaluated at the study intersections and are shown in **Figure 9**. Results are presented in **Table 10** and intersections operating unacceptably are bolded and significant impacts are highlighted. All study intersections function within acceptable LOS standards under this analysis scenario.

Analysis sheets are provided in the **Appendix**.

EXISTING PLUS PROJECT SIGNAL WARRANTS

Signal warrants were evaluated at the unsignalized intersection of Intersection #10 under Existing Plus Project Conditions. Results of the analysis show that intersection does not meet the peak hour signal warrant. Analysis sheets are provided in the **Appendix**.

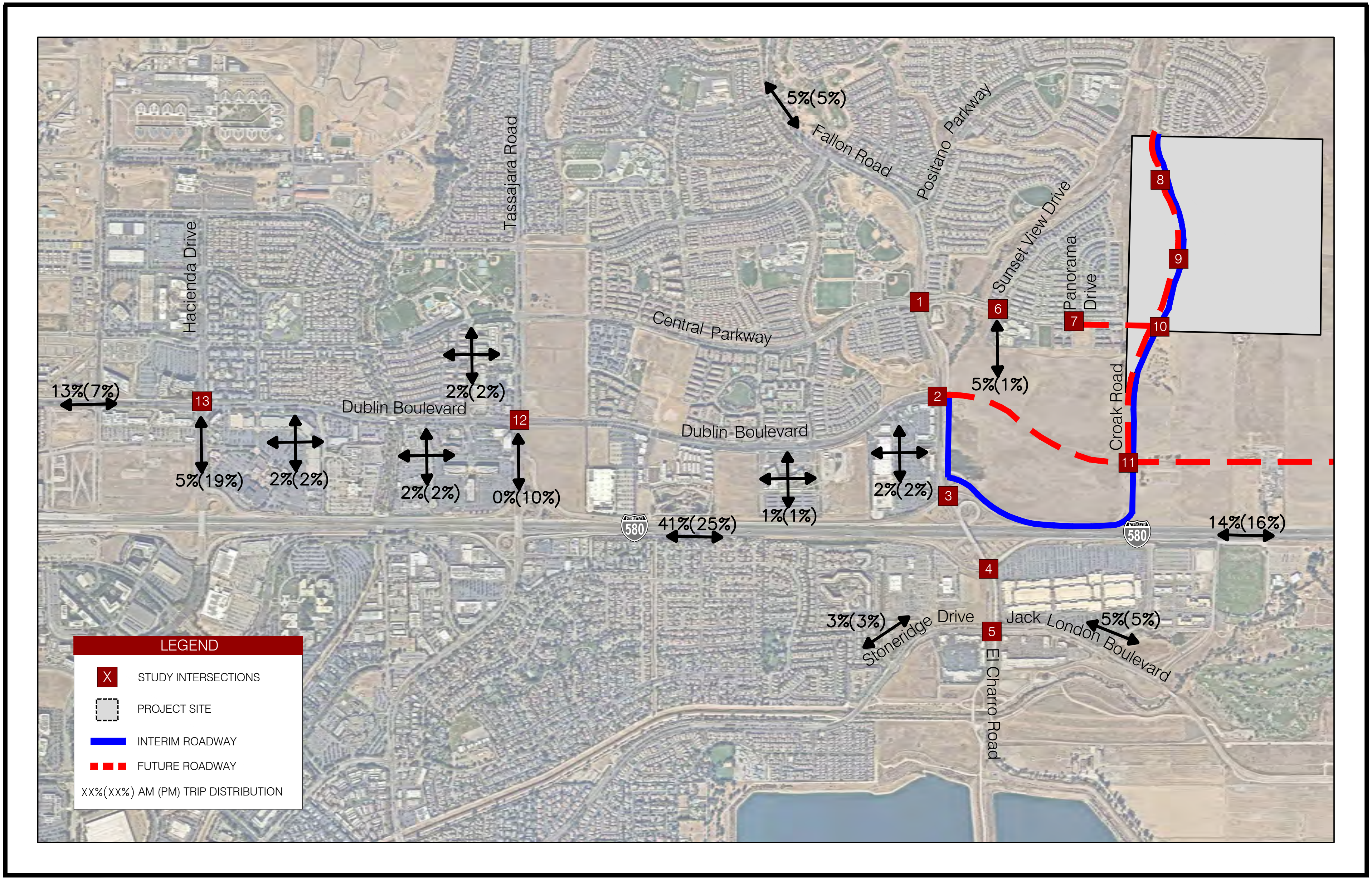

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FIGURE 7

EXISTING CONDITION
PROJECT TRIP DISTRIBUTION

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DUBLIN EAST RANCH TIA

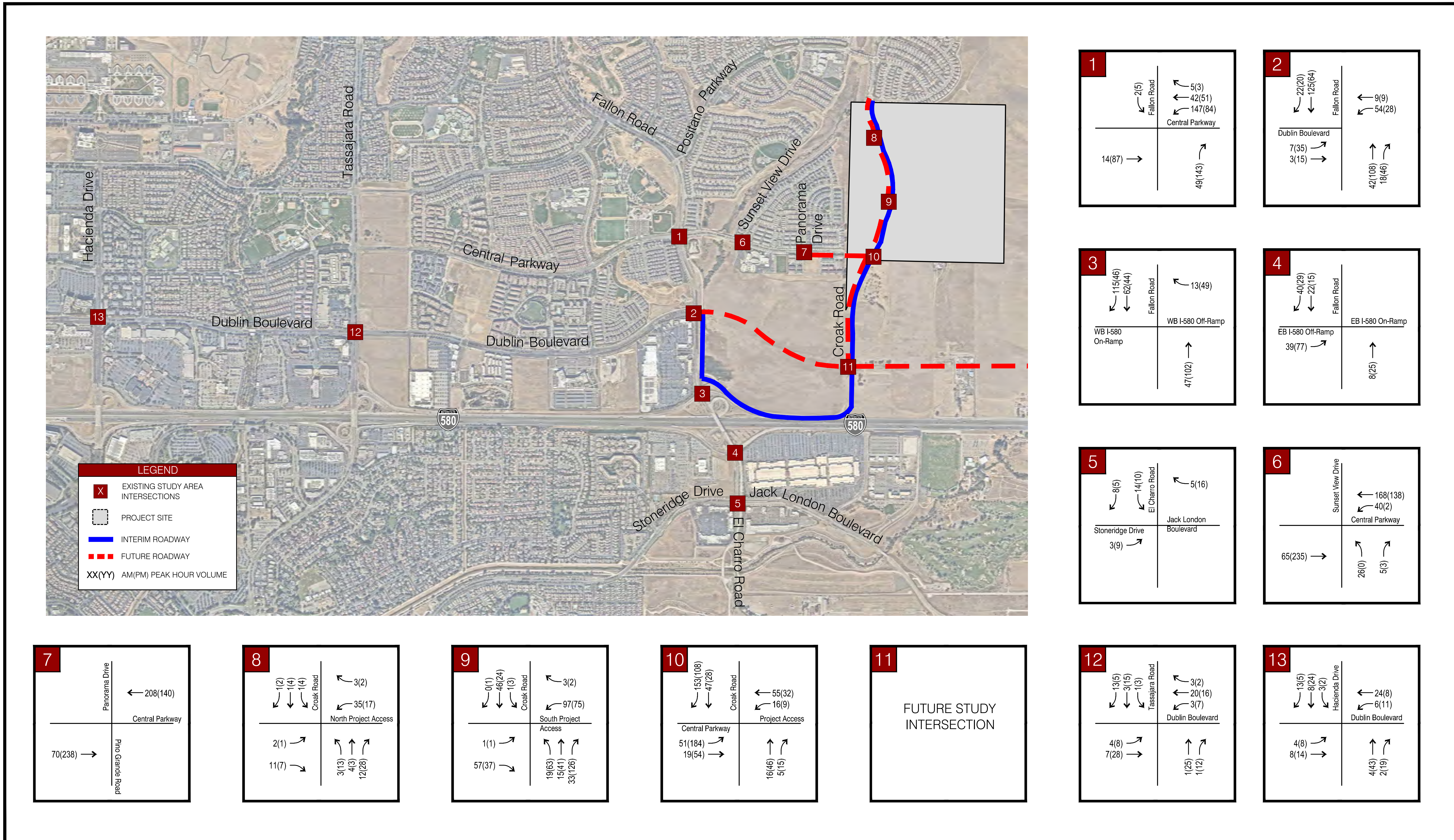

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FIGURE 8

EXISTING CONDITION PROJECT ADDED PEAK HOUR TURNING MOVEMENT VOLUMES

DUBLIN EAST RANCH TIA

Table 10 - Existing Plus Project Intersection Level of Service Summary

#	Intersection	LOS Criteria	Jurisdiction[1]	Control	Existing				Existing + Project					
					AM Peak		PM Peak		AM Peak			PM Peak		
					LOS	Delay[1] (sec)	LOS	Delay[1] (sec)	LOS	Delay[1] (sec)	Var	LOS	Delay[1] (sec)	Var
1	Fallon Road / Central Parkway	D	Dublin	Signal	D	35.4	C	22.3	D	39.1	3.7	C	23.8	1.5
2	Fallon Road / Dublin Boulevard	D	Dublin	Signal	B	16.1	B	14.8	C	21.0	4.9	B	19.2	4.4
3	Fallon Road / I-580 WB ramps[2]	N/A	Caltrans/Pleasanton	Signal	A	6.6	B	11.4	A	7.0	0.4	B	15.6	4.2
4	Fallon Road / I-580 EB ramps[2]	N/A	Caltrans/Pleasanton	Signal	A	6.2	A	6.9	A	6.4	0.2	A	7.4	0.5
5	El Charro Road / Stoneridge Drive	D	Pleasanton	Signal	C	22.5	C	26.2	C	22.7	0.2	C	27.0	0.8
6	Central Parkway / Sunset View Drive	D	Dublin	Signal	C	29.9	B	19.3	D	49.6	19.7	C	20.0	0.7
7	Central Parkway / Panorama Drive	D	Dublin	AWSC	A	9.4	A	7.3	B	10.6	1.2	A	9.3	2.0
8	Croak Road / North Project Access	D	Dublin	Roundabout	Future Project Intersection				A	2.8	2.8	A	2.8	2.8
9	Croak Road / South Project Access	D	Dublin	Roundabout	Future Project Intersection				A	3.3	3.3	A	3.8	3.8
10	Central Parkway / Croak Road	D	Dublin	AWSC	Future Project Intersection				A	7.7	7.7	A	8.6	8.6
11	Dublin Boulevard / Croak Road	D	Dublin	Signal	Future Intersection				Future Intersection					
12	Dublin Boulevard / Tassajara Road	D	Dublin	Signal	D	40.9	D	47.0	D	41.5	0.6	D	48.1	1.1
13	Dublin Boulevard / Hacienda Drive	D	Dublin	Signal	D	43.8	D	37.4	D	44.1	0.3	D	38.0	0.6

Note: Intersections that are operating below acceptable levels are shown in **BOLD** and significant impacts are highlighted.

1 The average control delay is reported for signalized and AWSC intersections. In addition to the average control delay, the delay for the worst movement is reported for SSSC intersections.

2 Gateway intersections do not have a LOS threshold, as denoted with “N/A”, per the City of Pleasanton General Plan.

4. CUMULATIVE TRAFFIC CONDITIONS

This chapter will discuss the traffic conditions under Cumulative Conditions with full buildout of the Fallon Village SEIR.

CUMULATIVE TRANSPORTATION IMPROVEMENTS

Consistent with the *Dublin IKEA Draft Transportation Assessment* and the *Kaiser Dublin Campus Transportation Assessment,* the following roadway improvements were assumed in the Cumulative (2040) Conditions. These roadway improvements account for the Dublin Boulevard Extension from Fallon Road in the City of Dublin to N Canyons Parkway in the City of Livermore and the Fallon Road widening from four lanes to six lanes.

- Intersection #2 – Fallon Road / Dublin Boulevard
    - Reconfigure the NB approach to be three left turn lanes, three through lanes, and two right turn lanes
    - Reconfigure the SB approach to be two left turn lanes, three through lanes, and one right turn lane
    - Reconfigure the EB approach to be two left turn lanes, three through lanes, and two right turn lanes
    - Reconfigure the WB approach to be three left turn lanes, three through lanes, and one right turn lane
- Intersection #3 – Fallon Road / I-580 WB ramps
    - Widen SB and NB approaches to three through lanes and one right turn lane
- Intersection #4 – Fallon Road / I-580 EB ramps
    - Add one NB through lane and one SB through lane
- Intersection #5 – El Charro Road / Stoneridge Drive-Jack London Boulevard
    - Add one SB through lane
    - NB approach becomes one left turn lane, three through lanes, and two right turn lanes
- Intersection #11 – Dublin Boulevard/Croak Road
    - NB approach to be one shared left/through/right lane
    - SB approach to be one shared left/through/right lane
    - EB approach to be one left turn, two throughs, and one right turn lane
    - WB approach to be one left turn, two throughs, and one right turn lane

Figure 10 presents the intersection lane geometry and traffic control in the Cumulative (2040) Conditions.

CUMULATIVE TRAFFIC VOLUME

Cumulative volumes were derived from the City of Dublin travel demand forecast models under baseline (2017) and future (2040) conditions. Under future (2040) Conditions, the travel demand model assumes the completion of the Dublin Boulevard Extension from Fallon Road to North Canyons Parkway. The travel demand forecast models were adjusted to address land uses that were determined to be inconsistent with known developments. In addition, the future (2040) travel demand forecast model was adjusted to reflect full buildout of the Fallon Village SEIR. Since the Fallon Village SEIR assumes 573 residential units within the project site, the Cumulative analysis scenario assumes the same number of residential units as the proposed project and also reflects the Cumulative Plus Project Scenario. Therefore, no additional Cumulative Plus Project Scenario analysis is required. The yearly growth rate determined from the adjusted base (2017) model to the adjusted future (2040) model was then applied to the Existing traffic volumes to develop Cumulative (2040) traffic volumes.

CUMULATIVE INTERSECTIONS LEVEL OF SERVICE

Cumulative volumes were evaluated at the study intersections and are presented in **Figure 11**. Results are presented in **Table 11** and locations operating unacceptably are bolded. All study intersections function within acceptable LOS standards under this analysis scenario, except for the following intersections:

- #1 – Fallon Road / Central Parkway (AM Peak Hour)
- #2 – Fallon Road / Dublin Boulevard (PM Peak Hour)
- #5 – El Charro Road / Stoneridge Drive (AM and PM Peak Hours)
- #6 – Central Parkway / Sunset View Drive (AM Peak Hour)
- #12 – Dublin Boulevard / Tassajara Road (AM and PM Peak Hours)
- #13 – Dublin Boulevard / Hacienda Drive (PM Peak Hour)

Although these intersections operate at an unacceptable LOS, Cumulative Conditions assumes the full buildout of the Fallon Village SEIR which includes the 573-residential unit project site. Therefore, the project was previously analyzed as the exact same size and does not create a significant impact to these intersections under Cumulative Conditions.

Analysis sheets are provided in the **Appendix**.

Table 11 - Cumulative Intersection Level of Service Summary

#	Intersection	LOS Criteria	Jurisdiction	Control	Cumulative			
					AM Peak		PM Peak	
					LOS	Delay[1] (sec)	LOS	Delay[1] (sec)
1	Fallon Road / Central Parkway	D	Dublin	Signal	**E**	**57.8**	D	37.9
2	Fallon Road / Dublin Boulevard	D	Dublin	Signal	D	44.9	**F**	**114.4**
3	Fallon Road / I-580 WB ramps[2]	N/A	Caltrans/Pleasanton	Signal	A	8.6	B	11.0
4	Fallon Road / I-580 EB ramps[2]	N/A	Caltrans/Pleasanton	Signal	B	19.9	A	8.2
5	El Charro Road / Stoneridge Drive	D	Pleasanton	Signal	**E**	**76.8**	**F**	**245.8**
6	Central Parkway / Sunset View Drive	D	Dublin	Signal	**F**	**129.1**	C	23.6
7	Central Parkway / Panorama Drive	D	Dublin	AWSC	B	13.6	B	14.3
8	Croak Road / North Project Access	D	Dublin	Roundabout	A	3.0	A	3.2
9	Croak Road / South Project Access	D	Dublin	Roundabout	A	3.5	A	4.2
10	Central Parkway / Croak Road	D	Dublin	AWSC	B	11.2	A	11.8
11	Dublin Boulevard / Croak Road	D	Dublin	Signal	B	14.8	D	35.0
12	Dublin Boulevard / Tassajara Road	D	Dublin	Signal	**E**	**66.2**	**F**	**157.7**
13	Dublin Boulevard / Hacienda Drive	D	Dublin	Signal	D	44.6	**F**	**93.6**

Note: Intersections that are operating below acceptable levels are shown in **BOLD**.

1 The average control delay is reported for signalized and AWSC intersections. In addition to the average control delay, the delay for the worst movement is reported for SSSC intersections.

2 Gateway intersections do not have a LOS threshold, as denoted with "N/A", per the City of Pleasanton General Plan.

CUMULATIVE SIGNAL WARRANTS

Signal warrants were evaluated at the unsignalized intersection of Intersection #10 under Cumulative Conditions. Results of the analysis show that intersection does not meet the peak hour signal warrant. Analysis sheets are provided in the **Appendix**.

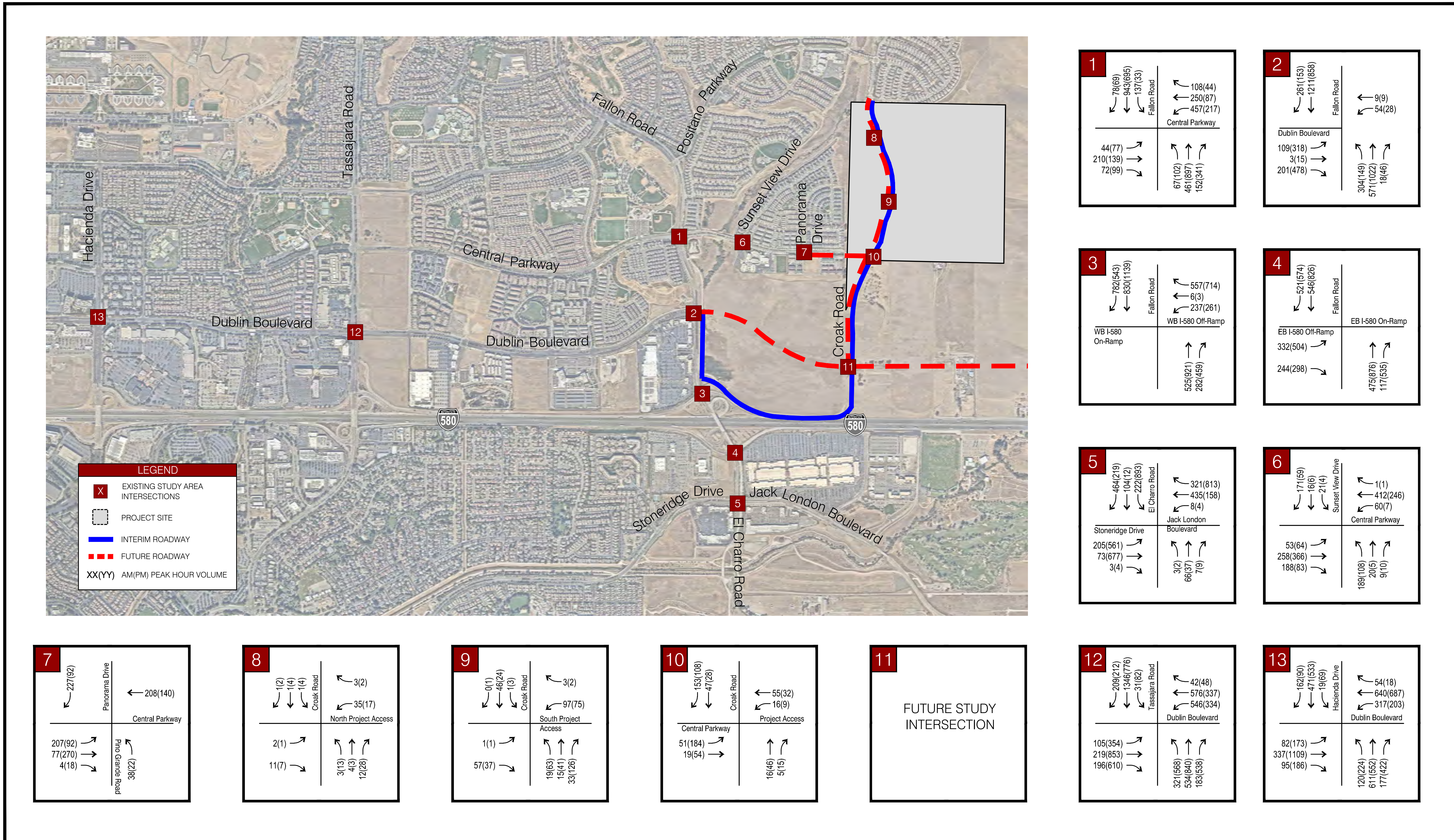

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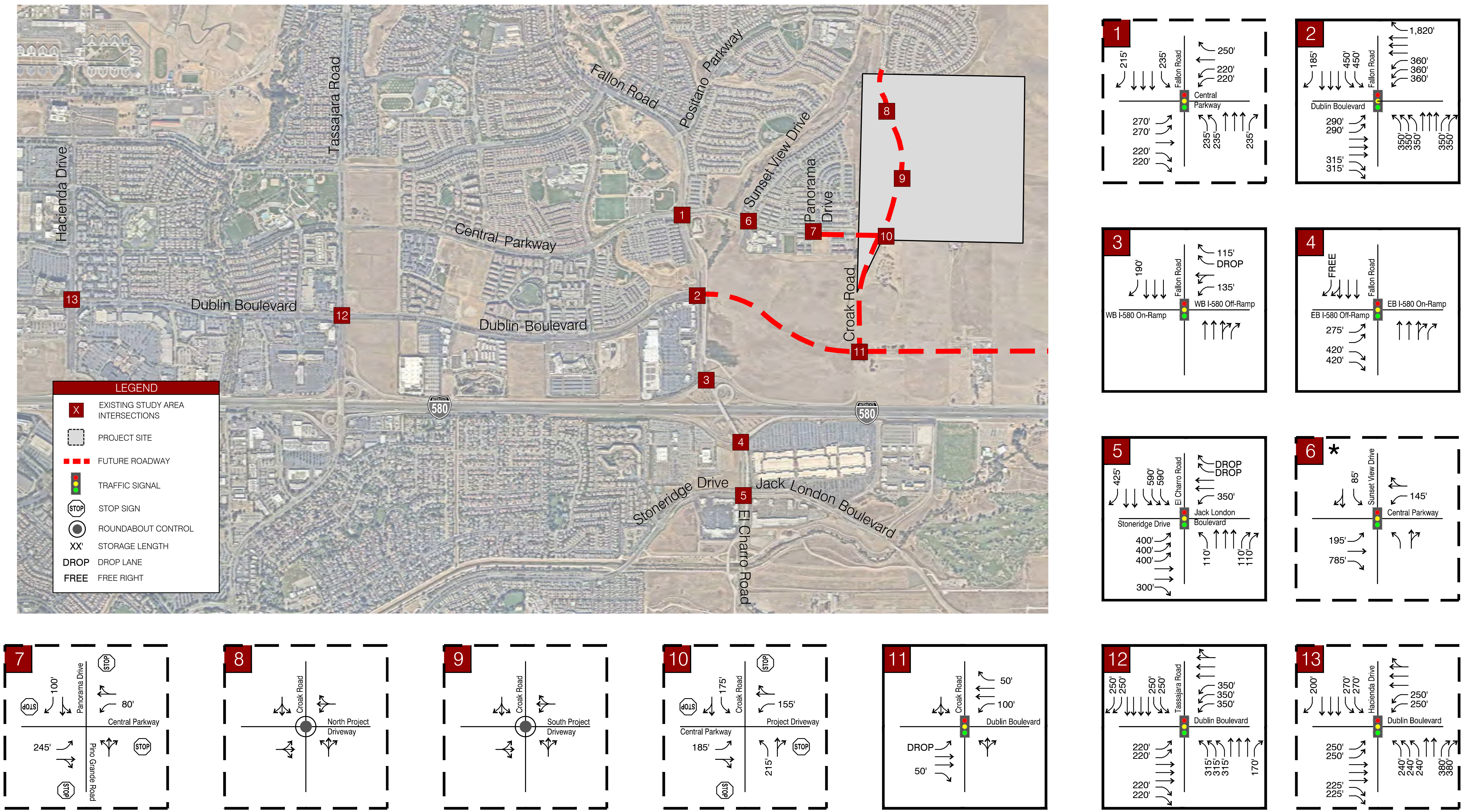
FIGURE 9
EXISTING PLUS PROJECT CONDITION PEAK HOUR TURNING MOVEMENT VOLUMES

DUBLIN EAST RANCH TIA



Note: Dashed intersection boxes reflect unchanged lane geometry from Existing Conditions.

* Westbound (WB) approach for Intersection #6 is analyzed as one WBL, one WBT, and one WBR turn lane for analysis purposes, however the intersection is striped as one WBL and one shared WBT/R turn.

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FIGURE 10

CUMULATIVE CONDITION LANE GEOMETRY AND TRAFFIC CONTROL

DUBLIN EAST RANCH TIA

5. ALAMEDA COUNTY TRANSPORTATION COMMISSION LAND USE ANALYSIS PROGRAM

This chapter presents the results of the Alameda CTC Land Use analysis under Existing (2020) Conditions, Existing Plus Project Conditions, and Cumulative (2040) Conditions during the PM peak hour.

EXISTING (2020) AND CUMULATIVE (2040) CONDITIONS

The Alameda CTC Land Use analysis was performed to comply with its congestion management plan (CMP) Land Use Analysis Program. In the CMP, development projects generating more than 100 PM net new peak hour trips are analyzed to determine its impact on Metropolitan Transportation System (MTS) roadways. Since the ACTC Land Use Analysis Program's 100-trip criteria is in the PM peak hour and the project generates greater project trips in the PM peak hour than the AM peak hour, the analysis was evaluated in the PM peak hour only.

The Almeda CTC travel demand model for Year 2020 and Year 2040 were used to determine Existing (2020) and Cumulative (2040) traffic volumes in the PM peak hour along the MTS roadways of Dublin Boulevard and I-580. Traffic volumes and the number of lanes in each direction were used to determine the segment v/c ratio. It is assumed that the capacity of the freeway segment is 2,000 vehicles per hour per lane (vphpl) and the capacity of the roadway segment is 800 vphpl.

Analysis sheets are provided in the **Appendix**.

Based on the analysis, the following MTS roadway segments operate at an unacceptable LOS F in Existing (2020) and Cumulative (2040) Conditions during the PM peak hour:

Existing Conditions

- Eastbound I-580 between:
    - Tassajara Road and Fallon Road
    - Fallon Road and Airway Boulevard
- Eastbound Dublin Boulevard:
    - Hacienda Drive and Hibernia Drive
    - Hibernia Drive and Myrtle Drive
    - Myrtle Drive and John Monego Court
    - John Monego Court and Glynnis Rose Drive
    - Glynnis Rose Drive to Tassajara Road

Cumulative Conditions

- Eastbound I-580 between:
    - Hacienda Drive to Tassajara Road
    - Tassajara Road and Fallon Road
    - Fallon Road and Airway Boulevard
- Eastbound Dublin Boulevard:
    - Iron Horse Parkway to Arnold Road
    - Arnold Road to Hacienda Drive
    - Hacienda Drive and Hibernia Drive
    - Hibernia Drive and Myrtle Drive
    - Myrtle Drive and John Monego Court

- John Monego Court and Glynnis Rose Drive
- Glynnis Rose Drive to Tassajara Road

- Westbound Dublin Boulevard:
  - Demarcus Boulevard to Scarlett Drive
  - Scarlett Drive to Dougherty Road

Although these MTS roadways operate at an unacceptable LOS, Cumulative Conditions assumes the full buildout of the Fallon Village SEIR, which includes the 573-residential unit project site. Therefore, the project was previously analyzed and is the exact same size and does not create a significant impact to these MTS roadways under Cumulative Conditions.

It should be noted that in the PM peak period, EB I-580 is congested upstream of Tassajara Road from Tassajara Road to beyond the beginning of the study limits of the I-680 interchange. Therefore, the volume throughput along EB I-580 at each study segment in both Existing and Cumulative Conditions may not be representative of the demand upstream of the study corridor and actual demand volumes may result in congestion of the study segments.

EXISTING (2020) PLUS PROJECT CONDITIONS

Project trips during the PM peak hour were added to the roadway segments under Existing (2020) Conditions to determine the v/c ratio under Existing Plus Project Conditions. Based on the analysis, the following roadway segments continue to operate at an unacceptable LOS F in Existing Plus Project Conditions:

Existing Conditions

- Eastbound I-580 between:
  - Tassajara Road and Fallon Road
  - Fallon Road and Airway Boulevard

- Eastbound Dublin Boulevard:
  - Hacienda Drive and Hibernia Drive
  - Hibernia Drive and Myrtle Drive
  - Myrtle Drive and John Monego Court
  - John Monego Court and Glynnis Rose Drive
  - Glynnis Rose Drive to Tassajara Road

Although the roadway segments continue to operate at an unacceptable LOS F in Existing Plus Project Conditions during the PM peak hour, the roadway segments were not significantly impacted since the increase in v/c ratio is less than the threshold of 0.02. Therefore, the project has **less than a significant impact** on the MTS roadway segments.

Full buildout of the Fallon Village SEIR is assumed under Cumulative Conditions. Since the Fallon Village SEIR assumes 573 residential units within the project site, similar to the number of residential units proposed by the project, the proposed project is reflected in Cumulative Conditions. Therefore, a Cumulative Plus Project Conditions analysis was not analyzed.

6. VEHICLE QUEUING AND SITE ACCESS AND CIRCULATION

This chapter presents the results from the vehicle queuing analysis completed for each of the study intersections and discussion of site access and circulation for the proposed project site.

VEHICLE QUEUING

As congestion increases, it is common for traffic at intersections to form lines of stopped (or queued) vehicles. Queue lengths were determined for each turn lane and measure the distance that vehicles will back up in each direction approaching an intersection. Synchro software calculates the 95th percentile queues based on Synchro software methodology for signalized intersections and based on HCM 2010 methodology for unsignalized intersections. HCM 2010 methodology was used to determine queues for unsignalized intersections since HCM 2000 methodology does not report 95th percentile queues. The 95th percentile queue is used to account for fluctuations in traffic and represents a condition where 95 percent of the time during the peak period, traffic volumes will be less than or equal to the queue determined by the analysis. It is used as a benchmark for determining deficiencies as a standard transportation engineering practice. A typical vehicle length of 25 feet was used in the queuing analysis. An operational deficiency, and not a significant impact, was assumed to occur if the queue increases by one or more vehicles and the vehicle queue exceeds the left-turn turn pocket length. A summary of the queuing results is included in the **Appendix**.

The analysis showed that several existing turn bays storage lengths are exceeded under each analysis scenario. In most cases the inadequate queue lengths are not associated with the project, but are a result of pre-existing deficiencies. For example, the 95th percentile eastbound left turn queue length at Intersection #12 (Dublin Boulevard and Tassajara Road) is 254 feet during the PM peak hour in the Existing Conditions and the 95th percentile eastbound left turn queue length is 260 feet during the PM peak in the Existing Plus Project Conditions. Although the turn pocket length is 220 feet and the queue spills out of the turn pocket, the result is a pre-existing deficiency not associated with the project and is therefore not a new deficiency since the project did not increase the queue by at least one vehicle length (i.e. 25 feet).

For other movements, the 95th percentile queues exceed the turn pocket with the addition of the project such as at Intersection #3 (Fallon Road and I-580 WB ramps) for the westbound right-turn since the Existing Plus Project 95th percentile queue of 168 feet exceeds the available storage length of 115 feet. The project increases the Existing queue of 135 feet by 33 feet (or approximately one (1) vehicle) and causes the queue to spill out of the available storage. However, since these right-turns are permitted movements with the adjacent through movements, it is not expected to significantly affect the adjacent through lanes.

The 95th percentile westbound left-turn at Intersection #1 (Fallon Road and Central Parkway) however, is expected to spill into the adjacent through movements. The 95th percentile queue under Existing Conditions is 203 feet during the AM peak and the 95th percentile queue under Existing Plus Project Conditions is 350 feet during the AM peak. The turn pocket length is 220 feet and the 95th percentile queue under Existing Plus Project Conditions exceeds the turn pocket by 130 feet (or approximately 5 vehicles) and is therefore a queuing deficiency.

SITE ACCESS AND CIRCULATION

Based on the site plan provided by the project applicant, evaluation of the site access and site circulation were reviewed to determine the adequacy of vehicle, bicycle, and pedestrian circulation.

VEHICLE CIRCULATION

As shown in **Figure 6**, vehicles would access the project site using three driveways along Croak Road. The two project driveways to the north of Central Parkway are proposed roundabouts and would provide full access to the project site on both the east and west side of Croak Road. The third project driveway is located at the intersection of Central Parkway and Croak Road with access to the project site through the extension of the east leg. These driveways provide access to the internal side-streets within the project site. It is recommended that adequate sight distance be provided at the project driveways to ensure objects such as landscaping are not obstructing the view of oncoming vehicles.

Turning templates were provided at the two roundabouts to determine whether the design of the roundabouts could accommodate emergency vehicles and busses. Emergency vehicles can access the site using all three driveways along Croak Road. A design vehicle for fire trucks (Fire-Pierce Arrow XT 105 Ladder) is shown to be able to make a northbound through, a southbound through, and a U-turn at each of the two roundabouts by using the proposed mountable aprons for the center islands when making U-turns. Turning templates for a 40-foot bus design vehicle were also provided and shows the vehicle can make a northbound and southbound through at both roundabouts. Although turning maneuvers are not provided to show that the fire truck and bus can make turns entering and exiting the side-streets from both the north and south leg of Croak Road, each roundabout has a mountable apron for the center island and adjacent paving to allow oversized vehicles to make these turns.

BICYCLE CIRCULATION

The project bicycle circulation plan, provided by Gates + Associates Landscape Architects, is shown in **Figure 12.** As shown in the figure, a Class I multi-use trail is proposed along the west side of Croak Road between Central Parkway and connecting to the existing Positano Trail. In addition, Class II bicycle lanes are proposed along both sides of Croak Road and Central Parkway. Along Croak Road, bicycle lanes would begin on the north end of the project site, connecting to the existing Class II bicycle lanes at Terracina Drive. The bicycle lanes would continue past Central Parkway to the south during full buildout of the project. During the interim phase, when Croak Road to the south of Central Parkway would be improved prior to the Dublin Boulevard extension, a Class III bicycle route is proposed in the interim to the south of Central Parkway on the east side of Croak Road. This would eventually become a Class II bicycle lane in full buildout. In addition, in the interim phase, on the west side of Croak Road and to the south of Central Parkway, a Class II bicycle lane is proposed for only 800 feet south of Central Parkway, in which it then transitions to a Class III bicycle route heading southward. Warning signs would be placed along Croak Road during this interim phase to warn vehicles that the roadway is to be shared with bicycles. Class II bicycle lanes are proposed on both sides of Central Parkway beginning approximately 700 feet to the east of Panorama Drive, connecting to the existing Class II bicycle lanes, to the west of Croak Road. To the east of Croak Road, bicycle lanes would be proposed on the north side of Central Parkway along the project frontage. It is assumed that the developments to the south of Central Parkway would construct bicycle lanes along their project frontages.

At the proposed roundabouts, bike ramps are proposed on the north and south approaches along both sides of Croak Road. These bike ramps would allow bicycles to enter the multi-use path from the Class II bicycle lanes as a means of entering the roundabout by using the sidewalks and crosswalks. Once bicycles have passed the roundabout, bicycles could use the bike ramps proposed on the other side of the roundabout to enter the bicycle lane.

Internal to the project site, multi-use trails are proposed on some roadways while the remaining roadways would be shared between bicycles and vehicles.

PEDESTRIAN CIRCULATION

The project pedestrian connectivity plan, provided by Gates + Associates Landscape Architects, is shown in **Figure 13.** As shown in the figure, sidewalks are proposed along both sides of Croak Road from Central Parkway to the north of the project limits. During full build-out of the project, the sidewalks on both sides of Croak Road would continue south, past Central Parkway. During the interim phase of the project, the sidewalk on the west side of Croak Road would continue south past Central Parkway for approximately 800 feet before sidewalks are no longer provided. Therefore, during the interim phase, pedestrians should access Fallon Road using Central Parkway rather than using Croak Road to the south of Central Parkway. Sidewalks are proposed on both sides of Central Parkway beginning approximately 700 feet to the east of Panorama Drive, connecting to the existing sidewalks, to the west of Croak Road. To the east of Croak Road, sidewalks are proposed on the north side of Central Parkway along the project frontage. It is assumed that the developments to the south of Central Parkway would construct sidewalks along their project frontages.

Internal to the project site, a separated sidewalk is proposed along each east-west roadway that connects to the two proposed roundabouts. Each of these would extend across the entire span of the project. In addition, there is a separated sidewalk running north-south that separates Neighborhood 6 and Neighborhood 5. This north-south separated sidewalk extends across the entire span of the project. Sidewalks are proposed along all neighborhood streets for pedestrian circulation. In addition, traffic calming popouts are proposed on the adjacent intersections to the east and west of both roundabouts, for a total of four internal intersections with traffic calming popouts.

Crosswalks are proposed on all four legs of each proposed roundabout (i.e. Intersections 8 and 9. The proposed sidewalks and crosswalks would allow pedestrians to access Cottonwood Creek School to the west of the project site. For those taking transit, pedestrians can use the existing and proposed sidewalks/crosswalks to access the nearby transit stops located at the intersection of Central Parkway and Panorama Drive which serves Tri-Valley Wheels Route 502 and at the intersection of Positano Parkway and Valentano Drive which serves Tri-Valley Wheels Routes 2 and 501.

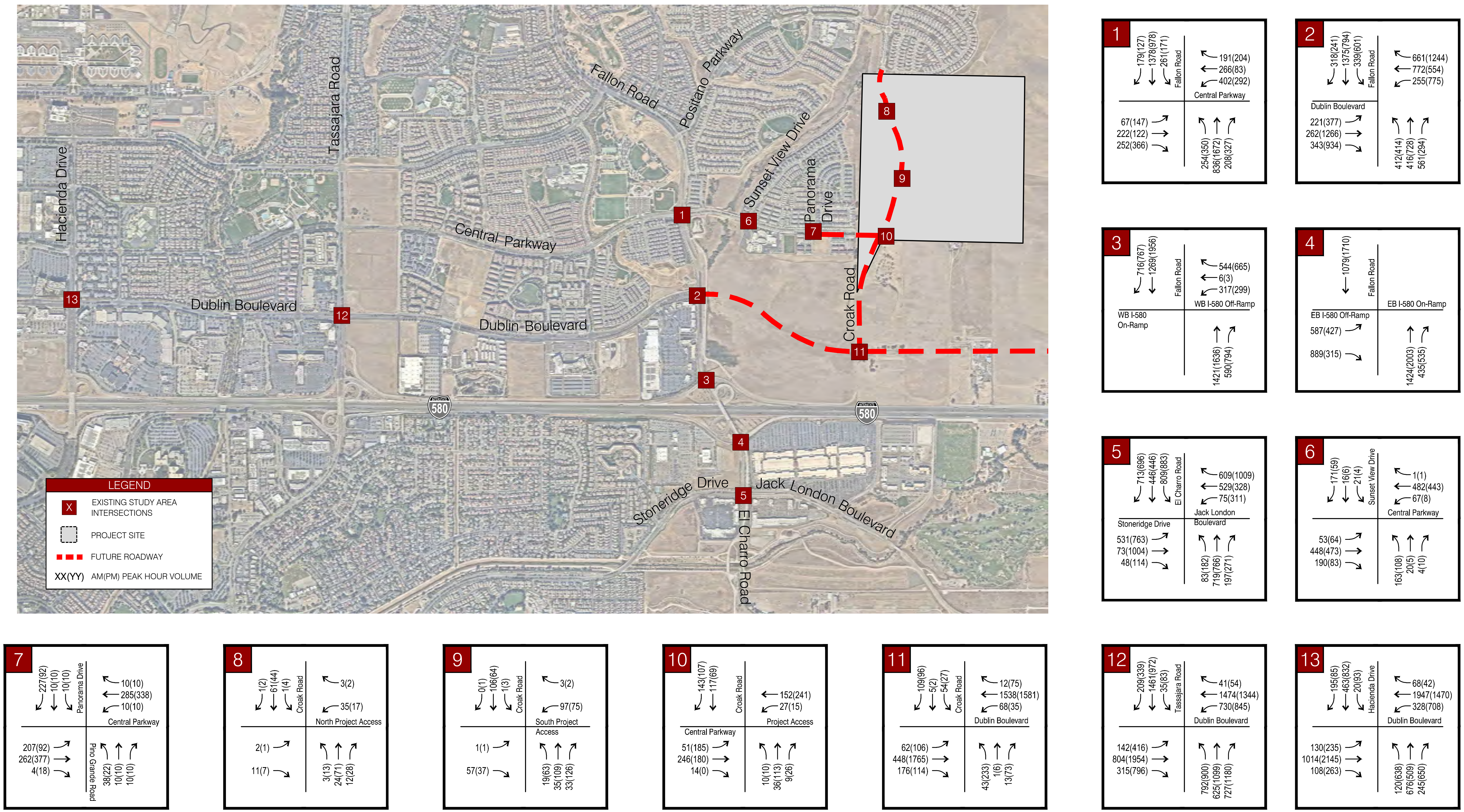

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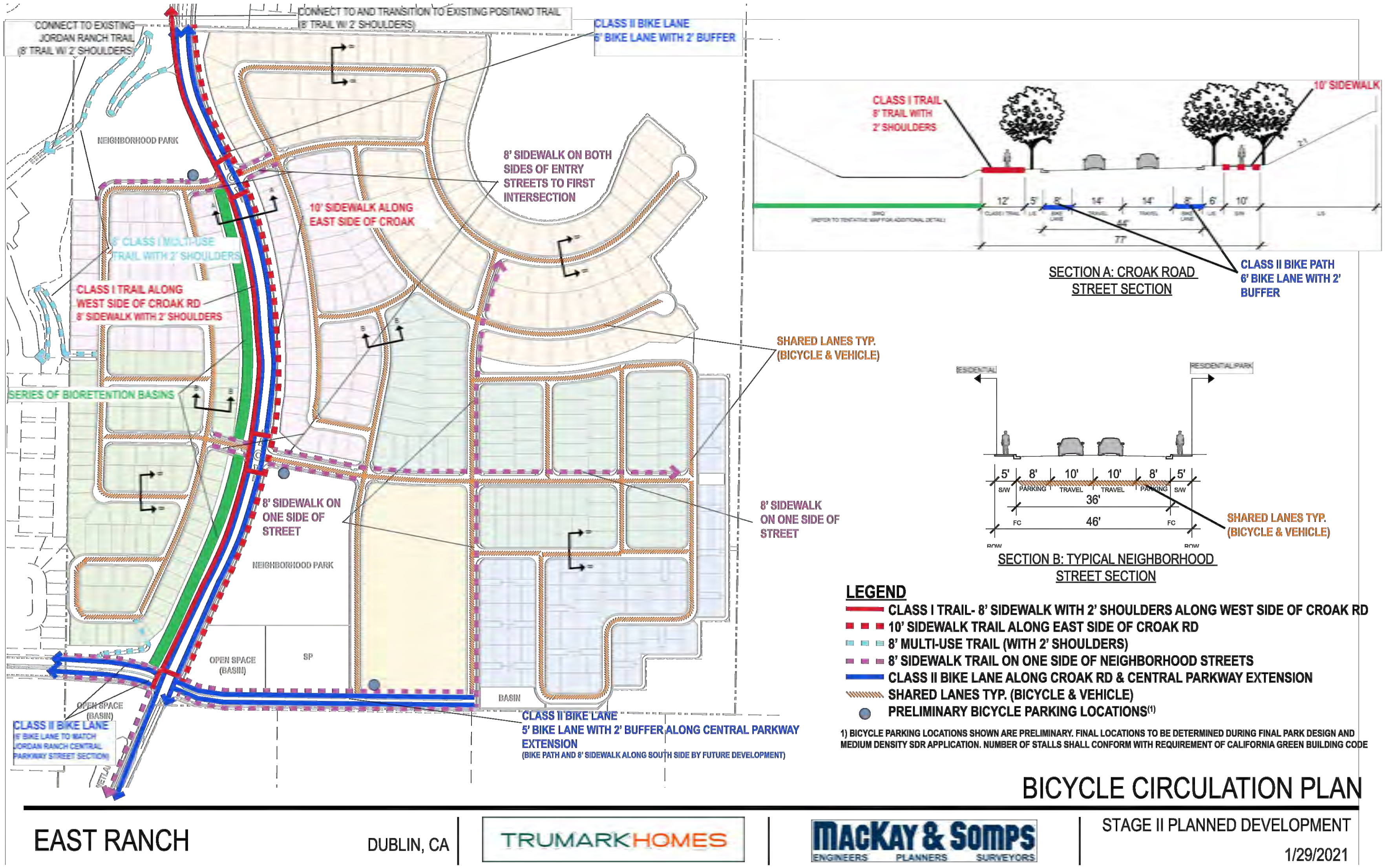
FIGURE 11

CUMULATIVE CONDITION PEAK HOUR TURNING MOVEMENT VOLUMES

DUBLIN EAST RANCH TIA



Source: MacKay & Somps Civil Engineers, Inc.

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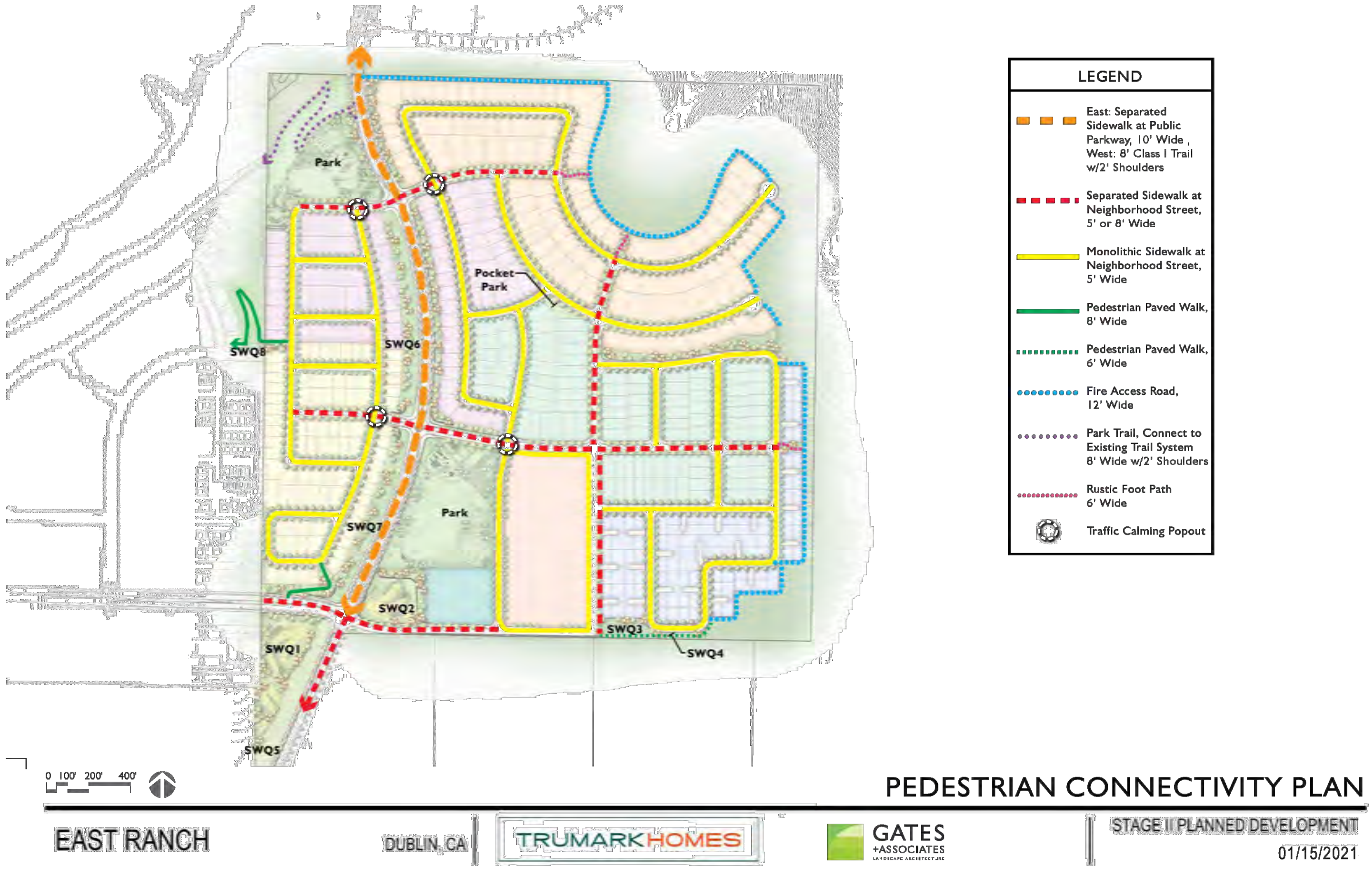
FIGURE 12

PROJECT BICYCLE CIRCULATION PLAN



Source: Gates+Associates Landscape Architecture

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FIGURE 13

PROJECT PEDESTRIAN CONNECTIVITY PLAN

7. SUMMARY OF IMPACTS AND RECOMMENDED MITIGATIONS

Based on the results of the traffic analysis, there are no significant intersection level of service impacts as a result of the project.

8. SUMMARY OF QUEUING DEFICIENCIES AND RECOMMENDED IMPROVEMENTS

Based on the results of the queuing analysis, the following deficiency was determined.

- # 1 Fallon Road / Central Parkway – Existing Plus Project AM Peak Hour

RECOMMENDED IMPROVEMENTS

DEFICIENCY QUEUING – 1: FALLON ROAD / CENTRAL PARKWAY (INTERSECTION #1)

The intersection of Fallon Road / Central Parkway will have a queuing deficiency in the following scenario due to the proposed project:

- Existing Plus Project – AM Peak Hour

Existing Plus Project

In the Existing Plus Project scenario, the queue for the westbound left turn movement is 350 feet in the AM peak hour, which exceeds the 220-foot turn pocket. Without the project, the westbound left turn queue is 203 feet, which is contained within the storage length. The proposed project adds 130 feet, or approximately five (5) vehicles to the total queue. Since the queue exceeds the left-turn pocket and the proposed project increased the queue length by at least one vehicle length, this is a queuing deficiency.

Extending the outer westbound left-turn storage by 260 feet would provide a total storage length of 480 feet. The inner westbound left-turn storage would remain 220 feet and the average length would result in 350 feet. Therefore, the 95th percentile queue of 350 feet in the Existing Plus Project scenario would be contained within the storage length. This improvement would require removal of a portion of the median.

APPENDIX

A – TURNING MOVEMENT COUNTS AND EXISTING VOLUME CALCULATIONS

B – EXISTING TRAFFIC CONDITIONS

C – EXISTING PLUS PROJECT TRAFFIC CONDITIONS

D – CUMULATIVE TRAFFIC CONDITIONS

E – SIGNAL WARRANY ANALYSIS

F – ALAMEDA CTC LAND USE ANALYSIS

G – QUEUING SUMMARY

A – Turning Movement Counts and Existing Volume Calculations

Existing PM

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Date	Source
1	Central Parkway / Fallon Road	101	892	197	28	691	69	77	52	98	132	36	41	2414	2019	TJKM
2	Dublin Boulevard / Fallon	149	913	1	0	794	133	283	0	478	0	0	1	2752	2019	TJKM
3	Fallon Road / I-580 WB ramps	0	576	212	0	832	271	0	0	0	134	6	452	2483	2015	KAISER
		0	589	306	9	835	371	0	0	0	209	2	462	2783	2017	TJKM
		0	727	407	0	973	443	0	0	0	232	3	593	3378	2017	At Dublin
		2017 to 2019 Growth													5.9%	Dublin East Ranch
		0	815	456	0	1091	497	0	0	0	260	3	665	3787	2019	
4	Fallon Road / I-580 EB ramps	0	759	477	0	713	486	381	0	262	0	0	0	3078	2017	At Dublin
		2017 to 2019 Growth													5.9%	Dublin East Ranch
		0	851	535	0	799	545	427	0	294	0	0	0	3451	2019	
5	El Charro Road / Stoneridge Drive /E. Jack London	2	33	8	788	11	191	489	604	4	4	141	705	2980	2017	At Dublin
		2017 to 2019 Growth													5.9%	Dublin East Ranch
		2	37	9	883	12	214	548	677	4	4	158	790	3338	2019	
6	Central Parkway / Sunset	108	5	7	4	6	59	47	97	61	5	108	1	508	2019	TJKM
7	Central Parkway / Panorama Drive	22	0	0	0	0	92	70	24	14	0	0	0	222	2020	Dublin East Ranch
12	Dublin Boulevard / Tassajara Road	392	817	416	75	701	158	304	686	489	233	218	25	4514	2015	KAISER
		440	579	452	73	509	116	188	737	477	269	263	22	4125	2016	IKEA
		534	767	495	74	716	195	326	776	574	308	302	43	5110	2017	At Dublin
		2015 to 2017 Growth													-8.6%	Dublin East Ranch
		568	815	526	79	761	207	346	825	610	327	321	46	5431	2019	
13	Dublin Boulevard / Hacienda Drive	186	518	418	83	565	88	94	925	166	181	507	20	3751	2015	KAISER
		211	479	374	62	479	80	155	1015	175	181	639	17	3867	2016	IKEA
		211	479	379	63	479	80	155	1030	175	181	639	17	3888	2017	At Dublin
		2015 to 2017 Growth													3.1%	Dublin East Ranch
		224	509	403	67	509	85	165	1095	186	192	679	18	4132	2019	

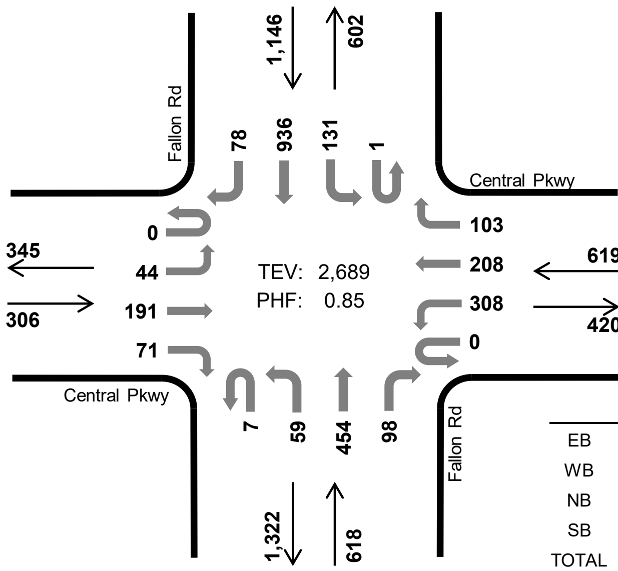
Existing AM

#	Intersection	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR	Total	Date
1	Central Parkway / Fallon Road	66	454	98	132	936	78	44	191	71	308	208	103	2689	2019
2	Dublin Boulevard / Fallon Road	326	529	0	0	960	162	68	0	140	0	0	0	2185	2017
		304	526	0	0	1086	239	102	0	201	0	0	0	2458	2019
3	Fallon Road / I-580 WB ramps	0	478	251	0	683	593	0	0	0	211	5	484	2705	2017
		2017 to 2019 Growth													6.1%
		0	478	282	0	768	667	0	0	0	237	6	544	2982	2019
4	Fallon Road / I-580 EB ramps	0	461	104	0	465	428	258	0	217	0	0	0	1933	2017
		2017 to 2019 Growth													6.1%
		0	461	117	0	523	481	290	0	244	0	0	0	2116	2019
5	El Charro Road / Stoneridge Drive /E. Jack London	3	66	6	184	92	404	179	65	3	7	387	314	1710	2017
		2017 to 2019 Growth													6.1%
		3	66	7	207	103	454	201	73	3	8	435	314	1874	2019
6	Central Parkway / Sunset	163	20	4	21	16	171	53	193	188	20	244	1	1094	2019
7	Central Parkway / Panorama Drive	38	0	0	0	0	227	207	7	4	0	0	0	483	2019
12	Dublin Boulevard / Tassajara Road	241	523	122	12	1145	217	99	106	149	437	613	37	3701	2015
		256	467	146	27	1172	216	77	111	148	582	560	24	3786	2017
		314	521	178	29	1313	192	99	207	192	531	544	38	4158	2017
		2015 to 2017 Growth													1.1%
		321	533	182	30	1343	196	101	212	196	543	556	39	4252	2019
13	Dublin Boulevard / Hacienda Drive	147	552	115	14	387	132	60	302	77	264	728	74	2852	2015
		118	599	145	13	457	147	77	273	94	307	608	53	2891	2017
		118	599	173	16	457	147	77	325	94	307	608	53	2974	2017
		2015 to 2017 Growth													0.7%
		120	607	175	16	463	149	78	329	95	311	616	54	3013	2019

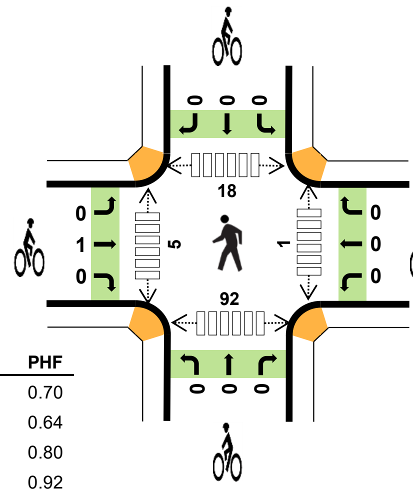
Fallon Rd
Central Pkwy

Date: 11-19-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM

Peak Hour



	HV %:	PHF
EB	1.0%	0.70
WB	0.5%	0.64
NB	2.9%	0.80
SB	1.4%	0.92
TOTAL	1.5%	0.85



Two-Hour Count Summaries

Interval Start		Central Pkwy Eastbound UT	LT	TH	RT	Central Pkwy Westbound UT	LT	TH	RT	Fallon Rd Northbound UT	LT	TH	RT	Fallon Rd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM		0	2	3	12	0	31	1	1	0	10	93	18	0	2	133	8	314	0
7:15 AM		0	7	8	9	0	50	5	2	0	13	96	23	0	3	189	11	416	0
7:30 AM		0	5	26	25	0	60	26	10	0	13	114	20	0	12	249	10	570	0
7:45 AM		0	6	12	18	0	53	8	3	0	11	127	27	0	7	192	9	473	1,773
8:00 AM		**0**	**10**	**92**	**8**	**0**	**55**	**47**	**15**	**1**	**15**	**132**	**46**	**1**	**46**	**211**	**16**	**695**	2,154
8:15 AM		**0**	**14**	**71**	**24**	**0**	**94**	**94**	**53**	**1**	**15**	**98**	**29**	**0**	**44**	**230**	**25**	**792**	2,530
8:30 AM		**0**	**12**	**21**	**16**	**0**	**89**	**51**	**28**	**3**	**15**	**107**	**11**	**0**	**33**	**255**	**22**	**663**	2,623
8:45 AM		**0**	**8**	**7**	**23**	**0**	**70**	**16**	**7**	**2**	**14**	**117**	**12**	**0**	**8**	**240**	**15**	**539**	**2,689**
Count Total		0	64	240	135	0	502	248	119	7	106	884	186	1	155	1,699	116	4,462	0
Peak Hour	**All**	**0**	**44**	**191**	**71**	**0**	**308**	**208**	**103**	**7**	**59**	**454**	**98**	**1**	**131**	**936**	**78**	**2,689**	**0**
	HV	**0**	**2**	**0**	**1**	**0**	**3**	**0**	**0**	**0**	**1**	**16**	**1**	**0**	**0**	**14**	**2**	**40**	**0**
	HV%	**-**	**5%**	**0%**	**1%**	**-**	**1%**	**0%**	**0%**	**0%**	**2%**	**4%**	**1%**	**0%**	**0%**	**1%**	**3%**	**1%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	1	2	10	4	*17*	0	0	0	0	*0*	0	1	1	0	*2*
7:15 AM	0	0	1	2	*3*	0	0	0	0	*0*	0	2	1	5	*8*
7:30 AM	0	0	2	5	*7*	0	0	0	0	*0*	0	0	1	4	*5*
7:45 AM	0	0	6	2	*8*	0	0	0	1	*1*	1	0	1	3	*5*
8:00 AM	**0**	**0**	**4**	**4**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**3**	**6**	**34**	*43*
8:15 AM	**1**	**3**	**4**	**4**	***12***	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**2**	**38**	*40*
8:30 AM	**1**	**0**	**8**	**3**	***12***	**0**	**0**	**0**	**0**	***0***	**1**	**1**	**7**	**19**	*28*
8:45 AM	**1**	**0**	**2**	**5**	***8***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**3**	**1**	*5*
Count Total	4	5	37	29	*75*	1	0	0	1	*2*	2	8	22	104	*136*
Peak Hour	**3**	**3**	**18**	**16**	***40***	**1**	**0**	**0**	**0**	***1***	**1**	**5**	**18**	**92**	***116***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Central Pkwy Eastbound				Central Pkwy Westbound				Fallon Rd Northbound				Fallon Rd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	1	0	2	0	0	0	0	8	2	0	0	3	1	17	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	1	0	0	5	0	7	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	2	0	8	35
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**3**	**1**	**8**	26
8:15 AM	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**3**	**1**	**12**	35
8:30 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**3**	**0**	**12**	40
8:45 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**5**	**0**	**8**	**40**
Count Total	0	2	0	2	0	5	0	0	0	1	32	4	0	0	26	3	75	0
Peak Hour	**0**	**2**	**0**	**1**	**0**	**3**	**0**	**0**	**0**	**1**	**16**	**1**	**0**	**0**	**14**	**2**	**40**	**0**

Two-Hour Count Summaries - Bikes

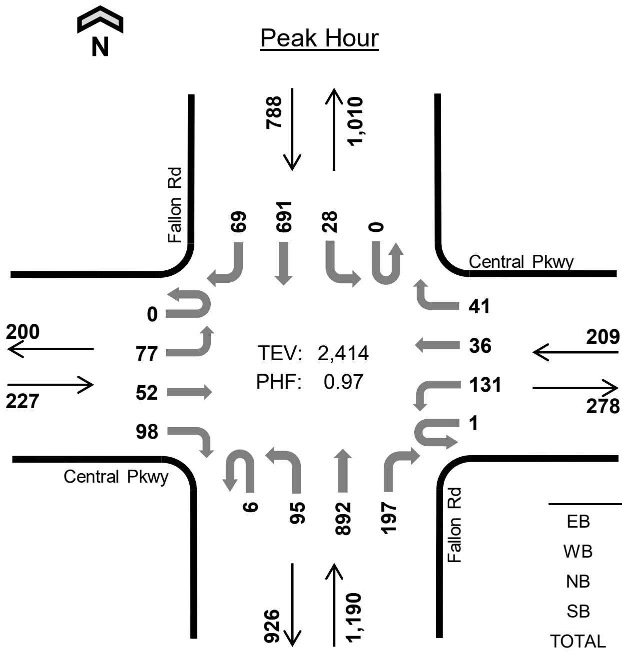
Interval Start	Central Pkwy Eastbound			Central Pkwy Westbound			Fallon Rd Northbound			Fallon Rd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	2
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
Count Total	0	1	0	0	0	0	0	0	0	0	1	0	2	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

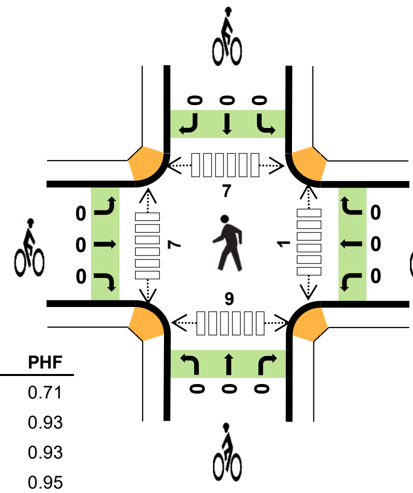
Fallon Rd
Central Pkwy

Date: 11-19-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Peak Hour



	HV %:	PHF
EB	0.0%	0.71
WB	0.0%	0.93
NB	0.0%	0.93
SB	0.6%	0.95
TOTAL	0.2%	0.97



Two-Hour Count Summaries

Interval Start	Central Pkwy Eastbound UT	LT	TH	RT	Central Pkwy Westbound UT	LT	TH	RT	Fallon Rd Northbound UT	LT	TH	RT	Fallon Rd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	8	3	20	0	39	4	4	1	10	171	27	0	4	147	12	450	0
4:15 PM	0	12	12	18	0	28	7	4	1	25	146	24	0	4	139	15	435	0
4:30 PM	0	10	6	12	0	25	10	6	2	18	155	25	0	7	168	15	459	0
4:45 PM	0	16	14	22	0	34	14	16	1	16	173	48	0	12	158	9	533	1,877
5:00 PM	**0**	**13**	**11**	**19**	**0**	**41**	**8**	**4**	**1**	**19**	**229**	**51**	**0**	**7**	**179**	**14**	**596**	2,023
5:15 PM	**0**	**18**	**6**	**25**	**0**	**27**	**8**	**11**	**2**	**25**	**207**	**40**	**0**	**6**	**184**	**18**	**577**	2,165
5:30 PM	**0**	**28**	**22**	**30**	**0**	**34**	**10**	**12**	**1**	**18**	**218**	**60**	**0**	**9**	**169**	**8**	**619**	2,325
5:45 PM	**0**	**18**	**13**	**24**	**1**	**29**	**10**	**14**	**2**	**33**	**238**	**46**	**0**	**6**	**159**	**29**	**622**	**2,414**
Count Total	0	123	87	170	1	257	71	71	11	164	1,537	321	0	55	1,303	120	4,291	0
Peak Hour All	**0**	**77**	**52**	**98**	**1**	**131**	**36**	**41**	**6**	**95**	**892**	**197**	**0**	**28**	**691**	**69**	**2,414**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**1**	**5**	**0**
Peak Hour HV%	**-**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**0%**	**-**	**0%**	**1%**	**1%**	**0%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:00 PM	1	0	2	3	*6*	0	0	0	0	*0*	0	1	1	1	*3*
4:15 PM	2	2	0	6	*10*	0	0	0	0	*0*	0	1	3	8	*12*
4:30 PM	0	1	0	1	*2*	1	0	0	0	*1*	0	0	1	2	*3*
4:45 PM	0	0	1	2	*3*	0	0	1	0	*1*	0	0	3	5	*8*
5:00 PM	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**6**	**0**	**2**	*8*
5:15 PM	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**4**	**2**	*7*
5:30 PM	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**1**	**3**	*5*
5:45 PM	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**2**	**2**	*4*
Count Total	3	3	3	17	*26*	1	0	1	0	*2*	1	9	15	25	*50*
Peak Hour	**0**	**0**	**0**	**5**	***5***	**0**	**0**	**0**	**0**	***0***	**1**	**7**	**7**	**9**	***24***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Central Pkwy Eastbound UT	LT	TH	RT	Central Pkwy Westbound UT	LT	TH	RT	Fallon Rd Northbound UT	LT	TH	RT	Fallon Rd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	0	0	1	0	0	0	0	0	0	2	0	0	0	2	1	6	0
4:15 PM	0	0	2	0	0	2	0	0	0	0	0	0	0	0	6	0	10	0
4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	0	2	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3	21
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	16
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	7
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	7
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**5**
Count Total	0	0	2	1	0	2	1	0	0	0	3	0	0	0	15	2	26	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**1**	**5**	**0**

Two-Hour Count Summaries - Bikes

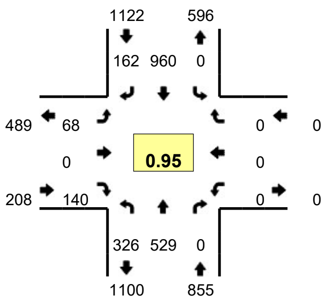
Interval Start	Central Pkwy Eastbound LT	TH	RT	Central Pkwy Westbound LT	TH	RT	Fallon Rd Northbound LT	TH	RT	Fallon Rd Southbound LT	TH	RT	15-min Total	Rolling One Hour
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	2
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Count Total	0	1	0	0	0	0	0	1	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

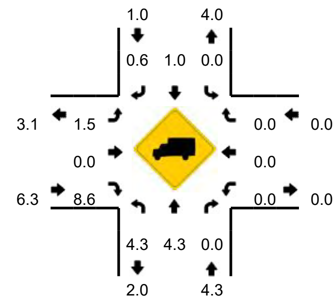
Type of peak hour being reported: Intersection Peak | Method for determining peak hour: Total Entering Volume

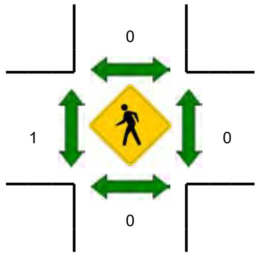
LOCATION: 3 - Fallon Rd -- Dublin Blvd | **QC JOB #:** 13967611

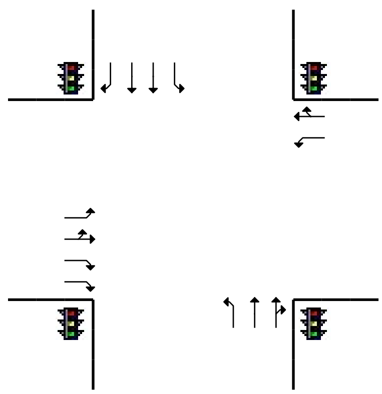
CITY/STATE: Dublin, CA | **DATE:** Thu, Jan 26 2017

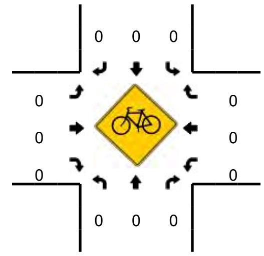


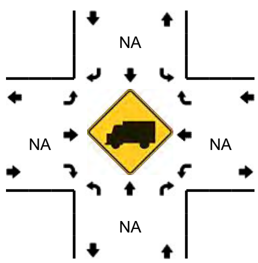
Peak-Hour: 7:35 AM -- 8:35 AM
Peak 15-Min: 8:05 AM -- 8:20 AM

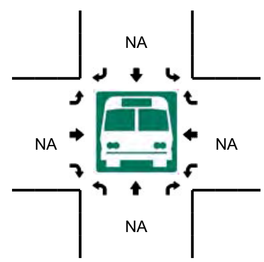












5-Min Count Period Beginning At	3 - Fallon Rd (Northbound) Left	Thru	Right	U	3 - Fallon Rd (Southbound) Left	Thru	Right	U	Dublin Blvd (Eastbound) Left	Thru	Right	U	Dublin Blvd (Westbound) Left	Thru	Right	U	Total	Hourly Totals
7:00 AM	19	31	0	0	0	36	5	0	4	0	13	0	0	0	0	0	108	
7:05 AM	20	35	0	0	0	49	10	0	5	0	5	0	0	0	0	0	124	
7:10 AM	39	44	0	0	0	46	10	0	3	0	6	0	0	0	0	0	148	
7:15 AM	42	49	0	0	0	57	17	0	5	0	9	0	0	0	0	0	179	
7:20 AM	35	60	1	0	0	56	14	0	3	0	13	1	0	1	0	0	184	
7:25 AM	42	46	0	0	0	74	12	0	2	0	11	0	0	0	0	0	187	
7:30 AM	37	44	0	0	0	82	13	0	3	0	9	0	0	0	0	0	188	
7:35 AM	40	38	0	0	0	73	14	0	6	0	6	0	0	0	0	0	177	
7:40 AM	24	39	0	0	0	89	15	0	2	0	4	0	0	0	0	0	173	
7:45 AM	35	61	0	0	0	75	8	0	5	0	15	0	0	0	0	0	199	
7:50 AM	33	39	0	0	0	63	12	0	3	0	14	0	0	0	0	0	164	
7:55 AM	29	47	0	0	0	77	8	0	6	0	17	0	0	0	0	0	184	2015
8:00 AM	21	49	0	0	0	51	5	0	9	0	7	0	0	0	0	0	142	2049
8:05 AM	26	63	0	0	0	65	9	0	12	0	18	0	0	0	0	0	193	2118
8:10 AM	27	59	0	0	0	82	13	0	3	0	15	1	0	0	0	0	200	2170
8:15 AM	17	44	0	0	0	85	20	0	6	0	8	0	0	0	0	0	180	2171
8:20 AM	32	39	0	0	0	71	16	0	7	0	19	0	0	0	0	0	184	2171
8:25 AM	21	27	0	0	0	121	19	0	5	0	6	0	0	0	0	0	199	2183
8:30 AM	21	24	0	0	0	108	23	0	3	0	11	0	0	0	0	0	190	2185
8:35 AM	12	29	1	0	0	84	17	0	13	0	15	0	0	0	0	0	171	2179
8:40 AM	25	21	0	0	0	88	22	0	6	0	13	0	0	0	0	0	175	2181
8:45 AM	14	40	0	0	0	85	25	0	7	0	14	1	0	0	0	0	186	2168
8:50 AM	24	23	0	0	0	55	15	0	4	0	15	0	0	0	0	0	136	2140
8:55 AM	13	30	0	0	0	80	15	0	15	0	18	0	0	0	0	0	171	2127

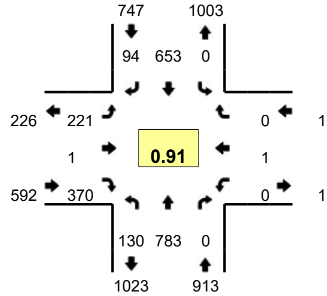
Peak 15-Min Flowrates	Northbound Left	Thru	Right	U	Southbound Left	Thru	Right	U	Eastbound Left	Thru	Right	U	Westbound Left	Thru	Right	U	Total
All Vehicles	280	664	0	0	0	928	168	0	84	0	164	4	0	0	0	0	2292
Heavy Trucks	8	32	0		0	8	0		0	0	16		0	0	0		64
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

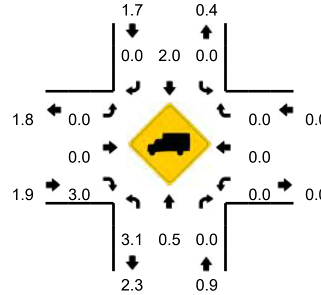
Comments:

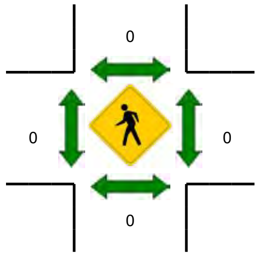
Type of peak hour being reported: Intersection Peak Method for determining peak hour: Total Entering Volume

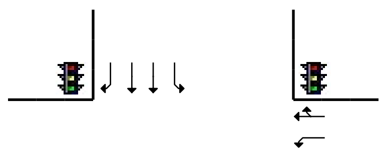
LOCATION: 3 - Fallon Rd -- Dublin Blvd **QC JOB #:** 13967612
CITY/STATE: Dublin, CA **DATE:** Thu, Jan 26 2017

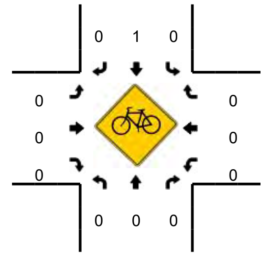
Peak-Hour: 5:00 PM -- 6:00 PM
Peak 15-Min: 5:35 PM -- 5:50 PM

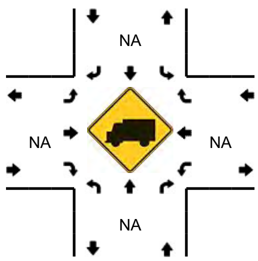


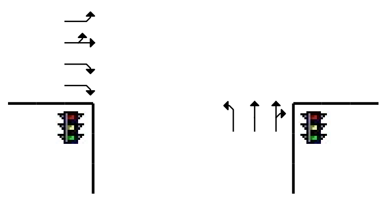


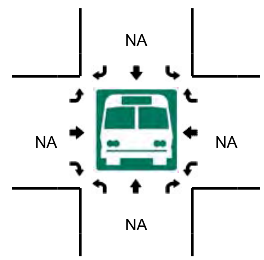












5-Min Count Period Beginning At	3 - Fallon Rd (Northbound) Left	Thru	Right	U	3 - Fallon Rd (Southbound) Left	Thru	Right	U	Dublin Blvd (Eastbound) Left	Thru	Right	U	Dublin Blvd (Westbound) Left	Thru	Right	U	Total	Hourly Totals
4:00 PM	14	31	0	0	0	50	10	0	9	0	27	0	0	0	0	0	141	
4:05 PM	4	29	0	0	0	46	7	0	19	0	42	0	0	0	0	0	147	
4:10 PM	9	48	0	0	0	50	15	0	7	0	41	0	0	0	0	0	170	
4:15 PM	8	30	0	0	0	49	8	0	9	0	42	0	0	0	0	0	146	
4:20 PM	6	58	0	0	0	64	7	0	13	0	31	0	0	0	0	0	179	
4:25 PM	13	39	1	0	0	38	3	0	10	0	33	2	0	0	0	0	139	
4:30 PM	8	39	0	0	0	62	7	0	13	0	31	1	0	0	0	0	161	
4:35 PM	10	37	0	0	0	42	5	0	18	0	30	0	1	0	0	0	143	
4:40 PM	10	38	0	0	0	48	6	0	13	0	47	0	0	0	0	0	162	
4:45 PM	6	48	0	0	0	62	7	0	10	2	39	0	0	0	0	0	174	
4:50 PM	7	62	0	0	0	41	11	0	6	0	33	1	0	0	0	0	161	
4:55 PM	5	48	0	0	0	39	6	0	12	0	45	0	0	0	0	0	155	1878
5:00 PM	14	43	0	0	0	52	4	0	9	0	15	0	0	0	0	0	137	1874
5:05 PM	9	37	0	0	0	52	10	0	23	0	36	0	0	0	0	0	167	1894
5:10 PM	15	61	0	0	0	61	8	0	25	0	25	0	0	0	0	0	195	1919
5:15 PM	12	74	0	0	0	34	7	0	25	0	41	0	0	0	0	0	193	1966
5:20 PM	8	43	0	0	0	61	9	0	11	0	39	0	0	0	0	0	171	1958
5:25 PM	10	76	0	0	0	48	2	0	15	1	40	1	0	0	0	0	193	2012
5:30 PM	6	79	0	0	0	50	8	0	22	0	29	0	0	0	0	0	194	2045
5:35 PM	5	72	0	0	0	64	5	0	20	0	24	0	0	0	0	0	190	2092
5:40 PM	15	70	0	0	0	58	5	0	21	0	30	0	0	1	0	0	200	2130
5:45 PM	14	73	0	0	0	63	12	0	24	0	40	0	0	0	0	0	226	2182
5:50 PM	12	73	0	0	0	59	11	0	10	0	24	0	0	0	0	0	189	2210
5:55 PM	10	82	0	0	0	51	13	0	15	0	27	0	0	0	0	0	198	2253

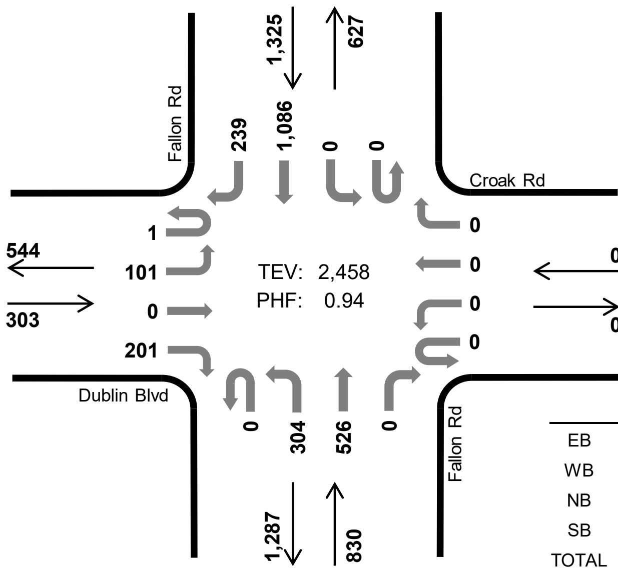
Peak 15-Min Flowrates	Northbound Left	Thru	Right	U	Southbound Left	Thru	Right	U	Eastbound Left	Thru	Right	U	Westbound Left	Thru	Right	U	Total
All Vehicles	136	860	0	0	0	740	88	0	260	0	376	0	0	4	0	0	2464
Heavy Trucks	4	0	0		0	16	0		0	0	4		0	0	0		24
Pedestrians		0				0				0				0			0
Bicycles	0	0	0		0	0	0		0	0	0		0	0	0		0
Railroad																	
Stopped Buses																	

Comments:

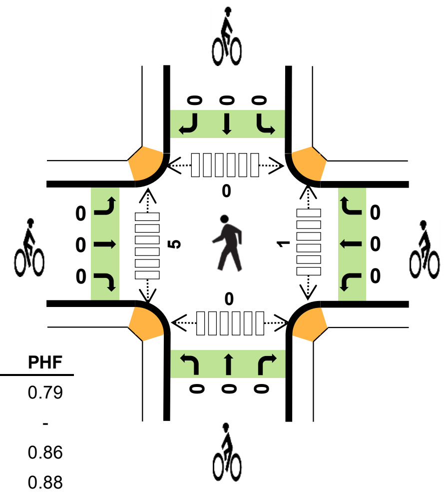
Fallon Rd
Dublin Blvd

Date: 11-19-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM

Peak Hour



	HV %:	PHF
EB	4.3%	0.79
WB	-	-
NB	3.6%	0.86
SB	1.4%	0.88
TOTAL	2.5%	0.94



Two-Hour Count Summaries

Interval Start	Dublin Blvd Eastbound UT	LT	TH	RT	Croak Rd Westbound UT	LT	TH	RT	Fallon Rd Northbound UT	LT	TH	RT	Fallon Rd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	17	0	25	0	0	0	0	0	34	105	0	0	0	152	21	354	0
7:15 AM	0	14	0	28	0	0	0	0	0	49	117	0	0	0	225	35	468	0
7:30 AM	0	24	0	40	0	0	0	0	0	56	114	0	0	0	307	36	577	0
7:45 AM	0	20	0	36	0	0	0	0	0	88	154	0	0	0	239	43	580	1,979
8:00 AM	**0**	**31**	**0**	**47**	**0**	**0**	**0**	**0**	**0**	**72**	**170**	**0**	**0**	**0**	**209**	**42**	**571**	2,196
8:15 AM	**0**	**24**	**0**	**42**	**0**	**0**	**0**	**0**	**0**	**93**	**121**	**0**	**0**	**0**	**290**	**72**	**642**	2,370
8:30 AM	**1**	**25**	**0**	**70**	**0**	**0**	**0**	**0**	**0**	**66**	**114**	**0**	**0**	**0**	**304**	**72**	**652**	2,445
8:45 AM	**0**	**21**	**0**	**42**	**0**	**0**	**0**	**0**	**0**	**73**	**121**	**0**	**0**	**0**	**283**	**53**	**593**	**2,458**
Count Total	1	176	0	330	0	0	0	0	0	531	1,016	0	0	0	2,009	374	4,437	0
Peak Hour All	**1**	**101**	**0**	**201**	**0**	**0**	**0**	**0**	**0**	**304**	**526**	**0**	**0**	**0**	**1,086**	**239**	**2,458**	**0**
Peak Hour HV	**0**	**3**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**15**	**15**	**0**	**0**	**0**	**18**	**0**	**61**	**0**
Peak Hour HV%	**0%**	**3%**	**-**	**5%**	**-**	**-**	**-**	**-**	**-**	**5%**	**3%**	**-**	**-**	**-**	**2%**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	2	0	11	6	*19*	0	0	0	0	*0*	0	1	0	0	*1*
7:15 AM	3	0	6	2	*11*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	2	0	3	4	*9*	1	0	0	0	*1*	0	1	0	0	*1*
7:45 AM	2	0	6	3	*11*	0	0	0	1	*1*	0	0	0	0	*0*
8:00 AM	**5**	**0**	**7**	**3**	***15***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	*1*
8:15 AM	**2**	**0**	**6**	**6**	***14***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	*1*
8:30 AM	**2**	**0**	**12**	**4**	***18***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**0**	**0**	*1*
8:45 AM	**4**	**0**	**5**	**5**	***14***	**0**	**0**	**0**	**0**	***0***	**0**	**3**	**0**	**0**	***3***
Count Total	22	0	56	33	*111*	1	0	0	1	*2*	1	7	0	0	*8*
Peak Hour	**13**	**0**	**30**	**18**	***61***	**0**	**0**	**0**	**0**	***0***	**1**	**5**	**0**	**0**	***6***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Dublin Blvd				Croak Rd				Fallon Rd				Fallon Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	2	0	0	0	0	0	1	10	0	0	0	4	2	19	0
7:15 AM	0	0	0	3	0	0	0	0	0	5	1	0	0	0	2	0	11	0
7:30 AM	0	0	0	2	0	0	0	0	0	1	2	0	0	0	4	0	9	0
7:45 AM	0	1	0	1	0	0	0	0	0	1	5	0	0	0	3	0	11	50
8:00 AM	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**3**	**4**	**0**	**0**	**0**	**3**	**0**	**15**	46
8:15 AM	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**3**	**0**	**0**	**0**	**6**	**0**	**14**	49
8:30 AM	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**5**	**7**	**0**	**0**	**0**	**4**	**0**	**18**	58
8:45 AM	**0**	**1**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**4**	**1**	**0**	**0**	**0**	**5**	**0**	**14**	**61**
Count Total	0	4	0	18	0	0	0	0	0	23	33	0	0	0	31	2	111	0
Peak Hour	**0**	**3**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**15**	**15**	**0**	**0**	**0**	**18**	**0**	**61**	**0**

Two-Hour Count Summaries - Bikes

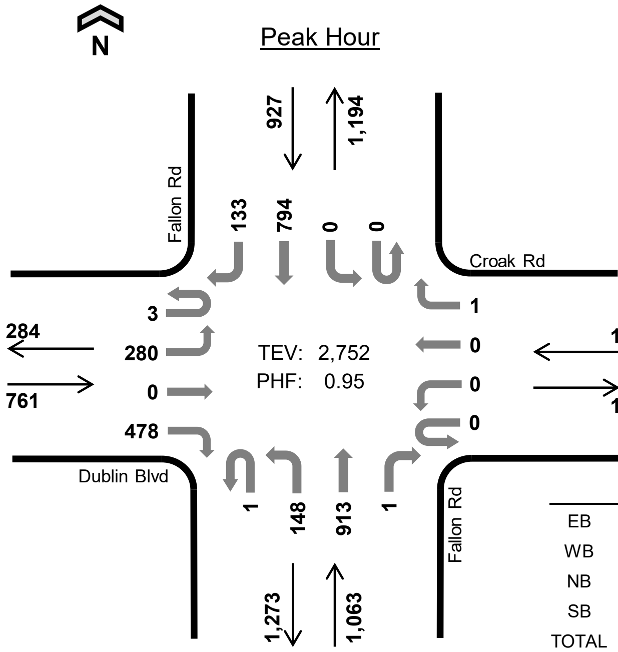
Interval Start	Dublin Blvd			Croak Rd			Fallon Rd			Fallon Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	2
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Count Total	0	0	1	0	0	0	0	0	0	0	1	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

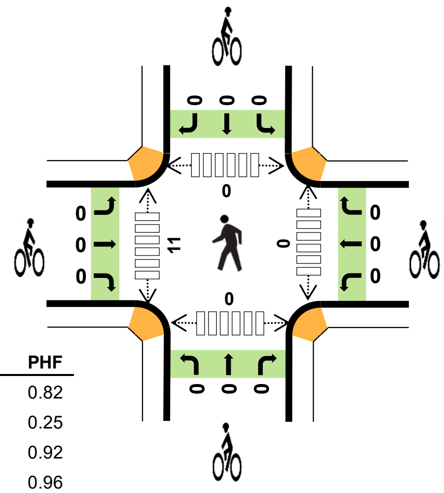
Fallon Rd
Dublin Blvd

Date: 11-19-2019
Count Period: 4:00 PM to 6:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Peak Hour



	HV %:	PHF
EB	0.7%	0.82
WB	0.0%	0.25
NB	0.4%	0.92
SB	0.4%	0.96
TOTAL	0.5%	0.95



Two-Hour Count Summaries

Interval Start	Dublin Blvd				Croak Rd				Fallon Rd				Fallon Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	53	0	103	0	0	0	0	0	44	149	0	0	0	179	33	561	0
4:15 PM	1	54	0	104	0	0	0	1	0	42	133	0	0	0	184	19	538	0
4:30 PM	2	52	0	132	0	0	0	0	0	37	153	0	0	0	171	25	572	0
4:45 PM	0	61	0	128	0	0	0	0	1	29	178	0	0	0	190	31	618	2,289
5:00 PM	**1**	**75**	**0**	**157**	**0**	**0**	**0**	**0**	**0**	**41**	**215**	**0**	**0**	**0**	**199**	**34**	**722**	2,450
5:15 PM	**0**	**84**	**0**	**128**	**0**	**0**	**0**	**0**	**1**	**23**	**208**	**0**	**0**	**0**	**212**	**27**	**683**	2,595
5:30 PM	**1**	**47**	**0**	**101**	**0**	**0**	**0**	**0**	**0**	**38**	**251**	**0**	**0**	**0**	**209**	**33**	**680**	2,703
5:45 PM	**1**	**74**	**0**	**92**	**0**	**0**	**0**	**1**	**0**	**46**	**239**	**1**	**0**	**0**	**174**	**39**	**667**	**2,752**
Count Total	6	500	0	945	0	0	0	2	2	300	1,526	1	0	0	1,518	241	5,041	0
Peak Hour All	**3**	**280**	**0**	**478**	**0**	**0**	**0**	**1**	**1**	**148**	**913**	**1**	**0**	**0**	**794**	**133**	**2,752**	**0**
Peak Hour HV	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**4**	**0**	**13**	**0**
Peak Hour HV%	**0%**	**0%**	**-**	**1%**	**-**	**-**	**-**	**0%**	**0%**	**3%**	**0%**	**0%**	**-**	**-**	**1%**	**0%**	**0%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	0	1	3	*8*	0	0	1	0	*1*	1	0	0	0	*1*
4:15 PM	0	0	1	8	*9*	0	0	0	0	*0*	0	2	0	0	*2*
4:30 PM	1	0	1	1	*3*	0	0	0	0	*0*	0	1	0	0	*1*
4:45 PM	2	0	2	2	*6*	0	0	1	0	*1*	0	3	0	0	*3*
5:00 PM	**1**	**0**	**1**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**4**	**0**	**0**	*4*
5:15 PM	**1**	**0**	**1**	**1**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**4**	**0**	**0**	*4*
5:30 PM	**2**	**0**	**0**	**2**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**3**	**0**	**0**	*3*
5:45 PM	**1**	**0**	**2**	**1**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
Count Total	12	0	9	18	*39*	0	0	2	0	*2*	1	17	0	0	*18*
Peak Hour	**5**	**0**	**4**	**4**	***13***	**0**	**0**	**0**	**0**	***0***	**0**	**11**	**0**	**0**	***11***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Dublin Blvd				Croak Rd				Fallon Rd				Fallon Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	0	2	0	0	0	0	0	1	0	0	0	0	3	0	8	0
4:15 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	5	3	9	0
4:30 PM	0	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0	3	0
4:45 PM	0	0	0	2	0	0	0	0	0	1	1	0	0	0	2	0	6	26
5:00 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	20
5:15 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	14
5:30 PM	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**4**	15
5:45 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**4**	**13**
Count Total	0	2	0	10	0	0	0	0	0	8	1	0	0	0	15	3	39	0
Peak Hour	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**4**	**0**	**13**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Dublin Blvd			Croak Rd			Fallon Rd			Fallon Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	1	0	0	0	0	0	1	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	2
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Count Total	0	0	0	0	0	0	1	1	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

File Name : 17-08158-033
Date : 12/14/2017

Unshifted Count = All Vehicles & Uturns

	Fallon Rd Southbound					I-580 WB Ramps Westbound					Fallon Rd Northbound					I-580 WB Ramps Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	89	113	0	202	48	1	127	0	176	0	75	56	0	131	0	0	0	0	0	509	0
7:15	0	105	131	0	236	41	1	137	0	179	0	106	68	0	174	0	0	0	0	0	589	0
7:30	0	132	199	0	331	52	1	139	0	192	0	105	79	0	184	0	0	0	0	0	707	0
7:45	0	135	138	0	273	53	3	147	0	203	0	146	78	0	224	0	0	0	0	0	700	0
Total	0	461	581	0	1042	194	6	550	0	750	0	432	281	0	713	0	0	0	0	0	2505	0
8:00	0	131	142	0	273	41	2	134	0	177	0	136	66	0	202	0	0	0	0	0	652	0
8:15	0	165	145	0	310	36	1	109	0	146	0	107	70	0	177	0	0	0	0	0	633	0
8:30	0	210	144	0	354	63	1	113	0	177	0	120	58	0	178	0	0	0	0	0	709	0
8:45	0	177	162	0	339	71	1	128	0	200	0	115	57	0	172	0	0	0	0	0	711	0
Total	0	683	593	0	1276	211	5	484	0	700	0	478	251	0	729	0	0	0	0	0	2705	0
16:00	0	215	99	0	314	50	0	96	0	146	0	129	123	0	252	0	0	0	0	0	712	0
16:15	0	226	111	0	337	52	2	111	0	165	0	126	130	0	256	0	0	0	0	0	758	0
16:30	0	227	90	0	317	70	1	117	0	188	0	133	99	0	232	0	0	0	0	0	737	0
16:45	0	221	120	0	341	56	0	130	0	186	0	148	88	0	236	0	0	0	0	0	763	0
Total	0	889	420	0	1309	228	3	454	0	685	0	536	440	0	976	0	0	0	0	0	2970	0
17:00	0	253	120	0	373	60	0	144	0	204	0	163	114	0	277	0	0	0	0	0	854	0
17:15	0	250	104	0	354	70	1	161	0	232	0	154	124	0	278	0	0	0	0	0	864	0
17:30	0	232	119	0	351	46	1	134	0	181	0	192	96	0	288	0	0	0	0	0	820	0
17:45	0	238	100	0	338	56	1	154	0	211	0	218	73	0	291	0	0	0	0	0	840	0
Total	0	973	443	0	1416	232	3	593	0	828	0	727	407	0	1134	0	0	0	0	0	3378	0
Grand Total	0	3006	2037	0	5043	865	17	2081	0	2963	0	2173	1379	0	3552	0	0	0	0	0	11558	0
Apprch %	0.0%	59.6%	40.4%	0.0%		29.2%	0.6%	70.2%	0.0%		0.0%	61.2%	38.8%	0.0%		0.0%	0.0%	0.0%	0.0%			
Total %	0.0%	26.0%	17.6%	0.0%	43.6%	7.5%	0.1%	18.0%	0.0%	25.6%	0.0%	18.8%	11.9%	0.0%	30.7%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	

AM PEAK HOUR	Fallon Rd Southbound					I-580 WB Ramps Westbound					Fallon Rd Northbound					I-580 WB Ramps Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	131	142	0	273	41	2	134	0	177	0	136	66	0	202	0	0	0	0	0	652
8:15	0	165	145	0	310	36	1	109	0	146	0	107	70	0	177	0	0	0	0	0	633
8:30	0	210	144	0	354	63	1	113	0	177	0	120	58	0	178	0	0	0	0	0	709
8:45	0	177	162	0	339	71	1	128	0	200	0	115	57	0	172	0	0	0	0	0	711
Total Volume	0	683	593	0	1276	211	5	484	0	700	0	478	251	0	729	0	0	0	0	0	2705
% App Total	0.0%	53.5%	46.5%	0.0%		30.1%	0.7%	69.1%	0.0%		0.0%	65.6%	34.4%	0.0%		0.0%	0.0%	0.0%	0.0%		
PHF	.000	.813	.915	.000	.901	.743	.625	.903	.000	.875	.000	.879	.896	.000	.902	.000	.000	.000	.000	.000	.951

PM PEAK HOUR	Fallon Rd Southbound					I-580 WB Ramps Westbound					Fallon Rd Northbound					I-580 WB Ramps Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	253	120	0	373	60	0	144	0	204	0	163	114	0	277	0	0	0	0	0	854
17:15	0	250	104	0	354	70	1	161	0	232	0	154	124	0	278	0	0	0	0	0	864
17:30	0	232	119	0	351	46	1	134	0	181	0	192	96	0	288	0	0	0	0	0	820
17:45	0	238	100	0	338	56	1	154	0	211	0	218	73	0	291	0	0	0	0	0	840
Total Volume	0	973	443	0	1416	232	3	593	0	828	0	727	407	0	1134	0	0	0	0	0	3378
% App Total	0.0%	68.7%	31.3%	0.0%		28.0%	0.4%	71.6%	0.0%		0.0%	64.1%	35.9%	0.0%		0.0%	0.0%	0.0%	0.0%		
PHF	.000	.961	.923	.000	.949	.829	.750	.921	.000	.892	.000	.834	.821	.000	.974	.000	.000	.000	.000	.000	.977

ALL TRAFFIC DATA

(916) 771-8700

orders@atdtraffic.com

File Name : 17-08158-034
Date : 12/14/2017

Unshifted Count = All Vehicles & Uturns

	Fallon Rd					I-580 EB Ramps					Fallon Rd					I-580 EB Ramps						
	Southbound					Westbound					Northbound					Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	0	76	56	0	132	0	0	0	0	0	0	83	10	0	93	45	0	42	0	87	312	0
7:15	0	68	81	0	149	0	0	0	0	0	0	119	19	0	138	57	0	29	0	86	373	0
7:30	0	96	85	0	181	0	0	0	0	0	0	137	26	0	163	49	0	50	0	99	443	0
7:45	0	85	108	0	193	0	0	0	0	0	0	144	30	0	174	82	0	51	0	133	500	0
Total	0	325	330	0	655	0	0	0	0	0	0	483	85	0	568	233	0	172	0	405	1628	0
8:00	0	79	95	0	174	0	0	0	0	0	0	106	26	0	132	91	0	42	0	133	439	0
8:15	0	100	102	0	202	0	0	0	0	0	0	123	23	0	146	51	0	49	0	100	448	0
8:30	0	148	112	0	260	0	0	0	0	0	0	126	19	0	145	53	0	65	0	118	523	0
8:45	0	138	119	0	257	0	0	0	0	0	0	106	36	0	142	63	0	61	0	124	523	0
Total	0	465	428	0	893	0	0	0	0	0	0	461	104	0	565	258	0	217	0	475	1933	0
16:00	0	136	132	0	268	0	0	0	0	0	0	205	122	0	327	55	0	78	0	133	728	0
16:15	0	149	127	0	276	0	0	0	0	0	0	183	100	0	283	61	0	89	0	150	709	0
16:30	0	165	129	0	294	0	0	0	0	0	0	171	114	0	285	67	0	72	0	139	718	0
16:45	0	160	120	0	280	0	0	0	0	0	0	163	119	0	282	70	0	75	0	145	707	0
Total	0	610	508	0	1118	0	0	0	0	0	0	722	455	0	1177	253	0	314	0	567	2862	0
17:00	0	179	119	0	298	0	0	0	0	0	0	203	135	0	338	80	0	64	0	144	780	0
17:15	0	207	121	0	328	0	0	0	0	0	0	198	120	0	318	82	0	57	0	139	785	0
17:30	0	170	113	0	283	0	0	0	0	0	0	180	110	0	290	103	0	77	0	180	753	0
17:45	0	157	133	0	290	0	0	0	0	0	0	178	112	0	290	116	0	64	0	180	760	0
Total	0	713	486	0	1199	0	0	0	0	0	0	759	477	0	1236	381	0	262	0	643	3078	0
Grand Total	0	2113	1752	0	3865	0	0	0	0	0	0	2425	1121	0	3546	1125	0	965	0	2090	9501	0
Apprch %	0.0%	54.7%	45.3%	0.0%		0.0%	0.0%	0.0%	0.0%		0.0%	68.4%	31.6%	0.0%		53.8%	0.0%	46.2%	0.0%			
Total %	0.0%	22.2%	18.4%	0.0%	40.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	25.5%	11.8%	0.0%	37.3%	11.8%	0.0%	10.2%	0.0%	22.0%	100.0%	

AM PEAK HOUR	Fallon Rd					I-580 EB Ramps					Fallon Rd					I-580 EB Ramps					
	Southbound					Westbound					Northbound					Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	79	95	0	174	0	0	0	0	0	0	106	26	0	132	91	0	42	0	133	439
8:15	0	100	102	0	202	0	0	0	0	0	0	123	23	0	146	51	0	49	0	100	448
8:30	0	148	112	0	260	0	0	0	0	0	0	126	19	0	145	53	0	65	0	118	523
8:45	0	138	119	0	257	0	0	0	0	0	0	106	36	0	142	63	0	61	0	124	523
Total Volume	0	465	428	0	893	0	0	0	0	0	0	461	104	0	565	258	0	217	0	475	1933
% App Total	0.0%	52.1%	47.9%	0.0%		0.0%	0.0%	0.0%	0.0%		0.0%	81.6%	18.4%	0.0%		54.3%	0.0%	45.7%	0.0%		
PHF	.000	.785	.899	.000	.859	.000	.000	.000	.000	.000	.000	.915	.722	.000	.967	.709	.000	.835	.000	.893	.924

PM PEAK HOUR	Fallon Rd					I-580 EB Ramps					Fallon Rd					I-580 EB Ramps					
	Southbound					Westbound					Northbound					Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	179	119	0	298	0	0	0	0	0	0	203	135	0	338	80	0	64	0	144	780
17:15	0	207	121	0	328	0	0	0	0	0	0	198	120	0	318	82	0	57	0	139	785
17:30	0	170	113	0	283	0	0	0	0	0	0	180	110	0	290	103	0	77	0	180	753
17:45	0	157	133	0	290	0	0	0	0	0	0	178	112	0	290	116	0	64	0	180	760
Total Volume	0	713	486	0	1199	0	0	0	0	0	0	759	477	0	1236	381	0	262	0	643	3078
% App Total	0.0%	59.5%	40.5%	0.0%		0.0%	0.0%	0.0%	0.0%		0.0%	61.4%	38.6%	0.0%		59.3%	0.0%	40.7%	0.0%		
PHF	.000	.861	.914	.000	.914	.000	.000	.000	.000	.000	.000	.935	.883	.000	.914	.821	.000	.851	.000	.893	.980

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

File Name : 17-08158-035
Date : 12/14/2017

Unshifted Count = All Vehicles & Uturns

	El Charro Rd Southbound					Stoneridge Dr/Jack London Blvd Westbound					El Charro Rd Northbound					Stoneridge Dr/Jack London Blvd Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	27	16	71	0	114	1	44	72	0	117	1	7	1	0	9	14	9	1	0	24	264	0
7:15	16	16	65	0	97	2	75	95	0	172	3	16	1	0	20	24	5	1	0	30	319	0
7:30	35	14	84	0	133	2	119	106	0	227	2	18	1	0	21	39	16	3	0	58	439	0
7:45	38	14	84	0	136	3	111	115	1	230	2	20	2	0	24	42	10	0	0	52	442	1
Total	116	60	304	0	480	8	349	388	1	746	8	61	5	0	74	119	40	5	0	164	1464	1
8:00	36	19	68	1	124	3	117	83	0	203	3	12	2	0	17	37	13	0	0	50	394	1
8:15	28	22	93	0	143	2	103	83	0	188	0	19	1	0	20	40	11	0	0	51	402	0
8:30	48	28	140	0	216	0	79	83	0	162	0	12	1	0	13	54	26	0	0	80	471	0
8:45	71	23	103	0	197	2	88	65	0	155	0	23	2	0	25	48	15	3	0	66	443	0
Total	183	92	404	1	680	7	387	314	0	708	3	66	6	0	75	179	65	3	0	247	1710	1
16:00	187	8	34	0	229	0	35	206	0	241	1	12	1	0	14	102	135	1	0	238	722	0
16:15	169	2	67	0	238	0	36	191	0	227	0	7	1	0	8	93	131	1	0	225	698	0
16:30	176	0	55	0	231	0	41	160	0	201	0	10	3	0	13	114	124	0	0	238	683	0
16:45	190	4	47	0	241	1	36	153	0	190	0	11	2	0	13	117	153	1	0	271	715	0
Total	722	14	203	0	939	1	148	710	0	859	1	40	7	0	48	426	543	3	0	972	2818	0
17:00	184	4	53	1	242	1	37	187	0	225	1	9	3	0	13	147	130	0	0	277	757	1
17:15	224	2	42	1	269	2	35	189	0	226	1	3	2	0	6	115	170	2	0	287	788	1
17:30	187	1	49	1	238	0	33	176	0	209	0	10	1	0	11	110	151	1	0	262	720	1
17:45	174	3	43	3	223	2	33	136	0	171	0	7	1	0	8	136	121	0	0	257	659	3
Total	769	10	187	6	972	5	138	688	0	831	2	29	7	0	38	508	572	3	0	1083	2924	6
Grand Total	1790	176	1098	7	3071	21	1022	2100	1	3144	14	196	25	0	235	1232	1220	14	0	2466	8916	8
Apprch %	58.3%	5.7%	35.8%	0.2%		0.7%	32.5%	66.8%	0.0%		6.0%	83.4%	10.6%	0.0%		50.0%	49.5%	0.6%	0.0%			
Total %	20.1%	2.0%	12.3%	0.1%	34.4%	0.2%	11.5%	23.6%	0.0%	35.3%	0.2%	2.2%	0.3%	0.0%	2.6%	13.8%	13.7%	0.2%	0.0%	27.7%	100.0%	

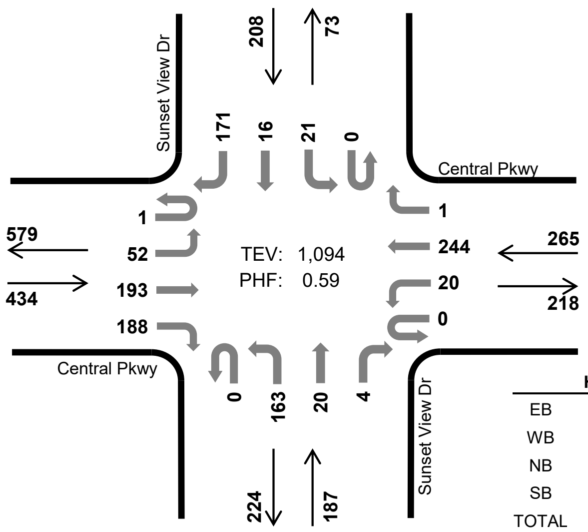
AM PEAK HOUR	El Charro Rd Southbound					Stoneridge Dr/Jack London Blvd Westbound					El Charro Rd Northbound					Stoneridge Dr/Jack London Blvd Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	36	19	68	1	124	3	117	83	0	203	3	12	2	0	17	37	13	0	0	50	394
8:15	28	22	93	0	143	2	103	83	0	188	0	19	1	0	20	40	11	0	0	51	402
8:30	48	28	140	0	216	0	79	83	0	162	0	12	1	0	13	54	26	0	0	80	471
8:45	71	23	103	0	197	2	88	65	0	155	0	23	2	0	25	48	15	3	0	66	443
Total Volume	183	92	404	1	680	7	387	314	0	708	3	66	6	0	75	179	65	3	0	247	1710
% App Total	26.9%	13.5%	59.4%	0.1%		1.0%	54.7%	44.4%	0.0%		4.0%	88.0%	8.0%	0.0%		72.5%	26.3%	1.2%	0.0%		
PHF	.644	.821	.721	.250	.787	.583	.827	.946	.000	.872	.250	.717	.750	.000	.750	.829	.625	.250	.000	.772	.908

PM PEAK HOUR	El Charro Rd Southbound					Stoneridge Dr/Jack London Blvd Westbound					El Charro Rd Northbound					Stoneridge Dr/Jack London Blvd Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 16:45 to 17:45																					
Peak Hour For Entire Intersection Begins at 16:45																					
16:45	190	4	47	0	241	1	36	153	0	190	0	11	2	0	13	117	153	1	0	271	715
17:00	184	4	53	1	242	1	37	187	0	225	1	9	3	0	13	147	130	0	0	277	757
17:15	224	2	42	1	269	2	35	189	0	226	1	3	2	0	6	115	170	2	0	287	788
17:30	187	1	49	1	238	0	33	176	0	209	0	10	1	0	11	110	151	1	0	262	720
Total Volume	785	11	191	3	990	4	141	705	0	850	2	33	8	0	43	489	604	4	0	1097	2980
% App Total	79.3%	1.1%	19.3%	0.3%		0.5%	16.6%	82.9%	0.0%		4.7%	76.7%	18.6%	0.0%		44.6%	55.1%	0.4%	0.0%		
PHF	.876	.688	.901	.750	.920	.500	.953	.933	.000	.940	.500	.750	.667	.000	.827	.832	.888	.500	.000	.956	.945

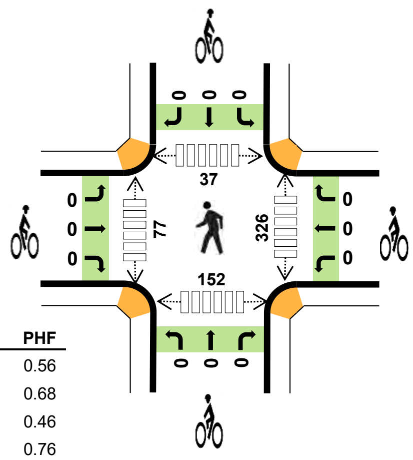
Sunset View Dr
Central Pkwy

Date: 12-03-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM

Peak Hour



	HV %:	PHF
EB	0.5%	0.56
WB	0.8%	0.68
NB	0.0%	0.46
SB	0.0%	0.76
TOTAL	0.4%	0.59



Two-Hour Count Summaries

Interval Start	Central Pkwy Eastbound UT	LT	TH	RT	Central Pkwy Westbound UT	LT	TH	RT	Sunset View Dr Northbound UT	LT	TH	RT	Sunset View Dr Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM	0	3	4	3	0	0	25	0	0	0	0	0	0	0	0	14	49	0
7:15 AM	0	7	17	19	0	0	26	0	0	3	1	0	0	0	2	30	105	0
7:30 AM	0	3	23	25	0	4	34	1	0	19	2	4	0	3	2	27	147	0
7:45 AM	**0**	**5**	**19**	**20**	**0**	**0**	**30**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**24**	**99**	400
8:00 AM	**1**	**18**	**66**	**65**	**0**	**7**	**44**	**0**	**0**	**34**	**4**	**0**	**0**	**7**	**3**	**39**	**288**	639
8:15 AM	**0**	**21**	**94**	**79**	**0**	**10**	**86**	**1**	**0**	**86**	**13**	**3**	**0**	**10**	**9**	**48**	**460**	994
8:30 AM	**0**	**8**	**14**	**24**	**0**	**3**	**84**	**0**	**0**	**42**	**3**	**1**	**0**	**4**	**4**	**60**	**247**	**1,094**
8:45 AM	0	4	15	3	0	0	31	0	0	2	0	0	0	1	1	34	91	1,086
Count Total	1	69	252	238	0	24	360	2	0	187	23	8	0	25	21	276	1,486	0
Peak Hour All	**1**	**52**	**193**	**188**	**0**	**20**	**244**	**1**	**0**	**163**	**20**	**4**	**0**	**21**	**16**	**171**	**1,094**	**0**
Peak Hour HV	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**
Peak Hour HV%	**0%**	**0%**	**1%**	**0%**	**-**	**0%**	**1%**	**0%**	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**0%**	**0%**	**0%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	1	0	0	1	*2*	0	0	0	0	*0*	1	0	2	0	*3*
7:15 AM	0	0	0	0	*0*	0	0	0	0	*0*	2	1	0	3	*6*
7:30 AM	0	0	0	0	*0*	0	0	0	0	*0*	15	1	2	3	*21*
7:45 AM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**5**	**1**	**2**	**5**	*13*
8:00 AM	**1**	**1**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	***0***	**56**	**15**	**5**	**32**	*108*
8:15 AM	**1**	**0**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**140**	**55**	**22**	**100**	*317*
8:30 AM	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**0**	**0**	***0***	**125**	**6**	**8**	**15**	***154***
8:45 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	2	1	*3*
Count Total	3	2	0	1	*6*	0	0	0	0	*0*	344	79	43	159	*625*
Peak Hour	**2**	**2**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**326**	**77**	**37**	**152**	***592***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Central Pkwy				Central Pkwy				Sunset View Dr				Sunset View Dr				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
8:00 AM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	2
8:15 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	3
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**4**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Count Total	0	0	3	0	0	0	2	0	0	0	0	0	0	0	0	1	6	0
Peak Hour	**0**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**

Two-Hour Count Summaries - Bikes

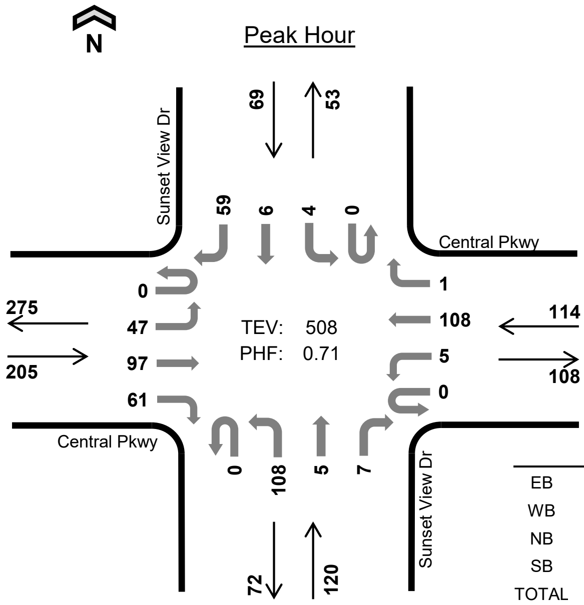
Interval Start	Central Pkwy			Central Pkwy			Sunset View Dr			Sunset View Dr			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

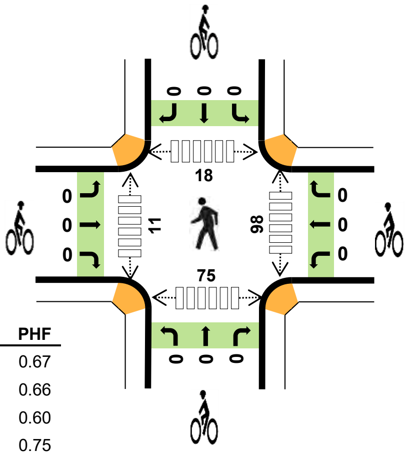
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Sunset View Dr
Central Pkwy

Date: 12-03-2019
Count Period: 1:30 PM to 4:00 PM
Peak Hour: 2:15 PM to 3:15 PM

Peak Hour





	HV %:	PHF
EB	0.0%	0.67
WB	0.0%	0.66
NB	0.0%	0.60
SB	0.0%	0.75
TOTAL	0.0%	0.71

Two-and-a-Half-Hour Count Summaries

Interval Start		Central Pkwy Eastbound UT	LT	TH	RT	Central Pkwy Westbound UT	LT	TH	RT	Sunset View Dr Northbound UT	LT	TH	RT	Sunset View Dr Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
2:15 PM		0	13	17	17	0	3	40	0	0	48	1	1	0	1	0	22	163	0
2:30 PM		0	8	12	5	0	0	13	0	0	12	0	1	0	1	1	9	62	0
2:45 PM		0	15	24	17	0	1	20	1	0	12	1	1	0	0	3	9	104	0
3:00 PM		0	11	44	22	0	1	35	0	0	36	3	4	0	2	2	19	179	508
Peak Hour	All	0	47	97	61	0	5	108	1	0	108	5	7	0	4	6	59	508	0
	HV	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	HV%	-	0%	0%	0%	-	0%	0%	0%	-	0%	0%	0%	-	0%	0%	0%	0%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
2:15 PM	0	0	0	0	*0*	0	0	0	0	*0*	11	0	0	8	*19*
2:30 PM	0	0	0	0	*0*	0	0	0	0	*0*	17	0	7	7	*31*
2:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	10	1	0	6	*17*
3:00 PM	0	0	0	0	*0*	0	0	0	0	*0*	60	10	11	54	*135*
Peak Hour	0	0	0	0	*0*	0	0	0	0	*0*	98	11	18	75	*202*

Project Manager: (415) 310-6469 project.manager.ca@idaxdata.com

Two-and-a-Half-Hour Count Summaries

Interval Start		Central Pkwy Eastbound UT	LT	TH	RT	Central Pkwy Westbound UT	LT	TH	RT	Sunset View Dr Northbound UT	LT	TH	RT	Sunset View Dr Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
1:30 PM		0	10	27	15	0	1	17	1	0	0	0	0	0	1	4	10	86	0
1:45 PM		0	17	23	11	0	1	16	1	0	0	0	1	0	2	3	5	80	0
2:00 PM		0	16	39	21	0	1	38	2	0	17	3	1	0	3	0	29	170	0
2:15 PM		**0**	**13**	**17**	**17**	**0**	**3**	**40**	**0**	**0**	**48**	**1**	**1**	**0**	**1**	**0**	**22**	**163**	499
2:30 PM		**0**	**8**	**12**	**5**	**0**	**0**	**13**	**0**	**0**	**12**	**0**	**1**	**0**	**1**	**1**	**9**	**62**	475
2:45 PM		**0**	**15**	**24**	**17**	**0**	**1**	**20**	**1**	**0**	**12**	**1**	**1**	**0**	**0**	**3**	**9**	**104**	499
3:00 PM		**0**	**11**	**44**	**22**	**0**	**1**	**35**	**0**	**0**	**36**	**3**	**4**	**0**	**2**	**2**	**19**	**179**	**508**
3:15 PM		0	18	25	11	0	0	43	0	0	32	2	1	0	2	1	20	155	500
3:30 PM		2	7	21	3	0	1	11	1	0	7	0	0	0	1	1	11	66	504
3:45 PM		0	13	28	2	0	0	18	0	0	9	0	0	0	0	0	15	85	485
Count Total		2	128	260	124	0	9	251	6	0	173	10	10	0	13	15	149	1,150	0
Peak Hour	**All**	**0**	**47**	**97**	**61**	**0**	**5**	**108**	**1**	**0**	**108**	**5**	**7**	**0**	**4**	**6**	**59**	**508**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
	HV%	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**0%**	**0%**	**-**	**0%**	**0%**	**0%**	**0%**	**0**

Note: Two-and-a-half-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
1:30 PM	0	0	0	0	*0*	0	0	0	0	*0*	2	1	1	1	*5*
1:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	30	1	8	10	*49*
2:00 PM	1	0	0	0	*1*	0	0	0	0	*0*	177	15	28	45	*265*
2:15 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**11**	**0**	**0**	**8**	*19*
2:30 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**17**	**0**	**7**	**7**	*31*
2:45 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**10**	**1**	**0**	**6**	*17*
3:00 PM	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**60**	**10**	**11**	**54**	***135***
3:15 PM	0	0	0	0	*0*	0	0	0	1	*1*	20	5	11	9	*45*
3:30 PM	0	0	0	0	*0*	0	0	0	0	*0*	1	2	0	3	*6*
3:45 PM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	2	0	*2*
Count Total	1	0	0	0	*1*	0	0	0	1	*1*	328	35	68	143	*574*
Peak Hour	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***	**98**	**11**	**18**	**75**	***202***

Two-and-a-Half-Hour Count Summaries - Heavy Vehicles

Interval Start	Central Pkwy Eastbound				Central Pkwy Westbound				Sunset View Dr Northbound				Sunset View Dr Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
2:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
2:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
2:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
3:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Two-and-a-Half-Hour Count Summaries - Bikes

Interval Start	Central Pkwy Eastbound			Central Pkwy Westbound			Sunset View Dr Northbound			Sunset View Dr Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
1:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
2:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
2:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
3:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	1
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	n/a				Positano Pkwy				Fallon Rd				Fallon Rd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	1	0	1	0	0	2	2	0	0	1	0	7	0
7:15 AM	0	0	0	0	0	1	0	1	0	0	1	0	0	0	0	0	3	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	11
8:00 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	6
8:15 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**3**	6
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	**8**
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	3	10
Count Total	0	0	0	0	0	4	0	2	0	0	4	4	0	2	5	0	21	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**3**	**0**	**8**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	n/a			Positano Pkwy			Fallon Rd			Fallon Rd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	1	0	0	0	0	0	0	0	0	1	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	1	0	0	0	0	0	0	0	0	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

National Data and Surveying Services

(323) 782-0090
info@ndsdata.com

City of Dublin
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Peds & Bikes On Bank 2

File Name : 17-7215-004 Tassajara Rd & Dublin Blvd
Date : 3/14/2017

Unshifted Count = All Vehicles & Uturns

	Tassajara Rd Southbound					Dublin Blvd Westbound					Tassajara Rd Northbound					Dublin Blvd Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	4	150	9	0	163	94	45	6	0	145	48	81	40	0	169	7	9	25	0	41	518	0
7:15	1	210	18	0	229	98	52	4	0	154	56	122	31	0	209	8	13	20	0	41	633	0
7:30	1	201	20	0	222	88	105	11	0	204	42	122	20	0	184	7	20	27	0	54	664	0
7:45	6	253	46	0	305	108	104	6	0	218	57	152	23	0	232	12	20	33	2	67	822	2
Total	12	814	93	0	919	388	306	27	0	721	203	477	114	0	794	34	62	105	2	203	2637	2
8:00	5	285	54	1	345	106	102	12	0	220	56	158	35	0	249	13	19	20	2	54	868	3
8:15	8	300	53	0	361	142	154	4	0	300	60	123	30	0	213	21	28	45	1	95	969	1
8:30	5	354	57	1	417	179	152	3	0	334	62	94	35	0	191	15	25	42	4	86	1028	5
8:45	7	233	52	0	292	155	152	5	0	312	78	92	46	0	216	20	39	41	1	101	921	1
Total	25	1172	216	2	1415	582	560	24	0	1166	256	467	146	0	869	69	111	148	8	336	3786	10
Grand Total	37	1986	309	2	2334	970	866	51	0	1887	459	944	260	0	1663	103	173	253	10	539	6423	12
Apprch %	1.6%	85.1%	13.2%	0.1%		51.4%	45.9%	2.7%	0.0%		27.6%	56.8%	15.6%	0.0%		19.1%	32.1%	46.9%	1.9%			
Total %	0.6%	30.9%	4.8%	0.0%	36.3%	15.1%	13.5%	0.8%	0.0%	29.4%	7.1%	14.7%	4.0%	0.0%	25.9%	1.6%	2.7%	3.9%	0.2%	8.4%	100.0%	

AM PEAK HOUR	Tassajara Rd Southbound					Dublin Blvd Westbound					Tassajara Rd Northbound					Dublin Blvd Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	5	285	54	1	345	106	102	12	0	220	56	158	35	0	249	13	19	20	2	54	868
8:15	8	300	53	0	361	142	154	4	0	300	60	123	30	0	213	21	28	45	1	95	969
8:30	5	354	57	1	417	179	152	3	0	334	62	94	35	0	191	15	25	42	4	86	1028
8:45	7	233	52	0	292	155	152	5	0	312	78	92	46	0	216	20	39	41	1	101	921
Total Volume	25	1172	216	2	1415	582	560	24	0	1166	256	467	146	0	869	69	111	148	8	336	3786
% App Total	1.8%	82.8%	15.3%	0.1%		49.9%	48.0%	2.1%	0.0%		29.5%	53.7%	16.8%	0.0%		20.5%	33.0%	44.0%	2.4%		
PHF	.781	.828	.947	.500	.848	.813	.909	.500	.000	.873	.821	.739	.793	.000	.872	.821	.712	.822	.500	.832	.921

National Data and Surveying Services

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City of Dublin
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Peds & Bikes On Bank 2

File Name : 17-7215-004 Tassajara Rd & Dublin Blvd
Date : 3/14/2017

Bank 1 Count = Heavy Trucks

	Tassajara Rd Southbound					Dublin Blvd Westbound					Tassajara Rd Northbound					Dublin Blvd Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	1	0	0	1	1	1	0	0	2	0	4	2	0	6	0	0	0	0	0	9	0
7:15	0	1	0	0	1	1	0	0	0	1	0	6	2	0	8	0	0	0	0	0	10	0
7:30	0	3	0	0	3	0	0	0	0	0	0	5	2	0	7	0	0	0	0	0	10	0
7:45	1	6	0	0	7	1	0	1	0	2	2	5	1	0	8	0	0	1	0	1	18	0
Total	1	11	0	0	12	3	1	1	0	5	2	20	7	0	29	0	0	1	0	1	47	0
8:00	0	4	0	0	4	0	0	0	0	0	1	4	0	0	5	1	0	1	0	2	11	0
8:15	1	3	0	0	4	2	0	0	0	2	0	1	0	0	1	0	0	0	0	0	7	0
8:30	0	2	0	0	2	1	0	0	0	1	0	5	1	0	6	0	0	0	0	0	9	0
8:45	0	5	0	0	5	2	1	0	0	3	0	2	0	0	2	0	2	1	0	3	13	0
Total	1	14	0	0	15	5	1	0	0	6	1	12	1	0	14	1	2	2	0	5	40	0
Grand Total	2	25	0	0	27	8	2	1	0	11	3	32	8	0	43	1	2	3	0	6	87	0
Apprch %	7.4%	92.6%	0.0%			72.7%	18.2%	9.1%			7.0%	74.4%	18.6%			16.7%	33.3%	50.0%				
Total %	2.3%	28.7%	0.0%		31.0%	9.2%	2.3%	1.1%		12.6%	3.4%	36.8%	9.2%		49.4%	1.1%	2.3%	3.4%		6.9%	100.0%	

AM PEAK HOUR	Tassajara Rd Southbound					Dublin Blvd Westbound					Tassajara Rd Northbound					Dublin Blvd Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	4	0	0	4	0	0	0	0	0	1	4	0	0	5	1	0	1	0	2	11
8:15	1	3	0	0	4	2	0	0	0	2	0	1	0	0	1	0	0	0	0	0	7
8:30	0	2	0	0	2	1	0	0	0	1	0	5	1	0	6	0	0	0	0	0	9
8:45	0	5	0	0	5	2	1	0	0	3	0	2	0	0	2	0	2	1	0	3	13
Total Volume	1	14	0	0	15	5	1	0	0	6	1	12	1	0	14	1	2	2	0	5	40
% App Total	6.7%	93.3%	0.0%			83.3%	16.7%	0.0%			7.1%	85.7%	7.1%			20.0%	40.0%	40.0%			
PHF	.250	.700	.000		.750	.625	.250	.000		.500	.250	.600	.250		.583	.250	.250	.500		.417	.769

National Data and Surveying Services

City of Dublin
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Peds & Bikes On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7215-004 Tassajara Rd & Dublin Blvd
Date : 3/14/2017

Bank 2 Count = Peds & Bikes

	Tassajara Rd Southbound					Dublin Blvd Westbound					Tassajara Rd Northbound					Dublin Blvd Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
7:15	0	1	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	1	4
7:30	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	0	1	0	1	1	3	1
7:45	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	2	0	2	2	2	1	0	0	3	0	0	0	0	0	0	1	0	4	1	6	6
8:00	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	0	0	2	0	3	2
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3
8:30	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	3
8:45	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Total	0	0	0	3	0	1	2	0	0	3	0	0	0	0	0	0	0	0	7	0	3	10
Grand Total	0	2	0	5	2	3	3	0	0	6	0	0	0	0	0	0	1	0	11	1	9	16
Apprch %	0.0%	100.0%	0.0%			50.0%	50.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%				
Total %	0.0%	22.2%	0.0%		22.2%	33.3%	33.3%	0.0%		66.7%	0.0%	0.0%	0.0%		0.0%	0.0%	11.1%	0.0%		11.1%	100.0%	

AM PEAK HOUR	Tassajara Rd Southbound					Dublin Blvd Westbound					Tassajara Rd Northbound					Dublin Blvd Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	0	0	0	0	1	2	0	0	3	0	0	0	0	0	0	0	0	2	0	3
8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
8:30	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0
8:45	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Volume	0	0	0	3	0	1	2	0	0	3	0	0	0	0	0	0	0	0	7	0	3
% App Total	0.0%	0.0%	0.0%			33.3%	66.7%	0.0%			0.0%	0.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.000	.000		.000	.250	.250	.000		.250	.000	.000	.000		.000	.000	.000	.000		.000	.250

ALL TRAFFIC DATA

City of Dublin
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7423-026 Tassajara Rd & Dublin Blvd
Date : 6/1/2016

Unshifted Count = All Vehicles & Uturns

	Tassajara Rd Southbound					Dublin Blvd Westbound					Tassajara Rd Northbound					Dublin Blvd Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
12:00	10	155	31	1	197	64	55	1	0	120	108	94	73	0	275	14	81	109	6	210	802	7
12:15	9	91	26	0	126	64	75	8	0	147	95	86	85	0	266	29	86	103	6	224	763	6
12:30	9	123	35	0	167	67	64	7	0	138	140	113	63	0	316	28	70	107	4	209	830	4
12:45	15	119	24	1	159	68	72	15	0	155	109	94	69	0	272	30	67	112	7	216	802	8
Total	43	488	116	2	649	263	266	31	0	560	452	387	290	0	1129	101	304	431	23	859	3197	25
13:00	12	115	27	0	154	63	65	6	0	134	71	139	68	0	278	37	59	109	9	214	780	9
13:15	14	136	25	2	177	59	73	5	0	137	103	120	67	1	291	29	72	110	7	218	823	10
13:30	9	160	41	0	210	74	49	7	0	130	91	104	70	0	265	28	67	108	7	210	815	7
13:45	13	149	29	0	191	73	68	3	0	144	96	129	65	0	290	21	62	105	6	194	819	6
Total	48	560	122	2	732	269	255	21	0	545	361	492	270	1	1124	115	260	432	29	836	3237	32
14:00	7	157	30	0	194	78	65	2	0	145	82	118	59	0	259	31	67	117	8	223	821	8
14:15	15	130	32	0	177	60	67	4	0	131	87	80	45	1	213	32	82	112	1	227	748	2
14:30	8	130	21	0	159	62	54	7	0	123	97	103	53	0	253	41	64	111	2	218	753	2
14:45	11	120	27	1	159	66	62	7	0	135	80	108	66	1	255	34	115	113	4	266	815	6
Total	41	537	110	1	689	266	248	20	0	534	346	409	223	2	980	138	328	453	15	934	3137	18
15:00	13	149	27	0	189	64	63	8	0	135	90	83	68	1	242	24	86	118	6	234	800	7
15:15	8	182	29	0	219	68	66	3	0	137	66	75	53	0	194	33	102	121	3	259	809	3
15:30	9	150	30	0	189	55	48	7	0	110	71	99	60	1	231	22	116	88	2	228	758	3
15:45	10	147	31	0	188	40	57	5	0	102	65	67	66	0	198	38	138	112	4	292	780	4
Total	40	628	117	0	785	227	234	23	0	484	292	324	247	2	865	117	442	439	15	1013	3147	17
16:00	8	155	21	0	184	49	50	4	0	103	86	91	66	0	243	26	174	140	5	345	875	5
16:15	12	132	23	0	167	56	70	9	0	135	83	83	68	0	234	32	155	120	5	312	848	5
16:30	14	129	26	0	169	57	63	3	0	123	88	92	71	0	251	45	161	102	10	318	861	10
16:45	6	136	30	1	173	67	65	2	0	134	93	85	89	0	267	51	188	121	11	371	945	12
Total	40	552	100	1	693	229	248	18	0	495	350	351	294	0	995	154	678	483	31	1346	3529	32
17:00	19	141	24	0	184	60	60	7	0	127	97	108	95	0	300	39	156	122	6	323	934	6
17:15	18	119	21	0	158	95	70	6	0	171	114	135	101	0	350	36	194	117	6	353	1032	6
17:30	14	155	40	0	209	40	61	3	0	104	98	153	135	1	387	60	191	136	6	393	1093	7
17:45	22	94	31	0	147	74	72	6	0	152	130	183	121	0	434	34	196	102	1	333	1066	1
Total	73	509	116	0	698	269	263	22	0	554	439	579	452	1	1471	169	737	477	19	1402	4125	20
Grand Total	285	3274	681	6	4246	1523	1514	135	0	3172	2240	2542	1776	6	6564	794	2749	2715	132	6390	20372	144
Apprch %	6.7%	77.1%	16.0%	0.1%		48.0%	47.7%	4.3%	0.0%		34.1%	38.7%	27.1%	0.1%		12.4%	43.0%	42.5%	2.1%			
Total %	1.4%	16.1%	3.3%	0.0%	20.8%	7.5%	7.4%	0.7%	0.0%	15.6%	11.0%	12.5%	8.7%	0.0%	32.2%	3.9%	13.5%	13.3%	0.6%	31.4%	100.0%	

PM PEAK HOUR	Tassajara Rd Southbound					Dublin Blvd Westbound					Tassajara Rd Northbound					Dublin Blvd Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	19	141	24	0	184	60	60	7	0	127	97	108	95	0	300	39	156	122	6	323	934
17:15	18	119	21	0	158	95	70	6	0	171	114	135	101	0	350	36	194	117	6	353	1032
17:30	14	155	40	0	209	40	61	3	0	104	98	153	135	1	387	60	191	136	6	393	1093
17:45	22	94	31	0	147	74	72	6	0	152	130	183	121	0	434	34	196	102	1	333	1066
Total Volume	73	509	116	0	698	269	263	22	0	554	439	579	452	1	1471	169	737	477	19	1402	4125
% App Total	10.5%	72.9%	16.6%	0.0%		48.6%	47.5%	4.0%	0.0%		29.8%	39.4%	30.7%	0.1%		12.1%	52.6%	34.0%	1.4%		
PHF	.830	.821	.725	.000	.835	.708	.913	.786	.000	.810	.844	.791	.837	.250	.847	.704	.940	.877	.792	.892	.944

ALL TRAFFIC DATA

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City of Dublin
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

File Name : 16-7423-026 Tassajara Rd & Dublin Blvd
Date : 6/1/2016

Bank 1 Count = Bikes & Peds

	Tassajara Rd Southbound					Dublin Blvd Westbound					Tassajara Rd Northbound					Dublin Blvd Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
12:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	7
12:15	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1	0	0	6	1	1	7
12:30	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	5	0	0	7
12:45	0	0	0	2	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0	0	6
Total	0	0	0	5	0	0	0	0	2	0	0	0	0	0	0	1	0	0	20	1	1	27
13:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	0	5	1	1	6
13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	1
13:30	0	0	0	1	0	0	0	0	0	0	0	1	0	0	1	0	0	0	2	0	1	3
13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2
Total	0	0	0	2	0	0	0	0	0	0	0	1	0	0	1	0	2	0	10	2	3	12
14:00	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	2
14:15	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	4
14:30	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
14:45	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1
Total	0	0	0	6	0	0	1	0	0	1	0	0	0	0	0	1	0	0	2	1	2	8
15:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	0
15:30	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
15:45	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	4
Total	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	1	1	5
16:00	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	4
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0
16:30	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
16:45	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	1	2	0
Total	0	1	0	2	1	0	1	0	0	1	0	0	0	0	0	0	2	0	2	2	4	4
17:00	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1
17:30	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1	4
17:45	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	10
Total	0	0	0	11	0	0	1	0	0	1	0	0	0	0	0	0	1	0	5	1	2	16
Grand Total	0	1	0	29	1	0	3	0	2	3	0	1	0	0	1	2	5	1	41	8	13	72
Apprch %	0.0%	100.0%	0.0%			0.0%	100.0%	0.0%			0.0%	100.0%	0.0%			25.0%	62.5%	12.5%				
Total %	0.0%	7.7%	0.0%		7.7%	0.0%	23.1%	0.0%		23.1%	0.0%	7.7%	0.0%		7.7%	15.4%	38.5%	7.7%		61.5%	100.0%	

PM PEAK HOUR	Tassajara Rd Southbound					Dublin Blvd Westbound					Tassajara Rd Northbound					Dublin Blvd Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	1
17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
17:30	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
17:45	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0
Total Volume	0	0	0	11	0	0	1	0	0	1	0	0	0	0	0	0	1	0	5	1	2
% App Total	0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.000	.000	.000		.000	.000	.250	.000		.250	.000	.000	.000		.000	.000	.250	.000		.250	.500

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Dublin
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

File Name : 16-7423-026 Tassajara Rd & Dublin Blvd
Date : 6/1/2016

Bank 2 Count = Heavy Trucks

	Tassajara Rd Southbound					Dublin Blvd Westbound					Tassajara Rd Northbound					Dublin Blvd Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
12:00	0	4	4	0	8	0	2	0	0	2	1	5	0	0	6	0	2	3	0	5	21	0
12:15	0	2	1	0	3	0	2	0	0	2	1	5	1	0	7	2	1	1	0	4	16	0
12:30	0	7	0	0	7	2	3	0	0	5	2	7	3	0	12	0	4	1	0	5	29	0
12:45	0	7	0	0	7	3	3	0	0	6	2	2	1	0	5	1	2	3	0	6	24	0
Total	0	20	5	0	25	5	10	0	0	15	6	19	5	0	30	3	9	8	0	20	90	0
13:00	1	2	2	0	5	2	1	0	0	3	0	7	4	0	11	0	2	3	0	5	24	0
13:15	1	4	0	0	5	1	3	0	0	4	0	1	1	0	2	0	0	3	0	3	14	0
13:30	0	6	1	0	7	4	2	0	0	6	3	6	0	0	9	0	2	4	0	6	28	0
13:45	0	6	0	0	6	0	1	0	0	1	2	6	0	0	8	0	1	1	0	2	17	0
Total	2	18	3	0	23	7	7	0	0	14	5	20	5	0	30	0	5	11	0	16	83	0
14:00	0	8	0	0	8	2	2	0	0	4	1	2	2	0	5	0	3	2	0	5	22	0
14:15	0	5	0	0	5	2	1	0	0	3	2	1	1	0	4	0	3	2	0	5	17	0
14:30	0	6	0	0	6	1	3	0	0	4	0	2	1	0	3	0	1	0	0	1	14	0
14:45	0	3	1	0	4	0	1	0	0	1	1	2	0	0	3	1	3	1	0	5	13	0
Total	0	22	1	0	23	5	7	0	0	12	4	7	4	0	15	1	10	5	0	16	66	0
15:00	0	3	0	0	3	1	1	0	0	2	2	3	1	0	6	0	4	1	0	5	16	0
15:15	0	6	0	0	6	1	1	0	0	2	0	2	0	0	2	1	1	2	0	4	14	0
15:30	0	7	0	0	7	0	4	0	0	4	2	3	0	0	5	0	3	1	0	4	20	0
15:45	0	6	0	0	6	2	1	0	0	3	1	2	0	0	3	0	1	2	0	3	15	0
Total	0	22	0	0	22	4	7	0	0	11	5	10	1	0	16	1	9	6	0	16	65	0
16:00	0	3	1	0	4	0	2	0	0	2	0	2	0	0	2	1	4	1	0	6	14	0
16:15	0	0	0	0	0	0	2	1	0	3	0	1	0	0	1	0	2	1	0	3	7	0
16:30	0	5	0	0	5	1	2	0	0	3	0	0	1	0	1	0	5	1	0	6	15	0
16:45	0	1	0	0	1	0	1	0	0	1	1	0	1	0	2	0	2	3	0	5	9	0
Total	0	9	1	0	10	1	7	1	0	9	1	3	2	0	6	1	13	6	0	20	45	0
17:00	0	1	2	0	3	0	3	0	0	3	0	1	0	0	1	0	3	0	0	3	10	0
17:15	1	2	0	0	3	2	2	0	0	4	1	0	0	0	1	1	1	0	0	2	10	0
17:30	0	0	1	0	1	0	2	0	0	2	0	0	1	0	1	0	2	1	0	3	7	0
17:45	0	2	0	0	2	1	2	0	0	3	0	1	0	0	1	0	2	1	0	3	9	0
Total	1	5	3	0	9	3	9	0	0	12	1	2	1	0	4	1	8	2	0	11	36	0
Grand Total	3	96	13	0	112	25	47	1	0	73	22	61	18	0	101	7	54	38	0	99	385	0
Apprch %	2.7%	85.7%	11.6%			34.2%	64.4%	1.4%			21.8%	60.4%	17.8%			7.1%	54.5%	38.4%				
Total %	0.8%	24.9%	3.4%		29.1%	6.5%	12.2%	0.3%		19.0%	5.7%	15.8%	4.7%		26.2%	1.8%	14.0%	9.9%		25.7%	100.0%	

PM PEAK HOUR	Tassajara Rd Southbound					Dublin Blvd Westbound					Tassajara Rd Northbound					Dublin Blvd Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	1	2	0	3	0	3	0	0	3	0	1	0	0	1	0	3	0	0	3	10
17:15	1	2	0	0	3	2	2	0	0	4	1	0	0	0	1	1	1	0	0	2	10
17:30	0	0	1	0	1	0	2	0	0	2	0	0	1	0	1	0	2	1	0	3	7
17:45	0	2	0	0	2	1	2	0	0	3	0	1	0	0	1	0	2	1	0	3	9
Total Volume	1	5	3	0	9	3	9	0	0	12	1	2	1	0	4	1	8	2	0	11	36
% App Total	11.1%	55.6%	33.3%			25.0%	75.0%	0.0%			25.0%	50.0%	25.0%			9.1%	72.7%	18.2%			
PHF	.250	.625	.375		.750	.375	.750	.000		.750	.250	.500	.250		1.000	.250	.667	.500		.917	.900

National Data and Surveying Services

City of Dublin
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Peds & Bikes On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7215-001 Hacienda Dr & Dublin Blvd
Date : 3/15/2017

Unshifted Count = All Vehicles & Uturns

	Hacienda Dr Southbound					Dublin Blvd Westbound					Hacienda Dr Northbound					Dublin Blvd Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
7:00	1	34	13	0	48	38	78	6	1	123	18	98	19	0	135	13	41	15	0	69	375	1
7:15	0	58	12	0	70	48	72	5	0	125	20	129	29	0	178	9	30	16	0	55	428	0
7:30	2	78	14	0	94	46	99	9	0	154	22	109	32	0	163	14	39	22	0	75	486	0
7:45	2	72	7	0	81	74	116	15	0	205	24	148	32	0	204	14	47	20	1	82	572	1
Total	5	242	46	0	293	206	365	35	1	607	84	484	112	0	680	50	157	73	1	281	1861	2
8:00	3	88	14	0	105	73	100	12	1	186	32	193	41	0	266	19	65	27	0	111	668	1
8:15	6	124	38	0	168	73	139	13	1	226	18	133	41	0	192	12	52	16	2	82	668	3
8:30	4	129	73	0	206	85	201	10	0	296	35	143	26	0	204	17	78	25	0	120	826	0
8:45	0	116	22	0	138	73	168	18	1	260	33	130	37	0	200	25	78	26	2	131	729	3
Total	13	457	147	0	617	304	608	53	3	968	118	599	145	0	862	73	273	94	4	444	2891	7
Grand Total	18	699	193	0	910	510	973	88	4	1575	202	1083	257	0	1542	123	430	167	5	725	4752	9
Apprch %	2.0%	76.8%	21.2%	0.0%		32.4%	61.8%	5.6%	0.3%		13.1%	70.2%	16.7%	0.0%		17.0%	59.3%	23.0%	0.7%			
Total %	0.4%	14.7%	4.1%	0.0%	19.1%	10.7%	20.5%	1.9%	0.1%	33.1%	4.3%	22.8%	5.4%	0.0%	32.4%	2.6%	9.0%	3.5%	0.1%	15.3%	100.0%	

AM PEAK HOUR	Hacienda Dr Southbound					Dublin Blvd Westbound					Hacienda Dr Northbound					Dublin Blvd Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	3	88	14	0	105	73	100	12	1	186	32	193	41	0	266	19	65	27	0	111	668
8:15	6	124	38	0	168	73	139	13	1	226	18	133	41	0	192	12	52	16	2	82	668
8:30	4	129	73	0	206	85	201	10	0	296	35	143	26	0	204	17	78	25	0	120	826
8:45	0	116	22	0	138	73	168	18	1	260	33	130	37	0	200	25	78	26	2	131	729
Total Volume	13	457	147	0	617	304	608	53	3	968	118	599	145	0	862	73	273	94	4	444	2891
% App Total	2.1%	74.1%	23.8%	0.0%		31.4%	62.8%	5.5%	0.3%		13.7%	69.5%	16.8%	0.0%		16.4%	61.5%	21.2%	0.9%		
PHF	.542	.886	.503	.000	.749	.894	.756	.736	.750	.818	.843	.776	.884	.000	.810	.730	.875	.870	.500	.847	.875

National Data and Surveying Services

City of Dublin
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Peds & Bikes On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7215-001 Hacienda Dr & Dublin Blvd
Date : 3/15/2017

Bank 1 Count = Heavy Trucks

	Hacienda Dr Southbound					Dublin Blvd Westbound					Hacienda Dr Northbound					Dublin Blvd Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	0	0	1	2	0	0	3	2	0	0	0	2	0	0	0	0	0	5	0
7:15	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	0	0	0	0	2	0
7:30	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	0	2	0	2	4	0
7:45	0	0	0	0	0	0	1	0	0	1	2	0	0	0	2	0	0	0	0	0	3	0
Total	0	0	0	0	0	1	3	0	0	4	6	1	1	0	8	0	0	2	0	2	14	0
8:00	0	1	0	0	1	0	0	0	0	0	3	0	1	0	4	0	1	0	0	1	6	0
8:15	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0
8:30	0	0	0	0	0	0	1	0	0	1	0	0	2	0	2	0	1	1	0	2	5	0
8:45	0	1	0	0	1	0	1	0	0	1	1	0	0	0	1	0	1	4	0	5	8	0
Total	0	3	0	0	3	0	2	0	0	2	4	0	3	0	7	0	3	5	0	8	20	0
Grand Total	0	3	0	0	3	1	5	0	0	6	10	1	4	0	15	0	3	7	0	10	34	0
Apprch %	0.0%	100.0%	0.0%			16.7%	83.3%	0.0%			66.7%	6.7%	26.7%			0.0%	30.0%	70.0%				
Total %	0.0%	8.8%	0.0%		8.8%	2.9%	14.7%	0.0%		17.6%	29.4%	2.9%	11.8%		44.1%	0.0%	8.8%	20.6%		29.4%	100.0%	

AM PEAK HOUR	Hacienda Dr Southbound					Dublin Blvd Westbound					Hacienda Dr Northbound					Dublin Blvd Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	1	0	0	1	0	0	0	0	0	3	0	1	0	4	0	1	0	0	1	6
8:15	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:30	0	0	0	0	0	0	1	0	0	1	0	0	2	0	2	0	1	1	0	2	5
8:45	0	1	0	0	1	0	1	0	0	1	1	0	0	0	1	0	1	4	0	5	8
Total Volume	0	3	0	0	3	0	2	0	0	2	4	0	3	0	7	0	3	5	0	8	20
% App Total	0.0%	100.0%	0.0%			0.0%	100.0%	0.0%			57.1%	0.0%	42.9%			0.0%	37.5%	62.5%			
PHF	.000	.750	.000		.750	.000	.500	.000		.500	.333	.000	.375		.438	.000	.750	.313		.400	.625

National Data and Surveying Services

City of Dublin
All Vehicles & Uturns On Unshifted
Heavy Trucks On Bank 1
Peds & Bikes On Bank 2

(323) 782-0090
info@ndsdata.com

File Name : 17-7215-001 Hacienda Dr & Dublin Blvd
Date : 3/15/2017

Bank 2 Count = Peds & Bikes

	Hacienda Dr Southbound					Dublin Blvd Westbound					Hacienda Dr Northbound					Dublin Blvd Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
7:00	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:15	0	0	1	0	1	0	0	0	1	0	0	0	0	3	0	0	1	0	0	1	2	4
7:30	0	0	0	0	0	0	0	0	2	0	0	0	0	1	0	0	1	0	1	1	1	4
7:45	0	1	0	2	1	0	0	0	2	0	0	0	0	7	0	0	1	0	3	1	2	14
Total	0	1	1	3	2	0	0	0	5	0	0	0	0	11	0	0	3	0	4	3	5	23
8:00	0	1	0	0	1	1	3	0	0	4	0	0	0	0	0	0	0	0	0	0	5	0
8:15	0	1	0	9	1	0	3	0	1	3	0	0	0	5	0	0	0	0	2	0	4	17
8:30	0	1	0	5	1	0	1	0	3	1	0	0	0	0	0	0	0	0	3	0	2	11
8:45	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	0	8
Total	0	3	0	16	3	1	7	0	4	8	0	0	0	8	0	0	0	0	8	0	11	36
Grand Total	0	4	1	19	5	1	7	0	9	8	0	0	0	19	0	0	3	0	12	3	16	59
Apprch %	0.0%	80.0%	20.0%			12.5%	87.5%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%				
Total %	0.0%	25.0%	6.3%		31.3%	6.3%	43.8%	0.0%		50.0%	0.0%	0.0%	0.0%		0.0%	0.0%	18.8%	0.0%		18.8%	100.0%	

AM PEAK HOUR	Hacienda Dr Southbound					Dublin Blvd Westbound					Hacienda Dr Northbound					Dublin Blvd Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 08:00 to 09:00																					
Peak Hour For Entire Intersection Begins at 08:00																					
8:00	0	1	0	0	1	1	3	0	0	4	0	0	0	0	0	0	0	0	0	0	5
8:15	0	1	0	9	1	0	3	0	1	3	0	0	0	5	0	0	0	0	2	0	4
8:30	0	1	0	5	1	0	1	0	3	1	0	0	0	0	0	0	0	0	3	0	2
8:45	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0	0
Total Volume	0	3	0	16	3	1	7	0	4	8	0	0	0	8	0	0	0	0	8	0	11
% App Total	0.0%	100.0%	0.0%			12.5%	87.5%	0.0%			0.0%	0.0%	0.0%			0.0%	0.0%	0.0%			
PHF	.000	.750	.000		.750	.250	.583	.000		.500	.000	.000	.000		.000	.000	.000	.000		.000	.550

ALL TRAFFIC DATA

City of Dublin
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7423-017 Hacienda Dr & Dublin Blvd
Date : 6/1/2016

Unshifted Count = All Vehicles & Uturns

	Hacienda Dr Southbound					Dublin Blvd Westbound					Hacienda Dr Northbound					Dublin Blvd Eastbound						
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total	Uturns Total
12:00	18	73	11	0	102	49	117	8	0	174	32	56	71	0	159	22	148	45	1	216	651	1
12:15	31	73	10	0	114	53	130	17	2	202	49	80	55	0	184	16	135	48	0	199	699	2
12:30	19	62	13	1	95	69	142	12	1	224	42	89	48	3	182	19	147	34	1	201	702	6
12:45	12	57	8	2	79	83	119	16	3	221	38	65	53	0	156	38	140	44	0	222	678	5
Total	80	265	42	3	390	254	508	53	6	821	161	290	227	3	681	95	570	171	2	838	2730	14
13:00	9	57	2	0	68	56	126	14	0	196	50	66	55	0	171	21	97	54	2	174	609	2
13:15	4	47	6	1	58	69	127	8	0	204	38	64	52	2	156	28	140	50	0	218	636	3
13:30	13	45	12	0	70	56	113	2	0	171	41	45	55	0	141	23	135	67	0	225	607	0
13:45	4	51	6	0	61	63	136	8	1	208	57	54	66	1	178	16	136	54	1	207	654	3
Total	30	200	26	1	257	244	502	32	1	779	186	229	228	3	646	88	508	225	3	824	2506	8
14:00	9	78	13	0	100	59	112	9	0	180	42	47	41	1	131	13	115	44	0	172	583	1
14:15	3	85	16	1	105	54	110	5	1	170	39	63	44	0	146	19	132	43	0	194	615	2
14:30	9	101	11	0	121	38	111	7	0	156	38	51	55	1	145	27	147	50	2	226	648	3
14:45	2	76	6	2	86	53	118	4	1	176	26	48	73	1	148	27	176	57	0	260	670	4
Total	23	340	46	3	412	204	451	25	2	682	145	209	213	3	570	86	570	194	2	852	2516	10
15:00	4	127	26	0	157	56	120	5	0	181	31	64	67	0	162	23	133	46	0	202	702	0
15:15	12	109	18	1	140	40	118	3	2	163	40	62	59	0	161	24	171	60	1	256	720	4
15:30	9	115	12	1	137	42	122	3	0	167	39	45	57	0	141	31	214	47	0	292	737	1
15:45	8	94	14	0	116	35	113	2	0	150	35	64	69	0	168	48	248	39	0	335	769	0
Total	33	445	70	2	550	173	473	13	2	661	145	235	252	0	632	126	766	192	1	1085	2928	5
16:00	8	103	16	0	127	38	115	5	0	158	38	56	73	0	167	38	280	67	0	385	837	0
16:15	5	100	17	0	122	42	122	1	0	165	40	62	68	1	171	31	220	61	0	312	770	1
16:30	18	125	17	0	160	37	109	4	0	150	46	88	63	1	198	23	242	57	0	322	830	1
16:45	10	109	19	0	138	50	124	2	2	178	49	96	71	0	216	31	268	46	2	347	879	4
Total	41	437	69	0	547	167	470	12	2	651	173	302	275	2	752	123	1010	231	2	1366	3316	6
17:00	23	139	19	0	181	33	146	6	1	186	42	107	84	0	233	38	273	62	0	373	973	1
17:15	13	146	17	1	177	36	148	4	2	190	35	121	111	1	268	49	242	29	2	322	957	6
17:30	16	102	19	1	138	51	163	2	3	219	76	137	92	0	305	39	238	29	0	306	968	4
17:45	7	92	25	1	125	54	182	5	1	242	57	114	87	0	258	26	262	55	1	344	969	3
Total	59	479	80	3	621	174	639	17	7	837	210	479	374	1	1064	152	1015	175	3	1345	3867	14
Grand Total	266	2166	333	12	2777	1216	3043	152	20	4431	1020	1744	1569	12	4345	670	4439	1188	13	6310	17863	57
Apprch %	9.6%	78.0%	12.0%	0.4%		27.4%	68.7%	3.4%	0.5%		23.5%	40.1%	36.1%	0.3%		10.6%	70.3%	18.8%	0.2%			
Total %	1.5%	12.1%	1.9%	0.1%	15.5%	6.8%	17.0%	0.9%	0.1%	24.8%	5.7%	9.8%	8.8%	0.1%	24.3%	3.8%	24.9%	6.7%	0.1%	35.3%	100.0%	

PM PEAK HOUR	Hacienda Dr Southbound					Dublin Blvd Westbound					Hacienda Dr Northbound					Dublin Blvd Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	23	139	19	0	181	33	146	6	1	186	42	107	84	0	233	38	273	62	0	373	973
17:15	13	146	17	1	177	36	148	4	2	190	35	121	111	1	268	49	242	29	2	322	957
17:30	16	102	19	1	138	51	163	2	3	219	76	137	92	0	305	39	238	29	0	306	968
17:45	7	92	25	1	125	54	182	5	1	242	57	114	87	0	258	26	262	55	1	344	969
Total Volume	59	479	80	3	621	174	639	17	7	837	210	479	374	1	1064	152	1015	175	3	1345	3867
% App Total	9.5%	77.1%	12.9%	0.5%		20.8%	76.3%	2.0%	0.8%		19.7%	45.0%	35.2%	0.1%		11.3%	75.5%	13.0%	0.2%		
PHF	.641	.820	.800	.750	.858	.806	.878	.708	.583	.865	.691	.874	.842	.250	.872	.776	.929	.706	.375	.901	.994

ALL TRAFFIC DATA

City of Dublin
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

(916) 771-8700
orders@atdtraffic.com

File Name : 16-7423-017 Hacienda Dr & Dublin Blvd
Date : 6/1/2016

Bank 1 Count = Bikes & Peds

	Hacienda Dr Southbound					Dublin Blvd Westbound					Hacienda Dr Northbound					Dublin Blvd Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
12:00	1	0	0	0	1	0	0	0	0	0	0	0	0	5	0	0	0	0	6	0	1	11
12:15	0	1	0	0	1	0	0	0	1	0	0	0	0	3	0	0	3	0	4	3	4	8
12:30	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	2	0	1	2	2	2
12:45	0	0	0	0	0	0	0	0	2	0	0	0	0	3	0	0	0	0	1	0	0	6
Total	1	1	0	1	2	0	0	0	3	0	0	0	0	11	0	0	5	0	12	5	7	27
13:00	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	2	0	3	2	2	5
13:15	0	0	0	0	0	0	0	0	1	0	0	0	0	4	0	0	1	0	2	1	1	7
13:30	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1
13:45	0	0	0	1	0	0	0	0	1	0	0	0	0	1	0	0	1	0	2	1	1	5
Total	0	0	0	2	0	0	1	0	2	1	0	0	0	7	0	0	4	0	7	4	5	18
14:00	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1	0	1	1
14:15	0	0	0	0	0	0	1	0	0	1	0	0	0	1	0	0	0	0	0	0	1	1
14:30	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
14:45	0	1	0	2	1	0	1	0	1	1	0	0	0	1	0	0	2	0	2	2	4	6
Total	0	1	0	2	1	0	3	0	2	3	0	0	0	3	0	0	2	0	3	2	6	10
15:00	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	0	0	1	2	0
15:15	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
15:30	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	2
15:45	0	0	0	1	0	0	0	0	2	0	0	0	0	1	0	0	0	0	1	0	0	5
Total	0	0	0	4	0	0	0	0	3	0	0	1	0	2	1	0	1	0	1	1	2	10
16:00	0	0	0	2	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	0	0	6
16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	1	2
16:30	0	0	0	3	0	0	1	0	1	1	0	0	0	1	0	0	0	1	3	1	2	8
16:45	0	0	0	2	0	0	0	0	0	0	1	1	2	0	4	0	1	0	2	1	5	4
Total	0	0	0	7	0	0	1	0	1	1	1	1	2	6	4	0	2	1	6	3	8	20
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0	4
17:15	0	0	0	7	0	0	0	0	1	0	0	0	0	4	0	0	0	0	1	0	0	13
17:30	0	0	0	1	0	0	0	0	1	0	0	0	0	4	0	0	1	0	2	1	1	8
17:45	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	0	0	0	0	1	2
Total	0	0	0	8	0	0	0	0	3	0	0	1	0	11	1	0	1	0	5	1	2	27
Grand Total	1	2	0	24	3	0	5	0	14	5	1	3	2	40	6	0	15	1	34	16	30	112
Apprch %	33.3%	66.7%	0.0%			0.0%	100.0%	0.0%			16.7%	50.0%	33.3%			0.0%	93.8%	6.3%				
Total %	3.3%	6.7%	0.0%		10.0%	0.0%	16.7%	0.0%		16.7%	3.3%	10.0%	6.7%		20.0%	0.0%	50.0%	3.3%		53.3%	100.0%	

PM PEAK HOUR	Hacienda Dr Southbound					Dublin Blvd Westbound					Hacienda Dr Northbound					Dublin Blvd Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	0	0
17:15	0	0	0	7	0	0	0	0	1	0	0	0	0	4	0	0	0	0	1	0	0
17:30	0	0	0	1	0	0	0	0	1	0	0	0	0	4	0	0	1	0	2	1	1
17:45	0	0	0	0	0	0	0	0	1	0	0	1	0	1	1	0	0	0	0	0	1
Total Volume	0	0	0	8	0	0	0	0	3	0	0	1	0	11	1	0	1	0	5	1	2
% App Total	0.0%	0.0%	0.0%			0.0%	0.0%	0.0%			0.0%	100.0%	0.0%			0.0%	100.0%	0.0%			
PHF	.000	.000	.000		.000	.000	.000	.000		.000	.000	.250	.000		.250	.000	.250	.000		.250	.500

ALL TRAFFIC DATA

(916) 771-8700
orders@atdtraffic.com

City of Dublin
All Vehicles & Uturns On Unshifted
Bikes & Peds On Bank 1
Heavy Trucks On Bank 2

File Name : 16-7423-017 Hacienda Dr & Dublin Blvd
Date : 6/1/2016

Bank 2 Count = Heavy Trucks

	Hacienda Dr Southbound					Dublin Blvd Westbound					Hacienda Dr Northbound					Dublin Blvd Eastbound						
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total	Peds Total
12:00	0	1	0	0	1	1	4	0	0	5	2	1	0	0	3	1	4	2	0	7	16	0
12:15	0	2	0	0	2	1	3	0	0	4	1	2	4	0	7	1	4	1	0	6	19	0
12:30	1	0	0	0	1	1	6	0	0	7	1	5	0	0	6	1	6	3	0	10	24	0
12:45	0	3	0	0	3	1	4	0	0	5	1	2	3	0	6	1	2	2	0	5	19	0
Total	1	6	0	0	7	4	17	0	0	21	5	10	7	0	22	4	16	8	0	28	78	0
13:00	0	2	0	0	2	0	5	0	0	5	3	2	0	0	5	1	3	3	0	7	19	0
13:15	0	3	0	0	3	2	3	0	0	5	2	0	1	0	3	2	2	1	0	5	16	0
13:30	0	2	0	0	2	2	2	0	0	4	1	1	2	0	4	1	1	2	0	4	14	0
13:45	0	1	0	0	1	2	2	0	0	4	2	1	1	0	4	0	2	1	0	3	12	0
Total	0	8	0	0	8	6	12	0	0	18	8	4	4	0	16	4	8	7	0	19	61	0
14:00	0	2	0	0	2	1	3	0	0	4	0	1	1	0	2	1	4	2	0	7	15	0
14:15	0	3	0	0	3	0	3	0	0	3	2	3	1	0	6	1	2	0	0	3	15	0
14:30	0	3	0	0	3	0	6	0	0	6	2	1	1	0	4	1	3	1	0	5	18	0
14:45	0	2	1	0	3	0	2	0	0	2	1	0	0	0	1	2	3	2	0	7	13	0
Total	0	10	1	0	11	1	14	0	0	15	5	5	3	0	13	5	12	5	0	22	61	0
15:00	0	2	0	0	2	1	3	0	0	4	0	0	1	0	1	1	4	4	0	9	16	0
15:15	0	2	0	0	2	0	2	1	0	3	3	1	1	0	5	0	5	2	0	7	17	0
15:30	0	2	1	0	3	0	4	0	0	4	1	1	1	0	3	1	3	0	0	4	14	0
15:45	1	2	1	0	4	0	2	0	0	2	0	2	2	0	4	2	4	0	0	6	16	0
Total	1	8	2	0	11	1	11	1	0	13	4	4	5	0	13	4	16	6	0	26	63	0
16:00	0	1	1	0	2	0	1	1	0	2	1	1	2	0	4	1	4	0	0	5	13	0
16:15	0	2	1	0	3	0	2	0	0	2	1	2	1	0	4	1	5	1	0	7	16	0
16:30	0	2	0	0	2	1	3	0	0	4	2	2	0	0	4	1	6	2	0	9	19	0
16:45	0	1	1	0	2	0	3	0	0	3	0	0	1	0	1	0	2	0	0	2	8	0
Total	0	6	3	0	9	1	9	1	0	11	4	5	4	0	13	3	17	3	0	23	56	0
17:00	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	3	1	0	5	7	0
17:15	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	1	2	1	0	4	8	0
17:30	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	1	2	0	0	3	6	0
17:45	0	2	0	0	2	1	2	0	0	3	1	0	1	0	2	0	2	2	0	4	11	0
Total	0	4	0	0	4	1	9	0	0	10	1	0	1	0	2	3	9	4	0	16	32	0
Grand Total	2	42	6	0	50	14	72	2	0	88	27	28	24	0	79	23	78	33	0	134	351	0
Apprch %	4.0%	84.0%	12.0%			15.9%	81.8%	2.3%			34.2%	35.4%	30.4%			17.2%	58.2%	24.6%				
Total %	0.6%	12.0%	1.7%		14.2%	4.0%	20.5%	0.6%		25.1%	7.7%	8.0%	6.8%		22.5%	6.6%	22.2%	9.4%		38.2%	100.0%	

PM PEAK HOUR	Hacienda Dr Southbound					Dublin Blvd Westbound					Hacienda Dr Northbound					Dublin Blvd Eastbound					
START TIME	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	LEFT	THRU	RIGHT	PEDS	APP.TOTAL	Total
Peak Hour Analysis From 17:00 to 18:00																					
Peak Hour For Entire Intersection Begins at 17:00																					
17:00	0	0	0	0	0	0	2	0	0	2	0	0	0	0	0	1	3	1	0	5	7
17:15	0	1	0	0	1	0	3	0	0	3	0	0	0	0	0	1	2	1	0	4	8
17:30	0	1	0	0	1	0	2	0	0	2	0	0	0	0	0	1	2	0	0	3	6
17:45	0	2	0	0	2	1	2	0	0	3	1	0	1	0	2	0	2	2	0	4	11
Total Volume	0	4	0	0	4	1	9	0	0	10	1	0	1	0	2	3	9	4	0	16	32
% App Total	0.0%	100.0%	0.0%			10.0%	90.0%	0.0%			50.0%	0.0%	50.0%			18.8%	56.3%	25.0%			
PHF	.000	.500	.000		.500	.250	.750	.000		.833	.250	.000	.250		.250	.750	.750	.500		.800	.727

B - Existing Traffic Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	196	72	310	208	103	67	461	103	135	943	78
Future Volume (vph)	44	196	72	310	208	103	67	461	103	135	943	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.5	5.3	5.3	4.0	5.3	5.3
Lane Util. Factor	0.97	1.00	0.88	0.97	1.00	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.92	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3335	1900	2596	3467	1900	1575	3433	4988	1564	1805	5136	1542
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3335	1900	2596	3467	1900	1575	3433	4988	1564	1805	5136	1542
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	52	231	85	365	245	121	79	542	121	159	1109	92
RTOR Reduction (vph)	0	0	60	0	0	76	0	0	90	0	0	52
Lane Group Flow (vph)	52	231	25	365	245	45	79	542	31	159	1109	40
Confl. Peds. (#/hr)	18		92	92		18	5		1	1		5
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	5%	0%	1%	1%	0%	0%	2%	4%	1%	0%	1%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	7.5	32.5	32.5	16.5	41.5	41.5	7.5	28.1	28.1	15.2	35.3	35.3
Effective Green, g (s)	7.5	32.5	32.5	16.5	41.5	41.5	7.5	28.1	28.1	15.2	35.3	35.3
Actuated g/C Ratio	0.07	0.29	0.29	0.15	0.38	0.38	0.07	0.25	0.25	0.14	0.32	0.32
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.5	5.3	5.3	4.0	5.3	5.3
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)	226	558	762	517	712	590	232	1267	397	248	1639	492
v/s Ratio Prot	0.02	c0.12		c0.11	0.13		0.02	0.11		c0.09	c0.22	
v/s Ratio Perm			0.01			0.03			0.02			0.03
v/c Ratio	0.23	0.41	0.03	0.71	0.34	0.08	0.34	0.43	0.08	0.64	0.68	0.08
Uniform Delay, d1	48.8	31.4	27.8	44.7	24.8	22.2	49.2	34.5	31.4	45.1	32.7	26.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.7	0.0	3.6	0.4	0.1	0.3	0.3	0.1	4.2	1.2	0.1
Delay (s)	49.0	32.1	27.9	48.3	25.2	22.3	49.5	34.8	31.5	49.3	33.9	26.4
Level of Service	D	C	C	D	C	C	D	C	C	D	C	C
Approach Delay (s)		33.5			36.3			35.9			35.2	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	35.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	110.6	Sum of lost time (s)	18.8
Intersection Capacity Utilization	90.2%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	102	0	201	0	0	0	304	529	0	0	1086	239
Future Volume (vph)	102	0	201	0	0	0	304	529	0	0	1086	239
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3		5.3				5.3	5.7			5.7	5.7
Lane Util. Factor	0.97		0.88				0.97	0.95			0.95	1.00
Frpb, ped/bikes	1.00		1.00				1.00	1.00			1.00	0.99
Flpb, ped/bikes	1.00		1.00				1.00	1.00			1.00	1.00
Frt	1.00		0.85				1.00	1.00			1.00	0.85
Flt Protected	0.95		1.00				0.95	1.00			1.00	1.00
Satd. Flow (prot)	3400		2707				3335	3505			3539	1591
Flt Permitted	0.95		1.00				0.95	1.00			1.00	1.00
Satd. Flow (perm)	3400		2707				3335	3505			3539	1591
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	109	0	214	0	0	0	323	563	0	0	1155	254
RTOR Reduction (vph)	0	0	182	0	0	0	0	0	0	0	0	83
Lane Group Flow (vph)	109	0	32	0	0	0	323	563	0	0	1155	171
Confl. Peds. (#/hr)							5		1	1		5
Heavy Vehicles (%)	3%	0%	5%	0%	0%	0%	5%	3%	0%	0%	2%	0%
Turn Type	Prot		pm+ov	Prot			Prot	NA		Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2									4
Actuated Green, G (s)	10.0		12.5				12.5	61.5			43.7	43.7
Effective Green, g (s)	10.0		12.5				12.5	61.5			43.7	43.7
Actuated g/C Ratio	0.12		0.15				0.15	0.75			0.53	0.53
Clearance Time (s)	5.3		5.3				5.3	5.7			5.7	5.7
Vehicle Extension (s)	2.0		2.0				2.0	4.0			4.0	4.0
Lane Grp Cap (vph)	412		410				505	2612			1874	842
v/s Ratio Prot	c0.03		0.01				c0.10	0.16			c0.33	
v/s Ratio Perm												0.11
v/c Ratio	0.26		0.08				0.64	0.22			0.62	0.20
Uniform Delay, d1	32.9		30.1				32.9	3.2			13.5	10.2
Progression Factor	1.00		1.00				1.00	1.00			1.00	1.00
Incremental Delay, d2	0.1		0.0				2.0	0.1			0.7	0.2
Delay (s)	33.0		30.1				34.8	3.2			14.2	10.4
Level of Service	C		C				C	A			B	B
Approach Delay (s)		31.1			0.0			14.8			13.5	
Approach LOS		C			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	16.1	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	82.5	Sum of lost time (s)	22.1
Intersection Capacity Utilization	63.4%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	237	6	544	0	478	282	0	768	667
Future Volume (vph)	0	0	0	237	6	544	0	478	282	0	768	667
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.2	4.2	4.2		5.3	4.0		5.3	5.3
Lane Util. Factor				0.95	0.95	0.88		0.95	0.95		0.95	1.00
Frpb, ped/bikes				1.00	1.00	1.00		1.00	1.00		1.00	0.99
Flpb, ped/bikes				1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt				1.00	1.00	0.85		0.99	0.85		1.00	0.85
Flt Protected				0.95	0.95	1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				1633	1643	2760		1722	1279		3505	1563
Flt Permitted				0.95	0.95	1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				1633	1643	2760		1722	1279		3505	1563
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	249	6	573	0	503	297	0	808	702
RTOR Reduction (vph)	0	0	0	0	0	448	0	4	0	0	0	380
Lane Group Flow (vph)	0	0	0	127	128	125	0	529	267	0	808	322
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	0%	0%	0%	5%	2%	3%	0%	3%	20%	0%	3%	2%
Turn Type				Split	NA	Perm		NA	Free		NA	Perm
Protected Phases				8	8			2			6	
Permitted Phases						8			Free			6
Actuated Green, G (s)				6.4	6.4	6.4		13.5	29.4		13.5	13.5
Effective Green, g (s)				6.4	6.4	6.4		13.5	29.4		13.5	13.5
Actuated g/C Ratio				0.22	0.22	0.22		0.46	1.00		0.46	0.46
Clearance Time (s)				4.2	4.2	4.2		5.3			5.3	5.3
Vehicle Extension (s)				0.2	0.2	0.2		0.2			0.2	0.2
Lane Grp Cap (vph)				355	357	600		790	1279		1609	717
v/s Ratio Prot				0.08	c0.08			c0.31			0.23	
v/s Ratio Perm						0.05			0.21			0.21
v/c Ratio				0.36	0.36	0.21		0.67	0.21		0.50	0.45
Uniform Delay, d1				9.8	9.8	9.4		6.2	0.0		5.6	5.4
Progression Factor				1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				0.2	0.2	0.1		1.7	0.4		0.1	0.2
Delay (s)				10.0	10.0	9.5		7.9	0.4		5.7	5.6
Level of Service				A	A	A		A	A		A	A
Approach Delay (s)		0.0			9.6			5.4			5.6	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.57		
Actuated Cycle Length (s)	29.4	Sum of lost time (s)	9.5
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	293	0	244	0	0	0	0	467	117	0	524	0
Future Volume (vph)	293	0	244	0	0	0	0	467	117	0	524	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2		4.2					5.8	4.0		5.8	
Lane Util. Factor	0.97		0.88					0.91	0.91		0.95	
Frpb, ped/bikes	1.00		1.00					1.00	1.00		1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00		1.00	
Frt	1.00		0.85					1.00	0.85		1.00	
Flt Protected	0.95		1.00					1.00	1.00		1.00	
Satd. Flow (prot)	3367		2409					3055	1427		3406	
Flt Permitted	0.95		1.00					1.00	1.00		1.00	
Satd. Flow (perm)	3367		2409					3055	1427		3406	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	318	0	265	0	0	0	0	508	127	0	570	0
RTOR Reduction (vph)	0	0	210	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	318	0	55	0	0	0	0	518	114	0	570	0
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	4%	0%	18%	0%	0%	0%	0%	13%	3%	0%	6%	2%
Turn Type	Prot		Prot					NA	Free		NA	
Protected Phases	4		4					2			6	
Permitted Phases									Free			
Actuated Green, G (s)	5.2		5.2					10.0	25.2		10.0	
Effective Green, g (s)	5.2		5.2					10.0	25.2		10.0	
Actuated g/C Ratio	0.21		0.21					0.40	1.00		0.40	
Clearance Time (s)	4.2		4.2					5.8			5.8	
Vehicle Extension (s)	0.2		0.2					0.2			0.2	
Lane Grp Cap (vph)	694		497					1212	1427		1351	
v/s Ratio Prot	c0.09		0.02					c0.17			0.17	
v/s Ratio Perm									0.08			
v/c Ratio	0.46		0.11					0.43	0.08		0.42	
Uniform Delay, d1	8.8		8.1					5.5	0.0		5.5	
Progression Factor	1.00		1.00					1.00	1.00		1.00	
Incremental Delay, d2	0.2		0.0					0.1	0.1		0.1	
Delay (s)	8.9		8.2					5.6	0.1		5.6	
Level of Service	A		A					A	A		A	
Approach Delay (s)		8.6			0.0			4.6			5.6	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.44		
Actuated Cycle Length (s)	25.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	71.7%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	202	73	3	8	435	316	3	66	7	208	104	456
Future Volume (vph)	202	73	3	8	435	316	3	66	7	208	104	456
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.0	5.0	4.5	5.0	4.5	4.5	5.0		4.5	5.0	5.0
Lane Util. Factor	0.94	0.95	1.00	1.00	0.95	0.88	1.00	0.91		0.94	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	4713	3343	1461	1667	3343	2609	1669	4726		4713	1759	1475
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	4713	3343	1461	1667	3343	2609	1669	4726		4713	1759	1475
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	222	80	3	9	478	347	3	73	8	229	114	501
RTOR Reduction (vph)	0	0	2	0	0	213	0	6	0	0	0	211
Lane Group Flow (vph)	222	80	1	9	478	134	3	75	0	229	114	290
Confl. Peds. (#/hr)			4	4			3		2	2		3
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	8.6	27.7	27.7	0.7	19.8	28.7	0.6	17.9		8.9	26.2	26.2
Effective Green, g (s)	8.6	27.7	27.7	0.7	19.8	28.7	0.6	17.9		8.9	26.2	26.2
Actuated g/C Ratio	0.12	0.37	0.37	0.01	0.27	0.39	0.01	0.24		0.12	0.35	0.35
Clearance Time (s)	4.5	5.0	5.0	4.5	5.0	4.5	4.5	5.0		4.5	5.0	5.0
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)	546	1247	545	15	892	1009	13	1140		565	621	520
v/s Ratio Prot	c0.05	0.02		0.01	c0.14	0.02	0.00	0.02		c0.05	0.06	
v/s Ratio Perm			0.00			0.04						c0.20
v/c Ratio	0.41	0.06	0.00	0.60	0.54	0.13	0.23	0.07		0.41	0.18	0.56
Uniform Delay, d1	30.4	14.9	14.6	36.6	23.3	14.7	36.6	21.7		30.2	16.6	19.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.0	36.3	0.8	0.0	3.3	0.0		0.2	0.2	1.6
Delay (s)	30.6	15.0	14.6	72.9	24.1	14.7	39.9	21.7		30.4	16.8	20.9
Level of Service	C	B	B	E	C	B	D	C		C	B	C
Approach Delay (s)		26.3			20.7			22.4			22.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.5	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	74.2	Sum of lost time (s)	19.0
Intersection Capacity Utilization	56.4%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	193	188	20	244	1	163	20	4	21	16	171
Future Volume (vph)	53	193	188	20	244	1	163	20	4	21	16	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.65	1.00	1.00	0.90	1.00	0.91		1.00	0.86	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1881	1053	1805	1881	1460	1805	1689		1805	1410	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1805	1881	1053	1805	1881	1460	1805	1689		1805	1410	
Peak-hour factor, PHF	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
Adj. Flow (vph)	90	327	319	34	414	2	276	34	7	36	27	290
RTOR Reduction (vph)	0	0	205	0	0	1	0	4	0	0	229	0
Lane Group Flow (vph)	90	327	114	34	414	1	276	37	0	36	88	0
Confl. Peds. (#/hr)	37		152	152		37	77		326	326		77
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	7.4	31.5	31.5	3.8	27.9	27.9	17.5	32.3		3.8	18.6	
Effective Green, g (s)	7.4	31.5	31.5	3.8	27.9	27.9	17.5	32.3		3.8	18.6	
Actuated g/C Ratio	0.08	0.36	0.36	0.04	0.32	0.32	0.20	0.37		0.04	0.21	
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)	151	673	376	77	596	462	358	619		77	298	
v/s Ratio Prot	c0.05	c0.17		0.02	c0.22		c0.15	0.02		0.02	c0.06	
v/s Ratio Perm			0.11			0.00						
v/c Ratio	0.60	0.49	0.30	0.44	0.69	0.00	0.77	0.06		0.47	0.30	
Uniform Delay, d1	38.9	22.0	20.3	41.1	26.3	20.5	33.4	18.0		41.1	29.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.2	0.8	0.6	1.5	3.8	0.0	9.0	0.1		1.6	0.8	
Delay (s)	43.0	22.7	21.0	42.5	30.1	20.5	42.4	18.1		42.7	30.0	
Level of Service	D	C	C	D	C	C	D	B		D	C	
Approach Delay (s)		24.4			31.0			39.2			31.3	
Approach LOS		C			C			D			C	

Intersection Summary			
HCM 2000 Control Delay	29.9	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.59		
Actuated Cycle Length (s)	88.0	Sum of lost time (s)	16.6
Intersection Capacity Utilization	63.3%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	207	7	4	0	0	0	38	0	0	0	0	227
Future Volume (vph)	207	7	4	0	0	0	38	0	0	0	0	227
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	225	8	4	0	0	0	41	0	0	0	0	247

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total (vph)	225	12	0	0	41	0	247
Volume Left (vph)	225	0	0	0	41	0	0
Volume Right (vph)	0	4	0	0	0	0	247
Hadj (s)	0.50	-0.22	0.00	0.00	0.20	0.00	-0.70
Departure Headway (s)	5.7	5.0	5.5	5.5	5.7	5.3	4.6
Degree Utilization, x	0.36	0.02	0.00	0.00	0.07	0.00	0.31
Capacity (veh/h)	602	683	613	613	594	664	756
Control Delay (s)	10.6	6.9	7.3	7.3	9.1	7.1	8.4
Approach Delay (s)	10.5		0.0		9.1	8.4	
Approach LOS	B		A		A	A	

Intersection Summary			
Delay	9.4		
Level of Service	A		
Intersection Capacity Utilization	33.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	101	212	196	543	556	39	321	533	182	30	1343	196
Future Volume (vph)	101	212	196	543	556	39	321	533	182	30	1343	196
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	5.0	5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Lane Util. Factor	0.97	0.95	0.88	0.94	0.95		0.94	0.95	1.00	0.97	0.86	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3467	3539	2814	5040	3570		5090	3505	1599	3367	6471	2801
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3539	2814	5040	3570		5090	3505	1599	3367	6471	2801
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	110	230	213	590	604	42	349	579	198	33	1460	213
RTOR Reduction (vph)	0	0	35	0	3	0	0	0	92	0	0	111
Lane Group Flow (vph)	110	230	178	590	643	0	349	579	106	33	1460	102
Confl. Peds. (#/hr)	7					7	3					3
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	1%	2%	1%	1%	0%	0%	0%	3%	1%	4%	1%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2						8			4
Actuated Green, G (s)	16.2	26.3	42.7	19.7	29.8		16.4	52.2	52.2	8.5	44.3	44.3
Effective Green, g (s)	16.2	26.3	42.7	19.7	29.8		16.4	52.2	52.2	8.5	44.3	44.3
Actuated g/C Ratio	0.13	0.20	0.33	0.15	0.23		0.13	0.41	0.41	0.07	0.34	0.34
Clearance Time (s)	5.0	6.0	5.0	5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0		2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)	436	723	933	771	826		648	1421	648	222	2227	964
v/s Ratio Prot	0.03	0.06	0.02	c0.12	c0.18		c0.07	0.17		0.01	c0.23	
v/s Ratio Perm			0.04						0.07			0.04
v/c Ratio	0.25	0.32	0.19	0.77	0.78		0.54	0.41	0.16	0.15	0.66	0.11
Uniform Delay, d1	50.8	43.6	30.7	52.3	46.4		52.6	27.2	24.4	56.7	35.7	28.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.3	0.0	4.1	4.7		0.4	0.3	0.2	0.1	0.8	0.1
Delay (s)	50.9	43.8	30.7	56.4	51.0		53.0	27.5	24.5	56.8	36.5	28.8
Level of Service	D	D	C	E	D		D	C	C	E	D	C
Approach Delay (s)		40.2			53.6			34.9			35.9	
Approach LOS		D			D			C			D	

Intersection Summary			
HCM 2000 Control Delay	40.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	128.7	Sum of lost time (s)	22.0
Intersection Capacity Utilization	87.4%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	78	329	95	311	616	54	120	607	175	16	463	149
Future Volume (vph)	78	329	95	311	616	54	120	607	175	16	463	149
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	5.0	4.5	6.0		5.0	6.0	6.0	4.5	5.5	5.5
Lane Util. Factor	0.97	0.91	0.88	0.97	0.91		0.94	0.95	0.88	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	5136	2661	3502	5116		4942	3610	2724	3502	5136	1562
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	5136	2661	3502	5116		4942	3610	2724	3502	5136	1562
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	89	374	108	353	700	61	136	690	199	18	526	169
RTOR Reduction (vph)	0	0	42	0	5	0	0	0	152	0	0	137
Lane Group Flow (vph)	89	374	66	353	756	0	136	690	47	18	526	32
Confl. Peds. (#/hr)	4		8	8		4	16		8	8		16
Confl. Bikes (#/hr)						7						3
Heavy Vehicles (%)	0%	1%	5%	0%	0%	0%	3%	0%	2%	0%	1%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2						8			4
Actuated Green, G (s)	7.9	64.2	75.1	15.3	71.6		10.9	32.3	32.3	4.7	26.1	26.1
Effective Green, g (s)	7.9	64.2	75.1	15.3	71.6		10.9	32.3	32.3	4.7	26.1	26.1
Actuated g/C Ratio	0.06	0.47	0.55	0.11	0.52		0.08	0.23	0.23	0.03	0.19	0.19
Clearance Time (s)	4.5	6.0	5.0	4.5	6.0		5.0	6.0	6.0	4.5	5.5	5.5
Vehicle Extension (s)	2.0	3.5	2.0	2.0	3.5		2.0	3.5	3.5	2.0	3.5	3.5
Lane Grp Cap (vph)	201	2398	1453	389	2664		391	848	639	119	974	296
v/s Ratio Prot	0.03	0.07	0.00	c0.10	c0.15		c0.03	c0.19		0.01	0.10	
v/s Ratio Perm			0.02						0.02			0.02
v/c Ratio	0.44	0.16	0.05	0.91	0.28		0.35	0.81	0.07	0.15	0.54	0.11
Uniform Delay, d1	62.7	21.1	14.5	60.4	18.5		59.9	49.8	40.9	64.5	50.3	46.1
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.1	0.0	23.7	0.3		0.2	6.2	0.1	0.2	0.7	0.2
Delay (s)	63.2	21.2	14.5	84.1	18.8		60.1	55.9	41.0	64.7	51.0	46.3
Level of Service	E	C	B	F	B		E	E	D	E	D	D
Approach Delay (s)		26.5			39.5			53.6			50.2	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	43.8	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	137.5	Sum of lost time (s)	21.0
Intersection Capacity Utilization	82.8%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	52	231	85	365	245	121	79	542	121	159	1109	92
v/c Ratio	0.16	0.43	0.11	0.70	0.34	0.18	0.23	0.45	0.26	0.64	0.67	0.17
Control Delay	57.0	34.9	6.8	56.0	27.3	5.0	57.3	39.0	8.9	62.8	37.8	11.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.0	34.9	6.8	56.0	27.3	5.0	57.3	39.0	8.9	62.8	37.8	11.9
Queue Length 50th (ft)	21	144	0	156	138	0	33	142	0	132	312	10
Queue Length 95th (ft)	42	213	18	203	199	33	58	179	43	198	346	46
Internal Link Dist (ft)		307			1140			315			1226	
Turn Bay Length (ft)	270		220	220		250	235		235	235		215
Base Capacity (vph)	669	877	1220	696	957	850	689	1928	678	362	1986	641
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.26	0.07	0.52	0.26	0.14	0.11	0.28	0.18	0.44	0.56	0.14

Intersection Summary

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	109	214	323	563	1155	254
v/c Ratio	0.26	0.25	0.64	0.22	0.62	0.28
Control Delay	35.5	0.7	39.2	3.4	15.6	4.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	35.5	0.7	39.2	3.4	15.6	4.5
Queue Length 50th (ft)	26	0	80	36	204	18
Queue Length 95th (ft)	53	0	125	50	292	59
Internal Link Dist (ft)				1410	554	
Turn Bay Length (ft)		315	350			185
Base Capacity (vph)	1225	1306	1202	2620	1908	937
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.16	0.27	0.21	0.61	0.27

Intersection Summary

Lane Group	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	127	128	573	533	267	808	702
v/c Ratio	0.36	0.36	0.55	0.68	0.21	0.51	0.64
Control Delay	14.2	14.2	3.8	11.7	0.4	7.1	3.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	14.2	14.2	3.8	11.7	0.4	7.1	3.8
Queue Length 50th (ft)	15	15	0	47	0	33	0
Queue Length 95th (ft)	58	58	29	157	0	88	37
Internal Link Dist (ft)		1505		814		1410	
Turn Bay Length (ft)	135		115				190
Base Capacity (vph)	1143	1150	2104	1662	1279	3383	1533
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.11	0.11	0.27	0.32	0.21	0.24	0.46

Intersection Summary

Lane Group	EBL	EBR	NBT	NBR	SBT
Lane Group Flow (vph)	318	265	521	114	570
v/c Ratio	0.46	0.37	0.43	0.08	0.42
Control Delay	10.9	3.2	7.0	0.1	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	10.9	3.2	7.0	0.1	6.9
Queue Length 50th (ft)	17	0	21	0	22
Queue Length 95th (ft)	31	11	44	0	46
Internal Link Dist (ft)			819		76
Turn Bay Length (ft)	275	420			
Base Capacity (vph)	3340	2391	3055	1427	3406
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.10	0.11	0.17	0.08	0.17

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	222	80	3	9	478	347	3	81	229	114	501
v/c Ratio	0.39	0.08	0.01	0.07	0.52	0.27	0.02	0.09	0.39	0.18	0.67
Control Delay	36.9	17.3	0.0	43.9	24.9	2.3	45.0	23.1	35.4	18.5	12.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	36.9	17.3	0.0	43.9	24.9	2.3	45.0	23.1	35.4	18.5	12.6
Queue Length 50th (ft)	25	7	0	3	75	0	1	8	26	28	46
Queue Length 95th (ft)	#99	42	0	26	213	28	13	27	94	101	230
Internal Link Dist (ft)		870			783			616		819	
Turn Bay Length (ft)	400		300	350			110		590		425
Base Capacity (vph)	622	2493	1114	168	2390	2102	143	3306	2307	1601	1369
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.03	0.00	0.05	0.20	0.17	0.02	0.02	0.10	0.07	0.37

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	90	327	319	34	414	2	276	41	36	317
v/c Ratio	0.47	0.47	0.60	0.25	0.69	0.00	0.74	0.06	0.26	0.64
Control Delay	49.1	29.1	9.3	48.4	39.0	0.0	46.4	16.6	48.5	12.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.1	29.1	9.3	48.4	39.0	0.0	46.4	16.6	48.5	12.4
Queue Length 50th (ft)	52	166	0	20	234	0	158	12	21	12
Queue Length 95th (ft)	69	175	0	35	237	0	154	22	37	0
Internal Link Dist (ft)		1140			1011			371		674
Turn Bay Length (ft)	195		785	145		50			85	
Base Capacity (vph)	458	700	528	458	596	533	687	799	458	624
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.47	0.60	0.07	0.69	0.00	0.40	0.05	0.08	0.51

Intersection Summary

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	207	7	4	0	0	0	38	0	0	0	0	227
Future Vol, veh/h	207	7	4	0	0	0	38	0	0	0	0	227
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	225	8	4	0	0	0	41	0	0	0	0	247
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	11.3	0	9.1	9.3
HCM LOS	B	-	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	100%	0%	0%	0%	0%	0%
Vol Thru, %	0%	0%	64%	100%	100%	100%	0%
Vol Right, %	0%	0%	36%	0%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	207	11	0	0	0	227
LT Vol	38	207	0	0	0	0	0
Through Vol	0	0	7	0	0	0	0
RT Vol	0	0	4	0	0	0	227
Lane Flow Rate	41	225	12	0	0	0	247
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.065	0.355	0.016	0	0	0	0.311
Departure Headway (Hd)	5.686	5.68	4.938	5.47	5.487	5.246	4.542
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	629	632	722	0	0	0	792
Service Time	3.729	3.427	2.685	3.233	3.251	2.971	2.267
HCM Lane V/C Ratio	0.065	0.356	0.017	0	0	0	0.312
HCM Control Delay	9.1	11.5	7.8	8.2	8.3	8	9.3
HCM Lane LOS	A	B	A	N	N	N	A
HCM 95th-tile Q	0.2	1.6	0	0	0	0	1.3

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	110	230	213	590	646	349	579	198	33	1460	213
v/c Ratio	0.25	0.31	0.19	0.75	0.77	0.53	0.40	0.26	0.08	0.68	0.20
Control Delay	54.6	44.6	20.4	58.9	51.5	56.5	30.3	9.5	55.0	39.0	8.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	54.6	44.6	20.4	58.9	51.5	56.5	30.3	9.5	55.0	39.0	8.7
Queue Length 50th (ft)	42	86	50	167	266	97	190	24	12	289	13
Queue Length 95th (ft)	83	133	86	236	339	151	295	92	33	407	51
Internal Link Dist (ft)		4610			1861		948			1636	
Turn Bay Length (ft)	220		220	350		315		170	250		250
Base Capacity (vph)	691	1299	1309	1005	1313	1015	1445	749	671	2376	1134
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.18	0.16	0.59	0.49	0.34	0.40	0.26	0.05	0.61	0.19

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	89	374	108	353	761	136	690	199	18	526	169
v/c Ratio	0.44	0.15	0.07	0.91	0.27	0.46	0.81	0.25	0.09	0.54	0.39
Control Delay	69.2	21.6	2.8	87.6	18.9	67.4	58.0	5.9	60.6	51.4	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.2	21.6	2.8	87.6	18.9	67.4	58.0	5.9	60.6	51.4	8.1
Queue Length 50th (ft)	40	60	1	162	116	42	305	0	8	165	0
Queue Length 95th (ft)	67	103	13	#241	191	64	363	31	20	173	52
Internal Link Dist (ft)		1503			4610		991			1549	
Turn Bay Length (ft)	250		225	250		240		380	270		200
Base Capacity (vph)	394	2498	1680	394	2769	611	918	841	483	1382	544
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.23	0.15	0.06	0.90	0.27	0.22	0.75	0.24	0.04	0.38	0.31

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	52	99	133	36	41	102	897	198	28	695	69
Future Volume (vph)	77	52	99	133	36	41	102	897	198	28	695	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.5	5.3	5.3	4.0	5.3	5.3
Lane Util. Factor	0.97	1.00	0.88	0.97	1.00	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	1900	2795	3502	1900	1590	3502	5187	1581	1805	5136	1573
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	1900	2795	3502	1900	1590	3502	5187	1581	1805	5136	1573
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	79	54	102	137	37	42	105	925	204	29	716	71
RTOR Reduction (vph)	0	0	80	0	0	31	0	0	128	0	0	49
Lane Group Flow (vph)	79	54	22	137	37	11	105	925	76	29	716	22
Confl. Peds. (#/hr)	7		9	9		7	7		1	1		7
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	7.9	17.3	17.3	11.1	20.5	20.5	7.9	29.6	29.6	3.3	24.5	24.5
Effective Green, g (s)	7.9	17.3	17.3	11.1	20.5	20.5	7.9	29.6	29.6	3.3	24.5	24.5
Actuated g/C Ratio	0.10	0.22	0.22	0.14	0.26	0.26	0.10	0.37	0.37	0.04	0.31	0.31
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.5	5.3	5.3	4.0	5.3	5.3
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)	347	412	607	488	489	409	347	1928	587	74	1580	484
v/s Ratio Prot	0.02	c0.03		c0.04	c0.02		c0.03	c0.18		0.02	0.14	
v/s Ratio Perm			0.01			0.01			0.05			0.01
v/c Ratio	0.23	0.13	0.04	0.28	0.08	0.03	0.30	0.48	0.13	0.39	0.45	0.05
Uniform Delay, d1	33.0	25.1	24.6	30.7	22.4	22.1	33.3	19.1	16.5	37.2	22.2	19.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.2	0.0	0.1	0.1	0.0	0.2	0.3	0.1	1.2	0.3	0.1
Delay (s)	33.2	25.3	24.6	30.8	22.5	22.1	33.5	19.4	16.6	38.4	22.4	19.4
Level of Service	C	C	C	C	C	C	C	B	B	D	C	B
Approach Delay (s)		27.6			27.7			20.1			22.7	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.3	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.34		
Actuated Cycle Length (s)	79.6	Sum of lost time (s)	18.8
Intersection Capacity Utilization	55.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	283	0	478	0	0	0	149	914	0	0	794	133
Future Volume (vph)	283	0	478	0	0	0	149	914	0	0	794	133
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3		5.3				5.3	5.7			5.7	5.7
Lane Util. Factor	0.97		0.88				0.97	0.95			0.95	1.00
Frpb, ped/bikes	1.00		1.00				1.00	1.00			1.00	0.98
Flpb, ped/bikes	1.00		1.00				1.00	1.00			1.00	1.00
Frt	1.00		0.85				1.00	1.00			1.00	0.85
Flt Protected	0.95		1.00				0.95	1.00			1.00	1.00
Satd. Flow (prot)	3502		2814				3400	3610			3574	1588
Flt Permitted	0.95		1.00				0.95	1.00			1.00	1.00
Satd. Flow (perm)	3502		2814				3400	3610			3574	1588
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	298	0	503	0	0	0	157	962	0	0	836	140
RTOR Reduction (vph)	0	0	422	0	0	0	0	0	0	0	0	83
Lane Group Flow (vph)	298	0	81	0	0	0	157	962	0	0	836	57
Confl. Peds. (#/hr)							11					11
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	3%	0%	0%	0%	1%	0%
Turn Type	Prot		pm+ov	Prot			Prot	NA		Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2									4
Actuated Green, G (s)	11.7		10.4				10.4	41.9			26.2	26.2
Effective Green, g (s)	11.7		10.4				10.4	41.9			26.2	26.2
Actuated g/C Ratio	0.18		0.16				0.16	0.65			0.41	0.41
Clearance Time (s)	5.3		5.3				5.3	5.7			5.7	5.7
Vehicle Extension (s)	2.0		2.0				2.0	4.0			4.0	4.0
Lane Grp Cap (vph)	634		453				547	2341			1449	644
v/s Ratio Prot	c0.09		0.03				0.05	c0.27			c0.23	
v/s Ratio Perm												0.04
v/c Ratio	0.47		0.18				0.29	0.41			0.58	0.09
Uniform Delay, d1	23.7		23.4				23.8	5.4			14.9	11.8
Progression Factor	1.00		1.00				1.00	1.00			1.00	1.00
Incremental Delay, d2	0.2		0.1				0.1	0.2			0.7	0.1
Delay (s)	23.9		23.5				23.9	5.6			15.6	11.9
Level of Service	C		C				C	A			B	B
Approach Delay (s)		23.6			0.0			8.2			15.0	
Approach LOS		C			A			A			B	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	64.6	Sum of lost time (s)	22.1
Intersection Capacity Utilization	58.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	261	3	665	0	819	459	0	1095	497
Future Volume (vph)	0	0	0	261	3	665	0	819	459	0	1095	497
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.2	4.2	4.2		5.3	4.0		5.3	5.3
Lane Util. Factor				0.95	0.95	0.88		0.95	0.95		0.95	1.00
Frt				1.00	1.00	0.85		0.99	0.85		1.00	0.85
Flt Protected				0.95	0.95	1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				1698	1704	2814		1771	1490		3539	1599
Flt Permitted				0.95	0.95	1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				1698	1704	2814		1771	1490		3539	1599
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	266	3	679	0	836	468	0	1117	507
RTOR Reduction (vph)	0	0	0	0	0	192	0	3	0	0	0	217
Lane Group Flow (vph)	0	0	0	136	133	487	0	880	421	0	1117	290
Heavy Vehicles (%)	0%	0%	0%	1%	0%	1%	0%	1%	3%	0%	2%	1%
Turn Type				Split	NA	Perm		NA	Free		NA	Perm
Protected Phases				8	8			2			6	
Permitted Phases						8			Free			6
Actuated Green, G (s)				11.7	11.7	11.7		28.3	49.5		28.3	28.3
Effective Green, g (s)				11.7	11.7	11.7		28.3	49.5		28.3	28.3
Actuated g/C Ratio				0.24	0.24	0.24		0.57	1.00		0.57	0.57
Clearance Time (s)				4.2	4.2	4.2		5.3			5.3	5.3
Vehicle Extension (s)				0.2	0.2	0.2		0.2			0.2	0.2
Lane Grp Cap (vph)				401	402	665		1012	1490		2023	914
v/s Ratio Prot				0.08	0.08			c0.50			0.32	
v/s Ratio Perm						c0.17			0.28			0.18
v/c Ratio				0.34	0.33	0.73		0.87	0.28		0.55	0.32
Uniform Delay, d1				15.7	15.7	17.5		9.0	0.0		6.6	5.5
Progression Factor				1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				0.2	0.2	3.6		7.8	0.5		0.2	0.1
Delay (s)				15.9	15.8	21.0		16.9	0.5		6.8	5.6
Level of Service				B	B	C		B	A		A	A
Approach Delay (s)		0.0			19.6			11.6			6.4	
Approach LOS		A			B			B			A	

Intersection Summary			
HCM 2000 Control Delay	11.4	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.83		
Actuated Cycle Length (s)	49.5	Sum of lost time (s)	9.5
Intersection Capacity Utilization	83.6%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	427	0	298	0	0	0	0	851	535	0	811	0
Future Volume (vph)	427	0	298	0	0	0	0	851	535	0	811	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2		4.2					5.8	4.0		5.8	
Lane Util. Factor	0.97		0.88					0.91	0.91		0.95	
Frt	1.00		0.85					0.98	0.85		1.00	
Flt Protected	0.95		1.00					1.00	1.00		1.00	
Satd. Flow (prot)	3467		2787					3361	1455		3574	
Flt Permitted	0.95		1.00					1.00	1.00		1.00	
Satd. Flow (perm)	3467		2787					3361	1455		3574	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	436	0	304	0	0	0	0	868	546	0	828	0
RTOR Reduction (vph)	0	0	184	0	0	0	0	16	0	0	0	0
Lane Group Flow (vph)	436	0	120	0	0	0	0	972	426	0	828	0
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	0%	1%	1%	0%	1%	3%
Turn Type	Prot		Prot					NA	Free		NA	
Protected Phases	4		4					2			6	
Permitted Phases									Free			
Actuated Green, G (s)	7.5		7.5					14.1	31.6		14.1	
Effective Green, g (s)	7.5		7.5					14.1	31.6		14.1	
Actuated g/C Ratio	0.24		0.24					0.45	1.00		0.45	
Clearance Time (s)	4.2		4.2					5.8			5.8	
Vehicle Extension (s)	0.2		0.2					0.2			0.2	
Lane Grp Cap (vph)	822		661					1499	1455		1594	
v/s Ratio Prot	c0.13		0.04					c0.29			0.23	
v/s Ratio Perm									0.29			
v/c Ratio	0.53		0.18					0.65	0.29		0.52	
Uniform Delay, d1	10.5		9.6					6.8	0.0		6.3	
Progression Factor	1.00		1.00					1.00	1.00		1.00	
Incremental Delay, d2	0.3		0.0					0.7	0.5		0.1	
Delay (s)	10.8		9.7					7.6	0.5		6.4	
Level of Service	B		A					A	A		A	
Approach Delay (s)		10.4			0.0			5.4			6.4	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.9	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	31.6	Sum of lost time (s)	10.0
Intersection Capacity Utilization	106.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	552	677	4	4	158	797	2	37	9	883	12	214
Future Volume (vph)	552	677	4	4	158	797	2	37	9	883	12	214
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.0	5.0	4.5	5.0	4.5	4.5	5.0		4.5	5.0	5.0
Lane Util. Factor	0.94	0.95	1.00	1.00	0.95	0.88	1.00	0.91		0.94	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	4713	3343	1460	1671	3343	2619	1671	4668		4713	1759	1495
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	4713	3343	1460	1671	3343	2619	1671	4668		4713	1759	1495
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	581	713	4	4	166	839	2	39	9	929	13	225
RTOR Reduction (vph)	0	0	3	0	0	424	0	8	0	0	0	126
Lane Group Flow (vph)	581	713	1	4	166	415	2	40	0	929	13	99
Confl. Bikes (#/hr)			3			1						
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	11.7	26.8	26.8	0.7	15.8	41.6	0.6	11.8		25.8	37.0	37.0
Effective Green, g (s)	11.7	26.8	26.8	0.7	15.8	41.6	0.6	11.8		25.8	37.0	37.0
Actuated g/C Ratio	0.14	0.32	0.32	0.01	0.19	0.49	0.01	0.14		0.31	0.44	0.44
Clearance Time (s)	4.5	5.0	5.0	4.5	5.0	4.5	4.5	5.0		4.5	5.0	5.0
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)	655	1065	465	13	628	1295	11	654		1445	773	657
v/s Ratio Prot	c0.12	c0.21		0.00	0.05	0.10	0.00	0.01		c0.20	0.01	
v/s Ratio Perm			0.00			0.06						c0.07
v/c Ratio	0.89	0.67	0.00	0.31	0.26	0.32	0.18	0.06		0.64	0.02	0.15
Uniform Delay, d1	35.6	24.8	19.5	41.5	29.2	12.8	41.5	31.3		25.2	13.3	14.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	13.4	1.8	0.0	4.8	0.3	0.1	2.9	0.1		0.7	0.0	0.1
Delay (s)	48.9	26.6	19.5	46.3	29.5	12.8	44.4	31.4		25.9	13.3	14.3
Level of Service	D	C	B	D	C	B	D	C		C	B	B
Approach Delay (s)		36.6			15.7			31.9			23.5	
Approach LOS		D			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	26.2	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	84.1	Sum of lost time (s)	19.0
Intersection Capacity Utilization	57.6%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	131	83	5	108	1	108	5	7	4	6	59
Future Volume (vph)	64	131	83	5	108	1	108	5	7	4	6	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.86	1.00	1.00	0.95	1.00	0.92		1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00		0.90	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.91		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1900	1396	1649	1900	1540	1805	1602		1621	1590	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1805	1900	1396	1649	1900	1540	1805	1602		1621	1590	
Peak-hour factor, PHF	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Adj. Flow (vph)	90	185	117	7	152	1	152	7	10	6	8	83
RTOR Reduction (vph)	0	0	67	0	0	1	0	7	0	0	69	0
Lane Group Flow (vph)	90	185	50	7	152	0	152	10	0	6	22	0
Confl. Peds. (#/hr)	18		75	75		18	11		98	98		11
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	6.2	26.7	26.7	0.7	21.2	21.2	8.0	18.1		0.7	10.8	
Effective Green, g (s)	6.2	26.7	26.7	0.7	21.2	21.2	8.0	18.1		0.7	10.8	
Actuated g/C Ratio	0.10	0.43	0.43	0.01	0.34	0.34	0.13	0.29		0.01	0.17	
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)	178	807	593	18	641	519	229	461		18	273	
v/s Ratio Prot	c0.05	c0.10		0.00	0.08		c0.08	0.01		0.00	c0.01	
v/s Ratio Perm			0.04			0.00						
v/c Ratio	0.51	0.23	0.08	0.39	0.24	0.00	0.66	0.02		0.33	0.08	
Uniform Delay, d1	26.8	11.5	10.8	30.8	15.0	13.8	26.1	16.0		30.8	21.8	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	0.8	0.2	0.1	5.0	0.3	0.0	5.5	0.0		3.9	0.2	
Delay (s)	27.7	11.7	10.8	35.8	15.2	13.8	31.6	16.0		34.8	22.0	
Level of Service	C	B	B	D	B	B	C	B		C	C	
Approach Delay (s)		15.1			16.1			30.1			22.8	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	19.3	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.32		
Actuated Cycle Length (s)	62.8	Sum of lost time (s)	16.6
Intersection Capacity Utilization	47.7%	ICU Level of Service	A
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	92	32	18	0	0	0	22	0	0	0	0	92
Future Volume (vph)	92	32	18	0	0	0	22	0	0	0	0	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	100	35	20	0	0	0	24	0	0	0	0	100

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total (vph)	100	55	0	0	24	0	100
Volume Left (vph)	100	0	0	0	24	0	0
Volume Right (vph)	0	20	0	0	0	0	100
Hadj (s)	0.50	-0.25	0.00	0.00	0.20	0.00	-0.70
Departure Headway (s)	5.3	4.5	4.9	4.9	5.2	4.9	4.2
Degree Utilization, x	0.15	0.07	0.00	0.00	0.03	0.00	0.12
Capacity (veh/h)	665	767	720	720	664	723	817
Control Delay (s)	8.0	6.7	6.7	6.7	8.4	6.7	6.6
Approach Delay (s)	7.5		0.0		8.4	6.6	
Approach LOS	A		A		A	A	

Intersection Summary			
Delay	7.3		
Level of Service	A		
Intersection Capacity Utilization	26.8%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	346	825	610	327	321	46	568	815	526	79	761	207
Future Volume (vph)	346	825	610	327	321	46	568	815	526	79	761	207
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	5.0	5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Lane Util. Factor	0.97	0.95	0.88	0.94	0.95		0.94	0.95	1.00	0.97	0.86	0.88
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	3574	2819	5040	3444		5090	3610	1615	3467	6471	2726
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	3574	2819	5040	3444		5090	3610	1615	3467	6471	2726
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	368	878	649	348	341	49	604	867	560	84	810	220
RTOR Reduction (vph)	0	0	30	0	7	0	0	0	197	0	0	158
Lane Group Flow (vph)	368	878	619	348	383	0	604	867	363	84	810	62
Confl. Peds. (#/hr)	5					5	11					11
Confl. Bikes (#/hr)			1			1						
Heavy Vehicles (%)	0%	1%	0%	1%	3%	0%	0%	0%	0%	1%	1%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2						8			4
Actuated Green, G (s)	19.2	38.6	59.5	16.8	36.2		20.9	44.7	44.7	15.2	39.0	39.0
Effective Green, g (s)	19.2	38.6	59.5	16.8	36.2		20.9	44.7	44.7	15.2	39.0	39.0
Actuated g/C Ratio	0.14	0.28	0.43	0.12	0.26		0.15	0.33	0.33	0.11	0.28	0.28
Clearance Time (s)	5.0	6.0	5.0	5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0		2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)	489	1004	1221	616	908		774	1175	525	383	1838	774
v/s Ratio Prot	c0.11	c0.25	0.08	0.07	0.11		c0.12	c0.24		0.02	0.13	
v/s Ratio Perm			0.14						0.22			0.02
v/c Ratio	0.75	0.87	0.51	0.56	0.42		0.78	0.74	0.69	0.22	0.44	0.08
Uniform Delay, d1	56.8	47.0	28.2	56.8	41.9		56.0	41.1	40.3	55.6	40.2	36.0
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	5.7	8.6	0.1	0.7	0.3		4.7	2.6	4.2	0.1	0.2	0.1
Delay (s)	62.5	55.6	28.4	57.5	42.2		60.7	43.7	44.5	55.7	40.5	36.1
Level of Service	E	E	C	E	D		E	D	D	E	D	D
Approach Delay (s)		47.6			49.4			49.0			40.7	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	47.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.82		
Actuated Cycle Length (s)	137.3	Sum of lost time (s)	22.0
Intersection Capacity Utilization	89.5%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	165	1095	186	192	679	18	224	509	403	67	509	85
Future Volume (vph)	165	1095	186	192	679	18	224	509	403	67	509	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	5.0	4.5	6.0		5.0	5.5	5.5	4.5	5.5	5.5
Lane Util. Factor	0.97	0.91	0.88	0.97	0.91		0.94	0.95	0.88	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5136	2745	3467	5115		5090	3610	2802	3502	5136	1582
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5136	2745	3467	5115		5090	3610	2802	3502	5136	1582
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	167	1106	188	194	686	18	226	514	407	68	514	86
RTOR Reduction (vph)	0	0	64	0	1	0	0	0	317	0	0	70
Lane Group Flow (vph)	167	1106	124	194	703	0	226	514	90	68	514	16
Confl. Peds. (#/hr)	3		5	5		3	8		1	1		8
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	2%	1%	2%	1%	1%	0%	0%	0%	0%	0%	1%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2						8			4
Actuated Green, G (s)	11.0	67.7	78.1	12.0	68.7		10.4	30.2	30.2	6.1	25.4	25.4
Effective Green, g (s)	11.0	67.7	78.1	12.0	68.7		10.4	30.2	30.2	6.1	25.4	25.4
Actuated g/C Ratio	0.08	0.50	0.57	0.09	0.50		0.08	0.22	0.22	0.04	0.19	0.19
Clearance Time (s)	4.5	6.0	5.0	4.5	6.0		5.0	5.5	5.5	4.5	5.5	5.5
Vehicle Extension (s)	2.0	3.5	2.0	2.0	3.5		2.0	3.5	3.5	2.0	3.5	3.5
Lane Grp Cap (vph)	276	2547	1570	304	2574		387	798	619	156	955	294
v/s Ratio Prot	0.05	c0.22	0.01	c0.06	0.14		c0.04	c0.14		0.02	0.10	
v/s Ratio Perm			0.04						0.03			0.01
v/c Ratio	0.61	0.43	0.08	0.64	0.27		0.58	0.64	0.15	0.44	0.54	0.05
Uniform Delay, d1	60.7	22.1	13.1	60.2	19.5		61.0	48.3	42.8	63.5	50.2	45.7
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.6	0.5	0.0	3.2	0.3		1.5	1.9	0.1	0.7	0.7	0.1
Delay (s)	63.2	22.6	13.1	63.4	19.8		62.4	50.1	42.9	64.2	50.9	45.8
Level of Service	E	C	B	E	B		E	D	D	E	D	D
Approach Delay (s)		26.0			29.2			50.0			51.6	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	37.4	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.53		
Actuated Cycle Length (s)	136.5	Sum of lost time (s)	21.0
Intersection Capacity Utilization	77.3%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	79	54	102	137	37	42	105	925	204	29	716	71
v/c Ratio	0.16	0.13	0.15	0.28	0.09	0.10	0.21	0.47	0.28	0.12	0.48	0.14
Control Delay	38.7	27.0	6.3	38.2	26.1	1.4	38.7	21.4	5.1	40.8	25.3	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	38.7	27.0	6.3	38.2	26.1	1.4	38.7	21.4	5.1	40.8	25.3	6.7
Queue Length 50th (ft)	15	20	0	26	13	0	20	86	0	11	94	0
Queue Length 95th (ft)	57	58	21	88	42	5	72	276	55	54	212	32
Internal Link Dist (ft)		307			1140			315			1226	
Turn Bay Length (ft)	270		220	220		250	235		235	235		215
Base Capacity (vph)	973	1215	1818	973	1221	1046	973	2781	941	501	2714	863
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.04	0.06	0.14	0.03	0.04	0.11	0.33	0.22	0.06	0.26	0.08

Intersection Summary

Lane Group	EBL	EBR	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	298	503	157	962	836	140
v/c Ratio	0.47	0.55	0.29	0.41	0.58	0.19
Control Delay	28.4	4.9	28.7	6.0	16.4	1.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	28.4	4.9	28.7	6.0	16.4	1.7
Queue Length 50th (ft)	51	0	26	75	124	0
Queue Length 95th (ft)	117	35	70	123	188	16
Internal Link Dist (ft)				1410	554	
Turn Bay Length (ft)		315	350			185
Base Capacity (vph)	1647	1612	1599	3311	2513	1162
Starvation Cap Reductn	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0
Reduced v/c Ratio	0.18	0.31	0.10	0.29	0.33	0.12

Intersection Summary

Lane Group	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	136	133	679	883	421	1117	507
v/c Ratio	0.34	0.33	0.80	0.88	0.28	0.56	0.45
Control Delay	19.9	19.8	19.6	23.4	0.5	8.7	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.9	19.8	19.6	23.4	0.5	8.7	2.3
Queue Length 50th (ft)	38	37	71	198	0	93	0
Queue Length 95th (ft)	83	82	135	#570	0	193	37
Internal Link Dist (ft)		1505		814		1410	
Turn Bay Length (ft)	135		115				190
Base Capacity (vph)	724	727	1345	1279	1490	2552	1294
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.19	0.18	0.50	0.69	0.28	0.44	0.39

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBT	NBR	SBT
Lane Group Flow (vph)	436	304	988	426	828
v/c Ratio	0.54	0.36	0.66	0.29	0.53
Control Delay	14.2	5.0	9.5	0.5	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	14.2	5.0	9.5	0.5	8.0
Queue Length 50th (ft)	28	3	57	0	43
Queue Length 95th (ft)	80	31	126	0	96
Internal Link Dist (ft)			819		76
Turn Bay Length (ft)	275	420			
Base Capacity (vph)	2908	2376	3284	1455	3490
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.15	0.13	0.30	0.29	0.24

Intersection Summary

Queues
Existing Conditions

5: El Charro Rd & Stoneridge Dr/W Jack London Blvd

Timing Plan: PM PEAK

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	581	713	4	4	166	839	2	48	929	13	225
v/c Ratio	0.81	0.61	0.01	0.05	0.32	0.49	0.03	0.10	0.59	0.02	0.27
Control Delay	43.0	23.7	0.0	39.2	29.8	1.6	39.5	29.0	23.6	14.3	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	23.7	0.0	39.2	29.8	1.6	39.5	29.0	23.6	14.3	3.5
Queue Length 50th (ft)	91	137	0	2	36	0	1	5	121	3	0
Queue Length 95th (ft)	#187	232	0	13	64	22	8	19	205	17	46
Internal Link Dist (ft)		870			783			616		819	
Turn Bay Length (ft)	400		300	350			110		590		425
Base Capacity (vph)	717	1974	911	87	1641	1762	76	2760	1670	1605	1384
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.81	0.36	0.00	0.05	0.10	0.48	0.03	0.02	0.56	0.01	0.16

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	90	185	117	7	152	1	152	17	6	91
v/c Ratio	0.34	0.19	0.17	0.04	0.22	0.00	0.45	0.03	0.03	0.24
Control Delay	31.2	16.0	4.9	33.8	24.1	0.0	30.1	9.8	34.0	9.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	31.2	16.0	4.9	33.8	24.1	0.0	30.1	9.8	34.0	9.0
Queue Length 50th (ft)	25	33	0	2	40	0	41	1	2	2
Queue Length 95th (ft)	73	106	17	14	99	0	107	12	12	22
Internal Link Dist (ft)		1140			1011			371		674
Turn Bay Length (ft)	195		785	145		50			85	
Base Capacity (vph)	761	1014	717	761	1002	851	1099	1028	761	868
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.18	0.16	0.01	0.15	0.00	0.14	0.02	0.01	0.10

Intersection Summary

Intersection	
Intersection Delay, s/veh	8.1
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	92	32	18	0	0	0	22	0	0	0	0	92
Future Vol, veh/h	92	32	18	0	0	0	22	0	0	0	0	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	100	35	20	0	0	0	24	0	0	0	0	100
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	8.4	0	8.4	7.5
HCM LOS	A	-	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	100%	0%	0%	0%	0%	0%
Vol Thru, %	0%	0%	64%	100%	100%	100%	0%
Vol Right, %	0%	0%	36%	0%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	22	92	50	0	0	0	92
LT Vol	22	92	0	0	0	0	0
Through Vol	0	0	32	0	0	0	0
RT Vol	0	0	18	0	0	0	92
Lane Flow Rate	24	100	54	0	0	0	100
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.035	0.145	0.067	0	0	0	0.117
Departure Headway (Hd)	5.202	5.215	4.462	4.926	4.926	4.926	4.223
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	692	681	793	0	0	0	854
Service Time	3.205	2.997	2.243	2.638	2.638	2.627	1.925
HCM Lane V/C Ratio	0.035	0.147	0.068	0	0	0	0.117
HCM Control Delay	8.4	8.9	7.6	7.6	7.6	7.6	7.5
HCM Lane LOS	A	A	A	N	N	N	A
HCM 95th-tile Q	0.1	0.5	0.2	0	0	0	0.4

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	368	878	649	348	390	604	867	560	84	810	220
v/c Ratio	0.75	0.88	0.51	0.57	0.43	0.78	0.74	0.78	0.22	0.44	0.24
Control Delay	68.9	58.5	24.0	63.1	43.8	65.3	46.0	27.9	61.9	42.0	5.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	68.9	58.5	24.0	63.1	43.8	65.3	46.0	27.9	61.9	42.0	5.5
Queue Length 50th (ft)	158	370	182	100	138	177	355	225	34	169	0
Queue Length 95th (ft)	254	535	285	165	227	271	505	433	74	244	36
Internal Link Dist (ft)		4590			1844		983			1601	
Turn Bay Length (ft)	220		220	350		315		170	250		250
Base Capacity (vph)	645	1236	1360	928	1173	937	1314	773	638	2194	1067
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.57	0.71	0.48	0.38	0.33	0.64	0.66	0.72	0.13	0.37	0.21

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	167	1106	188	194	704	226	514	407	68	514	86
v/c Ratio	0.61	0.43	0.11	0.64	0.27	0.58	0.64	0.43	0.38	0.56	0.24
Control Delay	69.7	24.0	3.8	69.6	21.0	66.9	51.7	4.9	68.1	52.6	7.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.7	24.0	3.8	69.6	21.0	66.9	51.7	4.9	68.1	52.6	7.6
Queue Length 50th (ft)	75	217	6	87	123	69	226	0	30	156	0
Queue Length 95th (ft)	111	338	31	125	200	98	250	40	55	172	35
Internal Link Dist (ft)		1528			4590		997			1543	
Turn Bay Length (ft)	250		225	250		240		380	270		200
Base Capacity (vph)	364	2581	1798	373	2608	633	1034	1093	410	1392	498
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.43	0.10	0.52	0.27	0.36	0.50	0.37	0.17	0.37	0.17

Intersection Summary

C – Existing Plus Project Traffic Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	44	210	72	457	250	108	67	461	152	137	943	78
Future Volume (vph)	44	210	72	457	250	108	67	461	152	137	943	78
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.5	5.3	5.3	4.0	5.3	5.3
Lane Util. Factor	0.97	1.00	0.88	0.97	1.00	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.92	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3335	1900	2588	3467	1900	1574	3433	4988	1564	1805	5136	1542
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3335	1900	2588	3467	1900	1574	3433	4988	1564	1805	5136	1542
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	52	247	85	538	294	127	79	542	179	161	1109	92
RTOR Reduction (vph)	0	0	61	0	0	76	0	0	136	0	0	53
Lane Group Flow (vph)	52	247	24	538	294	51	79	542	43	161	1109	39
Confl. Peds. (#/hr)	18		92	92		18	5		1	1		5
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	5%	0%	1%	1%	0%	0%	2%	4%	1%	0%	1%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	7.5	32.9	32.9	21.2	46.6	46.6	7.5	27.9	27.9	15.1	35.0	35.0
Effective Green, g (s)	7.5	32.9	32.9	21.2	46.6	46.6	7.5	27.9	27.9	15.1	35.0	35.0
Actuated g/C Ratio	0.06	0.29	0.29	0.18	0.40	0.40	0.06	0.24	0.24	0.13	0.30	0.30
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.5	5.3	5.3	4.0	5.3	5.3
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)	216	541	737	636	767	635	223	1205	378	236	1557	467
v/s Ratio Prot	0.02	c0.13		c0.16	0.15		0.02	0.11		c0.09	c0.22	
v/s Ratio Perm			0.01			0.03			0.03			0.03
v/c Ratio	0.24	0.46	0.03	0.85	0.38	0.08	0.35	0.45	0.11	0.68	0.71	0.08
Uniform Delay, d1	51.2	33.9	29.8	45.5	24.3	21.2	51.6	37.2	34.1	47.9	35.7	28.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.8	0.0	9.7	0.4	0.1	0.4	0.4	0.2	6.3	1.7	0.1
Delay (s)	51.5	34.7	29.8	55.2	24.7	21.3	52.0	37.6	34.3	54.2	37.4	28.8
Level of Service	D	C	C	E	C	C	D	D	C	D	D	C
Approach Delay (s)		35.9			41.4			38.3			38.8	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	39.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.67		
Actuated Cycle Length (s)	115.4	Sum of lost time (s)	18.8
Intersection Capacity Utilization	94.4%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	109	3	201	54	9	0	304	571	18	0	1211	261
Future Volume (vph)	109	3	201	54	9	0	304	571	18	0	1211	261
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	4.0	5.8		5.3	5.7			5.7	5.7
Lane Util. Factor	0.97	1.00	0.88	1.00	1.00		0.97	0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	3400	1900	2707	1805	1900		3335	3490			3539	1591
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	3400	1900	2707	1805	1900		3335	3490			3539	1591
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	116	3	214	57	10	0	323	607	19	0	1288	278
RTOR Reduction (vph)	0	0	178	0	0	0	0	1	0	0	0	90
Lane Group Flow (vph)	116	3	36	57	10	0	323	625	0	0	1288	188
Confl. Peds. (#/hr)							5		1	1		5
Heavy Vehicles (%)	3%	0%	5%	0%	0%	0%	5%	3%	0%	0%	2%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2									4
Actuated Green, G (s)	10.2	2.4	15.3	11.3	1.7		12.9	63.2			45.0	45.0
Effective Green, g (s)	10.2	2.4	15.3	11.3	1.7		12.9	63.2			45.0	45.0
Actuated g/C Ratio	0.11	0.03	0.17	0.12	0.02		0.14	0.69			0.49	0.49
Clearance Time (s)	5.3	5.3	5.3	4.0	5.8		5.3	5.7			5.7	5.7
Vehicle Extension (s)	2.0	4.0	2.0	2.0	2.0		2.0	4.0			4.0	4.0
Lane Grp Cap (vph)	377	49	606	221	35		468	2400			1732	779
v/s Ratio Prot	c0.03	0.00	0.01	0.03	c0.01		c0.10	0.18			c0.36	
v/s Ratio Perm			0.00									0.12
v/c Ratio	0.31	0.06	0.06	0.26	0.29		0.69	0.26			0.74	0.24
Uniform Delay, d1	37.6	43.7	32.2	36.5	44.5		37.6	5.5			18.8	13.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.2	0.7	0.0	0.2	1.6		3.5	0.1			1.9	0.2
Delay (s)	37.8	44.4	32.3	36.7	46.1		41.1	5.5			20.7	13.8
Level of Service	D	D	C	D	D		D	A			C	B
Approach Delay (s)		34.3			38.1			17.7			19.5	
Approach LOS		C			D			B			B	

Intersection Summary			
HCM 2000 Control Delay	21.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.66		
Actuated Cycle Length (s)	91.9	Sum of lost time (s)	22.1
Intersection Capacity Utilization	66.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	237	6	557	0	525	282	0	830	782
Future Volume (vph)	0	0	0	237	6	557	0	525	282	0	830	782
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.2	4.2	4.2		5.3	4.0		5.3	5.3
Lane Util. Factor				0.95	0.95	0.88		0.95	0.95		0.95	1.00
Frpb, ped/bikes				1.00	1.00	1.00		1.00	1.00		1.00	0.99
Flpb, ped/bikes				1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt				1.00	1.00	0.85		0.99	0.85		1.00	0.85
Flt Protected				0.95	0.95	1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				1633	1643	2760		1724	1279		3505	1563
Flt Permitted				0.95	0.95	1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				1633	1643	2760		1724	1279		3505	1563
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	249	6	586	0	553	297	0	874	823
RTOR Reduction (vph)	0	0	0	0	0	402	0	4	0	0	0	426
Lane Group Flow (vph)	0	0	0	127	128	184	0	579	267	0	874	397
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	0%	0%	0%	5%	2%	3%	0%	3%	20%	0%	3%	2%
Turn Type				Split	NA	Perm		NA	Free		NA	Perm
Protected Phases				8	8			2			6	
Permitted Phases						8			Free			6
Actuated Green, G (s)				6.6	6.6	6.6		15.0	31.1		15.0	15.0
Effective Green, g (s)				6.6	6.6	6.6		15.0	31.1		15.0	15.0
Actuated g/C Ratio				0.21	0.21	0.21		0.48	1.00		0.48	0.48
Clearance Time (s)				4.2	4.2	4.2		5.3			5.3	5.3
Vehicle Extension (s)				0.2	0.2	0.2		0.2			0.2	0.2
Lane Grp Cap (vph)				346	348	585		831	1279		1690	753
v/s Ratio Prot				0.08	c0.08			c0.34			0.25	
v/s Ratio Perm						0.07			0.21			0.25
v/c Ratio				0.37	0.37	0.31		0.70	0.21		0.52	0.53
Uniform Delay, d1				10.5	10.5	10.3		6.3	0.0		5.6	5.6
Progression Factor				1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				0.2	0.2	0.1		2.1	0.4		0.1	0.3
Delay (s)				10.7	10.7	10.5		8.4	0.4		5.7	5.9
Level of Service				B	B	B		A	A		A	A
Approach Delay (s)		0.0			10.5			5.8			5.8	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.0	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.60		
Actuated Cycle Length (s)	31.1	Sum of lost time (s)	9.5
Intersection Capacity Utilization	63.1%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	332	0	244	0	0	0	0	475	117	0	546	0
Future Volume (vph)	332	0	244	0	0	0	0	475	117	0	546	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2		4.2					5.8	4.0		5.8	
Lane Util. Factor	0.97		0.88					0.91	0.91		0.95	
Frpb, ped/bikes	1.00		1.00					1.00	1.00		1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00		1.00	
Frt	1.00		0.85					1.00	0.85		1.00	
Flt Protected	0.95		1.00					1.00	1.00		1.00	
Satd. Flow (prot)	3367		2409					3056	1427		3406	
Flt Permitted	0.95		1.00					1.00	1.00		1.00	
Satd. Flow (perm)	3367		2409					3056	1427		3406	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	361	0	265	0	0	0	0	516	127	0	593	0
RTOR Reduction (vph)	0	0	207	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	361	0	58	0	0	0	0	526	114	0	593	0
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	4%	0%	18%	0%	0%	0%	0%	13%	3%	0%	6%	2%
Turn Type	Prot		Prot					NA	Free		NA	
Protected Phases	4		4					2			6	
Permitted Phases									Free			
Actuated Green, G (s)	5.6		5.6					10.1	25.7		10.1	
Effective Green, g (s)	5.6		5.6					10.1	25.7		10.1	
Actuated g/C Ratio	0.22		0.22					0.39	1.00		0.39	
Clearance Time (s)	4.2		4.2					5.8			5.8	
Vehicle Extension (s)	0.2		0.2					0.2			0.2	
Lane Grp Cap (vph)	733		524					1200	1427		1338	
v/s Ratio Prot	c0.11		0.02					0.17			c0.17	
v/s Ratio Perm									0.08			
v/c Ratio	0.49		0.11					0.44	0.08		0.44	
Uniform Delay, d1	8.8		8.1					5.7	0.0		5.7	
Progression Factor	1.00		1.00					1.00	1.00		1.00	
Incremental Delay, d2	0.2		0.0					0.1	0.1		0.1	
Delay (s)	9.0		8.1					5.8	0.1		5.8	
Level of Service	A		A					A	A		A	
Approach Delay (s)		8.6			0.0			4.8			5.8	
Approach LOS		A			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	6.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.46		
Actuated Cycle Length (s)	25.7	Sum of lost time (s)	10.0
Intersection Capacity Utilization	74.8%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	205	73	3	8	435	321	3	66	7	222	104	464
Future Volume (vph)	205	73	3	8	435	321	3	66	7	222	104	464
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.0	5.0	4.5	5.0	4.5	4.5	5.0		4.5	5.0	5.0
Lane Util. Factor	0.94	0.95	1.00	1.00	0.95	0.88	1.00	0.91		0.94	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	4713	3343	1461	1667	3343	2609	1669	4726		4713	1759	1475
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	4713	3343	1461	1667	3343	2609	1669	4726		4713	1759	1475
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	225	80	3	9	478	353	3	73	8	244	114	510
RTOR Reduction (vph)	0	0	2	0	0	215	0	6	0	0	0	211
Lane Group Flow (vph)	225	80	1	9	478	138	3	75	0	244	114	299
Confl. Peds. (#/hr)			4	4			3		2	2		3
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	8.7	27.9	27.9	0.7	19.9	29.1	0.6	17.7		9.2	26.3	26.3
Effective Green, g (s)	8.7	27.9	27.9	0.7	19.9	29.1	0.6	17.7		9.2	26.3	26.3
Actuated g/C Ratio	0.12	0.37	0.37	0.01	0.27	0.39	0.01	0.24		0.12	0.35	0.35
Clearance Time (s)	4.5	5.0	5.0	4.5	5.0	4.5	4.5	5.0		4.5	5.0	5.0
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)	550	1251	547	15	892	1019	13	1122		582	620	520
v/s Ratio Prot	c0.05	0.02		0.01	c0.14	0.02	0.00	0.02		c0.05	0.06	
v/s Ratio Perm			0.00			0.04						c0.20
v/c Ratio	0.41	0.06	0.00	0.60	0.54	0.14	0.23	0.07		0.42	0.18	0.58
Uniform Delay, d1	30.5	14.9	14.6	36.8	23.4	14.6	36.7	22.0		30.2	16.7	19.6
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	0.2	0.0	0.0	36.3	0.8	0.0	3.3	0.0		0.2	0.2	1.8
Delay (s)	30.7	15.0	14.6	73.0	24.1	14.6	40.0	22.0		30.4	16.9	21.4
Level of Service	C	B	B	E	C	B	D	C		C	B	C
Approach Delay (s)		26.5			20.7			22.7			23.3	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	22.7	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	74.5	Sum of lost time (s)	19.0
Intersection Capacity Utilization	56.8%	ICU Level of Service	B
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	258	188	60	412	1	189	20	9	21	16	171
Future Volume (vph)	53	258	188	60	412	1	189	20	9	21	16	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.62	1.00	1.00	0.90	1.00	0.84		1.00	0.85	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.95		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1881	1008	1805	1881	1449	1805	1524		1805	1393	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1805	1881	1008	1805	1881	1449	1805	1524		1805	1393	
Peak-hour factor, PHF	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
Adj. Flow (vph)	90	437	319	102	698	2	320	34	15	36	27	290
RTOR Reduction (vph)	0	0	205	0	0	1	0	10	0	0	134	0
Lane Group Flow (vph)	90	437	114	102	698	1	320	39	0	36	183	0
Confl. Peds. (#/hr)	37		152	152		37	77		326	326		77
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	5.0	34.1	34.1	7.6	36.7	36.7	17.1	33.9		3.4	20.2	
Effective Green, g (s)	5.0	34.1	34.1	7.6	36.7	36.7	17.1	33.9		3.4	20.2	
Actuated g/C Ratio	0.05	0.36	0.36	0.08	0.38	0.38	0.18	0.35		0.04	0.21	
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)	94	670	359	143	722	556	322	540		64	294	
v/s Ratio Prot	c0.05	0.23		0.06	c0.37		c0.18	0.03		0.02	c0.13	
v/s Ratio Perm			0.11			0.00						
v/c Ratio	0.96	0.65	0.32	0.71	0.97	0.00	0.99	0.07		0.56	0.62	
Uniform Delay, d1	45.2	25.8	22.3	42.9	28.9	18.2	39.2	20.4		45.4	34.2	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	77.6	2.5	0.7	13.1	25.4	0.0	48.2	0.1		6.6	4.6	
Delay (s)	122.8	28.3	23.0	56.0	54.2	18.2	87.4	20.5		51.9	38.8	
Level of Service	F	C	C	E	D	B	F	C		D	D	
Approach Delay (s)		36.4			54.4			78.5			40.2	
Approach LOS		D			D			E			D	

Intersection Summary			
HCM 2000 Control Delay	49.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	95.6	Sum of lost time (s)	16.6
Intersection Capacity Utilization	69.8%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	207	77	4	0	208	0	38	0	0	0	0	227
Future Volume (vph)	207	77	4	0	208	0	38	0	0	0	0	227
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	225	84	4	0	226	0	41	0	0	0	0	247

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total (vph)	225	88	0	226	41	0	247
Volume Left (vph)	225	0	0	0	41	0	0
Volume Right (vph)	0	4	0	0	0	0	247
Hadj (s)	0.50	-0.02	0.00	0.02	0.20	0.00	-0.70
Departure Headway (s)	6.2	5.6	5.8	5.8	6.7	6.1	5.4
Degree Utilization, x	0.39	0.14	0.00	0.36	0.08	0.00	0.37
Capacity (veh/h)	557	605	596	589	473	562	624
Control Delay (s)	11.8	8.3	7.6	10.9	10.2	7.9	10.3
Approach Delay (s)	10.8		10.9		10.2	10.3	
Approach LOS	B		B		B	B	

Intersection Summary			
Delay	10.6		
Level of Service	B		
Intersection Capacity Utilization	41.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	51	19	0	16	55	0	0	16	5	0	47	153
Future Volume (vph)	51	19	0	16	55	0	0	16	5	0	47	153
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	21	0	17	60	0	0	17	5	0	51	166

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	55	21	17	60	0	22	0	217
Volume Left (vph)	55	0	17	0	0	0	0	0
Volume Right (vph)	0	0	0	0	0	5	0	166
Hadj (s)	0.53	0.03	0.53	0.03	0.00	-0.13	0.00	-0.50
Departure Headway (s)	5.7	5.2	5.7	5.2	5.1	5.0	4.9	4.4
Degree Utilization, x	0.09	0.03	0.03	0.09	0.00	0.03	0.00	0.27
Capacity (veh/h)	596	655	596	656	687	690	726	786
Control Delay (s)	8.0	7.2	7.7	7.5	6.9	6.9	6.7	7.8
Approach Delay (s)	7.8		7.5		6.9		7.8	
Approach LOS	A		A		A		A	

Intersection Summary			
Delay	7.7		
Level of Service	A		
Intersection Capacity Utilization	32.5%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	105	219	196	546	576	42	321	534	183	31	1346	209
Future Volume (vph)	105	219	196	546	576	42	321	534	183	31	1346	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	5.0	5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Lane Util. Factor	0.97	0.95	0.88	0.94	0.95		0.94	0.95	1.00	0.97	0.86	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3467	3539	2814	5040	3568		5090	3505	1599	3367	6471	2801
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	3539	2814	5040	3568		5090	3505	1599	3367	6471	2801
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	114	238	213	593	626	46	349	580	199	34	1463	227
RTOR Reduction (vph)	0	0	35	0	4	0	0	0	92	0	0	117
Lane Group Flow (vph)	114	238	178	593	668	0	349	580	107	34	1463	110
Confl. Peds. (#/hr)	7					7	3					3
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	1%	2%	1%	1%	0%	0%	0%	3%	1%	4%	1%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2						8			4
Actuated Green, G (s)	16.2	27.2	43.6	19.8	30.8		16.4	52.6	52.6	8.5	44.7	44.7
Effective Green, g (s)	16.2	27.2	43.6	19.8	30.8		16.4	52.6	52.6	8.5	44.7	44.7
Actuated g/C Ratio	0.12	0.21	0.34	0.15	0.24		0.13	0.40	0.40	0.07	0.34	0.34
Clearance Time (s)	5.0	6.0	5.0	5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0		2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)	431	739	943	767	844		641	1417	646	219	2223	962
v/s Ratio Prot	0.03	0.07	0.02	c0.12	c0.19		c0.07	0.17		0.01	c0.23	
v/s Ratio Perm			0.04						0.07			0.04
v/c Ratio	0.26	0.32	0.19	0.77	0.79		0.54	0.41	0.17	0.16	0.66	0.11
Uniform Delay, d1	51.6	43.6	30.7	53.0	46.6		53.3	27.7	24.7	57.4	36.2	29.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.3	0.0	4.4	5.1		0.5	0.3	0.2	0.1	0.8	0.1
Delay (s)	51.7	43.9	30.7	57.4	51.8		53.9	27.9	24.9	57.5	37.0	29.2
Level of Service	D	D	C	E	D		D	C	C	E	D	C
Approach Delay (s)		40.5			54.4			35.4			36.4	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	41.5	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.71		
Actuated Cycle Length (s)	130.1	Sum of lost time (s)	22.0
Intersection Capacity Utilization	88.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	82	337	95	317	640	54	120	611	177	19	471	162
Future Volume (vph)	82	337	95	317	640	54	120	611	177	19	471	162
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	5.0	4.5	6.0		5.0	6.0	6.0	4.5	5.5	5.5
Lane Util. Factor	0.97	0.91	0.88	0.97	0.91		0.94	0.95	0.88	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	5136	2662	3502	5119		4942	3610	2724	3502	5136	1562
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	5136	2662	3502	5119		4942	3610	2724	3502	5136	1562
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	93	383	108	360	727	61	136	694	201	22	535	184
RTOR Reduction (vph)	0	0	40	0	5	0	0	0	153	0	0	149
Lane Group Flow (vph)	93	383	68	360	783	0	136	694	48	22	535	35
Confl. Peds. (#/hr)	4		8	8		4	16		8	8		16
Confl. Bikes (#/hr)						7						3
Heavy Vehicles (%)	0%	1%	5%	0%	0%	0%	3%	0%	2%	0%	1%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2						8			4
Actuated Green, G (s)	8.1	62.8	74.7	15.4	70.1		11.9	32.6	32.6	5.7	26.4	26.4
Effective Green, g (s)	8.1	62.8	74.7	15.4	70.1		11.9	32.6	32.6	5.7	26.4	26.4
Actuated g/C Ratio	0.06	0.46	0.54	0.11	0.51		0.09	0.24	0.24	0.04	0.19	0.19
Clearance Time (s)	4.5	6.0	5.0	4.5	6.0		5.0	6.0	6.0	4.5	5.5	5.5
Vehicle Extension (s)	2.0	3.5	2.0	2.0	3.5		2.0	3.5	3.5	2.0	3.5	3.5
Lane Grp Cap (vph)	206	2345	1446	392	2609		427	855	645	145	986	299
v/s Ratio Prot	0.03	0.07	0.00	c0.10	c0.15		c0.03	c0.19		0.01	0.10	
v/s Ratio Perm			0.02						0.02			0.02
v/c Ratio	0.45	0.16	0.05	0.92	0.30		0.32	0.81	0.07	0.15	0.54	0.12
Uniform Delay, d1	62.6	21.9	14.7	60.4	19.5		59.0	49.6	40.7	63.6	50.1	45.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.6	0.1	0.0	25.5	0.3		0.2	6.1	0.1	0.2	0.7	0.2
Delay (s)	63.1	22.1	14.7	86.0	19.8		59.1	55.6	40.8	63.7	50.8	46.1
Level of Service	E	C	B	F	B		E	E	D	E	D	D
Approach Delay (s)		27.3			40.5			53.2			50.0	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	44.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.54		
Actuated Cycle Length (s)	137.5	Sum of lost time (s)	21.0
Intersection Capacity Utilization	83.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	52	247	85	538	294	127	79	542	179	161	1109	92
v/c Ratio	0.17	0.47	0.11	0.84	0.38	0.18	0.25	0.47	0.36	0.67	0.70	0.18
Control Delay	57.7	36.8	6.8	61.0	27.5	4.8	58.4	40.7	8.1	66.1	40.0	11.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	57.7	36.8	6.8	61.0	27.5	4.8	58.4	40.7	8.1	66.1	40.0	11.7
Queue Length 50th (ft)	22	159	0	~255	171	0	34	146	0	136	319	10
Queue Length 95th (ft)	42	228	18	#350	240	33	58	179	49	200	346	46
Internal Link Dist (ft)		307			1140			315			1226	
Turn Bay Length (ft)	270		220	220		250	235		235	235		215
Base Capacity (vph)	619	811	1134	644	896	807	637	1783	674	334	1838	599
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.08	0.30	0.07	0.84	0.33	0.16	0.12	0.30	0.27	0.48	0.60	0.15

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	116	3	214	57	10	323	626	1288	278
v/c Ratio	0.29	0.01	0.32	0.24	0.05	0.65	0.25	0.71	0.31
Control Delay	39.5	37.3	5.3	40.1	39.0	42.4	4.9	20.4	6.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.5	37.3	5.3	40.1	39.0	42.4	4.9	20.4	6.6
Queue Length 50th (ft)	28	1	0	27	5	82	41	241	24
Queue Length 95th (ft)	67	11	27	77	23	151	116	508	101
Internal Link Dist (ft)		1930			231		1410	554	
Turn Bay Length (ft)			315	40		350			185
Base Capacity (vph)	1171	654	1153	334	312	1148	2529	1823	904
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.10	0.00	0.19	0.17	0.03	0.28	0.25	0.71	0.31

Intersection Summary

Lane Group	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	127	128	586	583	267	874	823
v/c Ratio	0.37	0.37	0.60	0.71	0.21	0.53	0.70
Control Delay	15.7	15.7	5.6	12.2	0.4	7.1	4.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	15.7	15.7	5.6	12.2	0.4	7.1	4.4
Queue Length 50th (ft)	17	17	5	55	0	37	0
Queue Length 95th (ft)	67	67	43	180	0	98	38
Internal Link Dist (ft)		1505		814		1410	
Turn Bay Length (ft)	135		115				190
Base Capacity (vph)	1093	1100	2016	1633	1279	3319	1524
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.12	0.12	0.29	0.36	0.21	0.26	0.54

Intersection Summary

Lane Group	EBL	EBR	NBT	NBR	SBT
Lane Group Flow (vph)	361	265	529	114	593
v/c Ratio	0.49	0.36	0.44	0.08	0.44
Control Delay	11.2	3.1	7.3	0.1	7.2
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	11.2	3.1	7.3	0.1	7.2
Queue Length 50th (ft)	20	0	22	0	24
Queue Length 95th (ft)	37	12	47	0	50
Internal Link Dist (ft)			819		76
Turn Bay Length (ft)	275	420			
Base Capacity (vph)	3309	2372	3055	1427	3406
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.11	0.11	0.17	0.08	0.17

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	225	80	3	9	478	353	3	81	244	114	510
v/c Ratio	0.40	0.07	0.01	0.07	0.52	0.28	0.03	0.09	0.41	0.18	0.69
Control Delay	37.0	17.4	0.0	44.0	25.0	2.3	45.0	23.5	35.3	18.6	13.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.0	17.4	0.0	44.0	25.0	2.3	45.0	23.5	35.3	18.6	13.1
Queue Length 50th (ft)	26	7	0	3	76	0	1	8	29	28	49
Queue Length 95th (ft)	#101	42	0	26	214	28	13	27	99	101	241
Internal Link Dist (ft)		870			783			616		819	
Turn Bay Length (ft)	400		300	350			110		590		425
Base Capacity (vph)	619	2480	1109	168	2377	2099	142	3288	2295	1600	1369
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.36	0.03	0.00	0.05	0.20	0.17	0.02	0.02	0.11	0.07	0.37

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	90	437	319	102	698	2	320	49	36	317
v/c Ratio	0.48	0.76	0.65	0.51	1.20	0.00	0.77	0.08	0.27	0.65
Control Delay	51.2	44.0	11.5	51.3	136.3	0.0	47.4	14.7	50.6	13.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	51.2	44.0	11.5	51.3	136.3	0.0	47.4	14.7	50.6	13.0
Queue Length 50th (ft)	54	266	0	62	~593	0	191	13	22	13
Queue Length 95th (ft)	72	261	0	78	#508	0	179	22	37	0
Internal Link Dist (ft)		1140			1011			371		674
Turn Bay Length (ft)	195		785	145		50			85	
Base Capacity (vph)	440	574	490	440	584	525	661	721	440	612
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	0.76	0.65	0.23	1.20	0.00	0.48	0.07	0.08	0.52

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	114	238	213	593	672	349	580	199	34	1463	227
v/c Ratio	0.26	0.32	0.19	0.76	0.78	0.53	0.40	0.27	0.09	0.68	0.22
Control Delay	55.4	44.6	20.4	59.7	52.0	57.3	30.7	9.6	55.6	39.5	8.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	55.4	44.6	20.4	59.7	52.0	57.3	30.7	9.6	55.6	39.5	8.8
Queue Length 50th (ft)	44	90	50	170	281	98	193	24	13	293	14
Queue Length 95th (ft)	86	137	86	237	355	151	296	93	34	409	53
Internal Link Dist (ft)		4610			1861		948			1636	
Turn Bay Length (ft)	220		220	350		315		170	250		250
Base Capacity (vph)	683	1283	1313	993	1297	1003	1439	748	663	2347	1129
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.19	0.16	0.60	0.52	0.35	0.40	0.27	0.05	0.62	0.20

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	93	383	108	360	788	136	694	201	22	535	184
v/c Ratio	0.45	0.16	0.07	0.92	0.29	0.37	0.81	0.25	0.11	0.54	0.41
Control Delay	69.3	22.8	3.1	89.2	20.3	63.4	57.7	5.9	60.9	51.2	8.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.3	22.8	3.1	89.2	20.3	63.4	57.7	5.9	60.9	51.2	8.0
Queue Length 50th (ft)	42	72	2	166	144	39	307	0	9	168	0
Queue Length 95th (ft)	69	105	14	#248	200	64	365	31	23	176	54
Internal Link Dist (ft)		1503			4610		991			1549	
Turn Bay Length (ft)	250		225	250		240		380	270		200
Base Capacity (vph)	394	2411	1637	394	2680	617	918	843	483	1382	555
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.16	0.07	0.91	0.29	0.22	0.76	0.24	0.05	0.39	0.33

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Intersection Delay, s/veh	11.5
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	207	77	4	0	208	0	38	0	0	0	0	227
Future Vol, veh/h	207	77	4	0	208	0	38	0	0	0	0	227
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	225	84	4	0	226	0	41	0	0	0	0	247
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	11.7	11.8	10.3	11.3
HCM LOS	B	B	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	100%	0%	0%	0%	0%	0%
Vol Thru, %	0%	0%	95%	100%	100%	100%	0%
Vol Right, %	0%	0%	5%	0%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	38	207	81	0	208	0	227
LT Vol	38	207	0	0	0	0	0
Through Vol	0	0	77	0	208	0	0
RT Vol	0	0	4	0	0	0	227
Lane Flow Rate	41	225	88	0	226	0	247
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.077	0.385	0.138	0	0.364	0	0.369
Departure Headway (Hd)	6.682	6.156	5.633	5.784	5.802	6.098	5.389
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	536	585	637	0	622	0	669
Service Time	4.725	3.882	3.359	3.514	3.531	3.831	3.122
HCM Lane V/C Ratio	0.076	0.385	0.138	0	0.363	0	0.369
HCM Control Delay	10.3	12.7	9.3	8.5	11.8	8.8	11.3
HCM Lane LOS	B	B	A	N	B	N	B
HCM 95th-tile Q	0.2	1.8	0.5	0	1.7	0	1.7

Intersection	
Intersection Delay, s/veh	8.7
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	19	0	16	55	0	0	16	5	0	47	153
Future Vol, veh/h	51	19	0	16	55	0	0	16	5	0	47	153
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	55	21	0	17	60	0	0	17	5	0	51	166
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	8.8	8.4	7.8	8.8
HCM LOS	A	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%	0%	0%
Vol Thru, %	100%	76%	0%	100%	0%	100%	100%	23%
Vol Right, %	0%	24%	0%	0%	0%	0%	0%	77%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	21	51	19	16	55	0	200
LT Vol	0	0	51	0	16	0	0	0
Through Vol	0	16	0	19	0	55	0	47
RT Vol	0	5	0	0	0	0	0	153
Lane Flow Rate	0	23	55	21	17	60	0	217
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0	0.031	0.088	0.03	0.027	0.086	0	0.268
Departure Headway (Hd)	5.132	4.964	5.684	5.181	5.687	5.184	4.971	4.434
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	722	631	692	630	692	0	813
Service Time	2.853	2.686	3.411	2.907	3.415	2.911	2.684	2.147
HCM Lane V/C Ratio	0	0.032	0.087	0.03	0.027	0.087	0	0.267
HCM Control Delay	7.9	7.8	9	8.1	8.6	8.4	7.7	8.8
HCM Lane LOS	N	A	A	A	A	A	N	A
HCM 95th-tile Q	0	0.1	0.3	0.1	0.1	0.3	0	1.1

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	77	139	99	217	87	44	102	897	341	33	695	69
Future Volume (vph)	77	139	99	217	87	44	102	897	341	33	695	69
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.5	5.3	5.3	4.0	5.3	5.3
Lane Util. Factor	0.97	1.00	0.88	0.97	1.00	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	1900	2795	3502	1900	1589	3502	5187	1581	1805	5136	1573
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	1900	2795	3502	1900	1589	3502	5187	1581	1805	5136	1573
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	79	143	102	224	90	45	105	925	352	34	716	71
RTOR Reduction (vph)	0	0	80	0	0	33	0	0	227	0	0	48
Lane Group Flow (vph)	79	143	22	224	90	12	105	925	125	34	716	23
Confl. Peds. (#/hr)	7		9	9		7	7		1	1		7
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	7.8	17.9	17.9	11.8	21.9	21.9	7.9	29.5	29.5	5.4	26.5	26.5
Effective Green, g (s)	7.8	17.9	17.9	11.8	21.9	21.9	7.9	29.5	29.5	5.4	26.5	26.5
Actuated g/C Ratio	0.09	0.22	0.22	0.14	0.26	0.26	0.10	0.36	0.36	0.07	0.32	0.32
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.5	5.3	5.3	4.0	5.3	5.3
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)	329	410	603	498	501	419	333	1845	562	117	1641	502
v/s Ratio Prot	0.02	c0.08		c0.06	c0.05		c0.03	c0.18		0.02	0.14	
v/s Ratio Perm			0.01			0.01			0.08			0.01
v/c Ratio	0.24	0.35	0.04	0.45	0.18	0.03	0.32	0.50	0.22	0.29	0.44	0.05
Uniform Delay, d1	34.8	27.6	25.7	32.6	23.6	22.6	35.0	20.9	18.7	36.9	22.3	19.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.1	0.7	0.0	0.2	0.2	0.0	0.2	0.3	0.3	0.5	0.3	0.1
Delay (s)	34.9	28.3	25.7	32.8	23.8	22.6	35.2	21.2	19.0	37.4	22.5	19.5
Level of Service	C	C	C	C	C	C	D	C	B	D	C	B
Approach Delay (s)		29.1			29.3			21.7			22.9	
Approach LOS		C			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.8	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.43		
Actuated Cycle Length (s)	82.9	Sum of lost time (s)	18.8
Intersection Capacity Utilization	66.9%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	318	15	478	28	9	0	149	1022	46	0	858	153
Future Volume (vph)	318	15	478	28	9	0	149	1022	46	0	858	153
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	4.0	5.8		5.3	5.7			5.7	5.7
Lane Util. Factor	0.97	1.00	0.88	1.00	1.00		0.97	0.95			0.95	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	0.99			1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (prot)	3502	1900	2814	1805	1900		3400	3587			3574	1587
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00			1.00	1.00
Satd. Flow (perm)	3502	1900	2814	1805	1900		3400	3587			3574	1587
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	335	16	503	29	9	0	157	1076	48	0	903	161
RTOR Reduction (vph)	0	0	322	0	0	0	0	2	0	0	0	100
Lane Group Flow (vph)	335	16	181	29	9	0	157	1122	0	0	903	61
Confl. Peds. (#/hr)							11					11
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	3%	0%	0%	0%	1%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA		Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2									4
Actuated Green, G (s)	13.0	3.0	14.1	13.1	1.3		11.1	45.2			28.8	28.8
Effective Green, g (s)	13.0	3.0	14.1	13.1	1.3		11.1	45.2			28.8	28.8
Actuated g/C Ratio	0.17	0.04	0.18	0.17	0.02		0.15	0.59			0.38	0.38
Clearance Time (s)	5.3	5.3	5.3	4.0	5.8		5.3	5.7			5.7	5.7
Vehicle Extension (s)	2.0	4.0	2.0	2.0	2.0		2.0	4.0			4.0	4.0
Lane Grp Cap (vph)	596	74	715	309	32		494	2124			1349	599
v/s Ratio Prot	c0.10	0.01	c0.04	0.02	0.00		0.05	c0.31			c0.25	
v/s Ratio Perm			0.03									0.04
v/c Ratio	0.56	0.22	0.25	0.09	0.28		0.32	0.53			0.67	0.10
Uniform Delay, d1	29.0	35.5	26.6	26.6	37.0		29.2	9.2			19.8	15.4
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00			1.00	1.00
Incremental Delay, d2	0.7	2.0	0.1	0.0	1.8		0.1	0.3			1.4	0.1
Delay (s)	29.8	37.5	26.7	26.7	38.8		29.3	9.5			21.2	15.5
Level of Service	C	D	C	C	D		C	A			C	B
Approach Delay (s)		28.1			29.5			12.0			20.3	
Approach LOS		C			C			B			C	

Intersection Summary			
HCM 2000 Control Delay	19.2	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.65		
Actuated Cycle Length (s)	76.3	Sum of lost time (s)	22.1
Intersection Capacity Utilization	67.4%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	261	3	714	0	921	459	0	1139	543
Future Volume (vph)	0	0	0	261	3	714	0	921	459	0	1139	543
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.2	4.2	4.2		5.3	4.0		5.3	5.3
Lane Util. Factor				0.95	0.95	0.88		0.95	0.95		0.95	1.00
Frt				1.00	1.00	0.85		0.99	0.85		1.00	0.85
Flt Protected				0.95	0.95	1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				1698	1704	2814		1773	1490		3539	1599
Flt Permitted				0.95	0.95	1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				1698	1704	2814		1773	1490		3539	1599
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	266	3	729	0	940	468	0	1162	554
RTOR Reduction (vph)	0	0	0	0	0	146	0	2	0	0	0	225
Lane Group Flow (vph)	0	0	0	136	133	583	0	985	421	0	1162	329
Heavy Vehicles (%)	0%	0%	0%	1%	0%	1%	0%	1%	3%	0%	2%	1%
Turn Type				Split	NA	Perm		NA	Free		NA	Perm
Protected Phases				8	8			2			6	
Permitted Phases						8			Free			6
Actuated Green, G (s)				14.5	14.5	14.5		35.2	59.2		35.2	35.2
Effective Green, g (s)				14.5	14.5	14.5		35.2	59.2		35.2	35.2
Actuated g/C Ratio				0.24	0.24	0.24		0.59	1.00		0.59	0.59
Clearance Time (s)				4.2	4.2	4.2		5.3			5.3	5.3
Vehicle Extension (s)				0.2	0.2	0.2		0.2			0.2	0.2
Lane Grp Cap (vph)				415	417	689		1054	1490		2104	950
v/s Ratio Prot				0.08	0.08			c0.56			0.33	
v/s Ratio Perm						c0.21			0.28			0.21
v/c Ratio				0.33	0.32	0.85		0.93	0.28		0.55	0.35
Uniform Delay, d1				18.3	18.3	21.3		10.9	0.0		7.2	6.1
Progression Factor				1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				0.2	0.2	9.0		14.3	0.5		0.2	0.1
Delay (s)				18.5	18.5	30.3		25.2	0.5		7.4	6.2
Level of Service				B	B	C		C	A		A	A
Approach Delay (s)		0.0			27.1			17.8			7.0	
Approach LOS		A			C			B			A	

Intersection Summary			
HCM 2000 Control Delay	15.6	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.91		
Actuated Cycle Length (s)	59.2	Sum of lost time (s)	9.5
Intersection Capacity Utilization	90.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	504	0	298	0	0	0	0	876	535	0	826	0
Future Volume (vph)	504	0	298	0	0	0	0	876	535	0	826	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2		4.2					5.8	4.0		5.8	
Lane Util. Factor	0.97		0.88					0.91	0.91		0.95	
Frt	1.00		0.85					0.98	0.85		1.00	
Flt Protected	0.95		1.00					1.00	1.00		1.00	
Satd. Flow (prot)	3467		2787					3368	1455		3574	
Flt Permitted	0.95		1.00					1.00	1.00		1.00	
Satd. Flow (perm)	3467		2787					3368	1455		3574	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	514	0	304	0	0	0	0	894	546	0	843	0
RTOR Reduction (vph)	0	0	173	0	0	0	0	14	0	0	0	0
Lane Group Flow (vph)	514	0	131	0	0	0	0	989	437	0	843	0
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	0%	1%	1%	0%	1%	3%
Turn Type	Prot		Prot					NA	Free		NA	
Protected Phases	4		4					2			6	
Permitted Phases									Free			
Actuated Green, G (s)	8.7		8.7					15.5	34.2		15.5	
Effective Green, g (s)	8.7		8.7					15.5	34.2		15.5	
Actuated g/C Ratio	0.25		0.25					0.45	1.00		0.45	
Clearance Time (s)	4.2		4.2					5.8			5.8	
Vehicle Extension (s)	0.2		0.2					0.2			0.2	
Lane Grp Cap (vph)	881		708					1526	1455		1619	
v/s Ratio Prot	c0.15		0.05					c0.29			0.24	
v/s Ratio Perm									0.30			
v/c Ratio	0.58		0.19					0.65	0.30		0.52	
Uniform Delay, d1	11.2		10.0					7.2	0.0		6.7	
Progression Factor	1.00		1.00					1.00	1.00		1.00	
Incremental Delay, d2	0.6		0.0					0.7	0.5		0.1	
Delay (s)	11.8		10.0					8.0	0.5		6.8	
Level of Service	B		B					A	A		A	
Approach Delay (s)		11.1			0.0			5.7			6.8	
Approach LOS		B			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	7.4	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.62		
Actuated Cycle Length (s)	34.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	111.0%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	561	677	4	4	158	813	2	37	9	893	12	219
Future Volume (vph)	561	677	4	4	158	813	2	37	9	893	12	219
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.0	5.0	4.5	5.0	4.5	4.5	5.0		4.5	5.0	5.0
Lane Util. Factor	0.94	0.95	1.00	1.00	0.95	0.88	1.00	0.91		0.94	1.00	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (prot)	4713	3343	1460	1671	3343	2620	1671	4668		4713	1759	1495
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00
Satd. Flow (perm)	4713	3343	1460	1671	3343	2620	1671	4668		4713	1759	1495
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	591	713	4	4	166	856	2	39	9	940	13	231
RTOR Reduction (vph)	0	0	3	0	0	429	0	8	0	0	0	128
Lane Group Flow (vph)	591	713	1	4	166	427	2	40	0	940	13	103
Confl. Bikes (#/hr)			3			1						
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8						6
Actuated Green, G (s)	11.7	26.8	26.8	0.7	15.8	42.4	0.6	11.9		26.6	37.9	37.9
Effective Green, g (s)	11.7	26.8	26.8	0.7	15.8	42.4	0.6	11.9		26.6	37.9	37.9
Actuated g/C Ratio	0.14	0.32	0.32	0.01	0.19	0.50	0.01	0.14		0.31	0.45	0.45
Clearance Time (s)	4.5	5.0	5.0	4.5	5.0	4.5	4.5	5.0		4.5	5.0	5.0
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	2.0	2.0	4.0		2.0	4.0	4.0
Lane Grp Cap (vph)	648	1054	460	13	621	1306	11	653		1474	784	666
v/s Ratio Prot	c0.13	c0.21		0.00	0.05	0.10	0.00	0.01		c0.20	0.01	
v/s Ratio Perm			0.00			0.06						c0.07
v/c Ratio	0.91	0.68	0.00	0.31	0.27	0.33	0.18	0.06		0.64	0.02	0.15
Uniform Delay, d1	36.1	25.3	19.9	41.9	29.6	12.8	42.0	31.7		25.1	13.1	14.0
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00
Incremental Delay, d2	16.9	1.9	0.0	4.8	0.3	0.1	2.9	0.1		0.7	0.0	0.1
Delay (s)	53.1	27.2	19.9	46.8	30.0	12.8	44.8	31.8		25.7	13.2	14.2
Level of Service	D	C	B	D	C	B	D	C		C	B	B
Approach Delay (s)		38.9			15.7			32.3			23.3	
Approach LOS		D			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	27.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.64		
Actuated Cycle Length (s)	85.0	Sum of lost time (s)	19.0
Intersection Capacity Utilization	57.8%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	366	83	7	246	1	108	5	10	4	6	59
Future Volume (vph)	64	366	83	7	246	1	108	5	10	4	6	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	0.95	1.00	0.90		1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00	0.94	1.00	1.00	1.00	1.00		0.88	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1900	1363	1689	1900	1533	1805	1543		1590	1586	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1805	1900	1363	1689	1900	1533	1805	1543		1590	1586	
Peak-hour factor, PHF	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Adj. Flow (vph)	90	515	117	10	346	1	152	7	14	6	8	83
RTOR Reduction (vph)	0	0	63	0	0	1	0	10	0	0	70	0
Lane Group Flow (vph)	90	515	54	10	346	0	152	11	0	6	21	0
Confl. Peds. (#/hr)	18		75	75		18	11		98	98		11
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	6.9	34.2	34.2	0.9	28.2	28.2	10.7	21.4		0.8	11.5	
Effective Green, g (s)	6.9	34.2	34.2	0.9	28.2	28.2	10.7	21.4		0.8	11.5	
Actuated g/C Ratio	0.09	0.46	0.46	0.01	0.38	0.38	0.14	0.29		0.01	0.16	
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)	168	879	630	20	725	584	261	446		17	246	
v/s Ratio Prot	c0.05	c0.27		0.01	0.18		c0.08	0.01		0.00	c0.01	
v/s Ratio Perm			0.04			0.00						
v/c Ratio	0.54	0.59	0.09	0.50	0.48	0.00	0.58	0.02		0.35	0.09	
Uniform Delay, d1	32.0	14.6	11.1	36.3	17.3	14.1	29.5	18.8		36.3	26.7	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	1.6	1.2	0.1	7.0	0.7	0.0	2.1	0.0		4.5	0.2	
Delay (s)	33.6	15.8	11.2	43.3	18.0	14.1	31.6	18.8		40.8	26.9	
Level of Service	C	B	B	D	B	B	C	B		D	C	
Approach Delay (s)		17.3			18.7			30.1			27.8	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	20.0	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.50		
Actuated Cycle Length (s)	73.9	Sum of lost time (s)	16.6
Intersection Capacity Utilization	56.0%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	92	270	18	0	140	0	22	0	0	0	0	92
Future Volume (vph)	92	270	18	0	140	0	22	0	0	0	0	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	100	293	20	0	152	0	24	0	0	0	0	100

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total (vph)	100	313	0	152	24	0	100
Volume Left (vph)	100	0	0	0	24	0	0
Volume Right (vph)	0	20	0	0	0	0	100
Hadj (s)	0.50	-0.04	0.00	0.00	0.20	0.00	-0.70
Departure Headway (s)	5.5	5.0	5.3	5.3	6.2	5.9	5.2
Degree Utilization, x	0.15	0.43	0.00	0.22	0.04	0.00	0.14
Capacity (veh/h)	639	709	666	658	528	569	630
Control Delay (s)	8.3	10.5	7.1	8.5	9.5	7.7	7.9
Approach Delay (s)	9.9		8.5		9.5	7.9	
Approach LOS	A		A		A	A	

Intersection Summary			
Delay	9.3		
Level of Service	A		
Intersection Capacity Utilization	36.9%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	184	54	0	9	32	0	0	46	15	0	28	108
Future Volume (vph)	184	54	0	9	32	0	0	46	15	0	28	108
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	200	59	0	10	35	0	0	50	16	0	30	117

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	200	59	10	35	0	66	0	147
Volume Left (vph)	200	0	10	0	0	0	0	0
Volume Right (vph)	0	0	0	0	0	16	0	117
Hadj (s)	0.53	0.03	0.53	0.03	0.00	-0.14	0.00	-0.52
Departure Headway (s)	5.7	5.2	5.9	5.4	5.5	5.3	5.4	4.9
Degree Utilization, x	0.31	0.08	0.02	0.05	0.00	0.10	0.00	0.20
Capacity (veh/h)	610	669	575	629	630	634	644	700
Control Delay (s)	10.0	7.4	7.8	7.5	7.3	7.7	7.2	7.9
Approach Delay (s)	9.4		7.6		7.7		7.9	
Approach LOS	A		A		A		A	

Intersection Summary			
Delay	8.6		
Level of Service	A		
Intersection Capacity Utilization	35.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	354	853	610	334	337	48	568	840	538	82	776	212
Future Volume (vph)	354	853	610	334	337	48	568	840	538	82	776	212
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	5.0	5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Lane Util. Factor	0.97	0.95	0.88	0.94	0.95		0.94	0.95	1.00	0.97	0.86	0.88
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.98		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	3574	2819	5040	3445		5090	3610	1615	3467	6471	2726
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	3574	2819	5040	3445		5090	3610	1615	3467	6471	2726
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	377	907	649	355	359	51	604	894	572	87	826	226
RTOR Reduction (vph)	0	0	30	0	7	0	0	0	195	0	0	162
Lane Group Flow (vph)	377	907	619	355	403	0	604	894	377	87	826	64
Confl. Peds. (#/hr)	5					5	11					11
Confl. Bikes (#/hr)			1			1						
Heavy Vehicles (%)	0%	1%	0%	1%	3%	0%	0%	0%	0%	1%	1%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2						8			4
Actuated Green, G (s)	19.4	39.9	60.8	16.8	37.3		20.9	45.1	45.1	15.2	39.4	39.4
Effective Green, g (s)	19.4	39.9	60.8	16.8	37.3		20.9	45.1	45.1	15.2	39.4	39.4
Actuated g/C Ratio	0.14	0.29	0.44	0.12	0.27		0.15	0.32	0.32	0.11	0.28	0.28
Clearance Time (s)	5.0	6.0	5.0	5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0		2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)	488	1025	1233	609	924		765	1171	524	379	1834	772
v/s Ratio Prot	c0.11	c0.25	0.08	0.07	0.12		c0.12	c0.25		0.03	0.13	
v/s Ratio Perm			0.14						0.23			0.02
v/c Ratio	0.77	0.88	0.50	0.58	0.44		0.79	0.76	0.72	0.23	0.45	0.08
Uniform Delay, d1	57.7	47.4	28.2	57.8	42.1		56.9	42.2	41.4	56.6	40.9	36.5
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.8	9.3	0.1	0.9	0.3		5.0	3.2	5.0	0.1	0.2	0.1
Delay (s)	64.5	56.6	28.3	58.7	42.5		62.0	45.4	46.4	56.7	41.1	36.6
Level of Service	E	E	C	E	D		E	D	D	E	D	D
Approach Delay (s)		48.6			50.0			50.5			41.4	
Approach LOS		D			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	48.1	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.84		
Actuated Cycle Length (s)	139.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	91.0%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	173	1109	186	203	687	18	224	552	422	69	533	90
Future Volume (vph)	173	1109	186	203	687	18	224	552	422	69	533	90
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	5.0	4.5	6.0		5.0	5.5	5.5	4.5	5.5	5.5
Lane Util. Factor	0.97	0.91	0.88	0.97	0.91		0.94	0.95	0.88	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5136	2745	3467	5115		5090	3610	2802	3502	5136	1582
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5136	2745	3467	5115		5090	3610	2802	3502	5136	1582
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	175	1120	188	205	694	18	226	558	426	70	538	91
RTOR Reduction (vph)	0	0	58	0	2	0	0	0	327	0	0	73
Lane Group Flow (vph)	175	1120	130	205	710	0	226	558	99	70	538	18
Confl. Peds. (#/hr)	3		5	5		3	8		1	1		8
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	2%	1%	2%	1%	1%	0%	0%	0%	0%	0%	1%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2						8			4
Actuated Green, G (s)	11.3	65.9	76.3	12.4	67.0		10.4	31.6	31.6	6.1	26.8	26.8
Effective Green, g (s)	11.3	65.9	76.3	12.4	67.0		10.4	31.6	31.6	6.1	26.8	26.8
Actuated g/C Ratio	0.08	0.48	0.56	0.09	0.49		0.08	0.23	0.23	0.04	0.20	0.20
Clearance Time (s)	4.5	6.0	5.0	4.5	6.0		5.0	5.5	5.5	4.5	5.5	5.5
Vehicle Extension (s)	2.0	3.5	2.0	2.0	3.5		2.0	3.5	3.5	2.0	3.5	3.5
Lane Grp Cap (vph)	284	2479	1534	314	2510		387	835	648	156	1008	310
v/s Ratio Prot	0.05	c0.22	0.01	c0.06	0.14		c0.04	c0.15		0.02	0.10	
v/s Ratio Perm			0.04						0.04			0.01
v/c Ratio	0.62	0.45	0.08	0.65	0.28		0.58	0.67	0.15	0.45	0.53	0.06
Uniform Delay, d1	60.5	23.4	13.9	60.0	20.5		61.0	47.7	41.8	63.6	49.2	44.6
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	2.8	0.6	0.0	3.7	0.3		1.5	2.1	0.1	0.7	0.6	0.1
Delay (s)	63.3	23.9	13.9	63.7	20.8		62.4	49.8	41.9	64.3	49.9	44.7
Level of Service	E	C	B	E	C		E	D	D	E	D	D
Approach Delay (s)		27.3			30.4			49.4			50.6	
Approach LOS		C			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	38.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.55		
Actuated Cycle Length (s)	136.5	Sum of lost time (s)	21.0
Intersection Capacity Utilization	77.7%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	79	143	102	224	90	45	105	925	352	34	716	71
v/c Ratio	0.17	0.35	0.15	0.45	0.21	0.11	0.23	0.50	0.44	0.14	0.45	0.13
Control Delay	41.3	31.5	6.5	40.4	28.0	1.7	41.3	24.1	5.2	43.4	25.5	7.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	41.3	31.5	6.5	40.4	28.0	1.7	41.3	24.1	5.2	43.4	25.5	7.0
Queue Length 50th (ft)	18	65	0	54	40	0	24	128	0	15	95	0
Queue Length 95th (ft)	59	135	21	135	84	7	74	289	72	63	222	33
Internal Link Dist (ft)		307			1140			315			1226	
Turn Bay Length (ft)	270		220	220		250	235		235	235		215
Base Capacity (vph)	924	1153	1730	924	1170	1006	924	2640	976	476	2574	823
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.09	0.12	0.06	0.24	0.08	0.04	0.11	0.35	0.36	0.07	0.28	0.09

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	SBT	SBR
Lane Group Flow (vph)	335	16	503	29	9	157	1124	903	161
v/c Ratio	0.53	0.04	0.57	0.09	0.03	0.30	0.50	0.64	0.22
Control Delay	32.5	30.4	9.0	33.2	35.9	33.1	8.9	20.3	3.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	32.5	30.4	9.0	33.2	35.9	33.1	8.9	20.3	3.1
Queue Length 50th (ft)	59	5	21	9	3	27	101	142	0
Queue Length 95th (ft)	156	28	69	48	22	85	289	314	32
Internal Link Dist (ft)		1930			231		1410	554	
Turn Bay Length (ft)			315	40		350			185
Base Capacity (vph)	1527	828	1564	424	396	1483	3100	2330	1090
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.22	0.02	0.32	0.07	0.02	0.11	0.36	0.39	0.15

Intersection Summary

Lane Group	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	136	133	729	987	421	1162	554
v/c Ratio	0.33	0.32	0.87	0.94	0.28	0.55	0.47
Control Delay	20.1	19.9	27.8	31.4	0.5	9.3	2.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	20.1	19.9	27.8	31.4	0.5	9.3	2.3
Queue Length 50th (ft)	42	41	103	294	0	115	0
Queue Length 95th (ft)	83	82	168	#673	0	204	38
Internal Link Dist (ft)		1505		814		1410	
Turn Bay Length (ft)	135		115				190
Base Capacity (vph)	576	578	1083	1055	1490	2102	1174
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.23	0.67	0.94	0.28	0.55	0.47

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBR	NBT	NBR	SBT
Lane Group Flow (vph)	514	304	1003	437	843
v/c Ratio	0.59	0.35	0.66	0.30	0.53
Control Delay	15.3	5.2	9.9	0.5	8.4
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	15.3	5.2	9.9	0.5	8.4
Queue Length 50th (ft)	42	5	66	0	51
Queue Length 95th (ft)	99	33	142	0	108
Internal Link Dist (ft)			819		76
Turn Bay Length (ft)	275	420			
Base Capacity (vph)	2717	2234	3247	1455	3444
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.19	0.14	0.31	0.30	0.24

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT	SBR
Lane Group Flow (vph)	591	713	4	4	166	856	2	48	940	13	231
v/c Ratio	0.83	0.62	0.01	0.05	0.32	0.49	0.03	0.10	0.58	0.02	0.27
Control Delay	45.1	24.2	0.0	39.2	30.2	1.6	39.5	29.2	23.3	14.2	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	45.1	24.2	0.0	39.2	30.2	1.6	39.5	29.2	23.3	14.2	3.5
Queue Length 50th (ft)	95	142	0	2	37	0	1	6	123	3	0
Queue Length 95th (ft)	#191	232	0	13	64	22	8	19	208	17	47
Internal Link Dist (ft)		870			783			616		819	
Turn Bay Length (ft)	400		300	350			110		590		425
Base Capacity (vph)	708	1950	902	86	1621	1760	75	2727	1650	1586	1371
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.83	0.37	0.00	0.05	0.10	0.49	0.03	0.02	0.57	0.01	0.17

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	90	515	117	10	346	1	152	21	6	91
v/c Ratio	0.41	0.53	0.17	0.07	0.48	0.00	0.53	0.04	0.04	0.29
Control Delay	37.1	19.0	4.6	37.7	24.6	0.0	36.1	10.9	38.0	10.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	37.1	19.0	4.6	37.7	24.6	0.0	36.1	10.9	38.0	10.7
Queue Length 50th (ft)	31	117	0	4	105	0	52	2	2	3
Queue Length 95th (ft)	76	300	16	18	215	0	112	13	13	24
Internal Link Dist (ft)		1140			1011			371		674
Turn Bay Length (ft)	195		785	145		50			85	
Base Capacity (vph)	562	964	688	562	830	725	844	806	562	663
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.16	0.53	0.17	0.02	0.42	0.00	0.18	0.03	0.01	0.14

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	377	907	649	355	410	604	894	572	87	826	226
v/c Ratio	0.77	0.89	0.51	0.58	0.44	0.79	0.76	0.80	0.23	0.45	0.24
Control Delay	70.5	59.6	24.0	63.9	44.4	66.5	47.5	30.0	62.3	42.6	5.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.5	59.6	24.0	63.9	44.4	66.5	47.5	30.0	62.3	42.6	5.4
Queue Length 50th (ft)	164	386	182	104	148	179	377	247	35	176	0
Queue Length 95th (ft)	260	560	286	168	240	271	524	458	76	249	37
Internal Link Dist (ft)		4590			1844		983			1601	
Turn Bay Length (ft)	220		220	350		315		170	250		250
Base Capacity (vph)	635	1217	1368	915	1156	924	1296	764	629	2162	1059
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.59	0.75	0.47	0.39	0.35	0.65	0.69	0.75	0.14	0.38	0.21

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	175	1120	188	205	712	226	558	426	70	538	91
v/c Ratio	0.62	0.45	0.12	0.65	0.28	0.58	0.67	0.44	0.38	0.55	0.24
Control Delay	69.8	25.3	5.0	69.6	22.1	66.9	51.5	4.7	68.1	51.4	8.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	69.8	25.3	5.0	69.6	22.1	66.9	51.5	4.7	68.1	51.4	8.3
Queue Length 50th (ft)	78	230	10	92	130	69	244	0	31	160	0
Queue Length 95th (ft)	115	345	36	131	204	98	274	42	57	180	40
Internal Link Dist (ft)		1528			4590		997			1543	
Turn Bay Length (ft)	250		225	250		240		380	270		200
Base Capacity (vph)	365	2512	1756	376	2544	633	1033	1106	410	1392	498
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.48	0.45	0.11	0.55	0.28	0.36	0.54	0.39	0.17	0.39	0.18

Intersection Summary

Intersection	
Intersection Delay, s/veh	10.2
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	92	270	18	0	140	0	22	0	0	0	0	92
Future Vol, veh/h	92	270	18	0	140	0	22	0	0	0	0	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	100	293	20	0	152	0	24	0	0	0	0	100
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	10.8	9.5	9.5	8.8
HCM LOS	B	A	A	A

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	100%	0%	0%	0%	0%	0%
Vol Thru, %	0%	0%	94%	100%	100%	100%	0%
Vol Right, %	0%	0%	6%	0%	0%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	22	92	288	0	140	0	92
LT Vol	22	92	0	0	0	0	0
Through Vol	0	0	270	0	140	0	0
RT Vol	0	0	18	0	0	0	92
Lane Flow Rate	24	100	313	0	152	0	100
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.041	0.152	0.428	0	0.221	0	0.144
Departure Headway (Hd)	6.177	5.471	4.924	5.22	5.22	5.89	5.182
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	577	655	729	0	685	0	689
Service Time	4.245	3.212	2.666	2.971	2.971	3.644	2.936
HCM Lane V/C Ratio	0.042	0.153	0.429	0	0.222	0	0.145
HCM Control Delay	9.5	9.2	11.3	8	9.5	8.6	8.8
HCM Lane LOS	A	A	B	N	A	N	A
HCM 95th-tile Q	0.1	0.5	2.2	0	0.8	0	0.5

Intersection	
Intersection Delay, s/veh	9.5
Intersection LOS	A

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	184	54	0	9	32	0	0	46	15	0	28	108
Future Vol, veh/h	184	54	0	9	32	0	0	46	15	0	28	108
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	200	59	0	10	35	0	0	50	16	0	30	117
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	10.3	8.5	8.7	8.8
HCM LOS	B	A	A	A

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	0%	0%	100%	0%	100%	0%	0%	0%
Vol Thru, %	100%	75%	0%	100%	0%	100%	100%	21%
Vol Right, %	0%	25%	0%	0%	0%	0%	0%	79%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	0	61	184	54	9	32	0	136
LT Vol	0	0	184	0	9	0	0	0
Through Vol	0	46	0	54	0	32	0	28
RT Vol	0	15	0	0	0	0	0	108
Lane Flow Rate	0	66	200	59	10	35	0	148
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0	0.098	0.312	0.083	0.016	0.052	0	0.2
Departure Headway (Hd)	5.504	5.33	5.623	5.12	5.862	5.358	5.422	4.864
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	0	671	638	698	608	666	0	736
Service Time	3.247	3.074	3.367	2.863	3.618	3.113	3.158	2.6
HCM Lane V/C Ratio	0	0.098	0.313	0.085	0.016	0.053	0	0.201
HCM Control Delay	8.2	8.7	10.9	8.3	8.7	8.4	8.2	8.8
HCM Lane LOS	N	A	B	A	A	A	N	A
HCM 95th-tile Q	0	0.3	1.3	0.3	0	0.2	0	0.7

MOVEMENT SUMMARY

Site: 1 [Ex+P AM_Intersection #8 (North) (Site Folder: General)]

Croak Road/North Project Roundabout (Street A)
Site Category: Existing+P AM
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Croak Road														
3	L2	3	0.0	3	0.0	0.015	2.7	LOS A	0.1	1.6	0.04	0.00	0.04	18.2
8	T1	4	0.0	4	0.0	0.015	2.7	LOS A	0.1	1.6	0.04	0.00	0.04	29.6
18	R2	12	0.0	13	0.0	0.015	2.7	LOS A	0.1	1.6	0.04	0.00	0.04	26.0
Approach		19	0.0	21	0.0	0.015	2.7	LOS A	0.1	1.6	0.04	0.00	0.04	25.4
East: North Project Access														
1	L2	35	0.0	38	0.0	0.031	2.9	LOS A	0.1	3.4	0.06	0.01	0.06	24.8
6	T1	1	0.0	1	0.0	0.031	2.9	LOS A	0.1	3.4	0.06	0.01	0.06	17.0
16	R2	3	0.0	3	0.0	0.031	2.9	LOS A	0.1	3.4	0.06	0.01	0.06	23.9
Approach		39	0.0	42	0.0	0.031	2.9	LOS A	0.1	3.4	0.06	0.01	0.06	24.7
North: Croak Road														
7	L2	1	0.0	1	0.0	0.002	2.7	LOS A	0.0	0.3	0.13	0.03	0.13	17.4
4	T1	1	0.0	1	0.0	0.002	2.7	LOS A	0.0	0.3	0.13	0.03	0.13	29.3
14	R2	1	0.0	1	0.0	0.002	2.7	LOS A	0.0	0.3	0.13	0.03	0.13	25.3
Approach		3	0.0	3	0.0	0.002	2.7	LOS A	0.0	0.3	0.13	0.03	0.13	23.8
West: North Project Access														
5	L2	2	0.0	2	0.0	0.012	2.8	LOS A	0.0	1.2	0.13	0.03	0.13	26.4
2	T1	1	0.0	1	0.0	0.012	2.8	LOS A	0.0	1.2	0.13	0.03	0.13	18.8
12	R2	11	0.0	12	0.0	0.012	2.8	LOS A	0.0	1.2	0.13	0.03	0.13	25.9
Approach		14	0.0	15	0.0	0.012	2.8	LOS A	0.0	1.2	0.13	0.03	0.13	25.7
All Vehicles		75	0.0	82	0.0	0.031	2.8	LOS A	0.1	3.4	0.07	0.01	0.07	25.0

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Ex+P PM_Intersection #8 (North) (Site Folder: General)]

Croak Road/North Project Roundabout (Street A)
Site Category: Existing+P PM
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Croak Road														
3	L2	13	0.0	14	0.0	0.035	2.9	LOS A	0.2	3.8	0.05	0.01	0.05	18.0
8	T1	3	0.0	3	0.0	0.035	2.9	LOS A	0.2	3.8	0.05	0.01	0.05	29.3
18	R2	28	0.0	30	0.0	0.035	2.9	LOS A	0.2	3.8	0.05	0.01	0.05	25.5
Approach		44	0.0	48	0.0	0.035	2.9	LOS A	0.2	3.8	0.05	0.01	0.05	23.1
East: North Project Access														
1	L2	17	0.0	18	0.0	0.016	2.8	LOS A	0.1	1.7	0.08	0.02	0.08	25.0
6	T1	1	0.0	1	0.0	0.016	2.8	LOS A	0.1	1.7	0.08	0.02	0.08	17.2
16	R2	2	0.0	2	0.0	0.016	2.8	LOS A	0.1	1.7	0.08	0.02	0.08	24.1
Approach		20	0.0	22	0.0	0.016	2.8	LOS A	0.1	1.7	0.08	0.02	0.08	24.7
North: Croak Road														
7	L2	4	0.0	4	0.0	0.008	2.8	LOS A	0.0	0.9	0.12	0.03	0.12	17.3
4	T1	4	0.0	4	0.0	0.008	2.8	LOS A	0.0	0.9	0.12	0.03	0.12	29.1
14	R2	2	0.0	2	0.0	0.008	2.8	LOS A	0.0	0.9	0.12	0.03	0.12	25.1
Approach		10	0.0	11	0.0	0.008	2.8	LOS A	0.0	0.9	0.12	0.03	0.12	23.5
West: North Project Access														
5	L2	1	0.0	1	0.0	0.007	2.7	LOS A	0.0	0.8	0.10	0.02	0.10	26.6
2	T1	1	0.0	1	0.0	0.007	2.7	LOS A	0.0	0.8	0.10	0.02	0.10	19.0
12	R2	7	0.0	8	0.0	0.007	2.7	LOS A	0.0	0.8	0.10	0.02	0.10	26.0
Approach		9	0.0	10	0.0	0.007	2.7	LOS A	0.0	0.8	0.10	0.02	0.10	25.7
All Vehicles		83	0.0	90	0.0	0.035	2.8	LOS A	0.2	3.8	0.07	0.01	0.07	23.7

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Ex+P AM_Intersection #9 (South) (Site Folder: General)]

Croak Road/South Project Roundabout (Street B)
Site Category: Existing+P AM
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Croak Road														
3	L2	19	0.0	21	0.0	0.053	3.0	LOS A	0.2	5.9	0.03	0.00	0.03	16.7
8	T1	15	0.0	16	0.0	0.053	3.0	LOS A	0.2	5.9	0.03	0.00	0.03	29.0
18	R2	33	0.0	36	0.0	0.053	3.0	LOS A	0.2	5.9	0.03	0.00	0.03	24.7
Approach		67	0.0	73	0.0	0.053	3.0	LOS A	0.2	5.9	0.03	0.00	0.03	23.2
East: South Project Access														
1	L2	97	0.0	105	0.0	0.083	3.4	LOS A	0.4	9.4	0.14	0.04	0.14	23.7
6	T1	1	0.0	1	0.0	0.083	3.4	LOS A	0.4	9.4	0.14	0.04	0.14	18.3
16	R2	3	0.0	3	0.0	0.083	3.4	LOS A	0.4	9.4	0.14	0.04	0.14	23.9
Approach		101	0.0	110	0.0	0.083	3.4	LOS A	0.4	9.4	0.14	0.04	0.14	23.7
North: Croak Road														
7	L2	1	0.0	1	0.0	0.043	3.3	LOS A	0.2	4.6	0.26	0.12	0.26	27.0
4	T1	46	0.0	50	0.0	0.043	3.3	LOS A	0.2	4.6	0.26	0.12	0.26	29.4
14	R2	1	0.0	1	0.0	0.043	3.3	LOS A	0.2	4.6	0.26	0.12	0.26	25.9
Approach		48	0.0	52	0.0	0.043	3.3	LOS A	0.2	4.6	0.26	0.12	0.26	29.3
West: South Project Access														
5	L2	1	0.0	1	0.0	0.055	3.5	LOS A	0.2	5.9	0.29	0.16	0.29	26.4
2	T1	1	0.0	1	0.0	0.055	3.5	LOS A	0.2	5.9	0.29	0.16	0.29	20.1
12	R2	57	0.0	62	0.0	0.055	3.5	LOS A	0.2	5.9	0.29	0.16	0.29	24.8
Approach		59	0.0	64	0.0	0.055	3.5	LOS A	0.2	5.9	0.29	0.16	0.29	24.7
All Vehicles		275	0.0	299	0.0	0.083	3.3	LOS A	0.4	9.4	0.17	0.07	0.17	24.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Ex+P PM_Intersection #9 (South) (Site Folder: General)]

Croak Road/South Project Roundabout (Street B)
Site Category: Existing+P PM
Roundabout

Vehicle Movement Performance

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Croak Road														
3	L2	63	0.0	68	0.0	0.182	4.1	LOS A	0.9	23.3	0.05	0.01	0.05	16.3
8	T1	41	0.0	45	0.0	0.182	4.1	LOS A	0.9	23.3	0.05	0.01	0.05	28.3
18	R2	126	0.0	137	0.0	0.182	4.1	LOS A	0.9	23.3	0.05	0.01	0.05	24.0
Approach		230	0.0	250	0.0	0.182	4.1	LOS A	0.9	23.3	0.05	0.01	0.05	22.4
East: South Project Access														
1	L2	75	0.0	82	0.0	0.069	3.5	LOS A	0.3	7.6	0.25	0.12	0.25	23.6
6	T1	1	0.0	1	0.0	0.069	3.5	LOS A	0.3	7.6	0.25	0.12	0.25	18.3
16	R2	2	0.0	2	0.0	0.069	3.5	LOS A	0.3	7.6	0.25	0.12	0.25	23.8
Approach		78	0.0	85	0.0	0.069	3.5	LOS A	0.3	7.6	0.25	0.12	0.25	23.6
North: Croak Road														
7	L2	3	0.0	3	0.0	0.026	3.3	LOS A	0.1	2.7	0.28	0.14	0.28	26.8
4	T1	24	0.0	26	0.0	0.026	3.3	LOS A	0.1	2.7	0.28	0.14	0.28	29.2
14	R2	1	0.0	1	0.0	0.026	3.3	LOS A	0.1	2.7	0.28	0.14	0.28	25.8
Approach		28	0.0	30	0.0	0.026	3.3	LOS A	0.1	2.7	0.28	0.14	0.28	28.9
West: South Project Access														
5	L2	1	0.0	1	0.0	0.034	3.2	LOS A	0.1	3.7	0.24	0.11	0.24	26.6
2	T1	1	0.0	1	0.0	0.034	3.2	LOS A	0.1	3.7	0.24	0.11	0.24	20.4
12	R2	37	0.0	40	0.0	0.034	3.2	LOS A	0.1	3.7	0.24	0.11	0.24	25.0
Approach		39	0.0	42	0.0	0.034	3.2	LOS A	0.1	3.7	0.24	0.11	0.24	25.0
All Vehicles		375	0.0	408	0.0	0.182	3.8	LOS A	0.9	23.3	0.13	0.05	0.13	23.4

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

D - Cumulative Traffic Conditions

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	67	222	252	402	266	191	254	836	208	261	1378	179
Future Volume (vph)	67	222	252	402	266	191	254	836	208	261	1378	179
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.5	5.3	5.3	4.0	5.3	5.3
Lane Util. Factor	0.97	1.00	0.88	0.97	1.00	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.91	1.00	1.00	0.97	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3335	1900	2568	3467	1900	1572	3433	4988	1564	1805	5136	1541
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3335	1900	2568	3467	1900	1572	3433	4988	1564	1805	5136	1541
Peak-hour factor, PHF	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85	0.85
Adj. Flow (vph)	79	261	296	473	313	225	299	984	245	307	1621	211
RTOR Reduction (vph)	0	0	217	0	0	143	0	0	178	0	0	81
Lane Group Flow (vph)	79	261	79	473	313	82	299	984	67	307	1621	130
Confl. Peds. (#/hr)	18		92	92		18	5		1	1		5
Confl. Bikes (#/hr)			1									
Heavy Vehicles (%)	5%	0%	1%	1%	0%	0%	2%	4%	1%	0%	1%	3%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	7.7	34.0	34.0	19.9	46.2	46.2	15.2	34.2	34.2	20.5	39.0	39.0
Effective Green, g (s)	7.7	34.0	34.0	19.9	46.2	46.2	15.2	34.2	34.2	20.5	39.0	39.0
Actuated g/C Ratio	0.06	0.27	0.27	0.16	0.36	0.36	0.12	0.27	0.27	0.16	0.31	0.31
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.5	5.3	5.3	4.0	5.3	5.3
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)	202	509	688	543	691	572	411	1344	421	291	1578	473
v/s Ratio Prot	0.02	c0.14		c0.14	0.16		0.09	0.20		c0.17	c0.32	
v/s Ratio Perm			0.03			0.05			0.04			0.08
v/c Ratio	0.39	0.51	0.12	0.87	0.45	0.14	0.73	0.73	0.16	1.05	1.03	0.27
Uniform Delay, d1	57.3	39.4	35.1	52.2	30.7	27.1	53.9	42.2	35.4	53.2	44.0	33.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.5	1.2	0.1	13.9	0.6	0.2	5.4	2.2	0.2	68.0	29.9	0.4
Delay (s)	57.8	40.6	35.2	66.1	31.4	27.2	59.2	44.4	35.6	121.2	73.8	33.7
Level of Service	E	D	D	E	C	C	E	D	D	F	E	C
Approach Delay (s)		40.2			46.7			45.9			76.7	
Approach LOS		D			D			D			E	

Intersection Summary			
HCM 2000 Control Delay	57.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	126.9	Sum of lost time (s)	18.8
Intersection Capacity Utilization	100.0%	ICU Level of Service	F
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	221	262	343	255	772	661	412	416	561	339	1375	318
Future Volume (vph)	221	262	343	255	772	661	412	416	561	339	1375	318
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	4.0	5.8	5.8	5.3	5.7	5.7	5.3	5.7	5.7
Lane Util. Factor	0.97	0.91	0.88	0.94	0.91	1.00	0.94	0.91	0.88	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3400	5187	2707	5090	5187	1615	4848	5036	2806	3502	5085	1589
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3400	5187	2707	5090	5187	1615	4848	5036	2806	3502	5085	1589
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	235	279	365	271	821	703	438	443	597	361	1463	338
RTOR Reduction (vph)	0	0	33	0	0	298	0	0	393	0	0	131
Lane Group Flow (vph)	235	279	332	271	821	405	438	443	204	361	1463	207
Confl. Peds. (#/hr)							5		1	1		5
Heavy Vehicles (%)	3%	0%	5%	0%	0%	0%	5%	3%	0%	0%	2%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	10.1	34.5	50.1	10.6	33.2	33.2	15.6	42.5	42.5	16.7	43.6	43.6
Effective Green, g (s)	10.1	34.5	50.1	10.6	33.2	33.2	15.6	42.5	42.5	16.7	43.6	43.6
Actuated g/C Ratio	0.08	0.28	0.40	0.09	0.27	0.27	0.13	0.34	0.34	0.13	0.35	0.35
Clearance Time (s)	5.3	5.3	5.3	4.0	5.8	5.8	5.3	5.7	5.7	5.3	5.7	5.7
Vehicle Extension (s)	2.0	4.0	2.0	2.0	2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)	275	1436	1203	433	1382	430	606	1717	957	469	1779	556
v/s Ratio Prot	c0.07	0.05	0.03	0.05	0.16		0.09	0.09		c0.10	c0.29	
v/s Ratio Perm			0.09			c0.25			0.07			0.13
v/c Ratio	0.85	0.19	0.28	0.63	0.59	0.94	0.72	0.26	0.21	0.77	0.82	0.37
Uniform Delay, d1	56.5	34.4	25.0	55.1	39.8	44.8	52.4	29.7	29.2	52.1	37.0	30.3
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	21.2	0.1	0.0	2.0	0.5	28.9	3.6	0.1	0.2	6.7	3.4	0.6
Delay (s)	77.7	34.5	25.1	57.1	40.3	73.6	56.0	29.8	29.3	58.8	40.3	30.8
Level of Service	E	C	C	E	D	E	E	C	C	E	D	C
Approach Delay (s)		42.2			55.9			37.4			41.9	
Approach LOS		D			E			D			D	

Intersection Summary			
HCM 2000 Control Delay	44.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.86		
Actuated Cycle Length (s)	124.6	Sum of lost time (s)	22.1
Intersection Capacity Utilization	78.2%	ICU Level of Service	D
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	317	6	544	0	1421	590	0	1269	716
Future Volume (vph)	0	0	0	317	6	544	0	1421	590	0	1269	716
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.2	4.2	4.2		5.3	4.0		5.3	5.3
Lane Util. Factor				0.95	0.95	0.88		0.86	0.86		0.91	1.00
Frpb, ped/bikes				1.00	1.00	1.00		1.00	1.00		1.00	0.99
Flpb, ped/bikes				1.00	1.00	1.00		1.00	1.00		1.00	1.00
Frt				1.00	1.00	0.85		0.99	0.85		1.00	0.85
Flt Protected				0.95	0.95	1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				1633	1642	2760		4625	1157		5036	1563
Flt Permitted				0.95	0.95	1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				1633	1642	2760		4625	1157		5036	1563
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	0	0	0	334	6	573	0	1496	621	0	1336	754
RTOR Reduction (vph)	0	0	0	0	0	33	0	18	0	0	0	375
Lane Group Flow (vph)	0	0	0	170	170	540	0	1627	472	0	1336	379
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	0%	0%	0%	5%	2%	3%	0%	3%	20%	0%	3%	2%
Turn Type				Split	NA	Perm		NA	Free		NA	Perm
Protected Phases				8	8			2			6	
Permitted Phases						8			Free			6
Actuated Green, G (s)				11.7	11.7	11.7		21.4	42.6		21.4	21.4
Effective Green, g (s)				11.7	11.7	11.7		21.4	42.6		21.4	21.4
Actuated g/C Ratio				0.27	0.27	0.27		0.50	1.00		0.50	0.50
Clearance Time (s)				4.2	4.2	4.2		5.3			5.3	5.3
Vehicle Extension (s)				0.2	0.2	0.2		0.2			0.2	0.2
Lane Grp Cap (vph)				448	450	758		2323	1157		2529	785
v/s Ratio Prot				0.10	0.10			c0.35			0.27	
v/s Ratio Perm						c0.20			0.41			0.24
v/c Ratio				0.38	0.38	0.71		0.70	0.41		0.53	0.48
Uniform Delay, d1				12.5	12.5	13.9		8.1	0.0		7.2	7.0
Progression Factor				1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				0.2	0.2	2.6		0.8	1.1		0.1	0.2
Delay (s)				12.7	12.7	16.6		8.9	1.1		7.3	7.1
Level of Service				B	B	B		A	A		A	A
Approach Delay (s)		0.0			15.1			7.2			7.2	
Approach LOS		A			B			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.6	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.70		
Actuated Cycle Length (s)	42.6	Sum of lost time (s)	9.5
Intersection Capacity Utilization	61.2%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	587	0	889	0	0	0	0	1424	435	0	1079	0
Future Volume (vph)	587	0	889	0	0	0	0	1424	435	0	1079	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2		4.2					5.8	4.0		5.8	
Lane Util. Factor	0.97		0.88					0.86	0.86		0.91	
Frpb, ped/bikes	1.00		1.00					1.00	1.00		1.00	
Flpb, ped/bikes	1.00		1.00					1.00	1.00		1.00	
Frt	1.00		0.85					1.00	0.85		1.00	
Flt Protected	0.95		1.00					1.00	1.00		1.00	
Satd. Flow (prot)	3367		2409					4330	1348		4893	
Flt Permitted	0.95		1.00					1.00	1.00		1.00	
Satd. Flow (perm)	3367		2409					4330	1348		4893	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	638	0	966	0	0	0	0	1548	473	0	1173	0
RTOR Reduction (vph)	0	0	60	0	0	0	0	4	0	0	0	0
Lane Group Flow (vph)	638	0	906	0	0	0	0	1591	426	0	1173	0
Confl. Bikes (#/hr)												2
Heavy Vehicles (%)	4%	0%	18%	0%	0%	0%	0%	13%	3%	0%	6%	2%
Turn Type	Prot		Prot					NA	Free		NA	
Protected Phases	4		4					2			6	
Permitted Phases									Free			
Actuated Green, G (s)	26.3		26.3					31.9	68.2		31.9	
Effective Green, g (s)	26.3		26.3					31.9	68.2		31.9	
Actuated g/C Ratio	0.39		0.39					0.47	1.00		0.47	
Clearance Time (s)	4.2		4.2					5.8			5.8	
Vehicle Extension (s)	0.2		0.2					0.2			0.2	
Lane Grp Cap (vph)	1298		928					2025	1348		2288	
v/s Ratio Prot	0.19		c0.38					c0.37			0.24	
v/s Ratio Perm									0.32			
v/c Ratio	0.49		0.98					0.79	0.32		0.51	
Uniform Delay, d1	15.9		20.6					15.3	0.0		12.7	
Progression Factor	1.00		1.00					1.00	1.00		1.00	
Incremental Delay, d2	0.1		23.6					1.9	0.6		0.1	
Delay (s)	16.0		44.3					17.2	0.6		12.8	
Level of Service	B		D					B	A		B	
Approach Delay (s)		33.0			0.0			13.7			12.8	
Approach LOS		C			A			B			B	

Intersection Summary			
HCM 2000 Control Delay	19.9	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.87		
Actuated Cycle Length (s)	68.2	Sum of lost time (s)	10.0
Intersection Capacity Utilization	98.1%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	531	73	48	75	529	609	83	719	197	809	446	713
Future Volume (vph)	531	73	48	75	529	609	83	719	197	809	446	713
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.0	5.0	4.5	5.0	4.5	4.5	5.0	5.0	4.5	5.0	5.0
Lane Util. Factor	0.94	0.95	1.00	1.00	0.95	0.88	1.00	0.91	0.88	0.94	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	0.99
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	4713	3343	1473	1671	3343	2615	1671	4803	2596	4713	3343	1474
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	4713	3343	1473	1671	3343	2615	1671	4803	2596	4713	3343	1474
Peak-hour factor, PHF	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91	0.91
Adj. Flow (vph)	584	80	53	82	581	669	91	790	216	889	490	784
RTOR Reduction (vph)	0	0	42	0	0	24	0	0	101	0	0	107
Lane Group Flow (vph)	584	80	11	82	581	645	91	790	115	889	490	677
Confl. Peds. (#/hr)			4	4			3		2	2		3
Confl. Bikes (#/hr)						1						
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	8.7	24.8	24.8	12.9	29.0	56.0	5.6	30.8	30.8	27.0	52.2	52.2
Effective Green, g (s)	8.7	24.8	24.8	12.9	29.0	56.0	5.6	30.8	30.8	27.0	52.2	52.2
Actuated g/C Ratio	0.08	0.22	0.22	0.11	0.25	0.49	0.05	0.27	0.27	0.24	0.46	0.46
Clearance Time (s)	4.5	5.0	5.0	4.5	5.0	4.5	4.5	5.0	5.0	4.5	5.0	5.0
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)	358	724	319	188	846	1278	81	1291	698	1111	1524	671
v/s Ratio Prot	c0.12	0.02		0.05	c0.17	0.12	c0.05	0.16		0.19	0.15	
v/s Ratio Perm			0.01			0.13			0.04			c0.46
v/c Ratio	1.63	0.11	0.04	0.44	0.69	0.50	1.12	0.61	0.16	0.80	0.32	1.01
Uniform Delay, d1	52.9	36.0	35.4	47.4	38.6	19.8	54.5	36.6	32.0	41.2	19.9	31.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	296.5	0.1	0.1	0.6	2.5	0.1	137.4	1.0	0.2	4.0	0.2	37.1
Delay (s)	349.4	36.1	35.5	48.0	41.2	20.0	191.8	37.6	32.2	45.2	20.0	68.3
Level of Service	F	D	D	D	D	B	F	D	C	D	C	E
Approach Delay (s)		291.3			30.9			49.3			47.8	
Approach LOS		F			C			D			D	

Intersection Summary			
HCM 2000 Control Delay	76.8	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.97		
Actuated Cycle Length (s)	114.5	Sum of lost time (s)	19.0
Intersection Capacity Utilization	75.8%	ICU Level of Service	D
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	53	448	190	67	482	1	163	20	4	21	16	171
Future Volume (vph)	53	448	190	67	482	1	163	20	4	21	16	171
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.65	1.00	1.00	0.90	1.00	0.91		1.00	0.86	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.97		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1881	1049	1805	1881	1459	1805	1689		1805	1409	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1805	1881	1049	1805	1881	1459	1805	1689		1805	1409	
Peak-hour factor, PHF	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59	0.59
Adj. Flow (vph)	90	759	322	114	817	2	276	34	7	36	27	290
RTOR Reduction (vph)	0	0	224	0	0	1	0	4	0	0	229	0
Lane Group Flow (vph)	90	759	98	114	817	1	276	37	0	36	88	0
Confl. Peds. (#/hr)	37		152	152		37	77		326	326		77
Heavy Vehicles (%)	0%	1%	0%	0%	1%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	7.5	27.0	27.0	8.4	27.9	27.9	18.0	32.8		3.9	18.7	
Effective Green, g (s)	7.5	27.0	27.0	8.4	27.9	27.9	18.0	32.8		3.9	18.7	
Actuated g/C Ratio	0.08	0.30	0.30	0.09	0.31	0.31	0.20	0.37		0.04	0.21	
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)	152	572	319	170	591	458	366	624		79	297	
v/s Ratio Prot	0.05	0.40		c0.06	c0.43		c0.15	0.02		0.02	c0.06	
v/s Ratio Perm			0.09			0.00						
v/c Ratio	0.59	1.33	0.31	0.67	1.38	0.00	0.75	0.06		0.46	0.30	
Uniform Delay, d1	39.1	30.9	23.7	38.8	30.4	20.8	33.3	18.0		41.4	29.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	4.1	158.9	0.7	7.9	182.5	0.0	7.6	0.1		1.5	0.8	
Delay (s)	43.2	189.8	24.4	46.7	212.9	20.8	40.9	18.1		42.9	30.2	
Level of Service	D	F	C	D	F	C	D	B		D	C	
Approach Delay (s)		133.0			192.2			37.9			31.5	
Approach LOS		F			F			D			C	

Intersection Summary			
HCM 2000 Control Delay	129.1	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	0.88		
Actuated Cycle Length (s)	88.7	Sum of lost time (s)	16.6
Intersection Capacity Utilization	72.0%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	207	262	4	10	285	10	38	10	10	10	10	227
Future Volume (vph)	207	262	4	10	285	10	38	10	10	10	10	227
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	225	285	4	11	310	11	41	11	11	11	11	247

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total (vph)	225	289	11	321	63	22	247
Volume Left (vph)	225	0	11	0	41	11	0
Volume Right (vph)	0	4	0	11	11	0	247
Hadj (s)	0.50	0.01	0.50	-0.01	0.03	0.25	-0.70
Departure Headway (s)	6.6	6.1	6.8	6.3	7.2	7.1	6.1
Degree Utilization, x	0.41	0.49	0.02	0.56	0.13	0.04	0.42
Capacity (veh/h)	524	570	497	549	434	468	547
Control Delay (s)	12.9	13.6	8.8	16.0	11.3	9.2	12.3
Approach Delay (s)	13.3		15.7		11.3	12.1	
Approach LOS	B		C		B	B	

Intersection Summary			
Delay	13.6		
Level of Service	B		
Intersection Capacity Utilization	47.2%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	51	246	14	27	152	0	10	36	9	0	117	143
Future Volume (vph)	51	246	14	27	152	0	10	36	9	0	117	143
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	55	267	15	29	165	0	11	39	10	0	127	155

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	55	282	29	165	11	49	0	282
Volume Left (vph)	55	0	29	0	11	0	0	0
Volume Right (vph)	0	15	0	0	0	10	0	155
Hadj (s)	0.53	0.00	0.53	0.03	0.53	-0.11	0.00	-0.35
Departure Headway (s)	6.3	5.8	6.5	6.0	7.0	6.3	6.0	5.7
Degree Utilization, x	0.10	0.45	0.05	0.28	0.02	0.09	0.00	0.44
Capacity (veh/h)	537	595	515	562	469	513	573	601
Control Delay (s)	8.8	12.3	8.7	10.1	8.9	8.7	7.8	11.9
Approach Delay (s)	11.8		9.9		8.8		11.9	
Approach LOS	B		A		A		B	

Intersection Summary			
Delay	11.2		
Level of Service	B		
Intersection Capacity Utilization	43.7%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	62	448	176	68	1538	12	43	1	13	54	5	109
Future Volume (vph)	62	448	176	68	1538	12	43	1	13	54	5	109
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.96	1.00	1.00	0.96		0.99			0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		0.99			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.97			0.91	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96			0.98	
Satd. Flow (prot)	1770	3539	1523	1770	3539	1523		1721			1641	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.66			0.87	
Satd. Flow (perm)	1770	3539	1523	1770	3539	1523		1175			1447	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	67	487	191	74	1672	13	47	1	14	59	5	118
RTOR Reduction (vph)	0	0	85	0	0	5	0	12	0	0	99	0
Lane Group Flow (vph)	67	487	106	74	1672	8	0	50	0	0	83	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			2			2			2			2
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2			6		
Actuated Green, G (s)	2.1	30.4	30.4	3.7	32.0	32.0		8.9			8.9	
Effective Green, g (s)	2.1	30.4	30.4	3.7	32.0	32.0		8.9			8.9	
Actuated g/C Ratio	0.04	0.55	0.55	0.07	0.58	0.58		0.16			0.16	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	67	1956	841	119	2059	886		190			234	
v/s Ratio Prot	0.04	0.14		c0.04	c0.47							
v/s Ratio Perm			0.07			0.00		0.04			c0.06	
v/c Ratio	1.00	0.25	0.13	0.62	0.81	0.01		0.26			0.36	
Uniform Delay, d1	26.4	6.4	5.9	25.0	9.1	4.8		20.2			20.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	110.0	0.1	0.1	9.7	2.6	0.0		0.7			0.9	
Delay (s)	136.4	6.4	6.0	34.7	11.7	4.8		20.9			21.4	
Level of Service	F	A	A	C	B	A		C			C	
Approach Delay (s)		18.0			12.6			20.9			21.4	
Approach LOS		B			B			C			C	

Intersection Summary			
HCM 2000 Control Delay	14.8	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.73		
Actuated Cycle Length (s)	55.0	Sum of lost time (s)	12.0
Intersection Capacity Utilization	67.1%	ICU Level of Service	C
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	142	804	315	730	1474	41	792	625	727	35	1461	209
Future Volume (vph)	142	804	315	730	1474	41	792	625	727	35	1461	209
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	5.0	5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Lane Util. Factor	0.97	0.91	0.88	0.94	0.91		0.94	0.91	1.00	0.97	0.86	0.88
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3467	5085	2814	5040	5163		5090	5036	1599	3367	6471	2799
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3467	5085	2814	5040	5163		5090	5036	1599	3367	6471	2799
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	154	874	342	793	1602	45	861	679	790	38	1588	227
RTOR Reduction (vph)	0	0	51	0	2	0	0	0	311	0	0	118
Lane Group Flow (vph)	154	874	291	793	1645	0	861	679	479	38	1588	109
Confl. Peds. (#/hr)	7					7	3					3
Confl. Bikes (#/hr)						2						
Heavy Vehicles (%)	1%	2%	1%	1%	0%	0%	0%	3%	1%	4%	1%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2						8			4
Actuated Green, G (s)	16.0	38.7	66.7	29.3	52.0		28.0	63.0	63.0	12.0	47.0	47.0
Effective Green, g (s)	16.0	38.7	66.7	29.3	52.0		28.0	63.0	63.0	12.0	47.0	47.0
Actuated g/C Ratio	0.10	0.23	0.40	0.18	0.32		0.17	0.38	0.38	0.07	0.28	0.28
Clearance Time (s)	5.0	6.0	5.0	5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0		2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)	336	1192	1137	894	1627		863	1922	610	244	1843	797
v/s Ratio Prot	0.04	0.17	0.04	c0.16	c0.32		c0.17	0.13		0.01	c0.25	
v/s Ratio Perm			0.06						0.30			0.04
v/c Ratio	0.46	0.73	0.26	0.89	1.01		1.00	0.35	0.79	0.16	0.86	0.14
Uniform Delay, d1	70.4	58.4	32.7	66.2	56.5		68.5	36.4	45.0	71.7	55.9	43.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.4	2.4	0.0	10.3	25.1		29.8	0.2	7.0	0.1	4.6	0.1
Delay (s)	70.8	60.7	32.7	76.5	81.6		98.3	36.6	52.0	71.9	60.5	44.0
Level of Service	E	E	C	E	F		F	D	D	E	E	D
Approach Delay (s)		54.9			79.9			64.6			58.7	
Approach LOS		D			E			E			E	

Intersection Summary			
HCM 2000 Control Delay	66.2	HCM 2000 Level of Service	E
HCM 2000 Volume to Capacity ratio	0.96		
Actuated Cycle Length (s)	165.0	Sum of lost time (s)	22.0
Intersection Capacity Utilization	100.8%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	130	1014	108	328	1947	68	120	676	245	20	463	195
Future Volume (vph)	130	1014	108	328	1947	68	120	676	245	20	463	195
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	5.0	4.5	6.0		5.0	6.0	6.0	4.5	5.5	5.5
Lane Util. Factor	0.97	0.91	0.88	0.97	0.91		0.94	0.95	0.88	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00		1.00	1.00	0.98	1.00	1.00	0.97
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	5136	2663	3502	5157		4942	3610	2724	3502	5136	1562
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	5136	2663	3502	5157		4942	3610	2724	3502	5136	1562
Peak-hour factor, PHF	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88	0.88
Adj. Flow (vph)	148	1152	123	373	2212	77	136	768	278	23	526	222
RTOR Reduction (vph)	0	0	41	0	2	0	0	0	210	0	0	180
Lane Group Flow (vph)	148	1152	82	373	2288	0	136	768	68	23	526	42
Confl. Peds. (#/hr)	4		8	8		4	16		8	8		16
Confl. Bikes (#/hr)						7						3
Heavy Vehicles (%)	0%	1%	5%	0%	0%	0%	3%	0%	2%	0%	1%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2						8			4
Actuated Green, G (s)	10.2	61.7	74.7	15.5	67.0		13.0	33.6	33.6	5.7	26.3	26.3
Effective Green, g (s)	10.2	61.7	74.7	15.5	67.0		13.0	33.6	33.6	5.7	26.3	26.3
Actuated g/C Ratio	0.07	0.45	0.54	0.11	0.49		0.09	0.24	0.24	0.04	0.19	0.19
Clearance Time (s)	4.5	6.0	5.0	4.5	6.0		5.0	6.0	6.0	4.5	5.5	5.5
Vehicle Extension (s)	2.0	3.5	2.0	2.0	3.5		2.0	3.5	3.5	2.0	3.5	3.5
Lane Grp Cap (vph)	259	2304	1446	394	2512		467	882	665	145	982	298
v/s Ratio Prot	0.04	0.22	0.01	c0.11	c0.44		c0.03	c0.21		0.01	0.10	
v/s Ratio Perm			0.03						0.02			0.03
v/c Ratio	0.57	0.50	0.06	0.95	0.91		0.29	0.87	0.10	0.16	0.54	0.14
Uniform Delay, d1	61.5	26.9	14.8	60.6	32.5		58.0	49.9	40.3	63.6	50.1	46.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	1.9	0.8	0.0	31.4	6.3		0.1	9.6	0.1	0.2	0.6	0.3
Delay (s)	63.4	27.7	14.8	92.0	38.8		58.1	59.5	40.3	63.8	50.7	46.5
Level of Service	E	C	B	F	D		E	E	D	E	D	D
Approach Delay (s)		30.3			46.3			54.8			49.9	
Approach LOS		C			D			D			D	

Intersection Summary			
HCM 2000 Control Delay	44.6	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.90		
Actuated Cycle Length (s)	137.5	Sum of lost time (s)	21.0
Intersection Capacity Utilization	84.7%	ICU Level of Service	E
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	79	261	296	473	313	225	299	984	245	307	1621	211
v/c Ratio	0.29	0.53	0.34	0.86	0.45	0.31	0.72	0.73	0.41	1.05	1.03	0.38
Control Delay	62.8	43.0	4.7	70.4	33.3	4.6	65.8	47.0	7.0	118.5	73.0	20.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	62.8	43.0	4.7	70.4	33.3	4.6	65.8	47.0	7.0	118.5	73.0	20.1
Queue Length 50th (ft)	35	183	0	222	201	0	137	306	1	~333	~632	66
Queue Length 95th (ft)	60	257	27	#310	276	42	176	335	53	#497	#690	132
Internal Link Dist (ft)		307			1140			315			1226	
Turn Bay Length (ft)	270		220	220		250	235		235	235		215
Base Capacity (vph)	540	708	1133	562	788	782	556	1556	655	292	1581	555
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.15	0.37	0.26	0.84	0.40	0.29	0.54	0.63	0.37	1.05	1.03	0.38

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	235	279	365	271	821	703	438	443	597	361	1463	338
v/c Ratio	0.85	0.19	0.30	0.63	0.59	0.97	0.72	0.26	0.44	0.77	0.82	0.49
Control Delay	84.1	35.8	19.4	62.7	42.5	46.0	60.0	30.4	3.4	63.9	41.8	15.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	84.1	35.8	19.4	62.7	42.5	46.0	60.0	30.4	3.4	63.9	41.8	15.0
Queue Length 50th (ft)	99	64	90	76	215	288	123	94	0	147	391	79
Queue Length 95th (ft)	#179	94	129	112	273	#576	161	128	43	203	475	176
Internal Link Dist (ft)		1930			2587			1410			554	
Turn Bay Length (ft)	290		315	360		1000	350		350	450		185
Base Capacity (vph)	276	1435	1322	450	1380	727	767	1797	1385	571	1840	704
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.85	0.19	0.28	0.60	0.59	0.97	0.57	0.25	0.43	0.63	0.80	0.48

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	170	170	573	1645	472	1336	754
v/c Ratio	0.39	0.38	0.74	0.72	0.41	0.54	0.65
Control Delay	17.3	17.3	20.5	10.6	1.1	8.6	3.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	17.3	17.3	20.5	10.6	1.1	8.6	3.9
Queue Length 50th (ft)	33	33	62	98	0	68	0
Queue Length 95th (ft)	101	101	151	205	0	141	44
Internal Link Dist (ft)		1505		814		1410	
Turn Bay Length (ft)	135		115				190
Base Capacity (vph)	815	819	1401	3796	1157	4128	1417
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.21	0.41	0.43	0.41	0.32	0.53

Intersection Summary

Lane Group	EBL	EBR	NBT	NBR	SBT
Lane Group Flow (vph)	638	966	1595	426	1173
v/c Ratio	0.49	0.98	0.79	0.32	0.51
Control Delay	18.9	46.9	18.1	0.6	13.3
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	18.9	46.9	18.1	0.6	13.3
Queue Length 50th (ft)	104	207	202	0	117
Queue Length 95th (ft)	174	#407	257	0	150
Internal Link Dist (ft)			819		76
Turn Bay Length (ft)	275	420			
Base Capacity (vph)	1295	986	2567	1348	2895
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.49	0.98	0.62	0.32	0.41

Intersection Summary

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	584	80	53	82	581	669	91	790	216	889	490	784
v/c Ratio	1.62	0.10	0.12	0.43	0.71	0.52	1.11	0.61	0.27	0.80	0.32	1.01
Control Delay	323.9	33.7	0.6	63.3	45.3	17.5	181.9	39.4	14.2	48.0	20.5	57.4
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	323.9	33.7	0.6	63.3	45.3	17.5	181.9	39.4	14.2	48.0	20.5	57.4
Queue Length 50th (ft)	~209	22	0	58	198	143	~73	184	24	204	113	~462
Queue Length 95th (ft)	#399	50	0	#205	316	257	#240	276	66	#354	188	#902
Internal Link Dist (ft)		870			783			616			819	
Turn Bay Length (ft)	400		300	350			110		110	590		425
Base Capacity (vph)	361	1447	701	190	1387	1415	82	1949	1135	1339	2141	1013
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.62	0.06	0.08	0.43	0.42	0.47	1.11	0.41	0.19	0.66	0.23	0.77

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
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95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	90	759	322	114	817	2	276	41	36	317
v/c Ratio	0.47	1.30	0.65	0.53	1.35	0.00	0.73	0.06	0.26	0.65
Control Delay	50.3	175.7	11.3	50.1	195.2	0.0	46.5	17.2	49.6	12.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	50.3	175.7	11.3	50.1	195.2	0.0	46.5	17.2	49.6	12.7
Queue Length 50th (ft)	53	~657	0	67	~715	0	161	13	21	12
Queue Length 95th (ft)	71	#576	0	84	#611	0	158	23	37	0
Internal Link Dist (ft)		1140			1011			371		674
Turn Bay Length (ft)	195		785	145		50			85	
Base Capacity (vph)	449	585	496	449	607	541	674	787	449	619
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.20	1.30	0.65	0.25	1.35	0.00	0.41	0.05	0.08	0.51

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	67	487	191	74	1672	13	62	182
v/c Ratio	0.49	0.24	0.20	0.33	0.79	0.01	0.30	0.54
Control Delay	43.0	8.0	2.5	29.1	14.3	0.0	21.1	15.6
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	43.0	8.0	2.5	29.1	14.3	0.0	21.1	15.6
Queue Length 50th (ft)	23	43	0	24	208	0	15	20
Queue Length 95th (ft)	#81	89	29	64	#472	0	43	68
Internal Link Dist (ft)		2587			893		580	950
Turn Bay Length (ft)			50	100		50		
Base Capacity (vph)	137	2099	978	239	2259	999	373	528
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.49	0.23	0.20	0.31	0.74	0.01	0.17	0.34

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	154	874	342	793	1647	861	679	790	38	1588	227
v/c Ratio	0.46	0.73	0.26	0.88	1.00	0.99	0.35	0.85	0.12	0.87	0.25
Control Delay	74.6	62.4	22.1	77.5	78.3	95.2	37.5	27.0	69.6	62.7	13.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	74.6	62.4	22.1	77.5	78.3	95.2	37.5	27.0	69.6	62.7	13.9
Queue Length 50th (ft)	81	322	96	296	~655	331	197	349	19	475	27
Queue Length 95th (ft)	122	382	142	344	#769	#428	236	#614	40	524	67
Internal Link Dist (ft)		4610			1861		948			1636	
Turn Bay Length (ft)	220		220	350		315		170	250		250
Base Capacity (vph)	338	1199	1294	983	1639	869	1934	924	307	1815	903
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.46	0.73	0.26	0.81	1.00	0.99	0.35	0.85	0.12	0.87	0.25

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	148	1152	123	373	2290	136	768	278	23	526	222
v/c Ratio	0.57	0.49	0.08	0.95	0.89	0.34	0.87	0.32	0.12	0.54	0.46
Control Delay	70.0	27.9	3.4	93.9	37.3	62.0	61.5	5.4	61.0	51.2	8.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	70.0	27.9	3.4	93.9	37.3	62.0	61.5	5.4	61.0	51.2	8.1
Queue Length 50th (ft)	67	267	3	173	685	38	344	0	10	165	0
Queue Length 95th (ft)	99	332	17	#262	#899	64	411	35	23	173	58
Internal Link Dist (ft)		1503			4610		991			1549	
Turn Bay Length (ft)	250		225	250		240		380	270		200
Base Capacity (vph)	394	2372	1626	394	2583	630	918	900	483	1382	583
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.38	0.49	0.08	0.95	0.89	0.22	0.84	0.31	0.05	0.38	0.38

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Intersection Delay, s/veh	14.7
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	207	262	4	10	285	10	38	10	10	10	10	227
Future Vol, veh/h	207	262	4	10	285	10	38	10	10	10	10	227
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	1	0	0	1	0	0	0	0	0	0	0
Mvmt Flow	225	285	4	11	310	11	41	11	11	11	11	247
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	14.4	16.9	11.7	13.2
HCM LOS	B	C	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	66%	100%	0%	100%	0%	50%	0%
Vol Thru, %	17%	0%	98%	0%	97%	50%	0%
Vol Right, %	17%	0%	2%	0%	3%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	58	207	266	10	295	20	227
LT Vol	38	207	0	10	0	10	0
Through Vol	10	0	262	0	285	10	0
RT Vol	10	0	4	0	10	0	227
Lane Flow Rate	63	225	289	11	321	22	247
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.132	0.413	0.491	0.021	0.565	0.043	0.425
Departure Headway (Hd)	7.546	6.615	6.114	6.864	6.348	7.171	6.204
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	478	542	587	519	564	497	577
Service Time	5.546	4.386	3.884	4.641	4.124	4.951	3.983
HCM Lane V/C Ratio	0.132	0.415	0.492	0.021	0.569	0.044	0.428
HCM Control Delay	11.7	14	14.7	9.8	17.1	10.3	13.5
HCM Lane LOS	B	B	B	A	C	B	B
HCM 95th-tile Q	0.5	2	2.7	0.1	3.5	0.1	2.1

Intersection	
Intersection Delay, s/veh	12.3
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	51	246	14	27	152	0	10	36	9	0	117	143
Future Vol, veh/h	51	246	14	27	152	0	10	36	9	0	117	143
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	55	267	15	29	165	0	11	39	10	0	127	155
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	12.8	11	9.8	13.2
HCM LOS	B	B	A	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	80%	0%	95%	0%	100%	100%	45%
Vol Right, %	0%	20%	0%	5%	0%	0%	0%	55%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	45	51	260	27	152	0	260
LT Vol	10	0	51	0	27	0	0	0
Through Vol	0	36	0	246	0	152	0	117
RT Vol	0	9	0	14	0	0	0	143
Lane Flow Rate	11	49	55	283	29	165	0	283
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.021	0.087	0.098	0.458	0.054	0.279	0	0.452
Departure Headway (Hd)	7.043	6.393	6.379	5.835	6.582	6.075	6.149	5.76
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	507	559	562	616	544	591	0	625
Service Time	4.798	4.147	4.118	3.573	4.325	3.817	3.889	3.5
HCM Lane V/C Ratio	0.022	0.088	0.098	0.459	0.053	0.279	0	0.453
HCM Control Delay	10	9.8	9.8	13.4	9.7	11.2	8.9	13.2
HCM Lane LOS	A	A	A	B	A	B	N	B
HCM 95th-tile Q	0.1	0.3	0.3	2.4	0.2	1.1	0	2.3

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	147	122	366	292	83	204	350	1672	327	171	978	127
Future Volume (vph)	147	122	366	292	83	204	350	1672	327	171	978	127
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.5	5.3	5.3	4.0	5.3	5.3
Lane Util. Factor	0.97	1.00	0.88	0.97	1.00	1.00	0.97	0.91	1.00	1.00	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	1900	2792	3502	1900	1588	3502	5187	1580	1805	5136	1571
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	1900	2792	3502	1900	1588	3502	5187	1580	1805	5136	1571
Peak-hour factor, PHF	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97	0.97
Adj. Flow (vph)	152	126	377	301	86	210	361	1724	337	176	1008	131
RTOR Reduction (vph)	0	0	306	0	0	165	0	0	125	0	0	78
Lane Group Flow (vph)	152	126	71	301	86	45	361	1724	212	176	1008	53
Confl. Peds. (#/hr)	7		9	9		7	7		1	1		7
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	1%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	11.0	18.8	18.8	13.7	21.5	21.5	14.8	34.3	34.3	14.6	33.6	33.6
Effective Green, g (s)	11.0	18.8	18.8	13.7	21.5	21.5	14.8	34.3	34.3	14.6	33.6	33.6
Actuated g/C Ratio	0.11	0.19	0.19	0.14	0.22	0.22	0.15	0.34	0.34	0.15	0.34	0.34
Clearance Time (s)	4.0	5.0	5.0	4.0	5.0	5.0	4.5	5.3	5.3	4.0	5.3	5.3
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)	386	358	526	481	409	342	519	1784	543	264	1730	529
v/s Ratio Prot	0.04	c0.07		c0.09	c0.05		c0.10	c0.33		0.10	0.20	
v/s Ratio Perm			0.03			0.03			0.13			0.03
v/c Ratio	0.39	0.35	0.14	0.63	0.21	0.13	0.70	0.97	0.39	0.67	0.58	0.10
Uniform Delay, d1	41.2	35.2	33.7	40.6	32.1	31.6	40.3	32.1	24.8	40.2	27.3	22.7
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	0.2	0.8	0.2	1.8	0.4	0.2	3.3	14.1	0.6	4.9	0.6	0.1
Delay (s)	41.5	36.0	33.8	42.4	32.5	31.8	43.6	46.3	25.4	45.1	27.9	22.8
Level of Service	D	D	C	D	C	C	D	D	C	D	C	C
Approach Delay (s)		36.0			37.3			43.0			29.7	
Approach LOS		D			D			D			C	

Intersection Summary			
HCM 2000 Control Delay	37.9	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.72		
Actuated Cycle Length (s)	99.7	Sum of lost time (s)	18.8
Intersection Capacity Utilization	82.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	377	1266	934	775	554	1244	414	728	294	601	794	241
Future Volume (vph)	377	1266	934	775	554	1244	414	728	294	601	794	241
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.3	5.3	5.3	4.0	5.8	5.8	5.3	5.7	5.7	5.3	5.7	5.7
Lane Util. Factor	0.97	0.91	0.88	0.94	0.91	1.00	0.94	0.91	0.88	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	5187	2814	5090	5187	1615	4942	5187	2842	3502	5136	1578
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	5187	2814	5090	5187	1615	4942	5187	2842	3502	5136	1578
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	397	1333	983	816	583	1309	436	766	309	633	836	254
RTOR Reduction (vph)	0	0	76	0	0	238	0	0	252	0	0	169
Lane Group Flow (vph)	397	1333	907	816	583	1071	436	766	57	633	836	85
Confl. Peds. (#/hr)							11					11
Heavy Vehicles (%)	0%	0%	1%	0%	0%	0%	3%	0%	0%	0%	1%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2			6			8			4
Actuated Green, G (s)	13.7	47.5	59.2	25.5	57.5	57.5	11.7	27.6	27.6	28.0	43.9	43.9
Effective Green, g (s)	13.7	47.5	59.2	25.5	57.5	57.5	11.7	27.6	27.6	28.0	43.9	43.9
Actuated g/C Ratio	0.09	0.32	0.40	0.17	0.39	0.39	0.08	0.19	0.19	0.19	0.29	0.29
Clearance Time (s)	5.3	5.3	5.3	4.0	5.8	5.8	5.3	5.7	5.7	5.3	5.7	5.7
Vehicle Extension (s)	2.0	4.0	2.0	2.0	2.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)	322	1654	1218	871	2003	623	388	961	526	658	1514	465
v/s Ratio Prot	c0.11	0.26	0.06	0.16	0.11		0.09	c0.15		c0.18	0.16	
v/s Ratio Perm			0.26			c0.66			0.02			0.05
v/c Ratio	1.23	0.81	0.74	0.94	0.29	1.72	1.12	0.80	0.11	0.96	0.55	0.18
Uniform Delay, d1	67.6	46.5	38.4	60.9	31.6	45.7	68.6	58.0	50.4	59.9	44.2	39.1
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	128.9	3.1	2.2	16.8	0.0	330.2	83.7	4.9	0.1	25.7	0.5	0.3
Delay (s)	196.5	49.6	40.6	77.7	31.6	375.9	152.3	62.9	50.6	85.6	44.8	39.4
Level of Service	F	D	D	E	C	F	F	E	D	F	D	D
Approach Delay (s)		67.8			212.0			86.2			59.0	
Approach LOS		E			F			F			E	

Intersection Summary			
HCM 2000 Control Delay	114.4	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.30		
Actuated Cycle Length (s)	148.9	Sum of lost time (s)	22.1
Intersection Capacity Utilization	115.8%	ICU Level of Service	H
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	0	0	0	299	3	665	0	1636	794	0	1956	767
Future Volume (vph)	0	0	0	299	3	665	0	1636	794	0	1956	767
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)				4.2	4.2	4.2		5.3	4.0		5.3	5.3
Lane Util. Factor				0.95	0.95	0.88		0.86	0.86		0.91	1.00
Frt				1.00	1.00	0.85		0.98	0.85		1.00	0.85
Flt Protected				0.95	0.95	1.00		1.00	1.00		1.00	1.00
Satd. Flow (prot)				1698	1704	2814		4746	1348		5085	1599
Flt Permitted				0.95	0.95	1.00		1.00	1.00		1.00	1.00
Satd. Flow (perm)				1698	1704	2814		4746	1348		5085	1599
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	0	0	0	305	3	679	0	1669	810	0	1996	783
RTOR Reduction (vph)	0	0	0	0	0	28	0	28	0	0	0	352
Lane Group Flow (vph)	0	0	0	152	156	651	0	1892	559	0	1996	431
Heavy Vehicles (%)	0%	0%	0%	1%	0%	1%	0%	1%	3%	0%	2%	1%
Turn Type				Split	NA	Perm		NA	Free		NA	Perm
Protected Phases				8	8			2			6	
Permitted Phases						8			Free			6
Actuated Green, G (s)				15.6	15.6	15.6		30.7	55.8		30.7	30.7
Effective Green, g (s)				15.6	15.6	15.6		30.7	55.8		30.7	30.7
Actuated g/C Ratio				0.28	0.28	0.28		0.55	1.00		0.55	0.55
Clearance Time (s)				4.2	4.2	4.2		5.3			5.3	5.3
Vehicle Extension (s)				0.2	0.2	0.2		0.2			0.2	0.2
Lane Grp Cap (vph)				474	476	786		2611	1348		2797	879
v/s Ratio Prot				0.09	0.09			c0.40			0.39	
v/s Ratio Perm						c0.23			0.41			0.27
v/c Ratio				0.32	0.33	0.83		0.72	0.41		0.71	0.49
Uniform Delay, d1				15.9	15.9	18.8		9.4	0.0		9.3	7.7
Progression Factor				1.00	1.00	1.00		1.00	1.00		1.00	1.00
Incremental Delay, d2				0.1	0.1	6.9		0.9	0.9		0.7	0.2
Delay (s)				16.1	16.1	25.7		10.3	0.9		10.0	7.9
Level of Service				B	B	C		B	A		B	A
Approach Delay (s)		0.0			22.7			8.2			9.4	
Approach LOS		A			C			A			A	

Intersection Summary			
HCM 2000 Control Delay	11.0	HCM 2000 Level of Service	B
HCM 2000 Volume to Capacity ratio	0.76		
Actuated Cycle Length (s)	55.8	Sum of lost time (s)	9.5
Intersection Capacity Utilization	68.7%	ICU Level of Service	C
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	427	0	315	0	0	0	0	2003	535	0	1710	0
Future Volume (vph)	427	0	315	0	0	0	0	2003	535	0	1710	0
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.2		4.2					5.8	4.0		5.8	
Lane Util. Factor	0.97		0.88					0.86	0.86		0.91	
Frt	1.00		0.85					1.00	0.85		1.00	
Flt Protected	0.95		1.00					1.00	1.00		1.00	
Satd. Flow (prot)	3467		2787					4834	1375		5136	
Flt Permitted	0.95		1.00					1.00	1.00		1.00	
Satd. Flow (perm)	3467		2787					4834	1375		5136	
Peak-hour factor, PHF	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98	0.98
Adj. Flow (vph)	436	0	321	0	0	0	0	2044	546	0	1745	0
RTOR Reduction (vph)	0	0	33	0	0	0	0	3	0	0	0	0
Lane Group Flow (vph)	436	0	288	0	0	0	0	2096	491	0	1745	0
Heavy Vehicles (%)	1%	0%	2%	0%	0%	0%	0%	1%	1%	0%	1%	3%
Turn Type	Prot		Prot					NA	Free		NA	
Protected Phases	4		4					2			6	
Permitted Phases									Free			
Actuated Green, G (s)	10.0		10.0					33.4	53.4		33.4	
Effective Green, g (s)	10.0		10.0					33.4	53.4		33.4	
Actuated g/C Ratio	0.19		0.19					0.63	1.00		0.63	
Clearance Time (s)	4.2		4.2					5.8			5.8	
Vehicle Extension (s)	0.2		0.2					0.2			0.2	
Lane Grp Cap (vph)	649		521					3023	1375		3212	
v/s Ratio Prot	c0.13		0.10					c0.43			0.34	
v/s Ratio Perm									0.36			
v/c Ratio	0.67		0.55					0.69	0.36		0.54	
Uniform Delay, d1	20.2		19.7					6.6	0.0		5.7	
Progression Factor	1.00		1.00					1.00	1.00		1.00	
Incremental Delay, d2	2.2		0.7					0.6	0.7		0.1	
Delay (s)	22.3		20.4					7.2	0.7		5.8	
Level of Service	C		C					A	A		A	
Approach Delay (s)		21.5			0.0			6.0			5.8	
Approach LOS		C			A			A			A	

Intersection Summary			
HCM 2000 Control Delay	8.2	HCM 2000 Level of Service	A
HCM 2000 Volume to Capacity ratio	0.69		
Actuated Cycle Length (s)	53.4	Sum of lost time (s)	10.0
Intersection Capacity Utilization	103.6%	ICU Level of Service	G
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	763	1004	114	311	328	1009	182	766	271	883	446	696
Future Volume (vph)	763	1004	114	311	328	1009	182	766	271	883	446	696
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	5.0	5.0	4.5	5.0	4.5	4.5	5.0	5.0	4.5	5.0	5.0
Lane Util. Factor	0.94	0.95	1.00	1.00	0.95	0.88	1.00	0.91	0.88	0.94	0.95	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00	0.99	1.00	1.00	1.00	1.00	1.00	1.00
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	4713	3343	1475	1671	3343	2613	1671	4803	2632	4713	3343	1495
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	4713	3343	1475	1671	3343	2613	1671	4803	2632	4713	3343	1495
Peak-hour factor, PHF	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
Adj. Flow (vph)	803	1057	120	327	345	1062	192	806	285	929	469	733
RTOR Reduction (vph)	0	0	78	0	0	43	0	0	115	0	0	176
Lane Group Flow (vph)	803	1057	42	327	345	1019	192	806	170	929	469	557
Confl. Bikes (#/hr)			3			1						
Heavy Vehicles (%)	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%	8%
Turn Type	Prot	NA	Perm	Prot	NA	pm+ov	Prot	NA	Perm	Prot	NA	Perm
Protected Phases	7	4		3	8	1	5	2		1	6	
Permitted Phases			4			8			2			6
Actuated Green, G (s)	11.7	44.9	44.9	4.0	37.2	64.4	3.5	33.7	33.7	27.2	57.4	57.4
Effective Green, g (s)	11.7	44.9	44.9	4.0	37.2	64.4	3.5	33.7	33.7	27.2	57.4	57.4
Actuated g/C Ratio	0.09	0.35	0.35	0.03	0.29	0.50	0.03	0.26	0.26	0.21	0.45	0.45
Clearance Time (s)	4.5	5.0	5.0	4.5	5.0	4.5	4.5	5.0	5.0	4.5	5.0	5.0
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	2.0	2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)	428	1165	514	51	965	1306	45	1256	688	995	1489	666
v/s Ratio Prot	c0.17	c0.32		c0.20	0.10	0.16	c0.11	0.17		c0.20	0.14	
v/s Ratio Perm			0.03			0.23			0.06			c0.37
v/c Ratio	1.88	0.91	0.08	6.41	0.36	0.78	4.27	0.64	0.25	0.93	0.31	0.84
Uniform Delay, d1	58.6	40.0	28.1	62.4	36.3	26.4	62.7	42.2	37.5	49.9	23.0	31.5
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	403.1	10.4	0.1	2476.4	0.3	2.9	1520.5	1.3	0.3	14.9	0.2	9.3
Delay (s)	461.6	50.4	28.2	2538.8	36.6	29.3	1583.2	43.5	37.8	64.8	23.2	40.9
Level of Service	F	D	C	F	D	C	F	D	D	E	C	D
Approach Delay (s)		215.8			504.0			272.6			47.4	
Approach LOS		F			F			F			D	

Intersection Summary			
HCM 2000 Control Delay	245.8	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.25		
Actuated Cycle Length (s)	128.8	Sum of lost time (s)	19.0
Intersection Capacity Utilization	92.4%	ICU Level of Service	F
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	64	473	83	8	443	1	108	5	10	4	6	59
Future Volume (vph)	64	473	83	8	443	1	108	5	10	4	6	59
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.6	4.6	4.0	4.6	4.6	4.0	4.0		4.0	4.0	
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Frpb, ped/bikes	1.00	1.00	0.84	1.00	1.00	0.95	1.00	0.90		1.00	0.97	
Flpb, ped/bikes	1.00	1.00	1.00	0.95	1.00	1.00	1.00	1.00		0.88	1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85	1.00	0.90		1.00	0.86	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (prot)	1805	1900	1354	1707	1900	1530	1805	1536		1581	1585	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00		0.95	1.00	
Satd. Flow (perm)	1805	1900	1354	1707	1900	1530	1805	1536		1581	1585	
Peak-hour factor, PHF	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
Adj. Flow (vph)	90	666	117	11	624	1	152	7	14	6	8	83
RTOR Reduction (vph)	0	0	60	0	0	1	0	10	0	0	71	0
Lane Group Flow (vph)	90	666	57	11	624	0	152	11	0	6	20	0
Confl. Peds. (#/hr)	18		75	75		18	11		98	98		11
Heavy Vehicles (%)	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Prot	NA		Prot	NA	
Protected Phases	5	2		1	6		3	8		7	4	
Permitted Phases			2			6						
Actuated Green, G (s)	6.8	37.7	37.7	0.9	31.8	31.8	10.7	21.1		0.8	11.2	
Effective Green, g (s)	6.8	37.7	37.7	0.9	31.8	31.8	10.7	21.1		0.8	11.2	
Actuated g/C Ratio	0.09	0.49	0.49	0.01	0.41	0.41	0.14	0.27		0.01	0.15	
Clearance Time (s)	4.0	4.6	4.6	4.0	4.6	4.6	4.0	4.0		4.0	4.0	
Vehicle Extension (s)	2.0	4.0	4.0	2.0	4.0	4.0	2.0	4.0		2.0	4.0	
Lane Grp Cap (vph)	159	929	662	19	783	631	250	420		16	230	
v/s Ratio Prot	c0.05	0.35		0.01	c0.33		c0.08	0.01		0.00	c0.01	
v/s Ratio Perm			0.04			0.00						
v/c Ratio	0.57	0.72	0.09	0.58	0.80	0.00	0.61	0.03		0.38	0.09	
Uniform Delay, d1	33.7	15.5	10.5	37.9	19.8	13.3	31.2	20.5		37.9	28.5	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00		1.00	1.00	
Incremental Delay, d2	2.7	2.9	0.1	23.8	6.0	0.0	2.9	0.0		5.3	0.2	
Delay (s)	36.5	18.4	10.6	61.7	25.8	13.3	34.1	20.5		43.2	28.7	
Level of Service	D	B	B	E	C	B	C	C		D	C	
Approach Delay (s)		19.2			26.4			32.4			29.6	
Approach LOS		B			C			C			C	

Intersection Summary			
HCM 2000 Control Delay	23.6	HCM 2000 Level of Service	C
HCM 2000 Volume to Capacity ratio	0.61		
Actuated Cycle Length (s)	77.1	Sum of lost time (s)	16.6
Intersection Capacity Utilization	61.7%	ICU Level of Service	B
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	92	377	18	10	338	10	22	10	10	10	10	92
Future Volume (vph)	92	377	18	10	338	10	22	10	10	10	10	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	100	410	20	11	367	11	24	11	11	11	11	100

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	SB 1	SB 2
Volume Total (vph)	100	430	11	378	46	22	100
Volume Left (vph)	100	0	11	0	24	11	0
Volume Right (vph)	0	20	0	11	11	0	100
Hadj (s)	0.50	-0.03	0.50	-0.02	-0.04	0.25	-0.70
Departure Headway (s)	6.0	5.4	6.1	5.6	6.9	7.1	6.1
Degree Utilization, x	0.17	0.65	0.02	0.59	0.09	0.04	0.17
Capacity (veh/h)	576	649	560	625	454	456	525
Control Delay (s)	9.0	16.8	8.1	15.2	10.5	9.2	9.2
Approach Delay (s)	15.3		15.0		10.5	9.2	
Approach LOS	C		C		B	A	

Intersection Summary			
Delay	14.3		
Level of Service	B		
Intersection Capacity Utilization	43.6%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Sign Control		Stop			Stop			Stop			Stop	
Traffic Volume (vph)	185	180	0	15	241	0	10	113	26	0	69	107
Future Volume (vph)	185	180	0	15	241	0	10	113	26	0	69	107
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Hourly flow rate (vph)	201	196	0	16	262	0	11	123	28	0	75	116

Direction, Lane #	EB 1	EB 2	WB 1	WB 2	NB 1	NB 2	SB 1	SB 2
Volume Total (vph)	201	196	16	262	11	151	0	191
Volume Left (vph)	201	0	16	0	11	0	0	0
Volume Right (vph)	0	0	0	0	0	28	0	116
Hadj (s)	0.53	0.03	0.53	0.03	0.53	-0.10	0.00	-0.39
Departure Headway (s)	6.6	6.1	6.8	6.3	7.3	6.6	6.6	6.2
Degree Utilization, x	0.37	0.33	0.03	0.46	0.02	0.28	0.00	0.33
Capacity (veh/h)	517	560	496	545	454	498	517	536
Control Delay (s)	12.3	10.9	8.8	13.3	9.2	11.0	8.4	11.1
Approach Delay (s)	11.6		13.0		10.9		11.1	
Approach LOS	B		B		B		B	

Intersection Summary			
Delay	11.8		
Level of Service	B		
Intersection Capacity Utilization	46.1%	ICU Level of Service	A
Analysis Period (min)	15		

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	106	1765	114	35	1581	75	233	6	73	27	2	96
Future Volume (vph)	106	1765	114	35	1581	75	233	6	73	27	2	96
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0			4.0	
Lane Util. Factor	1.00	0.95	1.00	1.00	0.95	1.00		1.00			1.00	
Frpb, ped/bikes	1.00	1.00	0.95	1.00	1.00	0.95		0.99			0.98	
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00	1.00		0.99			1.00	
Frt	1.00	1.00	0.85	1.00	1.00	0.85		0.97			0.90	
Flt Protected	0.95	1.00	1.00	0.95	1.00	1.00		0.96			0.99	
Satd. Flow (prot)	1770	3539	1505	1770	3539	1505		1711			1611	
Flt Permitted	0.95	1.00	1.00	0.95	1.00	1.00		0.67			0.91	
Satd. Flow (perm)	1770	3539	1505	1770	3539	1505		1181			1483	
Peak-hour factor, PHF	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	115	1918	124	38	1718	82	253	7	79	29	2	104
RTOR Reduction (vph)	0	0	26	0	0	29	0	12	0	0	70	0
Lane Group Flow (vph)	115	1918	98	38	1718	53	0	327	0	0	65	0
Confl. Peds. (#/hr)	10		10	10		10	10		10	10		10
Confl. Bikes (#/hr)			2			2			2			2
Turn Type	Prot	NA	Perm	Prot	NA	Perm	Perm	NA		Perm	NA	
Protected Phases	7	4		3	8			2			6	
Permitted Phases			4			8	2			6		
Actuated Green, G (s)	6.0	52.2	52.2	2.4	48.6	48.6		25.0			25.0	
Effective Green, g (s)	6.0	52.2	52.2	2.4	48.6	48.6		25.0			25.0	
Actuated g/C Ratio	0.07	0.57	0.57	0.03	0.53	0.53		0.27			0.27	
Clearance Time (s)	4.0	4.0	4.0	4.0	4.0	4.0		4.0			4.0	
Vehicle Extension (s)	3.0	3.0	3.0	3.0	3.0	3.0		3.0			3.0	
Lane Grp Cap (vph)	115	2016	857	46	1877	798		322			404	
v/s Ratio Prot	c0.06	c0.54		0.02	0.49							
v/s Ratio Perm			0.06			0.04		c0.28			0.04	
v/c Ratio	1.00	0.95	0.11	0.83	0.92	0.07		1.01			0.16	
Uniform Delay, d1	42.8	18.5	9.1	44.4	19.6	10.5		33.3			25.3	
Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00		1.00			1.00	
Incremental Delay, d2	83.9	10.8	0.1	69.9	7.4	0.0		53.9			0.2	
Delay (s)	126.7	29.3	9.1	114.3	27.0	10.5		87.2			25.5	
Level of Service	F	C	A	F	C	B		F			C	
Approach Delay (s)		33.3			28.1			87.2			25.5	
Approach LOS		C			C			F			C	

Intersection Summary			
HCM 2000 Control Delay	35.0	HCM 2000 Level of Service	D
HCM 2000 Volume to Capacity ratio	0.99		
Actuated Cycle Length (s)	91.6	Sum of lost time (s)	12.0
Intersection Capacity Utilization	86.7%	ICU Level of Service	E
Analysis Period (min)	15		

c Critical Lane Group

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	416	1954	796	845	1344	54	900	1099	1180	83	972	339
Future Volume (vph)	416	1954	796	845	1344	54	900	1099	1180	83	972	339
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	5.0	6.0	5.0	5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Lane Util. Factor	0.97	0.91	0.88	0.94	0.91		0.94	0.91	1.00	0.97	0.86	0.88
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	1.00	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	0.99		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3502	5136	2820	5040	5009		5090	5187	1615	3467	6471	2723
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3502	5136	2820	5040	5009		5090	5187	1615	3467	6471	2723
Peak-hour factor, PHF	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
Adj. Flow (vph)	443	2079	847	899	1430	57	957	1169	1255	88	1034	361
RTOR Reduction (vph)	0	0	29	0	3	0	0	0	288	0	0	272
Lane Group Flow (vph)	443	2079	818	899	1484	0	957	1169	967	88	1034	89
Confl. Peds. (#/hr)	5					5	11					11
Confl. Bikes (#/hr)			1			1						
Heavy Vehicles (%)	0%	1%	0%	1%	3%	0%	0%	0%	0%	1%	1%	2%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2						8			4
Actuated Green, G (s)	22.5	43.9	69.0	25.1	46.5		25.1	48.2	48.2	15.1	38.2	38.2
Effective Green, g (s)	22.5	43.9	69.0	25.1	46.5		25.1	48.2	48.2	15.1	38.2	38.2
Actuated g/C Ratio	0.15	0.28	0.45	0.16	0.30		0.16	0.31	0.31	0.10	0.25	0.25
Clearance Time (s)	5.0	6.0	5.0	5.0	6.0		5.0	6.0	6.0	5.0	6.0	6.0
Vehicle Extension (s)	2.0	3.0	2.0	2.0	3.0		2.0	4.0	4.0	2.0	4.0	4.0
Lane Grp Cap (vph)	510	1461	1261	819	1509		827	1620	504	339	1602	674
v/s Ratio Prot	0.13	c0.40	0.11	c0.18	c0.30		c0.19	0.23		0.03	0.16	
v/s Ratio Perm			0.18						c0.60			0.03
v/c Ratio	0.87	1.42	0.65	1.10	0.98		1.16	0.72	1.92	0.26	0.65	0.13
Uniform Delay, d1	64.5	55.2	33.2	64.6	53.5		64.6	47.1	53.1	64.4	52.0	45.2
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	14.1	194.4	0.9	61.6	19.2		84.2	1.7	420.6	0.1	1.0	0.1
Delay (s)	78.5	249.6	34.1	126.2	72.7		148.8	48.8	473.7	64.6	53.0	45.3
Level of Service	E	F	C	F	E		F	D	F	E	D	D
Approach Delay (s)		172.9			92.9			234.8			51.8	
Approach LOS		F			F			F			D	

Intersection Summary			
HCM 2000 Control Delay	157.7	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.53		
Actuated Cycle Length (s)	154.3	Sum of lost time (s)	22.0
Intersection Capacity Utilization	137.5%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Volume (vph)	235	2145	263	708	1470	42	638	509	650	93	832	85
Future Volume (vph)	235	2145	263	708	1470	42	638	509	650	93	832	85
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Total Lost time (s)	4.5	6.0	5.0	4.5	6.0		5.0	5.5	5.5	4.5	5.5	5.5
Lane Util. Factor	0.97	0.91	0.88	0.97	0.91		0.94	0.95	0.88	0.97	0.91	1.00
Frpb, ped/bikes	1.00	1.00	0.99	1.00	1.00		1.00	1.00	0.99	1.00	1.00	0.98
Flpb, ped/bikes	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Frt	1.00	1.00	0.85	1.00	1.00		1.00	1.00	0.85	1.00	1.00	0.85
Flt Protected	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (prot)	3433	5136	2751	3467	5114		5090	3610	2802	3502	5136	1582
Flt Permitted	0.95	1.00	1.00	0.95	1.00		0.95	1.00	1.00	0.95	1.00	1.00
Satd. Flow (perm)	3433	5136	2751	3467	5114		5090	3610	2802	3502	5136	1582
Peak-hour factor, PHF	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99	0.99
Adj. Flow (vph)	237	2167	266	715	1485	42	644	514	657	94	840	86
RTOR Reduction (vph)	0	0	30	0	2	0	0	0	355	0	0	67
Lane Group Flow (vph)	237	2167	236	715	1525	0	644	514	302	94	840	19
Confl. Peds. (#/hr)	3		5	5		3	8		1	1		8
Confl. Bikes (#/hr)			1						1			
Heavy Vehicles (%)	2%	1%	2%	1%	1%	0%	0%	0%	0%	0%	1%	0%
Turn Type	Prot	NA	pm+ov	Prot	NA		Prot	NA	Perm	Prot	NA	Perm
Protected Phases	5	2	3	1	6		3	8		7	4	
Permitted Phases			2						8			4
Actuated Green, G (s)	13.1	46.9	63.9	21.4	55.2		17.0	39.6	39.6	8.1	30.2	30.2
Effective Green, g (s)	13.1	46.9	63.9	21.4	55.2		17.0	39.6	39.6	8.1	30.2	30.2
Actuated g/C Ratio	0.10	0.34	0.47	0.16	0.40		0.12	0.29	0.29	0.06	0.22	0.22
Clearance Time (s)	4.5	6.0	5.0	4.5	6.0		5.0	5.5	5.5	4.5	5.5	5.5
Vehicle Extension (s)	2.0	3.5	2.0	2.0	3.5		2.0	3.5	3.5	2.0	3.5	3.5
Lane Grp Cap (vph)	329	1764	1287	543	2068		633	1047	812	207	1136	350
v/s Ratio Prot	0.07	c0.42	0.02	c0.21	0.30		c0.13	0.14		0.03	c0.16	
v/s Ratio Perm			0.06						0.11			0.01
v/c Ratio	0.72	1.23	0.18	1.32	0.74		1.02	0.49	0.37	0.45	0.74	0.05
Uniform Delay, d1	59.9	44.8	21.1	57.5	34.5		59.8	40.1	38.6	62.1	49.5	41.9
Progression Factor	1.00	1.00	1.00	1.00	1.00		1.00	1.00	1.00	1.00	1.00	1.00
Incremental Delay, d2	6.4	108.0	0.0	155.2	2.4		40.2	0.4	0.3	0.6	2.6	0.1
Delay (s)	66.4	152.8	21.1	212.7	36.9		100.0	40.5	38.9	62.6	52.1	42.0
Level of Service	E	F	C	F	D		F	D	D	E	D	D
Approach Delay (s)		132.0			93.0			61.0			52.2	
Approach LOS		F			F			E			D	

Intersection Summary			
HCM 2000 Control Delay	93.6	HCM 2000 Level of Service	F
HCM 2000 Volume to Capacity ratio	1.09		
Actuated Cycle Length (s)	136.5	Sum of lost time (s)	21.0
Intersection Capacity Utilization	110.8%	ICU Level of Service	H
Analysis Period (min)	15		
c Critical Lane Group			

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	152	126	377	301	86	210	361	1724	337	176	1008	131
v/c Ratio	0.40	0.35	0.46	0.63	0.21	0.42	0.70	0.97	0.51	0.67	0.59	0.22
Control Delay	49.1	38.5	5.3	49.6	32.8	6.8	50.8	50.1	16.5	57.1	31.9	8.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	49.1	38.5	5.3	49.6	32.8	6.8	50.8	50.1	16.5	57.1	31.9	8.9
Queue Length 50th (ft)	43	67	0	85	43	0	102	352	60	97	173	5
Queue Length 95th (ft)	107	139	39	188	94	54	224	#820	225	#248	369	62
Internal Link Dist (ft)		307			1140			315			1226	
Turn Bay Length (ft)	270		220	220		250	235		235	235		215
Base Capacity (vph)	725	905	1524	725	921	876	725	2068	744	373	2021	687
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.21	0.14	0.25	0.42	0.09	0.24	0.50	0.83	0.45	0.47	0.50	0.19

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	397	1333	983	816	583	1309	436	766	309	633	836	254
v/c Ratio	1.23	0.80	0.76	0.94	0.29	1.52	1.12	0.80	0.40	0.96	0.55	0.40
Control Delay	182.8	51.3	35.7	79.2	32.3	264.0	143.4	65.1	6.7	86.5	45.8	7.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	182.8	51.3	35.7	79.2	32.3	264.0	143.4	65.1	6.7	86.5	45.8	7.7
Queue Length 50th (ft)	~247	442	411	282	144	~1548	~174	264	0	320	251	10
Queue Length 95th (ft)	#357	503	509	#359	178	#1819	#252	316	46	#440	297	80
Internal Link Dist (ft)		1930			2587			1410			554	
Turn Bay Length (ft)	290		315	360		1000	350		350	450		185
Base Capacity (vph)	322	1656	1290	889	2003	862	388	990	792	665	1552	643
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.23	0.80	0.76	0.92	0.29	1.52	1.12	0.77	0.39	0.95	0.54	0.40

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	WBL	WBT	WBR	NBT	NBR	SBT	SBR
Lane Group Flow (vph)	152	156	679	1920	559	1996	783
v/c Ratio	0.32	0.33	0.84	0.73	0.41	0.72	0.64
Control Delay	19.3	19.4	29.3	11.7	0.9	11.6	3.5
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	19.3	19.4	29.3	11.7	0.9	11.6	3.5
Queue Length 50th (ft)	47	48	127	170	0	171	0
Queue Length 95th (ft)	91	93	190	253	0	249	44
Internal Link Dist (ft)		1505		814		1410	
Turn Bay Length (ft)	135		115				190
Base Capacity (vph)	630	631	1068	3101	1348	3300	1312
Starvation Cap Reductn	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0
Reduced v/c Ratio	0.24	0.25	0.64	0.62	0.41	0.60	0.60

Intersection Summary

Lane Group	EBL	EBR	NBT	NBR	SBT
Lane Group Flow (vph)	436	321	2099	491	1745
v/c Ratio	0.67	0.58	0.70	0.36	0.55
Control Delay	27.1	23.1	8.4	0.7	6.7
Queue Delay	0.0	0.0	0.0	0.0	0.0
Total Delay	27.1	23.1	8.4	0.7	6.7
Queue Length 50th (ft)	71	49	141	0	95
Queue Length 95th (ft)	120	93	231	0	155
Internal Link Dist (ft)			819		76
Turn Bay Length (ft)	275	420			
Base Capacity (vph)	1736	1416	3682	1375	3910
Starvation Cap Reductn	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0
Reduced v/c Ratio	0.25	0.23	0.57	0.36	0.45

Intersection Summary

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	803	1057	120	327	345	1062	192	806	285	929	469	733
v/c Ratio	1.88	0.91	0.20	6.29	0.36	0.78	4.27	0.64	0.35	0.94	0.32	0.87
Control Delay	437.6	53.0	6.4	2452.0	39.0	27.8	1534.7	44.2	17.4	67.2	23.3	29.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	437.6	53.0	6.4	2452.0	39.0	27.8	1534.7	44.2	17.4	67.2	23.3	29.9
Queue Length 50th (ft)	~352	424	0	~509	116	323	~286	219	47	264	130	345
Queue Length 95th (ft)	#495	#654	45	#767	183	519	#484	264	89	#409	169	555
Internal Link Dist (ft)		870			783			616			819	
Turn Bay Length (ft)	400		300	350			110		110	590		425
Base Capacity (vph)	426	1174	596	52	976	1358	45	1688	1026	993	1788	947
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.88	0.90	0.20	6.29	0.35	0.78	4.27	0.48	0.28	0.94	0.26	0.77

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	SBL	SBT
Lane Group Flow (vph)	90	666	117	11	624	1	152	21	6	91
v/c Ratio	0.43	0.66	0.16	0.08	0.79	0.00	0.56	0.05	0.05	0.30
Control Delay	39.4	21.5	4.5	38.8	34.1	0.0	38.9	11.1	38.8	11.0
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	39.4	21.5	4.5	38.8	34.1	0.0	38.9	11.1	38.8	11.0
Queue Length 50th (ft)	35	170	0	4	231	0	58	2	2	3
Queue Length 95th (ft)	76	#447	16	19	#483	0	112	13	13	24
Internal Link Dist (ft)		1140			1011			371		674
Turn Bay Length (ft)	195		785	145		50			85	
Base Capacity (vph)	531	1013	716	531	788	695	796	762	531	630
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.17	0.66	0.16	0.02	0.79	0.00	0.19	0.03	0.01	0.14

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBT	SBT
Lane Group Flow (vph)	115	1918	124	38	1718	82	339	135
v/c Ratio	0.97	0.93	0.14	0.49	0.93	0.10	1.00	0.28
Control Delay	121.7	28.8	5.8	63.5	30.7	4.6	81.4	10.8
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	121.7	28.8	5.8	63.5	30.7	4.6	81.4	10.8
Queue Length 50th (ft)	67	535	16	22	451	6	184	16
Queue Length 95th (ft)	#173	#738	42	#63	#635	27	#364	60
Internal Link Dist (ft)		2587			365		580	950
Turn Bay Length (ft)			50	100		50		
Base Capacity (vph)	118	2052	899	78	1848	815	340	481
Starvation Cap Reductn	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.97	0.93	0.14	0.49	0.93	0.10	1.00	0.28

Intersection Summary

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	443	2079	847	899	1487	957	1169	1255	88	1034	361
v/c Ratio	0.87	1.42	0.65	1.10	0.98	1.16	0.72	1.58	0.26	0.65	0.38
Control Delay	83.0	234.8	30.5	119.5	72.6	139.2	49.8	292.6	68.7	53.9	5.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	83.0	234.8	30.5	119.5	72.6	139.2	49.8	292.6	68.7	53.9	5.1
Queue Length 50th (ft)	225	~1017	321	~364	550	~404	388	~1505	43	276	0
Queue Length 95th (ft)	#318	#1194	439	#498	#735	#542	445	#1838	76	317	43
Internal Link Dist (ft)		4590			1844		983			1601	
Turn Bay Length (ft)	220		220	350		315		170	250		250
Base Capacity (vph)	569	1536	1307	819	1511	827	1687	808	563	1935	1066
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.78	1.35	0.65	1.10	0.98	1.16	0.69	1.55	0.16	0.53	0.34

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

\# 95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	NBL	NBT	NBR	SBL	SBT	SBR
Lane Group Flow (vph)	237	2167	266	715	1527	644	514	657	94	840	86
v/c Ratio	0.72	1.23	0.20	1.32	0.74	1.02	0.49	0.56	0.45	0.74	0.20
Control Delay	72.6	145.6	14.4	199.7	38.1	98.5	41.6	10.9	68.7	53.5	6.9
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	72.6	145.6	14.4	199.7	38.1	98.5	41.6	10.9	68.7	53.5	6.9
Queue Length 50th (ft)	106	~865	53	~415	416	~213	200	60	42	257	0
Queue Length 95th (ft)	151	#957	82	#628	526	#297	243	119	71	286	35
Internal Link Dist (ft)		1528			4590		997			1543	
Turn Bay Length (ft)	250		225	250		240		380	270		200
Base Capacity (vph)	369	1768	1339	542	2072	633	1062	1177	410	1392	498
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	0.64	1.23	0.20	1.32	0.74	1.02	0.48	0.56	0.23	0.60	0.17

Intersection Summary

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Intersection	
Intersection Delay, s/veh	15.4
Intersection LOS	C

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	92	377	18	10	338	10	22	10	10	10	10	92
Future Vol, veh/h	92	377	18	10	338	10	22	10	10	10	10	92
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	0	0	0	0	0	0	0	0	0	0	0	0
Mvmt Flow	100	410	20	11	367	11	24	11	11	11	11	100
Number of Lanes	1	1	0	1	1	0	0	1	0	0	1	1

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	1
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	1	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	1	2	2	2
HCM Control Delay	16.5	16.2	10.8	10.2
HCM LOS	C	C	B	B

Lane	NBLn1	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	52%	100%	0%	100%	0%	50%	0%
Vol Thru, %	24%	0%	95%	0%	97%	50%	0%
Vol Right, %	24%	0%	5%	0%	3%	0%	100%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	42	92	395	10	348	20	92
LT Vol	22	92	0	10	0	10	0
Through Vol	10	0	377	0	338	10	0
RT Vol	10	0	18	0	10	0	92
Lane Flow Rate	46	100	429	11	378	22	100
Geometry Grp	6	7	7	7	7	7	7
Degree of Util (X)	0.089	0.167	0.653	0.019	0.594	0.043	0.172
Departure Headway (Hd)	7.051	6.012	5.475	6.182	5.656	7.157	6.19
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	507	597	661	579	639	500	579
Service Time	5.106	3.741	3.203	3.914	3.387	4.903	3.935
HCM Lane V/C Ratio	0.091	0.168	0.649	0.019	0.592	0.044	0.173
HCM Control Delay	10.8	9.9	18	9	16.4	10.2	10.2
HCM Lane LOS	B	A	C	A	C	B	B
HCM 95th-tile Q	0.3	0.6	4.8	0.1	3.9	0.1	0.6

Intersection	
Intersection Delay, s/veh	12.9
Intersection LOS	B

Movement	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Traffic Vol, veh/h	185	180	0	15	241	0	10	113	26	0	69	107
Future Vol, veh/h	185	180	0	15	241	0	10	113	26	0	69	107
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Heavy Vehicles, %	2	2	2	2	2	2	2	2	2	2	2	2
Mvmt Flow	201	196	0	16	262	0	11	123	28	0	75	116
Number of Lanes	1	1	0	1	1	0	1	1	0	1	1	0

Approach	EB	WB	NB	SB
Opposing Approach	WB	EB	SB	NB
Opposing Lanes	2	2	2	2
Conflicting Approach Left	SB	NB	EB	WB
Conflicting Lanes Left	2	2	2	2
Conflicting Approach Right	NB	SB	WB	EB
Conflicting Lanes Right	2	2	2	2
HCM Control Delay	12.7	14.1	12	12.4
HCM LOS	B	B	B	B

Lane	NBLn1	NBLn2	EBLn1	EBLn2	WBLn1	WBLn2	SBLn1	SBLn2
Vol Left, %	100%	0%	100%	0%	100%	0%	0%	0%
Vol Thru, %	0%	81%	0%	100%	0%	100%	100%	39%
Vol Right, %	0%	19%	0%	0%	0%	0%	0%	61%
Sign Control	Stop	Stop	Stop	Stop	Stop	Stop	Stop	Stop
Traffic Vol by Lane	10	139	185	180	15	241	0	176
LT Vol	10	0	185	0	15	0	0	0
Through Vol	0	113	0	180	0	241	0	69
RT Vol	0	26	0	0	0	0	0	107
Lane Flow Rate	11	151	201	196	16	262	0	191
Geometry Grp	7	7	7	7	7	7	7	7
Degree of Util (X)	0.022	0.281	0.372	0.334	0.031	0.46	0	0.338
Departure Headway (Hd)	7.346	6.703	6.654	6.146	6.829	6.321	6.79	6.356
Convergence, Y/N	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Cap	485	533	539	583	522	568	0	562
Service Time	5.127	4.484	4.42	3.912	4.6	4.091	4.568	4.134
HCM Lane V/C Ratio	0.023	0.283	0.373	0.336	0.031	0.461	0	0.34
HCM Control Delay	10.3	12.1	13.3	12	9.8	14.4	9.6	12.4
HCM Lane LOS	B	B	B	B	A	B	N	B
HCM 95th-tile Q	0.1	1.1	1.7	1.5	0.1	2.4	0	1.5

MOVEMENT SUMMARY

Site: 1 [Cumulative AM_Intersection #8 (North) (Site Folder: General)]

Croak Road/North Project Roundabout (Street A)
Site Category: Existing+P AM
Roundabout

Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Croak Road														
3	L2	3	0.0	3	0.0	0.031	2.9	LOS A	0.1	3.3	0.04	0.00	0.04	18.3
8	T1	24	0.0	26	0.0	0.031	2.9	LOS A	0.1	3.3	0.04	0.00	0.04	29.7
18	R2	12	0.0	13	0.0	0.031	2.9	LOS A	0.1	3.3	0.04	0.00	0.04	26.1
Approach		39	0.0	42	0.0	0.031	2.9	LOS A	0.1	3.3	0.04	0.00	0.04	27.9
East: North Project Access														
1	L2	35	0.0	38	0.0	0.032	2.9	LOS A	0.1	3.4	0.12	0.03	0.12	24.8
6	T1	1	0.0	1	0.0	0.032	2.9	LOS A	0.1	3.4	0.12	0.03	0.12	17.0
16	R2	3	0.0	3	0.0	0.032	2.9	LOS A	0.1	3.4	0.12	0.03	0.12	23.9
Approach		39	0.0	42	0.0	0.032	2.9	LOS A	0.1	3.4	0.12	0.03	0.12	24.6
North: Croak Road														
7	L2	1	0.0	1	0.0	0.052	3.1	LOS A	0.2	5.7	0.14	0.04	0.14	17.6
4	T1	61	0.0	66	0.0	0.052	3.1	LOS A	0.2	5.7	0.14	0.04	0.14	29.7
14	R2	1	0.0	1	0.0	0.052	3.1	LOS A	0.2	5.7	0.14	0.04	0.14	25.9
Approach		63	0.0	68	0.0	0.052	3.1	LOS A	0.2	5.7	0.14	0.04	0.14	29.5
West: North Project Access														
5	L2	2	0.0	2	0.0	0.012	3.0	LOS A	0.1	1.3	0.23	0.09	0.23	26.3
2	T1	1	0.0	1	0.0	0.012	3.0	LOS A	0.1	1.3	0.23	0.09	0.23	18.6
12	R2	11	0.0	12	0.0	0.012	3.0	LOS A	0.1	1.3	0.23	0.09	0.23	25.7
Approach		14	0.0	15	0.0	0.012	3.0	LOS A	0.1	1.3	0.23	0.09	0.23	25.6
All Vehicles		155	0.0	168	0.0	0.052	3.0	LOS A	0.2	5.7	0.12	0.04	0.12	27.8

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Cumulative AM_Intersection #9 (South) (Site Folder: General)]

Croak Road/South Project Roundabout (Street B)
Site Category: Existing+P AM
Roundabout

Vehicle Movement Performance														
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Croak Road														
3	L2	19	0.0	21	0.0	0.069	3.2	LOS A	0.3	7.7	0.03	0.00	0.03	16.7
8	T1	35	0.0	38	0.0	0.069	3.2	LOS A	0.3	7.7	0.03	0.00	0.03	29.0
18	R2	33	0.0	36	0.0	0.069	3.2	LOS A	0.3	7.7	0.03	0.00	0.03	24.7
Approach		87	0.0	95	0.0	0.069	3.2	LOS A	0.3	7.7	0.03	0.00	0.03	24.7
East: South Project Access														
1	L2	97	0.0	105	0.0	0.085	3.5	LOS A	0.4	9.6	0.18	0.07	0.18	23.7
6	T1	1	0.0	1	0.0	0.085	3.5	LOS A	0.4	9.6	0.18	0.07	0.18	18.3
16	R2	3	0.0	3	0.0	0.085	3.5	LOS A	0.4	9.6	0.18	0.07	0.18	23.9
Approach		101	0.0	110	0.0	0.085	3.5	LOS A	0.4	9.6	0.18	0.07	0.18	23.6
North: Croak Road														
7	L2	1	0.0	1	0.0	0.097	3.8	LOS A	0.4	10.9	0.27	0.14	0.27	26.7
4	T1	106	0.0	115	0.0	0.097	3.8	LOS A	0.4	10.9	0.27	0.14	0.27	29.1
14	R2	1	0.0	1	0.0	0.097	3.8	LOS A	0.4	10.9	0.27	0.14	0.27	25.6
Approach		108	0.0	117	0.0	0.097	3.8	LOS A	0.4	10.9	0.27	0.14	0.27	29.1
West: South Project Access														
5	L2	1	0.0	1	0.0	0.058	3.8	LOS A	0.2	6.2	0.35	0.21	0.35	26.2
2	T1	1	0.0	1	0.0	0.058	3.8	LOS A	0.2	6.2	0.35	0.21	0.35	19.9
12	R2	57	0.0	62	0.0	0.058	3.8	LOS A	0.2	6.2	0.35	0.21	0.35	24.6
Approach		59	0.0	64	0.0	0.058	3.8	LOS A	0.2	6.2	0.35	0.21	0.35	24.5
All Vehicles		355	0.0	386	0.0	0.097	3.5	LOS A	0.4	10.9	0.20	0.10	0.20	25.9

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Cumulative PM_Intersection #8 (North) (Site Folder: General)]

Croak Road/North Project Roundabout (Street A)
Site Category: Existing+P PM
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Croak Road														
3	L2	13	0.0	14	0.0	0.089	3.3	LOS A	0.4	10.2	0.05	0.01	0.05	18.1
8	T1	71	0.0	77	0.0	0.089	3.3	LOS A	0.4	10.2	0.05	0.01	0.05	29.4
18	R2	28	0.0	30	0.0	0.089	3.3	LOS A	0.4	10.2	0.05	0.01	0.05	25.7
Approach		112	0.0	122	0.0	0.089	3.3	LOS A	0.4	10.2	0.05	0.01	0.05	27.2
East: North Project Access														
1	L2	17	0.0	18	0.0	0.017	3.0	LOS A	0.1	1.8	0.21	0.08	0.21	24.9
6	T1	1	0.0	1	0.0	0.017	3.0	LOS A	0.1	1.8	0.21	0.08	0.21	17.0
16	R2	2	0.0	2	0.0	0.017	3.0	LOS A	0.1	1.8	0.21	0.08	0.21	23.9
Approach		20	0.0	22	0.0	0.017	3.0	LOS A	0.1	1.8	0.21	0.08	0.21	24.6
North: Croak Road														
7	L2	4	0.0	4	0.0	0.041	3.0	LOS A	0.2	4.4	0.12	0.03	0.12	17.6
4	T1	44	0.0	48	0.0	0.041	3.0	LOS A	0.2	4.4	0.12	0.03	0.12	29.6
14	R2	2	0.0	2	0.0	0.041	3.0	LOS A	0.2	4.4	0.12	0.03	0.12	25.8
Approach		50	0.0	54	0.0	0.041	3.0	LOS A	0.2	4.4	0.12	0.03	0.12	28.6
West: North Project Access														
5	L2	1	0.0	1	0.0	0.008	2.9	LOS A	0.0	0.8	0.18	0.06	0.18	26.5
2	T1	1	0.0	1	0.0	0.008	2.9	LOS A	0.0	0.8	0.18	0.06	0.18	18.9
12	R2	7	0.0	8	0.0	0.008	2.9	LOS A	0.0	0.8	0.18	0.06	0.18	25.9
Approach		9	0.0	10	0.0	0.008	2.9	LOS A	0.0	0.8	0.18	0.06	0.18	25.6
All Vehicles		191	0.0	208	0.0	0.089	3.2	LOS A	0.4	10.2	0.09	0.02	0.09	27.3

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1 [Cumulative PM_Intersection #9 (South) (Site Folder: General)]

Croak Road/South Project Roundabout (Street B)
Site Category: Existing+P PM
Roundabout

Vehicle Movement Performance															
Mov ID	Turn	INPUT VOLUMES [Total veh/h	HV] %	DEMAND FLOWS [Total veh/h	HV] %	Deg. Satn v/c	Aver. Delay sec	Level of Service	95% BACK OF QUEUE [Veh. veh	Dist] ft	Prop. Que	Effective Stop Rate	Aver. No. Cycles	Aver. Speed mph
South: Croak Road														
3	L2	63	0.0	68	0.0	0.236	4.6	LOS A	1.3	32.3	0.05	0.01	0.05	16.2
8	T1	109	0.0	118	0.0	0.236	4.6	LOS A	1.3	32.3	0.05	0.01	0.05	28.2
18	R2	126	0.0	137	0.0	0.236	4.6	LOS A	1.3	32.3	0.05	0.01	0.05	23.8
Approach		298	0.0	324	0.0	0.236	4.6	LOS A	1.3	32.3	0.05	0.01	0.05	23.8
East: South Project Access														
1	L2	75	0.0	82	0.0	0.075	3.8	LOS A	0.3	8.1	0.33	0.19	0.33	23.5
6	T1	1	0.0	1	0.0	0.075	3.8	LOS A	0.3	8.1	0.33	0.19	0.33	18.1
16	R2	2	0.0	2	0.0	0.075	3.8	LOS A	0.3	8.1	0.33	0.19	0.33	23.7
Approach		78	0.0	85	0.0	0.075	3.8	LOS A	0.3	8.1	0.33	0.19	0.33	23.4
North: Croak Road														
7	L2	3	0.0	3	0.0	0.063	3.6	LOS A	0.3	6.8	0.29	0.15	0.29	26.7
4	T1	64	0.0	70	0.0	0.063	3.6	LOS A	0.3	6.8	0.29	0.15	0.29	29.2
14	R2	1	0.0	1	0.0	0.063	3.6	LOS A	0.3	6.8	0.29	0.15	0.29	25.7
Approach		68	0.0	74	0.0	0.063	3.6	LOS A	0.3	6.8	0.29	0.15	0.29	29.0
West: South Project Access														
5	L2	1	0.0	1	0.0	0.036	3.4	LOS A	0.2	3.8	0.29	0.14	0.29	26.5
2	T1	1	0.0	1	0.0	0.036	3.4	LOS A	0.2	3.8	0.29	0.14	0.29	20.2
12	R2	37	0.0	40	0.0	0.036	3.4	LOS A	0.2	3.8	0.29	0.14	0.29	24.9
Approach		39	0.0	42	0.0	0.036	3.4	LOS A	0.2	3.8	0.29	0.14	0.29	24.8
All Vehicles		483	0.0	525	0.0	0.236	4.2	LOS A	1.3	32.3	0.15	0.07	0.15	24.6

Site Level of Service (LOS) Method: Delay & v/c (HCM 6). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Roundabout LOS Method: Same as Sign Control.
Vehicle movement LOS values are based on average delay and v/c ratio (degree of saturation) per movement.
LOS F will result if v/c > 1 irrespective of movement delay value (does not apply for approaches and intersection).
Intersection and Approach LOS values are based on average delay for all movements (v/c not used as specified in HCM 6).
Roundabout Capacity Model: US HCM 6.
Delay Model: HCM Delay Formula (Geometric Delay is not included).
Queue Model: HCM Queue Formula.
Gap-Acceptance Capacity: Traditional M1.
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

E – Signal Warrant Analysis

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2014 MUTCD) - CONDITION A

Intersection #10 (Croak Road/Central Parkway) - Existing Plus Project Conditions		AM Peak Hour			PM Peak Hour		
Condition A - If all 3 of the following conditions exist for the same 1 hour of an average day:	Threshold	Minor Street (SB Approach)		Threshold Met?	Minor Street (SB Approach)		Threshold Met?
1. The total stopped time delay experience by the traffic on 1 minor-street approach (1 direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a 1-lane approach; or 5 vehicle-hours for a 2-lane approach, and	5 vehicle-hours	0.43	vehicle-hours	No	0.30	vehicle-hours	No
2. The volume on the same minor-street approach (1 direction only) equals or exceeds 100 vph for 1 moving lane of traffic or 150 vph for 2 moving lanes, and	150 vph	200	vph	Yes	136	vph	No
3. The total entering volume serviced during the hour equals or exceeds 650 vph for intersections with 3 approaches or 800 vph for intersections with 4 or more approaches.	800 vph	362	vph	No	476	vph	No

Intersection #10 (Croak Road/Central Parkway) - Cumulative Conditions		AM Peak Hour			PM Peak Hour		
Condition A - If all 3 of the following conditions exist for the same 1 hour of an average day:	Threshold	Minor Street (NB Approach)		Threshold Met?	Minor Street (NB Approach)		Threshold Met?
1. The total stopped time delay experience by the traffic on 1 minor-street approach (1 direction only) controlled by a STOP sign equals or exceeds: 4 vehicle-hours for a 1-lane approach; or 5 vehicle-hours for a 2-lane approach, and	5 vehicle-hours	0.86	vehicle-hours	No	0.54	vehicle-hours	No
2. The volume on the same minor-street approach (1 direction only) equals or exceeds 100 vph for 1 moving lane of traffic or 150 vph for 2 moving lanes, and	150 vph	260	vph	Yes	176	vph	Yes
3. The total entering volume serviced during the hour equals or exceeds 650 vph for intersections with 3 approaches or 800 vph for intersections with 4 or more approaches.	800 vph	805	vph	Yes	946	vph	Yes

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2014 MUTCD) - CONDITION B

MAJOR STREET:	**Central Parkway**	EB WB	# OF APPROACH LANES:	**2**
MINOR STREET:	**Croak Road**	NB SB	# OF APPROACH LANES:	**2**
CITY, STATE:	**Dublin, CA**			
COMMENTS:	**Existing Plus Project Conditions**			

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

			MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
						MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES		→				**600**	**200**		**900**	**100**		**480**	**160**		**720**	**80**		**60**	**75**
06:00 AM	TO	07:00 AM																	
07:00 AM	TO	08:00 AM																	
08:00 AM	TO	09:00 AM	141	200			Y			Y			Y			Y			
09:00 AM	TO	10:00 AM																	
10:00 AM	TO	11:00 AM																	
11:00 AM	TO	12:00 PM																	
12:00 PM	TO	01:00 PM																	
01:00 PM	TO	02:00 PM																	
02:00 PM	TO	03:00 PM																	
03:00 PM	TO	04:00 PM																	
04:00 PM	TO	05:00 PM																	
05:00 PM	TO	06:00 PM	279	136						Y						Y			
06:00 PM	TO	07:00 PM																	
07:00 PM	TO	08:00 PM																	
08:00 PM	TO	09:00 PM																	
09:00 PM	TO	10:00 PM																	
			420	336		0	1	**0**	0	2	**0**	0	1	**0**	0	2	**0**	**0**	**0**
						8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
						NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

08/23/21
Kimley-Horn and Associates

TRAFFIC SIGNAL VOLUME WARRANT ANALYSIS (2014 MUTCD) - CONDITION B

MAJOR STREET: **Central Parkway** EB WB # OF APPROACH LANES: **2**

MINOR STREET: **Croak Road** NB SB # OF APPROACH LANES: **2**

CITY, STATE: **Dublin, CA**

COMMENTS: **Cumulative Conditions**

ISOLATED COMMUNITY WITH POPULATION LESS THAN 10,000 (Y OR N): **N**
85TH PERCENTILE SPEED GREATER THAN 40 MPH ON MAJOR STREET (Y OR N): **N**

	MAJOR ST TWO-WAY TRAFFIC	MINOR ST TRAFFIC HEAVY LEG	Ped Count CROSSING MAJOR ST	WARRANT 1 - Condition A, Part 1			WARRANT 1 - Condition B, Part 1			WARRANT 1 - Condition A, Part 2			WARRANT 1 - Condition B, Part 2			WARRANT 2 Four-Hour	WARRANT 3 Peak Hour
				MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET	MAIN LINE	SIDE STREET	BOTH MET		
THRESHOLD VALUES →				**600**	**200**		**900**	**100**		**480**	**160**		**720**	**80**		**60**	**75**
06:00 AM TO 07:00 AM																	
07:00 AM TO 08:00 AM																	
08:00 AM TO 09:00 AM	490	260			Y			Y		Y	Y	**Y**		Y			
09:00 AM TO 10:00 AM																	
10:00 AM TO 11:00 AM																	
11:00 AM TO 12:00 PM																	
12:00 PM TO 01:00 PM																	
01:00 PM TO 02:00 PM																	
02:00 PM TO 03:00 PM																	
03:00 PM TO 04:00 PM																	
04:00 PM TO 05:00 PM																	
05:00 PM TO 06:00 PM	621	176		Y				Y		Y	Y	**Y**		Y			
06:00 PM TO 07:00 PM																	
07:00 PM TO 08:00 PM																	
08:00 PM TO 09:00 PM																	
09:00 PM TO 10:00 PM																	
	1,111	436		1	1	**0**	0	2	**0**	2	2	**2**	0	2	**0**	**0**	**0**
				8 HOURS NEEDED			8 HOURS NEEDED			8 HOURS NEEDED for both Condition A & B						4 HRS NEEDED	1 HR NEEDED
				NOT SATISFIED			**NOT SATISFIED**			**NOT SATISFIED**						**NOT SATISFIED**	**NOT SATISFIED**

08/23/21
Kimley-Horn and Associates

F – Alameda CTC Land Use Analysis

Dublin East Ranch TIA
Alameda CTC Land Use Analysis

Location	Limits	# of Lanes	Capacity (vphpl)	No Project - Existing (2020) PM Volume (vph)	No Project - Existing (2020) PM LOS	No Project - Existing (2020) PM V/C	With Project - Existing (2020) PM Project Generated Trips	With Project - Existing (2020) PM Volume (vph)	With Project - Existing (2020) PM LOS	With Project - Existing (2020) PM V/C	With Project - Existing (2020) PM Δ V/C
Freeway Segment											
EB I-580	I-680 to Dougherty Road	6	2000	9723	D	0.810	117	9840	D	0.820	0.010
	Dougherty Road to Hacienda Drive	6	2000	10346	D	0.862	117	10463	D	0.872	0.010
	Hacienda Drive to Tassajara Road	5	2000	8056	D	0.806	77	8133	D	0.813	0.008
	Tassajara Road to Fallon Road	4	2000	8483	**F**	**1.060**	77	8560	**F**	**1.070**	**0.010**
	Fallon Road to Airway Boulevard	4	2000	8698	**F**	**1.087**	29	8727	**F**	**1.091**	**0.004**
WB I-580	Airway Boulevard to Fallon Road	5	2000	5367	B	0.537	49	5416	B	0.542	0.005
	Fallon Road to Tassajara Road	5	2000	5588	B	0.559	46	5634	B	0.563	0.005
	Tassjara Road to Hacienda Drive	5	2000	5426	B	0.543	46	5472	B	0.547	0.005
	Hacienda Drive to Dougherty Road	5	2000	5375	B	0.538	69	5444	B	0.544	0.007
	Dougherty Road to I-680	5	2000	5619	B	0.562	69	5688	B	0.569	0.007
Roadway Segment											
EB Dublin Boulevard	Dougherty Road to Scarlett Drive	3	800	881	A	0.367	22	903	A	0.376	0.009
	Scarlett Drive to Demarcus Boulevard	3	800	915	A	0.381	22	937	A	0.390	0.009
	Demarcus Boulevard to Iron Horse Parkway	3	800	1269	A	0.529	22	1291	A	0.538	0.009
	Iron Horse Parkway to Arnold Road	3	800	2229	E	0.929	22	2251	E	0.938	0.009
	Arnold Road to Hacienda Drive	3	800	2335	E	0.973	22	2357	E	0.982	0.009
	Hacienda Drive to Hibernia Drive	3	800	3138	**F**	**1.308**	35	3173	**F**	**1.322**	**0.015**
	Hibernia Drive to Myrtle Drive	3	800	3166	**F**	**1.319**	36	3202	**F**	**1.334**	**0.015**
	Myrtle Drive to John Monego Court	3	800	3133	**F**	**1.305**	36	3169	**F**	**1.320**	**0.015**
	John Monego Court to Glynnis Rose Drive	3	800	3139	**F**	**1.308**	36	3175	**F**	**1.323**	**0.015**
	Glynnis Rose Drive to Tassajara Road	3	800	3071	**F**	**1.280**	36	3107	**F**	**1.295**	**0.015**
WB Dublin Boulevard	Tassajara Road to Glynnis Rose Drive	3	800	219	A	0.091	21	240	A	0.100	0.009
	Glynnis Rose Drive to John Monego Court	3	800	196	A	0.082	21	217	A	0.090	0.009
	John Monego Court to Myrtle Drive	3	800	195	A	0.081	21	216	A	0.090	0.009
	Myrtle Drive to Hibernia Drive	3	800	192	A	0.080	21	213	A	0.089	0.009
	Hibernia Drive to Hacienda Drive	3	800	178	A	0.074	19	197	A	0.082	0.008
	Hacienda Drive to Arnold Road	3	800	261	A	0.109	13	274	A	0.114	0.005
	Arnold Road to Iron Horse Parkway	3	800	336	A	0.140	13	349	A	0.145	0.005
	Iron Horse Parkway to Demarcus Boulevard	3	800	909	A	0.379	13	922	A	0.384	0.005
	Demarcus Boulevard to Scarlett Drive	3	800	1418	A	0.591	13	1431	A	0.596	0.005
	Scarlett Drive to Dougherty Road	3	800	1400	A	0.583	13	1413	A	0.589	0.005

Dublin East Ranch TIA
Alameda CTC Land Use Analysis

Location	Limits	# of Lanes	Capacity (vphpl)	Cumulative (2040) PM		
				Volume (vph)	LOS	V/C
Freeway Segment						
EB I-580	I-680 to Dougherty Road	6	2000	10856	E	0.905
	Dougherty Road to Hacienda Drive	6	2000	11609	E	0.967
	Hacienda Drive to Tassajara Road	5	2000	10647	**F**	**1.065**
	Tassajara Road to Fallon Road	5	2000	10923	**F**	**1.092**
	Fallon Road to Airway Boulevard	5	2000	11454	**F**	**1.145**
WB I-580	Airway Boulevard to Fallon Road	5	2000	7316	C	0.732
	Fallon Road to Tassajara Road	5	2000	7044	C	0.704
	Tassjara Road to Hacienda Drive	5	2000	6767	C	0.677
	Hacienda Drive to Dougherty Road	5	2000	6250	C	0.625
	Dougherty Road to I-680	5	2000	6393	C	0.639
Roadway Segment						
EB Dublin Boulevard	Dougherty Road to Scarlett Drive	3	800	1261	A	0.525
	Scarlett Drive to Demarcus Boulevard	3	800	1325	A	0.552
	Demarcus Boulevard to Iron Horse Parkway	3	800	1560	B	0.650
	Iron Horse Parkway to Arnold Road	3	800	3337	**F**	**1.390**
	Arnold Road to Hacienda Drive	3	800	3186	**F**	**1.328**
	Hacienda Drive to Hibernia Drive	3	800	3277	**F**	**1.365**
	Hibernia Drive to Myrtle Drive	3	800	3290	**F**	**1.371**
	Myrtle Drive to John Monego Court	3	800	3275	**F**	**1.365**
	John Monego Court to Glynnis Rose Drive	3	800	3289	**F**	**1.370**
	Glynnis Rose Drive to Tassajara Road	3	800	3283	**F**	**1.368**
WB Dublin Boulevard	Tassajara Road to Glynnis Rose Drive	3	800	509	A	0.212
	Glynnis Rose Drive to John Monego Court	3	800	443	A	0.185
	John Monego Court to Myrtle Drive	3	800	446	A	0.186
	Myrtle Drive to Hibernia Drive	3	800	452	A	0.188
	Hibernia Drive to Hacienda Drive	3	800	447	A	0.186
	Hacienda Drive to Arnold Road	3	800	1160	A	0.483
	Arnold Road to Iron Horse Parkway	3	800	1395	A	0.581
	Iron Horse Parkway to Demarcus Boulevard	3	800	1894	C	0.789
	Demarcus Boulevard to Scarlett Drive	3	800	3245	**F**	**1.352**
	Scarlett Drive to Dougherty Road	3	800	3079	**F**	**1.283**

G – Queuing Summary

Dublin East Ranch TIA Queuing Summary

Scenarios Analyzed	Turning Movement	Fallon Road									El Charro Road						Central Parkway									Dublin Boulevard								
		Central Parkway #1			Dublin Boulevard/Croak Road #2			I-580 WB On/Off Ramp #3			I-580 EB On/Off-Ramp #4			Stoneridge Drive/West Jack London Boulevard #5			Sunset View Drive #6			Pino Grande Road/Panorama Drive #7			Croak Road #10			Croak Road #11			Tassajara Road #12			Hacienda Drive #13		
		Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM	Link	AM	PM
Existing Traffic	EBL	270	42	57							275	31	80	400	99	187	195	69	73	245	40	<25							220	83	**254**	250	67	111
	EBR	220	<25	<25	315	<25	35				420	<25	31	300	<25	<25	785	<25	<25										220	86	**285**	225	<25	31
	WBL	220	203	88				135	58	83				350	26	<25	145	35	<25	80	<25	<25							350	236	165	250	241	125
	WBR	250	33	<25				115	29	135																								
	NBL	235	58	72	350	125	70							110	<25	<25													315	151	271	240	64	98
	NBR	235	43	55										110	<25	<25													170	92	**433**	380	31	40
	SBL	235	198	54	125	<25	<25							590	94	205	85	37	<25										250	33	74	270	<25	55
	SBR	215	46	32	185	59	<25	190	37	37				425	230	46				100	33	<25							250	51	36	200	52	35
Existing + Project Traffic	EBL	270	42	59							275	37	99	400	101	191	195	85	76	245	45	<25	185	<25	33				220	86	**260**	250	69	115
	EBR	220	<25	<25	315	27	69				420	<25	33	300	<25	<25	785	<25	<25										220	86	**286**	225	<25	36
	WBL	220	**350**	135				135	67	83				350	26	<25	145	76	<25	80	<25	<25	155	<25	<25				350	237	168	250	248	131
	WBR	250	33	<25				115	43	**168**																								
	NBL	235	58	74	350	151	85							110	<25	<25							215	<25	<25				315	151	271	240	64	98
	NBR	235	49	72										110	<25	<25													170	93	**458**	380	31	42
	SBL	235	200	63	125	<25	<25							590	99	208	85	35	<25				175	<25	<25				250	34	76	270	<25	57
	SBR	215	46	33	185	101	32	190	38	38				425	241	47				100	43	<25							250	53	37	200	54	40
Cumulative Traffic	EBL	270	60	107	290	179	**357**				275	174	120	400	399	**495**	195	71	76	245	50	<25	185	<25	43				220	122	**318**	250	99	151
	EBR	220	27	39	315	129	**509**				420	407	93	300	<25	45	785	<25	<25							50	29	42	220	142	**439**	225	<25	82
	WBL	220	**310**	188	360	112	359	135	101	91				350	205	**767**	145	84	<25	80	<25	<25	155	<25	<25	100	64	63	350	344	**498**	250	262	**628**
	WBR	250	42	54	###	576	###	115	**151**	**190**																50	<25	27						
	NBL	235	176	224	350	161	252							110	**240**	**484**							215	<25	<25				315	**428**	**542**	240	64	**297**
	NBR	235	53	225	350	43	46							110	66	89													170	**614**	**1838**	380	35	119
	SBL	235	**497**	248	450	203	440							590	354	409	85	37	<25				175	<25	<25				250	40	76	270	<25	71
	SBR	215	132	62	185	176	80	190	44	44				425	**902**	**555**				100	53	<25							250	67	43	200	58	35

Note: Locations where the queue length exceeds the link storage by 25 feet or more are shown in shaded cells. Operational Deficiencies are in red.
95th queues for unsignlized intersections were derived from HCM 2010 outputs while queues for signalized intersections were dervied from HCM 2000 outputs.

Amy Million

From: JoAn Arcenas Dela Cruz <jarcenas78@gmail.com>
Sent: Friday, November 12, 2021 1:39 PM
To: City Council; Amy Million; Kristie Wheeler; Planning Commission
Subject: East Ranch Development Concerns from the Public

To Whom it may Concern

As part of the City of Dublin residence for nearly 20 years, I am writing to express my opposition to the East Ranch Development at Croak Road.

Our opposition:

- Loss of Neighborhood and Community character, many moved to Dublin for the scenery, slow pace suburban life not the City life with traffic congestion.

- Potential decrease in the market value of homes as more and more people are trying to leave the area because of the overpopulation.

- Our stores cannot meet the supply and demand of the residence such as Target or Grocery stores.

- Not enough schools. This has been a HUGE issue for many years, as of right now we still only have 1 high school and another 1 on the way but only has a capacity limit.

- Significant increase in traffic congestion adding to an already dangerous situation on one-way roads on Central and Positano Street

- The destruction of the green space and heritage Dublin trees as well as driving wild life out of the area and endangering them.

Our question to you is who we will manage the traffic on 580 and on Dublin BLVD/ Central BLVD. During school drop offs at Cottonwood and Positano it takes a long time to get to the main road as it is only one way and it is unsafe for our children crossing such busy roads. What if there is a fire, how can trucks access homes with the traffic all the way at East Ranch? Where will these children go to school?

City of Dublin has been building homes year over year and I think enough is enough. We are destroying this once called beautiful suburban life to a busy hectic and crowded city.

Lastly, I would urge the city council and the planning committee members to look really hard before making such decisions and give the citizen answers to their concerns and work with DUSD for school planning. Dublin Citizens would love to see the City Council supporting us instead of destroying the community.

Appreciate your time and looking forward in hearing from you with our concerns.

Thank you!

JoAn

Amy Million

From: nanda kishore Rapeti <rapnand@gmail.com>
Sent: Wednesday, November 10, 2021 10:57 PM
To: City Council; Melissa Hernandez; Amy Million; semoran@cityoflivermore.net; info@5riversaviation.com; arhescher@cityoflivermore.net; cherrierdan@dublinusd.org; rousemegan@dublinusd.org; blackmangabi@dublinusd.org; pelhamkristin@dublinusd.org; kuowilliam@dublinusd.org; funkchris@dublinusd.org
Subject: East Ranch Development - impacts to Dublin Communities /School

Greetings Planning Commission & City Council,

I am Nanda Rapeti resident of Quartz Jordan Ranch Community, Eastern Dublin(Fallon/Central Expy). Have joined yesterday (11/09) Planning Commission meeting to raise concerns as the community we have been encountering, waited for 2 hrs and couldn't get a chance to raise public comment through an online session and hence want to send a note to bring notice on the existing issues as a community has been encountering and it would be great to look into ways for mitigation of existing issues and which is impacting existing communities and will impact new communities that are proposed.

As mentioned in the report, an extensive study has been conducted to propose a new community with 573 homes and couldn't see a single item on school overcrowding and Livermore airport noise

Have outlined high-level issues that we as a community have been encountering;

1. *Environment*
   a. *Is the noise pollution impacts/survey conducted due to Livermore Airport Noise?*
   b. *Single Engine Planes fly over Neighborhood with Loud Noise and flying low, multiple rounds with Violating Night curfew & future Kaiser Airport expansion.*
   c. *Raised multiple times to City including Tri-Valley Cities/ Livermore airport commission and am raising concerns for current/future residents concerning sound pollution, as considering Dublin "THE NEW AMERICAN BACKYARD" Slogan, which the city needs to address and need a deeper study to mitigate the issues.*
   d. *Beautifully walk trail along Croak Road which way to connect to nature is going to lost and couldn't see any greenery trees planted by existing Builders as promised (have different options on ways to conserve water and build green communities)*
   e. *Flight Path just over the neighborhood of Quartz and other Jordan Ranch Communities & over CCS School(also concerns of kids safety on the Unleaded fuel exposure).*
2. *Overcrowding School*
   a. *Overcrowding of the Eastern schools Amador and in particular Cottonwood Creek(K-8)*
   b. *Overcrowding CCS campus needs to be addressed in future based on 5-6 pending approval of the housing projects from EAST side which adds 1100-1200 family's (Grand View Development Righetti and Branaugh Developments: 156-192 housing units & Tassajara Housing AT Dublin: 566) with East Rach 573 homes and needs Cap of School population due to various pending development projects approval as the CCS campus is Small Site: just 10 areas when compared with a larger footprint of other middle schools.*
   c. *Impacts on frequent Boundary changes considering overcrowding in future*
   d. *CCS as New schools and already discussion on considering adding No Portable Buildings*

Appreciate considering all aspects to have the best class of facilities and secure/happy/greenery environment by having detailed studies like airport noise impacts/school funding and existing communities that are impacted.

Thank you very much in advance,

Included receipts;
To: City Council, Planning commission, Dublin School District, Livermore Airport Commission, Five Rivers Aviation
CC: Quartz Jordan Ranch Residents

-Nanda

On Sat, Aug 28, 2021 at 1:22 PM nanda kishore Rapeti <rapnand@gmail.com> wrote:

Re: Livermore Airport Noise

Greetings Mayor and Council Members,

I am a resident of Jordan Ranch Neighborhood ([redacted]) writing to bring Notice on Livermore Airport Noise from Small Planes, used to hear occasionally in the past but of late feel small plane traffic from Livermore airport has increased tremendously. They fly low, are loud and through the day and multiple times through the same flight path over residential areas/schools.

Really appreciate it if this can be discussed as part of the board meeting and impacts the community.

Raise multiple tickets with Livermore Airport/FAA and have below concerns;

1. Noise
- To Avoid Flight Path of Single Engine Planes over neighborhoods.
- Avoid flying over Residence Areas/School (for example on most occasions flight path just over Cottonwood Creek School and adjourn Neighborhood)

2. Flights avoiding night curfew imposed voluntary and hear Noise during late nights(12 AM) and early Hrs.(2 AM)
3. Kaiser Airport expansion
- Boeing 737's stationed at the airport with more to come and could hope traffic to commercial airlines.

4. Unleaded fuel exposure and impacts to Kids as the flight path just over Cottonwood Creek School, based on various study few airports are closed (San Jose), if there is Unleaded exposure due to fuel used by Single Engine Plane, this is scary and need more findings to confirm if fuel used from Livermore Airport is Unleaded and if any Unleaded fuel exposure.
- https://www.ktvu.com/news/reid-hillview-airport-switching-to-unleaded-fuel-after-years-of-complaints

High level resolutions and need more discussion and look at various other options;
- Install Noise monitoring at various sites/locations residential areas and Cottonwood Creek School
- Flight /Fleet adhere to noise FAA concerns
- Flight avoid over Residential Areas /School

- Airport Expansion need more communication and inputs/feedback from community and have more accountable from Livermore Airport
- Collaborate across Tri-Valley Cities/Council (Pleasanton City Council & Community had raised concerns and discussed per 0817 City Council Board Meeting)

Please evaluate the Airport Noise and impacts to Dublin Communities/School and we ask that this matter be given immediate attention, your responsiveness to the city’s concerns thus far in your term of office make us certain you will give equal weight to our request.

Thank you all for your time.

-Nanda Rapeti

ORDINANCE NO. 32 - 05

AN ORDINANCE OF THE CITY COUNCIL
OF THE CITY OF DUBLIN

* *

AMENDING THE ZONING MAP TO REZONE THE 1,134 ACRE FALLON VILLAGE PROJECT SITE TO THE PD-PLANNED DEVELOPMENT DISTRICT AND ADOPTING A RELATED STAGE 1 DEVELOPMENT PLAN
PA 04-040

The Dublin City Council does ordain as follows:

SECTION 1. Findings

A. Pursuant to Section 8.32.070 of the Dublin Municipal Code, the City Council finds as follows.

1. The Fallon Village PD-Planned Development zoning, including a Stage 1 Development Plan, meets the purpose and intent of Chapter 8.32 in that it provides a comprehensive and coordinated development plan for a large area with multiple ownerships. It creates a desirable use of land that is sensitive to surrounding land uses by making efficient use of development areas so as to allow sensitive ridgelines and biological areas to be undeveloped. Comprehensive design guidelines applicable throughout the planning area, as well as a mix of complementary uses, establish the project as an efficient and attractive eastern gateway to the City.

2. Development of Fallon Village under the PD-Planned Development zoning, including a Stage 1 Development Plan, will be harmonious and compatible with existing and future development in the surrounding area in that non-residential uses on the site are located to take advantage of close proximity to the I-580 freeway. The land uses and site plan in the related Stage 1 Development Plan provide effective transitions from non-residential use to residential uses, and from higher density residential uses to lower density and open space uses as the site moves from flatter areas along the I-580 freeway to steeper areas in the northern and eastern portions of the site. Residential uses on the westerly portion of the project site are similar in use and density to the adjacent Dublin Ranch development. Open space uses in the northerly and easterly areas of the project site blend with the adjacent undeveloped areas in the County, including Doolan Canyon. The Fallon Village Center provides an efficient mixed use area with residential uses, neighborhood commercial uses and a high level of pedestrian, trail and bicycle access.

B. Pursuant to Sections 8.120.050.A and B of the Dublin Municipal Code, the City Council finds as follows.

1. Development of Fallon Village under the PD-Planned Development zoning, including a Stage 1 Development Plan, will be harmonious and compatible with existing and future development in the surrounding area in that non-residential uses on the site are located to take advantage of close proximity to the I-580 freeway. The land uses and site plan in the related Stage 1 Development Plan provide effective transitions from non-residential use to residential uses, and from higher density residential uses to lower density and open space uses as the site moves from flatter areas along the I-580 freeway to steeper areas in the northern and eastern portions of the site. Residential uses on the westerly portion of the project site are similar in use and density to the adjacent Dublin Ranch development. Open space uses in the northerly and easterly areas of the project site blend with the adjacent undeveloped areas in the County,

including Doolan Canyon. The Fallon Village Center provides an efficient mixed use area with residential uses, neighborhood commercial uses and a high level of pedestrian, trail and bicycle access.

2. The Fallon Village site is flatter towards the south, contains rolling hills generally north of the flatter areas and ascends to steeper slopes towards the north and east. Development is concentrated in the less constrained areas, with low density development, rural residential/agriculture and open space uses in the more constrained areas. A large open space corridor through the center of the property protects sensitive biological resources by limiting urban uses. Existing infrastructure (including roads, sewer, storm drain, potable and recycled water, natural gas, and electricity) is located immediately adjacent to the site. Through the flexibility of the proposed PD-Planned Development district that allows development to be tailored to onsite conditions, as well as development standards and design guidelines in the related Stage 1 Development Plan, the project is physically suitable for the type and intensity of the proposed zoning district.

3. The proposed PD-Planned Development zoning will not adversely affect the health or safety of persons residing or working in the vicinity, or be detrimental to the public health, safety and welfare in that the project will comply with all applicable development regulations and standards and will implement all adopted mitigation measures.

4. The PD-Planned Development zoning is consistent with the Dublin General Plan and Eastern Dublin Specific Plan in that the project includes companion amendments to both plans, which amendments were approved by the City Council in Resolution 223-05 on December 6, 2005, and are reflected in the PD-Planned Development district and related Stage 1 Development Plan.

C. Pursuant to the California Environmental Quality Act, the City Council certified a Supplemental EIR for the project in Resolution 222-05 on December 6, 2005, and also adopted mitigation and alternatives findings, a Statement of Overriding Considerations and a mitigation monitoring plan, as required to support approval of the project, including approval of the PD-Planned Development zoning.

D. Pursuant to the Government Code Section 65857, the City Council finds as follows.

1. The City Council modified the Planned Development Ordinance for the Project to include a requirement for public art. Because the Planning Commission had not previously considered this matter, the City Council referred it to the Planning Commission for report and recommendation.

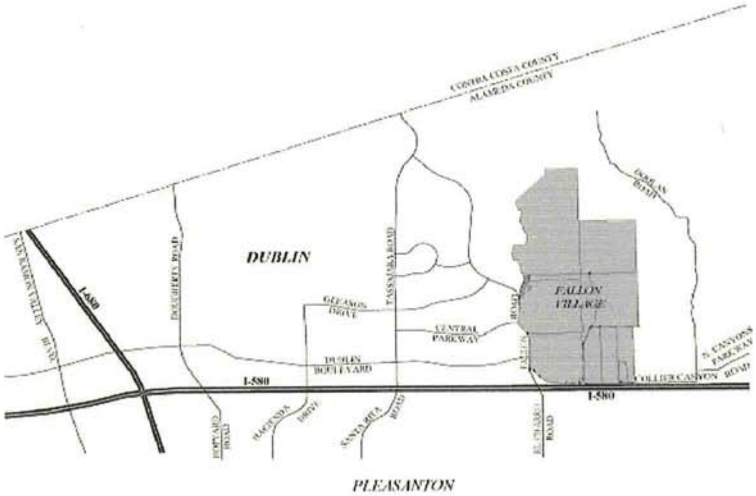
2. On referral from the City Council, the Planning Commission reviewed the requirement for public art at the regular meeting of December 13, 2005, and recommended approval of this modification to the City Council.

<u>SECTION 2</u>.

Pursuant to Chapter 8.32, Title 8 of the City of Dublin Municipal Code, the City of Dublin Zoning Map is amended to rezone the property described below to a Planned Development (PD) Zoning District.

> Approximately 1,134 acres located in an area bounded by I-580 to the south, Fallon Road and the Dublin Ranch development to the west, the easterly Dublin city limit line to the east, and the northerly Dublin city limit line to the north (APNs: various)

A location map of the rezoning area is shown below:



SECTION 3. The regulations of the use, development, improvement, and maintenance of the Fallon Village project area are set forth in the following Stage 1 Development Plan which is hereby approved. Any amendments to the Stage 1 Development Plan shall be in accordance with Section 8.32.080 of the Dublin Municipal Code or its successors.

Stage 1 Development Plan

1. Statement of Proposed Uses

PERMITTED, CONDITIONAL, AND TEMPORARY LAND USES

PD-Mixed Use

Intent. Neighborhood Commercial provides for the creation of community and neighborhood oriented commercial, service, restaurant, and multi-family residential uses that serve the needs of the neighborhood.

Permitted Uses – Retail Commercial (Shall be permitted on the first two floors of buildings, except that they may not be allowed in any of the residential units).

Shopping center
Grocery food store
General merchandise store
Discount/Warehouse retail store
Clothing/Fashion store
Shoe store
Home furnishing store
Office supply store
Home appliance/electronic store
Home improvement store
Music store
Hobby/Special interest store

Gifts/Specialty store
Jewelry and Cosmetic store
Drug store
Auto parts store
Toy store
Book store (except adult bookstore)
Pet supplies store
Sporting goods store
Other similar commercial, retail and office uses

Permitted Uses – Office and Service establishments (Shall be permitted on the first two floors of buildings, except that they may not be allowed in any of the residential units).

Accounting
Architect
Bank/Savings and Loan
Catering Establishments
Cleaner and dryer
Employment agency
Formal Wear/Rental
Hair/Beauty salon
Key shop
Legal
Optometrist
Real Estate/Title office
Repair shop (non-automotive)
Studios/Photographers/Artists
Tailor
Travel agent
Technology Access Center
Tele-community center
Other Administrative and Professional offices

Permitted Uses – Eating, Drinking and Entertainment establishments (Shall be permitted on the first two floors of buildings, except that they may not be allowed in any of the residential units).

Restaurant (full service, sit-down)
Restaurant (convenience – does not include drive-through): delicatessen, bakery, ice cream shop, sandwich shop
Outdoor seating (with approval of an SDR Waiver)
Wine or Liquor Bar with On-sale liquor license

Permitted Uses – Residential

Multi-family residential and associated uses including the following:
Animal keeping - residential
Home occupations
Multi-family dwelling (apartment, condominium, townhouse, flat, etc.)
Parking Lot- Residential
Private recreation facility/clubhouse (for homeowners and/or tenants)
Rental/sales management office
Underground/multi-story parking structure

Conditionally Permitted Uses (Shall be permitted on the first two floors of buildings, except that they may not be allowed in any of the residential units).

- Athletic Club
- Community, religious and charitable institutional facilities
- Daycare Center
- Hotel/Motel/Bed & Breakfast
- Indoor movie theater
- Medical/Dental
- Massage establishment
- Micro-brewery
- Nightclub
- Outdoor Mobile Vendor
- Public facilities and uses
- Recycling center
- Semi-public facilities and uses
- Vending Machines
- Veterinary office
- Other similar and related uses as determined by the Community Development Director

Temporary Uses

Please refer to Zoning Ordinance Chapter 8.108 for a list of permitted temporary uses and permit procedures.

PD-General Commercial

Intent. General Commercial accommodates the creation a range of regional and community oriented centers serving retail, service, and office uses.

Permitted Uses – General Commercial

Community serving retail and office uses including but not limited to:

- Auto parts
- Auto/vehicle Brokerage
- Book Store
- Clothing/apparel/accessories
- Drug store
- Electronics/computers
- General merchandise store
- Grocery/food store
- Hardware/home improvement store
- Hobby shop
- Home furnishings and appliances
- Office- Professional and Administrative
- Pet and Pet supplies
- Shoe store
- Sporting goods
- Stationary and office supplies
- Toy store

Other general and neighborhood retail and similar and related uses as determined by the Community Development Director

Regionally oriented, high volume, retail uses including but not limited to:

- Discount centers
- Factory stores
- Furniture outlets
- Home improvement centers
- Promotional centers
- Other similar and related uses as determined by the Community Development Director

Service uses including but not limited to:

- Auto/vehicle Rental
- Bank, savings and loan and other financial institutions
- Barber/beauty shop/nail salon
- Copying and printing
- Dry cleaner (no plant on premises)
- Formal wear – rental
- Laboratory
- Laundromat
- Locksmith
- Photographic studio
- Real estate/title office
- Shoe repair
- Tailor
- Travel agency
- Watch and clock repair
- Other similar and related uses as determined by the Community Development Director

Eating, drinking and entertainment establishments including but not limited to:

- Bagel shop
- Café/coffee house
- Delicatessen
- Ice cream/yogurt
- Restaurant – no drive through
- Theater – indoor (Dinner, Movie, Live Play, etc.)
- Other similar and related uses as determined by the Community Development Director

Conditionally Permitted Uses – General Commercial (The review of conditionally permitted places of assembly shall include an evaluation of the implications of being located within the Airport Protection Area)

- Animal hospital (no kennel)
- Auto/vehicle Repair/Service (all work, storage, and parts to be indoors)
- Auto/vehicle Sales/Storage Lot
- Bar/cocktail lounge
- Day care center
- Drive-through/drive-in facility
- Hotel and motel
- Micro-brewery
- Nightclub
- Recreational facility – indoor
- Service station

Other similar and related uses as determined by the Community Development Director

Temporary Uses

Please refer to Zoning Ordinance Chapter 8.108 for a list of permitted temporary uses and permit procedures.

PD-General Commercial/Campus Office

Intent. The PD-General Commercial/Campus Office zoning accommodates a range of community and regional serving retail, service, and office uses, including a compatible mixture of these uses. This designation has been created for areas in proximity to major transportation corridors in or adjacent to Fallon Village.

Permitted Uses – General Commercial

Community serving retail uses including but not limited to:

- Auto parts
- Auto/vehicle Brokerage
- Book Store
- Clothing/apparel/accessories
- Drug store
- Electronics/computers
- General merchandise store
- Grocery/food store
- Hardware/home improvement store
- Hobby shop
- Home furnishings and appliances
- Pet and Pet supplies
- Shoe store
- Sporting goods
- Stationary and office supplies
- Toy store
- Other similar and related uses as determined by the Community Development Director

Regionally oriented, high volume, retail uses including but not limited to:

- Discount centers
- Factory stores
- Furniture outlets
- Home improvement centers
- Promotional centers
- Other similar and related uses as determined by the Community Development Director

Service uses including but not limited to:

- Auto/vehicle Rental
- Bank, savings and loan and other financial institutions
- Barber/beauty shop/nail salon
- Copying and printing
- Dry cleaner (no plant on premises)
- Formal wear – rental
- Health services/clinics
- Laboratory
- Laundromat

Locksmith
Photographic studio
Real estate/title office
Shoe repair
Tailor
Travel agency
Watch and clock repair
Other similar and related uses as determined by the Community Development Director

Eating, drinking and entertainment establishments including but not limited to:
Bagel shop
Café/coffee house
Delicatessen
Ice cream/yogurt
Restaurant – no drive through
Theater – indoor (Dinner, Movie, Live Play, etc.)
Other similar and related uses as determined by the Community Development Director

Permitted Uses – Campus Office

Accounting
Administrative headquarters
Ancillary uses which provide support service to businesses and employees including but not limited to: restaurants, convenience shopping/ copying services, blueprinting, printing and branch banks.
Architect
Athletic Club
Business and commercial services
Business, professional and administrative offices
Cleaner and dryer
Employment Agency
Formal wear - rental
Financial Institutions/Banks
Hair/Beauty salon
Key shop
Laboratory
Legal
Medical and Dental
Optometrist
Real estate/title offices
Research and development
Shoe repair
Tailor
Technology access center
Tele-commuting center
Tele-marketing center
Travel agency
Other similar and related uses as determined by the Community Development Director

Conditionally Permitted Uses – General Commercial (The review of conditionally permitted places of assembly shall include an evaluation of the implications of being located within the Airport Protection Area)

Animal hospital (no kennel)
Auto/vehicle Repair/Service (all work, storage, and parts to be indoors)
Auto/vehicle Sales/Storage Lot
Bar/cocktail lounge
Day care center
Drive-through/drive-in facility
Hospital/Medical
Hotel and motel
Micro-brewery
Nightclub
Parking lot/Garage- Commercial
Recreational facility – indoor
Recreational facility – outdoor
Service station
Other similar and related uses as determined by the Community Development Director

Conditionally Permitted Uses – Campus Office (The review of conditionally permitted places of assembly shall include an evaluation of the implications of being located within the Airport Protection Area)

Day care center
Health services/clinics
Hotel/motel
Hospital/medical center
Recreational facility – indoor
Service Station
Other similar and related uses as determined by the Community Development Director

Temporary Uses – General Commercial and Campus Office

Please refer to Zoning Ordinance Chapter 8.108 for a list of permitted temporary uses and permit procedures.

PD- Industrial Park

Intent. The PD-Industrial Park zoning accommodates a range of community and regional serving light industrial uses including manufacturing, processing, assembly, high technology, and research and development, or similar uses. This designation has been created for areas in proximity to major transportation corridors in or adjacent to Fallon Village.

Permitted Uses - Service, Warehouse and Light Manufacturing

Ambulance service
Automobile/vehicle rental
Beverage bottling
Broadcasting station or studio, excluding sending or receiving tower
Building Material sales and storage (No outside sales or storage of materials or equipment)
Bulk cleaning and laundry
Ceramics Manufacturing

Contractor, general or subcontractor
Equipment storage (No outside storage)
Home appliance repair
Light manufacturing and processing that produce no noxious odors, hazardous materials or excessive noise, such as:
- Blueprinting, printing, lithography
- Cosmetics compounding
- Electronic assembly
- Electronic Component manufacturing
- Fabric assembly
- Glass assembly
- Garment manufacturing
- Instrument manufacturing
- Jewelry manufacturing
- Machine shop
- Motion picture production
- Musical instruments, games or toy manufacturing
- Office - Contractor
- Ornamental metal working
- Pharmaceuticals compounding
- Plastics assembly
- Rubber assembling
- Sheet metal assembly or fabrication
- Sign manufacturing solar equipment assembly or manufacturing
- Wood assembly (limited to finished products)

Office as ancillary use
Research and Development laboratories and offices
Wholesale or warehouse operations
Warehousing and distribution
Other similar and related uses as determined by the Community Development Director

Conditionally Permitted Uses (The review of conditionally permitted places of assembly shall include an evaluation of the implications of being located within the Airport Protection Area)

Automobile/vehicle repairs and service (all work, storage, and parts to be indoors)
Automobile/vehicle sales
Automobile/vehicle storage lot
Animal sales and service
Building Material Sales with outdoor storage
Carwash
Dance floor
Eating and drinking establishments
Gas Stations
Impound yard
Mini-Storage
Outdoor mobile vendor
Plant Nursery, including outdoor yard
Public facilities and uses
Recreation- Indoor
Recreation- Outdoor

Recycling facility-commercial
Small scale transfer and storage facility
Storage of petroleum products for on-site use
Temporary outdoor sale not related to on-site established business
Vehicle storage yard- commercial
Veterinary office
Other similar and related uses as determined by the Community Development Director

Temporary Uses

Please refer to Zoning Ordinance Chapter 8.108 for a list of permitted temporary uses and permit procedures.

PD-Single Family Residential

Intent. Single Family land use designations are established to: a) reserve appropriately located areas for family living at reasonable population densities consistent with sound standards of public health and safety; b) ensure adequate light, air privacy and open space for each dwelling; and c) accommodate single family housing, including a wide range of units from small-lot and zero-lot units to large lot estate units.

Permitted Uses

Accessory structures and uses in accordance with Section 8.40.030 of the Dublin Zoning Ordinance
Animal keeping – residential
Community care facility/small (permitted if required by law, otherwise as conditional use)
Garage/yard sale
Home occupation in accordance with Chapter 8.64 of the Dublin Zoning Ordinance
Private recreation facility (for homeowners' association and/or tenant use only)
Secondary Unit
Single family dwelling
Small family day care home
Similar and related uses as determined by the Community Development Director

Conditionally Permitted Uses

Ambulance service
Bed and breakfast inn
Boarding house
Community clubhouse
Community facility
Day care center
Large family day care home
Mobile home/manufactured home park
Parking lot - residential
Plant nursery
Semi-public facilities
Similar and related uses as determined by the Community Development Director

Temporary Uses

Please refer to Zoning Ordinance Chapter 8.108 for a list of permitted temporary uses and permit procedures.

PD-Medium Density Residential

Intent. Medium Density land use designations are established to: a) reserve appropriately located areas for family living in a variety of types of dwellings at a reasonable range of population densities consistent with sound standards of public health and safety; b) preserve as many as possible of the desirable characteristics of the one-family residential district while permitting higher population densities; c) ensure adequate light, air, privacy and open space for each dwelling unit; d) minimize traffic congestion and avoid the overloading of utilities by preventing the construction of buildings of excessive size in relation to the land around them; e) provide necessary space for off-street parking of automobiles and. Where appropriate, for off-street loading of trucks; and f) protect residential properties from the hazards, noise and congestion created by commercial and industrial traffic.

Permitted Uses

Accessory structures and uses in accordance with Section 8.40.030 of the Dublin Zoning Ordinance
Animal Keeping - Residential
Community care facility/small
Garage/Yard Sale
Home occupations (per Chapter 8.64 of the Dublin Zoning Ordinance)
Large Family Day Care (9-14 children)
Multi-family dwelling
Private recreation facility (for homeowners' association and/or tenants use only)
Single family dwelling
Small family day care home
Similar and related uses as determined by the Community Development Director

Conditionally Permitted Uses

Bed and breakfast inn
Boarding house
Community Care Facility/Large
Community Facility
Community Clubhouse
Day care center
Large family day care home
Parking lot - residential
Semi-Public facilities
Similar and related uses as determined by the Community Development Director

Temporary Uses

Please refer to Zoning Ordinance Chapter 8.108 for a list of permitted temporary uses and permit procedures.

PD-Medium High Density Residential

Intent. Medium High Density land use designations are established to: a) reserve appropriately located areas for family living in a variety of types of dwellings at a reasonable range of population densities consistent with sound standards of public health and safety; b) preserve as many as possible of the desirable characteristics of the one-family residential district while permitting higher population densities; c) ensure adequate light, air, privacy and open space for each dwelling unit; d) minimize traffic congestion and avoid the overloading of utilities by preventing the construction of buildings of excessive size in relation to the land around them; e) provide necessary space for off-street parking of automobiles and. Where appropriate, for off-street loading of trucks; and f) protect residential properties from the hazards, noise and congestion created by commercial and industrial traffic.

Permitted Uses

Accessory structures and uses in accordance with Section 8.40.030 of the Dublin Zoning Ordinance
Animal Keeping - Residential
Community care facility/small (permitted if required by law, otherwise as conditional use)
Home occupations (per Chapter 8.64 of the Dublin Zoning Ordinance)
Multi-family dwelling
Private recreation facility (for homeowners' association and/or tenants use only)
Single Family Residence
Small family day care home
Similar and related uses as determined by the Community Development Director

Conditionally Permitted Uses

Bed and breakfast inn
Boarding house
Community care facility
Community care facility/large
Community clubhouse
Day Care center
Large family day care home
Parking lot - residential
Semi-public facilities
Similar and related uses as determined by the Community Development Director

Temporary Uses

Please refer to Zoning Ordinance Chapter 8.108 for a list of permitted temporary uses and permit procedures.

PD-School

Intent. Identifies areas where compulsory public education facilities are anticipated.

Permitted Uses

Elementary School
Daycare Center

Underlying zone and uses if school use is not utilized:

PD Single Family Residential on Fallon Enterprises Property
PD Medium Density Residential on Jordan Trust/First American Property

PD-Park

Intent. Community and neighborhood open space and recreational area, both active and passive.

Permitted Uses

Community Park
Neighborhood Park
Neighborhood Square
Recreational and educational facility
Trail staging area
Similar and related uses as determined by the Community Development Director

PD-Semi-Public

Intent. Identifies areas where institutional or community facilities uses are anticipated. The exact location of parcels with a Semi-Public designation shall be determined at Stage 2. The Semi-Public parcels on the Chen and Jordan properties (net 2.5-acres and 2.0-acres respectively) shall be located within the Fallon Village Center.

Permitted Uses, including, but not limited to:

Community center/Clubhouse
Community theater
Cultural center
Day care center
Educational facilities
Private school
Recreational facilities - public
Religious institutions
Senior Center
Special needs program facilities
Trail staging area
Youth Center
Similar and related uses as determined by the Community Development Director

PD-Open Space

Intent. Open Space land use designations are established to ensure the protection of those areas of special significance.

Permitted Uses

Conservation areas
Drainage and Water Quality Ponds and Other Related Facilities
Incidental and Accessory Structures and Uses
Private or Public Infrastructure
Private reaction facility - passive and active

Resource Management
Storm Water Detention Ponds and Other Related Facilities
Trails and maintenance roads
Wildlife habitat preservation area
Similar and related uses as determined by the Community Development Director

PD-Rural Residential/Agriculture

Intent. Rural Residential/Agriculture designations are established to accommodate agricultural activities and other open spaces uses.

Permitted Uses

Agricultural Accessory Use- Office
Animal Keeping- Residential
Drainage and Water Quality Ponds and Other Related Facilities
Mobile Home
Private or Public Infrastructure
Single Family Residence
Small Family Day Care
Storm Water Detention Ponds and Other Related Facilities
Similar and related uses as determined by the Community Development Director

Conditionally Permitted Uses

Agricultural Housing
Agricultural Processing
Animal Keeping- Agricultural
Animal Keeping- Commercial
Animal Sales and Services
Bird Keeping- Commercial
Caretaker Residence
Crop Production
Farm Mobile Home
Horse Keeping
Horse Stable/Riding Academy
Plant Nursery
Recreational Facility- Outdoor
Similar and related uses as determined by the Community Development Director

Temporary Uses

Please refer to Zoning Ordinance Chapter 8.108 for a list of permitted temporary uses and permit procedures.

ACCESSORY USES. See Zoning Ordinance Chapter 8.40 for permitted accessory uses and structures and related permit procedures for all land use categories above, except as otherwise provided in this Stage 1 Development Plan.

2. Development Regulations

Purpose. The purpose of this section is to establish standards and regulations for development projects in Fallon Village.

A. PD-General Commercial/Campus Office, and PD-Industrial Park

1. Development Standards

Intent. The following development standards are established to: a) encourage the orderly and cohesive development of compatible land uses, b) ensure adequate light, air and privacy, c) protect residential properties from the hazards, noise and congestion created by commercial and industrial uses, and d) provide flexibility and encourage comprehensive development plans for large commercial, office and industrial developments.

a. Standards

STANDARDS	General Commercial	Campus Office	Industrial Park
MINIMUM LOT AREA	7,000 sq. ft.	11,000 s.f.	40,000 s.f.
HEIGHT LIMITS	45 feet (1)	45 feet (1)	35 feet
LANDSCAPE BUFFER (on-site)	10 (2)	10 (2)	10 (2)

(1) 45 feet except, 35 feet if principal structure is within 50 feet of a residential zoning district.
(2) A minimum 10' landscape buffer shall be provided along sides and rear of properties with dissimilar uses (i.e. commercial uses next to industrial uses, industrial uses next to residential uses, etc.).

b. Each property owner shall develop their General Commercial/Campus Office parcel with a mix of land uses consistent with the assumptions made in the Fallon Village Traffic Study dated August 2005. The Traffic Study assumed development would consist of 70% commercial and 30% office. This mix of commercial and office may be modified as long as the traffic impacts for each parcel remain consistent with the assumptions made in the Traffic Study.

c. These development standards may be modified through a Stage 2 Development Plan for projects that are greater than 15 acres.

2. Performance Standards.

Intent. The intent of this section is to establish performance standards that reduce the potential for impacts to surrounding uses.

a. **Land Use Mix.** Industrial uses should be housed in their own development/complex and not be intermixed with non-industrial uses within the same complex, except for those uses that are allowed as permitted, conditionally permitted or temporarily permitted.
b. **Use types conducted entirely within a building.** All use types shall be conducted entirely within a building with the exception of Automobile/Vehicle Rental, Auto/Vehicle Brokerage, Parking Lot/Garage and Storage of Petroleum Products for On-site Use. Approval of a Conditional Use Permit shall be required for all retail-outdoor storage uses

such as vehicle storage yards, garden/nursery centers, building materials/hardware/lumber sales, outdoor seating, outdoor recreation facility, equipment/material storage yard and recycling center uses.

c. **Storage.** Open air, exterior materials shall not be stacked so to exceed 6'. If a higher stack is desired, the stack shall be adequately shielded by an equal height screen, fence, or wall as approved by the City per the CUP process.

d. **Parking.** Shared parking is strongly encouraged. Industrial sites should be self-contained developments capable of accommodating parking on-site. The use of the public street for parking and staging of trucks is not allowed. Please refer to City of Dublin Zoning Ordinance (Chapter 8.76) for parking requirements.

e. **Circulation.** On-site circulation drives and parking should adequately serve the project's need to avoid interference with traffic flow on adjacent public streets.

f. **Landscape Buffer.** A minimum 10' wide landscape buffer shall be provided per parcel. Vehicular and pedestrian access may be provided perpendicularly through this buffer. The buffer shall be consistent with all screening requirements of Section 8.72.030.B, Screening Requirements, of the Dublin Municipal Code. Additional architectural or landscape buffering to obscure views of loading areas shall also be provided where impacts to adjacent uses occur, or are visible to public streets, I-580 and major pedestrian areas.

g. **Freeway landscaping.** Landscaping along the freeway shall buffer parking and loading areas from the freeway, while allowing for views into the project.

h. **Noise or vibration.** No noise or vibration, other than related to transportation activities and temporary construction work, shall be discernible without instruments at any point on a lot line of the building site.

i. **Radioactivity.** No activity, including storage or dumping, shall result in the emission of radioactivity in dangerous amounts.

j. **Electrical disturbance.** No activity shall cause electrical disturbance adversely affecting the operation of any equipment other than that of the creator of such use.

k. **Flammable or explosive materials.** No flammable or explosive materials shall be produced, used, stored, or handled unless provided at all points with adequate safety devices and procedures against hazards of explosion and all equipment and devices for fire prevention and fire fighting approved by the Alameda County Fire Department.

l. **Air pollution.** No air pollution or smoke shall be produced that is in violation of the requirements of the Bay Area Air Pollution Quality Management District.

m. **Heat or Glare.** No direct or sky-reflected glare or heat shall be produced that is discernable without instruments at any point on a lot line of the building site.

n. **Odorous Gases.** No emission of any odorous gasses or matter shall occur in quantities that are discernible without instruments at any point on a lot line of the building site.

o. **Dust, dirt, or particulate matter.** No discharge into the air of any dust, dirt, or particulate matter shall occur from any activity or from any products stored on the building site that is discernible without instruments at any point on a lot line of the building site.

p. **Liquid contaminants.** No discharge into any public sewer, private sewage disposal system approved by the County Department of Environmental Health, stream, or into the ground of any liquid contaminants or materials of such nature or temperature which contaminates any water supply, interferes with bacterial processes and sewage treatment, or in any way causes the emission of dangerous or offensive materials shall occur.

q. **Incineration.** There shall be no incineration of any site of waste materials.

3. Required Findings for Stage 2 Development Plans

Intent. The required findings are intended to encourage variety and flexibility in land use types, while assuring that adjacent uses are compatible and developed in a reasonable manner.

The following findings shall all be made in order to approve a Stage 2 Development Plan for projects with PD-General Commercial/Campus Office, and PD-Industrial Park zoning.

a. The proposed use and development is consistent with the General Plan, Eastern Dublin Specific Plan and Zoning Ordinance.
b. The proposed development is consistent with Stage 1 and 2 design guidelines.
c. Appropriate transitions are developed between projects where an industrial use is adjacent to a different use. These transitions can be created through careful design of landscaping, consideration of the relationship of the uses to buildings on surrounding sites, building and circulation layout, and setbacks.
d. The size, scale and intensity of development do not conflict with the character of the district and adjacent land uses.
e. Adequate space, light, and air along with visual and acoustical privacy are provided.
f. No excessive noise, illumination, unsightliness, odor, smoke, and other objectionable influences are generated.
g. On and off-site vehicular and pedestrian linkages and circulation are functional and minimize barriers.
h. Streetscapes and parking lots are varied, create visual interest and are pedestrian friendly.
i. The development provides access to public transit and services.
j. Adequate on-site parking, including the ability to participate in shared parking, is provided.
k. Where possible, certain elements should be coordinated and shared, including access drives; internal circulation; perimeter open space and landscape buffers; service, loading, and refuse locations; and drainage, detention, and water quality facilities.

B. PD-Single Family and Medium Density Residential

1. Development Standards

Intent. The following development standards are established to: a) encourage the orderly and cohesive development of compatible land uses, b) ensure adequate light, air and privacy, c) protect residential properties from the hazards, noise and congestion created by commercial and industrial uses, and d) provide flexibility to encourage comprehensive development plans for large commercial, office and industrial developments.

a. A table showing residential development standards and plotting concepts are shown in the following pages.

RESIDENTIAL SITE DEVELOPMENT STANDARDS

Criteria	Low Density Single Family Detached Large Lot	Low Density Single Family Detached, Medium Lot	Low and Medium Density Single Family Detached Small Lots	Medium Density Single Family Detached Small Lots/Court Home
Typical Neighborhood Lot Width	55′ wide and above	Less than 55′ wide	NA	NA
Typical Neighborhood Lot Size	5500 SF and greater	4000 SF and greater	2500 SF and greater	1800 SF and greater
Minimum Street Frontage width @ cul-de-sac/knuckles	35′	35′	25′	25′
Minimum Flag Lot Frontage	20′	20′	20′	20′
Maximum Lot Coverage	45% (two-story) [11] [12] 55% (one-story) [11] [12]	45% (two-story) 55% (one-story) (no one story requirement)	55% (no one story requirement)	55% (no one story requirement)
Maximum Building Height	38′	38′	38′	38′
Maximum Stories	3 [1] [2]	3 [1] [2]	3 [1] [2]	3 [1] [2]
Minimum Front Yard Setbacks *(A) (B)*	[2]	[2]	[2]	Public/Private Streets / Common Interior Auto Court /Greencourt
Living Area	15′ two-story, 12′ one-story	15′ two-story, 12′ one-story	12′	12′ / 4′
Porch	10′	10′	10′	10′ / 4′
Courtyard	8′	8′	5′	5′ / 2′
Front-on Garage	19′ [11] [12]	19′	Less than 5′ or 18′	Less than 5′ or 18′
Swing-in Garage	12′ [4] [11] [12]	NA	NA	NA
Minimum Side Yard Setbacks [5] *(A) (B)*				
One-story to One-story	5′ - 5′ (aggregate 10′) [3] (C)	5′ - 5′ (aggregate 10′) [3] (C)	0 or 4′ min. [6] (C)	0 or 4′ min. [6] (C)
One-story to Two-story	5′ – 7.5′ (aggregate 12.5′) [3] (C)	5′ – 7.5′ (aggregate 12.5′) [3] (C)	0 or 4′ min. [6] (C)	0 or 4′ min. [6] (C)
Two-story to Two-story	7.5′ – 7.5′ (aggregate 15′) [3] (C)	7.5′ – 7.5′ (aggregate 15′) [3] (C)	0 or 4′ min. [6] (C)	0 or 4′ min. [6] (C)
Corner Lot (setback from street side) [7]	12′ two-story, 10′ one-story [3] (C)	10′	9′	9′
Porch [6] / Courtyard [10]	5′	4′	4′	4′
Encroachments	(C)	(C)	(C)	(C)
Minimum Rear Yard Setbacks [5] [8]	(E)	(E)	(E)	(E)
Living Space (A)	15′ avg. per lot, 10′ min. (C)	12′ avg. per lot, 5′ min. (C)	10′ avg. per lot, 5′ min. (C)	8′ avg. per lot, 5′ min. (C)
One-story Garage	5′ min.	3′ min. [6]	3′ min. [6]	3′ min. [6]
2-story Garage (Living Space Above/Second Unit)	7.5′ min. [11] [12]	7.5′ min.	7.5′ min.	7.5′ min. / 5′ min. @ alleys
Usable Yard(s)	500 SF total flat area. Min. Dimension 10′. Yard area may be provided in more than one location within a lot. Min. rear yard area - 350 SF. Min. courtyard area - 150 SF.	400 SF total flat area. Min. Dimension 10′. Yard area may be provided in more than one location within a lot. Min. rear yard area - 250 SF. Min. courtyard area - 150 SF.	300 SF total flat area. Min. Dimension 8′. Yard area may be provided in more than one location within a lot. Min. rear yard area - 220 SF. Min. courtyard area - 80 SF.	250 SF total flat area. Min. Dimension 8′. Yard area may be provided in more than one location within a lot. Min. rear yard area - 170 SF. Min. courtyard area - 80 SF
Parking Spaces Required	2 covered and 1 guest [9] [11]	2 covered and 1 guest [9]	2 covered and 1 guest [9]	2 covered and 1 guest [9]

NOTES:

(A) Setbacks measured from property line.

(B) See following pages for graphic depiction of above Standards.

(C) Item such as, but not limited to air conditioning condensers, porches, chimneys, bay windows, retaining walls less than 4' in height, media centers, etc. may encroach 2' into the required setback of one side yard, provided a minimum of 36" flat and level area is maintained for access around the house.

(D) Setbacks for accessory structures shall be in accordance with the building code in effect at the time of construction/installation. Noise generating uses such as pool and spa equipment shall be acoustically screened or located outside the setback area.

(E) Major steet edge requirements:

In neighborhoods of lots 5,500 SF and greater, 50% of homes backing up to major streets (Class II collector or greater), shall be one-story or incorporate one-story elements.

In neighborhoods of lots 5,500 SF and greater, 50% of homes backing up to major streets (Class II collector or greater), shall have a minimum 10 feet offset at the rear elevation.

In neighborhoods of lots less than 5,500 SF, 50% of homes backing up to major streets (Class II collector or greater), shall have a minimum 2.5 feet offset at the rear elevation.

(1) Subject to Building Code requirements for access.

(2) The third floor must be stepped back from front and rear elevation to reduce building mass.

(3) Where 50% or more of the side elevation of a home is a single story element and there is a 2.5' minimum offset between the 1st and 2nd story elements, the side yard setback for the single story and remaining 2-story elements shall be considered as that for a single story building.

One-story homes shall be defined to include "nested" habitable living space within the roof or attic space. (Refer to Fallon Village Design Guidelines Section; Architectural Massing).

(4) Swing-in garages are prohibited on lots less than 55' wide.

(5) Retaining walls up to 4' high may be used to create a level usable area. Retaining walls in excess of 4' to create usable area are subject to review and approval of the Community Development Director. Retaining walls over 30" in height are subject to safety criteria as determined by the Building Official.

(6) Building setbacks shall be subject to review and approval of Building Official for Building Code and Fire Code issues. Setback to building overhang shall be 3' min. or as required by current City Building Code Standards.

(7) Where a minimum 5' wide Homeowners Association (HOA) parcel lies between a lot and an adjacent street, the lot is not considered a corner lot and interior lot setback standards shall apply.

(8) At cul-de-sac bulbs, knuckles and similar conditions where lot depths are less than the standard depth, minimum rear yard setback requirements may be reduced by an amount equal to the min. lot depth minus the actual depth of the lot (i.e: 100'-90'=10'). In no case will the rear yard setback be reduced to less than 10'.

(9) Curbside parking may be counted toward required number of guest spaces. Tandem garage parking is permitted.

(10) Maximum height of a front courtyard wall shall be 30" maximum (solid wall) or 42" maximum (transparent/fence).

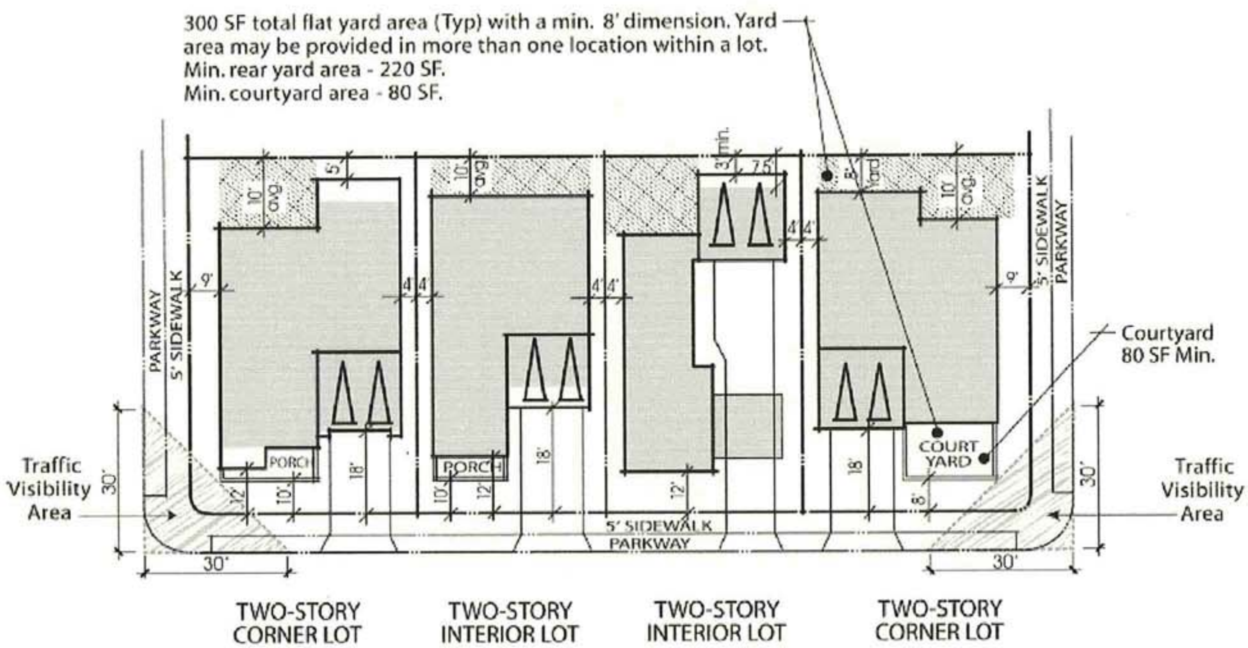
(11) A Second Dwelling Unit is permitted in neighborhood of lots 6,000 square feet or greater only. No more than one (1) second dwelling unit is permitted per lot and requires one additional off-street parking space, tandem or uncovered space permitted.

(12) Second Dwelling Unit Coverage: The principal residence and a second dwelling unit combined shall not exceed the maximum lot coverage.

Note: It is anticipated that other residential product types not addressed herein may be proposed that will not be able to conform to the above site development standards. Additional revisions to these standards may need to be prepared and approved as part of the Stage 2 PD application as part of that submittal.

Typical Plotting Concepts

NOTE: ALL DIMENSIONS SHOWN ARE MINIMUM DIMENSIONS ONLY.



LEGEND

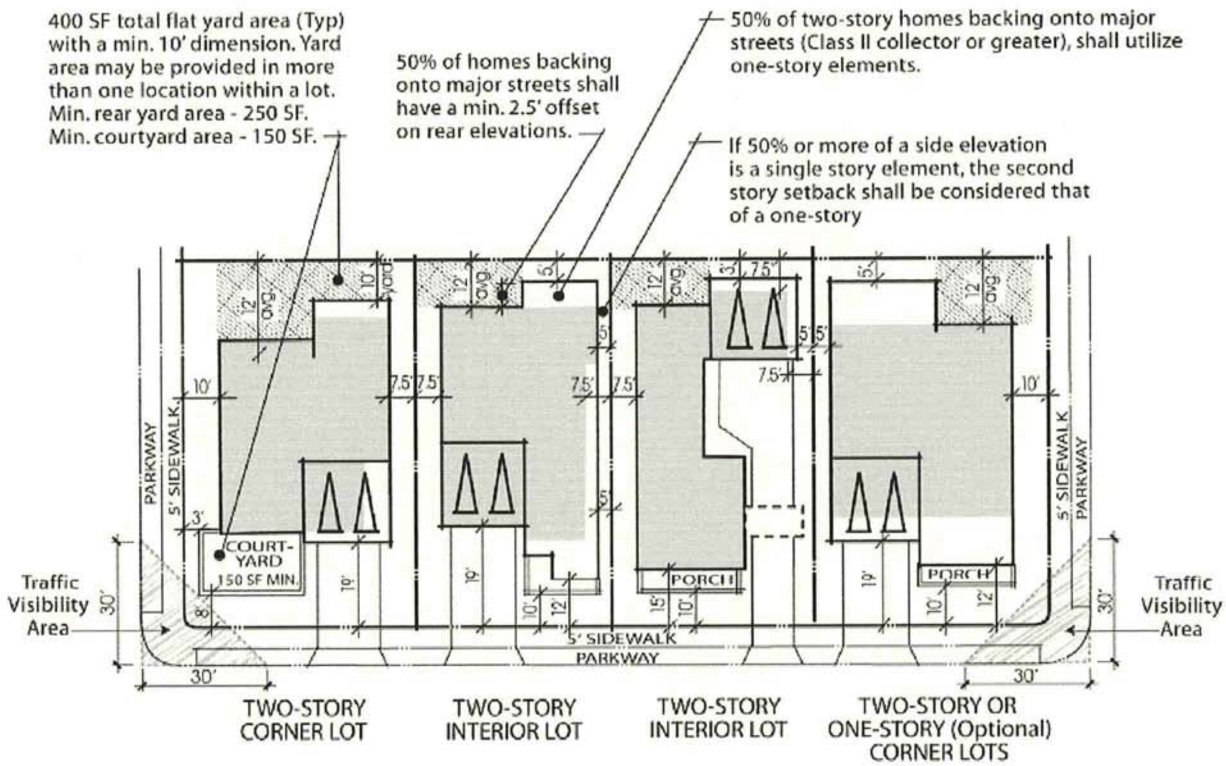
- 1st Story Elements
- 2nd Story Massing
- Usable Rear Yard Min. Area

LOT COVERAGE: 55% Max
(No One-Story Requirement)

NEIGHBORHOODS OF
LOTS 2500 SF AND GREATER
LOW AND MEDIUM DENSITY
SINGLE FAMILY DETACHED
SMALL LOT

Typical Plotting Concepts

NOTE: ALL DIMENSIONS SHOWN ARE MINIMUM DIMENSIONS ONLY.



LEGEND

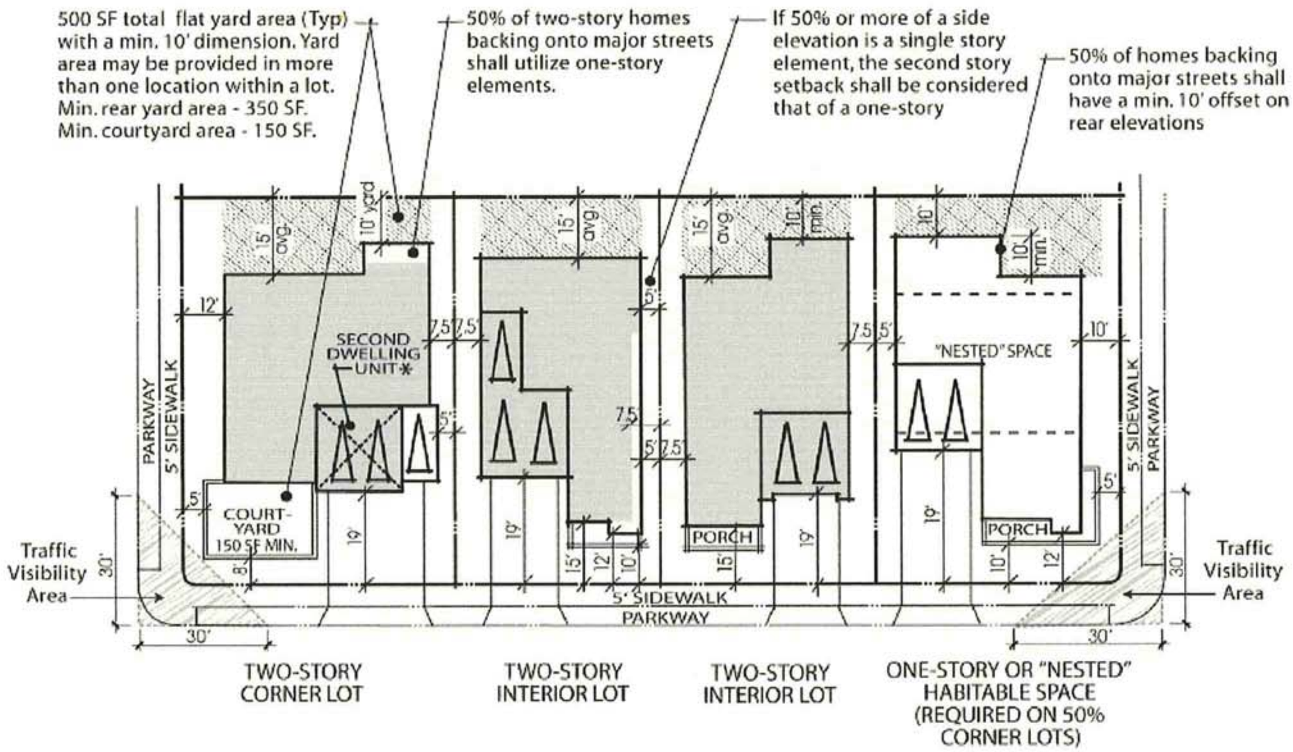
- 1st Story Element
- 2nd Story Massing
- Usable Rear Yard Min. Area

LOT COVERAGE: 45% Max. (Two-Story)
55% Max. (One-Story)

NEIGHBORHOODS OF
LOTS 4000 SF AND GREATER
LOW DENSITY
SINGLE FAMILY DETACHED
MEDIUM LOT

Typical Plotting Concepts

NOTE: ALL DIMENSIONS SHOWN ARE MINIMUM DIMENSIONS ONLY.



LEGEND

LOT COVERAGE: 45% Max. (Two-Story)
55% Max. (One-Story)

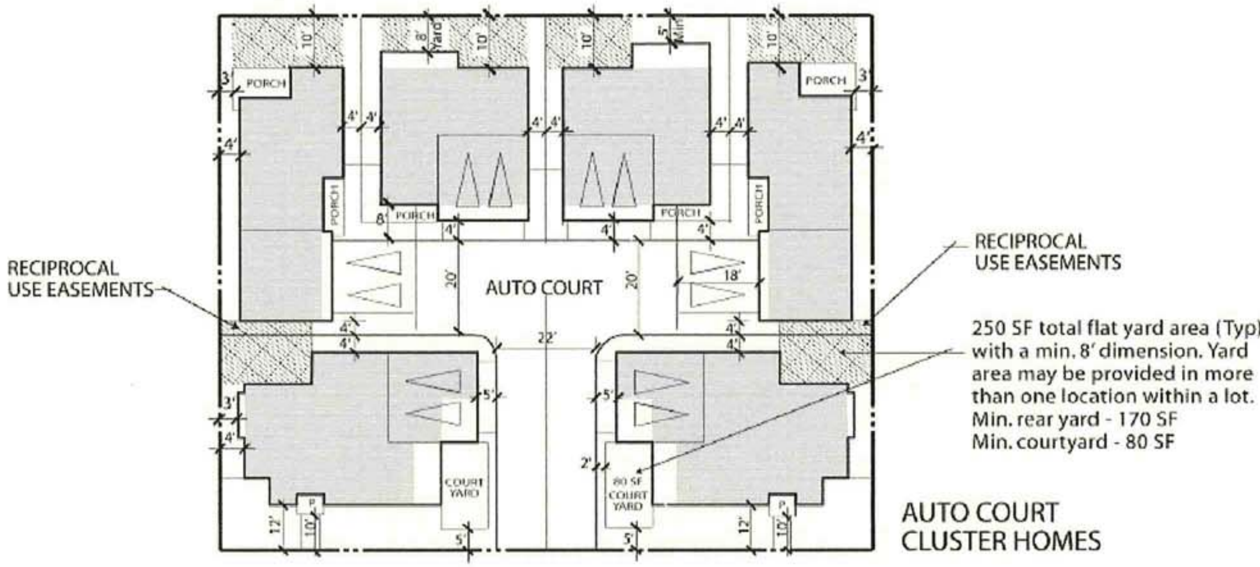
- 1st Story Element
- 2nd Story Massing
- Usable Rear Yard Min. Area

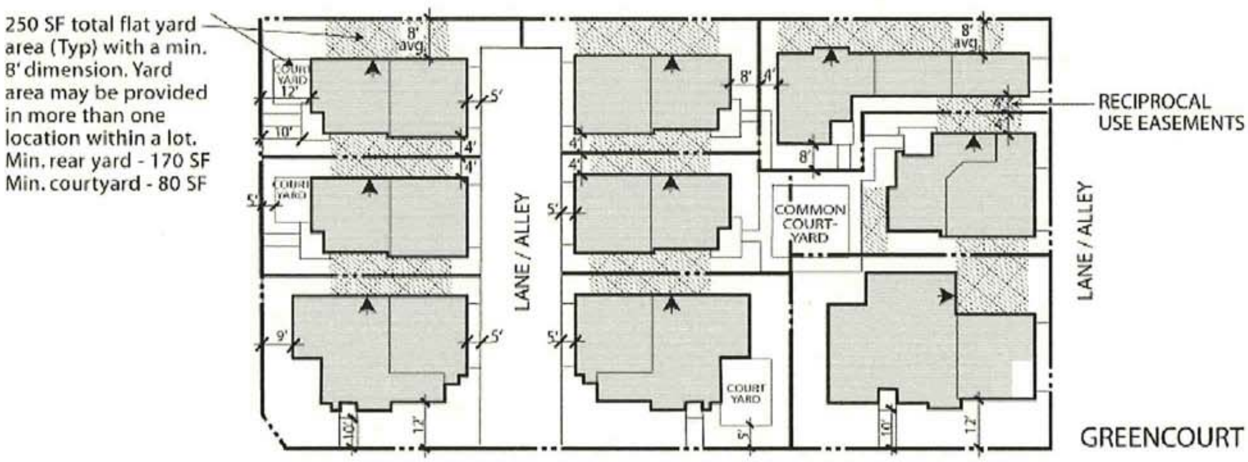
* Refer to Residential Site Development Standard Notes: (11) & (12)

NEIGHBORHOODS OF
LOTS 5500 SF AND GREATER
LOW DENSITY
SINGLE FAMILY DETACHED
LARGE LOT

Typical Plotting Concepts

NOTE: ALL DIMENSIONS SHOWN ARE MINIMUM DIMENSIONS ONLY.





LEGEND

- 1st Story Elements
- 2nd and 3rd Story Massing
- Usable Yard Min. Area

LOT COVERAGE: 55% Max
(No One-Story Requirement)

NEIGHBORHOODS OF
LOTS 1800 SF AND GREATER
MEDIUM DENSITY
SINGLE FAMILY DETACHED
SMALL LOTS/COURT HOME

3. **Stage 1 Site Plan.** Please refer to **Exhibit A**.

4. **Stage 1 Design Guidelines.** Please refer to **Exhibit B**.

5. **Site area, proposed densities.** As follows:

Land Use	*Acreage*	*Density*
Single Family Residential	403.6 acres	0-6.0 units/acre
Medium Density Residential	60.1 acres	6.1-14.0 units/acre
Medium High Density Residential	23.8 acres	14.1-25.0 units/acre
Rural Residential/Agriculture	142.9 acres	1 unit/100 acres
Mixed Use	6.4 acres	0.3-1.00 FAR
General Commercial	72.1 acres	0.20-0.60 FAR
General Commercial/Campus Office	72.7 acres	0.20-0.80 FAR
Industrial Park	61.3 acres	0.35 FAR
Community Park	18.3 acres	--
Neighborhood Park	23.6 acres	--
Neighborhood Square	8.0 acres	--
Open Space	211.2 acres	--
Elementary School	21.1 -acres	--
Semi Public	8.6 acres	0.50 FAR

6. **Phasing Plan.** Please refer to **Exhibit C**.

7. **Master Neighborhood Landscaping Plan.** Please refer to **Exhibit D**.

8. **Aerial Photo.** Please refer to Exhibit E.

9. **Master Infrastructure Plan.** Please refer to **Exhibit F**.

10. **Street Sections.** Please refer to **Exhibit G**.

11. **General Plan and Specific Plan Consistency.**

The Stage 1 Development Plan is consistent with the elements, goals and policies of the General Plan and the Eastern Dublin Specific Plan as those plans were amended by the City Council in companion actions to this Stage 1 Development Plan through Resolution 222-05 on December 6, 2005.

12. **Inclusionary Zoning Regulations**

All residential development projects shall comply with the City of Dublin Inclusionary Ordinance (City of Dublin Zoning Ordinance Chapter 8.68) at the time of development. Each property owner will identify a proposed method for meeting this standard at the time of Stage 2 Development Plan application.

13. Dublin Zoning Ordinance - Applicable Requirements: Except as specifically modified by the provisions of this Planned Development District Rezoning/Stage 1 Development Plan, all applicable general requirements and procedures of the Dublin Zoning Ordinance shall be applied to the land uses designated in this Planned Development District Rezoning.

14. Public Art. As follows:

Stage 2 development plans for all development shall contain a requirement to either make a contribution for or provide public art in accordance with an ordinance or resolution requiring public art in effect at the time of the Stage 2 development approval or, if no such ordinance or resolution is in effect at the time of the approval of the Stage 2 development plan, as determined by the City Council.

SECTION 4. The use, development, improvement, and maintenance of the project area shall be governed by the provisions of the Dublin Zoning Ordinance except as provided in the Stage 1 Development Plan.

SECTION 5. This Ordinance shall take effect and be enforced thirty (30) days following its adoption. The City Clerk of the City of Dublin shall cause this Ordinance to be posted in at least three (3) public places in the City of Dublin in accordance with Section 36933 of the Government Code of the State of California.

PASSED AND ADOPTED BY the City Council of the City Dublin, on this 20th day of December, 2005 by the following votes:

AYES: Councilmembers Hildenbrand, McCormick and Zika, and Mayor Pro Tem Oravetz

NOES: None

ABSENT: Mayor Lockhart

ABSTAIN: None

Tony Oravetz

Mayor Pro Tem

ATTEST:

Fawn Holman

City Clerk

Fallon Village

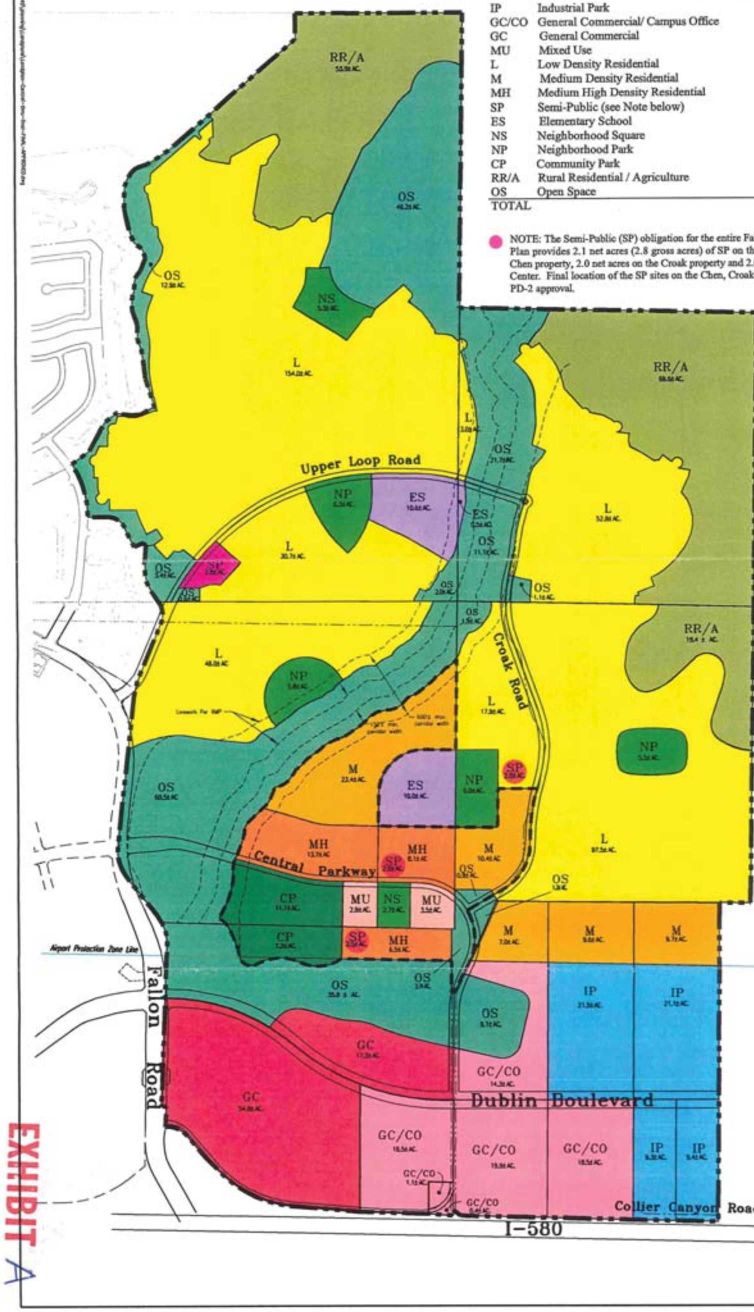
Stage 1 PD Amendment Site Plan

October 2005 19149-10A

LEGEND

KEY	LAND USE	ACREAGE	DU/SQ FT
IP	Industrial Park	61.3	747,664 SF
GC/CO	General Commercial/ Campus Office	72.7	886,708 SF
GC	General Commercial	72.1	785,169 SF
MU	Mixed Use	6.4	96 DU/83,635 SF
L	Low Density Residential	403.6	1,739 DU
M	Medium Density Residential	60.1	601 DU
MH	Medium High Density Residential	23.8	672 DU
SP	Semi-Public (see Note below)	9.3	
ES	Elementary School	21.1	
NS	Neighborhood Square	8.0	
NP	Neighborhood Park	23.6	
CP	Community Park	18.3	
RR/A	Rural Residential / Agriculture	142.9	
OS	Open Space	211.2	
TOTAL		1134.4	3,108 DU 2,503,176 SF

● NOTE: The Semi-Public (SP) obligation for the entire Fallon Village plan area is 8.6 net acres. This PD-1 Site Plan provides 2.1 net acres (2.8 gross acres) of SP on the Braddock and Logan properties, 2.5 net acres on the Chen property, 2.0 net acres on the Croak property and 2.0 net acres on the Jordan property in the Village Center. Final location of the SP sites on the Chen, Croak and Jordan properties will be determined at the time of PD-2 approval.



▬ ▬ Denotes Fallon Village Center. Refer to Project Description for detail concerning this area.

NOTE: Alignment of Central Parkway/Croak Road intersection to be determined at a later date.

NORTH

0' 200' 400' 800'

MACKAY & SOMPS
CIVIL ENGINEERING • LAND PLANNING • LAND SURVEYING
Pleasanton, CA (925) - 225-0690

EXHIBIT A

FALLON VILLAGE
DUBLIN, CALIFORNIA

STAGE I

OCTOBER 31, 2005

EXHIBIT B

FALLON VILLAGE
DUBLIN, CALIFORNIA

STAGE I

CIVIL ENGINEERING
MACKAY & SOMPS

LANDSCAPE ARCHITECTS
GATES + ASSOCIATES

Table of Contents

PROJECT STATUS SUMMARY

Due to the general nature of the Stage I Planned Development Plan, various issues will need to be studied and resolved when more detailed information and design proposals are submitted for subsequent stages. The following is an initial accounting and description to begin identifying these outstanding issues.

Fallon Village Center

- Intersection geometrics between Central Parkway and Croak Road are subject to further review to determine interim and final intersection design.
- In tangent with the Central Parkway/Croak Road intersection, the layout of the Village Center will need to be reorganized or redesigned to reflect changed street alignments.
- A fiscal study may be required by the City to determine specific project viability of the Village Center.
- The alignment of Central Parkway is unknown until additional evaluation is performed from an engineering and biological outlook. This may affect the design of Upper Loop Road and other streets and intersections.

Parks and Schools

- While the City and School District dictate the design and orientation of parks and schools, these entities should tie into the overall Fallon Village design vocabulary and replicate the community theme elements, especially at entries and along street frontages.

Interconnections Between Projects

- It is recognized that property owners/applicants will need to cooperate in certain instances to create a better overall project. This includes: encouraging street connections between different properties; providing grading easements on their property to adjacent developers/builders to allow sensitive and logical grading conditions between different properties.

Bus Stops

- Applicants shall work with the local bus agency to identify and provide adequate bus stop/shelter facilities.

INTRODUCTION

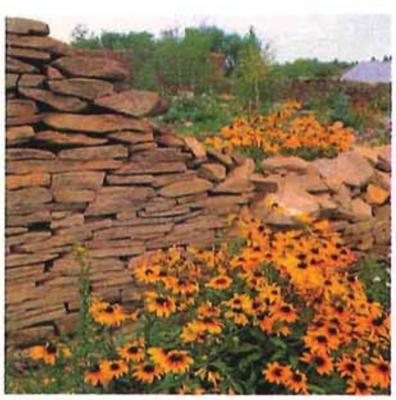
Introduction

Vision

Central Design Concept

Planning Concepts

Vision



Fallon Village is located on approximately 1,110 acres in the easternmost portion of Dublin. The project area encompasses multiple properties under separate ownership. The Fallon Village Guidelines illustrate an over-riding vision intended to create a cohesive community. These Guidelines establish the general overall theme for the larger community while allowing for interpretation of the individual elements. The detailed guidelines required for subsequent projects within the community should reflect the established theme.

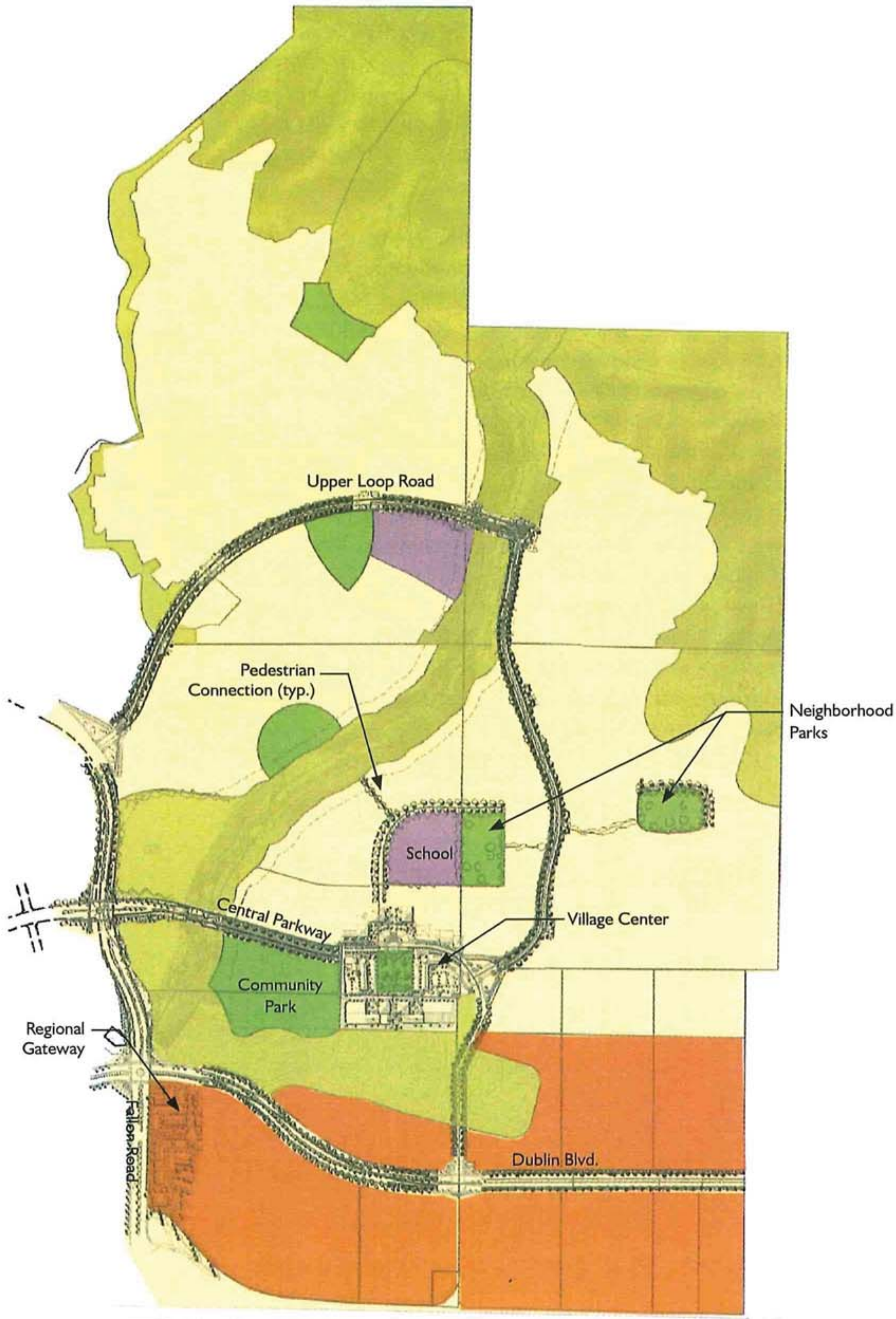
The Fallon Village is comprised of the vital mixture of uses essential for a 'complete' community. This includes regional commercial and office uses, local-serving neighborhood retail, a range of residential densities, and an extensive park and trail system edged by rural residential and open space areas.

The Fallon Village community is a discrete visual place. It is enclosed by open space ridgelines to the north and east. The existing Dublin Ranch development and Interstate 580 form the other boundaries. The most visible part of the community is the commercial component, adjoining the 580-freeway corridor. This shopping and office area sets the visual tone for the Dublin community at its eastern gateway. Consequently, generous setbacks and special planting are used to allow a view of the architecture and the knolls while creating a distinctive image for Dublin.

The Village Center is the visual and dynamic center of the residential community. The Center is bordered by the higher- density residential areas and the community park. It provides opportunities for shopping, day-care, recreation, places to eat, and places for ceremony and ritual, all within close walking distance of the highest density homes. Connectivity between the school, parks, open space and Village Center is achieved through an extensive system of sidewalks and trails.

The residential portion of the community rests behind a series of knolls that sit to the north of the regional commercial area. The primary entry to the Fallon Village residential areas from the balance of the Dublin community is from Fallon Road and the extension of Central Parkway as it sweeps along the northern edge of the knolls. An organizing circulation spine comprised of Upper Loop Road, Croak Road, and Central Parkway connects the Village Center, schools, and parks to the clusters of homes. This road is a visual and physical spine, linking the neighborhoods. The open space corridor crosses the spine at two points. The open space crossings are distinctive events along the road. The spine is the governing element of the residential circulation hierarchy as indicated by a central median, a wide right-of-way, densely planted street trees, theme lighting and thematic elements. All neighborhoods have a discrete entry off the circulation spine and a unique visual character. A community-wide system of multi-use trails and sidewalks link the neighborhoods to the schools, parks and the Village Center.

Concept Diagram

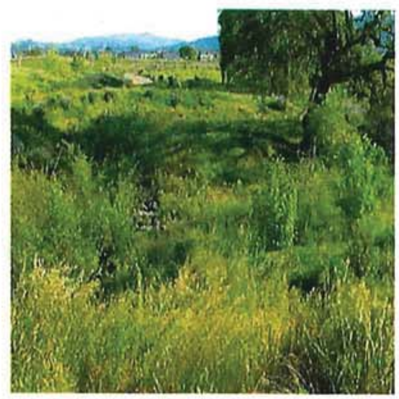


Central Design Concepts

The development of a new community provides the unique opportunity to create a special, memorable place. To this end Fallon Village is founded around seven Central Design Concepts.

- Develop Strong Community Identity: Establish a unique identity which distinguishes "Fallon Village" from adjacent development. Utilize thematic architectural elements with a consistent, distinctive, landscape palette and architectural guidelines to create a special place reminiscent of agrarian communities in the southern Mediterranean.
- Create A Community Which Celebrates the Environmental Setting - The rolling hills and the riparian corridors all are an integral part of the community structure and character of the place. Fallon Villages is a series of neighborhoods enclosed by open space hills linked by the riparian corridor.

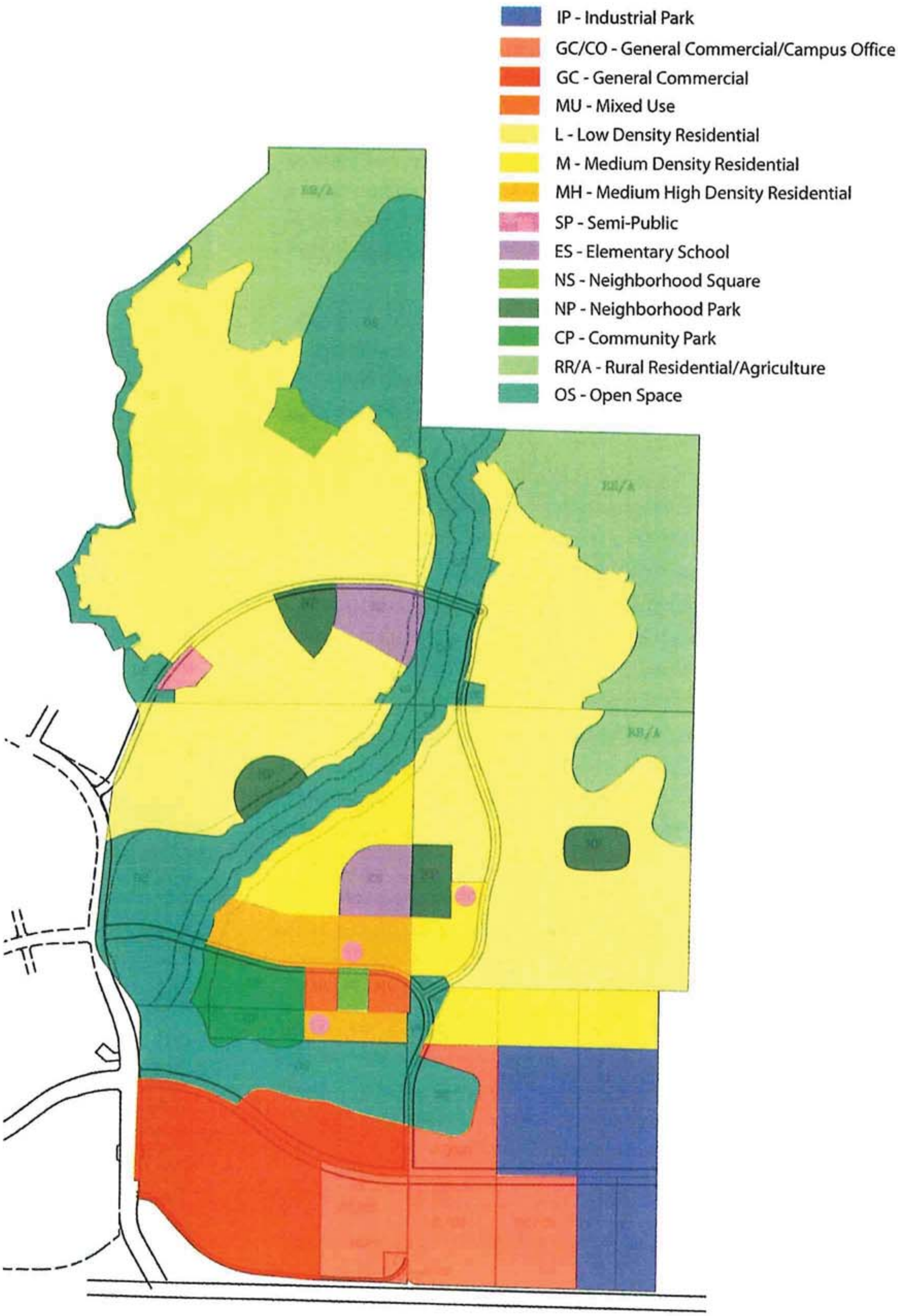
- Create a "Livable" Community – A place where a pedestrian friendly streetscape system promotes neighborhood cohesiveness. An extensive pedestrian network linking the residential areas with parks, schools, and the Village Center.
- Create a Social Village Center: the heart of the residential community is a place to stop and eat, to socialize, and have ceremonial community level activities; a place where recreation, shopping, and other daily activities are easily accommodated.



- Create a Community that Incorporates "Concepts of Sustainability": The Fallon Village vision embraces the concept of sustainability, including denser housing opportunities in village center core, use of recycled water for irrigation, and other innovative concepts.
- Create a diversity of housing opportunities: the plan provides for the varying of lot sizes and housing product types including the traditional size family home, rural residential and denser multifamily residential clustered around village center.

- Create a Community that is Perceived as a Cohesive Whole Despite Multiple Ownership: Strong guidelines insure a consistent level of quality throughout the community at all phases of development. A clear hierarchy of roadways and sensitive interface between parcels will create a seamless transition.

LAND USE DIAGRAM



Planning Context

The "Eastern Dublin Specific Plan Goals" and City of Dublin Village Concept Policy provide the City's general development vision, objectives, preferences, and character for the evolution of eastern Dublin, and in this case, Fallon Village. Fallon Village is particularly salient to these goals and policies as it will be a multi-phased development constructed over a long period of time by multiple property owners and/or developers.

The following is a summary extract of Relevant Eastern Dublin Specific Plan Goals:

- Establish an attractive and vital community;
- Provide a diversity of housing opportunities;
- Create a well defined hierarchy of neighborhood, community, and regional commercial areas;
- Provide a stable and economically sound employment base;
- Develop a comprehensive integrated park and recreation open space system;
- Provide a circulation system that is convenient and encourages alternate modes of transportation while maintaining a neighborhood scale street system;
- Maximize opportunities for travel by transit;
- Provide a safe and convenient pedestrian and bicycle circulation system;
- Maintain and enhance the natural resources;
- Preserve Historic and cultural resources;
- Establish a visually distinctive community;
- Ensure full complement of community services and facilities;
- Development should fund the full costs of municipal services;
- A Village Center consistent with the City of Dublin's Village Center Policy.

Community Components

VILLAGE CENTER


Pedestrian/Bike Connection to Community
Auto Connection to Residential
Park
Pedestrian Connection
Open Space
School
Park
Possible Grade Separated Pedestrian Crossing to Fallon Sports Park
Medium High Density Residential
Pedestrian Connection
Village Center Boundary
Community Park
Neighborhood Square
Open Space
Gateway
Auto Connection to Regional Commercial

A Center As The Community Hub

The traditional small downtown with its shaded village green surrounded by pedestrian oriented commercial and residential uses is the model for Fallon Village Center. The Village Center is envisioned as social gathering and convenience shopping hub to the residential neighborhood in the surrounding hills.

To enhance the viability of the retail uses the Village Center is proposed to be located at the intersection of Central Parkway and Croak Road. The Village Center area is comprised of a vital mix of land uses including Mixed-Use, Medium and Medium High Density Residential, a Neighborhood Square, Semi-Public, and Community Park. The village center would be conveniently accessible by automobile, due to its location near the intersection of Central Parkway and Croak Road and by pedestrian traffic from a community trail system.

Planning Context

The design of the Fallon Village Center will be guided by the City of Dublin Village Center Policy, therein, a village is defined as a physical development of land that has been designed to encourage compact development of an area which integrates a variety of housing types and densities with community facilities, civic and educational uses. An emphasis on pedestrian friendly design is required.

City of Dublin Village Center Policy

The Village Center will be the core of the Fallon Village community providing a mix of uses to establish a social and commercial center for the project. The following program is planned for the Village Center.

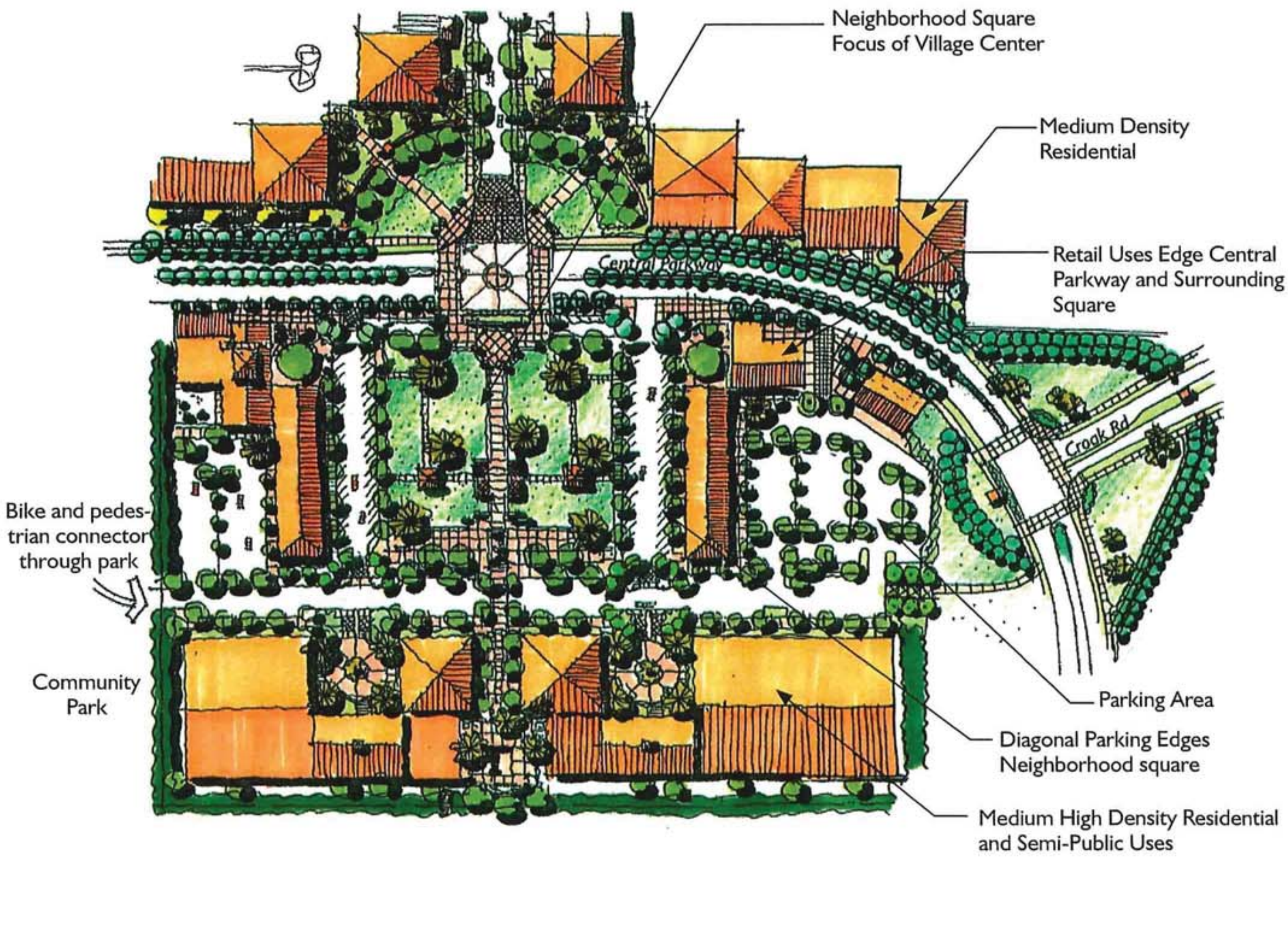
- Medium Density Residential
- Medium High Density Residential
- Community Park
- Mixed-Use
- Neighborhood Square
- Open Space

The City of Dublin's Village Policy Statement identifies the following as characteristics that should be included in all identified village centers within the City. This policy can be used to refine and enhance special areas within the City of Dublin.

- A Village location should be compatible with the local environment including surrounding land usage and topography. It should respect constrains, roadways and environmental consideration;
- A Village should have a mixture of housing types, densities, and affordability and should support a range of age and income groups;
- Activity nodes (commercial areas, community facilities and public/private facilities) should be easily accessible;
- Trails, pedestrian walkways and street linkages should be established to bring the parts and elements of the Village together;
- Street and Pedestrian linkages should link to transportation spines including busses and transit services.
- The Village should have a strong "edge" defining the boundaries. This could include major streets, architectural or landscape areas.
- Village size should reflect development that promotes pedestrian walkability, permits a sufficient mixture of residential and public/private uses and convenient commercial areas.
- Specific identity should be fostered for the Village areas (special signage, unique design elements, public plazas, etc.)

Fallon Village Center Basic Design Principles

- Create a vital and social mixed-use Village Center that provides for the needs of Fallon Village residents.
- Emphasize inviting, small-town, pedestrian friendly ambiance yet remain consistent with the community's agrarian theme.
- Emphasize variety and diversity in architectural design.
- Front buildings onto the neighborhood square and central parkway
- Provide strong pedestrian links to adjacent residential development, community park and open space.
- Emphasize design of residential scale ground floor facades along retail edges.
- Tuck on-site parking behind buildings.
- Widen sidewalks in front of retail uses to provided outdoor display and dining.
- Underground all utilities to the extent practical, or place behind buildings or in other non-visible locations.



Site Planning

- The design of the Village Center shall promote pedestrian activity through the use of wide sidewalks, plazas, a neighborhood square or other gathering area, and human scaled architecture.
- The neighborhood square shall front directly onto Central Parkway.
- Buildings shall be placed so as to establish a strong edge along Central Parkway and the neighborhood square.
- Retail continuity shall be maintained along pedestrian-oriented frontages; the pedestrian shopping experience shall not be interrupted by parking lots or blank walls.
- Placement of parking and trash areas shall be sensitive to any adjacent residential units. Trash facilities shall be enclosed within structures, (such as walls, fences, and trellises) that blend with the architectural styles, materials, and colors of the adjacent buildings.

Architectural

- Buildings shall orient toward neighborhood square and Central Parkway
- Buildings along Central Parkway and Neighborhood square should be built to and parallel with the front setback line providing subtle 12" offsets at least every 75 feet, and as permitted by allowance encroachments, such as outdoor dining areas and entry plazas.
- Along Central Parkway, provide special detailing such as: unique door and window treatments that differentiate for individual shops for retail uses
- Enhance retail frontage along Central Parkway and the neighborhood square with awnings of various sizes, shapes and colors; and store signage and displays.
- Encourage residential uses along Central Parkway to front on to the street.
- For retail uses avoid one-sided architecture. The side rear facades in the Village Center commercial area will be actively used therefore they should have an appearance similar to a "front" in regard to doors, windows, etc. Although the architecture treatment may be simplified and vary according to function, these elevations should remain consistent through style, use of materials, colors and details.

Neighborhood Square

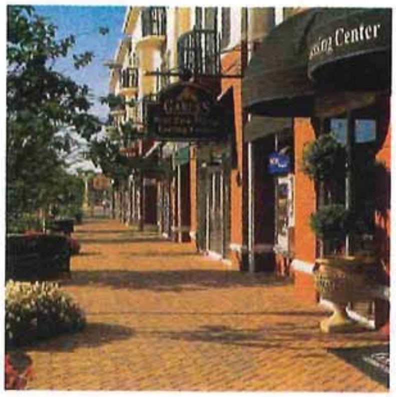
- The neighborhood square is the focus of the village center. This central green should be designed as social gathering places for the community. Allowable uses should include spaces to accommodate elements such as fountains, outdoor dining, specimen trees, public art and special public events.
- Provide convenient pedestrian links to retail uses and adjacent residential development.

Circulation and Parking

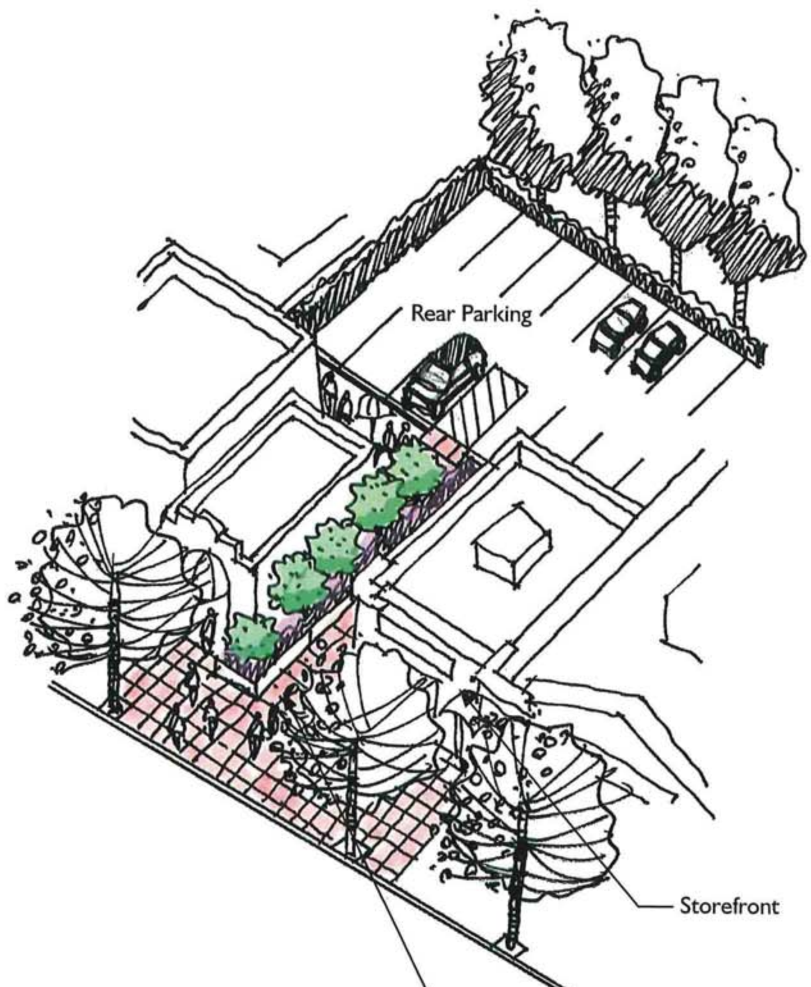
- On-site parking shall be located behind buildings to the extent possible.
- Pedestrian connections from the rear parking area to the storefront edge and to public streets shall be integrated into the site design and be clearly marked. These connections shall be emphasized with landscaping, circulation design, and siting of buildings.

- Where parking lots are not separated from roadways, architectural elements (such as trellises, fences, and other landscaping) shall be used to screen the view of parking lots from the street.
- Parking lot design shall address best management practices for storm water management.
- Parking areas shall be landscaped and shaded with canopy trees. Trees shall be planted within parking lots at a ratio of one tree for every six (6) parking stalls. Trees may be clustered in concentrated planting areas to break up large parking lot surfaces.

- Pedestrian emphasis in the street designs with convenient crossing points at parking and street intersections.
- Parallel on-street parking shall be provided along Central Parkway and diagonal parking around neighborhood square to provide both convenience and a "Main Street" ambiance.
- In front of residential uses, the 8' wide sidewalk will be separated from the street by an 8' wide landscaped parkway. Adjacent residential uses should be directly accessed from this sidewalk.



- The sidewalk in front of the retail uses shall be expanded to 16' width with 5x5 tree cut outs along the curbs for street trees. The retail uses shall be pulled forward to enhance the street edge width sidewalk shall accommodate window shopping, outdoor merchants and cafes.
- Provide convenient connection points to multi-use trail along open space corridor through community park.
- Encourage development of sidewalk cafes and indoor/outdoor restaurants with recessed storefronts to promote pedestrian interaction along Central Parkway and the neighborhood square frontage.



Residential Neighborhoods

Basic Design Principles

Neighborhood Layout

Open Space Interface

Interface Between Properties

Grading Standards

Walls & Fencing

Multi-Family Site Planning Principles

Rural Residential Areas

The Fallon Village Plan envisions the creation of a series of charming, distinct, pedestrian-oriented neighborhoods, nestled into the surrounding topography and linked to the Village Center via the community loop road and the trail system along the open space corridor. The guidelines described on the following pages are intended to achieve this goal.

Fallon Village residential neighborhoods may include single-family homes, cluster homes, townhouses, senior housing, live/work units, and apartments above ground-floor shops. Regardless of the lot size or neighborhood density, the homes and their accompanying private spaces shall be designed to contribute to the overall quality of life for residents.

BASIC DESIGN PRINCIPLES

- A hierarchy of streets that logically steps down in size from collectors to cul-de-sacs shall be utilized. Street widths shall reinforce the neighborhood roadway hierarchy with important streets being more wide and minor streets being more narrow.
- Well defined entries and edges shall create distinct residential neighborhoods and emphasize connection with the loop road.
- Safe, pleasant, pedestrian links to the Village Center, parks, schools, and open space shall be provided.
- Where applicable, dwelling units and entries shall face onto public amenities, such as neighborhood parks and the open space corridor.

Neighborhood Layout

- Provide a visual and physical connection to the open space by utilizing single-loaded streets with open space corridor on one side and houses on the other. Open ended cul-de-sacs along the open space corridor may be considered on a case-by-case basis.
- Where cul-de-sacs are used, provide walk-throughs from the end of cul-de-sacs to allow pedestrian access to adjacent open space
- Where necessary traffic calming measures such as shortened street lengths, narrower curb-to-curb dimensions, and traffic roundabouts should be incorporated as feasible on major residential collectors.
- Provide a buffer, such as a street or masonry wall, between residential uses and school or park.
- Homes are encouraged to front on street facing a park.
- Avoid homes fronting on collector streets
- Provisions shall be made for future local street connections between development areas and property ownerships.

Open Space Interface

Open space edges should function to reduce fire hazards and allow visual access to open space.

- A minimum 45-foot wide fuel break band shall be established in the transition zones between residential neighborhoods and open space. Within this fuel break, fire retardant and low fuel plant materials shall be planted. Annual grasses shall be mowed, and dead leaves and wood shall be cleared out at least once a year.
- Special Consideration will be given to architectural design adjacent to open space in accordance with the City of Dublin Wildfire Management Plan.
- Utilize welded wire fencing or view fence where home borders on open space.
- Encouraging residents to regard open space as an integral part of their environment.

Interface Between Properties

Although the Fallon Village site is comprised of many separate properties controlled by a variety of owners, the Fallon Village community is planned as a cohesive whole. The incremental development of separate parcels shall be knit together into a seamless community. Streets shall create an interconnected circulation system to this end.

- Street trees, (and other plantings), walls, fences, street furniture, and other elements that make up the character of a community shall be consistent along the entire length of a street, regardless of the number of properties the street crosses.
- Continuous and convenient pedestrian access shall be provided for residents by multi-use trails, bike lanes and walks that connecting each neighborhood to the Village Center, schools, parks and open space corridor.
- Streets shall be designed to link neighborhoods to create an interconnected circulation system.

Grading Standards

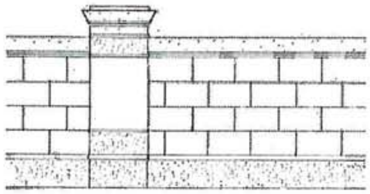
Grades and elevations between neighborhoods shall be designed to provide a visually appropriate interface. Grades between different properties shall provide a smooth transition with natural looking contours. This can be implemented by utilizing the following strategies:

- Provide a grading easement for later phases of development on adjacent properties to ensure natural appearing grades between parcels developed early or later on.
- In lieu of slope benches and storm runoff ditches, recreated hillsides and terraces shall be designed to blend with the surrounding hillsides and knolls.
- Transition grading to adjacent uphill Open Space or Rural Residential/Agriculture shall provide for a maintenance accessway and drainage collection along the toe.
- Grading within the Open Space corridor shall be permitted in compliance with the Resource Management Plan (RMP). Grading along the open space corridor is allowed to the extent that the minimum and average widths of preservation required under the RMP are met. In general, no grading should take place within 50' of the water course. Exceptions to this standard are noted in the RMP.
- Lots and streets shall step up the grade together. Lot to lot slopes shall not exceed 2:1. Transition slopes to open space or open space corridor shall not exceed 3:1 slope. However, slopes of 2:1 are permitted on a case by case basis.

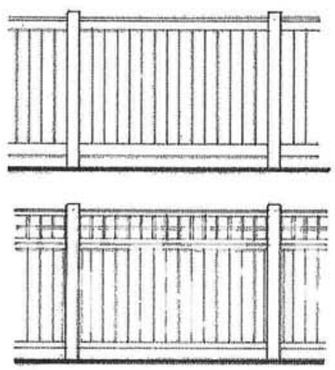
- All slope banks shall be 3:1, except as needed for remedial grading of hillside slopes at which time slope banks may be 2:1 or 2.5:1 on a case-by-case basis.
- Use of retaining walls should be minimized on street frontages or rear-yard slopes visible to the general public. Where retaining walls are required they should not exceed 4 feet in height.
- Property lines shall be offset a minimum of one foot from the top of all slopes.
- To ensure adequate maintenance of large slopes (3:1 or steeper in excess of 35 feet vertical), the property line should stop at the toe of the slope. The remainder of slope shall be held as common open space maintained by the HOA, GHAD, or land trust.
- Daylight grading above the 770 development elevation cap shall be permitted if grading is designed to ensure natural appearing forms and to conform with the adjacent hillsides. The maximum slope for such daylight grading shall be 3:1, with limited 2:1 and 2.5:1 slopes permitted on a case by case basis. Grading above the 770' contour shall be evaluated on a case-by-case basis to determine impacts to "visually sensitive areas." In no case shall the grading be permitted to extend within 50' horizontally of the ridgeline that establishes the skyline.
- Grading should generally not be visible above the house roofline from the public street immediately in front of the house, except for remedial grading, slide repair, key way construction, trail development, and uses as permitted by open space and rural residential/agricultural zoning.

Fencing

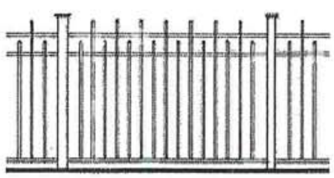
Fencing types should be consistent throughout all the residential areas within Fallon Village. Several types of fencing are to be used for residential properties:



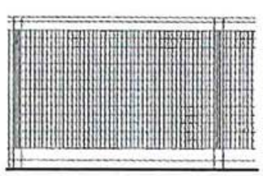
COMMUNITY THEME WALL



WOOD FENCES



VIEW FENCE

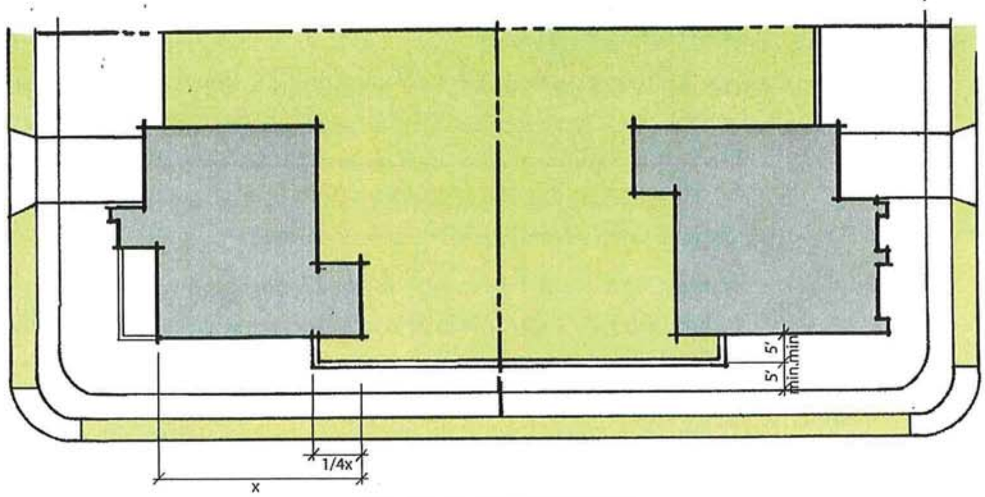


OPEN SPACE INTERFACE FENCE

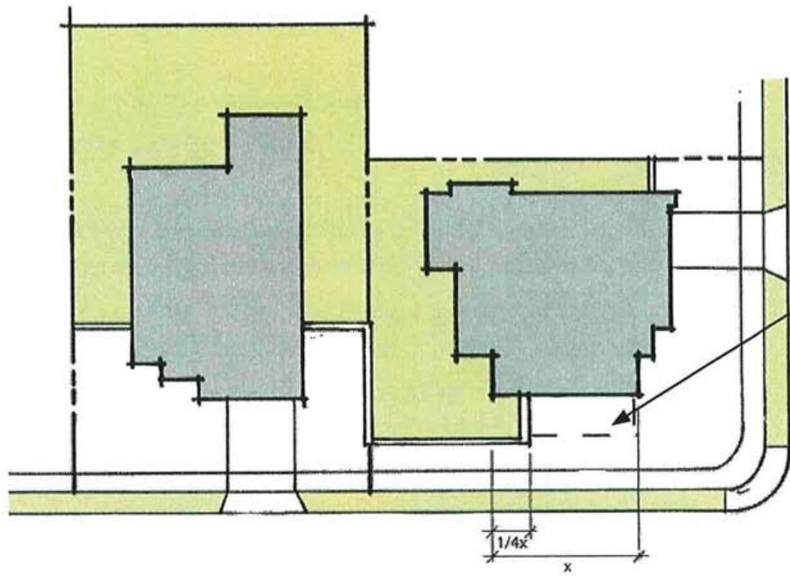
- Community Theme Walls - A community theme wall should be used where properties are adjacent to major streets, multi-use trails, parks, schools and other highly visible locations. The design, materials and finish of the theme wall should be consistent with the Mediterranean Agrarian theme. Refer to the Landscape Elements section of the Design Guidelines for height and finish specifications.
- Wood Fence - Wood fences should be used between lots and adjacent to residential streets. These fences should be 6' in height with posts at a minimum of 8' o.c. A lattice top or special design should be used in more visible locations.
- View Fence - A ornamental iron view fence should be used along the golf course edge and in other locations where views are possible. It may also be used when the elevation difference between rear yards is greater than 20'. This fence should be 6' in height with ornamental metal posts at 8' o.c.
- Open Space Interface Fence - A 6' tall open space interface fence should be used where rear or side yards abut open space. The design of this fence should allow for views to the open space while restricting wildlife access to private property. At a minimum, the fence should be welded wire on wood post with a wood rail, fence top and cap.

General guidelines for fencing of residential lots are as follows:

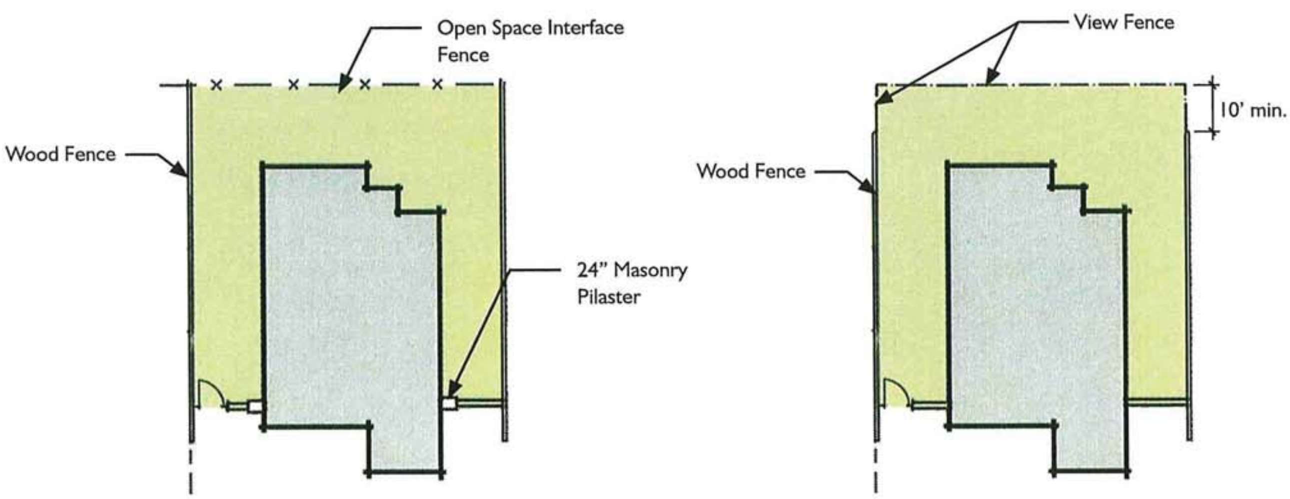
- Rear yard fencing backing onto a public street should be a community theme wall, not wood.
- Wood fences adjacent to residential streets should be located a minimum of 5' from the back of sidewalk. In cases where the adjacent lot is downslope from the sidewalk, the fence may be located 3' from the back of sidewalk. Taller shrubs should be planted to screen the fence from the street.
- On corner lots, the fence shall overlap a maximum of 25% of the side house length. A view fence may be added where the layout creates a large side yard to provide more private space for the homeowner. Special care shall be taken on corner houses to insure that the character of front facing architecture wraps around side elements.
- Where lots abut open space, two fencing options conform with the Dublin Wildfire Management Plan. The first option is to locate a 24" masonry pilaster next to the house with an open space interface fence along the rear property line and wood fencing on side property lines. The second option is to place a tubular steel fence along the rear property line with a 10' return on the side property lines.



CORNER LOT FENCING



CORNER LOT FENCING

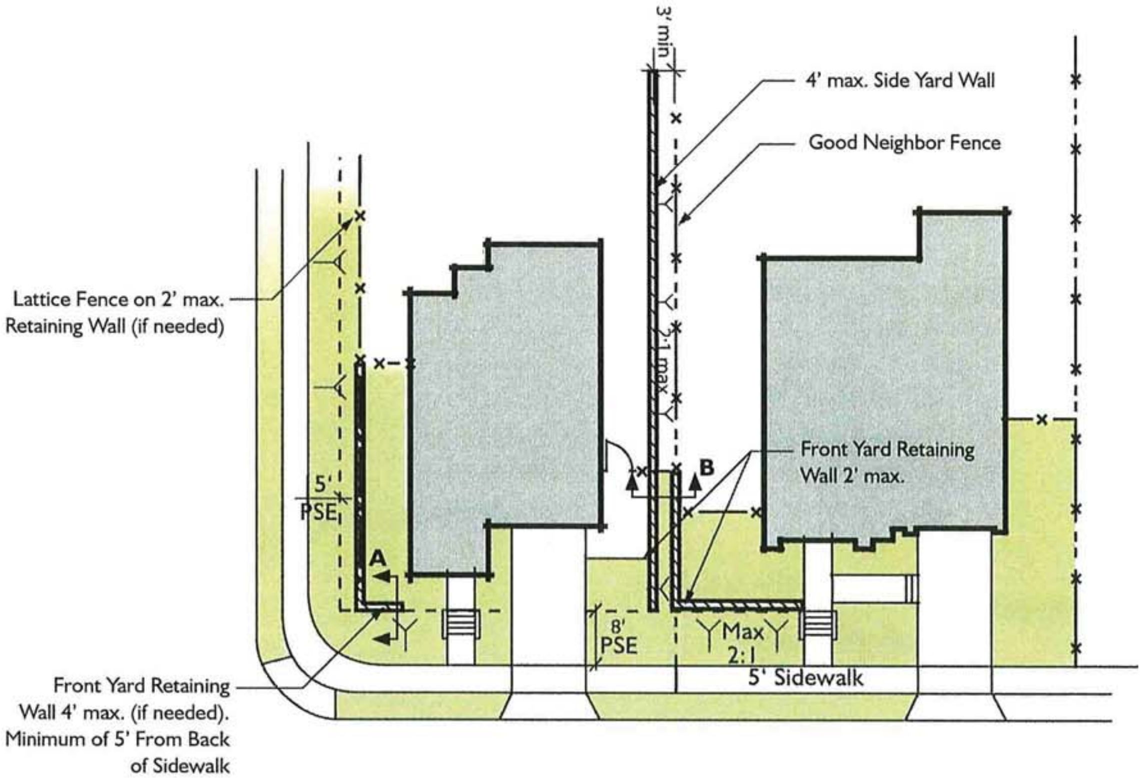


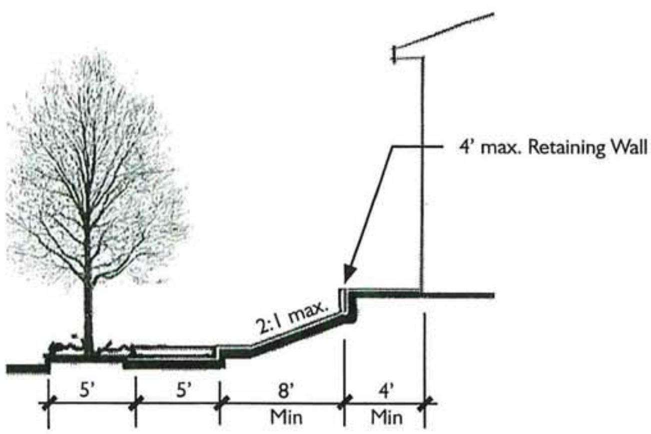
FENCE AT OPEN SPACE

Retaining Walls

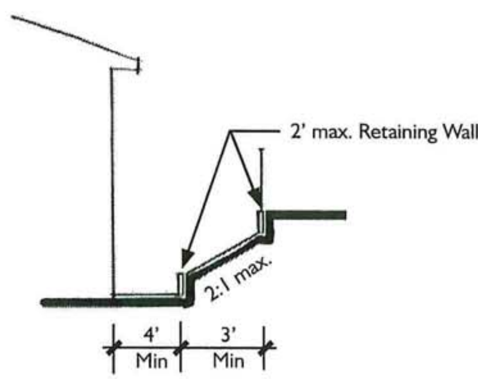
Retaining walls are used to accommodate grade changes where necessary. The style and finish of retaining walls on residential lots will vary according to their location. Refer to the Landscape Elements section of the Design Guidelines for appropriate materials and finishes. General guidelines for retaining walls are as follows:

- Walls visible from the public right-of-way shall be consistent with the community design standard for retaining walls and reflect the Mediterranean Agrarian theme.
- Retaining walls shall be a maximum of four feet tall. Greater vertical distances may be accommodated at the time of SDR or finished grading plan submittal on a case-by-case basis.
- Stepped walls shall be separated a minimum of 2' to provide for landscaping. Stepped walls may be designed with maximum 2:1 slopes between walls.
- In areas where retaining walls are visible from adjacent Public R.O.W., to provide a minimum of 2' of landscape between fence and retaining wall.
- Backyard fences shall be offset from the wall a minimum of two feet. Provisions shall be made for access to the rear yard landscape slope.
- Frontyard retaining walls shall be located at or behind the public service easement at a minimum of 5' from the back of sidewalk. Utilities should be grouped and combined with front retaining walls where required to avoid multiple retaining walls on a single lot.
- Side yard retaining walls that are 2' or lower may be located on the property line with a 6' wood fence above. In locations where the side yard retaining wall is between 2' and 4', the retaining wall must be located a minimum of 3' from the property line to allow for a 2:1 slope on the lower lot. In this condition, the lower lot shall be wider to accommodate the change in elevation.
- Retaining walls shall be designed to allow easy access by the homeowner. Steps shall be required to access the slope if the distance between the retaining wall and property line is greater than 5'.
- In situations where double retaining walls are required, the maximum height of each wall shall be 2'.

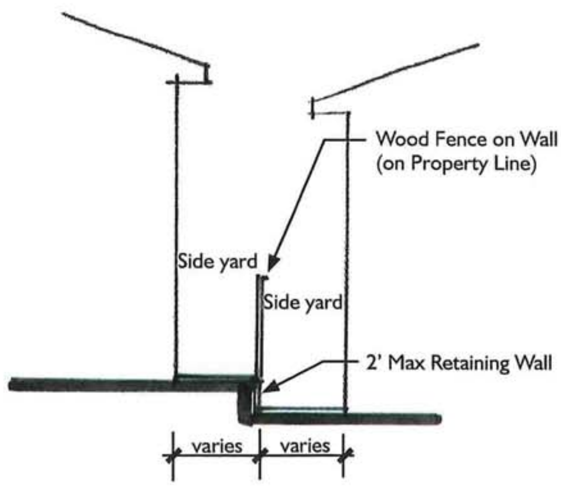




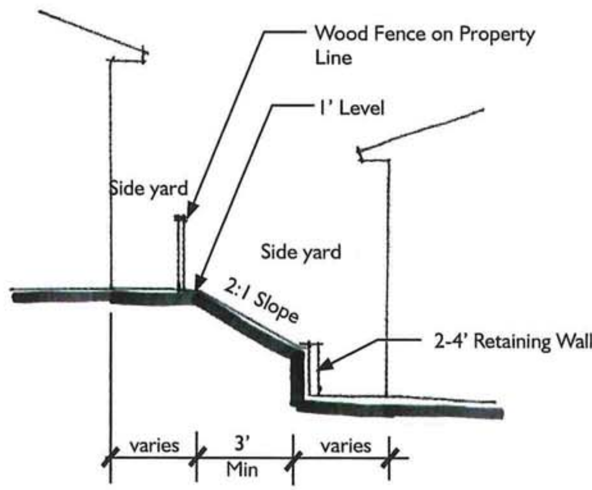
SECTION A



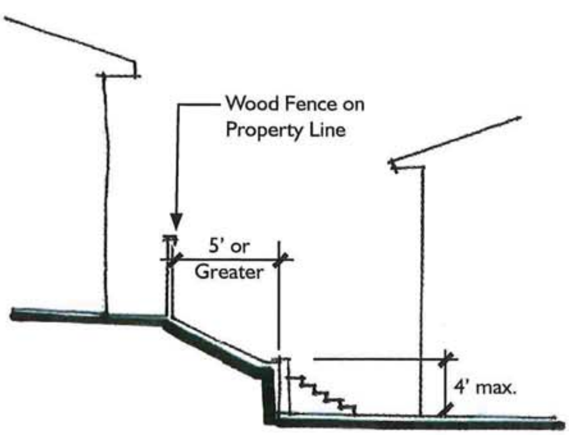
SECTION B



2' RETAINING WALL AND FENCE



2-4' RETAINING WALL AND FENCE



SLOPE ACCESS

MULTI-FAMILY DESIGN GUIDELINES

In higher-density situations such as cluster homes, townhouses, senior housing, and apartments, careful consideration should be given to those facilities that are shared by all residents, including common outdoor spaces, parking areas, and attached buildings.

- Create an attractive, pedestrian friendly internal streetscape.
- Encourage a variety of housing densities and housing types to provide a full complement of housing opportunities.
- Use street trees, planting, and varying front and side yard setbacks to create visual interest on internal medium density streetscapes.
- Street furniture in common landscape area shall be of a consistent style, color, and material to unify the neighborhood.
- Provide parking in small parking areas or "streets" adjacent to units; avoid large undifferentiated parking lots. Landscape parking areas to provide shade and to soften visual impact.
- Provide alternative outdoor use space The demand for outdoor space can be met by providing private patios for each home, by developing a central recreation complex, or by a combination of both.

RURAL RESIDENTIAL/AGRICULTURAL & OPEN SPACE AREAS

These areas contribute significantly to the agrarian ambiance of the Fallon Village community.

- Open space lands shall be protected from undue impacts of development and public access.
- Wherever possible, open space areas shall be made an integral part of the overall community through providing physical and/or visual access to the open space.
- Landscaping patterns should resemble the natural setting. Use of native plant communities shall be encouraged to provide wildlife habitat and contextual imagery.
- Structures located in rural residential areas shall be sited and designed to minimize visual impact. Structures are not permitted to "daylight" on the main ridgeline.
- Rural residential and open space areas shall be developed and managed in a manner appropriate for the control of erosion, the prevention of overgrazing, and the prevention of the invasion of noxious weeds.
- Within the rural residential/agricultural area and open space areas, designated preserves shall be fenced and posted to control pedestrian and domestic animal access to special habitat areas, as identified in the Resource Management Plan.

General Commercial, Campus Office, & Industrial

Basic Design Principles

Site Planning

Parking

Outdoor Use Areas

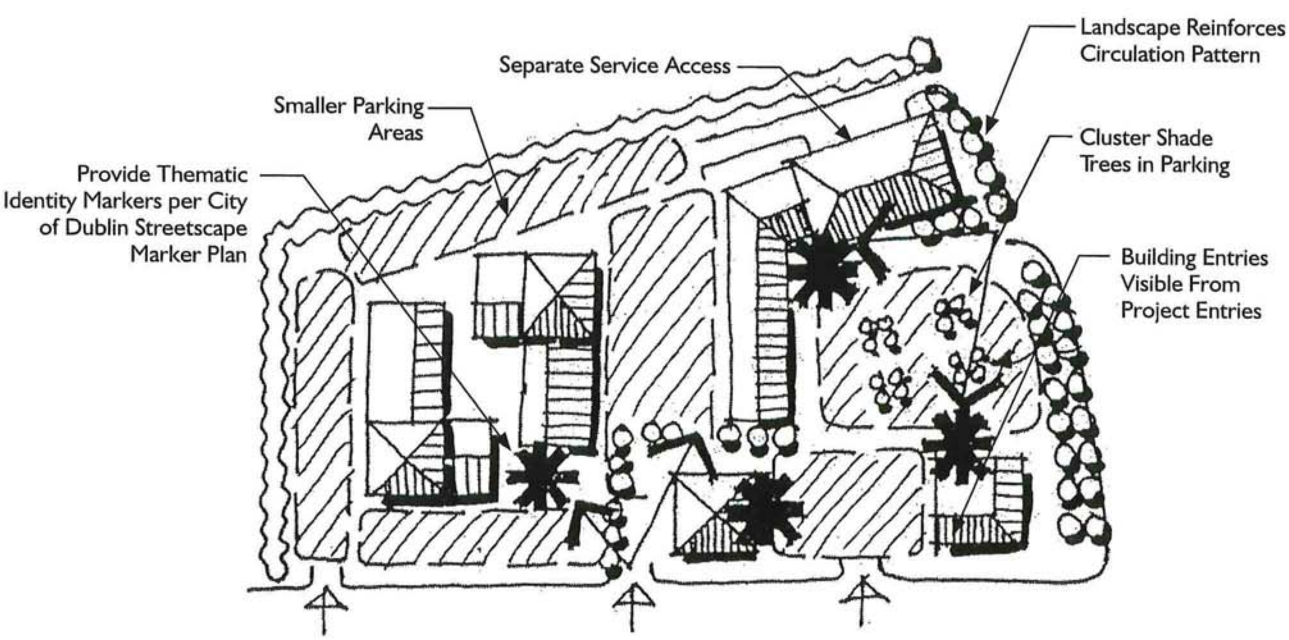
Service & Storage Areas

Landscaping

The 580 corridor edge sets a visual tone for the City of Dublin. As a part of Eastern Dublin, the character of the regional commercial development is especially critical.

BASIC PRINCIPLES

- Create harmonious composition of buildings that are appropriately scaled to their surroundings. Special consideration shall be given to any portion of the building visible from adjacent streets or 580-corridor.
- Create a logical hierarchy of auto and pedestrian movement. Provide convenient pedestrian connections to public transit where possible.
- Provide landmark buildings or public plazas on corners at major intersections.
- Minimize the visual impact of parking areas.
- Visually break large structures into pedestrian scale.
- Create pleasant outdoor spaces, which compliment retail uses.
- Locate service area away from pedestrian use areas and views from roadway.
- Design landscaping along the 580 edge to screen views of parking while retaining views of architectural knolls beyond.
- Provide central focus for large shopping centers.

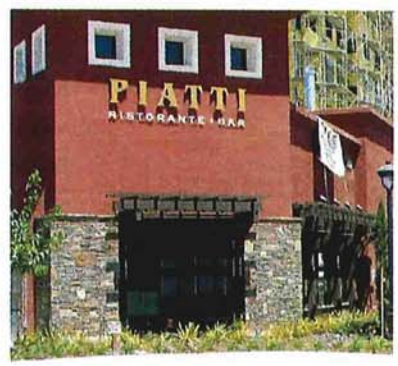


PARKING

- Highlight entries into parking areas with architectural monuments and special landscaping.
- Screen views of parking from streets by low berms, architectural features such as low walls or arbors, or plantings.
- Sub-divide large parking areas into a series of smaller parking lots with landscaping.
- Provide opportunities to reduce or detain stormwater runoff by using vegetated swales between parking aisles and at the perimeter of the parking areas. Use of pervious parking lot materials shall be encouraged.

PEDESTRIAN SPACES

- Develop outdoor plazas in close relationship to buildings. Use a variety of site elements to add visual richness and provide shelter.
- Create strong pedestrian links (arcades, paseos, a series of plazas) between various buildings within the retail complex and to the community-wide circulation system.
- Provide convenient bicycle parking areas and/or racks near building entries.
- Enhance ambiance and vitality with banners, fountains, site furniture, lighting, special paving and planting.



SERVICE AND STORAGE AREAS

- Enclose storage areas within structures, (such as walls, fences and trellises), that blend with the architectural styles, materials and colors of the adjacent buildings.
- Screen views of storage areas, loading docks, and major utility equipment boxes from 580, Fallon Road, Dublin Boulevard, or areas with high pedestrian traffic.

LANDSCAPING

- Use landscaping to create outdoor rooms, to screen unsightly areas, to reinforce circulation patterns, to shade parking areas, and to enhance the human scale and the visual attractiveness of the area.
- Areas shall be landscaped with trees. Provide trees in parking area so that 40% of the paving is shaded. Provide average 1 tree/6 car stalls. Trees may be clustered to frame site lines or to reinforce a circulation palette.

BASIC PRINCIPLES

- Warehouse buildings shall be designed and oriented to locate the shorter width of the building toward the public right-of-way.
- Self-storage facilities in industrial areas shall be designed so buildings are located around the perimeter of the site providing courtyards in the center.
- Whenever adjacent to residential uses, floors above the first level shall be designed to stair step for light and air, and windows located to provide privacy for the residences.
- In multi-building complexes, noise, illumination, smoke, dust and odor generating functions, as well as service and loading areas, shall be combined or located next to each other to minimize impacts on the surrounding uses. Loading docks may be located within buildings to lessen such impacts.

SERVICE AND STORAGE AREAS

- Screening for outdoor storage, including vehicles, should be determined by the height of the material being screened, but be no less than 6 feet tall and include a combination of landscaping and solid walls. Chain link fencing with appropriate slatting is an acceptable screening material from the street, I-580 or residential uses. Exterior storage should be confined to portions of the site least visible to public view, particularly Dublin Boulevard, project entries, I-580, and adjacent residential uses.
- All services areas such as loading, trash enclosures, outside storage, and ground and roof equipment shall be located away from, or at a minimum, screened from residential uses and public rights-of-way. Where possible, loading areas should be located on the side of the building opposite of a residential use. If it is not possible, due to an elevation difference between the uses or other overriding site layout concerns, such facilities should be screened to the greatest extent practical.
- Screening is defined as providing an opaque visual barrier comprised of architectural and/or landscape elements.

LANDSCAPING

- Landscape shall be provided between parking lots and public streets for all uses. Landscape areas shall be provided between parking areas and buildings in office developments. Landscape areas between parking areas and buildings are encouraged in service commercial, and retail development and required in industrial developments. Water quality features and storm drain retention features may be located within required landscape and landscape buffers as long as the final product gives the appearance of a landscaped feature.

Community Structure

Circulation and Entries

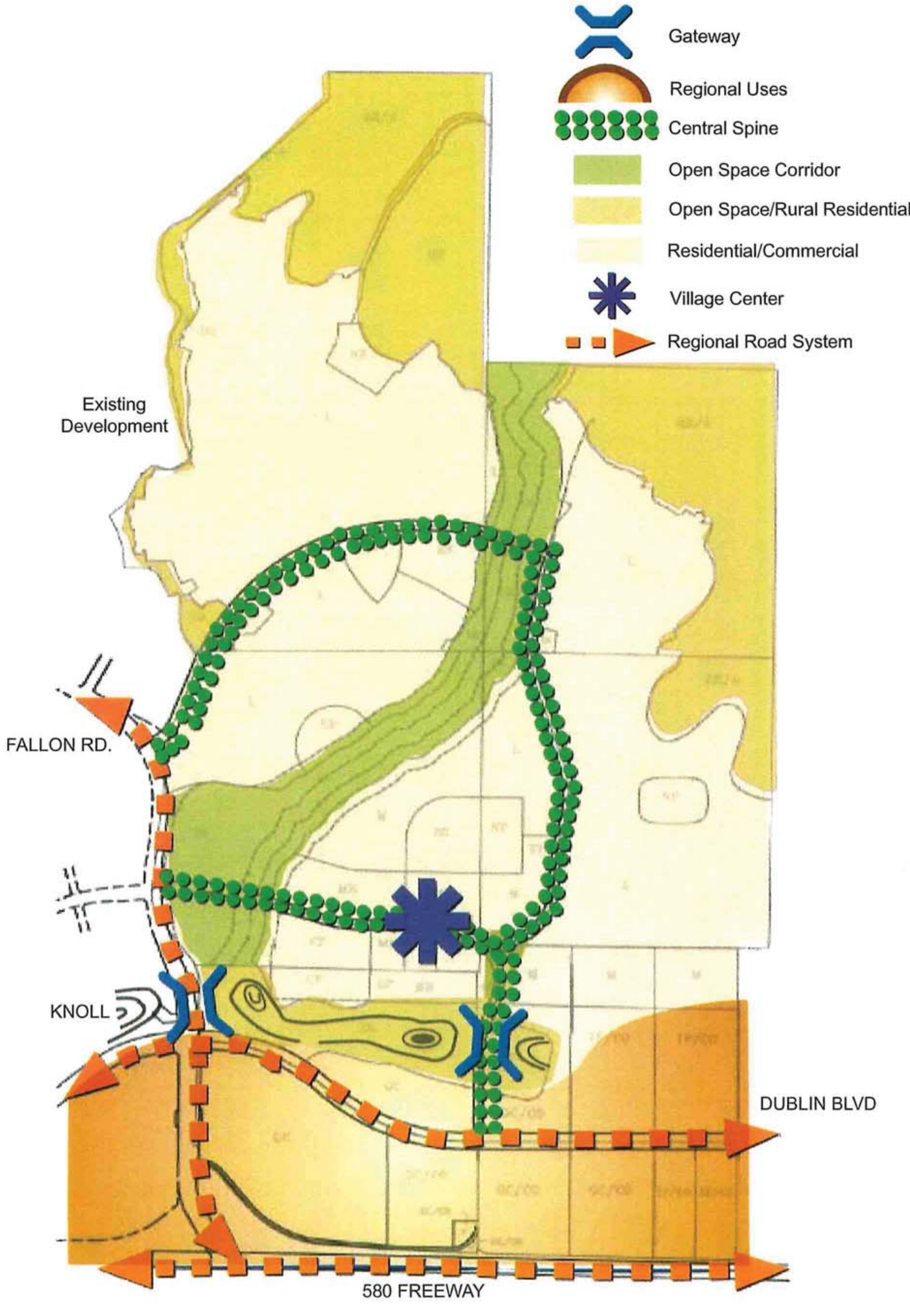
Community Diagram

Circulation System

Gateways

Primary Intersections

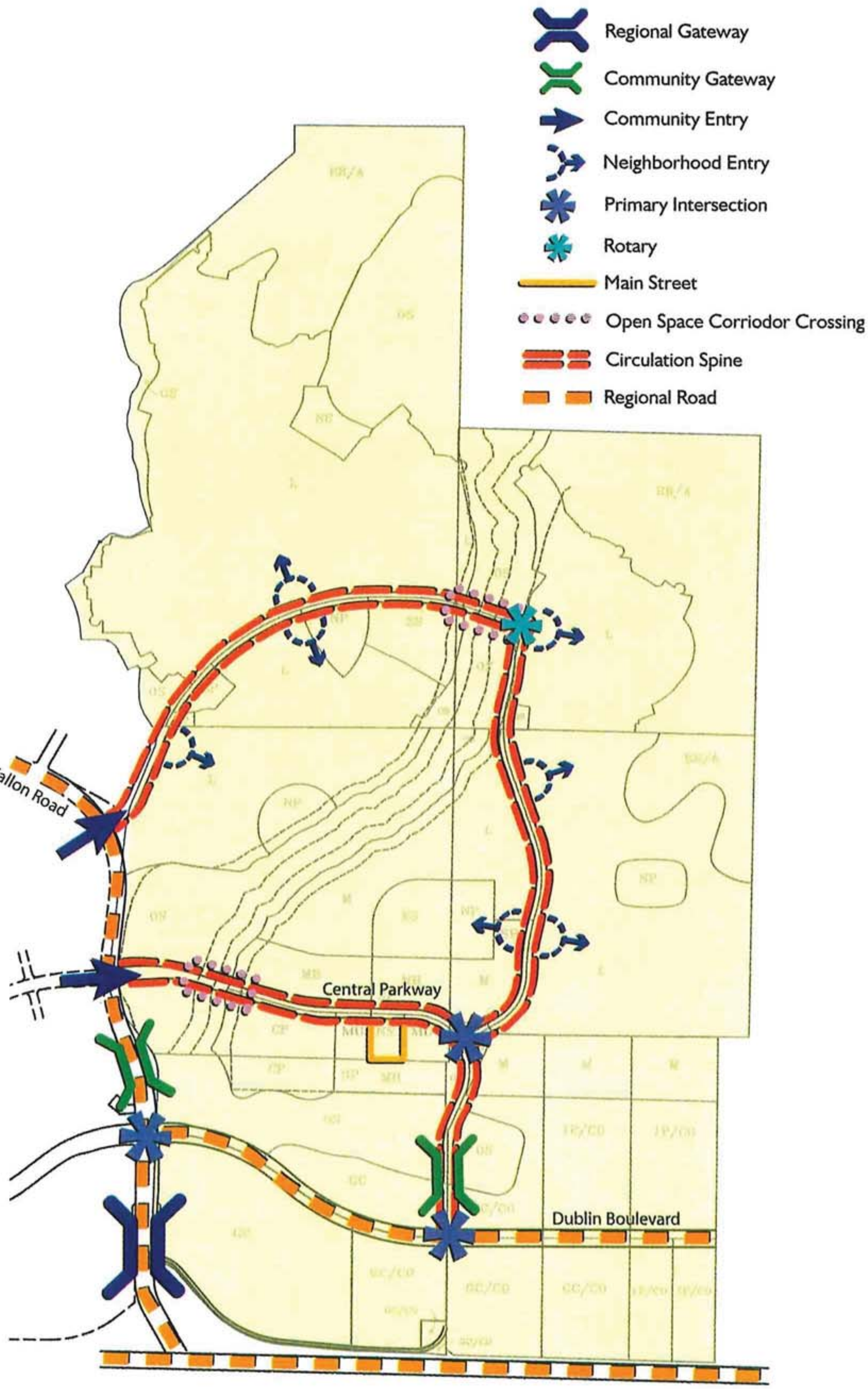
Community Diagram



DESIGN CONCEPT

The organizing framework of the community is derived from the pattern of roads, the open space system, and the clustering of land uses. The regional-serving commercial areas are, to a large extent, separated from the residential by the knolls which parallel Dublin Boulevard. These knolls create a natural 'gateway' for Fallon Village. The higher density residential zones and Village Center are centralized. The central circulation spine unifies the outer ring of residential neighborhoods. The open space corridor provides a natural corridor with a centralized pedestrian/ bicycle system linking neighborhoods and the village core. This legible community structure allows each neighborhood to have a unique ambiance while remaining part of the overall Fallon Village Community.

Circulation System



Circulation Concept

Much of peoples perception of their environment is based upon the view from the road. Thus the streetscape character sets the pattern for the community.

The Fallon Village streetscape system includes:

1. Commercial and residential community entries,

2. Regional gateways,

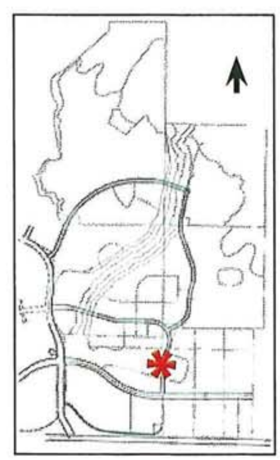
3. Neighborhood entries, and

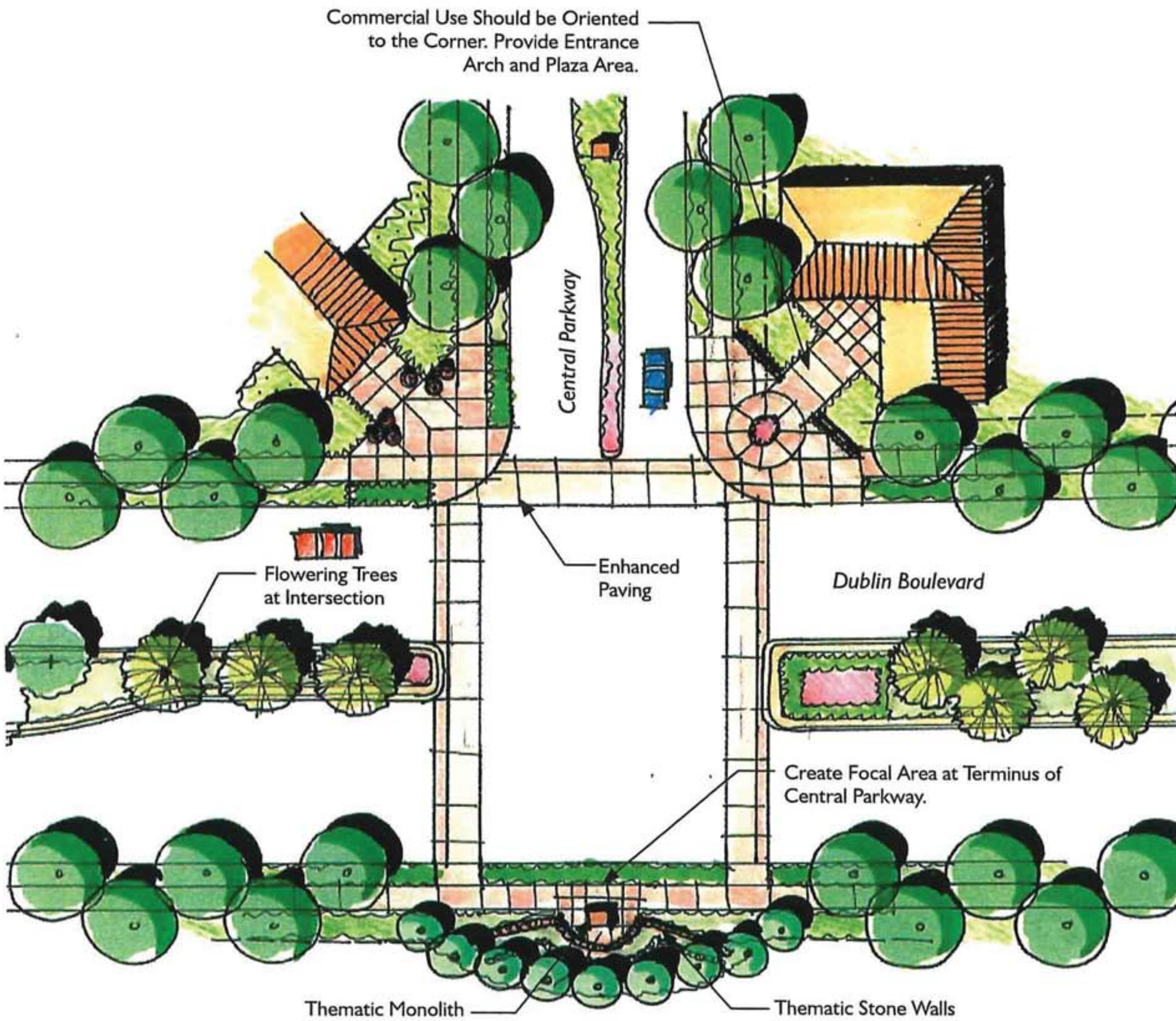
4. The streetscape treatment along individual roads.

Hierarchical streetscape design contributes to the overall unity and legibility of the community. The open space crossings, intersections and rotary provide special opportunities to celebrate the natural features of the setting and utilize thematic elements to emphasize overall community character.

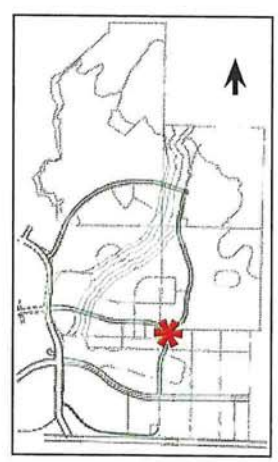
From the freeway, Fallon Road is the first impression, not only of Fallon Village, but also of the City of Dublin. The treatment of streetscapes in this area should be consistent with City of Dublin's Streetscape Master Plan for gateways. This regional gateway should include enhanced landscaping, a "City of Dublin" monument sign, widened medians, and special median architectural enhancements, and possible installation of public art. Buildings should be oriented to the street edge and intersection to highlight the gateway.

The community gateways are located along Fallon Road and Central Parkway. They demark the transition between the regional commercial areas and the residential community. At these locations roadway cuts between the knolls create natural gateways where the open space areas frame the roadway on each side. Terraced low stone walls and columnar windrows edge the roadway, introducing the agrarian theme of the Fallon Village Community. Columnar flowering trees in the median along with thematic entry monuments will be used to further highlight the gateway. The landscape treatment will transition to streetscape and open space plantings past the gateway area.



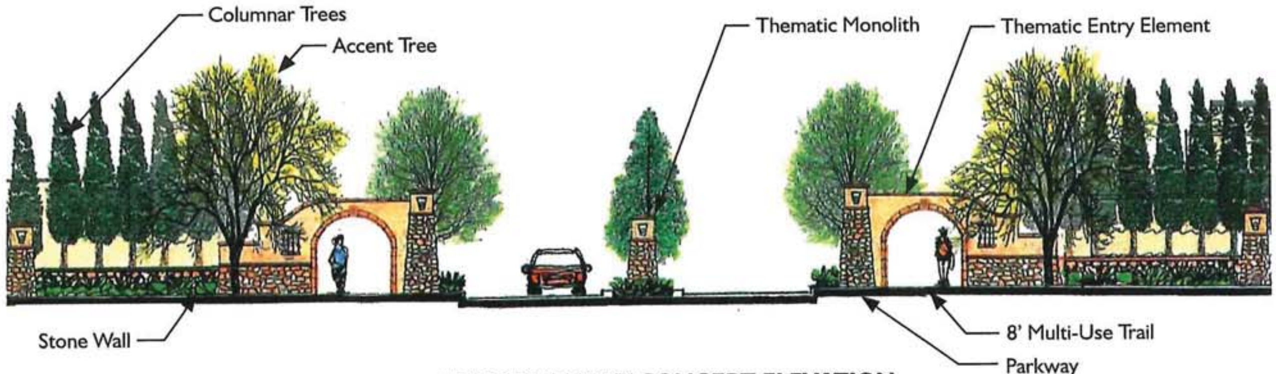


There are two primary intersections in the commercial area as Dublin Road intersects with both Fallon Road and Central Parkway. In these locations, the intersection should be highlighted with enhanced paving, flowering trees in the median, and thematic elements. Adjacent commercial development should be oriented to create an attractive front door at the corner with plaza areas and enhanced architectural treatments. The terminus of Central Parkway should be a focal area with thematic monuments, stone walls, and enhanced landscaping.



The arrival at the Fallon Village community core is marked by the T-intersection at Croak/Upper Loop Road and Central Parkway. A generous open lawn area is enclosed by windrows of columnar trees. Specimen trees and flowering perennials are used to further enhance the area. Thematic monuments, stone walls and enhanced paving areas accent the intersection and reflect the community theme.

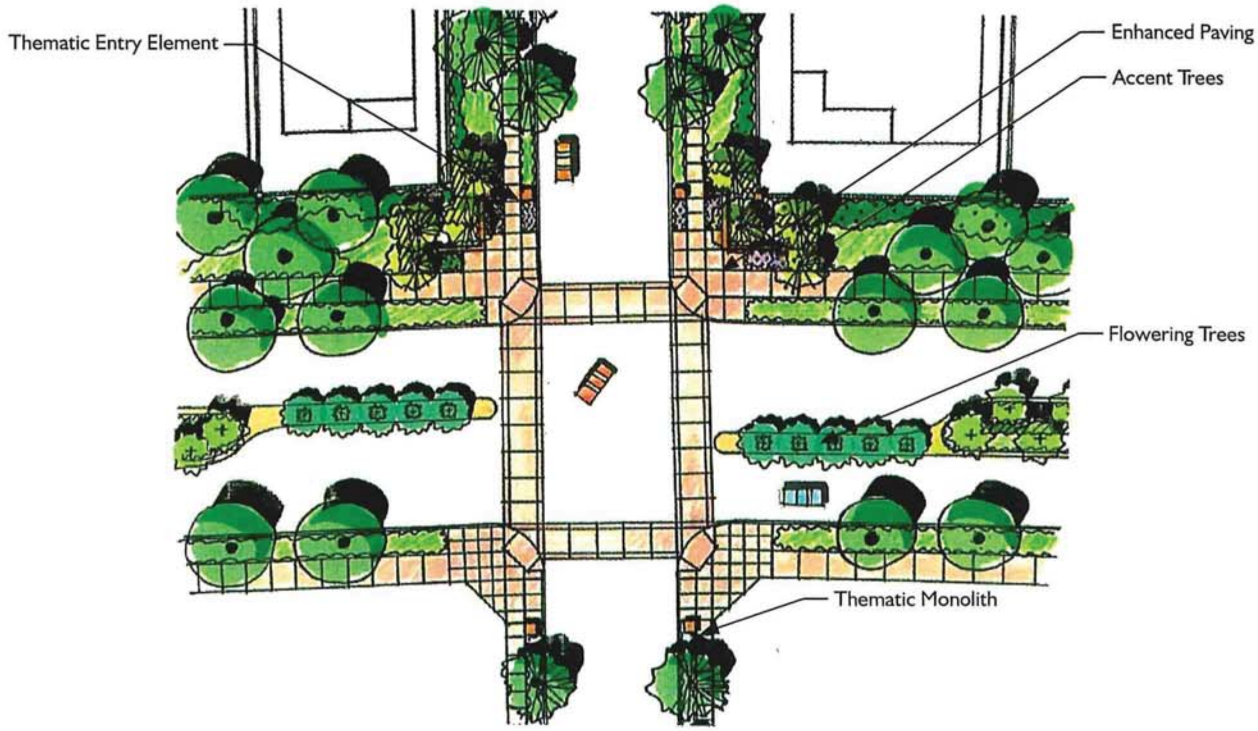
PRIMARY ENTRY CONCEPT PLAN



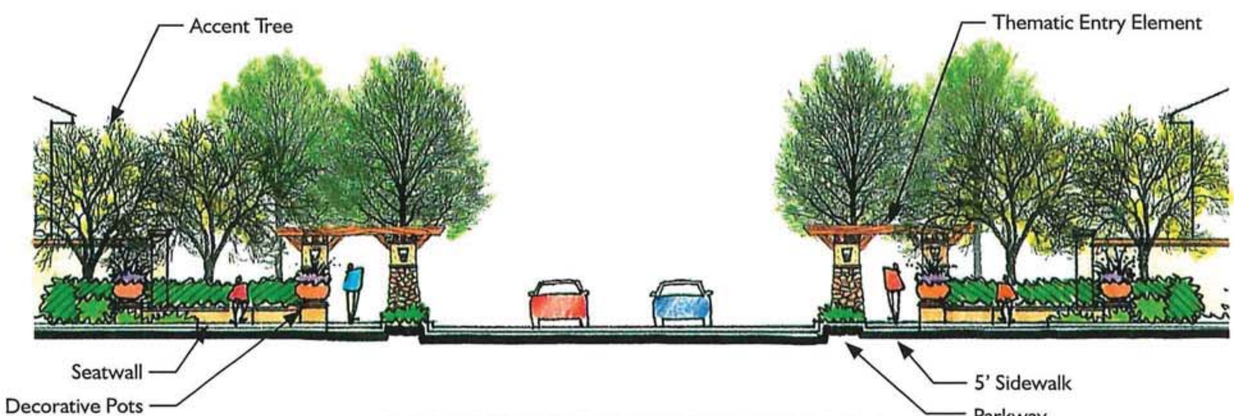
PRIMARY ENTRY CONCEPT ELEVATION

Primary neighborhood entries are located along Upper Loop Road and Croak Road. Secondary neighborhood entries may be used to highlight additional entries from the community roadway system. Entries should be designed to create distinct outdoor rooms that define the neighborhood character. Each entry should establish the identity for the individual neighborhood while remaining consistent with the Mediterranean Agrarian theme. Neighborhood entries should include:

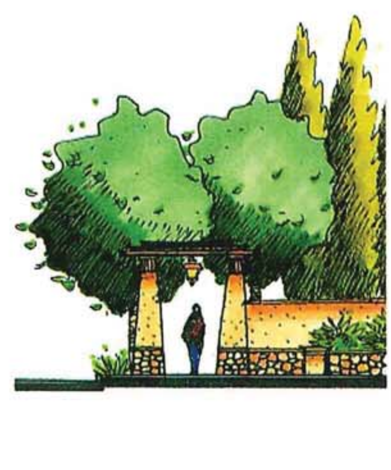
- Thematic community elements such as special paving, thematic entry portals, stone or stucco walls, community theme walls or ornamental fencing.



SECONDARY ENTRY CONCEPT PLAN



SECONDARY ENTRY CONCEPT ELEVATION



- Neighborhood signage incorporated with thematic monuments.
- Common landscaping elements which reflect the Mediterranean Agrarian theme including Italian Cypress, Olive and/or citrus trees, flowering trees, and perennials.
- Additional elements may be added such as decorative pots, seat pads or seatwalls, and benches.

Streetscape

Street Diagram

Major Streets

Residential Streets

STREET DIAGRAM

Streetscape Standards

Collector Roads (Central Parkway, Upper Loop Road and Croak Road) shall have an 8' multi-use trail, an 8' parkway, shoulders, and medians. Medians shall be a minimum of 16' in width.

Minor Residential Collector (residential entry roads) shall have a 6' or 8' separated sidewalk, an 8' parkway, and an optional 8' median.

Residential streets shall have a 5' separated sidewalk and an 5' parkway.

Rural Residential Street with monolithic sidewalk may be used where streets end at the open space interface cul-de-sacs. A minimum 5' monolithic sidewalk shall be provided. A 7' landscape easement within property line for planting and maintenance of street trees.

General Design Guidelines

Intersection widths shall be minimized to facilitate pedestrian crossings, through the use of bump-outs, reduced curb return radii or other methods as determined appropriate by Public Works and Fire Department.

Reduced road widths on rural residential streets (from 36' to 28') may be allowed where parking occurs only on one side.

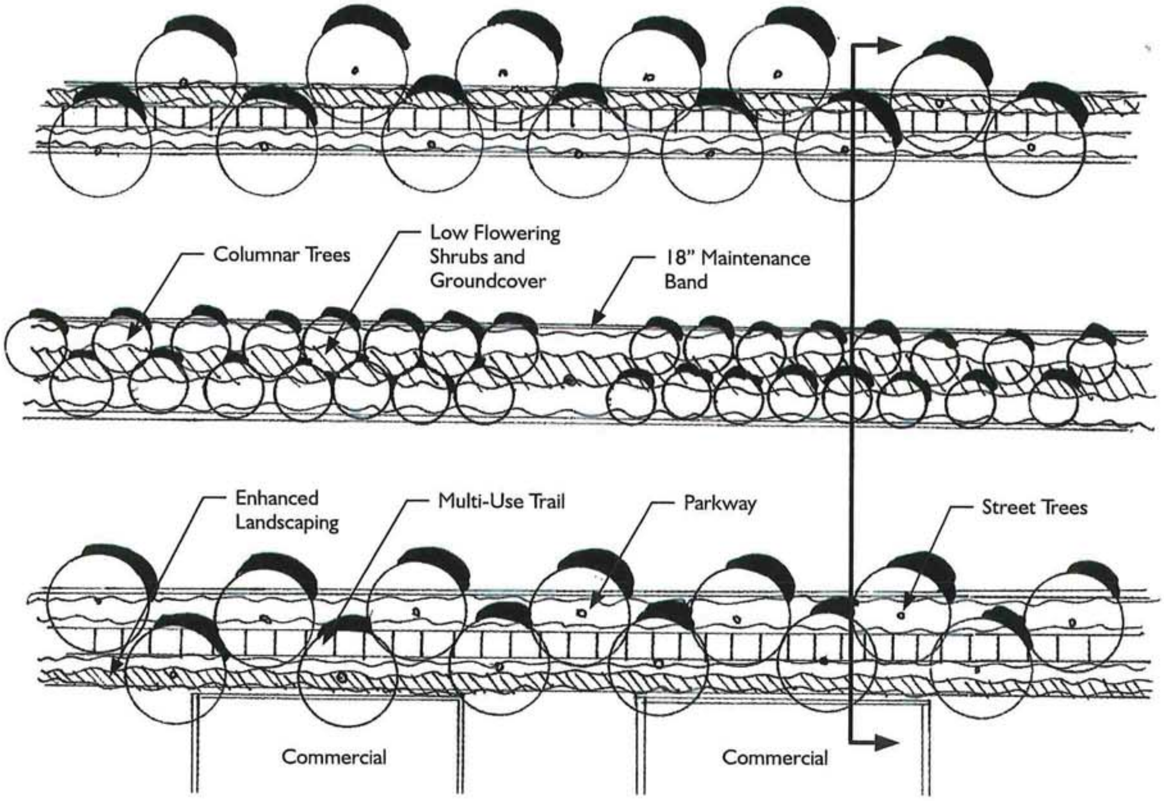
Dead end streets and Cul-de-sacs are discouraged. Where cul-de-sacs are used the following guidelines should apply:

- Maintenance accessway or pedestrian connections shall be utilized when adjacent to open space, trails, and public ROW.
- Cul-de-sacs may have a 42' radius (84' bulb) to face of curb when they serve streets more than 150' long without street parking on the cul-de-sac bulb.
- Maximum 25 homes on cul-de-sacs without EVAE. Cul-de-sacs with greater than 25 units require a secondary EVAE. 75 homes require a secondary public street access.

A public service easement (PSE) is required behind the street right-of-way.

- The PSE should be graded at 2% to allow placement of utility vaults and the 2% grade should continue 1' beyond the edge of the PSE.
- The PSE may be graded at steeper than 2% provided that any retaining walls needed to accommodate utility structures are located at the time of grading and improvement plan submittal and are implemented in accordance with the design standards included herein.

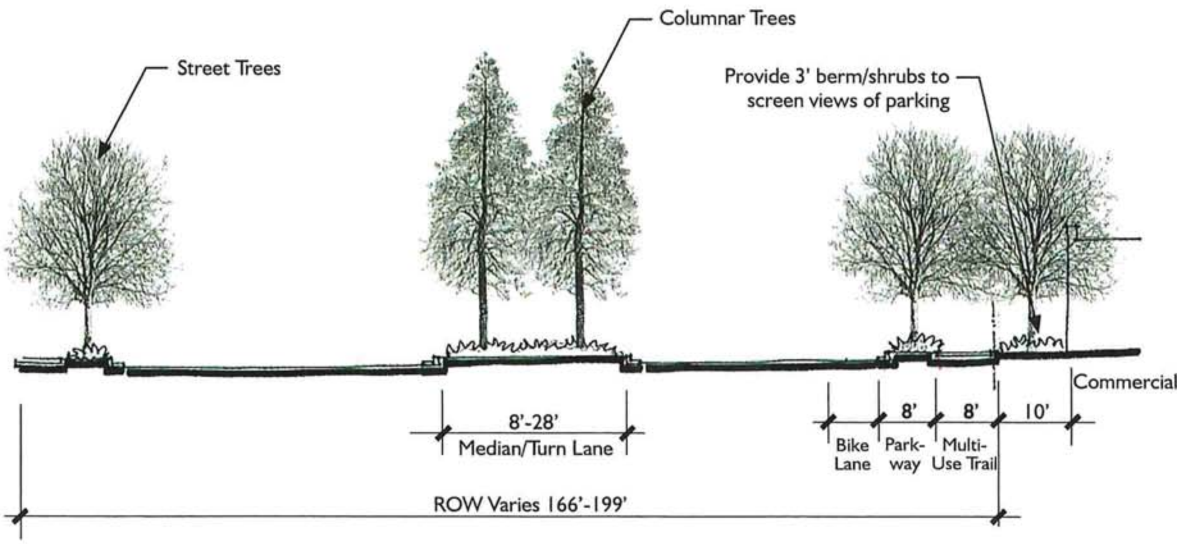
Utility structures shall be placed underground whenever possible. Above ground structures shall be allotted enough room to ensure adequate area for landscape screening.



DESIGN CONCEPT

This regional corridor should have a consistent streetscape character as it extends from other parts of Dublin through Fallon Village. Canopy trees are used along the street edge to enclose the street and provide shade for pedestrians.

- The 8' multi-use trail is separated from the roadway by a generous 8' parkway.
- Columnar trees in median identify this corridor and reduce the width of the street.
- Parking lots at commercial should be screened with enhanced landscaping.
- Architecture at commercial should be enhanced to enclose the street.



PLANTING

EDGES

- Pyrus calleryana, Ornamental Pear

GATEWAY EDGES

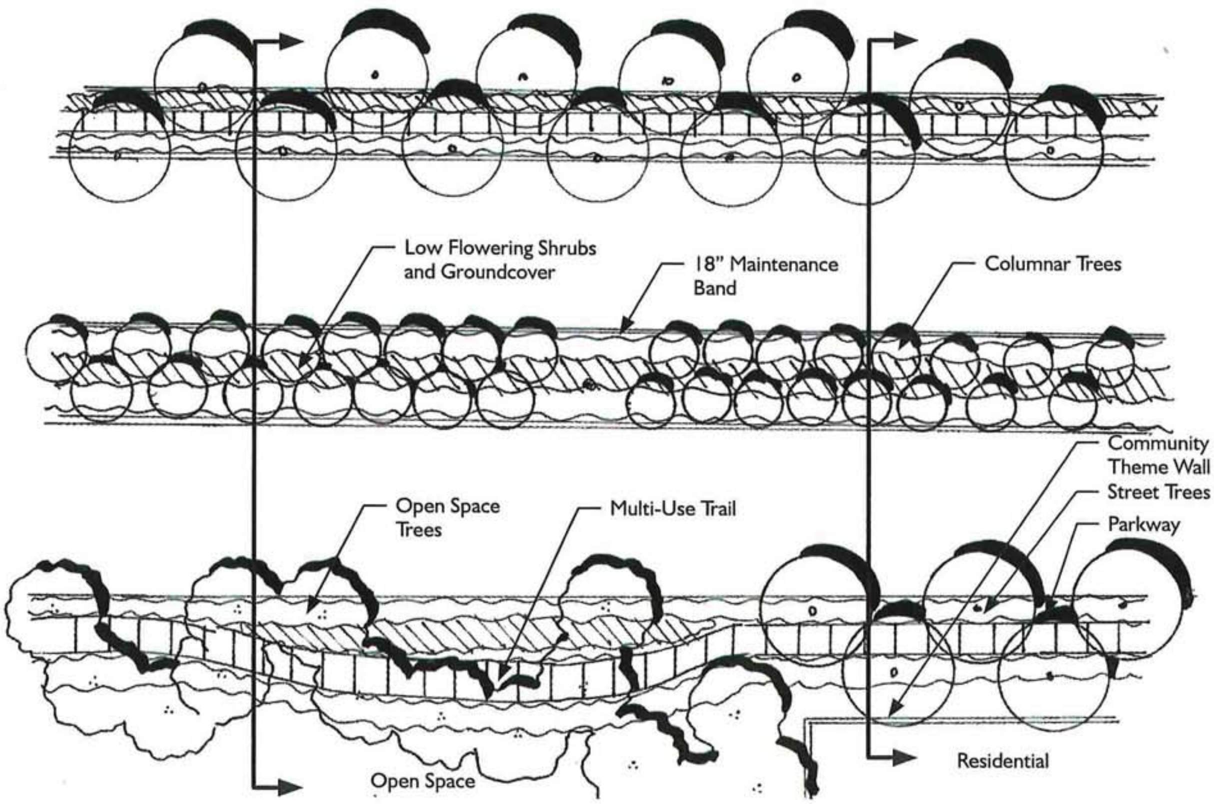
- Populus italica, Italian Poplar

MEDIAN

- Acer rubrum 'Armstrong', Armstrong Maple

SHRUBS AND GROUNDCOVERS

- Drought-tolerant, deer-resistant species.
- Showy species to be used within median. Plant heights should not obstruct line of sight.
- Taller shrubs should be used to screen parking areas.



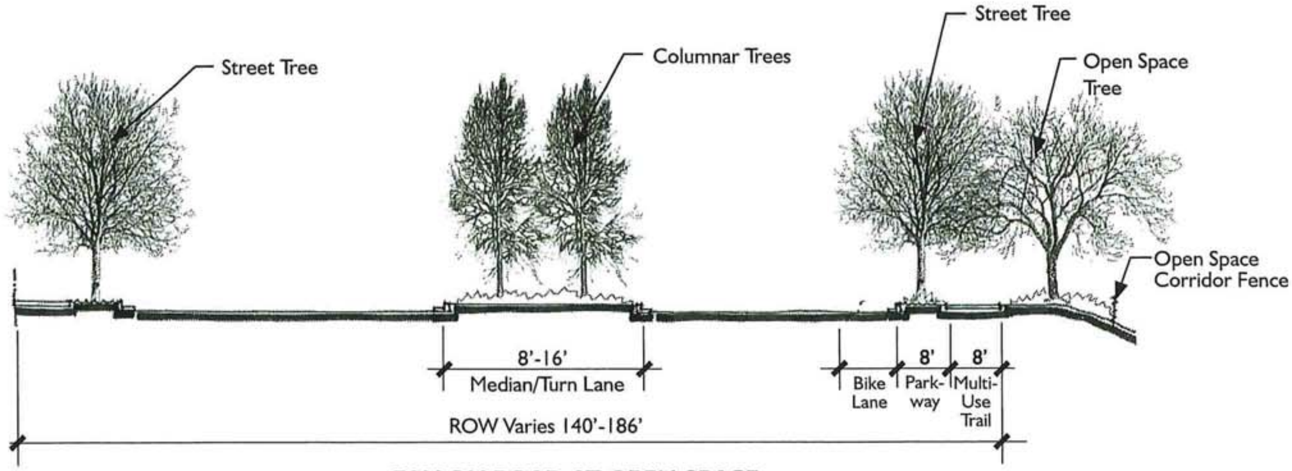
DESIGN CONCEPT

The design for this portion of Fallon Road is consistent with the concept presented for the southern section. The edge conditions in this area vary and should receive unique treatments as outlined below.

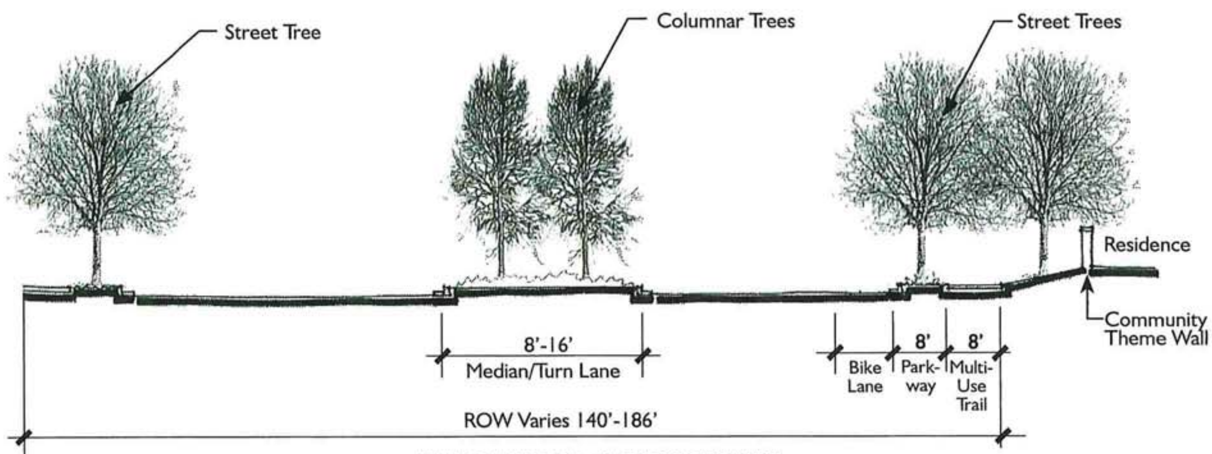
Where the street edge abuts open space, the street tree pattern becomes naturalized to celebrate views into open space areas. Where possible the multi-use trail may meander. Access to the open space is controlled by a fence which is located away from the roadway and screened with landscaping to preserve views.

Where residential development abuts the road, a community theme wall will be used. The theme wall shall wrap residential development as appropriate to avoid views of rear yard from Fallon Road.

- The 8' multi-use trail is separated from the roadway by a generous 8' parkway. The trail may meander at the open space interface.
- Columnar trees in median identify this corridor and reduce the width of the street.
- Residential yards are enclosed with a community theme wall and screened with an additional row of trees.



FALLON ROAD AT OPEN SPACE



FALLON ROAD AT RESIDENTIAL

Planting

Edges

- Pyrus calleryana, Ornamental Pear

Open Space Edges

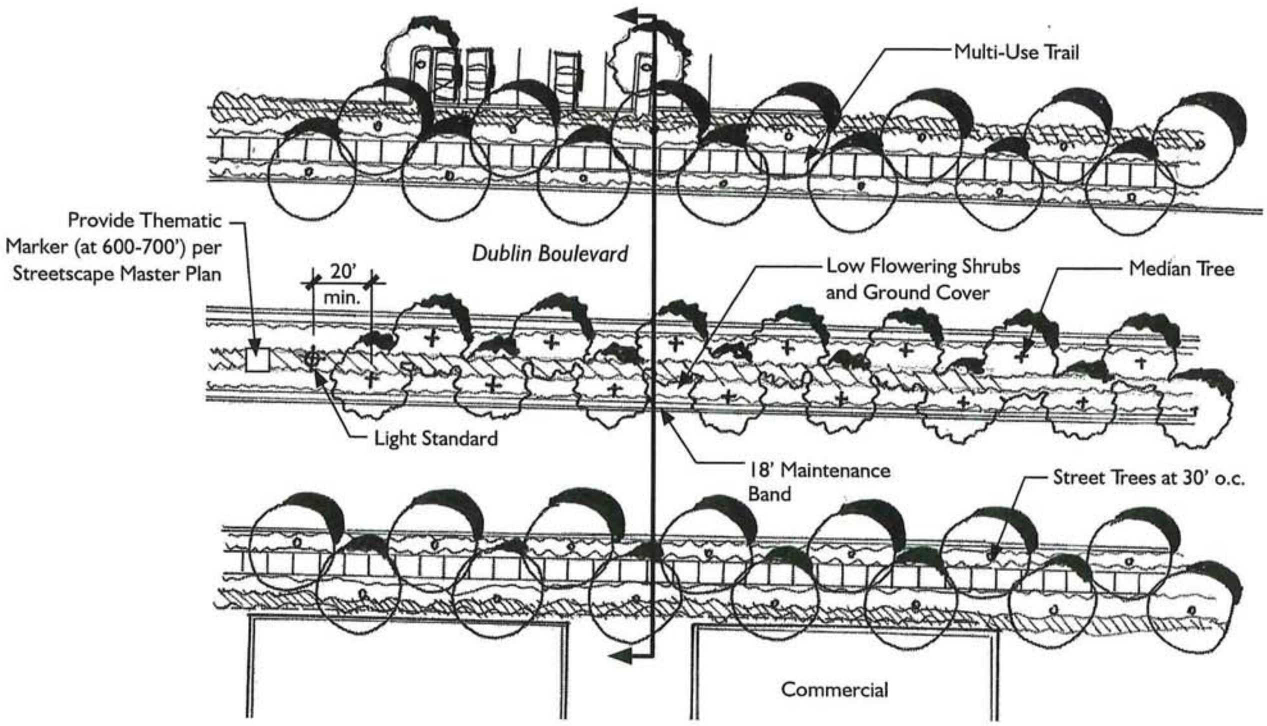
- Oaks selected from tree palette

Median

- Acer rubrum 'Armstrong', Armstrong Maple

Shrubs and Groundcovers

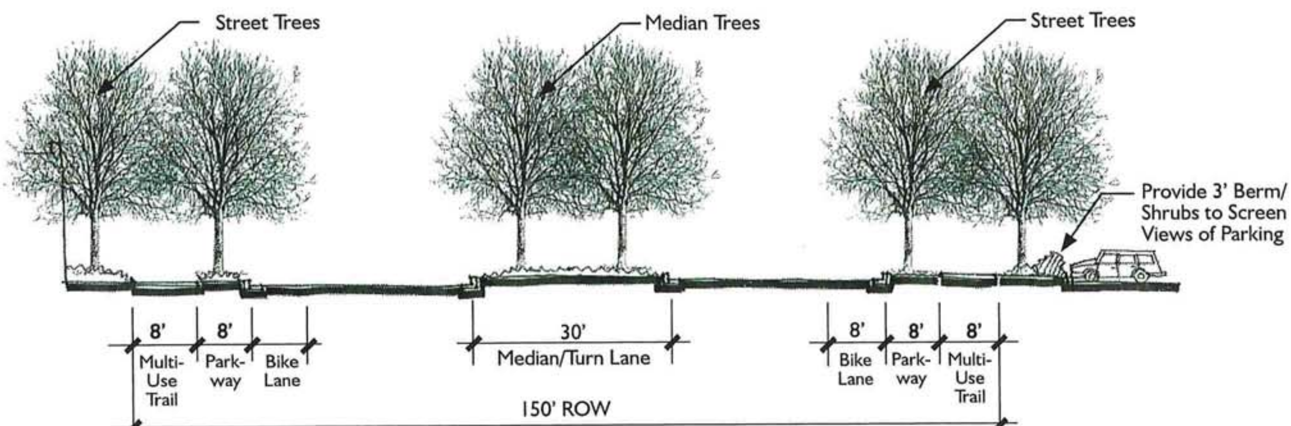
- Drought-tolerant, deer-resistant species.
- Showy species to be used within median. Plant heights should not obstruct line of sight.
- Tall shrubs along the community wall to enhance appearance.



DESIGN CONCEPT

Dublin Boulevard is a major east/west corridor for the City of Dublin. This regional commercial corridor should maintain a consistent streetscape character as a unifying element.

- The 8' multi-use trail is separated from the roadway by a generous 8' parkway.
- Flowering trees in median identify this corridor.
- Parking lots should be screened with enhanced landscaping.
- Architecture at commercial should be enhanced to enclose the street.



DUBLIN BOULEVARD TYPICAL SECTION

Planting

Edges

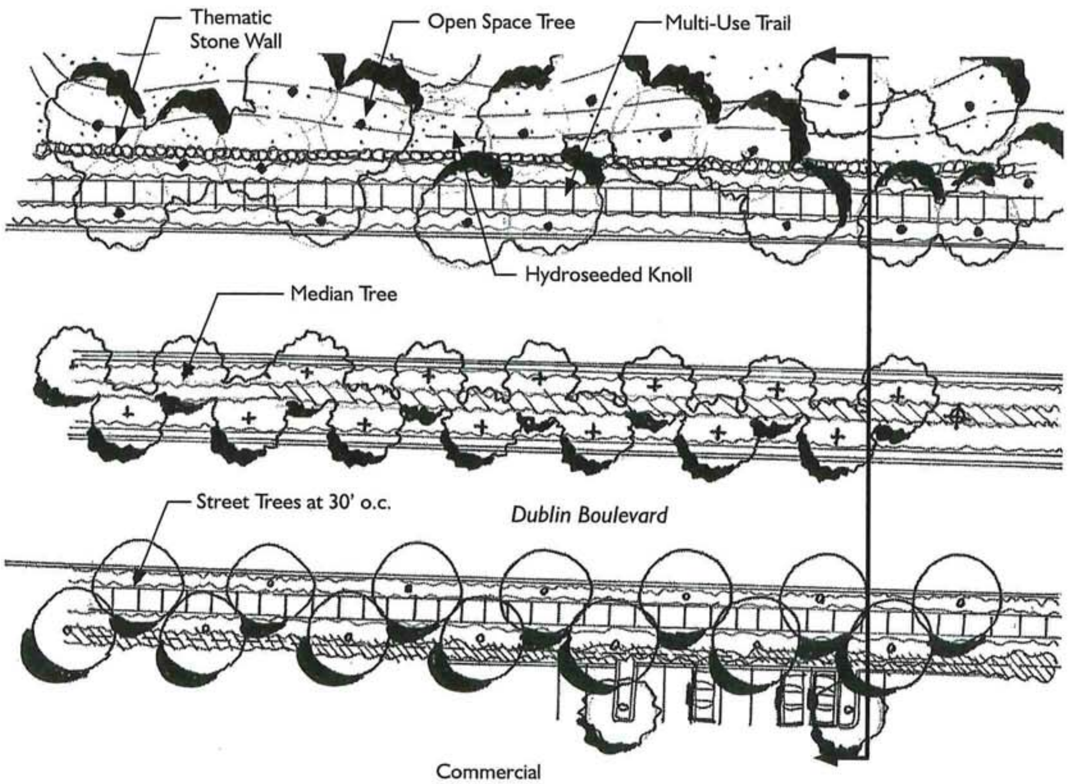
- Platanus acerfolia, California Sycamore

Median

- Pyrus calleryana, Ornamental Pear
- Lagerstoemia indica, Crape Myrtle (at turn pockets)

Shrubs and Groundcovers

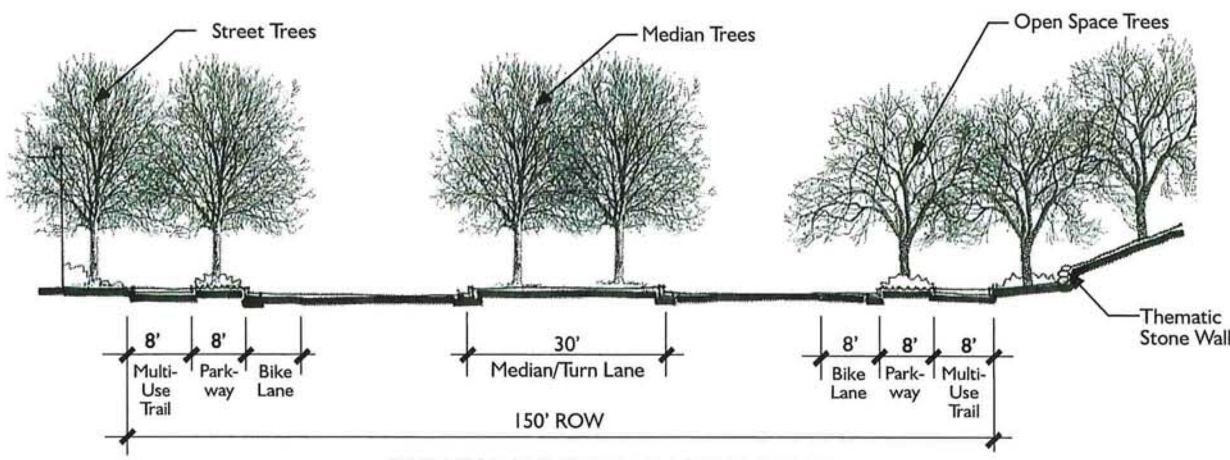
- Drought-tolerant, deer-resistant species.
- Showy species to be used within median. Plant heights should not obstruct line of sight.
- Tall shrubs should be used to screen parking areas.



DESIGN CONCEPT

The western portion of Dublin Boulevard abuts the open space knolls which separate the regional retail uses from the commercial and residential portion of Fallon Village. This open space edge has a special streetscape treatment to highlight this unique feature.

- The 8' multi-use trail and 8' parkway continue along the open space edge.
- Flowering trees in median identify this corridor.
- Parking lots along the commercial edge should be screened with enhanced landscaping.
- A thematic stone wall and open space trees are used where the street abuts open space to enhance the Mediterranean Agrarian feeling of the community.



DUBLIN BOULEVARD AT OPEN SPACE

Planting

Commercial Edge

- Platanus acerfolia, California Sycamore

Open Space Edge

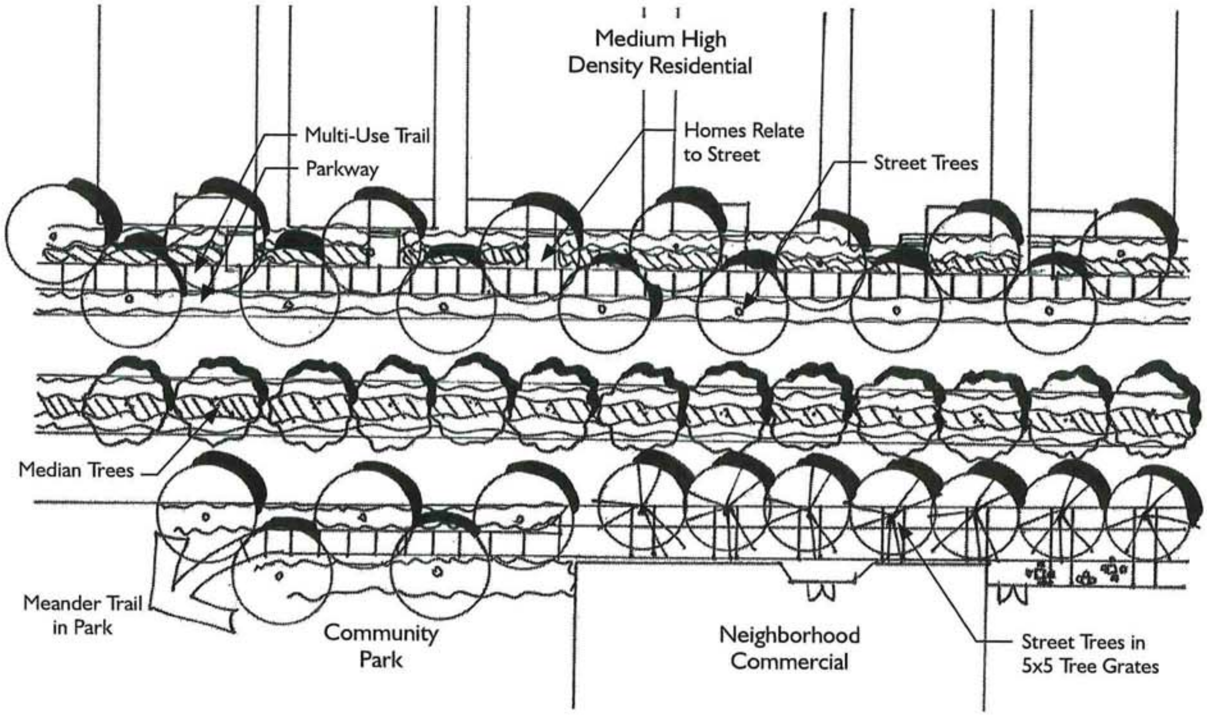
- Oaks selected from tree palette

Median

- Pyrus calleryana, Ornamental Pear
- Lagerstoemia indica, Crape Myrtle (at turn pockets)

Shrubs and Groundcovers

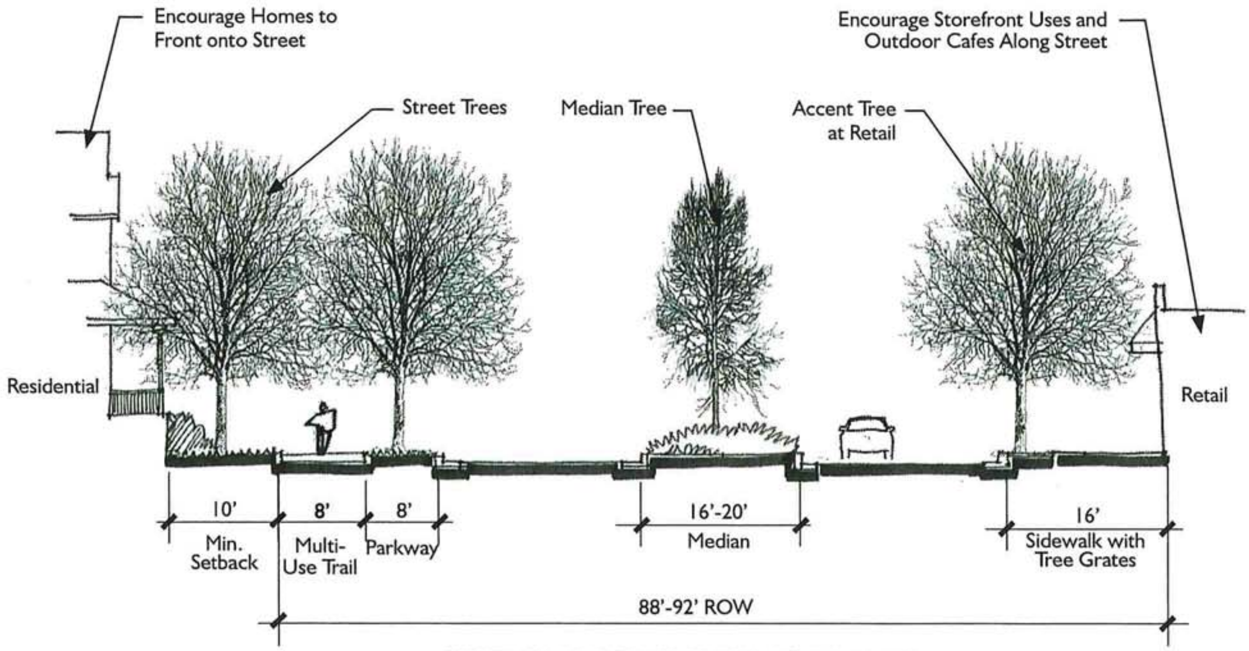
- Drought-tolerant, deer-resistant species.
- Showy species to be used within median. Plant heights should not obstruct line of sight.
- Tall shrubs should be used to screen parking areas.



DESIGN CONCEPT

Central Parkway is the primary street frontage within the Village Center. The streetscape is this area is designed to unify the variety of uses while highlighting special features such as the retail frontage.

- The 8' multi-use trail is separated from the street by an 8' parkway along the residential frontage.
- The street tree pattern responds to the adjacent land use as is moves through the Village Center.
- Direct pedestrian connections between the residences and the multi-use trail are encouraged.
- The multi-use trail should be integrated into the design of the community park.
- The street tree species changes along the retail frontage to highlight this area. A 16' sidewalk and trees in grates allows for greater pedestrian access and outdoor dining opportunities.



CENTRAL PARKWAY AT VILLAGE CENTER

Planting

Edges

- Celtis sinensis, Chinese Hackberry

Retail Edge

- Purus kawakamii, Evergreen Pear, in tree wells

Median

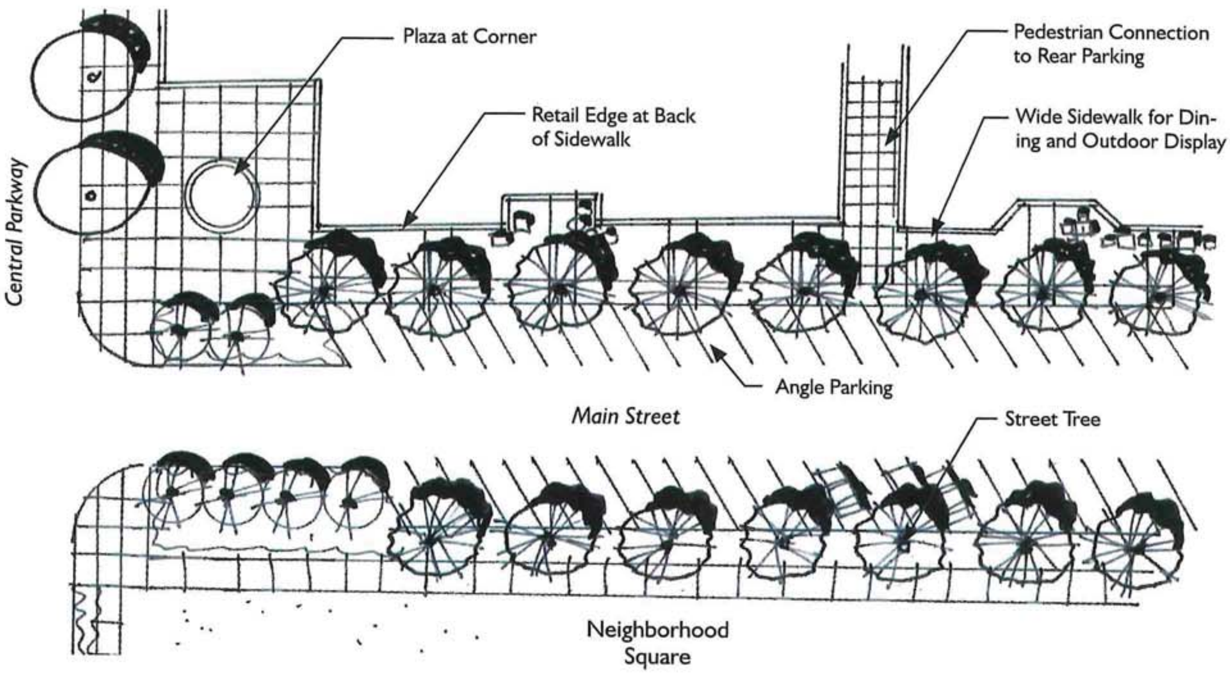
- Pyrus calleryana, Ornamental Pear
- Lagerstroemia indica, Crape Myrtle (at turn pockets)

Gateways

- Populus italica, Italian Poplar (edges)
- Acer rubrum 'Armstrong', Armstrong Maple (median)

Shrubs and Groundcovers

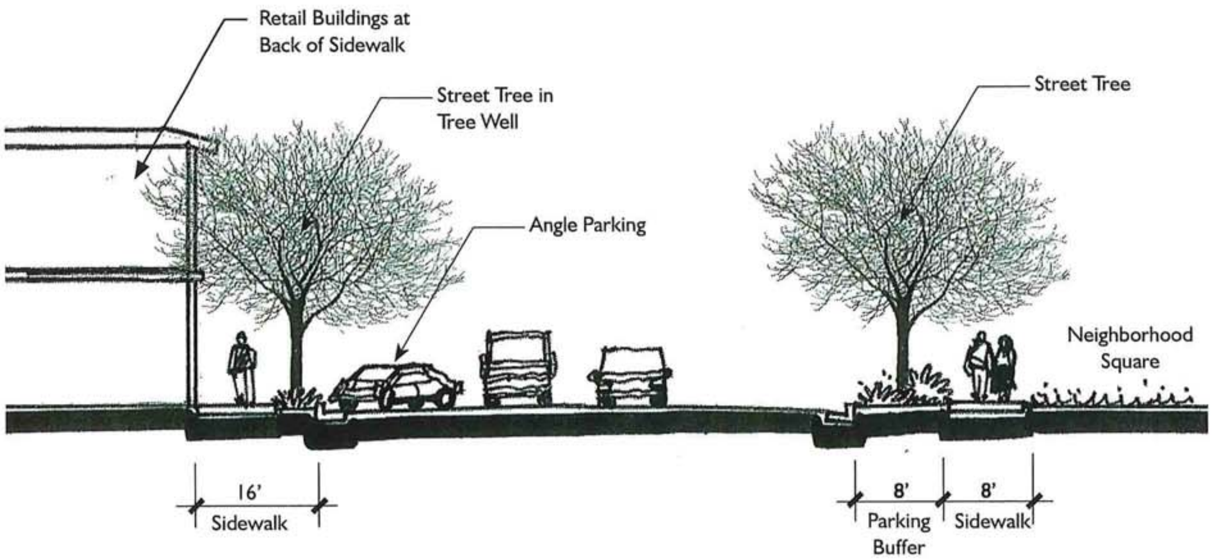
- Drought-tolerant, deer-resistant species.
- Showy species to be used within median. Plant heights should not obstruct line of sight.



DESIGN CONCEPT

Main Street surrounds the neighborhood square and is designed to create a pedestrian-friendly "village" ambiance.

- Diagonal parking is provided on both sides of the street.
- 16' sidewalks encourage pedestrian activity, outdoor display and seating.
- Street trees are placed in 6x6 tree wells with grates.
- Pedestrian links to rear parking areas should be highlighted.
- Retail buildings are located at the back of sidewalk.



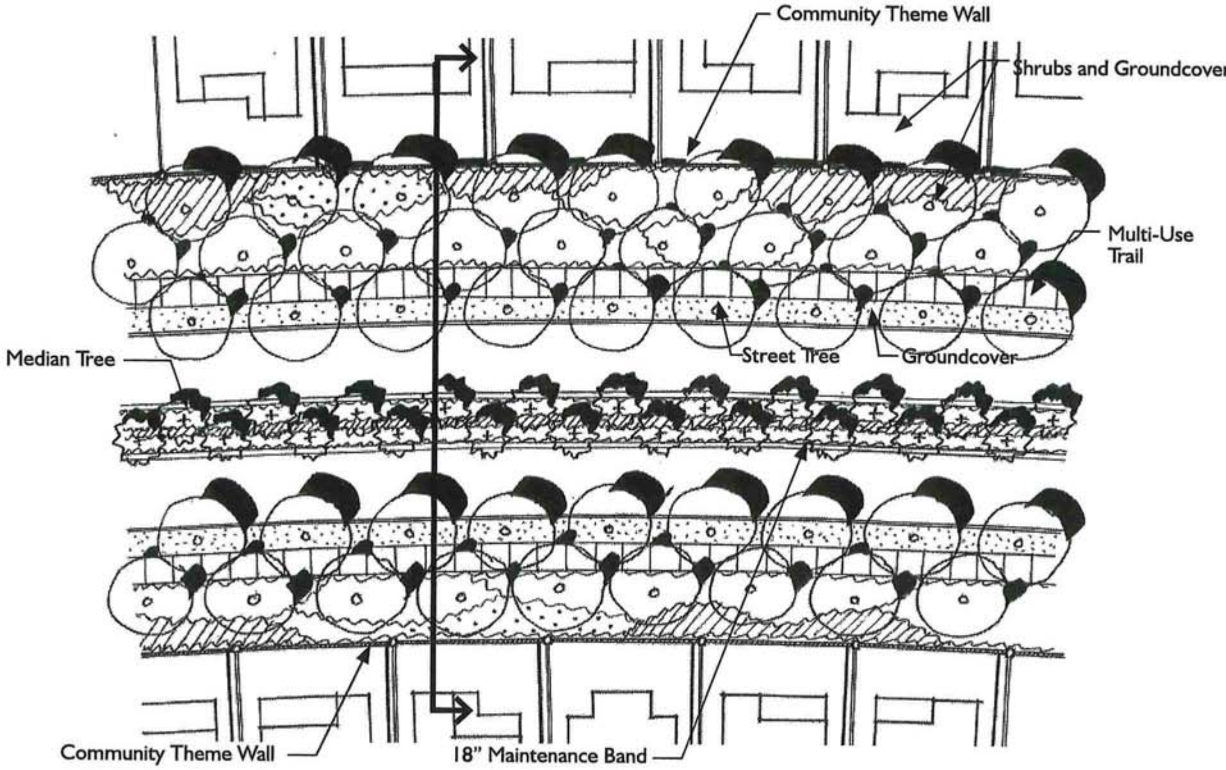
Planting

Street Trees in Tree Wells

- Koelreuteria paniculata, Golden Rain Tree

Accent Trees at Corner

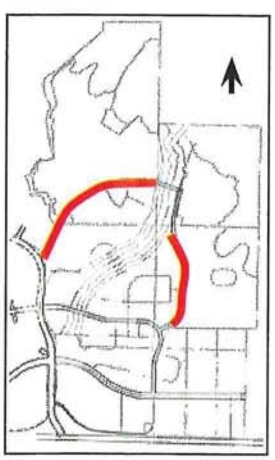
- Lagerstroemia indica, Crape Myrtle

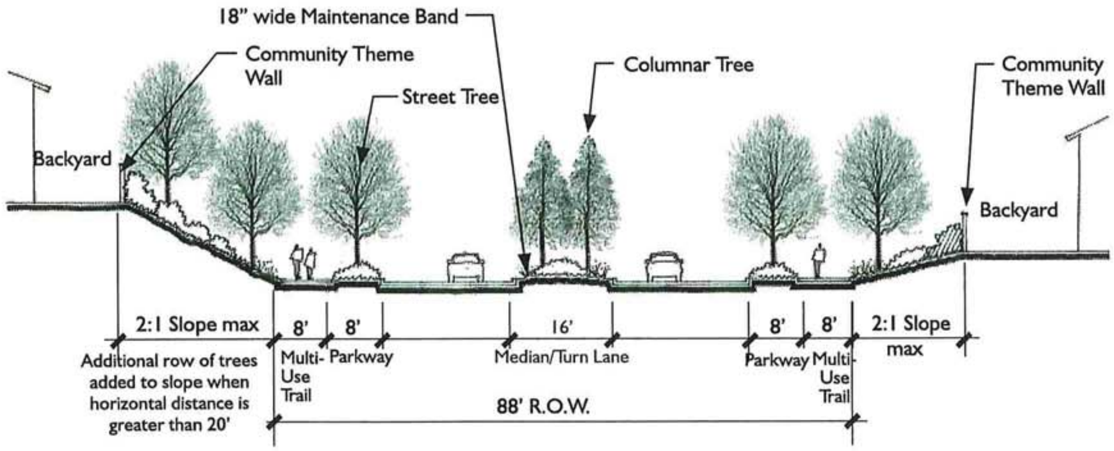


DESIGN CONCEPT

The Upper Loop Road is a unifying element for Fallon Village.

- An eight-foot wide multi-use trail is provided along both sides of the street. The trail is separated from the road by an eight-foot wide parkway strip.
- A Community theme wall and landscape setback will separate homes from the Upper Loop Road. The wall will be located at the top of slopes along the roadway.
- Large-scale canopy trees will be used along road edges to enclose the street and shade the multi-use trail.
- A maximum 16' wide landscaped median with columnar trees will distinctly identify the primary corridor and reduce the width of street.
- Small, flowering trees will be used to highlight the intersection in narrowed median.
- Drifts of shrubs and low groundcovers add visual interest. All plant materials will be adapted to use of recycled water.





Planting

Edges

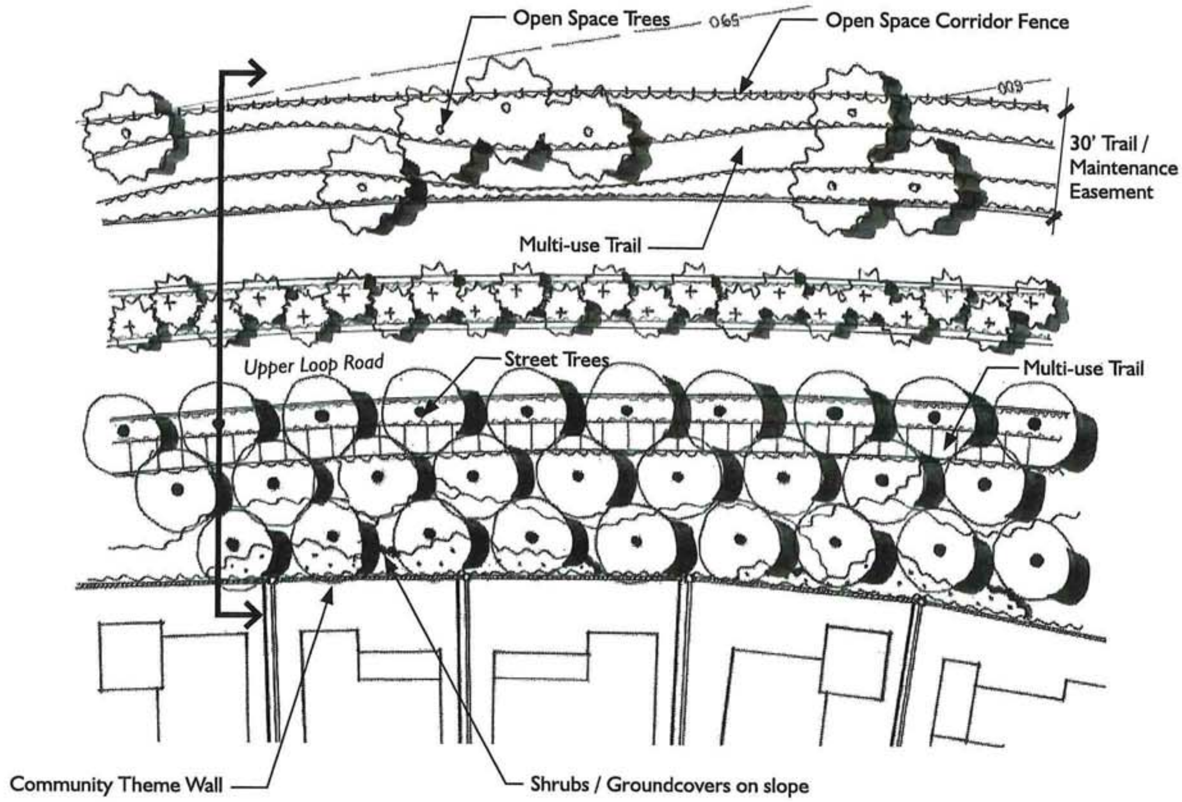
- Ulmus parvifolia, Chinese Elm, 24" box, triangulated at 30' o.c.
- When the horizontal distance between the sidewalk and the community theme wall is greater than 20', an third row of trees shall be provided.

Median

- Quercus robur 'Fastigata', Columnar English Oak, 24" box, triangulated at 18' o.c.

Shrubs and Groundcovers

- Drought-tolerant, deer-resistant species.
- Tall shrubs along the community wall to enhance appearance.
- Showy species to be used within median. Plant heights should not obstruct line of sight.



DESIGN CONCEPT

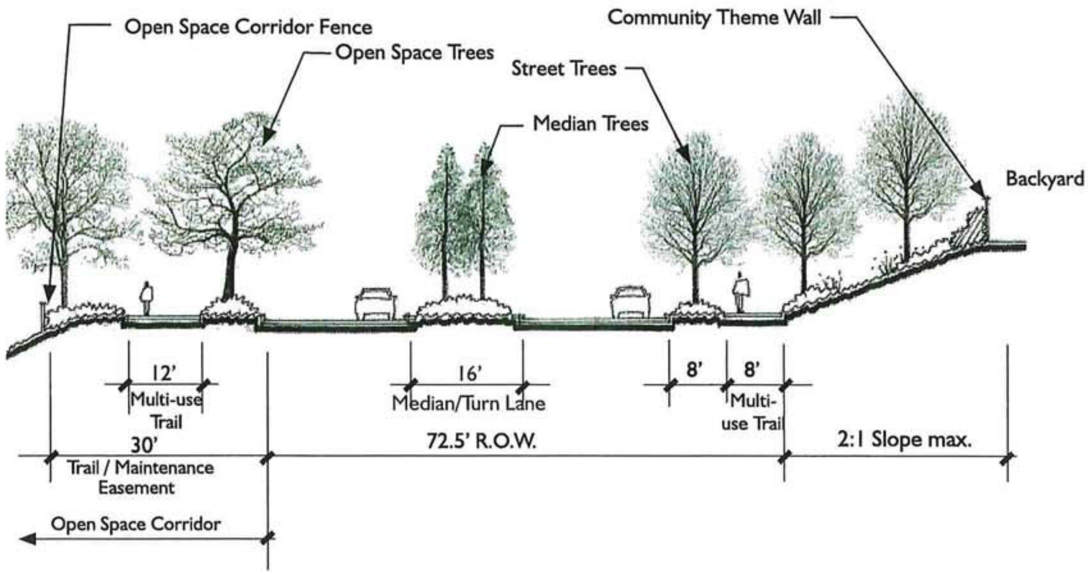
In some locations, Upper Loop Road interfaces with both the residential neighborhood and the open space corridor.

- A separated eight-foot wide multi-use trail with large canopy trees planted in parkway is provided along the residential edge.
- The open space corridor forms the western edge of the streetscape. Within the 30' wide trail/maintenance easement a 12' wide multi-use trails provided. Trail meanders where grades permit, providing a minimum of 4' landscape area on each side.
- A sixteen-foot wide landscape median with columnar trees reduces the width of the street. Small flowering trees will be used to highlight the intersection in the narrowed median.
- A community theme wall and landscape setback separates the road from the adjacent homes.

PLANTING WITHIN THE 30' EASEMENT

NATURAL OPEN SPACE TREES

- Informal clusters of trees selected from the open space tree list, average of 1 tree per 600 square feet, 15 gallon.



Shrubs and Groundcovers

- Drought-tolerant, deer-resistant species.
- Mixture of 1 and 5 gallon sizes.

Planting at Residential Edge and Median

Edge

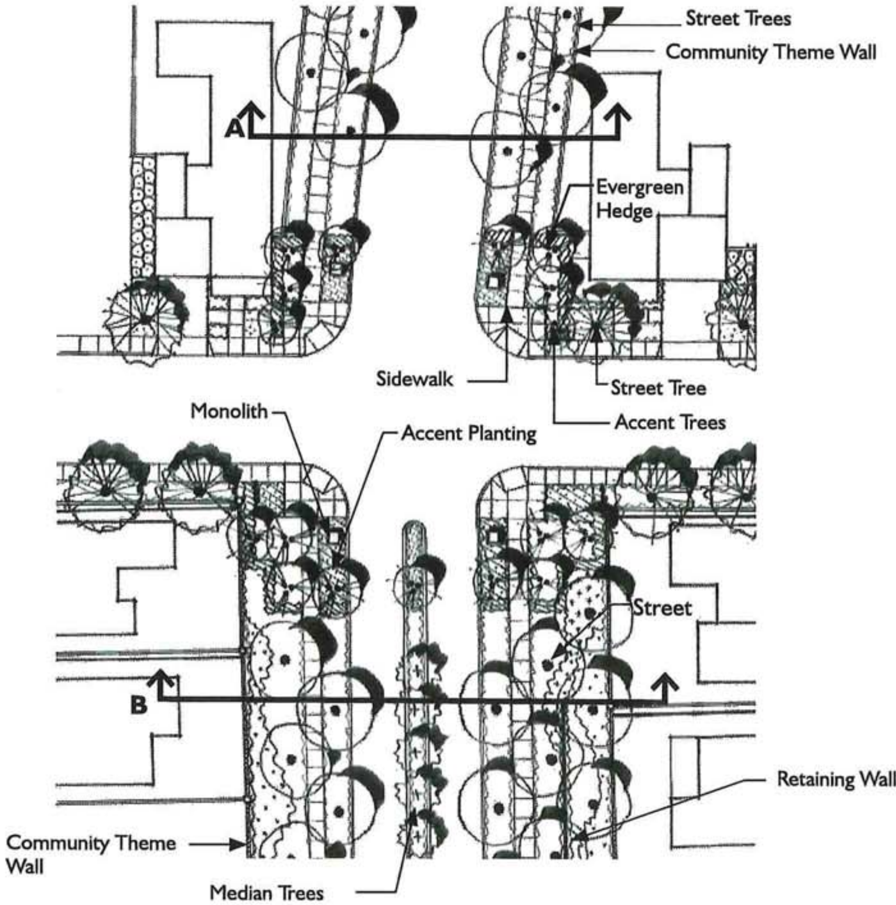
- Ulmus parvifolia, Chinese Elm, 24" box, triangulated at 30' o.c., typical.
- Double rows of triangulated trees on the residential side of the road. When the horizontal distance between the sidewalk and the community theme wall is more than 20', a third row of trees is added within this area.

Median

- Quercus robur 'Fastigiata', 24" box, triangulated at 18' o.c.

Shrubs and Groundcovers

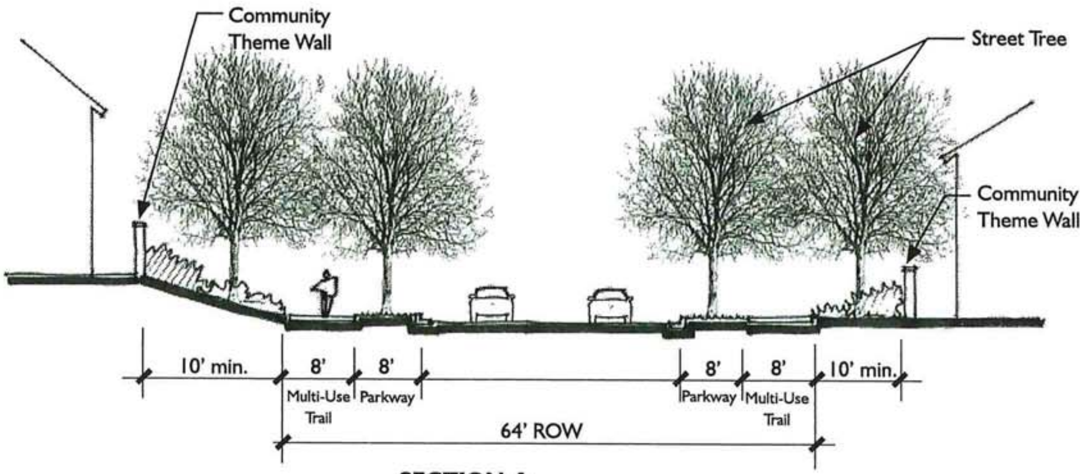
- Drought-tolerant, deer-resistant species.
- Tall shrubs along the community wall to enhance appearance.
- Showy species to be used within median. Plant heights should not obstruct line-of-sight.



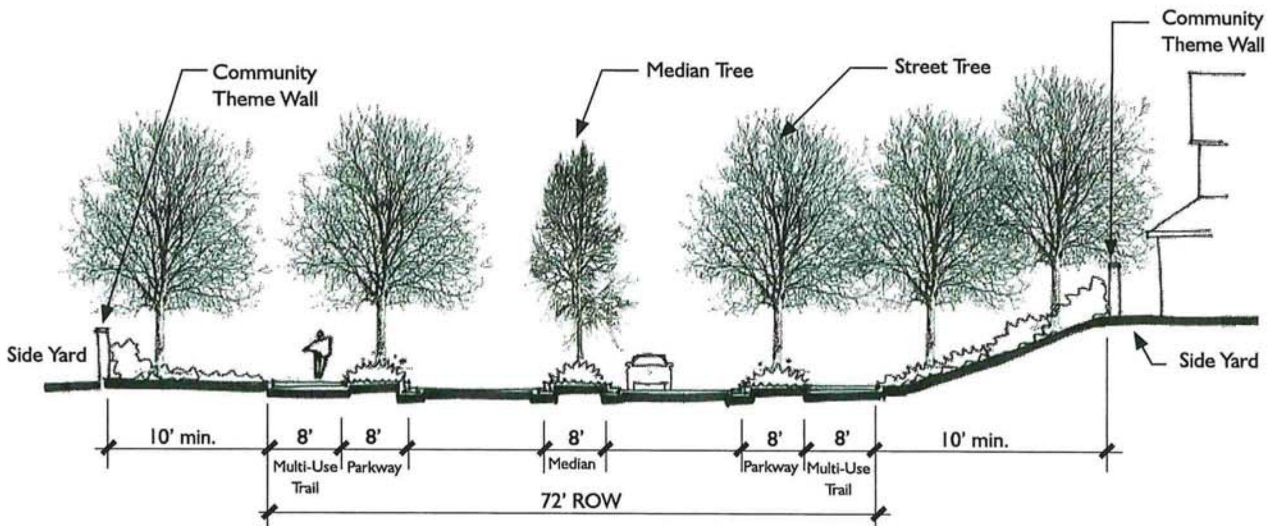
DESIGN CONCEPT

The link between a collector road and the neighborhood is enhanced through the design character of the neighborhood entry road.

- The pedestrian connection is strengthened by use of an eight-foot wide multi-use trail on each side of the street.
- A community theme wall lines both sides of the street.
- In addition to the 8' wide parkway , a min. 10' wide landscape parcel shall be provided between the trail and the theme wall
- The first segment of the entry road may be highlighted with a landscaped median.
- The parkway and landscape setback are planted with canopy trees on each side of the trail.
- Monoliths and thematic planting should be included to highlight the entry.



SECTION A



SECTION B

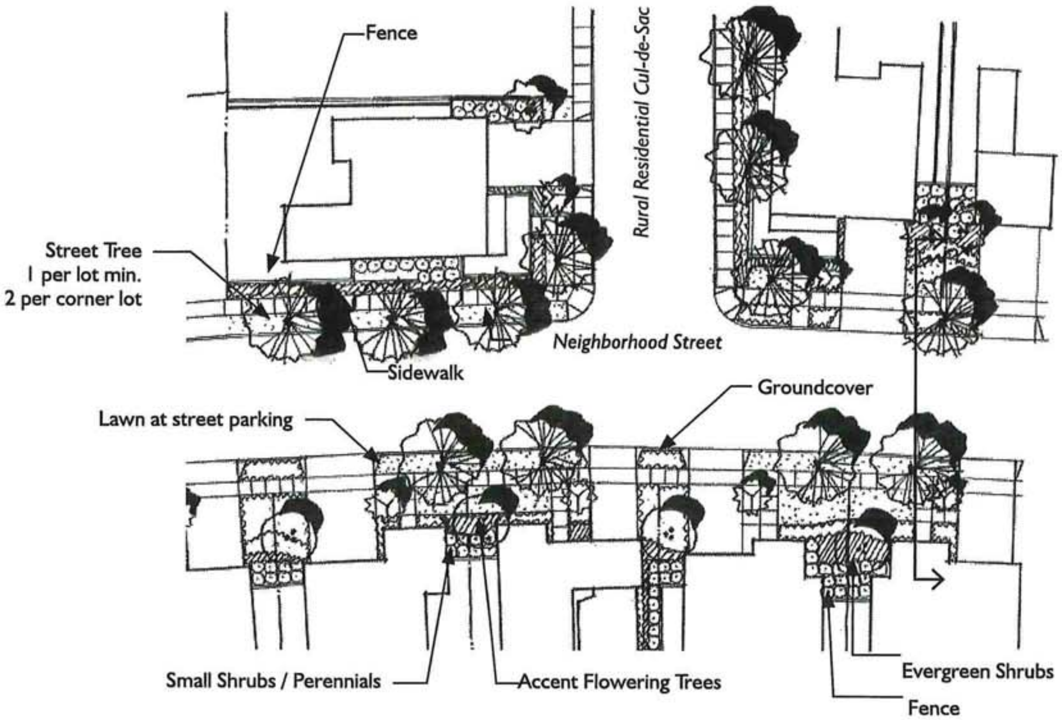
Planting

Edges

- A double rows of trees should be planted on each side of the entry as space allows. When the horizontal distance between the sidewalk and the community theme wall is more than 20', another row of street tree should be added within this area.
- Accent trees should be used at the main intersection as shown in the secondary entry concept plan.

Shrubs and Groundcovers

- Drought-tolerant, deer-resistant species.
- Use showy, colorful species at the intersection and median to enhance the entry.



DESIGN CONCEPT

The neighborhood streets are developed with tree -lined parkways.

- The 5' wide sidewalk is separated from the curb by a 5' wide parkway.
- Tree locations shall be coordinated with street lights and utilities to provide a consistent tree canopy enclosing street
- Where side yards abut the street, an additional 3' - 5' wide landscape setback is required between the fence and the sidewalk. Where appropriate, additional street trees to be planted in setback
- Views of sideyard fences to be softened by the use of 4-5' tall evergreen shrubs planted in setback
- The consistent use of a single street tree species on each street will be used to reinforce streetscape legibility

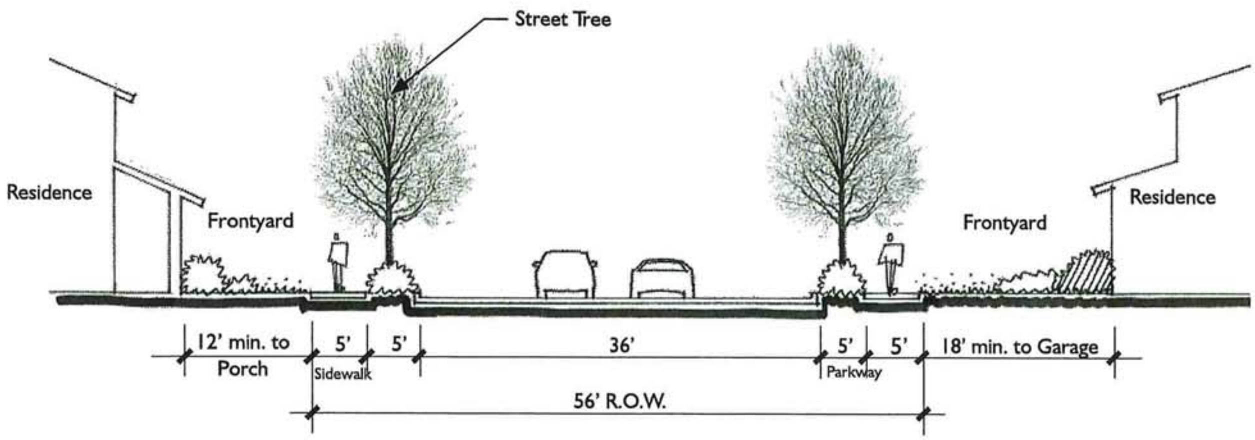
PLANTING

STREET TREES

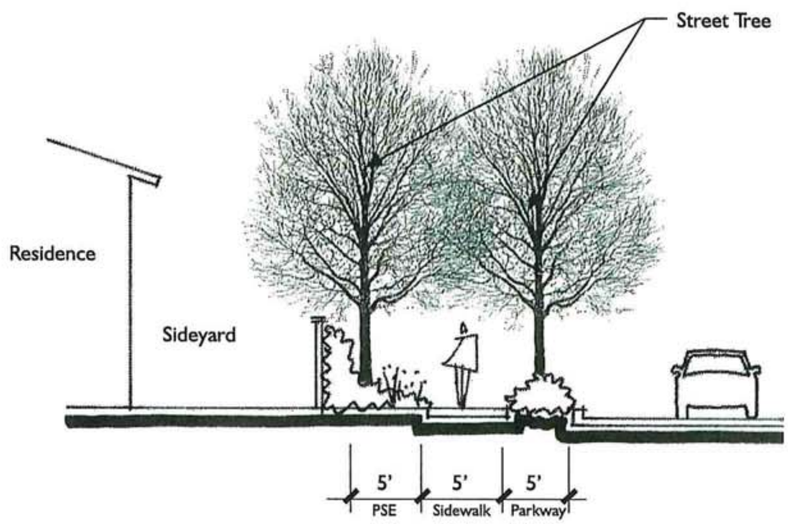
- Along the residential interface, a single row of street trees occur on each side. 1 tree minimum per residential lot, and 2 trees minimum per corner lot, 15 gallon

SHRUBS AND GROUNDCOVERS

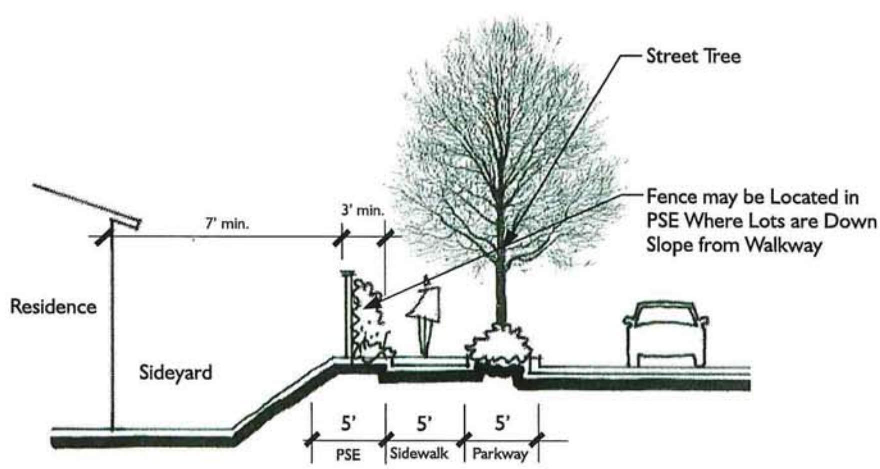
- Drought-tolerant, deer resistant.
- Groundcover should be planted under street trees in the parkway. Where curbside parking occurs, the parkway should be planted with lawn.



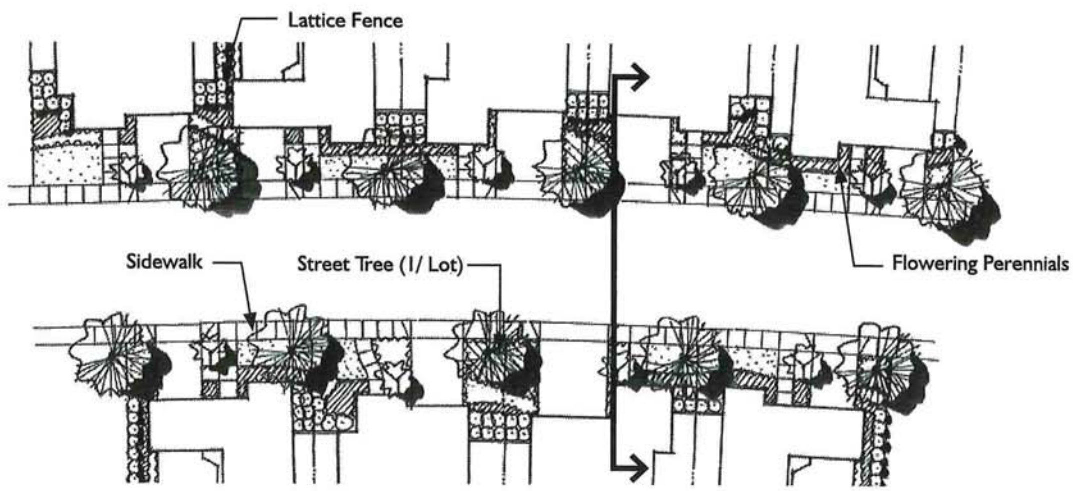
TYPICAL SECTION

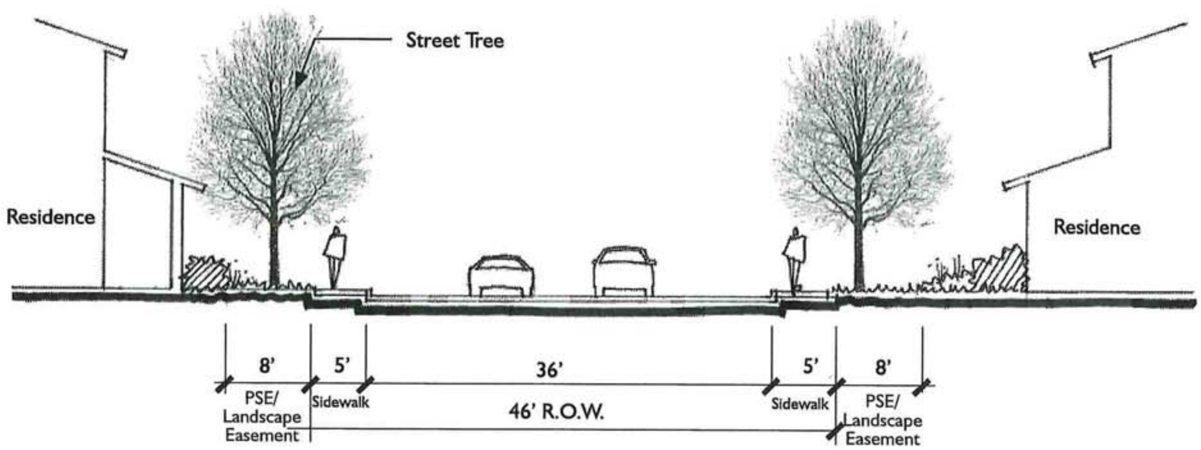


FENCE AT SIDEYARD WITHOUT SLOPE



FENCE AT SIDEYARD WITH SLOPE





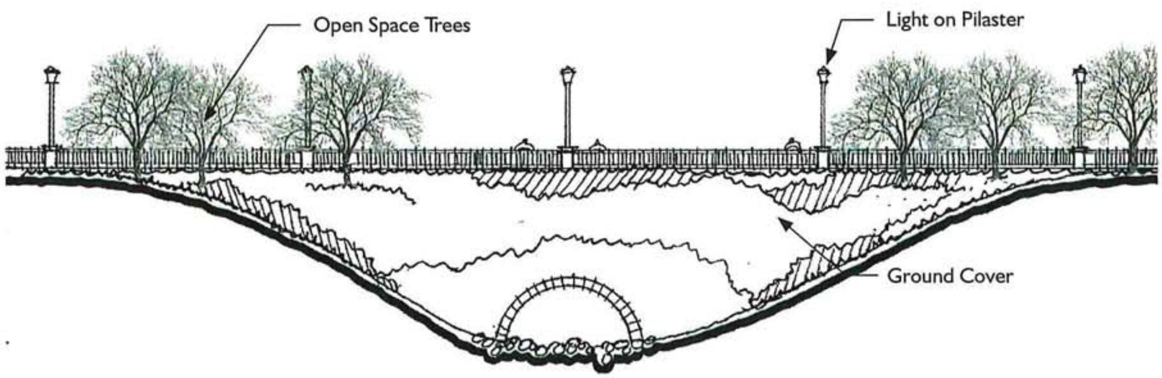
DESIGN CONCEPT

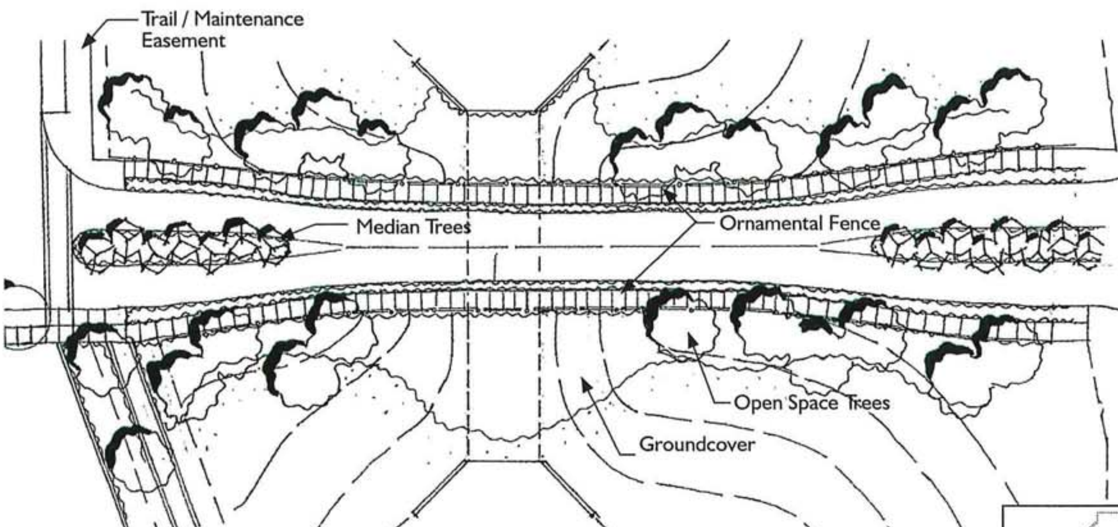
The Residential Cul-de-Sacs generally occur where streets terminate at neighborhood borders at open space. Street trees are to be planted in front yards within the 8' PSE/landscape easement, behind the 5' wide monolithic sidewalk.

PLANTING

STREET TREES

- Along the residential interface, a single row of street trees occur on each side; 1 tree minimum per residential lot; 2 minimum per corner lot.





CORRIDOR CROSSING CONCEPT

DESIGN CONCEPT

Crossings of the open space corridor create a memorable architectural statement in the design of a "bridge." It is an opportunity to celebrate the open space character and reinforce the Mediterranean Agrarian theme. Open space trees and groundcover should be planted as space allows to enhance the corridor at the crossing. An ornamental fence and lights should be designed as architectural elements along the entire span of the crossing.

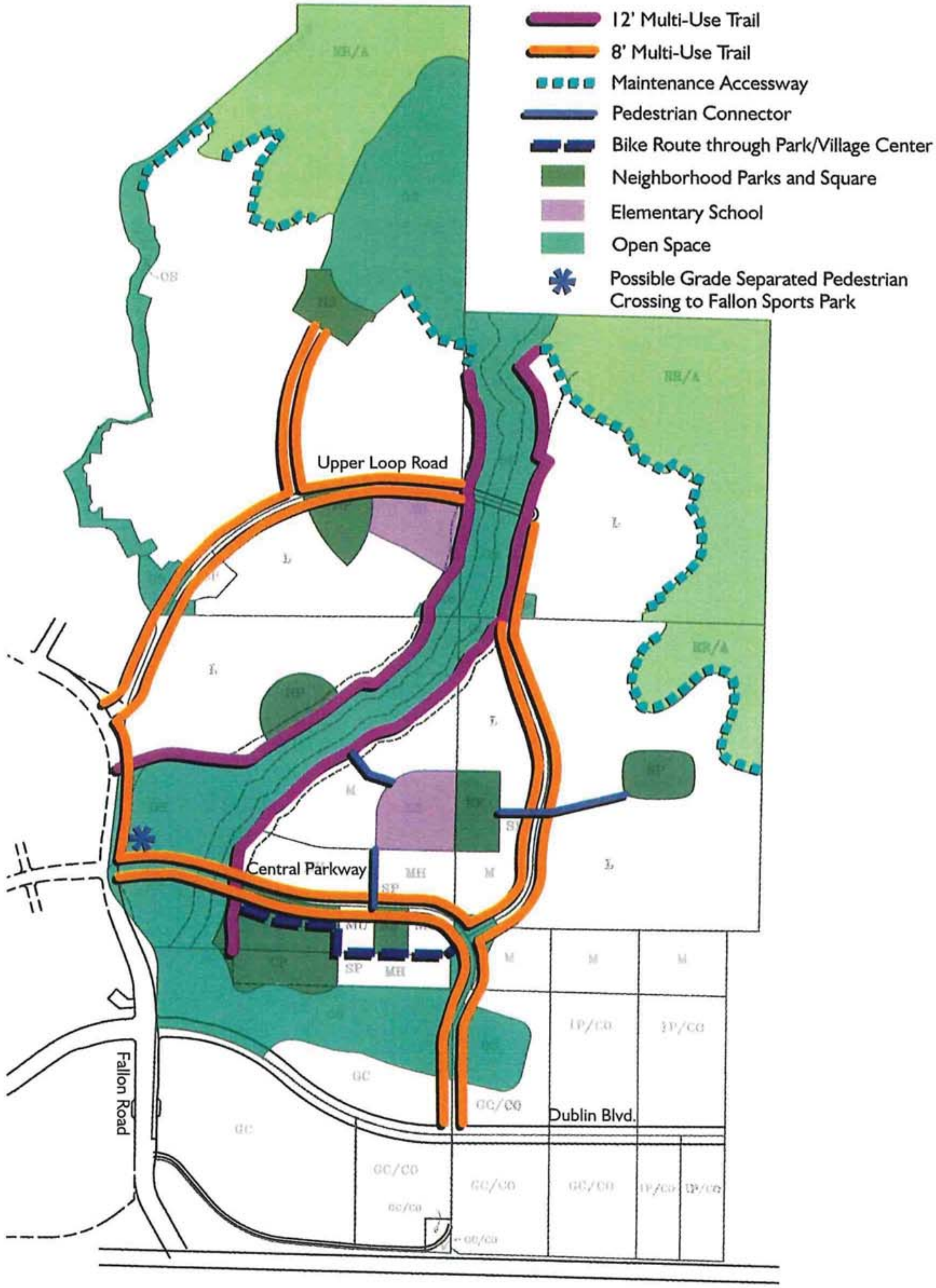
Trail and Park System

Trail and Park Plan

12' Multi-Use Trail

8' Multi-Use Trail

Maintenance Accessway


12' Multi-Use Trail
8' Multi-Use Trail
Maintenance Accessway
Pedestrian Connector
Bike Route through Park/Village Center
Neighborhood Parks and Square
Elementary School
Open Space
Possible Grade Separated Pedestrian Crossing to Fallon Sports Park
Upper Loop Road
Central Parkway
Fallon Road
Dublin Blvd.

RECREATION AND OPEN SPACE

Park Acreage- Provide the same program of neighborhood and community parks as previously programmed for the Stage 1 PD (PA 02-030) (5.7 gross acres/1,000 population). Any incremental increase in the population will require increase in park acreage at the city's standard of 5.0 acres per1,000 population.

Neighborhood Parks/Squares. Neighborhood parks must be five to seven net usable acres; Neighborhood squares must be two net usable acres (net as measured from the surrounding property lines/rights of way). The typical maximum slope that will qualify for the "net acreage" shall be 2%. Terracing is acceptable, however typically slopes over 2% will not qualify toward net acreage. Higher gradient slopes may be acceptable towards qualifying towards net acreage on a case by case basis. A neighborhood square may be utilized in the steeper portion of the site and will be counted toward park acreage.

Location of Neighborhood Parks- Should be distributed throughout the project to serve the neighborhoods equally to the extent feasible. Parks may be located adjacent to schools but not at the expense of lost acreage.

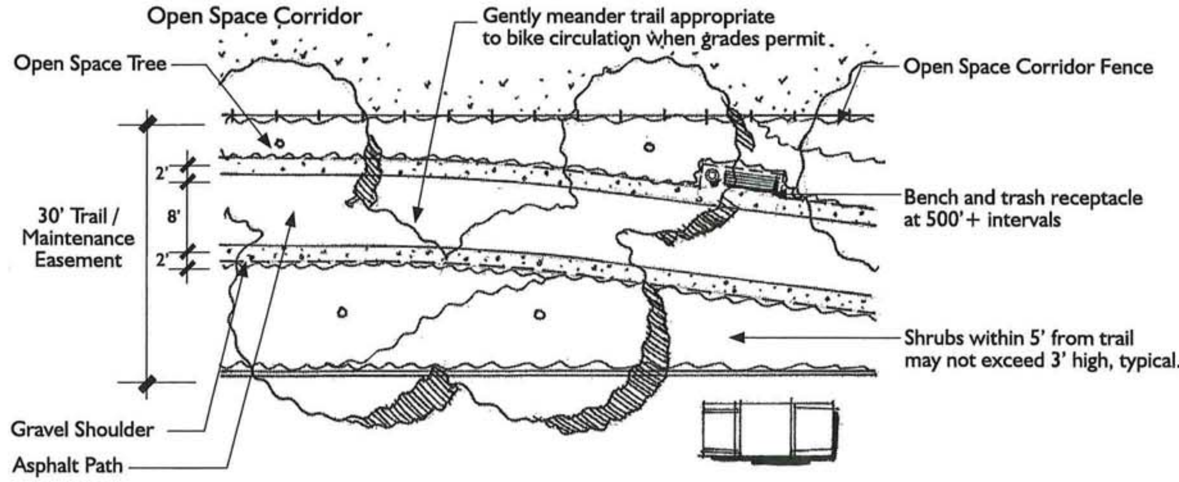
Trails-Trail connections are important, especially along creeks and in open space as allowed y permitting agencies. May utilize grade separated crossings to separate trails from arterials.

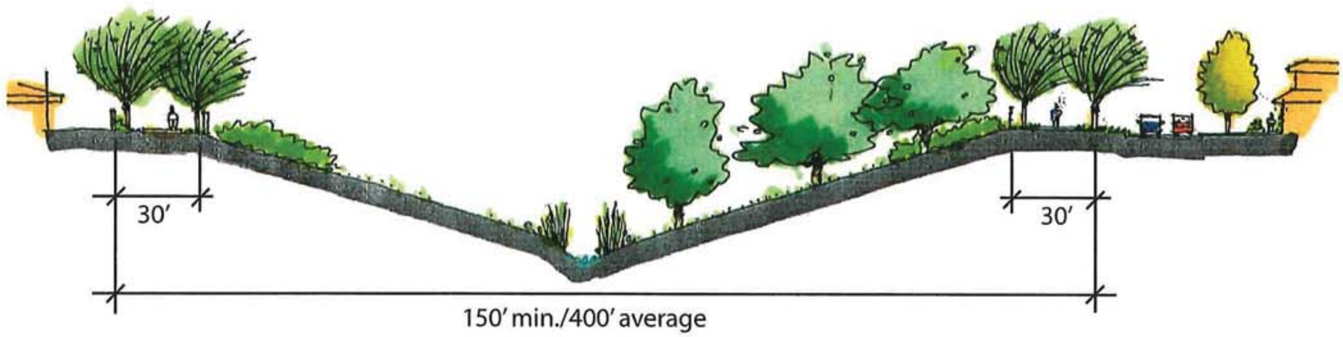
Pedestrian/Bicycle Circulation- Pedestrian connections include logical access routes to schools, parks, commercial areas, stream/open space areas, or other trail connections. Trail connections shall avoid dead ends or gaps. Major pedestrian/ bicycle trails should minimize street crossings where feasible by locating trail on the side of the street with the fewer number of crossings. Consideration shall be given to utilizing grade-separated crossings of arterials. Trail facilities should be combined with EVAE's where possible to minimize hardscape and grading

An 8' wide, multi-use, concrete trail is provided on both sides of primary corridor streets. The trail shall accommodate both pedestrian and bike traffic. An open space multi-use trail parallels both sides of the riparian corridor, providing bike and pedestrian connections between residential neighborhoods and community amenities such as schools, parks, and the Village Center.

- The multi-use trail shall occur in 30' wide easement that is part of the 400' wide riparian corridor.
- The multi-use trail shall be a minimum of 8' paved, all-weather surface with 2' gravel shoulders.
- Planting within the trail easement shall be visually consistent with the riparian corridor.

12' Multi-Use Trail at Open Space Corridor

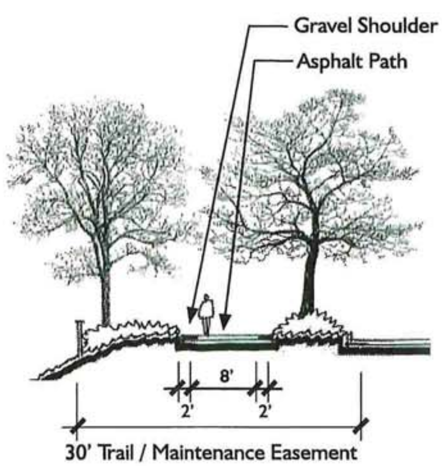




Design Concept

The 12' trail is located within the open space corridor.

- A 12' wide multi-use trail occurs within the 30' wide trail/ maintenance easement. Trail 8' wide asphalt pavement with 2' gravel shoulders either side. Trail paving shall transition to concrete at intersections.
- Meander trail where grades permit, with a minimum of 4' from the curb.
- Provide benches and trash receptacles at 500'± intervals.
- The open space corridor fence should be located 45' minimum from the curb.



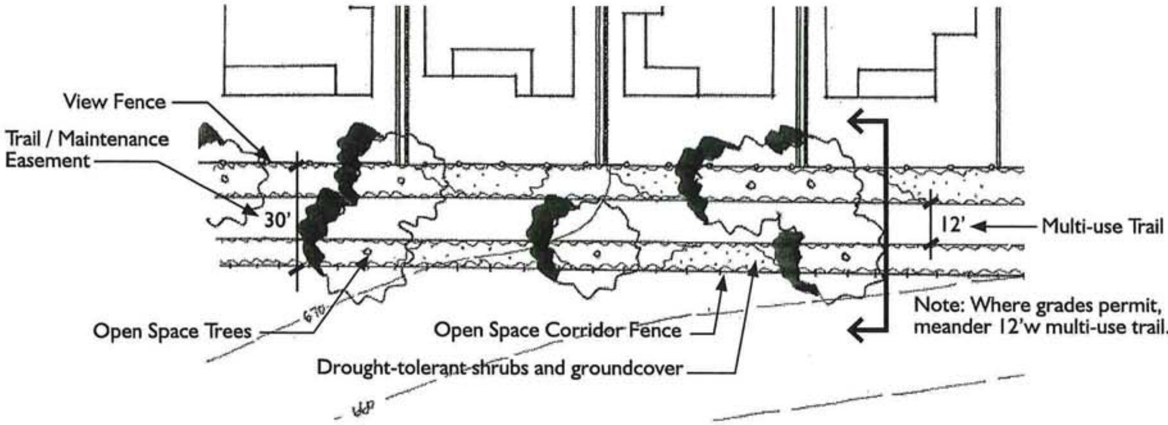
Planting within the 30' Easement

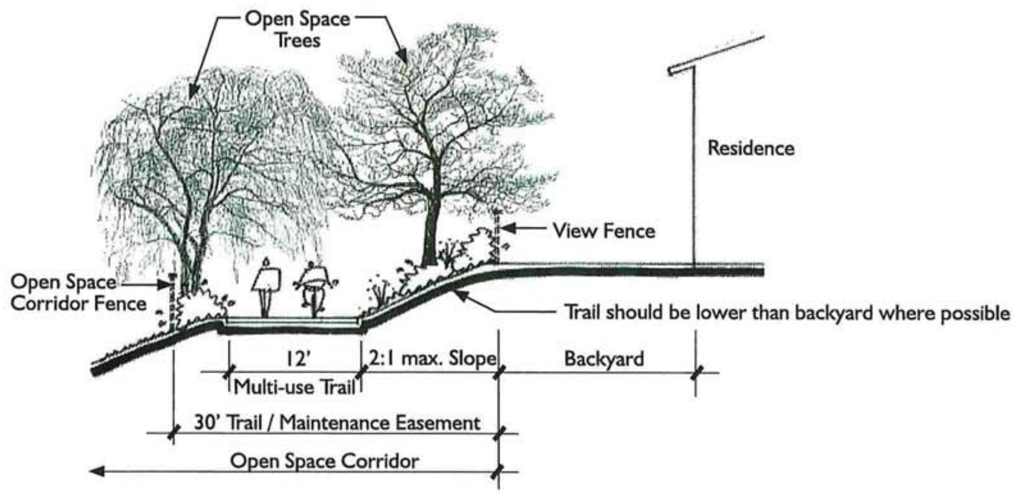
Open Space Trees

- Select trees from Enhanced Open Space palette with an emphasis on native trees. Trees shall be fire safe.
- 15 gallons in natural groupings,1 tree/600 sq. ft.

Shrubs and Groundcovers

- Select drought-tolerant, deer-resistant species.
- For safety, shrubs taller than 3' are not allowed within 5' of trail.





Design Concept

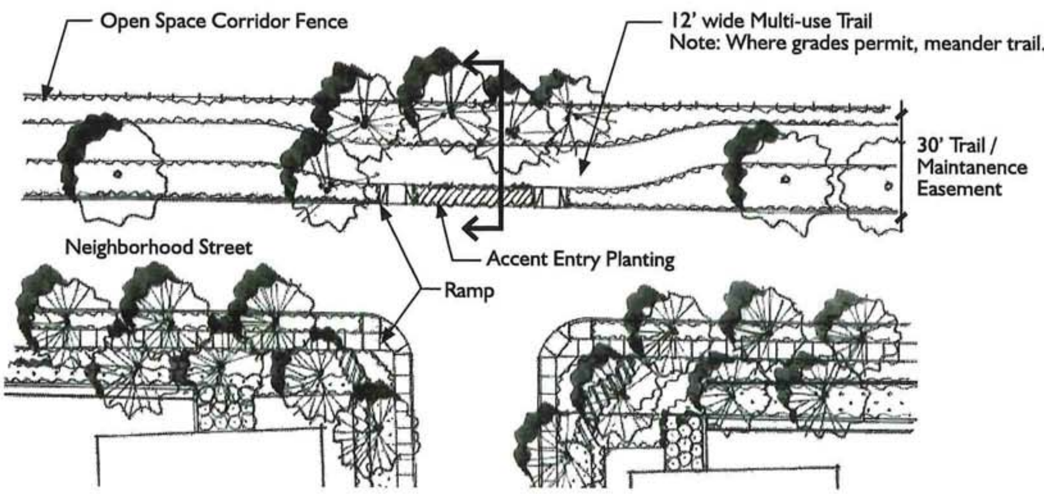
The trail is located behind residential backyards within the open space corridor.

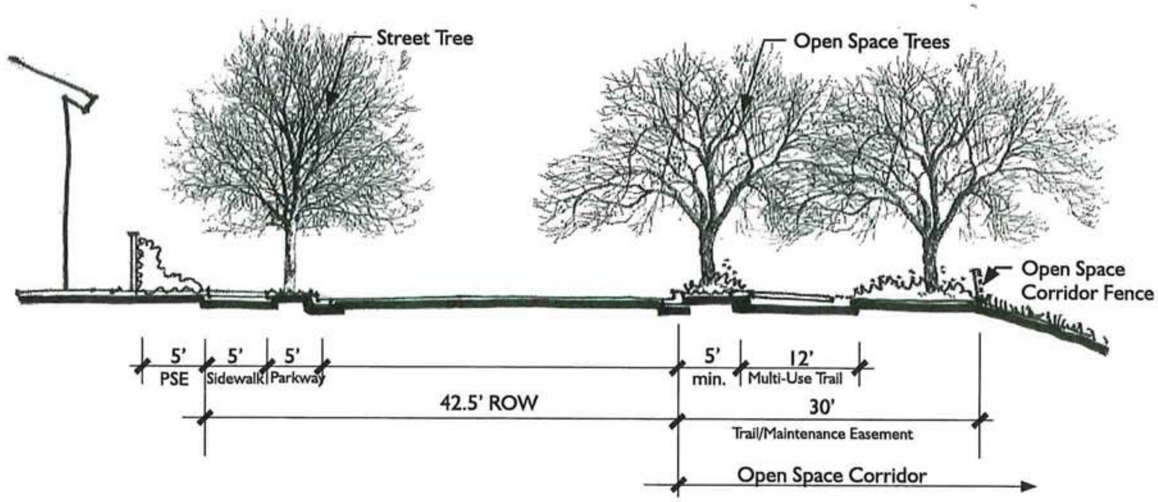
- A 12' wide multi-use trail occurs within the 30' wide trail/maintenance easement. Meander trail where grades permit, with a minimum of 4' landscape area on each side.
- Privacy for the residences is created by locating the trail lower than the backyards.
- The open space corridor fence should be located at 30' minimum from the backyards.

Planting within the 30' Easement

Refer to 12' Multi-Use Trail at the open space corridor.

12' Multi-Use Trail at Neighborhood Street



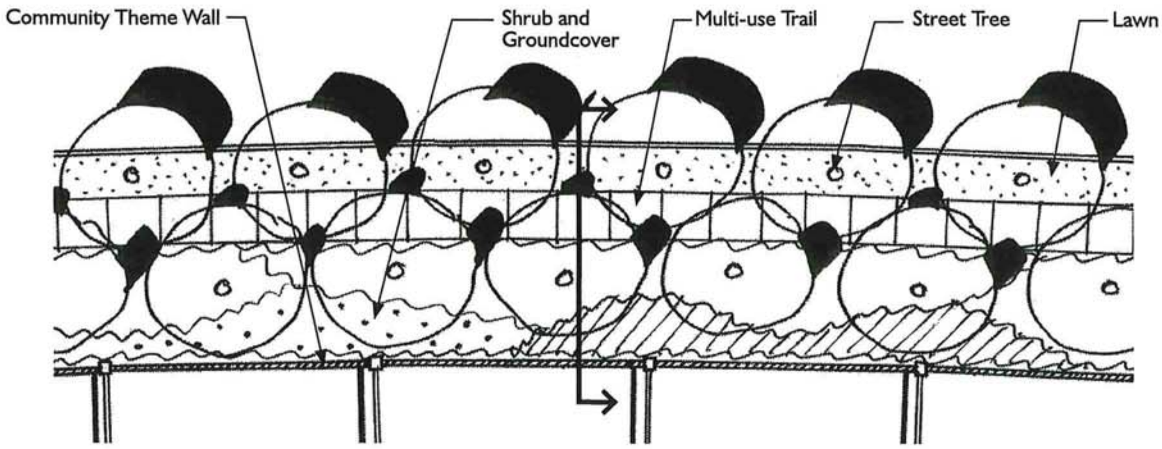


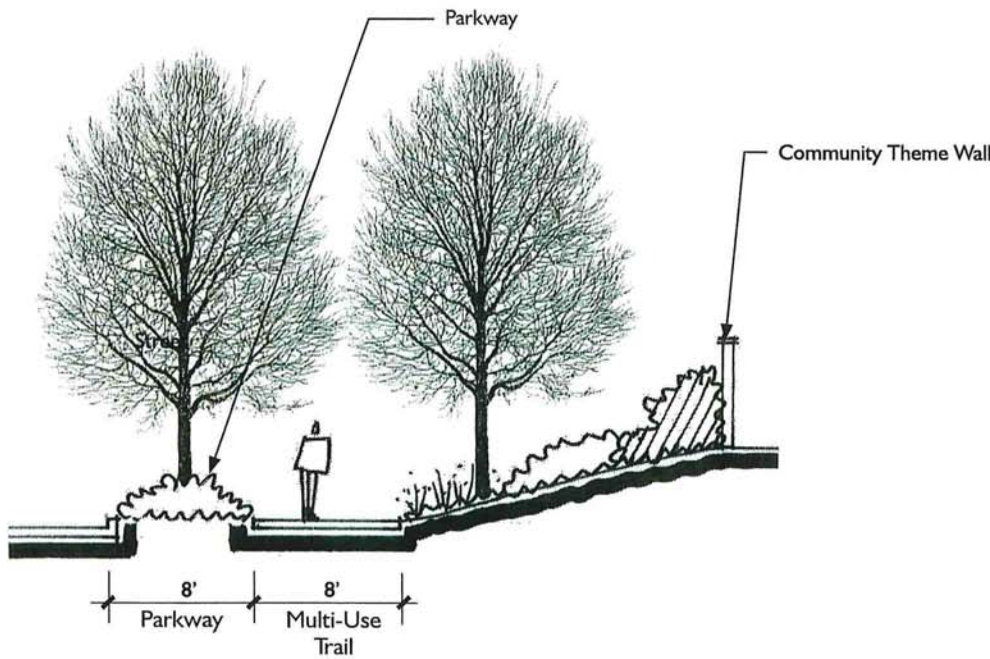
Design Concept

- Provide local access to trail at residential street intersections.
- Provide bollards to restrict vehicular access.
- Trail design per 12' wide Multi-use Trail at open space corridor.

Planting within the 30' Easement

- Planting per 12' wide Multi-use Trail at open space corridor.
- Highlight trail heads at neighborhood entries with accent trees.





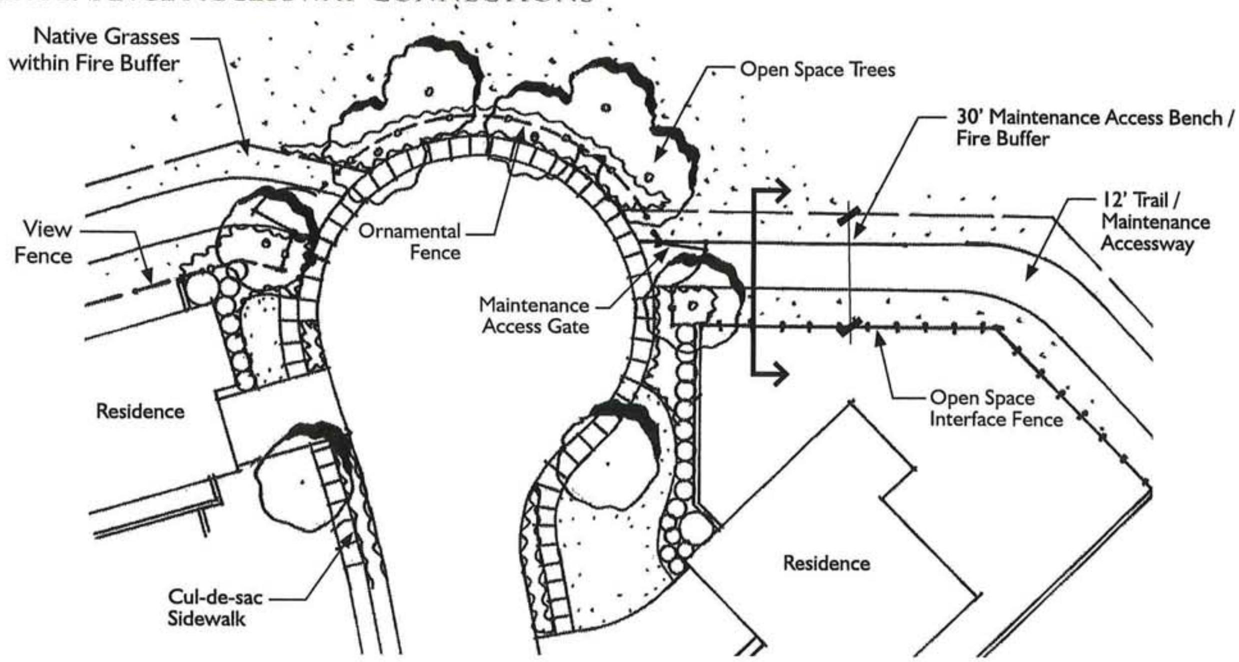
Design Concept

These trails are located along the edges of major corridor streets and neighborhood entry roads.

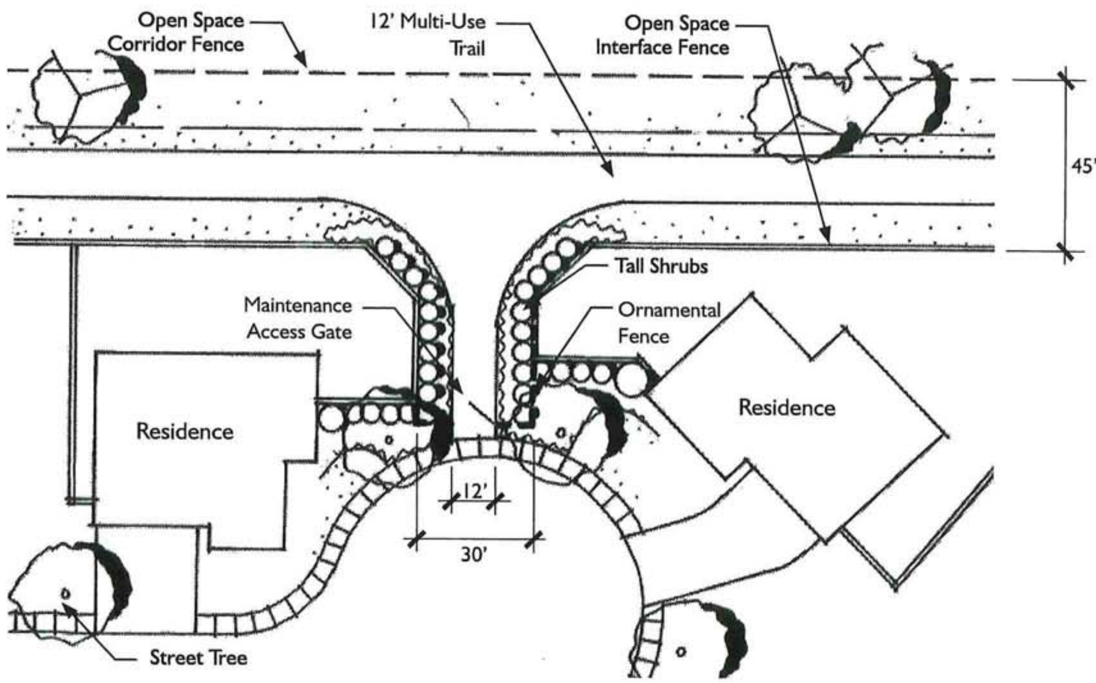
- Eight-foot wide concrete path separated from street by an eight-foot wide parkway.
- For safety, shrubs taller than 3' are not allowed within 5' of trail edge.

Refer to Streetscape Chapter for planting.

Maintenance Accessway Connections



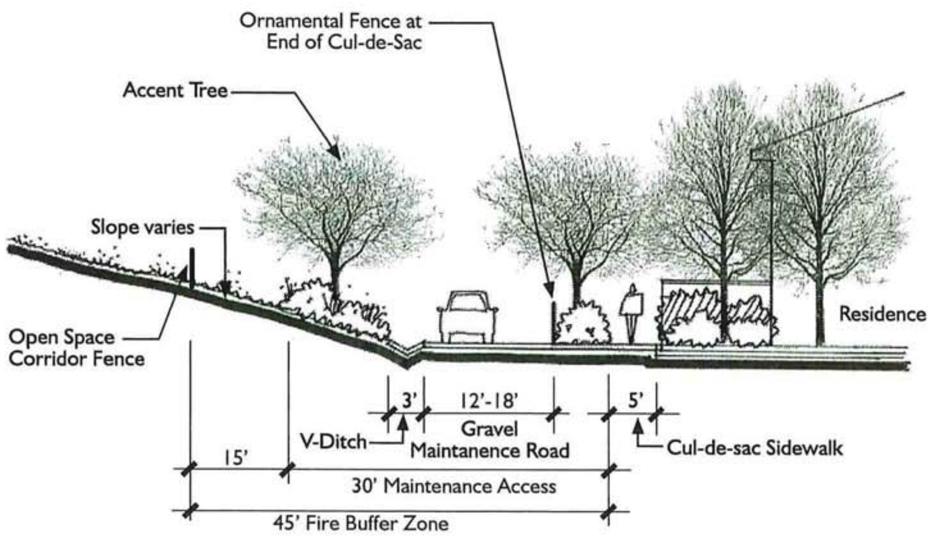
MAINTENANCE ACCESSWAY AT CUL-DE-SAC



MAINTENANCE ACCESSWAY BETWEEN LOTS

Design Concept

The maintenance accessway will run behind residential properties at the open space interface in some locations. Connections to the accessway are provided at select cul-de-sacs and in between lots depending on the neighborhood layout. These connections allow restricted vehicular access for maintenance of open space areas.



- The 12'- 18'wide gravel maintenance road occurs within the 30' wide maintenance access bench and 45' wide fire buffer zone. A v-ditch fringes the edge of the maintenance access way to collect slope run-off.
- Accent trees and the ornamental fence highlight the connections and restrict vehicular access.
- A 12' wide maintenance access gate and 4' wide pedestrian access opening restricts vehicular access.
- Street names should be identified at the cul-de-sac/drive entry.
- The open space corridor fence should be located a minimum of 45' from the rear and side yard fences/property line.
- Adequate turning radius for maintenance vehicle access is required.

Planting at Connection

Accent Tree

- Highlight the terminus of cul-de-sac with accent trees selected from Fire Safe palette in natural groupings, spacing should conform with the Dublin Wildfire Management Plan.

Shrubs and Groundcovers

- Select fire safe, deer-resistant species from plant palette.
- Tall shrubs should be used at accessways between lots to screen private yards and highlight the entry.

Grasses

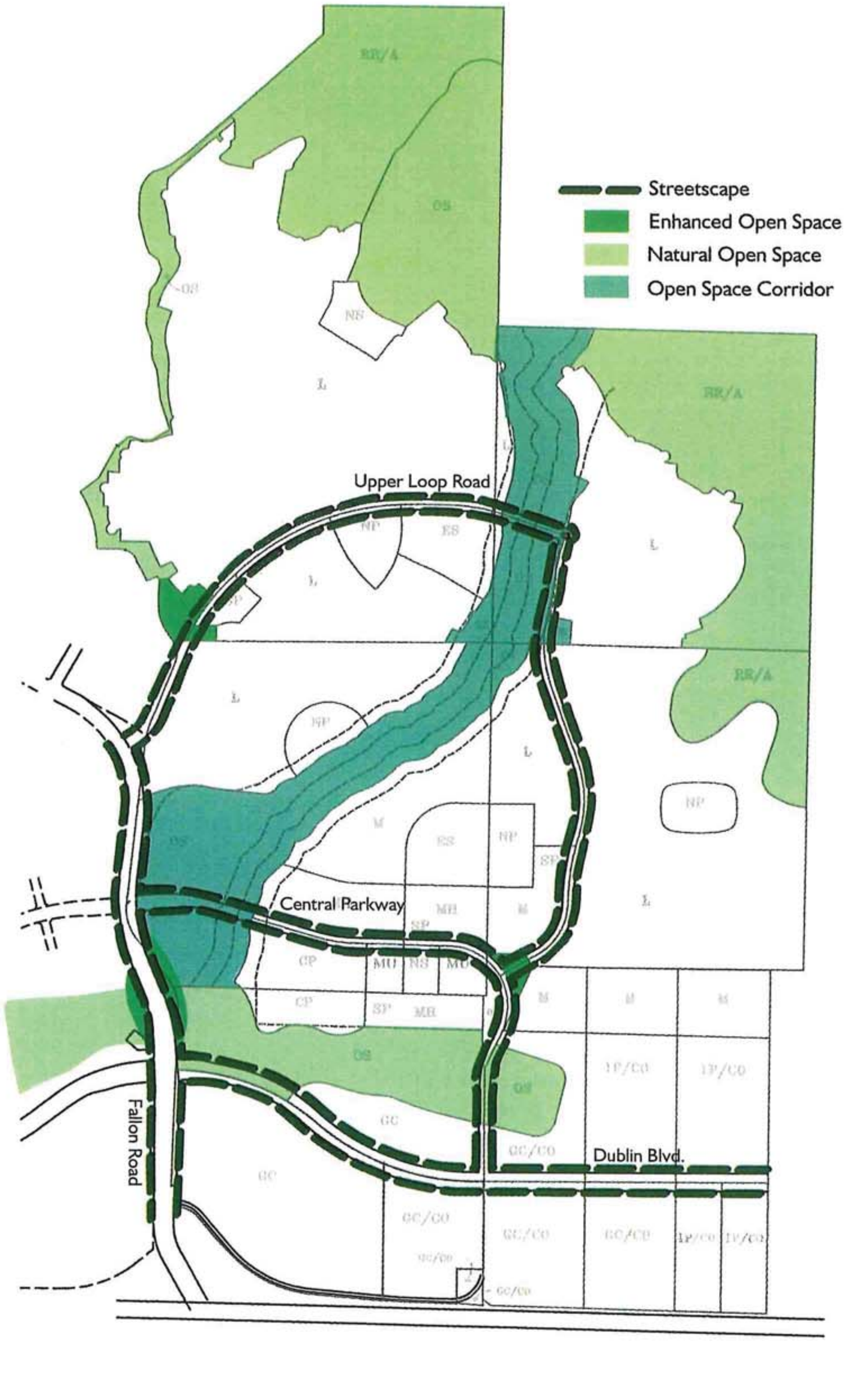
- Natural, non-irrigated grasses on both sides of the access way.

Landscape Elements

LANDSCAPE CHARACTER

LANDSCAPE CONCEPTS

PLANT PALETTE

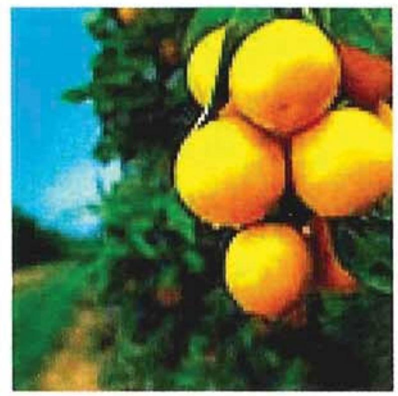

Streetscape
Enhanced Open Space
Natural Open Space
Open Space Corridor
Upper Loop Road
Central Parkway
Fallon Road
Dublin Blvd.

Natural Open Space

To the greatest extent possible, these areas will remain undisturbed. Where regrading is required, slopes will be revegetated with native grasses and Oaks. A fire buffer will be maintained between areas of development and open space in accordance with he City of Dublin Wildlife Management Plan.

Open Space Corridor

Minimum 150'/400' average corridor is primarily a grassy swale. The existing vegetation in the swale shall be preserved to greatest extent possible. Where road crossings or grading activities occur the swale will be re-vegetated with native plantings consistent with the existing habitat. The tops of the banks will be landscaped with native trees, and low drought tolerant shrubs will be planted along the pedestrian trail. Irrigation in the corridor will be temporary, for establishment of the plant material.



Enhanced Open Space Areas

In key visual locations such as near roadways, open space areas will be enhanced with theme plantings such as olive groves, poplar wind rows, California Pepper groves and other plantings reminiscent of the Mediterranean landscape.

Streetscape

This unifying thread of the community includes right-of-ways, intersection and the public service easement. The streetscape landscape is comprised of canopy trees along the edge to enclose and shade the road corridor. Columnar trees and flowery trees may be utilized in medians and at intersections to provide visual interest. Ground plane is primary low growing shrubs and groundcovers, the use of lawns limited to parkways on residential where homes front on to the road. All plant materials shall be well adapted to climate and tolerant of recycled water.

- Street tree species and other streetscape elements shall be consistent along the entire length of a street.
- Street trees and landscaping are a large component of the visual image of a neighborhood.
- The street trees palette shall be selected to reinforce the overall streetscape hierarchy in a neighborhood, with larger trees selected for larger, more important streets.

- All streets shall be planted with trees to provide shade and to soften the visual impact of the street.
- Street trees on collector roads where homes do not face onto the street should have an average spacing of 30' o.c. On residential roads where homes face onto the street, provide a minimum of one (1) tree per standard lot and two (2) per corner lot.
- In the Village Center, street trees should be located in a parkway with a minimum 5' width or a minimum of 5' by 5' planter area. (5' dimension measured from face of curb).
- Trees shall be located in parking or Where monolithic walks occur, a landscape planting and maintenance easement shall be located behind the walk.
- Plant material should be selected for appropriateness to setting. Provide a mixture of evergreen, deciduous and flowering trees to add visual interest. Select a single tree species for each street to provide visual continuity. As trees will be irrigated with recycled water, select trees which are tolerant of reclaimed water. Refer to the Streetscape section for primary street tree selections.
- Emphasis should be placed on use of Mediterranean associated plants. Use drought tolerant, deer-resistant plant materials. Select plants appropriate for selling from 'East Bay Municipal Utility District Plant & Landscape for Summer – Dry Climates'. As recycled water will be used for irrigation, use plant materials tolerant of reclaimed water.

RESIDENTIAL STREET TREES

Botanical Name	Common Name	Evergreen	Deciduous	Reclaimed Water
Acer rubrum	Armstrong Maple		✓	✓
Arbutus unedo	Strawberry Tree		✓	✓
Celtis sinensis	Chinese Hackberry		✓	
Koelreuteria paniculata	Goldenrain Tree		✓	✓
*Fraxinus oxycarpa 'Raywood'	Raywood Ash		✓	✓
Fraxinus uhdei	Evergreen Ash		✓	✓
Lagerstroemia indica	Crape Myrtle		✓	✓
*Pistacia chinensis	Chinese Pistache		✓	✓
*Pyrus calleryana	Ornamental Pear		✓	✓
Quercus coccinea	Scarlet Oak		✓	
Quercus robur fastigiata	English Oak		✓	✓
Quercus rubra	Red Oak		✓	✓
Quercus virginiana	Southern Live Oak	✓		✓
Ulnus parvifolia	Chinese Elm		✓	✓
Zelkova serrata	Sawleaf Zelkova		✓	✓

ACCENT TREES

Use accent trees at corners to highlight pedestrian trailheads and other focal areas.

Botanical Name	Common Name	Evergreen	Deciduous	Reclaimed Water
Arbutus 'Marina'	Strawberry Tree		✓	✓
*Cercis occidentalis	Western Redbud	✓	✓	✓
*Citrus	Citrus			
Chitalpa tashkentensis	Chitalpa		✓	
Lagerstroemia indica	Crape Myrtle		✓	✓
Melaleuca linariifolia	Flaxleaf paperbark	✓		✓
*Nerium oleander	Oleander 'standard'	✓		✓
Olea europaea	Olive (non-fruiting)	✓		✓
Pyrus kawakamii	Evergreen Pear		✓	✓
Sapium sebiferum	Chinese Tallow Tree		✓	✓

ENHANCED OPEN SPACE TREES

Open Space trees shall be spaced to mimic natural agrarian patterns.

Botanical Name	Common Name	Evergreen	Deciduous	Reclaimed Water
Acer macrophyllum	Bigleaf Maple		✓	
Aesculus californica	California Buckeye		✓	
Olea europaea	Olive (non-fruiting)	✓		✓
Populus canadensis 'Eugene'	Carolina Poplar	✓	✓	✓
Populus nigra 'Italica'	Italian Poplar		✓	✓
Quercus suber	Cork Oak	✓		✓
*Quercus agrifolia	Coast Live Oak	✓		✓
Quercus lobata	Valley Oak		✓	✓
Umbellularia californica	California Bay	✓		
Platanus racemosa 'multi trunk'	California Sycamore		✓	
Quercus kelloggi	California Black Oak	✓		
Juglans hindsii	California Black Walnut	✓		

* Suitable for use in Fire 1

Shrub & Groundcover Palette

Accent Shrubs

Botanical Name	Common Name	Fire Safe	Recycled Water	Deer Resistant
Agapanthus	Lily of the Nile	✓	✓	✓
Buxus microphylla var.japoni	Japonese Boxwood		✓	
Carex	Sedge			✓
Coreopsis spp.	Coreopsis	✓	✓	✓
Geranium spp.	Hardy Scented Geranium	✓		✓
Hemerocallis	Day Lily	✓		
Hesperaloe parviflora	Red Yucca	✓		✓
Heuchera maxima	Coral Bells	✓		
Iris douglasiona	Pacific Coast Iris	✓		✓
Kniphofia uvaria	Devil's Poker/Red Hot Poker	✓		✓
Lantana	Lantana	✓	✓	✓
Limonium perezil	Statice	✓		
Liriope muscari	Lily Turf	✓	✓	
Muhlenbergia rigens	Deer Grass		✓	✓
Nepeta	Catnip			✓
Pelargonium peltatum	Ivy Geranium		✓	
Penstemon sp.	Penstemon	✓		
Santolina chamaecyparissus	Lavender Cotton	✓		✓
Santolina virens	Green Lavender Cotton	✓		✓
Scaevola 'Mauve Clusters'	Fan Flower	✓	✓	
Stipa cernua	Nodding Needle Grass		✓	
Stipa pulchra	Purple Needle Grass		✓	
Teucrium chamaedrys	Germander			✓
Tulbaghia violacea 'Silver Lace'	Society Garlic	✓	✓	
Verbena	Verbena			✓

Medium Shrubs

Botanical Name	Common Name	Fire Safe	Recycled Water	Deer Resistant
Arbutus unedo 'Compacta'	Compact Strawberry Bush	✓	✓	
Callistemon 'Little John'	Dwarf Bottlebrush	✓		
Cistus x corbariensis	White Rock Rose	✓	✓	
Cistus x purpureus	Purple Rock Rose	✓	✓	
Coleonema spp.	Breath of Heaven		✓	
Correa	Australian Fuchsia			✓
Dietes bicolor	Fortnight Lily	✓	✓	
Dietes vegeta	African Iris	✓		
Escallonia E	scallonia	✓	✓	
Gaura lindheimerii	Gaura	✓		
Gelsemium sempervirens	Carolina Jessamine			✓
Grevillea 'Noelii'			✓	
Lavandula	Lavender	✓	✓	✓
Myrtus communis 'Compacta'	Dwarf Myrtle		✓	
Nandina spp	Nandina/Heavenly Bamboo		✓	✓
Perovskia atriplicifolia	Russian Sage	✓		✓
Phormium tenax sp	New Zealand Flax	✓	✓	
Pittosporum tobira 'Wheeler's Dwarf'	Dwarf Mock Orange	✓	✓	
Plumbago auriculata	Cape plumbago		✓	
Rhaphiolepsis indica	Indian Hawthorn		✓	
Salvia spp.	Sage		✓	✓
Teucrium fruticans	Bush Germander			✓
Viburnum tinus compacta	Viburnum		✓	

TALL SHRUBS

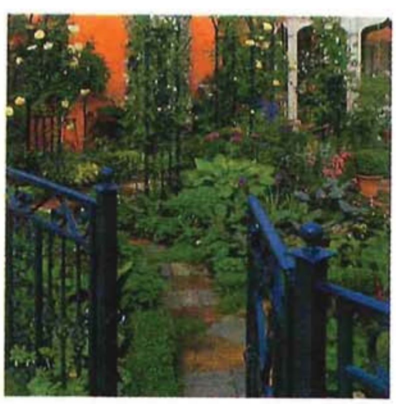
Botanical Name	Common Name	Fire Safe	Recycled Water	Deer Resistant
Abelia spp.	Abelia			✓
Arctostaphylos	Manzanita	✓		
Buddleia davidii	Butterfly Bush			✓
Camelia japonica	Japanese Camelis		✓	
Ceanothus hybrid 'Dark Star'	Dark Star California Lilac	✓	✓	
Ceanothus hybrid 'Frosty Blue'	Brown-Eyed Rock Rose	✓	✓	
Cercis occidentalis	Western Redbud	✓	✓	
Cistus ladanifer maculatus		✓	✓	
Euonymus japonica	Spindle Tree		✓	
Fejoa sellowiana	Pineapple Guava	✓		
Heteromeles arbutifolia	Toyon	✓	✓	
Ligustrum texanum	Waxleaf Privet	✓	✓	✓
Myoporum laetum	Myoporum		✓	
Myrica californica	Wax Myrtle	✓	✓	✓
Nerium oleander	Dwarf Pink Oleander	✓	✓	✓
Rhamnus californica	Common Buckthorn/ Coffeeberry		✓	✓

GROUNDCOVER

Botanical Name	Common Name	Fire Safe	Recycled Water	Deer Resistant
Acacia redolens			✓	✓
Carpobrotus	Sea Fig	✓		
Ceanothus griseus	California Lilac	✓	✓	
Contoneaster horzontalis	Rock Cotoneaster		✓	
Coprosoma kirkii 'Verde Vista	Prostrate Mirror Plant	✓	✓	
Contoneaster 'Low Fast'	Cotoneaster	✓		✓
Delosperma alba	White Trailing Ice Plant	✓		
Drosanthermum floribundum rosea	Ice Plant	✓		
Drosanthermum hispidum	Rosea Ice Plant	✓	✓	
Erigeron karvinskianus	Santa Barbara Daisy	✓		
Festuca californica	Californa Fescue	✓		
Festuca ruba creeping	Red Fescue	✓	✓	
Gazania	Orange Gazania	✓	✓	
Lampranthus spectabillis rosea	Trailing Ice Plant	✓		
Myoporum parvifolium prostrate	Myoporum	✓	✓	
Oenothera speciosa childsii	Mexican Evening Primrose		✓	
Osteospermum fruticosum	African Daisy	✓	✓	
Rosa 'Carpet Rose'	Carpet Rose		✓	✓
Rosmarinus officinalis	Rosemary	✓	✓	✓
Trachelospermum asiaticum	Asiatic Jasmine			✓
Trachelospermum jaminoides	Star Jasmine	✓	✓	✓
Vinca major	Periwinkle		✓	✓
Vinca minor	Myrtle	✓		

VINES

Botanical Name	Common Name	Fire Safe	Recycled Water	Deer Resistant
Jasminum	Jasmine			✓
Parthenocissus quinquefolia	Virginia Creeper		✓	
Solanum jasminoides	Potato Vine	✓		



IRRIGATION

Irrigation throughout the public rights-of-way, and landscape setbacks shall be accomplished by means of automatically controlled spray, bubbler, and drip irrigation systems. The design shall incorporate water saving techniques and equipment and shall meet the water efficient requirements of the water efficient landscape ordinance adopted by the City of Dublin. Irrigation systems that use recycled water shall conform to the Dublin San Ramon Services District Recycled Water Use Guidelines. All irrigation systems shall be efficiently designed to reduce overspray onto walks, walls, fences, pilasters, street and other non-landscaped areas and into natural open space areas.

All irrigation systems within the major streetscapes and common areas shall be designed to accommodate the use of recycled water in the event that it becomes available in the future.

Irrigation systems shall be valved separately depending on plant ecosystems, orientation and exposure to sun, shade, and wind. The design shall be sensitive to the water requirements of the plant material selected and similar water using plants shall be valved together. Slope and soil conditions will also be considered when valving irrigation systems.

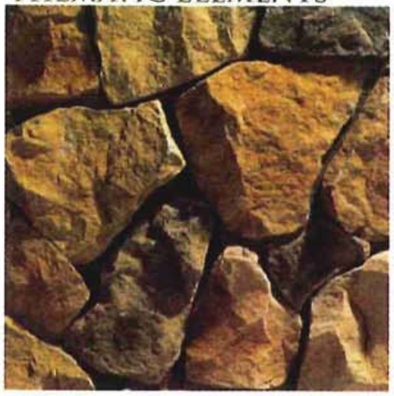
Site Elements

Thematic Elements

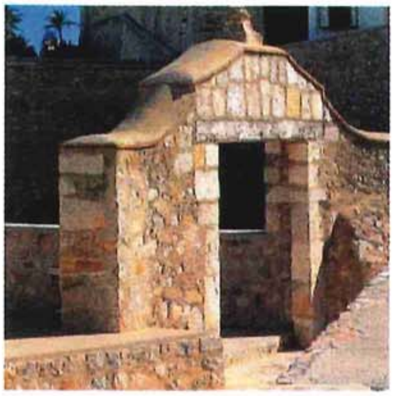
Street Furnishings

Paving Materials

Thematic Elements



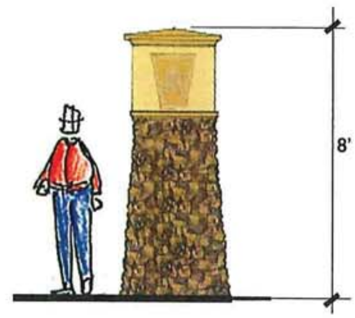
The use of monuments, walls, site furniture, ornamental lighting and signage throughout Fallon Village all contribute to the overall community ambiance. These thematic elements should reflect the Mediterranean Agrarian theme and act as unifying elements for the residential communities and neighborhood commercial area. The following are general guidelines and graphic examples of elements which convey the desired theme. An emphasis is placed on the use of stone, stucco, ornamental iron detailing, tile, and heavy timber to evoke the Mediterranean character. Unique thematic elements may be designed for each individual neighborhood, however, street furnishings and lighting shall be consistent throughout Fallon Village.

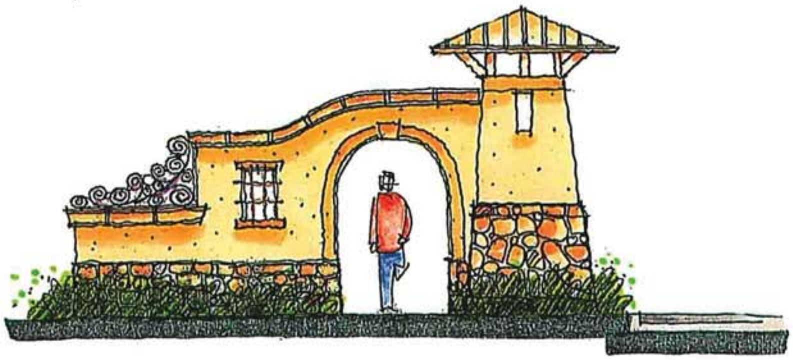


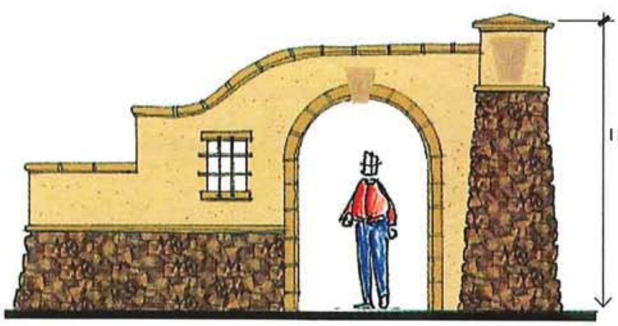
Entry Portals and Monoliths

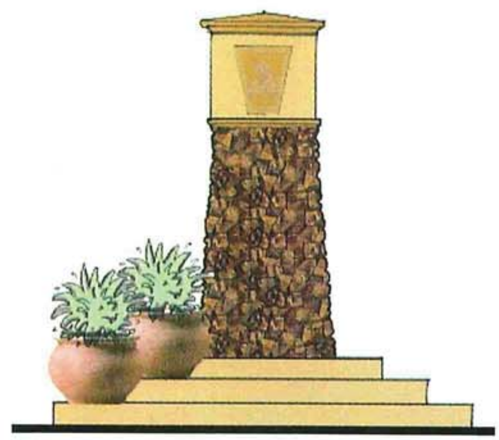
Thematic monoliths are recommended for regional gateways, community gateways and neighborhood entries. Monoliths should be used to distinguish Fallon Village from the City of Dublin and may be combined with city or community signage. The size of the monoliths should vary according to the significance of the entry with larger monoliths at the regional and community gateways and smaller, pedestrian scale designs at neighborhood entries.

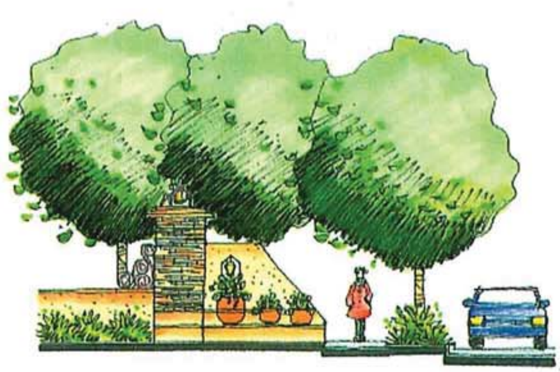
Pedestrian entry portals are recommended for both primary and secondary neighborhood entries and may also be used in other locations such as within the neighborhood commercial area as appropriate. These portals should be incorporated with the 8' multi-use trail at key intersections.

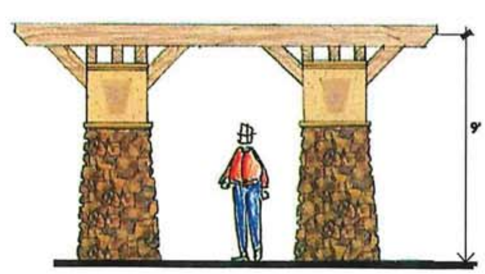








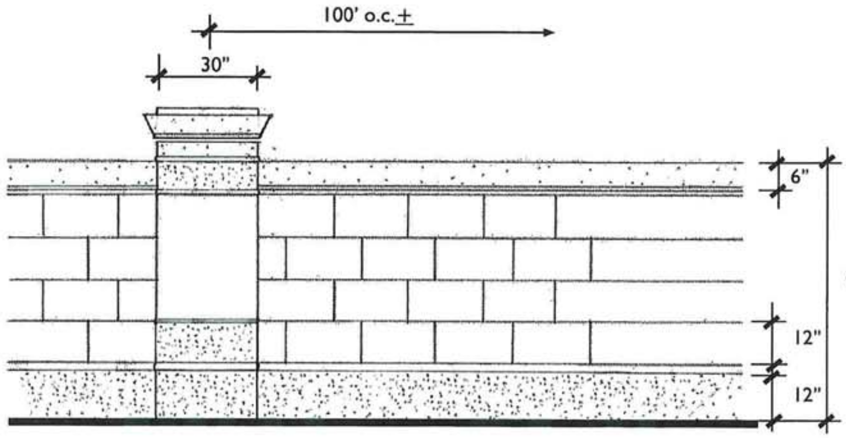




COMMUNITY THEME WALLS

This wall is used along the major corridor streets in residential areas and in additional locations which are highly visible within the community. Their purpose is to define the edge of the primary streetscapes and enhance the community character. Primarily used in residential neighborhoods, the community theme wall may be adapted for other areas as well.

- The location and configuration of the theme wall must be carefully considered with regards to grades and the relationship to the adjacent street.
- Community Theme Walls should be stucco treatment with ornamental cap and compliment the entry portals and monoliths in both color and design.
- Detailed columns shall be placed at significant locations of directional change and at the ends of community walls. Other columns may be simple and uncapped.



COMMUNITY THEME WALL CONCEPT

PRECAST CAPS, PIER, SILLS, MOULDING, QUOINS

Napa Valley Cast Stone or equivalent
Color: Weathered Limestone
Grout: Ivory

STUCCO COLORS

Pratt and Lambert or equivalent
Cap: Indian Ivory
Body: Maple Sugar
Base / Accent: Elk Tan

Fences

There are several types of fencing recommended for Fallon Village. In addition to the fencing styles presented in the residential section of the guidelines, several other types of fences are appropriate for use within Fallon Village.

Ornamental Fence

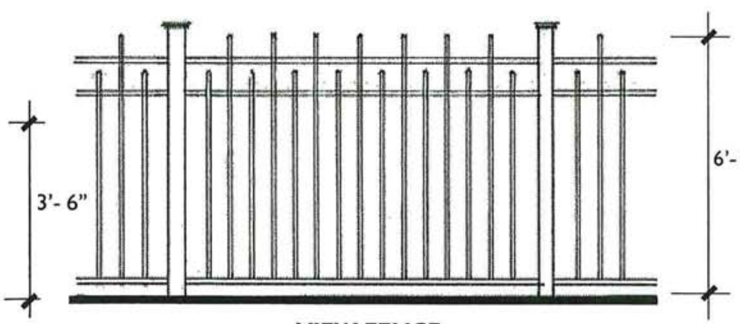
- This decorative low fence is used to define & highlight common areas where neighborhoods interface with open space at cul-de-sac.
- Ornamental fencing may be used in commercial areas to define spaces or screen parking lots.
- fence should be approximately 3'-6" tall and have ornamental metal panels and metal posts.

View Fence

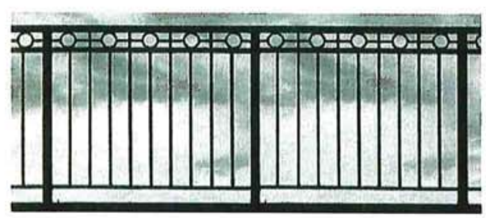
- This fence is used along golf course edge and other locations where views are possible. It may also used when the elevation difference between rear yards is greater than 20'.

Open Space Corridor Fence

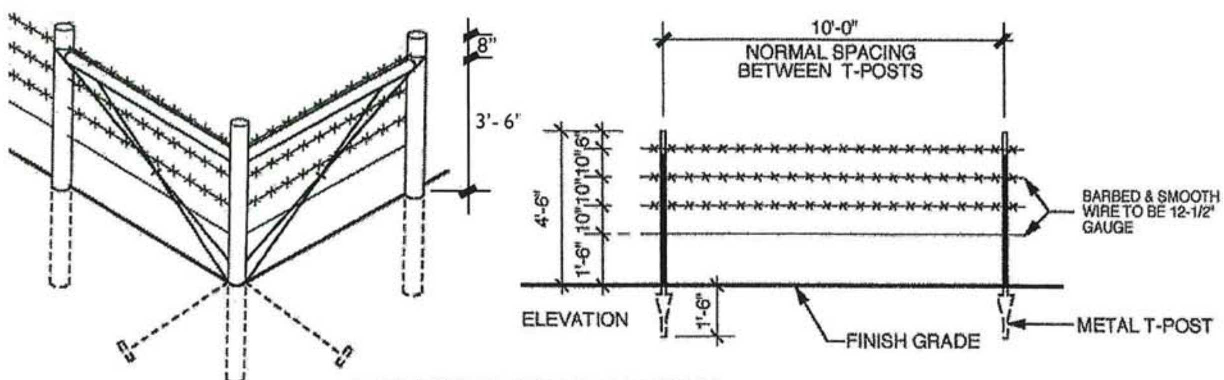
- This is a continuous fence used to protect open space areas. It is also used along the Open Space Corridor between trail and habitat area.
- A 3'-6" tall, four-strand, barbed and smooth wire fence on metal T-posts is recommended.



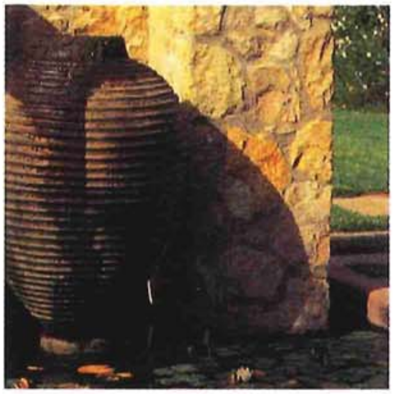
VIEW FENCE

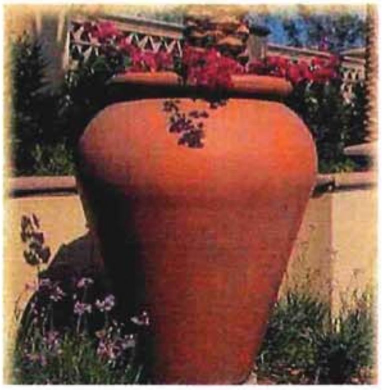


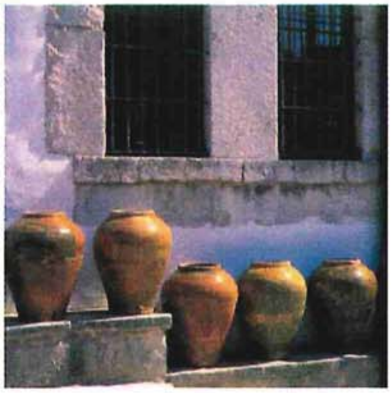
ORNAMENTAL FENCE



OPEN SPACE CORRIDOR FENCE







Retaining Walls

Two types of retaining walls are recommended for Fallon Village properties.

Stone Retaining Wall

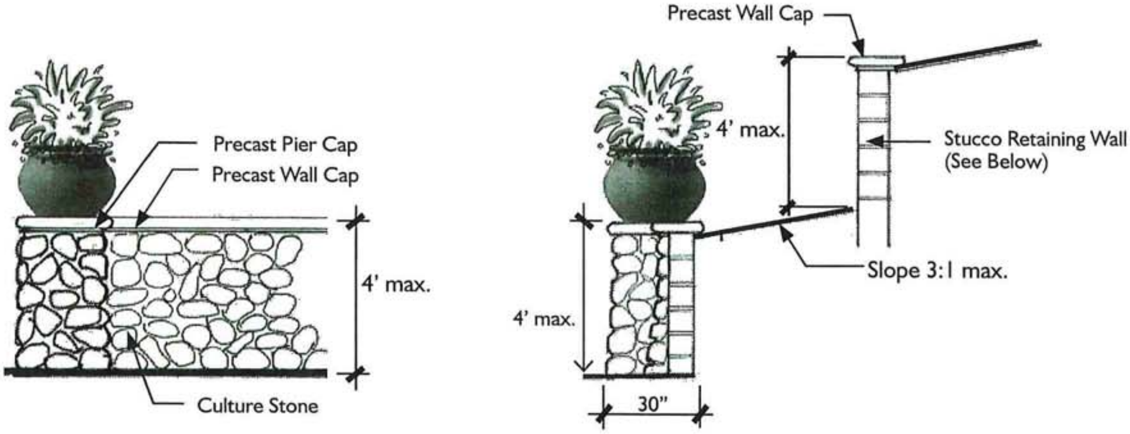
This retaining wall is used to accommodate grade changes adjacent to monoliths and entry portals within the public right-of-way. Where there is a series of terraced retaining walls, only the lowest one that is adjacent to pedestrian and vehicular circulation is of this style. The retaining walls at higher elevations will be stucco finished.

Stucco Retaining Wall

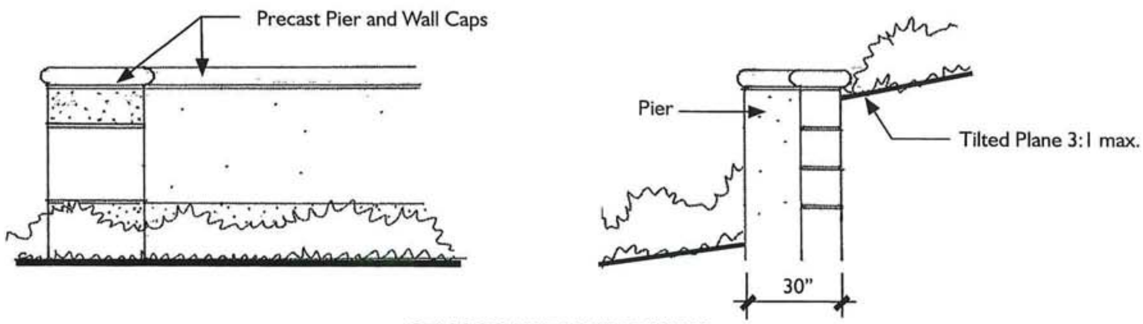
This wall is used in conjunction with the stone retaining walls within the public right-of-way, at other locations where grade changes occur within the public right-of-way, or where the wall is visible from the public right-of-way. Stucco wall shall be used where retaining walls are required to address grade change issues on individual lots.

General Guidelines

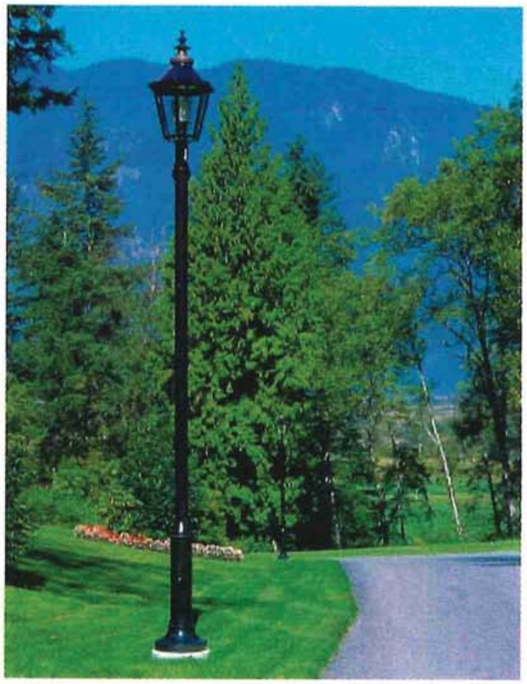
- Walls visible from Public ROW shall be consistent with community design standards for retaining walls
- Retaining walls shall be a maximum of four (4) feet tall. Greater vertical differences may be accommodated at the time of SDR or finished grading plan submittal on a case-by-case basis.
- Stepped walls shall be separated a minimum of 2' to provide for landscaping. Stepped walls may be designed with maximum 2:1 slopes between walls.
- The use of retaining walls on corner lots is discouraged; where walls are required they should be designed as a part of the overall community design theme.

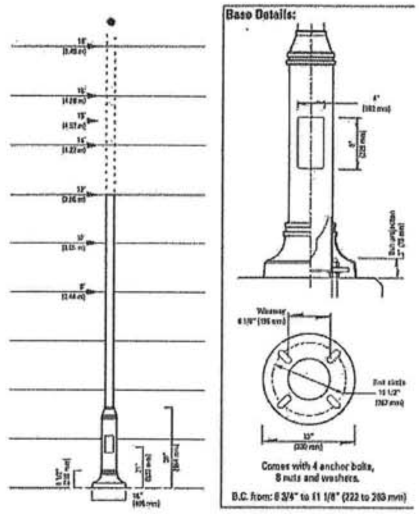


STONE RETAINING WALL



STUCCO RETAINING WALL





LIGHTING
Manufacturer: Lumec
Style: Hexagonal Series
Color: Charcoal Grey

LIGHT POLE
Manufacturer: Lumec
Style: Round Steel Bottleneck Pole SM6
Height: 18' (neighborhood streets)
20' (collectors and entry roads)
Color: Charcoal Grey

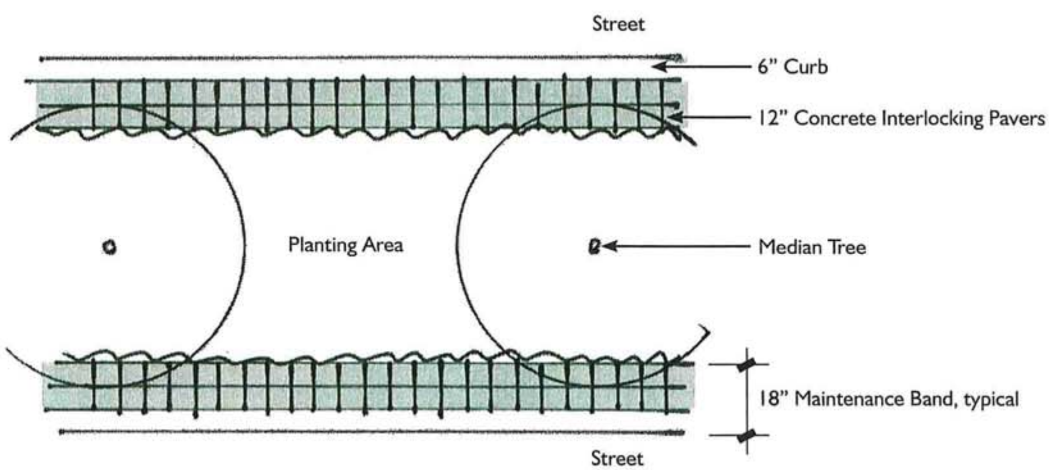
BOLLARD
Manufacturer: Urban Accessories
Model: SJ-C1
Color: Charcoal Grey

TRASH RECEPTACLE
Manufacturer: DuMor
Style: Receptacle 87
Color: Charcoal Grey

BENCH
Manufacturer: DuMor
Style: Ribbon Series 58
Color: Charcoal Grey

ACCENT PAVING AT INTERSECTIONS
Style: Scored, Broomed-finished
Color: Taupe

COBBLESTONE BAND
Manufacturer: Bomanite Corporation or equivalent
Style: Fishscale Cobblestone Pattern
Stamped Concrete
Color: Sonora Tan



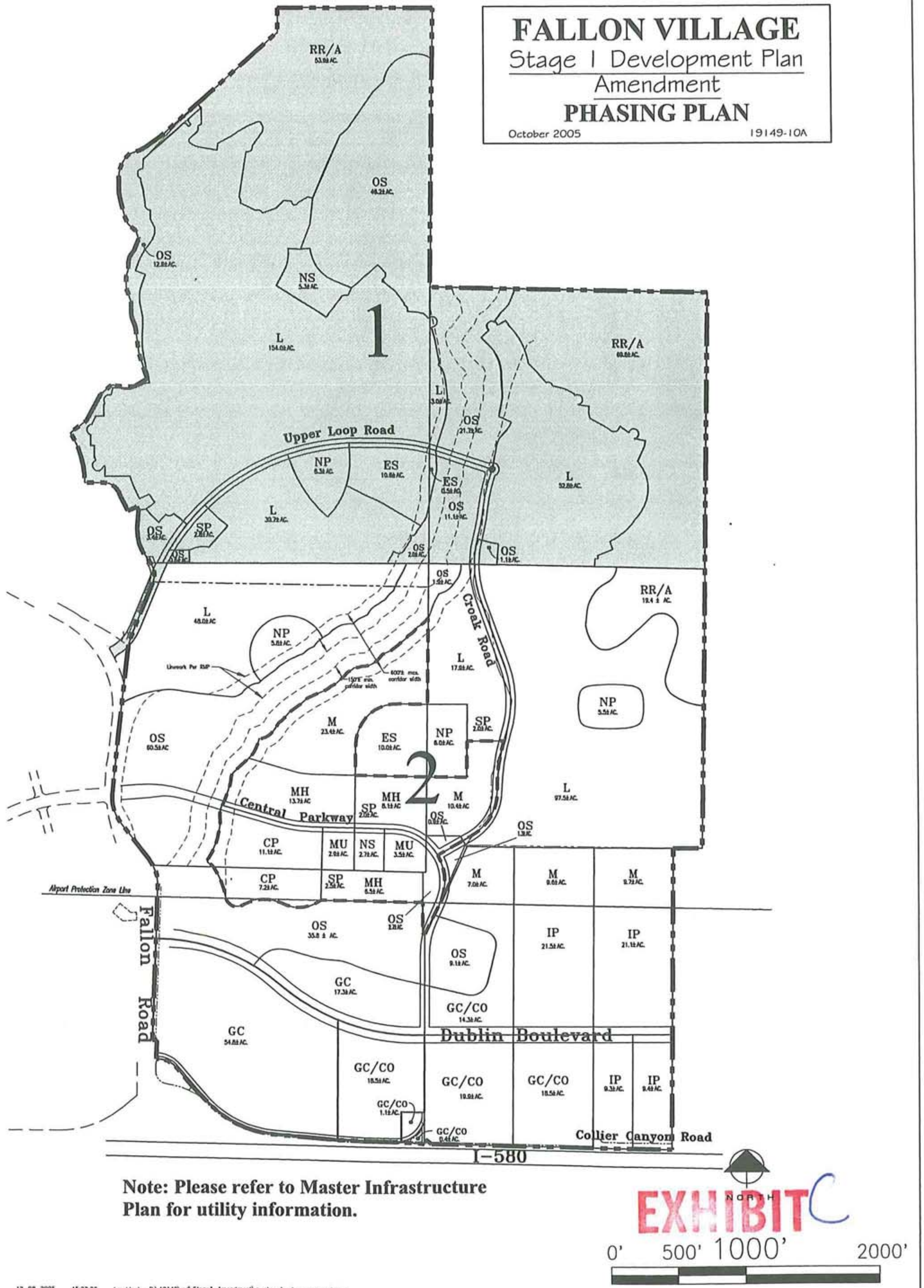
MAINTENANCE BAND AT MEDIAN
Manufacturer: Calstone or equivalent
Style: 6" x 6" Mission
Color: Grey / Charcoal (C-05)

FALLON VILLAGE

Stage 1 Development Plan Amendment

PHASING PLAN

October 2005 19149-10A



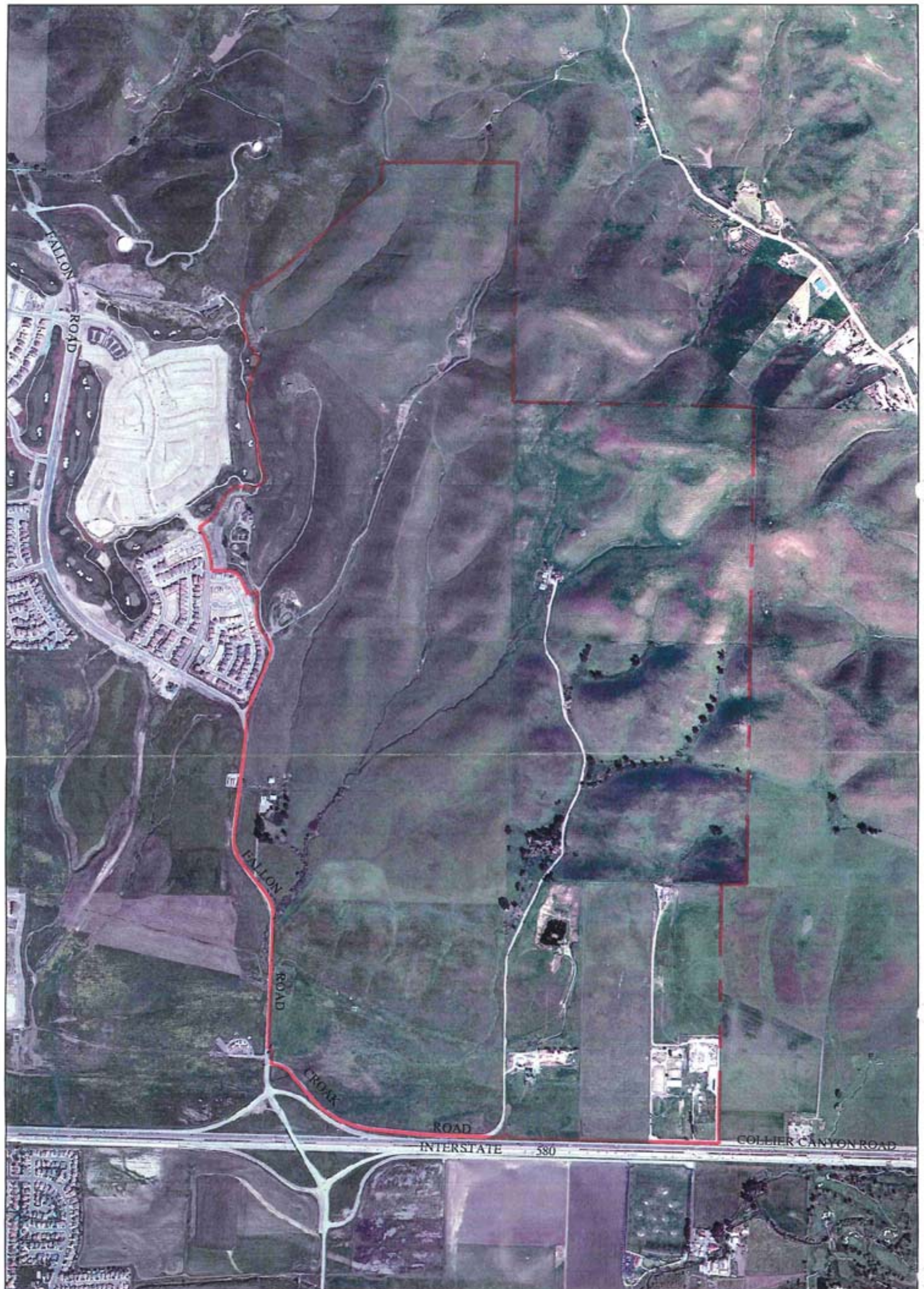
Note: Please refer to Master Infrastructure Plan for utility information.

EXHIBIT C

12-08-2005 15:22:28 kmoldenke P:\19149\pd\Stage1-Amendment\p-stage1-phases-amend.dwg

FALLON VILLAGE
Stage I PD Amendment
MASTER LANDSCAPE AND CIRCULATION PLAN
October 2005 19149-10A

EXHIBIT D



Aerial Photograph

FALLON VILLAGE

NORTH

0' 250' 500' 1000'

MacKay & Somps

EXHIBIT E

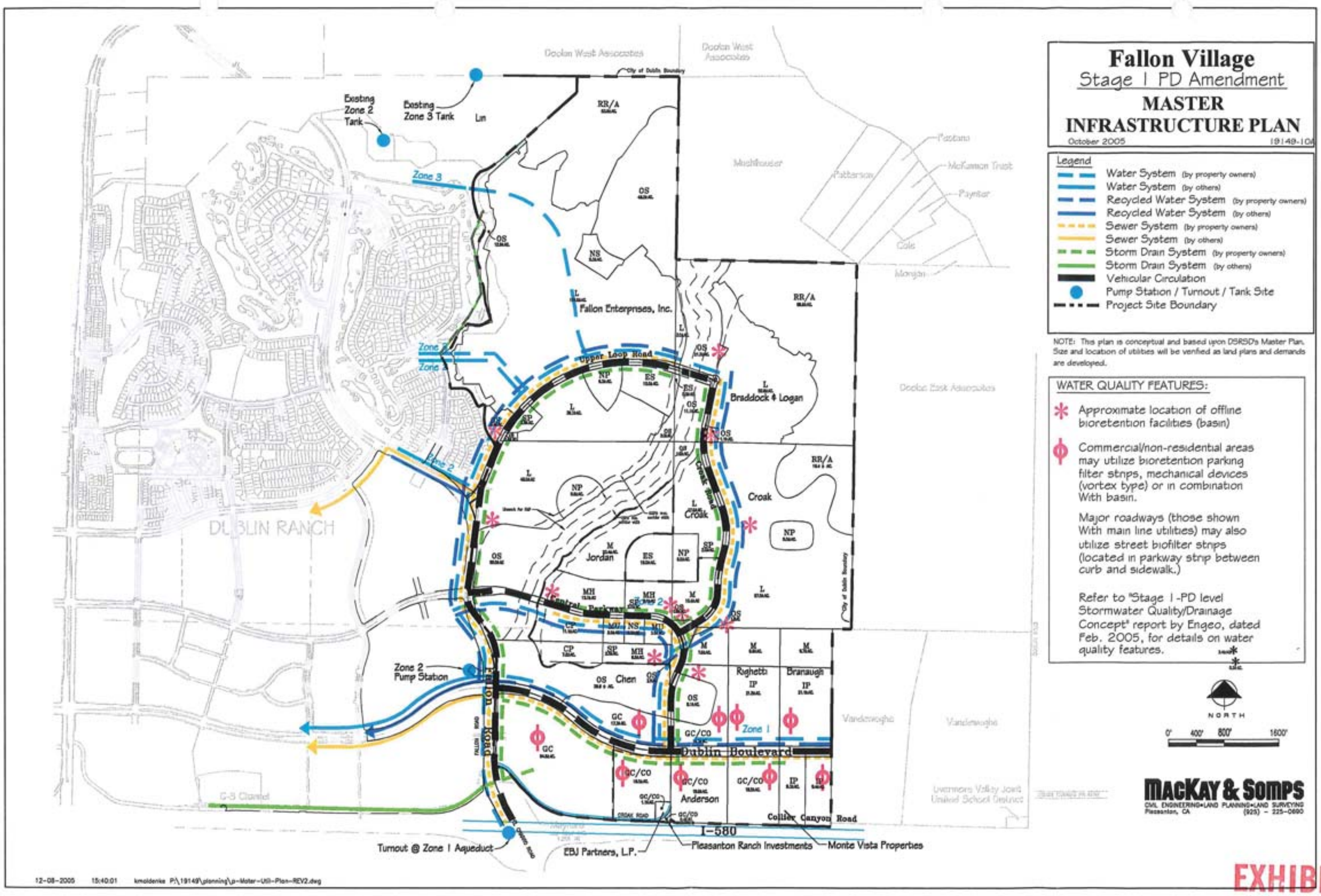

Fallon Village
Stage I PD Amendment
MASTER
INFRASTRUCTURE PLAN
October 2005
19149-10
Legend
Water System (by property owners)
Water System (by others)
Recycled Water System (by property owners)
Recycled Water System (by others)
Sewer System (by property owners)
Sewer System (by others)
Storm Drain System (by property owners)
Storm Drain System (by others)
Vehicular Circulation
Pump Station / Turnout / Tank Site
Project Site Boundary
NOTE: This plan is conceptual and based upon DSRSD's Master Plan. Size and location of utilities will be verified as land plans and demands are developed.
WATER QUALITY FEATURES:
Approximate location of offline bioretention facilities (basin)
Commercial/non-residential areas may utilize bioretention parking filter strips, mechanical devices (vortex type) or in combination With basin.
Major roadways (those shown With main line utilities) may also utilize street biofilter strips (located in parkway strip between curb and sidewalk.)
Refer to "Stage 1-PD level Stormwater Quality/Drainage Concept" report by Engeo, dated Feb. 2005, for details on water quality features.
NORTH
0' 400' 800' 1600'
MACKAY & SOMPS
CIVIL ENGINEERING•LAND PLANNING•LAND SURVEYING
Pleasanton, CA (925) - 225-0690
Existing Zone 2 Tank
Existing Zone 3 Tank
Lin
Zone 3
Zone 2
Zone 1
Fallon Enterprises, Inc.
Upper Loop Road
Braddock & Logan
Croak
Jordan
Chen
Anderson
Righetti
Branaugh
DUBLIN RANCH
Zone 2 Pump Station
Fallon Road
Dublin Boulevard
Croak Road
Collier Canyon Road
I-580
Turnout @ Zone 1 Aqueduct
EBJ Partners, L.P.
Pleasanton Ranch Investments
Monte Vista Properties
Doolan West Associates
Doolan East Associates
Vandenoughe
Livermore Valley Joint Unified School District
12-08-2005 15:40:01 kmoldenke P:\19149\planning\p-Mater-Util-Plan-REV2.dwg

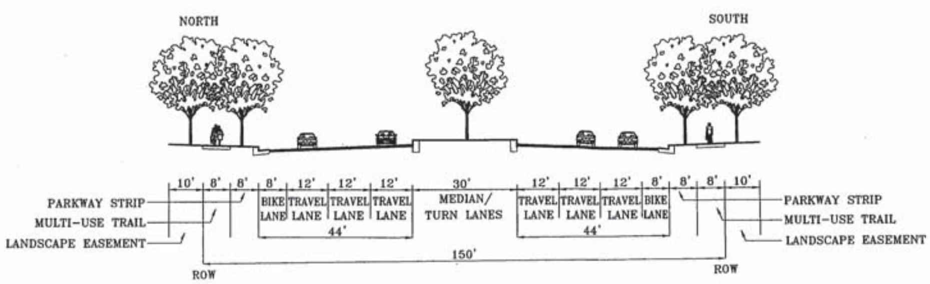
EXHIBIT F

Fallon Village

Stage 1 Development Plan
Amendment

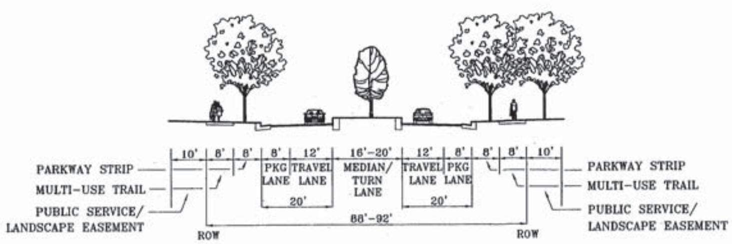
STREET SECTIONS

July 2005 19149-10A



1. DUBLIN BOULEVARD (ULTIMATE CONDITION)- 150' ROW

N.T.S.



2. CENTRAL PARKWAY - 88'-92' ROW

N.T.S.

MACKAY & SOMPS
CIVIL ENGINEERING•LAND PLANNING•LAND SURVEYING
Pleasanton, CA (925) 225-0690

EXHIBIT G

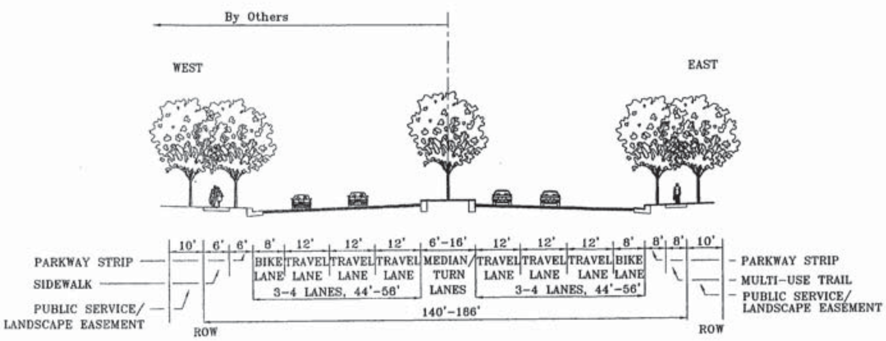
7-15-2005 08:21:14 lvlhauer P:\19149\pd\Stage1-Amendment\p-stage1-streetsections-rev_4.dwg

Fallon Village

Stage I Development Plan
Amendment

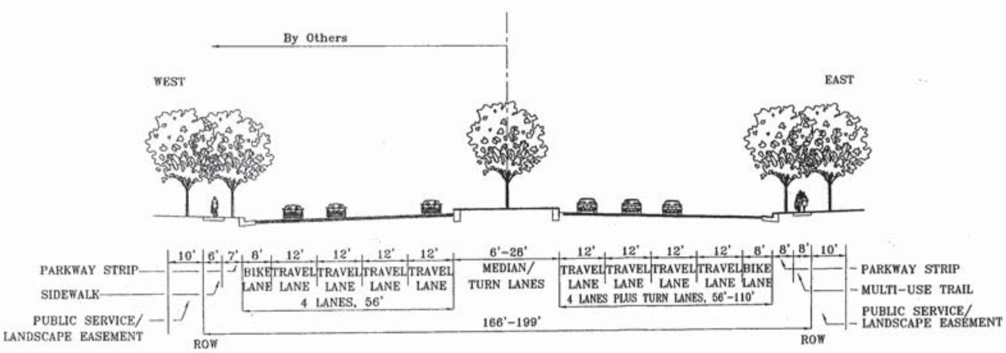
STREET SECTIONS

July 2005 19149-10A



3. FALLON ROAD (North of DUBLIN BLVD.) - 140'-186' ROW

N.T.S.



4. FALLON ROAD (South of DUBLIN BLVD.) - 166'-199' ROW

N.T.S.

MACKAY & SOMPS
CIVIL ENGINEERING•LAND PLANNING•LAND SURVEYING
Pleasanton, CA (925) - 225-0690

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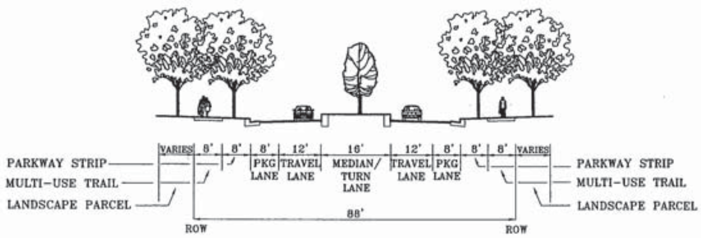
Fallon Village

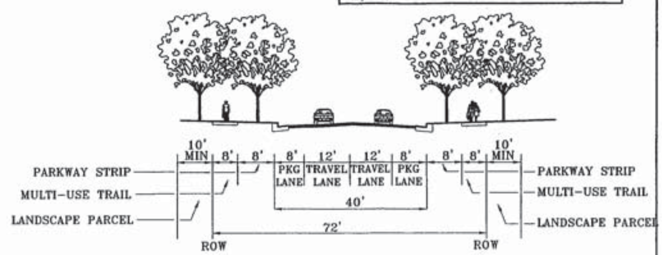
Stage I Development Plan
Amendment

STREET SECTIONS

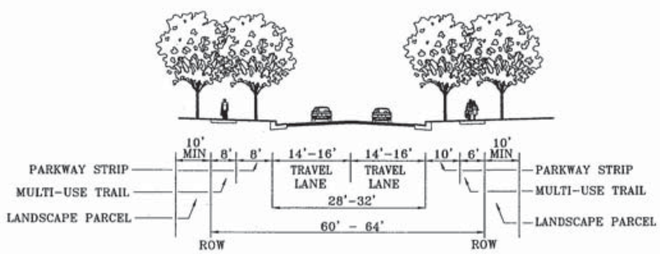
July 2005 19149-10A



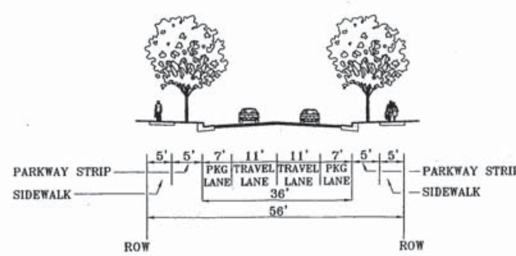
5. CLASS II COLLECTOR - 88' ROW
(CROAK ROAD AND UPPER LOOP ROAD)
N.T.S.



7. RESIDENTIAL COLLECTOR - 72' ROW
N.T.S.



6. RESIDENTIAL COLLECTOR - 60-64' ROW
(NO PARKING CONDITION)
N.T.S.



8. TYPICAL RESIDENTIAL STREET - 56' ROW
N.T.S.

MACKAY & SOMPS
CIVIL ENGINEERING•LAND PLANNING•LAND SURVEYING
Pleasanton, CA (925) - 225-0690

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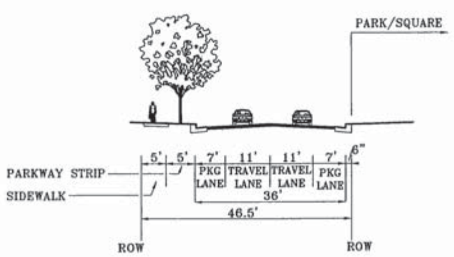
Fallon Village

Stage 1 Development Plan

STREET SECTIONS

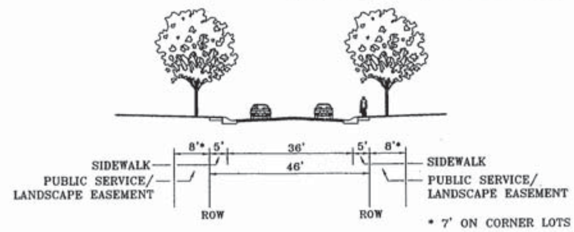
July 2005 19149-0A



9. TYPICAL RESIDENTIAL STREET AT PARK /SQUARE - 46.5 ROW

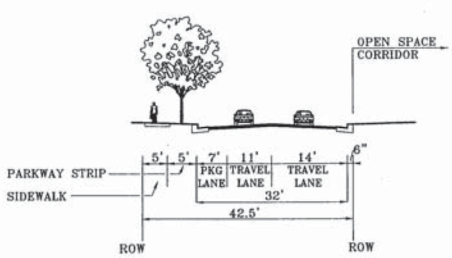
(Public)

N.T.S.



11. RURAL RESIDENTIAL STREET OR CUL-DE-SAC- 46' ROW

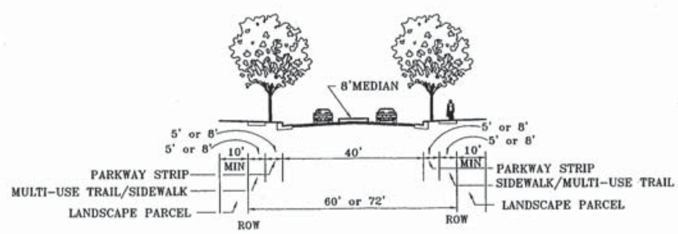
N.T.S.



10. TYPICAL RESIDENTIAL STREET AT OPEN SPACE CORRIDOR - 42.5' ROW

(PARKING ONE SIDE)

N.T.S.



12. RESIDENTIAL ENTRY STREET- 60' OR 72' ROW

(AT NEIGHBORHOOD ENTRIES W/ SIDE-ON LOT CONDITION)

N.T.S.

MACKAY & SOMPS

CIVIL ENGINEERING•LAND PLANNING•LAND SURVEYING
Pleasanton, CA (925) - 225-0690

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ORDINANCE NO. 05 - 21

**AN ORDINANCE OF THE CITY COUNCIL
OF THE CITY OF DUBLIN**

APPROVING AMENDMENTS TO THE PLANNED DEVELOPMENT ZONING STAGE 1 DEVELOPMENT PLANS FOR 2.5 ACRES ON THE GH PACVEST PROPERTY AND 2.0 ACRES ON THE EAST RANCH PROPERTY IN FALLON VILLAGE AND THE EMERALD HIGH SCHOOL SITE IN DUBLIN RANCH

APNs: 905-0002-001 AND 002; 985-0027-002; AND 985-0078-004, 005, 006, AND 007 (PLPA-2020-000054)

The Dublin City Council does ordain as follows:

SECTION 1. RECITALS

WHEREAS, on October 6, 2020, the City Council received a report and status update on the Housing Element Update and Regional Housing Needs Allocation (RHNA) and the City Council provided unanimous direction for Staff to prioritize the conversion of existing vacant Semi-Public sites to a designation that can accommodate affordable housing; and

WHEREAS, on February 2, 2021, the City Council approved the initiation of a General Plan Amendment Study to change the existing land use designation for 2.5 acres of the GH PacVest (formerly Chen) property and 2.0 acres on the East Ranch (formerly Croak) property from Semi-Public to Public/Semi-Public, and for the Emerald High School site from Neighborhood Commercial to Public/Semi-Public, as well as other amendments to the provisions of the General Plan, the Eastern Dublin Specific Plan, and Planned Development Stage 1 Development Plans to ensure consistency ("the Project"); and

WHEREAS, the California Environmental Quality Act (CEQA), the CEQA Guidelines and City of Dublin CEQA Guidelines and Procedures require that certain projects be reviewed for environmental impacts and that environmental documents be prepared; and

WHEREAS, prior CEQA analysis for the Semi-Public Sites includes: 1) the East Dublin General Plan and Specific Plan EIR (1993); 2) the Fallon Village Supplemental EIR (2002); and 3) the East Dublin Properties Stage 1 Development Plan and Annexation Supplemental EIR (2005). Collectively, these three environmental review documents are referred to as the "EDSP EIRs;" and

WHEREAS, the Dublin Unified School District conducted environmental review associated with the Emerald High School pursuant to the requirements of CEQA and no further analysis is required; and

WHEREAS, pursuant to the requirements of CEQA, the City prepared an Addendum for the Semi-Public sites, which reflected the City's independent judgment and analysis of the potential environmental impacts of the Project; and

WHEREAS, following a public hearing on May 25, 2021, the Planning Commission adopted Resolution No. 21-04, recommending that the City Council adopt an Addendum to the Eastern

Dublin Specific Plan Environmental Impact Reports, approve amendments to the General Plan and Eastern Dublin Specific Plan, and approve amendments to Planned Development Stage 1 Development Plans for 2.5 acres on the GH PacVest property, 2.0 acres on the East Ranch property, and the Emerald High School site, which resolution is incorporated herein by reference and available for review at City Hall during normal business hours; and

WHEREAS, a Staff Report, dated June 15, 2021 was submitted outlining the issues surrounding the General Plan Amendment, Specific Plan Amendment, and Planned Development Stage 1 Development Plan Amendment; and

WHEREAS, the City Council held a properly noticed public hearing on the Project, including the proposed General Plan and Eastern Dublin Specific Plan Amendments, on June 15, 2021, at which time all interested parties had the opportunity to be heard; and

WHEREAS, on June 15, 2021, the City Council adopted Resolution No. 85-21, approving an Addendum to the EDSP EIRs; and

WHEREAS, the City Council did hear and use independent judgment and considered all said reports, recommendations, and testimony hereinabove set forth.

NOW, THEREFORE, BE IT RESOLVED that the foregoing recitals are true and correct and made a part of this Ordinance.

NOW, THEREFORE, the City Council of the City of Dublin does ordain as follows:

SECTION 2: FINDINGS

A. Pursuant to Section 8.32.070 of the Dublin Municipal Code, the City Council finds as follows:

1. The Planned Development ("PD") Stage 1 Development Plan Amendment for the proposed Public/Semi-Public sites meets the purpose and intent of Chapter 8.32 in that it provides a comprehensive development plan that will be consistent with the General Plan and Eastern Dublin Specific Plan as amended and protects the integrity and character of the area by creating a desirable use of land that is sensitive to surrounding land uses. The Project will allow a broader range of uses, including the potential for affordable housing developed by a non-profit entity. The PD Stage 1 Development Plan for the Emerald High School site will eliminate a non-conforming situation since a high school is currently not a permitted use.

2. Development of the Project under the PD zoning will be harmonious and compatible with existing and future development in the surrounding area in that the site will provide a variety of uses for the proposed Public/Semi-Public sites. The subject sites are surrounded by residential uses to the north and west, by undeveloped land to the south, and by the City Limits and Urban Limit Line to the east with undeveloped land beyond. The Emerald High School site is surrounded by residential development to the north, east, and west, and by commercial development to the south.

B. Pursuant to Sections 8.120.050.A and B of the Dublin Municipal Code, the City Council finds as follows:

1. The PD zoning for the proposed Public/Semi-Public sites will be harmonious and compatible with existing and potential development in the surrounding area will take into account adjacent land uses and will provide a wide range of amenities to and for the community within the development and the surrounding neighborhoods. The specific location of the proposed Public/Semi-Public sites on each property would be determined at the time of Planned Development Stage 2 Development Plan approval.

2. The conditions of the proposed Public/Semi-Public sites were documented in the Addendum that has been prepared, and the environmental impacts that have been identified will be mitigated to the greatest degree possible. There are no significant site challenges or impacts identified in the Addendum beyond what was previous studied in the EDSP EIRs. The sites are physically suitable for the uses permitted through the PD zoning. The Emerald High School Site is currently being developed with a new high school and the project's impacts were already evaluated by the Dublin Unified School District.

3. The PD zoning will not adversely affect the health or safety of persons residing or working in the vicinity, or be detrimental to the public health, safety, and welfare in that the Project will comply with all applicable development regulations and standards.

4. The PD zoning is consistent with and in conformance with the Dublin General Plan and Eastern Dublin Specific Plan, as amended, in that the proposed uses are compatible with the General Plan land use designation of Public/Semi-Public.

C. Pursuant to the California Environmental Quality Act, the City Council adopted an Addendum via Resolution No. 85-21 on June 15, 2021, prior to approving the Project.

SECTION 3. APPROVAL OF STAGE 1 DEVELOPMENT PLAN AMENDMENT

The regulations for the use, development, improvement, and maintenance of the Property are set forth in the Planned Development (PD) Stage 1 Development Plans. PD Districts and the Stage 1 Development Plans provide flexibility to encourage innovative development while ensuring that the goals, policies, and action programs of the General Plan and provisions of Chapter 8.32 of the Zoning Ordinance are satisfied. Amendments to the PD Stage 1 Development Plans shall be in accordance with Section 8.32.080 of the Dublin Municipal Code or its successors.

Fallon Village Stage 1 Development Plan

On December 20, 2005, the City Council approved a Stage 1 Development Plan for the 1,134-acre Fallon Village Project, pursuant to Chapter 8.32 of the Dublin Zoning Ordinance. The Planned Development Stage 1 Development Plan for the Fallon Village Project is amended as shown below:

1. **Statement of Proposed Uses.** Add "PD-Public/Semi-Public" and the permitted uses as follows:

   PD-Public/Semi-Public

   Intent. Identifies areas where institutional or community facilities uses are anticipated. The exact location of parcels with a Public/Semi-Public designation shall be determined at Stage 2. The Public/Semi-Public parcels on the GH PacVest (formerly Chen) and East

Ranch (formerly Croak) properties (net 2.5- acres and 2.0- acres respectively) shall be located within the Fallon Village Center.

Permitted Uses, including, but not limited to:

- Public schools
- Libraries
- City office buildings
- State, County, and other public agency facilities
- Post offices
- Fire Stations
- Utilities
- Child care centers
- Youth centers
- Senior centers
- Special needs program facilities
- Religious institutions
- Clubhouses
- Community centers
- Community theater
- Hospitals
- Private school
- Other facilities that provide cultural, educational, or other similar services and benefit the community
- Housing developed by a non-profit entity and serves to meet affordable housing needs of an underserved segment of the community
- Similar and related uses as determined by the Community Development Director

3. **Stage 1 Site Plan.** Amend the Stage 1 PD Amendment Site Plan for 2.5 net acres on the GH PacVest property and 2.0 net acres on the East Ranch property to be designated as Public/Semi-Public and amend the note as shown below:

Note: The Semi-Public (SP) and Public/Semi-Public obligation for the entire Fallon Village plan area is 8.6 net acres. This PD-1 Site Plan provides 2.1 net acres (2.8 gross acres) of SP on the Braddock and Logan properties, 2.5 net acres on the GH PacVest property, and 2.0 net acres on the East Ranch property, and 2.0 acres on the Jordan property in the Village Center. Final location of the Public/Semi-Public sites on the GH PacVest (formerly Chen) and East Ranch (formerly Croak) properties of Fallon Village will be determined at the time of the Stage 2 Development Plan approval.

4. **Stage 1 Design Guidelines.** Amend the Stage 1 Design Guidelines by amending the Land Use Diagram for 2.5 net acres on the GH PacVest property and 2.0 net acres on the East Ranch property to be designated from Semi-Public to Public/Semi-Public.

5. **Site area, proposed densities.** Amend the table below as follows:

Land Use	***Acreage***	***Density***
Single Family Residential	403.6 acres	0-6.0 units/acre
Medium Density Residential	60.1 acres	6.1-14.0 units/acre
Medium High Density Residential	23.8 acres	14.1-25.0 units/acre
Rural Residential/Agriculture	142.9 acres	1 unit/100 acres
Mixed Use	6.4 acres	0.3-1.00 FAR

General Commercial	72.1 acres	0.20-0.60 FAR
General Commercial/ Campus Office	72.7 acres	0.2-0.80 FAR
Industrial Park	61.3 acres	0.35 FAR
Community Park	18.3 acres	--
Neighborhood Park	23.6 acres	--
Neighborhood Square	8.0 acres	--
Open Space	211.2 acres	--
Elementary School	21.1 acres	--
Semi-Public	4.1 acres	0.50 FAR
Public/Semi-Public	4.5 acres	0.50 FAR

6. **Phasing Plan.** Amend the Phasing Plan for 2.5 net acres on the GH PacVest property and 2.0 net acres on the East Ranch property to be designated as Public/Semi-Public.

7. **Master Neighborhood Landscaping Plan.** Amend the Master Neighborhood Landscaping Plan for 2.5 net acres on the GH PacVest property and 2.0 net acres on the East Ranch property to be designated as Public/Semi-Public.

Dublin Ranch Site Stage 1 Development Plan

On March 21, 2020, the City Council adopted Ordinance No. 06-00 amending the Zoning Map to rezone property north of I-580, east of Tassajara Road, and west of Fallon Road to a Planned Development zoning district and a PD Stage 1 Development Plan. The PD Stage 1 Development Plan is amended to add a high school as a permitted use for 3501 Dublin Boulevard, APN 985-0078-004, 005, 006, and 007.

2. **Permitted and Conditional Uses.** Amend the "PD-Public/Semi-Public" permitted and conditional uses by adding public schools as a permitted use, as follows:

PD-Public/Semi-Public

1) Permitted Uses. The following are uses permitted for this PD/P-SP (Planned Development Public/Semi-Public zoning district):
   Public, semi-public, and institutional uses, including, but not limited to:
   Fire station
   Library
   Other governmental and quasi-governmental offices as determined by the Community Development Director
   Police station
   Post office
   Community center
   Religious facility
   Schools/public

2) Conditional uses
   Schools/private (PC)
   Day care center (PC)

4. **Site Plan and Architecture.** Amend the Stage 1 and 2 Development Plan for Area G for the Emerald High School Site from Neighborhood Commercial to Public/Semi-Public. Additionally, eliminate

the Conceptual Detail Plan and Main Street Elevations. Also, amend the Circulation, Entry, and Open Space Plan by eliminating the proposed Main Street.

Section 4. **Effective Date.** This Ordinance shall take effect and be enforced thirty (30) days following its final adoption.

Section 5. **Posting.** The City Clerk of the City of Dublin shall cause this Ordinance to be posted in at least three (3) public places in the City of Dublin in accordance with Section 36933 of the Government Code of the State of California.

PASSED, APPROVED AND ADOPTED this 20th day of July 2021, by the following vote:

AYES: Councilmembers Hu, Josey, Kumagai, McCorriston and Mayor Hernandez

NOES:

ABSENT:

ABSTAIN:

DocuSigned by:
M. Hernandez
97C94F7A46A8461...
Mayor

ATTEST:

DocuSigned by:
Marsha Moore
9BB70815D22F40A...
City Clerk