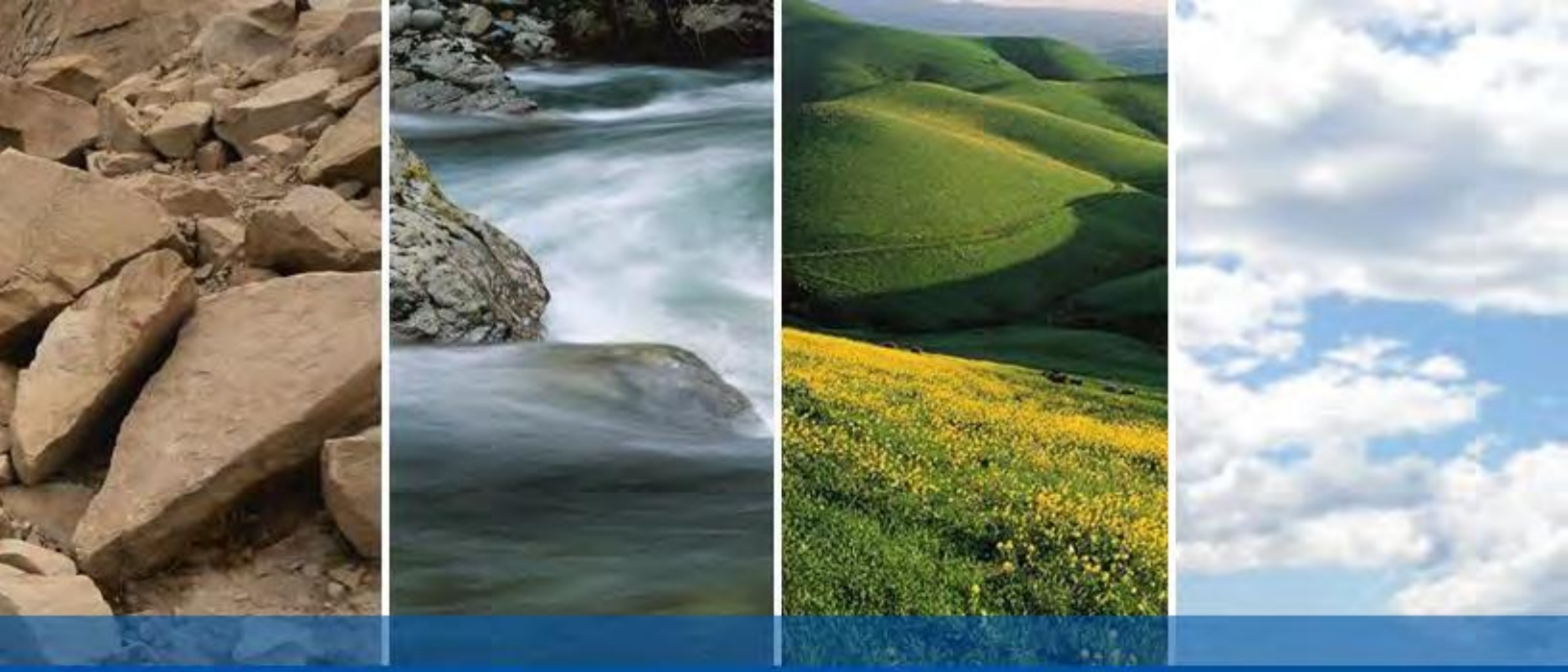

FALLON VILLAGE GEOLOGIC HAZARD ABATEMENT DISTRICT (GHAD)
DUBLIN, CALIFORNIA

PLAN OF CONTROL
EAST RANCH DEVELOPMENT, TRACT 8563

SUBMITTED TO
TH East Ranch Dublin LLC

PREPARED BY
ENGEO Incorporated

December 23, 2022
Revised January 17, 2023

PROJECT NO.
5101.001.003

ENGEO
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TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

SELECTED REFERENCES

APPENDIX A: FIGURE 1 – Long-Term Maintenance and Ownership Exhibit
FIGURE 2A – East Ranch Site Plan
FIGURE 2B – East Ranch Site Plan
FIGURE 2C – East Ranch Site Plan Swale Location on Parcels O and Q
FIGURE 3A – Preliminary Remedial Grading Plan
FIGURE 3B – Preliminary Remedial Grading Plan
FIGURE 4 – Off-site Maintenance and Ownership Exhibit

APPENDIX B: EXHIBIT A – Legal Description Geologic Hazard Abatement District, East Ranch Development – Tract 8563

EXHIBIT B – Plat to Accompany Legal Description

APPENDIX C: Conditions of Approval for the East Ranch Development Pertaining to the Fallon Village GHAD

APPENDIX D: Stormwater Management Maintenance Agreement for the East Ranch Development

APPENDIX E: Mitigation and Monitoring Plan for the East Ranch Development

APPENDIX F: Declaration of Disclosures, Right of Entry and Restrictive Covenants Regarding Fallon Village Geologic Hazard Abatement District

APPENDIX G: Sample Transfer Application Form

1.0 AUTHORITY AND SCOPE

As approved under Dublin City Council Resolution 140-21, Condition of Approval No. 13 for the East Ranch Development, Tract 8563, the City of Dublin has required that TH East Ranch Dublin LLC ("Developer") annex Tract 8563 into the existing Fallon Village Geologic Hazard Abatement District ("Fallon Village GHAD" or "GHAD"). To satisfy this requirement, the current owner of Tract 8563 has petitioned the Fallon Village GHAD Board of Directors for annexation into the Fallon Village GHAD.

State law allows GHADs to be formed to undertake emergency actions necessary or incidental to the prevention, mitigation, abatement, or control of a geologic hazard (*Pub. Res. Code § 26500, "GHAD Law")*. GHAD Law gives local agencies the authority to form districts that can speedily address "an actual or threatened landslide, land subsidence, soil erosion, earthquake, or any other natural or unnatural movement of land or earth." (*Pub. Res. Code § 26507*). The Fallon Village GHAD was formed under authority of the California Public Resources Code, Division 17, commencing with Section 26500. The Dublin City Council members serve as the Board of Directors of the Fallon Village GHAD. The Positano and Jordan Ranch developments are also included within the Fallon Village GHAD; however, each development has its own Plan of Control.

GHAD "improvements" (as defined in GHAD Law) and all GHAD activities undertaken in furtherance of, or in connection therewith, are deemed to be specific actions necessary to prevent or mitigate an emergency within Public Resources Code Section 21080(b)(4) (see *Pub. Res. Code Sections 26601 and 26505*). Consistent therewith, all GHAD Activities (as defined in Section 7 below) are exempt from review under the California Environmental Quality Act and are not subject to local permitting requirements.

Section 26509 of the Public Resources Code requires a Plan of Control, prepared by a State-Certified Engineering Geologist, as a prerequisite to formation of a GHAD or annexation into an existing GHAD. Pursuant to Section 26509, this Plan of Control was prepared by an Engineering Geologist certified pursuant to Section 7822 of the Business and Professions Code and describes, in detail, the geologic hazards, their location, and the area affected by them. It also provides a plan for the prevention, mitigation, abatement, or control thereof.

As used in this Plan of Control, and as provided in Section 26507, "geologic hazard" means an actual or threatened landslide, land subsidence, soil erosion, earthquake, fault movement, or any other natural or unnatural movement of land or earth.

1.1 PROPERTY IDENTIFICATION

The land to be annexed into the Fallon Village GHAD ("Annexation Area") is shown on the Plat to Accompany Legal Description (Appendix B, Exhibit B). The Annexation Area includes all areas within Tract 8563. The legal description of the Annexation Area is included in Appendix B, Exhibit A. Current Assessor's Parcel Numbers (APNs) within the Annexation Area include 905-0002-001-01 and 905-0002-002.

2.0 BACKGROUND

2.1 EAST RANCH DEVELOPMENT

The Annexation Area includes 573 residential units, two park sites, and a public/semi-public site. Additional improvements include two park sites, recreational trails, water quality facilities, retaining walls, and paved roads. The Annexation Area covers approximately 166 acres. Site access to the Annexation Area will be via Croak Road along the western portion of the Annexation Area.

Parcel designations used in this Plan of Control are those listed on the Vesting Tentative Map for Tract 8563 dated September 2021 (Reference 1). As described in this Plan of Control, the Fallon Village GHAD will have responsibilities throughout the entire Annexation Area including the parcels proposed to be deeded to the GHAD, which are Parcels E, F, G, H, K, Q, T, QQ, and TT, ("GHAD-owned Parcels") as described in Section 2.2.

2.2 SUMMARY OF PROPOSED GHAD RESPONSIBILITIES WITHIN ANNEXATION AREA

The GHAD is expected to assume maintenance responsibilities for all properties within the Annexation Area as discussed in Section 7.0 and Table 10.0. In addition, the Developer is proposing that the GHAD take ownership of Parcels E, F, G, H, K, Q, T, QQ, and TT, which are within the Annexation Area as shown in Appendix A, and Figures 1 and 4. If the GHAD takes ownership of a parcel of land, it would also assume ownership and all maintenance responsibilities as a property owner.

As shown on the Vesting Tentative Map, three wetland areas are included within the Annexation Area. One wetland area is an existing wetland area on Parcel E, a second wetland area is proposed to be on Parcel I, and a third wetland area is along the western side of Parcel O and Q. It is proposed that the GHAD will own Parcels E and Q and the Homeowner's Association ("HOA") will own Parcel I. With the exception of geologic hazard abatement within the limits of the GHAD, the GHAD does not have additional responsibilities related to the mapped wetlands area.

The GHAD is charged with responsibilities that relate to the prevention, mitigation, abatement, or control of geologic hazards, which include the maintenance of drainage facilities and associated improvements on future GHAD-owned parcels. This will include the monitoring and maintenance of drainage facilities. The drainage facilities include concrete-lined drainage ditches and storm drain improvements on GHAD-owned Parcels.

The GHAD will mitigate or abate landslide or erosion hazards that could directly affect improved, developed, and accepted properties (as defined in Section 6) within the Annexation Area in accordance with Section 5. The GHAD will also perform maintenance of water control and conveyance facilities and assume other peripherally related responsibilities, such as vegetation management for fire suppression, trail maintenance, and selected other maintenance activities associated with the GHAD-owned Parcels. Additionally, the GHAD shall have the right to approve any construction, maintenance, or repair in the GHAD-owned Parcels that the GHAD determines has the potential to impact geologic stability.

3.0 SITE GEOLOGY

3.1 GEOLOGIC SETTING

The Annexation Area is located in the Coast Ranges geomorphic province of California. The Coast Ranges comprise a system of northwest-trending, fault-bounded mountain ranges and intervening valleys that trend approximately parallel to the right-lateral transform boundary between the North American and Pacific Plates. The present geology of the Coast Ranges is the result of deformation and deposition along the tectonic boundary between the North American plate and the Pacific plate. Plate boundary fault movements are largely concentrated along the well-known fault zones, which in the Bay Area include the San Andreas, Hayward, and Calaveras Faults, as well as other lesser-order faults. Bedrock in the Coast Ranges consists of igneous, metamorphic, and sedimentary rocks that range in age from Jurassic to Pleistocene.

In the vicinity of the Annexation Area, the regional geology is characterized most by Quaternary contractional deformation related to a regional restraining stepover between the Greenville and Concord faults. This contractional deformation manifests as the Mount Diablo fold and thrust belt that is dominated by southwestward vergence on the Mount Diablo blind thrust fault (Unruh and Sawyer, 1997).

3.2 SITE GEOLOGY

The Annexation Area is located on the margin between the southern foothills of Mount Diablo and the northern margin of the Livermore Valley. According to geologic mapping (Graymer et al., 1996; Dibblee, 2005), the Annexation Area is mapped as underlain by Pliocene and Pleistocene Livermore gravel (QTl) (Figure 3, ENGEO 2022). The Livermore gravel is described as poorly to moderately consolidated, indistinctly bedded, cobble conglomerate, gray conglomeratic sandstone, and sandstone with some siltstone and claystone. Bedding in the Livermore gravel is mapped as striking west-northwest and dipping steeply (70 to 85 degrees) towards the south. According to Quaternary mapping by Helley and Graymer (1997), the alluvial valleys at the Annexation Area are underlain by Pleistocene alluvial fans and fluvial deposits. These deposits are described as dense gravelly and clayey sand or clayey gravel that fines upward to sandy clay.

Nilsen (1975), maps four landslides within the Annexation Area. Two of the landslides are mapped across the northern site boundary, one is mapped along the eastern site boundary, and one is mapped at the northwestern portion of the site (Figure 4, ENGEO 2022). Majmundar, 1991, also prepared a landslide map that covers the Annexation Area (Figure 5, ENGEO 2022). Geologic mapping and subsurface exploration was performed at the site to further characterize landslides and slope stability (Figure 2A, ENGEO 2022).

According to the Seismic Hazard Zones map (Figure 6, ENGEO 2022), localized portions of the valleys/primary drainages at the Annexation Area are mapped as zones of required investigation for liquefaction. Additionally, the same map indicates that some of the steeper slopes at the Annexation Area are mapped as zones of required investigation for earthquake-induced landslides.

3.3 SEISMICITY

The Annexation Area lies in a seismically active region of California near the boundary between two major tectonic plates, the Pacific Plate to the southwest and the North American Plate to the northeast. The relative movement between the Pacific Plate and the North American Plate generally occurs across a 50-mile-wide zone extending from the San Gregorio Fault in the southwest to the Great Valley Thrust Belt in the northeast. Strain produced by the relative motions of these plates is relieved by right-lateral strike-slip faulting on the San Andreas Fault Zone to the west and other major active faults to the east (San Gregorio, Calaveras, and Hayward faults), and by vertical reverse slip displacement on the Great Valley and other thrust faults in the central California area. The California Geological Survey defines an active fault as one that has experienced surface displacement within Holocene time (about the last 11,700 years) (SP42 CGS, 2007, revised 2018).

Active faults capable of generating strong seismic ground shaking at the Annexation Area are shown in Table 3.3-1 below.

TABLE 3.3-1: Active Faults Capable of Producing Significant Ground Shaking at the Annexation Area

FAULT NAME	DISTANCE FROM SITE (MILES)	MAXIMUM MOMENT MAGNITUDE
Mount Diablo Thrust South	5.0	6.8
Calaveras (North)	11.6	7.2
Hayward (South)	19.1	7.1
Mount Diablo Thrust North	9.5	7.2
Greenville (North)	12.2	6.8

3.4 GROUNDWATER

Static groundwater observed in exploratory borings and cone penetration test (CPTs) in 2000, 2017, and 2021 within the site varied between 15 feet and 26 feet below ground surface (ENGEO 2022). No groundwater was observed in exploratory test pits. Fluctuations in the level of groundwater may occur due to variations in rainfall, irrigation practice, and other factors not evident during exploration.

4.0 GEOLOGIC HAZARDS

The following geologic hazards were identified for the Annexation Area in the referenced geotechnical investigation and are expected to remain to some extent after site grading has been completed.

- Slope instability
- Seismically induced ground shaking
- Ground lurching
- Liquefaction
- Expansive soil
- Compressible soil
- Existing undocumented fill

4.1 SLOPE INSTABILITY

Earth stability is the GHAD's primary geotechnical concern within the Annexation Area. This is not unique to this Annexation Area but is of importance for hillside projects in the San Francisco Bay Area. This section describes several types of slope instability that are within the GHAD's responsibility, subject to the provisions of Sections 6.0 and 7.0.

Soil creep is a natural process that involves slow downhill movement of soil mantle on a slope. Soil creep consists of lateral extension and vertical settlement. Soil creep results when surficial expansive soil is subjected to wetting and drying cycles caused by seasonal moisture changes, precipitation, and/or long-term landscape irrigation; by the growth of roots; and by burrowing animals. The surface manifestations of soil creep include tipping/tilting of fence posts, separations of exterior concrete slabs or other landscape elements from residential buildings, and cracks with vertical and/or horizontal offsets in surface and near-surface improvements. The amounts of vertical and horizontal movement are a function of the soil physical characteristics, such as plasticity, height and gradient of the downhill slope, and the depth of wetting and drying cycles.

The GHAD will also monitor erosion and sedimentation in open space or affecting developed lots or improvements. Erosion is defined as the process by which earth materials are loosened and removed by running water on the ground surface or in the subsurface. Sedimentation is the depositing or settling of soil or rock particles from a state of suspension in a liquid.

Hilly terrain open space, either in a natural condition or particularly on excavated slopes, can be subject to erosion. Landslide deposits, which are sometimes in a loosened condition, are particularly prone to erosion. Earth-flow-, debris-flow- and mud-flow-type landslides typically have an area of deposition or accumulation (sedimentation area) at their base. Graded slopes in the GHAD, particularly those in excess of 20 feet in vertical height or those not sufficiently vegetated, can be subject to erosion and therefore a source of transported sediment.

4.1.1 Seismically Induced Ground Shaking

As identified in the geotechnical investigation reports, an earthquake of moderate to high magnitude generated within the San Francisco Bay Region could cause considerable ground shaking within the Annexation Area, similar to that which has occurred in the past. To mitigate the shaking effects, all structures should be designed using sound engineering judgment and the latest building code requirements, as a minimum.

Seismic slope stability analysis was incorporated for use in the corrective grading plans for the graded portions of the Annexation Area; however, seismically generated slope failures could occur in Open Space areas outside of the development limits.

4.1.2 Ground Lurching

Ground lurching is a result of the rolling motion imparted to the ground surface during energy released by an earthquake. Such rolling motion can cause ground cracks to form in weaker soil. The potential for the formation of these cracks is considered greater at contacts between deep alluvium and bedrock. Such an occurrence is possible within the Annexation Area as in other locations in the Bay Area region, but based on the Annexation Area location, the offset is expected to be minor.

4.1.3 Liquefaction

Soil liquefaction results from loss of strength during cyclic loading, such as imposed by earthquakes. Soil most susceptible to liquefaction is clean, loose, saturated, uniformly graded, fine-grained sand. As shown in the referenced geotechnical exploration report (ENGEO 2022), the eastern and western major topographic valleys are mapped within the liquefaction hazard zones.

According to the soil data from the borings and test pits at the site, the site soil consists of fat (silty) clay and lean (sandy) clay, occasionally interbedded with layers of silty sand to sandy silt with clay or clayey sand over shallow bedrock. The sandy soil encountered in or near the topographic valleys showed groundwater at approximately 15½ feet below ground surface in an exploratory boring performed in 2000. No groundwater was encountered in exploratory borings within the topographic valleys performed in 2021. Additionally, the sandy soil and sandy silt were found to be dense to very dense and very stiff, respectively (ENGEO 2022). Based on the groundwater table elevation, the potential for liquefaction for the sandy silt layer is very low. Therefore, the liquefaction potential at the site is very low during seismic shaking.

4.1.4 Expansive Soil

According to the laboratory test results, some of the soil and clayey bedrock within the Annexation Area exhibit moderate to very high shrink/swell potential with variations in moisture content (ENGEO, 2022). Expansive soil changes in volume with changes in moisture. It can shrink or swell and cause heaving and damage to improvements founded on shallow foundations. Building damage due to volume changes associated with expansive soil can be reduced by: (1) using a rigid mat foundation that is designed to resist the settlement and heave of expansive soil, (2) deepening the foundations to below the zone of moisture fluctuation, i.e. by using deep footings or drilled piers, and/or (3) using footings at normal shallow depths but bottomed on a layer of select fill having a low expansion potential. Within the open space parcels in the Annexation Area, slope instability caused by expansive soil creep will be addressed by the GHAD subject to the exceptions in Section 5.0.

4.1.5 Compressible Soil

Settlement of soft soil may be significant if not properly mitigated according to recommendations in this report (ENGEO, 2022). Differential movement under structures is a primary geotechnical concern. Settlement at the site could be generated from: (1) consolidation of the alluvial and colluvial deposits in the topographic valleys or low-lying areas where fill will be placed, (2) compression of the deep fill due to its own weight, and (3) compression of soil beneath foundation systems due to building loads.

Based on the exploration data, on-site soil within the Annexation Area generally consists of very stiff silty to sandy clay underlain by shallow bedrock. However, occasional softer layers of clayey soil were found in the low-lying areas. Consolidation testing performed on the clayey soil materials within the topographic valley were found to be overconsolidated (ENGEO 2022). The proposed fill at this topographic valley location will be approximately 20 feet thick and corrective grading is proposed along the topographic valley. Based on these conditions, negligible settlement is anticipated due to additional fill loading at this drainage area.

Additionally, previous exploratory data indicated a layer of sandy clay, medium stiff in consistency and with moisture ranging from moist to wet, was encountered above bedrock. Recent exploration confirmed the location of this sandy clay layer. Groundwater was encountered in an exploratory boring; therefore, a consolidation test was performed, and the layer was found to be normal consolidated. The grading plan proposes this general area will receive fill up to approximately 55 feet thick. Based on analysis results, settlement up to 6 to 8 inches will result from additional fill loading at the topographic valley. Therefore, it is proposed that the softer clay layer found within the low-lying area of topographic valley would be removed during geotechnical corrective grading (ENGEO 2022).

4.1.6 Existing “Non-Engineered” Fill

Exploration locations within the Annexation Area do not identify areas underlain by existing “non-engineered” fill. However, undocumented fill may be present from the existing ranch development. Existing fill was encountered within the slope of the neighboring Branaugh Property, where one of the major fill slopes is planned within the development (ENGEO, 2022). In addition, existing fill was found just west of the existing Croak Road. Non-engineered fill can undergo excessive settlement, especially under new fill or building loads. It is proposed that if any existing fill is found within the Annexation Area, complete removal and recompaction of the undocumented fill would be performed.

5.0 CRITERIA FOR GHAD RESPONSIBILITY

In establishing the assessment levels and budgets for the Annexation Area, it is important to clearly define the limits of the GHAD’s responsibilities. The GHAD will accept responsibility for property as described in Section 6 of this Plan of Control; however, the intent of this Plan of Control is not to extend the GHAD’s responsibilities to every potential situation of instability; rather, the following are exclusions from GHAD responsibility.

5.1 ISOLATED OR REMOTE FEATURES REQUIRING MITIGATION

The GHAD shall not have responsibility to monitor, abate, mitigate, or control slope instability that does not involve damage to or pose a significant threat to damage Site Improvements.

5.2 SINGLE PROPERTY

The GHAD will not prevent, mitigate, abate, or control geologic hazards which are limited in area to a single parcel of property unless the geologic hazard has damaged, or poses a significant threat of damage to Site Improvements located on other property within the Annexation Area. This exclusion does not apply to geologic hazards existing on (i) Open Space property owned by any homeowner’s associations or (ii) the GHAD-owned parcels.

5.3 GEOLOGIC HAZARDS RESULTING FROM NEGLIGENCE OF PROPERTY OWNER

The GHAD may, in the GHAD Manager’s sole discretion, decline to prevent, mitigate, abate or control geologic hazards which occurred or resulted from any negligence of the homeowner and/or the homeowner’s contractors, agents, or employees in developing, investigating, grading, constructing, maintaining or performing or not performing any post-development work on the subject property as long as the geologic hazard is limited to a single lot, pursuant to the

single-property exclusion noted above. If the GHAD bears expense as the result of negligence described in this section, the GHAD may pursue reimbursement from the negligent parties.

5.4 PROPERTY NOT ACCEPTED

The GHAD shall not have responsibility to repair damage, which is situated on a parcel of real property, which the GHAD has not accepted in accordance with Section 6 below. The GHAD; however, may monitor, abate, mitigate or control geologic or hydrogeologic hazards on a parcel of real property which the GHAD has not accepted in accordance with Section 6 and is not excluded from GHAD responsibility by Sections 5.1, 5.2, and 5.3, provided; however, that the GHAD responsibility on such parcel shall be limited to the extent necessary to address damage to, or a significant threat of damage to Site Improvements which are within a parcel of real property which the GHAD has accepted in accordance with Section 6. Should the GHAD be required to respond to a geologic hazard outside the Annexation Area, the GHAD may take such actions as may be appropriate to recover costs incurred as a result of preventing, mitigating, abating, or controlling such geologic hazard from the responsible party, if any.

5.5 GEOLOGIC HAZARD WHICH REQUIRES EXPENDITURE IN AMOUNT EXCEEDING THE VALUE OF THE THREATENED OR DAMAGED IMPROVEMENT

The GHAD may elect not to prevent, mitigate, abate, or control a geologic hazard where, in the GHAD Manager's sole discretion, the anticipated expenditure required to be funded by the GHAD to prevent, mitigate, abate, or control the geologic hazard will exceed the value of the structure(s) and Site Improvement(s) threatened with damage or loss.

5.6 GHAD FUNDING OR REIMBURSEMENT FOR DAMAGED OR DESTROYED STRUCTURES OR SITE IMPROVEMENTS

In the event a residence or any other structure, Site Improvement, or landscaping is damaged or destroyed due to, or as a result of, a geologic hazard, the GHAD may fund or reimburse the property owner for the expenses necessary to repair or replace the damaged or destroyed structure, Site Improvement, or landscaping. Unless authorized by the Board of Directors, the dollar amount of the GHAD funding or reimbursement may not exceed ten percent (10%) of the costs incurred by the GHAD in preventing, mitigating, abating, or controlling the geologic hazard responsible for the damage[1]. In the event the geologic hazard damaged or destroyed a structure, Site Improvement, or landscaping that violated any provisions of the City Building Code or City Ordinance Code at the time of its installation or improvement, the GHAD may decline to provide any funding, or reimbursement to the property owner, for repair or replacement of the damaged structure, Site Improvement, or landscaping.

[1] For example, if a landslide causes $10,000 in structural damage to each one of four neighboring homes for a total of $40,000 in structural damage and it costs the GHAD $100,000 to design and install a new retaining wall to abate the slide, the District may only reimburse each property owner $2,500 of their $10,000 in structural damage.

5.7 NO REIMBURSEMENT OF EXPENSES INCURRED BY PROPERTY OWNERS

The GHAD will not be obligated to reimburse a property owner for expenses incurred for the prevention, mitigation, abatement, or control of a geologic hazard absent a written agreement between the property owner and the GHAD to that effect, which agreement has been executed prior to the property owner incurring said expenses, and following an investigation conducted by the GHAD.

5.8 RECONSIDERATION AND APPEAL POLICY

If a property owner directly affected by an operational action as set forth in this Plan of Control does not agree with the decision of the GHAD Manager, the property owner may request reconsideration of that decision ("GHAD Manager Decision"). The property owner shall, within thirty (30) days from the date of a written GHAD Manager Decision, file with the GHAD Manager the grounds for reconsideration, and the requested relief, including the owner's special interest and injury. Within fifteen (15) days of receipt of the property owner's written request for reconsideration, the GHAD Manager shall issue a written decision on the request based on the evidence presented ("GHAD Manager Reconsideration Decision"). The property owner may appeal the General Manager Reconsideration Decision to the GHAD Board of Directors. This appeal must be filed with the GHAD Manager within fifteen (15) days from the date of the GHAD Manager Reconsideration Decision. The appeal must include the grounds for the appeal and the property owner's requested relief. The GHAD Board will make the final decision on the appeal. The GHAD Manager will proceed based on the decision of the GHAD Board of Directors.

6.0 ACCEPTANCE

6.1 ACTIVATION OF ASSESSMENT

An annual assessment should be promptly authorized on all residential parcels and habitable nonresidential space within the Annexation Area as shown in Appendix B, Exhibit B which will generate funding for the GHAD Activities. The assessment shall be levied by the GHAD on each individual parcel beginning the first fiscal year following issuance of a building permit for that parcel.

6.2 RESPONSIBILITY FOR GHAD ACTIVITIES

TH East Ranch Dublin LLC currently owns all the parcels shown on the Vesting Tentative Subdivision Map and shall have the responsibility to perform all the activities of the GHAD on the property within Annexation Area and offsite improvement areas. Such responsibility shall be eligible for transfer to the GHAD at 9:00 a.m. on the day exactly 3 years after the first residential building permit is issued by the City of Dublin ("Transfer Eligibility Date"). The period between the levying of the GHAD assessment and the GHAD accepting maintenance responsibility of the GHAD Activities as defined in Section 7 below will allow the GHAD to accumulate reserve funds without incurring significant expenses.

6.3 OWNERSHIP OF THE OPEN SPACE

Ownership of Parcels E, F, G, H, K, Q, T, QQ, and TT in Tract 8563, as shown in Appendix A, and Figures 1 and 4 are proposed to be conveyed by the Developer to the GHAD at the end of the transfer process described in Section 6.4, which shall be the date the GHAD becomes

responsible for oversight of the actual physical maintenance of the Annexation Area as provided in this Section. The Developer shall prepare and record a grant deed transferring unencumbered fee title to the GHAD for these parcels. The grant deed(s) must first be reviewed and approved by the GHAD Manager and GHAD Attorney.

6.4 PROCESS FOR TRANSFERRING RESPONSIBILITY FOR GHAD ACTIVITIES

After the Transfer Eligibility Date for the Annexation Area, the process for transferring responsibility for performing GHAD Activities on such Parcel(s) shall be as follows.

1. Up to one year in advance of the Transfer Eligibility Date or in any subsequent year, at its discretion, the Developer may apply to the GHAD ("Transfer Application") to transfer the responsibility for performing GHAD Activities (as such term is defined in Section 7.0 herein below) for such Parcel(s) to the GHAD.
2. Within 30 days of receiving such Transfer Application, the GHAD Manager shall verify that all the facilities for which the GHAD will have maintenance responsibility have been approved, constructed, and maintained according to the City of Dublin approved plans and specifications for the individual improvements, and that such improvements are operational and in good working order.
3. Within 15 days of such inspection, the GHAD will send the Developer a list ("Punch list") of all of the items that need to be constructed, repaired, or otherwise modified in order to comply with the city-approved plans and specifications.
4. The Developer shall notify the GHAD Manager when it has completed the items identified on the Punch list. Within 30 days of receipt of such notice, the GHAD Manager shall verify that all Punch list items have been completed and notify the Developer that the GHAD accepts responsibility for performing all future GHAD activities on such Parcel(s).
5. The GHAD Manager shall confirm that the reserve requirement defined in the Engineer's Report approved by the GHAD Board has been met. The Engineer's Report is the document that establishes the individual property owners' GHAD assessment limit based on the projected expenses (budget) of the GHAD.
6. Prior to the GHAD accepting any responsibility for GHAD Activities, the Developer shall record a Declaration of Restrictive Covenants, Right of Entry and Disclosures Regarding Geologic Hazard Abatement District ("Declaration") as approved by the GHAD Manager and GHAD Attorney and as discussed in Section 11.
7. Prior to the GHAD accepting any responsibility for operation and maintenance of stormwater controls, as described in the Stormwater Management Maintenance Agreement, the Developer shall execute a transfer agreement with the GHAD for the stormwater controls as approved by the GHAD Manager and GHAD Attorney.
8. Any monies owed to the GHAD by the Developer have been paid.

As part of the transfer, the Developer of the Annexation Area to be transferred will provide the GHAD, for its use, copies of the applicable geotechnical exploration reports, as-built grading plans, as-built corrective grading plans, as-built improvement plans, as-built subdrain plans, or other pertinent documents as requested by the GHAD.

The GHAD is not responsible for maintaining parcels within the Annexation Area or any GHAD Activities as defined in Section 7.0 until it accepts such responsibilities pursuant to this section.

TH East Ranch Dublin LLC will remain responsible for all GHAD activities until the GHAD accepts responsibility pursuant to this section.

7.0 FALLON VILLAGE GHAD MONITORING, MAINTENANCE, AND REPAIR RESPONSIBILITIES

Several entities shall have ownership and maintenance duties of common space within the Annexation Area. The GHAD will assume monitoring and maintenance responsibilities for the site facilities and activities ("GHAD Activities") noted below and as described in Table 10.0.

- General monitoring, maintenance, and repair of the concrete-lined drainage ditches, earthen swale drainage ditches, subdrain outlets, subdrain risers, and within the Annexation Area.
- Monitoring and maintenance of geotechnical measurement devices, such as piezometers, inclinometers, and tiltmeters, if any, within the Annexation Area.
- Monitoring and maintenance of the stormwater quality/bioretention facilities as described in the Stormwater Maintenance Management Agreement (Appendix D).
- Debris benches and/or catchment structures within the Annexation Area.
- Storm drain inlets, outfalls, and pipelines Parcels E, F, G, H, K, Q, T, QQ, and TT.
- Slopes within the Annexation Area.
- Emergency vehicle access (EVA)/ maintenance roads within Parcels E, F, G, H, K, Q, T, QQ, and TT.
- Monitoring and maintenance of developer constructed retaining walls within Parcels E, F, G, H, K, Q, T, QQ, and TT.
- Maintenance of gates, fencing, and signage on Parcels E, F, G, H, K, Q, T, QQ, and TT.
- Vegetation control for fire suppression on Parcels E, F, G, H, K, Q, T, QQ, and TT.
- Circulation path within existing GHAD-owned Parcel D in Tract 8100.

7.1 GEOTECHNICAL TECHNIQUES FOR MITIGATION OF LANDSLIDE AND EROSION HAZARDS

The techniques that may be employed by the GHAD to prevent, mitigate, abate, or control geologic hazards include, but are not limited to, the following.

- Removal of the unstable earth mass.
- Stabilization (either partial or total) of the landslide by removal and replacement with compacted, drained fill.
- Construction of structures to retain or divert landslide material or sediment.
- Construction of erosion control devices such as gabions, riprap, geotextiles, or lined ditches.
- Placement of drained engineered buttress fill.
- Placement of subsurface drainage devices (e.g. underdrains or horizontally drilled drains).

- Slope correction (e.g. gradient change, biotechnical stabilization, slope trimming, or contouring).
- Construction of additional surface ditches and/or detention basins, silt fences, sediment traps, or backfill or erosion channels.

Potential landslide and erosion hazards can often best be mitigated by controlling soil saturation and water runoff and by maintaining the surface and subsurface drainage system.

8.0 PRIORITY OF GHAD EXPENDITURES

Emergency response and scheduled repair expenditures by the GHAD are to be prioritized by the GHAD Manager, utilizing his or her discretion, based upon available funds and the approved operating budget. When available funds are not sufficient to undertake all of the identified remedial and preventive stabilization measures, the expenditures are to be prioritized as follows in descending order of priority.

(A) Prevention, mitigation, abatement, or control of geologic hazards that have either damaged or pose a significant threat of damage to residences, critical underground utilities, or paved streets.

(B) Prevention, mitigation, abatement, or control of geologic hazards which have either damaged or pose a significant threat of damage to ancillary structures, including but not limited to water quality facilities, pools, cabanas, or restroom buildings.

(C) Prevention, mitigation, abatement, or control of geologic hazards, which have either damaged or pose a significant threat of damage to open space amenities.

(D) Prevention, mitigation, abatement, or control of geologic hazards which have either damaged or pose a significant threat of damage limited to loss of landscaping or other similar non-essential amenities.

(E) Prevention, mitigation, abatement, or control of geologic hazards existing entirely on open space property and which have neither damaged nor pose a significant threat of damage to any Site Improvements.

In performing its duties as described above, the GHAD may seek funding or reimbursements from public and private entities including, but not limited to, FEMA, City and County agencies, insurance companies, etc.

9.0 MAINTENANCE AND MONITORING SCHEDULE

Geologic features and GHAD-maintained improvements defined in Section 7.0 shall be inspected by GHAD staff or GHAD-assigned consultants as presented below. The site inspections shall be undertaken at appropriate intervals as determined by the GHAD Manager using supporting documents prepared for the Annexation Area and the Site Improvements. The GHAD budget should provide for three or more inspections in years of heavy rainfall. Generally, the inspections should take place in October, prior to the first significant rainfall; mid-winter as necessary during heavy rainfall years; and in early April at the end of the rainy season. The frequency of the inspections should increase, depending upon the intensity and recurrence of rainfall.

The Developer shall provide to the GHAD copies of geologic or geotechnical exploration reports related to development of the Annexation Area, and the GHAD shall retain these reports in the records of the GHAD. In addition, copies of any earthwork-related testing and observation reports that will be finalized at the completion of grading, when as-built drawings are available, shall be provided to the GHAD by the Developer and maintained as part of the GHAD records.

Following are guidelines for a monitoring plan. The actual timing, scope, frequency and other details regarding such maintenance, inspection, and similar activities shall be at the discretion of the GHAD Manager.

- A State-licensed Professional Engineer and/or Professional Geologist should carry out a geologic reconnaissance of the slopes for indications of erosion or slope failures.
- A State-licensed Professional Engineer and/or Professional Geologist should carry out an inspection of lined surface ditches. Repairs and maintenance, as needed, should be undertaken including removal of excess silt or sediment in ditches and patching or replacement of cracked or broken ditches, prior to the beginning of the next rainy season.
- Subsurface drain outlets and horizontally drilled drain outlets, if any, should be checked. Water flowing from these outlets should be measured and recorded during each inspection.
- Piezometers to measure groundwater levels, or instruments such as inclinometers or tiltmeters measuring potential slope instability should be monitored as recommended, if installed.
- Settlement monitoring devices, if any, should be measured periodically and tracked. In the event of anomalous readings or excessive settlement, the monitoring frequency should be increased.
- Stormwater quality/bioretention basins shall be monitored and well maintained. The GHAD will maintain the bioretention basins in accordance with the Stormwater Management Maintenance Agreement.
- Inlets, outfalls, or trash racks, if used, must be kept free of debris and spillways maintained. Additionally, water detention facilities and water quality facilities should be inspected and maintained. It is anticipated that initially, at least once every 2 years, cleanup of vegetation and removal of silt would be in order.
- Developer-constructed retaining walls should be inspected for evidence of distress, such as tilting and/or structural failure. Repairs and maintenance would be undertaken only in the event that the structural integrity of the wall has been compromised or if the wall distress poses a threat to the integrity of adjacent structures.
- An annual inspection shall be made by a State-licensed Professional Engineer and/or Certified Engineering Geologist to assess the effectiveness of the preventive maintenance program and to make recommendations as to which landslide or erosion measures should be undertaken in the next fiscal year. Any appropriate site-specific study of landslide or erosion conditions shall be determined at that time. Consultants, if necessary, will be retained to undertake the needed studies. An annual inspection report to the GHAD shall be prepared by the Professional Engineer and/or Certified Engineering Geologist.

10.0 OWNERSHIP AND MANAGEMENT

Ownership, funding sources, and maintenance responsibilities shall be as shown in the following table. Parcel designations are derived from the Vesting Tentative Map (Reference 1).

TABLE 10.0: EAST RANCH DEVELOPMENT
Long-Term Ownership and Management Matrix

FACILITY/FUNCTION	ROUTINE/ GENERAL MAINTENANCE ENTITY	FUNDING	MINIMUM PERIOD FOR TRANSFER OF PLAN OF CONTROL RESPONSIBILITIES FROM DEVELOPER TO THE GHAD	OWNERSHIP
1. Annexation Area Excluding GHAD-Owned Parcels				
a. Single Family Residential Parcels and future Residential Area (Lots 1-546 (573 units)	Private	Private	3 Years	Private
a.1. Condominiums (Lots 61-72 in Neighborhood 6)	Private	Private	3 Years	HOA
b. Common Area Parcels (Parcels A, B, C, I, J, L, M, N, R, S, RR, SS, and UU)	Homeowner's Association (HOA)	HOA Dues	3 Years	HOA
c. Private Streets (Parcels U, V-Y, Z-PP)	HOA	HOA Dues	3 Years	HOA
d. Public Street Right-of-Way	City of Dublin	Community Facilities District (CFD)	3 Years	City of Dublin
e. Neighborhood Parks (Parcels D and O)	City of Dublin	CFD	3 Years	City of Dublin
f. Trail (on Parcel D)	HOA	HOA	3 Years	City of Dublin
g. Preserved Wetlands (Parcel I)	HOA	HOA Dues	3 Years	HOA
h. Preserved Wetlands (Parcel O, 0.47 acres)	HOA	HOA Dues	3 Years	City of Dublin
i. Semi-Public Area (Parcel P)	Developer	Developer	3 Years	Developer
j. General Maintenance including Graffiti and Litter Removal	HOA	HOA Dues	Not Applicable	HOA
k. Storm Drain Improvements within Private Streets (Parcels U, V-Y, Z-PP)	HOA	HOA Dues	3 Years	HOA
l. Storm Drain Improvements within Public Street Right-of Way	City of Dublin	CFD	3 Years	City of Dublin
m. Subdrain Outlets and Risers	GHAD	GHAD Assessment	3 Years	GHAD
2. GHAD-Owned Parcels (Parcels E, F, G, H, K, Q, T, QQ, TT, and D in Tract 8100)– Geologic Hazard Abatement and Landowner Responsibilities				
Pretransfer Period				
a. Open Space (Parcels E, K, and T)				
i Gates, Fencing, and Signage	Developer	Private Funding	3 Years	Developer
ii General Maintenance including Graffiti and Litter Removal	Developer	Private Funding	3 Years	Developer

FACILITY/FUNCTION	ROUTINE/ GENERAL MAINTENANCE ENTITY	FUNDING	MINIMUM PERIOD FOR TRANSFER OF PLAN OF CONTROL RESPONSIBILITIES FROM DEVELOPER TO THE GHAD	OWNERSHIP
iii Vegetation Management for Fire Suppression	Developer	Private Funding	3 Years	Developer
iv Concrete-lined and Earthen Swale Drainage Ditches	Developer	Private Funding	3 Years	Developer
iv Storm Drain Improvements	Developer	Private Funding	3 Years	Developer
v Subdrain Outlets and Risers	Developer	Private Funding	3 Years	Developer
vi Retaining Walls	Developer	Private Funding	3 Years	Developer
vii Emergency Vehicle Access (EVA)/ Maintenance Roads	Developer	Private Funding	3 Years	Developer
viii Existing Wetlands	Developer	Private Funding	3 Years	Developer
ix Geotechnical Measurement Devices	Developer	Private Funding	3 Years	Developer
x Debris Benches and/or Catchment Structures	Developer	Private Funding	3 Years	Developer
xi Slopes	Developer	Private Funding	3 Years	Developer
xii Circulation Path (Parcel D in Tract 8100)	Developer	Private Funding	3 Years	Developer
b. Stormwater Quality/ Bioretention Basins (Parcels F, G, H, Q, QQ, and TT)				
i Ornamental Landscape Maintenance and Replacement	Developer	Private Funding	3 Years	Developer
ii Functional Maintenance, Repair, and Replacement	Developer	Private Funding	3 Years	Developer
iii Mitigation Swale and Deed Restricted Area (Parcel Q, 0.10 acres)	Developer	Private Funding	3 Years	Developer
iv Gates, Fencing, and Signage	Developer	Private Funding	3 Years	Developer
v Debris Benches and/or Catchment Structures	Developer	Private Funding	3 Years	Developer
Post Transfer Period				
a. Open Space (Parcels E, K, and T)				
i Gates, Fencing, and Signage	GHAD	GHAD Assessment	Perpetual	GHAD
ii General Maintenance including Graffiti and Litter Removal	GHAD	GHAD Assessment	Perpetual	GHAD
iii Vegetation Management for Fire Suppression	GHAD	GHAD Assessment	Perpetual	GHAD
iv Concrete-lined and Earthen Swale Drainage Ditches	GHAD	GHAD Assessment	Perpetual	GHAD
iv Storm Drain Improvements	GHAD	GHAD Assessment	Perpetual	GHAD

FACILITY/FUNCTION	ROUTINE/ GENERAL MAINTENANCE ENTITY	FUNDING	MINIMUM PERIOD FOR TRANSFER OF PLAN OF CONTROL RESPONSIBILITIES FROM DEVELOPER TO THE GHAD	OWNERSHIP
v Subdrain Outlets and Risers	GHAD	GHAD Assessment	Perpetual	GHAD
vi Retaining Walls	GHAD	GHAD Assessment	Perpetual	GHAD
vii Emergency Vehicle Access (EVA)/ Maintenance Roads	GHAD	GHAD Assessment	Perpetual	GHAD
viii Existing Wetlands	GHAD	GHAD Assessment	Perpetual	GHAD
ix Geotechnical Measurement Devices	GHAD	GHAD Assessment	Perpetual	GHAD
x Debris Benches and/or Catchment Structures	GHAD	GHAD Assessment	Perpetual	GHAD
xi Slopes	GHAD	GHAD Assessment	Perpetual	GHAD
xii Circulation Path (Parcel D in Tract 8100)	GHAD	GHAD Assessment	Perpetual	GHAD
b. Stormwater Quality/ Bioretention Basins (Parcels F, G, H, Q, QQ, and TT i Ornamental Landscape Maintenance and Replacement	HOA	HOA Dues	Perpetual	GHAD
ii Functional Maintenance, Repair, and Replacement	GHAD	GHAD Assessment	Perpetual	GHAD
iii Mitigation Swale and Deed Restricted Area (Parcel Q)	HOA	HOA Dues	Perpetual	GHAD
iv Gates, Fencing, and Signage	GHAD	GHAD Assessment	Perpetual	GHAD
v Debris Benches and/or Catchment Structures	GHAD	GHAD Assessment	Perpetual	GHAD

11.0 RIGHT-OF-ENTRY

The GHAD Board of Directors, officers, employees, consultants, contractors, agents, and representatives shall have the right to enter upon all lands within the Annexation Area as shown in Appendix B for the purpose of performing the GHAD Activities defined in this Plan of Control. Such GHAD Activities include, but are not limited to the inspection, maintenance, and monitoring of those improvements listed in Section 7.0. Should the GHAD need to access private residential lots to fulfill its duties under the Plan of Control, the GHAD shall provide the affected landowner and/or resident with 72 hours advanced notice unless, in the reasonable judgment of the GHAD, an emergency situation exists which makes immediate access necessary to protect the public health and safety, in which case no advanced notice is required, but the GHAD shall inform the landowner and/or resident as soon as reasonably possible.

The foregoing right-of-entry provision shall be recorded in the chain of title for all Annexation Area residential parcels and common area lots in the form attached as Appendix F, and it shall be included in all Covenants, Conditions, and Restrictions (CC&Rs) and homebuyer disclosure statements prepared for parcels within the GHAD Annexation Area.

12.0 GLOSSARY

Accepted Parcel – An assessor's parcel within the Annexation Area that has been accepted for the transfer of GHAD responsibilities as provided in Section 6.4 of this Plan of Control.

Annexation Area – The land to be annexed into the Fallon Village GHAD as shown on the Plat to Accompany Legal Description (Appendix B, Exhibit B) in this Plan of Control. The Annexation Area includes all areas within Tract 8563.

GHAD Activities – Activities noted in Section 7.0 and described in Table 10.0 in this Plan of Control that the GHAD will assume monitoring and maintenance responsibilities.

GHAD Board of Directors – The members of the Dublin City Council.

Engineer's Report – The document that establishes the individual property owners' assessment limit based on the special benefit conferred to that property by the GHAD.

Geologic Hazard – An actual or threatened landslide, land subsidence, soil erosion, earthquake, fault movement, or any other natural or unnatural movement of land or earth (Public Resources Code *§* 26507).

Geologic Hazard Abatement District or GHAD – A district formed under Public Resources Code *§ 26500* to undertake emergency actions necessary or incidental to the prevention, mitigation, abatement, or control of a geologic hazard.

GHAD Law – Public Resources Code § 26500 through 26654.

GHAD Manager – An entity employing a licensed Geotechnical Engineer who will oversee the operations of the GHAD, including preparation of GHAD budgets. The GHAD Manager is hired by and reports to the GHAD Board of Directors.

GHAD Manager Decision – An operational action as set forth in this Plan of Control.

GHAD Manager Reconsideration Decision – A written decision prepared by the GHAD Manager in response to a written request from a property owner within the Annexation Area on the evidence presented.

GHAD-owned Parcels – The lands proposed to be GHAD-owned are Parcels E, F, G, H, K, Q, T, QQ, and TT in Tract 8563 are shown in Appendix A, and Figures 1 and 4.

Fallon Village GHAD – A geologic hazard abatement district formed by the Dublin City Council under the authority of the California Public Resources Code, Division 17, commencing with Section 26500.

Plan of Control – Report prepared by a Certified Engineering Geologist which describes in detail, the geologic hazards, their location, and the area affected by them. It also provides a plan for the prevention, mitigation, abatement, or control thereof.

Punch List – A document provided by the GHAD of all the items, if any, that need to be constructed, repaired, or otherwise modified in order to comply with the city-approved plans and specifications prior to the transfer of Plan of Control responsibilities to the GHAD.

Site Improvements – Buildings, public and private roads, sidewalks, utilities, improved trails, swimming pools, tennis courts, gazebos, cabanas, geologic stabilization features, or similar improvements.

Transfer Application Form – A document provided by the applicant to initiate transfer of Plan of Control responsibilities as outlined in this Plan of Control to the GHAD. A sample transfer application form is provided in Appendix G in this Plan of Control.

Transfer Eligibility Date – The earliest date a parcel within the Annexation Area is eligible for the transfer of Plan of Control responsibilities to the GHAD. For parcels with the Annexation Area, this period starts at 9:00 a.m. on the day exactly three years after the first residential building permit is issued by the City of Dublin. This also applies to Parcel D in Tract 8100 (Assessor's Parcel Numbers (APN) 985-108-4), APN 985-86-11, APN 985-98-8, and APN 985-86-15 since TH East Ranch Dublin LLC will be constructing future GHAD-maintained improvements on these parcels.

SELECTED REFERENCES

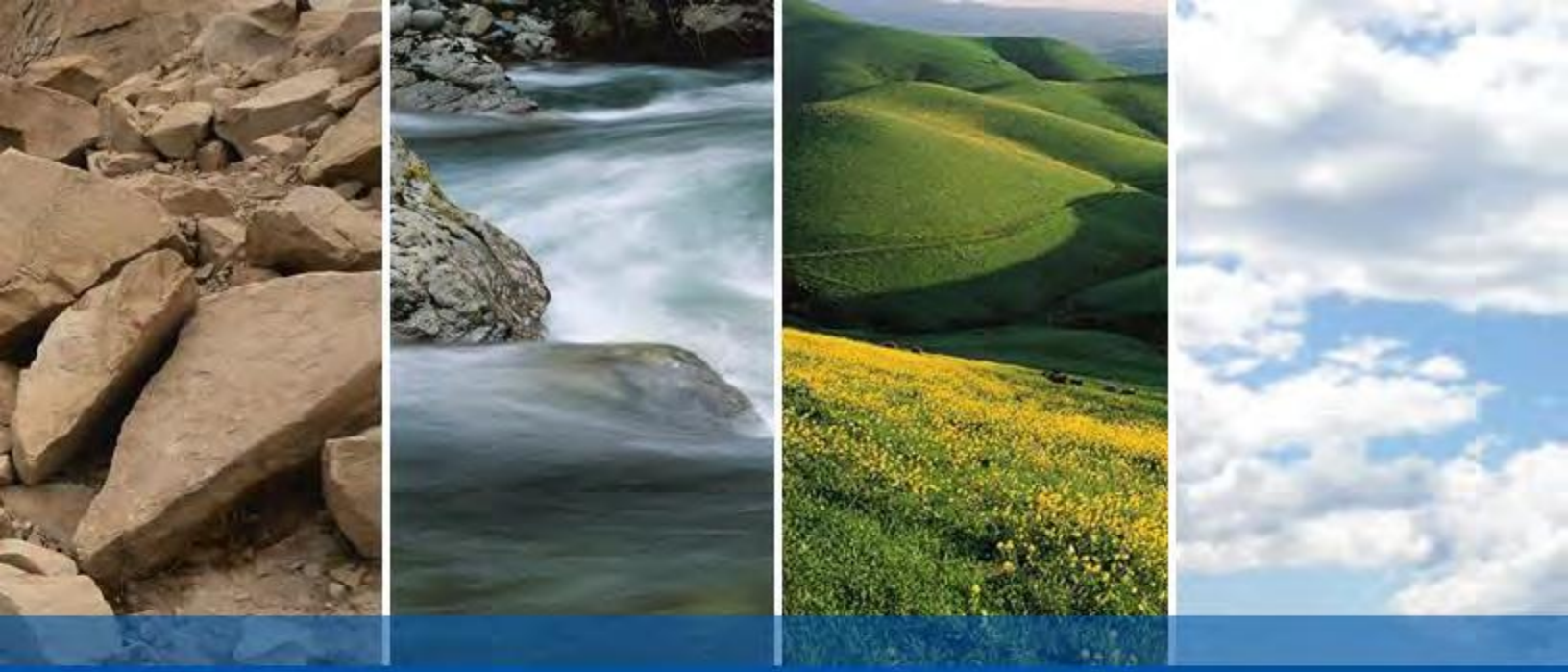
1. MacKay and Somps. 2021. Vesting Tentative Map. Tract 8563, City of Dublin, Alameda County, California. September 2021. Project No. 19343.000.

2. ENGEO. 2021. Geotechnical Exploration. East Ranch (Croak Property) Tract 8563, Dublin, California. December 10, 2021, Revised February 17, 2022. File No. 5101.001.002.

3. Dublin. 2021. City of. Resolution No. 140-21 – 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), Trumark Homes, LLC (Applicant/Owners). December 7, 2021.

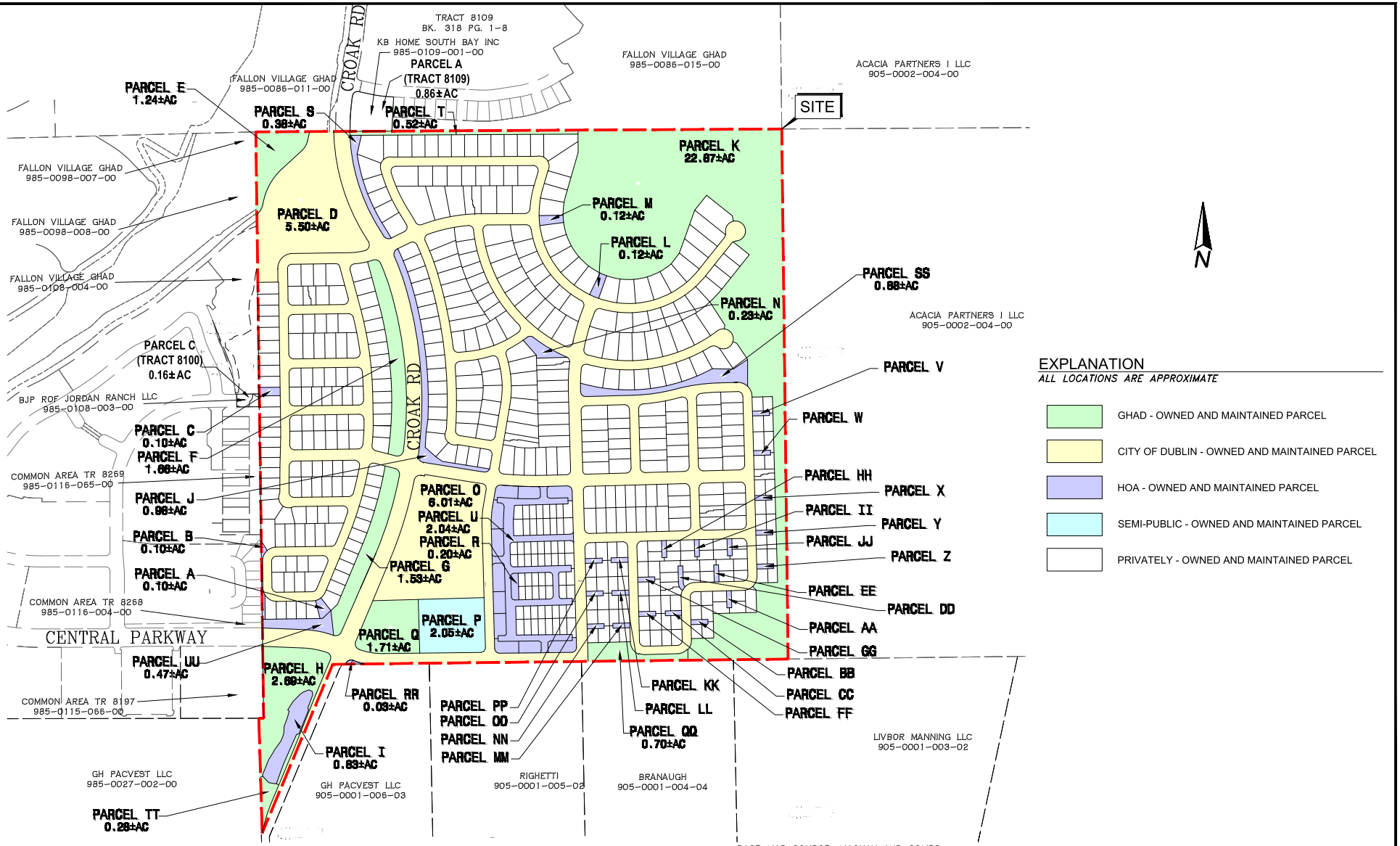
4. Dublin. 2021. City of. Stormwater Management Maintenance Agreement. East Ranch Development Tract 8563, City of Dublin, Alameda County, California. March 2021.

5. Johnson Marigot Consulting, LLC. 2021. Mitigation and Monitoring Plan. East Ranch Project Site, Alameda County, California. October 20, 2021.



APPENDIX A

FIGURE 1 – Long-Term Maintenance and Ownership Exhibit
FIGURE 2A – East Ranch Site Plan
FIGURE 2B – East Ranch Site Plan
FIGURE 2C – East Ranch Site Plan Swale Location on Parcels O and Q
FIGURE 3A – Preliminary Remedial Grading Plan
FIGURE 3B – Preliminary Remedial Grading Plan
FIGURE 4 – Off-Site Ownership and Maintenance Exhibit



BASE MAP SOURCE: MACKAY AND SOMPS

ENGEO Expect Excellence

LONG-TERM MAINTENANCE AND OWNERSHIP EXHIBIT
EAST RANCH, TRACT 8563
DUBLIN, CALIFORNIA

PROJECT NO.: 5101.001.003
SCALE: NO SCALE
DRAWN BY: LL
CHECKED BY: RHB

FIGURE NO. 1

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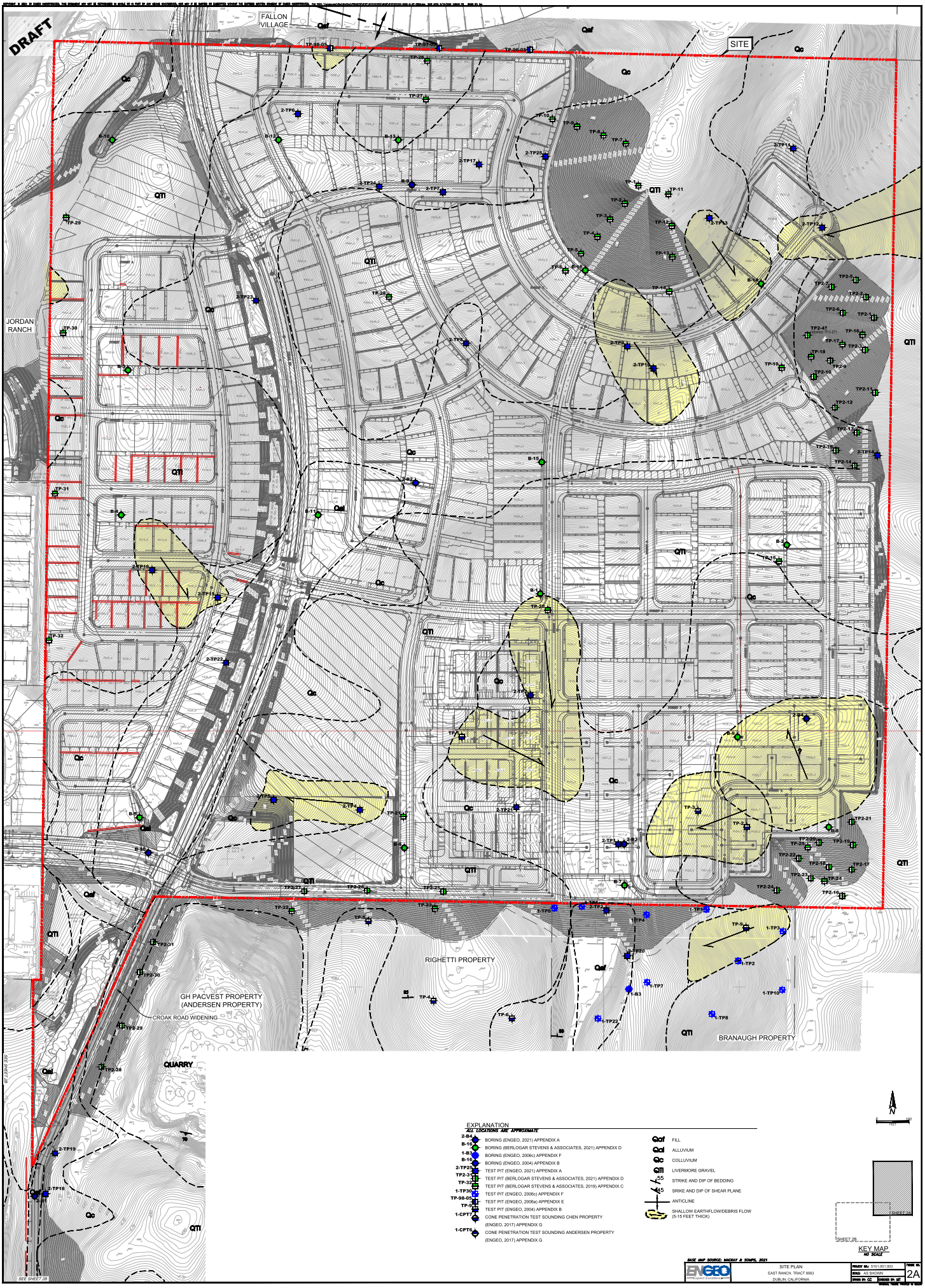
DRAFT
FALLON VILLAGE
SITE
JORDAN RANCH
RIGHETTI PROPERTY
GH PACVEST PROPERTY
(ANDERSEN PROPERTY)
CROAK ROAD WIDENING
QUARRY
BRANAUGH PROPERTY
SEE SHEET 2B
SHEET 2B
KEY MAP
NO SCALE
EXPLANATION
ALL LOCATIONS ARE APPROXIMATE
BORING (ENGEO, 2021) APPENDIX A
BORING (BERLOGAR STEVENS & ASSOCIATES, 2021) APPENDIX D
BORING (ENGEO, 2006c) APPENDIX F
BORING (ENGEO, 2004) APPENDIX B
TEST PIT (ENGEO, 2021) APPENDIX A
TEST PIT (BERLOGAR STEVENS & ASSOCIATES, 2021) APPENDIX D
TEST PIT (BERLOGAR STEVENS & ASSOCIATES, 2019) APPENDIX C
TEST PIT (ENGEO, 2006c) APPENDIX F
TEST PIT (ENGEO, 2006a) APPENDIX E
TEST PIT (ENGEO, 2004) APPENDIX B
CONE PENETRATION TEST SOUNDING CHEN PROPERTY (ENGEO, 2017) APPENDIX G
CONE PENETRATION TEST SOUNDING ANDERSEN PROPERTY (ENGEO, 2017) APPENDIX G
FILL
ALLUVIUM
COLLUVIUM
LIVERMORE GRAVEL
STRIKE AND DIP OF BEDDING
STRIKE AND DIP OF SHEAR PLANE
ANTICLINE
SHALLOW EARTHFLOW/DEBRIS FLOW (5-15 FEET THICK)
BASE MAP SOURCE: MACKAY & SOMPS, 2021
SITE PLAN
EAST RANCH, TRACT 8663
DUBLIN, CALIFORNIA
2A


DRAFT
SITE
QUARRY
GEOLOGIC MAPPING NOT INCLUDED IN THIS AREA
GH PACVEST PROPERTY (ANDERSEN PROPERTY)
GEOLOGIC MAPPING NOT INCLUDED IN THIS AREA
SEE SHEET 2A
SHEET 2B
KEY MAP
NO SCALE
EXPLANATION
ALL LOCATIONS ARE APPROXIMATE
BORING (ENGEO, 2021) APPENDIX A
BORING (BERLOGAR STEVENS & ASSOCIATES, 2021) APPENDIX D
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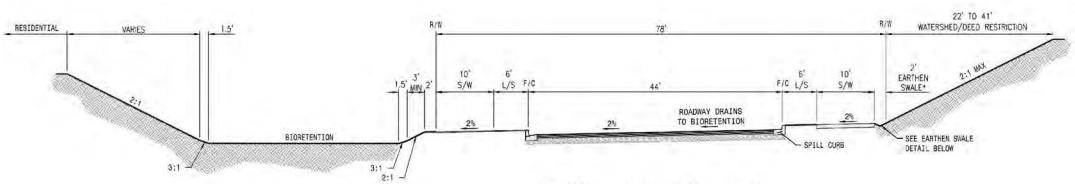
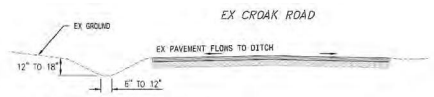
TEST PIT (BERLOGAR STEVENS & ASSOCIATES, 2021) APPENDIX D
TEST PIT (BERLOGAR STEVENS & ASSOCIATES, 2019) APPENDIX C
TEST PIT (ENGEO, 2006c) APPENDIX F
TEST PIT (ENGEO, 2006a) APPENDIX E
TEST PIT (ENGEO, 2004) APPENDIX B
CONE PENETRATION TEST SOUNDING CHEN PROPERTY (ENGEO, 2017) APPENDIX G
CONE PENETRATION TEST SOUNDING ANDERSEN PROPERTY (ENGEO, 2017) APPENDIX G
FILL
ALLUVIUM
COLLUVIUM
LIVERMORE GRAVEL
STRIKE AND DIP OF BEDDING
STRIKE AND DIP OF SHEAR PLANE
ANTICLINE
SHALLOW EARTHFLOW/DEBRIS FLOW (5-15 FEET THICK)
BASE MAP SOURCE: MACKAY & SOMPS, 2021
SITE PLAN
EAST RANCH, TRACT 8563
DUBLIN, CALIFORNIA
PROJECT NO.: 5101.001.003
SCALE: AS SHOWN
DRAWN BY: CC
CHECKED BY: MT
FIGURE NO.
2B



SECTION A - CROAK ROAD - 88' ROW

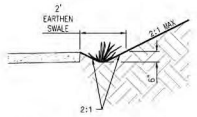
N.T.S.

*SEE EARTHEN SWALE DETAIL BELOW



SECTION B - EX DITCH CROSS-SECTION

N.T.S.



EARTHEN SWALE DETAIL

N.T.S.

EXPLANATION

ALL LOCATIONS ARE APPROXIMATE

- EX. ROADSIDE DITCH
- EARTHEN SWALE
- WATERSHED OF EARTHEN SWALE (0.72± AC)

NOTE:

PARCEL O IS A CITY PUBLIC PARK. THE CITY OF DUBLIN WILL OWN THE PARCEL AND THE MASTER HOA WILL MAINTAIN THE DEED RESTRICTED AREA. PARCEL Q WILL BE A WATER QUALITY FACILITY OWNED AND MAINTAINED BY THE FALLON VILLAGE GHAD. THE MASTER HOA WILL MAINTAIN THE DEED RESTRICTED AREA OF THE PARCEL.

BASE MAP SOURCE: MACKAY & SOMPS

ENGEO Expect Excellence

SWALE LOCATION ON PARCELS O AND Q
EAST RANCH, TRACT 9563
DUBLIN, CALIFORNIA

PROJECT NO.: 5101.001.003
SCALE: AS SHOWN
DRAWN BY: JV
CHECKED BY: RHB

FIGURE NO. 2C

ORIGINAL FIGURE PRINTED IN COLOR

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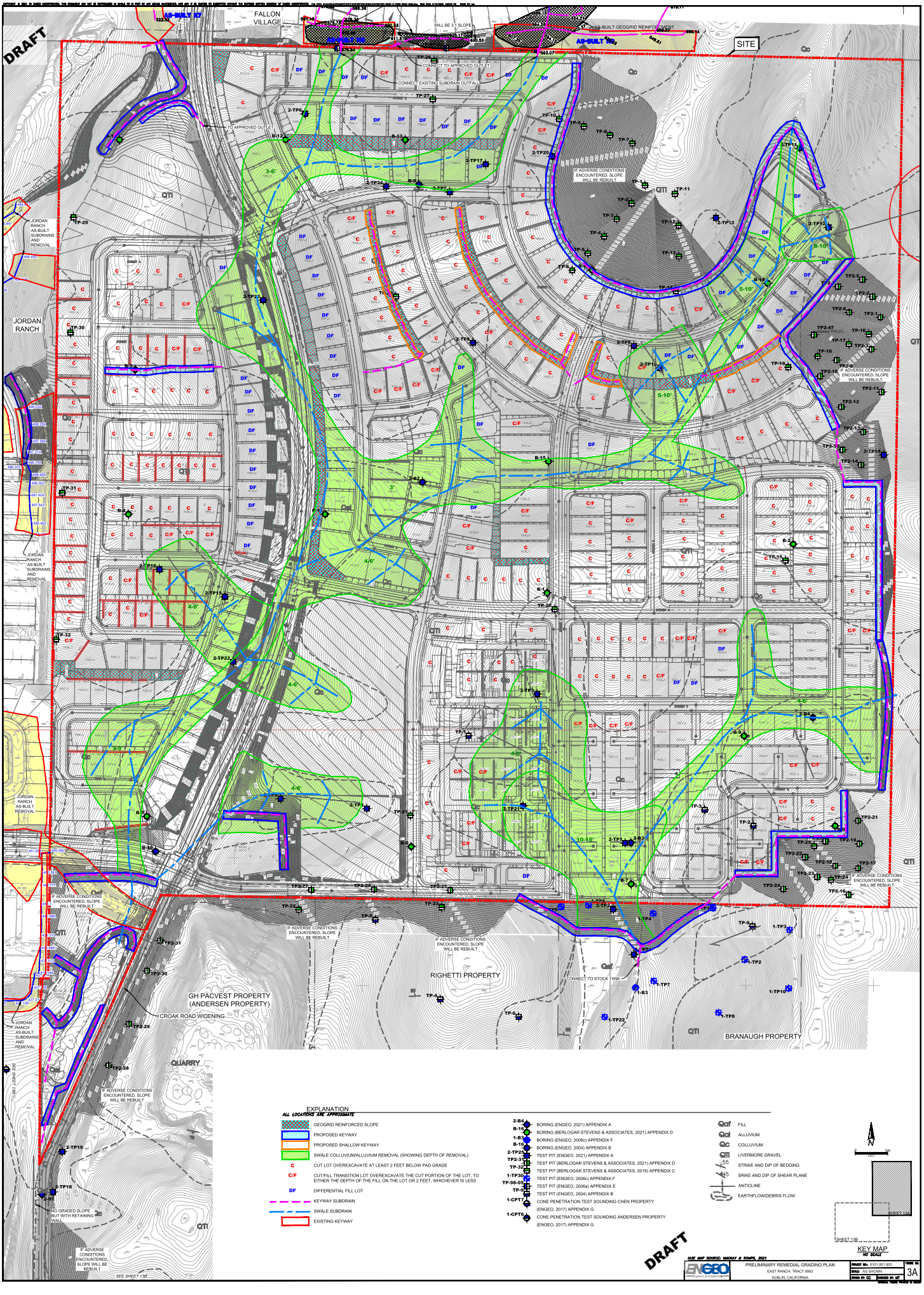
DRAFT
FALLON VILLAGE
AS-BUILT R7
AS-BUILT R8
AS-BUILT R9
AS-BUILT GEOGRID REINFORCEMENT
SITE
WILL BE 3:1 SLOPE
CONNECT TO APPROVED OUTLET
CONNECT EXISTING SUBDRAIN OUTFALL
TO APPROVED OUTLET
IF ADVERSE CONDITIONS ENCOUNTERED, SLOPE WILL BE REBUILT
JORDAN RANCH AS-BUILT SUBDRAINS AND REMOVAL
JORDAN RANCH
RIGHETTI PROPERTY
GH PACVEST PROPERTY (ANDERSEN PROPERTY)
CROAK ROAD WIDENING
BRANAUGH PROPERTY
QUARRY
CONNECT TO STOCK TANK
NO GRADED SLOPE BUT WITH RETAINING WALL
SEE SHEET 14B
SHEET 13A
SHEET 13B
KEY MAP
NO SCALE
EXPLANATION
ALL LOCATIONS ARE APPROXIMATE
GEOGRID REINFORCED SLOPE
PROPOSED KEYWAY
PROPOSED SHALLOW KEYWAY
SWALE COLLUVIUM/ALLUVIUM REMOVAL (SHOWING DEPTH OF REMOVAL)
CUT LOT OVEREXCAVATE AT LEAST 2 FEET BELOW PAD GRADE
CUT/FILL TRANSITION LOT OVEREXCAVATE THE CUT PORTION OF THE LOT, TO EITHER THE DEPTH OF THE FILL ON THE LOT OR 2 FEET, WHICHEVER IS LESS
DIFFERENTIAL FILL LOT
KEYWAY SUBDRAIN
SWALE SUBDRAIN
EXISTING KEYWAY
BORING (ENGEO, 2021) APPENDIX A
BORING (BERLOGAR STEVENS & ASSOCIATES, 2021) APPENDIX D
BORING (ENGEO, 2006c) APPENDIX F
BORING (ENGEO, 2004) APPENDIX B
TEST PIT (ENGEO, 2021) APPENDIX A
TEST PIT (BERLOGAR STEVENS & ASSOCIATES, 2021) APPENDIX D
TEST PIT (BERLOGAR STEVENS & ASSOCIATES, 2019) APPENDIX C
TEST PIT (ENGEO, 2006c) APPENDIX F
TEST PIT (ENGEO, 2006a) APPENDIX E
TEST PIT (ENGEO, 2004) APPENDIX B
CONE PENETRATION TEST SOUNDING CHEN PROPERTY (ENGEO, 2017) APPENDIX G
CONE PENETRATION TEST SOUNDING ANDERSEN PROPERTY (ENGEO, 2017) APPENDIX G
FILL
ALLUVIUM
COLLUVIUM
LIVERMORE GRAVEL
STRIKE AND DIP OF BEDDING
STRIKE AND DIP OF SHEAR PLANE
ANTICLINE
EARTHFLOW/DEBRIS FLOW
DRAFT
BASE MAP SOURCE: MACKAY & SOMPS, 2021
ENGEO
PRELIMINARY REMEDIAL GRADING PLAN
EAST RANCH, TRACT 8663
DUBLIN, CALIFORNIA
PROJECT NO. 5101.001.003
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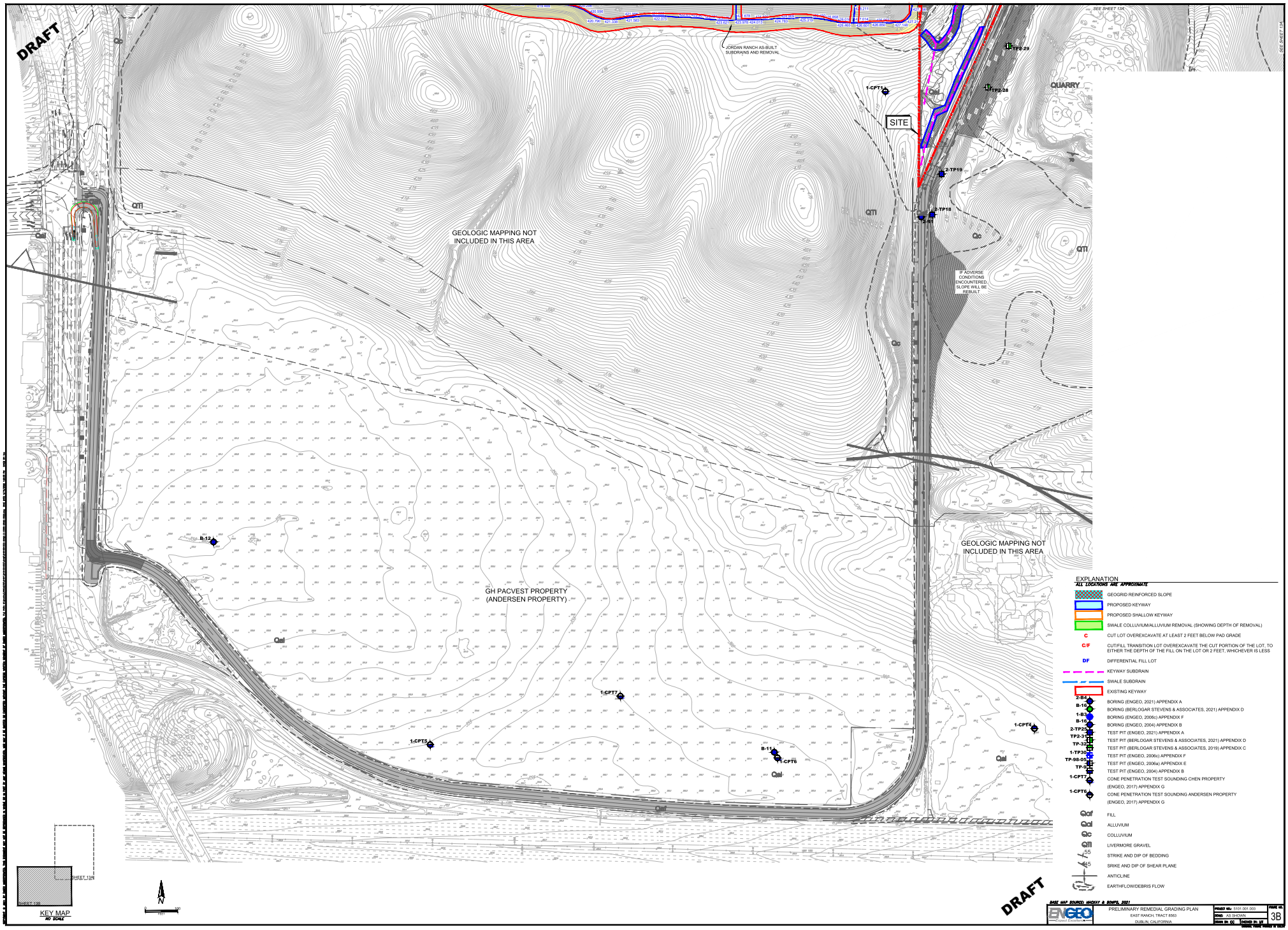
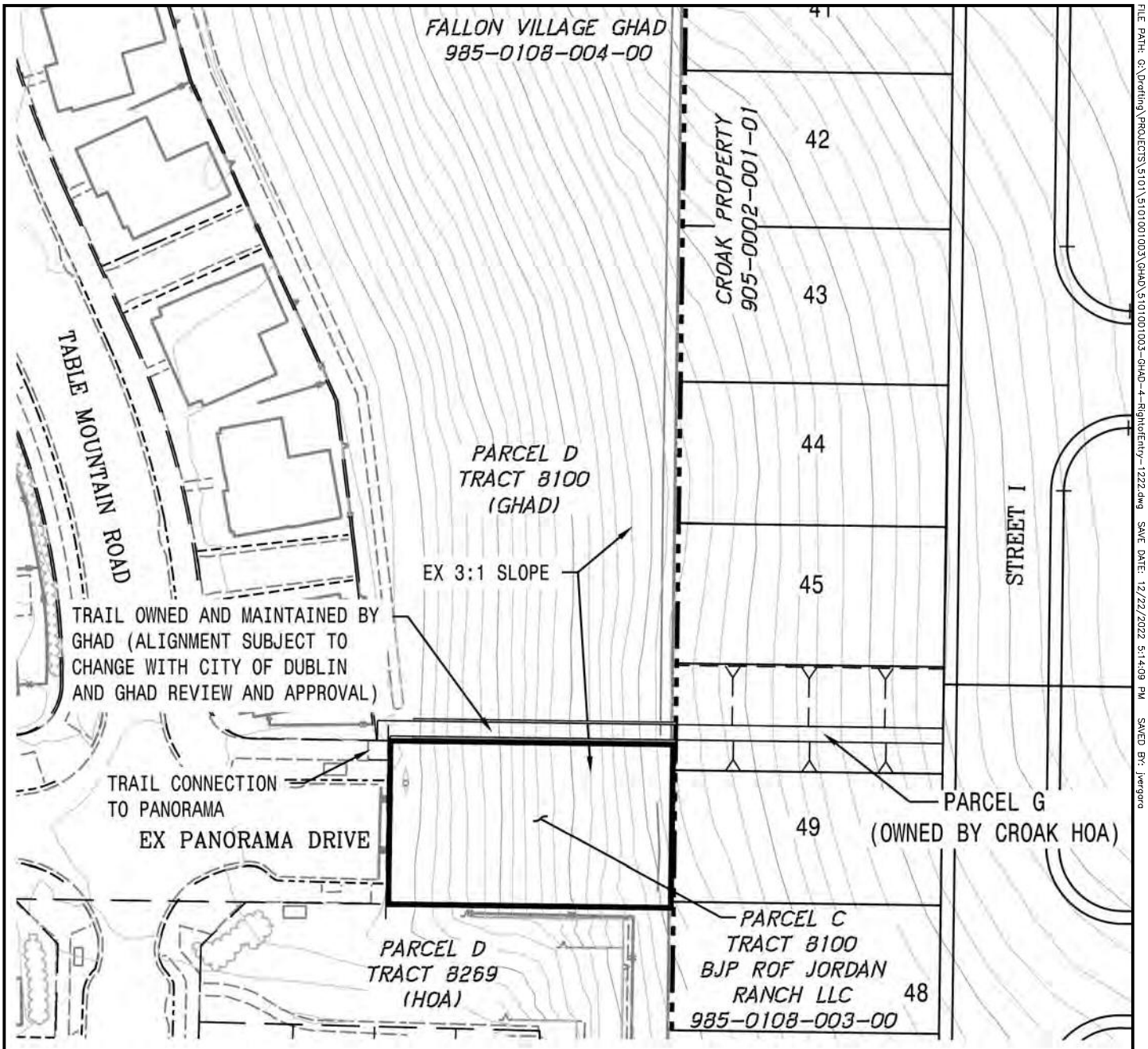
DRAWN BY: CC
CHECKED BY: MT
FIGURE NO.
3A


DRAFT
SEE SHEET 13A
JORDAN RANCH AS-BUILT SUBDRAINS AND REMOVAL
TP98-29
TP98-28
QUARRY
1-CPT1
SITE
2-TP19
2-TP18
2-S1
GEOLOGIC MAPPING NOT INCLUDED IN THIS AREA
IF ADVERSE CONDITIONS ENCOUNTERED, SLOPE WILL BE REBUILT
GEOLOGIC MAPPING NOT INCLUDED IN THIS AREA
GH PACVEST PROPERTY (ANDERSEN PROPERTY)
B-12
1-CPT7
1-CPT5
B-11
1-CPT6
1-CPT4
Qa
Qal
Qtl
EXPLANATION
ALL LOCATIONS ARE APPROXIMATE
GEOGRID REINFORCED SLOPE
PROPOSED KEYWAY
PROPOSED SHALLOW KEYWAY
SWALE COLLUVIUM/ALLUVIUM REMOVAL (SHOWING DEPTH OF REMOVAL)
C CUT LOT OVEREXCAVATE AT LEAST 2 FEET BELOW PAD GRADE
C/F CUT/FILL TRANSITION LOT OVEREXCAVATE THE CUT PORTION OF THE LOT, TO EITHER THE DEPTH OF THE FILL ON THE LOT OR 2 FEET, WHICHEVER IS LESS
DF DIFFERENTIAL FILL LOT
KEYWAY SUBDRAIN
SWALE SUBDRAIN
EXISTING KEYWAY
2-B4 BORING (ENGEO, 2021) APPENDIX A
B-15 BORING (BERLOGAR STEVENS & ASSOCIATES, 2021) APPENDIX D
1-B3 BORING (ENGEO, 2006c) APPENDIX F
B-1 BORING (ENGEO, 2004) APPENDIX B
2-TP25 TEST PIT (ENGEO, 2021) APPENDIX A
TP2-3 TEST PIT (BERLOGAR STEVENS & ASSOCIATES, 2021) APPENDIX D
TP-35 TEST PIT (BERLOGAR STEVENS & ASSOCIATES, 2019) APPENDIX C
1-TP35 TEST PIT (ENGEO, 2006c) APPENDIX F
TP-98-05 TEST PIT (ENGEO, 2006a) APPENDIX E
TP-5 TEST PIT (ENGEO, 2004) APPENDIX B
1-CPT7 CONE PENETRATION TEST SOUNDING CHEN PROPERTY (ENGEO, 2017) APPENDIX G
1-CPT6 CONE PENETRATION TEST SOUNDING ANDERSEN PROPERTY (ENGEO, 2017) APPENDIX G
Qaf FILL
Qal ALLUVIUM
Qc COLLUVIUM
Qtl LIVERMORE GRAVEL
55 STRIKE AND DIP OF BEDDING
45 SRIKE AND DIP OF SHEAR PLANE
ANTICLINE
EARTHFLOW/DEBRIS FLOW
SHEET 13A
SHEET 13B
KEY MAP
NO SCALE
N
0
100'
200'
DRAFT
BASE MAP SOURCE: MACKAY & SOMPS, 2021
ENGEO
PRELIMINARY REMEDIAL GRADING PLAN
EAST RANCH, TRACT 8563
DUBLIN, CALIFORNIA
PROJECT NO. 5101.001.003
SCALE AS SHOWN
DRAWN BY CC
CHECKED BY MT
FIGURE NO.
3B

FILE PATH: G:\Drafting\PROJECTS\5101\5101001003\GHAD\5101001003-GHAD-4-RightofEntry-1222.dwg SAVE DATE: 12/22/2022 5:14:09 PM SAVED BY: jvergara



LEGEND

- CROAK PROPERTY BOUNDARY
- 500 EX GROUND CONTOURS
- EX PROPERTY LINE
- BJP ROF JORDAN RANCH LLC PROPERTY BOUNDARY

0 30 60 120

SCALE: 1"=60'

BASE MAP SOURCE: MACKAY AND SOMPS

ENGEO Expect Excellence

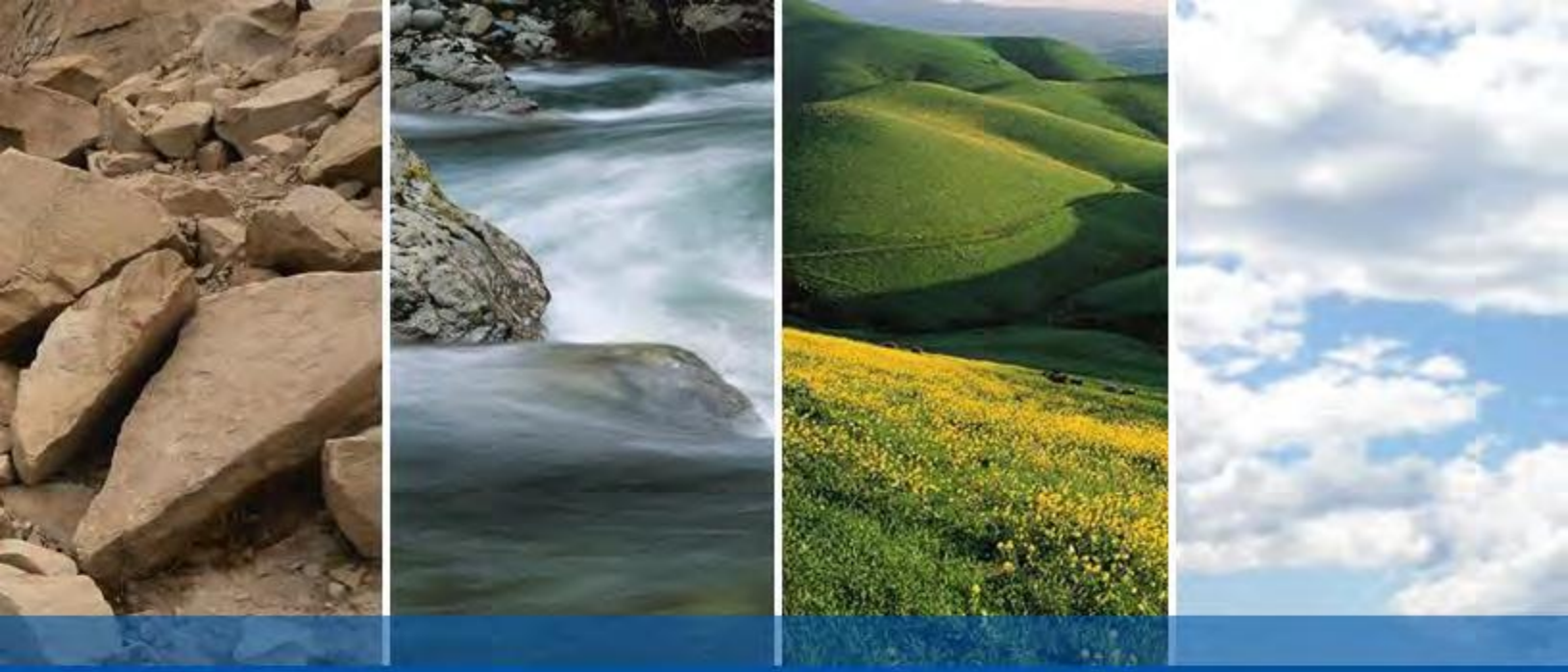
OFFSITE MAINTENANCE AND OWNERSHIP EXHIBIT, 2022

EAST RANCH, TRACT 8563

DUBLIN, CALIFORNIA

PROJECT NO.: 5101.001.003		FIGURE NO. 4
SCALE: AS SHOWN		
DRAWN BY: CC	CHECKED BY: RHB	

ORIGINAL FIGURE PRINTED IN COLOR



APPENDIX B

EXHIBIT A
LEGAL DESCRIPTION
Geologic Hazard Abatement District,
East Ranch Development – Tract 8563

EXHIBIT B
Plat to Accompany Legal Description

EXHIBIT "A"

DESCRIPTION

REAL PROPERTY IN THE CITY OF DUBLIN, COUNTY OF ALAMEDA, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL 1:

BEGINNING AT A POINT ON THE NORTHERN BOUNDARY OF TOWNSHIP NO. 3 SOUTH, RANGE 1, EAST, MOUNT DIABLO BASE & MERIDIAN, DISTANT NORTHERLY 89° 56' EAST 5.25 CHAINS FROM THE COMMON CORNER OF SECTIONS 2, 3, 34 AND 35; AND RUNNING THENCE SOUTH 23° 28' WEST 13.98 CHAINS; THENCE SOUTH 0° 13' EAST 30.55 CHAINS TO THE ROAD LEADING FROM DUBLIN TO LIVERMORE; THENCE WEST ALONG SAID ROAD .455 CHAINS; THENCE NORTH 0° 13' WEST 39.41 CHAINS; THENCE EAST .32 CHAINS; THENCE NORTH 3.97 CHAINS TO THE CORNER COMMON TO SECTIONS 2, 3, 34 AND 35; THENCE NORTH 89° 56' EAST 5.25 CHAINS TO THE POINT OF BEGINNING.

TOGETHER WITH THAT PORTION OF THE PREMISES DEEDED TO THE COUNTY OF ALAMEDA RECORDED JANUARY 2, 1918, IN BOOK 2612 OF DEEDS, PAGE 352, ALAMEDA COUNTY RECORDS.

PARCEL 2:

THE SOUTHWEST QUARTER (SW ¼) OF SECTION THIRTY-FIVE (35), TOWNSHIP TWO (2) SOUTH, RANGE ONE (1) EAST, MOUNT DIABLO BASE AND MERIDIAN.

TOGETHER WITH THAT PORTION OF THE PREMISES DEEDED TO THE COUNTY OF ALAMEDA RECORDED JANUARY 2, 1918, IN BOOK 2612 OF DEEDS, PAGE 352, ALAMEDA COUNTY RECORDS.

APN: 905-0002-001-01 AND 905-0002-002

END OF DESCRIPTION

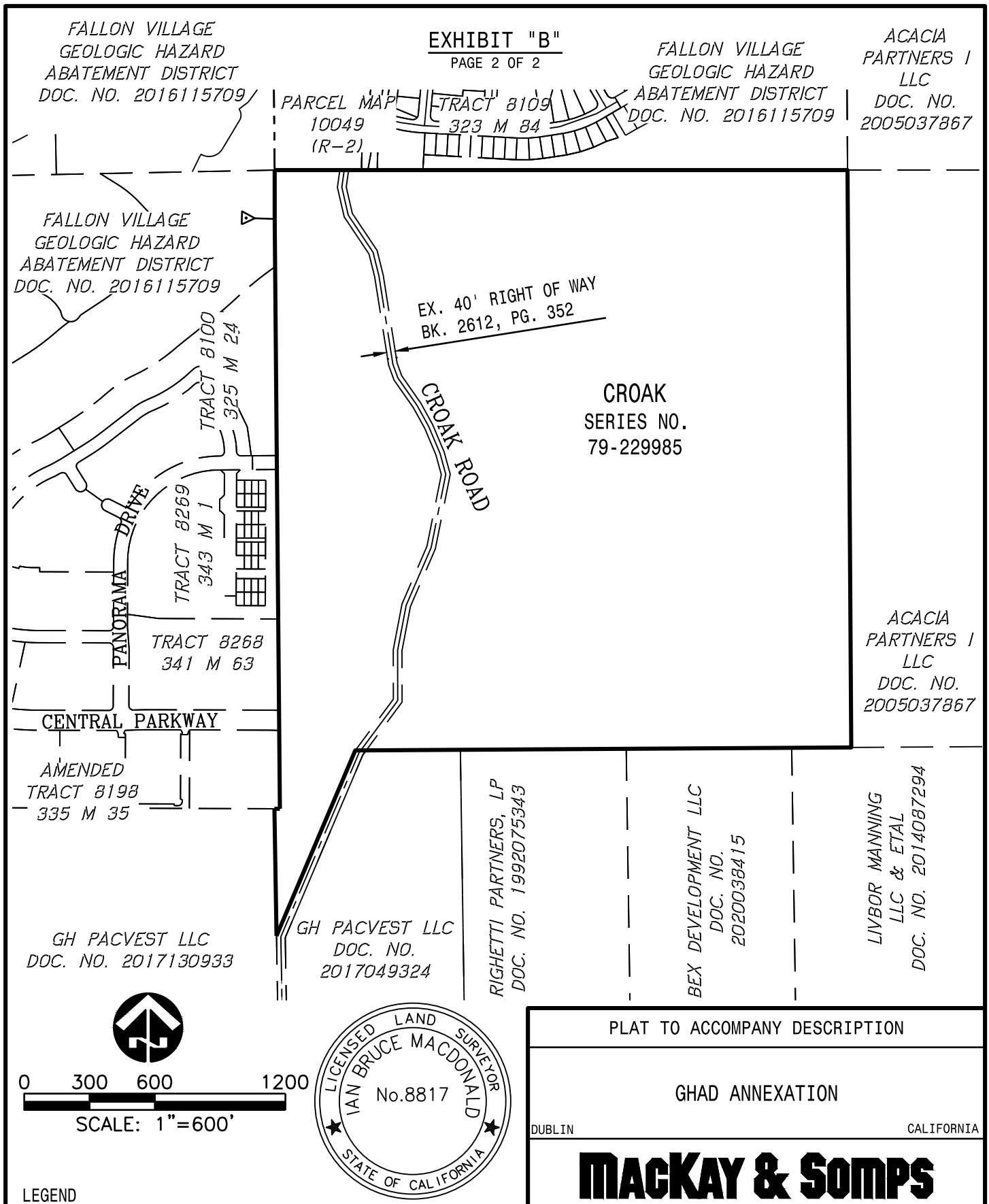
PREPARED BY:

IAN BRUCE MACDONALD
LICENSED LAND SURVEYOR NO. 8817
STATE OF CALIFORNIA

LICENSED LAND SURVEYOR
IAN BRUCE MACDONALD
No.8817
STATE OF CALIFORNIA

5/31/22
DATE

MACKAY & SOMPS
CIVIL ENGINEERING • LAND PLANNING • LAND SURVEYING
5142 Franklin Drive Suite B, Pleasanton, CA. 94588-3355
(925) 225-0690



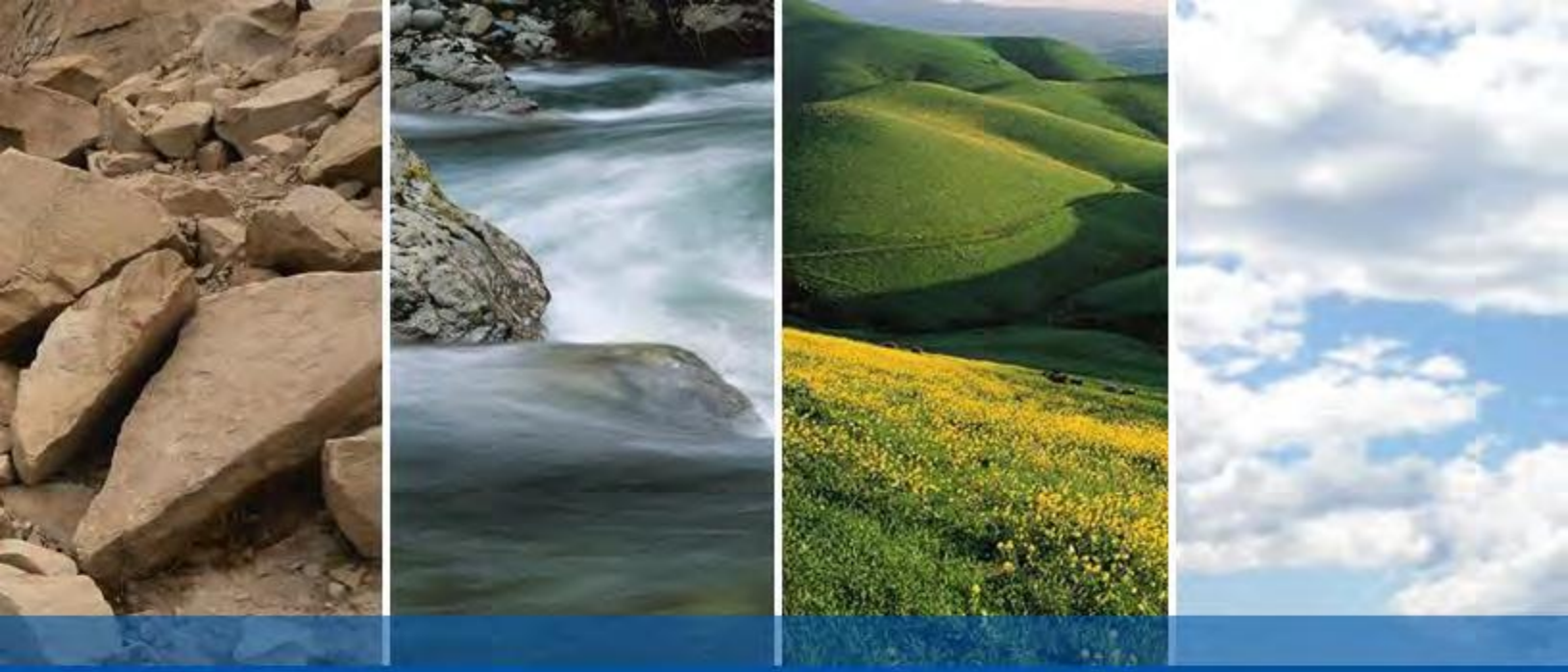
PLAT TO ACCOMPANY DESCRIPTION

GHAD ANNEXATION

DUBLIN CALIFORNIA

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

DRAWN	DATE	SCALE	JOB NO.
LL	NOV 2022	1"=600'	19343.00T



APPENDIX C

CONDITIONS OF APPROVAL
RELATED TO THE GHAD
FOR THE EAST RANCH DEVELOPMENT

Conditions of Approval (COA) Numbers 13, 14, 18, 21, 89, 124, 125, 126, and 128 in City of Dublin Resolution No. 140–21 addresses developer requirements related to the annexation of the East Ranch development into the Fallon Village GHAD, as well as the GHAD's responsibilities within the Annexation Area.

COA No. 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 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.

COA No. 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.

COA No. 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.

COA No. 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.

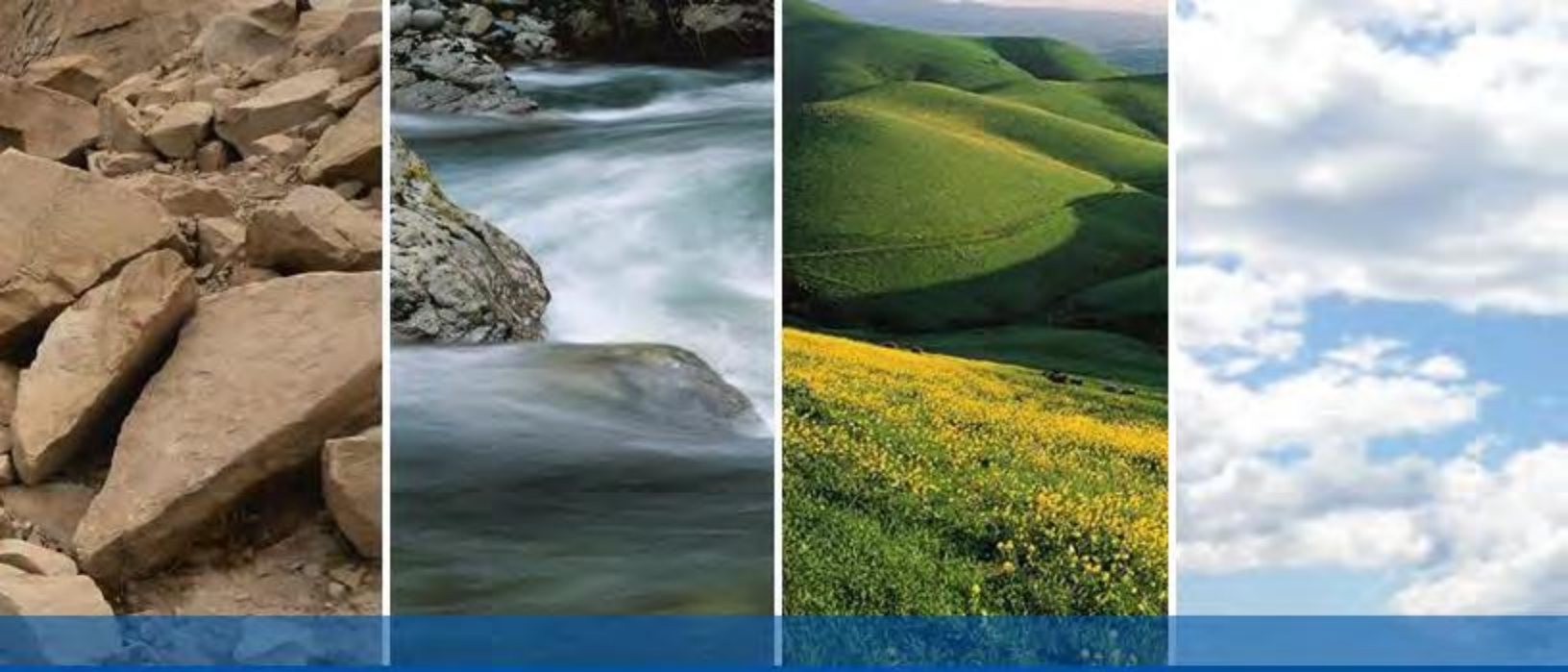
COA No. 89: **Maintenance Access.** Applicant/Developer shall design and construct maintenance access to all stormwater management measures and mitigation swales, as appropriate. Many of the facilities are large and one point of access may not be sufficient. Maintenance access for equipment and personnel 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.

COA No. 124: **Subdrain Monitoring.** Design of subdrains shall allow for monitoring of subdrain flow from the Positano development separately from the Croak Property.

COA No. 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.

COA No. 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.

COA No. 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 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.



APPENDIX D

STORMWATER MAINTENANCE MANAGEMENT AGREEMENT

RECORDING REQUESTED BY:
CITY OF DUBLIN

When Recorded Mail To:

City Clerk
City of Dublin
100 Civic Plaza
Dublin, CA 94568

Fee Waived per GC 27383

Space above this line for Recorder's use

PWSW or BLDG (if applicable): _____
Address: Croak Road
Tract or Parcel # (if applicable): Tract 8563

STORMWATER MANAGEMENT MAINTENANCE AGREEMENT

This Stormwater Management Maintenance Agreement ("Agreement") is entered into by and between the City of Dublin ("City") and TH East Ranch Dublin LLC, the Property Owner of real property described in Exhibit A of this Agreement ("Property Owner").

RECITALS

A. On November 19, 2015, the Regional Water Quality Control Board, San Francisco Bay Region, adopted Order R2-2015-0049, CAS612008, issuing the Municipal Regional Stormwater NPDES permit ("MRP") for the San Francisco Bay Region; and

B. The City is a permittee of the MRP; and

C. Provision C.3.h of the MRP requires the City to implement an Operation and Maintenance Verification Program ("Program") for stormwater treatment systems, which are defined as "any engineered system designed to remove pollutants from stormwater runoff by settling, filtration, biological degradation, plant uptake, media absorption/adsorption or other physical, biological or chemical process," and "includes landscape-based systems such as grassy swales and bioretention units as well as proprietary systems" (MRP, pg. 151). As part of this program, the City is required to ensure that all installed stormwater treatment systems or measures are adequately operated and maintained by entities responsible for such stormwater treatment systems or measures, such as the Property Owner; and

D. The Property Owner is the owner of real property commonly known as East Ranch (the "Property"), which is more particularly described in Exhibit A, upon which stormwater treatment measure(s), flow duration controls and/or full trash capture device(s) (collectively referred to as "stormwater controls") are to be constructed or located, operated and maintained; and

E. The stormwater controls more particularly described in Exhibit B – Stormwater

Management Site Plan, of which the full scale project plans and any revisions thereto approved under _____ are on file with the Public Works Department of the City; and

F. The City is the permittee public agency with jurisdiction over the Property; and

G. The Property Owner, its administrators, co-owners, executors, successors, heirs, assigns or any other persons, including any homeowners association (collectively hereinafter referred to as "Property Owner") recognizes that the stormwater controls must be installed and maintained on the Property as indicated in this Agreement and as required by the MRP; and

H. The City and the Property Owner agree that the health, safety and welfare of the citizens of the City, together with the provisions of Dublin Municipal Code Chapter 7.74 and other applicable City guidelines, require that the stormwater controls detailed in Exhibit B are to be constructed, operated and maintained on the Property by the Property Owner; and

I. The Property Owner accepts the responsibility for constructing, operating, and maintaining the stormwater controls on the Property.

NOW, THEREFORE, with reference to the above recitals and in consideration of the mutual promises, obligations, and covenants herein, the Property Owner agrees as follows:

SECTION 1: CONSTRUCTION OF TREATMENT MEASURES

The on-site stormwater controls described in Exhibit B shall be constructed by the Property Owner in strict accordance with the approved plans and specifications identified for the development and any other requirements thereto which have been approved by the City in conformance with appropriate City ordinances, guidelines, criteria and other written direction.

SECTION 2: OPERATION & MAINTENANCE RESPONSIBILITY

This Agreement shall serve as the signed statement by the Property Owner accepting responsibility for operation and maintenance of stormwater controls as set forth in this Agreement until the responsibility is legally transferred to another entity.

SECTION 3: MAINTENANCE OF TREATMENT MEASURES

The Property Owner shall not destroy or remove the stormwater controls from the Property nor modify the stormwater management system in a manner that lessens its effectiveness, and shall, at its sole expense, adequately maintain the stormwater controls in good working order acceptable to the City and in accordance with the Maintenance Plans attached as Exhibit C. This includes all pipes, channels or other conveyances built to convey stormwater to the stormwater controls, as well as all structures, improvements, and vegetation provided to control the quantity and quality of the stormwater. Adequate maintenance is herein defined as maintaining the described stormwater controls in good working condition so that these facilities continue to operate as originally designed and approved. The Maintenance Plan shall include a detailed description of and schedule for long-term maintenance activities.

In the event the stormwater controls are destroyed damaged, removed, or modified in a manner that lessens their effectiveness, the Property Owner, at its sole expense, shall restore them such that they perform as intended.

SECTION 4: SEDIMENT MANAGEMENT

The Property Owner shall manage sediment accumulation resulting from the normal operation of the stormwater controls appropriately. The Property Owner shall provide for the removal and disposal of accumulated sediments. Disposal of accumulated sediments shall not occur on the Property, unless provided for in the Maintenance Plan. Any disposal or removal of accumulated sediments or debris shall be in compliance with all federal, state and local law and regulations.

SECTION 5: ANNUAL INSPECTION AND REPORT

The Property Owner shall conduct a minimum of one annual inspection of the stormwater controls before the wet season. This inspection shall occur between August 1st and October 1st each year. The results of the inspection shall be recorded on the Inspection and Maintenance Checklists, attached to this agreement as Exhibit D. The Property Owner shall, on an annual basis, complete the Stormwater Controls Operation and Maintenance Inspection Report (annual inspection report) attached to this Agreement as Exhibit E. The annual inspection report shall include all completed Inspection and Maintenance Checklists for the reporting period. The annual inspection report shall also include a record of the volume of all accumulated sediment removed from the stormwater controls.

The Property Owner shall retain each annual inspection report at a location on the Property for a period of at least five (5) years. The City may request the Property Owner to provide copies of any or all annual inspection reports prepared during the prior five years in order to verify that inspection and maintenance of all applicable stormwater controls have been conducted pursuant to this Agreement. The Property Owner shall comply with any subject request within five (5) working days.

SECTION 6: ANNUAL INSPECTION AND REPORT OF FULL TRASH CAPTURE

The Property Owner shall maintain all full trash capture device(s) installed on the property. Hydrodynamic separators are required to be serviced at least twice per seasonal cycle. Inlet filters are required to be serviced by a third-party company a minimum of three times per seasonal cycle. Additional information on the required maintenance of the full trash capture device(s) is included in Exhibit D. Maintenance records provided to the Property Owner by the third party company shall be submitted to the City in order to verify that the maintenance of the full trash capture device(s) have been conducted pursuant to this agreement. The maintenance records shall be submitted no later than December 31 of each year, under penalty of perjury, to the City of Dublin Environmental Coordinator at the City of Dublin, 100 Civic Plaza, Dublin CA, 94568 or another member of the City staff as directed by the City. The maintenance records shall include the volume of all accumulated sediment and trash removed from the full trash capture device(s).

SECTION 7: NECESSARY CHANGES AND MODIFICATIONS

At its sole expense, the Property Owner shall make any changes or modifications to the stormwater controls and/or the Maintenance Plans, Exhibit C, as the City may

determine to be reasonably necessary to ensure that the stormwater controls are properly maintained and continue to operate as originally designed and approved.

SECTION 8: ACCESS TO THE PROPERTY

The Property Owner hereby grants permission to the City; the San Francisco Bay Regional Water Quality Control Board (RWQCB); the Alameda County Mosquito Abatement District (Mosquito Abatement District); and their authorized agents and employees (hereinafter "Agencies") to enter upon the Property at reasonable times and in a reasonable manner to inspect, assess or observe the stormwater controls in order to ensure that stormwater controls are being properly operated and maintained and are continuing to perform in an adequate manner to protect water quality and the public health and safety. This includes the right to enter upon the Property when the Agency or Agencies has/have a reasonable basis to believe that a violation of this Agreement, the City's Stormwater Management Program, guidelines, criteria, or the MRP, and any amendments or re-issuances of this permit, is occurring, has occurred or threatens to occur. The above listed Agencies also have a right to enter the Property when necessary for abatement of a public nuisance or correction of a violation of the Inspection Report criteria. Whenever possible, Agencies shall provide reasonable notice, delivered pursuant to Section 10 of this Agreement, to the Property Owner before entering the property.

SECTION 9: FAILURE TO MAINTAIN STORMWATER CONTROLS

In the event the Property Owner fails to maintain the stormwater controls as shown on the approved Site Plan or comparable document in good working order acceptable to the City and in accordance with the Maintenance Plan, incorporated in the Agreement, the City, and its authorized agents and employees with reasonable notice, delivered pursuant to Section 10 of this Agreement, may enter the Property and take whatever steps it deems necessary and appropriate to return the stormwater controls to good working order. Such notice will not be necessary if emergency conditions require immediate remedial action. This provision shall not be construed to allow the City to erect any structure of a permanent nature on the Property. It is expressly understood and agreed that the City is under no obligation to maintain or repair the stormwater controls and in no event shall this Agreement be construed to impose any such obligation on the City.

SECTION 10: NOTICES

All notices herein required shall be in writing, and shall be given by personal delivery, by messenger or courier service, by registered United States mail, postage prepaid, or by electronic mail, addressed as set forth below:

Notices required to be given to the City shall be addressed as follows:

Environmental Coordinator
Environmental Services
City of Dublin
100 Civic Plaza, Dublin, CA 94568
Email: es@dublin.ca.gov

Notices required to be given to Property Owner or Property Manager shall be addressed as follows:

Company Name: TH East Ranch Dublin LLC, a Limited Liability Company, CA

Attention: Pamela Nieting

Street Address: 3001 Bishop Drive, Suite 100

City: San Ramon State: CA Zip Code: 94583

Telephone Number: (925) 787-1321

E-mail address: pnieting@trumarkco.com

Any party may change such address by notice in writing to the other party and thereafter notices shall be addressed and transmitted to the new address. Any notice sent by messenger or courier service shall be deemed received on the day of the actual delivery as shown by the confirmation of delivery by the messenger or courier service. Any notice sent by mail shall be deemed received two (2) days after the date of mailing. Any notice sent by electronic mail shall be deemed received upon electronic transmission thereof provided the sender does not receive electronic notice of non-delivery. If the date of receipt of any notice to be given hereunder falls on a weekend or legal holiday, then such date of receipt shall automatically be deemed extended to the next business day immediately following such weekend or holiday for purposes of calculating time periods commencing upon date of service.

SECTION 11: REIMBURSEMENT OF CITY EXPENDITURES

In the event the City, pursuant to this Agreement, performs work of any nature (direct or indirect), including any re-inspections or any actions it deems necessary or appropriate to return the stormwater treatment measure(s) and/or full trash capture device(s) in good working order as indicated in Section 9, or expends any funds in the performance of said work for labor, use of equipment, supplies, materials, and the like, the Property Owner shall reimburse the City of Dublin upon demand within thirty (30) days of receipt thereof for the costs incurred by the City hereunder, including reasonable mark-ups for overhead and expenses. If these costs are not paid within the prescribed time period, the City may assess the Property Owner the cost of the work, both direct and indirect, and applicable penalties. Said assessment shall be a lien against the Property, or prorated against the beneficial users of the Property or may be placed on the property tax bill and collected as ordinary taxes by the City. The actions described in this section are in addition to and not in lieu of any and all legal remedies as provided by law, available to the City as a result of the Property Owner's failure to maintain the stormwater controls.

SECTION 12: INDEMNIFICATION

The Property Owner shall indemnify, hold harmless and defend the City and its authorized agents, officers, officials and employees from and against any and all claims, demands, suits, damages, liabilities, losses, accidents, casualties, occurrences, claims and payments, including attorney fees claimed or which might arise or be asserted against the City that are alleged or proven to result or arise from the construction, presence, existence or maintenance of the stormwater controls by the Property Owner or the City. In the event

a claim is asserted against the City, its authorized agents, officers, officials or employees, the City shall promptly notify the Property Owner and the Property Owner shall defend at its own expense any suit based on such claim. If any judgment or claims against the City, its authorized agents, officers, officials or employees shall be allowed, the Property Owner shall pay for all costs and expenses in connection herewith. This section shall not apply to any claims, demands, suits, damages, liabilities, losses, accidents, casualties, occurrences, claims and payments, including attorney fees claimed which arise due solely to the negligence or willful misconduct of the City.

SECTION 13: NO ADDITIONAL LIABILITY

It is the intent of this Agreement to ensure the proper maintenance of the stormwater controls by the Property Owner; provided, however, that this Agreement shall not be deemed to create or effect any additional liability not otherwise provided by law of any party for damage alleged to result from or caused by stormwater runoff.

SECTION 14: TRANSFER OF PROPERTY

This Agreement shall run with the title to the land. The Property Owner agrees that whenever the Property is held, sold, conveyed or otherwise transferred, the Property shall be subject to this Agreement which shall apply to, bind and be obligatory to all present and subsequent owners of the Property. Before the Property is legally transferred to another entity, the Property Owner shall provide written notice of the Agreement to the transferee and provide the City a copy of such notice.

SECTION 15: SEVERABILITY

The provisions of this Agreement shall be severable and if any phrase, clause, section, subsection, paragraph, subdivision, sentence or provision is adjudged invalid or unconstitutional by a court of competent jurisdiction, or the applicability to any Property Owner is held invalid, this shall not affect or invalidate the remainder of any phrase, clause, section, subsection, paragraph, subdivision, sentence or provision of this Agreement.

SECTION 16: RECORDATION

This Agreement shall be recorded by the Property Owner or by the City by mutual Agreement, within thirty (30) days after the execution date of this Agreement as stated above among the deed records of the County Recorder's Office of the County of Alameda, California at the Property Owner's expense.

SECTION 17: RELEASE OF AGREEMENT

In the event that the City determines that the stormwater controls located on the Property are no longer required, then the City, at the request of the Property Owner shall execute a release of this Agreement, which the Property Owner, or the City by mutual agreement, shall record in the County Recorder's Office at the Property Owner's expense. The stormwater controls shall not be removed from the Property unless such a release is so executed and recorded.

SECTION 18: EFFECTIVE DATE AND MODIFICATION

This Agreement is effective upon the date on which all signatures are obtained. This Agreement shall not be modified except by written instrument executed by the City

and the Property Owner at the time of modification. Such modifications shall be effective upon the date of execution and shall be recorded.

SECTION 19: MISCELLANEOUS

The interpretation, validity, and enforcement of this Agreement shall be governed by and interpreted in accordance with the laws of the State of California. Any suit, claim, or legal proceeding of any kind related to this Agreement shall be filed and heard in a court of competent jurisdiction in the County of Alameda.

In the event of legal action occasioned by any default, inaction or action of the Property Owner, the Property Owner agrees to pay all costs incurred by the City in enforcing the terms of this Agreement, including reasonable attorney's fees, litigation expenses, including experts' fees and costs, and other costs which shall become part of the lien against the Party.

CITY:
CITY OF DUBLIN

By: _____
Laurie L. Sucgang
Assistant Public Works Director/City Engineer

_____
Date

PROPERTY OWNER:
TH East Ranch Dublin LLC
a Limited Liability Company, CA
By:_____

Pamela Nieting
_____
Typed or Printed Name

Director of Community Development
_____
Title

_____
Date

(Attach Notary Acknowledgment)

EXHIBIT A – LEGAL DESCRIPTION OF PROPERTY

EXHIBIT A
LEGAL DESCRIPTION

REAL PROPERTY IN THE CITY OF DUBLIN, COUNTY OF ALAMEDA, STATE OF CALIFORNIA, DESCRIBED AS FOLLOWS:

PARCEL 1:

BEGINNING AT A POINT ON THE NORTHERN BOUNDARY OF TOWNSHIP NO. 3 SOUTH, RANGE 1, EAST, MOUNT DIABLO BASE & MERIDIAN, DISTANT NORTHERLY 89° 56' EAST 5.25 CHAINS FROM THE COMMON CORNER OF SECTIONS 2, 3, 34 AND 35; AND RUNNING THENCE SOUTH 23° 28' WEST 13.98 CHAINS; THENCE SOUTH 0° 13' EAST 30.55 CHAINS TO THE ROAD LEADING FROM DUBLIN TO LIVERMORE; THENCE WEST ALONG SAID ROAD .455 CHAINS; THENCE NORTH 0° 13' WEST 39.41 CHAINS; THENCE EAST .32 CHAINS; THENCE NORTH 3.97 CHAINS TO THE CORNER COMMON TO SECTIONS 2, 3, 34 AND 35; THENCE NORTH 89° 56' EAST 5.25 CHAINS TO THE POINT OF BEGINNING.

EXCEPTING THEREFROM THAT PORTION OF THE PREMISES DEEDED TO THE COUNTY OF ALAMEDA RECORDED JANUARY 2, 1918, IN BOOK 2612 OF DEEDS, PAGE 352, ALAMEDA COUNTY RECORDS.

PARCEL 2:

THE SOUTHWEST QUARTER (SW ¼) OF SECTION THIRTY-FIVE (35), TOWNSHIP TWO (2) SOUTH, RANGE ONE (1) EAST, MOUNT DIABLO BASE AND MERIDIAN.

EXCEPTING THEREFROM THAT PORTION OF THE PREMISES DEEDED TO THE COUNTY OF ALAMEDA RECORDED JANUARY 2, 1918, IN BOOK 2612 OF DEEDS, PAGE 352, ALAMEDA COUNTY RECORDS.

APN: 905-0002-001-01 and 905-0002-002
.

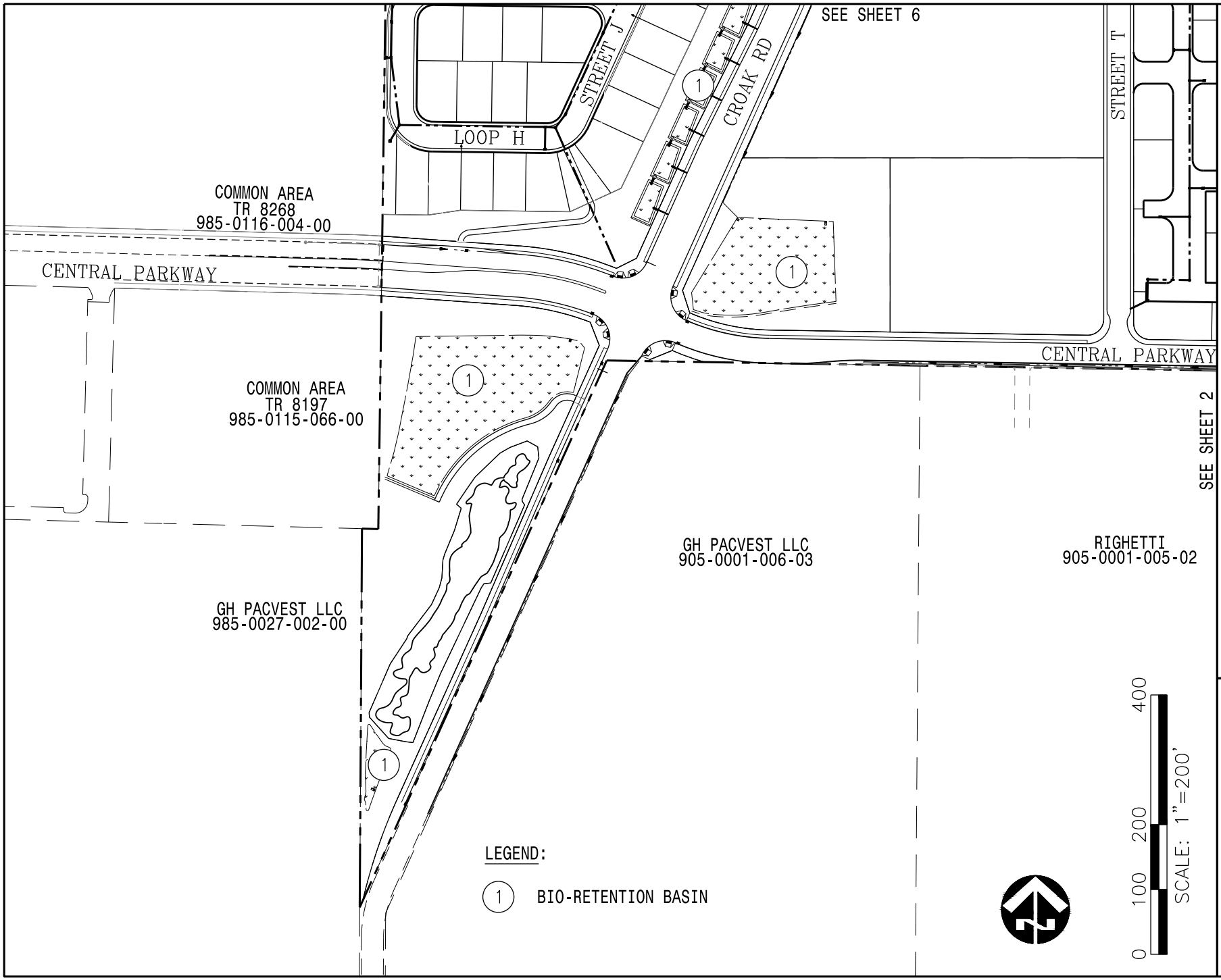
END OF DESCRIPTION

PREPARED BY:

_____ _____
IAN BRUCE MACDONALD DATE
LICENSED LAND SURVEYOR NO. 8817
STATE OF CALIFORNIA

MACKAY & SOMPS
CIVIL ENGINEERING•LAND PLANNING•LAND SURVEYING
5142 Franklin Drive Suite B, Pleasanton, CA. 94588-3355
(925) 225-0690

EXHIBIT B – STORWATER MANAGEMENT SITE PLAN
Stormwater Treatment Measures, Full Trash Capture, and/or Flow Duration Controls (as applicable)



STORM WATER CONTROLS SITE PLAN

CITY OF DUBLIN, CALIFORNIA

DRAWN BY: EML	JOB NO: 19343	DATE: 02-15-2022	SCALE: 1"=200'	SHEET 1 OF 6

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
PLEASANTON, CA (925)225-0690

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REFERENCES: D-CS-8563-LL; D-CS-19343-NH1; D-CS-19343-NH2; D-CS-19343-NH3; D-CS-19343-NH4; D-CS-19343-NH5; D-CS-19343-NH6; D-IP-PH1-BB; D-PIPE-PH1-BB; D-IP-ER-EAST; D-IP-ER-WEST; D-PIPE-ER-N1; D-PIPE-ER-N2; D-PIPE-ER-N3; [
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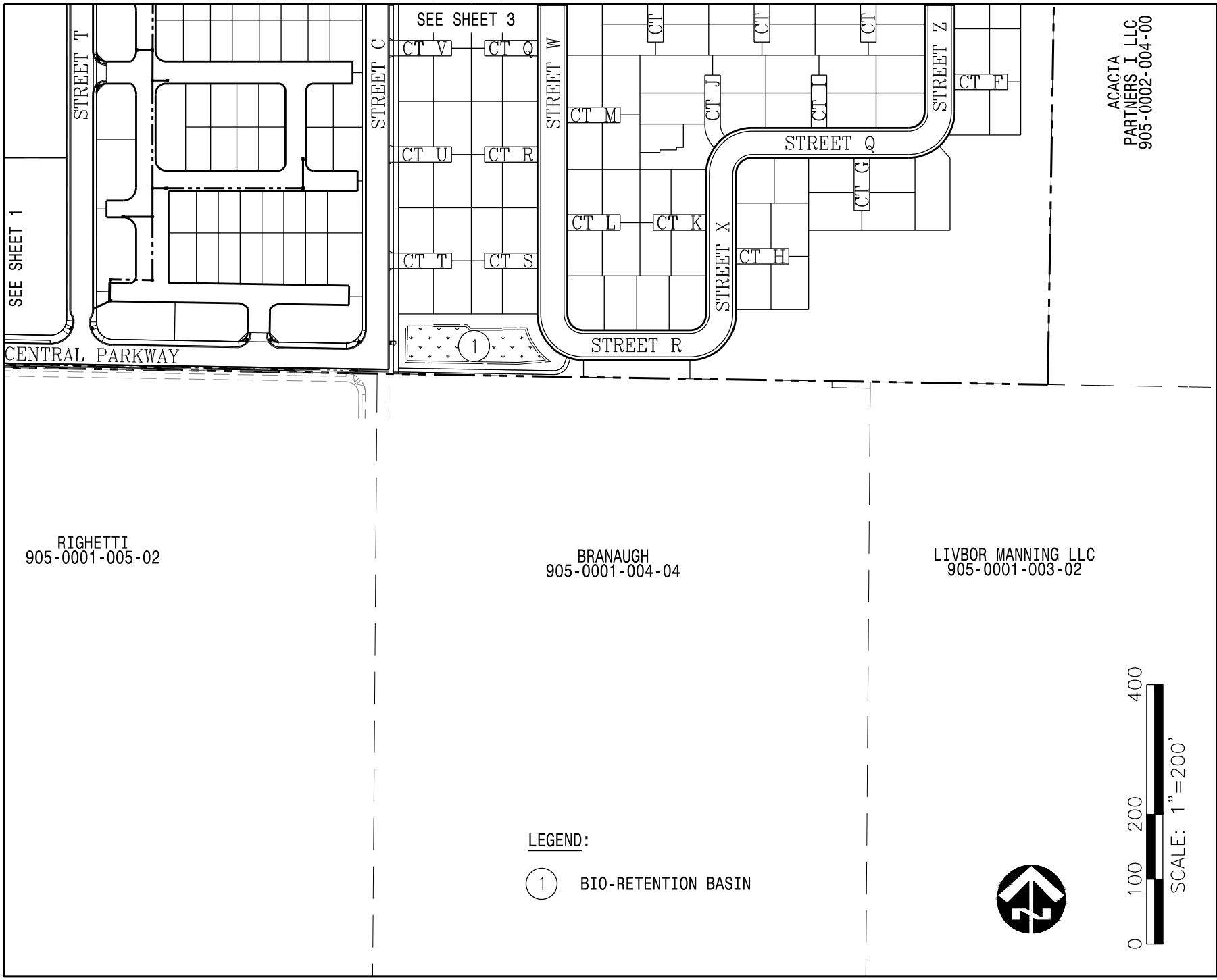

STORM WATER CONTROLS SITE PLAN

CITY OF DUBLIN, CALIFORNIA

DRAWN BY: EML | JOB NO: 19343 | DATE: 02-15-2022 | SCALE: 1"=200' | SHEET 2 OF 6

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
PLEASANTON, CA (925)225-0690

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REFERENCES: D-CS-8563-LL; D-CS-19343-NH1; D-CS-19343-NH2; D-CS-19343-NH3; D-CS-19343-NH4; D-CS-19343-NH5; D-CS-19343-NH6; D-IP-PH1-BB; D-PIPE-PH1-BB; D-IP-ER-EAST; D-IP-ER-WEST; D-PIPE-ER-N1; D-PIPE-ER-N2; D-PIPE-ER-N3; [
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ACACIA
PARTNERS I LLC
905-0002-004-00

0 100 200 400

SCALE: 1"=200'

ACACIA PARTNERS I LLC
905-0002-004-00

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
PLEASANTON, CA (925)225-0690

STORM WATER CONTROLS SITE PLAN

CITY OF DUBLIN, CALIFORNIA

DRAWN BY: EML	JOB NO: 19343	DATE: 02-15-2022	SCALE: 1"=200'	SHEET 3 OF 6

STORM WATER CONTROLS SITE PLAN

CITY OF DUBLIN, CALIFORNIA

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
PLEASANTON, CA (925)225-0690

DRAWN BY: EML	JOB NO: 19343	DATE: 02-15-2022	SCALE: 1"=200'	SHEET 4 OF 6

SCALE: 1"=200'

0 100 200 400

ACACIA PARTNERS I LLC
905-0002-004-00

ACACIA PARTNERS I LLC
905-0002-004-00

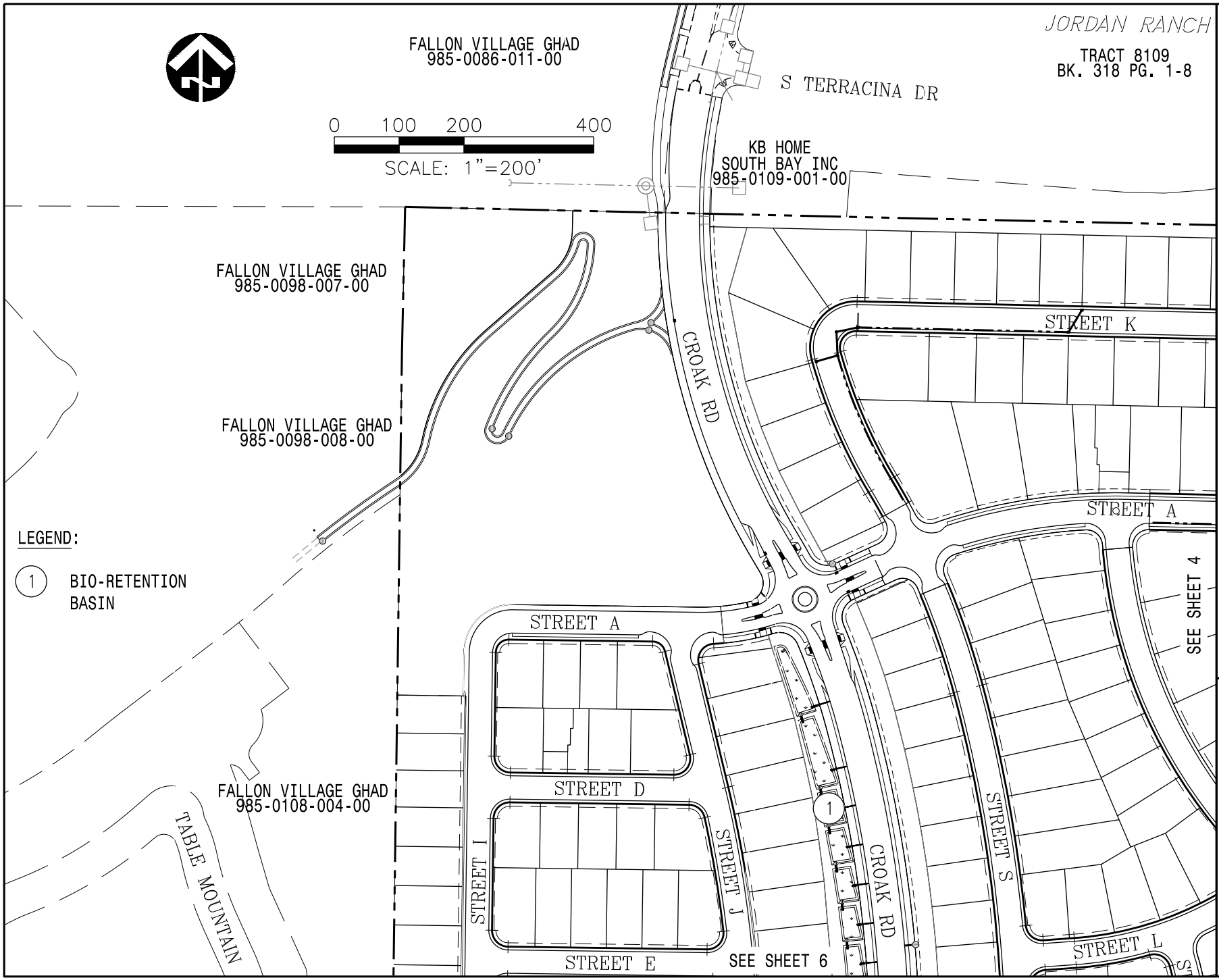
FALLON VILLAGE GHAD
985-0086-015-00

JORDAN RANCH
TRACT 8109
BK. 318 PG. 1-8

STREET K
STREET A
STREET L
STREET U
STREET V
STREET C

SEE SHEET 5

SEE SHEET 3



STORM WATER CONTROLS SITE PLAN

CITY OF DUBLIN, CALIFORNIA

DRAWN BY: EML	JOB NO: 19343	DATE: 02-15-2022	SCALE: 1"=200'	SHEET 5 OF 6

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
PLEASANTON, CA (925)225-0690

12-15-2022 10:53am Colette L'Heureux P:\19343-T\ADMIN\REPORTS\SWC & FTC OM AGREEMENTS\EXHIBIT B\CROAK SWC SITE PLAN.DWG

REFERENCES: D-CS-8563-LL; D-CS-19343-NH1; D-CS-19343-NH2; D-CS-19343-NH3; D-CS-19343-NH4; D-CS-19343-NH5; D-CS-19343-NH6; D-IP-PH1-BB; D-PIPE-PH1-BB; D-IP-ER-EAST; D-IP-ER-WEST; D-PIPE-ER-N1; D-PIPE-ER-N2; D-PIPE-ER-N3; [
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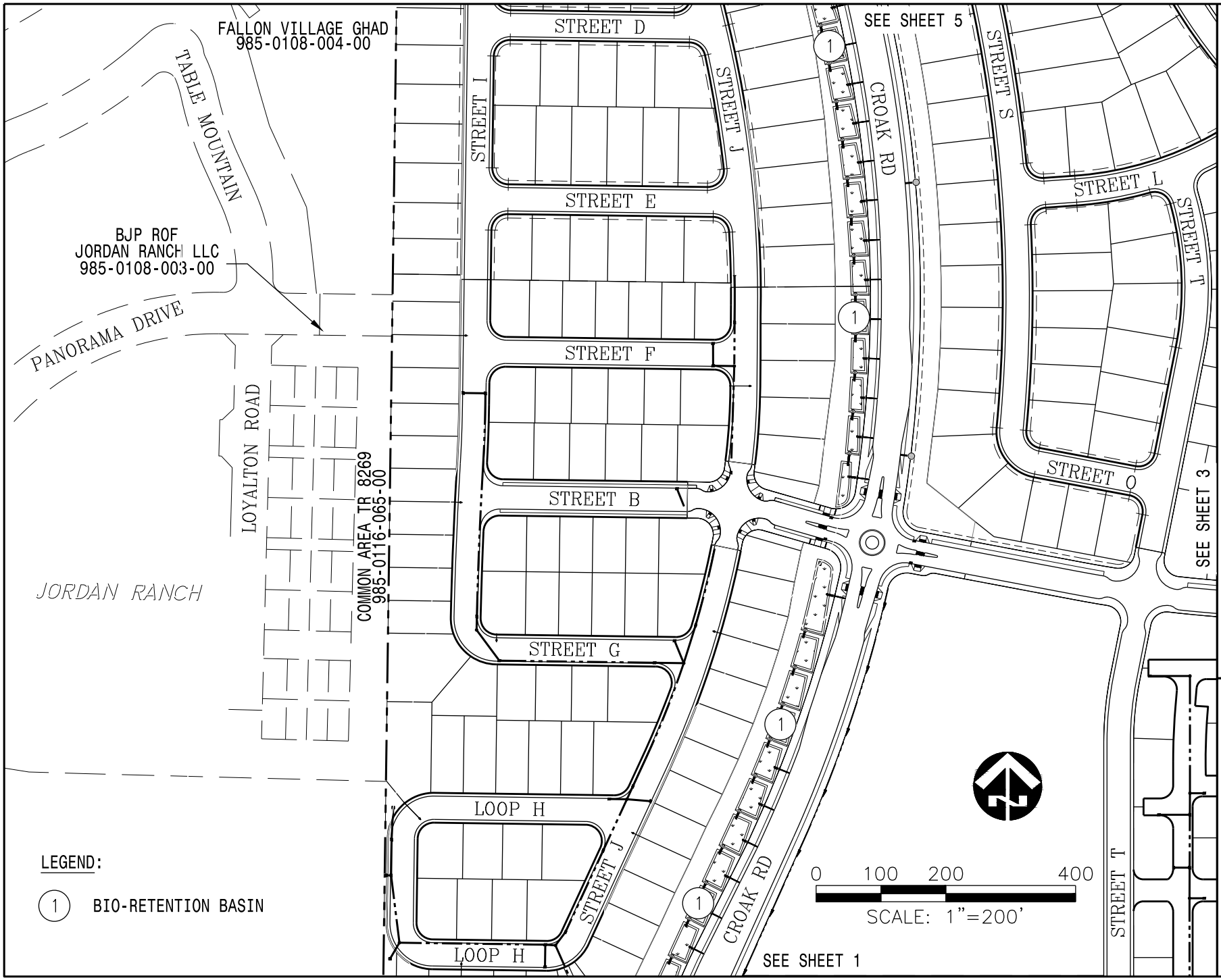


STORM WATER CONTROLS SITE PLAN

CITY OF DUBLIN, CALIFORNIA

DRAWN BY: EML	JOB NO: 19343	DATE: 02-15-2022	SCALE: 1"=200'	SHEET 6 OF 6

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
PLEASANTON, CA (925)225-0690

12-15-2022 10:53am Colette L'Heureux P:\19343-T\ADMIN\REPORTS\SWC & FTC OM AGREEMENTS\EXHIBIT B\CROAK SWC SITE PLAN.DWG

REFERENCES: D-CS-8563-LL; D-CS-19343-NH1; D-CS-19343-NH2; D-CS-19343-NH3; D-CS-19343-NH4; D-CS-19343-NH5; D-CS-19343-NH6; D-IP-PH1-BB; D-PIPE-PH1-BB; D-IP-ER-EAST; D-IP-ER-WEST; D-PIPE-ER-N1; D-PIPE-ER-N2; D-PIPE-ER-N3; [
IMAGES

EXHIBIT C – MAINTENANCE PLANS
Stormwater Treatment Measures, Full Trash Capture, and/or Flow Duration Controls (as applicable)

Residential Good Housekeeping

1. **Objective:** The objective of the following site housekeeping practices is to reduce impacts from stormwater runoff by developing and using good housekeeping practices. Everyday activities such as driving to work, gardening or washing your car affect the quality of water in local creeks and the San Francisco Bay. Water from garden hoses, sprinklers and rainfall washes materials into gutters and storm drains. Chemicals such as motor oil, paint products, pet waste and pesticides flow from yards, parking lots and streets, sending contaminated water, or urban runoff, *untreated* into local creeks, groundwater and the San Francisco Bay, where it harms fish and other wildlife. It is estimated that 50% to 80% of all pollutants entering the San Francisco Bay are discharged from storm drain systems.

   PLEASE NOTE: <u>If you see someone pouring auto fluids or any other substance into the storm drain, call 911</u>. Pouring substances into the storm drain is against the law.

2. Automotive Housekeeping

2.1 Do not store automotive parts, fluids, batteries or chemicals outside. These items should be stored in an area not exposed to the weather.
2.2 Check driveway and garage surfaces daily for leaks, spills and litter. Clean up spills with a broom, not a hose. Use absorbents to soak up spills (i.e. cat litter, sawdust, or cornmeal), as needed, then sweep up absorbents after use.
2.3 Check for vehicle leaks. Use a drip pan until repair is complete.
2.4 Consider washing vehicles at a commercial car wash or on a pervious area (landscape, gravel, etc. that does not drain to the storm drain system). Even biodegradable soap can harm aquatic wildlife.
2.5 Recycle and dispose of automotive fluids properly.

3. Household Maintenance

3.1 Buy “non-toxic” products whenever possible. Cautious use of chemicals is recommended.
3.2 Make sure hired contractors and professionals recycle and dispose of materials properly, not in the gutter or storm drain.
3.3 Dispose of washwater in the sink or toilet. Never dispose of leftover chemicals into a sink or the toilet.
3.4 Dispose of used or unneeded household hazardous products at one of the Alameda County Household Hazardous Waste facilities. Call 1-800-606-6606 for a list of facilities or visit **http://household-hazwaste.org/**
Household Hazardous Waste includes:

- ☐ Leftover paints
- ☐ Pesticides
- ☐ Household cleaners
- ☐ Automotive fluids
- ☐ Batteries
- ☐ Fluorescent lamps
- ☐ Mercury containing products (thermostats, thermometers, fluorescent bulbs)
- ☐ Pharmaceuticals (medicine)

4. Lawn and Garden

4.1 Pick up animal wastes and dispose in garbage cans or toilet.
4.2 Consider composting yard and garden trimmings.
4.3 Avoid over watering.

4.4 Disconnected Downspouts

- ☐ Do not connect roof downspouts to the storm drain system without approval from the City.
- ☐ Inspect downspouts and gutters in the autumn and spring to check for sagging, leaking, or loose areas.
- ☐ Prior to the rainy season, clean out accumulated leaves and other debris.
- ☐ Test whether downspout is clear of debris by inserting a water hose into gutters, turn on water and allow it to flow through the downspout.
- ☐ Inspect underneath downspouts. Look for pooling; if present, place river rocks or cobbles at the discharge point to eliminate puddles. Inspect splash blocks and sleeves (if present) to ensure they are intact and well positioned to accept stormwater and direct it into landscaping. There should be a slight tilt to the splash block, leading stormwater away from the foundation.
- ☐ Inspect surrounding landscaping to ensure erosion is not present. If erosion is evident, install splash block or cobblestones immediately under the downspout to spread the energy of the water flow.

4.5 Consider using integrated pest management or less toxic pest management methods, as described below:

- ☐ Employ non-chemical controls (biological, physical and cultural controls) before using chemicals to treat a pest problem.
- ☐ Use geotextiles and apply 3-4 inches of mulch to exposed soils to prevent weed growth.
- ☐ Replace problem plants with locally adapted, pest resistant plants. Do not plant invasive species. Refer to the California Invasive plant council for a list of invasive species:
  California Invasive Plant Council
  510-843-3902; www.cal-ipc.org
- ☐ Prune plants properly and at the appropriate time of year.
- ☐ Limit fertilizer use unless soil testing indicates a deficiency. Slow-release or organic fertilizer is preferable.
- ☐ Provide adequate irrigation for landscape plants; do not over-water.
- ☐ Sweep up spilled fertilizer and pesticides. Do not wash away or bury such spills.
- ☐ If chemical controls are necessary, use the least-toxic pesticide first. Avoid the use of broad-spectrum pesticides.
- ☐ If pesticides are necessary, apply them appropriately.
  - ♦ Do not over-apply pesticide.
  - ♦ Spray only where the infestation exists.
  - ♦ Follow the manufacturer's instructions for mixing and applying material.
  - ♦ Apply pesticide at the appropriate time to maximize effectiveness and minimize the likelihood of discharging pesticide into runoff.
  - ♦ With the exception of pre-emergent pesticides, avoid application if rain is expected.
  - ♦ Unwanted/unused pesticides shall be disposed as household hazardous waste (refer to section 3.4 for more information).

5. Swimming Pools, Spas, Fountains, Ponds

5.1 The following options are available for discharge of swimming pool, spa, fountain and pond water.

- ☐ Discharge all water to a sanitary sewer through a cleanout as a primary option. For review, approval and conditions of the wastewater treatment agency, contact:

Dublin San Ramon Services District
(925) 828-0515; http://www.dsrsd.com/

- ☐ For small volumes of water, if sanitary sewer is unavailable, a secondary option is to discharge to a landscaped area.
- ☐ Dispose of filter rinse water and backwash:
  - Clean the filter in a wash area that drains to the sanitary sewer.
  - If a sink is not readily available or is too small for the filter, create a wash area that contains the washwater and pump the washwater to a sanitary connection.
  - For diatomaceous earth (DE) filters, be sure the DE is captured prior to discharge.

6. Garbage, Trash & Litter

6.1 Dublin residents are required to have garbage, recycling and yard waste service with the City's franchised service provider. For Service, call **Amador Valley Industries: (925) 479-9545; http://www.amadorvalleyindustries.com/**

6.2 Move carts completely out of public view within 24 hours after garbage pick-up.

6.3 Carts need to be set-out with spacing of at least 18 inches between each cart.

6.4 Lids of carts must close completely to prevent trash from dispersing.

7. Street Sweeping

Public/City Streets are generally swept twice per month on a fixed schedule based on the day of the month.

- ☐ Move all large materials, vehicles and trash from curb before 5am on your street sweeping day.
- ☐ To determine your street sweeping schedule, contact the City:
  City of Dublin Public Works Department
  (925) 833-6630; http://dublin.ca.gov/345/Street-Sweeping

Private Streets:

- ☐ The Homeowners Association (HOA) is responsible for street sweeping private streets. Call your HOA for your street sweeping schedule.

8. Private Storm Drain Stencils

8.1 Projects that include any storm drain stencils on private property are required to replace stencils that have popped off or have been damaged to the extent where the inscription is illegible. Contact the City of Dublin Environmental Services Division at (925) 833-6630 for assistance.

9. Vector Control

8.1 To prevent mosquito breeding, ensure that there are no areas of standing water around your house.

8.2 Areas of standing water should be drained or cleared as soon as they are located.

8.3 The Alameda County Mosquito Abatement District (ACMAD) may be contacted as needed for assistance should any mosquito issues arise. ACMAD can provide mosquito fish to help with mosquitoes in backyard ponds. The contact information for ACMAD follows:
Alameda County Mosquito Abatement District
Phone 510-783-7744; www.mosquitoes.org

For more information or informative brochures, please visit our website at www.dublin.ca.gov or call (925) 833-6630.

Landscape Based Treatment Measures with Flow Duration Controls Maintenance Plan

Routine Maintenance Activities

The maintenance objectives for the landscaped stormwater treatment include keeping up the pollutant removal efficiency of the channel by maintaining a dense, healthy vegetated cover. Routine maintenance activities, and the frequency at which they will be conducted, are shown in the table below.

Routine Maintenance Activities for Landscape Based Treatment Areas		
No.	**Maintenance Task**	**Frequency of Task**
1	Remove obstructions, debris and trash from the treatment measure and dispose of properly.	Minimum 3 times/year.[1]
2	Please be aware that landscape based treatment measure(s) at this site incorporate flow duration controls (i.e. orifices, restrictor plates, etc.). Remove obstructions, debris and trash from the flow duration controls and dispose of properly.	Minimum 3 times/year.[1]
3	Inspect the treatment measure to ensure that it drains between storms and within five days after rainfall.	Minimum 3 times/year.[1]
4	Inspect downspouts, curb cuts, overflow pipes, inflow pipes, outflow pipes, and/or bubble ups to ensure flow to the treatment measure is unimpeded. Remove debris and repair damaged pipes. Check splash blocks or rocks and repair, replace and replenish as necessary.	Minimum 3 times/year.[1]
5	Inspect inlets for channeling, ruts and holes, soil exposure or other evidence of erosion.	Minimum 3 times/year.[1]
6	Clear obstructions and remove sediment accumulating near inlets when it builds up to 2 inches at any spot, or if it covers vegetation. Dispose of sediment properly.	Minimum 3 times/year.[1]
7	Inspect concrete lined measures to ensure that box is structurally sound (no cracks or leaks). Repair as necessary.	Annually
8	Evaluate health of vegetation. Remove and replace all dead and diseased vegetation. Replace with vegetation with similar growth requirements. List the plants to be used in the treatment area here, or attach a separate sheet:	Monthly
9	Maintain vegetation and the irrigation system. Irrigate vegetation when necessary. Mow, prune and/or weed to keep the treatment measure neat and orderly in appearance. Remove any invasive vegetation and/or weeds. Treat vegetation using preventative and low-toxic methods (Integrated Pest Management).	Monthly
10	Check that mulch, cobble, and/or treatment soil[2] are at the appropriate depth/s (per design specifications) and replenish when necessary.	Minimum 3 times/year.[1]
11	Inspect the treatment measure using the inspection checklist.	Minimum 3 times/year.[1]

Check the appropriate landscaped based measures that are located at this site:

- ☑ Bioretention Area
- ☐ Flow-Through Planter
- ☐ Tree Well Filter
- ☐ Vegetated Swale

Inspections: The Landscaped Based Inspection Checklist provided in the attachments of the O&M Agreement shall be used to conduct inspections, identify needed maintenance, and record maintenance that is conducted.

Mosquito Abatement: Standing water shall not remain in the treatment measures for more than five days, to prevent mosquito generation. Should any mosquito issues arise, contact the Alameda County Mosquito Abatement District (ACMAD), as needed for assistance. Mosquito larvicides shall be applied only when absolutely necessary, as indicated by the ACMAD and then only by a licensed professional or contractor. Contact information for ACMAD follows: Alameda County Mosquito Abatement District, 23187 Connecticut St., Hayward, CA 94545, Phone: (510) 783-7747.

[1] The 3 minimum times/year are as follows: 1) before wet season, 2) after rain events >1" or greater, and 3) after the wet season.

[2] Soil used shall meet the specifications included in the most recent version of Alameda Countywide Clean Water Program's C.3 Stormwater Technical Guidance Manual accessible at www.dublin.ca.gov/stormwaterdevelopment Provide a laboratory analysis, from an approved testing laboratory, to the City of Dublin, Public Works Department, to confirm that the soils provided meet the above requirement.

EXHIBIT D – INSPECTION & MAINTENANCE CHECKLISTS
Stormwater Treatment Measures, Full Trash Capture, and/or Flow Duration Controls (as applicable)

Landscape Based Inspection and Maintenance Checklist

Property Address: _____ Property Owner: TH East Ranch Dublin LLC

Treatment Measure No.: ____ Date of Inspection: _____ Inspector(s): _____

Type of Inspection: ☐ Monthly ☐ Pre-Wet Season ☐ After heavy runoff (1" or greater)
☐ End of Wet Season ☐ Other: _____

Type of Treatment Measure: ☐ Bioretention Area ☐ Flow-Through Planter ☐ Tree Well Filter ☐ Vegetated Swale

Defect	Conditions When Maintenance Is Needed	Maintenance Needed (Y/N)	Comments*	Results Expected When Maintenance is Performed
1. Trash and Debris Accumulation	Trash and debris accumulated in the treatment measure.			Treatment measure is free of trash and debris.
2. Standing Water	When water stands in the treatment measure between storms and does not drain within 5 days after rainfall. Conditions within treatment measure provide mosquito breeding habitat.			No standing water after 5 days of rain event.
3. Stormwater Intermediaries	Downspouts, curb cuts, overflow pipes, inflow pipes, outflow pipes, and/or bubble ups are damaged and/or clogged with sediment and/or debris. Splash blocks or rocks are damaged or missing.			All stormwater intermediaries are cleaned and repaired. Treatment measure flows as intended per design specifications.
4. Erosion	Treatment measure has channels, ruts or holes, and/or soil exposure due to erosion.			There is no evidence of channeling, ruts and holes, soil exposure or other evidence of erosion.

*Describe maintenance completed and if needed maintenance was not conducted, note when it will be done.

Landscaped Base Inspection and Maintenance Checklist

Date of Inspection _____

Property Address: _____

Treatment Measure No.: _____

Defect	Conditions When Maintenance Is Needed	Maintenance Needed (Y/N)	Comments*	Results Expected When Maintenance is Performed
5. Sediment Accumulation on Vegetation	Sediment accumulating near and/or in inlets is built up to 2 inches at any spot, or it covers vegetation.			When finished, treatment measure should be level from side to side and drain freely toward outlet. There should be no areas of standing water once inflow has ceased and sediment is disposed of properly.
6. Structural integrity	Concrete lined measure has cracks and/or leaks.			Cracks and leaks are repaired and the treatment measure is structurally sound.
7. Vegetation Health	Vegetation is either dead or diseased. Growth of planted vegetation is poor because sunlight does not reach the treatment measure.			Vegetation is healthy and receives proper amount of sunlight. Dying or diseased vegetation have been properly removed and replaced with vegetation having similar growth requirements.
8. Vegetation Maintenance	Vegetation isn't being properly irrigated. When the planted vegetation becomes excessively tall; when invasive vegetation and/or weeds start to take over.			Vegetation is irrigated & mowed/trimmed when necessary. There is no sign of invasive vegetation and/or weeds.
9. Mulch, cobble, and/or treatment soil	Mulch, cobble, and/or treatment soil is missing or patchy in appearance.			Mulch, cobble, and/or treatment soil meet design specifications.
10. Miscellaneous	Any condition not covered above that needs attention in order for the treatment measure to function as designed.			Treatment measure operates per the design specifications.

*Describe maintenance completed and if needed maintenance was not conducted, note when it will be done.

EXHIBIT E – ANNUALINSPECTION REPORT

Stormwater Treatment Measures Operation and Maintenance

Inspection Report to the

City of Dublin, Alameda County, California

This report and attached inspection checklists document the inspection and maintenance conducted for the identified stormwater treatment measures (STMs) and flow duration controls (FDCs) subject to the Maintenance Agreement between the City and the property owner during the annual reporting period indicated below.

I. Property Information:

Property Address or APN: _____

Property Owner: TH East Ranch Dublin LLC

II. Contact Information:

Name of person to contact regarding this report: Pam Nieting

Phone number of contact person: (925) 787-1321 Email: pnieting@trumarkco.com

Address to which correspondence regarding this report should be directed:

3001 Bishop Dr, Suite 100

San Ramon, CA 94582

III. Reporting Period:

This report, with the attached completed inspection checklists, documents the inspections and maintenance of the identified treatment measures during the time period from January 1 to December 31 annually.

IV. Stormwater Treatment Measure and Flow Duration Control Information:

The following STMs and FDCs are located on the property identified above and are subject to the Maintenance Agreement:

Number of each type of STM or FDC	Type of STM or FDC	Location of STMs & FDCs on the Property
[#]	[Bio-retention, flow through planters, etc.]	Refer to map, Exhibit B
21	Bio-retention	Refer to map, Exhibit B

V: Sediment Removal

Total amount of accumulated sediment removed from the stormwater treatment measure(s) during the reporting period: _____ cubic yards.

The sediment was removed and disposed as follows: _____

_____

VI. Inspector Information:

The inspections documented in the attached inspection checklists were conducted by the following inspector(s):

Inspector Name and Title	Inspector's Employer and Address

VII. Statement of STM and FDC Condition

Based on the inspections documented in the attached checklists, are the STMs and FDCs identified in this report present, functional and being maintained as required by the Maintenance Plan? (Check yes or no.)

☐ YES ☐ NO

If "NO", describe problem, proposed solution and schedule of correction:

VIII. Certification:

I hereby certify, under penalty of perjury, that the information presented in this report and attachments is true and complete:

_____ _____

Signature of Property Owner or Other Responsible Party Date

_____

Type or Print Name

_____

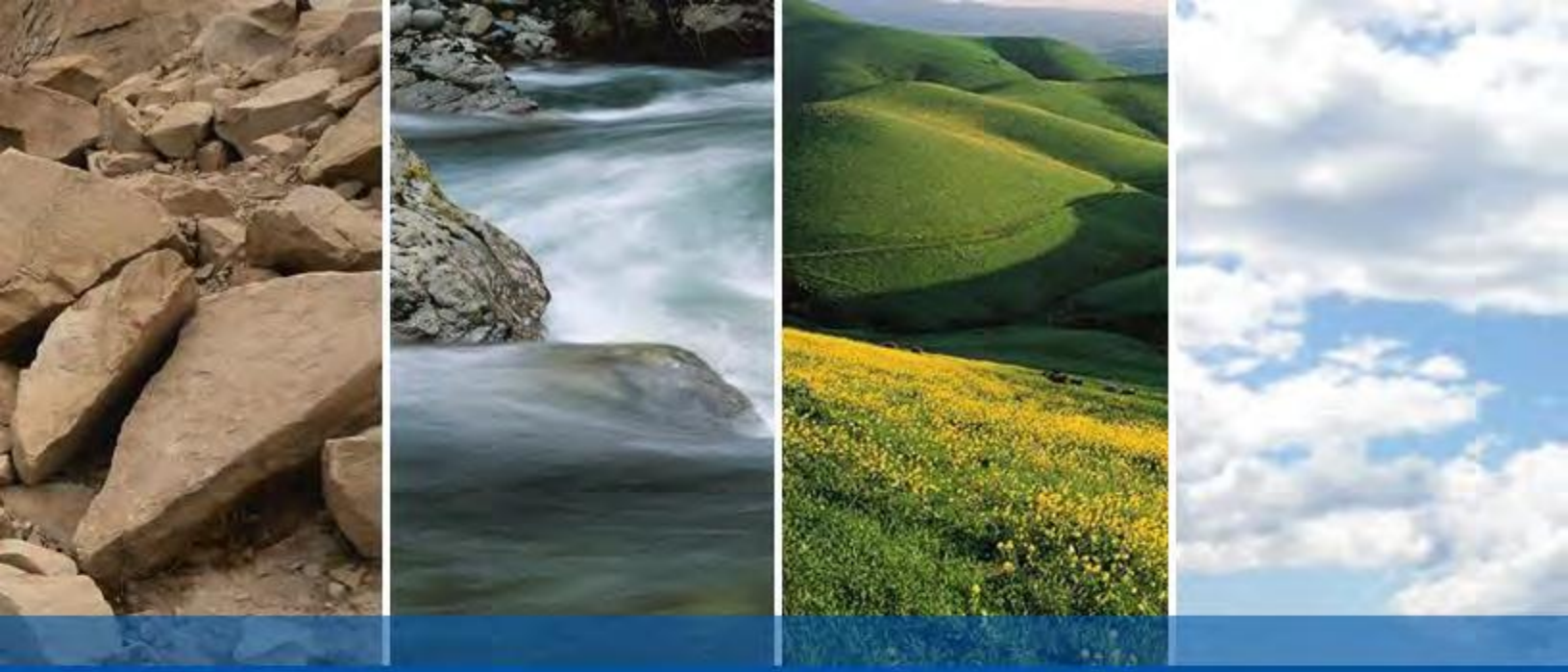
Company Name

_____

_____

_____

Address



APPENDIX E

MITIGATION AND MONITORING PLAN

Mitigation and Monitoring Plan

East Ranch Project Site

Alameda County, California

Date: October 20, 2021

Prepared by:
Johnson Marigot Consulting, LLC
Mr. Cameron Johnson
433 Visitacion Avenue
Brisbane, California 94005

On behalf of:
Trumark Homes
Ms. Pamela Nieting
3001 Bishop Drive, Suite 100
San Ramon, CA 94583

JOHNSON MARIGOT
CONSULTING, LLC

CONTENTS

Mitigation and Monitoring Plan

East Ranch Project Area

List of Figures

List of Attachments

SECTION 1. INTRODUCTION

This Mitigation and Monitoring Plan has been prepared for two distinct features located within the East Ranch Project development site; these consist of a created swale feature located along the eastern shoulder of Croak Road, and an avoided (existing) seasonal wetland located along the western shoulder of Croak Road. The seasonal wetland feature be preserved in place and avoided, and the linear earthen swale feature will be constructed in place, and then preserved. This Mitigation and Monitoring Plan includes monitoring of both features.

The East Ranch Development Project (herein referred to as the Project), is an approved residential development project located in the City of Dublin, within Alameda County, California. The general Project vicinity is depicted in Figure 1 and the project, including the locations of the avoided seasonal wetland and created swale feature, are depicted in Figures 2 and 3.

The Project is located in the City of Dublin, in Alameda County, California, in the Livermore U.S. Geological Survey (USGS) 7.5' topographic quadrangle (quad) (Section 35, Township 2S, and Range 1E). The East Ranch Project site is comprised of approximately 176-acres located approximately 0.25 miles north of U.S. Highway 580, and Route 101, and is located both east, and west of Croak Road, in the City of Dublin, CA, in Alameda County (approximate center of the property is at 37°42.778' North, 122° 50.225" West.

1.1 PROJECT REQUIRING MITIGATION

The development of the East Ranch residential project will impact a total of 0.099-ac of waters of the State of CA, including 0.083-ac of wetlands, and 0.016-ac of roadside ditch (total of 269-linear feet). The existing roadside ditches are largely unvegetated (i.e., they are not wetlands), and do not have developed riparian canopy (See Figures 4 and 5, Attachment D). Mitigation for Project impacts to all waters of the state includes acreage values, as well as linear values (for linear features); mitigation for all acreage values will occur at the offsite Doolan North Riparian Mitigation Area.

This Mitigation and Monitoring plan is specifically intended to describe the mitigation for Project impacts to the existing roadside ditches at the Project site and are intended to meet the requirements for linear values only (acreage values provided at Doolan North Riparian Mitigation Area). In addition, this Mitigation and Monitoring Plan includes monitoring of the existing onsite seasonal wetland that will be avoided and preserved, in place.

Impacts to 0.016-ac of roadside ditches (269- linear feet), is necessary to widen Croak Road to support safe traffic conditions along Croak Road and to support emergency vehicle access to the Project site. The existing ditches will be filled with native materials, will be realigned along the shoulder of the new roadway (shifted westward), and will be reconstructed along the shoulder of the new roadway, including a series of bioretention basins designed to provide water quality

enhancement and treatment of storm water generated form the development of the site (Figure 3). The ditch will additionally be re-created as an earthen swale located along the eastern shoulder of Croak Road; this new swale feature will be 715-ft in length and will not include stormwater treatment. This feature will be receiving sheet flow stormwater from the adjacent, vegetated, public park (Figure 6). This feature is expected to contribute to water quality, but no stormwater treatment features will be included. The swale will be seeded with a native grass seed mix to stabilize the slopes and bed. The linear foot mitigation ratio for the roadside ditch is 2.66:1.

1.2 Responsible Parties

1.2.1 Applicant/Permittee/Land Manager

Trumark Homes
3001 Bishop Drive, Suite 100
San Ramon, CA 94583
Contact: Ms. Pamela Salas Nieting

1.2.2 Preparer of the Mitigation and Monitoring Plan

Johnson Marigot Consulting, LLC
433 Visitacion Ave.
Brisbane, CA 94005
Contact: Cameron Johnson
(415) 602-2970

1.2.3 Monitoring Biologist

Johnson Marigot Consulting, LLC
433 Visitacion Ave.
Brisbane, CA 94005
Contact: Sadie McGarvey, Associate Regulatory Specialist
(925) 895-4302

1.3 Project Site History

The Project site is located within the Eastern Dublin Specific Plan area, and within the area defined by the Fallon Village Project Supplemental Environmental Impact Report, and will be developed with new homes, parks, and supporting residential/community land uses.

The Project site (Figure 2) is largely vacant, and primarily consists of grassland with some planted tree cover, while existing developed areas include roadways and an abandoned home site. Historically, the Project site was grassland and used for dry farming/ranching, but was planted with predominantly non-native trees in the 1980's, and has been ungrazed for at least the last 5 years. A

series of five buildings are located within the western portion of the Project site, and are associated with former dry farming/ranching operations including: 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.

1.4 Impacts to Waters of the State

On May 5, 2021, updated jurisdictional determination maps were submitted to the U.S Army Corps of Engineers (USACE) for final approval. These maps were based on site mapping, and were field verified by Mr. Greg Brown of USACE. The submittal of May 5, 2021, includes all revisions requested in the field by USACE; these maps are represented in Figures 4 and 5.

Project implementation requires the placement of permanent fill within 0.099 acre of jurisdictional waters of the State (Figures 4 and 5).

The mitigation described in this Mitigation and Monitoring Plan will compensate for linear values associated with the fill and realignment of 269-linear feet of roadside ditches located along Croak Road. All other mitigation is located at the Doolan North Riparian Mitigation Area.

SECTION 2. MITIGATION PROPOSAL

2.1 Waters of the State Mitigation

The Project will impact a total of 0.099-ac of waters of the State, consisting of 0.083-ac of wetlands, and 0.016-ac of roadside ditches. All waters will be mitigated by creation of waters of the State at the Doolan North Riparian Mitigation Area. This will include the construction of approximately 0.55-ac of new waters of the State (including 0.3-ac of mitigation seasonal wetland, and 0.25-ac of new swale with associated riparian plantings).

This Mitigation and Monitoring Plan covers monitoring of aquatic features located at the East Ranch development site, including a constructed swale feature, and an avoided (existing) seasonal wetland feature. The long-term management of these features will be by the Master Homeowners Association (MHOA). This MMP is designed for implementation and monitoring of the onsite aquatic features through the expected performance period of 10- years.

2.2 Roadside Ditch Mitigation (linear mitigation)

The Project will fill and realign 269-lf of existing roadside ditch at the Project site to widen Croak Road (Attachment A). Fill will consist of native materials, and the ditches will be reconstructed along the new shoulder of Croak Road with incorporated bioretention basins. The newly constructed ditch and basins are included within the Storm Water Management Plan for the

development, and will be owned by the Geological Hazard Abatement District (GHAD), and managed by the GHAD and the MHOA (Figure 7).

In addition to the newly constructed ditch and basins included in the Stormwater management Plan for the Project, the existing roadside ditch (269-lf) will be mitigated by the construction of approximately 715-ft of new swale (with native grass seeding) at the Project site, located along the eastern shoulder of Croak Road (Attachment A, and Figure 6). This swale feature will be owned by the City of Dublin (it is within Parcel O)(Figure 7). The City will own the park, but the swale feature will be managed by the MHOA. The portion of Parcel O which includes the swale will be covered by a deed restriction (Attachment C).

Parcel I (See Figure 7) includes an existing seasonal wetland feature that will be avoided and preserved in place in perpetuity through a deed restriction as well (Attachment C).

All impacts to waters of the State are presented in Table 1. The only newly created mitigation feature that will occur at the Project site is the construction of 715 linear feet of swale.

TABLE 1. IMPACTS TO WATERS OF THE STATE, AND PROPOSED MITIGATION

Water of the State	Onsite	Offsite		
	Impact (ac)	Impact (ac)	Mitigation (ac)	Ratio
Drainage Swale	0.077	0.003	0.250	
Roadside Ditch	0.016	-	-	
Emergent Wetland	0.000	0.003	-	
Seasonal wetland	-	-	0.300	
SubTotal:	0.093	0.006	-	
Total:	0.099		0.550	5.5:1
	Impact (lf)		Mitigation (lf)	Ratio
Roadside Ditch*	269- Linear Feet		715- Linear Feet	2.66:1
Seasonal Wetland Swale	814- Linear Feet		958- Linear Feet	1.18:1

* Mitigation for impact to 269-linear feet of roadside ditches will occur at the Project site. All other waters of the State mitigation will occur at the Doolan North Riparian Mitigation Area

2.3 MAINTENANCE REQUIREMENTS

The 715-ft swale feature will be constructed and subsequently seeded with native grass species in the fall (just prior to the on-set of rains). No supplemental irrigation is proposed, however it is expected to receive some additional potable irrigation water from the neighboring park site. The

primary source of water for this feature is twofold: direct precipitation and sheet flow from the adjacent pervious slope.

The new swale will be maintained according to Weed Removal and Maintenance schedule shown in Table 2 (below). This feature will not include plantings of trees or shrubs and will not include supplemental irrigation.

The existing seasonal wetland feature within Parcel I will be avoided and preserved. No seeding or planting is proposed. Maintenance of this feature is expected to include weed management and litter management only. Maintenance will be conducted according to the schedule shown in Table 2 (below). Monitoring performance criteria will focus on whether or not the seasonal wetland is experiencing any change over time, compared to current condition.

TABLE 2. ANNUAL MAINTENANCE REQUIREMENTS

Year	1	2	3	4	5	6-10
Irrigation	none	none	none	none	none	none
Weed removal	manual removal late spring to early summer	manual removal late spring to early summer	manual removal late spring to early summer	manual removal late spring to early summer	manual removal late spring to early summer	manual removal late spring to early summer
Replacement of plantings (swale only)	Reseed if necessary	Reseed if necessary	Reseed if necessary	Reseed if necessary	Reseed if necessary	Reseed if necessary
Frequency of maintenance	Mar-Oct: Bi-monthly and Nov-Feb: As needed	Mar-Oct: Bi-monthly and Nov-Feb: As needed	Mar-Oct: Bi-monthly and Nov-Feb: As needed	Quarterly	Quarterly	Quarterly

2.4 MITIGATION IMPLEMENTATION SCHEDULE

Seeding of the swale with native grass seeds will occur in late fall of 2022 to gain the maximum benefit from the winter rains for the initial establishment period.

Primary maintenance tasks are expected to include removal of weed species, and general cleanup of any litter found to exist in the swale or the seasonal wetland. The landscaper selected to implement the planting plan will have experience identifying weed species.

SECTION 3. ANNUAL PERFORMANCE CRITERIA

A ten-year monitoring program will be conducted to determine whether the swale and the seasonal wetland have achieved the target success criteria, and/or whether remedial actions are necessary. A summary of the performance criteria can be found in Table 3. Target performance criteria for the existing seasonal wetland feature are intended to evaluate whether the wetland is experiencing any qualitative change over time (when compared to current condition). The existing seasonal wetland is not expected to change (See Attachment B - Basis of Design Report).

TABLE 3. SUCCESS CRITERIA

Year	1	3	5	6-10
vegetative cover (native grass seed) swale only	50%	75%	75%	75%
Weed species both features	<25%	<20%	<15%	<10%
Wetland hydrology (SW only)	<20% change	<15% change	<15% change	<10% change
Wetland hydrophytes (SW only)	<20% change	<15% change	<15% change	<10% change
Siltation	<2-in accumulated sediment when dry	<2-in accumulated sediment when dry	<2-in accumulated sediment when dry	<2-in accumulated sediment when dry
Erosion	<2-in (depth) of cutting at outfall to seasonal wetland	<2-in (depth) of cutting at outfall to seasonal wetland	<2-in (depth) of cutting at outfall to seasonal wetland	<2-in (depth) of cutting at outfall to seasonal wetland

The newly constructed swale feature will be seeded with a mix of native grass species. Vegetative cover is important to ensure soil stability (i.e. prevent erosion). Estimates of absolute cover will be taken annually to document presence of stabilizing grasses. Project goals are to eventually demonstrate absolute vegetative cover of at least 75%.

The California Invasive Plant Council (Cal-IPC) has prepared a list of non-native invasive plants that threaten the state's wildlands; these plants are categorized based on an assessment of the ecological impacts of each plant (i.e., California Invasive Plant Inventory). The Inventory categorizes plants as High, Moderate, or Limited, reflecting the level of each species' negative ecological impact in California. Presence / absence surveys for IPC-listed weed species will be conducted for both the swale and for the seasonal wetland.

The swale and the seasonal wetland will not be dominated by IPC-listed weed species. Evidence of non-native invasive species establishment will be recorded during the monitoring period. The absolute cover of a non-native invasive plant species (with a "High" to "Moderate" ranking by Cal-IPC) will not exceed 10 percent absolute cover. Weed removal will occur according to the schedule shown in Table 2 (above).

The hydrology of the existing seasonal wetland in Parcel I will be evaluated by tracking the geographic limits of the existing hydrophytic vegetation. This will be done by a physical measurement of the length and width of the feature, on an annual basis. Presence of hydrophytes will be taken as a proxy for appropriate hydrologic conditions. Hydrology goals are to see no more than a 10% change in the estimated gross area occupied by hydrophytes (when compared to the baseline condition).

The presence of hydrophytic vegetation is a primary indicator of wetland condition, and an indicator of wetland hydrology. Species composition of hydrophytes within a wetland setting can shift depending on the duration and depth of ponding and sub-surface water. The intent of monitoring of the seasonal wetland feature is to determine if there are any qualitative or quantitative changes to the feature. Hydrophytic species composition will be evaluated at the start of the monitoring period to establish a baseline condition. The comparative species composition will be evaluated to determine if there are measurable shifts in hydrophytic species dominance over the monitoring period. This will be measured by normalizing the absolute cover, by species, across years, to compare yearly species composition to the baseline condition. Project goals are to demonstrate less than 10% shift in dominance of hydrophytes, compared to the baseline condition.

3.1 BASELINE

The "Baseline Condition" of the seasonal wetland will be established prior to starting the Croak Road roadway improvements, and will be established at the end of construction of Croak Road for the swale. Field-mapping will be conducted to establish Baseline Condition, and to establish the size and position of the seasonal wetland feature. The data collection on relative abundance of hydrophytes will establish Baseline Condition for wetland plants. All photo-points will be established prior to the start of site grading for Croak Road improvements, and at the end of construction of Croak Road for the swale. The Baseline Condition for the seasonal wetland will also include the jurisdictional determination map for the Project that has been reviewed and approved by USACE.

3.2 YEAR 1

The first year of annual monitoring is defined as the first growing season following the completion of road construction (Croak Road). The construction of Croak Road will include the realignment of the existing roadside ditch, the construction of the swale feature, and will define the edge of the lot which contains the avoided seasonal wetland. During the first year of annual monitoring, all tasks detailed in Table 3 (above) will be completed. Monitoring will consist of

visual assessment of seasonal wetland condition (particularly the outfalls into- and out from-the seasonal wetland feature). Monitoring efforts will look for any evidence of erosion or sedimentation, any evidence in vegetative changes in the features, as well as photo-monitoring from permanent photo-locations. Any evidence of erosion or sediment deposition will be reported in the annual report, and any corrective measures will be implemented (where needed). Site photos will be taken at established photo-points for comparison to pre-grading conditions.

3.3 YEAR 3

By the third year of monitoring, percent cover for the swale feature will reach a minimum of 75% of absolute cover, IPC-listed weed species will be less than 20% absolute cover, and there will be no more than 15% documented change in hydrology and hydrophytes in the seasonal wetland feature. Monitoring will consist of visual assessment of seasonal wetland condition (particularly the outfalls into- and out from- the seasonal wetland feature). Monitoring efforts will look for any evidence of erosion or sedimentation, any evidence in vegetative changes in the features, as well as photo-monitoring from permanent photo-locations. Any evidence of erosion or sediment deposition will be reported in the annual report, and any corrective measures will be implemented (where needed). Site photos will be taken at established photo-points for comparison to pre-grading conditions and previous performance years.

3.4 YEAR 5

By the fifth year of monitoring, percent cover for the swale feature will reach a minimum 75% of absolute cover, IPC-listed weed species will be less than 15% absolute cover, and there will be no more than 15% documented change in hydrology and hydrophytes in the seasonal wetland feature. Monitoring will consist of visual assessment of seasonal wetland condition (particularly the outfalls into- and out from- the seasonal wetland feature). Monitoring efforts will look for any evidence of erosion or sedimentation, any evidence in vegetative changes in the features, as well as photo-monitoring from permanent photo-locations. Any evidence of erosion or sediment deposition will be reported in the annual report, and any corrective measures will be implemented (where needed). Site photos will be taken at established photo-points for comparison to pre-grading conditions and previous performance years.

If at any point during Years 1-5 of annual vegetation monitoring, any of the performance ratings drop below the minimum health requirement, an assessment of cause(s) for this health failure will be assessed, and remedial actions will be prescribed in the annual monitoring report prepared for the year this health failure is observed.

3.5 YEARS 6-10

Monitoring years 6 through 10 of annual vegetation monitoring are expected to demonstrate stability of the conditions observed during the first 5 years. By the 10 year of monitoring, percent cover for the swale feature will reach a minimum of 75% of absolute cover, IPC-listed weed species will be less than 10% absolute cover, and there will be no more than 10%

documented change in hydrology or hydrophyte composition in the seasonal wetland feature. Monitoring will consist of visual assessment of seasonal wetland condition (particularly the outfalls into- and out from- the seasonal wetland feature). Monitoring efforts will look for any evidence of erosion or sedimentation, any evidence in vegetative changes in the features, as well as photo-monitoring from permanent photo-locations. Any evidence of erosion or sediment deposition will be reported in the annual report, and any corrective measures will be implemented (where needed). Site photos will be taken at established photo-points for comparison to pre-grading conditions and previous performance years.

The seasonal wetland in Parcel I will be delineated according to current USACE standards to determine the area of jurisdictional waters that exist at the end of the 10-year monitoring period. This map will be used to compare the condition at the end of the monitoring period to the baseline condition, as well as the jurisdictional determination map that has been approved by USACE (prior to the start of project construction).

If any failure occurs in the final year of annual vegetation monitoring, final sign-off of the compensatory mitigation project is contingent on the outcome of consultation with the RWQCB regarding vegetation failure, and additional vegetation planting and monitoring may be required.

SECTION 4. MITIGATION MONITORING PROGRAM

4.1 Monitoring Duration

Ten (10) years of mitigation monitoring will be conducted to document success with the performance criteria described above. If at the end of 10 years, the East Ranch Mitigation Area meets the performance criteria and the general success criteria, the area will be deemed a self-sustaining system and the mitigation monitoring will end. The RWQCB may require additional monitoring years if the mitigation fails to meet one or more of the success criteria. Once success criteria have been met, the long-term maintenance and management of the mitigation areas will be fully transferred to the MHOA and annual reporting will cease.

4.2 Wildlife Monitoring Methods

All wildlife using the East Ranch Mitigation Area, (seasonal wetland, and the constructed earthen swale) will be noted during vegetation monitoring efforts. At the end of each monitoring period, a complete list of species that were recorded using the East Ranch Mitigation Area will be included in annual monitoring reports.

4.3 Permanent Photo Points

Permanent photo points will be established immediately prior to the Croak Road improvements. Photographic documentation of the East Ranch Mitigation Area will be taken from the established photo points once annually in Spring (April / May). Selected photos from the photo points will be included in the annual reports for comparison from year to year. A minimum of 8 photo points will be established, and will include the seasonal wetland area, the outfalls, and the swale. Photos will document storm water entry and exit points, as well as at least two photos of the avoided seasonal wetland feature. Photos will be included in monitoring reports.

4.4 Annual Monitoring Reports

At the end of each monitoring year for years 1 through 5, and at year 7 and 10. A detailed annual monitoring report will be prepared for the East Ranch Mitigation Area. Annual monitoring reports will be submitted to the RWQCB by December 31 of each year as required. At a minimum, each monitoring report shall contain:

A) Summaries of the vegetative cover

B) Evaluation of invasive species, if present

C) Photo Documentation of the swale and wetland feature

D) Reports of data collection on the seasonal wetlands, including measurements of hydrology and hydrophytic vegetation, and general conditions

E) Remedial Action Measures, if necessary

SECTION 5. MAINTENANCE AND OTHER REMEDIAL ACTIONS

During the monitoring efforts, plant establishment failure and/or damage to other area features (such as erosion) will be noted and arrangements will be made for remedial action and/or repair as necessary to meet success criteria. Any proposed remedial action will be submitted to the RWQCB for review and approval prior to implementation.

SECTION 6. CONTINGENCY MEASURES

If annual or final success criteria are not met, the applicant will prepare an analysis of the cause(s) of failure and, if determined necessary by the RWQCB, propose remedial actions for approval. The applicant or the applicant's legal assignee shall be responsible for reasonably funding the contingency procedures necessary for successful completion of the mitigation effort. Contingency measures may include reseeding or replanting, removal of accumulated silt, or repair of erosion or

head cutting found at mitigation site beds, banks, outfalls, or other locations, or alteration of hydrologic flow regimes where piping or diverting storm water is possible (either to add or to remove flow volume). Contingency measures will be outlined in annual reports where they are recommended, and the RWQCB will be consulted prior to implementation.

SECTION 7. OWNERSHIP AND RECORDED DEED RESTRICTIONS

Ownership of the swale feature along Croak Road will be by the City of Dublin, and the seasonal wetland feature (Parcel I) will be owned by the MHOA. The applicant will be responsible for all aspects of mitigation construction and success criteria, including monitoring, maintenance, and reporting, during the monitoring period described in this MMP. Upon attainment of success criteria, management of both features will be transferred to the MHOA.

Bothe the constructed swale, and the existing wetland, will be subject to a deed restriction (Attachment C).

SECTION 8. LONG-TERM MANAGEMENT

Once the swale and seasonal wetland at the East Ranch Mitigation Area have met the performance criteria, they will be deemed self- sustaining. At this point, the long-term maintenance and management of the planting areas will be relegated to the MHOA. Long-term management will include site inspection and removal of weeds in the spring, and summer, as well as quarterly removal of any accumulated litter found in the seasonal wetland or swale.

List of Figures

List of Attachments

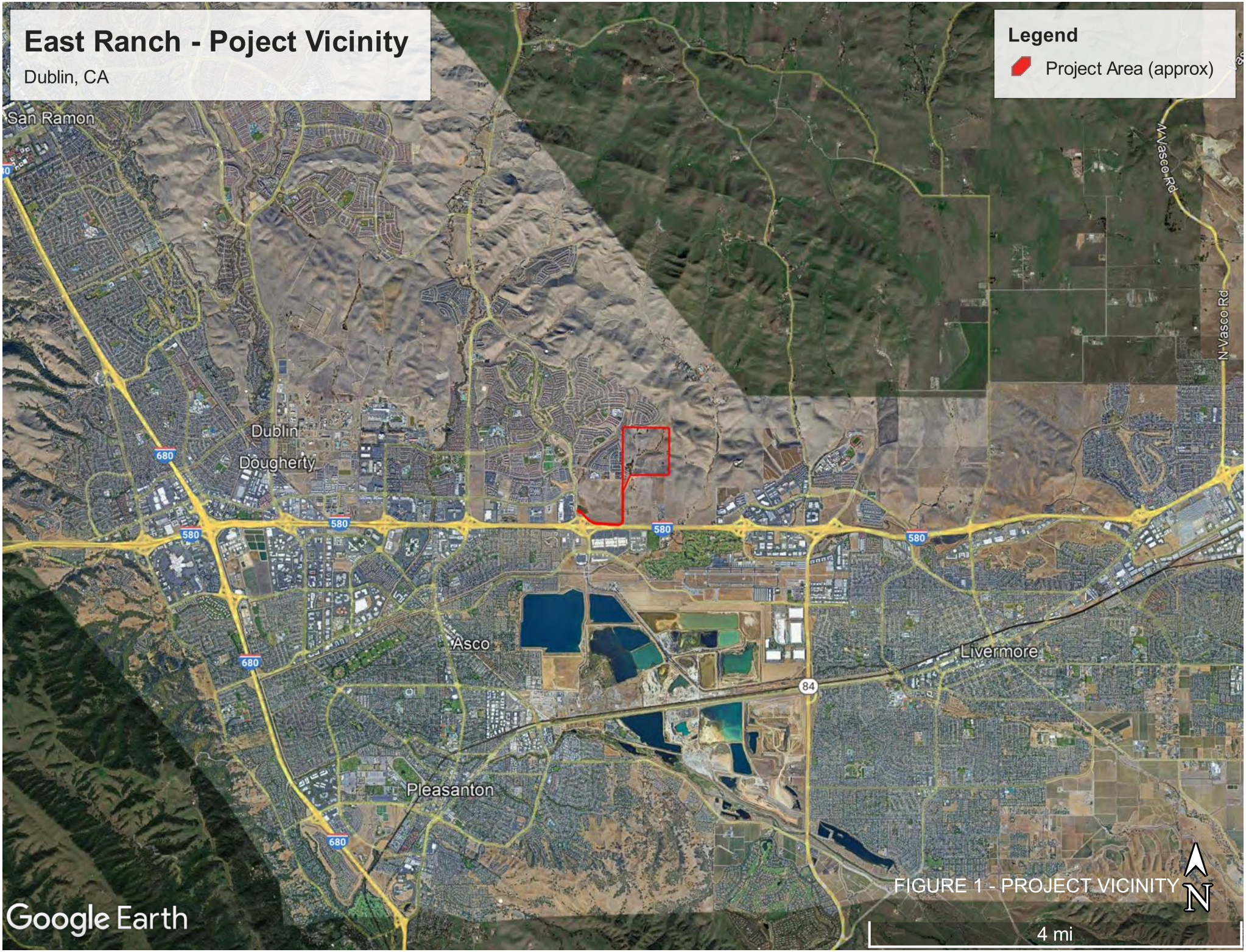
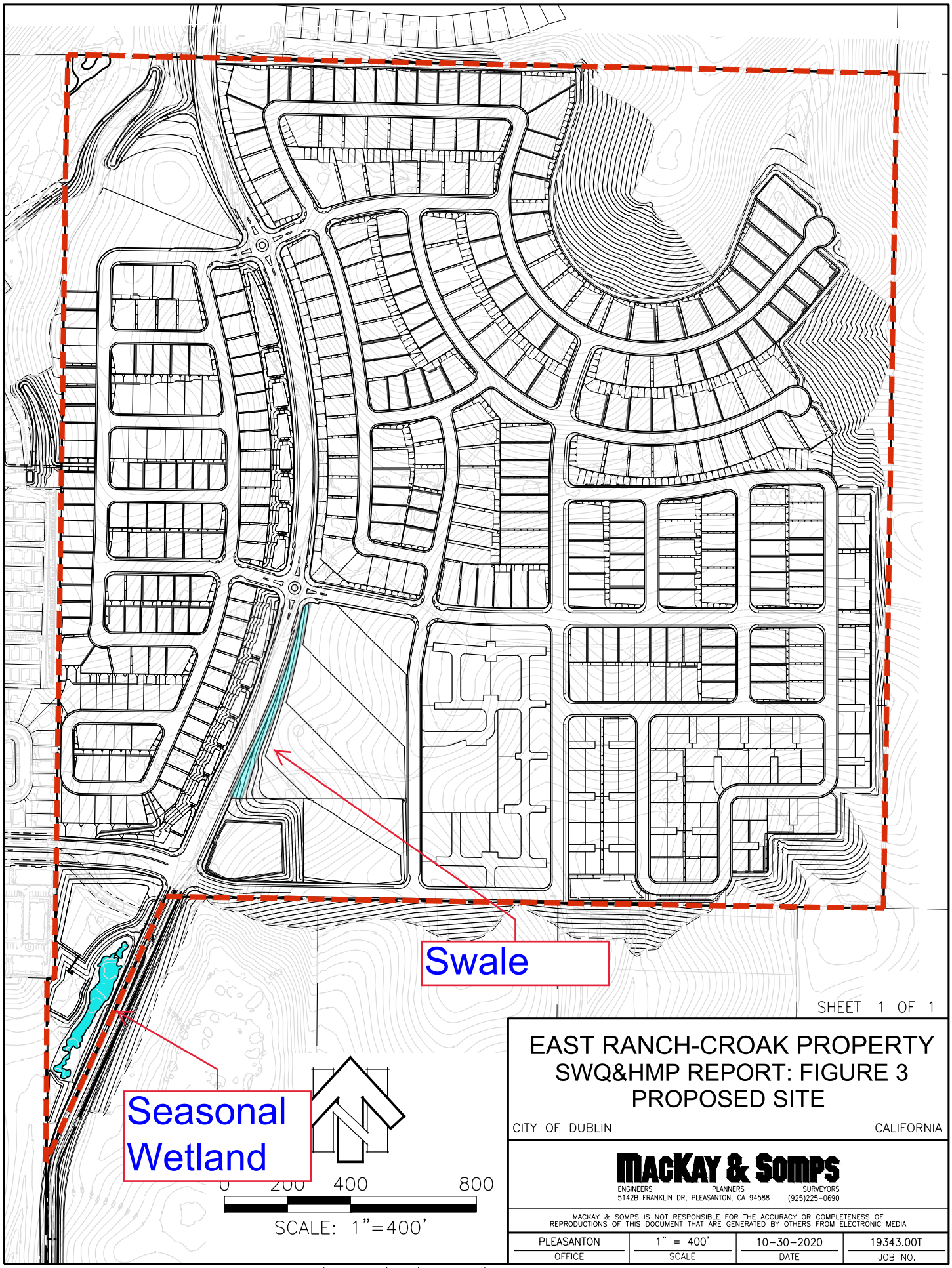


FIGURE 1 - PROJECT VICINITY

FIGURE 2 - PROJECT SITE



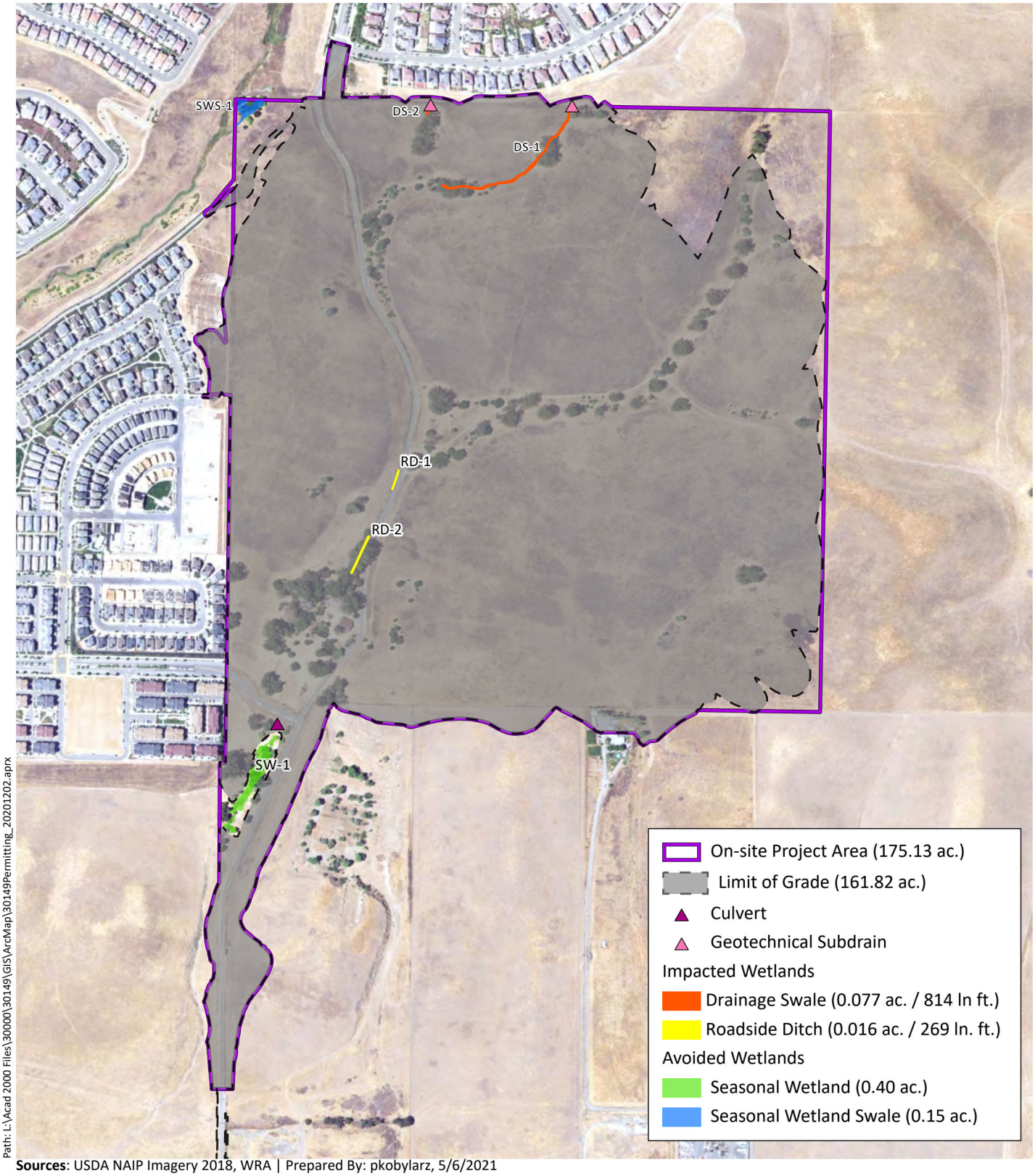
SHEET 1 OF 1

EAST RANCH-CROAK PROPERTY
SWQ&HMP REPORT: FIGURE 3
PROPOSED SITE

CITY OF DUBLIN CALIFORNIA

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

PLEASANTON	1" = 400'	10-30-2020	19343.00T
OFFICE	SCALE	DATE	JOB NO.



Sources: USDA NAIP Imagery 2018, WRA | Prepared By: pkobylarz, 5/6/2021

Figure 4. On-Site Impacts to Aquatic Resources

East Ranch (Croak) Development Project
4038 Croak Road, Dublin, California

0 250 500 US Feet

N

wra ENVIRONMENTAL CONSULTANTS

Figure 5.
Off-Site Project Area Impacts to Aquatic Resources

East Ranch (Croak) Development Project
4038 Croak Road, Dublin, California

- Culverts
- On-site Project Area (175.13 ac.)
- Off-site Project Area (0.49 ac.)

Permanent Impacts

- Freshwater Emergent Wetland (0.003 ac.)
- Seasonal Wetland Swale (0.003 ac.)

Potential Corps/RWQCB Jurisdictional Features

- Intermittent Stream (IS) (0.06 ac. & 200 LF)
- Freshwater Emergent Wetland (FEW) (1.26 ac.)
- Seasonal Wetland (SW) (0.74 ac.)
- Seasonal Wetland Swale (SWS) (0.11 ac.)

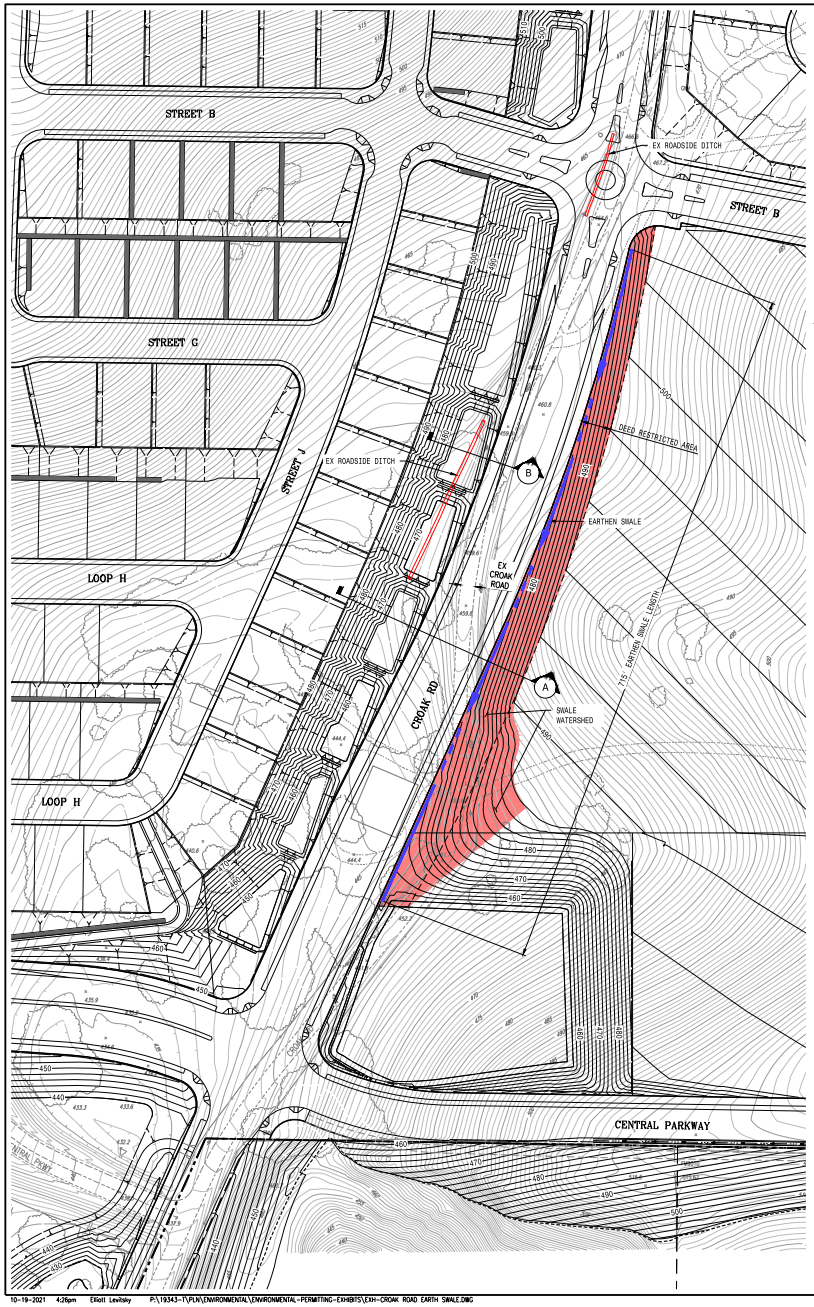
N

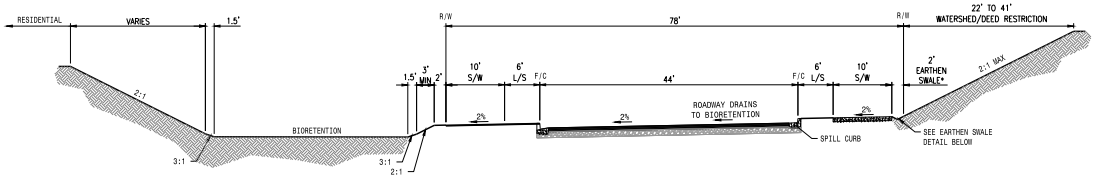
0 200 400
Feet

wra
ENVIRONMENTAL CONSULTANTS

Path: L:\Acad 2000 Files\30000\30149\GIS\ArcMap\30149Permitting_20201202.aprx

Sources: Google Earth Aerial 06-2019, Alameda County LiDAR 2006, WRA | Prepared By: pkobylarz, 5/5/2021

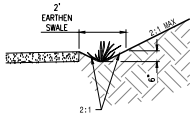




SECTION A - CROAK ROAD - 88' ROW

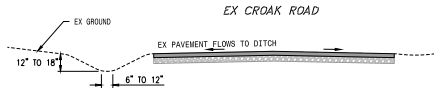
NTS

*SEE EARTHEN SWALE DETAIL BELOW



EARTHEN SWALE DETAIL

NTS



SECTION B - EX DITCH CROSS-SECTION

NTS

LEGEND:

EX. ROADSIDE DITCH
EARTHEN SWALE
WATERSHED OF EARTHEN SWALE (0.72± AC)

0 30 60 120

SCALE: 1"=60'

FIGURE 6 - SWALE LOCATION AND X-SEC

SHEET 1 OF 1

EAST RANCH

CROAK PROPERTY

CROAK ROAD EARTHEN SWALE EXHIBIT

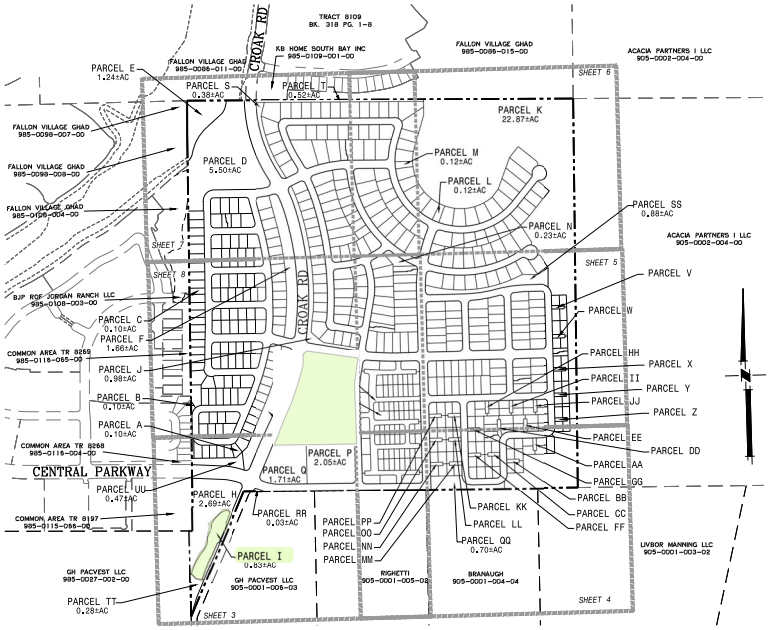
CITY OF DUBLIN CALIFORNIA

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

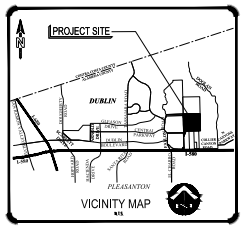
PLEASANTON	1" = 60'	10-19-2021	19343.00T.E
OFFICE	SCALE	DATE	JOB NO.

10-19-2021 4:26pm Elliott Lewitsky P:\19343-T\PLN\ENVIRONMENTAL\ENVIRONMENTAL-PERMITTING-EXHIBITS\EXH-CROAK ROAD EARTH SWALE.DWG

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 ACCESS ESMT)
PARCEL D	CITY OF DUBLIN	CITY OF DUBLIN	NEIGHBORHOOD PARK (PUBLIC)
PARCEL E	GHAD	GHAD	OPEN SPACE (AVOIDED WETLANDS)
PARCEL F	GHAD	HOA-LANDSCAPE* GHAD-SLOPE STABILITY**	WATER QUALITY FACILITY
PARCEL G	GHAD	HOA-LANDSCAPE* GHAD-SLOPE STABILITY**	WATER QUALITY FACILITY
PARCEL H	GHAD	HOA-LANDSCAPE*, HM FACILITY GHAD-SLOPE STABILITY**	WATER QUALITY FACILITY/ HM FACILITY
PARCEL I	HOA	HOA	OPEN SPACE (PRESERVED WETLANDS)
PARCEL J	HOA	HOA	LANDSCAPING
PARCEL K	GHAD	GHAD	RURAL RESIDENTIAL/AGRICULTURE, EVAE, SDE
PARCEL L	HOA	HOA	LANDSCAPING/PEDESTRIAN ACCESS (PUBLIC ACCESS ESMT)
PARCEL M	HOA	HOA	LANDSCAPING/PEDESTRIAN ACCESS (PUBLIC ACCESS ESMT)
PARCEL N	HOA	HOA	LANDSCAPING/POCKET PARK (PUBLIC ACCESS ESMT)
PARCEL O	CITY OF DUBLIN	CITY OF DUBLIN	NEIGHBORHOOD PARK (PUBLIC)
PARCEL P	TRUMARK	TRUMARK	SEMI-PUBLIC
PARCEL Q	GHAD	HOA-LANDSCAPE* GHAD-SLOPE STABILITY**	WATER QUALITY FACILITY/ OPEN SPACE
PARCEL R	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-SLOPE STABILITY**	LANDSCAPING/WATER QUALITY
PARCEL RR	TRUMARK	TRUMARK	FUTURE RESIDENTIAL
PARCEL SS	HOA	HOA	LANDSCAPING
PARCEL TT	GHAD	HOA-LANDSCAPE* GHAD-SLOPE STABILITY**	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 WEED ABATEMENT 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
		OPEN SPACE AND HIGH FLOW BYPASS STORM DRAIN
		FIELD INLET
		WATER LINE
		WATER LINE (RECLAIMED)
		SANITARY SEWER AND MANHOLE
		FIRE HYDRANT
		2:1 SLOPE UNLESS OTHERWISE NOTED
		RETAINING WALL
		CONCRETE DITCH
		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	HIGH POINT	W	WATER LINE (DOMESTIC)
		WLE	WATER LINE EASEMENT

TENTATIVE MAP NOTES:

1. OWNER: CROAK PROPERTIES LP, 1262 GABRIEL CT, SAN LEANDRO CA 94577-6821
2. APPLICANT: TRUMARK COMMUNITIES, 3001 BISHOP DRIVE SUITE 100, SAN RAMON, CA 94583, CONTACT: PAMELA NIETING
3. ENGINEER/PLANNER: MACKAY & SOMPS, 5142 FRANKLIN DR, SUITE B, PLEASANTON, CA 94588-3355, CONTACT: MARK McCLELLAN / 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 06001C0329G. SITE IS IN ZONE X - AREAS SUBJECT TO MINIMAL FLOOD HAZARD.
6. SUBDIVIDED AREA: 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 IN CONFORMANCE WITH STANDARDS OF COMCAST.
13. STREET IMPROVEMENTS: PER CITY OF DUBLIN STANDARDS AND P.D. APPROVALS. STREETS TO BE PUBLIC. 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 COMPLETE 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 PRELIMINARY 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 BY STAGE 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 AGREEMENTS AND/OR IMPROVEMENT PLANS/IMPROVEMENT AGREEMENTS, ALL AS APPROVED BY THE DIRECTOR OF PUBLIC 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 NOT TO 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 OWNED AND MAINTAINED. GHAD MAINTENANCE TO BE FUNDED BY GHAD ASSESSMENTS ON ANNEXED PROPERTIES.

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

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

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

MacKAY & SOMPS
CIVIL ENGINEERS PLANNERS LAND SURVEYORS
5142 Franklin Dr, Suite B, Pleasanton, CA 94588-3355 (925)225-0690
email@mackaysomps.com

NO.	REVISION	DATE

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

PROJECT NO.
19343.000

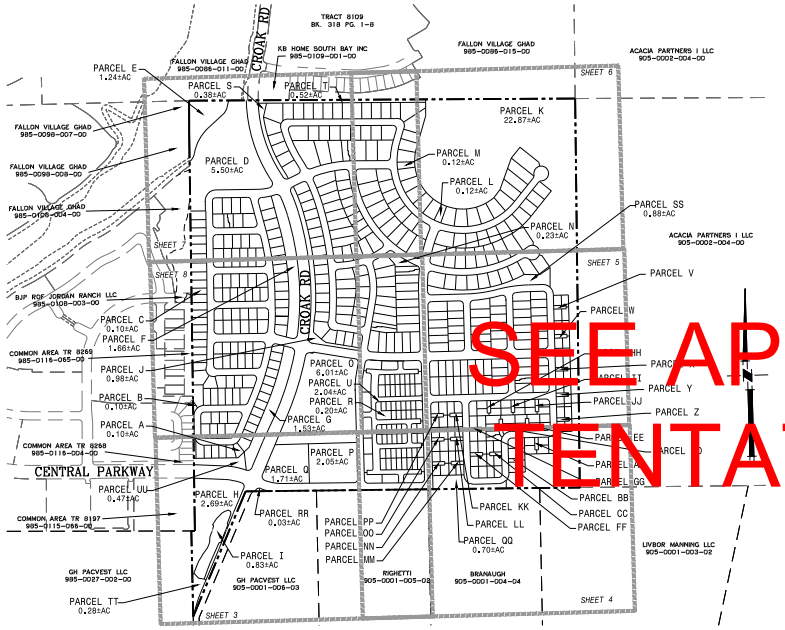
SHT
1
OF 31

09-29-2021 3:25pm Elliott Levitsky P:\19343-TV\PLN\TM\TM-01 COVER SHEET.DWG

FIGURE 7 - Sheet 1 of Vesting Tentative Map

Attachment A
Improvement Plans

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 ACCESS ESMT)
PARCEL D	CITY OF DUBLIN	CITY OF DUBLIN	NEIGHBORHOOD PARK (PUBLIC)
PARCEL E	GHAD	GHAD	OPEN SPACE (AVOIDED WETLANDS)
PARCEL F	GHAD	HOA-LANDSCAPE*	WATER QUALITY FACILITY
		GHAD-SLOPE STABILITY**	
PARCEL G	GHAD	HOA-LANDSCAPE*	WATER QUALITY FACILITY
		GHAD-SLOPE STABILITY**	
PARCEL H	GHAD	HOA-LANDSCAPE*, HM FACILITY	WATER QUALITY FACILITY/ HM FACILITY
		GHAD-SLOPE STABILITY**	
PARCEL I	HOA	HOA	OPEN SPACE (PRESERVED WETLANDS)
PARCEL J	HOA	HOA	LANDSCAPING
PARCEL K	GHAD	GHAD	RURAL RESIDENTIAL/AGRICULTURE, EVAE, SDE
PARCEL L	HOA	HOA	LANDSCAPING/PEDESTRIAN ACCESS (PUBLIC ACCESS ESMT)
PARCEL M	HOA	HOA	LANDSCAPING/PEDESTRIAN ACCESS (PUBLIC ACCESS ESMT)
PARCEL N	HOA	HOA	LANDSCAPING/POCKET PARK (PUBLIC ACCESS ESMT)
PARCEL O	CITY OF DUBLIN	CITY OF DUBLIN	NEIGHBORHOOD PARK (PUBLIC)
PARCEL P	TRUMARK	TRUMARK	SEMI-PUBLIC
PARCEL Q	GHAD	HOA-LANDSCAPE*	WATER QUALITY FACILITY/ OPEN SPACE
		GHAD-SLOPE STABILITY**	
PARCEL R	HOA	HOA	PRIVATE COMMON SPACE
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		GHAD-SLOPE STABILITY**	
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PARCEL SS	HOA	HOA	LANDSCAPING
PARCEL TT	GHAD	HOA-LANDSCAPE*	WATER QUALITY FACILITY
		GHAD-SLOPE STABILITY**	
PARCEL UU	HOA	HOA	LANDSCAPING
LOTS 1-473	TRUMARK	TRUMARK	SINGLE FAMILY DETACHED LOTS
LOTS 536-546	TRUMARK	TRUMARK	ATTACHED CONDOMINIUM PURPOSES

*HOA MAINTENANCE RESPONSIBILITY WILL BE FOR LANDSCAPE, IRRIGATION, AND GARBAGE REMOVAL.
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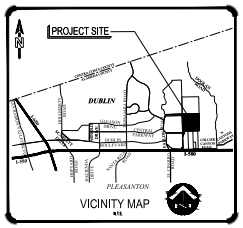

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EVAE	EMERGENCY VEHICLE ACCESS EASEMENT	SDE	STORM DRAIN EASEMENT
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EX	EXISTING	SSE	SANITARY SEWER EASEMENT
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FI	FIELD INLET	TC	TOP OF CURB
GB	GRADE BREAK	W	WATER LINE (DOMESTIC)
GHAD	GEOLOGIC HAZARD ABATEMENT DISTRICT	WLE	WATER LINE EASEMENT
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22. THE APPLICANT RESERVES THE OPTION TO PHASE THE MAPPING AND CONSTRUCTION OF THIS PROJECT IN VARIOUS COMBINATIONS OF FINAL MAPS/TRACT DEVELOPMENT AGREEMENTS AND/OR IMPROVEMENT PLANS/IMPROVEMENT AGREEMENTS, ALL AS APPROVED BY THE DIRECTOR OF PUBLIC WORKS.
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24. PROJECT INTENDS TO ANNEX INTO THE EXISTING FALLON VILLAGE GEOLOGICAL HAZARD ABATEMENT DISTRICT. SEE TABLE ABOVE FOR PARCELS PROPOSED TO BE GHAD OWNED AND MAINTAINED. GHAD MAINTENANCE TO BE FUNDED BY GHAD ASSESSMENTS ON ANNEXED PROPERTIES.

PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467
No. C60467 REGISTERED PROFESSIONAL ENGINEER MARK D. McCLELLAN CIVIL STATE OF CALIFORNIA

NO.	REVISION	DATE

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

MacKay & Somps
CIVIL ENGINEERS · LAND PLANNERS · SURVEYORS
5142 Franklin Dr, Suite B, Pleasanton, CA 94588 (925) 225-0690
www.mackaysomps.com

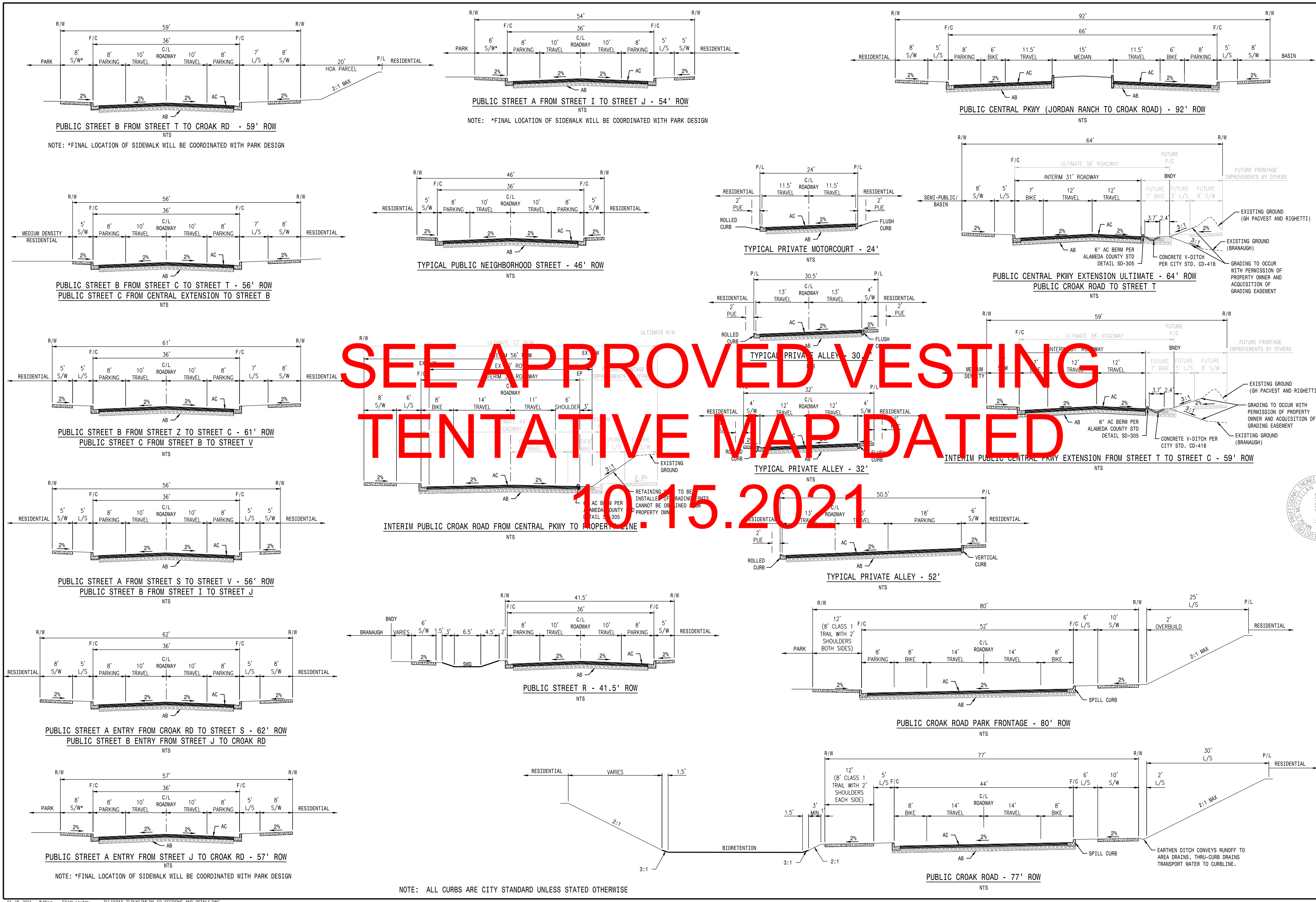
EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
COVER SHEET
DUBLIN CALIFORNIA

PROJECT NO.
19343.000

SHT
1
OF 31

09-29-2021 3:25pm Elliott Levitsky P:\19343-TV\PLN\TM\TM-01 COVER SHEET.DWG

FIGURE 2 - Sheet 1 of Vesting Tentative Map


PUBLIC STREET B FROM STREET T TO CROAK RD - 59' ROW
NOTE: *FINAL LOCATION OF SIDEWALK WILL BE COORDINATED WITH PARK DESIGN
PUBLIC STREET A FROM STREET I TO STREET J - 54' ROW
NOTE: *FINAL LOCATION OF SIDEWALK WILL BE COORDINATED WITH PARK DESIGN
PUBLIC CENTRAL PKWY (JORDAN RANCH TO CROAK ROAD) - 92' ROW
PUBLIC STREET B FROM STREET C TO STREET T - 56' ROW
PUBLIC STREET C FROM CENTRAL EXTENSION TO STREET B
TYPICAL PUBLIC NEIGHBORHOOD STREET - 46' ROW
TYPICAL PRIVATE MOTORCOURT - 24'
PUBLIC CENTRAL PKWY EXTENSION ULTIMATE - 64' ROW
PUBLIC CROAK ROAD TO STREET T
PUBLIC STREET B FROM STREET Z TO STREET C - 61' ROW
PUBLIC STREET C FROM STREET B TO STREET V
INTERIM PUBLIC CROAK ROAD FROM CENTRAL PKWY TO PROPERTY LINE
TYPICAL PRIVATE ALLEY - 30.5'
TYPICAL PRIVATE ALLEY - 32'
INTERIM PUBLIC CENTRAL PKWY EXTENSION FROM STREET T TO STREET C - 59' ROW
PUBLIC STREET A FROM STREET S TO STREET V - 56' ROW
PUBLIC STREET B FROM STREET I TO STREET J
TYPICAL PRIVATE ALLEY - 52'
PUBLIC STREET R - 41.5' ROW
PUBLIC CROAK ROAD PARK FRONTAGE - 80' ROW
PUBLIC STREET A ENTRY FROM CROAK RD TO STREET S - 62' ROW
PUBLIC STREET B ENTRY FROM STREET J TO CROAK RD
PUBLIC STREET A ENTRY FROM STREET J TO CROAK RD - 57' ROW
NOTE: *FINAL LOCATION OF SIDEWALK WILL BE COORDINATED WITH PARK DESIGN
PUBLIC CROAK ROAD - 77' ROW
NOTE: ALL CURBS ARE CITY STANDARD UNLESS STATED OTHERWISE
SEE APPROVED VESTING
TENTATIVE MAP DATED
10.15.2021

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

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

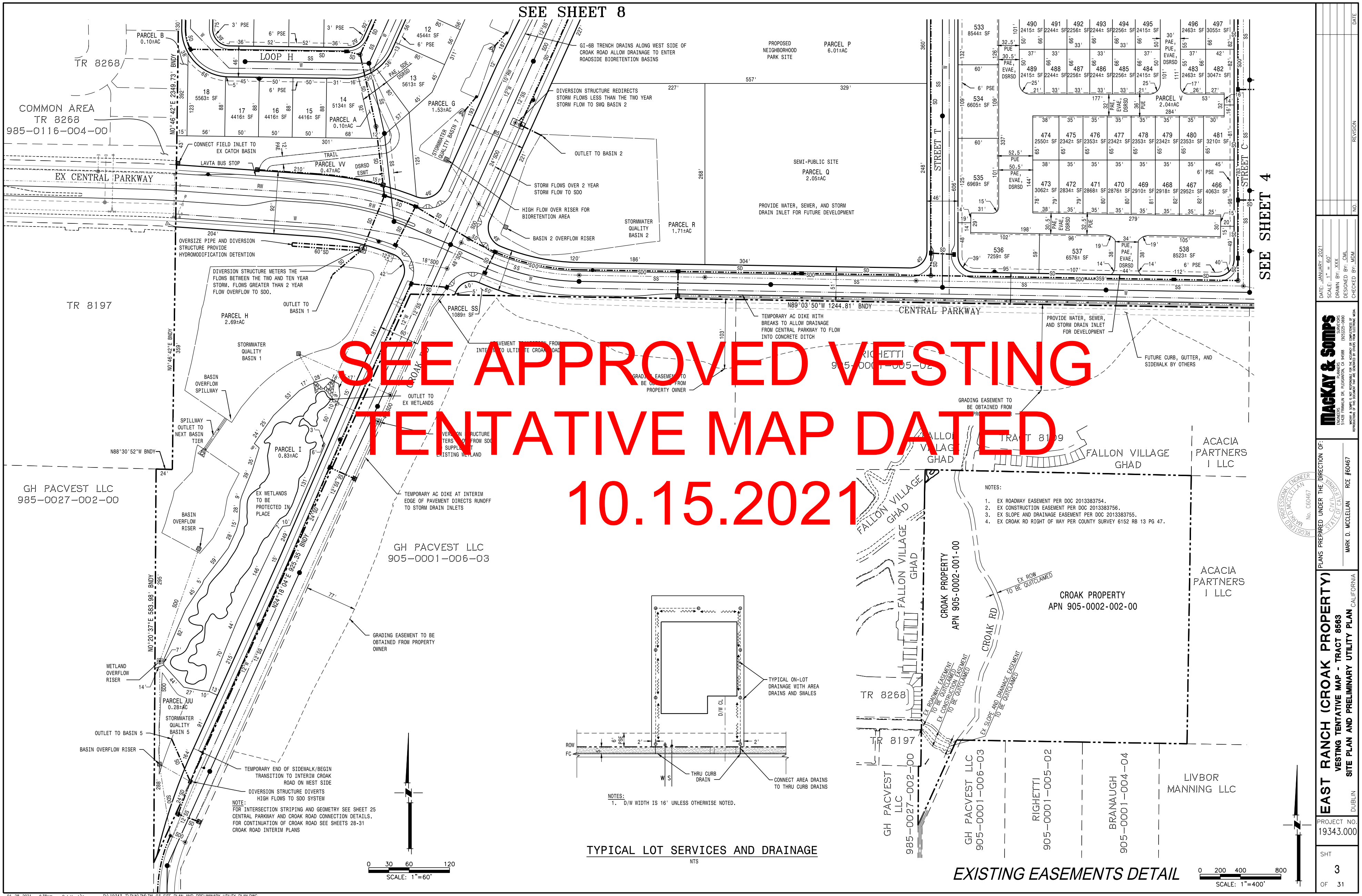
MACKAY & SOMPS

DATE: JANUARY 2021
SCALE: N.T.S.
DRAWN BY: EAJ
DESIGNED BY: CML
CHECKED BY: MDM

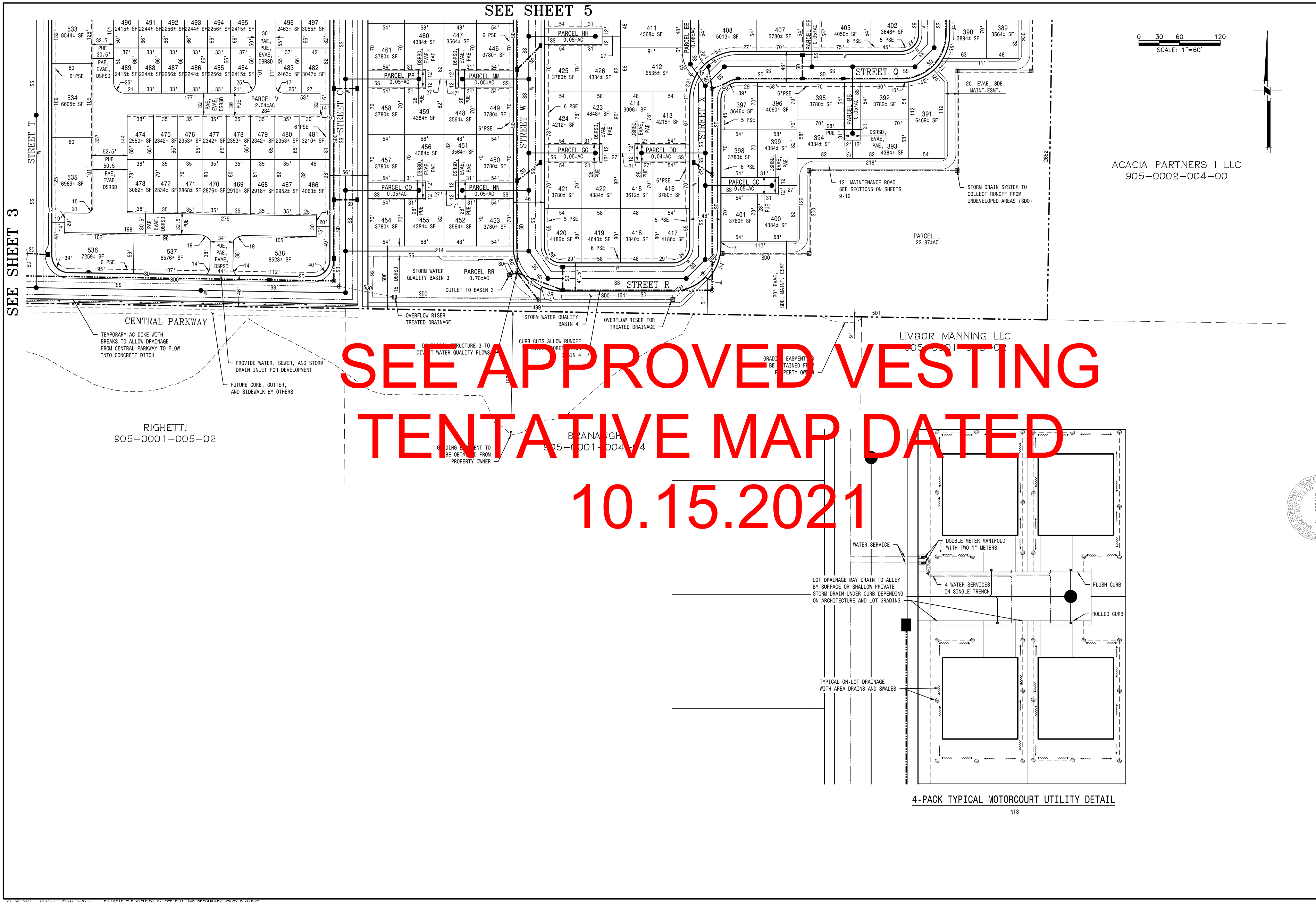
PROJECT NO. 19343.000

SHT 2 OF 31

01-15-2021 8:46am Elliott Levitsky P:\19343-T\PLN\TM\TM-02 SECTIONS AND DETAILS.DWG


SEE APPROVED VESTING
TENTATIVE MAP DATED
10.15.2021
SEE SHEET 8
SEE SHEET 4
COMMON AREA
TR 8268
985-0116-004-00
EX CENTRAL PARKWAY
TR 8197
GH PACVEST LLC
985-0027-002-00
GH PACVEST LLC
905-0001-006-03
CENTRAL PARKWAY
N89°03'50"W 1244.81' BNDY
STREET T
STREET C
LOOP H
PARCEL A
PARCEL B
PARCEL G
PARCEL H
PARCEL I
PARCEL P
PARCEL Q
PARCEL R
PARCEL V
PARCEL SS
PARCEL UU
PARCEL VV
PROPOSED NEIGHBORHOOD PARK SITE
SEMI-PUBLIC SITE
PROVIDE WATER, SEWER, AND STORM DRAIN INLET FOR FUTURE DEVELOPMENT
STORMWATER QUALITY BASIN 1
STORMWATER QUALITY BASIN 2
STORMWATER QUALITY BASIN 5
EX WETLANDS TO BE PROTECTED IN PLACE
NOTE:
FOR INTERSECTION STRIPING AND GEOMETRY SEE SHEET 25 CENTRAL PARKWAY AND CROAK ROAD CONNECTION DETAILS.
FOR CONTINUATION OF CROAK ROAD SEE SHEETS 28-31 CROAK ROAD INTERIM PLANS
SCALE: 1"=60'
TYPICAL LOT SERVICES AND DRAINAGE
NTS
NOTES:
1. D/W WIDTH IS 16' UNLESS OTHERWISE NOTED.
EXISTING EASEMENTS DETAIL
SCALE: 1"=400'
NOTES:
1. EX ROADWAY EASEMENT PER DOC 2013383754.
2. EX CONSTRUCTION EASEMENT PER DOC 2013383756.
3. EX SLOPE AND DRAINAGE EASEMENT PER DOC 2013383755.
4. EX CROAK RD RIGHT OF WAY PER COUNTY SURVEY 6152 RB 13 PG 47.
CROAK PROPERTY
APN 905-0002-002-00
CROAK PROPERTY
APN 905-0002-001-00
ACACIA PARTNERS I LLC
FALLON VILLAGE GHAD
LIVBOR MANNING LLC
BRANAUGH
905-0001-004-04
RIGHETTI
905-0001-005-02
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
MacKay & Somps
PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467
DATE: JANUARY 2021
SCALE: 1" = 60'
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM
01-28-2021 4:38pm Colette L'Heureux P:\19343-T\PLN\TM\TM-03 SITE PLAN AND PRELIMINARY UTILITY PLAN.DWG

SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021


SEE SHEET 5
SEE SHEET 3
ACACIA PARTNERS I LLC
905-0002-004-00
LIVBOR MANNING LLC
RIGHETTI
905-0001-005-02
CENTRAL PARKWAY
STREET T
STREET C
STREET W
STREET X
STREET Q
STREET R
PARCEL L
22.87±AC
PARCEL V
2.04±AC
PARCEL RR
0.70±AC
SCALE: 1"=60'
STORM WATER QUALITY BASIN 3
STORM WATER QUALITY BASIN 4
OUTLET TO BASIN 3
OVERFLOW RISER TREATED DRAINAGE
OVERFLOW RISER FOR TREATED DRAINAGE
CURB CUTS ALLOW RUNOFF
12' MAINTENANCE ROAD SEE SECTIONS ON SHEETS 9-12
STORM DRAIN SYSTEM TO COLLECT RUNOFF FROM UNDEVELOPED AREAS (SDO)
20' EVAE, SDE, MAINT.ESMT.
TEMPORARY AC DIKE WITH BREAKS TO ALLOW DRAINAGE FROM CENTRAL PARKWAY TO FLOW INTO CONCRETE DITCH
PROVIDE WATER, SEWER, AND STORM DRAIN INLET FOR DEVELOPMENT
FUTURE CURB, GUTTER, AND SIDEWALK BY OTHERS
PROPERTY OWNER
WATER SERVICE
DOUBLE METER MANIFOLD WITH TWO 1" METERS
4 WATER SERVICES IN SINGLE TRENCH
FLUSH CURB
ROLLED CURB
LOT DRAINAGE MAY DRAIN TO ALLEY BY SURFACE OR SHALLOW PRIVATE STORM DRAIN UNDER CURB DEPENDING ON ARCHITECTURE AND LOT GRADING
TYPICAL ON-LOT DRAINAGE WITH AREA DRAINS AND SWALES
4-PACK TYPICAL MOTORCOURT UTILITY DETAIL
NTS

EAST RANCH (CROAK PROPERTY)

VESTING TENTATIVE MAP - TRACT 8563

SITE PLAN AND PRELIMINARY UTILITY PLAN

DUBLIN CALIFORNIA

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

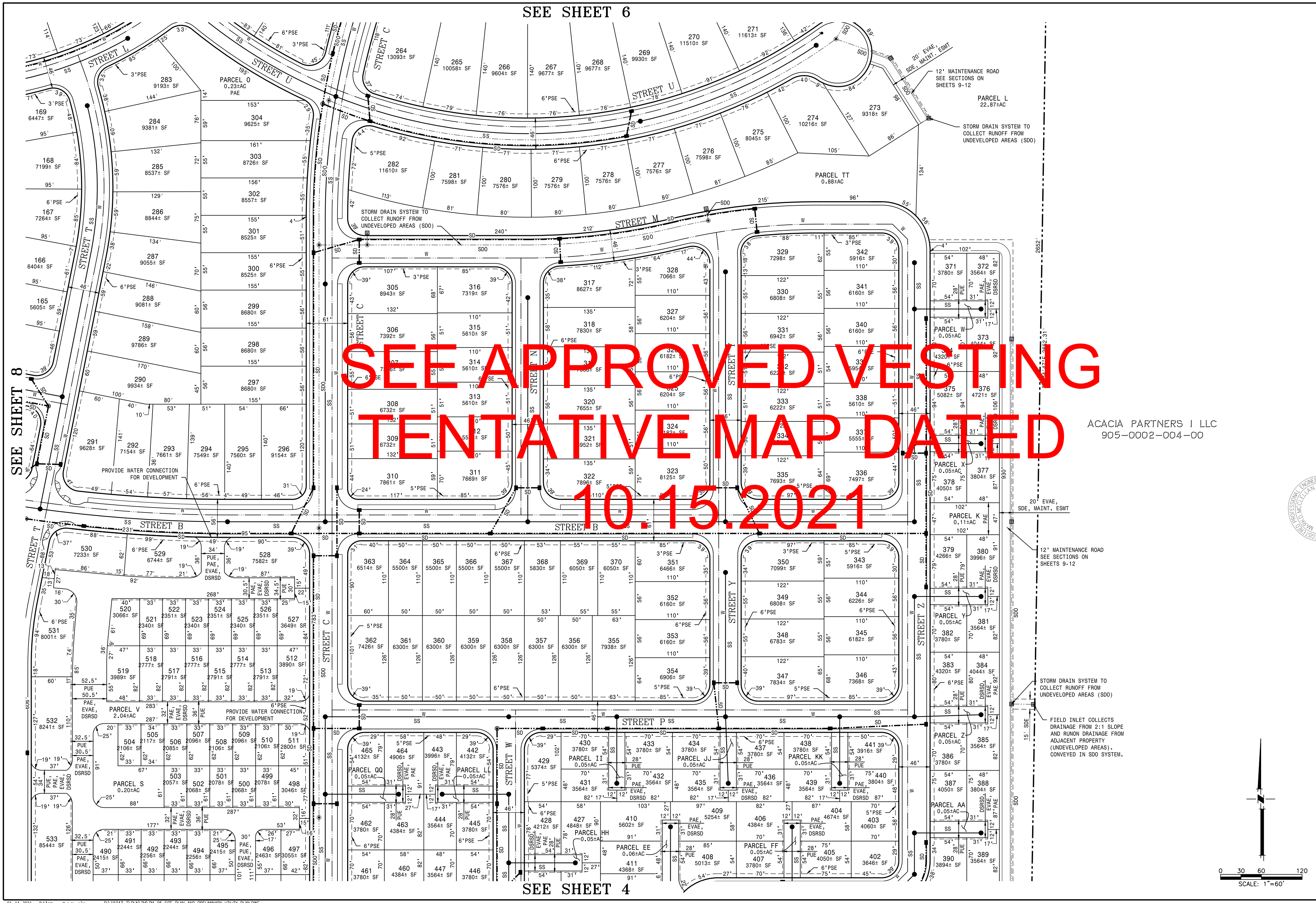
MacKay & Somps — ENGINEERS PLANNERS SURVEYORS

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

PROJECT NO. 19343.000

SHT 4 OF 31

01-28-2021 10:42am Elliott Levitsky P:\19343-T\PLN\TM\TM-04 SITE PLAN AND PRELIMINARY UTILITY PLAN.DWG


SEE SHEET 6
SEE SHEET 8
SEE SHEET 4
SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021
ACACIA PARTNERS I LLC
905-0002-004-00
STREET B
STREET C
STREET M
STREET N
STREET P
STREET T
STREET U
STREET W
STREET Y
STREET Z
STREET L
PARCEL L 22.87±AC
PARCEL TT 0.88±AC
PARCEL O 0.23±AC PAE
PARCEL V 2.04±AC
PARCEL S 0.20±AC
12' MAINTENANCE ROAD SEE SECTIONS ON SHEETS 9-12
STORM DRAIN SYSTEM TO COLLECT RUNOFF FROM UNDEVELOPED AREAS (SDO)
FIELD INLET COLLECTS DRAINAGE FROM 2:1 SLOPE AND RUNON DRAINAGE FROM ADJACENT PROPERTY (UNDEVELOPED AREAS). CONVEYED IN SDO SYSTEM.
20' EVAE, SDE, MAINT. ESMT
PROVIDE WATER CONNECTION FOR DEVELOPMENT
SCALE: 1"=60'

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

MACKAY & SOMPS — ENGINEERS, PLANNERS, SURVEYORS

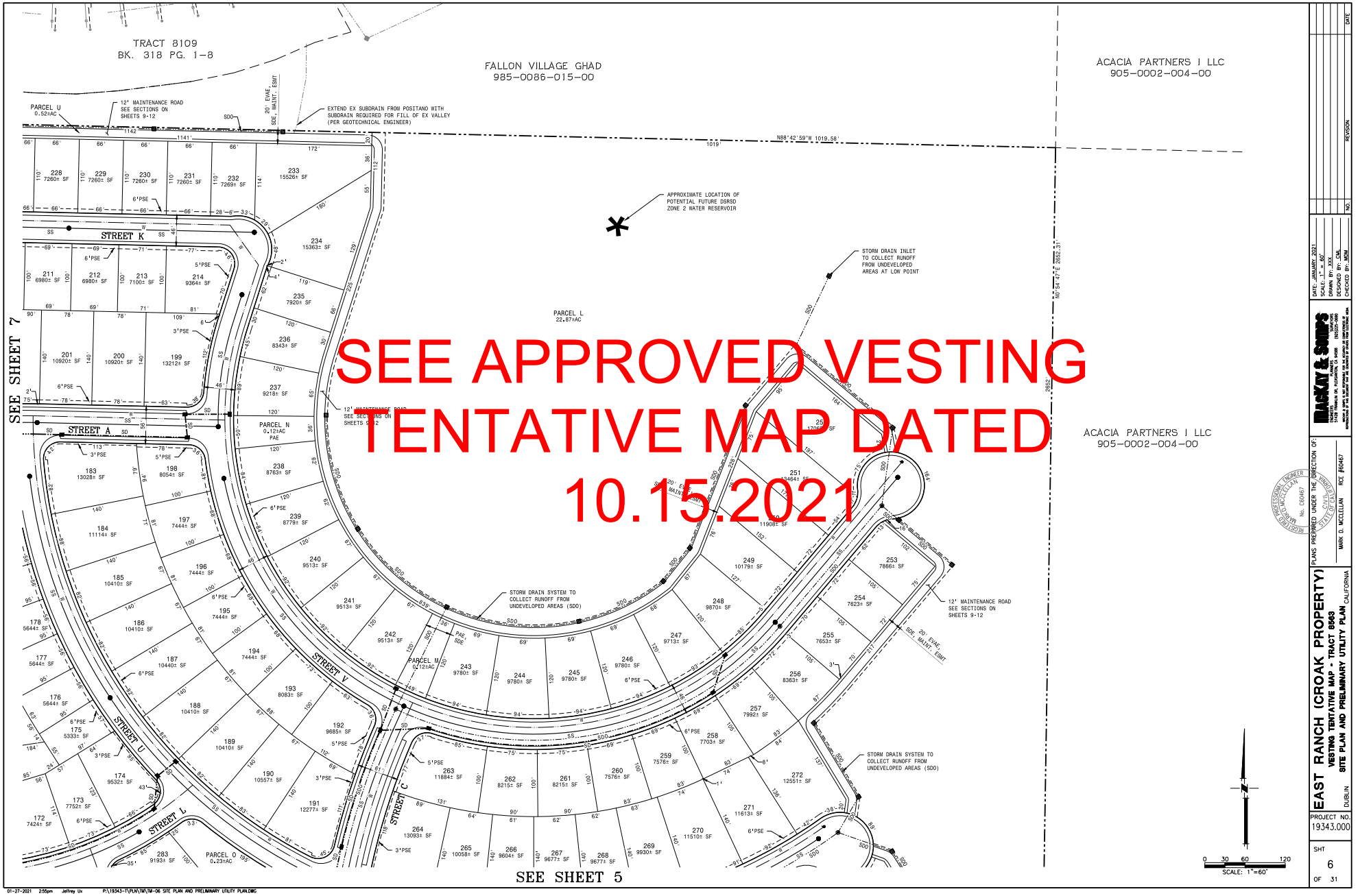
DATE: JANUARY 2021
SCALE: 1" = 60'
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM

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

PROJECT NO. 19343.000

SHT 5 OF 31

01-14-2021 9:13am Colette L'Heureux P:\19343-T\PLN\TM\TM-05 SITE PLAN AND PRELIMINARY UTILITY PLAN.DWG



SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021

SCALE: 1"=60'

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

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

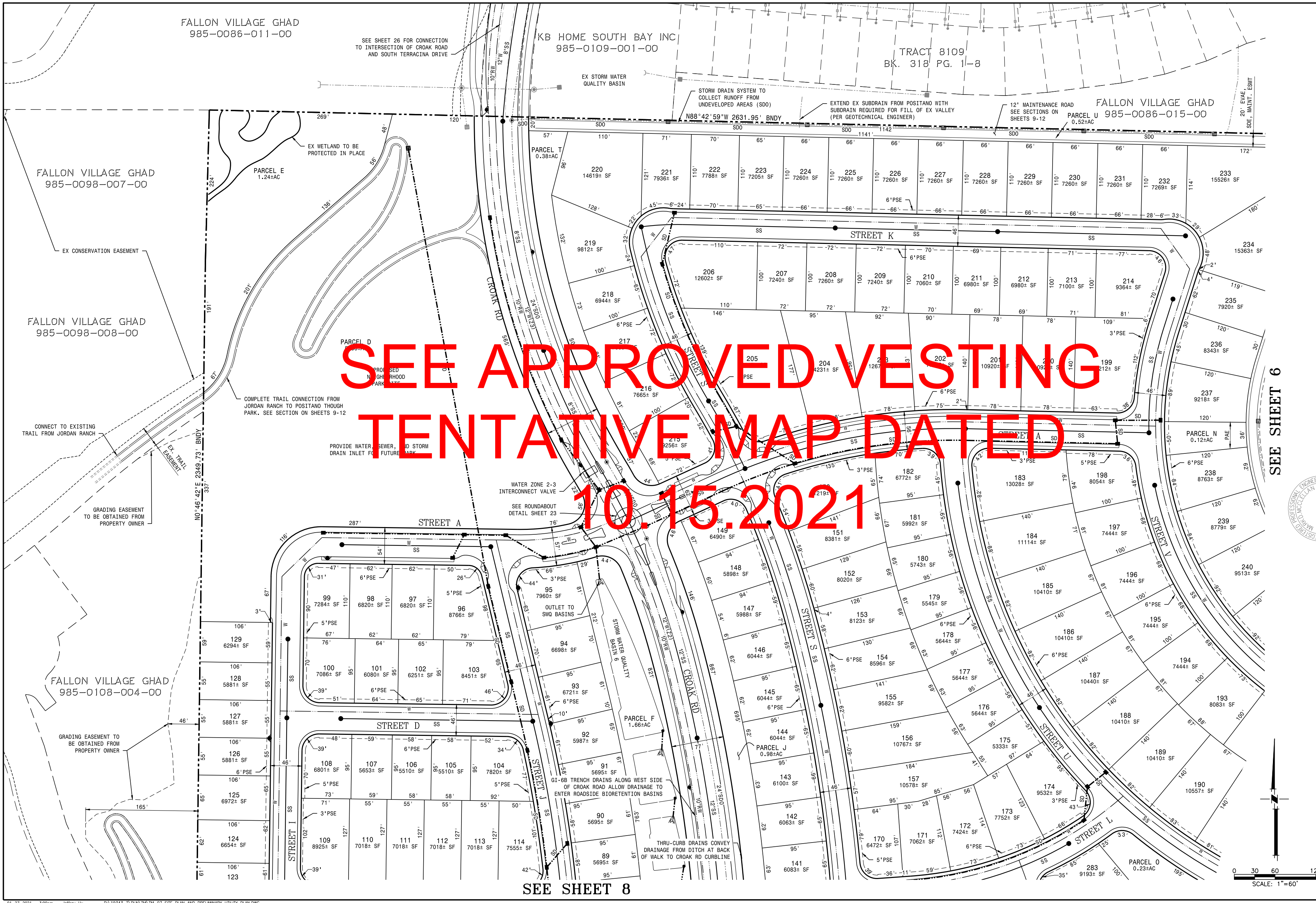
DATE | REVISION | NO.

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

PROJECT NO.
19343.000

SHT
6
OF 31

01-27-2021 2:55pm Jeffrey Ux P:\19343-TVPLN\TM\TM-06 SITE PLAN AND PRELIMINARY UTILITY PLAN.DWG


SEE APPROVED VESTING
TENTATIVE MAP DATED
10.15.2021
FALLON VILLAGE GHAD
985-0086-011-00
KB HOME SOUTH BAY INC
985-0109-001-00
TRACT 8109
BK. 318 PG. 1-8
FALLON VILLAGE GHAD
985-0086-015-00
FALLON VILLAGE GHAD
985-0098-007-00
FALLON VILLAGE GHAD
985-0098-008-00
FALLON VILLAGE GHAD
985-0108-004-00
SEE SHEET 26 FOR CONNECTION TO INTERSECTION OF CROAK ROAD AND SOUTH TERRACINA DRIVE
EX STORM WATER QUALITY BASIN
STORM DRAIN SYSTEM TO COLLECT RUNOFF FROM UNDEVELOPED AREAS (SDO)
EXTEND EX SUBDRAIN FROM POSITANO WITH SUBDRAIN REQUIRED FOR FILL OF EX VALLEY (PER GEOTECHNICAL ENGINEER)
12' MAINTENANCE ROAD SEE SECTIONS ON SHEETS 9-12
N88°42'59"W 2631.95' BNDY
EX WETLAND TO BE PROTECTED IN PLACE
EX CONSERVATION EASEMENT
COMPLETE TRAIL CONNECTION FROM JORDAN RANCH TO POSITANO THOUGH PARK. SEE SECTION ON SHEETS 9-12
CONNECT TO EXISTING TRAIL FROM JORDAN RANCH
EX. TRAIL EASEMENT
GRADING EASEMENT TO BE OBTAINED FROM PROPERTY OWNER
N0°46'42"E 2349.73' BNDY
WATER ZONE 2-3 INTERCONNECT VALVE
SEE ROUNDABOUT DETAIL SHEET 23
OUTLET TO SWQ BASINS
STORM WATER QUALITY BASIN 6
GI-6B TRENCH DRAINS ALONG WEST SIDE OF CROAK ROAD ALLOW DRAINAGE TO ENTER ROADSIDE BIORETENTION BASINS
THRU-CURB DRAINS CONVEY DRAINAGE FROM DITCH AT BACK OF WALK TO CROAK RD CURBLINE
CROAK RD
STREET A
STREET D
STREET I
STREET J
STREET K
STREET L
STREET S
STREET U
STREET V
PARCEL D
PARCEL E 1.24±AC
PARCEL F 1.66±AC
PARCEL J 0.98±AC
PARCEL N 0.12±AC
PARCEL O 0.23±AC
PARCEL T 0.38±AC
PARCEL U 0.52±AC
SEE SHEET 6
SEE SHEET 8
SCALE: 1"=60'

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

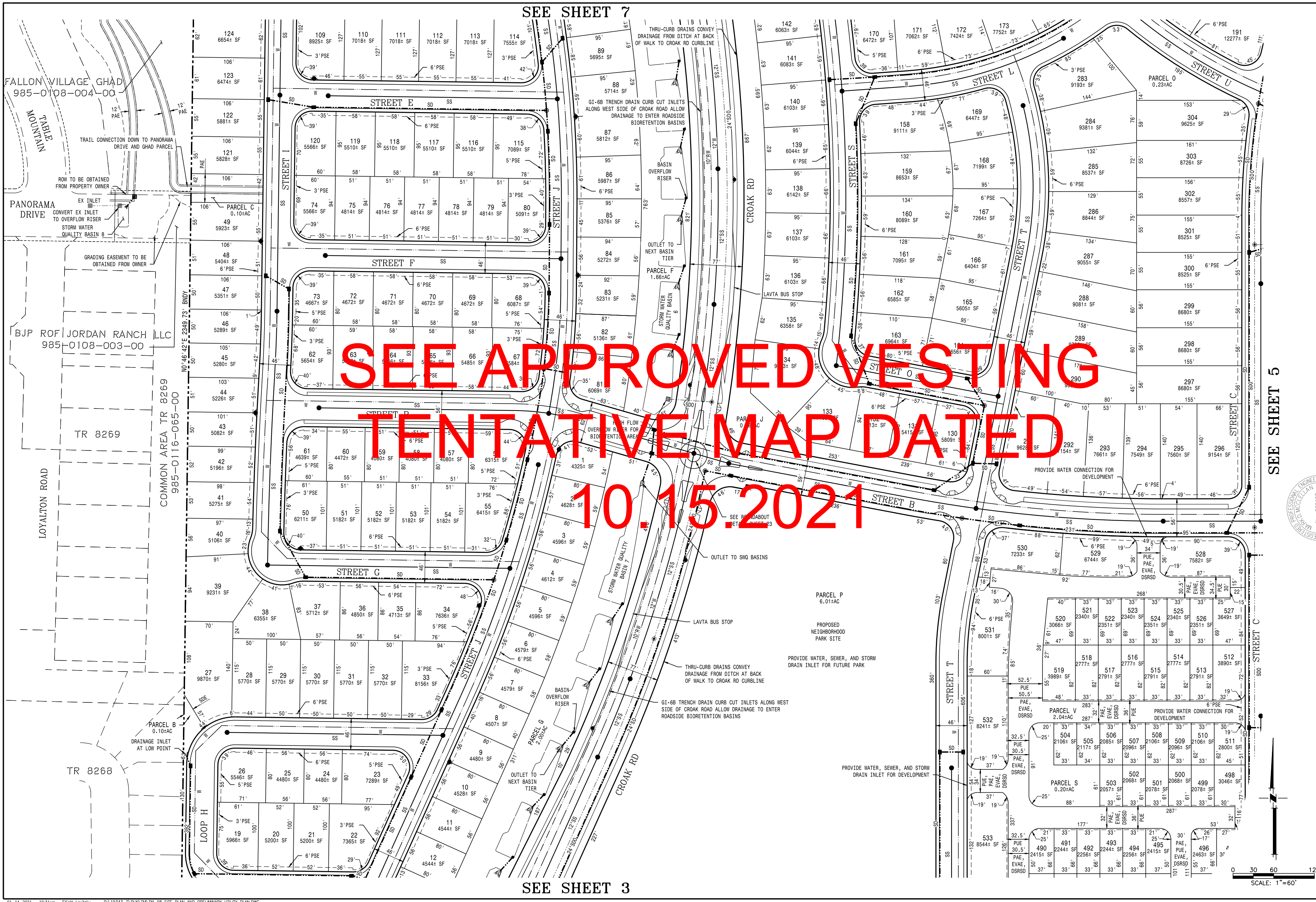
DATE: JANUARY 2021
SCALE: 1" = 60'
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM

NO.	REVISION	DATE

PROJECT NO. 19343.000

SHT 7 OF 31

01-27-2021 3:00pm Jeffrey Ux P:\19343-T\PLN\TM\TM-07 SITE PLAN AND PRELIMINARY UTILITY PLAN.DWG


SEE SHEET 7
SEE SHEET 5
SEE SHEET 3
STREET E
STREET F
STREET G
STREET I
STREET J
STREET L
STREET O
STREET S
STREET T
STREET U
STREET B
STREET C
LOOP H
CROAK RD
LOYALTON ROAD
FALLON VILLAGE GHAD
985-0108-004-00
TABLE MOUNTAIN
PANORAMA DRIVE
BJP ROF JORDAN RANCH LLC
985-0108-003-00
COMMON AREA TR 8269
985-0116-065-00
TR 8269
TR 8268
PARCEL P
6.01±AC
PROPOSED NEIGHBORHOOD PARK SITE
PROVIDE WATER, SEWER, AND STORM DRAIN INLET FOR FUTURE PARK
PROVIDE WATER, SEWER, AND STORM DRAIN INLET FOR DEVELOPMENT
PROVIDE WATER CONNECTION FOR DEVELOPMENT
THRU-CURB DRAINS CONVEY DRAINAGE FROM DITCH AT BACK OF WALK TO CROAK RD CURBLINE
GI-6B TRENCH DRAIN CURB CUT INLETS ALONG WEST SIDE OF CROAK ROAD ALLOW DRAINAGE TO ENTER ROADSIDE BIORETENTION BASINS
LAVTA BUS STOP
OUTLET TO SWQ BASINS
STORM WATER QUALITY BASIN 6
STORM WATER QUALITY BASIN 7
BASIN OVERFLOW RISER
OUTLET TO NEXT BASIN TIER
PARCEL F
1.66±AC
PARCEL G
2.00±AC
PARCEL C
0.10±AC
PARCEL B
0.10±AC
DRAINAGE INLET AT LOW POINT
PARCEL O
0.23±AC
PARCEL V
2.04±AC
PARCEL S
0.20±AC
TRAIL CONNECTION DOWN TO PANORAMA DRIVE AND GHAD PARCEL
ROW TO BE OBTAINED FROM PROPERTY OWNER
EX INLET
CONVERT EX INLET TO OVERFLOW RISER
STORM WATER QUALITY BASIN 8
GRADING EASEMENT TO BE OBTAINED FROM OWNER
N0°46'42"E 2349.73' BNDY
SCALE: 1"=60'

SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021

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

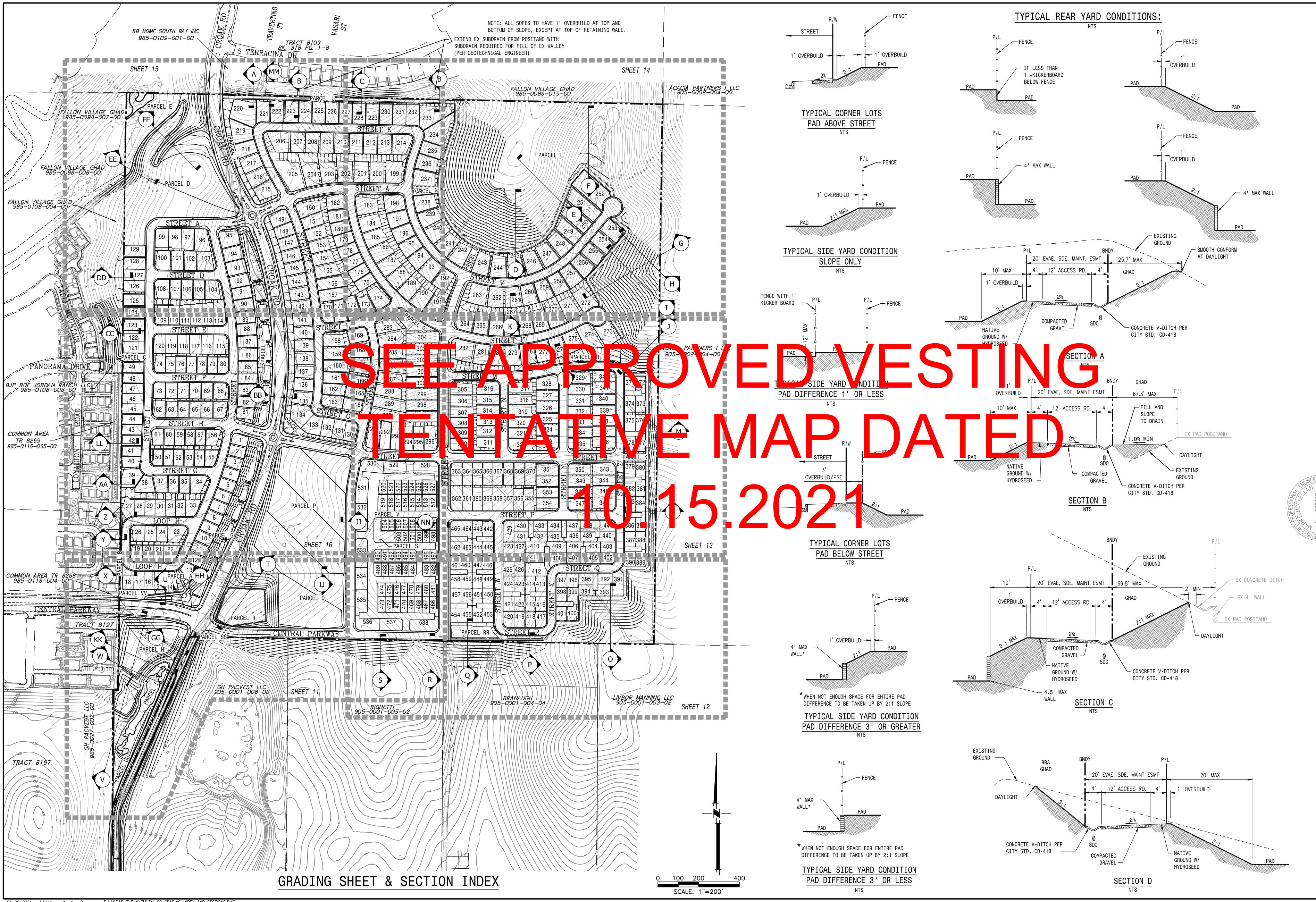
DATE: JANUARY 2021
SCALE: 1" = 60'
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM

NO.	REVISION	DATE

PROJECT NO. 19343.000

SHT 8 OF 31

01-14-2021 10:31am Elliott Levitsky P:\19343-T\PLN\TM\TM-08 SITE PLAN AND PRELIMINARY UTILITY PLAN.DWG


NOTE: ALL SOPES TO HAVE 1' OVERBUILD AT TOP AND BOTTOM OF SLOPE, EXCEPT AT TOP OF RETAINING WALL.
EXTEND EX SUBDRAIN FROM POSITANO WITH SUBDRAIN REQUIRED FOR FILL OF EX VALLEY (PER GEOTECHNICAL ENGINEER)
KB HOME SOUTH BAY INC 985-0109-001-00
TRACT 8109 BK. 318 PG. 1-8
FALLON VILLAGE GHAD 985-0086-015-00
ACACIA PARTNERS I LLC 905-0002-004-00
SHEET 15
SHEET 14
SHEET 13
SHEET 16
SHEET 11
SHEET 12
CROAK RD
CENTRAL PARKWAY
PANORAMA DRIVE
TRACT 8197
GH PACVEST LLC 905-0001-006-03
RIGHETTI 905-0001-005-02
BRANAUGH 905-0001-004-04
LIVBOR MANNING LLC 905-0001-003-02
COMMON AREA TR 8269 985-0116-065-00
GRADING SHEET & SECTION INDEX
SCALE: 1"=200'
TYPICAL REAR YARD CONDITIONS:
TYPICAL CORNER LOTS PAD ABOVE STREET
TYPICAL SIDE YARD CONDITION SLOPE ONLY
TYPICAL SIDE YARD CONDITION PAD DIFFERENCE 1' OR LESS
TYPICAL CORNER LOTS PAD BELOW STREET
TYPICAL SIDE YARD CONDITION PAD DIFFERENCE 3' OR GREATER
TYPICAL SIDE YARD CONDITION PAD DIFFERENCE 3' OR LESS
* WHEN NOT ENOUGH SPACE FOR ENTIRE PAD DIFFERENCE TO BE TAKEN UP BY 2:1 SLOPE
SECTION A
SECTION B
SECTION C
SECTION D
CONCRETE V-DITCH PER CITY STD. CD-418
20' EVAE, SDE, MAINT. ESMT
12' ACCESS RD.
COMPACTED GRAVEL
NATIVE GROUND W/ HYDROSEED

SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021

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

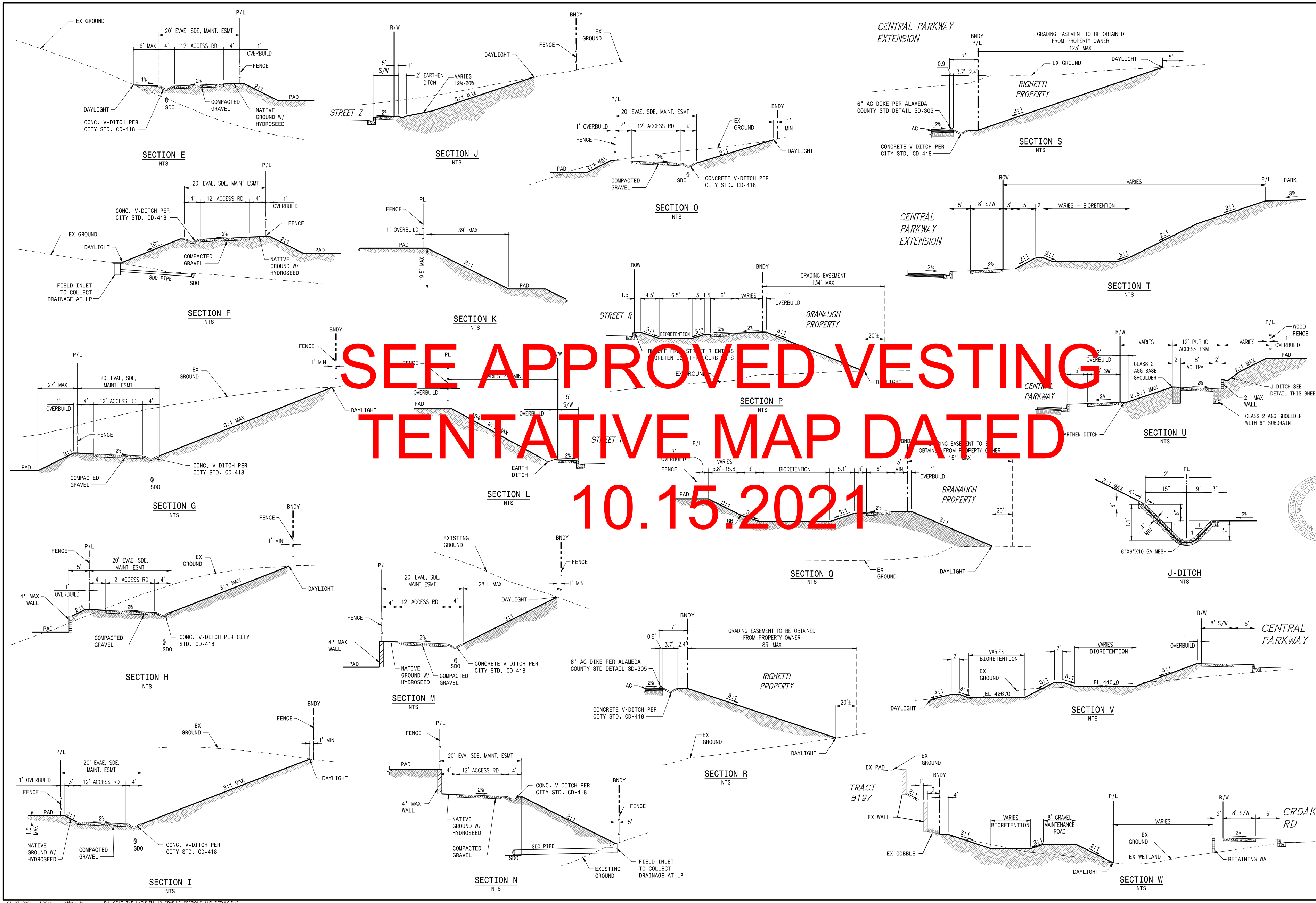
PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

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

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

PROJECT NO. 19343.000
SHT 9 OF 31

01-28-2021 4:51pm Colette L'Heureux P:\19343-T\PLN\TM\TM-09 GRADING INDEX AND SECTIONS.DWG



SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021

EAST RANCH (CROAK PROPERTY)

VESTING TENTATIVE MAP - TRACT 8563

GRADING SECTIONS AND DETAILS

DUBLIN CALIFORNIA

PLANS PREPARED UNDER THE DIRECTION OF:

MARK D. MCCLELLAN RCE #60467

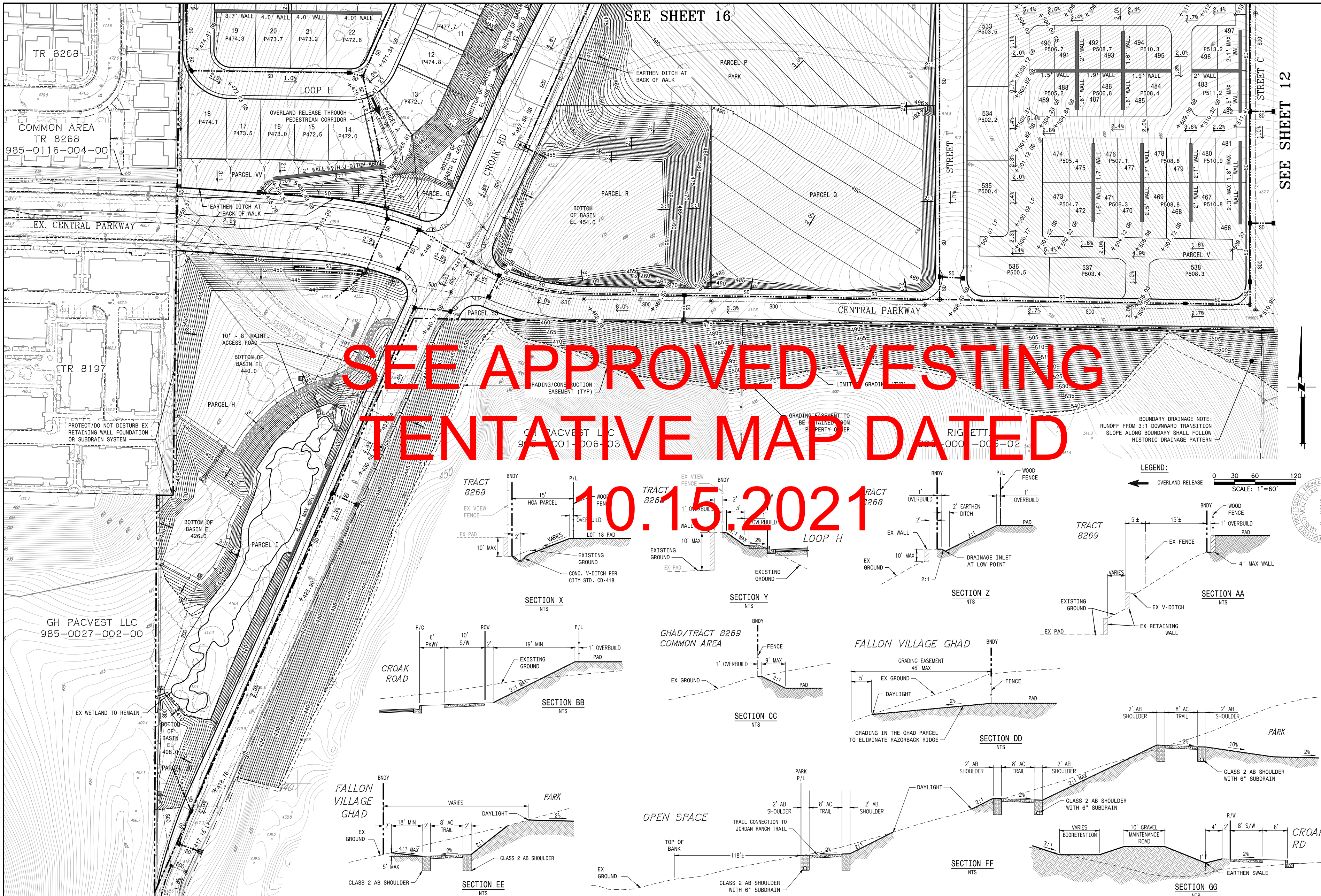
MACKAY & SOMPS — ENGINEERS PLANNERS SURVEYORS

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

PROJECT NO. 19343.000

SHT 10 OF 31

01-27-2021 3:26pm Jeffrey Ux P:\19343-T\PLN\TM\TM-10 GRADING SECTIONS AND DETAILS.DWG


SEE SHEET 16
SEE SHEET 12
CENTRAL PARKWAY
EX. CENTRAL PARKWAY
CROAK RD
LOOP H
STREET T
STREET C
PARCEL P
PARCEL Q
PARCEL R
PARCEL H
PARCEL I
TR 8268
COMMON AREA
TR 8268
985-0116-004-00
TR 8197
GH PACVEST LLC
985-0027-002-00
EX WETLAND TO REMAIN
BOUNDARY DRAINAGE NOTE:
RUNOFF FROM 3:1 DOWNWARD TRANSITION
SLOPE ALONG BOUNDARY SHALL FOLLOW
HISTORIC DRAINAGE PATTERN
LEGEND:
OVERLAND RELEASE
SCALE: 1"=60'
SECTION X
SECTION Y
SECTION Z
SECTION AA
SECTION BB
SECTION CC
SECTION DD
SECTION EE
SECTION FF
SECTION GG

SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021

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

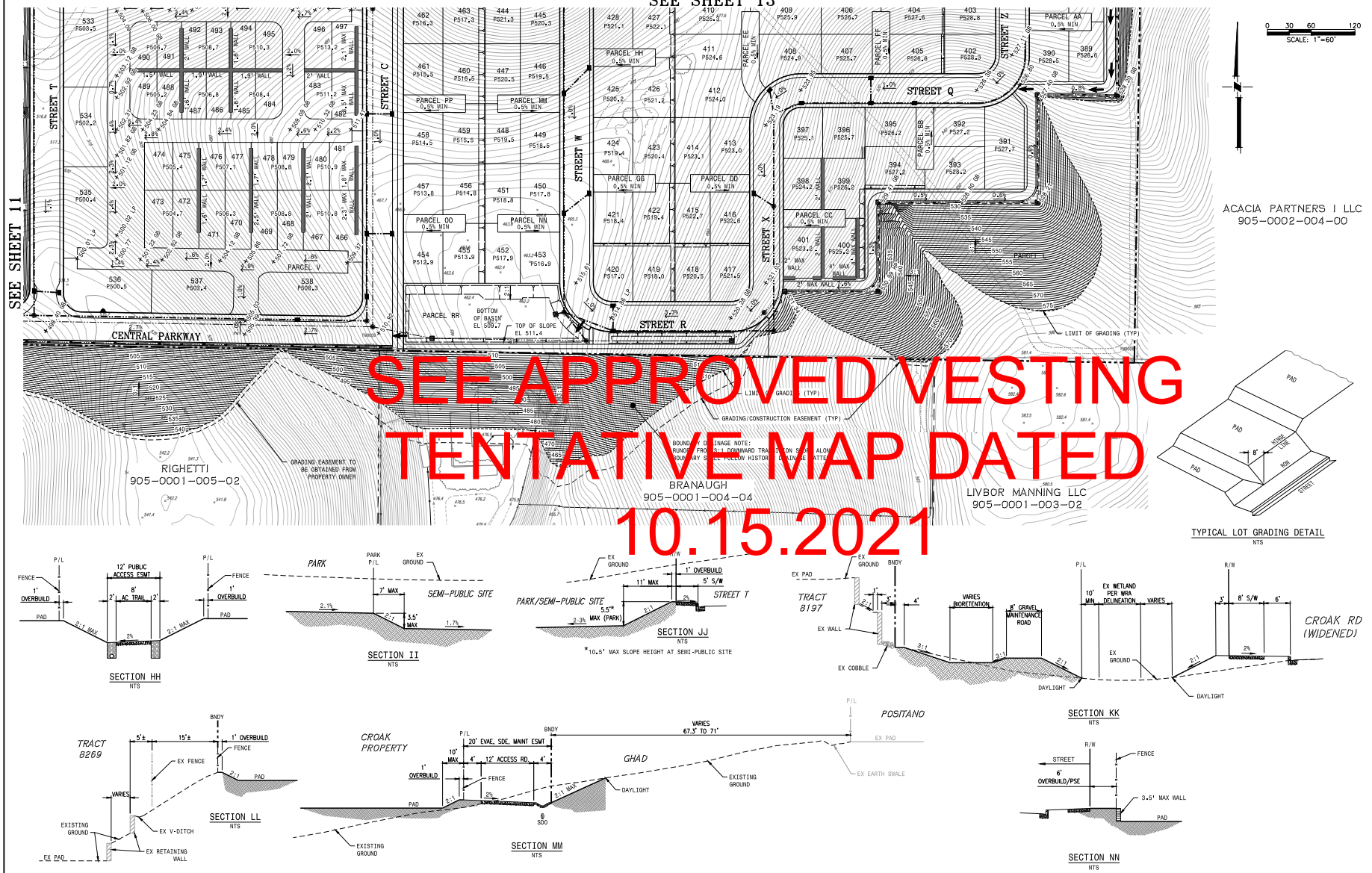
MACKAY & SOMPS

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

PROJECT NO. 19343.000

SHT 11 OF 31

01-28-2021 5:09pm Colette L'Heureux P:\19343-T\PLN\TM\TM-11 PRELIMINARY GRADING PLAN.DWG



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

PROJECT NO. 19343.000

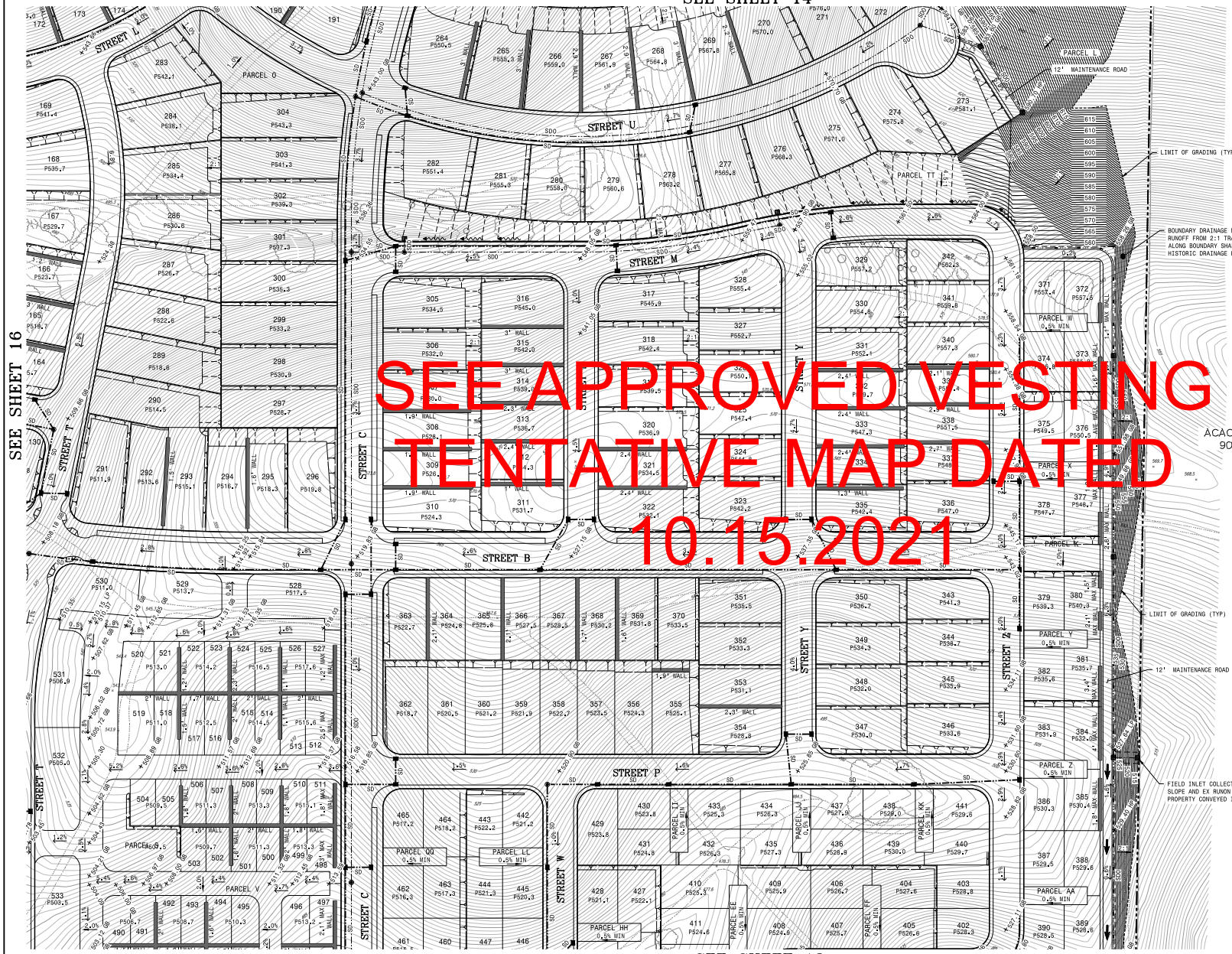
SHT 12 OF 31

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

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

DATE | NO. | REVISION

01-28-2021 11:04am Elliott Lewitzky P:\19343-T\PLN\TM\TM-12 PRELIMINARY GRADING PLAN.DWG



SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021

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

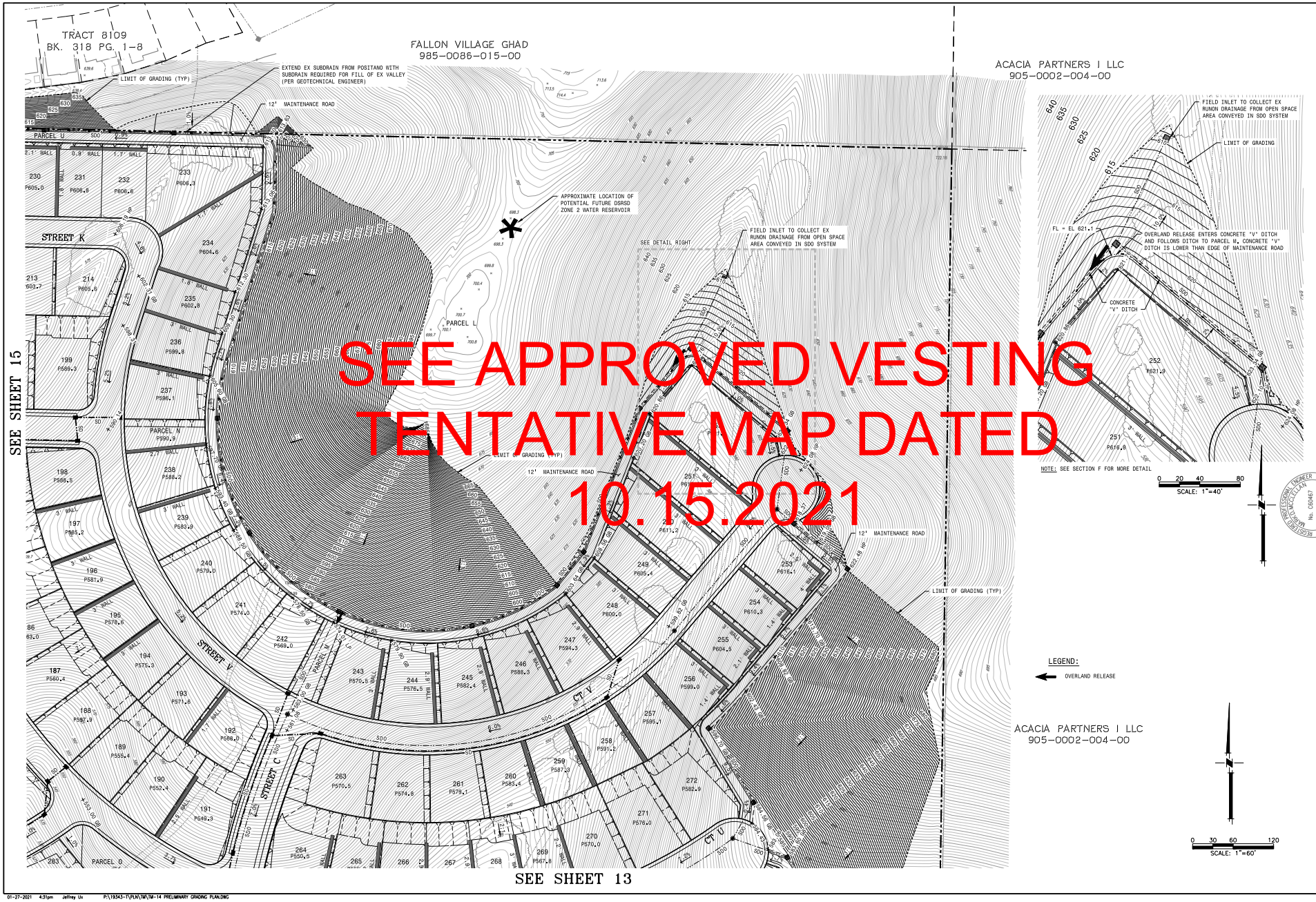
EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
PRELIMINARY GRADING PLAN
DUBLIN CALIFORNIA

PROJECT NO. 19343.000

SHT 13 OF 31

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

01-28-2021 11:24am Elliott Lewitsky P:\19343-TVLPLN\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

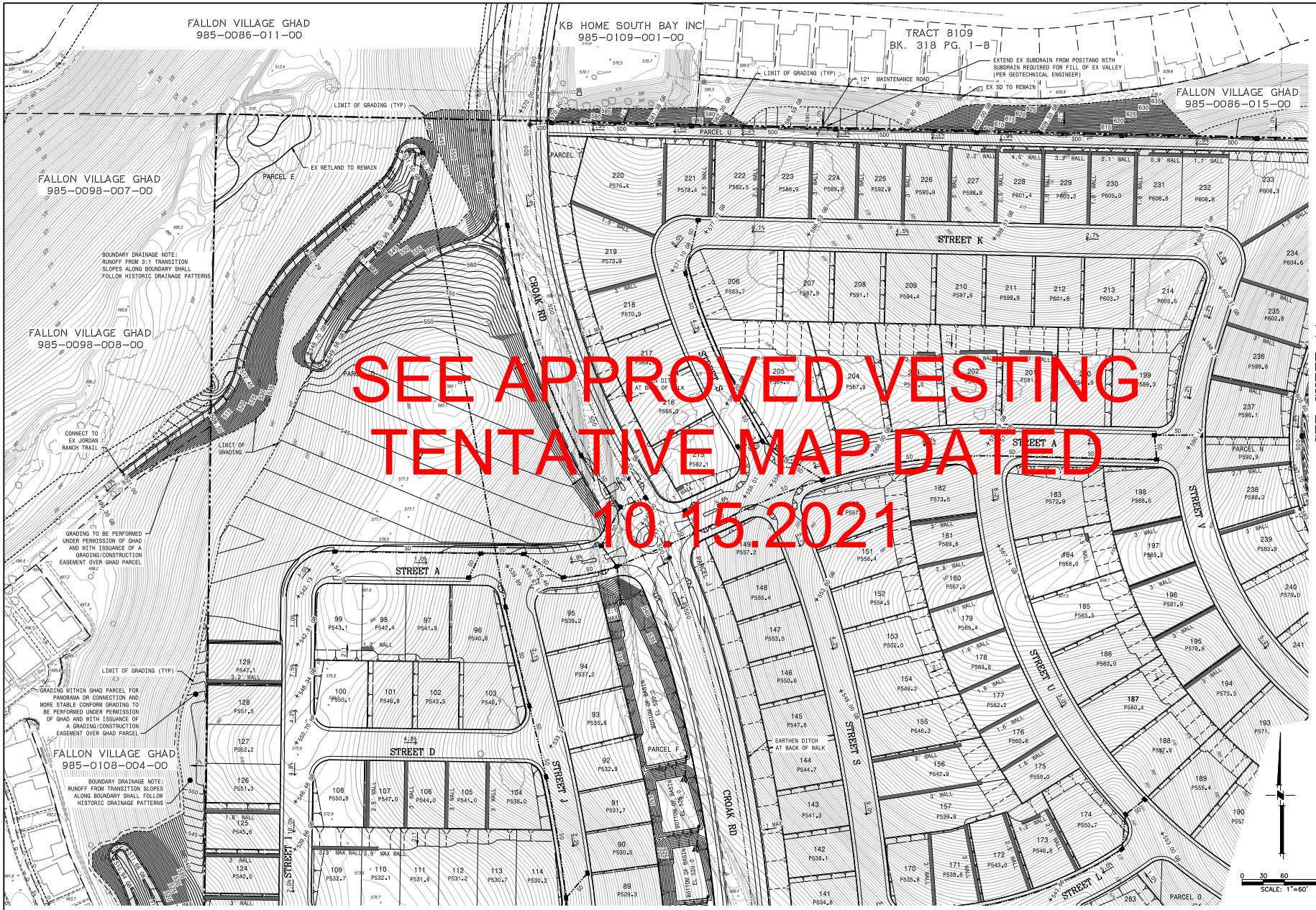
DATE: JANUARY 2021
SCALE: 1" = 60'
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM

DATE | REVISION | NO.

PROJECT NO. 19343.000

SHT 14 OF 31

01-27-2021 4:31pm Jeffrey Ux P:\19343-TV\PLN\TM\TM-14 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
No. C60467 REGISTERED PROFESSIONAL ENGINEER MARK D. MCCLELLAN CIVIL STATE OF CALIFORNIA

DACKAY & SOMPS
CIVIL ENGINEERS • LAND PLANNERS • SURVEYORS
3478 BUSKIRK AVE, PLEASANT HILL, CA 94523 (925)225-0690

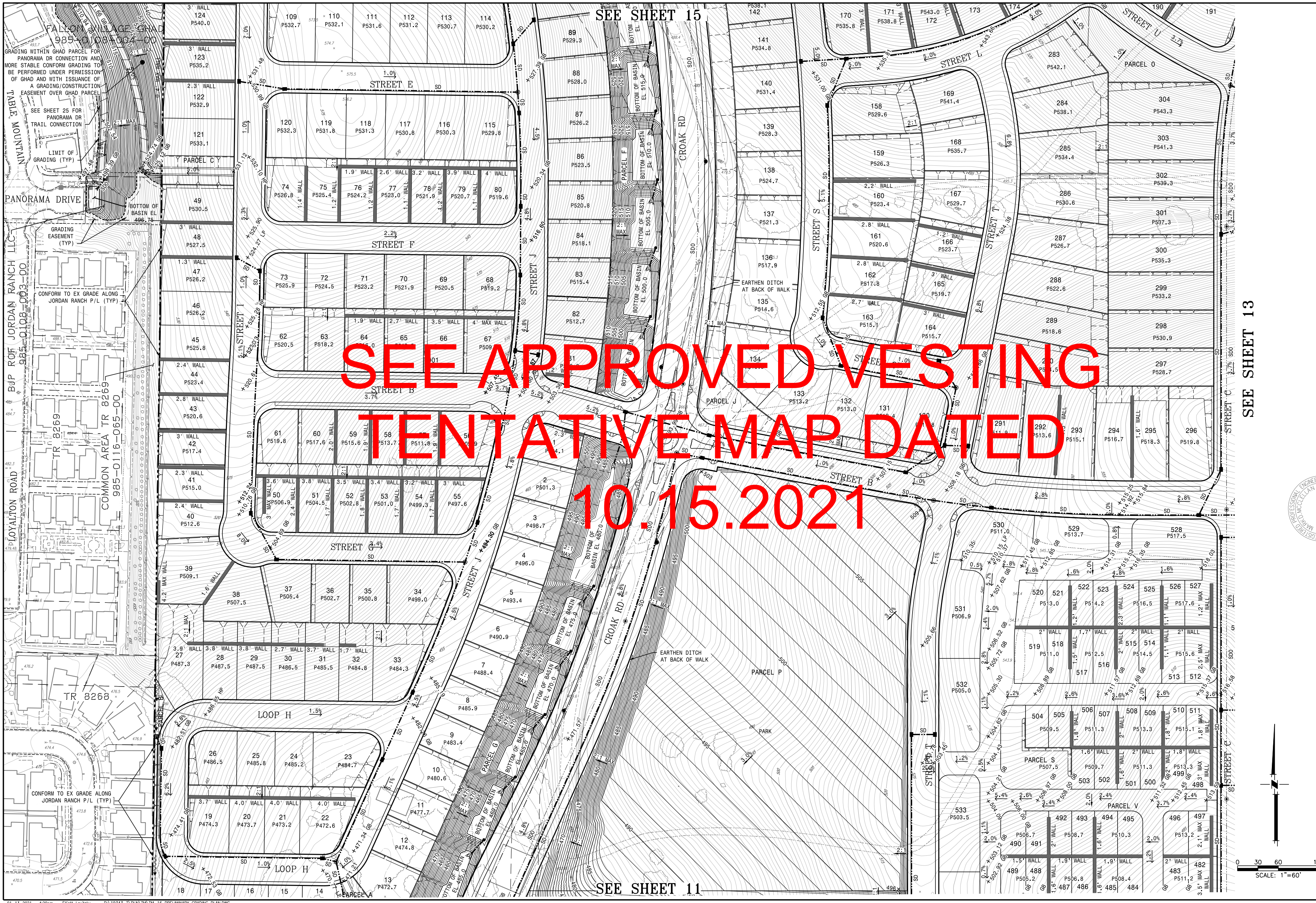
DATE: JANUARY, 2021
SCALE: 1" = 60'
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM

NO. | REVISION | DATE

PROJECT NO.
19343.000

SHT
15
OF 31

01-27-2021 4:49pm Jeffrey Ux P:\19343-TV\PLN\TM\TM-15 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

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

NO.	REVISION	DATE

PROJECT NO. 19343.000

SHT 16 OF 31

01-13-2021 4:20pm 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:

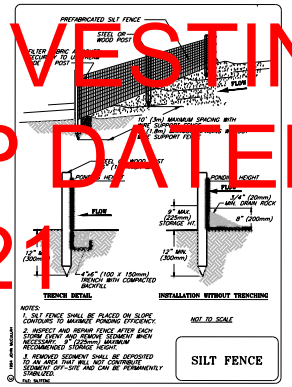
SEED VARIETY	LBS. PER ACRE
REGREEN	36
ZORRO	6
BLANDO	15
ROSE CLOVER	8
CAL POPPY	4
BLUE LUPINE	6
TOTAL	75

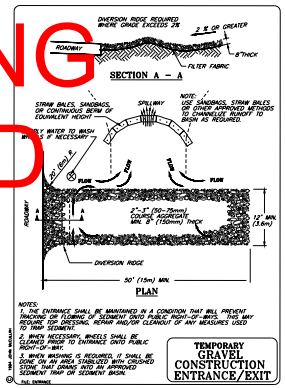
THE EROSION CONTROL MATERIALS SHALL BE MIXED AND APPLIED IN APPROXIMATELY THE FOLLOWING PROPORTIONS:

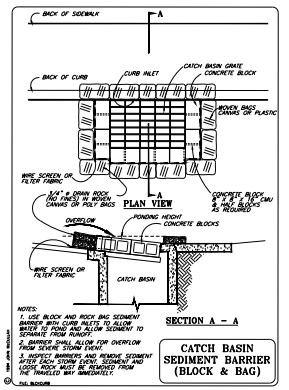
MATERIAL	LBS/AC. (SLOPE MEASURE.)
SEED	75 LBS
WOOD FIBER MULCH	2,000 LBS
R BINDER	60 LBS
FERTILIZER (20-20-10)	400 LBS
WATER	AS NEEDED FOR APPLICATION

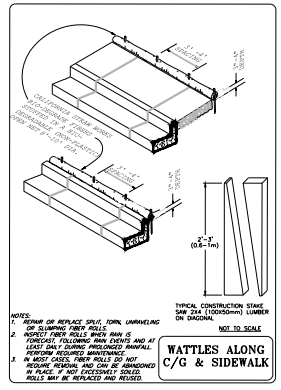
NOTES:

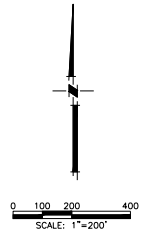
1. EROSION CONTROL PLAN IS BASED OFF OF PRELIMINARY GRADING AND IS SUBJECT TO CHANGE DURING FINAL DESIGN.
2. FIELD CONDITIONS MAY VARY AND ALTERNATIVE BMP's MAY BE REQUIRED. THIS PLAN SHALL BE MODIFIED BY THE CONTRACTOR/EROSION CONTROL SPECIALIST (QUALIFIED SWPPP DEVELOPER OR PRACTITIONER) TO ACCOUNT 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.











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

DATE: JANUARY 2021
SCALE:
DRAWN BY: ---
DESIGNED BY: CML
CHECKED BY: MDM

BKF Engineers
4670 Willow Road, Suite 250
Pleasanton, CA 94588
(925) 396-7700
www.bkf.com

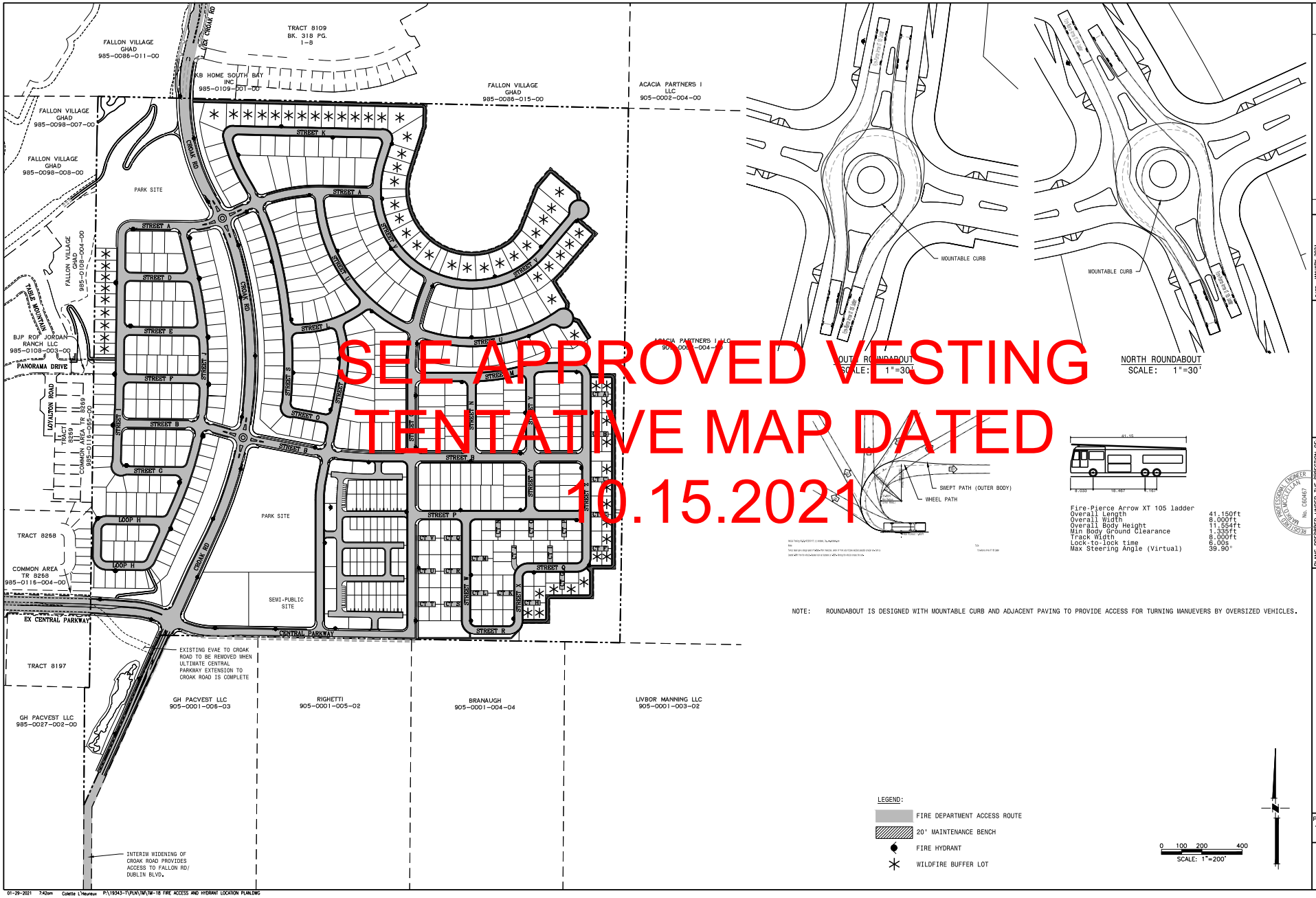
NO.	REVISION	DATE

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
PRELIMINARY EROSION CONTROL PLAN
DUBLIN CALIFORNIA

PROJECT NO.
19343.000

SHT
17
OF 31

01-29-2021 7:40am Colette L'Heureux P:\19343-TV\PLN\TM\TM-17 PRELIMINARY EROSION CONTROL PLAN.DWG



SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021

EAST RANCH (CROAK PROPERTY)

VESTING TENTATIVE MAP - TRACT 8563

FIRE ACCESS AND HYDRANT LOCATION PLAN

DUBLIN CALIFORNIA

PLANS PREPARED UNDER THE DIRECTION OF:

MARK D. MCCLELLAN RCE #60467

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

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

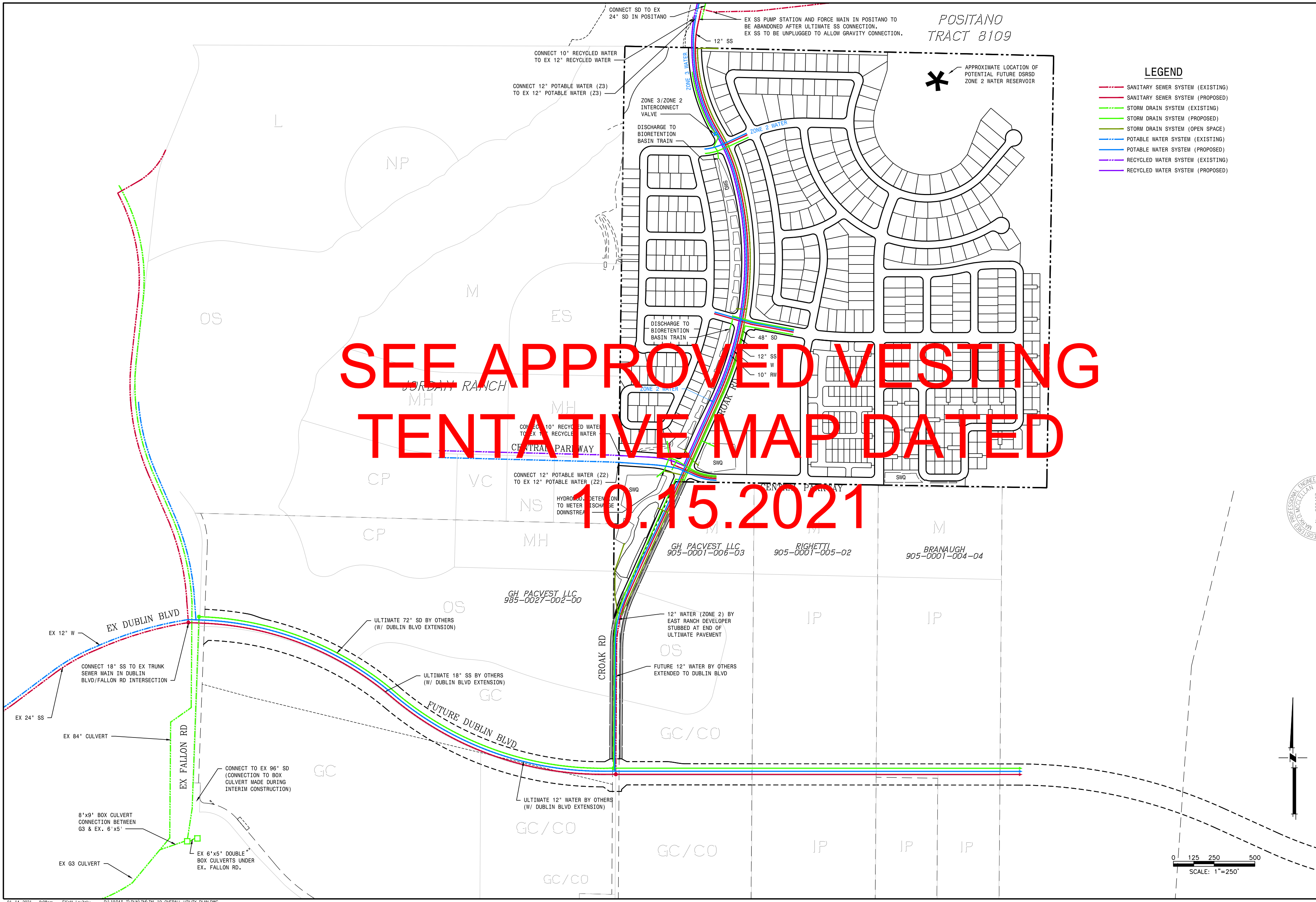
DATE | NO. | REVISION

PROJECT NO. 19343.000

SHT 18 OF 31

01-29-2021 7:42am Colette L'Heureux P:\19343-T\PLN\TM\TM-18 FIRE ACCESS AND HYDRANT LOCATION PLAN.DWG

SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021


LEGEND
SANITARY SEWER SYSTEM (EXISTING)
SANITARY SEWER SYSTEM (PROPOSED)
STORM DRAIN SYSTEM (EXISTING)
STORM DRAIN SYSTEM (PROPOSED)
STORM DRAIN SYSTEM (OPEN SPACE)
POTABLE WATER SYSTEM (EXISTING)
POTABLE WATER SYSTEM (PROPOSED)
RECYCLED WATER SYSTEM (EXISTING)
RECYCLED WATER SYSTEM (PROPOSED)
POSITANO TRACT 8109
APPROXIMATE LOCATION OF POTENTIAL FUTURE DSRSD ZONE 2 WATER RESERVOIR
CONNECT SD TO EX 24" SD IN POSITANO
EX SS PUMP STATION AND FORCE MAIN IN POSITANO TO BE ABANDONED AFTER ULTIMATE SS CONNECTION. EX SS TO BE UNPLUGGED TO ALLOW GRAVITY CONNECTION.
12" SS
CONNECT 10" RECYCLED WATER TO EX 12" RECYCLED WATER
CONNECT 12" POTABLE WATER (Z3) TO EX 12" POTABLE WATER (Z3)
ZONE 3/ZONE 2 INTERCONNECT VALVE
DISCHARGE TO BIORETENTION BASIN TRAIN
ZONE 2 WATER
DISCHARGE TO BIORETENTION BASIN TRAIN
48" SD
12" SS
W
10" RW
SWQ
CROAK RD
CENTRAL PARKWAY
JORDAN RANCH
CONNECT 12" POTABLE WATER (Z2) TO EX 12" POTABLE WATER (Z2)
L
NP
M
OS
ES
MH
CP
VC
NS
GH PACVEST LLC 905-0001-006-03
RIGHETTI 905-0001-005-02
BRANAUGH 905-0001-004-04
GH PACVEST LLC 985-0027-002-00
IP
GC
GC/CO
12" WATER (ZONE 2) BY EAST RANCH DEVELOPER STUBBED AT END OF ULTIMATE PAVEMENT
FUTURE 12" WATER BY OTHERS EXTENDED TO DUBLIN BLVD
ULTIMATE 72" SD BY OTHERS (W/ DUBLIN BLVD EXTENSION)
ULTIMATE 18" SS BY OTHERS (W/ DUBLIN BLVD EXTENSION)
ULTIMATE 12" WATER BY OTHERS (W/ DUBLIN BLVD EXTENSION)
FUTURE DUBLIN BLVD
EX DUBLIN BLVD
EX 12" W
CONNECT 18" SS TO EX TRUNK SEWER MAIN IN DUBLIN BLVD/FALLON RD INTERSECTION
EX 24" SS
EX 84" CULVERT
EX FALLON RD
CONNECT TO EX 96" SD (CONNECTION TO BOX CULVERT MADE DURING INTERIM CONSTRUCTION)
8'x9' BOX CULVERT CONNECTION BETWEEN G3 & EX. 6'x5'
EX 6'x5' DOUBLE BOX CULVERTS UNDER EX. FALLON RD.
EX G3 CULVERT
0 125 250 500
SCALE: 1"=250'
N

EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
OVERALL UTILITY 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

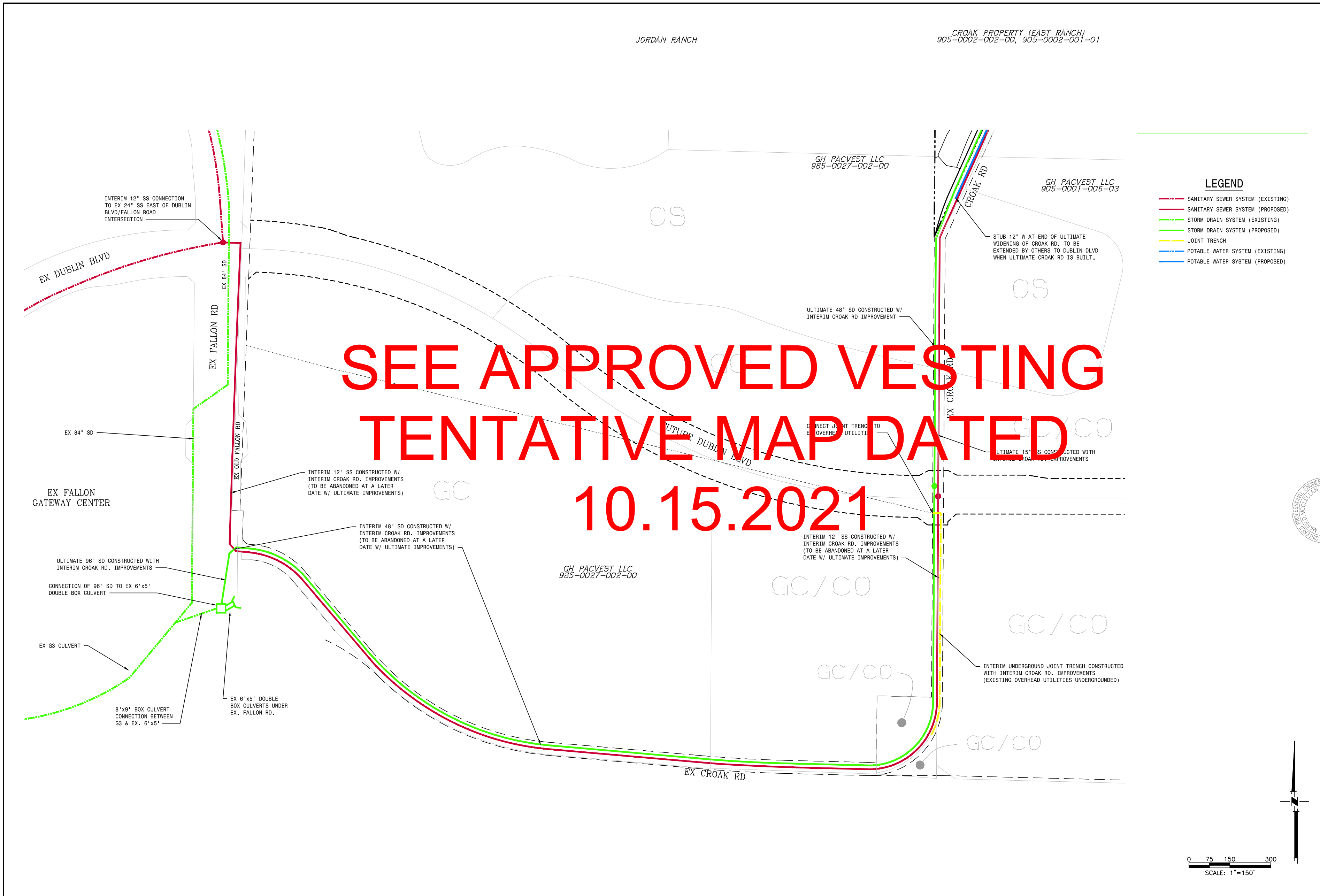
DATE: JANUARY 2021
SCALE: 1" = 250'
DRAWN BY: EML
DESIGNED BY: CML
CHECKED BY: MDM

NO.	REVISION	DATE

PROJECT NO. 19343.000

SHT 19 OF 31

01-14-2021 9:08am Elliott Levitsky P:\19343-T\PLN\TM\TM-19 OVERALL UTILITY PLAN.DWG



JORDAN RANCH
CROAK PROPERTY (EAST RANCH)
905-0002-002-00, 905-0002-001-01
GH PACVEST LLC
985-0027-002-00
GH PACVEST LLC
905-0001-006-03
LEGEND
SANITARY SEWER SYSTEM (EXISTING)
SANITARY SEWER SYSTEM (PROPOSED)
STORM DRAIN SYSTEM (EXISTING)
STORM DRAIN SYSTEM (PROPOSED)
JOINT TRENCH
POTABLE WATER SYSTEM (EXISTING)
POTABLE WATER SYSTEM (PROPOSED)
INTERIM 12" SS CONNECTION TO EX 24" SS EAST OF DUBLIN BLVD/FALLON ROAD INTERSECTION
EX DUBLIN BLVD
EX 84" SD
EX FALLON RD
OS
CROAK RD
STUB 12" W AT END OF ULTIMATE WIDENING OF CROAK RD. TO BE EXTENDED BY OTHERS TO DUBLIN BLVD WHEN ULTIMATE CROAK RD IS BUILT.
ULTIMATE 48" SD CONSTRUCTED W/ INTERIM CROAK RD IMPROVEMENT
SEE APPROVED VESTING
TENTATIVE MAP DATED
10.15.2021
EX 84" SD
EX OLD FALLON RD
FUTURE DUBLIN BLVD
GC/CO
EX FALLON GATEWAY CENTER
INTERIM 12" SS CONSTRUCTED W/ INTERIM CROAK RD. IMPROVEMENTS (TO BE ABANDONED AT A LATER DATE W/ ULTIMATE IMPROVEMENTS)
GC
INTERIM 48" SD CONSTRUCTED W/ INTERIM CROAK RD. IMPROVEMENTS (TO BE ABANDONED AT A LATER DATE W/ ULTIMATE IMPROVEMENTS)
GH PACVEST LLC
985-0027-002-00
INTERIM 12" SS CONSTRUCTED W/ INTERIM CROAK RD. IMPROVEMENTS (TO BE ABANDONED AT A LATER DATE W/ ULTIMATE IMPROVEMENTS)
ULTIMATE 96" SD CONSTRUCTED WITH INTERIM CROAK RD. IMPROVEMENTS
CONNECTION OF 96" SD TO EX 6'x5' DOUBLE BOX CULVERT
EX G3 CULVERT
8'x9' BOX CULVERT CONNECTION BETWEEN G3 & EX. 6'x5'
EX 6'x5' DOUBLE BOX CULVERTS UNDER EX. FALLON RD.
INTERIM UNDERGROUND JOINT TRENCH CONSTRUCTED WITH INTERIM CROAK RD. IMPROVEMENTS (EXISTING OVERHEAD UTILITIES UNDERGROUNDED)
EX CROAK RD
0 75 150 300
SCALE: 1"=150'

NO. | REVISION | DATE

DATE: JANUARY 2021
SCALE: 1" = 150'
DRAWN BY: EML
DESIGNED BY: CML
CHECKED BY: MDM

MacKay & Somps
ENGINEERS PLANNERS SURVEYORS
5142B 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 UTILITY PLAN

DUBLIN CALIFORNIA

PROJECT NO. 19343.000

SHT 20 OF 31

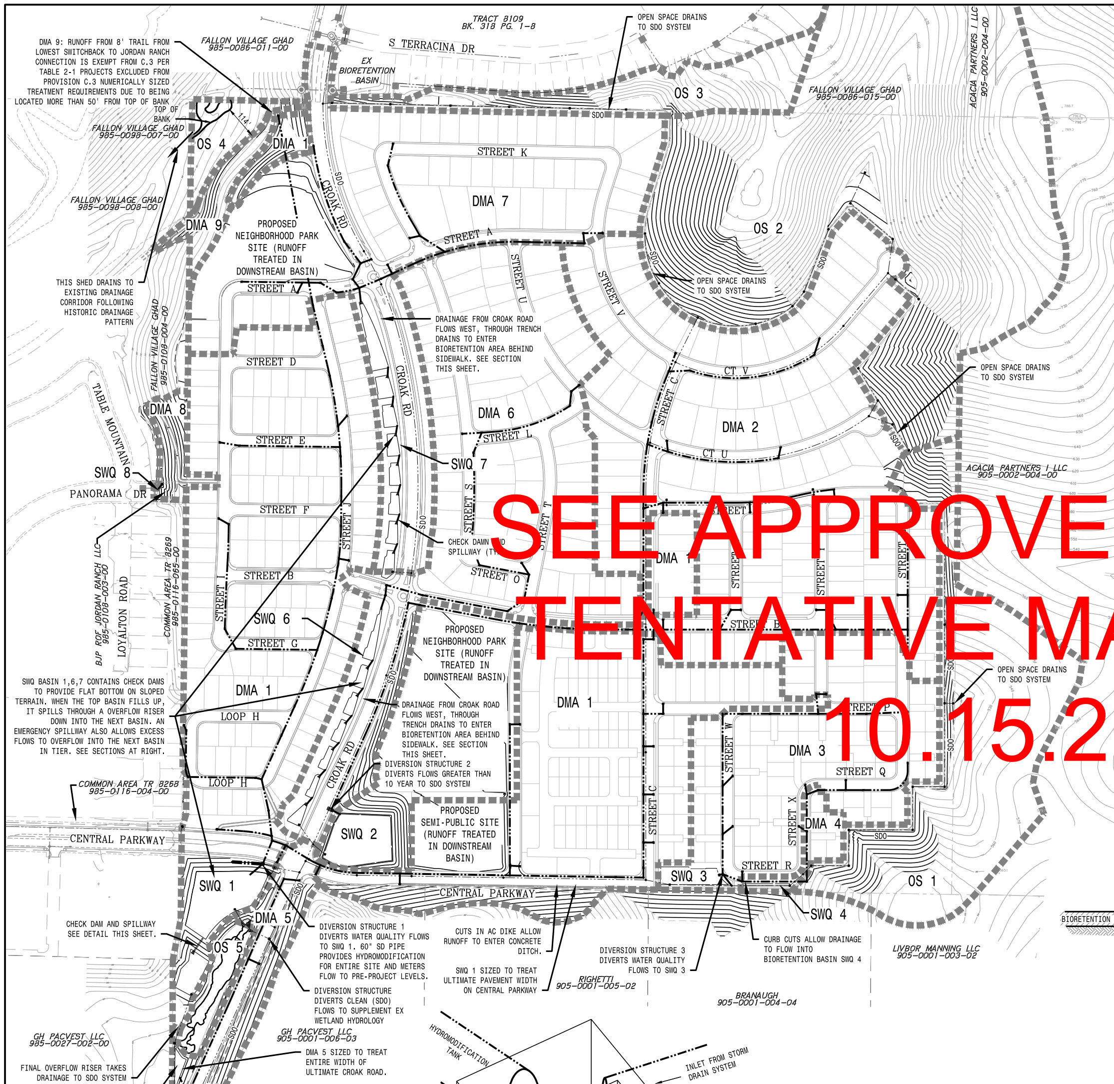
01-12-2021 5:16pm Colette L'Heureux P:\19343-T\PLN\TM\TM-20 INTERIM UTILITY PLAN.DWG

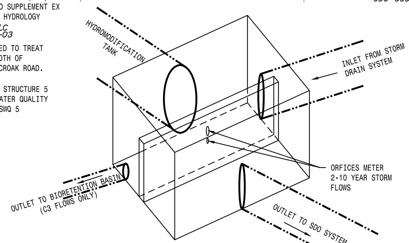
SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021

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 MRRP.
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.

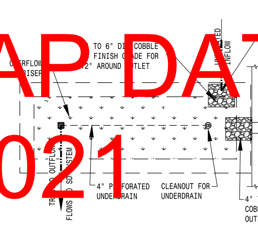
DMA	DRAINAGE MANAGEMENT AREA
OS	OPEN SPACE SHED (UNDEVELOPED AREAS)
SWQ	STORMWATER QUALITY BASIN
(heavy dashed line)	LIMITS OF DRAINAGE MANAGEMENT AREAS
(dash-dot line)	STORM DRAIN (SD) CONVEYS: UNTREATED FLOWS
(dash-dot line)	STORM DRAIN OPEN SPACE (SDO) CONVEYS: FLOWS FROM UNDEVELOPED AREAS THAT BYPASS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


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
FALLON VILLAGE GHAD 985-0086-011-00
TRACT 8109 BK. 318 PG. 1-8
S TERRACINA DR
EX BIORETENTION BASIN
OPEN SPACE DRAINS TO SDO SYSTEM
FALLON VILLAGE GHAD 985-0086-015-00
ACACIA PARTNERS I LLC 905-0002-004-00
OS 3
OS 4
DMA 1
STREET K
DMA 7
OS 2
DMA 9
PROPOSED NEIGHBORHOOD PARK SITE (RUNOFF TREATED IN DOWNSTREAM BASIN)
FALLON VILLAGE GHAD 985-0098-007-00
FALLON VILLAGE GHAD 985-0098-008-00
THIS SHED DRAINS TO EXISTING DRAINAGE CORRIDOR FOLLOWING HISTORIC DRAINAGE PATTERN
FALLON VILLAGE GHAD 985-0108-004-00
DRAINAGE FROM CROAK ROAD FLOWS WEST, THROUGH TRENCH DRAINS TO ENTER BIORETENTION AREA BEHIND SIDEWALK. SEE SECTION THIS SHEET.
STREET A
STREET D
STREET E
STREET F
STREET B
STREET G
STREET I
STREET U
STREET V
STREET C
STREET L
STREET S
STREET T
STREET O
CT V
CT U
CROAK RD
DMA 8
DMA 6
DMA 2
SWQ 8
SWQ 7
SWQ 6
TABLE MOUNTAIN DR
PANORAMA DR
BJP ROF JORDAN RANCH LLC 985-0108-003-00
LOYALTON ROAD
COMMON AREA TR 8269 985-0116-055-00
ACACIA PARTNERS I LLC 905-0002-004-00
CHECK DAM AND SPILLWAY
SWQ BASIN 1,6,7 CONTAINS CHECK DAMS TO PROVIDE FLAT BOTTOM ON SLOPED TERRAIN. WHEN THE TOP BASIN FILLS UP, IT SPILLS THROUGH A OVERFLOW RISER DOWN INTO THE NEXT BASIN. AN EMERGENCY SPILLWAY ALSO ALLOWS EXCESS FLOWS TO OVERFLOW INTO THE NEXT BASIN IN TIER. SEE SECTIONS AT RIGHT.
PROPOSED NEIGHBORHOOD PARK SITE (RUNOFF TREATED IN DOWNSTREAM BASIN)
DRAINAGE FROM CROAK ROAD FLOWS WEST, THROUGH TRENCH DRAINS TO ENTER BIORETENTION AREA BEHIND SIDEWALK. SEE SECTION THIS SHEET. DIVERSION STRUCTURE 2 DIVERTS FLOWS GREATER THAN 10 YEAR TO SDO SYSTEM
DMA 1
LOOP H
COMMON AREA TR 8268 985-0116-004-00
DMA 3
STREET Q
STREET X
DMA 4
STREET R
STREET W
OPEN SPACE DRAINS TO SDO SYSTEM
PROPOSED SEMI-PUBLIC SITE (RUNOFF TREATED IN DOWNSTREAM BASIN)
SWQ 2
CENTRAL PARKWAY
SWQ 1
DMA 5
SWQ 3
SWQ 4
OS 1
OS 5
CHECK DAM AND SPILLWAY SEE DETAIL THIS SHEET.
DIVERSION STRUCTURE 1 DIVERTS WATER QUALITY FLOWS TO SWQ 1. 60" SD PIPE PROVIDES HYDROMODIFICATION FOR ENTIRE SITE AND METERS FLOW TO PRE-PROJECT LEVELS.
DIVERSION STRUCTURE DIVERTS CLEAN (SDO) FLOWS TO SUPPLEMENT EX WETLAND HYDROLOGY
CUTS IN AC DIKE ALLOW RUNOFF TO ENTER CONCRETE DITCH.
SWQ 1 SIZED TO TREAT ULTIMATE PAVEMENT WIDTH ON CENTRAL PARKWAY
DIVERSION STRUCTURE 3 DIVERTS WATER QUALITY FLOWS TO SWQ 3
RIGHETTI 905-0001-005-02
CURB CUTS ALLOW DRAINAGE TO FLOW INTO BIORETENTION BASIN SWQ 4
LIVBOR MANNING LLC 905-0001-003-02
BRANAUGH 905-0001-004-04
GH PACVEST LLC 985-0027-002-00
FINAL OVERFLOW RISER TAKES DRAINAGE TO SDO SYSTEM
SWQ 5
GH PACVEST LLC 905-0001-006-03
DMA 5 SIZED TO TREAT ENTIRE WIDTH OF ULTIMATE CROAK ROAD.
DIVERSION STRUCTURE 5 DIVERTS WATER QUALITY FLOWS TO SWQ 5
0 100 200 400
SCALE: 1"=200'



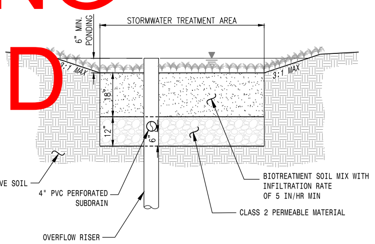
DIVERSION STRUCTURE 1 DETAIL

NTS



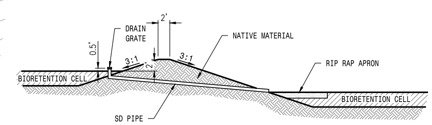
TYPICAL BIO-RETENTION BASIN PLAN VIEW

NTS



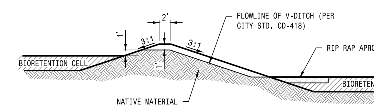
TYPICAL BIO-RETENTION BASIN SECTION

NTS



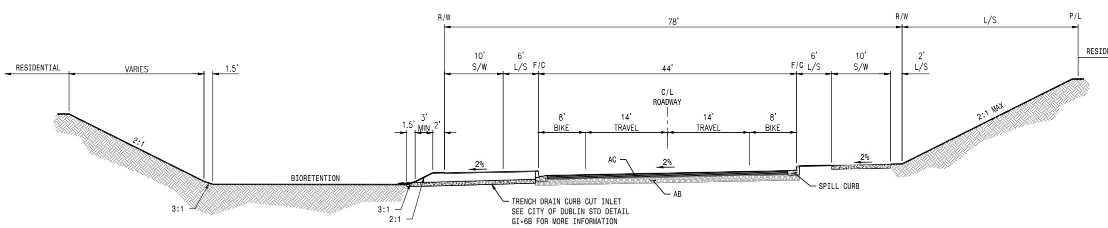
SWQ 1,6,7 - OVERFLOW RISER DETAIL

NTS



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

NTS



CROAK ROAD - 88' ROW

NTS

DATE	REVISION	NO.

DATE: JANUARY 2021
SCALE: 1" = 200'
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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

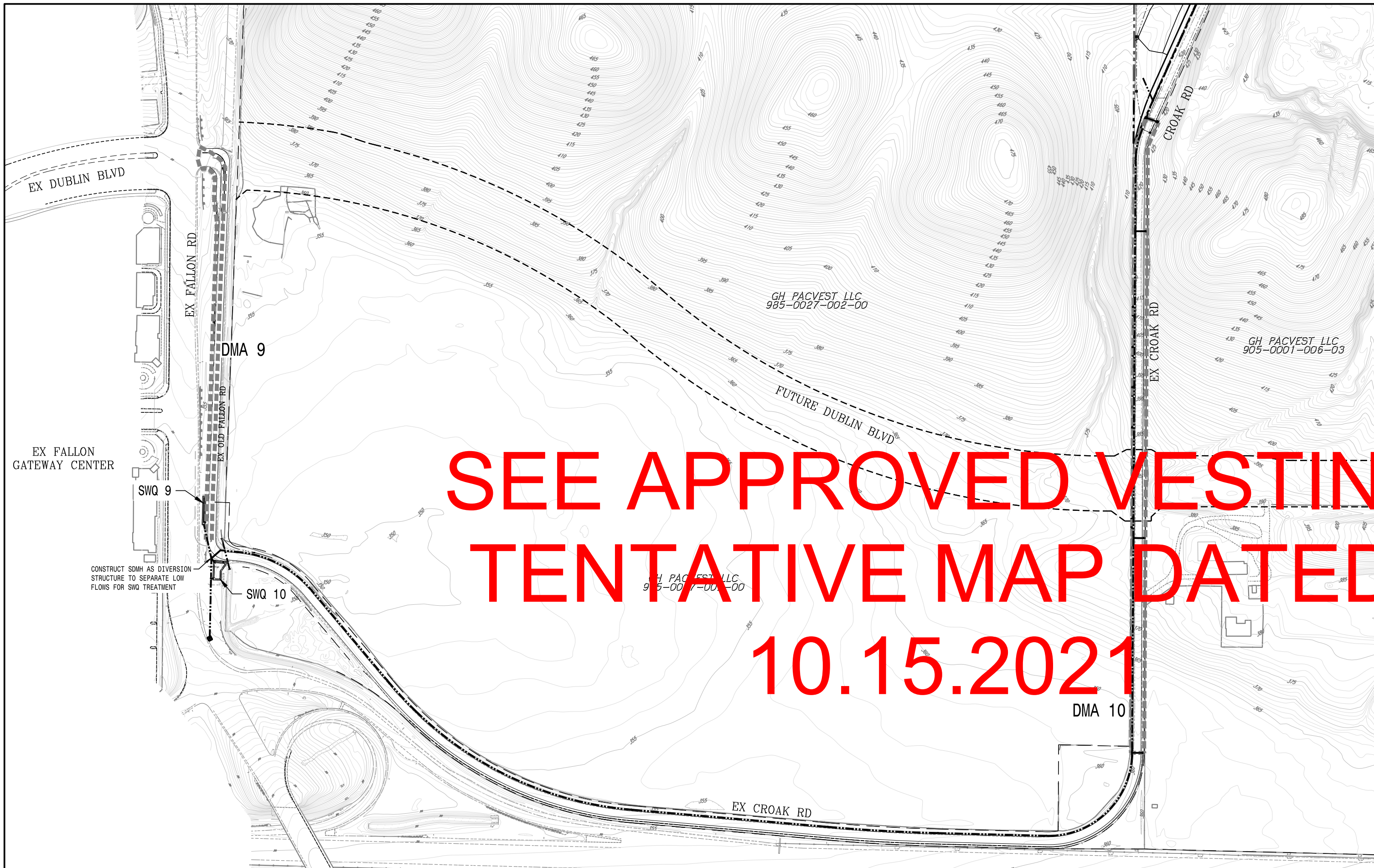
EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
PRELIMINARY STORMWATER QUALITY PLAN

DUBLIN CALIFORNIA

PROJECT NO. 19343.000

SHT 21 OF 31

01-28-2021 5:11pm Colette L'Heureux P:\19343-T\PLN\TM\TM-21 PRELIMINARY STORMWATER QUALITY PLAN.DWG



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

NO.	REVISION	DATE

DATE: JANUARY 2021
SCALE: 1" = 150'
DRAWN BY: EML
DESIGNED BY: CML
CHECKED BY: MDM

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
5142B 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

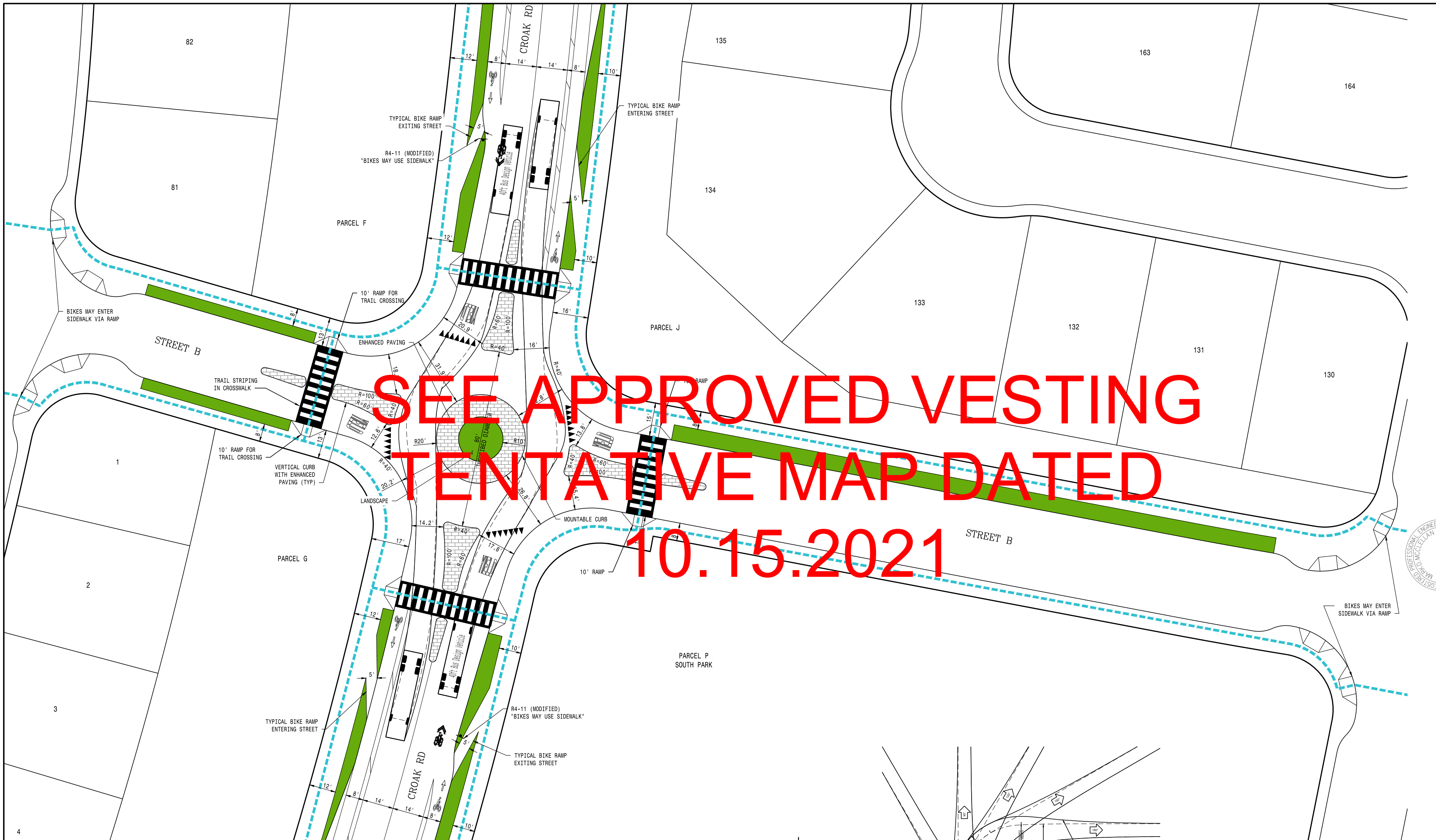
EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
PRELIMINARY INTERIM STORMWATER QUALITY PLAN
DUBLIN CALIFORNIA

PROJECT NO. 19343.000

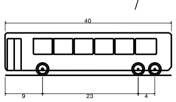
SHT 22 OF 31

01-14-2021 2:21pm Elliott Levitsky P:\19343-T\PLN\TM\TM-22 PRELIMINARY INTERIM STORMWATER QUALITY PLAN.DWG

SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021



SOUTH ROUNDABOUT

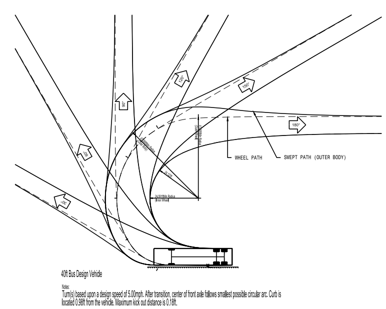


40ft Bus Design Vehicle
Overall Length 40.000ft
Overall Width 8.500ft
Overall Body Height 10.228ft
Min Body Ground Clearance 1.158ft
Track Width 8.500ft
Lock-to-lock time 6.00s
Max Steering Angle (Virtual) 41.00°

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

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.

01-12-2021 6:02pm Colette L'Heureux P:\19343-T\PLN\TM\TM-23 ROUNDABOUT DETAILS.DWG

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

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

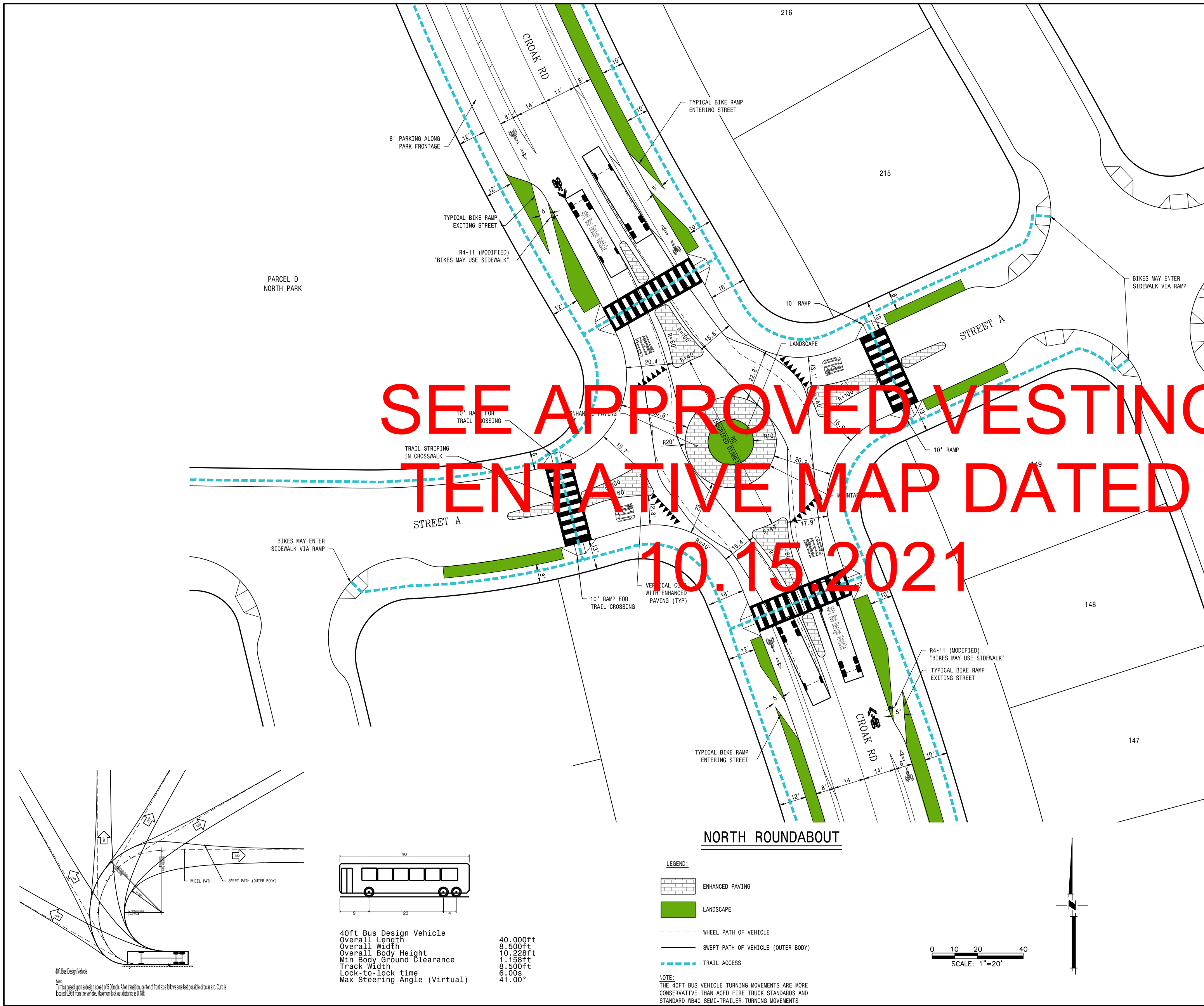
MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
5142B FRANKLIN DR., PLEASANTON, CA 94588 (925)225-0690

DATE: JANUARY 2021
SCALE: 1" = 20'
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM

NO.	REVISION	DATE

PROJECT NO. 19343.000
SHT 23 OF 31

SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021



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

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.

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

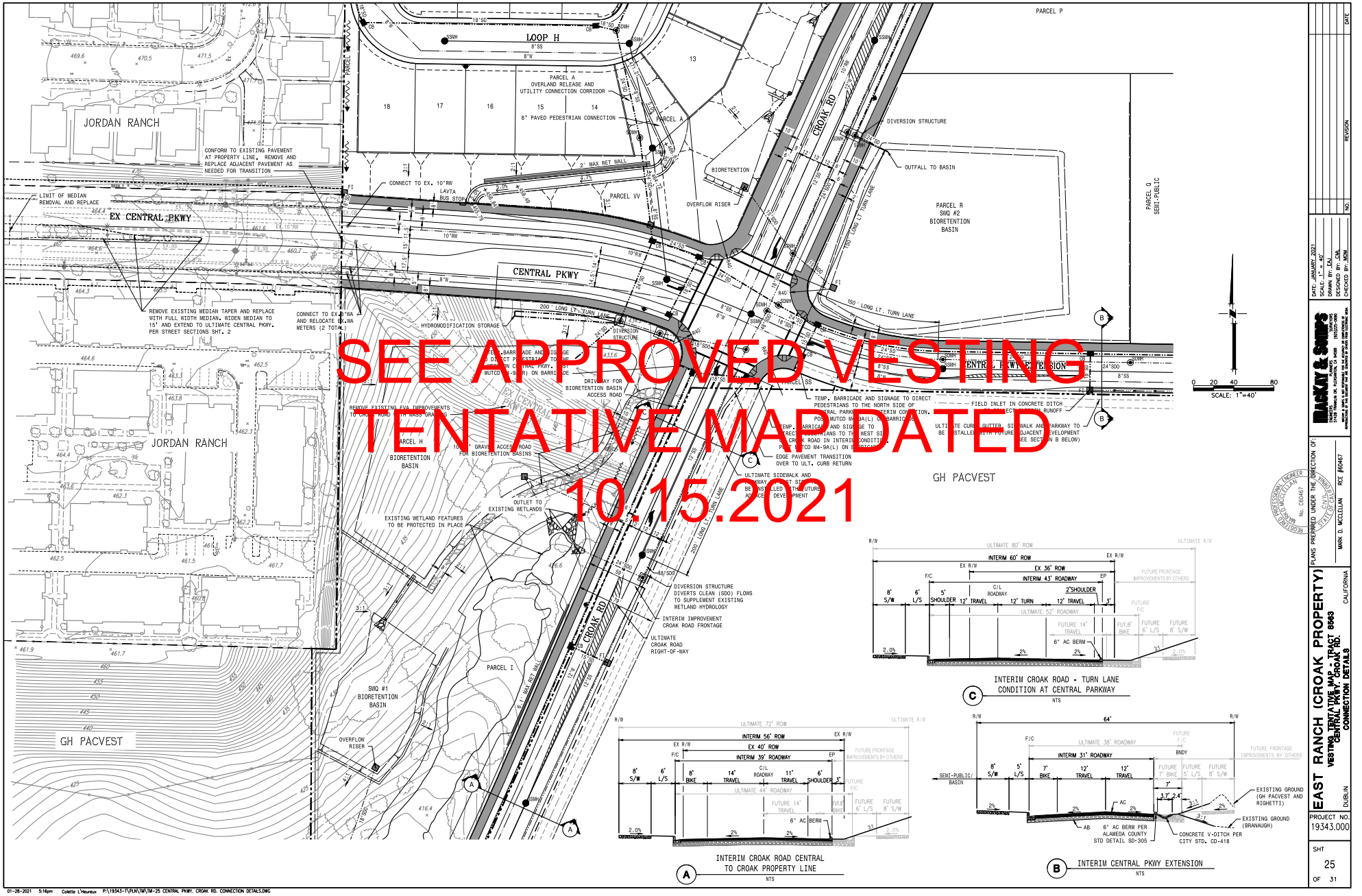
PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467

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

DATE: JANUARY 2021
SCALE: 1" = 20'
DRAWN BY: XXX
DESIGNED BY: CML
CHECKED BY: MDM

PROJECT NO. 19343.000
SHT 24 OF 31

01-12-2021 6:03pm Colette L'Heureux P:\19343-T\PLN\TM\TM-24 ROUNDABOUT DETAILS.DWG



EAST RANCH (CROAK PROPERTY)

VESTING TENTATIVE MAP - TRACT 8563
CENTRAL PKWY. CROAK RD.
CONNECTION DETAILS

DUBLIN CALIFORNIA

PROJECT NO. 19344.000

SHT 25 OF 31

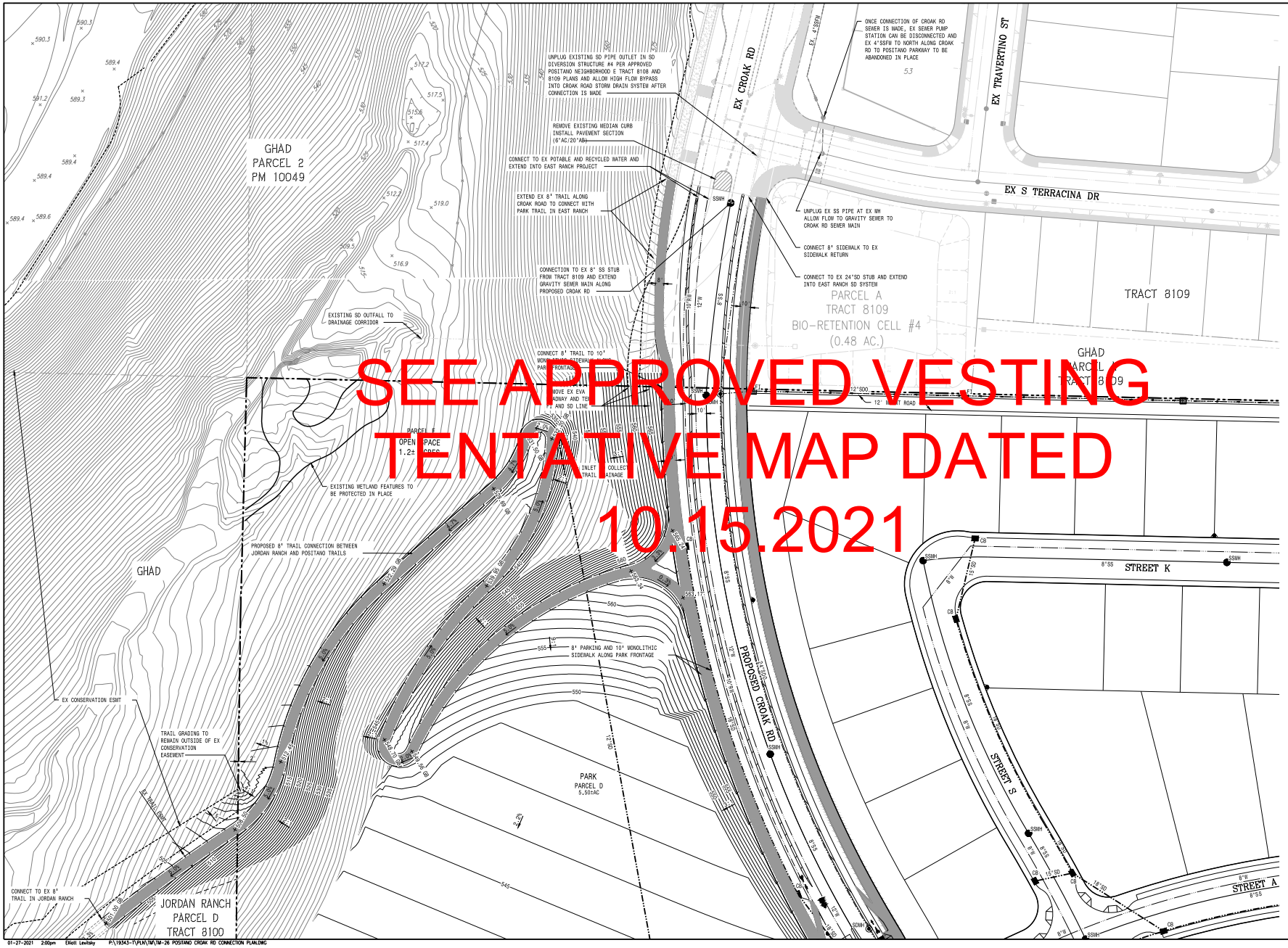
PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467
No. C60467 REGISTERED PROFESSIONAL ENGINEER MARK D. McCLELLAN CIVIL STATE OF CALIFORNIA

DATE: JANUARY 2021
SCALE: 1" = 40'
DRAWN BY: EAU
DESIGNED BY: CML
CHECKED BY: MDM

DATE | REVISION | NO.

BKF Engineers
4300 Railroad Ave, Pleasanton, CA 94566
(925) 396-7500
www.bkf.com

01-28-2021 5:16pm Colette L'Heureux P:\19343-T\PLN\TM\TM-25 CENTRAL PKWY. CROAK RD. CONNECTION DETAILS.DWG



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

DAVEY & SONS
CIVIL ENGINEERS
LAND PLANNERS
SURVEYORS
5145 Pimlico Dr. Pleasanton, CA 94588 (925)225-0690

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

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

EAST RANCH (CROAK PROPERTY)

VESTING TENTATIVE MAP - TRACT 8563
POSITANO CROAK RD CONNECTION PLAN

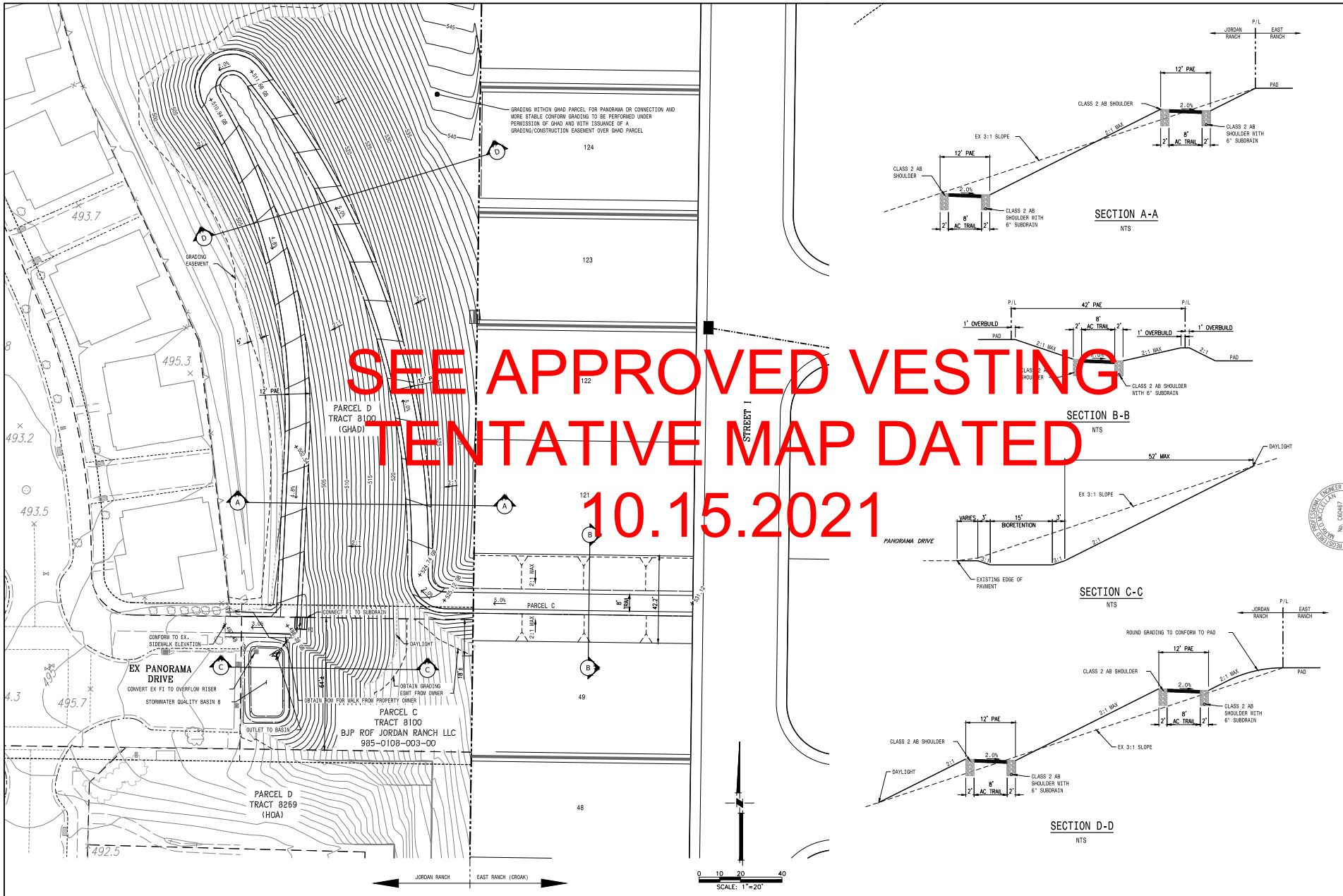
DUBLIN CALIFORNIA

PROJECT NO.
19343.000

SHT
26
OF 31

NO.	REVISION	DATE

01-27-2021 2:00pm Elliott Lawhaby 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

PROJECT NO. 19343.000

SHT 27 OF 31

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

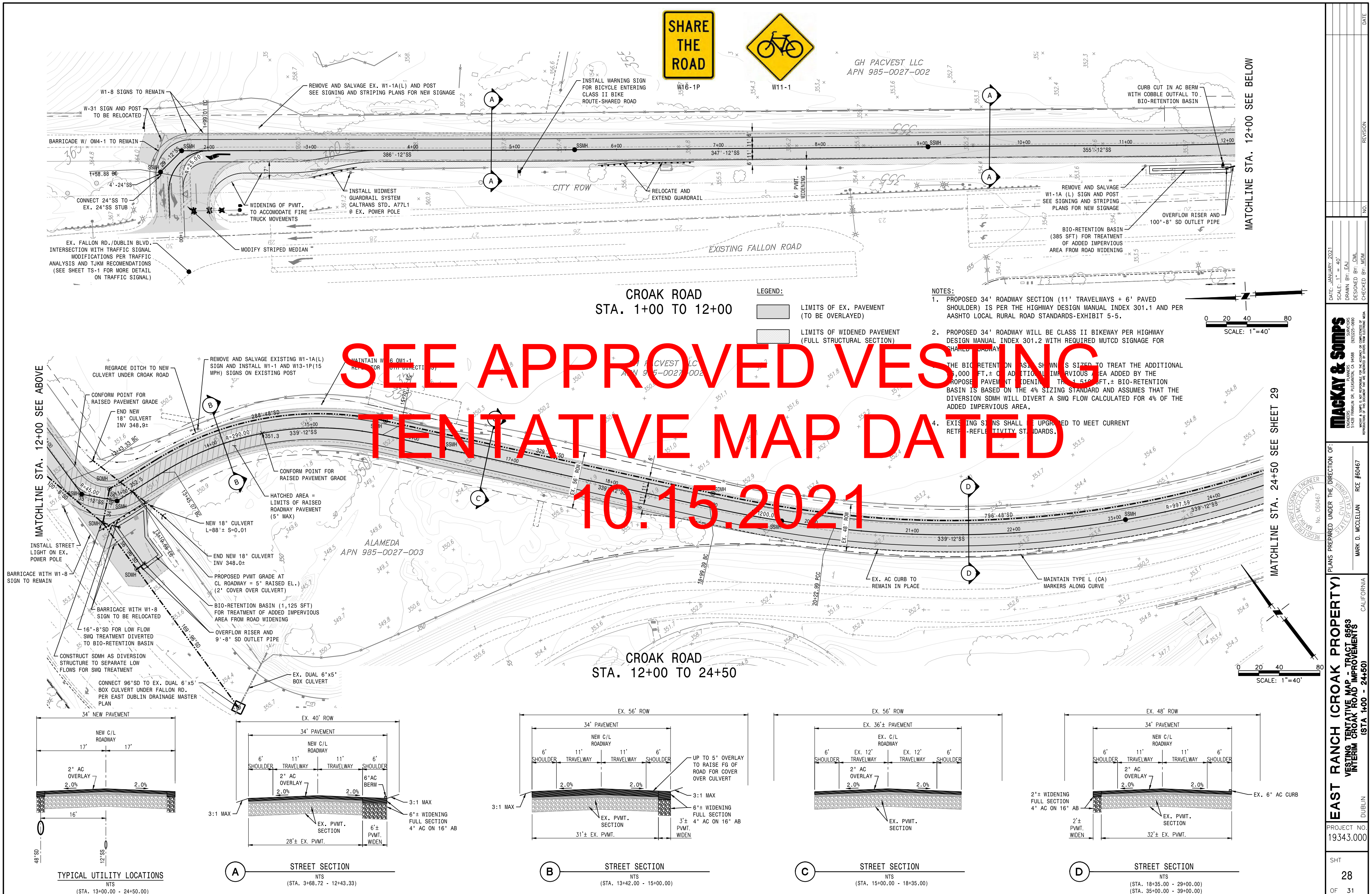
DACKY & SONS
CIVIL ENGINEERS · LAND SURVEYORS
2633 CAMINO RAMON, SUITE 360, SAN RAMON, CA 94583 (925)275-3681

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

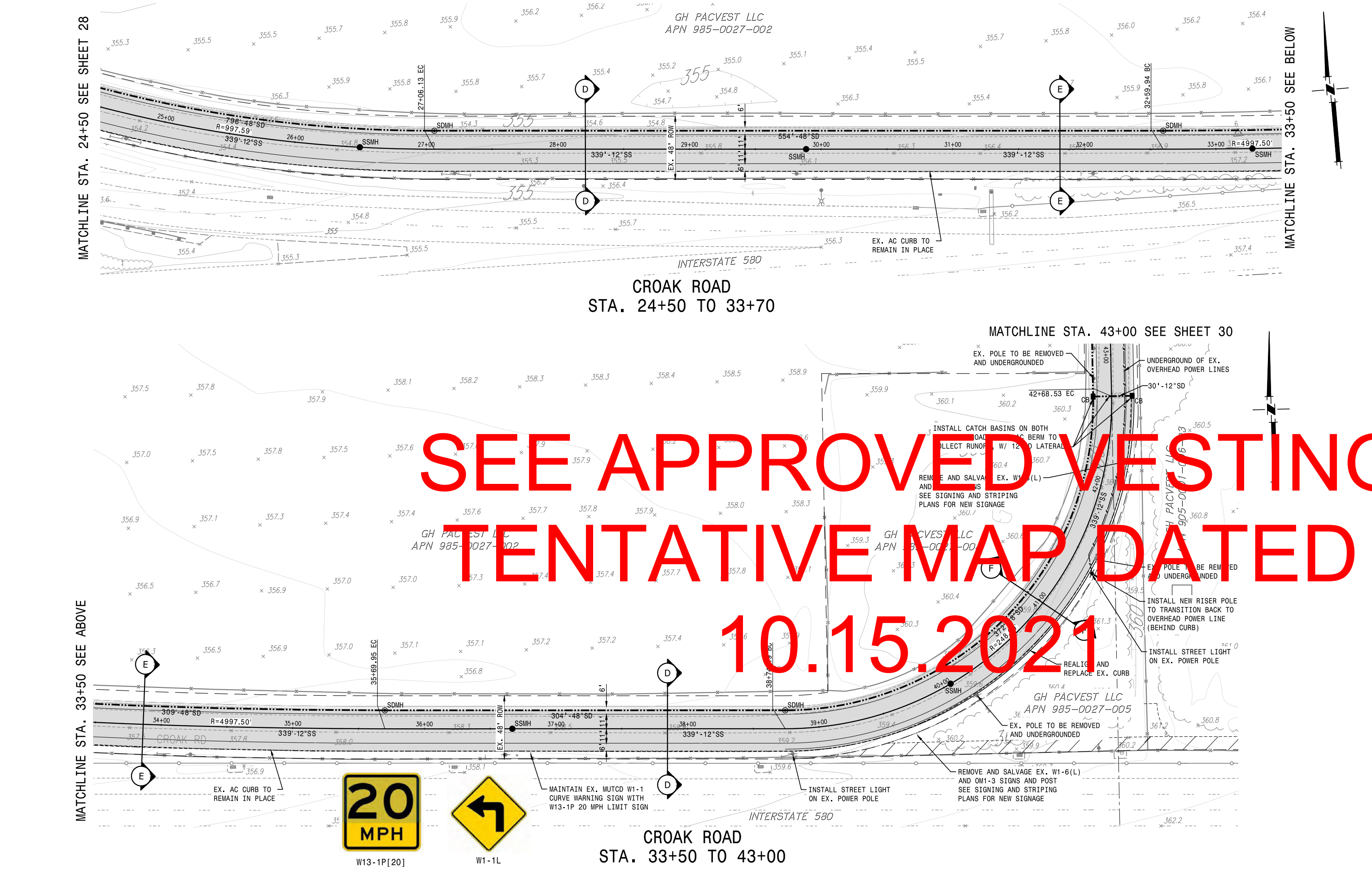
REGISTERED PROFESSIONAL ENGINEER MARK D. MCCLELLAN No. C60467 CIVIL STATE OF CALIFORNIA

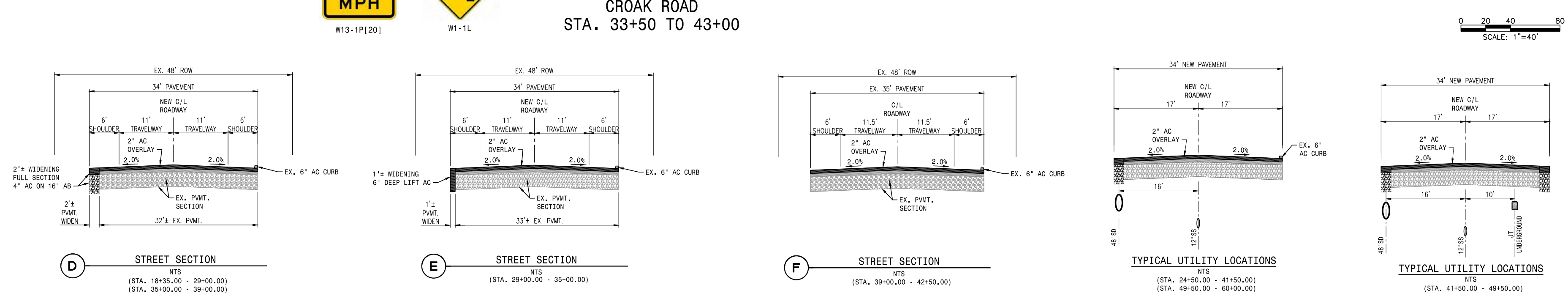
NO. | REVISION | DATE

01-12-2021 6:09pm Colette L'Heureux P:\19343-T\PLN\TM\TM-27 PANARAMA DR. CONNECTION PLAN.DWG


SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021
CROAK ROAD
STA. 1+00 TO 12+00
CROAK ROAD
STA. 12+00 TO 24+50
MATCHLINE STA. 12+00 SEE BELOW
MATCHLINE STA. 12+00 SEE ABOVE
MATCHLINE STA. 24+50 SEE SHEET 29
SHARE THE ROAD
W16-1P
W11-1
GH PACVEST LLC
APN 985-0027-002
ALAMEDA
APN 985-0027-003
CITY ROW
EXISTING FALLON ROAD
W1-8 SIGNS TO REMAIN
W-31 SIGN AND POST TO BE RELOCATED
BARRICADE W/ OM4-1 TO REMAIN
CONNECT 24"SS TO EX. 24"SS STUB
EX. FALLON RD./DUBLIN BLVD. INTERSECTION WITH TRAFFIC SIGNAL MODIFICATIONS PER TRAFFIC ANALYSIS AND TJKM RECOMENDATIONS (SEE SHEET TS-1 FOR MORE DETAIL ON TRAFFIC SIGNAL)
REMOVE AND SALVAGE EX. W1-1A(L) AND POST SEE SIGNING AND STRIPING PLANS FOR NEW SIGNAGE
WIDENING OF PVMT. TO ACCOMODATE FIRE TRUCK MOVEMENTS
MODIFY STRIPED MEDIAN
INSTALL MIDWEST GUARDRAIL SYSTEM CALTRANS STD. A77L1 @ EX. POWER POLE
INSTALL WARNING SIGN FOR BICYCLE ENTERING CLASS II BIKE ROUTE-SHARED ROAD
RELOCATE AND EXTEND GUARDRAIL
6' PVMT. WIDENING
REMOVE AND SALVAGE W1-1A (L) SIGN AND POST SEE SIGNING AND STRIPING PLANS FOR NEW SIGNAGE
CURB CUT IN AC BERM WITH COBBLE OUTFALL TO BIO-RETENTION BASIN
OVERFLOW RISER AND 100'-8" SD OUTLET PIPE
BIO-RETENTION BASIN (385 SFT) FOR TREATMENT OF ADDED IMPERVIOUS AREA FROM ROAD WIDENING
LEGEND:
LIMITS OF EX. PAVEMENT (TO BE OVERLAYED)
LIMITS OF WIDENED PAVEMENT (FULL STRUCTURAL SECTION)
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
3. 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
SCALE: 1"=40'
REGRADE DITCH TO NEW CULVERT UNDER CROAK ROAD
CONFORM POINT FOR RAISED PAVEMENT GRADE
END NEW 18" CULVERT INV 348.9±
REMOVE AND SALVAGE EXISTING W1-1A(L) SIGN AND INSTALL W1-1 AND W13-1P(15 MPH) SIGNS ON EXISTING POST
HATCHED AREA = LIMITS OF RAISED ROADWAY PAVEMENT (5" MAX)
NEW 18" CULVERT L=88'± S=0.01
END NEW 18" CULVERT INV 348.0±
PROPOSED PVMT GRADE AT CL ROADWAY = 5" RAISED EL.) (2" COVER OVER CULVERT)
BIO-RETENTION BASIN (1,125 SFT) FOR TREATMENT OF ADDED IMPERVIOUS AREA FROM ROAD WIDENING
OVERFLOW RISER AND 9'-8" SD OUTLET PIPE
EX. DUAL 6'x5' BOX CULVERT
CONNECT 96"SD TO EX. DUAL 6'x5' BOX CULVERT UNDER FALLON RD. PER EAST DUBLIN DRAINAGE MASTER PLAN
CONSTRUCT SDMH AS DIVERSION STRUCTURE TO SEPARATE LOW FLOWS FOR SWQ TREATMENT
16'-8"SD FOR LOW FLOW SWQ TREATMENT DIVERTED TO BIO-RETENTION BASIN
BARRICADE WITH W1-8 SIGN TO BE RELOCATED
BARRICADE WITH W1-8 SIGN TO REMAIN
INSTALL STREET LIGHT ON EX. POWER POLE
EX. AC CURB TO REMAIN IN PLACE
MAINTAIN TYPE L (CA) MARKERS ALONG CURVE
TYPICAL UTILITY LOCATIONS
NTS
(STA. 13+00.00 - 24+50.00)
A STREET SECTION
NTS
(STA. 3+68.72 - 12+43.33)
B STREET SECTION
NTS
(STA. 13+42.00 - 15+00.00)
C STREET SECTION
NTS
(STA. 15+00.00 - 18+35.00)
D STREET SECTION
NTS
(STA. 18+35.00 - 29+00.00)
(STA. 35+00.00 - 39+00.00)
EAST RANCH (CROAK PROPERTY)
VESTING TENTATIVE MAP - TRACT 8563
INTERIM CROAK ROAD IMPROVEMENTS
(STA 1+00 - 24+50)
DUBLIN
CALIFORNIA
PLANS PREPARED UNDER THE DIRECTION OF:
MARK D. MCCLELLAN RCE #60467
MacKay & Somps
DATE: JANUARY 2021
SCALE: 1" = 40'
DRAWN BY: EAJ
DESIGNED BY: CML
CHECKED BY: MDM
PROJECT NO. 19343.000
SHT 28 OF 31
01-28-2021 11:32am Elliott Levitsky P:\19343-T\PLN\TM\TM-28 INTERIM CROAK ROAD IMPROVEMENTS (STA 1+00 - 24+50).DWG

SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021


MATCHLINE STA. 24+50 SEE SHEET 28
MATCHLINE STA. 33+50 SEE BELOW
GH PACVEST LLC
APN 985-0027-002
EX. AC CURB TO REMAIN IN PLACE
INTERSTATE 580
CROAK ROAD
STA. 24+50 TO 33+70
MATCHLINE STA. 43+00 SEE SHEET 30
MATCHLINE STA. 33+50 SEE ABOVE
EX. POLE TO BE REMOVED AND UNDERGROUNDED
UNDERGROUND OF EX. OVERHEAD POWER LINES
INSTALL NEW RISER POLE TO TRANSITION BACK TO OVERHEAD POWER LINE (BEHIND CURB)
INSTALL STREET LIGHT ON EX. POWER POLE
REALIGN AND REPLACE EX. CURB
GH PACVEST LLC
APN 985-0027-005
REMOVE AND SALVAGE EX. W1-6(L) AND OM1-3 SIGNS AND POST
SEE SIGNING AND STRIPING PLANS FOR NEW SIGNAGE
MAINTAIN EX. MUTCD W1-1 CURVE WARNING SIGN WITH W13-1P 20 MPH LIMIT SIGN
20 MPH
W13-1P[20]
W1-1L
CROAK ROAD
STA. 33+50 TO 43+00


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

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

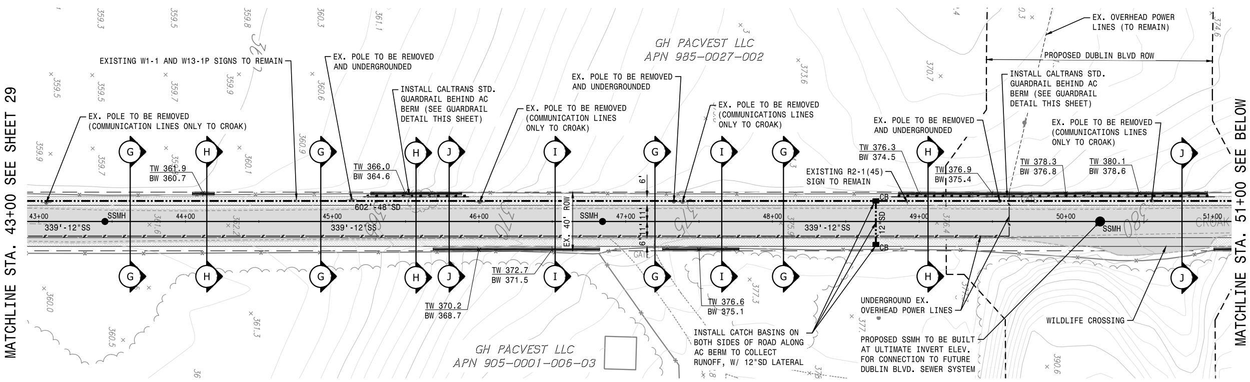
PLANS PREPARED UNDER THE DIRECTION OF: MARK D. MCCLELLAN RCE #60467

MACKAY & SOMPS

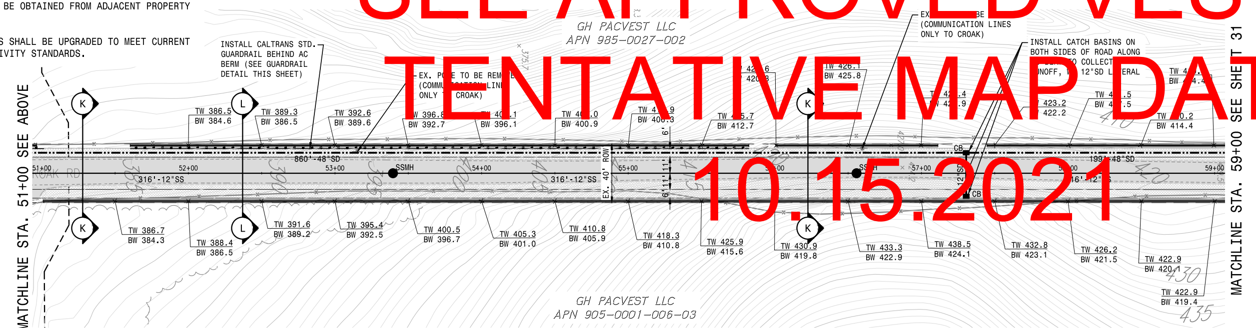
DATE: JANUARY 2021
SCALE: 1" = 40'
DRAWN BY: EAJ
DESIGNED BY: CML
CHECKED BY: MDM

PROJECT NO. 19343.000
SHT 29 OF 31

01-14-2021 10:55am 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



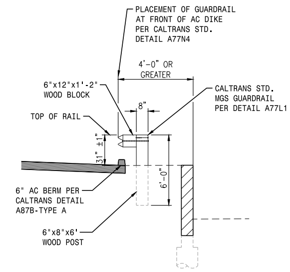
CROAK ROAD
STA. 51+00 TO 59+00

SCALE: 1"=40'

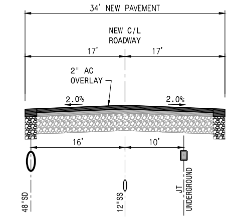
SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021

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.

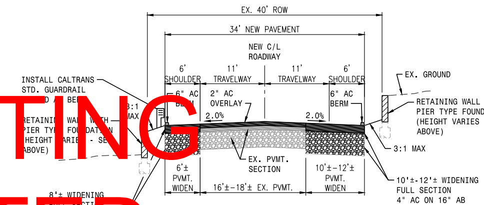
LEGEND:
- LIMITS OF EX. PAVEMENT (TO BE OVERLAYED)
- LIMITS OF WIDENED PAVEMENT (FULL STRUCTURAL SECTION)



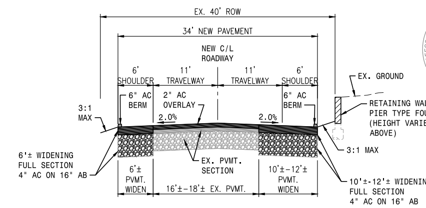
MIDWEST GUARDRAIL SYSTEM TYPICAL EMBEDMENT AND OFFSET DETAIL (CALTRANS DETAIL A77N3)
NTS



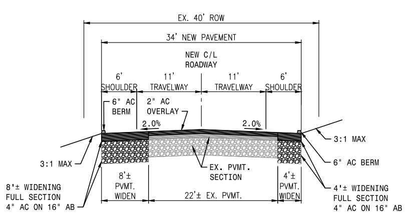
TYPICAL UTILITY LOCATIONS
NTS
(STA. 41+50.00 - 49+50.00)



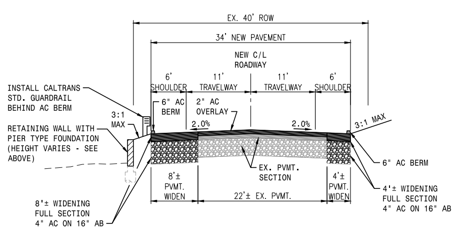
(L) STREET SECTION
NTS
(STA. 51+60.27 - 55.82.37)



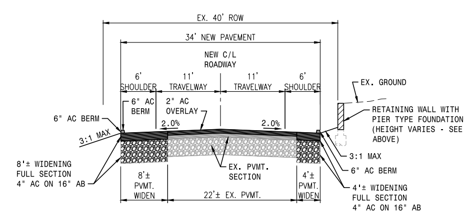
(K) STREET SECTION
NTS
(STA. 50+96.56 - 51+60.27)
(STA. 55+82.37 - 59+00.00)



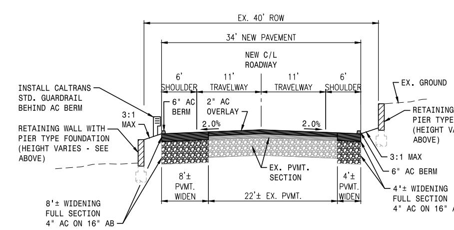
(G) STREET SECTION
NTS
(STA. 43+00.00 - 44+04.68)
(STA. 44+19.75 - 45+26.17)
(STA. 46+82.35 - 47+25.06)
(STA. 47+77.28 - 48+95.91)



(H) STREET SECTION
NTS
(STA. 44+04.68 - 44+19.75)
(STA. 45+26.17 - 45+68.78)
(STA. 48+85.91 - 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)

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

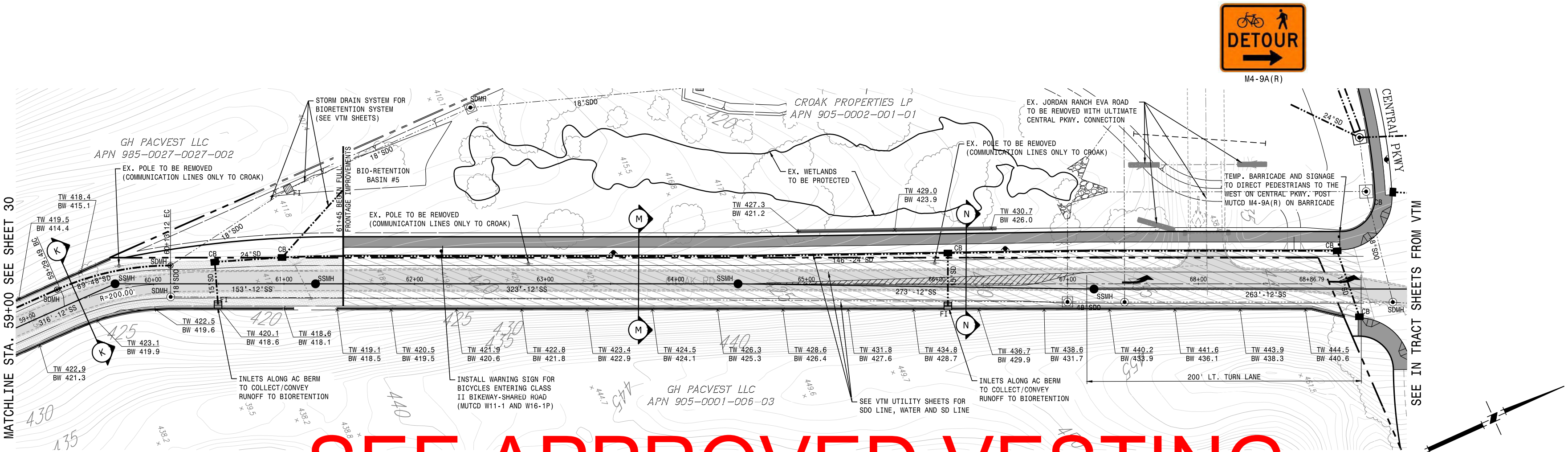
PLANS PREPARED UNDER THE DIRECTION OF: MARK D. MCCLELLAN RCE #60467

MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS

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

PROJECT NO. 19343.000
SHT 30 OF 31

01-14-2021 11:09am Elliott Levitsky P:\19343-T\PLN\TM\TM-30 INTERIM CROAK ROAD IMPROVEMENTS (STA 43+00 - 59+00).DWG


DETOUR
M4-9A(R)
CENTRAL PKWY
CROAK PROPERTIES LP
APN 905-0002-001-01
GH PACVEST LLC
APN 985-0027-0027-002
GH PACVEST LLC
APN 905-0001-006-03
STORM DRAIN SYSTEM FOR BIORETENTION SYSTEM (SEE VTM SHEETS)
BIO-RETENTION BASIN #5
EX. POLE TO BE REMOVED (COMMUNICATION LINES ONLY TO CROAK)
EX. WETLANDS TO BE PROTECTED
EX. JORDAN RANCH EVA ROAD TO BE REMOVED WITH ULTIMATE CENTRAL PKWY. CONNECTION
TEMP. BARRICADE AND SIGNAGE TO DIRECT PEDESTRIANS TO THE WEST ON CENTRAL PKWY. POST MUTCD M4-9A(R) ON BARRICADE
61+45 BEGIN FULL FRONTAGE IMPROVEMENTS
INLETS ALONG AC BERM TO COLLECT/CONVEY RUNOFF TO BIORETENTION
INSTALL WARNING SIGN FOR BICYCLES ENTERING CLASS II BIKEWAY-SHARED ROAD (MUTCD W11-1 AND W16-1P)
SEE VTM UTILITY SHEETS FOR SDO LINE, WATER AND SD LINE
200' LT. TURN LANE
153'-12"SS
323'-12"SS
273'-12"SS
263'-12"SS
MATCHLINE STA. 59+00 SEE SHEET 30
SEE IN TRACT SHEETS FROM VTM
SHARE THE ROAD
W16-1P
CROAK ROAD
STA. 59+00 TO 68+87
SCALE: 1"=40'

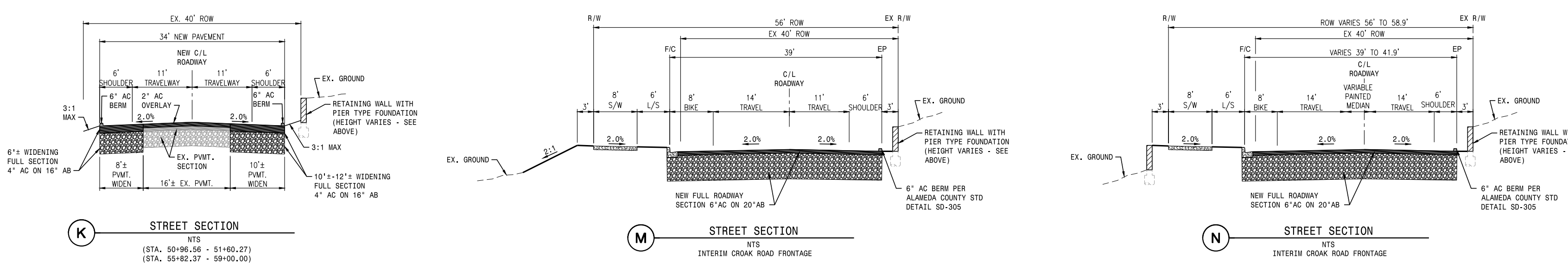
SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021

NOTES:

1. PROPOSED 34' ROADWAY SECTION (11' TRAVELWAYS ... PAVED S...) IS PER THE HIGH... DESIGN MANUAL INDEX 301.1 AND PER AASHTO LOCAL RURAL ROAD STANDARD-EXHIBIT 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 BE ... INSTALLED IF A GRADING EASEMENT CAN BE OBTAINED FROM ADJACENT PROPERTY OWNERS.
4. EXISTING SIGNS SHALL BE UPGRADED TO MEET ...ENT 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


EX. 40' ROW
34' NEW PAVEMENT
NEW C/L ROADWAY
6' SHOULDER
11' TRAVELWAY
6" AC BERM
2" AC OVERLAY
2.0%
EX. GROUND
RETAINING WALL WITH PIER TYPE FOUNDATION (HEIGHT VARIES - SEE ABOVE)
3:1 MAX
6'± WIDENING FULL SECTION 4" AC ON 16" AB
EX. PVMT. SECTION
8'± PVMT. WIDEN
16'± EX. PVMT.
10'± PVMT. WIDEN
10'±-12'± WIDENING FULL SECTION 4" AC ON 16" AB
K STREET SECTION
NTS
(STA. 50+96.56 - 51+60.27)
(STA. 55+82.37 - 59+00.00)
R/W
56' ROW
EX 40' ROW
EX R/W
F/C
39'
EP
C/L ROADWAY
3'
8' S/W
6' L/S
8' BIKE
14' TRAVEL
11' TRAVEL
6' SHOULDER
2:1
NEW FULL ROADWAY SECTION 6"AC ON 20"AB
6" AC BERM PER ALAMEDA COUNTY STD DETAIL SD-305
M STREET SECTION
NTS
INTERIM CROAK ROAD FRONTAGE
ROW VARIES 56' TO 58.9'
VARIES 39' TO 41.9'
VARIABLE PAINTED MEDIAN
N STREET SECTION
NTS
INTERIM CROAK ROAD FRONTAGE

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

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

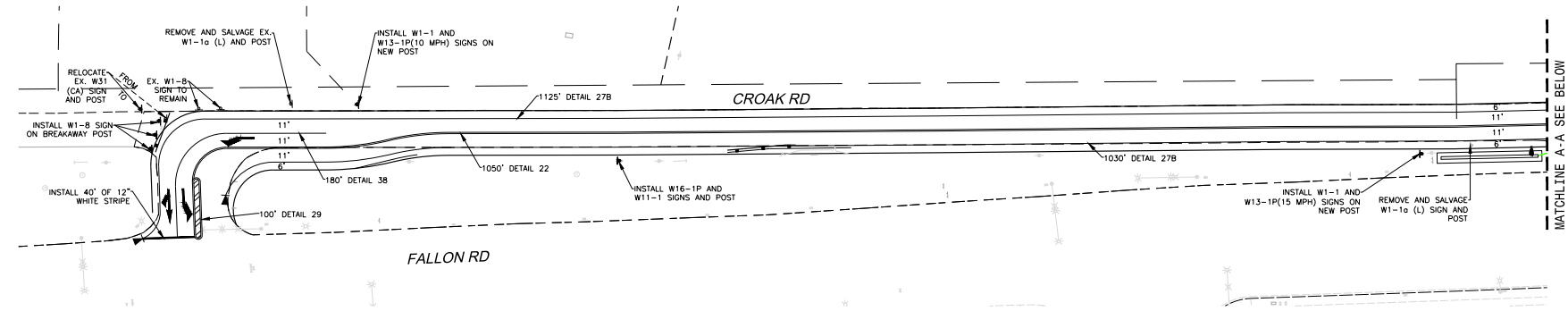
MACKAY & SOMPS
ENGINEERS PLANNERS SURVEYORS
5142 FRANKLIN DR, PLEASANTON, CA 94588 (925)225-0690

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

NO.	REVISION	DATE

PROJECT NO. 19343.000
SHT 31 OF 31

01-28-2021 11:35am Elliott Levitsky P:\19343-T\PLN\TM\TM-31 INTERIM CROAK ROAD IMPROVEMENTS (STA 59+00 - 68+87).DWG



SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021

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

R.C.E. 15347

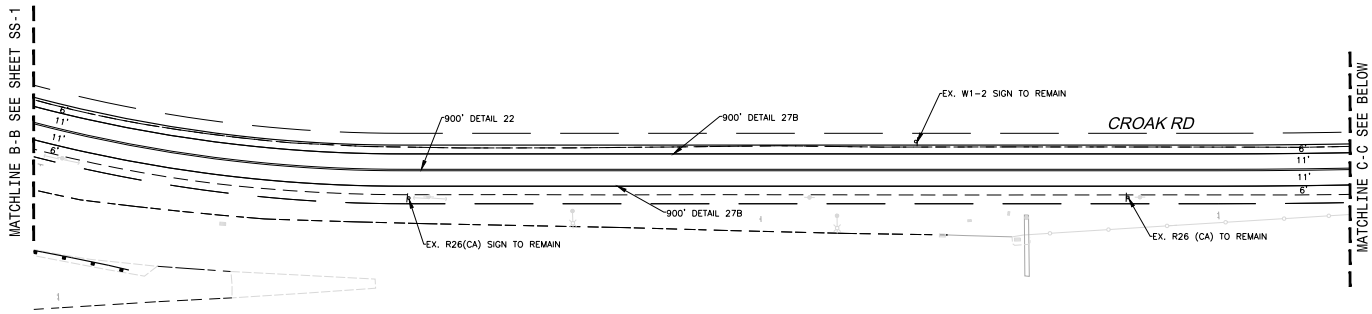
DESIGNED: ESB	
DRAWN: AD	
CHECKED: ESB	

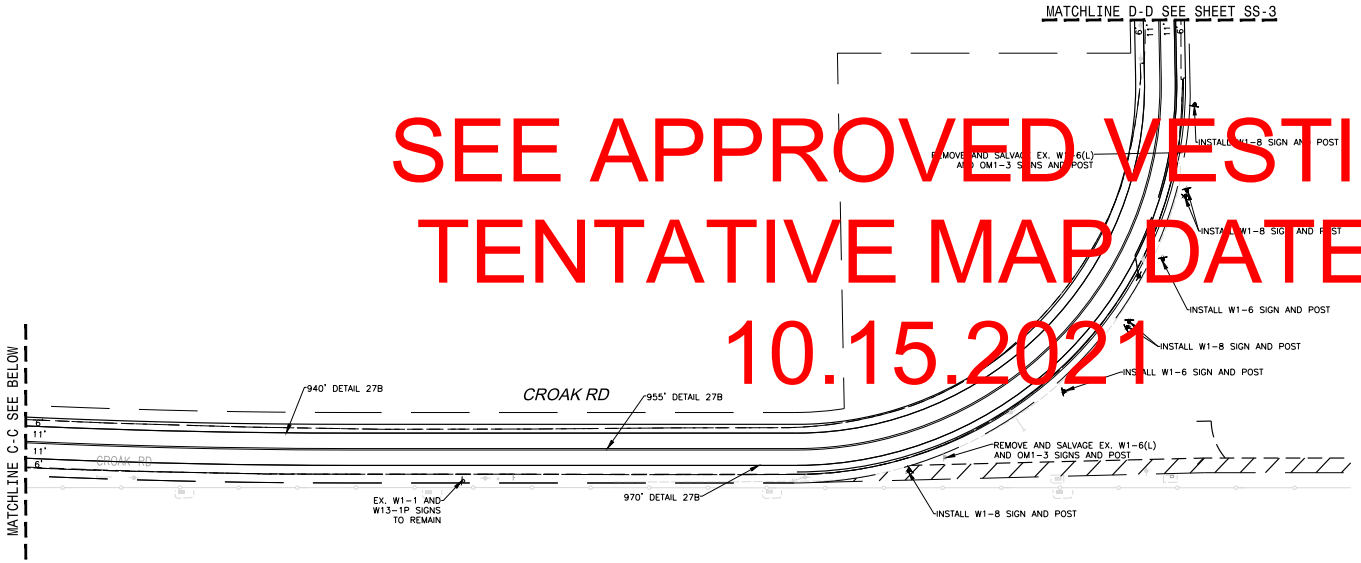
CITY OF DUBLIN

INTERIM CROAK ROAD IMPROVEMENTS

SIGNING AND STRIPING

DRAWING NO. XXX-XXX		SHEET SS-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

R.C.E. 15347

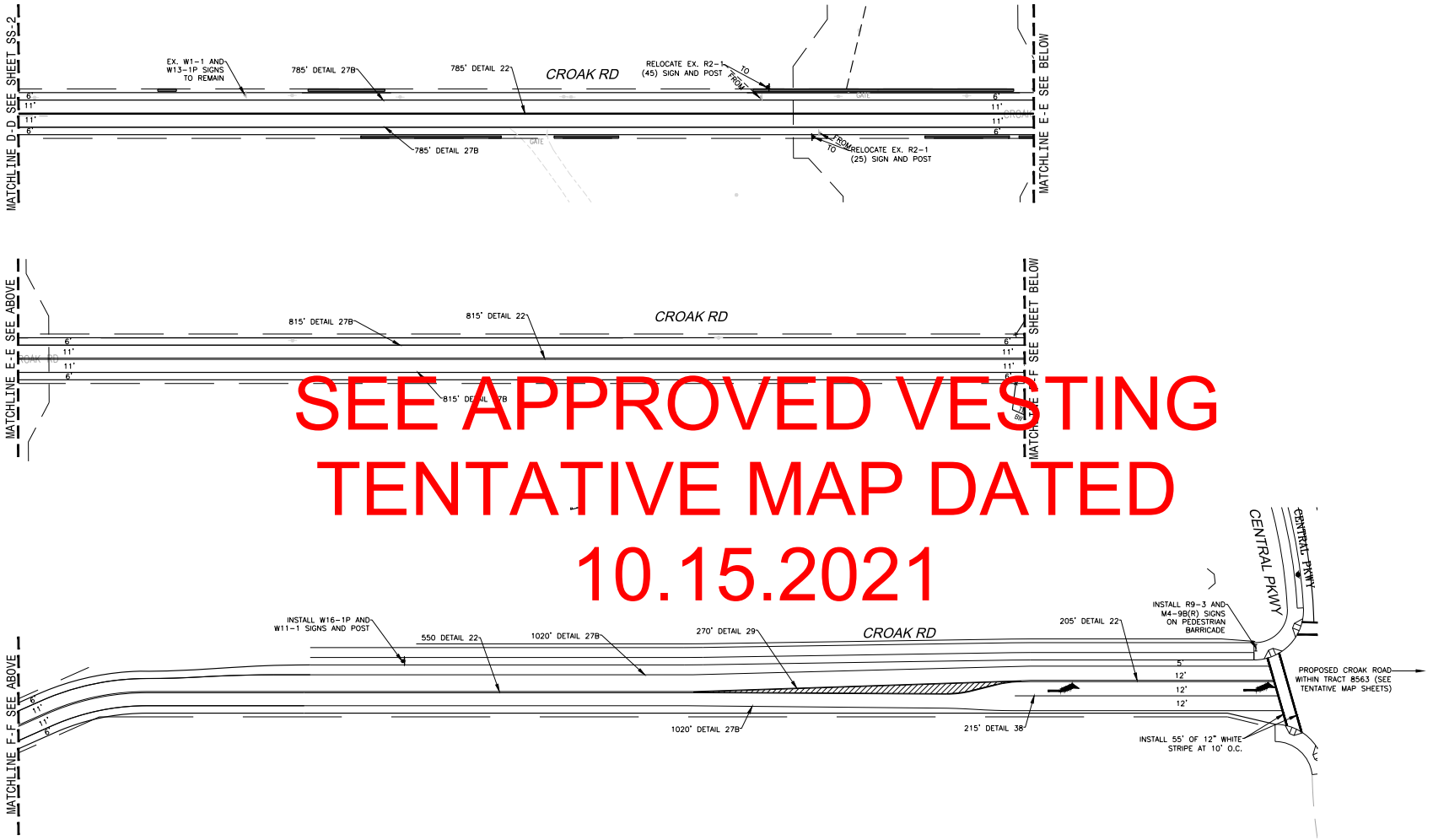
DESIGNED: ESB
DRAWN: AD
CHECKED: ESB

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



SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021

0 40' 80'

SCALE: 1"=40'

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

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

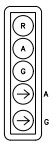
GENERAL NOTES

SEE TITLE SHEET

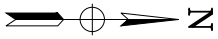
PROJECT NOTES (THIS SHEET ONLY)

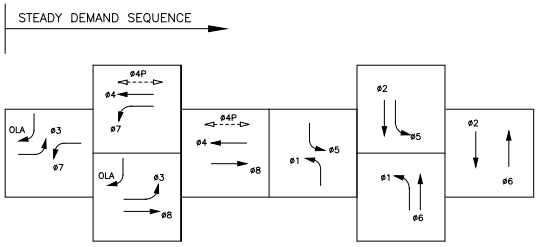
1 EXISTING NAZTEC MODEL 980 TYPE 2 TS2 IN A EXISTING TYPE P "STRETCH", (TS-2, TYPE 1) CABINET WITH EXISTING TYPE II-A STEEL SERVICE EQUIPMENT ENCLOSURE ATTACHED. MODIFY CABINET AS NEEDED FOR NEW SIGNAL OPERATION.

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



DETAIL A
5-SECTION HEAD





EXISTING PHASE DIAGRAM

EMERGENCY VEHICLE PREEMPT (EVP)

CHANNEL A = ø2 + ø5
CHANNEL B = ø4 + ø7
CHANNEL C = ø6 + ø1
CHANNEL D = ø8 + ø3

SEE APPROVED VESTING TENTATIVE MAP DATED 10.15.2021

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

R.C.E. 15347

35%

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

EAST RANCH (CROAK PROPERTY) | TRACT 8653
BASIS OF DESIGN REPORT:
EXISTING WETLAND

CITY OF DUBLIN, ALAMEDA COUNTY, CA

DECEMBER 2, 2020

PREPARED FOR:

WRA, INC.
ENVIRONMENTAL CONSULTANTS
2169-G EAST FRANCISCO BLVD
SAN RAFAEL, CALIFORNIA 94901
(415) 454-8868

PREPARED BY:

MACKAY & SOMPS CIVIL ENGINEERS, INC.
5142 FRANKLIN DR, SUITE B
PLEASANTON, CALIFORNIA 94588
(925) 225-0690

TABLE OF CONTENTS

List of Figures

List of Appendices

1. INTRODUCTION

1.1. LOCATION

The East Ranch (Croak Property) is part of the East Dublin Specific Plan and resides in the City of Dublin within Alameda County, California. A vicinity map for the Project is shown on **Figure 1**.

1.2. BACKGROUND

The Project is a ±165-acre development site which includes six (6) residential neighborhoods (composed of 573 units), open spaces, a semi-public space, and two (2) neighborhood parks. Within the open spaces of the Project site, there are ±0.4-acres of existing seasonal wetland, and the Project development must avoid changing the hydrological and physical characteristics of the seasonal wetland. A layout of the Croak Property proposed development is shown on **Illustration 1,** which visually depicts that the Project is not proposing to fill or physically modify the wetland.

1.3. PURPOSE

The objective of this *Basis of Design Report* is to demonstrate the Project's development will not disturb the hydrologic balance of the existing seasonal wetland. The analysis presented will show the Project's developed condition will maintain the wetland's hydrology, and therefore not impact the aquatic resources of jurisdictional waters (seasonal wetland).

Illustration 1. Croak Property Proposed Development

2. HYDROLOGIC SETTING

2.1. SUMMARY

The Project's watershed covers approximately 200 acres, and generally drains south through natural pathways with moderate to steep slopes (5% to 15%). About 70% of the Project site (140 acres) drains to the existing wetland before flowing off-site into a series of existing concrete drainage structures and manmade channels that discharge to the Arroyo Mocho channel.

2.2. CONDITIONS

Pre-Project

The Croak Property ***pre-project*** watershed (±200-acre), consisting of undeveloped grassy hillsides, has historically served as land for farming/grazing activities and is less than 2-acres of impervious cover. Surface runoff from the site is conveyed southward by natural earthen flowpaths to the seasonal wetland. Refer to **Figure 2** for a ***pre-project*** map.

Post-Project

The Croak Property ***post-project*** watershed (±200-acre) encompasses a development area of about 140 acres, and the low-density/medium-density residential neighborhoods have a gross impervious cover of about 55% (75 acres). Surface runoff from the site is collected by a stormdrain system and routed into bioretention facilities for water quality treatment. A portion of the treated runoff, outflowing from bioretention facilities, will be hydraulically controlled and diverted into the existing seasonal wetland. Refer to **Figure 3** for a ***post-project*** map.

3. WETLAND SUMMARY

3.1. DESCRIPTION

A detailed layout of the ±0.4-acre existing seasonal wetland is shown on **Figure 4**. The existing wetland is located at the southern end of the Croak Property and begins downstream of an existing culvert crossing under the existing Central Parkway roadway.

The existing wetland has an elongated irregular shape, but has the following average parameters:

- Length = ±460 feet
- Width = ±30 feet
- Depth = ±0.6 feet
- Slope = ±3%

The wetland's surrounding vegetative cover includes non-native upland grasses and tree species. The underlying native soils of the wetland have relatively low hydraulic conductivity, with infiltration rates around 0.2 inches per hour according to preliminary geotechnical investigation (performed by *Berlogar Stevens & Associates*, 2020).

3.2. JURISDICTION

The Project's ±0.4-acre existing seasonal wetland may be considered jurisdictional by the U.S. Army Corps of Engineers and the Regional Water Quality Control Board (RWQCB). However, the potentially jurisdictional seasonal wetland will be avoided by the Croak Property development. This statement is further corroborated by the *Biological Resource Assessment Report* (prepared by *WRA Environmental Consultants*, 2020), which will be briefly summarized in the next section.

3.3. IMPACTS

According to the *2020 CEQA Statute & Guidelines Handbook – Appendix G. Environmental Checklist Form, Section IV Biological Resources*:

> *Would the Project:*
>
> *c) Have a substantial adverse effect on state or federally protected wetlands (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?*

To ensure the Croak Property development will not adversely impact the ±0.4-acre existing seasonal wetland, the following avoidance practices will be implemented:

Pre-Construction Activities:

- Habitat boundaries of the seasonal wetland will be clearly delineated by a qualified professional biologist
- Boundary will be marked with highly visible flags/stakes for construction crews

Construction Activities:

- Grading disturbances will not be permitted within the delineated habitat boundary for the seasonal wetland
- Heavy grading equipment/machinery usage will be minimized in close proximity to wetland, hand equipment utilized when feasible

- Typical Best Management Practices (BMPs) will be followed to prevent site runoff (pollutants and sediment) from discharging into the seasonal wetland

Hydrology:

- Project will protect the hydrologic processes of the seasonal wetland
- Project's ***full build-out*** condition will restore flows to the wetland to mimic ***undeveloped*** condition wetland's hydrology

Note: The following *Basis of Design Report* will focus on demonstrating the Croak Property Project will not impact the existing seasonal wetland from a hydrology perspective.

4. HYDROLOGY OVERVIEW

4.1. RAINFALL OVERVIEW

Historical rainfall records were obtained from the National Oceanic and Atmospheric Administration (NOAA) for a 20-year period to determine typical precipitation ranges for the Project site. The historical records were analyzed to define the feasibility and practicality of running hydrologic simulation by:

- applying a complete annual record with directly input gage records
  or
- developing individual design storm events from gage records with rainfall ranging from large (10-year) to small (1-year) events

4.2. MODELING OVERVIEW

A preliminary hydrologic analysis of the existing seasonal wetland was developed using the software HEC-HMS (Army Corps of Engineers). HEC-HMS is a modeling platform which simulates precipitation-runoff processes for natural and urbanized watersheds.

The HEC-HMS modeling was created to determine the difference in peak storm runoff between the existing wetland during the ***existing*** condition ("***undeveloped***") and the ***proposed*** condition ("***full build out***"). The differences in flowrates between ***existing*** and ***proposed*** represents the flows which must be restored to the wetland for hydrology preservation.

5. HYDROLOGY ANALYSIS

5.1. RAINFALL ANALYSIS

Gage Records

Daily rainfall records were accessed for gage records, within Alameda County, provided by NOAA. Among the available precipitation gages, the Livermore Municipal Airport Gage, is closest to the Croak Property. Daily records were obtained for the Livermore Gage from 1999 to 2019. A plot of the gage records by year over the 20-year period is summarized in **Appendix A**.

Daily to Hourly

Hourly rainfall records are desired for running a hydrology simulation to develop runoff hydrographs; however, hourly records are incomplete for the Livermore Municipal Airport Gage. As a compromise, daily rainfall records were transformed into hourly records using the 24-hour design storm from the Alameda County Flood Control District Hydrology & Hydraulics Manual, 2018 (ACFCD H&H Manual) – refer to **Illustration 2**. Additional details for the rainfall distribution are included in **Appendix B**.

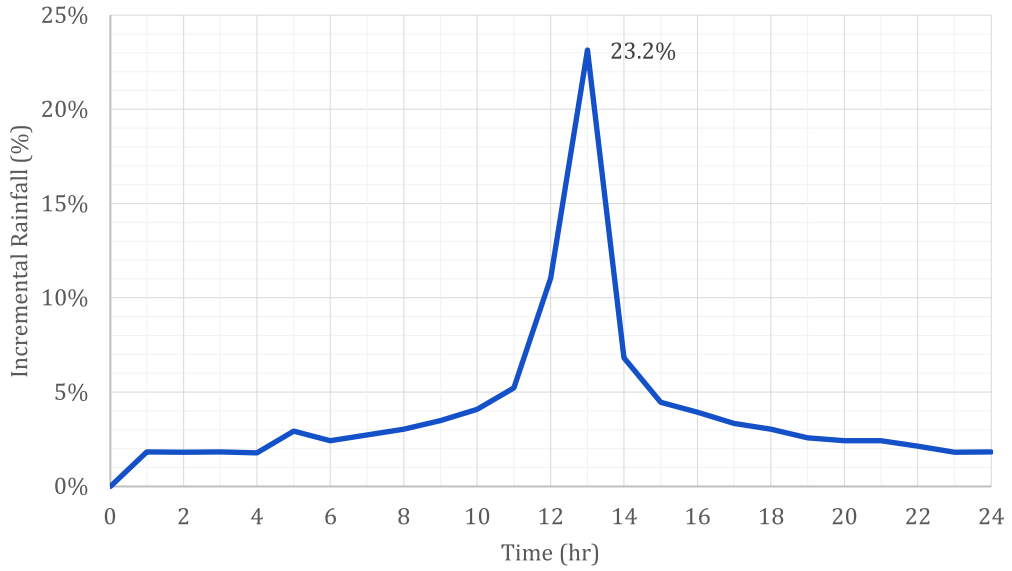


Illustration 2. Rainfall Distribution for 24-Hour Design Storm

A suitable transformation method for converting rainfall data from daily totals to hourly distribution involves applying the ACFCD H&H Manual 24-hour design storm distribution. The application of the H&H Manual 24-hour storm distribution may potentially lead to slightly higher or lower rainfall intensities in comparison to real-time hourly rainfall records (if the hourly gage data was available).

However, due to the unavailability of hourly rainfall records, the hydrologic simulation model provides a reasonable methodology and is used to compare the existing seasonal wetland during the Project site's ***existing*** and ***proposed*** conditions. The comparison of flows between ***existing*** and ***proposed*** is crucial for demonstrating no hydrologic impacts to the wetland.

Annual Totals – Wet Year and Dry Year

To establish an annual rainfall period with the highest and lowest cumulative totals, annual totals were reviewed across the 20-year period (1999 to 2019). These annual totals, from the Livermore Municipal Airport Gage, show the "wet year" (highest annual total) was 2017 with 21.0 inches and the "dry year" (lowest annual total) was 2013 with 4.6 inches – refer to **Illustration 3**.

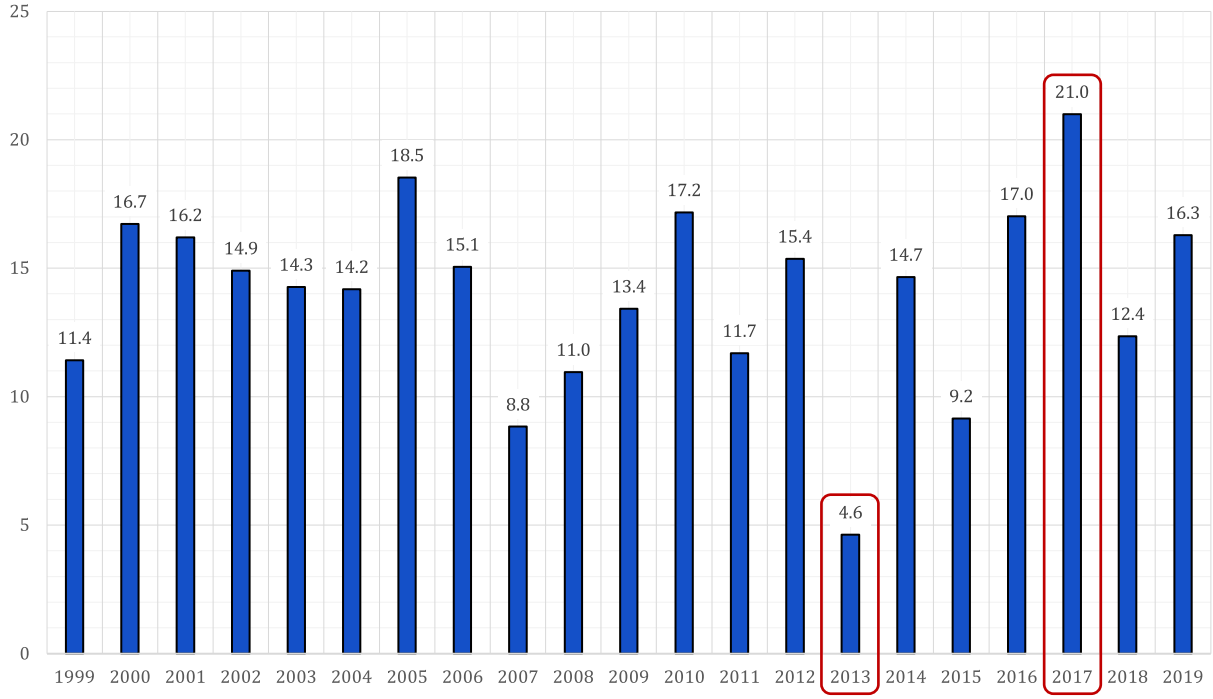


Illustration 3. Annual Precipitation Totals

Daily Ranges for Wet Year and Dry Year

The classifying of "wet year" and "dry year" can be deceiving because the annual totals do not indicate the intensity of an individual storm (i.e. 24-hour event) which may have occurred within the designated "wet year" or "dry year". To expand on this concept of individual storm variation, rainfall depths for the first, second, and third highest daily rainfall records, throughout the specified year, are tabulated in **Table 1**.

Table 1. Annual Rainfall and Highest Daily Rainfall

Year	Total Annual Rainfall (in)	1st Highest Total Daily Rainfall (in)	2nd Highest Total Daily Rainfall (in)	3rd Highest Total Daily Rainfall (in)
1999	11.4	0.95	0.84	0.68
2000	16.7	1.82	1.15	1.09
2001	16.2	1.14	1.04	0.94
2002	14.9	2.76 "Largest Daily"	1.66 "Largest Daily"	1.23
2003	14.3	1.14	0.91	0.86
2004	14.2	1.72	1.39	1.11
2005	18.5	2.07	1.13	1.10
2006	15.0	0.91	0.81	0.78
2007	8.8	0.80 "Smallest Daily"	0.71	0.65
2008	10.9	2.32	0.80	0.75
2009	13.4	2.75	0.93	0.89
2010	17.2	1.13	1.02	0.81
2011	11.7	0.97	0.78	0.67

Year	Total Annual Rainfall (in)	1st Highest Total Daily Rainfall (in)	2nd Highest Total Daily Rainfall (in)	3rd Highest Total Daily Rainfall (in)
2012	15.3	1.85	1.24	0.92
2013 "Dry"	4.6	1.12	0.46 "Smallest Daily"	0.36 "Smallest Daily"
2014	14.6	2.56	1.41	1.28 "Largest Daily"
2015	9.2	1.48	0.96	0.69
2016	17.0	1.27	0.88	0.85
2017 "Wet"	21.0	2.06	1.58	1.15
2018	12.3	1.60	0.76	0.68
2019	16.3	1.35	1.05	0.95

Referring to **Table 1**, it can be deduced that the designated "wet year" or "dry year" does not necessarily imply the largest daily rainfall records or the smallest daily rainfall records. The selection of "wet year" and "dry year", from rainfall gage annual totals, to mimic a representative yearly period of low rainfall and high rainfall has the following **limitation** – it fails to divulge the frequency occurrence of extremely large storms, which in turn may result in vastly differing peak flowrates when performing a hydrologic analysis with the "wet year" and "dry year". To further explain this **limitation** of running a hydrologic analysis, a hypothetical scenario will be explained:

> *Long term annual records reveal a "wet year" and "dry year" with 20 inches and 5 inches of total rainfall. The nominal "wet year" has 20 days with daily records of 2 inches and the nominal "dry year" has 2 days with daily records of 2.5 inches. When completing hydrologic modeling for the system, the "wet year" produces lower peak flowrates than the "dry year".*

While the "wet year" and "dry year" rainfall analysis is beneficial for establishing bookend conditions for the wetland's hydrology, the limitations noted above leave this approach lacking. To elaborate, using the "wet year" and "dry year" rainfall data to design a storm system to maintain the existing wetland's hydrology is not truly representative of the wetland pre-development condition over a long-term period. To address this issue and provide a representative assessment, the present hydrology analysis investigated an expanded period (20 years) of average rainfall data to design a system to mimic the wetland's pre-development hydrologic cycles.

Rainfall Averages – Summary

The application of using "wet year" and "dry year" for hydrologic analysis would require running the simulation model for a full year and extracting specific storm events. However, as mentioned previously the 2017 "wet year" and 2013 "dry year" (per annual totals from the Livermore Municipal Airport Gage) do not necessarily imply the "wet year" or "dry year" correlate to some of the largest or smallest individual storm events.

To address the shortcomings of using the "wet year" and "dry year", a range of representative storm events must be developed across the 20-year period (1999 to 2019). The development process involves completing a rainfall **ranking** and **grouping**, which involves the following:

- Rainfall **Ranking**: Organize and plot all daily rainfall records over the 20-year period in order from largest to smallest – refer to **Illustration 4**
- Rainfall **Grouping**: Cluster together rainfall records into **four tiers**, where the ***First Tier*** has the highest daily rainfall, the ***Fourth Tier*** has the lowest daily rainfall, and the middle two (2) tiers (***Second Tier*** and ***Third Tier***) are clusters of intermediate daily rainfall;

Estimate an average daily rainfall for each of the four (4) tiers – refer to **Illustrations 5**, **6**, **7**, and **8**

Tabulation of records for the **ranking** and **grouping** of daily rainfall records are presented in **Appendix C**.

Rainfall Averages – Ranking Process

The **ranking** of all daily records involves excluding all daily precipitation values below 0.5-inches of depth. Daily rainfall depths below 0.5-inches are deemed not relevant for the hydrology analysis, as these rainfall depths generate a relatively low runoff potential for natural, undeveloped watersheds. Over the 1999 to 2019 period, there are 7,670 days, however, only 170 days show daily rainfall depths of 0.5-inches or larger. These 170 days of record are plotted from largest to smallest (**Illustration 4**).

Rainfall Averages – Grouping Process

The **grouping** of all daily records requires a visual inspection of the data, and the clustering of rainfall records is achieved as follows: (i) identify and select a series of consecutive, sequentially ordered records, (ii) verify if a linear trend line of constant slope will represent the cluster of rainfall records selected, and (iii) document the range of rainfall records within the cluster – upper bound and lower bound.

Based on the selected cluster of rainfall records into **four tiers**, an average daily rainfall depth is determined for each – a summary is shown in **Table 2**. The **four tiers** of rainfall events are applied, in conjunction with the ACFCD H&H Manual 24-hour design storm distribution, as design storm input for hydrologic modeling analysis.

Table 2. Rainfall Grouping: Tiers

Rainfall Tier	Range of Rainfall Depths	Average Rainfall Depth	Approximate Recurrence Interval *
First Tier	Depths ≥ 2.0 inches	2.42 inches	±10-Year *
Second Tier	1.5 inches ≤ Depths < 2.0 inches	1.71 inches	±5-Year *
Third Tier	1.2 inches ≤ Depths < 1.5 inches	1.33 inches	±2-Year *
Fourth Tier	1.0 inches ≤ Depths < 1.2 inches	1.09 inches	±1-Year *

* Estimated using comparison with design storm depths determined with ACFCD H&H Manual.

Design Storm Depths

As a reference point, the design storm depths for the 24-hour duration are computed using the ACFCD H&H Manual equation. Rainfall depths calculated at the 2-year through 100-year recurrence intervals are shown in **Table 3**. Computations for design storm depths using the Manual are included in **Appendix D**.

Table 3. Design Rainfall Depths

Recurrence Interval	Duration	Rainfall Depth
2-Year	24 hours	1.46 inches
5-Year	24 hours	2.06 inches
10-Year	24 hours	2.47 inches

Recurrence Interval	Duration	Rainfall Depth
15-Year	24 hours	2.69 inches
25-Year	24 hours	2.96 inches
50-Year	24 hours	3.32 inches
100-Year	24 hours	3.68 inches

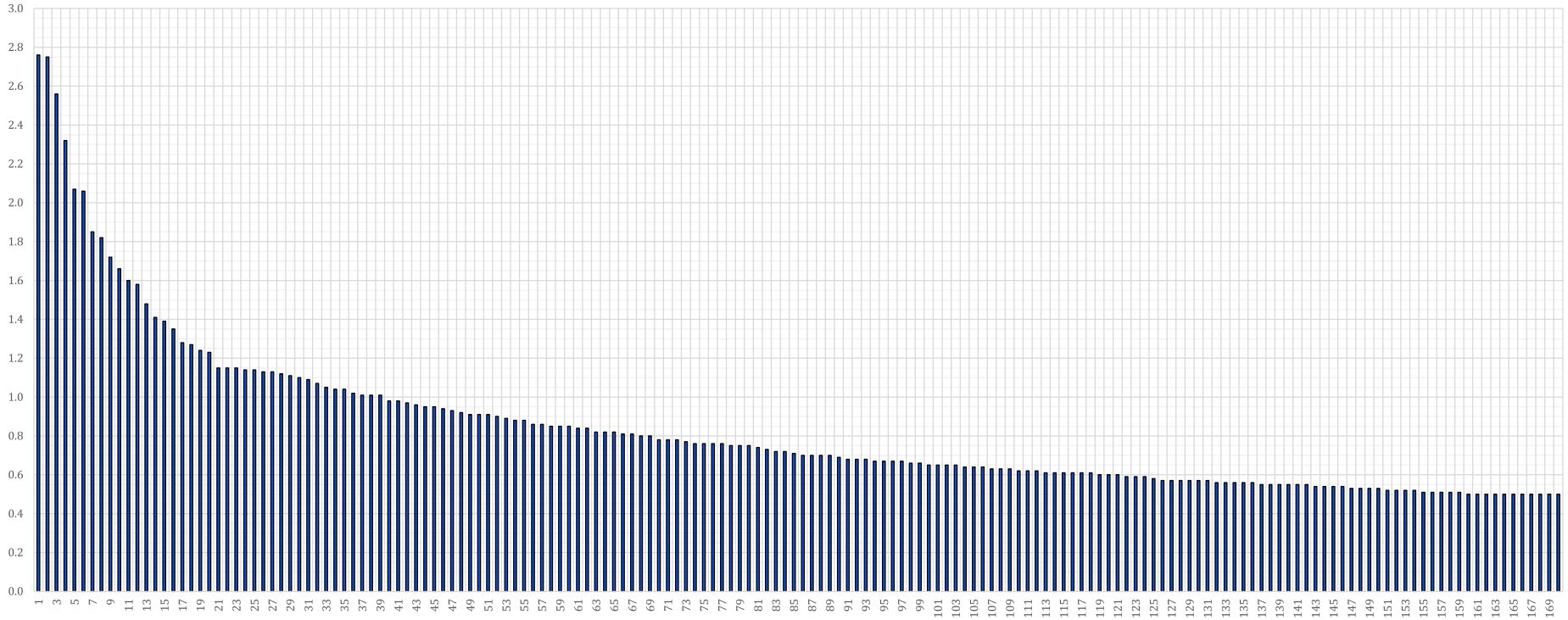


Illustration 4. Daily Rainfall Records: Ranking

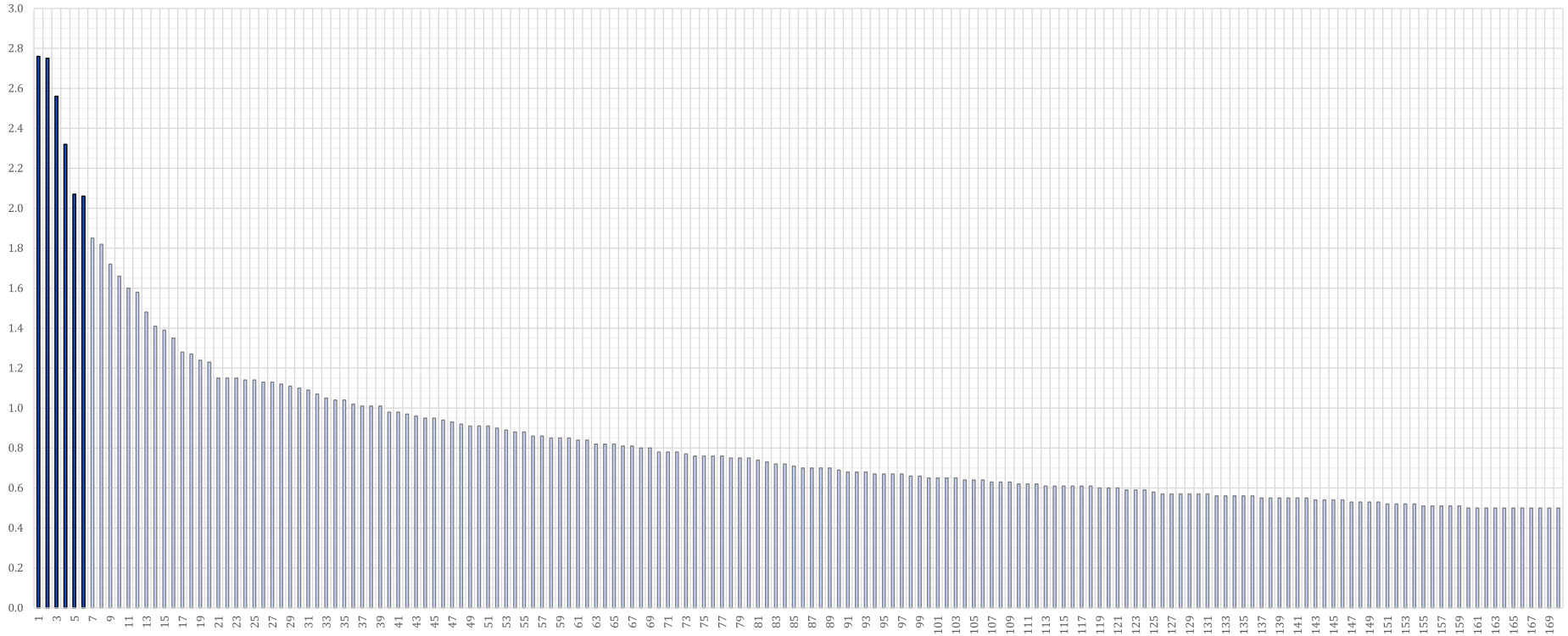


Illustration 5. Daily Rainfall Records: First Tier Grouping

(Average Daily Rainfall = 2.42 inches)

±10-Year Storm Event

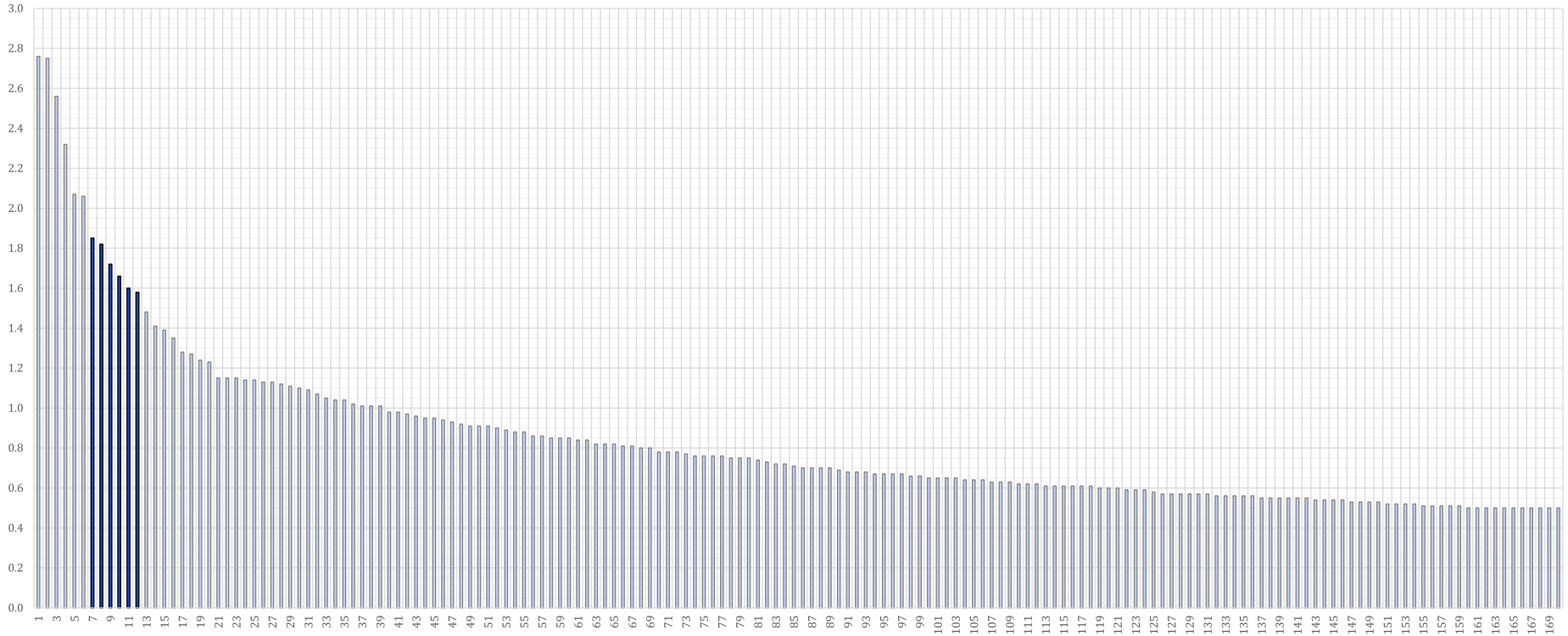


Illustration 6. Daily Rainfall Records: Second Tier Grouping

(Average Daily Rainfall = 1.71 inches)

±5-Year Storm Event

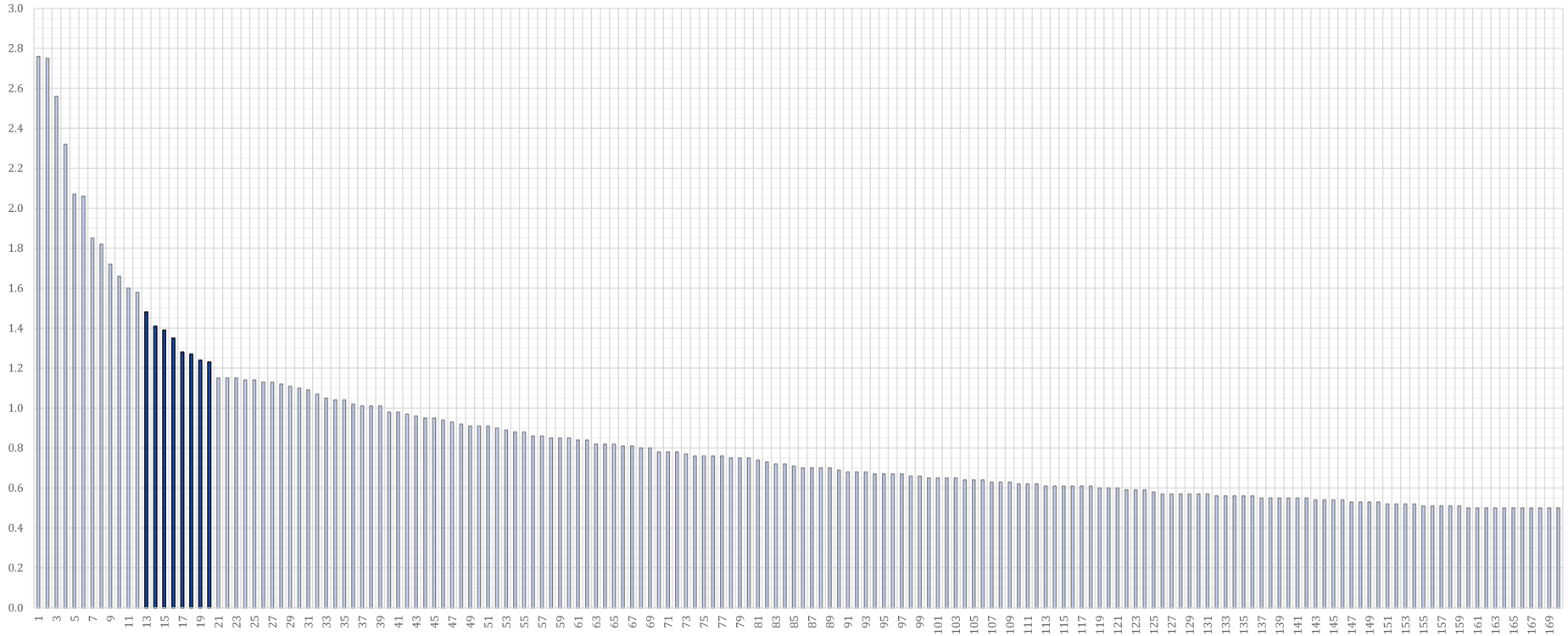


Illustration 7. Daily Rainfall Records: Third Tier Grouping

(Average Daily Rainfall = 1.33 inches)

±2-Year Storm Event

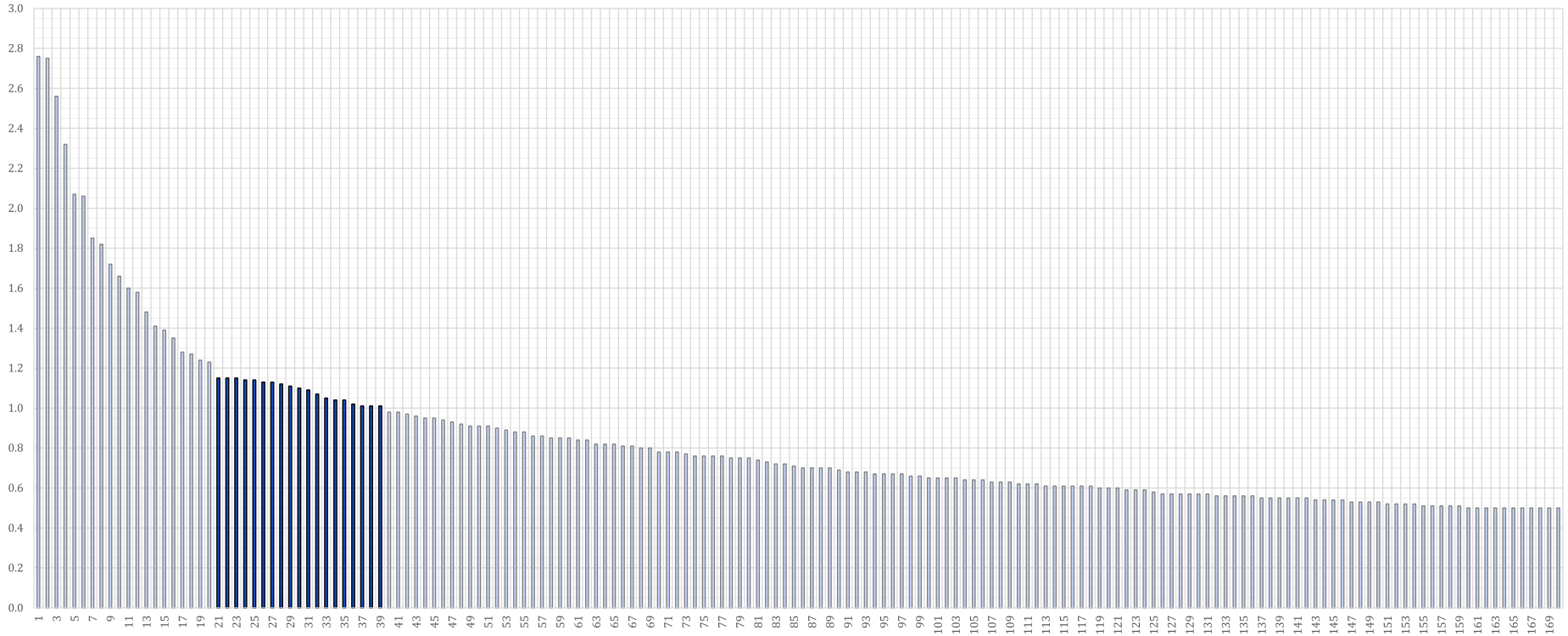


Illustration 8. Daily Rainfall Records: Fourth Tier Grouping

(Average Daily Rainfall = 1.09 inches)

±1-Year Storm Event

5.2. MODELING ANALYSIS

Model Summary

The existing seasonal wetland was analyzed using the HEC-HMS software for both ***existing*** and ***proposed*** conditions. These two conditions are described as follows:

- ***Existing***: represents the "***undeveloped***" condition, the Project watershed is undisturbed – about 140-acres of natural land comprise the watershed upstream of the existing seasonal wetland (refer to **Figure 5** for a watershed map)
- ***Proposed***: represents the "***full build-out***" condition, the Project watershed is graded, partially paved, and developed, which alters overland drainage paths, thereby drastically reducing the watershed area – about 1.5-acres of natural land will serve as a natural watershed to the existing seasonal wetland (refer to **Figure 6** for a watershed map)

The precipitation-runoff computations using HEC-HMS determines peak flowrates for the ***existing*** and ***proposed*** conditions. The differences in peak flowrates between both conditions represent the required flowrate which must be restored to the existing seasonal wetland in the ***proposed*** condition to maintain the wetland's hydrologic balance.

Model Setup

The HEC-HMS model requires two primary components for watershed precipitation-runoff simulations – ***loss method*** and ***transform method***. The "loss method" performs infiltration calculations for a watershed and the "transform method" performs surface runoff calculations for a watershed. Following the methodologies of the ACFCD H&H Manual, the hydrograph generation process applies "Initial and Constant" for ***loss method*** and "Snyder Unit Hydrograph" for ***transform method***. A summary of watershed input parameters the HEC-HMS simulation is shown in **Table 4**. Additional details and explanations of HEC-HMS input parameters are summarized in **Appendix E**.

Table 4. HEC-HMS Watershed Parameters

Condition	Total Area	Loss Method: Initial and Constant			Transform Method: Snyder Unit Hydrograph		
		Initial Losses	Uniform Losses	Impervious	Lag Time	Average Slope	Peaking Factor
Existing	140.0 ac	1.00 in	0.05 in/hr	1.08%	0.35 hr	266.8 ft/mi	0.72
Proposed	1.5 ac	1.00 in	0.05 in/hr	0.00%	0.12 hr	187.0 ft/mi	0.60

Model Results

The precipitation-runoff model was run for all **four tiers** of 24-hour rainfall events, and the peak flowrates and total volume were compared between the ***existing*** and ***proposed*** conditions – results summarized in **Table 5** and HEC-HMS output included in **Appendix E**.

Table 5. HEC-HMS Watershed Flowrates and Volumes

Rainfall Tier	24-Hour Rainfall Depth	Existing Condition		Proposed Condition		[Existing] – [Proposed]	
		Flowrate	Volume	Flowrate	Volume	ΔFlowrate	ΔVolume
First Tier ±10-Year	2.42 inches	80.8 cfs	9.92 ac-ft	0.9 cfs	0.11 ac-ft	79.8 cfs	9.81 ac-ft
Second Tier ±5-Year	1.71 inches	22.7 cfs	2.70 ac-ft	0.3 cfs	0.03 ac-ft	22.4 cfs	2.68 ac-ft

Rainfall Tier	24-Hour Rainfall Depth	Existing Condition		Proposed Condition		[Existing] – [Proposed]	
		Flowrate	Volume	Flowrate	Volume	ΔFlowrate	ΔVolume
Third Tier ±2-Year	1.33 inches	0.9 cfs	0.23 ac-ft	0.0 cfs	0.00 ac-ft	0.9 cfs	0.23 ac-ft
Fourth Tier ±1-Year	1.09 inches	0.4 cfs	0.14 ac-ft	0.0 cfs	0.00 ac-ft	0.4 cfs	0.14 ac-ft

6. HYDRAULIC ROUTING CONCEPTS

6.1. ROUTING OVERVIEW

The process of restoring flows to the existing seasonal wetland in the Project's ***full build-out*** condition will be achieved by routing flows via two (2) methods:

- geotechnical subdrains conveying groundwater flows
- stormdrain diversion structures routing treated runoff from the Project's development

6.2 GEOTECHNICAL SUBDRAINS

Geotechnical subdrains are typically installed as a standard part of geotechnical corrective grading when valley areas are filled during mass grading operations. The subdrains are perforated pipes (PVC) installed at the bottom of valley fill areas once unsuitable colluvium material is excavated and removed. The subdrains collect and route existing groundwater flows underneath the fill to provide slope and fill stability. These subdrains typically convey groundwater flows on a year-round basis.

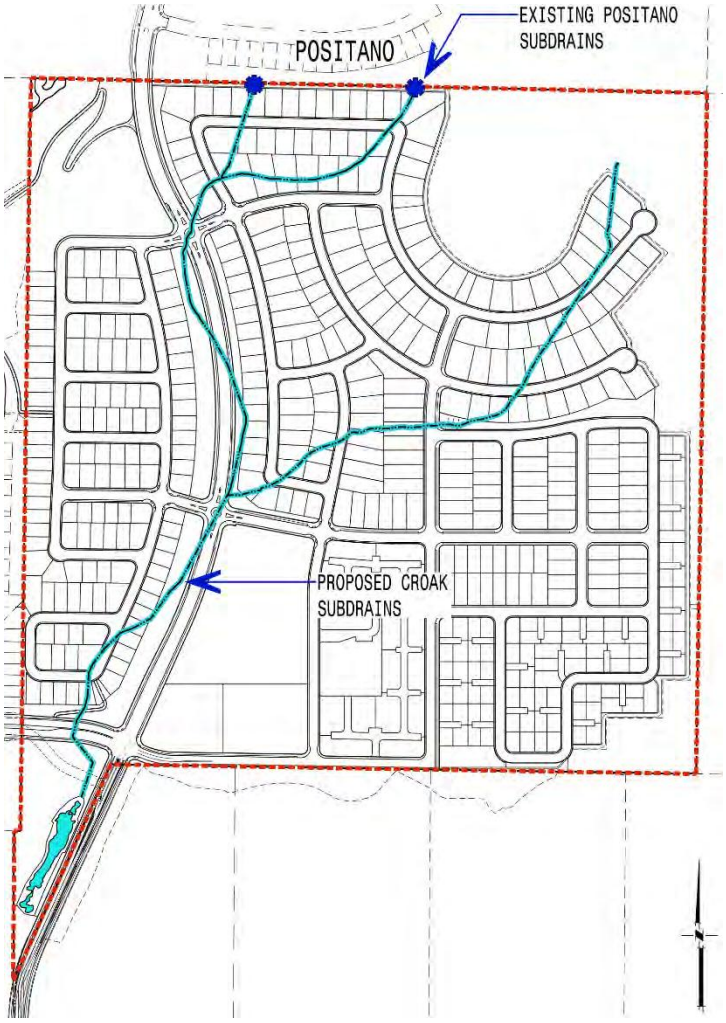


Illustration 9. Croak Property Existing Geotechnical Subdrains

Two (2) existing geotechnical subdrains from the Positano Project, located north of the Croak Project, currently discharge flows onto the Croak Property at the northerly terminus of two (2) valleys within the Property's boundary. These valley formations will be recontoured during the grading phase of the Croak Project development. During the grading of these valleys, the existing Positano Project subdrains will be extended southerly through the Croak Property along the bottom of the valley graded areas.

In the post-development condition, the combined geotechnical subdrains from Positano and Croak will direct flows to the existing seasonal wetland (refer to **Illustration 9**). Subdrain flows from existing Positano are small, estimated at **0.002 cfs**, and additional subdrain flows from the Croak Project will contribute about **0.038 cfs**.

The combined geotechnical subdrains provide low volume, clean groundwater flows that are seasonally variable and will contribute post-development clean flows to the existing seasonal wetland as part of the hydrologic water balance. However, given the low volume of these groundwater flows, additional treated runoff from the Project development will need to be routed to the wetland for maintaining hydrologic balance and retaining the character as a seasonal wetland feature.

6.3 STORMDRAIN DIVERSION STRUCTURES

To supplement the geotechnical subdrain groundwater flows and uphold the hydrologic water balance, the Croak Project proposed stormdrain system will incorporate diversion structures designed to separate and convey treated runoff from the Project into the existing seasonal wetland in a manner that mimics the pre-development condition.

The hydraulic design of the stormdrain diversion structures, which will route treated runoff to the existing wetland, will be performed with the one-dimensional simulation software XPStorm (Innovyze). The details of the XPStorm hydraulics were excluded from this *Basis of Design Report*, however, a conceptual analysis of the XPStorm modeling is further described herein.

The Croak Project's proposed stormdrain system will implement three (3) diversion structures, each designed for a specific range of flow events, which includes the 1-year, 2-year, 5-year, and 10-year storms. The three (3) stormdrain diversion structures are described as follows:

- **Wetland Diversion Structure Number 1** (WDS #1) is designed to separate and divert low-range flows to the existing wetland. WDS #1 is located within *stormwater quality treatment basin 1* (SWQ1) and is connected to the bioretention subdrain outflow system. WDS #1 will divert treated runoff from the SWQ1 facility via orifice flow control devices. The WDS #1 orifices divert the 1-year (***Fourth Tier***) and 2-year (***Third Tier***) low flows (as shown in **Table 5** above) to mimic the existing wetland's hydrology during lower recurrence interval storm events.
- **Wetland Diversion Structure Number 2** (WDS #2) is designed to separate and divert the mid-range flows to the existing wetland. WDS #2 is located downstream of the hydromodification (HM) detention tank and will divert treated runoff from the HM tank via a weir flow control device. The WDS # 2 weir diverts the 5-year (***Second Tier***) mid-range flow to the existing wetland.
- **Wetland Diversion Structure Number 3** (WDS #3) is designed to separate and divert the high-range flows to the existing wetland. WDS #3 is located on the "high flow/open space

bypass stormdrain line" downstream from *stormwater quality treatment basins 2*, *3*, *4*, *6*, and *7* (SWQ2, SWQ3, SWQ4, SWQ6, and SWQ7). WDS #3 will divert treated runoff from *DMAs 2*, *3*, *4*, *6*, and *7* and clean "undeveloped" runoff from open space areas. WDS #3 includes a weir to divert the 10-year (***First Tier***) and above high flows to mimic the existing wetland hydrology during higher recurrence interval storms.

A conceptual diagram of the stormdrain diversion structures is depicted with a plan view and a section view in **Illustrations 10** and **11** for WDS #1 and in **Illustrations 12** and **13** for WDS #2 and #3. The general operation of the wetland's diversion structures is as follows:

- Runoff is captured by the Project's proposed stormdrain system and treated flows are routed to the diversion structure (Q_{IN})
- Stormwater flows enter a structure chamber which directs a portion of flow to the existing seasonal wetland (Q_{DIVERT}) and bypasses the remaining portion of flow to the downstream mainline system (Q_{OUT})

The balancing of routing flows between Q_{DIVERT} and Q_{OUT} for all three (3) proposed stormdrain diversion structures (WDS #1, #2, and #3) is based on designing flow control devices, weirs and orifices. The size and elevation of these weir and orifice configurations is determined with a hydraulic modeling software, such as XPStorm. Typically, an orifice with a low invert elevation is used to divert lower storm event flows (i.e. 1-year, 2-year), and a weir with a high crest elevation is used to divert higher storm event flows (i.e. 5-year, 10-year).

The stormdrain diversion structures will divert the "target" flows (Q_{DIVERT}) for the **four tiers** of rainfall events. These "target" flows are based on the delta flows, ***existing*** versus ***proposed***, per the HEC-HMS analysis of the existing seasonal wetland describe previously in this report (refer to **Table 5**).

Applying the BAHM modeling performed to address hydromodification (HM) management criteria, allowed determination of "available" treated outflows from the SWQ basins and HM tank. These "available" outflows were input into the XPStorm model as upstream flow entering the stormdrain diversion structure (Q_{IN}). The XPStorm modeling process of the three (3) diversion structures supported the conceptual hydraulic design for each structure to divert the "target" flows (Q_{DIVERT}) to the wetland. A summary of "available" flows, determined from BAHM, for the three (3) stormdrain diversion structures (WDS #1, #2, and #3) is presented in **Table 6**.

Table 6. Available Flows for Existing Wetland

Rainfall Tier	Geotechnical Subdrains *	WDS # 1 Q_{DIVERT}	WDS # 2 Q_{DIVERT}	WDS # 3 Q_{DIVERT}	"Target" Flow $Q_{DIVERT\ TOTAL}$
First Tier ±10-Year	0.04 cfs *	4.8 cfs	17.8 cfs	57.2 cfs	79.8 cfs
Second Tier ±5-Year	0.04 cfs *	4.2 cfs	14.6 cfs	3.6 cfs	22.4 cfs
Third Tier ±2-Year	0.04 cfs *	0.9 cfs	----	----	0.9 cfs
Fourth Tier ±1-Year	0.04 cfs *	0.4 cfs	----	----	0.4 cfs

* Geotechnical subdrains provide low-level, year-round flows to the existing seasonal wetland.

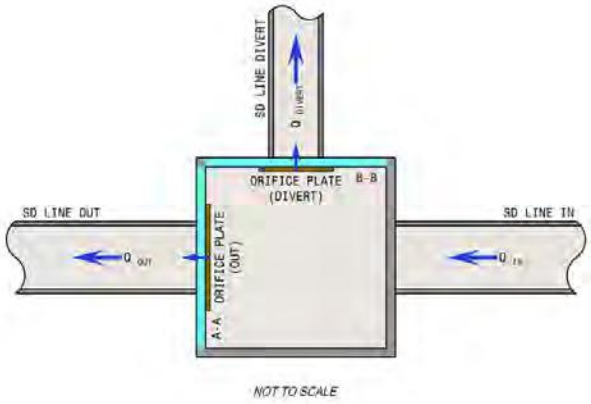


Illustration 10. Stormdrain Diversion Structure Concept: Plan View for WDS # 1

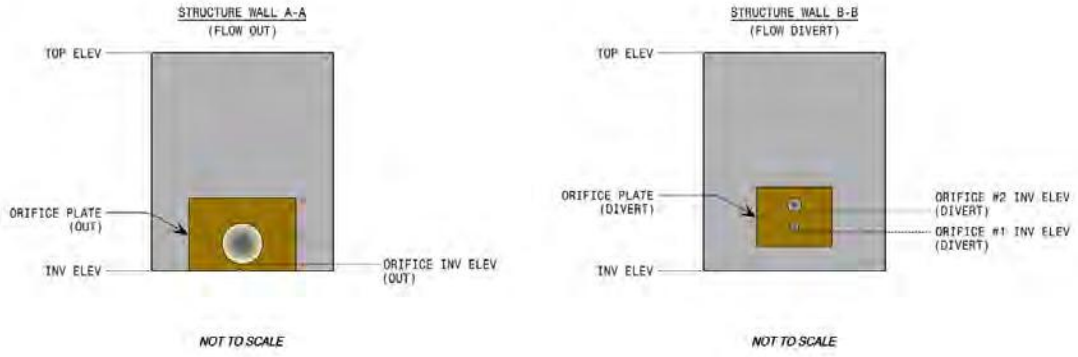


Illustration 11. Stormdrain Diversion Structure Concept: Section Views for WDS # 1

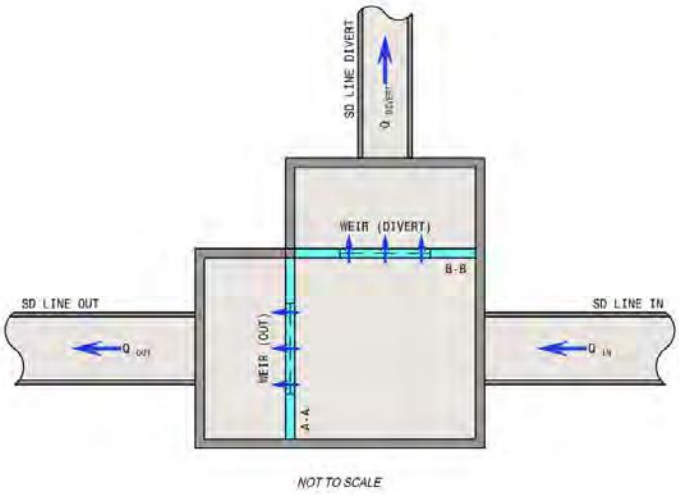


Illustration 12. Stormdrain Diversion Structure Concept: Plan View for WDS # 2 and # 3

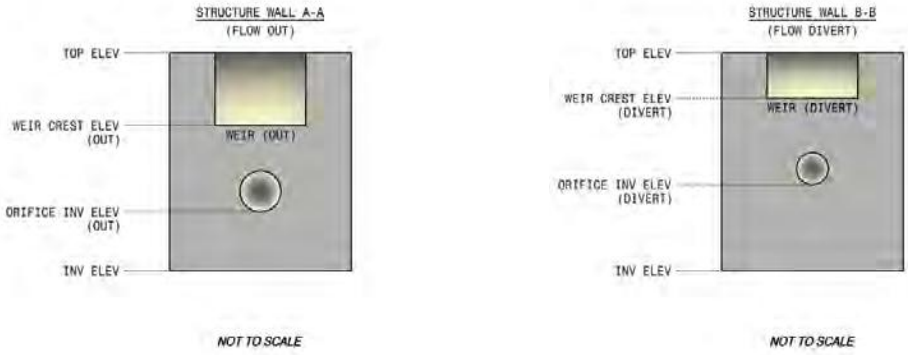


Illustration 13. Stormdrain Diversion Structure Concept: Section Views for WDS # 2 and # 3

7. MAINTENANCE / OWNERSHIP

The proposed stormwater quality (SWQ) basins and hydromodification (HM) tank will be located in parcels owned by the Geologic Hazard Abatement District (GHAD). The SWQ / HM facilities and the proposed stormdrain diversion structures (WDS #1, #2, and #3) will be maintained by the *Home Owners Association* (HOA) in accordance with the *Stormwater Operations and Maintenance (O&M) Agreement* that will be executed/recorded between the City of Dublin and the Developer.

8. CONCLUSION

8.1. OVERALL

The analyses presented in this *Basis of Design Report* was prepared to show the Croak Property Project's ***full build-out*** condition will not adversely disrupt the aquatic habitat and hydrological balance of the existing seasonal wetland.

The focal point of these analyses included hydrologic simulation modeling of the wetland's watershed (***existing*** versus ***proposed***) and conceptual hydraulic routing to the wetland in ***proposed*** condition.

8.2. HYDROLOGY AND HYDRAULICS

Hydrology

The hydrologic study for the existing seasonal wetland includes sorting through a 20-year period of daily rainfall records to determine a range of representative storm events. The process involves **ranking** and **grouping** rainfall records to create **four tiers** of rainfall events: First Tier (±10-Year Storm), Second Tier (±5-Year Storm), Third Tier (±2-Year Storm), and Fourth Tier (±1-Year Storm).

HEC-HMS modeling was applied for precipitation-runoff computations of both the ***existing*** 140-acre watershed and ***proposed*** 1.5-acre watershed. The simulation was run for the **four tiers** of rainfall events to determine peak flows for both conditions. The delta flows (differences in peak discharges between ***existing*** and ***proposed***) represents the required flows which must be routed to the existing seasonal wetland to protect hydrologic processes.

Hydraulics

During the ***full build-out*** condition, flows will be routed to the existing seasonal wetland from two (2) sources: geotechnical subdrains and stormdrain diversion structures. The subdrains will direct groundwater flows from the existing Positano Project to the north and from the Croak Project to ensure the existing wetland hydrology is maintained. The stormdrain diversion structures (WDS #1, #2, and #3) were conceptually designed to divert the "target" flows (Q_{DIVERT}) under the **four tiers** of rainfall events determined.

8.3. SUMMARY

This *Basis of Design Report* provided analysis of the existing seasonal wetland hydrology for both ***existing*** and ***proposed*** conditions to identify the difference in runoff ("delta flows") resulting from the Croak Property development. The Report also presented the conceptual hydraulic function of the proposed stormdrain system that will divert treated runoff at flow control levels imitating the existing wetland's hydrologic cycles. The restoring of flows to the wetland ensures the Project's post-development condition will not adversely disrupt the hydrologic water balance of the existing wetland.

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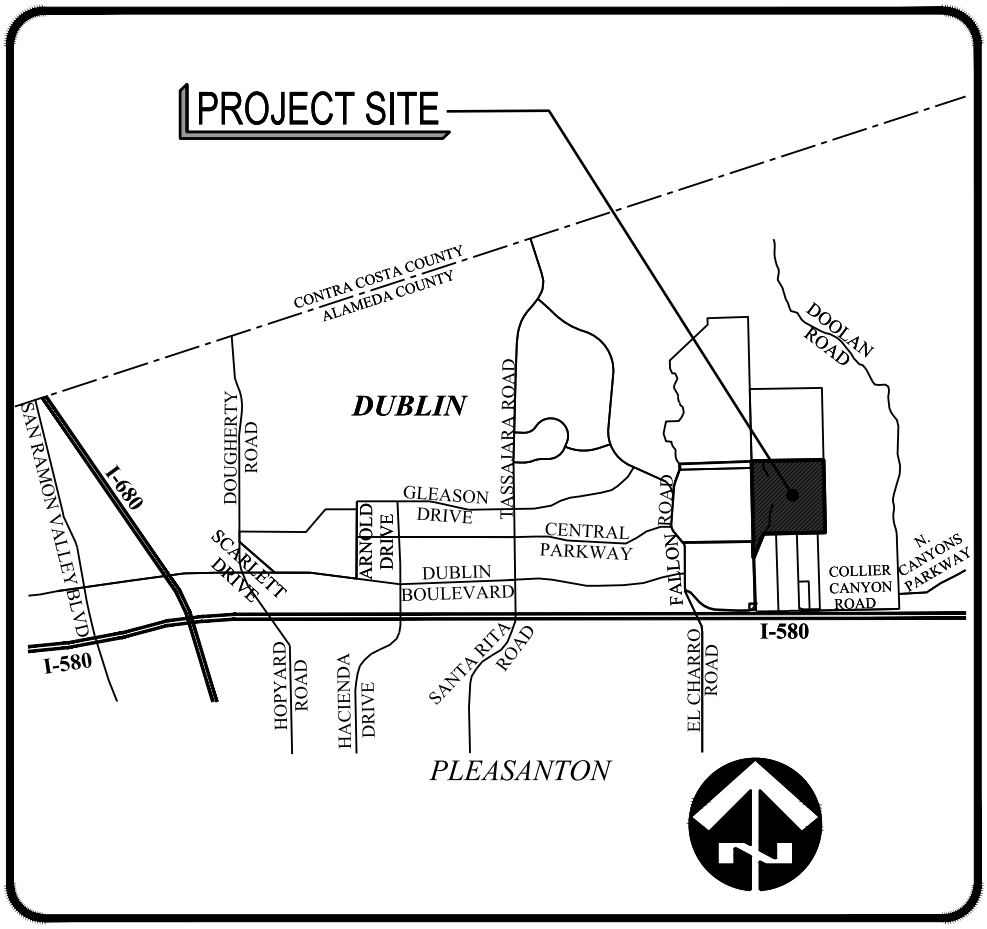

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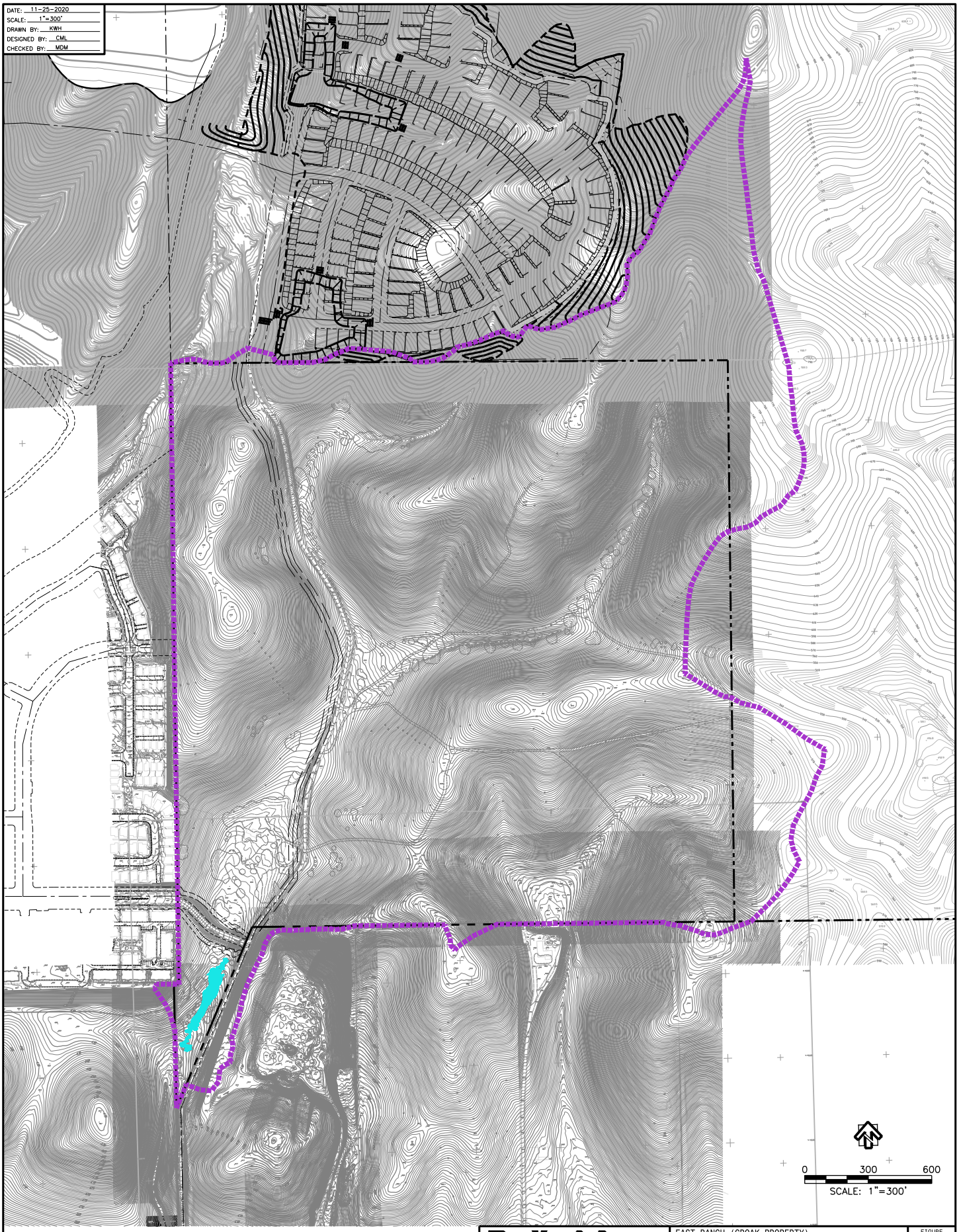
EAST RANCH (CROAK PROPERTY)
BASIS OF DESIGN REPORT: EXISTING WETLAND

VICINITY MAP

FIGURE 1



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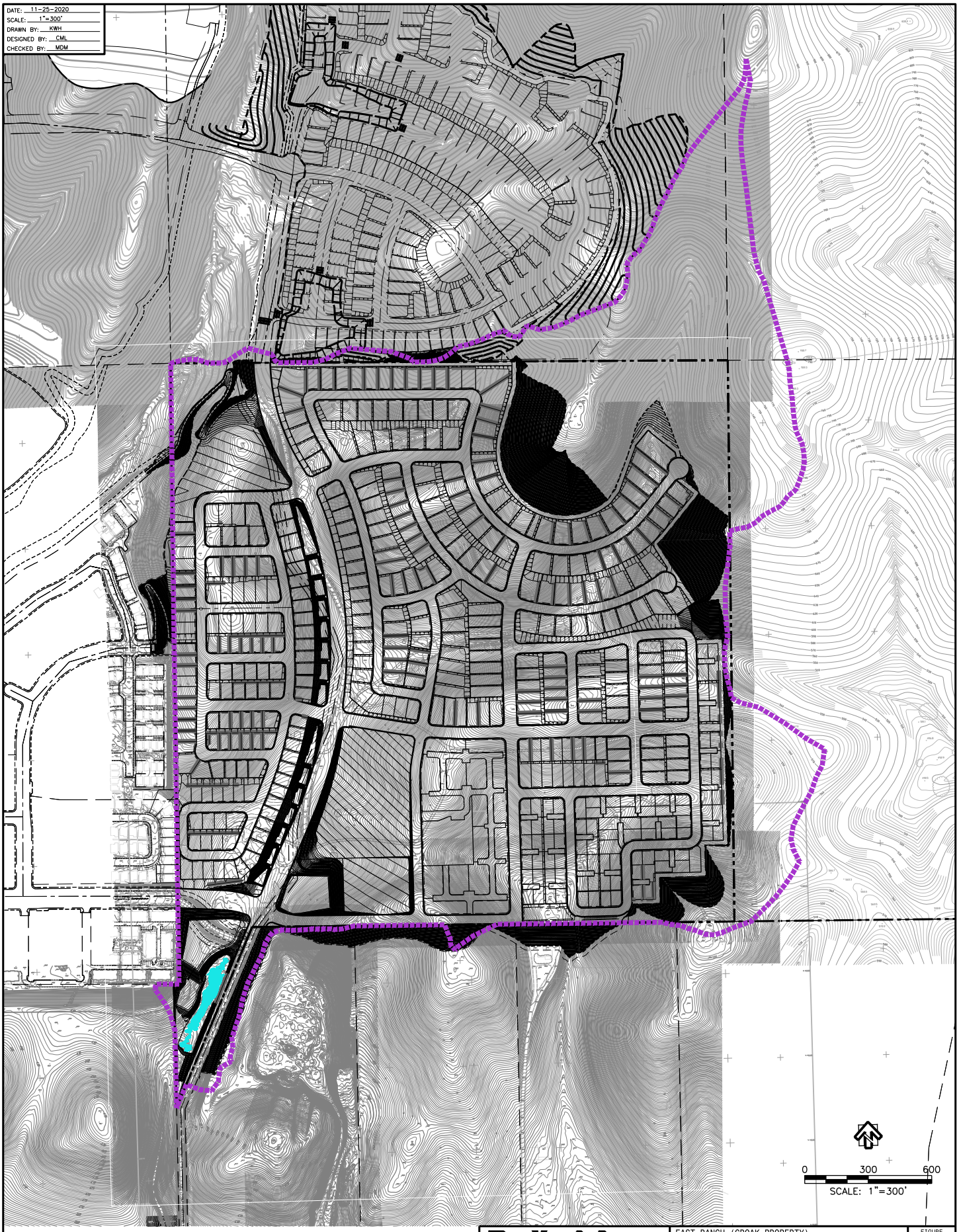
EAST RANCH (CROAK PROPERTY)
BASIS OF DESIGN REPORT: EXISTING WETLAND
PRE-PROJECT WATERSHED

FIGURE 2

11-23-2020 3:25pm Kenny Hyman P:\19343-T\PLN\HYDRO-P\BASIS OF DESIGN REPORT - FIGURE 2. PRE-PROJECT WATERSHED 2020-11-25.DWG



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EAST RANCH (CROAK PROPERTY)
BASIS OF DESIGN REPORT: EXISTING WETLAND
POST-PROJECT WATERSHED

FIGURE 3

11-23-2020 3:40pm Kenny Hyman P:\19343-T\PLN\HYDRO-P\BASIS OF DESIGN REPORT – FIGURE 3. POST-PROJECT WATERSHED 2020-11-25.DWG

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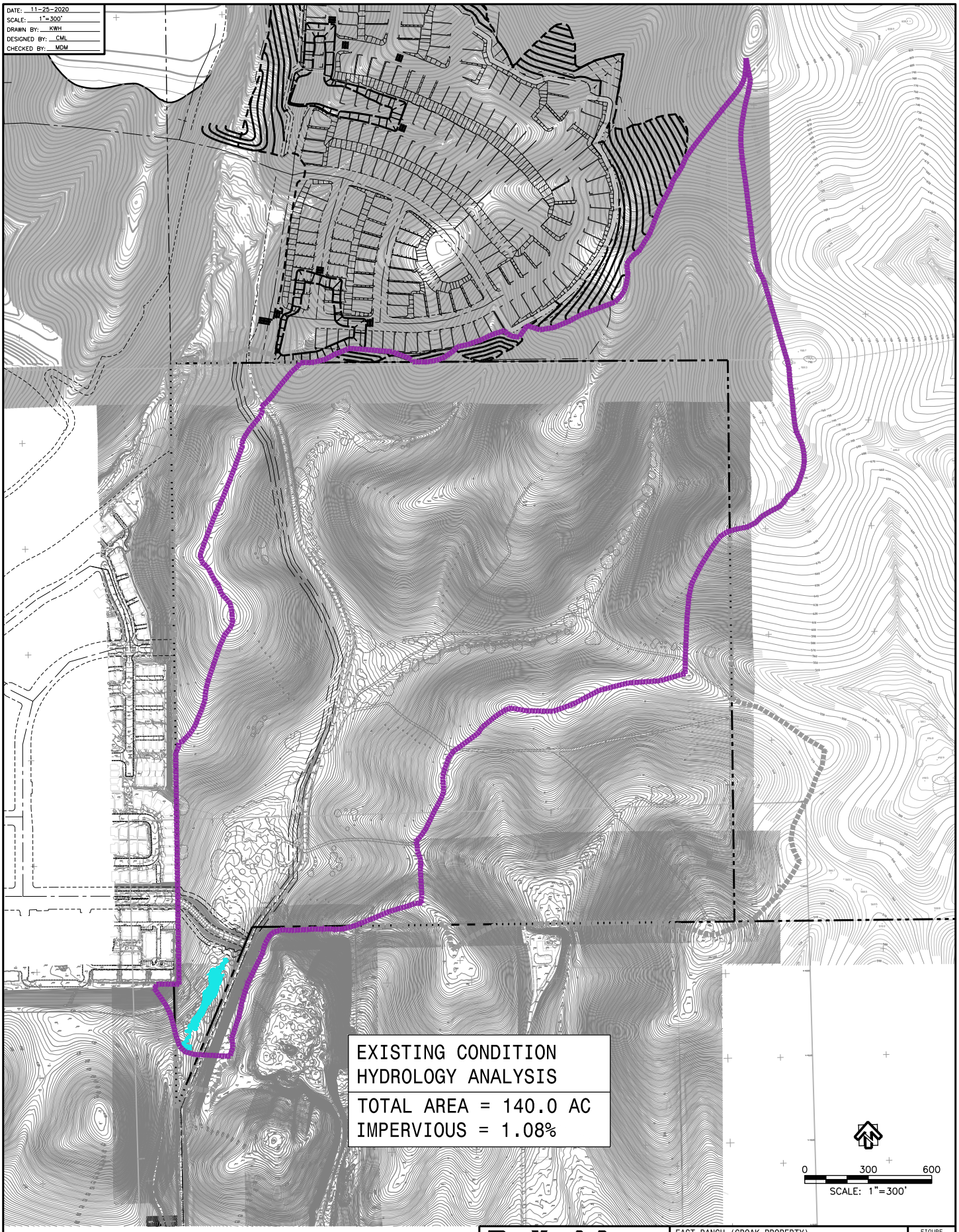
EAST RANCH (CROAK PROPERTY)
BASIS OF DESIGN REPORT: EXISTING WETLAND
EXISTING WETLAND DETAIL

FIGURE 4

11-23-2020 3:43pm Kenny Hyman P:\19343-T\PLN\HYDRO-P\BASIS OF DESIGN REPORT - FIGURE 4. EXISTING WETLAND DETAIL 2020-11-25.DWG



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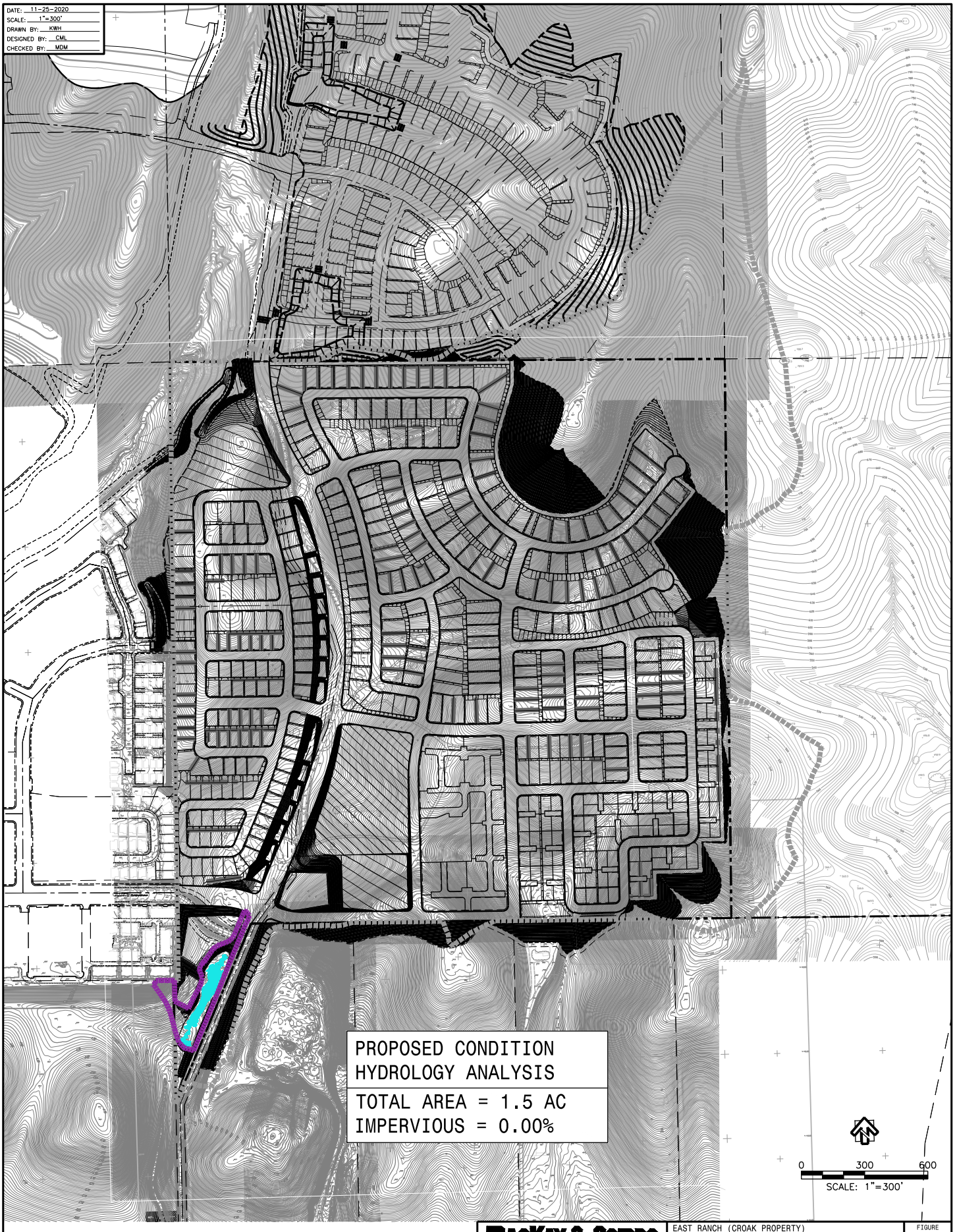
EAST RANCH (CROAK PROPERTY)
BASIS OF DESIGN REPORT: EXISTING WETLAND
EXISTING CONDITION FOR WETLAND

FIGURE 5

11-23-2020 3:46pm Kenny Hyman P:\19343-T\PLN\HYDRO-P\BASIS OF DESIGN REPORT - FIGURE 5. EXISTING CONDITION FOR WETLAND 2020-11-25.DWG



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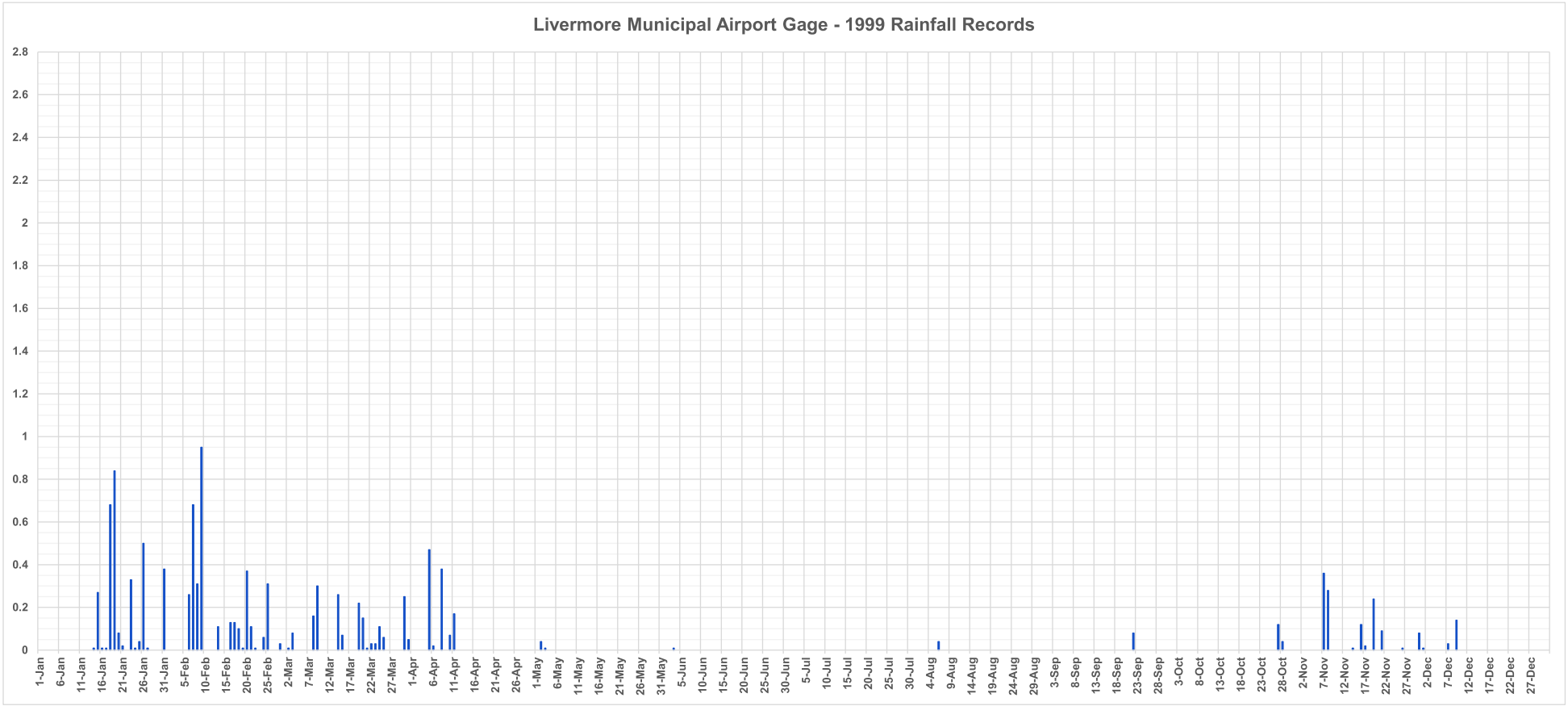
EAST RANCH (CROAK PROPERTY)
BASIS OF DESIGN REPORT: EXISTING WETLAND
PROPOSED CONDITION FOR WETLAND

FIGURE 6

11-23-2020 3:50pm Kenny Hyman P:\19343-T\PLN\HYDRO-P\BASIS OF DESIGN REPORT – FIGURE 6. PROPOSED CONDITION FOR WETLAND 2020-11-25.DWG

APPENDIX A.

RAINFALL GAGE RECORDS


Livermore Municipal Airport Gage - 1999 Rainfall Records
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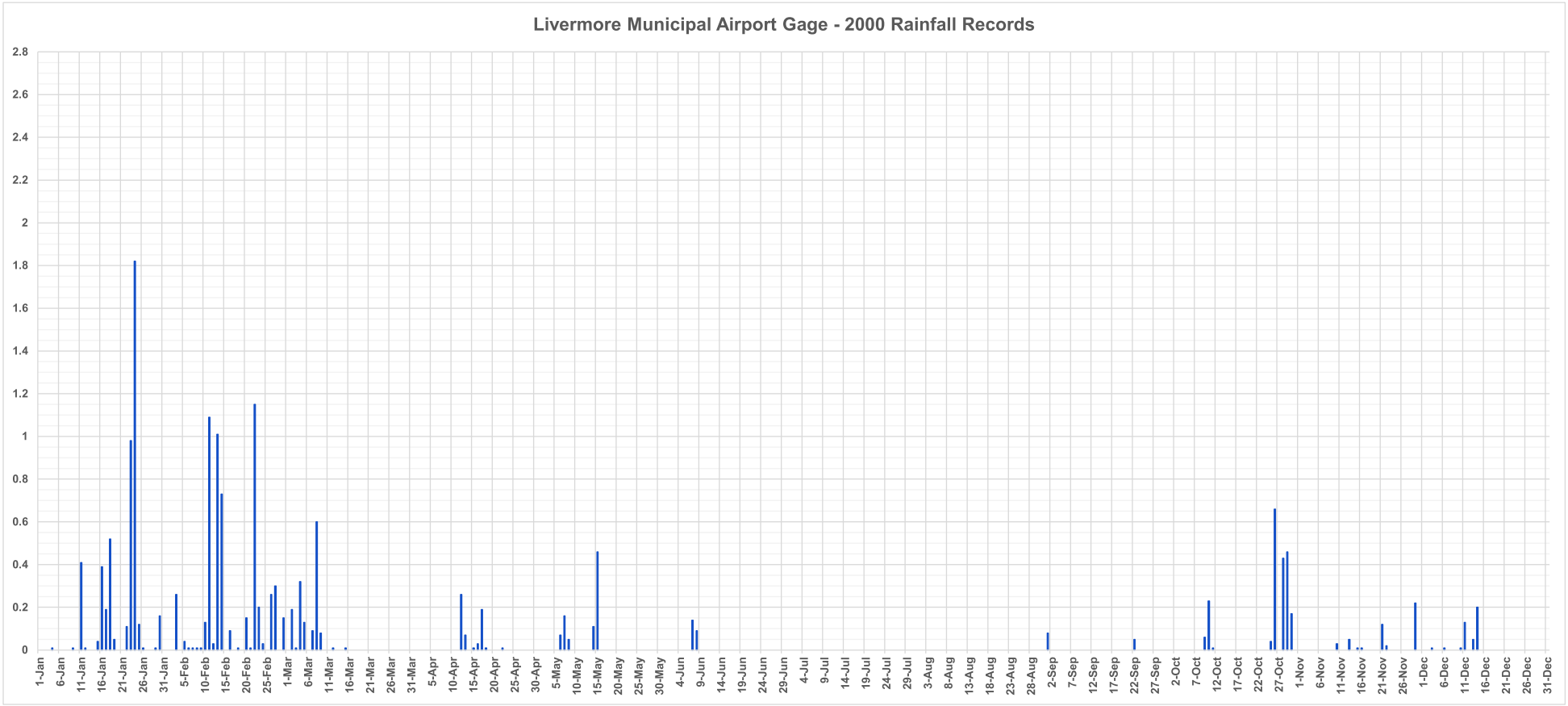
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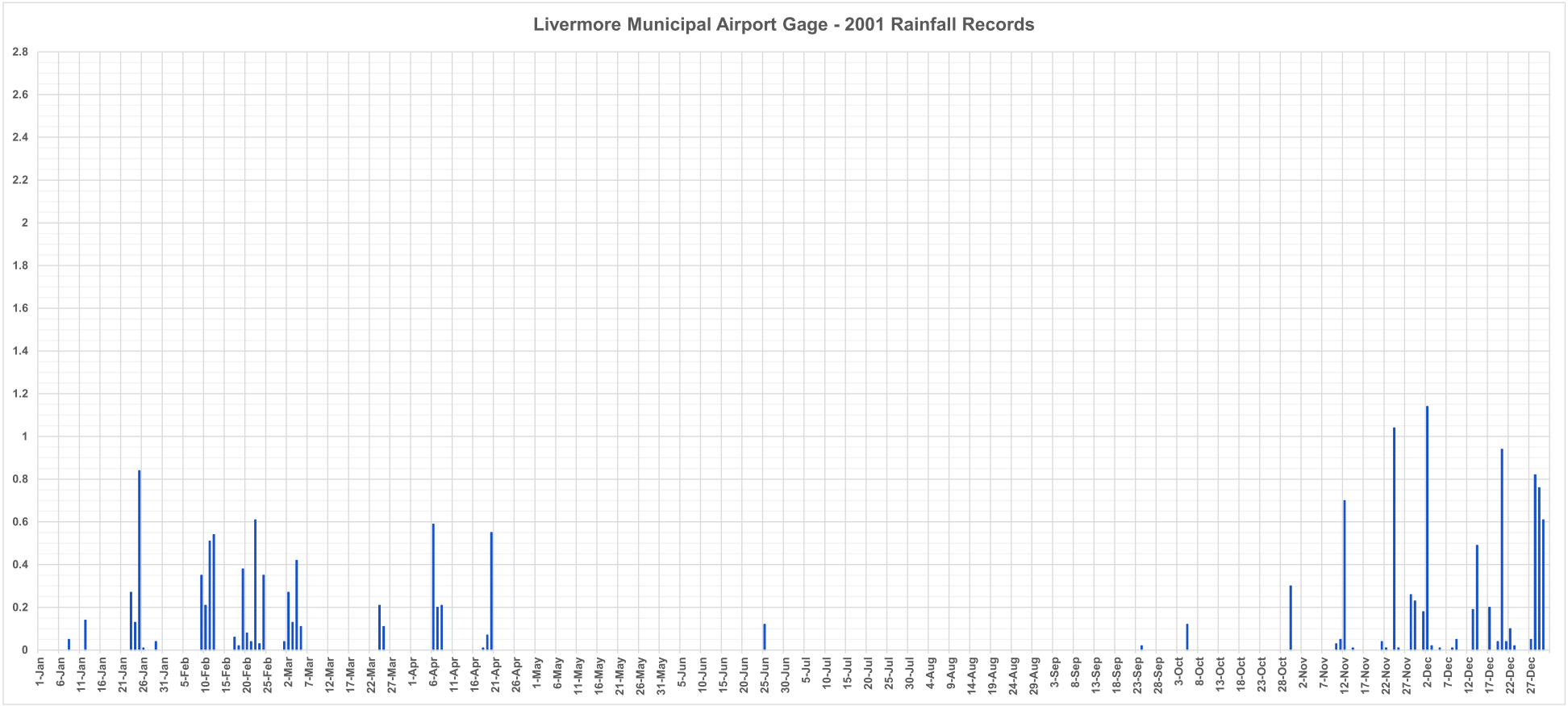
Livermore Municipal Airport Gage - 2001 Rainfall Records
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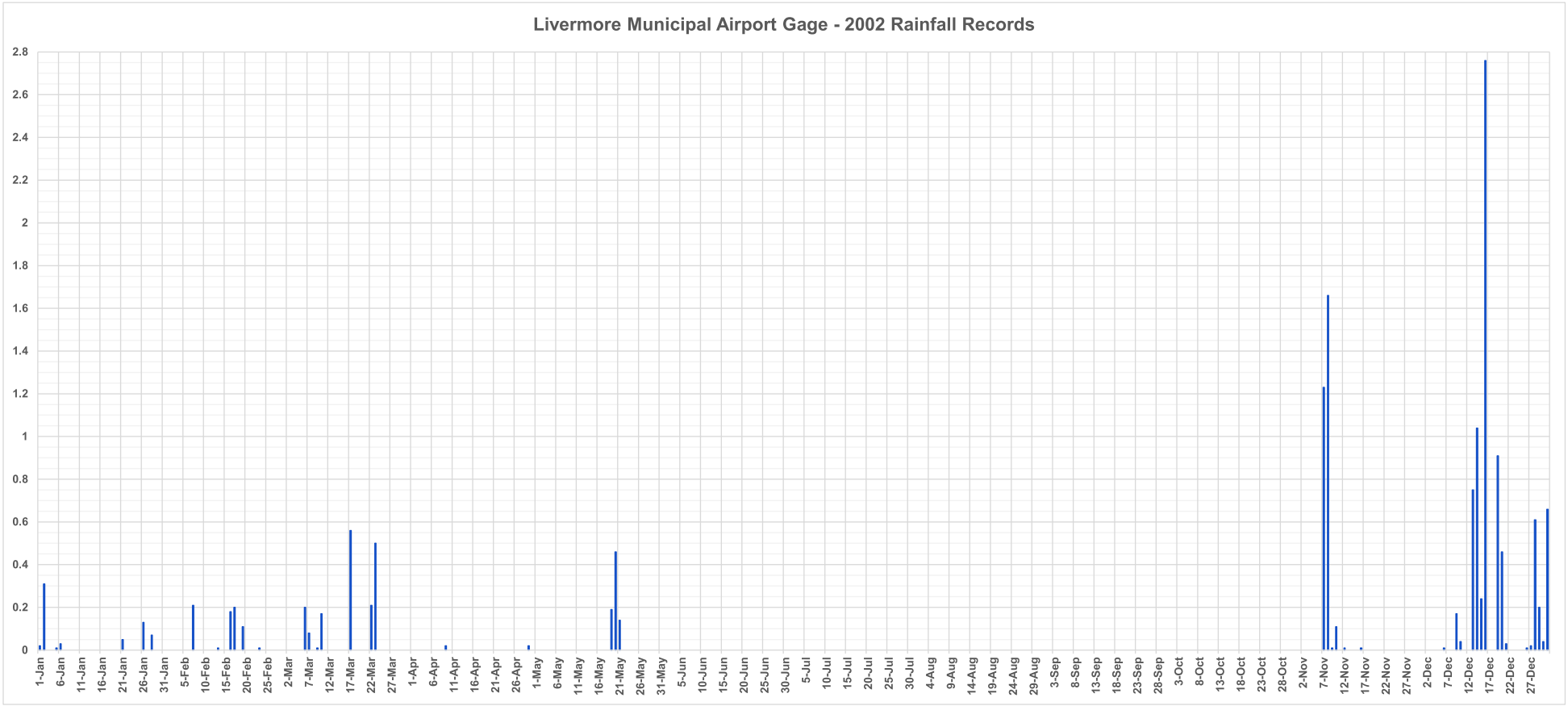
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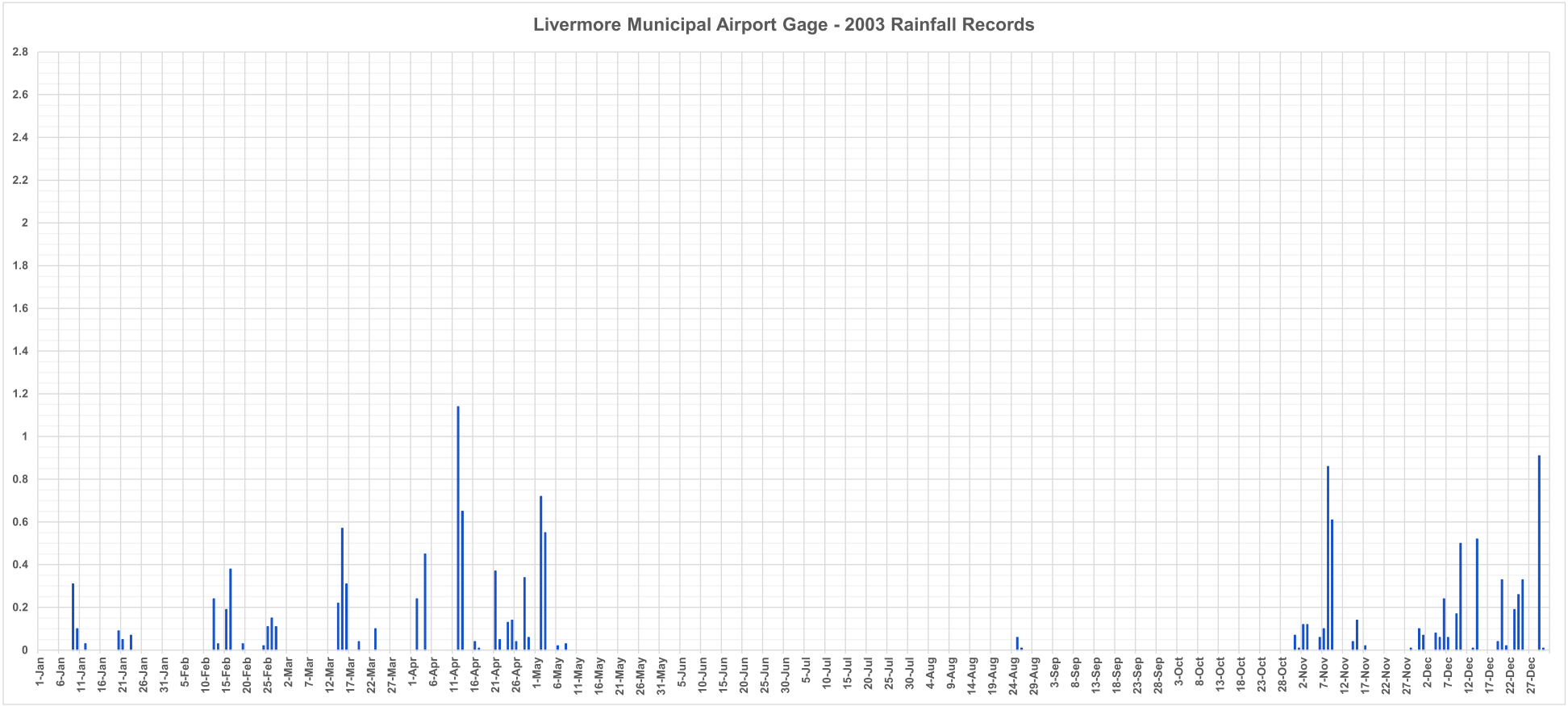
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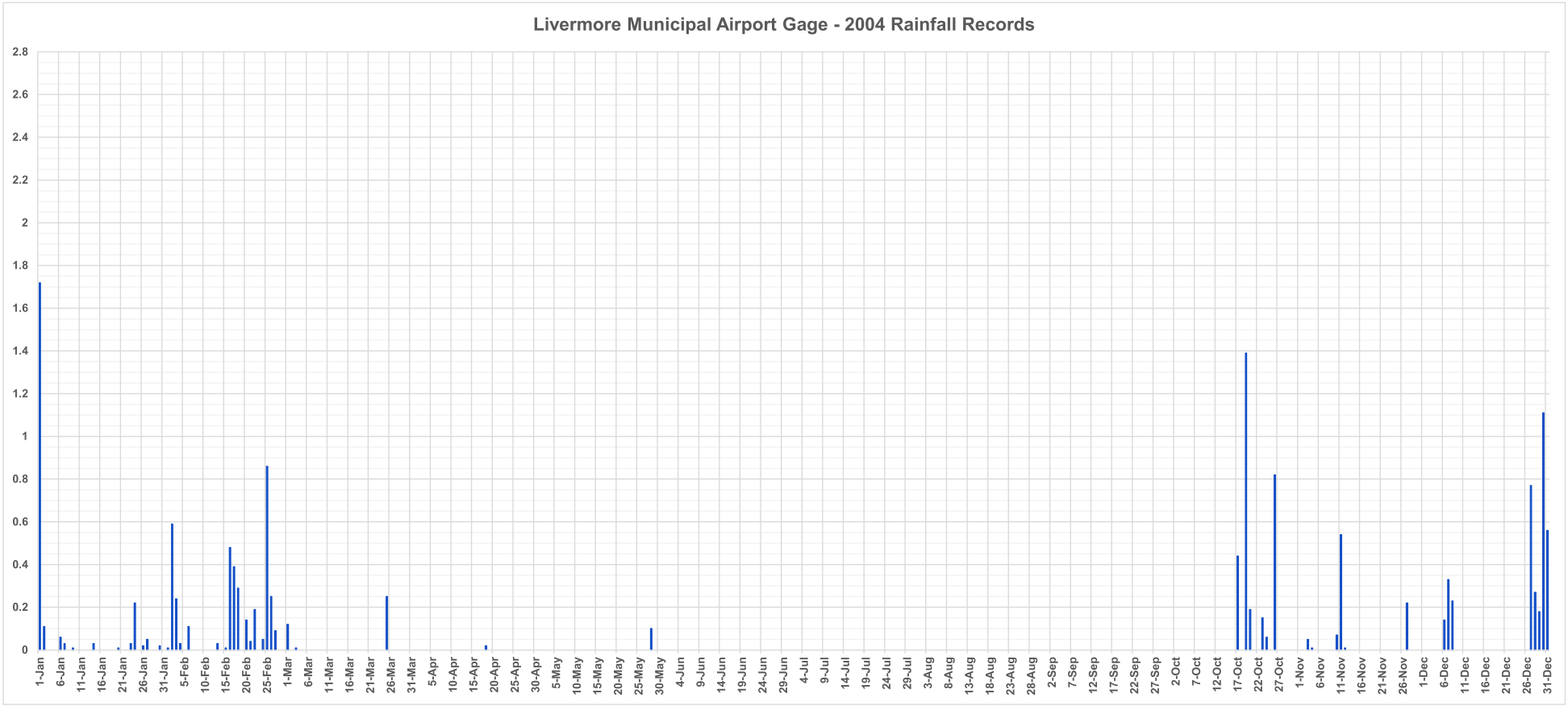
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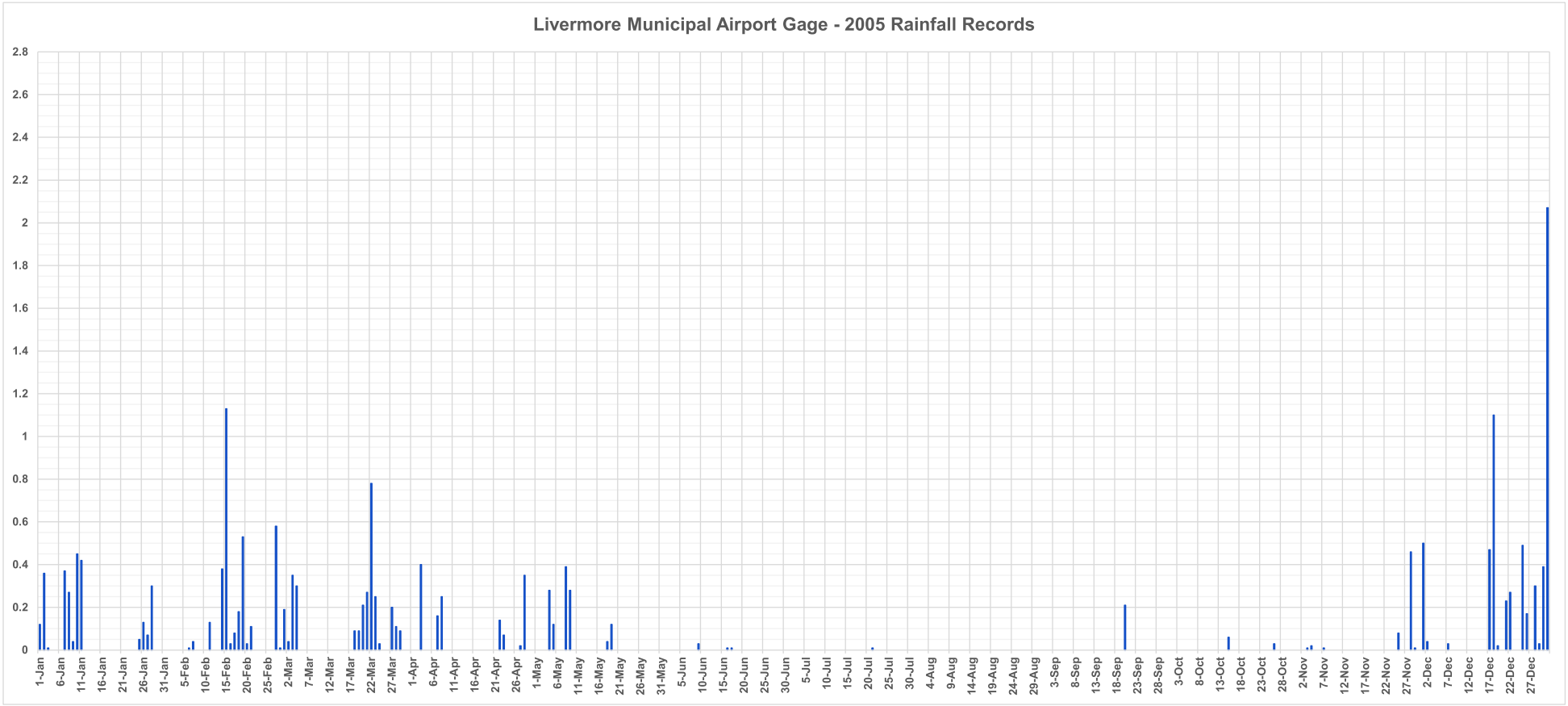
Livermore Municipal Airport Gage - 2005 Rainfall Records
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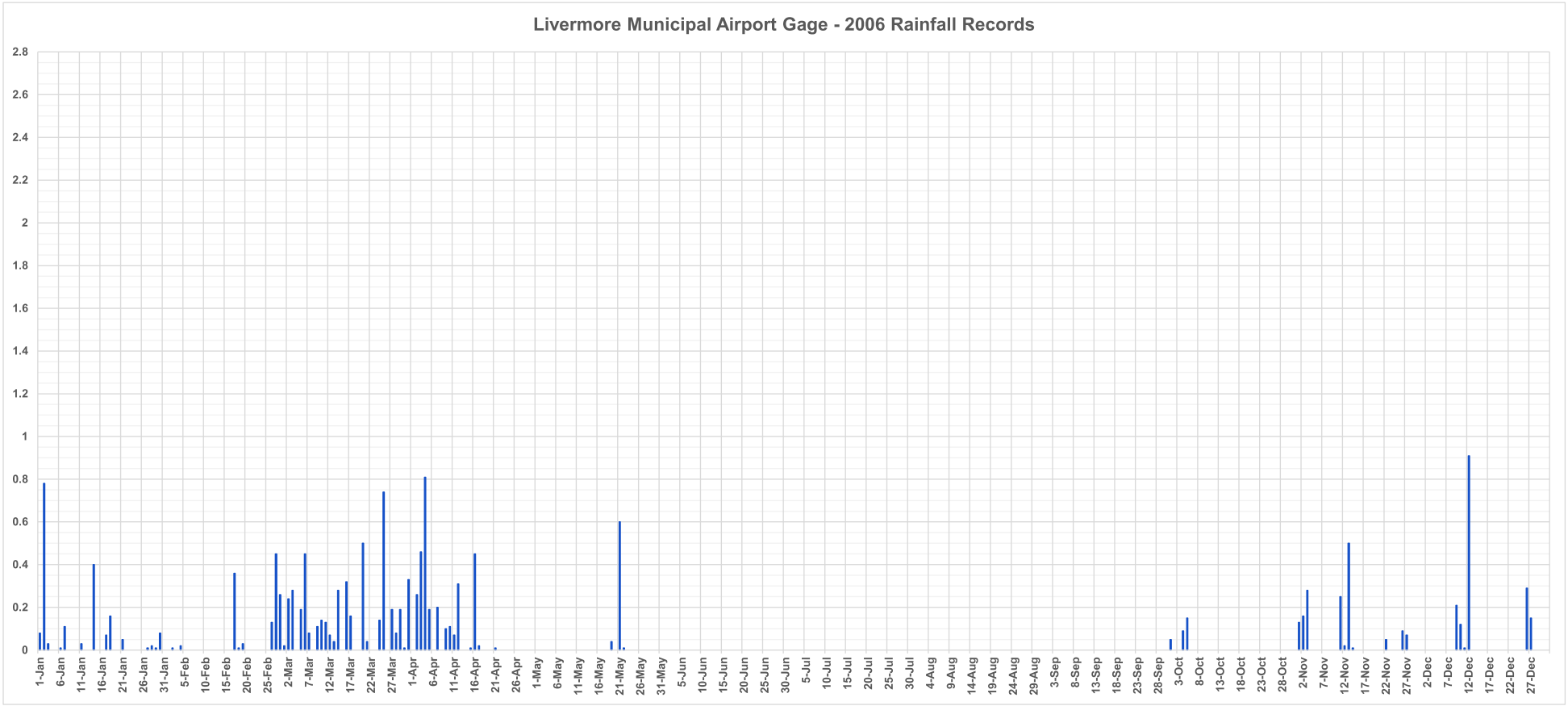
Livermore Municipal Airport Gage - 2006 Rainfall Records
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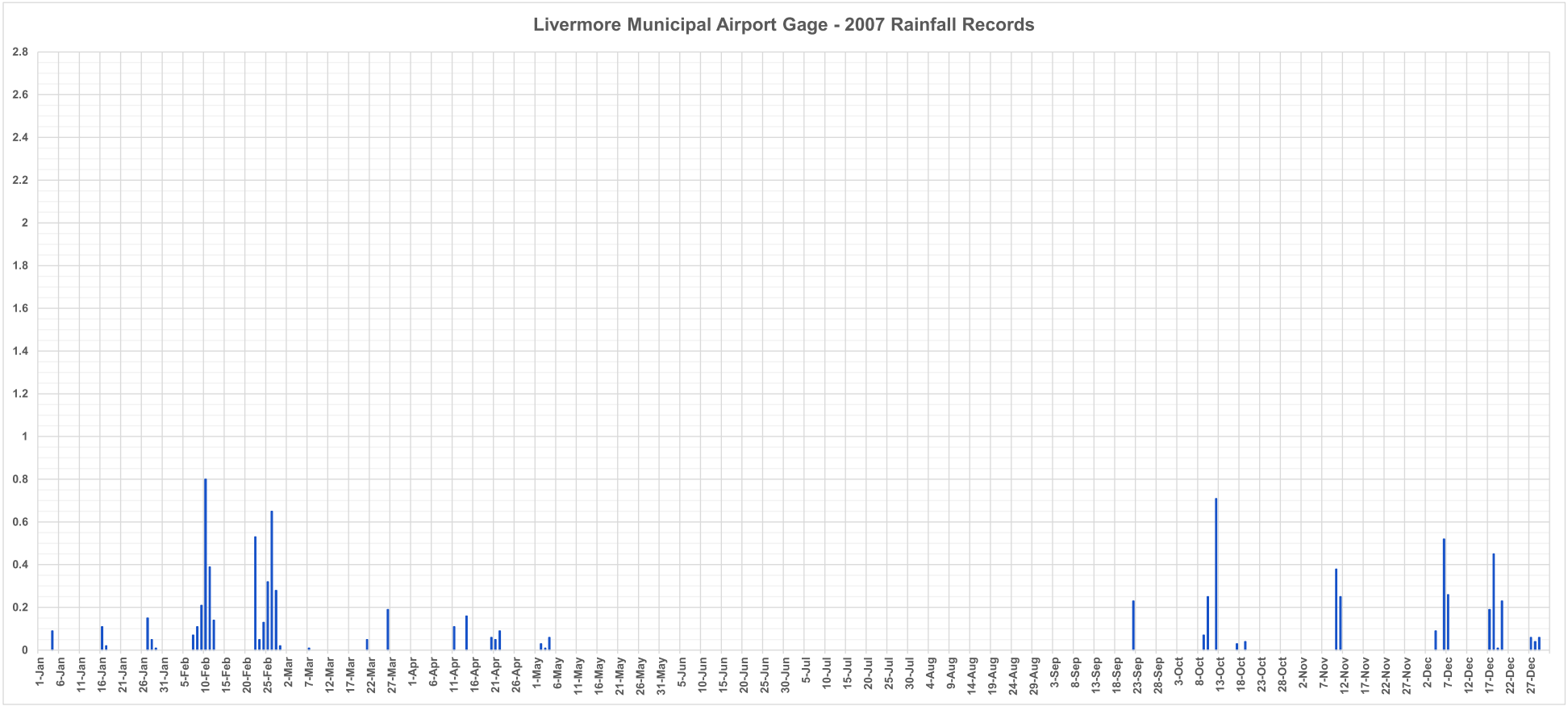
Livermore Municipal Airport Gage - 2007 Rainfall Records
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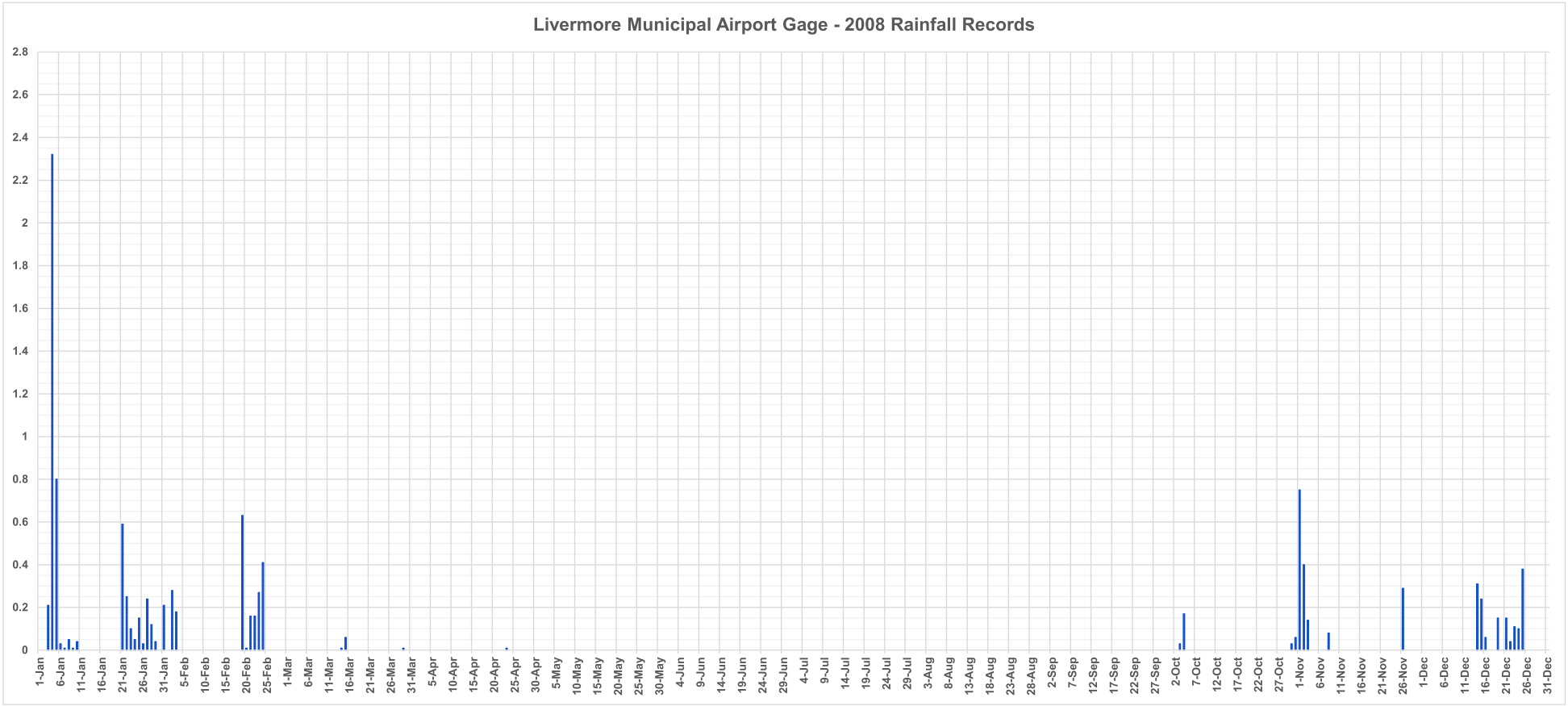
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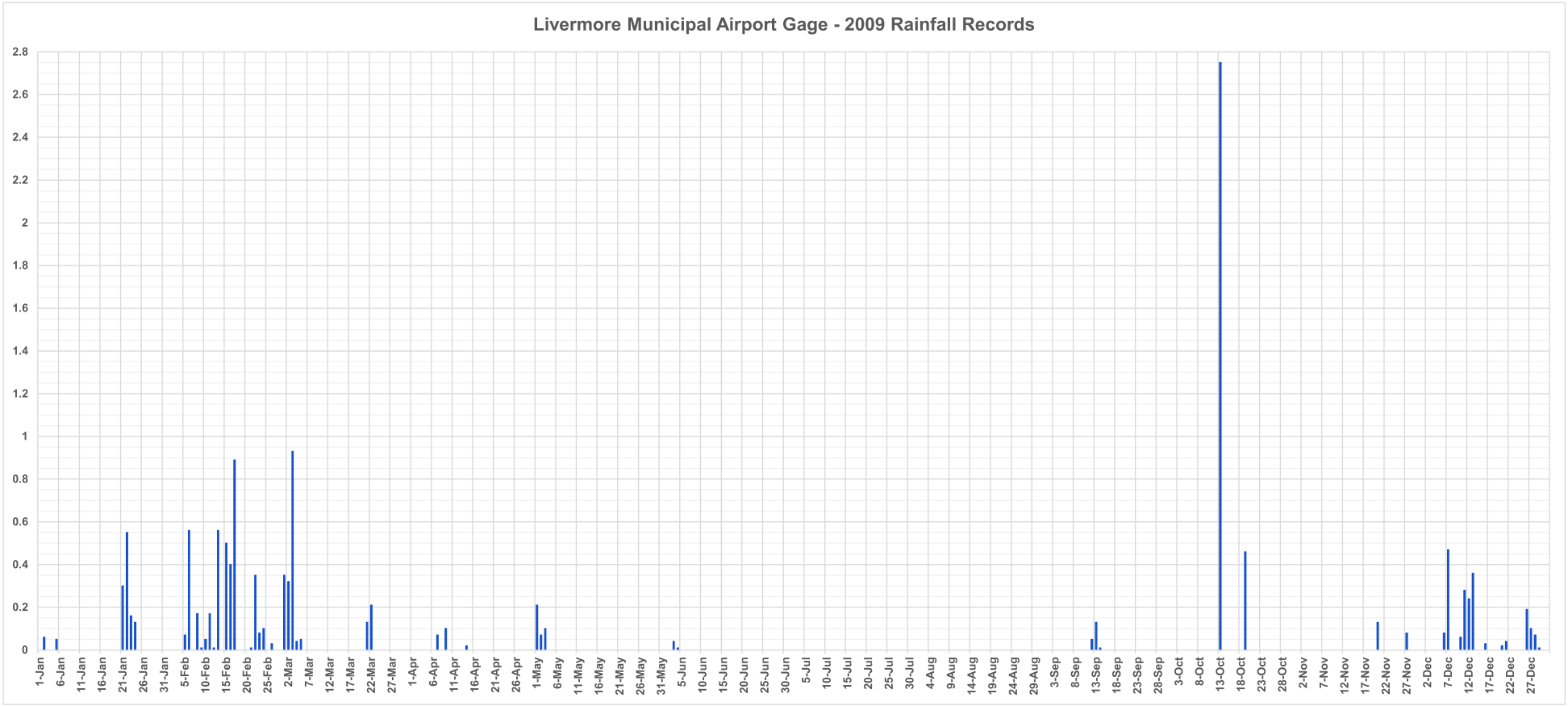
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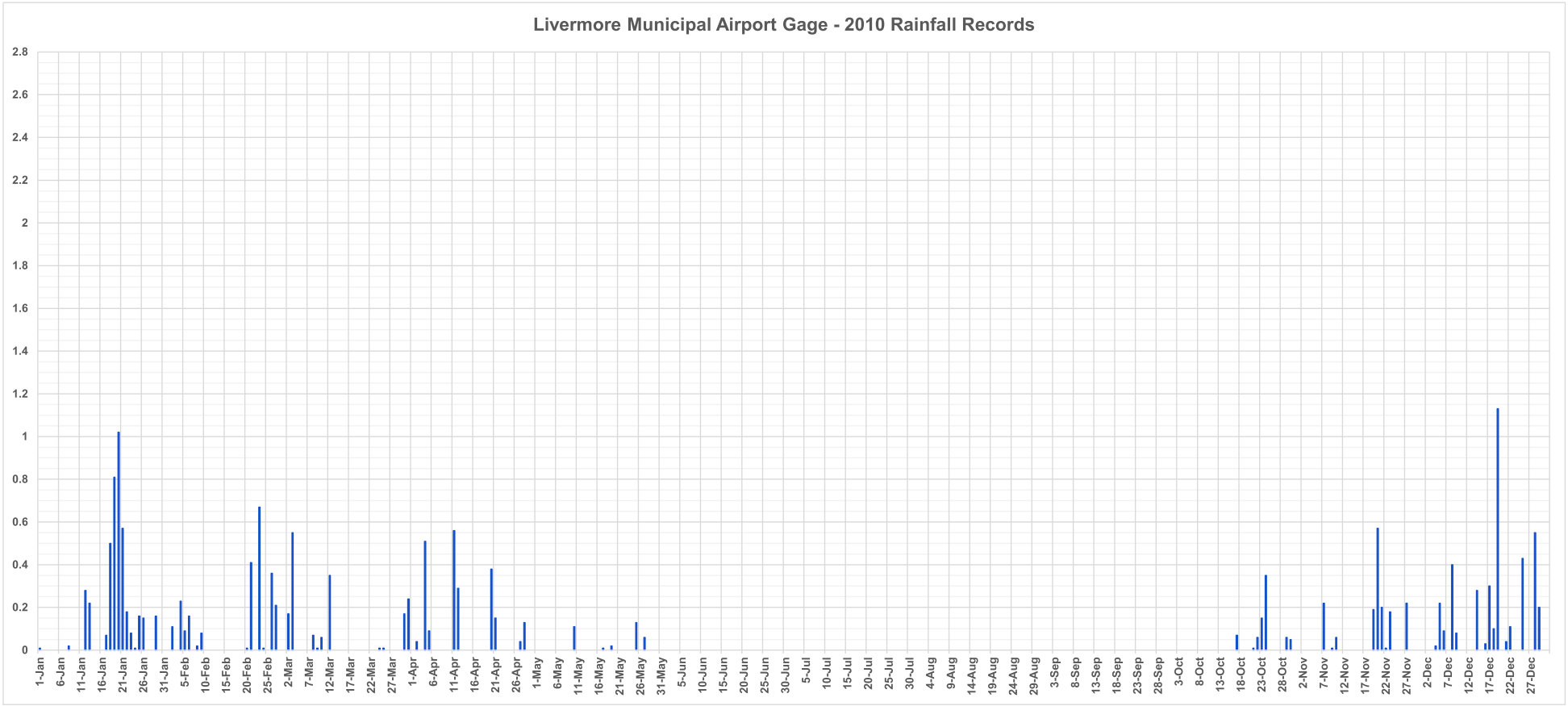
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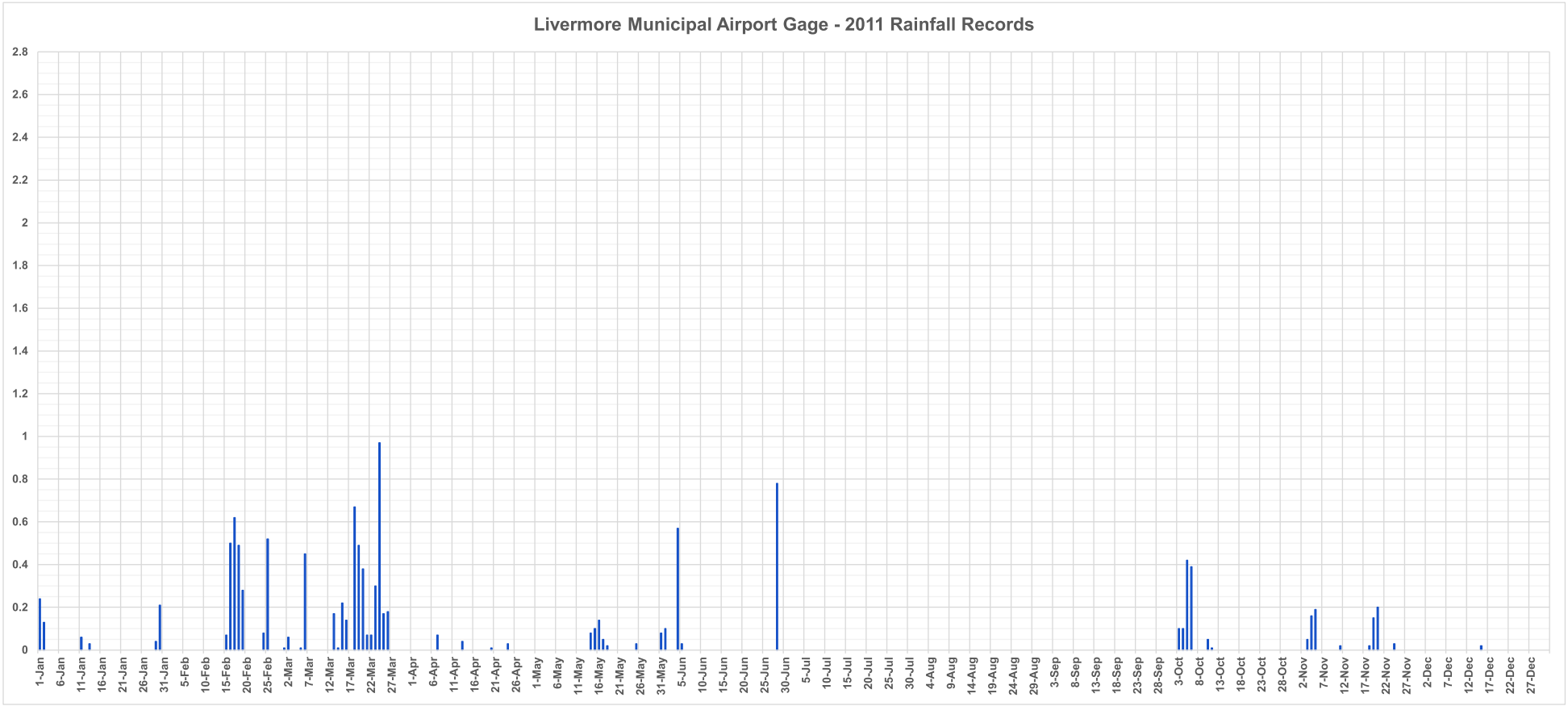
Livermore Municipal Airport Gage - 2011 Rainfall Records
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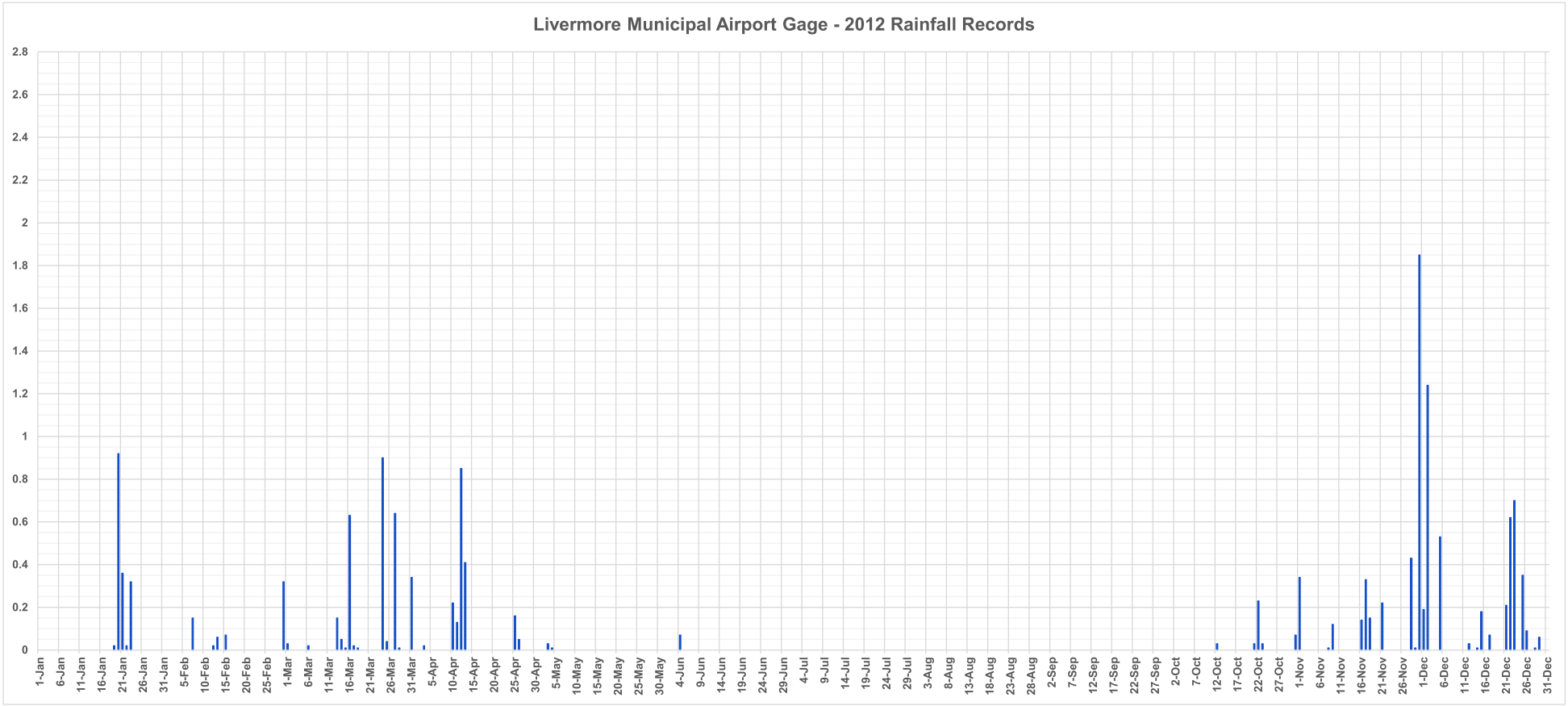
Livermore Municipal Airport Gage - 2012 Rainfall Records
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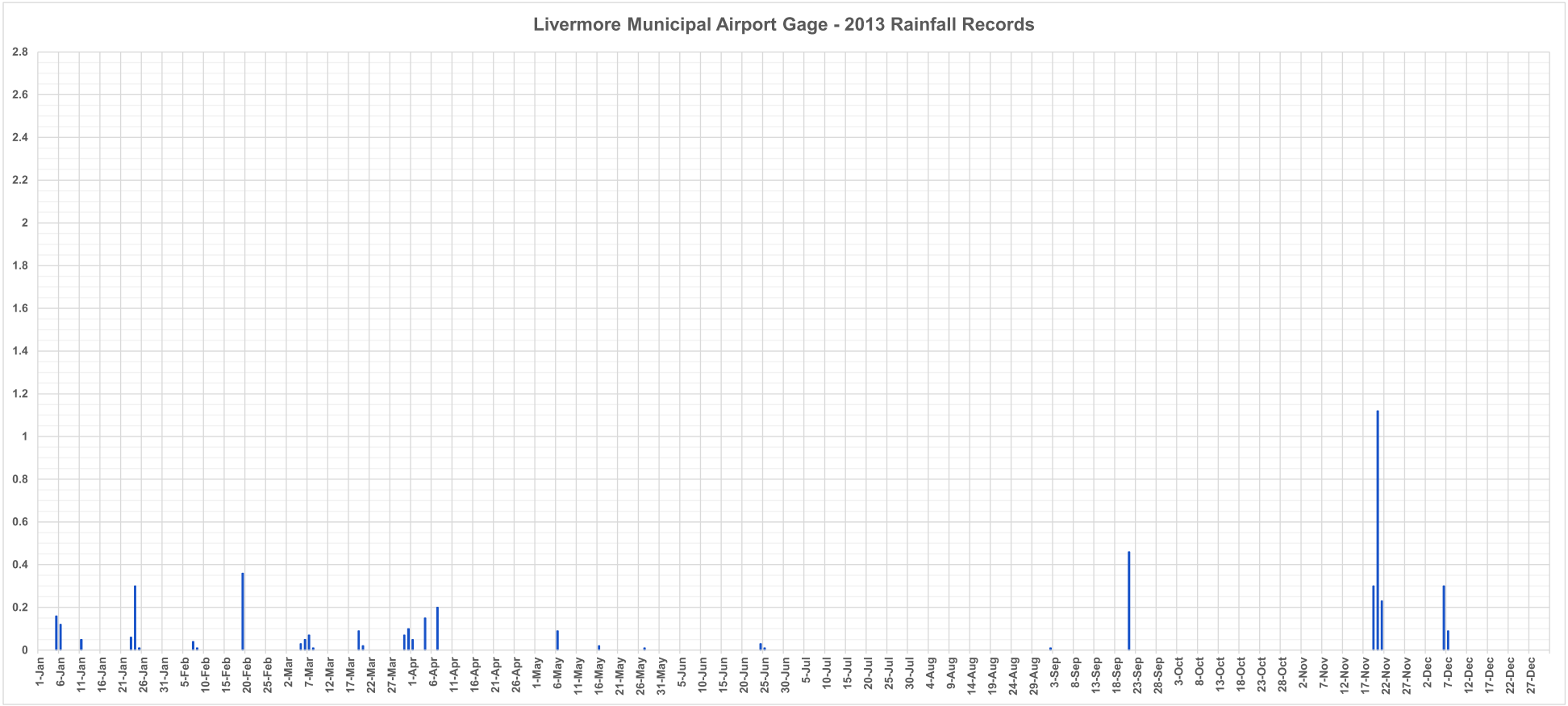
Livermore Municipal Airport Gage - 2013 Rainfall Records
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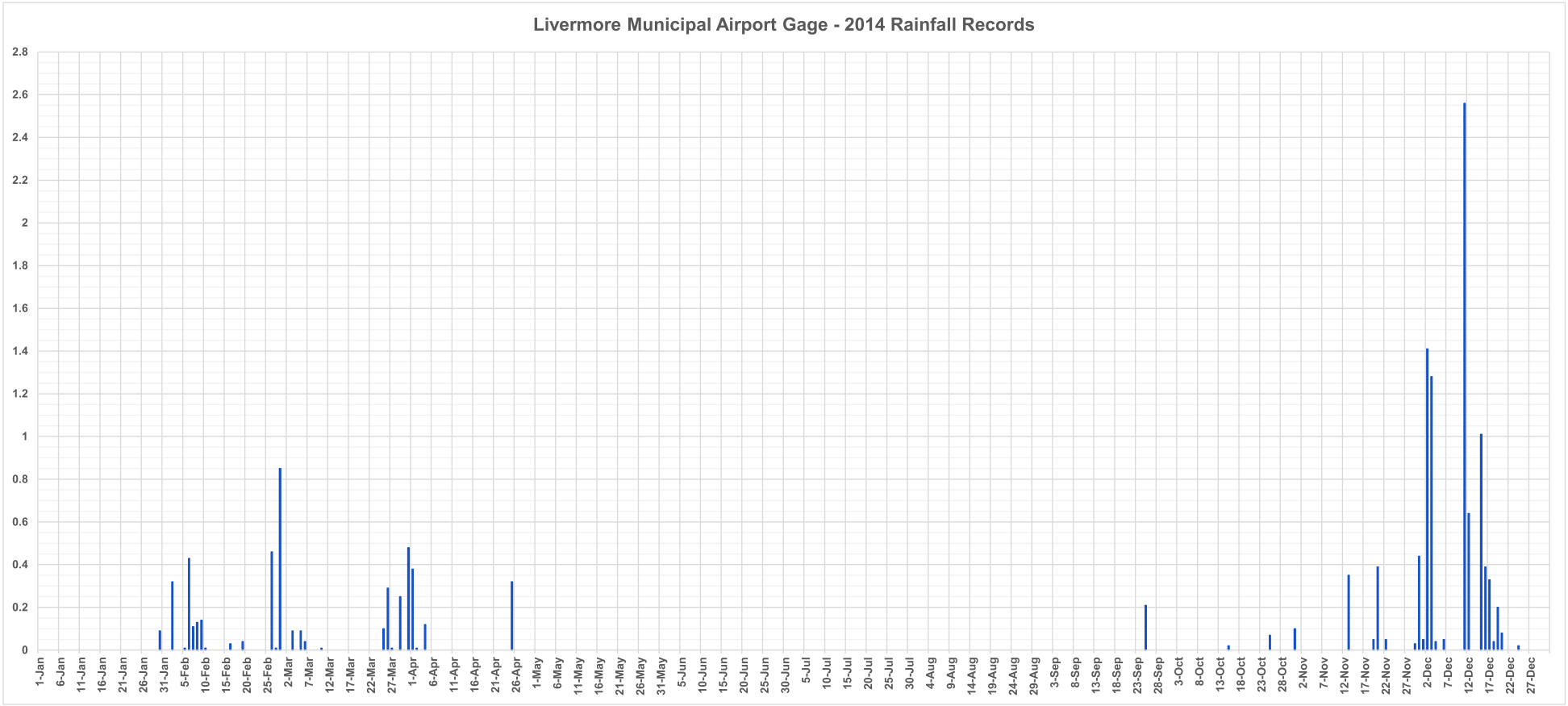
Livermore Municipal Airport Gage - 2014 Rainfall Records
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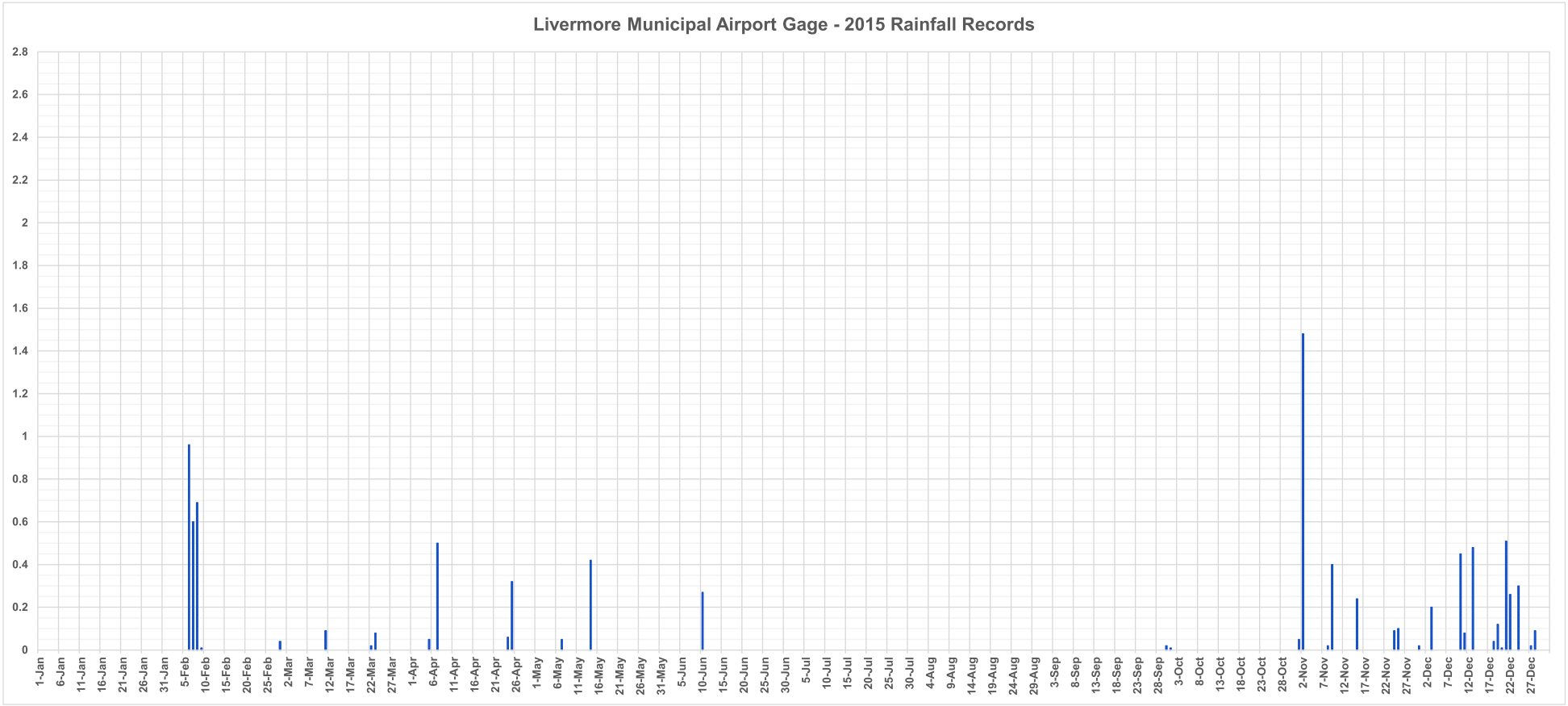
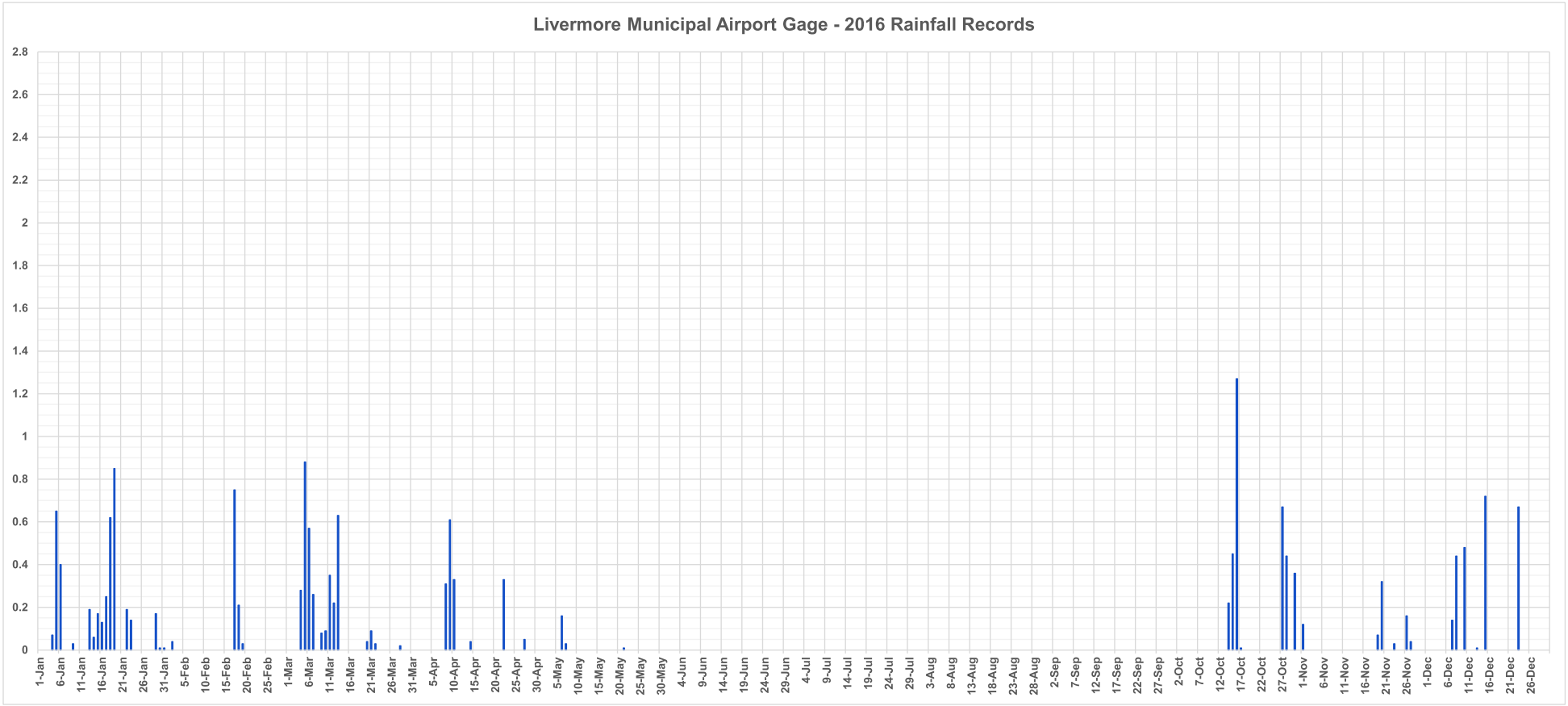
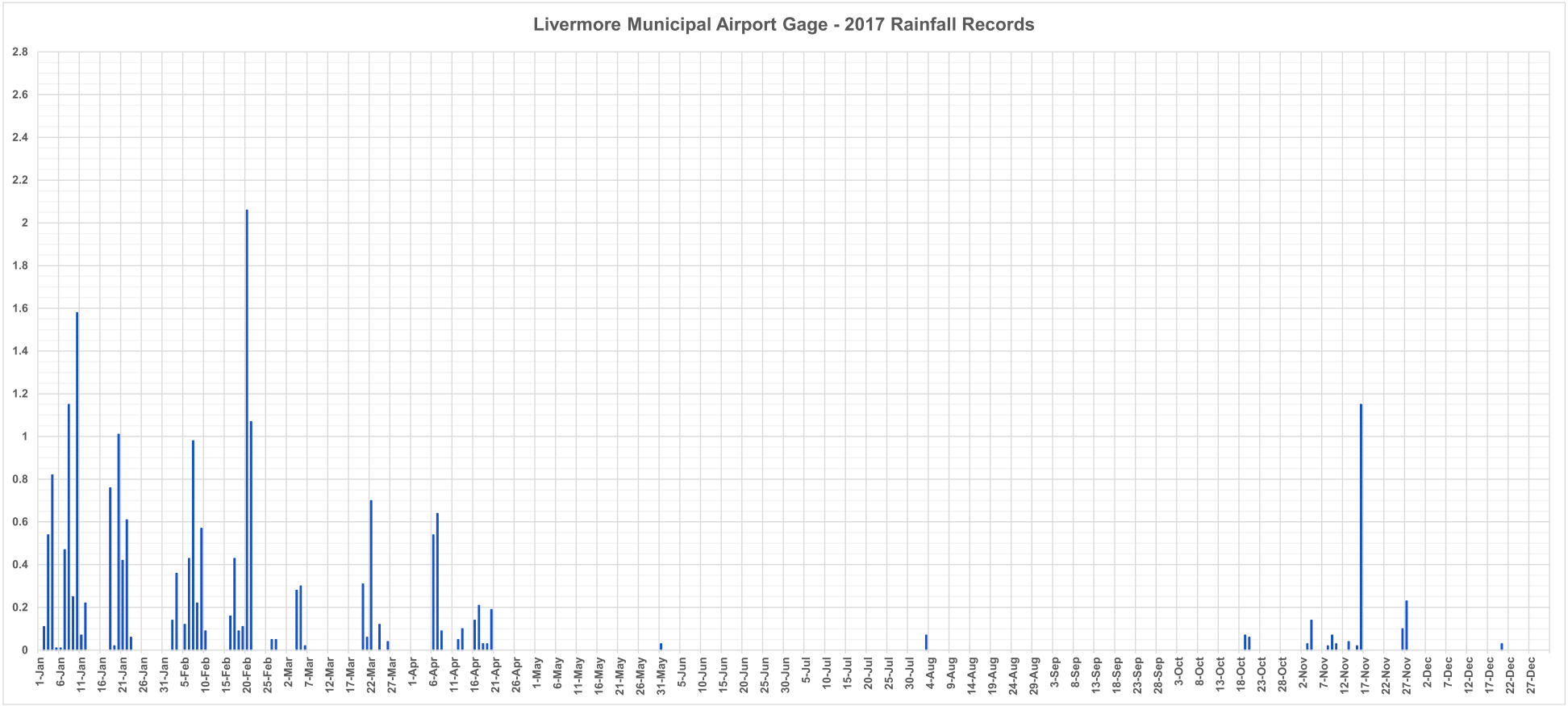
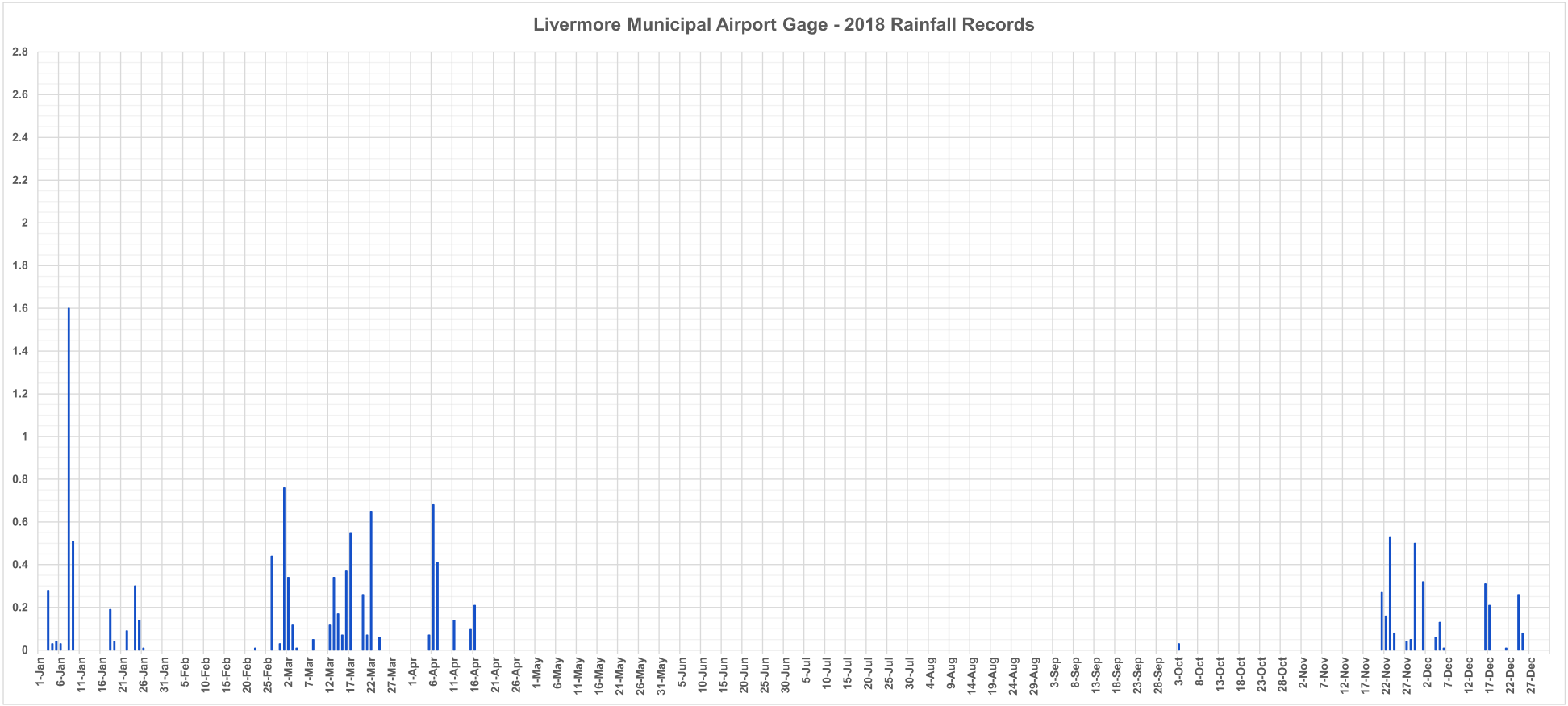
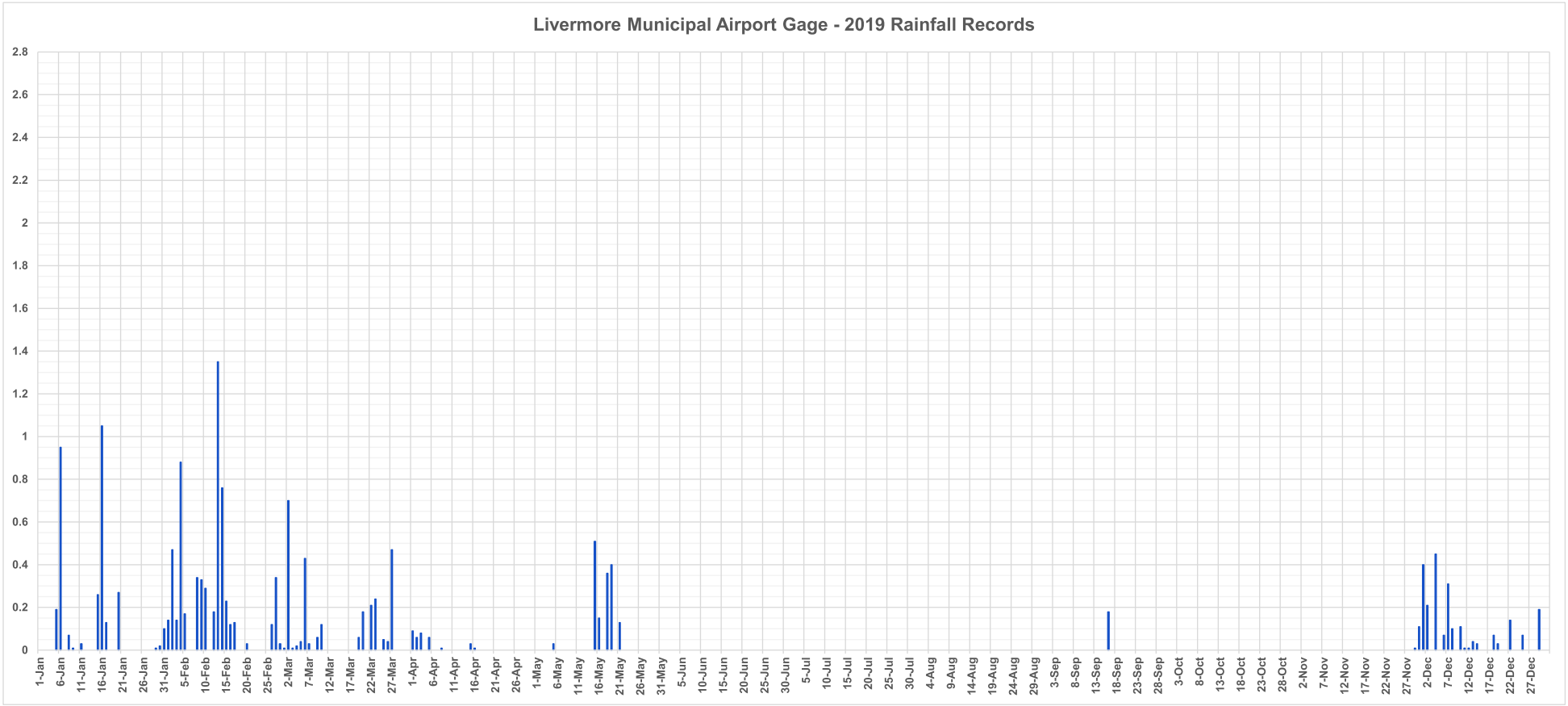
8-Sep
13-Sep
18-Sep
23-Sep
28-Sep
3-Oct
8-Oct
13-Oct
18-Oct
23-Oct
28-Oct
2-Nov
7-Nov
12-Nov
17-Nov
22-Nov
27-Nov
2-Dec
7-Dec
12-Dec
17-Dec
22-Dec
27-Dec


Livermore Municipal Airport Gage - 2015 Rainfall Records
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1-Jan
6-Jan
11-Jan
16-Jan
21-Jan
26-Jan
31-Jan
5-Feb
10-Feb
15-Feb
20-Feb
25-Feb
2-Mar
7-Mar
12-Mar
17-Mar
22-Mar
27-Mar
1-Apr
6-Apr
11-Apr
16-Apr
21-Apr
26-Apr
1-May
6-May
11-May
16-May
21-May
26-May
31-May
5-Jun
10-Jun
15-Jun
20-Jun
25-Jun
30-Jun
5-Jul
10-Jul
15-Jul
20-Jul
25-Jul
30-Jul
4-Aug
9-Aug
14-Aug
19-Aug
24-Aug
29-Aug
3-Sep
8-Sep
13-Sep
18-Sep
23-Sep
28-Sep
3-Oct
8-Oct
13-Oct
18-Oct
23-Oct
28-Oct
2-Nov
7-Nov
12-Nov
17-Nov
22-Nov
27-Nov
2-Dec
7-Dec
12-Dec
17-Dec
22-Dec
27-Dec


Livermore Municipal Airport Gage - 2016 Rainfall Records
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1-Jan
6-Jan
11-Jan
16-Jan
21-Jan
26-Jan
31-Jan
5-Feb
10-Feb
15-Feb
20-Feb
25-Feb
1-Mar
6-Mar
11-Mar
16-Mar
21-Mar
26-Mar
31-Mar
5-Apr
10-Apr
15-Apr
20-Apr
25-Apr
30-Apr
5-May
10-May
15-May
20-May
25-May
30-May
4-Jun
9-Jun
14-Jun
19-Jun
24-Jun
29-Jun
4-Jul
9-Jul
14-Jul
19-Jul
24-Jul
29-Jul
3-Aug
8-Aug
13-Aug
18-Aug
23-Aug
28-Aug
2-Sep
7-Sep
12-Sep
17-Sep
22-Sep
27-Sep
2-Oct
7-Oct
12-Oct
17-Oct
22-Oct
27-Oct
1-Nov
6-Nov
11-Nov
16-Nov
21-Nov
26-Nov
1-Dec
6-Dec
11-Dec
16-Dec
21-Dec
26-Dec

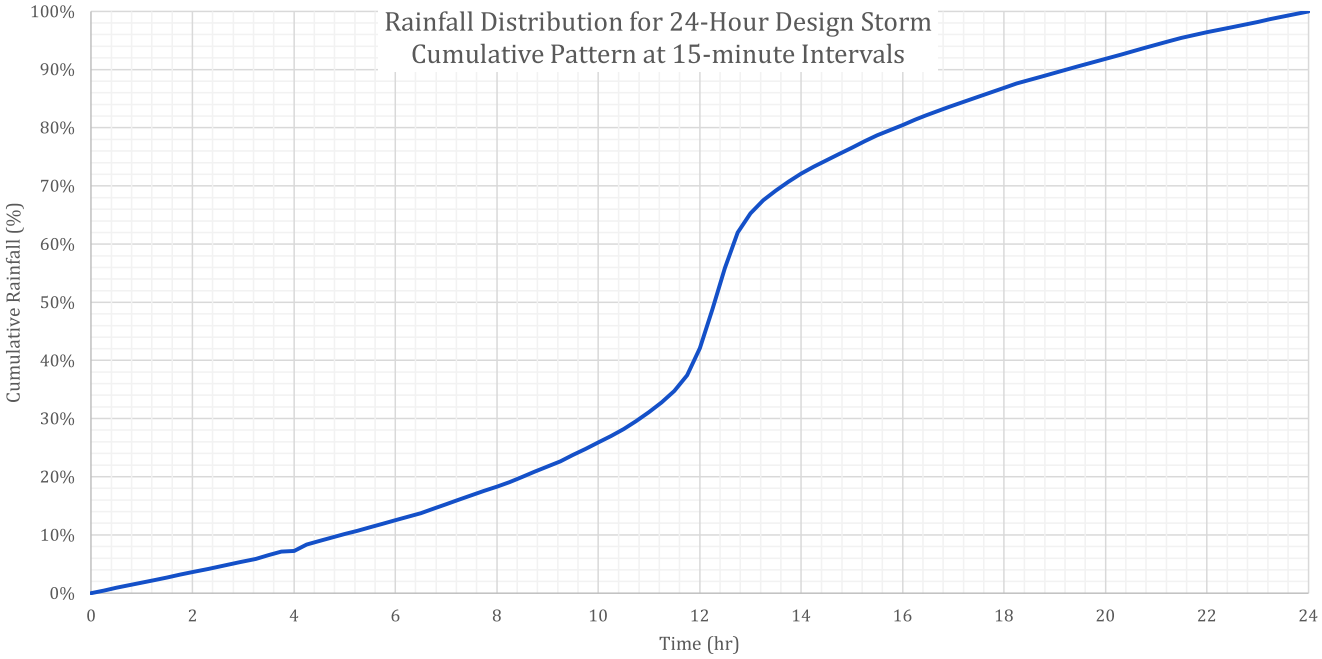

Livermore Municipal Airport Gage - 2017 Rainfall Records
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1-Jan
6-Jan
11-Jan
16-Jan
21-Jan
26-Jan
31-Jan
5-Feb
10-Feb
15-Feb
20-Feb
25-Feb
2-Mar
7-Mar
12-Mar
17-Mar
22-Mar
27-Mar
1-Apr
6-Apr
11-Apr
16-Apr
21-Apr
26-Apr
1-May
6-May
11-May
16-May
21-May
26-May
31-May
5-Jun
10-Jun
15-Jun
20-Jun
25-Jun
30-Jun
5-Jul
10-Jul
15-Jul
20-Jul
25-Jul
30-Jul
4-Aug
9-Aug
14-Aug
19-Aug
24-Aug
29-Aug
3-Sep
8-Sep
13-Sep
18-Sep
23-Sep
28-Sep
3-Oct
8-Oct
13-Oct
18-Oct
23-Oct
28-Oct
2-Nov
7-Nov
12-Nov
17-Nov
22-Nov
27-Nov
2-Dec
7-Dec
12-Dec
17-Dec
22-Dec
27-Dec

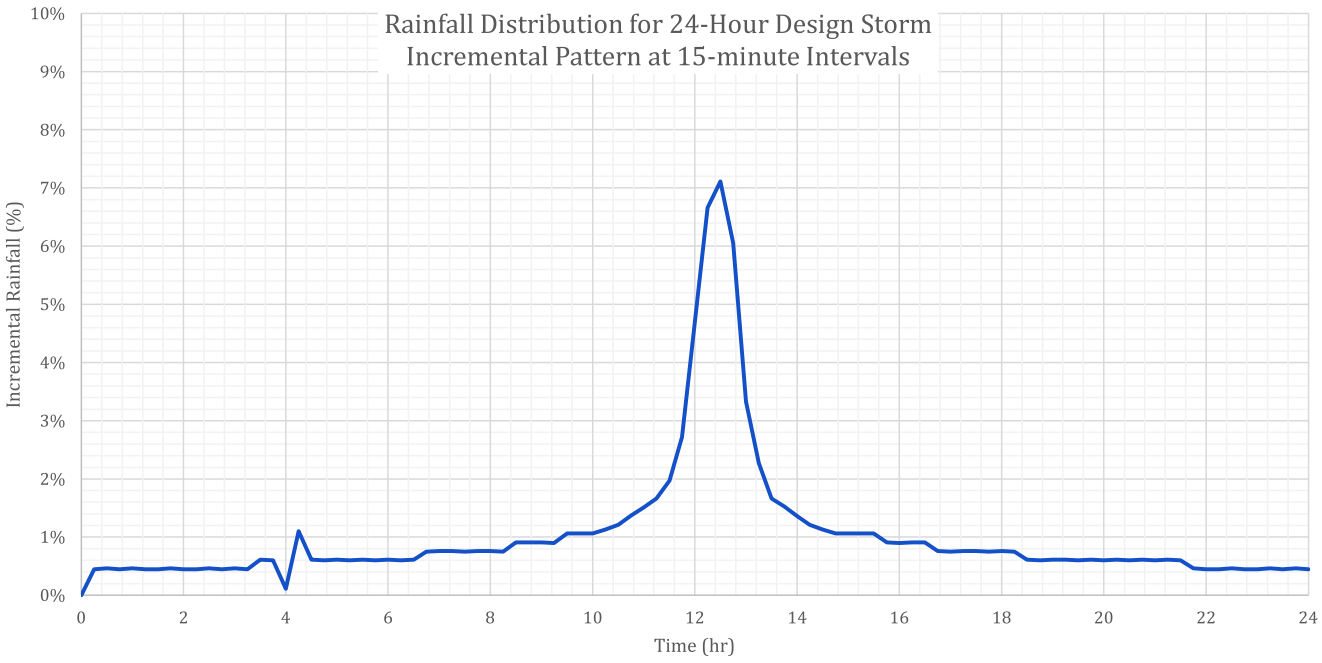

Livermore Municipal Airport Gage - 2018 Rainfall Records
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1-Jan
6-Jan
11-Jan
16-Jan
21-Jan
26-Jan
31-Jan
5-Feb
10-Feb
15-Feb
20-Feb
25-Feb
2-Mar
7-Mar
12-Mar
17-Mar
22-Mar
27-Mar
1-Apr
6-Apr
11-Apr
16-Apr
21-Apr
26-Apr
1-May
6-May
11-May
16-May
21-May
26-May
31-May
5-Jun
10-Jun
15-Jun
20-Jun
25-Jun
30-Jun
5-Jul
10-Jul
15-Jul
20-Jul
25-Jul
30-Jul
4-Aug
9-Aug
14-Aug
19-Aug
24-Aug
29-Aug
3-Sep
8-Sep
13-Sep
18-Sep
23-Sep
28-Sep
3-Oct
8-Oct
13-Oct
18-Oct
23-Oct
28-Oct
2-Nov
7-Nov
12-Nov
17-Nov
22-Nov
27-Nov
2-Dec
7-Dec
12-Dec
17-Dec
22-Dec
27-Dec


Livermore Municipal Airport Gage - 2019 Rainfall Records
2.8
2.6
2.4
2.2
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1-Jan
6-Jan
11-Jan
16-Jan
21-Jan
26-Jan
31-Jan
5-Feb
10-Feb
15-Feb
20-Feb
25-Feb
2-Mar
7-Mar
12-Mar
17-Mar
22-Mar
27-Mar
1-Apr
6-Apr
11-Apr
16-Apr
21-Apr
26-Apr
1-May
6-May
11-May
16-May
21-May
26-May
31-May
5-Jun
10-Jun
15-Jun
20-Jun
25-Jun
30-Jun
5-Jul
10-Jul
15-Jul
20-Jul
25-Jul
30-Jul
4-Aug
9-Aug
14-Aug
19-Aug
24-Aug
29-Aug
3-Sep
8-Sep
13-Sep
18-Sep
23-Sep
28-Sep
3-Oct
8-Oct
13-Oct
18-Oct
23-Oct
28-Oct
2-Nov
7-Nov
12-Nov
17-Nov
22-Nov
27-Nov
2-Dec
7-Dec
12-Dec
17-Dec
22-Dec
27-Dec

APPENDIX B.

24-HOUR RAINFALL DISTRIBUTION


Rainfall Distribution for 24-Hour Design Storm
Cumulative Pattern at 15-minute Intervals
Cumulative Rainfall (%)
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
0
2
4
6
8
10
12
14
16
18
20
22
24
Time (hr)


Rainfall Distribution for 24-Hour Design Storm
Incremental Pattern at 15-minute Intervals
Incremental Rainfall (%)
10%
9%
8%
7%
6%
5%
4%
3%
2%
1%
0%
0
2
4
6
8
10
12
14
16
18
20
22
24
Time (hr)

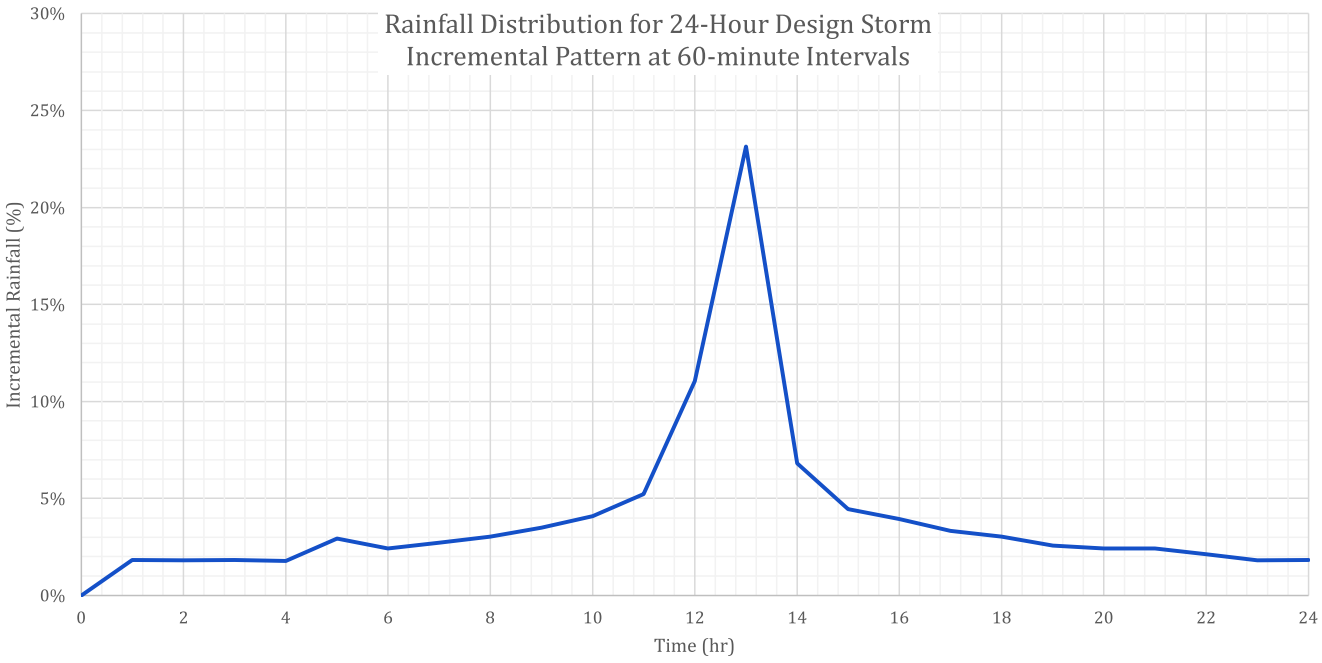

Rainfall Distribution for 24-Hour Design Storm
Incremental Pattern at 60-minute Intervals
Incremental Rainfall (%)
30%
25%
20%
15%
10%
5%
0%
0
2
4
6
8
10
12
14
16
18
20
22
24
Time (hr)

TABLE 4 RAINFALL DISTRIBUTION FOR 24-HOUR DESIGN STORM

Time *(hr)*	Rainfall Fraction	Time *(hr)*	Rainfall Fraction	Time *(hr)*	Rainfall Fraction
0.25	0.0045	8.25	0.1906	16.25	0.8139
0.50	0.0091	8.50	0.1997	16.50	0.8230
0.75	0.0136	8.75	0.2088	16.75	0.8306
1.00	0.0182	9.00	0.2179	17.00	0.8381
1.25	0.0227	9.25	0.2269	17.25	0.8457
1.50	0.0272	9.50	0.2375	17.50	0.8533
1.75	0.0318	9.75	0.2481	17.75	0.8608
2.00	0.0363	10.00	0.2587	18.00	0.8684
2.25	0.0408	10.25	0.2700	18.25	0.8759
2.50	0.0454	10.50	0.2821	18.50	0.8820
2.75	0.0499	10.75	0.2958	18.75	0.8880
3.00	0.0545	11.00	0.3109	19.00	0.8941
3.25	0.0590	11.25	0.3275	19.25	0.9002
3.50	0.0651	11.50	0.3472	19.50	0.9062
3.75	0.0711	11.75	0.3744	19.75	0.9123
4.00	0.0722	12.00	0.4213	20.00	0.9183
4.25	0.0832	12.25	0.4879	20.25	0.9244
4.50	0.0893	12.50	0.5590	20.50	0.9304
4.75	0.0953	12.75	0.6195	20.75	0.9365
5.00	0.1014	13.00	0.6528	21.00	0.9425
5.25	0.1074	13.25	0.6755	21.25	0.9486
5.50	0.1135	13.50	0.6921	21.50	0.9546
5.75	0.1195	13.75	0.7073	21.75	0.9592
6.00	0.1256	14.00	0.7209	22.00	0.9637
6.25	0.1316	14.25	0.7330	22.25	0.9682
6.50	0.1377	14.50	0.7443	22.50	0.9728
6.75	0.1452	14.75	0.7549	22.75	0.9773
7.00	0.1528	15.00	0.7655	23.00	0.9818
7.25	0.1604	15.25	0.7761	23.25	0.9864
7.50	0.1679	15.50	0.7867	23.50	0.9909
7.75	0.1755	15.75	0.7958	23.75	0.9955
8.00	0.1831	16.00	0.8048	24.00	1.0000

(District 2015)

APPENDIX C.

RAINFALL RANKING AND GROUPING

Count	Records (in) ≥ 1 in	First Tier Records (in)	Second Tier Records (in)	Third Tier Records (in)	Fourth Tier Records (in)	Average (in)
1	2.76	2.76	----	----	----	
2	2.75	2.75	----	----	----	
3	2.56	2.56	----	----	----	2.42
4	2.32	2.32	----	----	----	
5	2.07	2.07	----	----	----	
6	2.06	2.06	----	----	----	
7	1.85	----	1.85	----	----	
8	1.82	----	1.82	----	----	
9	1.72	----	1.72	----	----	1.71
10	1.66	----	1.66	----	----	
11	1.60	----	1.60	----	----	
12	1.58	----	1.58	----	----	
13	1.48	----	----	1.48	----	
14	1.41	----	----	1.41	----	
15	1.39	----	----	1.39	----	
16	1.35	----	----	1.35	----	1.33
17	1.28	----	----	1.28	----	
18	1.27	----	----	1.27	----	
19	1.24	----	----	1.24	----	
20	1.23	----	----	1.23	----	
21	1.15	----	----	----	1.15	
22	1.15	----	----	----	1.15	
23	1.15	----	----	----	1.15	
24	1.14	----	----	----	1.14	
25	1.14	----	----	----	1.14	
26	1.13	----	----	----	1.13	
27	1.13	----	----	----	1.13	
28	1.12	----	----	----	1.12	
29	1.11	----	----	----	1.11	
30	1.10	----	----	----	1.10	1.09
31	1.09	----	----	----	1.09	
32	1.07	----	----	----	1.07	
33	1.05	----	----	----	1.05	
34	1.04	----	----	----	1.04	
35	1.04	----	----	----	1.04	
36	1.02	----	----	----	1.02	
37	1.01	----	----	----	1.01	
38	1.01	----	----	----	1.01	
39	1.01	----	----	----	1.01	
40	0.98	----	----	----	----	
41	0.98	----	----	----	----	
42	0.97	----	----	----	----	
43	0.96	----	----	----	----	
44	0.95	----	----	----	----	
45	0.95	----	----	----	----	
46	0.94	----	----	----	----	
47	0.93	----	----	----	----	
48	0.92	----	----	----	----	
49	0.91	----	----	----	----	
50	0.91	----	----	----	----	
51	0.91	----	----	----	----	
52	0.90	----	----	----	----	
53	0.89	----	----	----	----	
54	0.88	----	----	----	----	
55	0.88	----	----	----	----	
56	0.86	----	----	----	----	
57	0.86	----	----	----	----	
58	0.85	----	----	----	----	
59	0.85	----	----	----	----	
60	0.85	----	----	----	----	

Count	Records (in) ≥ 1 in	First Tier Records (in)	Second Tier Records (in)	Third Tier Records (in)	Fourth Tier Records (in)	Average (in)
61	0.84	----	----	----	----	
62	0.84	----	----	----	----	
63	0.82	----	----	----	----	
64	0.82	----	----	----	----	
65	0.82	----	----	----	----	
66	0.81	----	----	----	----	
67	0.81	----	----	----	----	
68	0.80	----	----	----	----	
69	0.80	----	----	----	----	
70	0.78	----	----	----	----	
71	0.78	----	----	----	----	
72	0.78	----	----	----	----	
73	0.77	----	----	----	----	
74	0.76	----	----	----	----	
75	0.76	----	----	----	----	
76	0.76	----	----	----	----	
77	0.76	----	----	----	----	
78	0.75	----	----	----	----	
79	0.75	----	----	----	----	
80	0.75	----	----	----	----	
81	0.74	----	----	----	----	
82	0.73	----	----	----	----	
83	0.72	----	----	----	----	
84	0.72	----	----	----	----	
85	0.71	----	----	----	----	
86	0.70	----	----	----	----	
87	0.70	----	----	----	----	
88	0.70	----	----	----	----	
89	0.70	----	----	----	----	
90	0.69	----	----	----	----	
91	0.68	----	----	----	----	
92	0.68	----	----	----	----	
93	0.68	----	----	----	----	
94	0.67	----	----	----	----	
95	0.67	----	----	----	----	
96	0.67	----	----	----	----	
97	0.67	----	----	----	----	
98	0.66	----	----	----	----	
99	0.66	----	----	----	----	
100	0.65	----	----	----	----	
101	0.65	----	----	----	----	
102	0.65	----	----	----	----	
103	0.65	----	----	----	----	
104	0.64	----	----	----	----	
105	0.64	----	----	----	----	
106	0.64	----	----	----	----	
107	0.63	----	----	----	----	
108	0.63	----	----	----	----	
109	0.63	----	----	----	----	
110	0.62	----	----	----	----	
111	0.62	----	----	----	----	
112	0.62	----	----	----	----	
113	0.61	----	----	----	----	
114	0.61	----	----	----	----	
115	0.61	----	----	----	----	
116	0.61	----	----	----	----	
117	0.61	----	----	----	----	
118	0.61	----	----	----	----	
119	0.60	----	----	----	----	
120	0.60	----	----	----	----	

Count	Records (in) ≥ 1 in	First Tier Records (in)	Second Tier Records (in)	Third Tier Records (in)	Fourth Tier Records (in)	Average (in)
121	0.60	----	----	----	----	
122	0.59	----	----	----	----	
123	0.59	----	----	----	----	
124	0.59	----	----	----	----	
125	0.58	----	----	----	----	
126	0.57	----	----	----	----	
127	0.57	----	----	----	----	
128	0.57	----	----	----	----	
129	0.57	----	----	----	----	
130	0.57	----	----	----	----	
131	0.57	----	----	----	----	
132	0.56	----	----	----	----	
133	0.56	----	----	----	----	
134	0.56	----	----	----	----	
135	0.56	----	----	----	----	
136	0.56	----	----	----	----	
137	0.55	----	----	----	----	
138	0.55	----	----	----	----	
139	0.55	----	----	----	----	
140	0.55	----	----	----	----	
141	0.55	----	----	----	----	
142	0.55	----	----	----	----	
143	0.54	----	----	----	----	
144	0.54	----	----	----	----	
145	0.54	----	----	----	----	
146	0.54	----	----	----	----	
147	0.53	----	----	----	----	
148	0.53	----	----	----	----	
149	0.53	----	----	----	----	
150	0.53	----	----	----	----	
151	0.52	----	----	----	----	
152	0.52	----	----	----	----	
153	0.52	----	----	----	----	
154	0.52	----	----	----	----	
155	0.51	----	----	----	----	
156	0.51	----	----	----	----	
157	0.51	----	----	----	----	
158	0.51	----	----	----	----	
159	0.51	----	----	----	----	
160	0.50	----	----	----	----	
161	0.50	----	----	----	----	
162	0.50	----	----	----	----	
163	0.50	----	----	----	----	
164	0.50	----	----	----	----	
165	0.50	----	----	----	----	
166	0.50	----	----	----	----	
167	0.50	----	----	----	----	
168	0.50	----	----	----	----	
169	0.50	----	----	----	----	
170	0.50	----	----	----	----	

1999

Date	Rain (in)
2/9/1999	**0.95**
1/19/1999	**0.84**
1/18/1999	**0.68**
2/7/1999	**0.68**
1/26/1999	**0.5**
4/5/1999	0.47
1/31/1999	0.38
4/8/1999	0.38
2/20/1999	0.37
11/7/1999	0.36
1/23/1999	0.33
2/8/1999	0.31
2/25/1999	0.31
3/9/1999	0.3
11/8/1999	0.28
1/15/1999	0.27
2/6/1999	0.26
3/14/1999	0.26
3/30/1999	0.25
11/19/1999	0.24
3/19/1999	0.22
4/11/1999	0.17
3/8/1999	0.16
3/20/1999	0.15
12/9/1999	0.14
2/16/1999	0.13
2/17/1999	0.13
10/27/1999	0.12
11/16/1999	0.12
2/13/1999	0.11
2/21/1999	0.11
3/24/1999	0.11
2/18/1999	0.1

2000

Date	Rain (in)
1/24/2000	**1.82**
2/22/2000	**1.15**
2/11/2000	**1.09**
2/13/2000	**1.01**
1/23/2000	**0.98**
2/14/2000	**0.73**
10/26/2000	**0.66**
3/8/2000	**0.6**
1/18/2000	**0.52**
5/15/2000	0.46
10/29/2000	0.46
10/28/2000	0.43
1/11/2000	0.41
1/16/2000	0.39
3/4/2000	0.32
2/27/2000	0.3
2/3/2000	0.26
2/26/2000	0.26
4/12/2000	0.26
10/10/2000	0.23
11/29/2000	0.22
2/23/2000	0.2
12/14/2000	0.2
1/17/2000	0.19
3/2/2000	0.19
4/17/2000	0.19
10/30/2000	0.17
1/30/2000	0.16
5/7/2000	0.16
2/20/2000	0.15
2/29/2000	0.15
6/7/2000	0.14
2/10/2000	0.13
3/5/2000	0.13
12/11/2000	0.13
1/25/2000	0.12
11/21/2000	0.12
1/22/2000	0.11
5/14/2000	0.11

2001

Date	Rain (in)
12/2/2001	**1.14**
11/24/2001	**1.04**
12/20/2001	**0.94**
1/25/2001	**0.84**
12/28/2001	**0.82**
12/29/2001	**0.76**
11/12/2001	**0.7**
2/22/2001	**0.61**
12/30/2001	**0.61**
4/6/2001	**0.59**
4/20/2001	**0.55**
2/12/2001	**0.54**
2/11/2001	**0.51**
12/14/2001	0.49
3/4/2001	0.42
2/19/2001	0.38
2/9/2001	0.35
2/24/2001	0.35
10/30/2001	0.3
1/23/2001	0.27
3/2/2001	0.27
11/28/2001	0.26
11/29/2001	0.23
2/10/2001	0.21
3/24/2001	0.21
4/8/2001	0.21
4/7/2001	0.2
12/17/2001	0.2
12/13/2001	0.19
12/1/2001	0.18
1/12/2001	0.14
1/24/2001	0.13
3/3/2001	0.13
6/25/2001	0.12
10/5/2001	0.12
3/5/2001	0.11
3/25/2001	0.11
12/22/2001	0.1

2002

Date	Rain (in)
12/16/2002	**2.76**
11/8/2002	**1.66**
11/7/2002	**1.23**
12/14/2002	**1.04**
12/19/2002	**0.91**
12/13/2002	**0.75**
12/31/2002	**0.66**
12/28/2002	**0.61**
3/17/2002	**0.56**
3/23/2002	**0.5**
5/20/2002	0.46
12/20/2002	0.46
1/2/2002	0.31
12/15/2002	0.24
2/7/2002	0.21
3/22/2002	0.21
2/17/2002	0.2
3/6/2002	0.2
12/29/2002	0.2
5/19/2002	0.19
2/16/2002	0.18
3/10/2002	0.17
12/9/2002	0.17
5/21/2002	0.14
1/26/2002	0.13
2/19/2002	0.11
11/10/2002	0.11

2003

Date	Rain (in)
4/12/2003	**1.14**
12/29/2003	**0.91**
11/8/2003	**0.86**
5/2/2003	**0.72**
4/13/2003	**0.65**
11/9/2003	**0.61**
3/15/2003	**0.57**
5/3/2003	**0.55**
12/14/2003	**0.52**
12/10/2003	**0.5**
4/4/2003	0.45
2/16/2003	0.38
4/21/2003	0.37
4/28/2003	0.34
12/20/2003	0.33
12/25/2003	0.33
1/9/2003	0.31
3/16/2003	0.31
12/24/2003	0.26
2/12/2003	0.24
4/2/2003	0.24
12/6/2003	0.24
3/14/2003	0.22
2/15/2003	0.19
12/23/2003	0.19
12/9/2003	0.17
2/26/2003	0.15
4/25/2003	0.14
11/15/2003	0.14
4/24/2003	0.13
11/2/2003	0.12
11/3/2003	0.12
2/25/2003	0.11
2/27/2003	0.11
1/10/2003	0.1
3/23/2003	0.1
11/7/2003	0.1
11/30/2003	0.1

2004

Date	Rain (in)
1/1/2004	**1.72**
10/19/2004	**1.39**
12/30/2004	**1.11**
2/25/2004	**0.86**
10/26/2004	**0.82**
12/27/2004	**0.77**
2/2/2004	**0.59**
12/31/2004	**0.56**
11/11/2004	**0.54**
2/16/2004	0.48
10/17/2004	0.44
2/17/2004	0.39
12/7/2004	0.33
2/18/2004	0.29
12/28/2004	0.27
2/26/2004	0.25
3/25/2004	0.25
2/3/2004	0.24
12/8/2004	0.23
1/24/2004	0.22
11/27/2004	0.22
2/22/2004	0.19
10/20/2004	0.19
12/29/2004	0.18
10/23/2004	0.15
2/20/2004	0.14
12/6/2004	0.14
3/1/2004	0.12
1/2/2004	0.11
2/6/2004	0.11
5/28/2004	0.1

2005

Date	Rain (in)
12/31/2005	**2.07**
2/15/2005	**1.13**
12/18/2005	**1.1**
3/22/2005	**0.78**
2/27/2005	**0.58**
2/19/2005	**0.53**
12/1/2005	**0.5**
12/25/2005	0.49
12/17/2005	0.47
11/28/2005	0.46
1/10/2005	0.45
1/11/2005	0.42
4/3/2005	0.4
5/8/2005	0.39
12/30/2005	0.39
2/14/2005	0.38
1/7/2005	0.37
1/2/2005	0.36
3/3/2005	0.35
4/28/2005	0.35
1/28/2005	0.3
3/4/2005	0.3
12/28/2005	0.3
5/4/2005	0.28
5/9/2005	0.28
1/8/2005	0.27
3/21/2005	0.27
12/22/2005	0.27
3/23/2005	0.25
4/8/2005	0.25
12/21/2005	0.23
3/20/2005	0.21
9/20/2005	0.21
3/27/2005	0.2
3/1/2005	0.19
2/18/2005	0.18
12/26/2005	0.17
4/7/2005	0.16
4/22/2005	0.14
1/26/2005	0.13
2/11/2005	0.13
1/1/2005	0.12
5/5/2005	0.12
5/19/2005	0.12
2/21/2005	0.11
3/28/2005	0.11

2006

Date	Rain (in)
12/12/2006	**0.91**
4/4/2006	**0.81**
1/2/2006	**0.78**
3/25/2006	**0.74**
5/21/2006	**0.6**
3/20/2006	**0.5**
11/13/2006	**0.5**
4/3/2006	0.46
2/27/2006	0.45
3/6/2006	0.45
4/16/2006	0.45
1/14/2006	0.4
2/17/2006	0.36
3/31/2006	0.33
3/16/2006	0.32
4/12/2006	0.31
12/26/2006	0.29
3/3/2006	0.28
3/14/2006	0.28
11/3/2006	0.28
2/28/2006	0.26
4/2/2006	0.26
11/11/2006	0.25
3/2/2006	0.24
12/9/2006	0.21
4/7/2006	0.2
3/5/2006	0.19
3/27/2006	0.19
3/29/2006	0.19
4/5/2006	0.19
1/18/2006	0.16
3/17/2006	0.16
11/2/2006	0.16
10/5/2006	0.15
12/27/2006	0.15
3/10/2006	0.14
3/24/2006	0.14
2/26/2006	0.13
3/11/2006	0.13
11/1/2006	0.13
12/10/2006	0.12
1/7/2006	0.11
3/9/2006	0.11
4/10/2006	0.11
4/9/2006	0.1

2007

Date	Rain (in)
2/10/2007	**0.8**
10/12/2007	**0.71**
2/26/2007	**0.65**
2/22/2007	**0.53**
12/6/2007	**0.52**
12/18/2007	0.45
2/11/2007	0.39
11/10/2007	0.38
2/25/2007	0.32
2/27/2007	0.28
12/7/2007	0.26
10/10/2007	0.25
11/11/2007	0.25
9/22/2007	0.23
12/20/2007	0.23
2/9/2007	0.21
3/26/2007	0.19
12/17/2007	0.19
4/14/2007	0.16
1/27/2007	0.15
2/12/2007	0.14
2/24/2007	0.13
1/16/2007	0.11
2/8/2007	0.11
4/11/2007	0.11

2008

Date	Rain (in)
1/4/2008	**2.32**
1/5/2008	**0.8**
11/1/2008	**0.75**
2/19/2008	**0.63**
1/21/2008	**0.59**
2/24/2008	0.41
11/2/2008	0.4
12/25/2008	0.38
12/14/2008	0.31
11/26/2008	0.29
2/2/2008	0.28
2/23/2008	0.27
1/22/2008	0.25
1/27/2008	0.24
12/15/2008	0.24
1/3/2008	0.21
1/31/2008	0.21
2/3/2008	0.18
10/4/2008	0.17
2/21/2008	0.16
2/22/2008	0.16
1/25/2008	0.15
12/19/2008	0.15
12/21/2008	0.15
11/3/2008	0.14
1/28/2008	0.12
12/23/2008	0.11
1/23/2008	0.1
12/24/2008	0.1

2009

Date	Rain (in)
10/13/2009	**2.75**
3/3/2009	**0.93**
2/17/2009	**0.89**
2/6/2009	**0.56**
2/13/2009	**0.56**
1/22/2009	**0.55**
2/15/2009	**0.5**
12/7/2009	0.47
10/19/2009	0.46
2/16/2009	0.4
12/13/2009	0.36
2/22/2009	0.35
3/1/2009	0.35
3/2/2009	0.32
1/21/2009	0.3
12/11/2009	0.28
12/12/2009	0.24
3/22/2009	0.21
5/1/2009	0.21
12/26/2009	0.19
2/8/2009	0.17
2/11/2009	0.17
1/23/2009	0.16
1/24/2009	0.13
3/21/2009	0.13
9/13/2009	0.13
11/20/2009	0.13
2/24/2009	0.1
4/9/2009	0.1
5/3/2009	0.1
12/27/2009	0.1

2010

Date	Rain (in)
12/19/2010	**1.13**
1/20/2010	**1.02**
1/19/2010	**0.81**
2/23/2010	**0.67**
1/21/2010	**0.57**
11/20/2010	**0.57**
4/11/2010	**0.56**
3/3/2010	**0.55**
12/28/2010	**0.55**
4/4/2010	**0.51**
1/18/2010	**0.5**
12/25/2010	0.43
2/21/2010	0.41
12/8/2010	0.4
4/20/2010	0.38
2/26/2010	0.36
3/12/2010	0.35
10/24/2010	0.35
12/17/2010	0.3
4/12/2010	0.29
1/12/2010	0.28
12/14/2010	0.28
3/31/2010	0.24
2/4/2010	0.23
1/13/2010	0.22
11/7/2010	0.22
11/27/2010	0.22
12/5/2010	0.22
2/27/2010	0.21
11/21/2010	0.2
12/29/2010	0.2
11/19/2010	0.19
1/22/2010	0.18
11/23/2010	0.18
3/2/2010	0.17
3/30/2010	0.17
1/25/2010	0.16
1/29/2010	0.16
2/6/2010	0.16
1/26/2010	0.15
4/21/2010	0.15
10/23/2010	0.15
4/28/2010	0.13
5/25/2010	0.13
2/2/2010	0.11
5/10/2010	0.11
12/22/2010	0.11
12/18/2010	0.1

2011

Date	Rain (in)
3/24/2011	**0.97**
6/28/2011	**0.78**
3/18/2011	**0.67**
2/17/2011	**0.62**
6/4/2011	**0.57**
2/25/2011	**0.52**
2/16/2011	**0.5**
2/18/2011	0.49
3/19/2011	0.49
3/6/2011	0.45
10/5/2011	0.42
10/6/2011	0.39
3/20/2011	0.38
3/23/2011	0.3
2/19/2011	0.28
1/1/2011	0.24
3/15/2011	0.22
1/30/2011	0.21
11/20/2011	0.2
11/5/2011	0.19
3/26/2011	0.18
3/13/2011	0.17
3/25/2011	0.17
11/4/2011	0.16
11/19/2011	0.15
3/16/2011	0.14
5/16/2011	0.14
1/2/2011	0.13
5/15/2011	0.1
6/1/2011	0.1
10/3/2011	0.1
10/4/2011	0.1

2012

Date	Rain (in)
11/30/2012	**1.85**
12/2/2012	**1.24**
1/20/2012	**0.92**
3/24/2012	**0.9**
4/12/2012	**0.85**
12/23/2012	**0.7**
3/27/2012	**0.64**
3/16/2012	**0.63**
12/22/2012	**0.62**
12/5/2012	**0.53**
11/28/2012	0.43
4/13/2012	0.41
1/21/2012	0.36
12/25/2012	0.35
3/31/2012	0.34
11/1/2012	0.34
11/17/2012	0.33
1/23/2012	0.32
2/29/2012	0.32
10/22/2012	0.23
4/10/2012	0.22
11/21/2012	0.22
12/21/2012	0.21
12/1/2012	0.19
12/15/2012	0.18
4/25/2012	0.16
2/7/2012	0.15
3/13/2012	0.15
11/18/2012	0.15
11/16/2012	0.14
4/11/2012	0.13
11/9/2012	0.12

2013

Date	Rain (in)
11/20/2013	**1.12**
9/21/2013	0.46
2/19/2013	0.36
1/24/2013	0.3
11/19/2013	0.3
12/6/2013	0.3
11/21/2013	0.23
4/7/2013	0.2
1/5/2013	0.16
4/4/2013	0.15
1/6/2013	0.12
3/31/2013	0.1

2014

Date	Rain (in)
12/11/2014	**2.56**
12/2/2014	**1.41**
12/3/2014	**1.28**
12/15/2014	**1.01**
2/28/2014	**0.85**
12/12/2014	**0.64**
3/31/2014	0.48
2/26/2014	0.46
11/30/2014	0.44
2/6/2014	0.43
11/20/2014	0.39
12/16/2014	0.39
4/1/2014	0.38
11/13/2014	0.35
12/17/2014	0.33
2/2/2014	0.32
4/25/2014	0.32
3/26/2014	0.29
3/29/2014	0.25
9/25/2014	0.21
12/19/2014	0.2
2/9/2014	0.14
2/8/2014	0.13
4/4/2014	0.12
2/7/2014	0.11
3/25/2014	0.1
10/31/2014	0.1

2015

Date	Rain (in)
11/2/2015	**1.48**
2/6/2015	**0.96**
2/8/2015	**0.69**
2/7/2015	**0.6**
12/21/2015	**0.51**
4/7/2015	**0.5**
12/13/2015	0.48
12/10/2015	0.45
5/14/2015	0.42
11/9/2015	0.4
4/25/2015	0.32
12/24/2015	0.3
6/10/2015	0.27
12/22/2015	0.26
11/15/2015	0.24
12/3/2015	0.2
12/19/2015	0.12
11/25/2015	0.1

2016

Date	Rain (in)
10/16/2016	**1.27**
3/5/2016	**0.88**
1/19/2016	**0.85**
2/17/2016	**0.75**
12/15/2016	**0.72**
10/27/2016	**0.67**
12/23/2016	**0.67**
1/5/2016	**0.65**
3/13/2016	**0.63**
1/18/2016	**0.62**
4/9/2016	**0.61**
3/6/2016	**0.57**
12/10/2016	0.48
10/15/2016	0.45
10/28/2016	0.44
12/8/2016	0.44
1/6/2016	0.4
10/30/2016	0.36
3/11/2016	0.35
4/10/2016	0.33
4/22/2016	0.33
11/20/2016	0.32
4/8/2016	0.31
3/4/2016	0.28
3/7/2016	0.26
1/17/2016	0.25
3/12/2016	0.22
10/14/2016	0.22
2/18/2016	0.21
1/13/2016	0.19
1/22/2016	0.19
1/15/2016	0.17
1/29/2016	0.17
5/6/2016	0.16
11/26/2016	0.16
1/23/2016	0.14
12/7/2016	0.14
1/16/2016	0.13
11/1/2016	0.12

2017

Date	Rain (in)
2/20/2017	**2.06**
1/10/2017	**1.58**
1/8/2017	**1.15**
11/16/2017	**1.15**
2/21/2017	**1.07**
1/20/2017	**1.01**
2/7/2017	**0.98**
1/4/2017	**0.82**
1/18/2017	**0.76**
3/22/2017	**0.7**
4/7/2017	**0.64**
1/22/2017	**0.61**
2/9/2017	**0.57**
1/3/2017	**0.54**
4/6/2017	**0.54**
1/7/2017	0.47
2/6/2017	0.43
2/17/2017	0.43
1/21/2017	0.42
2/3/2017	0.36
3/20/2017	0.31
3/5/2017	0.3
3/4/2017	0.28
1/9/2017	0.25
11/27/2017	0.23
1/12/2017	0.22
2/8/2017	0.22
4/17/2017	0.21
4/20/2017	0.19
2/16/2017	0.16
2/2/2017	0.14
4/16/2017	0.14
11/4/2017	0.14
2/5/2017	0.12
3/24/2017	0.12
1/2/2017	0.11
2/19/2017	0.11
4/13/2017	0.1
11/26/2017	0.1

2018

Date	Rain (in)
1/8/2018	**1.6**
3/1/2018	**0.76**
4/6/2018	**0.68**
3/22/2018	**0.65**
3/17/2018	**0.55**
11/23/2018	**0.53**
1/9/2018	**0.51**
11/29/2018	**0.5**
2/26/2018	0.44
4/7/2018	0.41
3/16/2018	0.37
3/2/2018	0.34
3/13/2018	0.34
12/1/2018	0.32
12/16/2018	0.31
1/24/2018	0.3
1/3/2018	0.28
11/21/2018	0.27
3/20/2018	0.26
12/24/2018	0.26
4/16/2018	0.21
12/17/2018	0.21
1/18/2018	0.19
3/14/2018	0.17
11/22/2018	0.16
1/25/2018	0.14
4/11/2018	0.14
12/5/2018	0.13
3/3/2018	0.12
3/12/2018	0.12
4/15/2018	0.1

2019

Date	Rain (in)
2/13/2019	**1.35**
1/16/2019	**1.05**
1/6/2019	**0.95**
2/4/2019	**0.88**
2/14/2019	**0.76**
3/2/2019	**0.7**
5/15/2019	**0.51**
2/2/2019	0.47
3/27/2019	0.47
12/4/2019	0.45
3/6/2019	0.43
5/19/2019	0.4
12/1/2019	0.4
5/18/2019	0.36
2/8/2019	0.34
2/27/2019	0.34
2/9/2019	0.33
12/7/2019	0.31
2/10/2019	0.29
1/20/2019	0.27
1/15/2019	0.26
3/23/2019	0.24
2/15/2019	0.23
3/22/2019	0.21
12/2/2019	0.21
1/5/2019	0.19
12/29/2019	0.19
2/12/2019	0.18
3/20/2019	0.18
9/16/2019	0.18
2/5/2019	0.17
5/16/2019	0.15
2/1/2019	0.14
2/3/2019	0.14
12/22/2019	0.14
1/17/2019	0.13
2/17/2019	0.13
5/21/2019	0.13
2/16/2019	0.12
2/26/2019	0.12
3/10/2019	0.12
11/30/2019	0.11
12/10/2019	0.11
1/31/2019	0.1
12/8/2019	0.1

APPENDIX D.

DESIGN RAINFALL DEPTHS

Recurrence Interval	P [1]	K_j [2]	CV [3]	t_i [4]	D_{ij} [5]
2-Year	14.0 in	-0.210	0.404	1.0 day	1.46 in
5-Year	14.0 in	0.719	0.404	1.0 day	2.06 in
10-Year	14.0 in	1.339	0.404	1.0 day	2.47 in
15-Year	14.0 in	1.684	0.404	1.0 day	2.69 in
25-Year	14.0 in	2.108	0.404	1.0 day	2.96 in
50-Year	14.0 in	2.667	0.404	1.0 day	3.32 in
100-Year	14.0 in	3.211	0.404	1.0 day	3.68 in

Notes:

[1] P = mean annual precipitation (inches), based on average of 1999 to 2019 annual totals from Livermore Municipal Airport Gage

[2] K_j = frequency factor for recurrence interval ***j*** (from **Table 1** for storm durations up to 24 hours or **Attachment 12** for storm durations greater than 24 hours)

[3] CV = coefficient of variation (from **Attachment 12**)

[4] t_i = consecutive time (days)

[5] D_{ij} = design rainfall depth (inches) for recurrence interval ***j*** and storm duration ***i***

$$D_{ij} = (0.32665 + 0.091144\overline{P})(1 + K_j CV)t_i^{0.43287}$$

Year [1]	Annual Total [2]
1999	11.39 in
2000	16.68 in
2001	16.19 in
2002	14.88 in
2003	14.26 in
2004	14.15 in
2005	18.51 in
2006	15.03 in
2007	8.82 in
2008	10.93 in
2009	13.42 in
2010	17.15 in
2011	11.68 in
2012	15.34 in
2013	4.62 in
2014	14.63 in
2015	9.15 in
2016	17.00 in
2017	20.98 in
2018	12.34 in
2019	16.27 in

Average =	**14.0 in**

Notes:

[1] Each year based on a calendar year from January 1st to December 31st

[2] Annual totals adopted from Livermore Municipal Airport Gage, data from National Oceanic and Atmospheric Administration (NOAA)

EQUATION 6 RAINFALL DEPTH

$$D_{ij} = (0.32665 + 0.091144\overline{P})(1 + K_j CV)t_i^{0.43287} \quad (6)$$

where:

D_{ij} = *design rainfall depth (inches) for recurrence interval j and storm duration i*

$\overline{P}$ = *mean annual precipitation (inches)*

K_j = *frequency factor for recurrence interval j (from **Table 1** for storm durations up to 24 hours or **Attachment 12** for storm durations greater than 24 hours)*

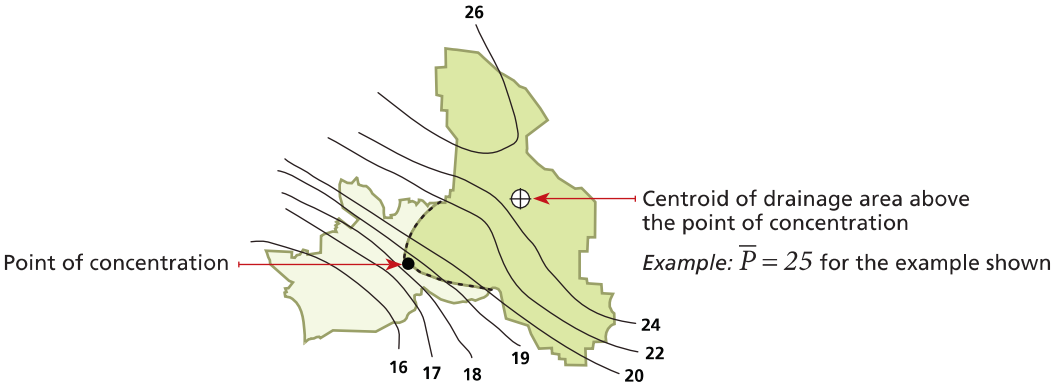
CV = *coefficient of variation (from **Attachment 12**)*

t_i = *consecutive time (days)*

(District 2015)

Determine the mean annual precipitation ($\overline{P}$) of a drainage area using the District's isohyetal map ***Attachment 6***. The $\overline{P}$ to be used is located at the centroid of the drainage area above the point of concentration at which the flow rate is being determined, as shown in *Figure 2*.

FIGURE 2 DETERMINING MEAN ANNUAL PRECIPITATION



Note: Graphic for illustration purposes only.

TABLE 1 FREQUENCY FACTORS FOR SELECT RECURRENCE INTERVALS*

Recurrence interval *(yrs)*	2	5	10	15	25	100	200	500	1000
Frequency Factor, K_j	-0.210	0.719	1.339	1.684	2.108	3.211	3.745	4.417	4.955

*Table 1 presents frequency factors (K_j) for storm durations (t_d) up to 24 hours. See ***Attachment 12*** for storm durations greater than 24 hours.

(District 2015)

Frequency Factor, K_j

Recurrence Interval	Storm Duration (t_d)																					
	Consecutive Minutes				Consecutive Hours						Consecutive Days											
	5	10	15	30	1	2	3	6	12	24	2	3	4	5	6	8	10	15	20	30	60	365
2	-0.210	-0.210	-0.210	-0.210	-0.210	-0.210	-0.210	-0.210	-0.210	-0.210	-0.225	-0.225	-0.210	-0.195	-0.195	-0.195	-0.164	-0.132	-0.132	-0.148	-0.099	-0.083
5	0.719	0.719	0.719	0.719	0.719	0.719	0.719	0.719	0.719	0.719	0.705	0.705	0.719	0.733	0.733	0.733	0.758	0.780	0.780	0.769	0.799	0.808
10	1.339	1.339	1.339	1.339	1.339	1.339	1.339	1.339	1.339	1.339	1.337	1.337	1.339	1.340	1.340	1.340	1.340	1.336	1.336	1.339	1.329	1.323
15	1.684	1.684	1.684	1.684	1.684	1.684	1.684	1.684	1.684	1.684	1.692	1.692	1.684	1.678	1.678	1.678	1.660	1.637	1.637	1.649	1.610	1.595
20	1.920	1.920	1.920	1.920	1.920	1.920	1.920	1.920	1.920	1.920	1.938	1.938	1.920	1.910	1.910	1.910	1.877	1.839	1.839	1.859	1.797	1.774
25	2.108	2.108	2.108	2.108	2.108	2.108	2.108	2.108	2.108	2.108	2.128	2.128	2.108	2.088	2.088	2.088	2.043	1.993	1.993	2.018	1.939	1.910
40	2.489	2.489	2.489	2.489	2.489	2.489	2.489	2.489	2.489	2.489	2.521	2.521	2.489	2.455	2.455	2.455	2.384	2.308	2.308	2.346	2.228	2.185
50	2.667	2.667	2.667	2.667	2.667	2.667	2.667	2.667	2.667	2.667	2.706	2.706	2.667	2.626	2.626	2.626	2.542	2.453	2.453	2.498	2.359	2.311
100	3.211	3.211	3.211	3.211	3.211	3.211	3.211	3.211	3.211	3.211	3.271	3.271	3.211	3.149	3.149	3.149	3.023	2.891	2.891	2.957	2.755	2.686
200	3.745	3.745	3.745	3.745	3.745	3.745	3.745	3.745	3.745	3.745	3.828	3.828	3.745	3.661	3.661	3.661	3.489	3.312	3.312	3.401	3.132	3.041
500	4.417	4.417	4.417	4.417	4.417	4.417	4.417	4.417	4.417	4.417	4.535	4.535	4.417	4.298	4.298	4.298	4.058	3.887	3.887	4.012	3.631	3.499
1,000	4.955	4.955	4.955	4.955	4.955	4.955	4.955	4.955	4.955	4.955	5.095	5.095	4.955	4.815	4.815	4.815	4.531	4.244	4.244	4.388	3.956	3.811
C_s	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.3**	**1.4**	**1.4**	**1.3**	**1.2**	**1.2**	**1.2**	**1.0**	**0.8**	**0.8**	**0.9**	**0.6**	**0.5**

Frequency factors for storm durations (t_d) up to 24 hours are constant for a given recurrence interval because the coefficient of skew (C_s) is a constant at 1.3. For durations greater than 24 hours, the coefficient of skew (C_s) and frequency factors (K_j) vary with storm duration (t_d).

Regional Coefficient of Variation, CV

Storm Duration (t_d)																						
Consecutive Minutes				Consecutive Hours						Consecutive Days												
5	10	15	30	1	2	3	6	12	24	2	3	4	5	6	8	10	15	20	30	60	365
0.404	0.404	0.404	0.404	0.404	0.404	0.404	0.404	0.404	0.404	0.431	0.426	0.424	0.141	4.414	0.404	0.398	0.395	0.390	0.386	0.385	0.336

APPENDIX E.

HEC-HMS MODELING

Watershed	Total Area	Initial Losses [1]	Uniform Losses [2]	Impervious Area	Impervious %
Existing	140.0 ac	1.00 in	0.05 in/hr	1.51 ac	1.08%
Proposed	1.5 ac	1.00 in	0.05 in/hr	0.00 ac	0.00%

Notes:

[1] Initial loss determined from **Table 5**, assume value is applicable for all storm events

[2] Uniform loss determined from **Table 6**, use Hydrologic Soil Group D and Rural Coverage

Watershed	Roofs	Roads	Impervious	Impervious
Existing	4,733 sf	60,869 sf	65,601 sf	1.51 ac
Proposed	0 sf	0 sf	0 sf	0.00 ac

LOSS RATES

Rainfall that does not result in runoff is accounted for by estimating losses. Losses occur due to surface ponding and infiltration. Appropriate selection of loss rates is critical in determining design discharges. The District has adopted the Initial Loss and Uniform Loss Rate methods for design runoff calculations. Losses are applicable only to pervious portions of the drainage area. Use the following procedures to determine initial and uniform loss rates, as well as the impervious area as a function of land use.

Initial Losses

In order to produce corresponding runoff frequencies from a given rainfall intensity, the initial loss values were calibrated based on discharge frequency data from long-term streamflow gage records in Alameda County and its vicinity. ***Table 5*** provides the appropriate value for initial loss, depending on the design storm durations. For very large drainage areas (of a cumulative size of 500 square miles or more), the initial loss could be as high as 1.2. (***Note:*** The values in Table 5 are applicable for runoff events of 5 to 500 years, but should not be used for events less than 5 years. For intervals of less than 5 years, contact the District.)

TABLE 5 INITIAL LOSS

Design Storm *(hr)*	Initial Loss *(inches)*
6	0.8
24	1.0 - 1.2

(District 1994)

Uniform Loss Rate

Uniform loss (constant infiltration) rate is a function of the hydrologic soil group and soil cover within the drainage area. The type of vegetation or general soil cover in a watershed also significantly affects the rate of infiltration. Infiltration rates for well-established urban landscaping are higher than for new urban landscaping. The District uses a lower uniform loss rate for new urban landscaping to account for the potentially higher flow rates that could be experienced before the new landscaping becomes well established. The District has adopted the following three categories of vegetation and soil coverage:

1. Rural Coverage: Consisting of all rural areas with undisturbed soil cover and natural rural vegetation growth.
2. New Urban Coverage: Consisting of pervious areas of newly developed urban areas with less than 5 years of vegetation growth (e.g., lawn, golf course, landscaped areas), unless low impact development techniques are integrated into the landscaping, in which case the developer may submit an alternative uniform loss rate for the District Hydrologist's consideration, on a case-by-case basis.
3. Existing Urban Coverage: Consisting of areas of existing urban development with more than 5 years of vegetation growth (e.g., lawn, golf course, landscaped areas).

Table 6 tabulates uniform loss rates for use in applying the Synthetic Unit Hydrograph Method, based on the hydraulic soil group (as described in ***Chapter 2***) and the type of soil coverage.

TABLE 6 UNIFORM LOSS RATES

Hydrologic Soil Group	Rural Coverage	New Urban Coverage	Existing Urban Coverage
A	0.45	0.45	0.45
B	0.35	0.37	0.40
C	0.14	0.19	0.25
D	0.05	0.07	0.09

All loss rates in inches/hour. (District 1994)

To compute the uniform loss rate for a particular catchment, superimpose the hydrologic soil map of the area on the soil cover map and the drainage area map. Develop a composite map, and assign the proper loss rates based on *Table 6* to each area. Finally, compute an area-weighted average of the uniform loss rate, based upon the type of coverage, hydraulic soil group, and the area sizes on the composite map. *Figure 3* illustrates this process.

FIGURE 3 SIMPLIFIED UNIFORM LOSS RATE USING A COMPOSITE MAP

Note: Graphic for illustration purposes only.

EFFECT OF URBAN DEVELOPMENT AND IMPERVIOUS AREAS

An important factor that affects infiltration rates in a watershed is the level of urbanization and the percentage of directly connected impervious areas (DCIAs). DCIAs, also referred to as "hydraulically effective impervious areas," are those impervious areas where runoff flows directly into the storm drain system (i.e. gutters, ditches, catch basins) without passing over significant pervious areas.

Non-directly connected impervious areas (NCIAs) are those impervious areas that drain to a pervious area and then flow to the storm drain system. An example of runoff from an NCIA is a roof that drains into yard landscaping and flows across pervious lawn areas before entering the storm drain system. To a limited degree, the runoff rate from NCIAs is similar to that for pervious areas.

For the pervious and non-directly connected impervious areas, the initial and uniform loss rates are based on *Tables 5* and *6*, without any further adjustment. If more than 50

Watershed	Total Area	K [1]	N [2]	L [3]	L_C [4]	S [5]	t_L [6]
Existing	140.0 ac	25.33	0.05	1.135 mi	0.493 mi	266.8 ft/mi	0.35 hr
Proposed	1.5 ac	40.00	0.05	0.134 mi	0.064 mi	187.0 ft/mi	0.12 hr

Notes:

[1] K = distance factor:

for L > 1.7 mi, K = 24

for L ≤ 1.7 mi, K = 15.22 + 2.15L + 8.7/L

if calculated value of K is greater than 40, use K = 40

[2] N = basin roughness factor (from **Table 8**, rural watershed or **Equation 12**, urban watershed)

[3] L = length of longest watercourse (mi) (see **Figure 4**)

[4] L_c = length along longest watercourse measured from the point of concentration to a point opposite of the watershed centroid (mi) (see **Figure 4**)

[5] S = average stream slope (ft/mi) (from **Equation 11**)

[6] t_L = lag time (hr)

$$t_L = K \cdot N \left(\frac{L \cdot L_c}{\sqrt{S}} \right)^{0.38}$$

Watershed	L (ft)	L_c (ft)
Existing	5,990 ft	2,603 ft
Proposed	706 ft	339 ft

Watershed	Total Area	$\sum A_i$ [1]	L [2]	S [3]
Existing	140.0 ac	906,365 sf	5,990 ft	266.8 ft/mi
Proposed	1.5 ac	8,826 sf	706 ft	187.0 ft/mi

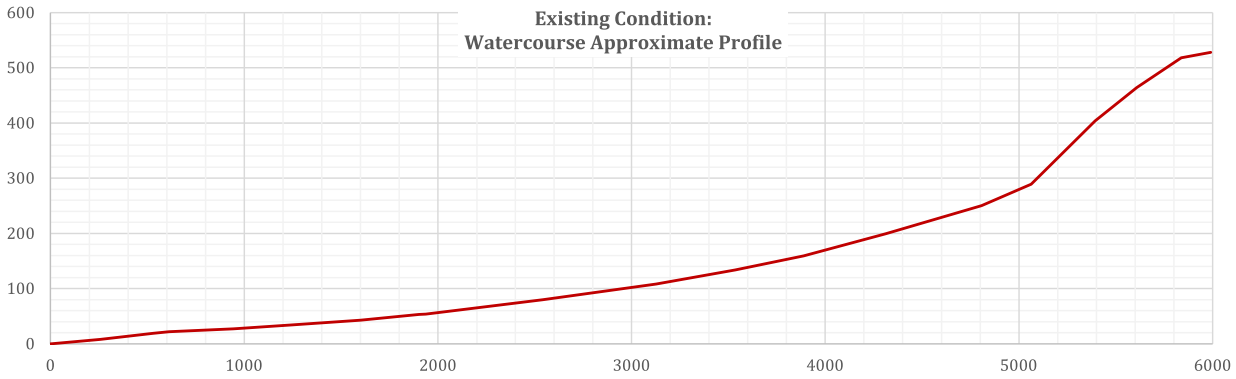
Notes:

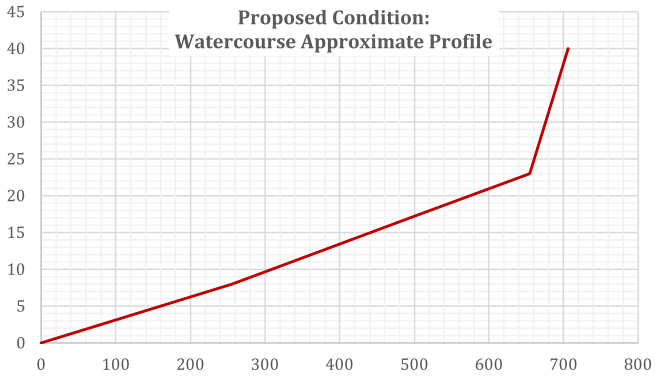
[1] Ai = incremental area defined by the watercourse profile, summed between the outfall and the most remote point upstream (L), (ft^2)
(See **Figure 4**)

[2] L = total length along the centerline of the main channel (ft)

[3] S = average stream slope (ft/mi) (from **Equation 11**)

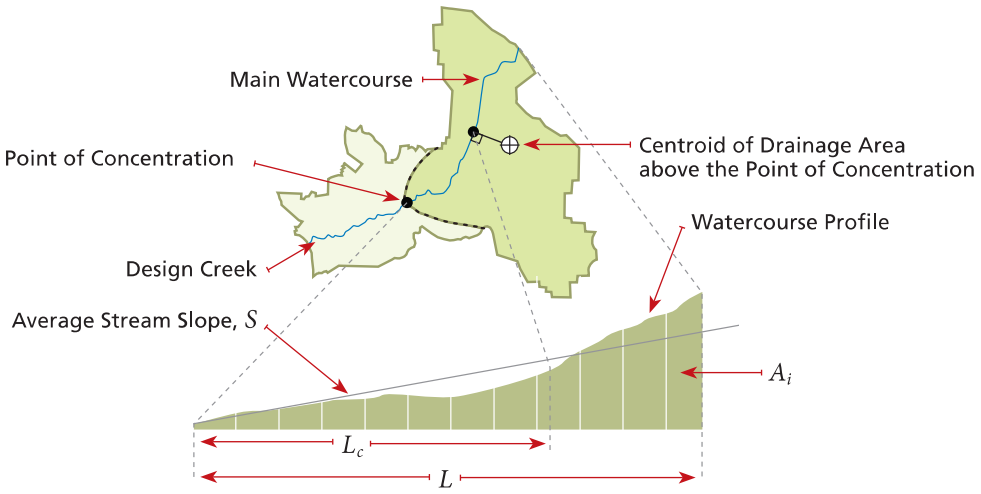
$$S = 5{,}280\frac{2\left(\sum_{i=1}^{n} A_i\right)}{L^2}$$





4. Calculate average watercourse slope (S) upstream of the point of concentration using ***Equation 11***.
5. Estimate basin roughness factor (N) using ***Table 8*** for rural watersheds and ***Equation 12*** for urban watersheds.
6. Calculate basin lag time using ***Equation 13***.

FIGURE 4 **PARAMETERS IN CALCULATING BASIN LAG TIME**



Note: Graphic for illustration purposes only.

EQUATION 11 **AVERAGE STREAM SLOPE**

$$S = 5{,}280 \frac{2\left(\sum_{i=1}^{n} A_i\right)}{L^2} \quad (11)$$

where:

S = *average stream slope (ft/mi)*

A_i = *incremental area defined by the watercourse profile, summed between the outfall and the most remote point upstream* (L), *ft² (see **Figure 4**)*

L = *total length along the centerline of the main channel (ft)*

(District 1994)

To determine an appropriate basin roughness factor (N) the basin should be classified as either rural or urban. If more than 80 percent of the subject watershed has natural pervious coverage, the basin is considered rural, and the basin roughness factor (N) can be determined from ***Table 8***.

If the basin is urban, use ***Equation 12*** to calculate N using Manning's roughness coefficient (n) values of the main drainage network from ***Table 9***. If a field survey of the main drainage reach has been performed, compute a weighted average N using the length and the corresponding N of each drainage reach. It is also possible to use a combination of aerial photos for the upstream and natural reaches and field reconnaissance for the downstream urban reaches of the main drainage watercourse to estimate N.

If the basin is mixed rural and urban, a combined, weighted average N should be calculated based on ***Table 9*** and ***Equation 11***.

TABLE 8 BASIN ROUGHNESS FACTORS FOR RURAL WATERSHEDS

Basin Type	Basin Roughness Factor (N)
1. Rural watersheds with generally clear stream bed and minimal vegetation growth in the drainage reaches.	0.05
2. Rural watersheds with moderate to high levels of vegetation growth, or rock and boulder deposits within the main drainage reaches.	0.07
3. Rural watersheds with dense vegetation or high levels of boulder deposits within the main drainage reaches.	0.08

(District 2015)

EQUATION 12 BASIN ROUGHNESS FACTOR FOR URBAN WATERSHEDS

$$N = 0.52n^{0.79} \quad (12)$$

where:

N = *basin roughness factor*

n = *Manning's roughness coefficient (from **Table 9**)*

(District 2015)

TABLE 9 MANNING'S ROUGHNESS COEFFICIENT	
Type of Facility	n
Reinforced Concrete Pipe	
Conduit > 36" diameter	0.012
Conduit ≤ 36" diameter	0.014
Corrugated Metal Pipe	
Annular	0.021
Helical	0.018
Concrete-Lined Channels	
Smooth-troweled	0.015
District Simulated Stone	0.017
Reinforced Concrete Box	
Cast-in-Place	0.015
Pre-Cast	0.014
Earth Channels	
Smooth Geometric	0.030 – 0.035
Irregular or Natural	0.045 – 0.050

(Chow 1959, District 1989)

EQUATION 13 BASIN LAG TIME

$$t_L = K \cdot N \left(\frac{L \cdot L_c}{\sqrt{S}} \right)^{0.38} \quad (13)$$

where:

t_L = *lag time (hr)*

K = *distance factor*
for $L > 1.7$ *mi,* $K = 24$
for $L \leq 1.7$ *mi,* $K = 15.22 + 2.15L + 8.7/L$
if calculated value of K *is greater than* 40*, use* $K=40$

N = *basin roughness factor (from* ***Table 8****, rural watershed or* ***Equation 12****, urban watershed)*

L = *length of longest watercourse (mi) (see* ***Figure 4****)*

L_c = *length along longest watercourse measured from the point of concentration to a point opposite the watershed centroid (see* ***Figure 4****)*

S = *average stream slope (ft / mi from* ***Equation 11****)*

(District 1994)

Transition structures include various forms of contractions, expansions, bridges, culvert crossings, junctions, bends, manholes, and inlets. Use the lower end of the range of applicable N for drainage reaches with fewer transition structures (less than two). Use the higher values of applicable N for drainage reaches with more structures.

Watershed	Total Area	S_O [1]	A [2]	C_p [3]
Existing	140.0 ac	15%	5.0 sq mi	0.72
Proposed	1.5 ac	5%	5.0 sq mi	0.60

Notes:

[1] S_O = average watershed slope (percent from **Attachment 10**)

For $S_O \leq 5\%$, $C_p = 0.6$

[2] A = drainage area (mi^2) (if A < 5 mi^2, use A = 5 mi^2)

[3] C_p = basin peaking factor ($C_p \leq 0.85$)

$$C_p = 0.6e^{0.06(S_o/A)}$$

Basin Peaking Factor

The basin peaking factor (C_p) parameter used in the Snyder Unit Hydrograph method affects the shape of the runoff hydrograph. The peaking factor is a function of overland basin storage. Large areas with flat slopes are associated with relatively high amounts of overland basin storage. Conversely, water that falls on steeply sloped areas will run off quickly, with little overland basin storage. The lower the basin storage, the higher the corresponding peaking factor.

The peaking factor can be determined as follows:

1. Locate the study watershed and delineate its boundary on slope maps provided in *Attachment 10*.
2. If the watershed is within a flat urban area with less than 5 percent average slope, use $C_p = 0.6$.
3. If the watershed is within a steeply sloped area, using the overland slope maps in *Attachment 10*, calculate a weighted average slope for the study drainage area.
4. Calculate the basin peaking factor for the study watershed using *Equation 14*.

EQUATION 14 BASIN PEAKING FACTOR

$$C_p = 0.6e^{0.06(S_o/A)} \quad (14)$$

where:

C_p = *basin peaking factor* $(C_p \leq 0.85)$
S_o = *average watershed slope (percent from* ***Attachment 10****)*
For $S_o \leq 5\%$, $C_p = 0.6$
A = *drainage area* (mi^2; *if* $A < 5mi^2$, *use* $A = 5mi^2$)

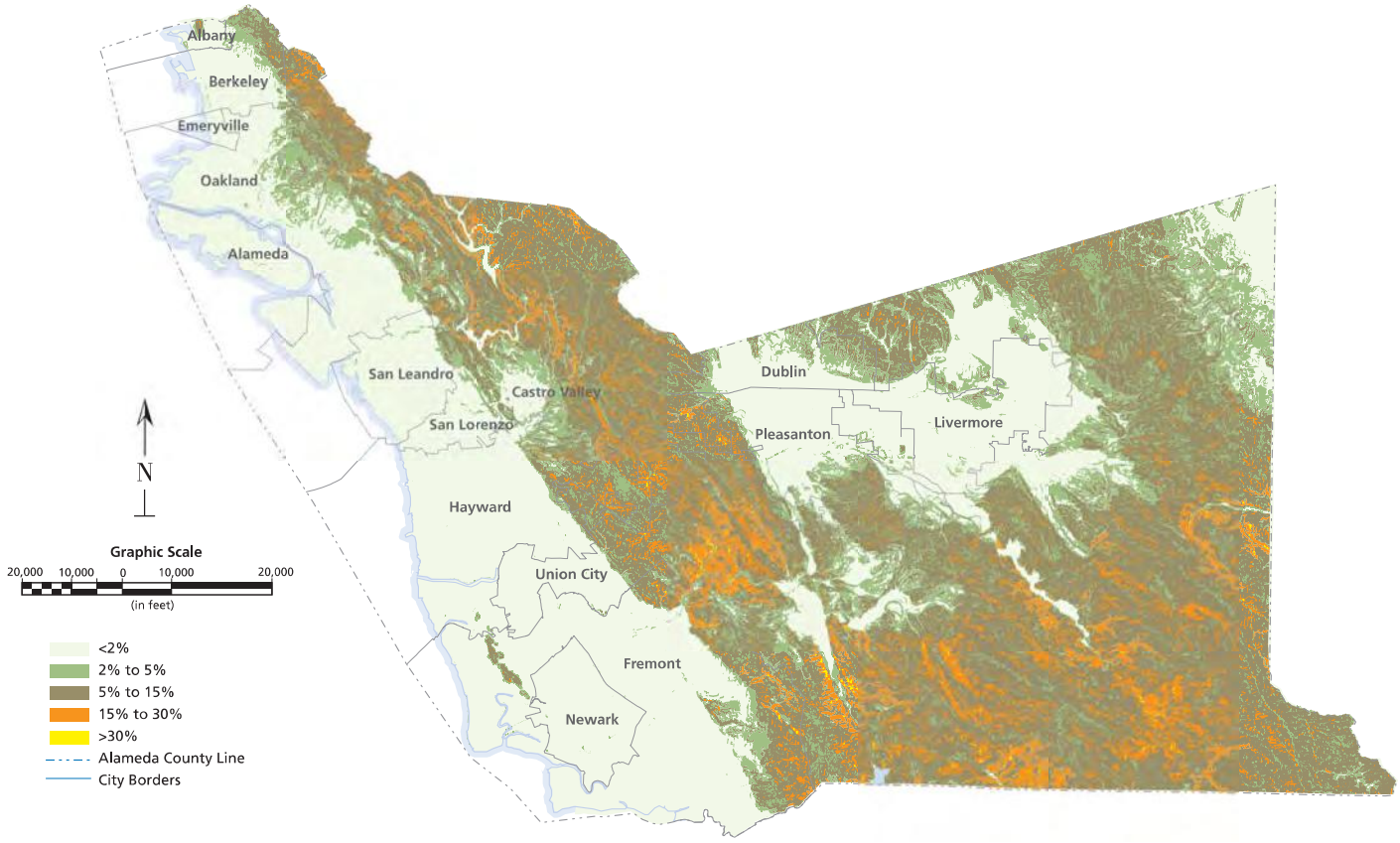
(District 1994)

BASE FLOW

If a considerable base flow exists due to high water table, reservoir releases, or other circumstances, then it should be considered as an addition to the design flood hydrograph. Base flow is also to be used when designing or sizing stormwater detention basins, as outlined in *Chapter 5*.

PEAK DISCHARGE

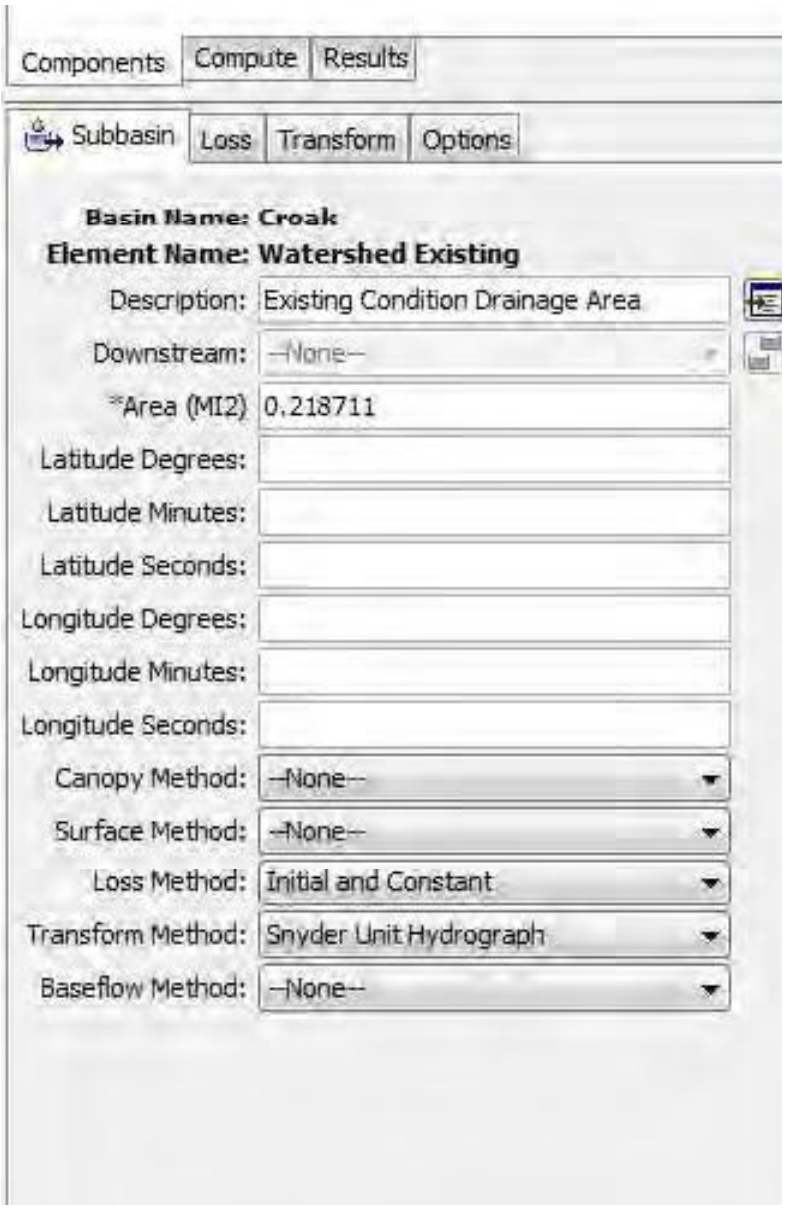
Using the values of the variables calculated in this chapter, determine the peak design discharge (Q) using HEC-1 or HEC-HMS.



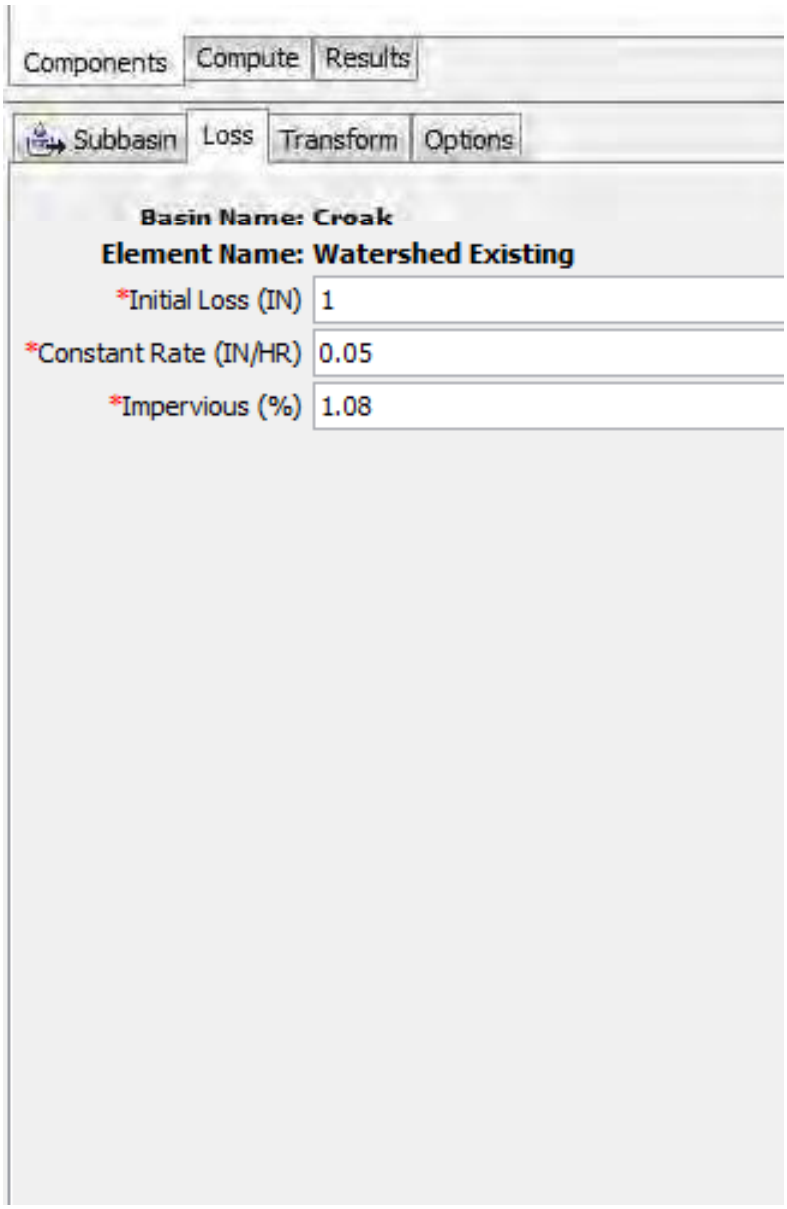
Attachment 10 available for download as a GIS file from the Alameda County Flood Control District website. (District 2015)

Flood Control & Water Conservation DISTRICT	Alameda County Hydrology & Hydraulics Manual 2016 Slope	Attachment 10

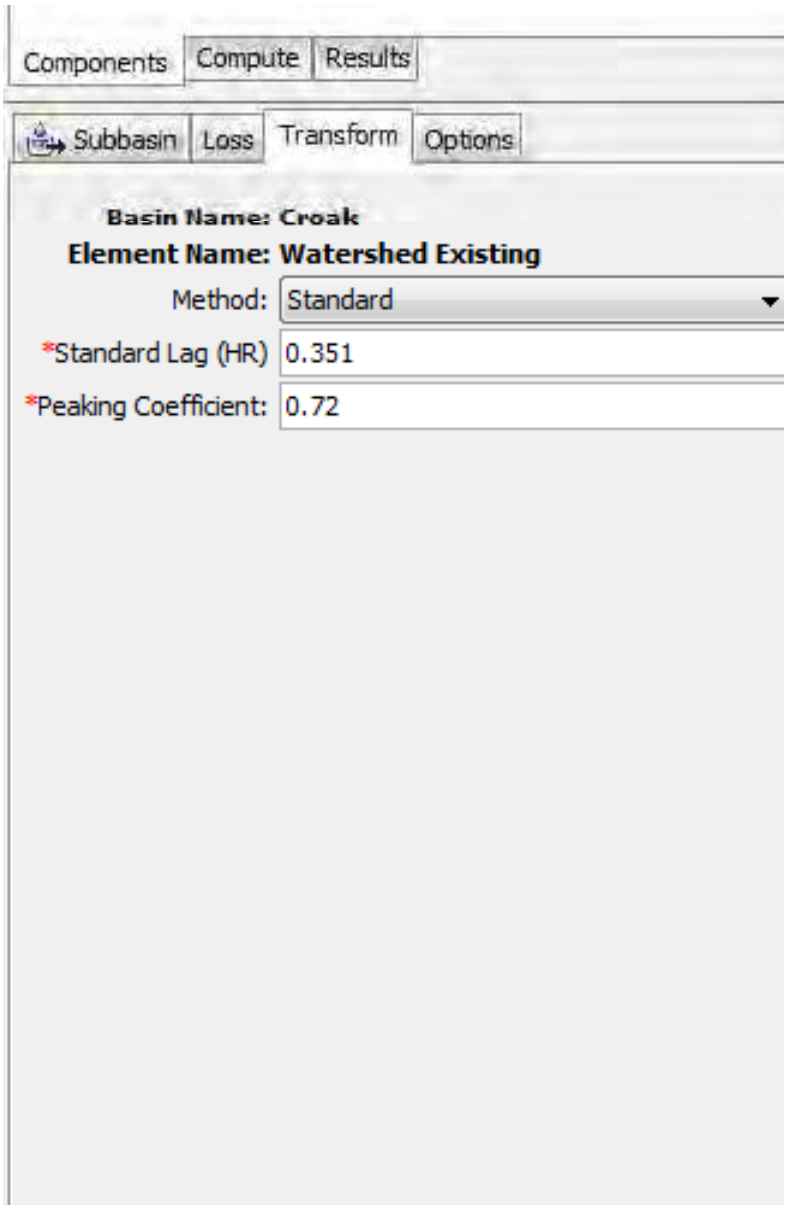
Wetlands:
Existing Condition Watershed



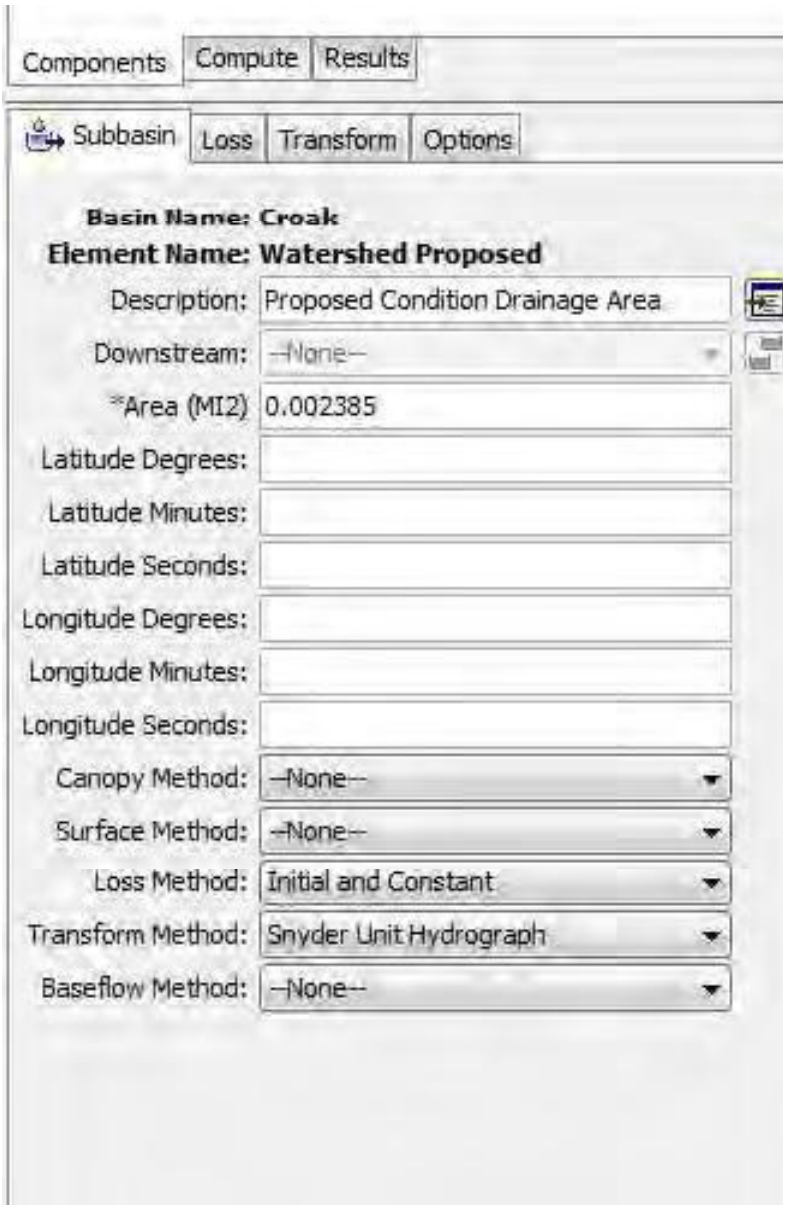
Wetlands:
Existing Condition Watershed



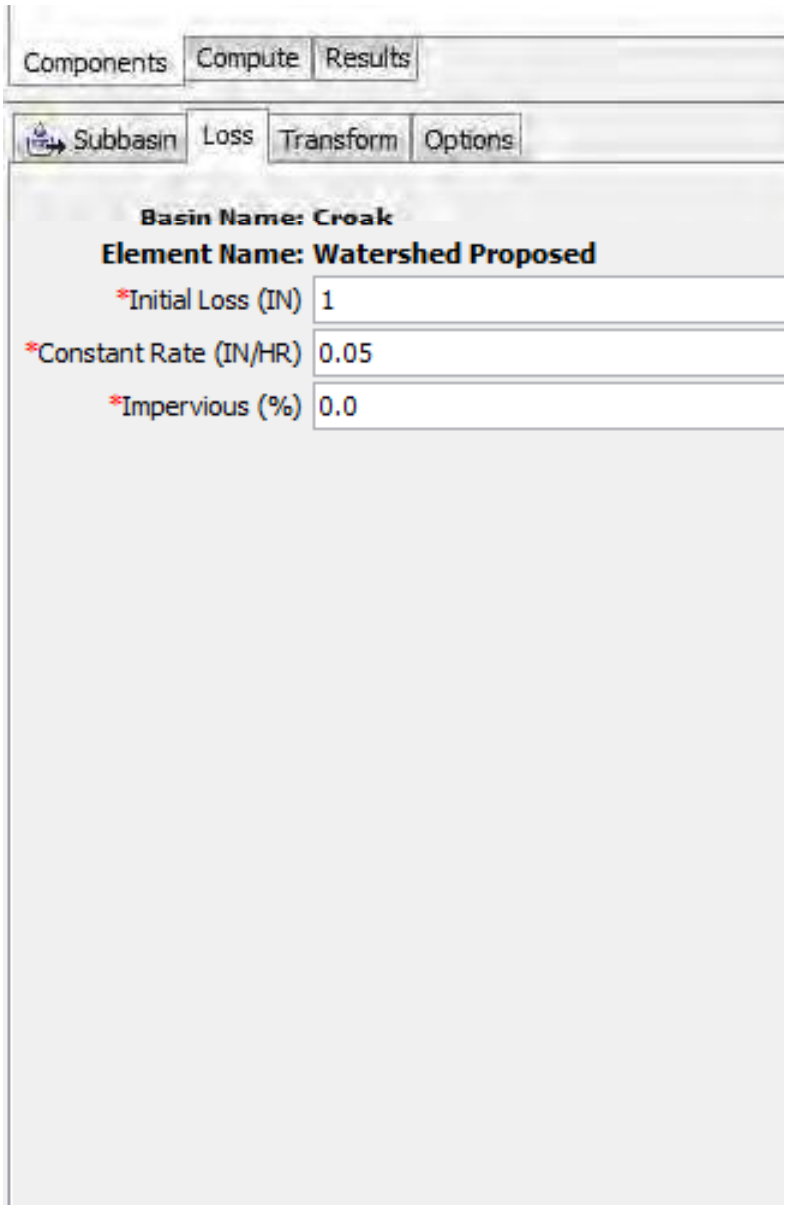
Wetlands:
Existing Condition Watershed



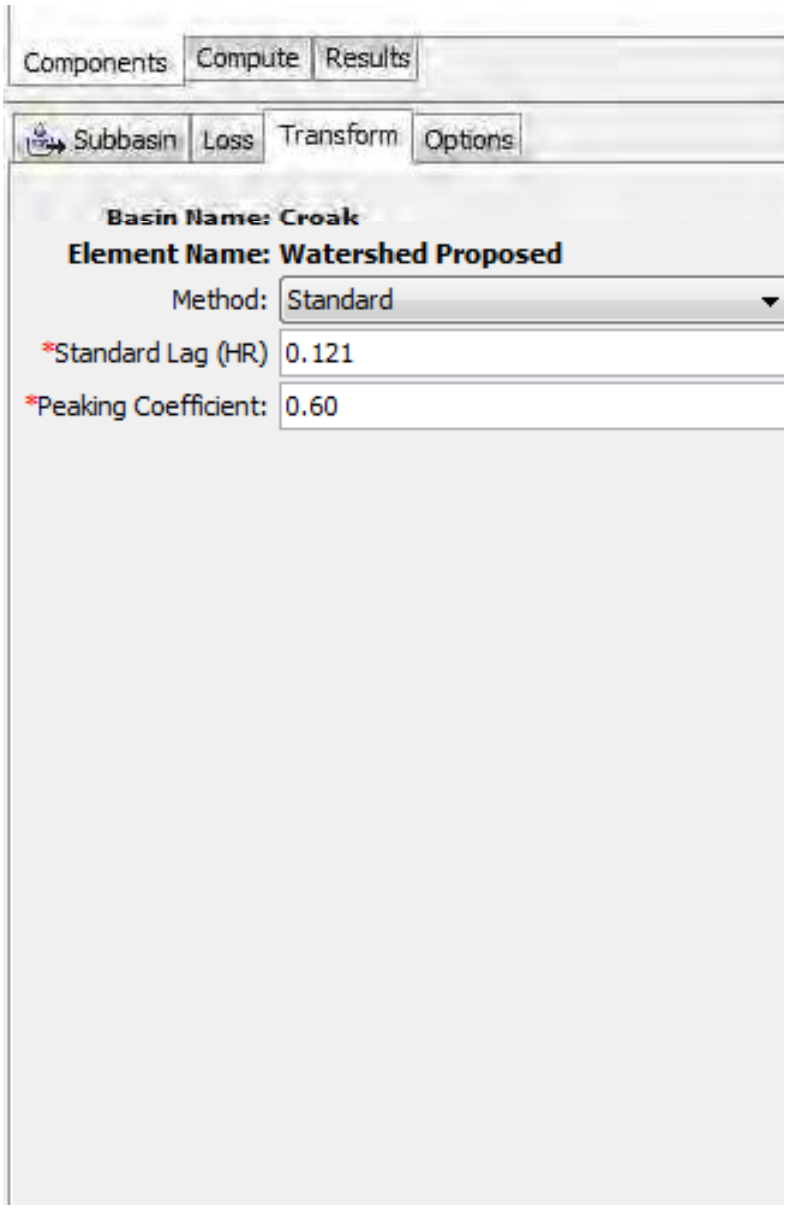
Wetlands:
Proposed Condition Watershed



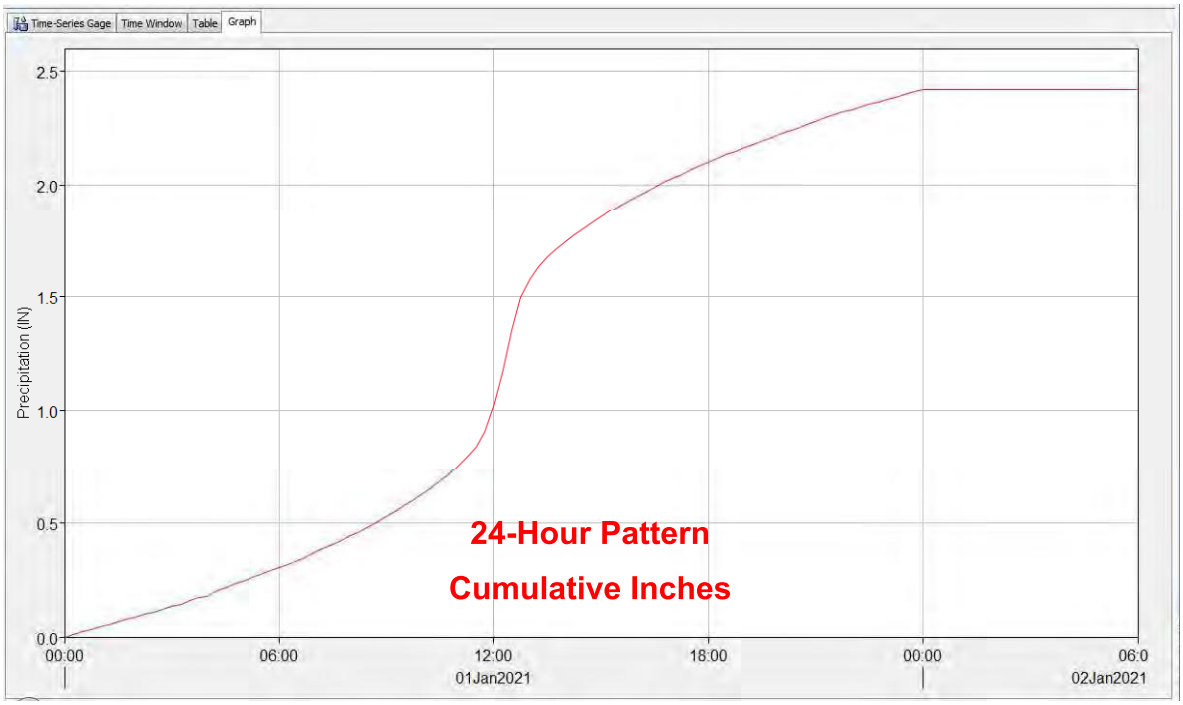
Wetlands:
Proposed Condition Watershed



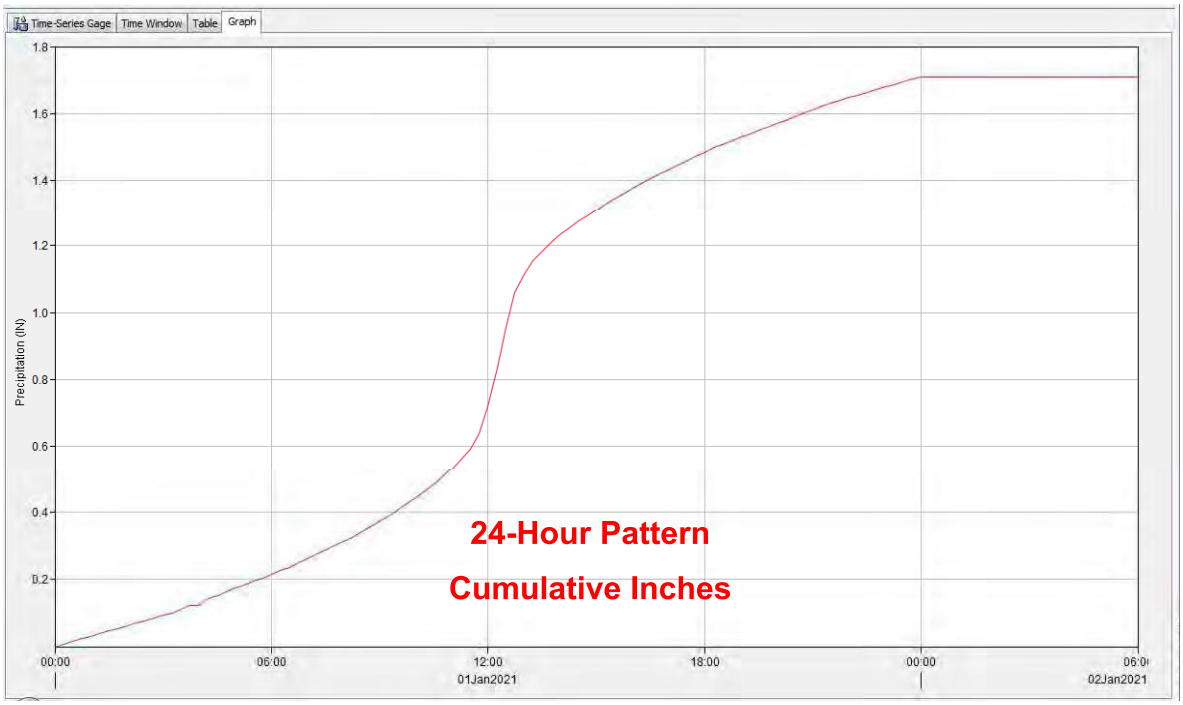
Wetlands:
Proposed Condition Watershed



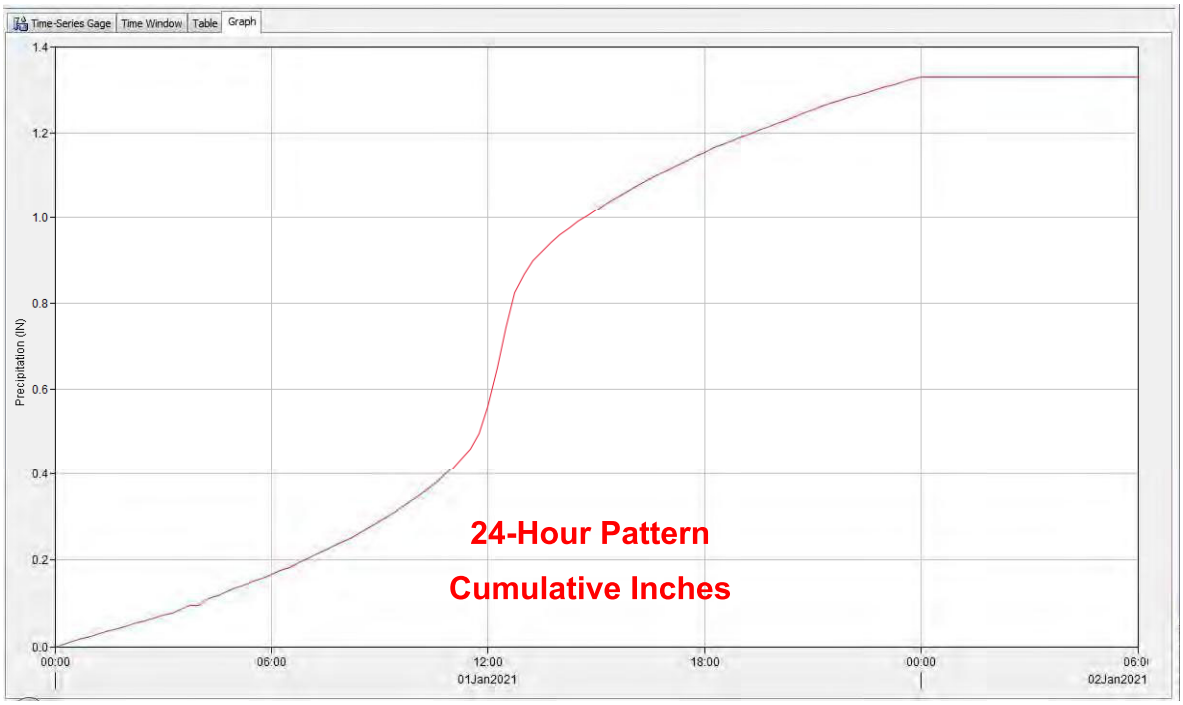
First Tier
2.42 inches
±10-Year



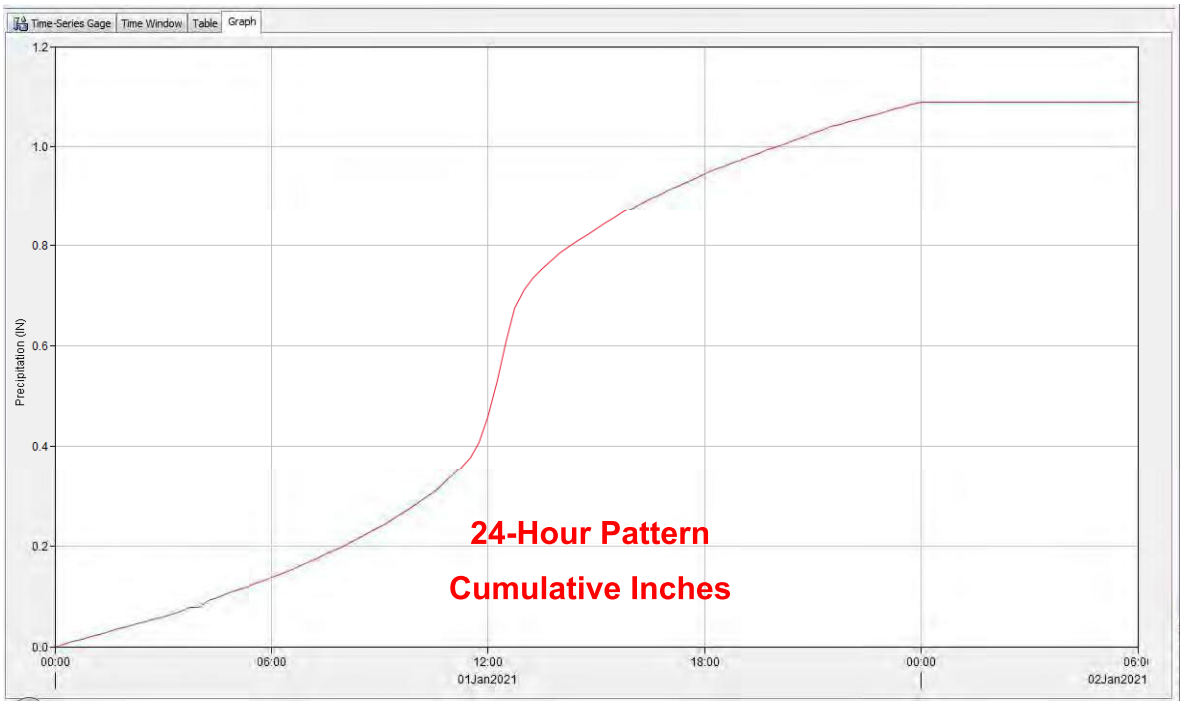
Second Tier
1.71 inches
±5-Year



Third Tier
1.33 inches
±2-Year



Fourth Tier
1.09 inches
±1-Year



Project: 19343_T_Wetlands_HEC_HMSYrAv Simulation Run: Run 1 First Tier

Start of Run: 01Jan2021, 00:00
End of Run: 02Jan2021, 06:00
Compute Time: 23Sep2020, 12:53:11

Basin Model: Croak
Meteorologic Model: Met 1 First Tier
Control Specifications: Control

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
Watershed Existing	0.218711	80.774	01Jan2021, 12:45	9.916
Watershed Proposed	0.002385	0.949	01Jan2021, 12:30	0.106

Project: 19343_T_Wetlands_HEC_HMSYrAv Simulation Run: Run 2 Second Tier

Start of Run: 01Jan2021, 00:00
End of Run: 02Jan2021, 06:00
Compute Time: 23Sep2020, 12:53:14

Basin Model: Croak
Meteorologic Model: Met 2 Second Tier
Control Specifications: Control

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
Watershed Existing	0.218711	22.718	01Jan2021, 13:15	2.703
Watershed Proposed	0.002385	0.297	01Jan2021, 13:00	0.027

Project: 19343_T_Wetlands_HEC_HMSYrAv Simulation Run: Run 3 Third Tier

Start of Run: 01Jan2021, 00:00
End of Run: 02Jan2021, 06:00
Compute Time: 23Sep2020, 12:53:18

Basin Model: Croak
Meteorologic Model: Met 3 Third Tier
Control Specifications: Control

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
Watershed Existing	0.218711	0.941	01Jan2021, 15:30	0.228
Watershed Proposed	0.002385	0.010	01Jan2021, 15:15	0.001

Project: 19343_T_Wetlands_HEC_HMSYrAv Simulation Run: Run 4 Fourth Tier

Start of Run: 01Jan2021, 00:00
End of Run: 02Jan2021, 06:00
Compute Time: 23Sep2020, 12:53:20

Basin Model: Croak
Meteorologic Model: Met 4 Fourth Tier
Control Specifications: Control

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (ACRE-FT)
Watershed Existing	0.218711	0.439	01Jan2021, 12:45	0.137
Watershed Proposed	0.002385	0.000	01Jan2021, 00:00	0.000

DRAFT
DO NOT PLACE RECORDING DATA ABOVE THIS LINE

RECORDING REQUESTED BY
AND WHEN RECORDED RETURN TO:
Trumark Homes, LLC
3001 Bishop Drive, Suite 100
San Ramon, CA 94583

When Recorded, Mail Copy to:
Michael Montgomery, Executive Officer
Attn: Brian Wines Site No. 2CW 444904, CIWQS Place ID No. 87624
California Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, CA 94612

(SPACE ABOVE THIS LINE FOR RECORDER'S USE)

COVENANT AND DEED RESTRICTION

This Covenant and Deed Restriction is made and executed on this _____ day of _____ 2021, by the APPLICANT which is the Owner of fee title of certain real property located 4038 Croak Road, City of Dublin, County of Alameda, State of California, Assessor's Parcel Number(s) _____ (hereafter, the "Burdened Property"), and more particularly described in Exhibit "A", which is attached hereto and incorporated by reference herein as set forth in full.

A. APPLICANT applied to the California Regional Water Quality Control Board for the San Francisco Bay Region ("Board") for a water quality certification under Section 401 of the Clean Water Act and coverage under State Water Resources Control Board Order No. 2003 - 0017 - DWQ, "General Waste Discharge Requirements for Dredge and Fill Discharges That Have Received State Water Quality Certification" to authorize the APPLICANT to place fill in waters of the United States and the State of California in connection with a project. Impacts to waters of the U.S. and waters of the State of California are authorized by the CWA Section 401 Certification and coverage under Board Order No. 2003-0017.

B. On November ___, 2021 the Board's Executive Officer issued a water quality certification for the APPLICANT's proposed discharges to waters of the United States and the State. The Certification is attached hereto as Exhibit B. Special Conditions 1 through ____ (hereafter the "Special Conditions") in the Certification set forth conditions of approval concerning the proposed fill.

C. The Board's Executive Officer found that, but for the Special Conditions, the proposed discharge into waters of the United States and State of California could not be found consistent with applicable law and that a water quality certification could therefore not be issued.

D. The Special Conditions among other things, require that the APPICANT shall submit to the Executive Officer a deed restriction executed and recorded by the APPLICANT prior to the time that the APPLICANT discharges any part of its planned discharge to waters of the United States. That deed restriction shall require that a portion of the Burdened Property (the "Protected Area") (which is more particularly described on Exhibit C and property which is that Protected Area within APN(s) _____ be restored and maintained in perpetuity consistent with the *Mitigation and Monitoring Plan, East Ranch Project Site, Alameda County, California* (Johnson Marigot Consulting, _____, 2021) (which is attached as Exhibit D), and that use of the Protected Area be limited as set forth in the Special Conditions

E. The Applicant elected to execute and record the deed restriction required in the Special Conditions, so as to enable the APPLICANT to undertake the actions authorized by the water quality certification issued by the Board.

NOW, THEREFORE, in consideration of the water quality certification issued by the Executive Officer, the undersigned APPLICANT for itself and for its heirs, assigns, and successors-in-interest, hereby irrevocably covenant with the Board that the protective provisions, covenants and restrictions ("Restrictions") set forth in this Deed Restriction shall at all times on and after the date on which this Deed Restriction is recorded constitute for all purposes, covenants, conditions and restrictions on the use and enjoyment of the Protected Area of the Burdened Property that are hereby attached to the deed to the Burdened Property as fully effective components thereof.

ARTICLE I
DEFINITIONS

1.1 Board. "Board" shall mean the California Regional Water Quality Control Board for the San Francisco Bay Region and shall include its successor agencies, if any.

1.2 Occupants. "Occupants" shall mean the APPLICANT and those persons entitled by ownership, leasehold, or other legal relationship to the right to use and/or occupy all or any portion of the Protected Area of the Burdened Property.

1.3 Owner or Owners. "Owner" or "Owners" shall mean the APPLICANT and/or its successors in interest, who hold title to all or any portion of the Protected Area of the Burdened Property.

ARTICLE II
GENERAL PROVISIONS

2.1 Provisions to Run with the Land. This Covenant and Deed Restriction set forth Restrictions upon and subject to which every portion of the Protected Area of the Burdened Property shall be improved, held, used, occupied, leased, sold, hypothecated, encumbered and/or conveyed. Each and all of the Restrictions shall run with the land, and pass with each and every portion of the Protected Area of the Burdened Property, and shall apply to, inure to the benefit of, and bind the respective successors in interest thereof, for the benefit of the Board and all other Owners and Occupants. Each and all of the Restrictions are enforceable by the Board.

2.2 Concurrence of Owners and Lessees Presumed. All purchasers, lessees, or possessors of any portion of the Protected Area of the Burdened Property shall be presumed by their purchase, leasing, or possession of such Protected Area of the Burdened Property to be in accord with the foregoing and to agree for and among themselves, their heirs, successors, and assignees, and the agents, employees, and lessees of such owners, heirs, successors, and assignees, that the Restrictions as herein established must be adhered to for the benefit of the Board and the Owners and Occupants of the Protected Area of the Burdened Property and that the interest of the Owners and Occupants of the Protected Area of the Burdened Property shall be subject to the Restrictions contained herein.

2.3 Incorporation into Deeds and Leases. the APPLICANT desires and covenants that the Restrictions and Conditions shall be incorporated in and attached to each and all deeds and leases of any portion of the Protected Area of the Burdened Property Recordation of this Covenant shall be deemed binding on all successors, assigns, and lessees, regardless of whether a copy of this Covenant and Agreement has been attached to or incorporated into any given deed or lease.

2.4 The APPLICANT agrees that the Board, and/or any persons acting pursuant to Board orders, shall upon providing reasonable notice to the APPLICANT, have reasonable access to the Protected Area of the Burdened Property for the purposes of inspection, surveillance, maintenance, or monitoring, as provided for in Division 7 of the Water Code.

2.5 No Owner or Occupant of the Protected Area of the Burdened Property shall act in any manner that would be inconsistent with the Restrictions.

2.6 Enforcement. The San Francisco Regional Water Quality Control Board shall have the right, to enforce each and every provision herein. The covenant shall be enforceable by remedy of injunctive relief in addition to any other remedy in law or equity. Failure of an Owner or Occupant to comply with any provision of this Covenant shall be grounds for the Board, by reason of this Covenant, to have the authority to require that the Owner modify or remove any improvements constructed in violation of this Covenant and restore the Protected Area of the Burdened Property as described in the MMP and the Special Conditions. In the event that the Applicant its heirs, assigns or successors in interest shall fail to abide by any of the covenants hereunder, they hereby agree to pay all reasonable costs and expenses incurred by the San Francisco Regional Water Quality Control Board in securing performance of such obligation, including reasonable attorney's fees and costs In the event of a breach, any forbearance on the part of any party to this covenant to enforce the terms and provisions hereof shall not be deemed a waiver of enforcement rights regarding any subsequent breach.

2.9 Notice in Agreements. After the date of recordation hereof, all Owners and Occupants shall execute a written instrument which shall accompany all purchase agreements or leases relating to the property. Any such instrument shall contain the following statement:

The land described herein is subject to a deed restriction dated as of _____, 2021, and recorded on

_____, 2021, in the Official Records of Alameda County, California, as Document No. _____, which Covenant and Restriction imposes certain covenants, conditions, and restrictions on usage of a portion of the property described herein.

ARTICLE III
RESTRICTIONS

3.1 All mandatory mitigation measures presented in the *Mitigation and Monitoring Plan, East Ranch Project Site, Alameda County, California* (Johnson Marigot Consulting, _____, 2021 (Attached hereto as Exhibit D) applicable to the Protected Area of the Burdened Property shall be implemented.

3.2 Unless allowed pursuant to Sections 3.3 or 4.2 below or unless allowed in the MMP or future revisions thereof that have been approved in advance in writing by the Board or its Executive Officer, the following activities are prohibited within the Protected Areas:

a) Unseasonal watering, use of fertilizers, pesticides, biocides, herbicides or other agricultural chemicals, that may adversely affect the purpose of this Deed Restriction;
b) Depositing or allowing the uncontained accumulation of trash, ashes, garbage, waste, or any similar other material;
c) Removing, destroying, or cutting of native trees, native shrubs, or other native vegetation, except as required for the prevention or treatment of disease, abatement of weeds or invasive plants, fire protection and implementation of the MMP. (However, no removal of living native shrubs or trees is allowed in the riparian zone for any reason)
d) Introduction of non-native, exotic, or invasive species;
e) Use of vehicles off designated roadways unless necessary to implement the MMP or for emergency fire management or personal safety;
f) Paving or otherwise covering of the Protected Area with concrete, asphalt, or any other impervious paving material;
g) Filling, dumping, excavating, draining, dredging, mining, drilling;
h) Removing or exploring for or extraction of minerals, loam, sands, gravel or other material on or below the surface,
i) Altering the surface or general topography, including building of roads, or construction of temporary or permanent structures, except as necessary for maintenance or restoration of the improvements authorized by the certification described above in Paragraph B and included as Exhibit B,

3.3 Notwithstanding the foregoing restrictions, the following activities may occur in the Protected Areas:

(b) Engaging in uses and activities necessary or appropriate to implement the MMP.
(c) Control of entry upon the Protected Property, including, without limitation, the installation and maintenance of signs or fences that do not impede the movement of wildlife.

ARTICLE IV
VARIANCE AND TERMINATION

4.1 This covenant and the provisions thereof are irrevocable and nonmodifiable and shall continue in effect in perpetuity unless modified or terminated as provided herein.

4.2. Any Owner, or with the Owner's consent, any Occupant of the Protected Area of the Burdened property or a portion thereof may apply to the Board for a written variance from the provisions of this Covenant. The Board, in its sole discretion, may approve the variance if the Board finds that the requested variance would not impact the size, condition, or functions of the mitigation features required by the 401 certification [Note: use the terminology that is consistent with the deed restriction] and protected by this Covenant.

4.3. Any Owner or with the Owner's consent, any Occupant of the Protected Area of the Burdened property or a portion thereof may apply to the Board for a termination of the provisions of this Covenant as they apply to all or any portion of the Protected Area of the Burdened Property. Termination of the provisions of this Covenant requires the provision of alternate mitigation of equivalent size, condition, and functions. The Board will not approve the termination of the provisions of this Covenant until such alternate mitigation has been established, including the implementation of any necessary construction and planting, as well as a minimum of five years of post-establishment monitoring and maintenance, and a deed restriction or conservation easement has been recorded for the alternate mitigation site.

ARTICLE IV
MISCELLANEOUS

5.1 No Dedication Intended. Nothing set forth herein shall be construed to be a gift or dedication, or offer of a gift or dedication, of the Protected Area of the Burdened Property or any portion thereof to the general public.

5. 2 Notices. Whenever any person gives or serves any notice, demand, or other communication with respect to this Covenant, each such notice, demand, or other communication shall be in writing and shall be deemed effective (1) when delivered, if personally delivered to the person being served or official of a government agency being served, or (2) three (3) business days after deposit in the mail if mailed by United States mail, postage paid certified, return receipt requested:

APPLICANT's name and address:
General Counsel
Trumark Homes, LLC
3001 Bishop Drive, Suite 100
San Ramon, CA 94583

With a copy to
Michael Montgomery, Executive Officer
Attn: Brian Wines, Site No. 2CW 444904, CIWQS Place ID No. 87624
Regional Water Quality Control Board
San Francisco Bay Region
1515 Clay Street, Suite 1400
Oakland, California 94612

5.3 Partial Invalidity. If any portion of this Covenant is determined to be invalid for any reason, the remaining portion shall remain in full force and effect.

5.4 Article Headings. Headings at the beginning of each numbered article of this Covenant are solely for the convenience of the parties and are not a part of the Covenant.

5.5 Recordation. This instrument shall be executed by the APPLICANT and by the Executive Officer of the Board. This instrument shall be recorded by the APPLICANT in the County of Alameda within ten (10) days of the date of execution.

5.6 References. All references to Code sections include successor provisions.

5.7 Construction. Any general rule of construction to the contrary notwithstanding, this instrument shall be liberally construed in favor of the Covenant to effect the purpose of this instrument and the policy and purpose of the Water Code. If any provision of this instrument is found to be ambiguous, an interpretation consistent with the purpose of this instrument that would render the provision valid shall be favored over any interpretation that would render it invalid.

IN WITNESS WHEREOF, the parties execute this Covenant as of the date set forth above.

Covenantor: APPLICANT

By: _____
Title: _____
Date: _____

STATE OF CALIFORNIA)
)
COUNTY OF _____)

On _____, 20__ before me, the undersigned a Notary Public in and for said state, personally appeared [_____], personally known to me or proved to me on the basis of satisfactory evidence to be the person who executed the within instrument.

WITNESS my hand and official seal.

_____
Notary Public in and for said
County and State

Agency: State of California
Regional Water Quality Control Board
San Francisco Bay Region

By: _____

Title: Executive Officer
Date: _____

STATE OF CALIFORNIA)
)
COUNTY OF _____)

On _____, 20__ before me, the undersigned a Notary Public in and for said state, personally appeared Michael Montgomery, personally known to me or proved to me on the basis of satisfactory evidence to be the person who executed the within instrument.

WITNESS my hand and official seal.

_____
Notary Public in and for said
County and State

EXHIBIT A

Plat and Legal Description of entire parcel

EXHIBIT B Insert Water Quality Certification

EXHIBIT C Insert legal descriptions of Protected Areas

Exhibit D Insert MMP

EXHIBIT C Legal Descriptions of Protected Areas

07439.00002/1215557v3

EXHIBIT "A"

DESCRIPTION

ALL THAT CERTAIN REAL PROPERTY SITUATED IN THE CITY OF DUBLIN, COUNTY OF ALAMEDA, STATE OF CALIFORNIA, BEING A PORTION OF THE LANDS OF CROAK PROPERTIES LP, AS DESCRIBED IN DOCUMENT NUMBER 2012425519, ALAMEDA COUNTY RECORDS, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS;

COMMENCING AT THE NORTHEASTERLY CORNER OF THE LANDS OF GH PACVEST LLC, AS DESCRIBED IN DOCUMENT NUMBER 2017130933, ALAMEDA COUNTY RECORDS, SAID CORNER BEING ON THE WESTERLY LINE OF SAID LANDS OF CROAK PROPERTIES LP; THENCE FROM SAID NORTHEASTERLY CORNER ALONG THE COMMON LINE OF SAID LANDS OF GH PACVEST LLC AND CROAK PROPERTIES LP SOUTH 00°20'37" WEST, 295.87 FEET;

THENCE LEAVING SAID COMMON LINE AND ENTERING SAID LANDS OF CROAK PROPERTIES LP NORTH 68°39'43" EAST, 14.17 FEET, TO THE **POINT OF BEGINNING**;

THENCE CONTINUING WITHIN SAID LANDS OF CROAK PROPERTIES LP THE FOLLOWING THIRTY-ONE (31) COURSES:

1. NORTH 03°32'26" WEST, 7.19 FEET;
2. NORTH 23°27'10" EAST, 82.26 FEET;
3. NORTH 33°28'13" EAST, 45.28 FEET;
4. NORTH 21°05'14" EAST, 5.69 FEET;
5. NORTH 37°15'06" EAST, 59.94 FEET;
6. NORTH 24°43'46" EAST, 28.80 FEET;
7. NORTH 15°05'09" EAST, 15.45 FEET;
8. NORTH 03°25'38" EAST, 28.24 FEET;
9. NORTH 16°54'07" EAST, 9.29 FEET;
10. NORTH 22°26'04" EAST, 39.25 FEET;
11. NORTH 17°00'52" EAST, 35.82 FEET;
12. NORTH 48°46'36" WEST, 9.55 FEET;
13. NORTH 33°58'55" EAST, 24.85 FEET;
14. NORTH 34°34'47" EAST, 25.74 FEET;
15. NORTH 46°09'55" EAST, 53.44 FEET;
16. NORTH 60°20'31" EAST, 17.84 FEET;
17. NORTH 69°21'55" EAST, 28.06 FEET;

18. SOUTH 61°10'19" EAST, 18.55 FEET;
19. SOUTH 06°10'39" EAST, 17.41 FEET;
20. SOUTH 22°11'23" WEST, 69.03 FEET;
21. SOUTH 10°53'43" EAST, 3.43 FEET;
22. SOUTH 34°25'47" EAST, 6.06 FEET;
23. SOUTH 23°26'03" WEST, 131.30 FEET;
24. SOUTH 83°26'18" WEST, 10.55 FEET;
25. SOUTH 34°02'00" WEST, 7.23 FEET;
26. SOUTH 25°24'21" WEST, 146.55 FEET;
27. SOUTH 22°26'47" WEST, 44.59 FEET;
28. SOUTH 21°17'43" WEST, 70.10 FEET;
29. NORTH 83°38'21" WEST, 10.65 FEET;
30. NORTH 79°08'41" WEST, 27.48 FEET;
31. THENCE NORTH 42°01'29" WEST, 44.20 FEET, TO THE **POINT OF BEGINNING**;

CONTAINING 0.84 ACRES MORE OR LESS.

END OF DESCRIPTION

PREPARED BY:

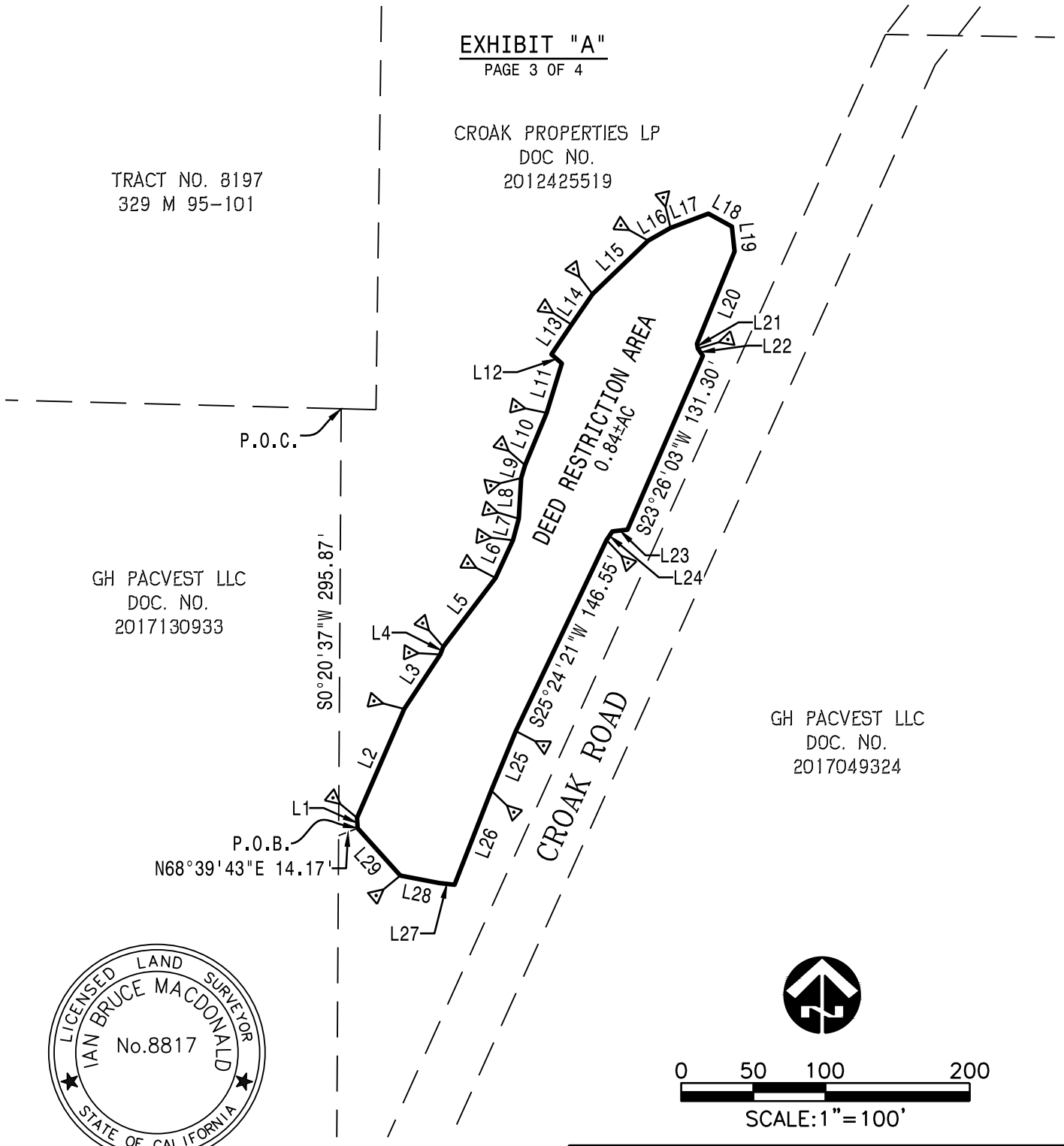
IAN BRUCE MACDONALD
LICENSED LAND SURVEYOR NO. 8817
STATE OF CALIFORNIA

DATE

MACKAY & SOMPS
CIVIL ENGINEERING • LAND PLANNING • LAND SURVEYING
5142 Franklin Drive Suite B, Pleasanton, CA. 94588-3355
(925) 225-0690

EXHIBIT "A"

PAGE 3 OF 4



LEGEND

———	BOUNDARY OF DESCRIPTION
— — —	EXISTING PARCEL
DOC. No.	DOCUMENT NUMBER
P.O.C.	POINT OF COMMENCEMENT
P.O.B.	POINT OF BEGINNING

PLAT TO ACCOMPANY DESCRIPTION

DEED RESTRICTION AREA

DUBLIN CALIFORNIA

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

DRAWN	DATE	SCALE	JOB NO.
IBM	SEPTEMBER 2021	1"=100'	19343.00T

09-28-2021 10:34am Ian MacDonald P:\19343-T\SRV\MAPPING\PLATS\PARCEL I WETLANDS.DWG

EXHIBIT "A"

Line Table		
Line #	Bearing	Length
L1	N3°32'26"W	7.19'
L2	N23°27'10"E	82.26'
L3	N33°28'13"E	45.28'
L4	N21°05'14"E	5.69'
L5	N37°15'06"E	59.94'
L6	N24°43'46"E	28.80'
L7	N15°05'09"E	15.45'
L8	N3°25'38"E	28.24'
L9	N16°54'07"E	9.29'
L10	N22°26'04"E	39.25'
L11	N17°00'52"E	35.82'
L12	N48°46'36"W	9.55'
L13	N33°58'55"E	24.85'
L14	N34°34'47"E	25.74'
L15	N46°09'55"E	53.44'

Line Table		
Line #	Bearing	Length
L16	N60°20'31"E	17.84'
L17	N69°21'55"E	28.06'
L18	S61°10'19"E	18.55'
L19	S6°10'39"E	17.41'
L20	S22°11'23"W	69.03'
L21	S10°53'43"E	3.43'
L22	S34°25'47"E	6.06'
L23	S83°26'18"W	10.55'
L24	S34°02'00"W	7.23'
L25	S22°26'47"W	44.59'
L26	S21°17'43"W	70.10'
L27	N83°38'21"W	10.65'
L28	N79°08'41"W	27.48'
L29	N42°01'29"W	44.20'

PLAT TO ACCOMPANY DESCRIPTION

DEED RESTRICTION AREA

DUBLIN CALIFORNIA

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

DRAWN	DATE	SCALE	JOB NO.
IBM	OCTOBER 2021	1"=100'	19343.00T

EXHIBIT "A"

DESCRIPTION

ALL THAT CERTAIN REAL PROPERTY SITUATED IN THE CITY OF DUBLIN, COUNTY OF ALAMEDA, STATE OF CALIFORNIA, BEING A PORTION OF THE LANDS OF CROAK PROPERTIES LP, AS DESCRIBED IN DOCUMENT NUMBER 2012425519, ALAMEDA COUNTY RECORDS, AND A PORTION OF CROAK ROAD, AS DESCRIBED IN BOOK 2612 OF DEEDS, PAGE 352, ALAMEDA COUNTY RECORDS, BEING MORE PARTICULARLY DESCRIBED AS FOLLOWS;

COMMENCING AT THE NORTHEASTERLY CORNER OF THE LANDS OF GH PACVEST LLC, AS DESCRIBED IN DOCUMENT NUMBER 2017049324, ALAMEDA COUNTY RECORDS, SAID CORNER BEING COMMON TO THE NORTHWESTERLY CORNER OF THE LANDS OF RIGHETTI, AS DESCRIBED IN DOCUMENT NUMBER 1991006175, ALAMEDA COUNTY RECORDS, THENCE LEAVING SAID CORNER AND ENTERING SAID LANDS OF CROAK PROPERTIES LP, NORTH 48°26'32" WEST, 368.53 FEET, TO THE **POINT OF BEGINNING**;

THENCE CONTINUING WITHIN SAID LANDS THE FOLLOWING FIVE (5) COURSES:

1. NORTH 87°52'20" WEST, 31.71 FEET;
2. NORTH 24°18'04" EAST, 309.02 FEET;
3. ALONG A CURVE TO THE LEFT WITH A RADIUS OF 2,042.00 FEET, HAVING A CENTRAL ANGLE OF 11°34'34" AND AN ARC LENGTH OF 412.56 FEET;
4. ALONG A REVERSE CURVE TO THE RIGHT WITH A RADIUS OF 30.00 FEET, HAVING A CENTRAL ANGLE OF 72°38'54" AND AN ARC LENGTH OF 38.04 FEET;
5. THENCE ALONG A NON-TANGENT CURVE TO THE RIGHT WITH A RADIUS OF 2,035.00 FEET, FROM WHICH THE RADIUS POINT BEARS NORTH 80°31'36" WEST, HAVING A CENTRAL ANGLE OF 20°59'10" AND AN ARC LENGTH OF 745.37 FEET, TO THE **POINT OF BEGINNING**;

CONTAINING 0.57 ACRES MORE OR LESS.

END OF DESCRIPTION

PREPARED BY:

IAN BRUCE MACDONALD
LICENSED LAND SURVEYOR NO. 8817
STATE OF CALIFORNIA

DATE

MACKAY & SOMPS
CIVIL ENGINEERING • LAND PLANNING • LAND SURVEYING
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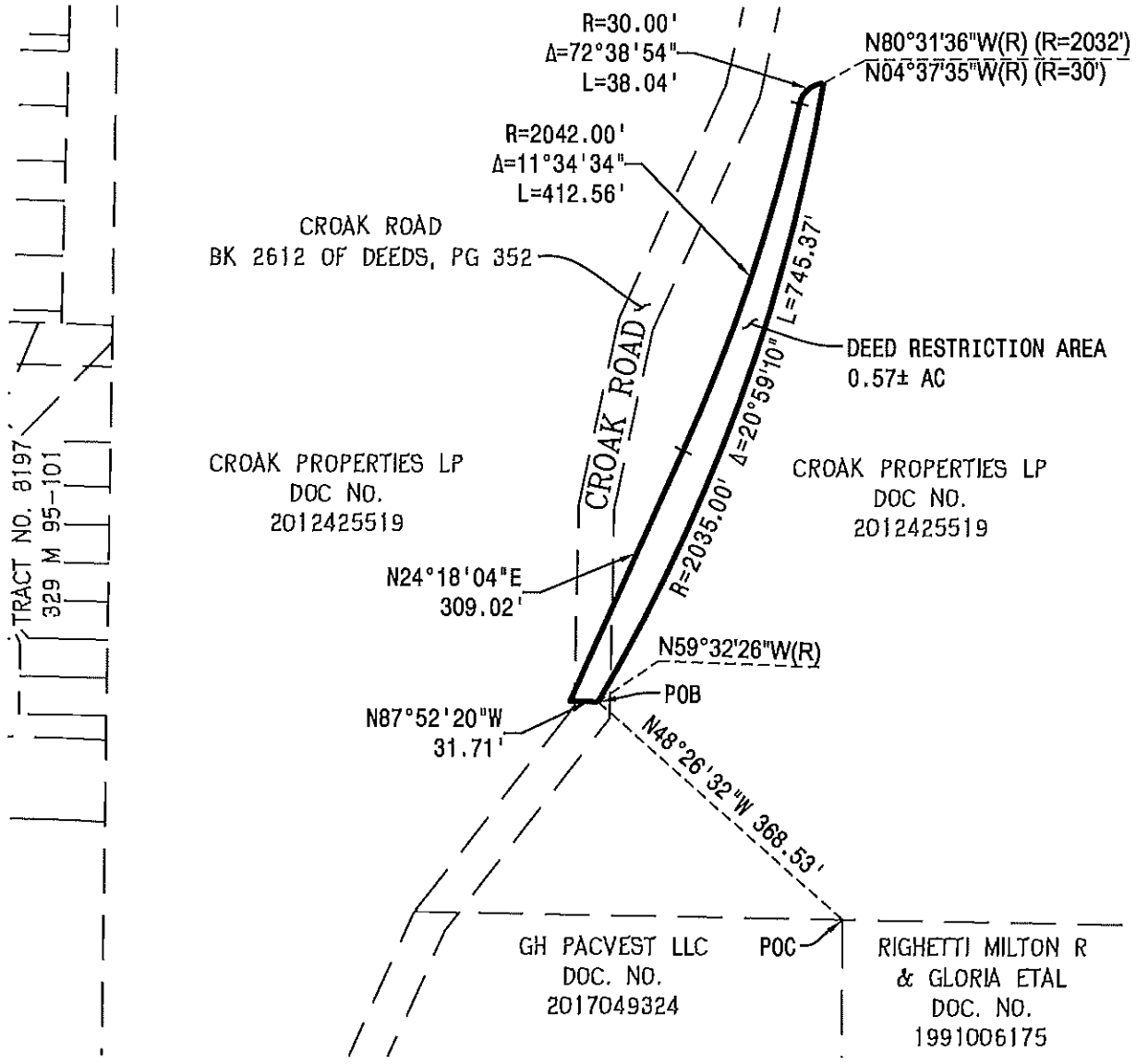
EXHIBIT "A"

PAGE 2 OF 2



0 100 200 400

SCALE:1"=200'

LEGEND

———	BOUNDARY OF DESCRIPTION
— — —	EXISTING PARCEL
BK	BOOK
DOC. No.	DOCUMENT NUMBER
PG	PAGE
POB	POINT OF BEGINNING
POC	POINT OF COMMENCEMENT

PLAT TO ACCOMPANY DESCRIPTION

DEED RESTRICTION AREA

DUBLIN CALIFORNIA

MACKAY & SOMPS

ENGINEERS PLANNERS SURVEYORS

5142B FRANKLIN DR, PLEASANTON, CA 94588 (925)225-0690

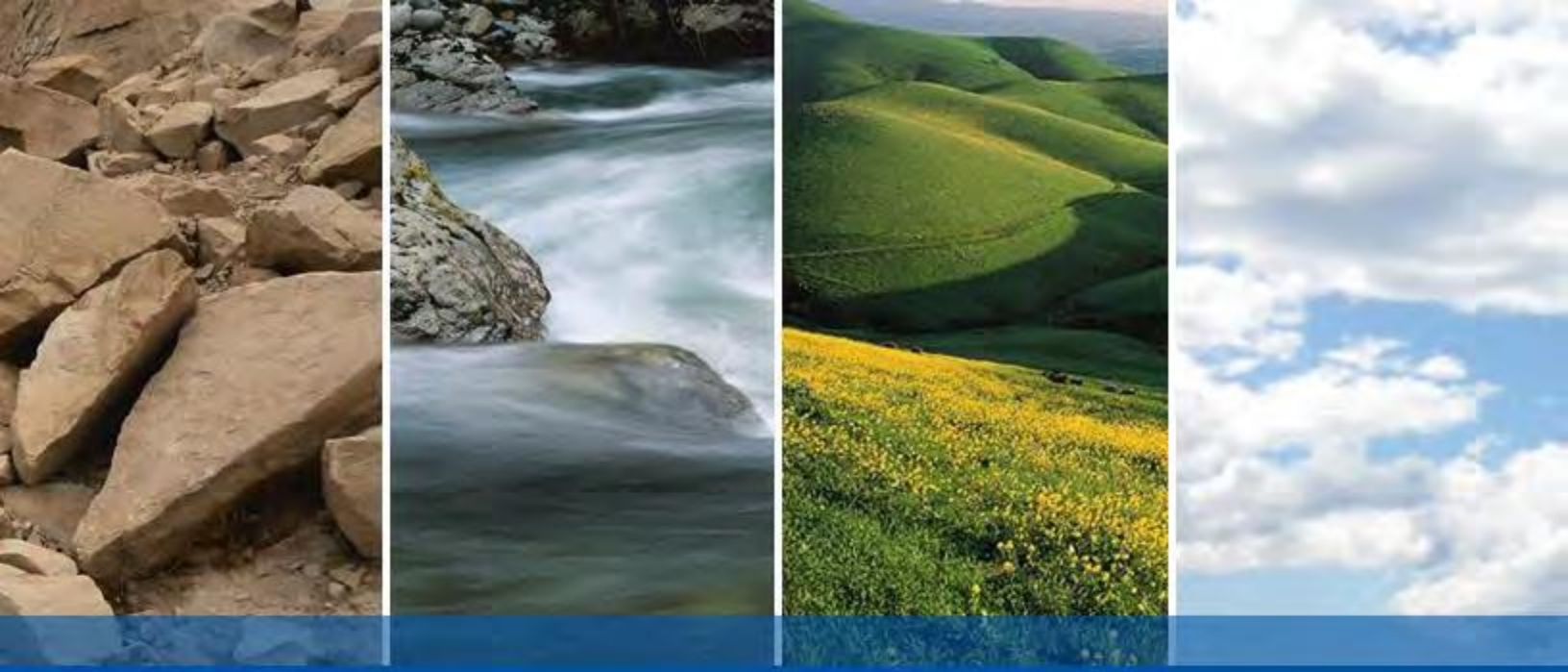
DRAWN	DATE	SCALE	JOB NO.
EJ	OCTOBER 2021	1"=200'	19343.00T

Attachment D
Site Photos – Croak Road Ditch (Pre-project Condition)




A **B** **C** **D**

Photos taken of ephemeral roadside ditch along Croak Road in Dublin, CA. Photo series taken on August 20, 2021. Photo A taken from northern end of ditch, with additional photos taken in series while walking the length of the ditch feature. All photos are facing southward showing ditch (bed location is approximated by the fence line visible in the photos) Road. The Croak Road toe of slope intercepts natural grade of existing landform to the west to direct water flow in a weakly defined drainage pattern. Note that the vegetative composition does not include any hydrophytic plants (i.e. it is not a wetland), and there is no riparian vegetation adjacent to the ditch. Trees in the background are blue gum eucalyptus and California pepper that were planted as ornamentals near an old homestead site.



APPENDIX F

DECLARATION OF DISCLOSURES, RIGHT OF ENTRY AND RESTRICTIVE COVENANTS REGARDING FALLON VILLAGE GEOLOGIC HAZARD ABATEMENT DISTRICT

RECORDING REQUESTED BY AND
WHEN RECORDED RETURN TO:
Fallon Village Geologic Hazard Abatement District
100 Civic Center
Dublin, CA 94568
Attn: Marsha Moore

DECLARATION OF DISCLOSURES, RIGHT OF ENTRY AND RESTRICTIVE COVENANTS REGARDING FALLON VILLAGE GEOLOGIC HAZARD ABATEMENT DISTRICT

This Declaration of Disclosures, Right of Entry and Restrictive Covenants Regarding Fallon Village Geologic Hazard Abatement District (the "Declaration") is made this _____ day of _____, 20__ (the "Effective Date"), by, TH East Ranch Dublin LLC, a California limited liability company ("Declarant").

RECITALS

A. Declarant is the owner of that certain real property located in the City of Dublin, County of Alameda, State of California, more particularly described as Tract 8563, filed on __, 20__ in Book __ of Parcel Maps, at pages __, all in the Official Records of Alameda County, California (the "Property").

B. The City of Dublin approved a 573-unit residential subdivision on the Property. A condition of approval for Tract 8563 was that the Property be annexed into the Fallon Village Geologic Hazard Abatement District ("Fallon Village GHAD").

C. Under the authority of California Public Resources Code section 26500, et seq., the Dublin City Council on December 4, 2007 formed and established the Fallon Village GHAD to prevent, mitigate, abate or control potential geologic hazards within the boundaries of the GHAD. On ____, 2022, the Fallon Village GHAD adopted Resolution No. ____, approving annexation of the Property into the Fallon Village GHAD.

NOW, THEREFORE, Declarant, as the owner of the Property, for itself, its successors and assigns does hereby declare as follows:

1. Notification and Disclosure of Fallon Village GHAD: The Declarant hereby gives notice and discloses that the Property is a part of the Fallon Village GHAD. The Board of Directors of the Fallon Village GHAD are the members of the Dublin City Council. Pursuant to the Plan of Control for Annexation of the Property to Fallon Village GHAD as it may be amended from time to time (the "Plan of Control"), the Declarant and the Fallon Village GHAD are afforded certain responsibilities and rights relating to the prevention, mitigation, abatement and control of potential geologic hazards on the Property. The powers of the Fallon Village GHAD include the power to assess lot owners within the Property for the purposes set out in the Plan of Control. An assessment was authorized by the Fallon Village GHAD to be imposed on the Property pursuant to adopted Resolution 21-__.

2. Right of Entry: The Declarant by executing and recording this Declaration hereby contractually affords Fallon Village GHAD, its officials, employees, contractors and agents an irrevocable right of entry with continuing and perpetual access to and across the Property for the purposes and responsibilities set out in the Plan of Control ("Access Rights"). Should the Fallon Village GHAD need to access private residential lots to fulfill its duties under the Plan of Control, the

Fallon Village GHAD shall provide the affected landowner and/or resident with 72 hours advanced notice unless, in the reasonable judgment of the GHAD Manager, an emergency situation exists which makes immediate access necessary to protect the public health and safety, in which case no advanced notice is required, but the Fallon Village GHAD shall inform the landowner and/or resident as soon as reasonably possible. The Declarant hereby gives notice that the GHAD will acquire Access Rights immediately upon the execution of this Declaration. The GHAD, in its sole discretion, may elect not to exercise Access Rights until it accepts its maintenance responsibilities consistent with the Plan of Control.

3. GHAD Easement: The Declarant hereby grants the Fallon Village GHAD a perpetual easement for the purposes and responsibilities set out in the Plan of Control and for maintaining certain site improvements as depicted in Exhibit A, and legally described in Exhibit B attached hereto, (the "GHAD Easement"). Such activities include, but are not limited to: (a) the inspection, maintenance, monitoring and replacement of site improvements including, drainage ditches, storm drains, outfalls and pipelines; (b) the monitoring, maintenance and repair of slopes, including repaired or partially repaired landslides; and (c) the management of erosion and geologic hazards within the open space areas shown in the Plan of Control. The GHAD Easement shall become effective upon acceptance by the Fallon Village GHAD of its responsibilities and rights, the process by which is articulated in the Plan of Control. The Fallon Village GHAD has no maintenance responsibilities whatsoever to the Declarant or Property until and unless the Fallon Village GHAD accepts such responsibilities consistent with the Plan of Control.

4. Covenants Running with the Land: The Property shall be held, conveyed, hypothecated, encumbered, sold, leased, used, improved and maintained subject to the limitations, covenants, conditions, restrictions, easements, rights of entry and equitable servitude set forth in this Declaration, all of which are in furtherance of Declarant's plan for the uniform improvement and operation of the Property. All of the limitations, covenants, conditions, restrictions, easements, rights of entry and equitable servitudes set out in this Declaration shall both benefit and burden the Property and shall run with and be binding upon and inure to the benefit of the Property and each parcel therein, and shall be binding upon and inure to the benefit of each owner, and every person having or acquiring any right, title or interest in and to all or any portion of the Property and their successors and assigns. Upon Declarant's conveyance of fee title to the Property, or any portion thereof, Declarant shall be released from any further liability or obligation hereunder related to the portion of the Property so conveyed, and the grantee of such conveyance shall be deemed to be the "Declarant," with all rights and obligations related thereto, with respect to that portion of the Property conveyed.

5. Hold Harmless: Declarant, or its successors and assigns, shall hold harmless, protect and indemnify Fallon Village GHAD and its directors, officers, employees, agents, contractors, and representatives and the heirs, personal representatives, successors and assigns of each of them (collectively, "Fallon Village GHAD Indemnified Parties") from and against any and all liabilities, penalties, costs, losses, damages, expenses (including, without limitation, reasonable attorneys' fees and experts' fees), causes of action, claims, demands, orders, liens or judgments (each a "Claim" and, collectively, "Claims"): (1) for injury to or the death of any person, or physical damage to any property, related to or occurring on or about the GHAD Easement to the extent arising from the negligence or intentional misconduct of Declarant, its employees, agents or contractors; or (2) related the existence of the GHAD Easement, exclusive of any Claims brought by Declarant.

6. Enforcement: The Fallon Village GHAD shall have the right but not the obligation to enforce the provisions of this Declaration.

7. Modification or Termination: This Declaration shall not be modified, amended or terminated without the written consent of the Fallon Village GHAD.

Executed as of the Effective Date.

Declarant: TH East Ranch Dublin LLC, a California limited liability company

By: _____

Its: _____

CERTIFICATE OF ACCEPTANCE

This is to certify that the interest in real property conveyed to the Fallon Village Geologic Hazard Abatement District by the foregoing document titled "Declaration of Disclosures, Right of Entry and Restrictive Covenants", which is dated _____, 20__ and executed by _____, is hereby accepted by the undersigned pursuant to authority conferred by Resolution No. __-__, dated _____, 20__. The City of Dublin, as grantee, consents to recordation of said "Declaration of Disclosures, Right of Entry and Restrictive Covenants".

_____
Linda Smith
Fallon Village GHAD Manager

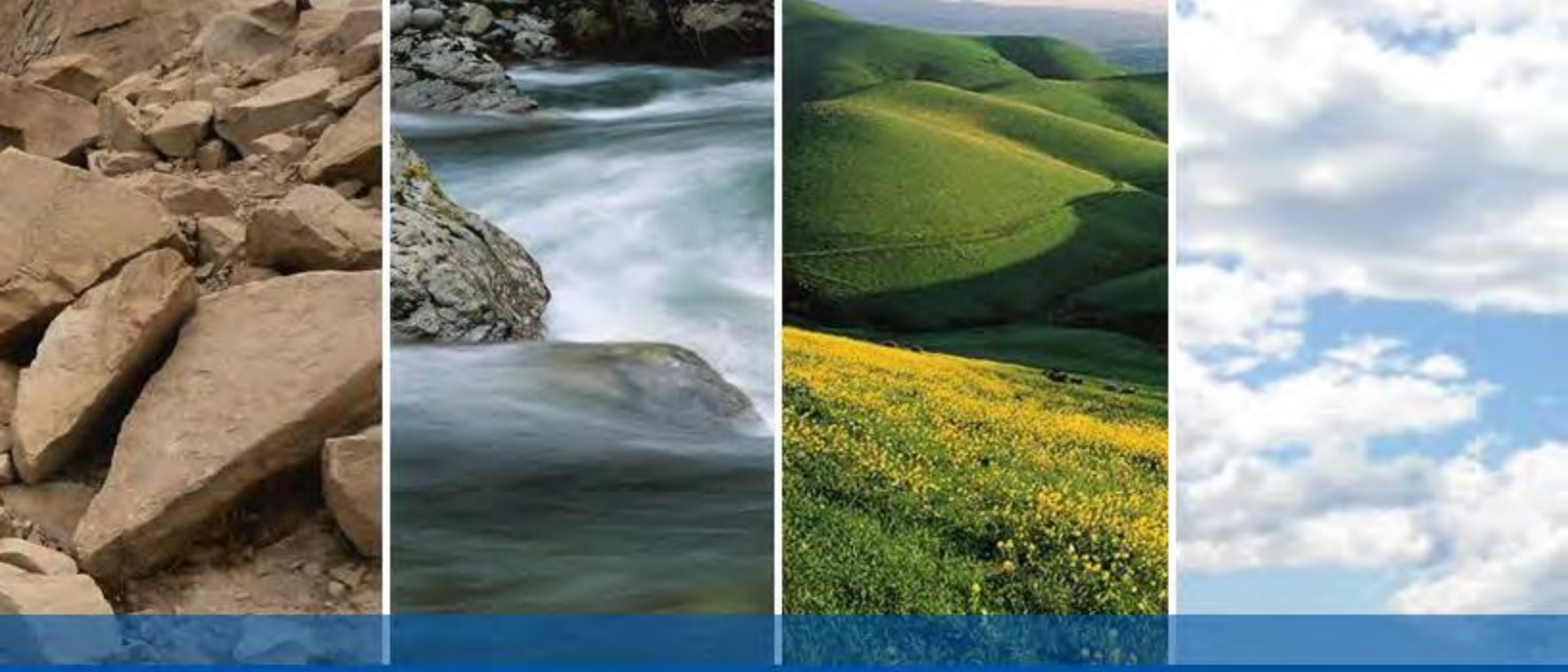
Date:

Attest:

_____
Marsha Moore
Fallon Village GHAD Clerk

Approved as to form:

_____
Adam Lindgren
Fallon Village GHAD Attorney



APPENDIX G

SAMPLE TRANSFER APPLICATION FORM

FALLON VILLAGE GEOLOGIC HAZARD ABATEMENT DISTRICT (GHAD)
EAST RANCH DEVELOPMENT

Fallon Village Geologic Hazard Abatement District Board of Directors
c/o Fallon Village GHAD Consultant
ENGEO Incorporated
2010 Crow Canyon Place, Suite 250
San Ramon, CA 94583

As of _____, 20__, _____ is submitting an application for transfer of GHAD activities as provided in Section 6.0 of the East Ranch Plan of Control dated October 12, 2021. As specified in Section 6.0,_____ is submitting this Transfer Application to transfer the responsibility for performing GHAD activities for the listed parcels to the District. Within 30 days of the submittal of the Transmittal Application, the GHAD will monitor the listed parcels and verify that the facilities that the GHAD will have maintenance responsibility have been constructed and maintained in accordance with the conditions of Section 6.4 of the Plan of Control. Within 15 days of inspection, the GHAD will send _____ a punch list of all items that need to be constructed, repaired, or otherwise modified in compliance with the City of Dublin approved plans and specifications. _____ will notify the GHAD upon completion of the punch list items. Within 30 days of receipt of such notice, the GHAD shall verify that all punch list items have been completed and notify _____. GHAD staff will then bring a resolution before the Fallon Village GHAD Board of Directors for their consideration approving GHAD responsibility for performing all future GHAD activities on the parcel(s).

We submit the following parcels for the transfer of GHAD activities as provided in the East Ranch Plan of Control to the Fallon Village GHAD:

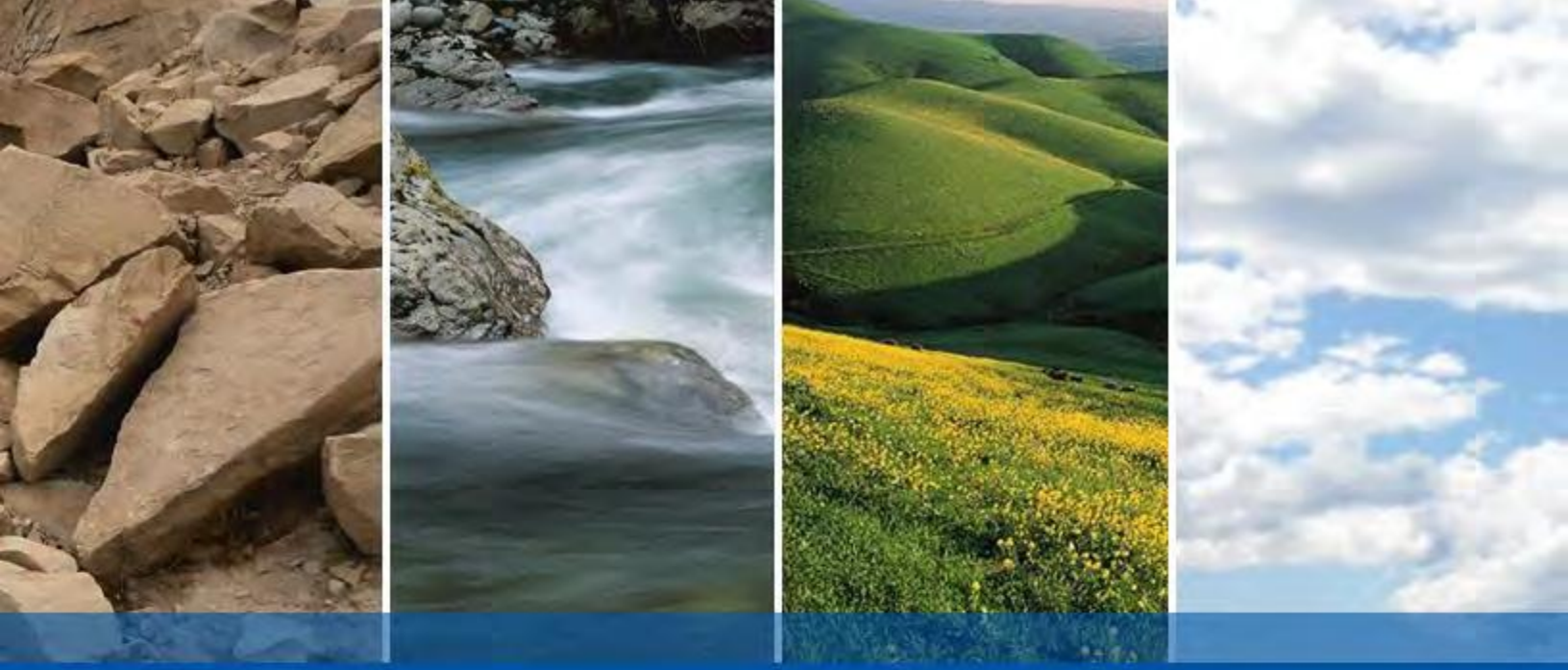
Lot Number/Tract	Address	Assessor's Parcel Number

Each party is to submit a copy of this application to the other party upon completion of the steps listed below.

GHAD receipt of Transfer Application: Initial of GHAD representative: _____ Date: _____

_____ receipt of punch list from GHAD: Initial of _____ representative: _____ Date: _____

GHAD receipt of notice of completion of punch list items: Initial of GHAD representative: _____ Date: _____



ENGEO
Expect Excellence