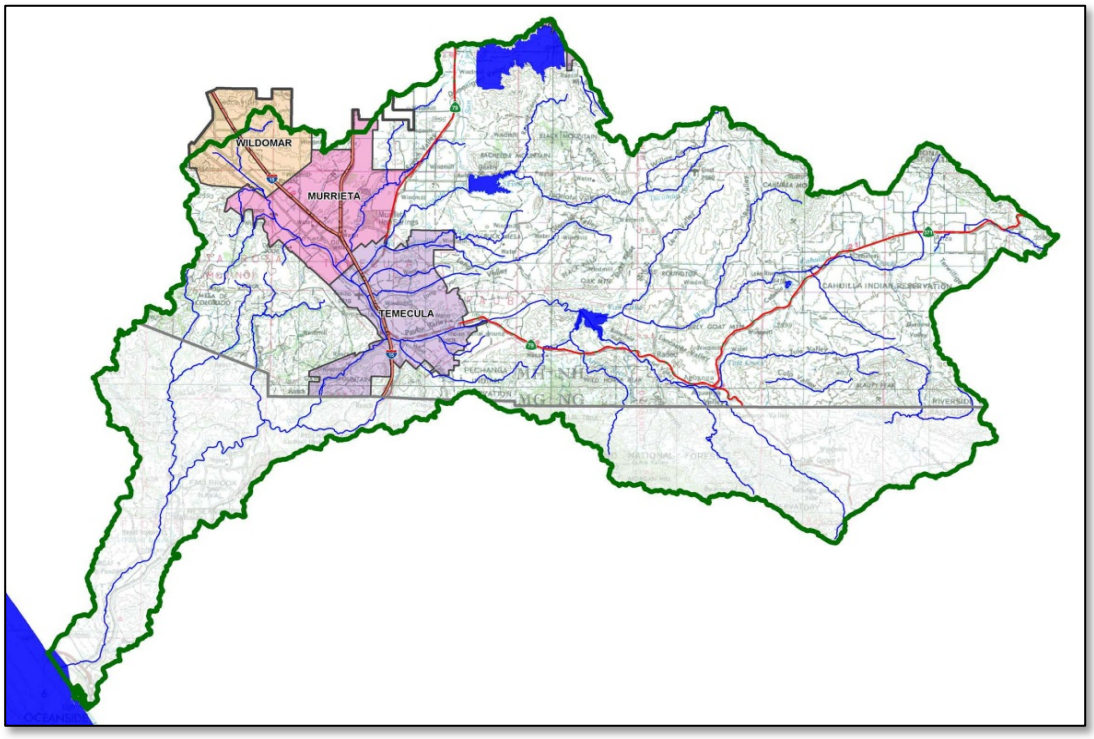
County Project Specific Water Quality Management Plan

A Template for preparing Project Specific WQMPs for Priority Development Projects only for use in the ***unincorporated portions of Riverside County*** *located within the* ***Santa Margarita Region***.

Project Title: Austin Vineyards
Development No: Plot Plan # PPT210132
Design Review/Case No: Plot Plan 23896
BMP$_i$ (Latitude, Longitude): 33° 33' 02", 117° 02' 00"



☒ **Preliminary**
☐ **Final**

Original Date Prepared: June 10, 2022

Revision Date(s): June 12, 2023, November 26, 2023

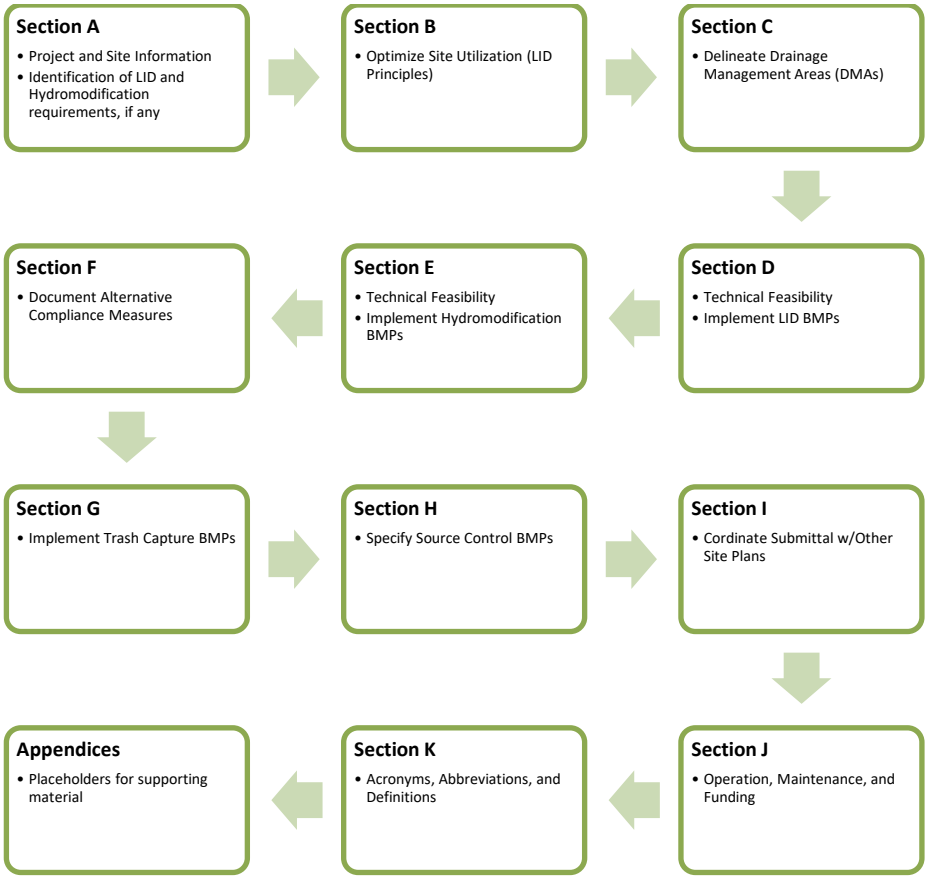
Based on 2018 WQMP, prepared for Compliance with Regional Board Order No. **R9-2013-0001** *as amended by Order No.* **R9-2015-0001** *and Order No.* **R9-2015-0100**

The County updated this template on July 24, 2018

Contact Information
Prepared for: Austin Vineyards LLC
3060 Upham St
Wheatridge, CO 80033
slabsgmi@aol.com
Prepared by: Joseph L. Castaneda, P.E.
JLC Engineering and Consulting, Inc.
41660 Ivy Street, Suite A
Murrieta, CA 92562
joe@jlcengineering.com

A Brief Introduction

The Regional Municipal Separate Stormwater Sewer System (MS4) Permit[1] requires that a Project-Specific WQMP be prepared for all development projects within the Santa Margarita Region (SMR) that meet the 'Priority Development Project' categories and thresholds listed in the SMR Water Quality Management Plan (WQMP). This Project-Specific WQMP Template for Development Projects in the **Santa Margarita Region** has been prepared to help document compliance and prepare a WQMP submittal. Below is a flowchart for the layout of this Template that will provide the steps required to document compliance.



To ensure compliance with State permanent recordkeeping, the County of Riverside is no longer accepting hard copies of the **approved** Final or Preliminary WQMPs or Hydrology Reports. Electronic submittals are highly encouraged for submittal reviews, single PDF file submittal on two CD copies, to the Transportation Department (4080 Lemon Street, 8th Floor, Riverside, CA 92501) is preferred.

For Approved Final WQMPs, submit with the single file WQMP on CD:

- A wet-signed and notarized BMP maintenance agreement (See Appendix 9 for details)
- Owner's Certification signed and scanned into the PDF, or wet-signed hard copy, dated after approval.
- Print out of the WQMP site map (11x17") and Coversheet (8.5x11")
- The CD should include a Hydrology report when applicable. The County requires a hydrology report with hydraulics for the design of drainage facilities. Then provide a print out of the Pre- & Post-Hydrology map (11x17") and Report Coversheet (8.5x11")
- For tracts, submit the County EDA approved maintenance exhibit
- Signed Exhibit B.9 - WQMP O&M Cost Sheet.xlsx

[1] Order No. R9-2013-0001 as amended by Order Nos. R9-2015-0001 and R9-2015-0100, NPDES No. CAS0109266, National Pollutant Discharge Elimination System (NPDES) Permit and Waste Discharge Requirements for Discharges from the MS4s Draining the Watersheds within the San Diego Region, California Regional Water Quality Control Board, May 8, 2013.

Signed and scanned into the PDF for Final Approved WQMP, or wet-signed hard copy

OWNER'S CERTIFICATION

This Project-Specific WQMP has been prepared for Austin Vineyards LLC by JLC Engineering and Consulting, Inc. for the Austin Winery Project.

This WQMP is intended to comply with the requirements of Riverside County for County Ordinance No. 754 which includes the requirement for the preparation and implementation of a Project-Specific WQMP.

The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this WQMP and will ensure that this WQMP is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater Best Management Practices until such time as this responsibility is formally transferred to a subsequent owner. This WQMP will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this WQMP. At least one copy of this WQMP will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this WQMP. The undersigned is aware that implementation of this WQMP is enforceable under Riverside County Water Quality Ordinance (No. 754).

"I, the undersigned, certify under penalty of law that the provisions of this WQMP have been reviewed and accepted and that the WQMP will be transferred to future successors in interest."

Owner's Signature	Date
Owner's Printed Name	Owner's Title/Position

PREPARER'S CERTIFICATION

"The selection, sizing and design of stormwater treatment and other stormwater quality and quantity control Best Management Practices in this plan meet the requirements of Regional Water Quality Control Board Order No. **R9-2013-0001** as amended by Order Nos. **R9-2015-0001 and R9-2015-0100**."

	June 12, 2023
Preparer's Signature	Date
Joseph L. Castaneda	Project Manager
Preparer's Printed Name	Preparer's Title/Position

Preparer's Licensure:

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Section A: Project and Site Information

Use the table below to compile and summarize basic site information that will be important for completing subsequent steps. Subsections A.1 through A.4 provide additional detail on documentation of additional project and site information. The Regional MS4 Permit has effectively removed the ability for a project to be grandfathered from WQMP requirements. Even if a project were able to meet all the requirements stated in Section 1.2 of the WQMP, the 2014 WQMP requirements would apply.

PROJECT INFORMATION		
Type of PDP:	New Development	
Type of Project:	Winery	
Planning Case Number:	Plot Plan 23896	
Rough Grade Permit No.:	N/A	
Development Name:	Austing Winery	
PROJECT LOCATION		
Latitude & Longitude (DMS):	33° 33’ 02”, 117° 02’ 00”	
Project Watershed and Sub-Watershed:	Santa Margarita River, Santa Gertrudis HSA	
24-Hour 85th Percentile Storm Depth (inches):	0.56	
Is project subject to Hydromodification requirements?	☒ Y ☐ N (Select based on Section A.3)	
APN(s):	942-030-011	
Map Book and Page No.:	Parcel 2 of Parcel Map 27134. Book 182, Pages 95&96	
PROJECT CHARACTERISTICS		
Proposed or Potential Land Use(s)		Commercial
Proposed or Potential SIC Code(s)		N/A
Existing Impervious Area of Project Footprint (SF)		0
Total area of proposed Impervious Surfaces within the Project Limits (SF)/or Replacement		50,508
Total Project Area (ac)		4.8 AC
Does the project consist of offsite road improvements?		☒ Y ☐ N
Does the project propose to construct unpaved roads?		☐ Y ☒ N
Is the project part of a larger common plan of development (phased project)?		☐ Y ☒ N
Has preparation of Project-Specific WQMP included coordination with other site plans?		☐ Y ☒ N
EXISTING SITE CHARACTERISTICS		
Is the project located within any Multi-Species Habitat Conservation Plan area (MSHCP Criteria Cell?)		☐ Y ☒ N If "Y" insert Cell Number
Is a Geotechnical Report attached?		☒ Y ☐ N
If no Geotech. Report, list the Natural Resources Conservation Service (NRCS) soils type(s) present on the site (A, B, C and/or D)		Soil Type C

Provide a brief description of the project:

Project is a graded vineyard that pulled a rough grading permit and agricultural permit. The project is being converted into a small winery. The project constructs pavement along Glen Oaks Road. However, not all of the proposed pavement can be treated for water quality due to grading restraints. Per discussion with Benjie Choe, the project will offset the 4,644.6 SF of untreated proposed pavement by treating 5,631.9 SF of existing pavement along Glen Oaks Road.

Paver and dirt roads are considered pervious for determining WQMP applicability.

A.1 Maps and Site Plans

When completing your Project-Specific WQMP, include a map of the Project vicinity and existing site. In addition, include all grading, drainage, landscape/plant palette and other pertinent construction plans in Appendix 2. At a **minimum**, your WQMP Site Plan should include the following:

- Vicinity and location maps
- Parcel Boundary and Project Footprint
- Existing and Proposed Topography
- Drainage Management Areas (DMAs)
- Proposed Structural Best Management Practices (BMPs)
- Drainage Paths
- Drainage infrastructure, inlets, overflows
- Source Control BMPs
- Site Design BMPs
- Buildings, Roof Lines, Downspouts
- Impervious Surfaces
- Pervious Surfaces (i.e. Landscaping)
- Standard Labeling
- Cross Section and Outlet details

Use your discretion on whether or not you may need to create multiple sheets or can appropriately accommodate these features on one or two sheets. Keep in mind that the Copermittee plan reviewer must be able to easily analyze your Project utilizing this template and its associated site plans and maps. Complete the checklists in Appendix 1 to verify that all exhibits and components are included.

A.2 Identify Receiving Waters

Using Table A-1 below, list in order of upstream to downstream, the Receiving Waters that the Project site is tributary to. Continue to fill each row with the Receiving Water's 303(d) listed impairments (if any), designated Beneficial Uses, and proximity, if any, to a RARE Beneficial Use. Include a map of the Receiving Waters in Appendix 1. This map should identify the path of the stormwater discharged from the site all the way to the outlet of the Santa Margarita River to the Pacific Ocean. Use the most recent 303(d) list available from the State Water Resources Control Board Website.
(http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/)

Table A-1 Identification of Receiving Waters

Receiving Waters	USEPA Approved 303(d) List Impairments	Designated Beneficial Uses	Proximity to RARE Beneficial Use
Santa Gertrudis Creek	Chlorpyrifos; Copper; Indicator Bacteria; Iron; Manganese; Nitrogen; Phosphorus	MUN, AGR, INC, PROC, GWR, REC1, REC2, WARM, WILD	Not a RARE water body
Murrieta Creek	Pesticides (Chlorpyrifos); Metals (Copper, Iron, Manganese); Nutrients (Nitrogen, Phosphorus); Fecal Indicator Bacteria (Indicator Bacteria); Toxicity (Toxicity)	MUN, AGR, IND, PROC, GWR, REC-2, WARM, WILD	Not a RARE water body
Santa Margarita River – Upper portion (HAS 2.22, 2.21)	Nutrients (Nitrogen, Phosphorus), Fecal Indicator Bacteria (Indicator Bacteria); Metals (Iron, Manganese; Toxicity (Toxicity)	MUN, AGR, IND, REC-1, REC-2, WARM, COLD, WILD, RARE	RARE WATERBODY 8.1 MILES
Santa Margarita River – Lower Portion (HSA 2.13, 2.12, 2.11)	Nutrients (Nitrogen, Phosphorus); Fecal Indicator Bacteria (Indicator Bacteria); Pesticides (Chlorpyrifos); Toxicity (Toxicity); Miscellaneous (Benthic Community Effects)	MUN, AGR, IND, PROC, REC-1, REC-2, WARM, COLD, WILD, RARE	RARE WATERBODY 21.4 MILES
Santa Margarita Lagoon	Nutrients (Eutrophic)	REC-1, REC-2, EST, WILD, RARE, MAR, MIGR, SPWN	RARE WATERBODY 31.3 MILES
Pacific Ocean	None	IND, NAV, REC-1, REC-2, COMM, BIOL, WILD, RARE, MAR, AQUA, MIGR, SPWN, SHELL	RARE WATERBODY 31.3 MILES

A.3 Drainage System Susceptibility to Hydromodification

Using Table A-2 below, list in order of the point of discharge at the project site down to the Santa Margarita River[2], each drainage system or receiving water that the project site is tributary to. Continue to fill each row with the material of the drainage system, and any exemption (if applicable). Based on the results, summarize the applicable hydromodification performance standards that will be documented in Section E. Exempted categories of receiving waters include:

- Existing storm drains that discharge directly to water storage reservoirs, lakes, or enclosed embayments, or
- Conveyance channels whose bed and bank are concrete lined all the way from the point of discharge to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.
- Other water bodies identified in an approved WMAA (See Exhibit G to the WQMP)

Include a map exhibiting each drainage system and the associated susceptibility in Appendix 1.

Table A-2 Identification of Susceptibility to Hydromodification

Drainage System	Drainage System Material	Hydromodification Exemption	Hydromodification Exempt
Santa Gertrudis Creek	Earthen/Natural	None	☐ Y ☒ N
Santa Gertrudis Creek	Reinforced Concrete Pipe	Engineered, Fully Hardened and Maintained (EFHM)	☒ Y ☐ N
Murrieta Creek – South of Warm Springs Creek	Natural Channel	None	☒ Y ☐ N
Santa Margarita River	Natural Channel	None	☒ Y ☐ N
Summary of Performance Standards			
☐ **Hydromodification Exempt** – Select if "Y" is selected in the Hydromodification Exempt column above, project is exempt from hydromodification requirements.			
☒ **Not Exempt**-Select if "N" is selected in any row of the Hydromodification Exempt column above. Project is subject to hydrologic control requirements and may be subject to sediment supply requirements.			

[2] Refer to Exhibit G of the WQMP for a map of exempt and potentially exempt areas. These maps are from the Draft SMR WMAA as of January 5, 2018 and will be replaced upon acceptance of the SMR WMAA.

A.4 Additional Permits/Approvals required for the Project:

Table A-3 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act Section 401 Water Quality Certification	☐ Y	☐ N
US Army Corps of Engineers, Clean Water Act Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☒ Y	☐ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☒ N
Other *(please list in the space below as required)* Grading Permit and Encroachment Permit	☒ Y	☐ N

If yes is answered to any of the questions above, the Copermittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

Section B: Optimize Site Utilization (LID Principles)

Review of the information collected in Section 'A' will aid in identifying the principal constraints on site design and selection of LID BMPs as well as opportunities to reduce imperviousness and incorporate LID Principles into the site and landscape design. For example, **constraints** might include impermeable soils, high groundwater, groundwater pollution or contaminated soils, steep slopes, geotechnical instability, high-intensity land use, heavy pedestrian or vehicular traffic, utility locations or safety concerns. **Opportunities** might include existing natural areas, low areas, oddly configured or otherwise unbuildable parcels, easements and landscape amenities including open space and buffers (which can double as locations for LID Bioretention BMPs), and differences in elevation (which can provide hydraulic head). Prepare a brief narrative for each of the site optimization strategies described below. This narrative will help you as you proceed with your Low Impact Development (LID) design and explain your design decisions to others.

Apply the following LID Principles to the layout of the PDP to the extent they are applicable and feasible. Putting thought upfront about how best to organize the various elements of a site can help to significantly reduce the PDP's potential impact on the environment and reduce the number and size of Structural LID BMPs that must be implemented. Integrate opportunities to accommodate the following LID Principles within the preliminary PDP site layout to maximize implementation of LID Principles.

Site Optimization

Complete checklist below to determine applicable Site Design BMPs for your site.

Project- Specific WQMP Site Design BMP Checklist

The following questions below are based upon Section 3.2 of the SMR WQMP will help you determine how to best optimize your site and subsequently identify opportunities and/or constraints, and document compliance.

SITE DESIGN REQUIREMENTS

Answer the following questions below by indicating "Yes," "No," or "N/A" (Not Applicable). Justify all "No" and "N/A" answers by inserting a narrative at the end of the section. The narrative should include identification and justification of any constraints that would prevent the use of those categories of LID BMPs. Upon identifying Site Design BMP opportunities, include these on your WQMP Site plan in Appendix 1.

☒ Yes ☐ No ☐ N/A

Did you identify and preserve existing drainage patterns?

Integrating existing drainage patterns into the site plan helps to maintain the time of concentration and infiltration rates of runoff, decreasing peak flows, and may also help preserve the contribution of Critical Coarse Sediment (i.e., Bed Sediment Supply) from the PDP to the Receiving Water. Preserve existing drainage patterns by:

- Minimizing unnecessary site grading that would eliminate small depressions, where appropriate add additional "micro" storage throughout the site landscaping.
- Where possible conform the PDP site layout along natural landforms, avoid excessive grading and disturbance of vegetation and soils, preserve or replicate the sites natural drainage features and patterns.
- Set back PDP improvements from creeks, wetlands, riparian habitats and any other natural water bodies.
- Use existing and proposed site drainage patterns as a natural design element, rather than using expensive impervious conveyance systems. Use depressed landscaped areas, vegetated buffers, and bioretention areas as amenities and focal points within the site and landscape design.

Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer.

The existing site currently drains to the two existing desilting basins. The project proposes to convert the desilting basins to water quality basins. The proposed condition will mimic the existing condition flow patterns and discharge to the existing basin locations.

☐ Yes ☐ No ☒ N/A

Did you identify and protect existing vegetation?

Identify any areas containing dense native vegetation or well-established trees, and try to avoid disturbing these areas. Soils with thick, undisturbed vegetation have a much higher capacity to store and infiltrate runoff than do disturbed soils. Reestablishment of a mature vegetative community may take decades. Sensitive areas, such as streams and floodplains should also be avoided.

- Define the development envelope and protected areas, identifying areas that are most suitable for development and areas that should be left undisturbed.
- Establish setbacks and buffer zones surrounding sensitive areas.
- Preserve significant trees and other natural vegetation where possible.

Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer.

The project currently consists of a graded PAD and existing vineyards. The project proposes construction of a winery on the existing PAD, no changes to the existing vineyards, and the existing desilting basins converted for water quality purposes. The project is not within any sensitive habitat, floodplain or stream area.

Project- Specific WQMP Site Design BMP Checklist	
☒ Yes ☐ No ☐ N/A	**Did you identify and preserve natural infiltration capacity?** A key component of LID is taking advantage of a site's natural infiltration and storage capacity. A site survey and geotechnical investigation can help define areas with high potential for infiltration and surface storage. • Identify opportunities to locate LID Principles and Structural BMPs in highly pervious areas. Doing so will maximize infiltration and limit the amount of runoff generated. • Concentrate development on portions of the site with less permeable soils, and preserve areas that can promote infiltration.
Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer. *The project proposes to convey runoff to water quality basins that will promote runoff to be partiall infiltrated into natural soils.*	
☒ Yes ☐ No ☐ N/A	**Did you minimize impervious area?** Look for opportunities to limit impervious cover through identification of the smallest possible land area that can be practically impacted or disturbed during site development. • Limit overall coverage of paving and roofs. This can be accomplished by designing compact, taller structures, narrower and shorter streets and sidewalks, clustering buildings and sharing driveways, smaller parking lots (fewer stalls, smaller stalls, and more efficient lanes), and indoor or underground parking. • Inventory planned impervious areas on your preliminary site plan. Identify where permeable pavements, or other permeable materials, such as crushed aggregate, turf block, permeable modular blocks, pervious concrete or pervious asphalt could be substituted for impervious concrete or asphalt paving. This will help reduce the amount of Runoff that may need to be addressed through Structural BMPs. • Examine site layout and circulation patterns and identify areas where landscaping can be substituted for pavement, such as for overflow parking. • Consider green roofs. Green roofs are roofing systems that provide a layer of soil/vegetative cover over a waterproofing membrane. A green roof mimics pre-development conditions by filtering, absorbing, and evapotranspiring precipitation to help manage the effects of an otherwise impervious rooftop.
Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer. *Impervious areas were minimized where possible. Pervious Aggregate base is proposed for the parking lot area.*	

Project- Specific WQMP Site Design BMP Checklist

☒ Yes ☐ No ☐ N/A

Did you identify and disperse runoff to adjacent pervious areas or small collection areas?
Look for opportunities to direct runoff from impervious areas to adjacent landscaping, other pervious areas, or small collection areas where such runoff may be retained. This is sometimes referred to as reducing Directly Connected Impervious Areas.

- Direct roof runoff into landscaped areas such as medians, parking islands, planter boxes, etc., and/or areas of pervious paving. Instead of having landscaped areas raised above the surrounding impervious areas, design them as depressed areas that can receive Runoff from adjacent impervious pavement. For example, a lawn or garden depressed 3"-4" below surrounding walkways or driveways provides a simple but quite functional landscape design element.
- Detain and retain runoff throughout the site. On flatter sites, smaller Structural BMPs may be interspersed in landscaped areas among the buildings and paving.
- On hillside sites, drainage from upper areas may be collected in conventional catch basins and piped to landscaped areas and LID BMPs and/or Hydrologic Control BMPs in lower areas. Low retaining walls may also be used to create terraces that can accommodate LID BMPs. Wherever possible, direct drainage from landscaped slopes offsite and not to impervious surfaces like parking lots.
- Reduce curb maintenance and provide for allowances for curb cuts.
- Design landscaped areas or other pervious areas to receive and infiltrate runoff from nearby impervious areas.
- Use Tree Wells to intercept, infiltrate, and evapotranspire precipitation and runoff before it reaches structural BMPs. Tree wells can be used to limit the size of Drainage Management Areas that must be treated by structural BMPs. Guidelines for Tree Wells are included in the Tree Well Fact Sheet in the LID BMP Design Handbook.

Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer.
Runoff will be directed to adjacent pervious areas as shown on the WQMP Site Plan.

☒ Yes ☐ No ☐ N/A

Did you utilize native or drought tolerant species in site landscaping?

Wherever possible, use native or drought tolerant species within site landscaping instead of alternatives. These plants are uniquely suited to local soils and climate and can reduce the overall demands for potable water use associated with irrigation.

Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer.
Native and drought tolerant species will be incorporated in landscaping.

Project- Specific WQMP Site Design BMP Checklist

☐ Yes ☒ No ☐ N/A

Did implement harvest and use of runoff?

Under the Regional MS4 Permit, Harvest and Use BMPs must be employed to reduce runoff on any site where they are applicable and feasible. However, Harvest and Use BMPs are effective for retention of stormwater runoff only when there is adequate demand for non-potable water during the wet season. If demand for non-potable water is not sufficiently large, the actual retention of stormwater runoff will be diminished during larger storms or during back-to-back storms.

For the purposes of planning level Harvest and Use BMP feasibility screening, Harvest and Use is only considered to be a feasible if the total average wet season demand for non-potable water is sufficiently large to use the entire DCV within 72 hours. If the average wet season demand for non-potable water is not sufficiently large to use the entire DCV within 72 hours, then Harvest and Use is not considered to be feasible and need not be considered further.

The general feasibility and applicability of Harvest and Use BMPs should consider:

- Any downstream impacts related to water rights that could arise from capturing stormwater (not common).
- Conflicts with recycled water used – where the project is conditioned to use recycled water for irrigation, this should be given priority over stormwater capture as it is a year-round supply of water.
- Code Compliance - If a particular use of captured stormwater, and/or available methods for storage of captured stormwater would be contrary to building codes in effect at the time of approval of the preliminary Project-Specific WQMP, then an evaluation of harvesting and use for that use would not be required.
- Wet season demand – the applicant shall demonstrate, to the acceptance of the County of Riverside, that there is adequate demand for harvested water during the wet season to drain the system in a reasonable amount of time.

Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer.
Harvest and use of runoff was not implemented since the project land uses do not generate sufficient uses to make harvest and use feasible.

☐ Yes ☐ No ☒ N/A

Did you keep the runoff from sediment producing pervious area hydrologically separate from developed areas that require treatment?

Pervious area that qualify as self-treating areas or off-site open space should be kept separate from drainage to structural BMPs whenever possible. This helps limit the required size of structural BMPs, helps avoid impacts to sediment supply, and helps reduce clogging risk to BMPs.

Discuss how this was included or provide a discussion/justification for "No" or "N/A" answer.
The project does not consist of self-treating areas or off-site open space areas.

Section C: Delineate Drainage Management Areas (DMAs) & Green Streets

This section provides streamlined guidance and documentation of the DMA delineation and categorization process, for additional information refer to the procedure in Section 3.3 of the SMR WQMP which discusses the methods of delineating and mapping your project site into individual DMAs. Complete Steps 1 to 4 to successfully delineate and categorize DMAs.

Step 1: Identify Surface Types and Drainage Pathways

Carefully delineate pervious areas and impervious areas (including roofs) throughout site and identify overland flow paths and above ground and below ground conveyances. Also identify common points (such as BMPs) that these areas drain to.

Step 2: DMA Delineation

Use the information in Step 1 to divide the entire PDP site into individual, discrete DMAs. Typically, lines delineating DMAs follow grade breaks and roof ridge lines. Where possible, establish separate DMAs for each surface type (e.g., landscaping, pervious paving, or roofs). Assign each DMA a unique code and determine its size in square feet. The total area of your site should total the sum of all of your DMAs (unless water from outside the project limits comingles with water from inside the project limits, i.e. run-on). Complete Table C-1

Table C-1 DMA Identification

DMA Name or Identification	Surface Type(s)[1]	Area (Sq. Ft.)	DMA Type
A	Mixed	113,031	To be Determined in Step 3
B	Mixed	94,244	

Step 3: DMA Classification

Determine how drainage from each DMA will be handled by using information from Steps 1 and 2 and by completing Steps 3.A to 3.C. Each DMA will be classified as one of the following four types:

- Type 'A': Self-Treating Areas:
- Type 'B': Self-Retaining Areas
- Type 'C': Areas Draining to Self-Retaining Areas
- Type 'D': Areas Draining to BMPs

Tree wells are considered Type 'B' areas, and their tributary areas limited to a 10:1 ratio are considered Type 'C' areas. If Tree wells are proposed, consider grading or other features to minimize the pervious runoff to the tree wells, to avoid overwhelming the trees. Type 'A', 'B', and 'C' are considered LID Principals that can be used to minimize or potentially eliminate structural LID BMPs.

If Tree wells are proposed, a landscape architect shall be consulted on the tree selection, since compliance will be determined based on the survival of the tree. The tree type should be noted on the WQMP site map.

Step 3.A – Identify Type 'A' Self-Treating Area

Indicate if the DMAs meet the following criteria by answering "Yes" or "No".

☐ Yes ☒ No	Area is undisturbed from their natural condition OR restored with Native and/or California Friendly vegetative covers.
☐ Yes ☒ No	Area is irrigated, if at all, with appropriate low water use irrigation systems to prevent irrigation runoff.
☐ Yes ☒ No	Runoff from the area will not comingle with runoff from the developed portion of the site, or across other landscaped areas that do not meet the above criteria.

If all answers indicate "Yes," complete Table C-2 to document the DMAs that are classified as Self-Treating Areas.

Table C-2 Type 'A', Self-Treating Areas

DMA Name or Identification	Area (Sq. Ft.)	Stabilization Type	Irrigation Type (if any)

Step 3.B – Identify Type 'B' Self-Retaining Area and Type 'C' Areas Draining to Self-Retaining Areas

Type 'B' Self-Retaining Area: A Self-Retaining Area is shallowly depressed 'micro infiltration' areas designed to retain the Design Storm rainfall that reaches the area, without producing any Runoff.

Indicate if the DMAs meet the following criteria by answering "Yes," "No," or "N/A".

☐ Yes ☐ No ☒ N/A	Inlet elevations of area/overflow drains, if any, should be clearly specified to be three inches or more above the low point to promote ponding.
☐ Yes ☐ No ☒ N/A	Soils will be freely draining to not create vector or nuisance conditions.
☐ Yes ☐ No ☒ N/A	Pervious pavements (e.g., crushed stone, porous asphalt, pervious concrete, or permeable pavers) can be self-retaining when constructed with a gravel base course four or more inches deep below any underdrain discharge elevation.

If all answers indicate "Yes," DMAs may be categorized as Type 'B', proceed to identify Type 'C' Areas Draining to Self-Retaining Areas.

Type 'C' Areas Draining to Self-Retaining Areas: Runoff from impervious or partially pervious areas can be managed by routing it to Self-Retaining Areas consistent with the LID Principle discussed in SMR WQMP Section 3.2.5 for 'Dispersing Runoff to Adjacent Pervious Areas'.
Indicate if the DMAs meet the following criteria by answering "Yes" or "No".

☐ Yes ☒ No The drainage from the tributary area must be directed to and dispersed within the Self-Retaining Area.

☐ Yes ☒ No The maximum ratio of Tributary Area to Self-Retaining area is (2 ÷ Impervious Fraction): 1

If all answers indicate "Yes," DMAs may be categorized as Type 'C'.

Complete Table C-3 and Table C-4 to identify Type 'B' Self-Retaining Areas and Type 'C' Areas Draining to Self-Retaining Areas.

Table C-3 Type 'B', Self-Retaining Areas

Self-Retaining Area				Type 'C' DMAs that are draining to the Self-Retaining Area		
DMA Name/ ID	Post-project surface type	Area (square feet) [A]	Storm Depth (inches) [B]	DMA Name / ID	[C] from Table C-4= [C]	Required Retention Depth (inches) [D] = $[B] + \frac{[B]\cdot[C]}{[A]}$

Note: Tree well areas can extend well beyond the drip line. The Tree Well area for open top types would include the shallow depressed area at the soil surface. The Tree Well area for Structural Soil Tree Wells or Suspended Pavement Tree Wells includes the area with open-graded gravel or void space over the structural soil or structural cells. Please specify type in this table and WQMP site map. See LID handbook Tree Well factsheet for additional details.

$$\left(\frac{2}{\boldsymbol{Impervious\ Fraction}}\right) : 1$$

(Tributary Area: Self-Retaining Area)

Table C-4 Type 'C', Areas that Drain to Self-Retaining Areas

DMA					Receiving Self-Retaining DMA		
DMA Name/ ID	Area (square feet) [A]	Post-project surface type	Runoff factor [B]	Product [C] = [A] x [B]	DMA name /ID	Area (square feet) [D]	Ratio [C]/[D]

Note: (See Section 3.3 of SMR WQMP) Ensure that partially pervious areas draining to a Self-Retaining area do not exceed the following ratio:

Step 3.B.1 – Document the use of Green Street Exemption (see Section 3.11 of the WQMP Guidance)

The Regional MS4 Permit specifies that projects that consist of **retrofitting or redevelopment of existing paved alleys, streets, or roads** may be exempted from classification as PDPs if they are designed and constructed in accordance with USEPA Green Streets Guidance. This does not apply for interior roads for PDP projects. For projects with road frontage improvements, Green Street standards can be used in the frontage road right-of-way. The remainder of the project is subject to full WQMP and Hydromodification requirements. See excerpt from Section 3.11 of the WQMP Guidance below:

3.11.4 BMP Sizing Targets for Applicable Green Streets Projects

Applicable green street projects are not required to meet the same sizing requirements for BMPs as other projects, but should attempt to meet a sizing target to the MEP. The following steps are used to size BMPs for applicable Green Streets projects:

1. Delineate drainage areas tributary to BMP locations and compute imperviousness.
2. Determine sizing goal by referring to sizing criteria presented in Section 2.3.2 (V_{BMP}).
3. Attempt to provide the target BMP sizing according to Step 2.
4. If the target criteria cannot be achieved, document the constraints that override the application of BMPs, and provide the largest portion of the sizing criteria that can be reasonably provided given constraints.

Even if BMPs cannot be sized to meet the target sizing criteria, it is still important to design the BMP inlet, energy dissipation, and overflow capacity for the full tributary area to ensure that flooding and scour is avoided. It is strongly recommended that BMPs which are designed to less than their target design volume be designed to bypass peak flows.

Table C-4.1 – Green Streets

DMA Name or ID	Street Name	BMP Sizing Targets Calculations and documenting constraints included in Appendix 6*
		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No
		☐ Yes ☐ No
*WQMP shall not be approved without calculations or documenting constraints for Green Street Exemption.		

Step 3.C – Identify Type 'D' Areas Draining to BMPs

Areas draining to BMPs are those that could not be fully managed through LID Principles (DMA Types A through C) and will instead drain to an LID BMP and/or a Conventional Treatment BMP designed to manage water quality impacts from that area, and Hydromodification where necessary.

Complete Table C-5 to document which DMAs are classified as Areas Draining to BMPs

Table C-5 Type 'D', Areas Draining to BMPs

DMA Name or ID	BMP Name or ID Receiving Runoff from DMA
A	BMP A
B	BMP B

Note: More than one DMA may drain to a single LID BMP; however, one DMA may not drain to more than one BMP.

The project constructs pavement along Glen Oaks Road. However, not all of the proposed pavement can be treated for water quality due to grading restraints. Per discussion with Benjie Choe, the project will offset the 4,644.6 SF of untreated proposed pavement by treating 5,631.9 SF of existing pavement along Glen Oaks Road.

Section D: Implement LID BMPs

The Regional MS4 Permit requires the use of LID BMPs to provide retention or treatment of the DCV and includes a BMP hierarchy which requires Full Retention BMPs (Priority 1) to be considered before Biofiltration BMPs (Priority 2) and Flow-Through Treatment BMPs and Alternative Compliance BMPs (Priority 3). LID BMP selection must be based on technical feasibility and should be considered early in the site planning and design process. Use this section to document the selection of LID BMPs for each DMA. Note that feasibility is based on the DMA scale and may vary between DMAs based on site conditions.

D.1 Full Infiltration Applicability

An assessment of the feasibility of utilizing full infiltration BMPs is required for all projects, *except where it can be shown that site design LID principles fully retain the DCV (i.e., all DMAs are Type A, B, or C), or where Harvest and Use BMPs fully retain the DCV. Check the following box if applicable:*

☐ Site design LID principles or Tree Wells fully retain the DCV (i.e., all DMAs are Type A, B, or C), (Proceed to Section E).

If the above box remains unchecked, perform a site-specific evaluation of the feasibility of Infiltration BMPs using each of the applicable criteria identified in Chapter 2.3.3 of the SMR WQMP and complete the remainder of Section D.1.

Geotechnical Report

A Geotechnical Report or Phase I Environmental Site Assessment may be required by the Copermittee to confirm present and past site characteristics that may affect the use of Infiltration BMPs. In addition, the Copermittee, at their discretion, may not require a geotechnical report for small projects as described in Chapter 2 of the SMR WQMP. If a geotechnical report has been prepared, include it in Appendix 3. In addition, if a Phase I Environmental Site Assessment has been prepared, include it in Appendix 4.

Infiltration Feasibility

Table D-1 below is meant to provide a simple means of assessing which DMAs on your site support Infiltration BMPs and is discussed in the SMR WQMP in Chapter 2.3.3. Check the appropriate box for each question and then list affected DMAs as applicable. If additional space is needed, add a row below the corresponding answer.

Table D-1 Infiltration Feasibility

Downstream Impacts (SMR WQMP Section 2.3.3.a)		
Does the project site…	**YES**	**NO**
…have any DMAs where infiltration would negatively impact downstream water rights or other Beneficial Uses[3]?		X
If Yes, list affected DMAs:		
Groundwater Protection (SMR WQMP Section 2.3.3.b)		
Does the project site…	**YES**	**NO**
…have any DMAs with industrial, and other land uses that pose a high threat to water quality, which cannot be treated by Bioretention BMPs? Or have DMAs with active industrial process areas?		X
If Yes, list affected DMAs:		
…have any DMAs with a seasonal high groundwater mark shallower than 10 feet?		X
If Yes, list affected DMAs:		
…have any DMAs located within 100 feet horizontally of a water supply well?		X
If Yes, list affected DMAs:		
…have any DMAs that would restrict BMP locations to within a 2:1 (horizontal: vertical) influence line extending from any septic leach line?		X
If Yes, list affected DMAs:		
…have any DMAs been evaluated by a licensed Geotechnical Engineer, or Environmental Engineer, who has concluded that the soils do not have adequate physical and chemical characteristics for the protection of groundwater, and has treatment provided by amended media layers in Bioretention BMPs been considered in evaluating this factor?		X
If Yes, list affected DMAs:		
Public Safety and Offsite Improvements (SMR WQMP Section 2.3.3.c)		
Does the project site…	**YES**	**NO**
…have any areas identified by the geotechnical report as posing a public safety risk where infiltration of stormwater could have a negative impact, such as potential seepage through fill conditions?		X
If Yes, list affected DMAs:		
Infiltration Characteristics For LID BMPs (SMR WQMP Section 2.3.3.d)		
Does the project site…	**YES**	**NO**
…have measured infiltration rates of less than 2.4 inches / hour? Riverside County may allow measure rates as low as 0.8in/hr to support infiltration BMPs, if the Engineer believes infiltration is appropriate and sustainable. Mark no, if this is the case.	X	
If Yes, list affected DMAs:	A & B	
Cut/Fill Conditions (SMR WQMP Section 2.3.3.e)		
Does the project site…	**YES**	**NO**
…have significant cut and/or fill conditions that would preclude in-situ testing of infiltration rates at the final infiltration surface?		X
If Yes, list affected DMAs:		
Other Site-Specific Factors (SMR WQMP Section 2.3.3.f)		
Does the project site…	**YES**	**NO**
…have DMAs where the geotechnical investigation discovered other site-specific factors that would preclude effective and/or safe infiltration?		X
Describe here:		

If you answered "Yes" to any of the questions above for any DMA, Infiltration BMPs that rely solely on infiltration should not be used for those DMAs and you should proceed to the assessment for Biofiltration BMPs below. Biofiltration BMPs that provide partial infiltration may still be feasible and should be assessed in Section D.2. Summarize concerns identified in the Geotechnical Report, if any, that resulted in a "YES" response above in the table below.

[3] Such a condition must be substantiated by sufficient modeling to demonstrate an impact and would be subject to County of Riverside discretion. There is not a standardized method for assessing this criterion. Water rights evaluations should be site-specific.

Table D-2 Geotechnical Concerns for Onsite Infiltration

Type of Geotechnical Concern	DMAs Feasible (By Name or ID)	DMAs Infeasible (By Name or ID)
Collapsible Soil		
Expansive Soil		
Slopes		
Liquefaction		
Low Infiltration Rate		
Other		

D.2 Biofiltration Applicability

This section should document the applicability of biofiltration BMPs for Type D DMAs that are not feasible for full infiltration BMPs. The key decisions to be documented in this section include:

1. Are biofiltration BMPs with partial infiltration feasible?
    a. Biofiltration BMPs must be designed to maximize incidental infiltration via a partial infiltration design unless it is demonstrated that this design is not feasible.
    b. These designs can be used at sites with low infiltration rates where other feasibility factors do not preclude incidental infiltration.

    Document summary in Table D-3.
2. If not, what are the factors that require the use of biofiltration with no infiltration? This may include:
    a. Geotechnical hazards
    b. Water rights issues
    c. Water balance issues
    d. Soil contamination or groundwater quality issues
    e. Very low infiltration rates (factored rates < 0.1 in/hr)
    f. Other factors, demonstrated to the acceptance of the local jurisdiction

    If this applies to any DMAs, then rationale must be documented in Table D-3.
3. Are biofiltration BMPs infeasible?
    a. If yes, then provide a site-specific analysis demonstrating the technical infeasibility of all LID BMPs has been performed and is included in Appendix 5. If you plan to submit an analysis demonstrating the technical infeasibility of LID BMPs, request a pre-submittal meeting with the Copermittee with jurisdiction over the Project site to discuss this option. Proceed below.

Table D-3 Evaluation of Biofiltration BMP Feasibility

DMA ID	Is Partial/ Incidental Infiltration Allowable? (Y/N)	Basis for Infeasibility of Partial Infiltration (provide summary and include supporting basis if partial infiltration not feasible)
A	Y	
B	Y	

Proprietary Biofiltration BMP Approval Criteria

Does the Co-Permittee allow Proprietary BMPs as an equivalent to Biofiltration, if specific criteria is met?

☐ Yes or ☒ No, if no skip to Section F to document your alternative compliance measures.

If the project will use proprietary BMPs as biofiltration BMPs, then this section and Appendix 5 shall be completed to document that the proprietary BMPs are selected in accordance with Section 2.3.6 of the SMR WQMP and County requirements. Proprietary Biofiltration BMPs must meet both of the following approval criteria:

1. Demonstrate equivalency to Biofiltration by completing the BMP Design worksheet and Proprietary Biofiltration Criteria, which is found in Appendix 5, including all supporting documentation, and
2. Obtain Co-Permittee concurrence for the long term Operation and Maintenance Plan for the proprietary BMP. The Co-Permittee has the sole discretion to allow or reject Proprietary BMPs, especially if they will be maintained publically through a CFD, CSA, or L&LMD.

Add additional rows to Table D-4 to document approval criteria are met for each type of BMP proposed.

Table D-4 Proprietary BMP Approval Requirement Summary

Proposed Proprietary Biofiltration BMP	Approval Criteria	Notes/Comments
Insert BMP Name and Manufacturer Here	BMP Design worksheets and Proprietary Biofiltration Criteria are completed in Appendix 5	☐ Yes or ☐ No Insert text here
	Proposed BMP has an active TAPE GULD Certification for the project pollutants of concern[4] or equivalent 3rd party demonstrated performance.	☐ Yes or ☐ No Insert text here
	Is there any media or cartridge required to maintain the function of the BMP sole-sourced or proprietary in any way? If yes, obtain explicit approval by the Agency. Potentially full replacement costs to a non-proprietary BMP needs to be considered.	☐ Yes or ☐ No If yes, provide the date of concurrence from the Co-Permittee. Insert date here
	☐ The BMP includes biological features including vegetation supported by engineered or other growing media.	Describe features here.

[4] Use Table F-1, F-2, and F-3 to identify and document the pollutants of concern and include these tables in Appendix 5.

D.3 Feasibility Assessment Summaries

From the Infiltration, Biofiltration with Partial Infiltration and Biofiltration with No Infiltration Sections above, complete Table D-5 below to summarize which LID BMPs are technically feasible, and which are not, based upon the established hierarchy.

Table D-5 LID Prioritization Summary Matrix

DMA Name/ID	LID BMP Hierarchy			No LID (Alternative Compliance)
	1. Infiltration	2. Biofiltration with Partial Infiltration	3. Biofiltration with No Infiltration	
DMA A	☐	☒	☐	☐
DMA B	☐	☒	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐
	☐	☐	☐	☐

Note, BMP A use a subsurface system with perforated pipes and gravel backfill to promote infiltration into existing ground.

For those DMAs where LID BMPs are not feasible, provide a narrative in Table D-6 below summarizing why they are not feasible, include your technical infeasibility criteria in Appendix 5, and proceed to Section F below to document Alternative Compliance measures for those DMAs. Recall that each proposed DMA must pass through the LID BMP hierarchy before alternative compliance measures may be considered.

This is based on the clarification letter titled "San Diego Water Board's Expectations of Documentation to Support a Determination of Priority Development Project Infiltration Infeasibility" (April 28, 2017, Via email from San Diego Regional Water Quality Control Board to San Diego County Municipal Storm Water Copermittees[5]).

Table D-6 Summary of Infeasibility Documentation

Question	Narrative Summary (include reference to applicable appendix/attachment/report, as applicable)
a) When in the entitlement process did a geotechnical engineer analyze the site for infiltration feasibility?	
b) When in the entitlement process were other investigations conducted (e.g., groundwater quality, water rights) to evaluate infiltration feasibility?	
c) What was the scope and results of testing, if conducted, or rationale for why testing was not needed to reach findings?	
d) What public health and safety requirements affected infiltration locations?	

[5] http://www.projectcleanwater.org/download/pdp-infiltration-infeasibility/

e) What were the conclusions and recommendations of the geotechnical engineer and/or other professional responsible for other investigations?	
f) What was the history of design discussions between the permittee and applicant for the proposed project, resulting in the final design determination related locations feasible for infiltration?	
g) What site design alternatives were considered to achieve infiltration or partial infiltration on site?	
h) What physical impairments (i.e., fire road egress, public safety considerations, utilities) and public safety concerns influenced site layout and infiltration feasibility?	
i) What LID Principles (site design BMPs) were included in the project site design?	

D.4 LID BMP Sizing

Each LID BMP must be designed to ensure that the DCV will be captured by the selected BMPs with no discharge to the storm drain or surface waters during the DCV size storm. Infiltration BMPs must at minimum be sized to capture the DCV to achieve pollutant control requirements.

Biofiltration BMPs must at a minimum be sized to:

- Treat 1.5 times the DCV not reliably retained on site using a volume-base or flow-based sizing method, or
- Include static storage volume, including pore spaces and pre-filter detention volume, at least 0.75 times the portion of the DCV not reliably retained on site.

First**,** calculate the DCV for each LID BMP using the V_{BMP} worksheet in Appendix F of the LID BMP Design Handbook. Second**,** design the LID BMP to meet the required V_{BMP} using the methods included in Section 3 of the LID BMP Design Handbook. Utilize the worksheets found in the LID BMP Design Handbook or consult with the Copermittee to assist you in correctly sizing your LID BMPs. Use Table D-7 below to document the DCV each LID BMP. Provide the completed design procedure sheets for each LID BMP in Appendix 6. You may add additional rows to the table below as needed.

Table D-7a DCV Calculations for LID BMPs

DMA Type/ID	DMA (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Biofiltration Basin "A"*		
	[A]		[B]	[C]	[A] x [C]			
A	*113031*	*Mixed*	*0.34*	*0.25*	*28258*	*Design Storm Depth (in)*	*DCV, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	$A_T = \Sigma[A] = 113031$				$\Sigma = [D] = 25258$	0.56	$\frac{[D]x[E]}{12} = 1,316$	[G]= 1,316

[B], [C] is obtained as described in Section 2.6.1.b of the SMR WQMP
[E] is obtained from Exhibit A in the SMR WQMP
[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6.

Table D-8b DCV Calculations for LID BMPs

DMA Type/ID	DMA (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Biofiltration Basin "B"*		
	[A]		[B]	[C]	[A] x [C]			
B	*94244*	*Mixed*	*0.51*	*0.35*	*32985*	*Design Storm Depth (in)*	*DCV, V_{BMP} (cubic feet)*	*Proposed Volume on Plans (cubic feet)*
	$A_T = \Sigma[A] = 94244$				$\Sigma = [D] = 32985$	0.56	$\frac{[D]x[E]}{12} = 1,490$	[G]= 1,490

[B], [C] is obtained as described in Section 2.6.1.b of the SMR WQMP
[E] is obtained from Exhibit A in the SMR WQMP
[G] is obtained from a design procedure sheet, such as in LID BMP Design Handbook and placed in Appendix 6.

Effective Impervious Fraction DMA A

DMA A	Area (SF)	Effective Imp %	Area x Effective Imp %
AC	11,922.9	1	11,922.9
Concrete	7,916.2	1	7,916.2
Class II AGG. Base	35,122.5	0.1	3,512.25
Ornamental Landscape	16,139.8	0.1	1,613.98
Vineyard (Soil C)	41,929.8	0.3	12,578.94
Total	**113,031.2**	**0.34**	**37,544.27**

Effective Impervious Fraction DMA B

DMA B	Area (SF)	Effective Imp %	Area x Effective Imp %
AC	23,870.4	1	23,870.4
Concrete	6,962	1	6,962
Class II AGG. Base	1,167.2	0.1	116.72
Ornamental Landscape	9,848.8	0.1	984.88
Vineyard (Soil C)	52,395.3	0.3	15,718.59
Total	**94,243.7**	**0.51**	**47,652.59**

Complete Table D-9 below to document the Design Capture Volume and the Proposed Volume for each LID BMP. You can add rows to the table as needed. Alternatively, the Santa Margarita Hydrology Model (SMRHM) can be used to size LID BMPs to address the DCV and, if applicable, to size Hydrologic Control BMPs to meet the Hydrologic Performance Standard described in the SMR WQMP, as identified in Section E.

Table D-9 LID BMP Sizing

BMP Name / ID	DMA No.	BMP Type / Description	Design Capture Volume (ft^3)	Proposed Volume (ft^3)
Basin A	A	Bioretention Basin	1316	1316
Basin B	B	Bioretention Basin	1490	1490

If bioretention will include a capped underdrain, then include sizing calculations demonstrating that the BMP will meet infiltration sizing requirements with the underdrain capped and also meet biofiltration sizing requirements if the underdrain is uncapped.

Section E: Implement Hydrologic Control BMPs and Sediment Supply BMPs

See Appendix 7 for additional required information.

If a completed Table 1.2 demonstrates that the project is exempt from Hydromodification Performance Standards, specify N/A and proceed to Section G.

☐ N/A Project is Exempt from Hydromodification Performance Standards.

If a PDP is not exempt from hydromodification requirements than the PDP must satisfy the requirements of the performance standards for hydrologic control BMPs and Sediment Supply BMPs. The PDP may choose to satisfy hydrologic control requirements using onsite or offsite BMPs (i.e. Alternative Compliance). Sediment supply requirements cannot be met via alternative compliance. If N/A is not selected above, select one of the two options below and complete the applicable sections.

☒ Project is Not Hydromodification Exempt and chooses to implement Hydrologic Control and Sediment Supply BMPs Onsite (complete Section E).

☐ Project is Not Hydromodification Exempt and chooses to implement Hydrologic Control Requirements using Alternative Compliance (complete Section F). Selection of this option must be approved by the Copermittee.

E.1 Hydrologic Control BMP Selection

Capture of the DCV and achievement of the Hydrologic Performance Standard may be met by combined and/or separate structural BMPs. The user should consider the full suite of Hydrologic Control BMPs to manage runoff from the post-development condition and meet the Hydrologic Performance Standard identified in this section.

For the Preliminary WQMP, in lieu of preparing detailed routing calculations, the basin size may be estimated as the difference in volume between the pre-development and post-development hydrograph for the 10-year 24-hour storm event plus the Vbmp. This does not relieve the engineer of the responsibility for meeting the full Hydrologic Control requirements during final design.

The Hydrologic Performance Standard consists of matching or reducing the flow duration curve of post-development conditions to that of pre-existing, naturally occurring conditions, for the range of geomorphically significant flows (the low flow threshold runoff event up to the 10-year runoff event). 10% of the 2-year runoff event can be used for the low flow threshold without any justification. Higher low flow thresholds can be used with site-specific analysis, see Section 2.6.2.b of the WQMP guidance document. Select each of the hydrologic control BMP types that are applied to meet the above performance standard on the site.

☒ LID principles as defined in Section 3.2 of the SMR WQMP, including Tree Wells.

☒ Structural LID BMPs that may be modified or enlarged, if necessary, beyond the DCV.

☐ Structural Hydrologic Control BMPs that are distinct from the LID BMPs above. The LID BMP Design Handbook provides information not only on Hydrologic Control BMP design, but also on BMP design to meet the combined LID requirement and Hydrologic Performance Standard. The Handbook specifies the type of BMPs that can be used to meet the Hydrologic Performance Standard.

E.2 Hydrologic Control BMP Sizing

Hydrologic Control BMPs must be designed to ensure that the flow duration curve of the post-development DMA will not exceed that of the pre-existing, naturally occurring, DMA for the range of geomorphically significant flows. Using SMRHM, (or another acceptable continuous simulation model if approved by the Copermittee) the applicant shall demonstrate that the performance of the Hydrologic Control BMPs complies with the Hydrologic Performance Standard. Complete Table E-1 below and identify, for each DMA, the type of Hydrologic Control BMP, if the SMRHM model confirmed the management (Identified as "passed" in SMRHM), the total volume capacity of the Hydrologic Control BMP, the Hydrologic Control BMP footprint at top floor elevation, and the drawdown time of the Hydrologic Control BMP. SMRHM summary reports should be documented in Appendix 7. Refer to the SMRHM Guidance Document for additional information on SMRHM. You can add rows to the table as needed.

Table E-1 Hydrologic Control BMP Sizing

BMP Name / ID	DMA No.	BMP Type / Description	SMRHM* Passed	BMP Volume (ac-ft)	BMP Footprint (ac)	Drawdown time (hr)
A	A	Biofiltration with Partial Infiltration	☒	0.1	0.1	10.3
B	B	Biofiltration with Partial Infiltration	☒	0.2	0.1	8.2
			☐			

**Or other continuous simulation model, compliant with the WQMP and Permit. If Tree Wells are proposed for some or all of the project, check the box for Tree Wells in Section E.1 and enter each Tree Well DMA in Table E-1 above for the BMP Name/ID, DMA No. and BMP Type/Description. For Tree Wells, leave SMRHM* Passed Column and the columns to the left blank.*

If a bioretention BMP with capped underdrain is used and hydromodification requirements apply, then sizing calculations must demonstrate that the BMP meets flow duration control criteria with the underdrain capped and uncapped. Both calculations must be included.

E.3 Implement Sediment Supply BMPs

The sediment supply performance standard applies to PDPs for which hydromodification applied that have the potential to impact Potential Critical Coarse Sediment Yield Areas. Refer to Exhibit G-1 of the WQMP Guidance Document to determine if there are onsite Potential Critical Coarse Sediment Yield Areas (based on on-going WMAA analysis) or Potential Sediment Source Areas (sites added through the Regional Board review process). Select one of the two options below and include the Potential Critical Coarse Sediment Yield Area Exhibit showing your project location in Appendix 7.

☒ There are no mapped Potential Critical Coarse Sediment Yield Areas or Potential Sediment Source Areas on the site. Include a copy of Exhibit G - CCSY & PSS Areas in Appendix 7, with the project location marked. If the project is outside of the "Potential Critical Coarse

Sediment Yield Areas and Potential Sediment Source Areas" then check this box. The Sediment Supply Performance Standard is met with no further action is needed.

☐ There are mapped Potential Critical Coarse Sediment Yield Areas or Potential Sediment Source Areas on the site, the Sediment Supply Performance Standard will be met through Option 1 (E.3.1) or Option 2 (E.3.2) below.

☐ **E.3.1 Option 1: Avoid Potential Critical Coarse Sediment Yield Areas and Potential Sediment Source Areas**

The simplest approach for complying with the Sediment Supply Performance Standard is to avoid impacts to areas identified as Potential Critical Coarse Sediment Yield Areas or Potential Sediment Supply Areas. If a portion of PDP is identified as a Potential Critical Coarse Sediment Yield Area or a Potential Sediment Source Area, that PDP may still achieve compliance with the Sediment Supply Performance Standards if Potential Critical Coarse Sediment Yield Areas and Potential Sediment Supply Areas are avoided, i.e. areas are not developed and thereby delivery of Critical Coarse Sediment to the receiving waters is not impeded by site developments.

Provide a narrative describing how the PDP has avoided impacts to Potential Critical Coarse Sediment Yield Areas and/or Potential Sediment Source Areas below.

Insert narrative description here

If it is not feasible to avoid these areas, proceed to Option 2 to complete a Site-Specific Critical Coarse Sediment Analysis.

☐ **E.3.2 Option 2: Site-Specific Critical Coarse Sediment Analysis**

Perform a stepwise assessment to ensure the pre-project source(s) of Critical Coarse Sediment (i.e., Bed Sediment Supply) is maintained:

Step 1: Identify if the site is an actual verified Critical Coarse Sediment Yield Area supplying Bed Sediment Supply to the receiving channel

☐ **Step 1.A** – Is the Bed Sediment of onsite streams similar to that of receiving streams?

Rate the similarity: ☐ High
☐ Medium
☐ Low

Results from the geotechnical and sieve analysis to be performed both onsite and in the receiving channel should be documented in Appendix 7. Of particular interest, the results of the sieve analysis, the soil erodibility factor, a description of the topographic relief of the project area, and the lithology of onsite soils should be reported in Appendix 7.

☐ **Step 1.B** – Are onsite streams capable of delivering Bed Sediment Supply from the site, if any, to the receiving channel?

Rate the potential: ☐ High
☐ Medium

☐ Low

Results from the analyses of the sediment delivery potential to the receiving channel should be documented in Appendix 7 and identify, at a minimum, the Sediment Source, the distance to the receiving channel, the onsite channel density, the project watershed area, the slope, length, land use, and rainfall intensity.

☐ **Step 1.C** – Will the receiving channel adversely respond to a change in Bed Sediment Load?

Rate the need for bed sediment supply:

☐ High

☐ Medium

☐ Low

Results from the in-stream analysis to be performed both onsite should be documented in Appendix 7. The analysis should, at a minimum, quantify the bank stability and the degree of incision, provide a gradation of the Bed Sediment within the receiving channel, and identify if the channel is sediment supply-limited.

☐ **Step 1.D** – Summary of Step 1

Summarize in Table E.3 the findings of Step 1 and associate a score (in parenthesis) to each step. The sum of the three individual scores determines if a stream is a significant contributor to the receiving stream.

- Sum is equal to or greater than eight - Site is a significant source of sediment bed material – all on-site streams must be preserved or by-passed within the site plan. The applicant shall proceed to Step 2 for all onsite streams.
- Sum is greater than five but lower than eight. Site is a source of sediment bed material – some of the on-site streams must be preserved (with identified streams noted). The applicant shall proceed to Step 2 for the identified streams only.
- Sum is equal to or lower than five. Site is not a significant source of sediment bed material. The applicant may advance to Section F.

Table E-2 Triad Assessment Summary

Step	Rating			Total Score
1.A	☐ High (3)	☐ Medium (2)	☐ Low (1)	
1.B	☐ High (3)	☐ Medium (2)	☐ Low (1)	
1.C	☐ High (3)	☐ Medium (2)	☐ Low (1)	
Significant Source Rating of Bed Sediment to the receiving channel(s)				

Step 2: Avoid Development of Critical Coarse Sediment Yield Areas, Potential Sediment Sources Areas, and Preserve Pathways for Transport of Bed Sediment Supply to Receiving Waters

Onsite streams identified as a actual verified Critical Coarse Sediment Yield Areas should be avoided in the site design and transport pathways for Critical Coarse Sediment should be preserved

Check those that apply:

☐ The site design does avoid all onsite channels identified as actual verified Critical Coarse Sediment Yield Areas ***AND***

☐ The drainage design bypasses flow and sediment from onsite upstream drainages identified as actual verified Critical Coarse Sediment Yield Areas to maintain Critical Coarse Sediment supply to receiving waters

(If both are yes, the applicant may disregard subsequent steps of Section E.3 and directly advance directly to Section G)

Or -

Provide in Appendix 7 a site map that identifies all onsite channels and highlights those onsite channels that were identified as a Significant Source of Bed Sediment. The site map shall demonstrate, if feasible, that the site design avoids those onsite channels identified as a Significant Source of Bed Sediment. In addition, the applicant shall describe the characteristics of each onsite channel identified as a Significant Source of Bed Sediment. If the design plan cannot avoid the onsite channels, please provide a rationale for each channel individually.

The site map shall demonstrate that the drainage design bypasses those onsite channels that supply Critical Coarse Sediment to the receiving channel(s). In addition, the applicant shall describe the characteristics of each onsite channel identified as an actual verified Critical Coarse Sediment Yield Area.

Identified Channel #1 - Insert narrative description here

Identified Channel #2 - Insert narrative description here

☐ The site design **does NOT avoid** all onsite channels identified as actual verified Critical Coarse Sediment Yield Areas

OR

☐ The project blocks the potential for Critical Coarse Sediment from migrating to receiving waters.

(If either of these are the case, the applicant shall continue completing this section).

E.3.3 Sediment Supply BMPs to Result in No Net Impact to Downstream Receiving Waters

If impacts to Critical Coarse Sediment Yield Areas cannot be avoided, sediment supply BMPs must be implemented such there is no net impact to receiving waters. Sediment supply BMPs may consist of approaches that permit flux of bed sediment supply from Critical Coarse Sediment Yield Areas within the project boundary. This approach is subject to acceptance by the County of Riverside. It may require extensive documentation and analysis by qualified professionals to support this demonstration.

Appendix H of the San Diego Model BMP Design Manual provides additional information on site-specific investigation of Critical Coarse Sediment Supply areas.

http://www.projectcleanwater.org/download/2018-model-bmp-design-manual/

If applicable, insert narrative description here

Documentation of sediment supply BMPs should be detailed in Appendix 7.

Section F: Alternative Compliance

PROJECT MEETS THE LID AND BMP STANDARDS AND DOES NOT REQUIRE ALTERNATIVE COMPLIANCE

Alternative Compliance may be used to achieve compliance with pollutant control and/or hydromodification requirements for a given PDP. Alternative Compliance may be used under two scenarios, check the applicable box if the PDP is proposing to use Alternative Compliance to satisfy all or a portion of the Pollutant Control and/or Hydrologic Control requirements (but not sediment supply requirements)

☐ If it is not feasible to fully implement Infiltration or Biofiltration BMPs at a PDP site, Flow-Through Treatment Control BMPs may be used to treat pollutants contained in the portion of DCV not reliably retained on site and Alternative Compliance measures must also be implemented to mitigate for those pollutants in the DCV that are not retained or removed on site prior to discharging to a receiving water.

☐ Alternative Compliance is selected to comply with either pollutant control or hydromodification flow control requirements even if complying with these requirements is potentially feasible on-site. If such voluntary Alternative Compliance is implemented, Flow-Through Treatment Control BMPs must still be used to treat those pollutants in the portion of the DCV not reliably retained on site prior to discharging to a receiving water.

Refer to Section 2.7 of the SMR WQMP and consult the Local Jurisdiction for currently available Alternative Compliance pathways. Coordinate with the Copermittee if electing to participate in Alternative Compliance and complete the sections below to document implementation of the Flow-Through BMP component of the program.

F.1 Identify Pollutants of Concern

The purpose of this section is to help you appropriately plan for mitigating your Pollutants of Concern in lieu of implementing LID BMPs and to document compliance and.

Utilize Table A-1 from Section A, which noted your project's Receiving Waters, to identify impairments for Receiving Waters (including downstream receiving waters) by completing Table F-1. Table F-1 includes the watersheds identified as impaired in the Approved 2010 303(d) list; check box corresponding with the PDP's receiving water. The most recent 303(d) lists are available from the State Water Resources Control Board website:
https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml).https://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml.

Table F-1 Summary of Approved 2010 303(d) listed waterbodies and associated pollutants of concern for the Riverside County SMR Region and downstream waterbodies.

Water Body		Nutrients[1]	Metals[2]	Toxicity	Bacteria and Pathogens	Pesticides and Herbicides	Sulfate	Total Dissolved Solids
☐	De Luz Creek	X	X				X	
☐	Long Canyon Creek		X		X	X		
☐	Murrieta Creek	X	X	X		X		
☐	Redhawk Channel	X	X		X	X		X
☐	Santa Gertudis Creek	X	X		X	X		
☐	Santa Margarita Estuary	X						
☐	Santa Margarita River (Lower)	X			X			
☐	Santa Margarita River (Upper)	X		X				
☐	Temecula Creek	X	X	X		X		X
☐	Warm Springs Creek	X	X		X	X		

[1] Nutrients include nitrogen, phosphorus and eutrophic conditions caused by excess nutrients.

[2] Metals includes copper, iron, and manganese.

Use Table F-2 to identify the pollutants identified with the project site. Indicate the applicable PDP Categories and/or Project Features by checking the boxes that apply. If the identified General Pollutant Categories are the same as those listed for your Receiving Waters, then these will be your Pollutants of Concern; check the appropriate box or boxes in the last row.

Table F-2 Potential Pollutants by Land Use Type

Priority Development Project Categories and/or Project Features (check those that apply)		General Pollutant Categories									
		Bacterial Indicators	Metals	Nutrients	Pesticides	Toxic Organic Compounds	Sediments	Trash & Debris	Oil & Grease	Total Dissolved Solids	Sulfate
☐	Detached Residential Development	P	N	P	P	N	P	P	P	N	N
☐	Attached Residential Development	P	N	P	P	N	P	P	P[2]	N	N
☐	Commercial/Industrial Development	P[3]	P[7]	P[1]	P[1]	P	P[1]	P	P	N	N
☐	Automotive Repair Shops	N	P	N	N	P[4, 5]	N	P	P	N	N
☐	Restaurants (>5,000 ft^2)	P	N	N	P[1]	N	N	P	P	N	N
☐	Hillside Development (>5,000 ft^2)	P	N	P	P	N	P	P	P	N	N
☐	Parking Lots (>5,000 ft^2)	P[6]	P[7]	P[1]	P[1]	P[4]	P	P	P	N	N
☐	Streets, Highways, and Freeways	P[6]	P[7]	P[1]	P[1]	P[4]	P	P	P	N	N
☐	Retail Gasoline Outlets	N	P[7]	N	N	P[4]	N	P	P	N	N
Project Priority Pollutant(s) of Concern		☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

P = Potential

N = Not Potential

[1] A potential Pollutant if non-native landscaping exists or is proposed onsite; otherwise not expected

[2] A potential Pollutant if the project includes uncovered parking areas; otherwise not expected

[3] A potential Pollutant is land use involving animal waste products; otherwise not expected

[4] Including petroleum hydrocarbons

[5] Including solvents

[6] Bacterial indicators are routinely detected in pavement runoff

[7] A potential source of metals, primarily copper and zinc. Iron, magnesium, and aluminum are commonly found in the environment and are commonly associated with soils, but are not primarily of anthropogenic stormwater origin in the municipal environment.

F.2 Treatment Control BMP Selection

Treatment Control BMPs typically provide proprietary treatment mechanisms to treat potential Pollutants in runoff, but do not sustain significant biological processes. Treatment Control BMPs must be selected to address the Project Priority Pollutants of Concern (identified above) and meet the acceptance criteria described in Section 2.3.7 of the SMR WQMP. Documentation of acceptance criteria must be included in Appendix 6. In addition, ensure that proposed Treatment Control BMPs are properly identified on the WQMP Site Plan in Appendix 1.

Table F-3 Treatment Control BMP Selection

Selected Treatment Control BMP Name or ID[1]	Priority Pollutant(s) of Concern to Mitigate[2]	Removal Efficiency Percentage[3]

[1] Treatment Control BMPs must not be constructed within Receiving Waters. In addition, a proposed Treatment Control BMP may be listed more than once if they possess more than one qualifying pollutant removal efficiency.
[2] Cross Reference Table E.1 above to populate this column.
[3] As documented in a Copermittee Approved Study and provided in Appendix 6.

F.3 Sizing Criteria

Utilize Table F-4 below to appropriately size flow-through BMPs to the DCV, or Design Flow Rate, as applicable. Please reference Chapter 3.5.1 of the SMR WQMP for further information.

Table F-4 Treatment Control BMP Sizing

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Enter BMP Name / Identifier Here*	
	[A]		[B]	[C]	[A] x [C]		
						Design Storm (in)	*Design Flow Rate (cfs)*
	$A_T = \Sigma[A]$				$\Sigma = [D]$	[E]	$[F] = \frac{[D]x[E]}{[G]}$

[B], [C] is obtained as described in Section 2.6.1.b from the SMR WQMP
[E] either 0.2 inches or 2 times the 85th percentile hourly rainfall intensity
[G] = 43,560,.

F.4 Hydrologic Performance Standard – Alternative Compliance Approach

Alternative compliance options are only available if the governing Copermittee has acknowledged the infeasibility of onsite Hydrologic Control BMPs and approved an alternative compliance approach. See Section 3.5 and 3.6 of the SMR WQMP.

Select the pursued alternative and describe the specifics of the alternative:

☐ Offsite Hydrologic Control Management within the same channel system

Insert narrative description here

☐ In-Stream Restoration Project

Insert narrative description here

For Offsite Hydrologic Control BMP Option

Each Hydrologic Control BMP must be designed to ensure that the flow duration curve of the post-development DMA will not exceed that of the pre-existing, naturally occurring, DMA by more than ten percent over a one-year period. Using SMRHM, the applicant shall demonstrate that the performance of each designed Hydrologic Control BMP is equivalent with the Hydrologic Performance Standard for onsite conditions. Complete Table F-5 below and identify, for each Hydrologic Control BMP, the equivalent DMA the Hydrologic Control BMP mitigates, that the SMRHM model passed, the total volume capacity of the BMP, the BMP footprint at top floor elevation, and the drawdown time of the BMP. SMRHM summary reports for the alternative approach should be documented in Appendix 7. Refer to the SMRHM Guidance Document for additional information on SMRHM. You can add rows to the table as needed.

Table F-5 Offsite Hydrologic Control BMP Sizing

BMP Name / Type	Equivalent DMA (ac)	SMRHM Passed	BMP Volume (ac-ft)	BMP Footprint (ac)	Drawdown time (hr)
		☐			
		☐			
		☐			
		☐			

For Instream Restoration Option

Attach to Appendix 7 the technical report detailing the condition of the receiving channel subject to the proposed hydrologic and sediment regimes. Provide the full design plans for the in-stream restoration project that have been approved by the Copermittee. Utilize the San Diego Regional Water Quality Equivalency Guidance Document.

Section G: Implement Trash Capture BMPs

The Santa Margarita Regional Board has required Full Trash Capture compliance thru Order No. R9-2017-007. For the Santa Margarita Watershed, the County is requiring Track 1 full trash capture compliance for projects proposing the following uses as part of their development after **December 3, 2018**.

- High-density residential: all land uses with at least ten (10) developed dwelling units/acre.
- Industrial: land uses where the primary activities on the developed parcels involve product manufacture, storage, or distribution (e.g., manufacturing businesses, warehouses, equipment storage lots, junkyards, wholesale businesses, distribution centers, or building material sales yards).
- Commercial: land uses where the primary activities on the developed parcels involve the sale or transfer of goods or services to consumers (e.g., business or professional buildings, shops, restaurants, theaters, vehicle repair shops, etc.).
- Mixed urban: land uses where high-density residential, industrial, and/or commercial land uses predominate collectively (i.e., are intermixed).
- Public transportation stations: facilities or sites where public transit agencies' vehicles load or unload passengers or goods (e.g., bus stations and stops).

Riverside County Maintenance is generally supportive of United Storm Water – Connector Pipe Screens or equivalent. Equivalent systems or alternative designs shall be on the State of California Approved Trash Capture Device List and requires approval by the Transportation Department for maintenance. Riverside County is developing Trash Capture Device Standards, which are expected to be added to the Transportation Plan Check Policies and Guidelines when available. Design calculations are not expected to be required if the project uses standard sizes per the County's Trash Capture Device Standards. Until the Trash Capture Device Standards are available and the project uses standard sizes, the project shall complete the following tables and furnish hydraulic analysis calculating the flowrate in the catch basin does not exceed the flowrate capacity of the trash capture device in a fully clogged condition.

Trash Capture BMPs may be applicable to Type 'D' DMAs, as defined in Section 2.3.4 of the SMR WQMP. Trash Capture BMPs are designed to treat Q_{TRASH}, the runoff flow rate generated during the 1-year 1-hour precipitation depth. Utilize Table G-1 to size Trash Capture BMP. Refer to Table G-3 to determine the Trash Capture Design Storm Intensity (E).

Table G-1a Sizing Trash Capture BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	*Enter BMP Name / Identifier Here*	
	[A]		[B]	[C]	[A] x [C]		
A	*113031*	*Mixed*	*0.34*	*0.25*	*28258*		
	$A_T = \Sigma[A]$ =113031				Σ= [D] 28258	[E] =0.5	$[F] = \frac{[D]x[E]}{[G]}$ ***=0.3***

[B], [C] is obtained as described in Section 2.6.1.b from the SMR WQMP
[G] = 43,560

Table G-2b Sizing Trash Capture BMPs

DMA Type/ID	DMA Area (square feet)	Post-Project Surface Type	Effective Impervious Fraction, I_f	DMA Runoff Factor	DMA Areas x Runoff Factor	***Catch Basin Filter Insert***	
	[A]		[B]	[C]	[A] x [C]		
A	*94244*	*Mixed*	*0.51*	*0.35*	*32985*		
	$A_T = \Sigma[A]$ =94244				Σ= [D] 32985	*Trash Capture Design Storm Intensity (in)*	*Trash Capture Design Flow Rate (cubic feet or cfs)*
						[E] =0.5	$[F] = \frac{[D]x[E]}{[G]}$ ***=0.4***

Table G-3 Approximate precipitation depth/intensity values for calculation of the Trash Capture Design Storm

City	1-year 1-hour Precipitation Depth/Intensity (inches/hr)
Murrieta	0.47
Temecula	0.50
Wildomar	0.37

Use Table G-4 to summarize and document the selection and sizing of Trash Capture BMPs.

Table G-4 Trash Capture BMPs

BMP Name / ID	DMA No(s)	BMP Type / Description	Required Trash Capture Flowrate (cfs)	Provided Trash Capture Flowrate (cfs)[1]
A	A	Bioretention Basin with Partial Infiltration	0.3	TBD
B	B	Bioretention Basin with Partial Infiltration	0.4	TBD

[1] For connector pipe screens, the Trash Capture Flowrate shall be based on a fully clogged condition for the screen, where the water level is at the top of the screen. Then determined the Flowrate based on weir equation (Qweir = C x L x H^(2/3), where C = 3.4). The height used to calculate the weir flow rate shall maintain a 6" freeboard to the invert of the catch basin opening at the road. This analysis is meant to replicate the hydraulic analysis used in the County's Full Trash Capture Device Standards.

Section H: Source Control BMPs

Section H need only be completed at the Preliminary WQMP phase if source control is critical to the project successfully handling the anticipated pollutants.

Source Control BMPs include permanent, structural features that may be required in your Project plans, such as roofs over and berms around trash and recycling areas, and Operational BMPs, such as regular sweeping and "housekeeping," that must be implemented by the site's occupant or user. The Maximum Extent Practicable (MEP) standard typically requires both types of BMPs. In general, Operational Source Control BMPs cannot be substituted for a feasible and effective Structural Source Control BMP. Complete checklist below to determine applicable Source Control BMPs for your site.

Project-Specific WQMP Source Control BMP Checklist

All development projects must implement Source Control BMPs. Source Control BMPs are used to minimize pollutants that may discharge to the MS4. Refer to Chapter 3 (Section 3.8) of the SMR WQMP for additional information. Complete Steps 1 and 2 below to identify Source Control BMPs for the project site.

STEP 1: IDENTIFY POLLUTANT SOURCES

Review project site plans and identify the applicable pollutant sources. "Yes" indicates that the pollutant source is applicable to project site. "No" indicates that the pollutant source is not applicable to project site.

☒ Yes ☐ No	Storm Drain Inlets		☐ Yes ☒ No	Outdoor storage areas	
☐ Yes ☒ No	Floor Drains		☐ Yes ☒ No	Material storage areas	
☐ Yes ☒ No	Sump Pumps		☐ Yes ☒ No	Fueling areas	
☒ Yes ☐ No	Pest Control/Herbicide Application		☐ Yes ☒ No	Loading Docks	
☐ Yes ☒ No	Food Service Areas		☒ Yes ☐ No	Fire Sprinkler Test/Maintenance water	
☒ Yes ☐ No	Trash Storage Areas		☒ Yes ☐ No	Plazas, Sidewalks and Parking Lots	
☐ Yes ☒ No	Industrial Processes		☐ Yes ☒ No	Pools, Spas, Fountains and other water features	
☐ Yes ☒ No	Vehicle and Equipment Cleaning and Maintenance/Repair Areas				

STEP 2: REQUIRED SOURCE CONTROL BMPS

List each Pollutant source identified above in column 1 and fill in the corresponding Structural Source Control BMPs and Operational Control BMPs by referring to the Stormwater Pollutant Sources/Source Control Checklist included in Appendix 8. The resulting list of structural and operational source control BMPs must be implemented as long as the associated sources are present on the project site. Add additional rows as needed.

Pollutant Source	Structural Source Control BMP	Operational Source Control BMP
Storm Drain Inlets	Catch basin markers shall be placed at all inlets with the words "Only Rain Down the Storm Drain" or similar.	Maintain and periodically repaint or replace inlet markings. Provide stormwater pollutant prevention information.
Pest Control/Herbicide Application	Note building design features that discourage entry of pests. Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use	Maintain landscaping using minimum or no pesticides. See applicable operational BMPs in "What you should know for…..Landscape and Gardening at http://rcflood.org/stormwater

	of fertilizers and pesticides that can contribute to stormwater pollution. Consider using pest-resistant plants, especially adjacent to hardscape. To insure successful establishment, select plant appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	Provide IPM information to new owners, lessees and operators.
Trash Storage Areas	Trash Storage areas shall be enclosed to prevent runoff contamination. Signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leacky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
Fire Sprinkler Test Water	Provide a means to drain fire sprinkler test water to the sanitary sewer.	See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
Roofing, gutters, and trim		Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff.
Parking Lots		Sweep sidewalks and parking lots regularly to prevent accumulation of litter and debris.

Section I: Coordinate Submittal with Other Site Plans

For Final WQMPs, populate Table I-1 below to assist the plan checker in an expeditious review of your project. During construction and at completion, County of Riverside inspectors will verify the installation of BMPs against the approved plans. The first two columns will contain information that was prepared in previous steps, while the last column will be populated with the corresponding plan sheets. This table is to be completed with the submittal of your final Project-Specific WQMP.

Table I-1 Construction Plan Cross-reference

BMP No. or ID	BMP Identifier and Description	Corresponding Plan Sheet(s)

Insert text here	Insert text here	Insert text here
Insert text here	Insert text here	Insert text here
Insert text here	Insert text here	Insert text here
Insert text here	Insert text here	Insert text here
Insert text here	Insert text here	Insert text here

Note that the updated table — or Construction Plan WQMP Checklist — is **only a reference tool** to facilitate an easy comparison of the construction plans to your Project-Specific WQMP. The Copermittee with jurisdiction over the Project site can advise you regarding the process required to propose changes to the approved Project-Specific WQMP.

Use Table I-2 to identify other applicable permits that may impact design of the site. If yes is answered to any of the items below, the Copermittee may require proof of approval/coverage from those agencies as applicable including documentation of any associated requirements that may affect this Project-Specific WQMP.

Table I-2 Other Applicable Permits

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	☐ Y	☒ N
State Water Resources Control Board, Clean Water Act Section 401 Water Quality Certification	☐ Y	☒ N
US Army Corps of Engineers, Clean Water Act Section 404 Permit	☐ Y	☒ N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	☐ Y	☒ N
Statewide Construction General Permit Coverage	☒ Y	☐ N
Statewide Industrial General Permit Coverage	☐ Y	☒ N
Western Riverside MSHCP Consistency Approval (e.g., JPR, DBESP)	☐ Y	☒ N
Other *(please list in the space below as required)* Grading Permit and Encroachment Permit	☒ Y	☐ N

Section J: Operation, Maintenance and Funding

Applicant is required to state the intended responsible party for BMP Operation, Maintenance and Funding at the Preliminary WQMP phase. The remaining requirements as outlined above are required for Final WQMP only.

The Copermittee with jurisdiction over the Project site will periodically verify that BMPs on your Project are maintained and continue to operate as designed. To make this possible, the Copermittee will require that you include in Appendix 9 of this Project-Specific WQMP:

1. A means to finance and implement maintenance of BMPs in perpetuity, including replacement cost.
2. Acceptance of responsibility for maintenance from the time the BMPs are constructed until responsibility for operation and maintenance is legally transferred. A warranty covering a period following construction may also be required.
3. An outline of general maintenance requirements for the Stormwater BMPs you have selected.
4. Figures delineating and designating pervious and impervious areas, location, and type of Stormwater BMP, and tables of pervious and impervious areas served by each facility. Geo-locating the BMPs using a coordinate system of latitude and longitude is recommended to help facilitate a future statewide database system.
5. A separate list and location of self-retaining areas or areas addressed by LID Principles that do not require specialized Operations and Maintenance or inspections but will require typical landscape maintenance as noted in Chapter 5, in the SMR WQMP. Include a brief description of typical landscape maintenance for these areas.

The Copermittee with jurisdiction over the Project site will also require that you prepare and submit a detailed BMP Operation and Maintenance Plan that sets forth a maintenance schedule for each of the BMPs built on your site. An agreement assigning responsibility for maintenance and providing for inspections and certification may also be required.

Details of these requirements and instructions for preparing a BMP Operation and Maintenance Plan are in Chapter 5 of the SMR WQMP.

Maintenance Mechanism: Insert text here.

Will the proposed BMPs be maintained by a Homeowners' Association (HOA) or Property Owners Association (POA)?

☐ Y ☐ N

Include your Operation and Maintenance Plan and Maintenance Mechanism in Appendix 9, **see Appendix 9 for additional instructions.** Additionally, include all pertinent forms of educational materials for those personnel that will be maintaining the proposed BMPs within this Project-Specific WQMP in Appendix 10.

Section K: Acronyms, Abbreviations and Definitions

Regional MS4 Permit	Order No. R9-2013-0001 as amended by Order No. R9-2015-0001 and Order No. R9-2015-0100 an NPDES Permit issued by the San Diego Regional Water Quality Control Board.
Applicant	Public or private entity seeking the discretionary approval of new or replaced improvements from the Copermittee with jurisdiction over the project site. The Applicant has overall responsibility for the implementation and the approval of a Priority Development Project. The WQMP uses consistently the term "user" to refer to the applicant such as developer or project proponent. The WQMP employs also the designation "user" to identify the Registered Professional Civil Engineer responsible for submitting the Project-Specific WQMP, and designing the required BMPs.
Best Management Practice (BMP)	Defined in 40 CFR 122.2 as schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. In the case of municipal storm water permits, BMPs are typically used in place of numeric effluent limits.
BMP Fact Sheets	BMP Fact Sheets are available in the LID BMP Design Handbook. Individual BMP Fact Sheets include sitting considerations, and design and sizing guidelines for seven types of structural BMPs (infiltration basin, infiltration trench, permeable pavement, harvest-and-use, bioretention, extended detention basin, and sand filter).
California Stormwater Quality Association (CASQA)	Publisher of the California Stormwater Best Management Practices Handbooks, available at www.cabmphandbooks.com.
Conventional Treatment Control BMP	A type of BMP that provides treatment of stormwater runoff. Conventional treatment control BMPs, while designed to treat particular Pollutants, typically do not provide the same level of volume reduction as LID BMPs, and commonly require more specialized maintenance than LID BMPs. As such, the Regional MS4 Permit and this WQMP require the use of LID BMPs wherever feasible, before Conventional Treatment BMPs can be considered or implemented.
Copermittees	The Regional MS4 Permit identifies the Cities of Murrieta, Temecula, and Wildomar, the County, and the District, as Copermittees for the SMR.
County	The abbreviation refers to the County of Riverside in this document.

CEQA	California Environmental Quality Act - a statute that requires state and local agencies to identify the significant environmental impacts of their actions and to avoid or mitigate those impacts, if feasible.
CIMIS	California Irrigation Management Information System - an integrated network of 118 automated active weather stations all over California managed by the California Department of Water Resources.
CWA	Clean Water Act - is the primary federal law governing water pollution. Passed in 1972, the CWA established the goals of eliminating releases of high amounts of toxic substances into water, eliminating additional water pollution by 1985, and ensuring that surface waters would meet standards necessary for human sports and recreation by 1983. CWA Section 402(p) is the federal statute requiring NPDES permits for discharges from MS4s.
CWA Section 303(d) Waterbody	Impaired water in which water quality does not meet applicable water quality standards and/or is not expected to meet water quality standards, even after the application of technology based pollution controls required by the CWA. The discharge of urban runoff to these water bodies by the Copermittees is significant because these discharges can cause or contribute to violations of applicable water quality standards.
Design Storm	The Regional MS4 Permit has established the 85th percentile, 24-hour storm event as the "Design Storm". The applicant may refer to Exhibit A to identify the applicable Design Storm Depth (D85) to the project.
DCV	Design Capture Volume (DCV) is the volume of runoff produced from the Design Storm to be mitigated through LID Retention BMPs, Other LID BMPs and Volume Based Conventional Treatment BMPs, as appropriate.
Design Flow Rate	The design flow rate represents the minimum flow rate capacity that flow-based conventional treatment control BMPs should treat to the MEP, when considered.
DCIA	Directly Connected Impervious Areas - those impervious areas that are hydraulically connected to the MS4 (i.e. street curbs, catch basins, storm drains, etc.) and thence to the structural BMP without flowing over pervious areas.
Discretionary Approval	A decision in which a Copermittee uses its judgment in deciding whether and how to carry out or approve a project.
District	Riverside County Flood Control and Water Conservation District.
DMA	A Drainage Management Area - a delineated portion of a project site that is hydraulically connected to a common structural BMP or conveyance point. The Applicant may refer to Section 3.3 for further guidelines on how to delineate DMAs.

Drawdown Time	Refers to the amount of time the design volume takes to pass through the BMP. The specified or incorporated drawdown times are to ensure that adequate contact or detention time has occurred for treatment, while not creating vector or other nuisance issues. It is important to abide by the drawdown time requirements stated in the fact sheet for each specific BMP.
Effective Area	Area which 1) is suitable for a BMP (for example, if infiltration is potentially feasible for the site based on infeasibility criteria, infiltration must be allowed over this area) and 2) receives runoff from impervious areas.
ESA	An Environmental Sensitive Area (ESA) designates an area "in which plants or animals life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which would be easily disturbed or degraded by human activities and developments". (Reference: California Public Resources Code § 30107.5).
ET	Evapotranspiration (ET) is the loss of water to the atmosphere by the combined processes of evaporation (from soil and plant surfaces) and transpiration (from plant tissues). It is also an indicator of how much water crops, lawn, garden, and trees need for healthy growth and productivity
FAR	The Floor Area Ratio (FAR) is the total square feet of a building divided by the total square feet of the lot the building is located on.
Flow-Based BMP	Flow-based BMPs are conventional treatment control BMPs that are sized to treat the design flow rate.
FPPP	Facility Pollution Prevention Plan
HCOC	Hydrologic Condition of Concern - Exists when the alteration of a site's hydrologic regime caused by development would cause significant impacts on downstream channels and aquatic habitats, alone or in conjunction with impacts of other projects.
HMP	Hydromodification Management Plan – Plan defining Performance Standards for PDPs to manage increases in runoff discharge rates and durations.
Hydrologic Control BMP	BMP to mitigate the increases in runoff discharge rates and durations and meet the Performance Standards set forth in the HMP.
HSG	Hydrologic Soil Groups – soil classification to indicate the minimum rate of infiltration obtained for bare soil after prolonged wetting. The HSGs are A (very low runoff potential/high infiltration rate), B, C, and D (high runoff potential/very low infiltration rate)
Hydromodification	The Regional MS4 Permit identifies that increased volume, velocity, frequency and discharge duration of storm water runoff from developed areas has the potential to greatly accelerate downstream erosion, impair stream habitat in natural drainages, and negatively impact beneficial uses.

JRMP	A separate Jurisdictional Runoff Management Plan (JRMP) has been developed by each Copermittee and identifies the local programs and activities that the Copermittee is implementing to meet the Regional MS4 Permit requirements.
LID	Low Impact Development (LID) is a site design strategy with a goal of maintaining or replicating the pre-development hydrologic regime through the use of design techniques. LID site design BMPs help preserve and restore the natural hydrologic cycle of the site, allowing for filtration and infiltration which can greatly reduce the volume, peak flow rate, velocity, and pollutant loads of storm water runoff.
LID BMP	A type of stormwater BMP that is based upon Low Impact Development concepts. LID BMPs not only provide highly effective treatment of stormwater runoff, but also yield potentially significant reductions in runoff volume – helping to mimic the pre-project hydrologic regime, and also require less ongoing maintenance than Treatment Control BMPs. The applicant may refer to Chapter 2.
LID BMP Design Handbook	The LID BMP Design Handbook was developed by the Copermittees to provide guidance for the planning, design and maintenance of LID BMPs which may be used to mitigate the water quality impacts of PDPs within the County.
LID Bioretention BMP	LID Bioretention BMPs are bioretention areas are vegetated (i.e., landscaped) shallow depressions that provide storage, infiltration, and evapotranspiration, and provide for pollutant removal (e.g., filtration, adsorption, nutrient uptake) by filtering stormwater through the vegetation and soils. In bioretention areas, pore spaces and organic material in the soils help to retain water in the form of soil moisture and to promote the adsorption of pollutants (e.g., dissolved metals and petroleum hydrocarbons) into the soil matrix. Plants use soil moisture and promote the drying of the soil through transpiration. The Regional MS4 Permit defines "retain" as to keep or hold in a particular place, condition, or position without discharge to surface waters.
LID Biofiltration BMP	BMPs that reduce stormwater pollutant discharges by intercepting rainfall on vegetative canopy, and through incidental infiltration and/or evapotranspiration, and filtration, and other biological and chemical processes. As stormwater passes down through the planting soil, pollutants are filtered, adsorbed, biodegraded, and sequestered by the soil and plants, and collected through an underdrain.
LID Harvest and Reuse BMP	BMPs used to facilitate capturing Stormwater Runoff for later use without negatively impacting downstream water rights or other Beneficial Uses.

LID Infiltration BMP	BMPs to reduce stormwater runoff by capturing and infiltrating the runoff into in-situ soils or amended onsite soils. Typical LID Infiltration BMPs include infiltration basins, infiltration trenches and pervious pavements.
LID Retention BMP	BMPs to ensure full onsite retention without runoff of the DCV such as infiltration basins, bioretention, chambers, trenches, permeable pavement and pavers, harvest and reuse.
LID Principles	Site design concepts that prevent or minimize the causes (or drivers) of post-construction impacts, and help mimic the pre-development hydrologic regime.
MEP	Maximum Extent Practicable - standard established by the 1987 amendments to the CWA for the reduction of Pollutant discharges from MS4s. Refer to Attachment C of the Regional MS4 Permit for a complete definition of MEP.
MF	Multi-family – zoning classification for parcels having 2 or more living residential units.
MS4	Municipal Separate Storm Sewer System (MS4) is a conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, man-made channels, or storm drains): (i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) Designated or used for collecting or conveying storm water; (iii) Which is not a combined sewer; (iv) Which is not part of the Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.26.
New Development Project	Defined by the Regional MS4 Permit as 'Priority Development Projects' if the project, or a component of the project meets the categories and thresholds described in Section 1.1.1.
NPDES	National Pollution Discharge Elimination System - Federal program for issuing, modifying, revoking and reissuing, terminating, monitoring and enforcing permits, and imposing and enforcing pretreatment requirements, under Sections 307, 318, 402, and 405 of the CWA.
NRCS	Natural Resources Conservation Service
PDP	Priority Development Project - Includes New Development and Redevelopment project categories listed in Provision E.3.b of the Regional MS4 Permit.
Priority Pollutants of Concern	Pollutants expected to be present on the project site and for which a downstream water body is also listed as Impaired under the CWA Section 303(d) list or by a TMDL.

Project-Specific WQMP	A plan specifying and documenting permanent LID Principles and Stormwater BMPs to control post-construction Pollutants and stormwater runoff for the life of the PDP, and the plans for operation and maintenance of those BMPs for the life of the project.
Receiving Waters	Waters of the United States.
Redevelopment Project	The creation, addition, and or replacement of impervious surface on an already developed site. Examples include the expansion of a building footprint, road widening, the addition to or replacement of a structure, and creation or addition of impervious surfaces. Replacement of impervious surfaces includes any activity that is not part of a routine maintenance activity where impervious material(s) are removed, exposing underlying soil during construction. Redevelopment does not include trenching and resurfacing associated with utility work; resurfacing existing roadways; new sidewalk construction, pedestrian ramps, or bike lane on existing roads; and routine replacement of damaged pavement, such as pothole repair. Project that meets the criteria described in Section 1.
Runoff Fund	Runoff Funds have not been established by the Copermittees and are not available to the Applicant. If established, a Runoff Fund will develop regional mitigation projects where PDPs will be able to buy mitigation credits if it is determined that implementing onsite controls is infeasible.
San Diego Regional Board	San Diego Regional Water Quality Control Board - The term "Regional Board", as defined in Water Code section 13050(b), is intended to refer to the California Regional Water Quality Control Board for the San Diego Region as specified in Water Code Section 13200. State agency responsible for managing and regulating water quality in the SMR.
SCCWRP	Southern California Coastal Water Research Project
Site Design BMP	Site design BMPs prevent or minimize the causes (or drivers) of post-construction impacts, and help mimic the pre-development hydrologic regime.
SF	Parcels with a zoning classification for a single residential unit.
SMC	Southern California Stormwater Monitoring Coalition
SMR	The Santa Margarita Region (SMR) represents the portion of the Santa Margarita Watershed that is included within the County of Riverside.
Source Control BMP	Source Control BMPs land use or site planning practices, or structural or nonstructural measures that aim to prevent runoff pollution by reducing the potential for contamination at the source of pollution. Source control BMPs minimize the contact between Pollutants and runoff.
Structural BMP	Structures designed to remove pollutants from stormwater runoff and mitigate hydromodification impacts.
SWPPP	Storm Water Pollution Prevention Plan

Tentative Tract Map	Tentative Tract Maps are required for all subdivision creating five (5) or more parcels, five (5) or more condominiums as defined in Section 783 of the California Civil Code, a community apartment project containing five (5) or more parcels, or for the conversion of a dwelling to a stock cooperative containing five (5) or more dwelling units.
TMDL	Total Maximum Daily Load - the maximum amount of a Pollutant that can be discharged into a waterbody from all sources (point and non-point) and still maintain Water Quality Standards. Under CWA Section 303(d), TMDLs must be developed for all waterbodies that do not meet Water Quality Standards after application of technology-based controls.
USEPA	United States Environmental Protection Agency
Volume-Based BMP	Volume-Based BMPs applies to BMPs where the primary mode of pollutant removal depends upon the volumetric capacity such as detention, retention, and infiltration systems.
WQMP	Water Quality Management Plan
Wet Season	The Regional MS4 Permit defines the wet season from October 1 through April 30.

Appendix 1: Maps and Site Plans

Location Map, WQMP Site Plan and Receiving Waters Map

Complete the checklist below to verify all exhibits and components are included in the Project-Specific WQMP. Refer Section 4 of the SMR WQMP and Section D of this Template.

Map and Site Plan Checklist

Indicate all Maps and Site Plans are included in your Project-Specific WQMP by checking the boxes below.

- ☐ Vicinity and Location Map
- ☐ Existing Site Map (unless exiting conditions are included in WQMP Site Plan)
- ☐ WQMP Site Plan
  - ☐ Parcel Boundary and Project Footprint
  - ☐ Existing and Proposed Topography & Drainage Management Areas (DMAs)
  - ☐ Proposed Structural Best Management Practices (BMPs), with cross sections
  - ☐ Drainage Paths
  - ☐ Drainage infrastructure, inlets, overflows
  - ☐ Source Control & Site Design BMPs (notes can be used for BMPs that can't be depicted)
  - ☐ Buildings, Roof Lines, Downspouts
  - ☐ Impervious Surfaces
  - ☐ Pervious Surfaces (i.e. Landscaping)
  - ☐ Standardized Labeling
  - ☐ Use Riverside County Flood Control CB-110 for outlet structure with block outs for a trash screen out the outside, and an orifice/weir plate(s) on the inside of the structure or other design that is as easy to maintain. The screen should be as large as possible to minimize clogging.
  - ☐ If BMPs are in the road R/W (only with CFD/CSA maintenance or LID Principals) add "BMP" paddle markers at the start and end of each BMPs and LID principals
  - ☐ When underdrain are proposed, gravel shall be clean washed gravel, AASHTO #57 stone preferred. Underdrains shall be Schedule 40 PVC, with a minimum slope of 0.005, with cleanouts equal in diameter of the subdrain that extends 6 inches above the media with a lockable screw cap, spaced every 50 feet, at the collector drain line connection, and at any bends.
  - ☐ When BSM is proposed, BSM shall consist of 60-80% clean sand, up to 20% clean topsoil, and 20% of a nutrient-stabilized organic amendment. BSM shall be placed on top of 3-inches of Choker Sand placed on top of 3-inches of ASTM No. 8 stone (1/4 to 1/2-inch pea gravel), and placed on top of 12 to 24-inches of a clean, open-graded drain rock layer.
  - ☐ For Tracts, the Regional Board requires fully functioning WQMP BMPs for opening model home complexes, sales offices, or use of roads (i.e. prior to occupancy or intended use of any portion of the project). The County encourages phasing post-construction BMPs, small structural BMPs (e.g. specifically for sales offices), or self-retaining areas. This phasing can be shown on the WQMP site map and sequencing shall be included on the Grading plans, so that a fully functioning WQMP BMP is addressing any portion of the project that has been granted occupancy or granted the intended use.

Figure 1 – Vicinity Map

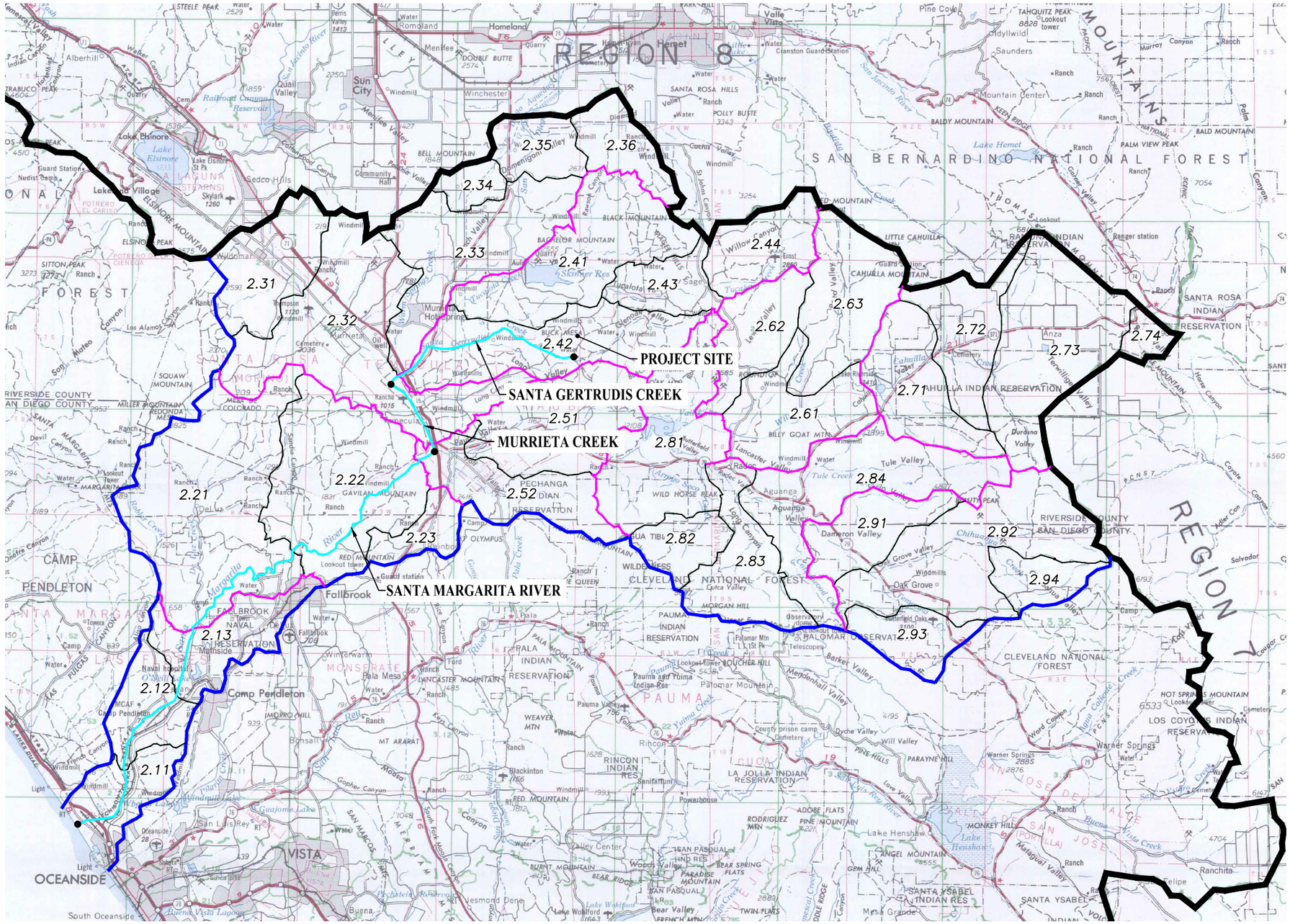
35620 GLEN OAKS ROAD, TEMECULA, CA 92591

N

JLC Engineering & Consulting, Inc.
41660 IVY STREET, SUITE A
MURRIETA, CA 92562
PH. 951.304.9552 FAX 951.304.3568

FIGURE 1

Figure 2 – Receiving Waters Map



LEGEND

- Regional Boundary
- Hydrologic Unit Boundary (HU)
- Hydrologic Area Boundary (HA)
- Hydrologic Subarea Boundary (SA)
- FLOW PATH

902.00	SANTA MARGARITA HYDROLOGIC UNIT
902.10	Ysidora HA
2.11	Lower Ysidora HSA
2.12	Chappo HSA
2.13	Upper Ysidora HSA
902.20	DeLuz HA
2.21	DeLuz Creek HSA
2.22	Gavilan HSA
2.23	Vallecitos HSA
902.30	Murrieta HA
2.31	Wildomar HSA
2.32	Murrieta HSA
2.33	French HSA
2.34	Lower Domenigoni HSA
2.35	Domenigoni HSA
2.36	Diamond HSA
902.40	Auld HA
2.41	Bachelor Mountain HSA
2.42	Gertrudis HSA
2.43	Lower Tucalota HSA
2.44	Tucalota HSA
902.50	Pechanga HA
2.51	Pauba HSA
2.52	Wolf HSA
902.60	Wilson HA
2.61	Lancaster Valley HSA
2.62	Lewis HSA
2.63	Reed Valley HSA
902.70	Cave Rocks HA
2.71	Lower Coahuila HSA
2.72	Upper Coahuila HSA
2.73	Anza HSA
2.74	Burnt HSA
902.80	Aguanga HA
2.81	Vail HSA
2.82	Devils Hole HSA
2.83	Redec HSA
2.84	Tule Creek HSA
902.90	Oakgrove HA
2.91	Lower Culp HSA
2.92	Previtt Canyon HSA
2.93	Dodge HSA
2.94	Chihuahua HSA

RECEIVING WATERS MAP

JLC Engineering & Consulting, Inc.
36263 CALLE DE LOBO
MURRIETA, CA 92562
PH. 951.304.9552 FAX 951.304.3568

FIGURE 2

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Figure 3 – WQMP Site Plan

PLOT PLAN MAP 210132

COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

WQMP SITE PLAN

SOURCE CONTROL BMPS:

1. SD-10 LANDSCAPE/OUTDOOR PESTICIDE USE
2. SD-20 STORM DRAIN SYSTEM SIGNS
3. SD-32 TRASH ENCLOSURES
4. SD-40 BUILDING AND GROUNDS MAINTENANCE

SOURCE CONTROL BMPS

1. PEST CONTROL/HERBICIDE APPLICATION
   LANDSCAPING SHALL BE DESIGNED TO MINIMIZE IRRIGATION AND RUNOFF TO PROMOTE SURFACE INFILTRATION WHERE APPROPRIATE, AND TO MINIMIZE THE USE OF FERTILIZERS AND PESTICIDES THAT CAN CONTRIBUTE TO STORMWATER POLLUTION. LANDSCAPED AREAS THAT ARE DESIGNED TO RETAIN OR DETAIN STORMWATER SHALL INCLUDE SPECIFIC PLANTS THAT ARE TOLERANT OF SATURATED SOIL CONDITIONS. PLANTS SHALL BE PEST RESISTANT.
2. TRASH STORAGE AREAS
   RECEPTACLES SHALL BE CLOSED OR COVERED AT ALL TIMES. SIGNS SHALL BE POSTED ON TRASH RECEPTACLES STATING "DO NOT DUMP HAZARDOUS MATERIAL" OR SIMILAR.
3. POOLS, SPAS, FOUNTAINS AND OTHER WATER FEATURES
   CONNECTIONS FOR POOLS SHALL BE PER THE CO-PERMITTEE REQUIREMENTS.

TREATED PROPOSED PAVEMENT (9,314.4 SF)

TREATED EXISTING PAVEMENT (5,631.9 SF)

UNTREATED PROPOSED PAVEMENT (4,644.6 SF)

LEGEND:

XXX / X.X DMA ACRES

SURFACE FLOW PATH

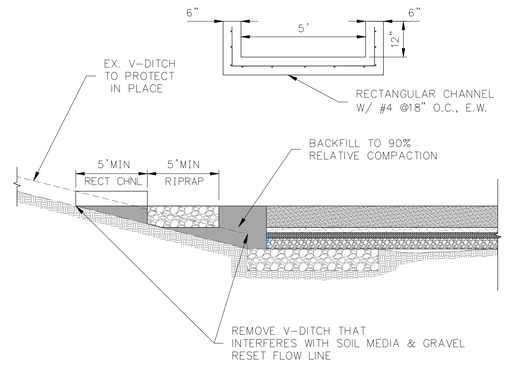
STORM DRAIN FLOW

DMA BOUNDARY

TRACT BOUNDARIES

V-DITCH MODIFICATION DESIGN NOTES:
1. CONTRACTOR SHALL REMOVE INTERFERING PORTION OF V-DITCH BELOW SOIL MEDIA.
2. CONSTRUCT 5 FT MINIMUM RECTANGULAR CHANNEL AT TOE OF SLOPE.
3. CONSTRUCT 5 FT MINIMUM RIPRAP PAD USING CALTRANS CLASS II RIPRAP. RIPRAP TO BE 5 FT WIDE MINIMUM.

GRAPHIC SCALE
30' 0 15' 30' 60'
1" = 30'



DETAIL 1: V-DITCH MODIFICATIONS

FIGURE 3

JLC Engineering & Consulting, Inc.
41660 IVY STREET, SUITE A
MURRIETA, CA 92562
PH. 951.304.9552 FAX 951.304.3568

PP NO. 210132

WQMP SITE PLAN

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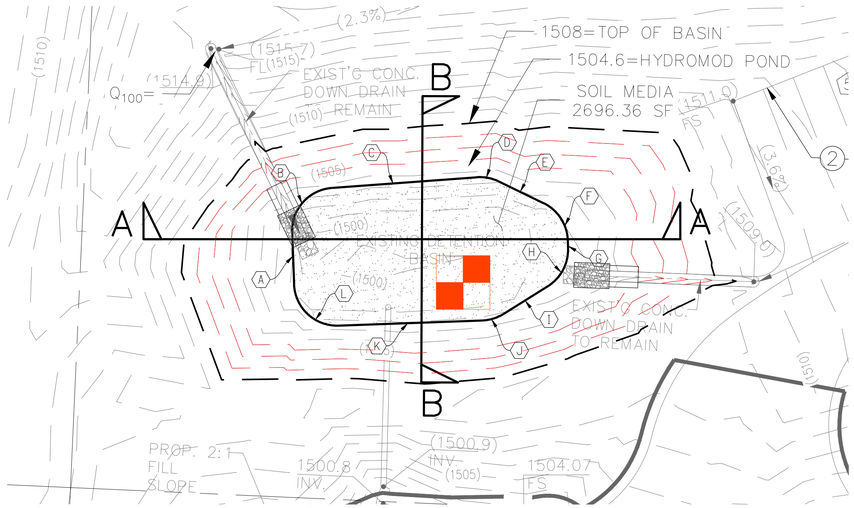
PLOT PLAN MAP 210132

COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

WQMP SITE PLAN

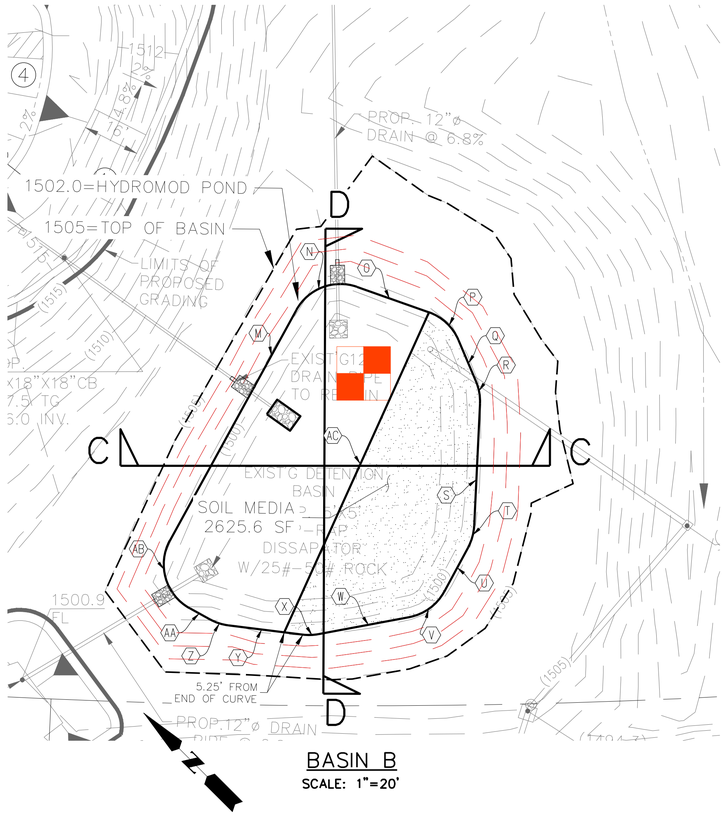
BMP DESIGN NOTES:

1. DUE TO VERTICAL CONSTRAINTS SOIL MEDIA & GRAVEL SECTION LIMITED TO 36" IN DEPTH.
2. SOIL MEDIA SHALL CONFORM TO RIVERSIDE COUNTY LID MANUAL FACT SHEET 3.8 BIORETENTION/BIOFILTRATION SOIL MEDIA
3. SAND SHALL CONSIST OF CONCRETE WASHED SAND PER ASTM 33.
4. PEA GRAVEL SHALL CONFORM TO ASTM NO. 8. AND GRAVEL SHALL CONFORM TO AASHTO NO. 57.
5. ALL PVC PIPE, RISERS, FITTINGS AND APPURTENANCES SHALL BE SCHEDULE 40. PVC PIPING SHALL SLOPE AT 0.5% MINIMUM.
6. THE EXISTING BASINS ARE GRADED AT ±4:1. DURING CONSTRUCTION 4:1 SLOPES SHALL BE MAINTAINED.
7. BASIN ROUTING AND HCOC USE THE FLOW RATE ASSOCIATED WITH THE INFILTRATION RATE FROM SOIL MEDIA AS PART OF ANALYSIS.
8. BASIN INCREASE RUNOFF MITIGATION ANALYSES FOR 2 YR, 5YR, 10 YR, AND 100 YR STORM EVENTS ASSUME THAT AVAILABLE STORAGE IS ABOVE THE HCOC PONDED DEPTH.



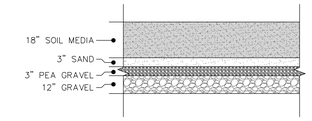
BASIN A

SCALE: 1"=20'

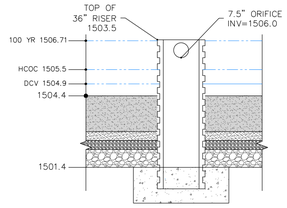


BASIN B

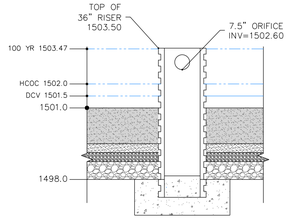
SCALE: 1"=20'



SOIL MEDIA & GRAVEL SECTION

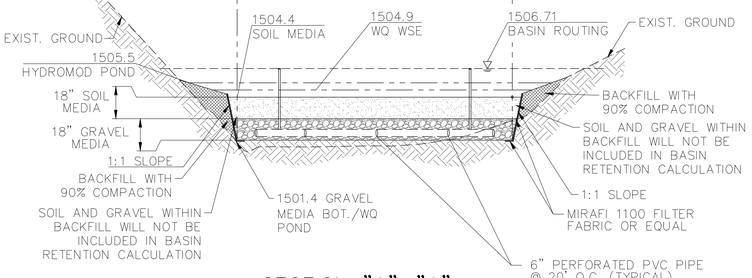


BASIN A OUTLET



BASIN B OUTLET

LINE/CURVE DATA				
	DELTA/BEARING	RADIUS	LEN./DIST.	TANGENT
A	N43°11'00"E	–	14.51'	–
B	87°49'49"	12.00'	18.40'	11.55'
C	N48°59'11"W	–	40.59'	–
D	30°00'00"	12.00'	6.28'	3.22'
E	N18°59'11"W	–	13.91'	–
F	62°10'11"	12.00'	13.02'	7.23'
G	N43°11'00"E	–	2.24'	–
H	60°00'00"	12.00'	12.57'	6.93'
I	N76°49'00"W	–	14.64'	–
J	30°00'00"	12.00'	6.28'	3.22'
K	N46°49'00"W	–	40.18'	–
L	90°00'00"	12.00'	18.85'	12.00'
M	N73°58'45"E	–	73.41'	–
N	80°42'28"	14.00'	19.72'	11.90'
O	N25°18'47"W	–	21.32'	–
P	47°33'32"	14.00'	11.62'	6.17'
Q	N22°14'45"E	–	12.64'	–
R	25°42'00"	14.00'	6.28'	3.19'
S	N47°56'45"E	–	34.23'	–
T	25°38'43"	14.00'	6.27'	3.19'
U	N73°35'28"E	–	14.08'	–
V	51°00'17"	14.00'	12.46'	6.68'
W	N55°24'15"W	–	25.89'	–
X	17°43'26"	14.00'	4.33'	2.18'
Y	N37°40'49"W	–	21.00'	–
Z	21°39'34"	14.00'	5.29'	2.68'
AA	N16°01'15"W	–	6.55'	–
AB	90°00'00"	14.00'	21.99'	14.00'
AC	N98°33'04"E	–	98.16'	–



SECTION "A"–"A"

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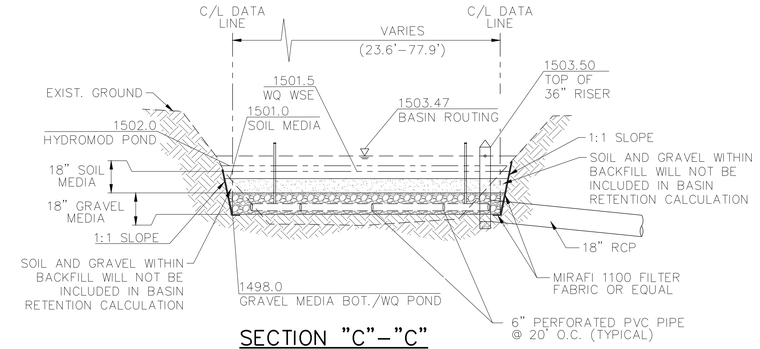
VERT.: 1"=5'



SECTION "C"–"C"

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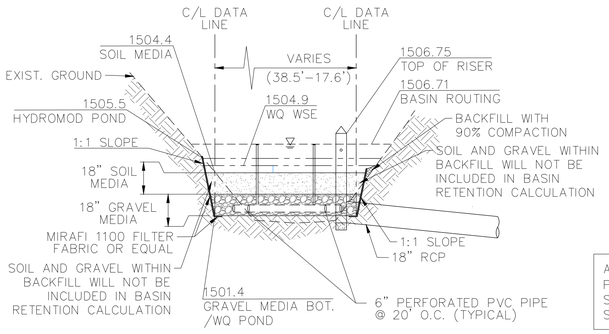
VERT.: 1"=5'



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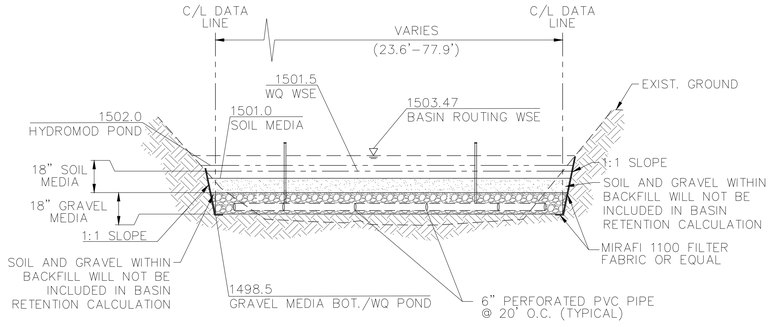
VERT.: 1"=5'



SECTION "D"–"D"

SCALE: HORIZ.: 1"=20'
VERT.: 1"=5'

ALL NOTE "ALL ROCK OR SAND TO BE PLACED IN POST-CONSTRUCTION BMP'S SHALL BE CLEAN WASHED ROCK TO THE SATISFACTION OF THE GRADING INSPECTOR

GRAPHIC SCALE
20' 0 10' 20' 40'
1" = 20'

JLC Engineering & Consulting, Inc.
41660 IVY STREET, SUITE A
MURRIETA, CA 92562
PH. 951.304.9552 FAX 951.304.3568

FIGURE 3

PP NO. 210132

WQMP SITE PLAN

Drawing Name: 0:\158.22;18\Engineering\WQMP\Appendix 1 – Maps & Site Plan\158.22.18-Fig3-WQMP Site Plan.dwg
Last Opened: Nov 26, 2023 – 5:42pm by joe

Appendix 2: Construction Plans

*The latest set of Grading, Drainage Plans, and Street Improvement plans **shall be included***

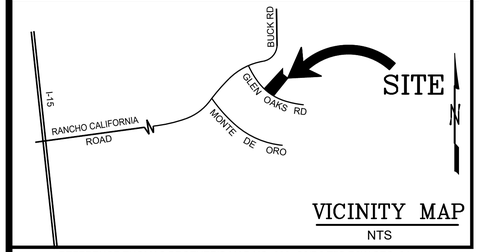
Bioretention/Biofiltration BMPs construction notes (Santa Margarita Region only). For Bioretention and Biofiltration facilities, the **following construction notes shall be shown on the Grading and/or Drainage plans:**

1. *The Engineer shall furnish to the County a copy of the source testing and a signed certification that the fully blended Bioretention/Biofiltration Soil Media (BSM) material meets all of the WQMP requirements before material is imported or if the material is mixed onsite prior to installation.*
2. *As BSM material is being installed, Quality Assurance (QA) tests shall be conducted or for every 1,200 tons or 800 cubic yards mixed on-site from a completely mixed stockpile or windrow, with a minimum of three tests. For imported material from a supplier with a quality control program the QA tests shall be conducted 2,400 tons or 1,600 cubic yards from the supplier.*
3. *The Engineer conducting the Quality Control testing shall furnish to the County copy of the QA testing and a certification that the BSM for the project meets all of the following requirements. Certified mitigation plans can be used for exceedances, as long as all requirements are designed to be met.*
    a. *BSM shall not be compacted. BSM shall consist of 60-80% clean sand, up to 20% clean topsoil, and 20% of a nutrient-stabilized organic amendment. The initial infiltration rate shall be greater than 8 inches per hour per laboratory test.*
    b. *pH: 6.0 – 8.5; Salinity: 0.5 to 3.0 mmho/cm as electrical conductivity; Sodium absorption ratio: < 6.0; Chloride: < 800 ppm in saturated extract; Cation Exchange Capacity (CEC): > 10 meq/100 g; Organic Matter: 2 to 5-percent on a dry weight basis; Carbon: Nitrogen Ratio: 12 to 40, preferably 15 to 40; Gravel larger than 2mm: 0 to 25-percent of the total sample; Clay smaller than 0.005mm: 0 to 5 percent of the non-gravel fraction.*
    c. *BSM shall be tested to limit the leaching of potential inherent pollutants. BSM used in Biofiltration BMPs shall conform to the following limits for pollutant concentrations in saturated extract: Phosphorus: < 1 mg/L; Nitrate < 3 mg/L, Copper < 0.025 mg/L. These pollutant limits are for the amount that is leached from the sample, not from the soil sample itself. Testing may be performed after laboratory rinsing of media with up to 15 pore volumes of water. Equivalent test results will be accepted if certified by a laboratory or appropriate testing facility.*
    d. *Low nutrient compost used in BSM shall be sourced from a facility permitted through CalRecycle, preferably through USCC STA program. Compost shall conform to the following requirements: Physical contaminants <1% by dry weight; Carbon:Nitrogen ratio: 12:1 to 40:1; Maturity/Stability shall conform to either: Solvita Maturity Index: ≥ 5.5, CO2 Evolution: < 2.5 mg CO2-C per g compost organic matter per day, or < 5 mg CO2-C per g compost C per day; Select Pathogens and Trace metals shall pass US EPA Class A Standard. Testing shall be no more than 6 months old and representative of current stockpiles.*
    e. *Coconut coir pith used in BSM shall be thoroughly rinsed with freshwater and screened to remove coarse fibers as part of production and aged > 6 months. Peat used in BSM shall be sphagnum peat.*

Please notify the County if additional sources and laboratories can be added to this list. The Potential Sources and Laboratories are not part of the construction note - **Potential BSM sources may include**: Gail Materials (Temescal Valley), Agriservice (Oceanside), and Greatsoils (Escondido). Earthworks (Riverside); **Potential Laboratories may include**: Fruit Growers Laboratory, Inc. (Santa Paula, http://www.fglinc.com/) Wallace Laboratories (El Segundo, http://us.wlabs.com/). Control Labs (Watsonville, http://www.controllabs.com) and A&L Western Laboratories (Modesto, http://www.al-labs-west.com/).

PRECISE GRADING PLAN

AUSTIN WINERY



VICINITY MAP

NTS

REFERENCE THOMAS BROTHER'S MAP NO. 930, C6/D6 T7S R2W SEC. 24

REFERENCE NOTE:

EXCEPT FOR THE RETAINING WALLS IN CONJUNCTION WITH THIS GRADING, ALL INFORMATION ASSOCIATED WITH BUILDINGS (INCLUDING SETBACKS AND FF ELEVATIONS) IS FOR REFERENCE ONLY, AND THE APPROVAL OF THIS GRADING PLAN DOES NOT INCLUDE ANY PROVISIONS ASSOCIATED WITH BUILDINGS.

WORK WITHIN RIGHT–OF–WAY

THE ENGINEER WHO PREPARED THE GRADING PLAN HAS VERIFIED THE CONSISTENCY BETWEEN ON-SITE GRADING INFORMATION AND THE WORK WITHIN THE R/W APPROVED BY THE TRANSPORTATION DEP'T.

CONSTRUCTION IN RIGHT–OF–WAY

NO WORK SHALL COMMENCE WITHIN ROAD RIGHT-OF-WAY (R/W) PRIOR TO ISSUANCE OF AN ENCROACHMENT PERMIT BY THE TRANSPORTATION DEPARTMENT.

DRAINAGE NOTE:

THE ENGINEER OF RECORD WHO HAS PREPARED AND SIGNED THE GRADING PLAN HAS VERIFIED THAT THE PROPOSED DRAINAGE SYSTEM IS CONSISTENT WITH THE NATURAL DRAINAGE PATTERN OF THE SITE AND WILL NOT ADVERSELY AFFECT ADJACENT PROPERTIES.

THE ENGINEER OF RECORD HAS DETERMINED THAT, CONSIDERING THE SITE CONDITIONS, INCLUDING SOILS CONDITIONS AND CLIMATIC CONDITIONS, THE DESIGN DOES NOT WARRANT 5% DRAINAGE SLOPE AWAY FROM BUILDINGS AND 2% IS ADEQUATE.

DRAINAGE ACROSS PROPERTY LINES SHALL NOT EXCEED THAT WHICH EXISTED PRIOR TO GRADING. EXCESS OR CONCENTRATED DRAINAGE SHALL BE CONTAINED ON-SITE OR DIRECTED TO AN APPROVED DRAINAGE FACILITY. EROSION OF THE GROUND IN THE AREA OF DISCHARGE SHALL BE PREVENTED BY INSTALLATION OF NON-EROSIVE DOWN DRAINS OR OTHER DEVICES.

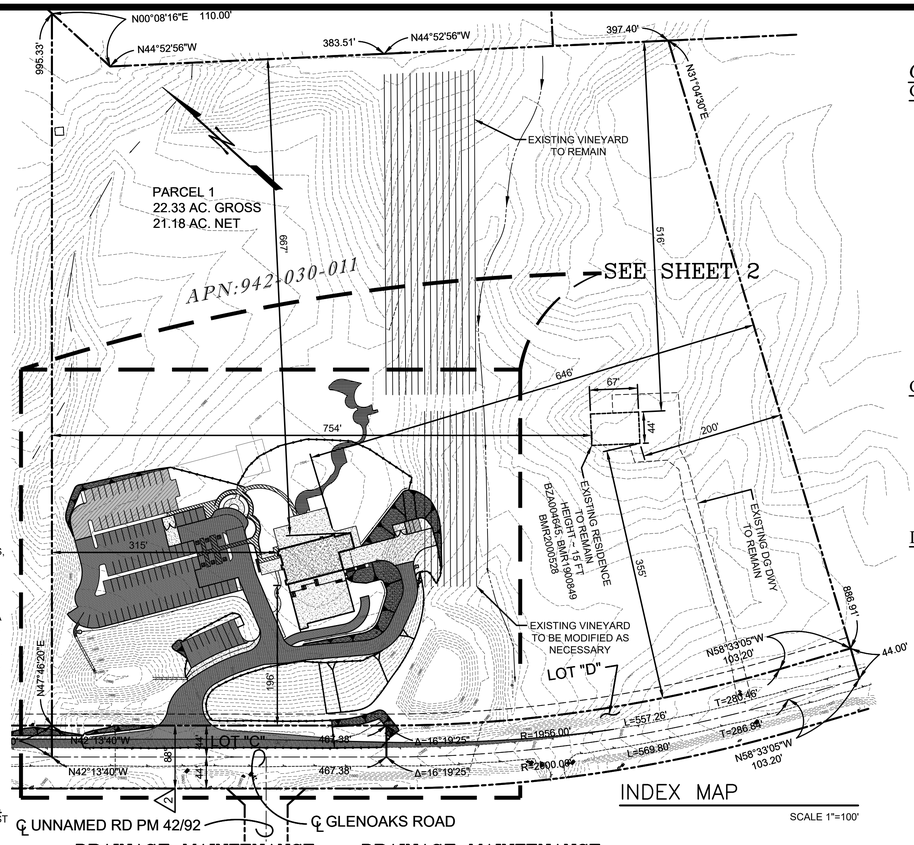
THE ENGINEER OF RECORD HAS EVALUATED THE DRAINAGE AND HAS DETERMINED THAT THE PROJECT PERPETUATES NATURAL DRAINAGE PATTERNS, AND WILL NOT ADVERSELY AFFECT ADJACENT PROPERTIES.

SOIL'S ENGINEERS CERTIFICATION:

I, OSBJORN BRATENE OF ENGEN CORP. , A REGISTERED CIVIL ENGINEER, PRINCIPALLY DOING BUSINESS IN GEOTECHNICAL ENGINEERING AND/OR APPLIED SOIL MECHANICS, HEREBY CERTIFY THAT A SAMPLING AND STUDY OF THE SOIL CONDITIONS PREVALENT WITHIN THIS SITE WAS MADE BY ME OR UNDER MY DIRECTION. THESE GRADING PLANS HAVE BEEN REVIEWED BY ME OR UNDER MY DIRECTION AND CONFORM TO THE RECOMMENDATION MADE IN OUR GEOTECHNICAL ENGINEERING INVESTIGATION REPORT ENTITLED "**PRELIMINARY UPDATED GEOTECHNICAL FEASIBILITY STUDY**" DATED MARCH 7, 2019. TO THE BEST OF MY KNOWLEDGE, THE REFERENCE REPORT REPRESENTS THE MOST CURRENT AND COMPLETE INFORMATION RELATIVE TO THE PROPOSED GRADING OF THE SITE. IT IS THE PROFESSIONAL OPINION OF ENGEN CORP. THAT THE CONCLUSIONS AND RECOMMENDATIONS RENDERED IN OUR REPORT ARE APPROPRIATE AND APPLICABLE TO THIS PROJECT AND THEY ARE IN SUBSTANTIAL CONFORMANCE WITH ALL APPLICABLE CODE, ORDINANCE, AND STANDARDS OF PRACTICE FOR THE PROJECT PROPOSED.

OSBJORN BRATENE — DATE: 12/27/2023

ENGEN CORPORATION
OZ BRATENE
41625 ENTERPRISE CR. S #B-2
(951) 201-2542



INDEX MAP

SCALE 1"=100'

DRAINAGE MAINTENANCE:

THE ENGINEER/ARCHITECT WHO PREPARED AND SIGNED THESE GRADING PLANS HAS VERIFIED THAT ALL INFORMATION ON THE DRAWINGS I CONSISTENT WITH THE WQMP, STORM DRAIN AND STREET IMPROVEMENT PLANS APPROVED OR CLEARED TO GRADE BY THE RIVERSIDE COUNTY FLOOD CONTROL DISTRICT AND/OR TRANSPORTATION DEPARTMENT AND APPROVED TENTATIVE TRACT MAP INCLUDING CONDITIONS OF APPROVAL.

DRAINAGE MAINTENANCE:

ALL DRAINAGE DEVICES, INCLUDING ANY V-DRAINS, PIPES, CATCH BASINS, AND RIP-RAP ENERGY DISSAPATORS, ARE TO BE CLEANED AND MAINTAINED BY THE OWNER TO CONTINUOUSLY FUNCTION PROPERLY.

CONSTRUCTION NOTES AND QUANTITY ESTIMATE

NO.	ITEMS TO BE CONSTRUCTED OR INSTALLED	QUANTITY	UNIT
1	INSTALL BERM, DETAIL ON SHT. 3	427	LF
2	EXISTING ALL WEATHER FIRE ACCESS DWY SECTION, DETAIL SHT. 3	24,767	SF
3	PRODUCTION PAD/CELLAR STORAGE/TRASH ENCLOSURE SECTION, DETAIL SHT. 3	14,496	SF
4	ASPHALT ALL WEATHER FIRE ACCESS DWY SECTION, DETAIL SHT. 3	23,501	SF
5	CONC. PATIO & WALKWAY SECTION, DETAIL SHT. 3	6,440	SF
6	PROPOSED PARKING SURFACE, DETAIL SHT. 3	8,181	SF
7	EXISTING GLEN OAKS ROAD SECTION, DETAIL SHT. 3	8,349	SF
8	INSTALL TYP PRE-MFGR'D 18"-24" PVC CATCH BASIN PER PLAN, DETAIL SHT. 2	4	EA
9	INSTALL 6" CURB, DETAIL SHT. 3	722	LF
10	CATCH BASIN INSTALLATION AT END OF CONCRETE SWALE, DETAIL SHT. 2	1	EA
11	INSTALL 6' WIDE CONCRETE SWALE, DETAIL SHT. 3	111	LF
12	INSTALL 3' WIDE CONCRETE SWALE, DETAIL SHT. 3	4	LF
13	INSTALL CONC. V-DRAIN, DETAIL SHT. 2	26	LF
14	INSTALL 6" ASPHALT DIKE COUNTY STD. 212, DETAIL SHT. 3	331	LF
15	INSTALL CONC. CURB & CONC. V-DRAIN CONNECTION, DETAIL SHT. 3	1	EA
16	INSTALL 12"Ø PVC DRAIN PIPE	233	LF
17A	WQMP BASIN OUTLET, DETAIL SHT. 4	1	EA
17B	WQMP BASIN OUTLET, DETAIL SHT. 4	2	EA
18	INSTALL 6"Ø PERFORATED PVC DRAIN PIPE	275	LF
19	INSTALL 6"Ø CLEAN OUT EVERY 50' PER PERFORATED PVC DRAIN PIPE	10	EA
20	INSTALL 6" TRENCH DRAIN	172	LF
21	INSTALL DIVERTER VALVE	2	EA
22	INSTALL 5'X5' TRAFFIC RATED CATCH BASIN	1	EA
23	INSTALL 6"Ø DRAIN PIPE	129	LF
24	INSTALL 4"Ø DRAIN PIPE	318	LF
25	INSTALL 18"Ø DRAIN PIPE	18	LF
26	INSTALL 5'X5' RIP-RAP DISSAPATOR W/ 25# - 50# ROCK	2	CY
27	INSTALL CONC. DOWN-DRAIN INLET, DETAIL SHT. 3	1	EA
28	INSTALL CONC. COLLAR AT PIPE INLET PER SHT. 4	2	EA
29	MODIFY CONC. V-DRAIN AT WQMP BASIN PER DETAIL ON SHT. 4	2	EA
30	MODIFY CONC. V-DITCH TRANSITION TO FLAT-BOTTOM DRAIN	2	EA

NPDES: WHEN ONE ACRE OR MORE IS BEING DISTURBED

1. CONSTRUCTION SITE BEST MANAGEMENT PRACTICES (BMP'S) FOR THE MANAGEMENT OF STORM WATER AND NON-STORMWATER DISCHARGES SHALL BE DOCUMENTED ON THE GRADING PLAN. ARRANGEMENTS SHALL BE MADE BY THE DEVELOPER TO RETAIN THE SWPPP ON THE JOBSITE THROUGHOUT THE TIME OF CONSTRUCTION. THE IMPLEMENTATION AND MAINTENANCE OF THE SITE BMP's IS REQUIRED TO MINIMIZE JOBSITE EROSION AND SEDIMENTATION. ARRANGEMENTS SHALL BE MADE BY THE DEVELOPER TO MAINTAIN THOSE BMP's THROUGHOUT THE TIME ON CONSTRUCTION.
2. EROSION CONTROL BMP's SHALL BE IMPLEMENTED AND MAINTAINED TO PREVENT AND/OR MINIMIZE THE ENTRAINMENT OF SOIL IN RUNOFF FROM DISTRUBED SOIL AREAS ON CONSTRUCTION SITES.
3. SEDIMENT CONTROL BMP's SHALL BE IMPLEMENTED AND MAINTAINED TO PREVENT AND/OR MINIMIZE THE TRANSPORT OF SOIL FROM THE CONSTRUCTION SITE.
4. GRADING SHALL BE PHASED TO LIMIT THE AMOUNT OF DISTURBED AREA EXPOSED TO THE EXTENT FEASIBLE.
5. AREAS THAT ARE CLEARED AND GRADED SHALL BE LIMITED TO ONLY THE PORTION OF THE SITE THAT IS NECESSARY FOR CONSTRUCTION. THE CONSTRUCTION SITE SHALL BE MANAGED TO MINIMIZE THE EXPOSURE TIME OF DISTURBED SOIL AREAS THROUGH PHASING AND SCHEDULING OF GRADING AND THE USE OF TEMPORARY AND PERMANENT SOIL STABILIZATION.
6. ONCE DISTURBED, SLOPES (TEMPORARY OR PERMANENT) SHALL BE STABILIZED IF THEY WILL NOT BE WORKED WITHIN 21 DAYS. DURING STORM SEASON, ALL SLOPES SHALL BE STABILIZED PRIOR TO PREDICTED STORM EVENT. CONSTRCTION SITES SHALL BE REVEGETATED AS EARLY AS FEASIBLE AFTER SOIL DISTURBANCE.
7. STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO ELIMINATE OR REDUCE SEDIMENT TRANSPORT FROM THE SITE OR STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING , OR WIND.
8. CONSTRUCTION SITES SHALL BE MAINTAINED IN SUCH A CONDITION THAT A STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. DISCHARGES OTHER THAN STORMWATER (NON-STORMWATER DISCHARGES) ARE PROHIBITED, EXCEPT AS AUTHORIZED BY AN INDIVIDUAL NPDES PERMIT, THE STATEWIDE GENERAL PERMIT-CONSTRUCTION ACTIVITY. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SOLID OR LIQUID CHEMICAL SPILLS; WASTES FROM PAINTS, STAINS, SEALANTS, SOLVENTS, DETERGENTS, GLUES, LIME, PESTICIDES, HERBICIDES, FERTILIZERS, WOOD PRESERVATIVES, AND ASBESTOS FIBERS, PAINT FLAKES OR STUCCO FRAGMENTS, FUELS, OILS, LUBRICANTS, AND HYDRAULIC, RADIATOR, OR BATTERY FLUIDS, CONCRETE AND RELATED CUTTING OR CURING RESIDUES; FLOATABLE WASTES; WASTES FROM ENGINE/EQUIPMENT STEAM CLEANING OR CHEMICAL DEGREASING; WASTES FROM STREET CLEANING; AND SUPER-CHLORINATED POTABLE WATER FROM LINE FLUSHING AND TESTING. DURING CONSTRUCTION, DISPOSAL OF SUCH MATERIALS SHOULD OCCUR IN A SPECIFIED AND CONTROLLED TEMPORARY AREA ON-SITE PHYSICALLY SEPARATE FROM POTENTIAL STORMWATER RUNOFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.
9. RUNOFF FROM EQUIPMENT AND VEHICLE WASHING SHALL BE CONTAINED AT CONSTRUCTION SITE AND MUST NOT BE DISCHARGED TO RECEIVING WATERS OR LOCAL STORM DRAIN SYSTEM.
10. APPROPRIATE BMP's FOR CONTRUCTION-RELATED MATERIALS, WASTES, SPILLS OR RESIDUES SHALL BE IMPLEMENTED TO ELIMINATE OR REDUCE TRANISPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTIES BY WIND OR RUNOFF.
11. ALL CONSTRUCTION CONTRACTORS AND SUBCONTRACTOR PERSONNAL ARE TO BE TRAINED IN THE IMPLEMENTATION AND USE OF THE REQUIRED BMP's AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS AND ALL TRAINING DOCUMENTATION SHALL BE MAINTAINED IN THE SWPPP.
12. DISCHARGING CONTAMINATED GROUNDWATER PRODUCED BY DEWATERING GROUNDWATER THAT HAS INFILTRATED INTO THE CONSTRUCTION SITE IS PROHIBITED. DISCHARGING OF CONTAMINATED SOILS VIA SURFACE EROSION IS ALSO PROHIBITED. DISHCHARGING NON-CONTAMINATED GROUNDWATER PRODUCED BY DEWATERING ACTIVITIES MAY REQUIRE A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FROM THE REGIONAL WATER QUALITY CONTROL BOARD.
13. BMP's SHALL BE MAINTAINED AT ALL TIMES. IN ADDITION, BMP's SHALL BE INSPECTED PRIOR TO PREDICTED STORM EVENTS AND FOLLOWING STORM EVENTS.
14. AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY, ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND PROPERLY DISPOSED OF IN TRASH OR RECYCLE BINS.

SWPPP RESPONSIBLE PARTY:

WDID#: TBD
QSP/QSD: KEN KRISTOFFERSEN #00207
28562 Oso Parkway D-508
Rancho Santa Margarita, CA 92688
RISK LEVEL: 2

NPDES COMPLIANCE NOTE:

PROPOSED AREA TO BE DISTURBED 2.30 AC
TOTAL NET SITE AREA 21.18 AC
WASTE DISCHARGER IDENTIFICATION NUMBER: TBD

GRADING NOTES:

GENERAL:

1. ALL GRADING SHALL CONFORM TO THE 2019 CALIFORNIA BUILDING CODE CHAPTER 17, 18, & APPENDIX-J AS AMENDED BY THE COUNTY ORD. 457.
2. ALL PROPERTY CORNERS, GRADING BOUNDARIES AND ALL CONSERVATION AREAS/LEAST SENSITIVE AREA (LAS) DETERMINED BY THE ENVIRONMENTAL PROGRAMS DEPARTMENT (EPD) SHALL BE CLEARLY DELINEATED AND STAKED IN THE FIELD PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION/GRADING.
3. ALL WORK UNDER THIS GRADING PERMIT SHALL BE LIMITED TO WORK WITHIN THE PROPERTY LINES. ALL WORK WITHIN THE ROAD RIGHT-OF-WAY WILL REQUIRE PLANS AND A SEPARATE REVIEW/APPROVAL (PERMIT) FROM THE TRANSPORTATION DEPARTMENT.
4. ALL GRADING SHALL BE DONE UNDER THE SUPERVISION OF A SOILS ENGINEER IN CONFORMANCE WITH RECOMMENDATION OF THE PRELIMINARY SOILS INVESTIGATION BY ENGEN CORP. DATED MARCH 7, 2019.
5. COMPACTED FILL TO SUPPORT ANY STRUCTURES SHALL COMPLY WITH SECTION 1803.5.8. PROJECTS WITHOUT PRELIMINARY SOILS REPORTS SHALL HAVE DETAILED SPECIFICATIONS IN ACCORDANCE WITH SECTIONS 1803.2 AND 1803.5 PREPARED BY THE ENGINEER OF RECORD.
6. THE CONTRACTOR SHALL NOTIFY BUILDING AND SAFETY DEPARTMENT AT LEAST 24 HOURS IN ADVANCE TO REQUEST FINISH LOT GRADE AND DRAINAGE INSPECTION. THE INSPECTION MUST BE APPROVED PRIOR TO BUILDING PERMIT FINAL INSPECTION FOR EACH LOT.
7. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT, TWO DAYS BEFORE DIGGING AT 1-800-422-4133
8. PRIOR TO GRADING, A PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED WITH A RIVERSIDE COUNTY ENVIRONMENTAL COMPLIANCE INSPECTOR PRIOR TO COMMENCEMENT OF GRADING OPERATIONS.

CUT/FILL:

9. MAXIMUM CUT AND FILL SLOPE = 2:1 (HORIZONTAL TO VERTICAL).
10. NO FILL SHALL BE PLACED ON EXISTING GROUND UNTIL THE GROUND HAS BEEN CLEARED OF WEEDS, DEBRIS, TOPSOIL, AND OTHER DELETERIOUS MATERIAL. FILLS SHOULD BE PLACED IN THIN LIFTS (8-INCH MAX OR AS RECOMMENDED IN SOILS REPORT), COMPACTED AND TESTED THROUGHOUT THE GRADING PROCESS UNTIL FINAL GRADES ARE ATTAINED. ALL FILLS ON SLOPES STEEPER THAN 5:1 (H/V) AND HEIGHT GREATER THAN 5 FEET SHALL BE KEYED AND BENCHED INTO FIRM NATURAL SOIL FOR FULL SUPPORT. THE BENCH UNDER THE TOE MUST BE 10 FEET WIDE MIN.
11. THE SLOPE STABILITY FOR CUT AND FILL SLOPES OVER 30' IN VERTICAL HEIGHT, OR CUT SLOPES STEEPER THAN 2:1 HAVE BEEN VERIFIED WITH A FACTOR OF SAFETY OF AT LEAST 1.5.
12. NO ROCK OR SIMILAR IRREDUCIBLE MATERIAL WITH A MAXIMUM DIMENSION GREATER THAN 12 INCHES SHALL BE BURIED OR PLACED IN FILLS CLOSER THAN 10 FEET TO THE FINISHED GRADE.

DRAINAGE & EROSION/DUST CONTROL:

13. DRAINAGE ACROSS THE PROPERTY LINES SHALL NOT EXCEED THAT WHICH EXISTED PRIOR TO GRADING. EXCESS OR CONCENTRATED DRAINAGE SHALL BE CONTAINED ON SITE OR DIRECTED TO APPROVED DRAINAGE FACILITY. EROSION OF THE GROUND IN THE AREA OF DISCHARGE SHALL BE PREVENTED BY INSTALLATION OF NON-EROSIVE DOWN DRAINS OR OTHER DEVICES.
14. PROVIDE A PAVED SLOPE INTERCEPTOR DRAIN ALONG THE TOP OF CUT SLOPES WHERE THE DRAINAGE PATH IS GREATER THAN 40 FEET TOWARDS THE CUT SLOPE.
15. PROVIDE 5' WIDE BY 1' HIGH BERM ALONG THE TOP OF ALL FILL SLOPES STEEPER THAN 3:1(HORIZONTAL TO VERTICAL).
16. THE GROUND SURFACE IMMEDIATELY ADJACENT TO THE BUILDING FOUNDATION SHALL BE SLOPED AWAY FROM THE BUILDING AT A SLOPE OF NOT LESS THAN ONE UNIT VERTICAL IN 20 UNITS HORIZONTAL (5-PERCENT SLOPE) FOR A MINIMUM DISTANCE OF 10 FEET MEASURED PERPENDICULAR TO THE FACE OF THE FOUNDATION.
17. NO OBSTRUCTION OF NATURAL WATER COURSES SHALL BE PERMITTED.
18. DURING ROUGH GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES, TEMPORARY DAMAGE CONTROL (BEST MANAGEMENT PRACTICES, BMPS) SHALL BE PROVIDED TO PREVENT PONDING WATER AND DRAINAGE TO ADJACENT PROPERTIES.
19. DUST SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS.
20. FUGITIVE DUST CONTROL: CONSTRUCTION SITES SUBJECT TO PM10 FUGITIVE DUST MITIGATION SHALL COMPLY WITH AQMD RULE 403.1
21. ALL EXISTING DRAINAGE COURSES AND STORM DRAIN FACILITIES SHALL CONTINUE TO FUNCTION. PROTECTIVE MEASURES AND TEMPORARY DRAINAGE PROVISIONS MUST BE USED TO PROTECT ADJOINING PROPERTIES DURING GRADING OPERATIONS.
22. FOR ALL SLOPES STEEPER THAN 4 TO 1 (H/V): ALL SLOPES EQUAL TO OR GREATER THAN 3' IN VERTICAL HEIGHT ARE REQUIRED TO BE PLANTED WITH AN APPROVED DROUGHT-TOLERANT GROUND COVER AT A MINIMUM SPACING OF 12" ON CENTER OR AS APPROVED BY THE ENGINEER OF RECORD OR THE REGISTERED LANDSCAPE ARCHITECT AND DROUGHT-TOLERANT SHRUBS SPACED AT NO MORE THAN 10' ON CENTER. SLOPES EXCEEDING 15' IN VERTICAL HEIGHT SHALL BE PLANTED WITH APPROVED SHRUBS AND TREES NOT TO EXCEED 10' ON CENTER, OR TREES SPACED NOT TO EXCEED 20' ON CENTER, OR A COMBINATION OF SHRUBS AND TREES NOT TO EXCEED 15' IN ADDITION TO THE GRASS OR GROUND COVER. SLOPES THAT REQUIRE PLANTING SHALL BE PROVIDED WITH AN IN-GROUND IRRIGATION SYSTEM EQUIPPED WITH AN APPROPRIATE BACKFLOW DEVICE PER C.P.C. CHAPTER 6. THE SLOPE PLANTING AND IRRIGATION SYSTEM SHALL BE INSTALLED AS SOON AS POSSIBLE UPON COMPLETION OF ROUGH GRADING. ALL PERMANENT SLOPE PLANTING SHALL BE ESTABLISHED AND IN GOOD CONDITION PRIOR TO SCHEDULING PRECISE GRADE INSPECTION.

COMPLETION OF WORK:

ROUGH GRADE

23. A REGISTERED CIVIL ENGINEER SHALL PREPARE FINAL COMPACTION REPORT/ GRADING REPORT AND IT SHALL BE SUBMITTED TO THE DEPARTMENT OF BUILDING AND SAFETY FOR REVIEW AND APPROVAL. THE REPORT SHALL INCLUDE BUILDING FOUNDATION DESIGN PARAMETERS (ALLOWABLE SOIL PRESSURES, ETC.), EXPANSION INDEX (AND DESIGN ALTERNATIVES IF EI>20), WATER SOLUBLE SULFATE CONTENT, CORROSIVITY AND REMEDIAL MEASURES IF NECCESSARY.
24. EXPECT FOR NON-TRACT SINGLE RESIDENTIAL LOT GRADING, THE COMPACTION REPORT SHALL INCLUDE THE SPECIAL INSPECTION VERIFICATIONS LISTED IN TABLE 1705.6 OF 2019 CBC.
25. THE COUNTY OF RIVERSIDE REQUIRES A LICENSED PROFESSIONAL ENGINEER TO SUBMIT A WET SIGNED AND STAMPED ROUGH GRADING CERTIFICATION WHICH INCLUDES PAD ELEVATIONS PRIOR TO REQUESTING INSPECTION AND ISSUANCE OF THE BUILDING PERMIT.
26. **ROUGH GRADE ONLY PERMITS:** IN ADDITION TO OBTAINING ALL REQUIRED INSPECTIONS AND APPROVAL OF ALL FINAL REPORTS, ALL SITES PERMITTED FOR ROUGH GRADE ONLY SHALL PROVIDE BY VEGETATIVE COVERAGE (100 PERCENT) OR OTHER MEANS OF SITE STABILIZATION APPROVED BY ENVIRONMENTAL COMPLIANCE DIVISION, PRIOR TO RECEIVING A ROUGH GRADE PERMIT FINAL.

PRECISE GRADE

27. A REGISTERED CIVIL ENGINEER SHALL SUBMIT TO THE BUILDING AND SAFETY DEPARTMENT WRITTEN CERTIFICATION OF COMPLETION OF GRADING IN ACCORDANCE WITH THE APPROVED GRADING PLAN PRIOR TO THE REQUEST OF PRECISE GRADING INSPECTION.

EASEMENTS:

1. AN EASEMENT FOR SLOPES AND INCIDENTS THERETO, PER INSTRUMENT No. 121048, RECORDED DECEMBER 20, 1966, RECORDS OF RIVERSIDE IN FAVOR OF KAISER AETNA, A CALIFORNIA GENERAL PARTNERSHIP, BY ASSIGNMENT RECORDED MARCH 4, 1971 AS INSTRUMENT No. 21825, RECORDS OF RIVERSIDE COUNTY. (SAID SLOPE EASEMENTS ARE INDETERMINATE IN NATURE)
2. AN EASEMTN FOR ROADWAY ACCESS TOGETHER WITH SLOPE EASEMENTS ADJOINING SAID ROADWAY AT A RATIO OF 1.5:1 PER INSTRUMENT No. 121049, RECORDS OF RIVERSIDE COUNTY, IN FAVOR OF RANCHO CALIFORNIA, A PARTNERSHIP. (SAID SLOPE EASEMENTS ARE INDETERMINATE IN NATURE)

EXCESS FILL:

ALL EXCESS FILL TO BE SPREAD EVENLY BETWEEN THE VINEYARD ROWS TO A DEPTH OF APPROXIMATELY 0.3'. THE SPREAD OF THE EXCESS FILL SHALL NOT CREATE A DOWNSTREAM IMPACT.

EARTHWORK ESTIMATES:

EARTHWORK QUANTITIES ARE ESTIMATES ONLY AND ARE AN ESTIMATE OF SHRINKAGE AND DO NOT INCLUDE SUBSIDENCE. THEY ARE ESSENTIALLY FOR PERMIT PURPOSES ONLY AND NOT INTENDED FOR BIDDING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ASCERTAIN THE EXACT QUANTITIES FOR ALL CONTRACTUAL ARRANGEMENTS AND THE BASIS FOR PAYMENT.
IF ANY DESCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS ARE FOUND DURING CONTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER TO CONSULT AND RESOLVE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER.

OWNER:

AUSTIN VINEYARD LLC
CONTACT: AUSTIN RANDALL
3060 UPHAM ST
WHEATRIDGE, CO 80033
(303) 475-1555
email:slabsgmi@aol.com

PROJECT ADDRESS:

35620 GLENOAKS RD
TEMECULA, CA 92592

ACREAGE:

22.33 AC GROSS
21.18 AC NET

ASSESSOR'S NO.:

942-030-011

LEGAL DESCRIPTION:

PARCEL 1 OF PARCEL MERGER 180016, BEING PORTIONS OF PARCELS 2 & 3 OF PARCEL MAP 27134 IN THE COUNTY OF RIVERSIDE STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 182 OF MAPS, PAGES 95 & 96, RECORDS OF RIVERSIDE COUNTY, STATE OF CALIFORNIA.

LEGEND:

(1720)	EXISTING CONTOUR
1729.4	FINISH GRADE
(1729.4)	EXISTING GRADE PER BGR1800141
EOP	EDGE OF PAVEMENT
EV	ELECTRIC VEHICLE CHARGING
FF	FINISH FLOOR GRADE
FG	FINISH GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FS	FINISH SURFACE
(F)	FUTURE
HP	HIGH POINT
PL	PROPERTY LINE
R/W	RIGHT-OF-WAY
TG	TOP OF GRATE
TP	TOP OF PIPE
(X)	PARKING SPACE QUANTITY
CUT / FILL	DAYLIGHT LINE
	A.D.A. COMPLIANT PATH 5' MIN. WIDE
	LIMITS OF PROPOSED GRADING
	LIMITS OF PROPOSED OFF-SITE GRADING PER SEPARATE PLAN & PERMIT
	EXISTING ALL WEATHER FIRE ACCESS 4" OF CLASS II BASE
	DRIVEWAY/PATIO/FOOTPRINT 4"-6" OF PORTLAND CEMENT CONCRETE
	ALL WEATHER FIRE ACCESS 3" A.C. OVER 4" CLASS II BASE
	ALL WEATHER FIRE ACCESS 4" OF CLASS II BASE
	MATCH EXISTING GLENOAKS ROAD SECTION

IMPERVIOUS AREA:

PROP. TASTING ROOM/CELLAR	- 4,919 SQ. FT
PROP. PRODUCTION AREA	- 5,065 SQ. FT
PROP. PATIO/WALKWAY	- 2,383 SQ. FT
PROP. ENTRY	- 644 SQ. FT
PROP. FIRE ACCESS/PARKING PAVEMENT/TRASH ENCLOSURE	- 22,442 SQ. FT
TOTAL IMPERVIOUS AREA	- 35,453 SQ. FT

LENGTH OF DRIVEWAY:

DRIVEWAY LENGTH = 270 FT

TEMPORARY BENCHMARK:

ALL GRADES ARE BASED ON AN ELEVATION OF 1510.0 ASSIGNED TO THE TOP OF THE SURVEY MARKER AT THE WESTERLY CORNER MARKER.

TOPOGRAPHY SOURCE:

ALL GRADES AND TOPOGRAPHY CONTOURS ARE BASED ON RANCHO CALIFORNIA WATER DISTRICT ORTHOPHOTO MAP, FLOWN IN DECEMBER 2009 AND AMMENDED BY TOPOGRAPHIC SURVEY PERFORMED BY SPIRO LAND SURVEYING ON OCT. 19, 2020.

VINEYARD PLANTING:

TOTAL VINE PLANTING = 17.75 ACRES - 83.8%

EARTHWORK:

CUT	5,932	CU. YDS.
SHRINKAGE (12%)	712	CU. YDS.
FILL	770	CU. YDS.
EXCESS FILL (AMONGST VINEYARD)	4,450	CU. YDS.

PREPARED BY:

OSBJORN BRATENE — DATE: 12/27/2023
RCE 21873

BGR2200348
REF: BGR1800141 BMP2200404

REVISIONS	BY

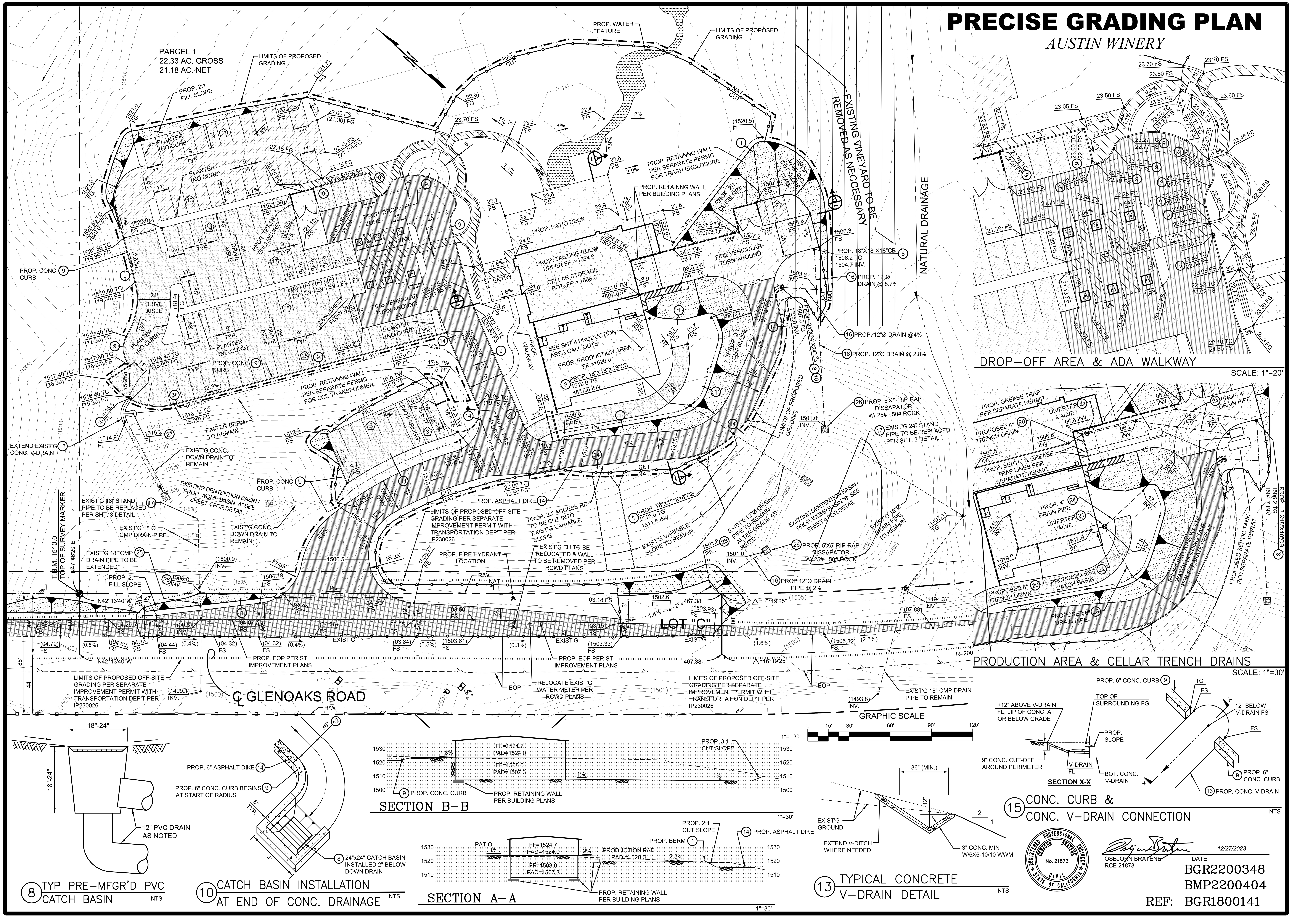
PRECISE GRADING PLAN
AUSTIN WINERY
PARCEL 1 OF PARCEL MERGER 180016
35620 GLENOAKS RD, TEMECULA CA 92592

BRATENE CONSTRUCTION & ENGINEERING
Civil Engineers - RCE 21873
General Contractors - Lic. 378242
41625 Enterprise Circle South, #B-2
Temecula, CA 92590
(951) 201-2542
bratenecons@prodigy.net

DRAWN BY	D. BRATENE
CHECKED	O.BRATENE
DATE	12/27/2023
SCALE	1"=100'
JOB NO.	18006
SHEET	1

PRECISE GRADING PLAN

AUSTIN WINERY



REVISIONS	BY

PRECISE GRADING PLAN
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41625 Enterprise Circle South, #B-2
Temecula, CA 92590
(951) 201-2542
brateneconst@prodigy.net

BRATENE CONSTRUCTION & ENGINEERING

DRAWN BY	D. BRATENE
CHECKED	O.BRATENE
DATE	12/27/2023
SCALE	1"=30'
JOB NO.	18006
SHEET	2

PRECISE GRADING PLAN

AUSTIN WINERY

PARCEL 1
22.33 AC. GROSS
21.18 AC. NET

(5) PROP. WALKWAY ADA ACCESS

T.B.M. 1510.0
TOP OF SURVEY MARKER
N47°46'20"E

75' ACCELERATION TAPER PER STREET PLANS IP230026

150' DECELERATION TAPER PER STREET PLANS IP230026

N42°13'40"W
467.38'
△=16°19'25"
R=2000.
LOT "C"
44.00'
88'
44'
250' TURN POCKET
500' LANE TRANSITION
℄ GLENOAKS ROAD
℄ UNNAMED RD PM 42/92
60'
30' 30'

GRAPHIC SCALE
1"= 30'
0 15' 30' 60' 90' 120'

(2) EXISTING PARKING SURFACE SECTION — NTS
FS
4"
8"
CLASS II AGG. BASE 95% COMPACTION
NATIVE OR ENGINEERED FILL SUBGRADE 90% COMPACTION

(3) PRODUCTION PAD / CELLAR STORAGE / TRASH ENCLOSURE DETAIL SECTION — NTS
FS
6"
8"
PORTLAND CEMENT CONCRETE
NATIVE OR ENGINEERED FILL SUBGRADE 90% COMPACTION

(4) ALL WEATHER VEHICULAR ACCESS DETAIL DRIVEWAY SECTION — NTS
FS
3"
4"
8"
ASPHALT
AGGREGATE BASE 95% COMPACTION
NATIVE OR ENGINEERED FILL SUBGRADE 95% COMPACTION

(5) CONCRETE PATIO & WALKWAY SECTION — NTS
FS
4"
8"
PORTLAND CEMENT CONCRETE
NATIVE OR ENGINEERED FILL SUBGRADE 90% COMPACTION

(6) PROPOSED PARKING SURFACE SECTION — NTS
FS
4"
8"
CLASS II AGG. BASE 95% COMPACTION
NATIVE OR ENGINEERED FILL SUBGRADE 90% COMPACTION

(7) EXISTING GLEN OAKS ROAD SECTION — NTS
MATCH THICKNESS OF EXIST'G GLEN OAKS RD
FS
ASPHALT
AGGREGATE BASE 95% COMPACTION
NATIVE OR ENGINEERED FILL SUBGRADE 90% COMPACTION

PAVEMENT SURFACE TRANSITION DETAIL — NTS
FG FS FS FG
CLASS II BASE
ASPHALT OR CONCRETE

NOTE:
TRANSITION NOT TYPICAL WHERE CURBS ARE CALLED OUT.

(12/2) 3' WIDE CONCRETE SWALE — NTS
3'
3" DEEP
3'

(11/2) 6' WIDE CONCRETE SWALE — NTS
6'
3" DEEP
3'

(9/2) 6" TYPE "D" CONCRETE CURB — NTS
6"
1 1/2"
3/4" RADIUS
6" CURB FACE
ASPHALT OR CLASS II BASE SURFACE
16"
10"

(14/2) 6" ASPHALT DIKE COUNTY STD. 212 — NTS
0.25'
0.42'
0.25'
0.50'
ASPHALT

(1/2) TYPICAL BERM DETAIL — NTS
12"
5'
2.5'
2
1
FILL SLOPE

(27/2) TYPICAL DOWN-DRAIN CONC. INLET DETAIL — NTS
+3" ABOVE V-DRAIN FL
LIP OF CONC. AT OR BELOW GRADE
TOP OF 2:1 SLOPE BERM (1)
PROP. SLOPE
9" CONC. CUT-OFF AROUND PERIMETER
V-DRAIN FL
BOT. CONC. V-DRAIN
SECTION X-X
5'
+3" ABOVE V-DRAIN FL
TOP OF BERM
2.5'
+15" ABOVE V-DRAIN FL
CONC. V-DRAIN
3'

PREPARED BY:
OSBJORN BRATENE
RCE 21873
DATE 12/27/2023

REGISTERED PROFESSIONAL ENGINEER — OSBJORN BRATENE — No. 21873 — CIVIL — STATE OF CALIFORNIA

BGR2200348
BMP2200404
REF: BGR1800141

REVISIONS	BY

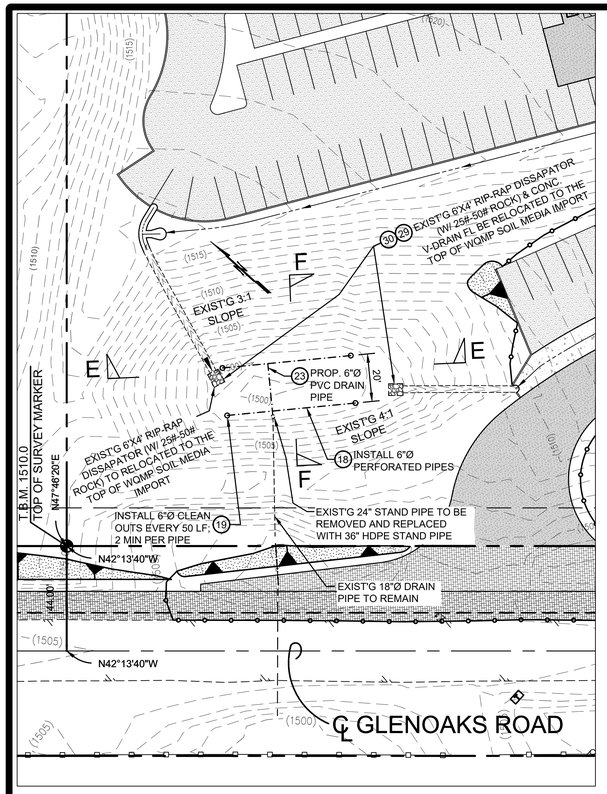
SURFACING PLAN
AUSTIN WINERY
PARCEL 1 OF PARCEL MERGER 180016
35620 GLENOAKS RD, TEMECULA CA 92592

BRATENE CONSTRUCTION & ENGINEERING
Civil Engineers - RCE 21873
General Contractors - Lic. 378242
41625 Enterprise Circle South, #B-2
Temecula, CA 92590
(951) 201-2542
bratenecons@prodigy.net

DRAWN BY	D. BRATENE
CHECKED	O.BRATENE
DATE	12/27/2023
SCALE	1"=30'
JOB NO.	18006
SHEET	3

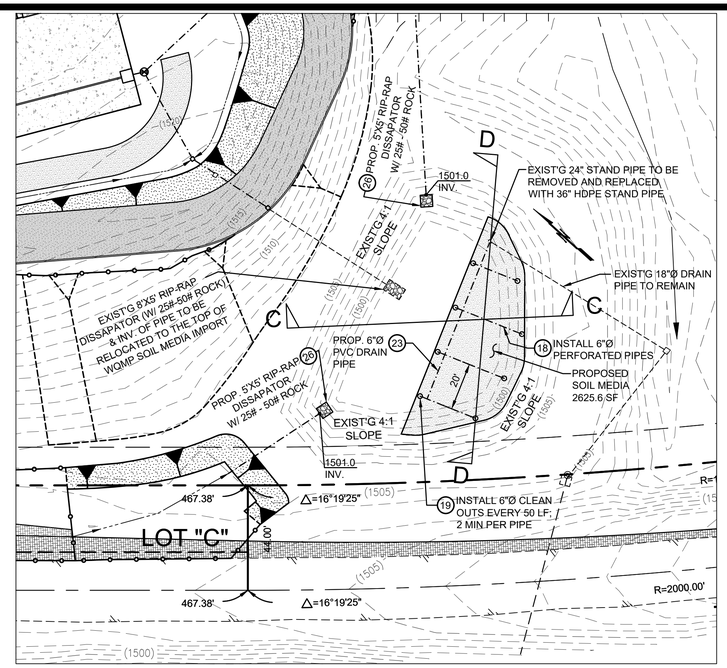
PRECISE GRADING PLAN

AUSTIN WINERY



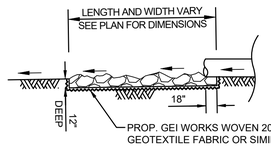
WQMP BASIN "A"

SCALE: 1"=30"



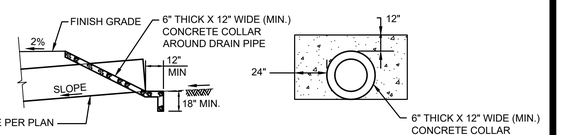
WQMP BASIN "B"

SCALE: 1"=30"



26 TYP. RIP–RAP INSTALLATION

NTS



28 TYPICAL CONCRETE COLLAR AT PIPE INLET

NTS

SOIL MEDIA DESIGN SPECIFICATIONS:

1. THE ENGINEER SHALL FURNISH TO THE COUNTY A COPY OF THE SOURCE TESTING AND SIGNED CERTIFICATION THAT THE FULLY BLENDED BIORETENTION/BIOFILTRATION SOIL MEDIA (BSM) MATERIAL MEETS ALL OF THE WQMP REQUIREMENTS BEFORE MATERIAL IS IMPORTED OR IF THE MATERIAL IS MIXED ONSITE PRIOR TO INSTALLATION.
2. AS BSM MATERIAL IS BEING INSTALLED, QUALITY ASSURANCE (QA) TESTS SHALL BE CONDUCTED OR FOR EVERY 1,200 TONS OR 800 CUBIC YARDS MIXED ON-SITE FROM A COMPLETELY MIXED STOCKPILE OR WINDROW, WITH A MINIMUM OF THREE TESTS. FOR IMPORTED MATERIAL FROM A SUPPLIER WITH A QUALITY CONTROL PROGRAM THE QA TESTS SHALL BE CONDUCTED 2,400 TON OR 1,600 CUBIC YARDS FROM THE SUPPLIER.
3. THE ENGINEER CONDUCTING THE QUALITY CONTROL TESTING SHALL FURNISH TO THE COUNTY COPY OF THE QA TESTING AND A CERTIFICATION THAT THE BSM FOR THE PROJECT MEETS ALL OF THE FOLLOWING REQUIREMENTS. CERTIFIED MITIGATION PLANS CAN BE USED FOR EXCEEDANCES, AS LONG AS ALL REQUIREMENTS ARE DESIGNED TO BE MET.

A. BSM SHALL NOT BE COMPACTED. BSM SHALL CONSIST OF 60-80% CLEAN SAND, UP TO 20% CLEAN TOPSOIL, AND 20% OF A NUTRIENT-STABILIZED ORGANIC AMENDMENT. THE INITIAL INFILTRATION RATE SHALL BE GREATER THAN 8 INCHES PER HOUR PER LABORATORY TEST.

B. pH: 6.0-8.5; SALINITY: 0.5 T0 3.0 MMHO/CM AS ELECTRICAL CONDUCTIVITY; SODIUM ABSORPTION RATIO: < 6.0; CHLORIDE: <800 PPM IN SATURATED EXTRACT; CATION EXCHANGE CAPACITY (CEC): > 10 MEG/100G; ORGANIC MATTER: 2 TO 5-PERCENT ON A DRY WEIGHT BASIS; CARBON: NITROGEN RATIO: 12 TO 40, PREFERABLY 15 T0 40; GRAVEL LARGER THAN 2MM: 0 TO 25-PERCENT OF THE TOTAL SAMPLE; CLAY SMALLER THAN 0.005MM: 0 TO 5 PERCENT OF THE NON-GRAVEL FRACTION.

C. BSM SHALL BE TESTED TO LIMIT THE LEACHING OF POTENTIAL INHERENT POLLUTANTS. BSM USED IN BIOFILTRATION BMPS SHALL CONFORM TO THE FOLLOWING LIMITS FOR POLLUTANT CONCENTRATIONS IN SATURATED EXTRACT: PHOSPHORUS: <1 MG/L; NITRATE < 3 MG/L, COPPER < 0.025 MG/L. THESE POLLUTANT LIMITS ARE FOR THE AMOUNT THAT IS LEACHED FROM THE SAMPLE, NOT FROM THE SOIL SAMPLE ITSELF. TESTING MAY BE PERFORMED AFTER LABORATORY RINSING OF MEDIA WITH UP TO 15 PORE VOLUMES OF WATER. EQUIVALENT TEST RESULTS WILL BE ACCEPTED IF CERTIFIED BY A LABORATORY OR APPROPRIATE TESTING FACILITY.

D. LOW NUTRIENT COMPOST USED IN BSM SHALL BE SOURCED FROM A FACILITY PERMITTED THROUGH CALRECYCLE, PREFERABLY THROUGH USCC STA PROGRAM. COMPOST SHALL CONFORM TO THE FOLLOWING REQUIREMENTS: PHYSICAL CONTAMINANTS <1% BY DRY WEIGHT; CARBON:NITROGEN RATIO: 12:1 TO 40:1; MATURITY/STABILITY SHALL CONFORM TO EITHER: SOLVITA MATURITY INDEX≥ 0.5, CO2 EVOLUTION: < 2.5 MG CO2-C PER G COMPOST ORGANIC MATTER PER DAY, OR < 5 MG CO2-C PER G COMPOST C PER DAY; SELECT PATHOGENS AND TRACE METALS SHALL PASS US EPA CLASS A STANDARD. TESTING SHALL BE NO MORE THAN 6 MONTHS OLD AND REPRESENTATIVE OF CURRENT STOCKPILES.

E. COCONUT COIR PITH USED IN BSM SHALL BE THOROUGHLY RINSED WITH FRESHWATER AND SCREENED TO REMOVE COARSE FIBERS AS PART OF PRODUCTION AND AGED > 6 MONTHS. PEAT USED IN BSM SHALL BE SPHAGNUM PEAT.

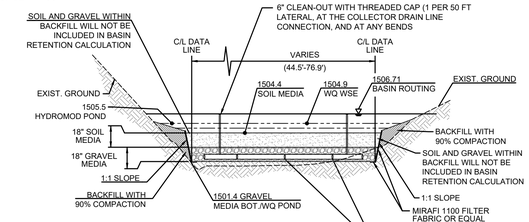
BMP DESIGN NOTES:

1. DUE TO VERTICAL CONSTRAINTS SOIL MEDIA & GRAVEL SECTION LIMITED TO 36" IN DEPTH.
2. SOIL MEDIA SHALL CONFORM TO RIVERSIDE COUNTY LID MANUAL FACT SHEET 3.8 BIORETENTION/BIOFILTRATION SOIL MEDIA
3. SAND SHALL CONSIST OF CONCRETE WASHED SAND PER ASTM 33.
4. PEA GRAVEL SHALL CONFORM TO ASTM NO. 8. AND GRAVEL SHALL CONFORM TO AASHTO NO. 57.
5. ALL PVC PIPE, RISERS, FITTINGS AND APPURTENANCES SHALL BE SCHEDULE 40. PVC PIPING SHALL SLOPE AT 0.5% MINIMUM.
6. THE EXISTING BASINS ARE GRADED AT ±4:1. DURING CONSTRUCTION 4:1 SLOPES SHALL BE MAINTAINED.
7. BASIN ROUTING AND HCOC USE THE FLOW RATE ASSOCIATED WITH THE INFILTRATION RATE FROM SOIL MEDIA AS PART OF ANALYSIS.
8. BASIN INCREASE RUNOFF MITIGATION ANALYSES FOR 2 YR, 5YR, 10 YR, AND 100 YR STORM EVENTS ASSUME THAT AVAILABLE STORAGE IS ABOVE THE HCOC PONDED DEPTH.

PREPARED BY:

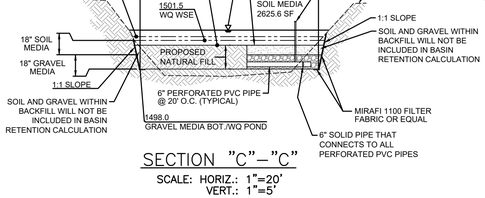
OSBJON BRATENE, RCE 21873 — DATE 12/27/2023

BGR2200348
BMP2200404
REF: BGR1800141



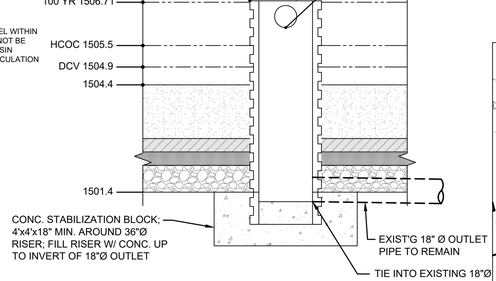
SECTION "E"–"E"

SCALE: HORIZ.: 1"=20'
VERT.: 1"=5'



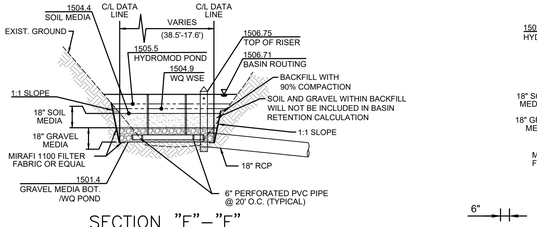
SECTION "C"–"C"

SCALE: HORIZ.: 1"=20'
VERT.: 1"=5'



17A BASIN "A" OUTLET PIPE DETAIL

NTS



SECTION "F"–"F"

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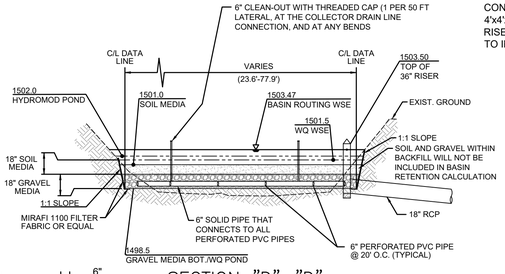
VERT.: 1"=5'



SECTION "D"–"D"

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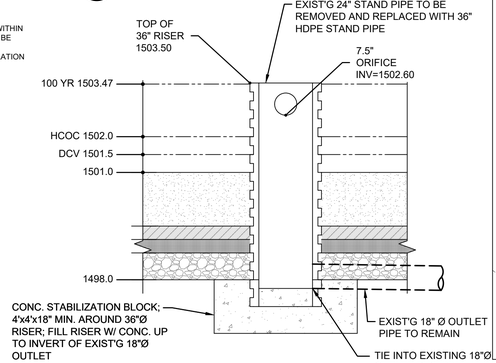
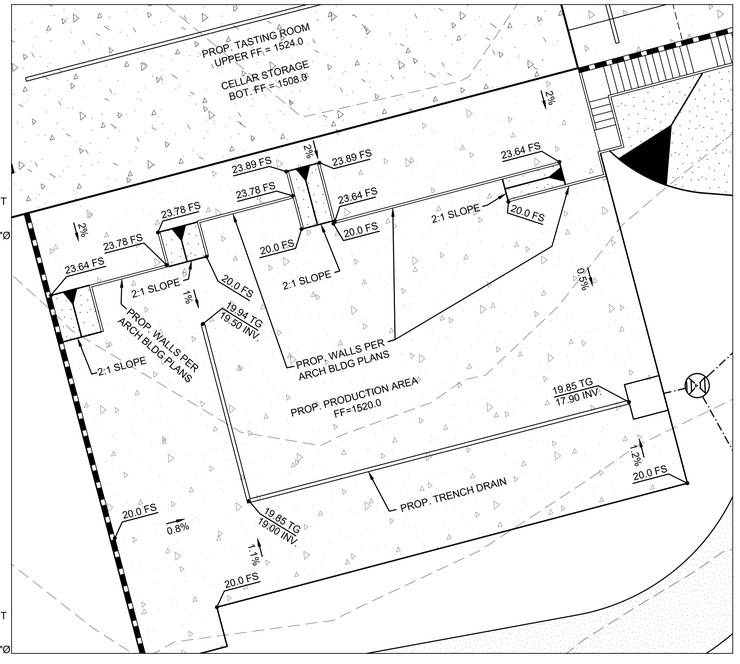
VERT.: 1"=5'



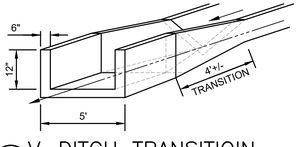
17B BASIN "B" OUTLET PIPE DETAIL

NTS



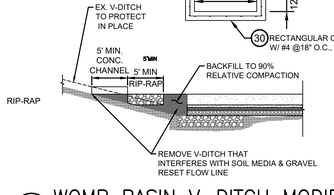
PRODUCTION AREA DETAIL

SCALE: 1"=10'



30 V–DITCH TRANSITIOIN TO FLAT–BOTTOM DRAIN

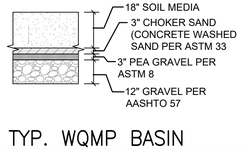
NTS



29 WQMP BASIN V–DITCH MODIFICATION

NTS

30 RECTANGULAR CHANNEL W/ #4 @18" O.C., E.W.



TYP. WQMP BASIN SOIL/GRAVEL MEDIA

NTS

REVISIONS	BY

WQMP BASINS & PRODUCTION AREA
AUSTIN VINEYARD
PARCEL 1 OF PARCEL MERGER 180016
35620 GLENOAKS RD, TEMECULA CA 92592

Civil Engineers - RCE 21873
General Contractors - Lic. 378242
41625 Enterprise Circle South, #B-2
Temecula, CA 92590
(951) 201-2542
bratenevans@prodigy.net

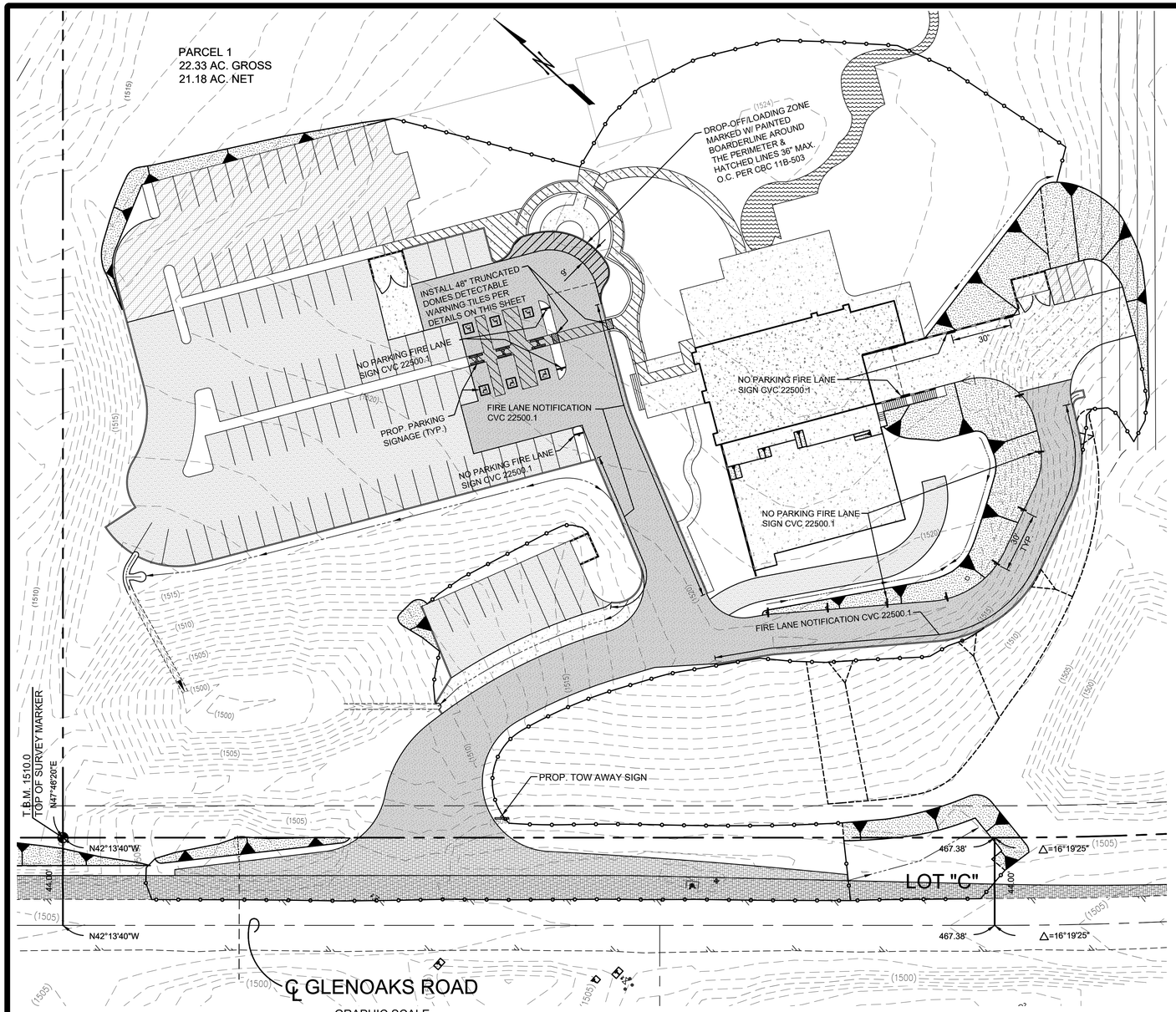
BRATENE CONSTRUCTION & ENGINEERING

DRAWN BY	D. BRATENE
CHECKED	O.BRATENE
DATE	12/27/2023
SCALE	1"=30'
JOB NO.	18006
SHEET	4

PRECISE GRADING PLAN

AUSTIN WINERY

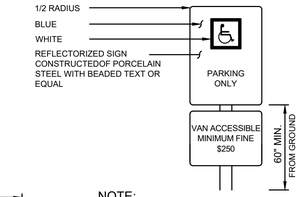
PARCEL 1
22.33 AC. GROSS
21.18 AC. NET

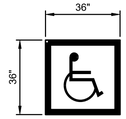


GRAPHIC SCALE
1"= 30'
0 15' 30' 60' 90' 120'

PAVING NOTES:

1. MINIMUM PARKING LOT GRADE SHALL BE 1% MIN. GRADE FOR RIBBON DRAINS SHALL BE 0.35%.
2. AN APPROVED SOIL STERILIZER SHALL BE USED ON ALL SUBGRADE SURFACES PRIOR TO PLACEMENT OF PAVING.
3. ASPHALT EMULSION (FOG SEAL) SHALL BE APPLIED NOT LESS THAN FOURTEEN (14) DAYS FOLLOWING PLACEMENT OF THE ASPHALT SURFACING AND SHALL BE APPLIED AT A RATE OF 0.05 GALLONS PER SQUARE YARD ASPHALT EMULSION SHALL CONFORM TO SECTIONS 37, 39, AND 94 OF THE STANDARD SPECIFICATIONS.
4. ALL PAVING INSPECTIONS WILL BE PERFORMED BY SPECIAL INSPECTORS HIRED BY THE OWNER. TWO (2) INSPECTIONS ARE REQUIRED:
   INSPECTION No.1 FOR THE BASE COURSE
   INSPECTION No.2 INSPECTION WHEN THE AC AND CONCRETE ARE PLACED
5. A COMPACTION REPORT BY A GEOTECHNICAL ENGINEER SHALL CERTIFY THE AGGREGATE BASE (AB) UNDER ASPHALT CONCRETE (AC) IS COMPACTED TO 95% RELATIVE DENSITY OR 90% RELATIVE DENSITY UNDER CONCRETE. THIS INCLUDES TRENCHES FOR UTILITIES UNDER THE PAVING AREA. PRIOR TO THE INSTALLATION OF THE AC OR CONCRETE. THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE CONTRACTOR WITH WRITTEN CERTIFICATION THAT THE AGGREGATE BASE IS PROPERLY INSTALLED AND ADEQUATE TO SUPPORT THE AC, CONCRETE, AND INTENDED LOADS.
6. IF THE PRELIMINARY SOILS REPORT DOES NOT SPECIFY A PAVING SECTION THE STRUCTURAL SECTION SHALL BE THREE (3) INCHES OF AC AND FOUR (4) INCHES OF CLASS II AGGREGATE BASE, OR MINIMUM SECTION REQUIRED BY ORDINANCE 461.
7. PRIOR TO REQUESTING A BUILDING FINAL INSPECTION. THE CONTRACTOR SHALL PROVIDE A COPY OF SPECIAL INSPECTION REPORT No. 1 AND THE GEOTECHNICAL ENGINEER'S CERTIFICATION TO THE BUILDING AND SAFETY GRADING COUNTER FOR REVIEW AND APPROVAL. THE GRADING STAFF WILL CLEAR THE CONDITIONS ALLOWING THE BUILDING FINAL INSPECTION.



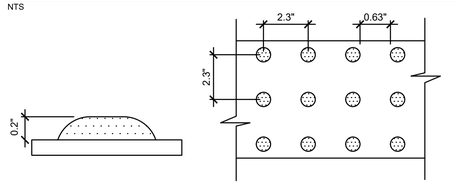


NOTE:
SIGN TO BE CENTERED AT THE INTERIOR END OF PARKING SPACE. AREA OF SIGN TO BE A MIN. OF 70 SQ. INCHES. DESIGNATE FOR "VAN ACCESSIBLE" WHERE APPROPRIATE.

EMBLEM MUST BE LOCATED IN STALL SO THAT IS VISIBLE BY A TRAFFIC ENFORCEMENT OFFICER WHEN A VEHICLE IS PROPERLY PARKED IN THE SPACE (CENTERED AT ENTRANCE TO STALL RECOMMENDED)

ADA PARKING SPACE SIGNAGE CBC SEC. 11B–502.6

NTS



TRUNCATED DOMES DETAIL

NTS

NOTE:

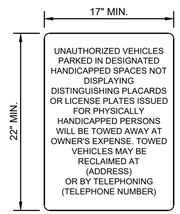
1. DETECTABLE WARNING, MOUNTED FLUSH, SURFACE SHALL BE CAST-IN-PLACE DETECTABLE WARNING TILE WITH STEEL ANGLES AND ANCHORS, MANUFACTURED BY ARMORCAST PRODUCTS COMPANY OR APPROVED EQUAL, AND SHALL MEET ALL ADA REQUIREMENTS AS WELL AS STATE TITLE 24 REQUIREMENTS.
2. DETECTABLE WARNING SURFACES SHALL BE YELLOW (PRECISELY FEDERAL STANDARD 595C 33538)
3. DETECTABLE WARNING SURFACE SHALL CONFORM TO THE DETAILS ON THIS STANDARD PLAN.
4. DETECTABLE WARNING SURFACE SHALL BE INSTALLED SO THAT DOMES ARE ALIGNED PARALLEL TO CENTERLINE OF ACCESS RAMP.
5. THE EDGE OF THE DETECTABLE WARNING SURFACE NEAREST THE STREET SHALL BE BETWEEN 6" AND 8" FROM THE GUTTER FLOW LINE.
6. DETECTABLE WARNINGS AT CURB RAMPS SHALL EXTEND 36 INCHES IN THE DIRECTION OF TRAVEL. DETECABLE WARNINGS SHALL EXTEND THE FULL WIDTH OF THE RAMP RUN LESS 2 INCHES MAXIMUM ON EACH SIDE, EXCLUDING ANY FLARED SIDES. DETECTABLE WARNINGS SHALL BE LOCATEED SO THE EDGE NEAREST THE CURB IS 6 INCHES MAXIMUM FROM THE LINE AT THE FACE OF THE CURB MARKING THE TRANSITION BETWEEN THE CURB AND THE GUTTER, STREET OR HIGHWAY.
7. DETECTABLE WARNING SURFACES AT PLATFORM BOARDING EDGES SHALL BE 24 INCHES WIDE AND SHALL EXTEND THE FULL LENGTH OF THE PUBLIC USE AREAS OF THE PLATFORM.

NO PARKING SIGNAGE

NTS

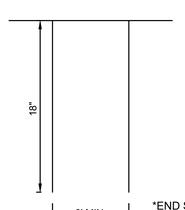
FIRE LANE NOTIFICATION

CURBS AT FIRE LANES SHALL BE PAINTED ON TOP AND FACE OF CURB WITH "OSHA SAFETY RED" PAINT AND NOTIFICATION LETTERING SHALL BE APPLIED ON TOP OF CURB AT 30' SPACING, USING WHITE PAINT 3" TALL LETTERS AS FOLLOWS:
"FIRE LANE-NO PARKING CVC 22500.1"



TOW AWAY SIGNAGE

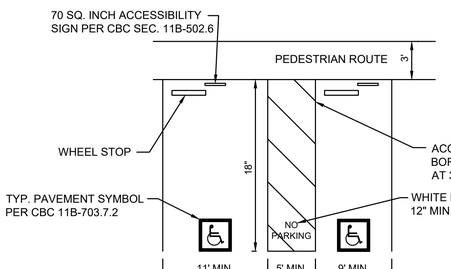
NTS



*END STALLS SHALL BE 11' WIDE

TYP. PARKING STALLS

NTS



ADA VAN ACCESSIBLE PARKING STALLS

NTS

ADA PATH STRIPING

NTS

1. PATHWAYS BORDERS SHALL BE BLUE.
2. PATHWAYS STRIPING SHALL BE WHITE.
3. PATHWAY STRIPING SHALL BE AT 36" ON CENTER.

PREPARED BY:

12/27/2023
OSBJORN BRATENE DATE
RCE 21873

BGR2200348
BMP2200404
REF: BGR1800141

REVISIONS	BY

ADA & FIRE SIGNAGE

AUSTIN WINERY

PARCEL 1 OF PARCEL MERGER 180016

35620 GLENOAKS RD, TEMECULA CA 92592

Civil Engineers - RCE 21873
General Contractors - Lic. 378242
41625 Enterprise Circle South, #B-2
Temecula, CA 92590
(951) 201-2342
bratenecons@prodigy.net

BRATENE CONSTRUCTION & ENGINEERING

DRAWN BY	D. BRATENE
CHECKED	O.BRATENE
DATE	12/27/2023
SCALE	1"=30'
JOB NO.	18006
SHEET	5

Appendix 3: Soils Information

Geotechnical Study, Other Infiltration Testing Data, and/or Other Documentation

Examples of material to provide in Appendix 3 may include but are not limited to the following:

- Geotechnical Study/Report prepared for the project,
- Additional soils testing data (if not included in the Geotechnical Study),
- Exhibits/Maps/Other Documentation of the Hydrologic Soils Groups (HSG)s at the project site.

This information should support the Full Infiltration Applicability, and Biofiltration Applicability sections of this Template. Refer to Section 2.3 of the SMR WQMP and Sections A and D of this Template.

The County will accept explicit recommendations from the Geotechnical Engineer, such as specifying a design infiltration rate (unfactored) when infiltration rates vary, recommendations for impermeable liners due to concerns about seepage in fill areas/near gas tanks, or other site specific recommendations based on physical conditions.

ENGEN CORPORATION
Geotechnical & Environmental Services

41625 Enterprise Circle S., B-2
Temecula, CA 92590
info@engencorp.com
engencorp.com
ph | 951.296.3511
fx | 951.240.3380
SDVOSB | DVBE

March 21, 2023

Austin Vineyards
c/o Temecula Valley Winery Management
Attention: Mr. Rebaux Steyn
27495 Diaz Road
Temecula, CA 92590

Subject: **SLOPE STABILITY ANALYSIS – INFILTRATION BASIN SLOPES**
1800141, Austin Vineyards, Temecula, CA 92590
Project Number: 4436C

References:
1. ***EnGEN Corporation, Preliminary Geotechnical Feasibility Study***
Austin Vineyards APN 942-030-006
4436C, Dated: December 10, 2018
2. ***Bratene Engineering, Rough Grading Plan***
BGR Number: 1800141, Austin Vineyard, APN 942-030-006 Parcel 1 of Parcel Merger 180016, Glen Oaks Rd, California 92592, Job No: 18006, Dated October 23, 2018

Mr. Steyn:

Per your request, we have performed a slope stability analysis for the slopes within the infiltration basin at the subject site. The analysis was performed based on the currently configured infiltration basin as shown on the reference No. 2 Plan.

Based on the analysis results, slopes inclined at a 2:1 (horizontal to vertical) inclination or flater meet the minimum safety fact as defined in the current California Building Code of greater than 1.5. The calculation sheet is attached as Exhibit 1.

Thank you for the opportunity to provide these services. If you should have any questions regarding this report, please contact this office at your convenience.

Respectfully submitted,
EnGEN Corporation

Wayne Bainbridge, Principal
REPA 467972

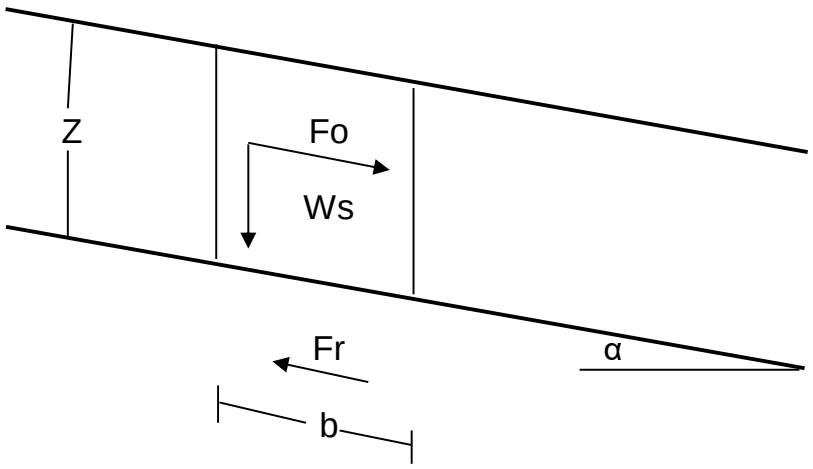
Osborn Bratene, Principal
GE 162

HWB/OB/al

Distribution: (1) Addressee

EXHIBIT 1 – SLOPE STABILITY ANALYSIS CALCULATIONS

SURFICIAL SLOPE STABILITY ANALYSIS
CUT AND FILL SLOPES



Fo = Z W Cos α Sin α = ½ Z W Sin 2 α

Fr = P Tan Φ + C = Z (W – Ww) (Cos α)^2 Tan Φ + C

Factor of Safety = $\frac{2\ Z\ (W - Ww)\ (\cos \alpha)^2 \tan \Phi + 2\ C}{Z\ W \sin(2\ \alpha)}$

WHERE:	Z = Vertical Depth of Soil Saturation (ft)	**3**
	Φ = Effective Angle of Internal Friction (Degrees)	**34**
	C = Effective Cohesion (lb/ft^2)	**150**
	W = Saturated Soil Unit Weight (lb/ft^3)	**116**
	Ww = Unit Weight of Water (lb/ft^3)	**62.4**
	α = Slope Angle (Degrees) Gradient: 2:1	**26.6**

Factor of Safety = 1.7

SURFICIAL STABILITY ANALYSIS
AUSTIN VINEYARD AND WINERY
INFILTRATION BASIN

EnGEN Corporation
41625 Enterprise Circle South, B-2
Temecula, CA 92590

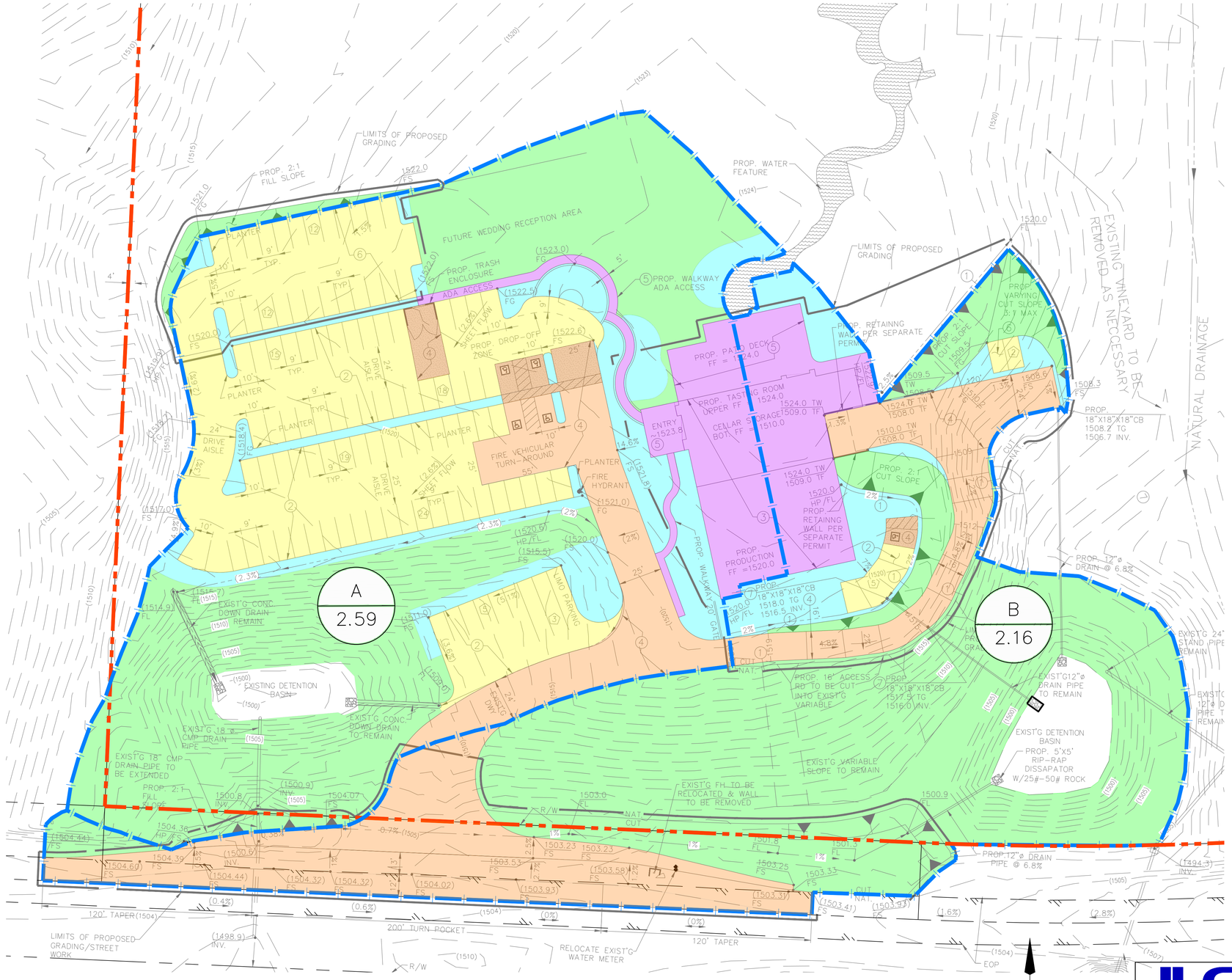
Project Number:	**4436C**

Figure 4 – Land Cover Map

PLOT PLAN MAP 210132

COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

LAND COVER MAP



LEGEND:

XXX / X.X — DMA / ACRES

- DMA BOUNDARY
- TRACT BOUNDARIES
- AC
- CONCRETE
- CLASS II PERVIOUS AGG. BASE
- ORNAMENTAL LANDSCAPE
- VINEYARD

DMA SUMMARY TABLE			
DMA	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	TOTAL AREA (SF)
A	19805.0	93226.2	113031.2
B	30702.6	63541.1	94243.7

DMA A SUMMARY TABLE			
LANDCOVER	TOTAL AREA (SF)	PERCENT IMPERVIOUS	IMPERVIOUS AREA (SF)
AC	11922.9	100.00%	11922.9
CONCRETE	7916.2	100.00%	7916.2
CLASS II AGG. BASE	35122.5	0.00%	0.0
ORNAMENTAL LANDSCAPE	16139.8	0.00%	0.0
VINEYARD	41929.8	0.00%	0.0
TOTAL IMPERVIOUS AREA			17.92%
TOTAL EFFECTIVE IMPERVIOUS AREA			34.09%

DMA B SUMMARY TABLE			
LANDCOVER	TOTAL AREA (SF)	PERCENT IMPERVIOUS	IMPERVIOUS AREA (SF)
AC	23870.4	100.00%	23870.4
CONCRETE	6962.0	100.00%	6962.0
CLASS II AGG. BASE	1167.2	0.00%	0.0
ORNAMENTAL LANDSCAPE	9848.8	0.00%	0.0
VINEYARD	52395.3	0.00%	0.0
TOTAL IMPERVIOUS AREA			34.09%
TOTAL EFFECTIVE IMPERVIOUS AREA			50.56%

JLC Engineering & Consulting, Inc.
41660 IVY STREET, SUITE A
MURRIETA, CA 92562
PH. 951.304.9552 FAX 951.304.3568

FIGURE 4

PP NO. 210132

LAND COVER MAP

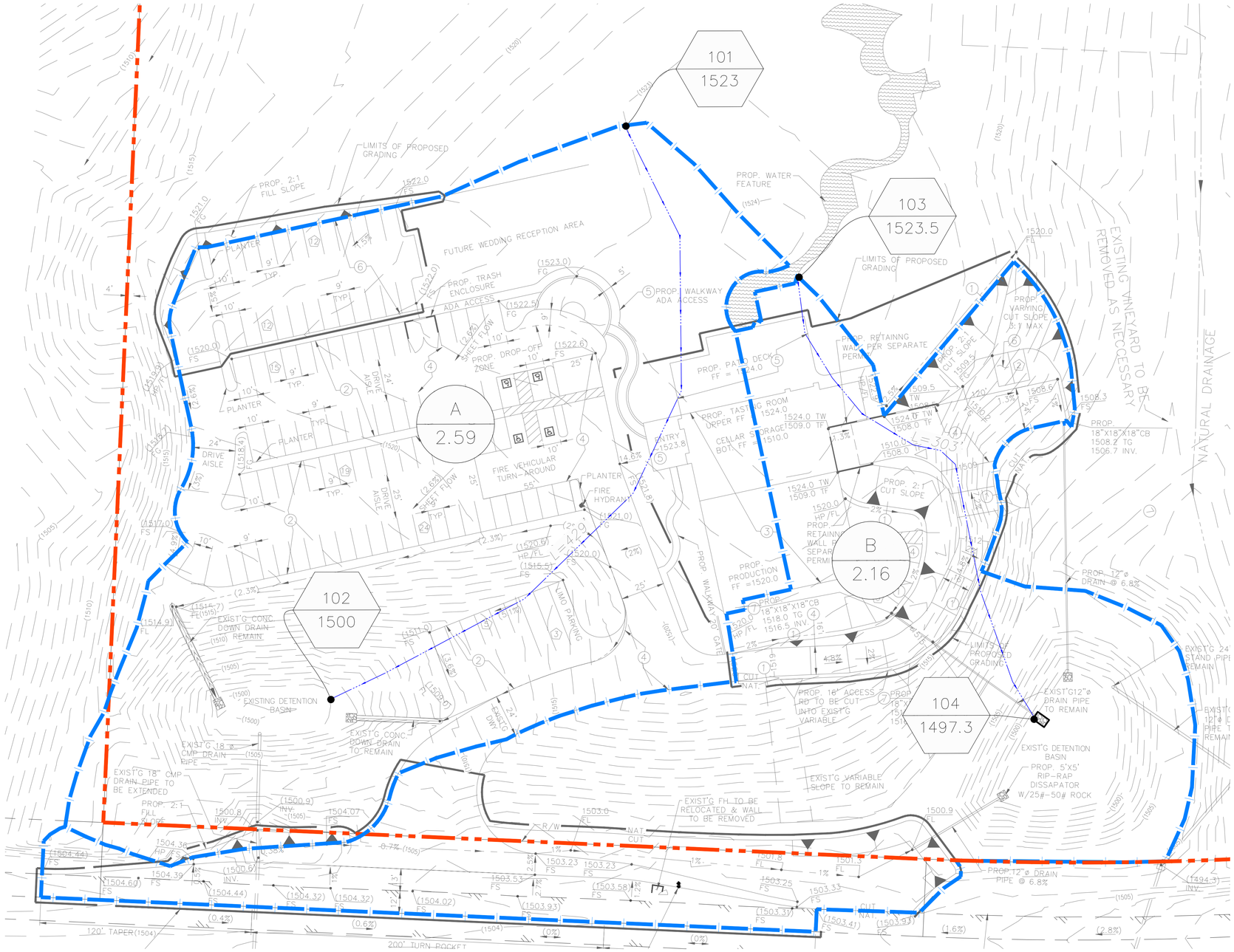
Drawing Name: O:\158.22.18\Engineering\WQMP\Appendix 1 - Maps & Site Plan\158.22.18-Fig4-Land-Cover-Map.dwg
Last Opened: Jun 09, 2022 - 9:19am by jglass

Figure 5 – Hydromodification Map

PLOT PLAN MAP 210132

COUNTY OF RIVERSIDE, STATE OF CALIFORNIA

HYDROMODIFICATION MAP



DMA SUMMARY TABLE			
DMA	IMPERVIOUS AREA (SF)	PERVIOUS AREA (SF)	TOTAL AREA (SF)
A	19805.0	93226.2	113031.2
B	30702.6	63541.1	94243.7

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LANDCOVER	TOTAL AREA (SF)	PERCENT IMPERVIOUS	IMPERVIOUS AREA (SF)
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CLASS II AGG. BASE	1167.2	0.00%	0.0
ORNAMENTAL LANDSCAPE	9848.8	0.00%	0.0
VINEYARD	52395.3	0.00%	0.0
TOTAL IMPERVIOUS AREA			34.09%
TOTAL EFFECTIVE IMPERVIOUS AREA			50.56%

LEGEND:

- XXX.X / XXXX — NODE/CONCENTRATION POINT
- XXXX.X — APPROXIMATE INVERT ELEVATION
- XXX / X.X — DMA / ACRES
- FLOW PATH
- DMA BOUNDARY
- TRACT BOUNDARIES

GRAPHIC SCALE
30' 0 15' 30' 60'
1" = 30'

FIGURE 5

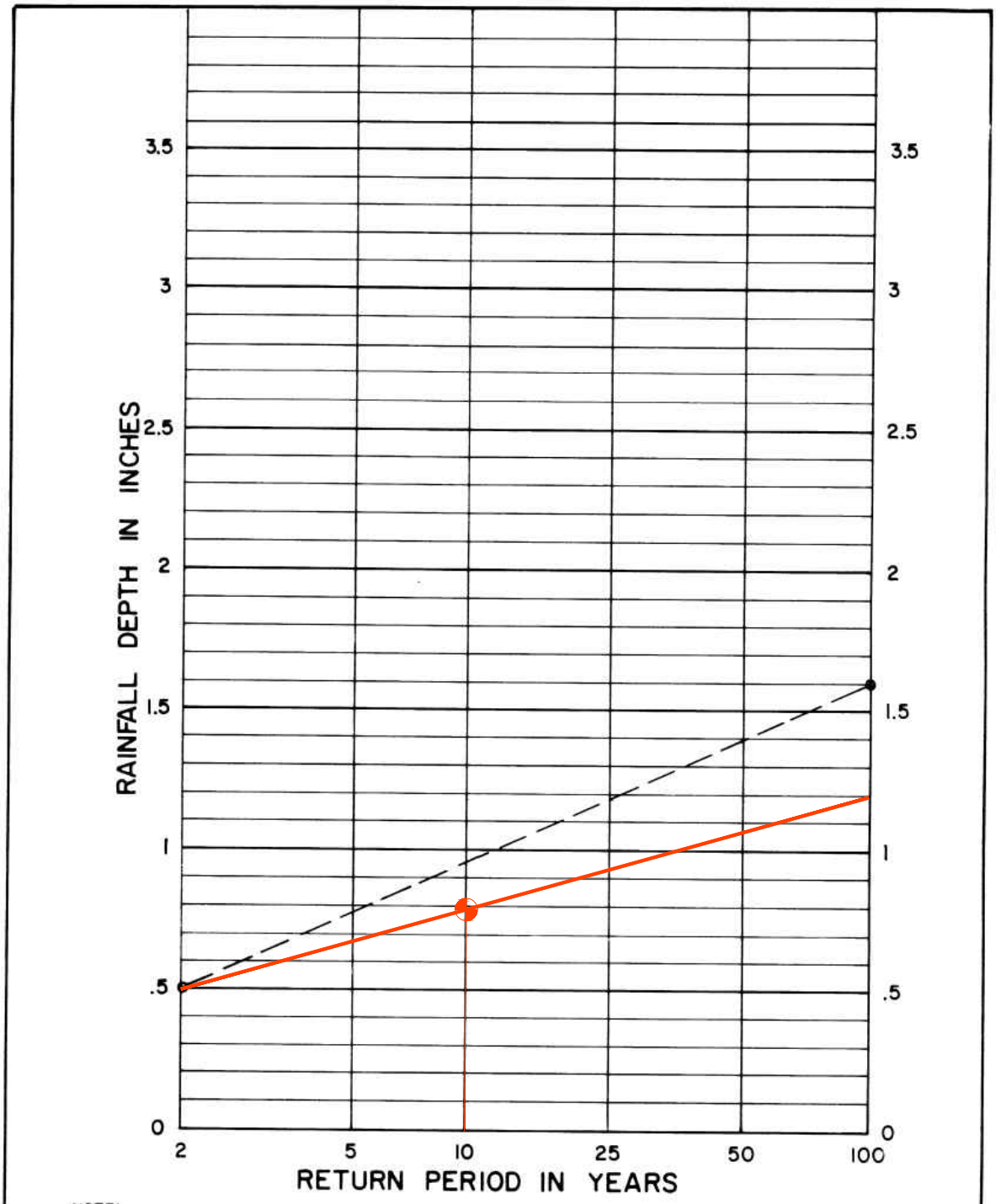
PP NO. 210132

HYDROMODIFICATION MAP

JLC Engineering & Consulting, Inc.
41660 IVY STREET, SUITE A
MURRIETA, CA 92562
PH. 951.304.9552 FAX 951.304.3568

Drawing Name: O:\158.22.18\Engineering\WQMP\Appendix 1 - Maps & Site Plan\158.22.18-Fig5-Hydro-Modification-Map.dwg
Last Opened: Jun 09, 2022 - 9:24am by jglass

Figure 6 – Plate D4.5 Rainfall Value from Frequency



NOTE:

1. For intermediate return periods plot 2-year and 100-year one hour values from maps, then connect points and read value for desired return period. For example given 2-year one hour = .50" and 100-year one hour = 1.60", 25-year one hour = 1.18"

Reference: NOAA Atlas 2, Volume XI - California, 1973.

RCFC & WCD

HYDROLOGY MANUAL

RAINFALL DEPTH VERSUS RETURN PERIOD FOR PARTIAL DURATION SERIES

PLATE D-4.5

Appendix 2: Construction Plans

*The latest set of Grading, Drainage Plans, and Street Improvement plans **shall be included***

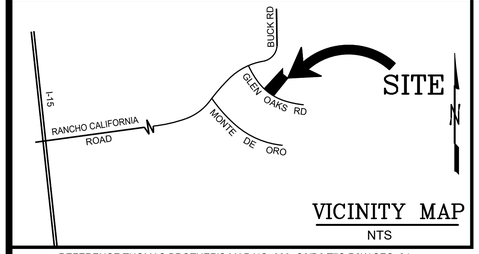
Bioretention/Biofiltration BMPs construction notes (Santa Margarita Region only). For Bioretention and Biofiltration facilities, the **following construction notes shall be shown on the Grading and/or Drainage plans:**

1. *The Engineer shall furnish to the County a copy of the source testing and a signed certification that the fully blended Bioretention/Biofiltration Soil Media (BSM) material meets all of the WQMP requirements before material is imported or if the material is mixed onsite prior to installation.*
2. *As BSM material is being installed, Quality Assurance (QA) tests shall be conducted or for every 1,200 tons or 800 cubic yards mixed on-site from a completely mixed stockpile or windrow, with a minimum of three tests. For imported material from a supplier with a quality control program the QA tests shall be conducted 2,400 tons or 1,600 cubic yards from the supplier.*
3. *The Engineer conducting the Quality Control testing shall furnish to the County copy of the QA testing and a certification that the BSM for the project meets all of the following requirements. Certified mitigation plans can be used for exceedances, as long as all requirements are designed to be met.*
    a. *BSM shall not be compacted. BSM shall consist of 60-80% clean sand, up to 20% clean topsoil, and 20% of a nutrient-stabilized organic amendment. The initial infiltration rate shall be greater than 8 inches per hour per laboratory test.*
    b. *pH: 6.0 – 8.5; Salinity: 0.5 to 3.0 mmho/cm as electrical conductivity; Sodium absorption ratio: < 6.0; Chloride: < 800 ppm in saturated extract; Cation Exchange Capacity (CEC): > 10 meq/100 g; Organic Matter: 2 to 5-percent on a dry weight basis; Carbon: Nitrogen Ratio: 12 to 40, preferably 15 to 40; Gravel larger than 2mm: 0 to 25-percent of the total sample; Clay smaller than 0.005mm: 0 to 5 percent of the non-gravel fraction.*
    c. *BSM shall be tested to limit the leaching of potential inherent pollutants. BSM used in Biofiltration BMPs shall conform to the following limits for pollutant concentrations in saturated extract: Phosphorus: < 1 mg/L; Nitrate < 3 mg/L, Copper < 0.025 mg/L. These pollutant limits are for the amount that is leached from the sample, not from the soil sample itself. Testing may be performed after laboratory rinsing of media with up to 15 pore volumes of water. Equivalent test results will be accepted if certified by a laboratory or appropriate testing facility.*
    d. *Low nutrient compost used in BSM shall be sourced from a facility permitted through CalRecycle, preferably through USCC STA program. Compost shall conform to the following requirements: Physical contaminants <1% by dry weight; Carbon:Nitrogen ratio: 12:1 to 40:1; Maturity/Stability shall conform to either: Solvita Maturity Index: ≥ 5.5, CO2 Evolution: < 2.5 mg CO2-C per g compost organic matter per day, or < 5 mg CO2-C per g compost C per day; Select Pathogens and Trace metals shall pass US EPA Class A Standard. Testing shall be no more than 6 months old and representative of current stockpiles.*
    e. *Coconut coir pith used in BSM shall be thoroughly rinsed with freshwater and screened to remove coarse fibers as part of production and aged > 6 months. Peat used in BSM shall be sphagnum peat.*

Please notify the County if additional sources and laboratories can be added to this list. The Potential Sources and Laboratories are not part of the construction note - **Potential BSM sources may include**: Gail Materials (Temescal Valley), Agriservice (Oceanside), and Greatsoils (Escondido). Earthworks (Riverside); **Potential Laboratories may include**: Fruit Growers Laboratory, Inc. (Santa Paula, http://www.fglinc.com/) Wallace Laboratories (El Segundo, http://us.wlabs.com/). Control Labs (Watsonville, http://www.controllabs.com) and A&L Western Laboratories (Modesto, http://www.al-labs-west.com/).

PRECISE GRADING PLAN

AUSTIN WINERY



VICINITY MAP

NTS

REFERENCE THOMAS BROTHER'S MAP NO. 930, C6/D6 T7S R2W SEC. 24

REFERENCE NOTE:

EXCEPT FOR THE RETAINING WALLS IN CONJUNCTION WITH THIS GRADING, ALL INFORMATION ASSOCIATED WITH BUILDINGS (INCLUDING SETBACKS AND FF ELEVATIONS) IS FOR REFERENCE ONLY, AND THE APPROVAL OF THIS GRADING PLAN DOES NOT INCLUDE ANY PROVISIONS ASSOCIATED WITH BUILDINGS.

WORK WITHIN RIGHT-OF-WAY

THE ENGINEER WHO PREPARED THE GRADING PLAN HAS VERIFIED THE CONSISTENCY BETWEEN ON-SITE GRADING INFORMATION AND THE WORK WITHIN THE R/W APPROVED BY THE TRANSPORTATION DEP'T.

CONSTRUCTION IN RIGHT-OF-WAY

NO WORK SHALL COMMENCE WITHIN ROAD RIGHT-OF-WAY (R/W) PRIOR TO ISSUANCE OF AN ENCROACHMENT PERMIT BY THE TRANSPORTATION DEPARTMENT.

DRAINAGE NOTE:

THE ENGINEER OF RECORD WHO HAS PREPARED AND SIGNED THE GRADING PLAN HAS VERIFIED THAT THE PROPOSED DRAINAGE SYSTEM IS CONSISTENT WITH THE NATURAL DRAINAGE PATTERN OF THE SITE AND WILL NOT ADVERSELY AFFECT ADJACENT PROPERTIES.

THE ENGINEER OF RECORD HAS DETERMINED THAT, CONSIDERING THE SITE CONDITIONS, INCLUDING SOILS CONDITIONS AND CLIMATIC CONDITIONS, THE DESIGN DOES NOT WARRANT 5% DRAINAGE SLOPE AWAY FROM BUILDINGS AND 2% IS ADEQUATE.

DRAINAGE ACROSS PROPERTY LINES SHALL NOT EXCEED THAT WHICH EXISTED PRIOR TO GRADING. EXCESS OR CONCENTRATED DRAINAGE SHALL BE CONTAINED ON-SITE OR DIRECTED TO AN APPROVED DRAINAGE FACILITY. EROSION OF THE GROUND IN THE AREA OF DISCHARGE SHALL BE PREVENTED BY INSTALLATION OF NON-EROSIVE DOWN DRAINS OR OTHER DEVICES.

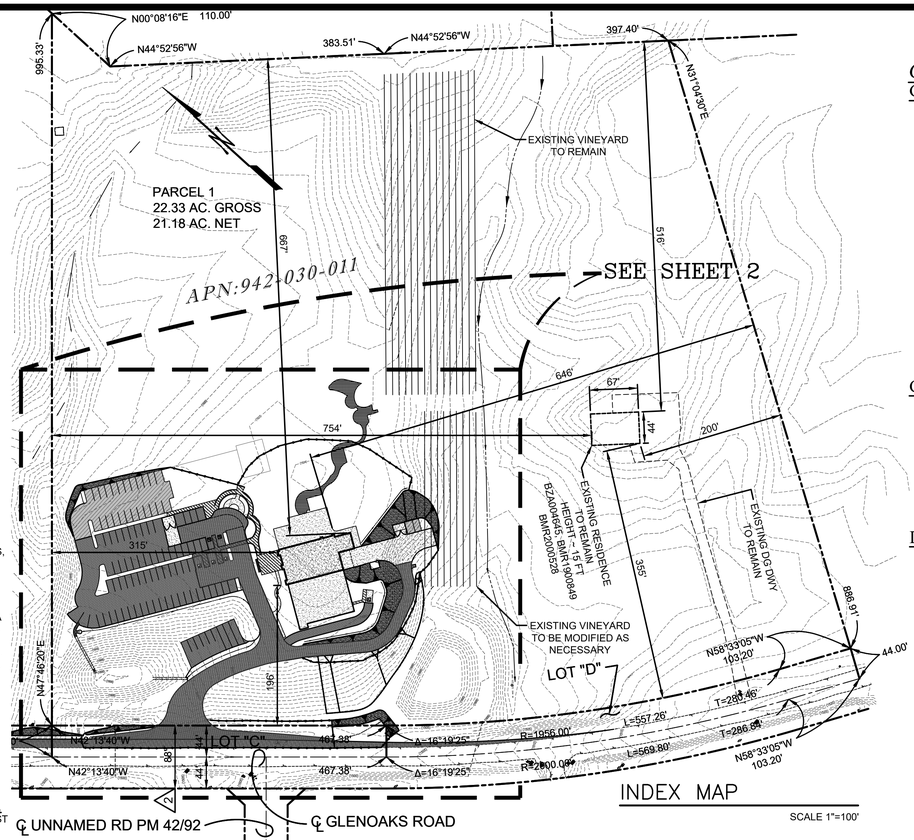
THE ENGINEER OF RECORD HAS EVALUATED THE DRAINAGE AND HAS DETERMINED THAT THE PROJECT PERPETUATES NATURAL DRAINAGE PATTERNS, AND WILL NOT ADVERSELY AFFECT ADJACENT PROPERTIES.

SOIL'S ENGINEERS CERTIFICATION:

I, OSBJORN BRATENE OF ENGEN CORP. , A REGISTERED CIVIL ENGINEER, PRINCIPALLY DOING BUSINESS IN GEOTECHNICAL ENGINEERING AND/OR APPLIED SOIL MECHANICS, HEREBY CERTIFY THAT A SAMPLING AND STUDY OF THE SOIL CONDITIONS PREVALENT WITHIN THIS SITE WAS MADE BY ME OR UNDER MY DIRECTION. THESE GRADING PLANS HAVE BEEN REVIEWED BY ME OR UNDER MY DIRECTION AND CONFORM TO THE RECOMMENDATION MADE IN OUR GEOTECHNICAL ENGINEERING INVESTIGATION REPORT ENTITLED "**PRELIMINARY UPDATED GEOTECHNICAL FEASIBILITY STUDY**" DATED MARCH 7, 2019. TO THE BEST OF MY KNOWLEDGE, THE REFERENCE REPORT REPRESENTS THE MOST CURRENT AND COMPLETE INFORMATION RELATIVE TO THE PROPOSED GRADING OF THE SITE. IT IS THE PROFESSIONAL OPINION OF ENGEN CORP. THAT THE CONCLUSIONS AND RECOMMENDATIONS RENDERED IN OUR REPORT ARE APPROPRIATE AND APPLICABLE TO THIS PROJECT AND THEY ARE IN SUBSTANTIAL CONFORMANCE WITH ALL APPLICABLE CODE, ORDINANCE, AND STANDARDS OF PRACTICE FOR THE PROJECT PROPOSED.

OSBJORN BRATENE — 5/9/2023 DATE:

ENGEN CORPORATION
OZ BRATENE
41625 ENTERPRISE CR. S #B-2
(951) 201-2542



INDEX MAP

SCALE 1"=100'

℄ UNNAMED RD PM 42/92 — ℄ GLENOAKS ROAD

DRAINAGE MAINTENANCE:

ALL DRAINAGE DEVICES, INCLUDING ANY V-DRAINS, PIPES, CATCH BASINS, AND RIP-RAP ENERGY DISSAPATORS, ARE TO BE CLEANED AND MAINTAINED BY THE OWNER TO CONTINUOUSLY FUNCTION PROPERLY.

DRAINAGE MAINTENANCE:

THE ENGINEER/ARCHITECT WHO PREPARED AND SIGNED THESE GRADING PLANS HAS VERIFIED THAT ALL INFORMATION ON THE DRAWINGS I CONSISTENT WITH THE WQMP, STORM DRAIN AND STREET IMPROVEMENT PLANS APPROVED OR CLEARED TO GRADE BY THE RIVERSIDE COUNTY FLOOD CONTROL DISTRICT AND/OR TRANSPORTATION DEPARTMENT AND APPROVED TENTATIVE TRACT MAP INCLUDING CONDITIONS OF APPROVAL.

NPDES: WHEN ONE ACRE OR MORE IS BEING DISTURBED

1. CONSTRUCTION SITE BEST MANAGEMENT PRACTICES (BMP'S) FOR THE MANAGEMENT OF STORM WATER AND NON-STORMWATER DISCHARGES SHALL BE DOCUMENTED ON THE GRADING PLAN. ARRANGEMENTS SHALL BE MADE BY THE DEVELOPER TO RETAIN THE SWPPP ON THE JOBSITE THROUGHOUT THE TIME OF CONSTRUCTION. THE IMPLEMENTATION AND MAINTENANCE OF THE SITE BMP's IS REQUIRED TO MINIMIZE JOBSITE EROSION AND SEDIMENTATION. ARRANGEMENTS SHALL BE MADE BY THE DEVELOPER TO MAINTAIN THOSE BMP's THROUGHOUT THE TIME ON CONSTRUCTION.
2. EROSION CONTROL BMP's SHALL BE IMPLEMENTED AND MAINTAINED TO PREVENT AND/OR MINIMIZE THE ENTRAINMENT OF SOIL IN RUNOFF FROM DISTRUBED SOIL AREAS ON CONSTRUCTION SITES.
3. SEDIMENT CONTROL BMP's SHALL BE IMPLEMENTED AND MAINTAINED TO PREVENT AND/OR MINIMIZE THE TRANSPORT OF SOIL FROM THE CONSTRUCTION SITE.
4. GRADING SHALL BE PHASED TO LIMIT THE AMOUNT OF DISTURBED AREA EXPOSED TO THE EXTENT FEASIBLE.
5. AREAS THAT ARE CLEARED AND GRADED SHALL BE LIMITED TO ONLY THE PORTION OF THE SITE THAT IS NECESSARY FOR CONSTRUCTION. THE CONSTRUCTION SITE SHALL BE MANAGED TO MINIMIZE THE EXPOSURE TIME OF DISTURBED SOIL AREAS THROUGH PHASING AND SCHEDULING OF GRADING AND THE USE OF TEMPORARY AND PERMANENT SOIL STABILIZATION.
6. ONCE DISTURBED, SLOPES (TEMPORARY OR PERMANENT) SHALL BE STABILIZED IF THEY WILL NOT BE WORKED WITHIN 21 DAYS. DURING STORM SEASON, ALL SLOPES SHALL BE STABILIZED PRIOR TO PREDICTED STORM EVENT. CONSTRCTION SITES SHALL BE REVEGETATED AS EARLY AS FEASIBLE AFTER SOIL DISTURBANCE.
7. STOCKPILES OF SOIL SHALL BE PROPERLY CONTAINED TO ELIMINATE OR REDUCE SEDIMENT TRANSPORT FROM THE SITE OR STREETS, DRAINAGE FACILITIES OR ADJACENT PROPERTIES VIA RUNOFF, VEHICLE TRACKING , OR WIND.
8. CONSTRUCTION SITES SHALL BE MAINTAINED IN SUCH A CONDITION THAT A STORM DOES NOT CARRY WASTES OR POLLUTANTS OFF THE SITE. DISCHARGES OTHER THAN STORMWATER (NON-STORMWATER DISCHARGES) ARE PROHIBITED, EXCEPT AS AUTHORIZED BY AN INDIVIDUAL NPDES PERMIT, THE STATEWIDE GENERAL PERMIT-CONSTRUCTION ACTIVITY. POTENTIAL POLLUTANTS INCLUDE BUT ARE NOT LIMITED TO: SOLID OR LIQUID CHEMICAL SPILLS; WASTES FROM PAINTS, STAINS, SEALANTS, SOLVENTS, DETERGENTS, GLUES, LIME, PESTICIDES, HERBICIDES, FERTILIZERS, WOOD PRESERVATIVES, AND ASBESTOS FIBERS, PAINT FLAKES OR STUCCO FRAGMENTS, FUELS, OILS, LUBRICANTS, AND HYDRAULIC, RADIATOR, OR BATTERY FLUIDS, CONCRETE AND SLATS OF CUTTING OR CURING RESIDUES; FLOATABLE WASTES; WASTES FROM ENGINE/EQUIPEMENT STEAM CLEANING OR CHEMICAL DEGREASING; WASTES FROM STREET CLEANING; AND SUPER-CHLORINATED POTABLE WATER FROM LINE FLUSHING AND TESTING. DURING CONSTRUCTION, DISPOSAL OF SUCH MATERIALS SHOULD OCCUR IN A SPECIFIED AND CONTROLLED TEMPORARY AREA ON-SITE PHYSICALLY SEPARATE FROM POTENTIAL STORMWATER RUNOFF, WITH ULTIMATE DISPOSAL IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL REQUIREMENTS.
9. RUNOFF FROM EQUIPMENT AND VEHICLE WASHING SHALL BE CONTAINED AT CONSTRUCTION SITE AND MUST NOT BE DISCHARGED TO RECEIVING WATERS OR LOCAL STORM DRAIN SYSTEM.
10. APPROPRIATE BMP's FOR CONTRUCTION-RELATED MATERIALS, WASTES, SPILLS OR RESIDUES SHALL BE IMPLEMENTED TO ELIMINATE OR REDUCE TRANSPORT FROM THE SITE TO STREETS, DRAINAGE FACILITIES, OR ADJOINING PROPERTIES BY WIND OR RUNOFF.
11. ALL CONSTRUCTION CONTRACTORS AND SUBCONTRACTOR PERSONNAL ARE TO BE TRAINED IN THE IMPLEMENTATION AND USE OF THE REQUIRED BMP's AND GOOD HOUSEKEEPING MEASURES FOR THE PROJECT SITE AND ANY ASSOCIATED CONSTRUCTION STAGING AREAS AND ALL TRAINING DOCUMENTATION SHALL BE MAINTAINED IN THE SWPPP.
12. DISCHARGING CONTAMINATED GROUNDWATER PRODUCED BY DEWATERING GROUNDWATER THAT HAS INFILTRATED INTO THE CONSTRUCTION SITE IS PROHIBITED. DISCHARGING OF CONTAMINATED SOILS VIA SURFACE EROSION IS ALSO PROHIBITED. DISHCHARGING NON-CONTAMINATED GROUNDWATER PRODUCED BY DEWATERING ACTIVITIES MAY REQUIRE A NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT FROM THE REGIONAL WATER QUALITY CONTROL BOARD.
13. BMP's SHALL BE MAINTAINED AT ALL TIMES. IN ADDITION, BMP's SHALL BE INSPECTED PRIOR TO PREDICTED STORM EVENTS AND FOLLOWING STORM EVENTS.
14. AT THE END OF EACH DAY OF CONSTRUCTION ACTIVITY, ALL CONSTRUCTION DEBRIS AND WASTE MATERIALS SHALL BE COLLECTED AND PROPERLY DISPOSED OF IN TRASH OR RECYCLE BINS.

SWPPP RESPONSIBLE PARTY:

WDID#: TBD
QSP/QSD: KEN KRISTOFFERSEN #00207
28562 Oso Parkway D-508
Rancho Santa Margarita, CA 92688
RISK LEVEL: 2

NPDES COMPLIANCE NOTE:

PROPOSED AREA TO BE DISTURBED 2.30 AC
TOTAL NET SITE AREA 21.18 AC
WASTE DISCHARGER IDENTIFICATION NUMBER: TBD

CONSTRUCTION NOTES AND QUANTITY ESTIMATE

NO.	ITEMS TO BE CONSTRUCTED OR INSTALLED	QUANTITY	UNIT
1	INSTALL BERM, DETAIL ON SHT. 3	427	LF
2	EXISTING ALL WEATHER FIRE ACCESS DWY SECTION, DETAIL SHT. 3	24,767	SF
3	PRODUCTION PAD/CELLAR STORAGE/TRASH ENCLOSURE SECTION, DETAIL SHT. 3	14,496	SF
4	ASPHALT ALL WEATHER FIRE ACCESS DWY SECTION, DETAIL SHT. 3	23,501	SF
5	CONC. PATIO & WALKWAY SECTION, DETAIL SHT. 3	6,440	SF
6	PROPOSED PARKING SURFACE, DETAIL SHT. 3	8,181	SF
7	EXISTING GLEN OAKS ROAD SECTION, DETAIL SHT. 3	8,349	SF
8	INSTALL TYP PRE-MFGR'D 18"-24" PVC CATCH BASIN PER PLAN, DETAIL SHT. 2	4	EA
9	INSTALL 6" CURB, DETAIL SHT. 3	722	LF
10	CATCH BASIN INSTALLATION AT END OF CONCRETE SWALE, DETAIL SHT. 2	1	EA
11	INSTALL 6' WIDE CONCRETE SWALE, DETAIL SHT. 3	111	LF
12	INSTALL 3' WIDE CONCRETE SWALE, DETAIL SHT. 3	4	LF
13	INSTALL CONC. V-DRAIN, DETAIL SHT. 2	26	LF
14	INSTALL 6" ASPHALT DIKE COUNTY STD. 212, DETAIL SHT. 3	331	LF
15	INSTALL CONC. CURB & CONC. V-DRAIN CONNECTION, DETAIL SHT. 3	1	EA
16	INSTALL 12"Ø PVC DRAIN PIPE	233	LF
17	WQMP BASIN OUTLET, DETAIL SHT. 3	2	EA
18	INSTALL 6"Ø PERFORATED PVC DRAIN PIPE	275	LF
19	INSTALL 6"Ø CLEAN OUT EVERY 50' PER PERFORATED PVC DRAIN PIPE	10	EA
20	INSTALL 6" TRENCH DRAIN	172	LF
21	INSTALL DIVERTER VALVE	2	EA
22	INSTALL 5'X5' TRAFFIC RATED CATCH BASIN	1	EA
23	INSTALL 6"Ø DRAIN PIPE	37	LF
24	INSTALL 4"Ø DRAIN PIPE	318	LF
25	INSTALL 18"Ø DRAIN PIPE	18	LF
26	INSTALL 5'X5' RIP-RAP DISSAPATOR W/ 25# - 50# ROCK	2	CY
27	INSTALL CONC. DOWN-DRAIN INLET, DETAIL SHT. 3	1	EA
28	INSTALL CONC. COLLAR AT PIPE INLET PER SHT. 4	1	EA

GRADING NOTES:

GENERAL:

1. ALL GRADING SHALL CONFORM TO THE 2019 CALIFORNIA BUILDING CODE CHAPTER 17, 18, & APPENDIX-J AS AMENDED BY THE COUNTY ORD. 457.
2. ALL PROPERTY CORNERS, GRADING BOUNDARIES AND ALL CONSERVATION AREAS/LEAST SENSITIVE AREA (LAS) DETERMINED BY THE ENVIRONMENTAL PROGRAMS DEPARTMENT (EPD) SHALL BE CLEARLY DELINEATED AND STAKED IN THE FIELD PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION/GRADING.
3. ALL WORK UNDER THIS GRADING PERMIT SHALL BE LIMITED TO WORK WITHIN THE PROPERTY LINES. ALL WORK WITHIN THE ROAD RIGHT-OF-WAY WILL REQUIRE PLANS AND A SEPARATE REVIEW/APPROVAL (PERMIT) FROM THE TRANSPORTATION DEPARTMENT.
4. ALL GRADING SHALL BE DONE UNDER THE SUPERVISION OF A SOILS ENGINEER IN CONFORMANCE WITH RECOMMENDATION OF THE PRELIMINARY SOILS INVESTIGATION BY ENGEN CORP. DATED MARCH 7, 2019.
5. COMPACTED FILL TO SUPPORT ANY STRUCTURES SHALL COMPLY WITH SECTION 1803.5.8. PROJECTS WITHOUT PRELIMINARY SOILS REPORTS SHALL HAVE DETAILED SPECIFICATIONS IN ACCORDANCE WITH SECTIONS 1803.2 AND 1803.5 PREPARED BY THE ENGINEER OF RECORD.
6. THE CONTRACTOR SHALL NOTIFY BUILDING AND SAFETY DEPARTMENT AT LEAST 24 HOURS IN ADVANCE TO REQUEST FINISH LOT GRADE AND DRAINAGE INSPECTION. THE INSPECTION MUST BE APPROVED PRIOR TO BUILDING PERMIT FINAL INSPECTION FOR EACH LOT.
7. THE CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT, TWO DAYS BEFORE DIGGING AT 1-800-422-4133
8. PRIOR TO GRADING, A PRE-CONSTRUCTION MEETING SHALL BE SCHEDULED WITH A RIVERSIDE COUNTY ENVIRONMENTAL COMPLIANCE INSPECTOR PRIOR TO COMMENCEMENT OF GRADING OPERATIONS.

CUT/FILL:

9. MAXIMUM CUT AND FILL SLOPE = 2:1 (HORIZONTAL TO VERTICAL).
10. NO FILL SHALL BE PLACED ON EXISTING GROUND UNTIL THE GROUND HAS BEEN CLEARED OF WEEDS, DEBRIS, TOPSOIL, AND OTHER DELETERIOUS MATERIAL. FILLS SHOULD BE PLACED IN THIN LIFTS (8-INCH MAX OR AS RECOMMENDED IN SOILS REPORT), COMPACTED AND TESTED THROUGHOUT THE GRADING PROCESS UNTIL FINAL GRADES ARE ATTAINED. ALL FILLS ON SLOPES STEEPER THAN 5:1 (H/V) AND HEIGHT GREATER THAN 5 FEET SHALL BE KEYED AND BENCHED INTO FIRM NATURAL SOIL FOR FULL SUPPORT. THE BENCH UNDER THE TOE MUST BE 10 FEET WIDE MIN.
11. THE SLOPE STABILITY FOR CUT AND FILL SLOPES OVER 30' IN VERTICAL HEIGHT, OR CUT SLOPES STEEPER THAN 2:1 HAVE BEEN VERIFIED WITH A FACTOR OF SAFETY OF AT LEAST 1.5.
12. NO ROCK OR SIMILAR IRREDUCIBLE MATERIAL WITH A MAXIMUM DIMENSION GREATER THAN 12 INCHES SHALL BE BURIED OR PLACED IN FILLS CLOSER THAN 10 FEET TO THE FINISHED GRADE.

DRAINAGE & EROSION/DUST CONTROL:

13. DRAINAGE ACROSS THE PROPERTY LINES SHALL NOT EXCEED THAT WHICH EXISTED PRIOR TO GRADING. EXCESS OR CONCENTRATED DRAINAGE SHALL BE CONTAINED ON SITE OR DIRECTED TO APPROVED DRAINAGE FACILITY. EROSION OF THE GROUND IN THE AREA OF DISCHARGE SHALL BE PREVENTED BY INSTALLATION OF NON-EROSIVE DOWN DRAINS OR OTHER DEVICES.
14. PROVIDE A PAVED SLOPE INTERCEPTOR DRAIN ALONG THE TOP OF CUT SLOPES WHERE THE DRAINAGE PATH IS GREATER THAN 40 FEET TOWARDS THE CUT SLOPE.
15. PROVIDE 5' WIDE BY 1' HIGH BERM ALONG THE TOP OF ALL FILL SLOPES STEEPER THAN 3:1(HORIZONTAL TO VERTICAL).
16. THE GROUND SURFACE IMMEDIATELY ADJACENT TO THE BUILDING FOUNDATION SHALL BE SLOPED AWAY FROM THE BUILDING AT A SLOPE OF NOT LESS THAN ONE UNIT VERTICAL IN 20 UNITS HORIZONTAL (5-PERCENT SLOPE) FOR A MINIMUM DISTANCE OF 10 FEET MEASURED PERPENDICULAR TO THE FACE OF THE FOUNDATION.
17. NO OBSTRUCTION OF NATURAL WATER COURSES SHALL BE PERMITTED.
18. DURING ROUGH GRADING OPERATIONS AND PRIOR TO CONSTRUCTION OF PERMANENT DRAINAGE STRUCTURES, TEMPORARY DAMAGE CONTROL (BEST MANAGEMENT PRACTICES, BMPS) SHALL BE PROVIDED TO PREVENT PONDING WATER AND DRAINAGE TO ADJACENT PROPERTIES.
19. DUST SHALL BE CONTROLLED BY WATERING OR OTHER APPROVED METHODS.
20. FUGITIVE DUST CONTROL: CONSTRUCTION SITES SUBJECT TO PM10 FUGITIVE DUST MITIGATION SHALL COMPLY WITH AQMD RULE 403.1
21. ALL EXISTING DRAINAGE COURSES AND STORM DRAIN FACILITIES SHALL CONTINUE TO FUNCTION. PROTECTIVE MEASURES AND TEMPORARY DRAINAGE PROVISIONS MUST BE USED TO PROTECT ADJOINING PROPERTIES DURING GRADING OPERATIONS.
22. FOR ALL SLOPES STEEPER THAN 4 TO 1 (H/V): ALL SLOPES EQUAL TO OR GREATER THAN 3' IN VERTICAL HEIGHT ARE REQUIRED TO BE PLANTED WITH AN APPROVED DROUGHT-TOLERANT GROUND COVER AT A MINIMUM SPACING OF 12" ON CENTER OR AS APPROVED BY THE ENGINEER OF RECORD OR THE REGISTERED LANDSCAPE ARCHITECT AND DROUGHT-TOLERANT SHRUBS SPACED AT NO MORE THAN 10' ON CENTER. SLOPES EXCEEDING 15' IN VERTICAL HEIGHT SHALL BE PLANTED WITH APPROVED SHRUBS AND TREES NOT TO EXCEED 10' ON CENTER, OR TREES SPACED NOT TO EXCEED 20' ON CENTER, OR A COMBINATION OF SHRUBS AND TREES NOT TO EXCEED 15' IN ADDITION TO THE GRASS OR GROUND COVER. SLOPES THAT REQUIRE PLANTINGS SHALL BE PROVIDED WITH AN IN-GROUND IRRIGATION SYSTEM EQUIPPED WITH AN APPROPRIATE BACKFLOW DEVICE PER C.P.C. CHAPTER 6. THE SLOPE PLANTING AND IRRIGATION SYSTEM SHALL BE INSTALLED AS SOON AS POSSIBLE UPON COMPLETION OF ROUGH GRADING. ALL PERMANENT SLOPE PLANTING SHALL BE ESTABLISHED AND IN GOOD CONDITION PRIOR TO SCHEDULING PRECISE GRADE INSPECTION.

COMPLETION OF WORK:

ROUGH GRADE

23. A REGISTERED CIVIL ENGINEER SHALL PREPARE FINAL COMPACTION REPORT/ GRADING REPORT AND IT SHALL BE SUBMITTED TO THE DEPARTMENT OF BUILDING AND SAFETY FOR REVIEW AND APPROVAL. THE REPORT SHALL INCLUDE BUILDING FOUNDATION DESIGN PARAMETERS (ALLOWABLE SOIL PRESSURES, ETC.), EXPANSION INDEX (AND DESIGN ALTERNATIVES IF EI>20), WATER SOLUBLE SULFATE CONTENT, CORROSIVITY AND REMEDIAL MEASURES IF NECCESSARY.
24. EXPECT FOR NON-TRACT SINGLE RESIDENTIAL LOT GRADING, THE COMPACTION REPORT SHALL INCLUDE THE SPECIAL INSPECTION VERIFICATIONS LISTED IN TABLE 1705.6 OF 2019 CBC.
25. THE COUNTY OF RIVERSIDE REQUIRES A LICENSED PROFESSIONAL ENGINEER TO SUBMIT A WET SIGNED AND STAMPED ROUGH GRADING CERTIFICATION WHICH INCLUDES PAD ELEVATIONS PRIOR TO REQUESTING INSPECTION AND ISSUANCE OF THE BUILDING PERMIT.
26. **ROUGH GRADE ONLY PERMITS:** IN ADDITION TO OBTAINING ALL REQUIRED INSPECTIONS AND APPROVAL OF ALL FINAL REPORTS, ALL SITES PERMITTED FOR ROUGH GRADE ONLY SHALL PROVIDE BY VEGETATIVE COVERAGE (100 PERCENT) OR OTHER MEANS OF SITE STABILIZATION APPROVED BY ENVIRONMENTAL COMPLIANCE DIVISION, PRIOR TO RECEIVING A ROUGH GRADE PERMIT FINAL.

PRECISE GRADE

27. A REGISTERED CIVIL ENGINEER SHALL SUBMIT TO THE BUILDING AND SAFETY DEPARTMENT WRITTEN CERTIFICATION OF COMPLETION OF GRADING IN ACCORDANCE WITH THE APPROVED GRADING PLAN PRIOR TO THE REQUEST OF PRECISE GRADING INSPECTION.

EASEMENTS:

1. AN EASEMENT FOR SLOPES AND INCIDENTS THERETO, PER INSTRUMENT No. 121048, RECORDED DECEMBER 20, 1966, RECORDS OF RIVERSIDE IN FAVOR OF KAISER AETNA, A CALIFORNIA GENERAL PARTNERSHIP, BY ASSIGNMENT RECORDED MARCH 4, 1971 AS INSTRUMENT No. 21825, RECORDS OF RIVERSIDE COUNTY. (SAID SLOPE EASEMENTS ARE INDETERMINATE IN NATURE)
2. AN EASEMTN FOR ROADWAY ACCESS TOGETHER WITH SLOPE EASEMENTS ADJOINING SAID ROADWAY AT A RATIO OF 1.5:1 PER INSTRUMENT No. 121049, RECORDS OF RIVERSIDE COUNTY, IN FAVOR OF RANCHO CALIFORNIA, A PARTNERSHIP. (SAID SLOPE EASEMENTS ARE INDETERMINATE IN NATURE)

EXCESS FILL:

ALL EXCESS FILL TO BE SPREAD EVENLY BETWEEN THE VINEYARD ROWS TO A DEPTH OF APPROXIMATELY 0.3'. THE SPREAD OF THE EXCESS FILL SHALL NOT CREATE A DOWNSTREAM IMPACT.

EARTHWORK ESTIMATES:

EARTHWORK QUANTITIES ARE ESTIMATES ONLY AND ARE AN ESTIMATE OF SHRINKAGE AND DO NOT INCLUDE SUBSIDENCE. THEY ARE ESSENTIALLY FOR PERMIT PURPOSES ONLY AND NOT INTENDED FOR BIDDING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO ASCERTAIN THE EXACT QUANTITIES FOR ALL CONTRACTUAL ARRANGEMENTS AND THE BASIS FOR PAYMENT.
IF ANY DESCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS ARE FOUND DURING CONTRUCTION, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER TO CONSULT AND RESOLVE, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ENGINEER.

OWNER:

AUSTIN VINEYARD LLC
CONTACT: AUSTIN RANDALL
3060 UPHAM ST
WHEATRIDGE, CO 80033
(303) 475-1555
email:slabsgmi@aol.com

PROJECT ADDRESS:

35598 GLENOAKS RD
TEMECULA, CA 92592

ACREAGE:

22.33 AC GROSS
21.18 AC NET

ASSESSOR'S NO.:

942-030-011

LEGAL DESCRIPTION:

PARCEL 1 OF PARCEL MERGER 180016, BEING PORTIONS OF PARCELS 2 & 3 OF PARCEL MAP 27134 IN THE COUNTY OF RIVERSIDE STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 182 OF MAPS, PAGES 95 & 96, RECORDS OF RIVERSIDE COUNTY, STATE OF CALIFORNIA.

LEGEND:

(1720)	EXISTING CONTOUR
1729.4	FINISH GRADE
(1729.4)	EXISTING GRADE PER BGR1800141
EOP	EDGE OF PAVEMENT
EV	ELECTRIC VEHICLE CHARGING
FF	FINISH FLOOR GRADE
FG	FINISH GRADE
FH	FIRE HYDRANT
FL	FLOW LINE
FS	FINISH SURFACE
HP	HIGH POINT
PL	PROPERTY LINE
R/W	RIGHT-OF-WAY
TG	TOP OF GRATE
TP	TOP OF PIPE
(X)	PARKING SPACE QUANTITY
CUT / FILL	DAYLIGHT LINE
	A.D.A. COMPLIANT PATH 5' MIN. WIDE
	LIMITS OF PROPOSED GRADING
	LIMITS OF PROPOSED OFF-SITE GRADING PER SEPARATE PLAN & PERMIT
	EXISTING ALL WEATHER FIRE ACCESS 4" OF CLASS II BASE
	DRIVEWAY/PATIO/FOOTPRINT 4"-6" OF PORTLAND CEMENT CONCRETE
	ALL WEATHER FIRE ACCESS 3" A.C. OVER 4" CLASS II BASE
	ALL WEATHER FIRE ACCESS 4" OF CLASS II BASE
	MATCH EXISTING GLENOAKS ROAD SECTION

IMPERVIOUS AREA:

PROP. TASTING ROOM/CELLAR	- 4,919 SQ. FT
PROP. PRODUCTION AREA	- 5,065 SQ. FT
PROP. PATIO/WALKWAY	- 2,383 SQ. FT
PROP. ENTRY	- 644 SQ. FT
PROP. FIRE ACCESS/PARKING PAVEMENT/TRASH ENCLOSURE	- 22,442 SQ. FT
TOTAL IMPERVIOUS AREA	- 35,453 SQ. FT

LENGTH OF DRIVEWAY:

DRIVEWAY LENGTH = 270 FT

TEMPORARY BENCHMARK:

ALL GRADES ARE BASED ON AN ELEVATION OF 1510.0 ASSIGNED TO THE TOP OF THE SURVEY MARKER AT THE WESTERLY CORNER MARKER.

TOPOGRAPHY SOURCE:

ALL GRADES AND TOPOGRAPHY CONTOURS ARE BASED ON RANCHO CALIFORNIA WATER DISTRICT ORTHOPHOTO MAP, FLOWN IN DECEMBER 2009 AND AMMENDED BY TOPOGRAPHIC SURVEY PERFORMED BY SPIRO LAND SURVEYING ON OCT. 19, 2020.

VINEYARD PLANTING:

TOTAL VINE PLANTING = 17.75 ACRES - 83.8%

EARTHWORK:

CUT	5,932	CU. YDS.
SHRINKAGE (12%)	712	CU. YDS.
FILL	770	CU. YDS.
EXCESS FILL (AMONGST VINEYARD)	4,450	CU. YDS.

PREPARED BY:

OSBJORN BRATENE RCE 21873 — 5/9/2023 DATE

BGR2200348
REF: BGR1800141 BMP2200404

REVISIONS	BY

PRECISE GRADING PLAN
AUSTIN WINERY
PARCEL 1 OF PARCEL MERGER 180016
35598 GLENOAKS RD, TEMECULA CA 92592

Civil Engineers - RCE 21873
General Contractors - Lic. 378242
41625 Enterprise Circle South, #B-2
Temecula, CA 92590
(951)-201-2542
bratenecons@prodigy.net

BRATENE CONSTRUCTION & ENGINEERING

DRAWN BY	D. BRATENE
CHECKED	O.BRATENE
DATE	5/9/2023
SCALE	1"=100'
JOB NO.	18006
SHEET	1

PRECISE GRADING PLAN

AUSTIN WINERY

PARCEL 1
22.33 AC. GROSS
21.18 AC. NET

LIMITS OF PROPOSED GRADING

PROP. WATER FEATURE

EXISTING VINEYARD TO BE REMOVED AS NECCESARY

NATURAL DRAINAGE

PROP. 2:1 FILL SLOPE

PROP. TRASH ENCLOSURE

ADA ACCESS

PROP. DROP-OFF ZONE

PROP. CONC. CURB

PROP. RETAINNG WALL PER SEPARATE PERMIT FOR TRASH ENCLOSURE

PROP. RETAINNG WALL PER BUILDING PLANS

PROP. PATIO DECK

PROP: TASTING ROOM
UPPER FF = 1524.0

CELLAR STORAGE
BOT. FF= 1508.0

PROP. PRODUCTION AREA
FF =1520.0

PROP. RETAINNG WALL PER SEPARATE PERMIT FOR SCE TRANSFORMER

PROP. 18"X18"X18"CB
1519.0 TG
1517.6 INV.

PROP. 18"X18"X18"CB
1506.2 TG
1504.7 INV.

PROP. 12"Ø DRAIN @ 8.7%

PROP. 12"Ø DRAIN @4%

PROP. 12"Ø DRAIN @ 2.8%

PROP. 24"X24"X24" CB
1503.8 INV.

PROP. 5'X5' RIP-RAP DISSAPATOR W/ 25# - 50# ROCK

EXIST'G 24" STAND PIPE TO BE REPLACED PER SHT. 3 DETAIL

PROP. 18"X18"X18"CB
1513.0 TG
1511.5 INV.

EXIST'G 12"Ø DRAIN PIPE TO REMAIN ALTER GRADE AS REQ'D

EXIST'G 18"Ø DRAIN PIPE TO REMAIN

EXISTING DENTENTION BASIN / PROP. WOMP BASIN "B" SEE SHEET 4 FOR DETAIL

EXISTING DENTENTION BASIN / PROP. WOMP BASIN "A" SEE SHEET 4 FOR DETAIL

EXTEND EXIST'G CONC. V-DRAIN

EXIST'G CONC. DOWN DRAIN TO REMAIN

EXIST'G BERM TO REMAIN

PROP. ASPHALT DIKE

PROP. WALKWAY

22' GATE

LIMITS OF PROPOSED GRADING

LIMO PARKING

PROP. CONC CURB

PROP. 16" ACCESS RD TO BE CUT INTO EXIST'G VARIABLE SLOPE

LIMITS OF PROPOSED OFF-SITE GRADING PER SEPARATE IMPROVEMENT PERMIT WITH TRANSPORTATION DEPT PER IP#

EXIST'G VARIABLE SLOPE TO REMAIN

PROP. FIRE HYDRANT LOCATION

EXIST'G FH TO BE RELOCATED & WALL TO BE REMOVED PER RCWD PLANS

EXIST'G 18" CMP DRAIN PIPE TO BE EXTENDED

PROP. 2:1 FILL SLOPE

T.B.M. 1510.0
TOP OF SURVEY MARKER
N47°48'20"E

N42°13'40"W

R=35'

R=200

△=16°19'25"

467.38'

LOT "C"

PROP. EOP PER ST IMPROVEMENT PLANS

EOP

RELOCATE EXIST'G WATER METER PER RCWD PLANS

EXIST'G 18" CMP DRAIN PIPE TO REMAIN

℄ GLENOAKS ROAD

R/W

NAT. FILL

CUT

FILL

EXIST'G

GRAPHIC SCALE
1"= 30'
0 15' 30' 60' 90' 120'

DROP–OFF AREA & ADA WALKWAY

SCALE: 1"=20'

PRODUCTION AREA & CELLAR TRENCH DRAINS

SCALE: 1"=30'

PROP. GREASE TRAP PER SEPARATE PERMIT
DIVERTER VALVE
PROPOSED 6" TRENCH DRAIN
PROP. SEPTIC & GREASE TRAP LINES PER SEPARATE PERMIT
PROP. 4" DRAIN PIPE
PROPOSED 6" TRENCH DRAIN
PROPOSED 5'X5' CATCH BASIN
PROPOSED 6" DRAIN PIPE
PROPOSED SEPTIC TANK PER SEPARATE PERMIT
PROPOSED WINE WASTE WATER HOLDING TANK PER SEPARATE PERMIT
PROP. 18"X18"X18"CB
1506.2 TG
1504.7 INV.

SECTION B–B

1"=30'

PROP. 6" ASPHALT DIKE
PROP. 6" CONC. CURB BEGINS AT START OF RADIUS
PROP. 3:1 CUT SLOPE
FF=1524.7
PAD=1524.0
FF=1508.0
PAD=1507.3
PROP. RETAINING WALL PER BUILDING PLANS
PROP. CONC. CURB

SECTION A–A

1"=30'

PATIO
FF=1524.7
PAD=1524.0
PRODUCTION PAD
PAD =1520.0
FF=1508.0
PAD=1507.3
PROP. 2:1 CUT SLOPE
PROP. BERM
PROP. ASPHALT DIKE

SECTION X–X

+12" ABOVE V-DRAIN FL, LIP OF CONC. AT OR BELOW GRADE
TOP OF SURROUNDING FG
PROP. SLOPE
9" CONC. CUT-OFF AROUND PERIMETER
V-DRAIN FL
BOT. CONC. V-DRAIN
12" BELOW V-DRAIN FS
PROP. 6" CONC. CURB
PROP. CONC. V-DRAIN

8 TYP PRE–MFG'D PVC CATCH BASIN

NTS

18"-24"
12" PVC DRAIN AS NOTED

10 CATCH BASIN INSTALLATION AT END OF CONC. DRAINAGE

NTS

24"x24" CATCH BASIN INSTALLED 2" BELOW DOWN DRAIN

13 TYPICAL CONCRETE V–DRAIN DETAIL

NTS

36" (MIN.)
EXIST'G GROUND
EXTEND V-DITCH WHERE NEEDED
3" CONC. MIN W/6X6-10/10 WWM

15 CONC. CURB & CONC. V–DRAIN CONNECTION

NTS

REVISIONS	BY

PRECISE GRADING PLAN

AUSTIN WINERY

PARCEL 1 OF PARCEL MERGER 180016

35598 GLENOAKS, TEMECULA CA 92592

Civil Engineers - RCE 21873
General Contractors - Lic. 378242

41625 Enterprise Circle South, #B-2
Temecula, CA 92590
(951) 301-2542
bratenecanst@prodigy.net

BRATENE CONSTRUCTION & ENGINEERING

DRAWN BY	D. BRATENE
CHECKED	O.BRATENE
DATE	5/9/2023
SCALE	1"=30'
JOB NO.	18006
SHEET	2

REGISTERED PROFESSIONAL ENGINEER OSBJORN BRATENE No. 21873 CIVIL STATE OF CALIFORNIA

OSBJORN BRATENE
RCE 21873

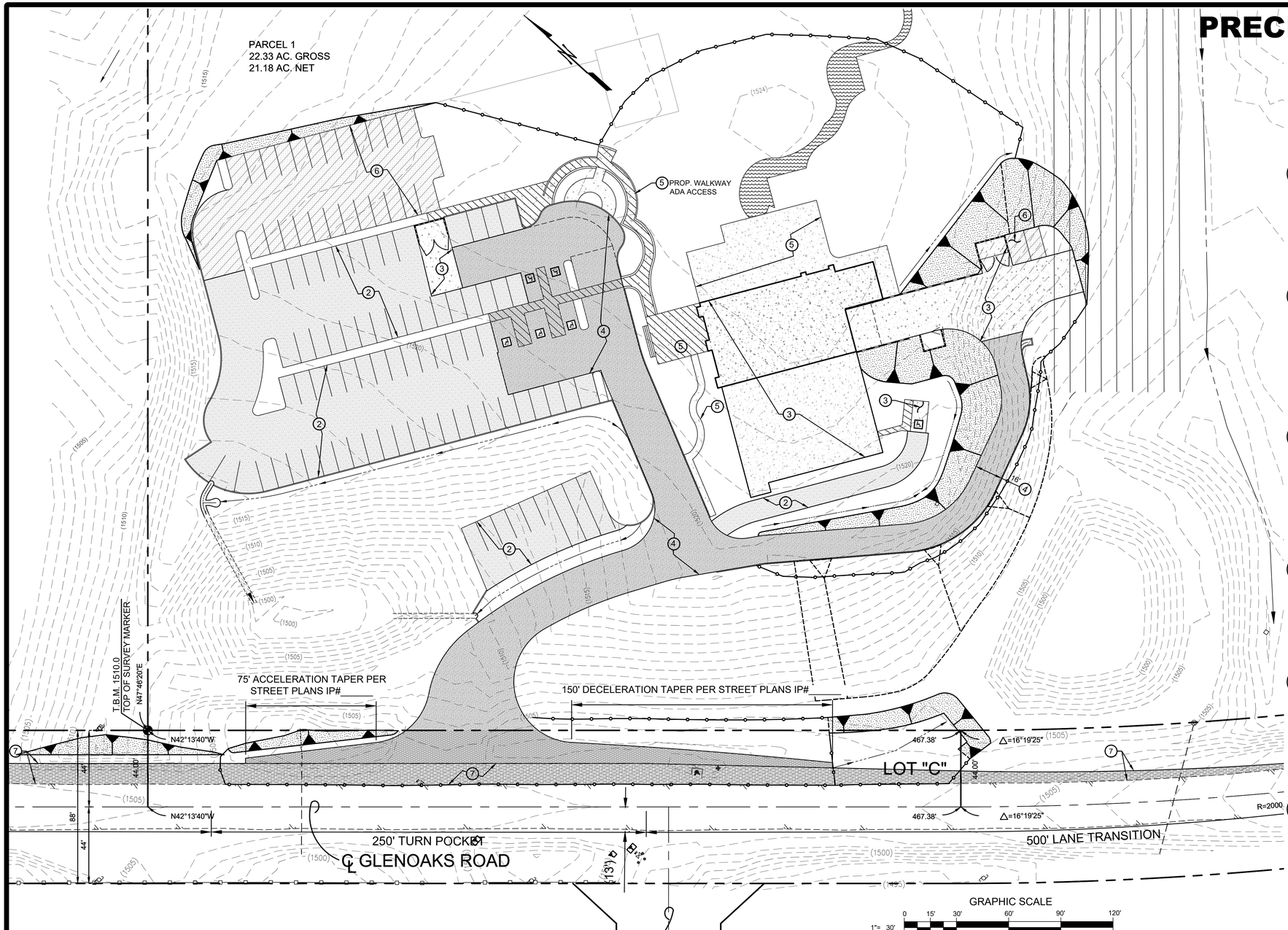
5/9/2023
DATE

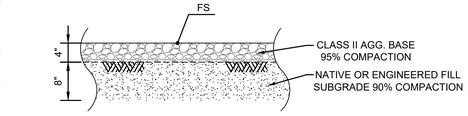
BGR2200348
BMP2200404
REF: BGR1800141

PRECISE GRADING PLAN

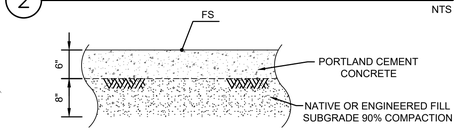
AUSTIN WINERY

PARCEL 1
22.33 AC. GROSS
21.18 AC. NET

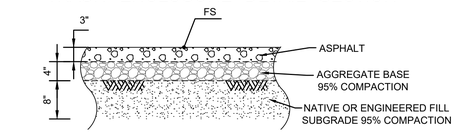




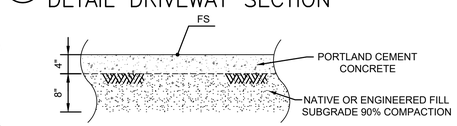
2 EXISTING PARKING SURFACE SECTION NTS



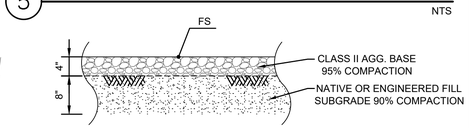
3 PRODUCTION PAD / CELLAR STORAGE / TRASH ENCLOSURE DETAIL SECTION NTS



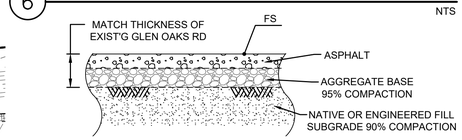
4 ALL WEATHER VEHICULAR ACCESS DETAIL DRIVEWAY SECTION NTS



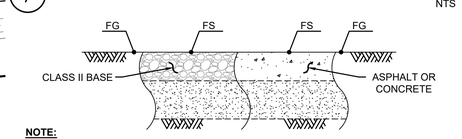
5 CONCRETE PATIO & WALKWAY SECTION NTS



6 PROPOSED PARKING SURFACE SECTION NTS

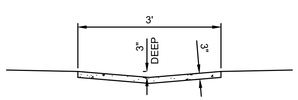


7 EXISTING GLEN OAKS ROAD SECTION NTS

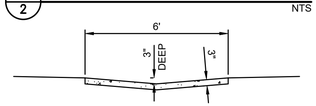


NOTE:
TRANSITION NOT TYPICAL WHERE CURBS ARE CALLED OUT.

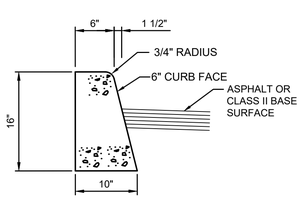
PAVEMENT SURFACE TRANSITION DETAIL NTS



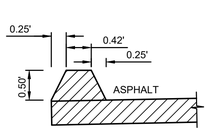
12/2 3' WIDE CONCRETE SWALE NTS



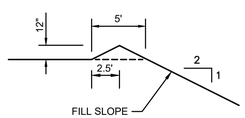
11/2 6' WIDE CONCRETE SWALE NTS



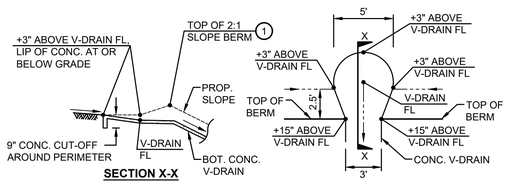
9/2 6" TYPE "D" CONCRETE CURB NTS



14/2 6" ASPHALT DIKE COUNTY STD. 212 NTS



1/2 TYPICAL BERM DETAIL NTS



27/2 TYPICAL DOWN-DRAIN CONC. INLET DETAIL NTS

PREPARED BY:

REGISTERED PROFESSIONAL ENGINEER
OSBJORN BRATENE
No. 21873
CIVIL
STATE OF CALIFORNIA

OSBJORN BRATENE
RCE 21873

5/9/2023
DATE

BGR2200348
BMP2200404
REF: BGR1800141

REVISIONS	BY

SURFACING PLAN

AUSTIN WINERY

PARCEL 1 OF PARCEL MERGER 180016

35598 GLENOAKS, TEMECULA CA 92592

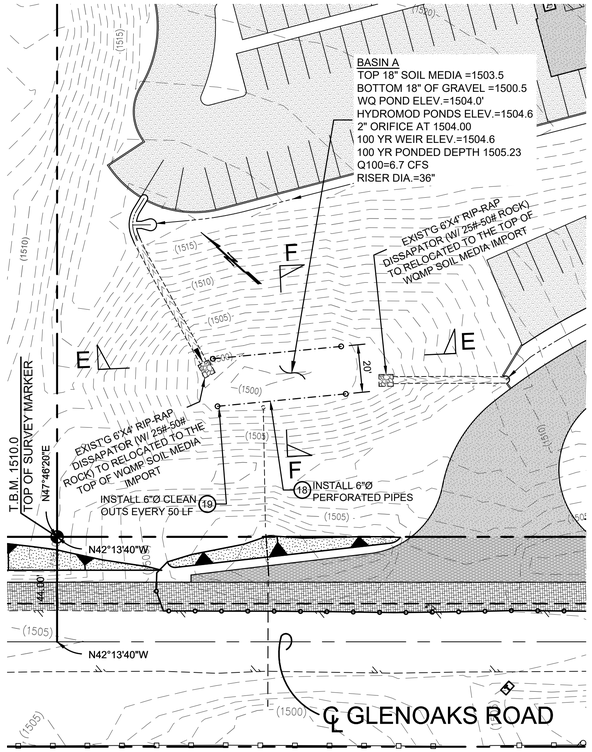
Civil Engineers - RCE 21873
General Contractors - Lic. 378242
41625 Enterprise Circle South, #B-2
Temecula, CA 92590
(951) 201-2542
bratenecivil@prodigy.net

BRATENE CONSTRUCTION & ENGINEERING

DRAWN BY	D. BRATENE
CHECKED	O.BRATENE
DATE	5/9/2023
SCALE	1"=30'
JOB NO.	18006
SHEET	3

PRECISE GRADING PLAN

AUSTIN WINERY



WQMP BASIN "A"

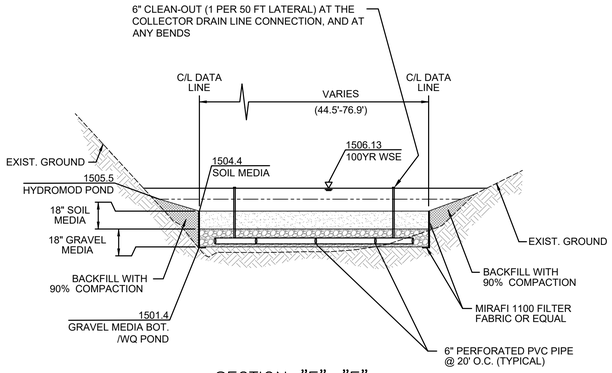
SCALE: 1"=30"

WQMP NOTE:

THE WQMP BASIN DETAILS SHOWN ON THIS GRADING PLAN COME FROM THE WQMP SITE PLAN DESIGNED BY JLC ENGINEERING & CONSULTING, INC. AND DEVELOPED FOR THE SUBMITTAL OF PLOT PLAN 210132. ALL DESIGN PARAMETERS OF BOTH WQMP BASIN "A" & "B" SHOULD BE FOLLOWED PER THAT DOCUMENT.

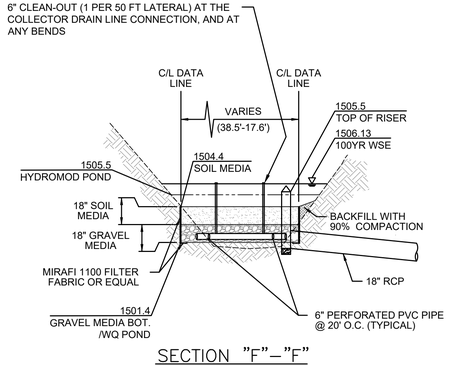
ALL ROCK OR SAND TO BE PLACED IN POST-CONSTRUCTION BMP'S SHALL BE CLEAN-WASHED ROCK TO THE SATISFACTION OF THE GRADING INSPECTOR.

IMMEDIATELY BELOW THE SOIL MEDIA (BSM) INCLUDE A SECTION OF 3" SAND, THEN 3" PEAGRAVEL. ALL SUBDRAINS SHALL BE SCHEDULE 40 W/ A MIN. SLOPE OF 0.5%.



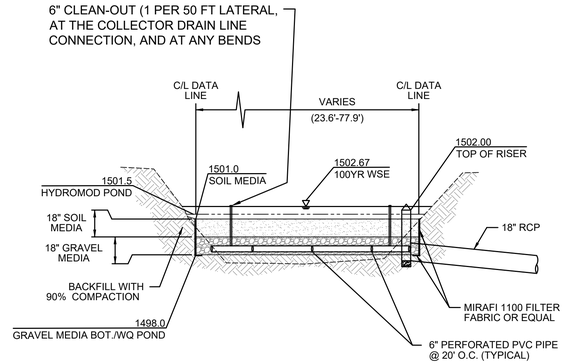
SECTION "E"–"E"

SCALE: HORIZ.: 1"=20'
VERT.: 1"=5'



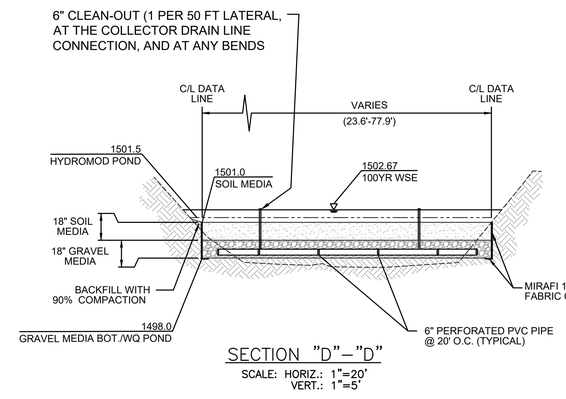
SECTION "F"–"F"

SCALE: HORIZ.: 1"=20'
VERT.: 1"=5'



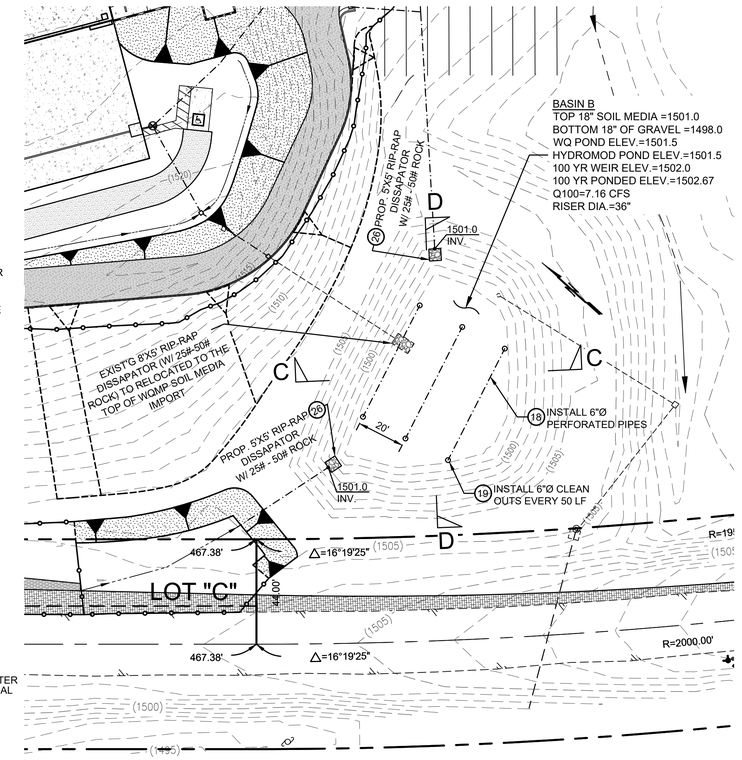
SECTION "C"–"C"

SCALE: HORIZ.: 1"=20'
VERT.: 1"=5'



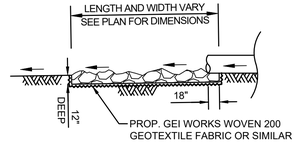
SECTION "D"–"D"

SCALE: HORIZ.: 1"=20'
VERT.: 1"=5'



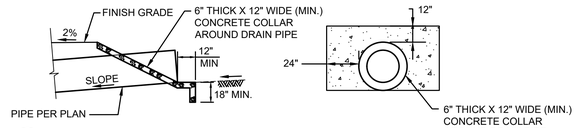
WQMP BASIN "B"

SCALE: 1"=30"



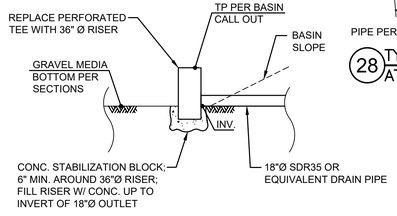
26 TYP. RIP–RAP INSTALLATION

NTS



28 TYPICAL CONCRETE COLLAR AT PIPE INLET

NTS



17 BASIN OUTLET PIPE DETAIL

NTS

PREPARED BY:

OSBJORN BRATENE
RCE 21873

5/9/2023
DATE

BGR2200348
BMP2200404
REF: BGR1800141

REVISIONS	BY

WQMP BASINS

AUSTIN VINEYARD

PARCEL 1 OF PARCEL MERGER 180016

35598 GLENOAKS, TEMECULA CA 92592

Civil Engineers - RCE 21873
General Contractors - Lic. 378242
41025 Enterprise Circle South, #B-2
Temecula, CA 92590
(951) 201-2542
bratenecons@prodigy.net

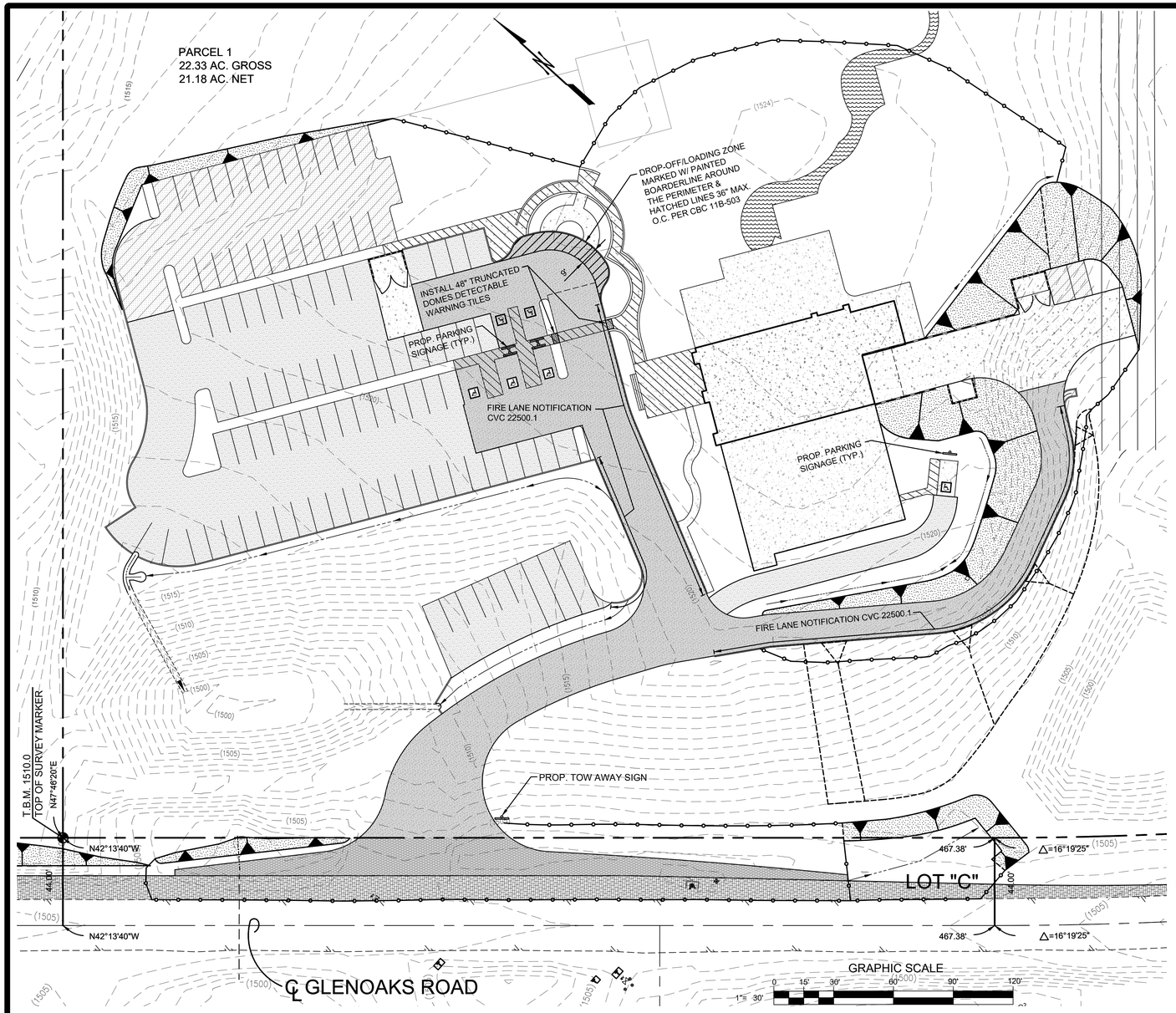
BRATENE CONSTRUCTION & ENGINEERING

DRAWN BY	D. BRATENE
CHECKED	O.BRATENE
DATE	5/9/2023
SCALE	1"=30'
JOB NO.	18006
SHEET	4

PRECISE GRADING PLAN

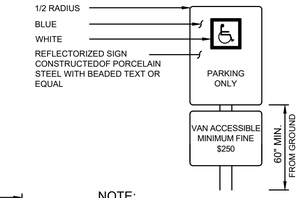
AUSTIN WINERY

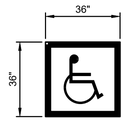
PARCEL 1
22.33 AC. GROSS
21.18 AC. NET



PAVING NOTES:

1. MINIMUM PARKING LOT GRADE SHALL BE 1% MIN. GRADE FOR RIBBON DRAINS SHALL BE 0.35%.
2. AN APPROVED SOIL STERILIZER SHALL BE USED ON ALL SUBGRADE SURFACES PRIOR TO PLACEMENT OF PAVING.
3. ASPHALT EMULSION (FOG SEAL) SHALL BE APPLIED NOT LESS THAN FOURTEEN (14) DAYS FOLLOWING PLACEMENT OF THE ASPHALT SURFACING AND SHALL BE APPLIED AT A RATE OF 0.05 GALLONS PER SQUARE YARD ASPHALT EMULSION SHALL CONFORM TO SECTIONS 37, 39, AND 94 OF THE STANDARD SPECIFICATIONS.
4. ALL PAVING INSPECTIONS WILL BE PERFORMED BY SPECIAL INSPECTORS HIRED BY THE OWNER. TWO (2) INSPECTIONS ARE REQUIRED:
   INSPECTION No.1 FOR THE BASE COURSE
   INSPECTION No.2 INSPECTION WHEN THE AC AND CONCRETE ARE PLACED
5. A COMPACTION REPORT BY A GEOTECHNICAL ENGINEER SHALL CERTIFY THE AGGREGATE BASE (AB) UNDER ASPHALT CONCRETE (AC) IS COMPACTED TO 95% RELATIVE DENSITY OR 90% RELATIVE DENSITY UNDER CONCRETE. THIS INCLUDES TRENCHES FOR UTILITIES UNDER THE PAVING AREA. PRIOR TO THE INSTALLATION OF THE AC OR CONCRETE. THE GEOTECHNICAL ENGINEER SHALL PROVIDE THE CONTRACTOR WITH WRITTEN CERTIFICATION THAT THE AGGREGATE BASE IS PROPERLY INSTALLED AND ADEQUATE TO SUPPORT THE AC, CONCRETE, AND INTENDED LOADS.
6. IF THE PRELIMINARY SOILS REPORT DOES NOT SPECIFY A PAVING SECTION THE STRUCTURAL SECTION SHALL BE THREE (3) INCHES OF AC AND FOUR (4) INCHES OF CLASS II AGGREGATE BASE, OR MINIMUM SECTION REQUIRED BY ORDINANCE 461.
7. PRIOR TO REQUESTING A BUILDING FINAL INSPECTION. THE CONTRACTOR SHALL PROVIDE A COPY OF SPECIAL INSPECTION REPORT No. 1 AND THE GEOTECHNICAL ENGINEER'S CERTIFICATION TO THE BUILDING AND SAFETY GRADING COUNTER FOR REVIEW AND APPROVAL. THE GRADING STAFF WILL CLEAR THE CONDITIONS ALLOWING THE BUILDING FINAL INSPECTION.



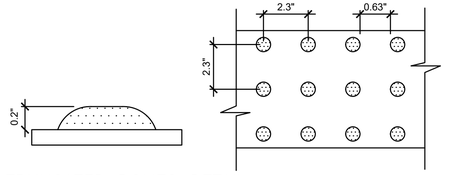


NOTE:
SIGN TO BE CENTERED AT THE INTERIOR END OF PARKING SPACE. AREA OF SIGN TO BE A MIN. OF 70 SQ. INCHES. DESIGNATE FOR "VAN ACCESSIBLE" WHERE APPROPRIATE.

EMBLEM MUST BE LOCATED IN STALL SO THAT IS VISIBLE BY A TRAFFIC ENFORCEMENT OFFICER WHEN A VEHICLE IS PROPERLY PARKED IN THE SPACE (CENTERED AT ENTRANCE TO STALL RECOMMENDED)

PARKING SPACE SIGNAGE

NTS



TRUNCATED DOMES DETAIL

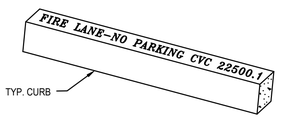
NTS

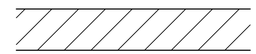
NOTE:

1. DETECTABLE WARNING, MOUNTED FLUSH, SURFACE SHALL BE CAST-IN-PLACE DETECTABLE WARNING TILE WITH STEEL ANGLES AND ANCHORS, MANUFACTURED BY ARMORCAST PRODUCTS COMPANY OR APPROVED EQUAL, AND SHALL MEET ALL ADA REQUIREMENTS AS WELL AS STATE TITLE 24 REQUIREMENTS.
2. DETECTABLE WARNING SURFACES SHALL BE YELLOW (PRECISELY FEDERAL STANDARD 595C 33538)
3. DETECTABLE WARNING SURFACE SHALL CONFORM TO THE DETAILS ON THIS STANDARD PLAN.
4. DETECTABLE WARNING SURFACE SHALL BE INSTALLED SO THAT DOMES ARE ALIGNED PARALLEL TO CENTERLINE OF ACCESS RAMP.
5. THE EDGE OF THE DETECTABLE WARNING SURFACE NEAREST THE STREET SHALL BE BETWEEN 6" AND 8" FROM THE GUTTER FLOW LINE.
6. DETECTABLE WARNINGS AT CURB RAMPS SHALL EXTEND 36 INCHES IN THE DIRECTION OF TRAVEL. DETECABLE WARNINGS SHALL EXTEND THE FULL WIDTH OF THE RAMP RUN LESS 2 INCHES MAXIMUM ON EACH SIDE, EXCLUDING ANY FLARED SIDES. DETECTABLE WARNINGS SHALL BE LOCATEED SO THE EDGE NEAREST THE CURB IS 6 INCHES MAXIMUM FROM THE LINE AT THE FACE OF THE CURB MARKING THE TRANSITION BETWEEN THE CURB AND THE GUTTER, STREET OR HIGHWAY.
7. DETECTABLE WARNING SURFACES AT PLATFORM BOARDING EDGES SHALL BE 24 INCHES WIDE AND SHALL EXTEND THE FULL LENGTH OF THE PUBLIC USE AREAS OF THE PLATFORM.

FIRE LANE NOTIFICATION

CURBS AT FIRE LANES SHALL BE PAINTED ON TOP AND FACE OF CURB WITH "OSHA SAFETY RED" PAINT AND NOTIFICATION LETTERING SHALL BE APPLIED ON TOP OF CURB AT 30' SPACING, USING WHITE PAINT 3" TALL LETTERS AS FOLLOWS:
"FIRE LANE-NO PARKING CVC 22500.1"

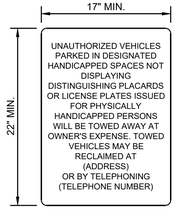




ADA PATH STRIPING

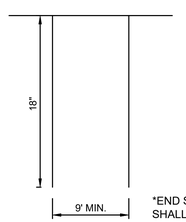
NTS

1. PATHWAYS BORDERS SHALL BE BLUE.
2. PATHWAYS STRIPING SHALL BE WHITE.
3. PATHWAY STRIPING SHALL BE AT 36" ON CENTER.



TOW AWAY SIGNAGE

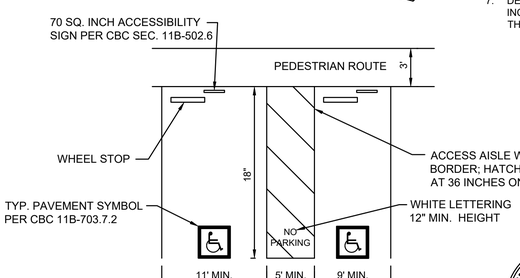
NTS



*END STALLS SHALL BE 11' WIDE

TYP. PARKING STALLS

NTS



ADA VAN ACCESSIBLE PARKING STALLS

NTS

PREPARED BY:

5/9/2023

OSBJORN BRATENE
RCE 21873

DATE

REGISTERED PROFESSIONAL ENGINEER OSBJORN BRATENE No. 21873 CIVIL STATE OF CALIFORNIA

BGR2200348
BMP2200404
REF: BGR1800141

REVISIONS	BY

SIGNAGE & STRIPING

AUSTIN WINERY

PARCEL 1 OF PARCEL MERGER 180016

35598 GLENOAKS, TEMECULA CA 92592

Civil Engineers - RCE 21873
General Contractors - Lic. 378242
41625 Enterprise Circle South, #B-2
Temecula, CA 92590
(951) 201-2542
bratenecons@prodigy.net

BRATENE CONSTRUCTION & ENGINEERING

DRAWN BY	D. BRATENE
CHECKED	O.BRATENE
DATE	5/9/2023
SCALE	1"=30'
JOB NO.	18006
SHEET	5

Appendix 3: Soils Information

Geotechnical Study, Other Infiltration Testing Data, and/or Other Documentation

Examples of material to provide in Appendix 3 may include but are not limited to the following:

- Geotechnical Study/Report prepared for the project,
- Additional soils testing data (if not included in the Geotechnical Study),
- Exhibits/Maps/Other Documentation of the Hydrologic Soils Groups (HSG)s at the project site.

This information should support the Full Infiltration Applicability, and Biofiltration Applicability sections of this Template. Refer to Section 2.3 of the SMR WQMP and Sections A and D of this Template.

The County will accept explicit recommendations from the Geotechnical Engineer, such as specifying a design infiltration rate (unfactored) when infiltration rates vary, recommendations for impermeable liners due to concerns about seepage in fill areas/near gas tanks, or other site specific recommendations based on physical conditions.

ENGEN CORPORATION
Geotechnical & Environmental Services

Preliminary Updated Geotechnical Feasibility Study

Austin Vineyard and Winery
APN: 942-030-006
Temecula, California

Project Number: 4436UGFS

BGR Number: 1800141

March 7, 2019

41625 Enterprise Circle S., B-2
Temecula, CA 92590

info@engencorp.com

engencorp.com

ph | 951.296.3511

fx | 951.240.3380

SDVOSB | DVBE

Prepared for:

Austin Vineyard and Winery
c/o Temecula Valley Wine Management
Attention: Mr. Rebaux Steyn
27495 Diaz Road
Temecula, CA 92590

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SECTION NUMBER AND TITLE **PAGE**

ENGEN CORPORATION
Geotechnical & Environmental Services

41625 Enterprise Circle S., B-2
Temecula, CA 92590
info@engencorp.com
engencorp.com
ph | 951.296.3511
fx | 951.240.3380
SDVOSB | DVBE

March 7, 2019

Austin Vineyards and Winery
c/o Temecula Valley Wine Management
Attention: Mr. Rebaux Steyn
27495 Diaz Road
Temecula, CA 92590

Subject: **Updated Geotechnical Feasibility Study**, Austin Vineyard and Winery, APN: 942-030-006, Parcel 1 of Parcel Merger 180016, Glen Oaks Rd, Temecula, California 92592, Project Number: 4436UGFS

References:
1. ***EnGEN Corporation, Geotechnical Feasibility Study***, Austin Vineyard and Winery, APN: 942-030-006, Parcel 1 Merger, dated: December 10, 2018, Project No.: 4436GFS
2. ***Bratene Construction and Engineering, Rough Grading Plan***
BGR Number: 1800141, Austin Vineyard, APN: 942-030-006, Parcel 1 of Parcel Merger 180016, Glen Oaks Rd, Temecula, California, 92592, Job No: 18006, Dated: October 23, 2018

Mr. Steyn,

In accordance with your request and signed authorization, on February 6th, 2019 a representative from this firm visited the subject site to confirm that it remained substantially unchanged from that represented in the Referenced Number 1 Report. Based on the site reconnaissance conducted and a review of the Reference No. 1 report, we are submitted an updated geotechnical report for the Referenced No. 2 Grading Plan.

1.0 EXECUTIVE SUMMARY

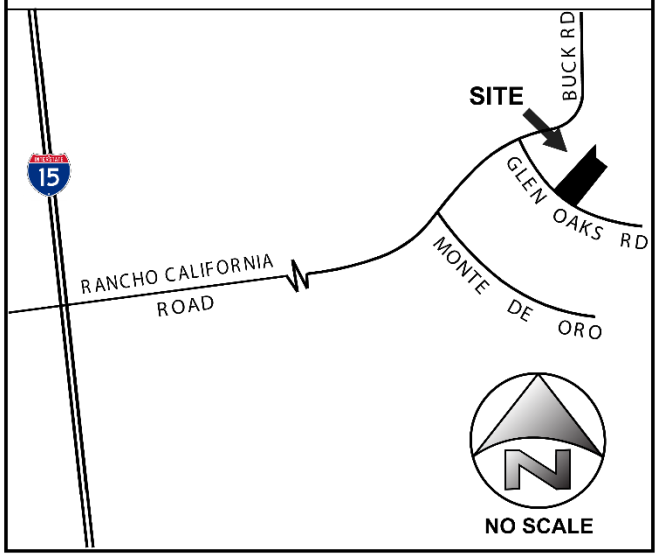
- **Feasibility for development:** Based on the findings of this study it is our opinion that the subject site is developable from a geotechnical standpoint provided the recommendations of this report are incorporated into the design and construction of the proposed improvement areas within the subject property.
- **Grading Operations:** The vineyard and proposed winery layout are being rough graded under residential permit BGR 1800141. Precise grading in the final winery layout will be submitted separately in coordination with this report.
- **Expansive and Corrosive Soil Properties and Foundation Recommendations:** Areas to receive concrete foundations and slabs will be supported on soils that have a **very low** expansion potential and are considered non-corrosive to concrete. Minimum foundation and slab design recommendations are provided under § 7.0 of this report:

2.0 SITE/PROJECT DESCRIPTION

2.1 Site Description:

The subject site is an essentially rectangular shaped 20-acre lot located north of Glenoaks Road in the Temecula area of Riverside County. The 10-acre area to be graded was merged with the adjacent 10-acre parcel to the southwest, creating the 20-acre parcel. Vertical topographic relief across the site is approximately 30-feet with overall site drainage toward the west. At the time the field study was conducted, an existing residence and vineyard occupy the southwestern portion of the subject site. The north and western portions of the site was covered with very sparse grasses and weeds.

FIGURE 1 - SITE LOCATION MAP



2.2 Project Description:

The proposed development for the subject site will be a commercial winery with a planted vineyard. The vineyard and proposed winery layout are being rough graded under residential permit BGR 1800146. Precise grading in the final winery layout will be submitted separately in coordination with this report.

2.3 Scope of Work:

The scope of this study was to provide a preliminary geotechnical assessment of the surface and subsurface conditions within the area to be developed for the winery, and to provide recommendations for the commercial development of the site from a geotechnical point of view. The scope included: 1) site reconnaissance and geologic mapping, 2) review of subsurface exploration data and field testing conducted in the Reference No. 1 Report, 3) engineering analysis of field and laboratory data, and 4) preparation of this report.

2.4 Field Study:

Field reconnaissance, geologic mapping and subsurface exploration was conducted on October 27, 2018. The purpose of the subsurface exploration was to assess the underlying earth materials' existing condition and geotechnical properties as well as the presence of historical groundwater conditions that might affect the geotechnical integrity of the proposed improvements. Exploratory backhoe test pits were excavated within the proposed improvement areas of the subject site (see Plate 1). Soils encountered consisted of alluvium, colluvium and Pauba Formation bedrock (see Exploratory Backhoe Logs in the Appendix). The exploratory test pits were excavated utilizing a rubber-tired backhoe equipped with a 24-inch bucket. Bulk samples were collected from selected depths and in-place density tests were performed in the upper 5-feet of each test pit. Representative soil samples were subsequently returned to this firm's soils laboratory for verification of field classifications and testing. Selected samples were tested for maximum density, USCS classification, shear strength, and expansion. In addition, soil samples were visually inspected for evidence of corrosive properties that would dictate a formal corrosive analysis of materials that will be in direct contact with any proposed concrete within the improvement areas. The approximate locations of the exploratory test pits are denoted on the Geotechnical Feasibility Study Site Plan (Plate 1).

2.5 Exploratory Test Pit Backfill Compaction:

The exploratory test pits were backfilled with loose soil cuttings after completion of logging, testing and sampling operations. Per EnGEN's contract, mechanical bucket tamping was applied to backfill operations. However, tests were not performed to determine the compaction of the backfilled material. Thus, as recommended in the Reference No. 1 Report the exploratory test pit backfill should be removed and re-compacted during the rough grade operations to meet the density of surrounding ground or 90% relative compaction (whichever is required as a result of the grading operations). Verification for the restoration of the test pit backfill should be documented within the body of the final grading report for the proposed project.

3.0 FINDINGS

3.1 Site Review:

The subject site is essentially gently to moderately sloping in general to the southwest. At the time of the site reconnaissance, there was a sparse growth of native grasses and weeds. Based on our site study, the subject property appears to be comprised of Pauba Formation Bedrock with shallow colluvium and alluvial deposits within the surface draining areas (see Plate 1). Alluvium can be found in the western portion of the property, north of the proposed driveway and was found to be loose and unconsolidated in its undisturbed state. At present, the alluvial area of the site is intended to remain undisturbed for use in the infiltration basins to be designed per the Referenced No. 1 grading plan. The site is not located within a State designated Alquist-Priolo Zone.

3.2 Subsurface Soil Profile:

Based on our field reconnaissance and subsurface excavations performed, the site is underlain by the following earth materials:

TABLE 1 - EARTH MATERIALS

Earth Materials	Range of Depth	Condition
Older Alluvium	Surface to max depth explored	Moderately dense
Colluvium	Surface to approximately 2.5 feet	Porous, loose
Pauba Formation Bedrock	± 2.5 feet to max depth explored	Dense to very dense

A thin mantle of Colluvium covers the natural slopes throughout the site and overlies the Pauba Formation Bedrock in the higher elevations (see Plate 1). Alluvium deposits are mapped in the western portion of the property north of the proposed driveway (see Plate 1). The exploratory test pit logs of earth materials encountered during the subsurface exploration are included in Appendix C. Further discussion of the on-site earth material is presented in § 6.0 of this report.

3.3 Transition Areas:

Based on the elevation of the proposed pad, it appears the entire winery building will be situated on engineered fill to be placed and reported in the BGR1800141 documents. As a result, only surficial pad contouring should be necessary at that time, and no other remedial grading is anticipated at this time. If any changes are made to the Referenced #1 grading plan, EnGEN should be notified to review the changes and insure that the supporting materials for the proposed structure have not changed.

4.0 LABORATORY TESTING

4.1 General:

The results of laboratory tests performed on samples of earth material obtained during the site visit are presented in the attached Appendix. Following is a listing and brief explanation of the laboratory tests performed. The samples obtained during the field study will be discarded 30 days after the date of this report. This office should be notified immediately if retention of samples will be needed beyond 30 days.

4.2 Classification:

The field classification of soil materials encountered during our site visit were verified in the laboratory in general accordance with the Unified Soils Classification System, ASTM D 2488-00, Standard Practice for Determination and Identification of Soils (Visual-Manual Procedures). The final classification is shown in the Moisture Density Test Report presented in the Appendix.

4.3 Maximum Dry Density/Optimum Moisture Content Relationship Test:

Maximum dry density/optimum moisture content relationship determinations were performed on samples of near-surface earth material in general accordance with ASTM 1557-12 procedures using a 4.0-inch diameter mold. Samples were prepared at various moisture contents and compacted in five (5) layers using a 10-pound weight dropping 18-inches and with 25 blows per layer. A plot of the

compacted dry density versus the moisture content of the specimens is constructed and the maximum dry density and optimum moisture content determined from the plot. The plot is shown in the Moisture Density Test Report presented in the Appendix.

4.4 Expansion Test:

Laboratory expansion tests were performed on samples of near-surface earth material in general accordance with CBC 18-2. In this testing procedure, a remolded sample is compacted in two (2) layers in a 4.0-inch diameter mold to a total compacted thickness of approximately 1.0-inch by using a 5.5-pound weight dropping 12-inches and with 15 blows per layer. The sample should be compacted at a saturation between 49 and 51 percent. After remolding, the sample is confined under a pressure of 144 pounds per square foot (psf) and allowed to soak for 24 hours. The resulting volume change due to the increase in moisture content within the sample is recorded and the Expansion Index (EI) calculated.

4.5 Soluble Sulfate Test:

Samples of the near –surface earth materials were obtained for soluble sulfate testing for the site. The concentration of soluble sulfates was determined in the general conformance with California Test Method 417 procedures.

4.6 pH/Minimum Resistivity

Sample(s) of near surface soils were tested for pH and minimum resistivity in general accordance to CTM 643.

4.7 Chloride Content

Sample(s) of near surface soils were tested for chloride content in general conformance to CTM 422.

4.8 Direct Shear Test:

Direct shear tests were performed on select samples of near-surface earth material in general accordance with ASTM D 3080-03 procedures.

5.0 GEOLOGY AND SEISMICITY

5.1 Geologic Setting:

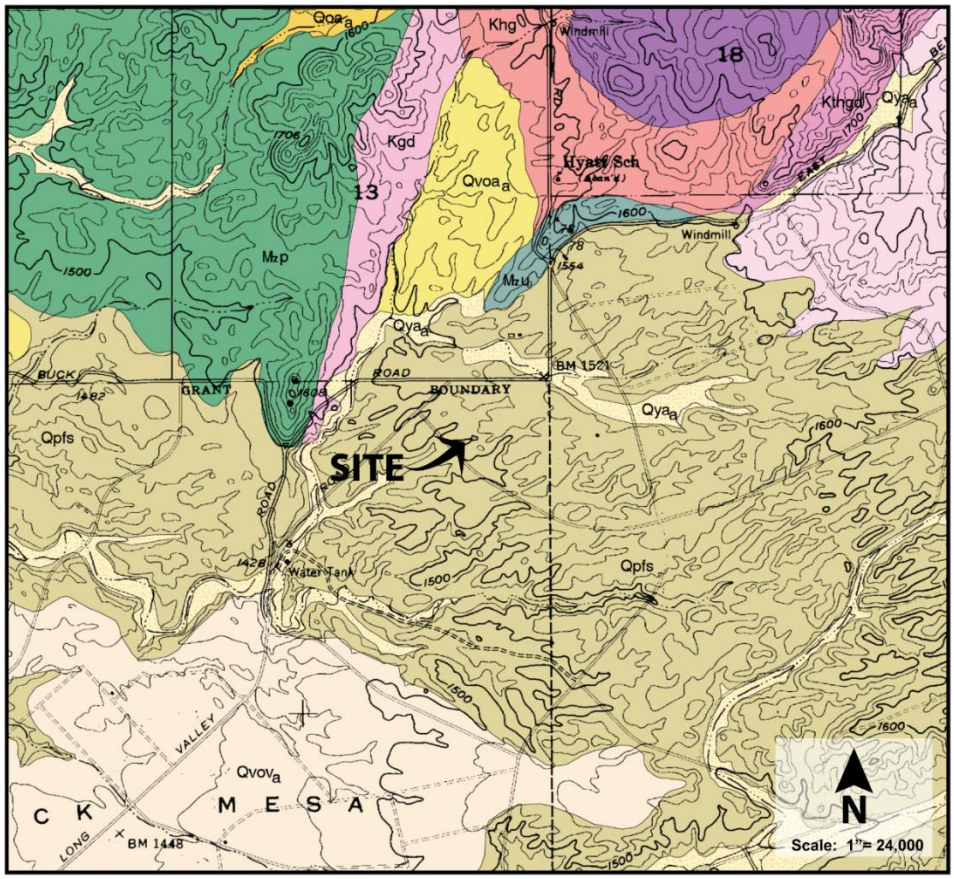
The site is located in the Northern Peninsular Range on the southern sector of the structural unit known as the Perris Block. The Perris Block is bounded on the northeast by the San Jacinto Fault Zone, on the southwest by the Elsinore Fault Zone, and on the north by the Cucamonga Fault Zone. The southern boundary of the Perris Block is not as distinct but is believed to coincide with a complex group of faults trending southeast from the Murrieta, California area (Kennedy, 1977). The Peninsular Range is characterized by large Mesozoic age intrusive rock masses flanked by volcanic, metasedimentary, and sedimentary rocks. Various thicknesses of colluvial/alluvial sediments derived from the erosion of the elevated portions of the region fill the low-lying areas. The earth materials encountered on the subject site on the subject site are described in more detail in subsequent

sections of this report

5.2 Seismic Hazards:

Because the proposed development is located in tectonically active southern California, it will likely experience some effects from earthquakes. The type or severity of seismic hazards affecting the site is mainly dependent upon the distance to the causative fault, the intensity of the seismic event, and the soil characteristics. The seismic hazard may be primary, such as surface rupture and/or ground shaking, or secondary, such as liquefaction or dynamic settlement. The following is a site-specific discussion about ground motion parameters, earthquake induced settlement hazards, and liquefaction. The purpose of this analysis is to identify potential seismic hazards and propose mitigations, if necessary, to an acceptable level of risk. The following seismic hazards discussion is guided by CBC (2016).

FIGURE 2



5.3 Seismic Design Parameters:

The 2016 California Building Code (CBC) seismic design parameters for the subject site are as follows:

Description	Design Parameters
Site Latitude:	33.55212ºN
Site Longitude:	-117.03471ºW
Site Class:	D
Spectral Response (Short):	**(0.2 sec) – S_s**: 1.500g
Spectral Response – (1-Second):	**(1.0 sec) – S_1**: 0.600g
Short Period Site Coefficient:	**Fa**: 1.0
1-Second Period Site Coefficient:	**Fv**: 1.5
Adjusted Spectral Response:	**(Short Period) - 0.2 sec – S_{ms}**: 1.500g
Adjusted Spectral Response:	(**One Sec) – S_{m1}**: 0.900g
Design Spectral Response:	**(Short Period) 0.2 sec – S_{ds}**: 1.000g
Design Spectral Response:	**(One Sec) 1.0 sec – S_{d1}**: 0.600g

5.4 Surface Fault Rupture:

No known active faults are mapped trending across on the subject site based on a review of the AP Zone maps provided by the U.S. Geologic Survey (see Figure 2 and References). Accordingly, the potential for fault surface rupture on the site is considered unlikely.

5.5 Liquefaction:

Based on the nature and density of the Pauba Formation bedrock, and the assumed depth to groundwater the potential for hazards associated with liquefaction are considered low.

5.6 Seismically Induced Landsliding:

Due to the density and coarse-grained nature of the engineered fill and underlying Pauba Formation bedrock at the subject site, the probability of seismically induced landsliding is considered low.

5.7 Seismically Induced Flooding, Seiches:

Due to the lack of a large body of water located above the subject site, the possibility of seismically induced flooding or seiches is considered low. Due to the large distance of the project site to the Pacific Ocean, the possibility for seismically induced tsunamis to impact the site is considered nil.

6.0 EARTH MATERIALS

6.1 Colluvium/Residual Soils (CQal):

Based on the subsurface exploration, colluvial material and residual soils cover the majority of the site and is underlain by Pauba Formation Bedrock (see Plate 1).

6.2 Alluvium (Qal):

Alluvium was mapped in the shallow surface drainage swales in the western area of subject site, both north and south of the proposed driveway (See Plate 1).

6.3 Pauba Formation Bedrock (Qps):

The subject site has been mapped within the geologic bedrock formation commonly referred to as the Pauba Formation. The Pauba Formation Bedrock is a sandstone formation comprised of silty and clayey sands to gravelly clean sands that is partially weathered near the surface and becomes dense to very dense at a depth of 2 to 3 feet.

6.4 Proposed Commercial Grading

The proposed residential grading will result in the entire proposed winery area being underlain by either certified engineered fill or competent Pauba Formation bedrock. As a result, all colluvium and alluvium will have been properly recompacted, and shall be verified as such in the final grading report for the subject project (BGR 1800141).

7.0 CONCLUSIONS AND RECOMMENDATIONS

7.1 General:

Based on the findings of this study it is our opinion that the subject site is developable from a geotechnical standpoint provided the recommendations of this report are incorporated into the design and construction of the proposed improvement areas within the subject property.

7.2 Earthwork Recommendations (All Areas)

a) **Vegetation**: All vegetation should be removed from areas to be graded and not used in fills.

b) **Man Made Debris**: All man-made debris material (fi any), should be removed from the site and not used in fills.

c) **Removals and Re-compaction:** Removals and re-compaction are planned to be completely addressed and executed during BGR 1800141 grading. No additional remedial work is expected to be needed subsequent to that permitted work. The following recommendations are being implemented in the BGR 1800141 procedures and are required to be completed prior to certifying rough grade for the winery.

d) **Removals**: Removals should expose competent unweathered bedrock in most areas to receive fill. Removal depths in colluvial deposits are anticipated to be on the order of 2 to 2.5 feet existing natural slopes and shallow drainage courses near TP2, TP-3 and TP5. Removals within the alluvium in the southwest corner near TP-1 and in the area of the detention basin will be on the order of 8 or a depth were competent natural ground with relative compaction of 85 percent or greater are encountered (whichever is deeper). The material generated during removals should be cleared of any debris and may then be placed as engineered fill. Deeper removals may be required depending upon exposed conditions encountered.

e) **Removal Inspections**: All exposed removal bottoms should be inspected by the Geotechnical Engineer's representative prior to placement of any fill. Bottoms should be

probed to verify competency and a natural density of 85 percent or greater.

f) **Preparation of Removal Bottoms to Receive Fill**: The approved exposed bottoms of all removal areas should be scarified 12-inches, brought to near optimum moisture content, and compacted to a minimum of 90 percent relative compaction before placement of fill. Structural fill should be compacted to a minimum of 90 percent relative compaction. Maximum dry density and optimum moisture content for compacted materials should be determined according to ASTM D 1557-12 procedures.

g) **Steepness of Cut and Fill Slopes**: Any fill or cut slopes should be constructed at slope ratios no steeper than 2:1 (horizontal to vertical).

h) **Restoration of Exploratory Test Pits**: Where grading within the areas of the exploratory Test Pits do not result in removing the entire test pit to competent bedrock, restoration of the exploratory test pit backfill should be reviewed and appropriate measures taken if required to insure the backfill meets the relative density of the surrounding ground and appropriate documentation of actions taken provided within the final grading report.

i) **Winery Grade Preparation**: All pre-graded and certified areas to be tailored for drainage and final pad configuration shall be scarified, moisture conditioned and compacted to at least 90 percent of maximum density to receive additional fill or to make final grade.

7.3 Oversize Material:

Oversize material is defined as rock, or other irreducible material with a maximum dimension greater than 12-inches. Oversize material shall not be buried or placed in fill unless location, materials, and placement methods are specifically accepted by the Project Geotechnical Engineer. Placement operations shall be such that nesting of oversize material does not occur, and such that oversize material is completely surrounded by compacted fill (windrow). Alternative methods, such as water jetting or wheel rolling with a backhoe may be required to achieve compaction in the fill materials immediately adjacent to the windrow. Oversize material shall not be placed within ten (10) vertical feet of finish grade, within fifteen (15) lateral feet of a finished slope face, or within two (2) feet of future utilities.

7.4 Structural Fill:

All fill material, whether on-site material or import, should be accepted by the Project Geotechnical Engineer and/or his representative before placement. All fill should be free from vegetation, organic material, and other debris. Import fill should be no more expansive than the existing on-site material, unless approved by the Project Geotechnical Engineer. Approved fill material should be placed in horizontal lifts not exceeding 6.0 to 8.0-inches in thickness and watered or aerated to obtain near-optimum moisture content (within 2.0 percent of optimum). Each lift should be spread evenly and should be thoroughly mixed to ensure uniformity of soil moisture. Structural fill should meet a minimum relative compaction of 90 percent of maximum dry density based upon ASTM D 1557-12

procedures. Moisture content of fill materials should not vary more than 2.0 percent of optimum, unless approved by the Project Geotechnical Engineer.

7.5 Soil Expansion Potential:

Preliminary Expansion Index testing was performed, yielding an EI of **6**. This is classified as a **Very Low** expansion potential. Import soils or soils used near finish grade may have a different EI. Final design parameters should be based on EI testing of near-surface soils and be performed at the conclusion of rough grading. Those results should be forwarded and incorporated into the final design by the Project Engineer, as appropriate.

7.6 Soil Corrosive Potential:

The highest sulfate (SO_4) concentration measured was 48.1 ppm (mg/kg). Generally, sulfate concentrations greater than 1,500 ppm are considered to be corrosive to metals and concrete. The highest chloride concentrations were 27.2 ppm. Generally, chloride concentrations greater than 500 ppm are considered to be corrosive to metals and concrete. The soil pH level was 5.7. Generally, a pH level less than 5.5 is considered to be corrosive to metal and concrete. Based on the tests performed for soil corrosive potential, the soils throughout the site are not corrosive to concrete and steel. Type II concrete may be used.

Table 3 - Summary of Laboratory Corrosion Test Results

Sample Location	Sample No.	Depth in (ft)	Minimum Resistivity (ohm-cm)	pH	Sulfate Content (ppm)	Chloride Content (ppm)
TP3	C3	2-feet	2800	5.7	48.1	27.2

The client may wish to have a corrosion engineer review the test results for design consideration if the concentration levels presented above are such that a more detailed review is deemed necessary. **EnGEN** can provide this service upon request.

7.7 Stormwater Infiltration:

The infiltration test areas were verified as being in undisturbed natural earth materials. A total of four (4) tests were performed at the subject site, at elevations represented to be near the bottom of the proposed basins. The test pits were pre-soaked and tested in general accordance with the procedures outlined in Appendix A of the "Riverside County – Low Impact Development BMP Design Handbook" publication issued by the Riverside County Flood Control. The soils tested meet the “sandy soil” test criteria wherein two consecutive 30 minute readings dropped more than 6-inches. After the first two 30-minute readings were completed, time intervals of 30-minute readings were used for the remainder of the test. The diameter and depth of the test holes were 8-inches and 20-inches respectively.

TABLE 1 – SUMMARY OF INFILTRATION TEST RESULTS	
FOR LOCATION SEE PLATE 1	
Test No.	**Rate (in./hr.)**
1.	0.77
2.	0.51
3.	0.33
4.	0.40
RECOMMENDED RATE = in./hr.	
0.33	

The infiltration test results are summarized on Table 1 above with detailed readings presented in Exhibit 3 of this report.

8.0 SLOPE STABILITY (GENERAL):

8.1 Cut and Fill Slopes:

It is our opinion that the proposed Slopes as inclined at a ratio of 2:1 or flatter will possess gross and surficial stability in excess of generally accepted minimum engineering criteria (Factor of Safety at least 1.5) would be suitable for their intended purpose, provided that proper slope maintenance procedures are maintained. These procedures include but are not limited to installation and maintenance of drainage devices and planting of slope faces to protect from erosion in accordance with County standards.

9.0 FOUNDATION RECOMMENDATIONS:

9.1 Foundation Design Recommendations:

Foundations for the proposed structures may consist of conventional column footings and continuous wall footings founded either on native bedrock material or compacted fill but not a combination of both. The recommendations presented in the subsequent paragraphs for foundation design and construction are based on geotechnical characteristics and upon a very low expansion potential for the supporting soils and should not preclude more restrictive structural requirements. The Structural Engineer for the project should determine the actual footing width and depth in accordance with the latest edition of the California Building Code to resist design vertical, horizontal, and uplift forces and should either verify or amend the design based on final expansion testing at the completion of grading.

9.2 Foundation Size:

Continuous footings should have a minimum width of 12-inches. Continuous footings should be continuously reinforced with a minimum of two (2) No. 4 steel reinforcing bars located near the top and two (2) No. 4 steel reinforcing bars located near the bottom of the footings to minimize the effects of slight differential movements which may occur due to minor variations in the engineering characteristics or seasonal moisture change in the supporting soils. Column footings should have a minimum width of 18-inches by 18-inches and be suitably reinforced, based on structural requirements. A grade beam, founded at the same depths and reinforced the same as the adjacent

footings, should be provided across doorway and garage entrances.

9.3 Depth of Embedment:

Exterior and interior footings founded in native bedrock material should extend to a minimum depth of 12-inches for single story structures and 18-inches for two story structures below lowest adjacent finish grade.

9.4 Bearing Capacity:

Provided the recommendations for site earthwork, minimum footing width, and minimum depth of embedment for footings are incorporated into the project design and construction, the allowable bearing value for design of continuous and column footings, for the residential structure for the total dead plus frequently-applied live loads, is 1,500 psf for footings in competent engineered fill. The allowable bearing value has a Factor of Safety of at least 3.0 and may be increased by 33.3 percent for short durations of live and/or dynamic loading such as wind or seismic forces.

9.5 Settlement:

Footings designed according to the recommended bearing values and the maximum assumed wall and column loads are not expected to exceed a maximum settlement of 0.75-inch or a differential settlement of 0.50-inch over a distance of 40-feet in compacted fill material under static load conditions.

9.6 Lateral Capacity:

Additional foundation design parameters for the residence based on compacted fill for resistance to static lateral forces, are as follows:

- **Allowable Lateral Pressure (Equivalent Fluid Pressure), Passive Case:**
  Engineered Fill – 200 pcf
- **Allowable Coefficient of Friction:**
  Engineered fill – 0.35

Lateral load resistance may be developed by a combination of friction acting on the base of foundations and slabs and passive earth pressure developed on the sides of the footings and stem walls below grade when in contact with undisturbed, native bedrock material. The above values are allowable design values and may be used in combination without reduction in evaluating the resistance to lateral loads. The allowable values may be increased by 33.3 percent for short durations of live and/or dynamic loading, such as wind or seismic forces. For the calculation of passive earth resistance, the upper 1.0-foot of material should be neglected unless confined by a concrete slab or pavement. The maximum recommended allowable passive pressure is 5.0 times the recommended design value.

9.7 Slab-on-Grade Recommendations:

The recommendations for concrete slabs, both interior and exterior, excluding PCC pavement, are based upon the anticipated building usage and upon a very low expansion potential for the supporting material as determined by Chapter 18 of the California Building Code. Concrete slabs should be

designed to minimize cracking as a result of shrinkage. Joints (isolation, contraction, and construction) should be placed in accordance with the American Concrete Institute (ACI) guidelines. Special precautions should be taken during placement and curing of all concrete slabs. Excessive slump (high water/cement ratio) of the concrete and/or improper curing procedures used during either hot or cold weather conditions could result in excessive shrinkage, cracking, or curling in the slabs. It is recommended that all concrete proportioning, placement, and curing be performed in accordance with ACI recommendations and procedures. Slab-on-grade reinforcement and thickness should be provided by the structural engineer based on structural considerations, but as a minimum, it is recommended that concrete floor slabs be at least 4-inches in actual thickness and reinforced with at least No. 3 reinforcing bars placed 24-inches on center, both ways, placed at mid-height of the slab cross-section.

9.8 Exterior Slabs:

All exterior concrete slabs cast on finish subgrade (patios, sidewalks, etc., with the exception of PCC pavement) should be a minimum of 4-inches nominal in thickness. Reinforcing in the slabs and the use of a compacted sand or gravel base beneath the slabs should be according to the current local standards. Subgrade soils should be moisture conditioned to at least optimum moisture content to a depth of 12-inches immediately before placing the concrete.

10.0 RETAINING WALL RECOMMENDATIONS:

10.1 Earth Pressures:

Retaining walls backfilled with non-expansive granular soil (EI=0) or very low expansive potential materials (Expansion Index of 20 or less) within a zone extending upward and away from the heel of the footing at a slope of 0.5:1 (horizontal to vertical) or flatter should be designed to resist the following static lateral soil pressures:

Condition	Level Backfill	2:1 Slope	Seismic*
Active	35 pcf	50 pcf	K_u=0.2
At Rest	65 pcf	--	--

*For use on walls exceeding 6' in height. To be used with Mononobe-Okabe method.

Further expansion testing of potential backfill material should be performed at the time of retaining wall construction to determine suitability. Walls that are free to deflect 0.01 radian at the top may be designed for the above-recommended active condition. Walls that need to be restricted from this amount of movement should be assumed rigid and designed for the at-rest condition. The above values assume well-drained backfill and no buildup of hydrostatic pressure. Surcharge loads, dead and/or live, acting on the backfill behind the wall should also be considered in the design.

10.2 Retaining Wall Design:

Retaining wall footings should be founded to the same depths into firm, competent, undisturbed, engineered fill or unweathered bedrock as standard foundations and may be designed for an allowable bearing value of 1,500 psf and 2,500 psf respectively (as long as the resultant force is

located in the middle one-third of the footing), and with an allowable static lateral bearing pressure of 200 psf/ft and allowable sliding resistance coefficient of friction of 0.35. When using the allowable lateral pressure and allowable sliding resistance, a Factor of Safety of 1.5 should be achieved.

10.3 Subdrain:

A subdrain system should be constructed behind and at the base of retaining walls equal to or in excess of 4-feet in height to allow drainage and to prevent the buildup of excessive hydrostatic pressures. Gravel galleries and/or filter rock, if not properly designed and graded for the on-site and/or import materials, should be enclosed in a geotextile fabric such as Mirafi 140N, Supac 4NP, or a suitable substitute in order to prevent infiltration of fines and clogging of the system. The perforated pipes should be at least 4.0-inches in diameter. Pipe perforations should be placed downward. Gravel filters should have volume of at least 1.0 cubic foot per lineal foot of pipe. For retaining walls with an overall height of less than 4-feet, subdrains may include weep holes with a continuous gravel gallery, perforated pipe surrounded by filter rock, or some other approved system. Subdrains should maintain a positive flow gradient and have outlets that drain in a non-erosive manner.

10.4 Backfill:

Backfill directly behind retaining walls (if backfill width is less than 3 feet) may consist of 0.5 to 0.75-inch diameter, rounded to subrounded gravel enclosed in a geotextile fabric such as Mirafi 140N, Supac 4NP, or a suitable substitute or a clean sand (Sand Equivalent Value greater than 50) water jetted into place to obtain proper compaction. If water jetting is used, the subdrain system should be in place. Even if water jetting is used, the sand should be densified to a minimum of 90 percent relative compaction. If the specified density is not obtained by water jetting, mechanical methods will be required. If other types of soil or gravel are used for backfill, mechanical compaction methods will be required to obtain a relative compaction of at least 90 percent of maximum dry density. Backfill directly behind retaining walls should not be compacted by wheel, track or other rolling by heavy construction equipment unless the wall is designed for the surcharge loading. If gravel, clean sand or other imported backfill is used behind retaining walls, the upper 18-inches of backfill in unpaved areas should consist of typical on-site material compacted to a minimum of 90 percent relative compaction in order to prevent the influx of surface runoff into the granular backfill and into the subdrain system. Maximum dry density and optimum moisture content for backfill materials should be determined in accordance with ASTM D 1557-02 procedures.

11.0 MISCELANEOUS RECOMMENDATIONS

11.1 Utility Trench Recommendations:

Utility trenches should be backfilled with properly compacted soil. It is recommended that all utility trenches excavated to depths of 5.0-feet or deeper be cut back to an inclination not steeper than 1:1 (horizontal to vertical) or be adequately shored during construction. Where interior or exterior utility trenches are proposed parallel and/or perpendicular to any building footing, the bottom of the trench should not be located below a 1:1 plane projected downward from the outside bottom edge of the

adjacent footing unless the utility lines are designed for the footing surcharge loads. Backfill material should be placed in a lift thickness appropriate for the type of backfill material and compaction equipment used. Backfill material should be compacted to a minimum of 90 percent relative compaction by mechanical means. Jetting of the backfill material will not be considered a satisfactory method for compaction. Maximum dry density and optimum moisture content for backfill material should be determined according to ASTM D 1557-12 procedures.

11.2 Finish Lot Drainage Recommendations:

Finish lot surface gradients in unpaved areas should be provided next to tops of slopes to direct surface water away from flowing over the tops of slopes. The surface water should be directed toward suitable drainage facilities. Ponding of surface water should not be allowed next to structures or on pavements. In unpaved areas, a minimum positive gradient of 2.0 percent away from the structures and tops of slopes for a minimum distance of 10.0-feet and a minimum of 1.0 percent pad drainage off the property in a non-erosive manner should be provided.

11.3 Planter Recommendations:

Above ground planters should be designed with proper surface slope to ensure that adequate drainage is maintained, and minimal irrigation water is allowed to percolate into the soils.

11.4 Supplemental Construction Observations and Testing:

Any subsequent grading for development of the subject property should be performed under engineering observation and testing performed by **EnGEN Corporation**. Subsequent grading includes, but is not limited to, any additional over-excavation of cut and/or cut/fill transitions, fill placement, and excavation of temporary and permanent cut and fill slopes. Observations of over-excavation cuts, fill placement, finish grading, utility or other trench backfill, pavement subgrade and base course, retaining wall backfill, slab pre-saturation, or other earthwork completed for the development of subject property should be performed by **EnGEN Corporation**. If any of the observations and testing to verify site geotechnical conditions are not performed by **EnGEN Corporation**, liability for the safety and performance of the development is limited to the actual portions of the project observed and/or tested by **EnGEN Corporation**.

12.0 PLAN REVIEW:

Subsequent to formulation of final plans and specifications for the project but before bids for construction are requested, grading and other plans for the proposed development should be reviewed by **EnGEN Corporation** to verify compatibility with site geotechnical conditions and conformance with the recommendations contained in this report. If **EnGEN Corporation** is not accorded the opportunity to make the recommended review, we will assume no responsibility for misinterpretation of the recommendations presented in this report.

12.1 Pre-Bid Conference:

It is recommended that a pre-bid conference be held with the owner or an authorized representative,

the Project Architect, the Project Civil Engineer, the Project Geotechnical Engineer and the proposed contractors present. This conference will provide continuity in the bidding process and clarify questions relative to the supplemental grading and construction requirements of the project.

12.2 Pre-Grading Conference:

Before the start of any grading, a conference should be held with the owner or an authorized representative, the contractor, the Project Architect, the Project Civil Engineer, and the Project Geotechnical Engineer present. The purpose of this meeting should be to clarify questions relating to the intent of the supplemental grading recommendations and to verify that the project specifications comply with the recommendations of this geotechnical engineering report. Any special grading procedures and/or difficulties proposed by the contractor can also be discussed at that time.

13.0 CLOSURE

This report has been prepared for use by the parties or project named or described in this document. It may or may not contain sufficient information for other parties or purposes. In the event that changes in the assumed nature, design, or location of the proposed structure and/or project as described in this report, are planned, the conclusions and recommendations contained in this report will not be considered valid unless the changes are reviewed, and the conclusions and recommendations of this report are modified or verified in writing. This study was conducted in general accordance with the applicable standards of our profession and the accepted soil and foundation engineering principles and practices at the time this report was prepared. No other warranty, implied or expressed beyond the representations of this report, is made. Although every effort has been made to obtain information regarding the geotechnical and subsurface conditions of the site, limitations exist with respect to the knowledge of unknown regional or localized off-site conditions that may have an impact at the site. The recommendations presented in this report are valid as of the date of the report. However, changes in the conditions of a property can occur with the passage of time, whether they are due to natural processes or to the works of man on this and/or adjacent properties. If conditions are observed or information becomes available during the design and construction process that are not reflected in this report, **EnGEN Corporation** should be notified so that supplemental evaluations can be performed, and the conclusions and recommendations presented in this report can be modified or verified in writing. Changes in applicable or appropriate standards of care or practice occur, whether they result from legislation or the broadening of knowledge and experience. Accordingly, the conclusions and recommendations presented in this report may be invalidated, wholly or in part, by changes outside of the control of **EnGEN Corporation** which occur in the future.

Thank you for the opportunity to provide our services. Often, because of design and construction details which occur on a project, questions arise concerning the geotechnical conditions on the site. If we can be of further service or should you have questions regarding this report, please do not hesitate to contact this office at your convenience. Because of our involvement in the project to date, we would be pleased to discuss engineering testing and observation services that may be applicable on the project.

Respectfully submitted,
EnGEN Corporation

H. Wayne Baimbridge, Principal
REPA 467279, Project Manager

Osbjorn Bratene, Principal
GE 162

REGISTERED PROFESSIONAL ENGINEER
OSBJORN BRATENE
No. 162
STATE OF CALIFORNIA

HWB/OB:pm

Distribution: (2) Addressee

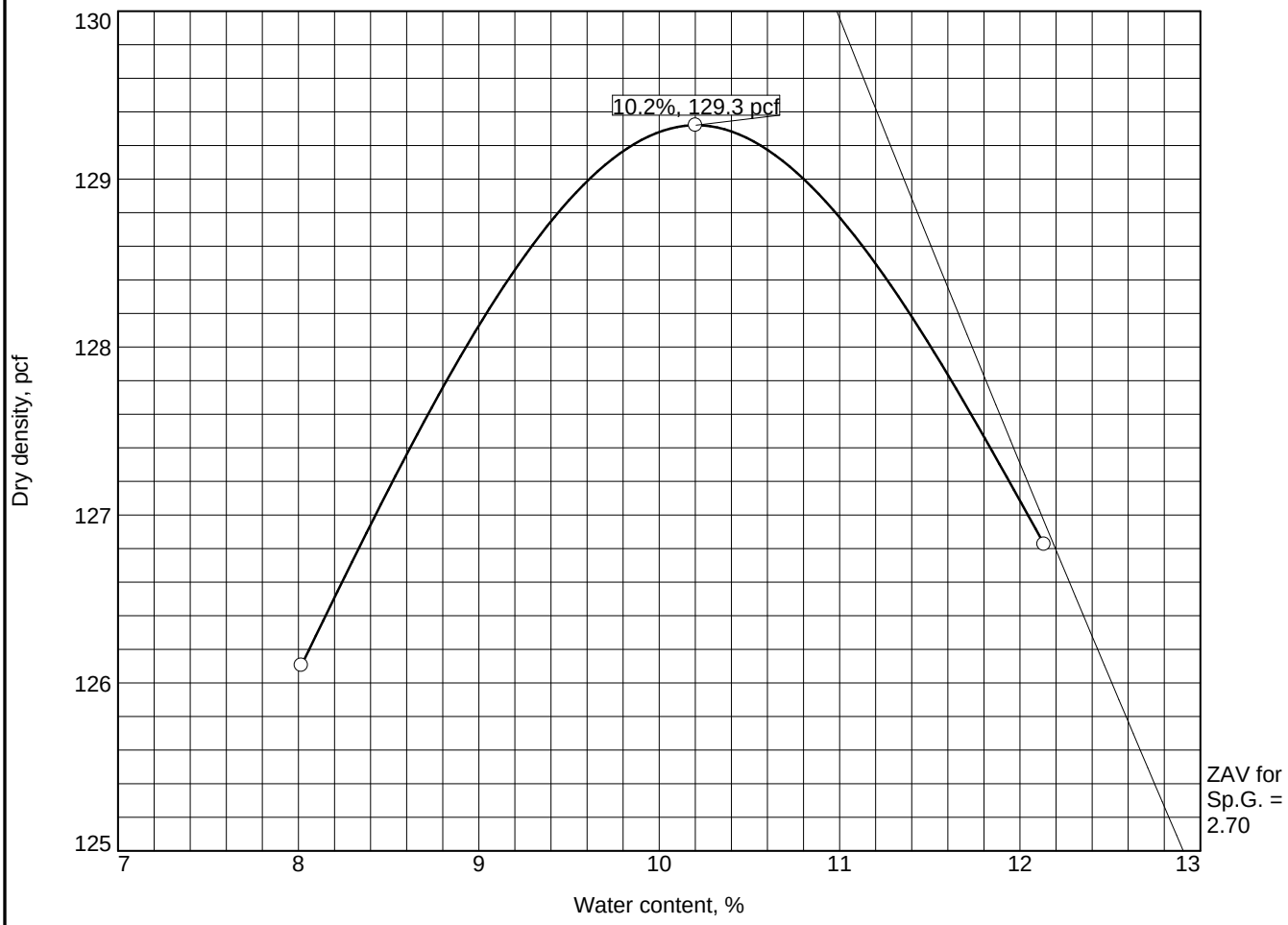
Appendix 1 - General Technical References

1. **California Building Code**, 2016, State of California, California Code of Regulations, Title 24, 2010, California Building Code.
2. **California Division of Mines and Geology**, 1997, Guidelines for Evaluating and Mitigating Seismic Hazards in California, Special Publication 117.
3. **California Geological Survey**, 2002, California Geomorphic Provinces: CDMG, Note 36.
4. **Hart, Earl W., and Bryant, William A**., Revised 2007, Fault-Rupture Hazard Zones in California, Alquist-Priolo Earthquake Fault Zoning Act with Index to Earthquake Fault Zone Maps: State of California, Department of Conservation, Division of Mines and Geology, Special Publication 42.
5. **Kennedy, M.P**., 1977, Recency and Character of Faulting Along the Elsinore Fault Zone in Southern Riverside County, California: California Division of Mines and Geology, Special Report 131, 12 p., 1 Plate, Scale 1:24,000.
6. **D.M. Morton and M.P. Kennedy**, Geologic Map of the Bachelor Mountain Quadrangle, Riverside County, California, 1991, 1995-98, Open -File Report 03-103.
7. **Mann, J.F., Jr**., October 1955, Geology of a Portion of the Elsinore Fault Zone, California: State of California, Department of Natural Resources, Division of Mines, Special Report 43.
8. **Michael P Kennedy and D.M. Morton**, Geologic Map of the Murrieta 7.5 Quadrangle, California, Version 1.0, Scale 1:24,000, Digital Database by Rachel Alvarez and Morton, dated 2008.
9. **County of Riverside**, 2000, Transportation and Land Management Agency, Technical Guidelines for Review of Geotechnical and Geologic Reports.
10. **Riverside County Planning Department**, December 2015, Riverside County Comprehensive General Plan - County Seismic Hazards Map, Scale 1 Inch = 2 Miles.
11. **Riverside County Land Information System**: http://www3.tlma.co.riverside.ca.us/pa/rclis/
12. **Guidelines for Evaluating and Mitigating Seismic Hazards in California (SCEC),** 2008, California Geologic Survey (CGS), Special Publication 117A.
13. **Southern California Earthquake Data Center (SCEDC),** 2019, Southern California Earthquake Data Center Website, http://www.scecdc.scec.org.
14. **U.S. Seismic Design Maps Web Application**, United States Geologic Survey Website (http://geohazards.usgs.gov/designmaps/us/application.php), Earthquake Hazards Program, Seismic Design Maps for Engineers, 2019.

Exhibit 1

Laboratory Test Results

MAX. DEN./OPT. MOIST. (ASTM-D-1557-00)



Test specification: ASTM D 1557-00 Method A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > #4	% < No.200
	USCS	AASHTO						
	SM		8.0					

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 129.3 pcf Optimum moisture = 10.2 %	Silty sand, brown

Project No. 4436GFS **Client:** Austin Winery
Project: Austin Winery

○**Location:** TP1 @ 0-2' **Sample Number:** A1

Remarks:
SAMPLE# A1
SAMPLED BY JP
SAMPLED ON 10/27/18

EnGEN Corporation

Figure

Tested By: JP **Checked By:** JP

CBC Laboratory Expansion Test Results

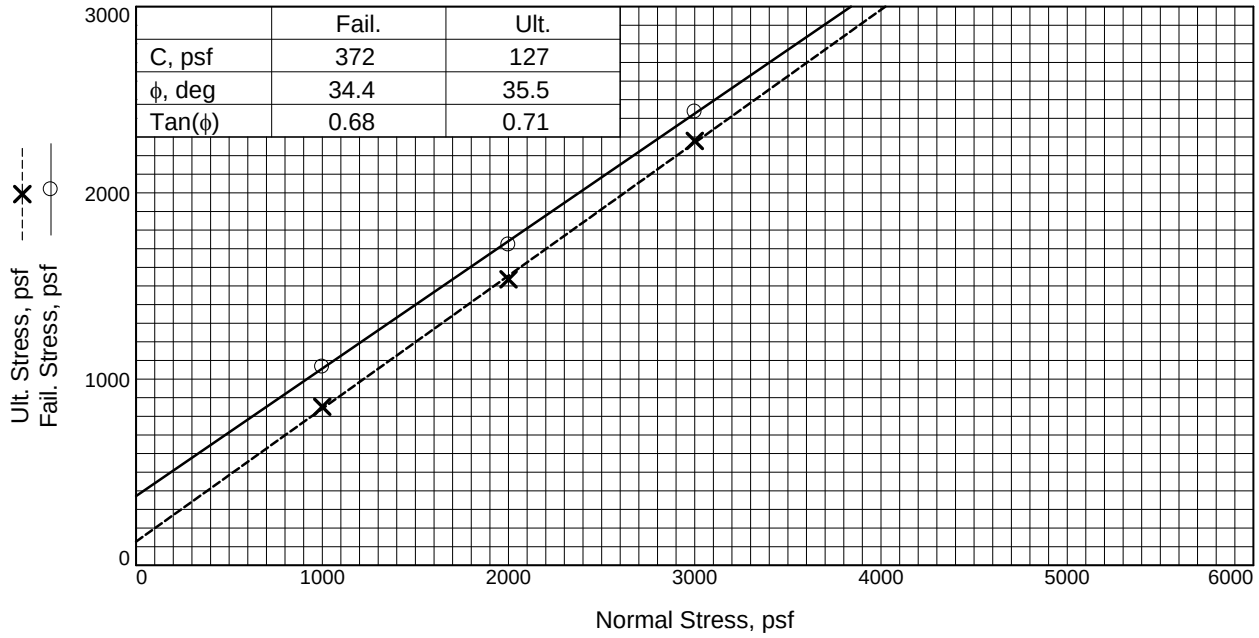
Job Number:	4436GFS
Job Name:	Austin Winery
Location:	Glen Oaks Road
Date:	11/09/18
Sample Source:	TP1 @ 0-2'
Sampled by:	JP
Lab Technician:	JP
Sample Descr:	Silty sand, brown
Sample #:	A1

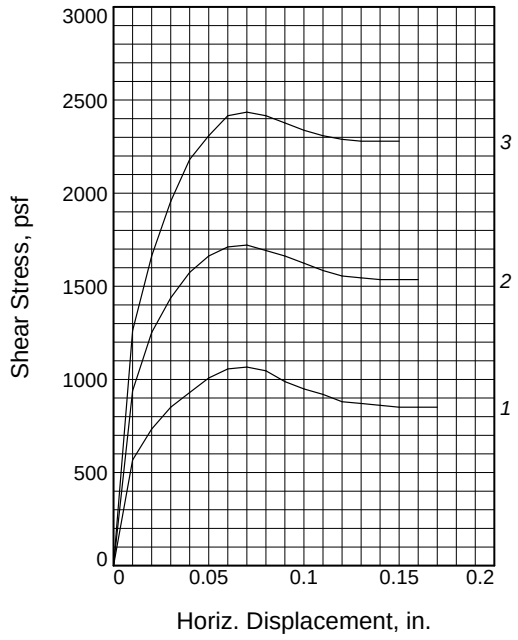
Wet Compacted Wt.:	615.9
Ring Wt.:	196.6
Net Wet Wt.:	419.3
Wet Density:	126.6
Wet Soil:	103.5
Dry Soil:	94.7
Initial Moisture (%):	9.3%
Initial Dry Density:	115.9
% Saturation:	55.2%
Final Wt. & Ring Wt.:	641.7
Net Final Wt.:	445.1
Dry Wt.:	383.6
Loss:	61.5
Net Dry Wt.:	380.3
Final Density:	114.9
Saturated Moisture:	16.2%

	Dial	Change	Time
Reading 1:	0.100	N/A	12:00 PM
Reading 2:	0.106	0.006	12:15 PM
Reading 3:	0.106	0.006	12:30 PM
Reading 4:	0.106	0.006	12-Nov

Expansion Index:	6
Adjusted Index:	8.3
(CBC 18-2)	

EnGEN Corporation
41625 Enterprise Circle South, B-2
Temecula, California 92590
ph. 951.296.3511 * fax 951.296.9045
email: engen@engencorp.com - www.engencorp.com





Sample No.		1	2	3
Initial	Water Content, %	11.2	11.2	11.2
	Dry Density, pcf	122.1	121.1	121.2
	Saturation, %	79.7	77.4	77.8
	Void Ratio	0.3808	0.3919	0.3902
	Diameter, in.	2.42	2.42	2.42
	Height, in.	1.00	1.00	1.00
At Test	Water Content, %	16.5	15.5	15.3
	Dry Density, pcf	122.1	121.1	121.2
	Saturation, %	116.7	107.0	105.7
	Void Ratio	0.3808	0.3919	0.3902
	Diameter, in.	2.42	2.42	2.42
	Height, in.	1.00	1.00	1.00
Normal Stress, psf		1000	2000	3000
Fail. Stress, psf		1066	1722	2436
Displacement, in.		0.07	0.07	0.07
Ult. Stress, psf		851	1536	2279
Displacement, in.		0.15	0.14	0.13
Strain rate, in./min.		0.100	0.100	0.100

Sample Type: REMOLD
Description: Silty sand, brown

Specific Gravity= 2.7
Remarks: SAMPLE# A1
SAMPLED BY JP

Figure _____

Client: Austin Winery

Project: Austin Winery

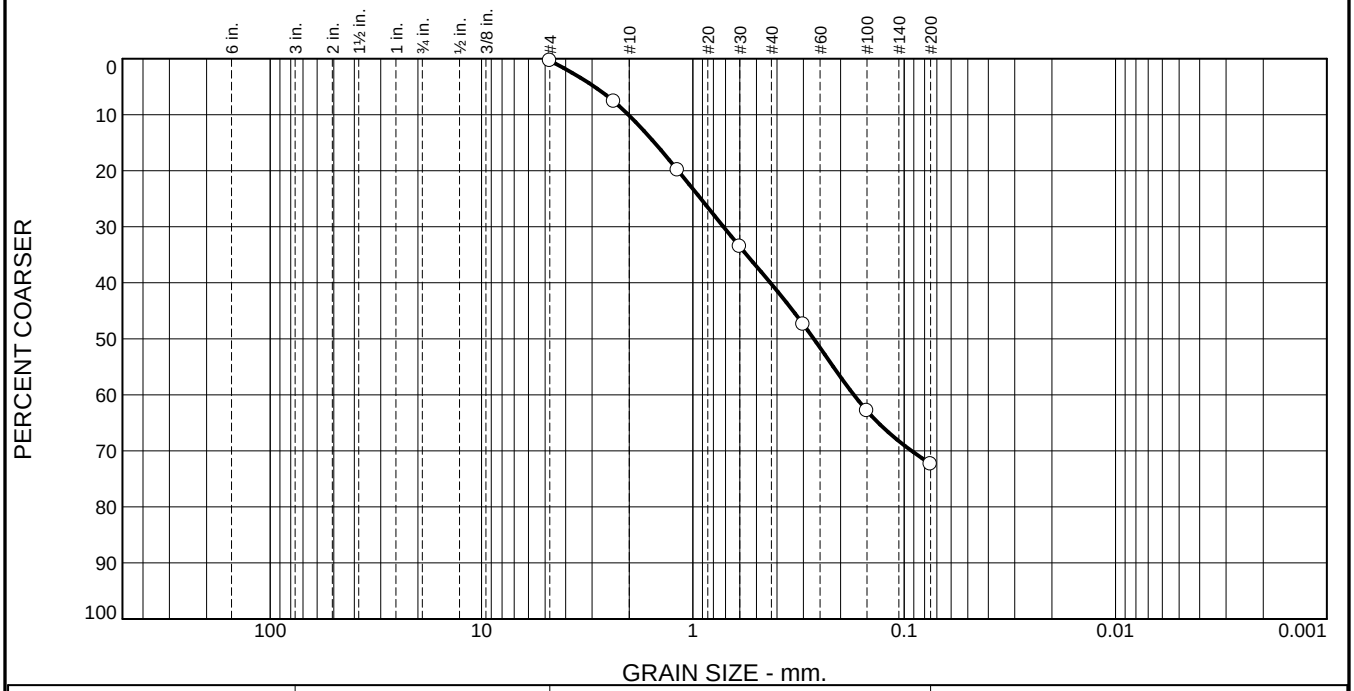
Location: TP1 @ 0-2'
Sample Number: A1
Proj. No.: 4436GFS **Date Sampled:** 10/27/18

DIRECT SHEAR TEST REPORT

EnGEN Corporation

Tested By: JP **Checked By:** JP

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
			9.8	30.0	32.2	27.6	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	99.6		
#8	92.3		
#16	80.1		
#30	66.5		
#50	52.6		
#100	37.1		
#200	27.6		

* (no specification provided)

Material Description

Silty sand, brown

Atterberg Limits (ASTM D 4318)

PL= **LL=** **PI=**

Classification

USCS (D 2487)= SM **AASHTO (M 145)=**

Coefficients

D_{90}= 2.0193 D_{85}= 1.5182 D_{60}= 0.4299
D_{50}= 0.2679 D_{30}= 0.0922 D_{15}=
D_{10}= C_u= C_c=

Remarks

SAMPLE# A3
SAMPLED BY JP
F.M.=1.72

Date Received: _____ **Date Tested:** 11/6/18

Tested By: JP

Checked By: JP

Title: _____

Location: TP3 @ 15'
Sample Number: A3

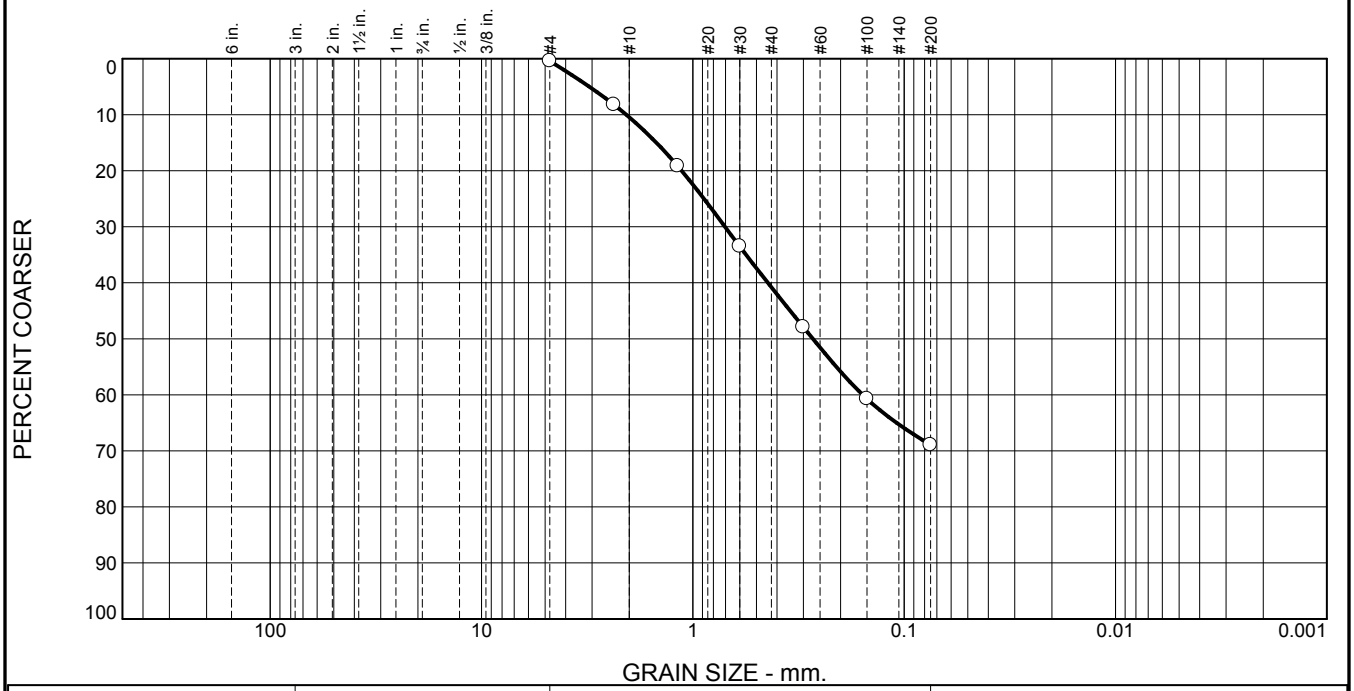
Date Sampled: 10/27/18

EnGEN Corporation

Client: Austin Vineyards
Project: Austin Vineyards

Project No: 4436P **Figure**

Particle Size Distribution Report



% +3"	% Gravel		% Sand			% Fines	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay
			10.1	30.3	28.2	31.0	

TEST RESULTS

Opening Size	Percent Finer	Spec.* (Percent)	Pass? (X=Fail)
#4	99.6		
#8	91.8		
#16	80.8		
#30	66.5		
#50	52.1		
#100	39.3		
#200	31.0		

* (no specification provided)

Material Description

Silty sand, brown

Atterberg Limits (ASTM D 4318)

PL= LL= PI=

Classification

USCS (D 2487)= SM AASHTO (M 145)=

Coefficients

D_{90}= 2.0670 D_{85}= 1.4882 D_{60}= 0.4416
D_{50}= 0.2704 D_{30}= D_{15}=
D_{10}= C_u= C_c=

Remarks

SAMPLE# A2
SAMPLED BY JP
F.M.=1.70

Date Received: **Date Tested:** 11/6/18

Tested By: JP

Checked By: JP

Title:

Location: TP2 @ 15'
Sample Number: A2

Date Sampled: 10/27/18

EnGEN Corporation

Client: Austin Vineyards
Project: Austin Vineyards

Project No: 4436GFS **Figure**

Exhibit 2

Exploratory Test Pit Log(s)

TEST PIT LOG SUMMARY
Test Pit No.: TP1

PROJECT	PROJECT NO.
AUSTIN WINERY	4436GFS
CLIENT	DATE
AUSTIN WINERY	10/27/2018
LOCATION	ELEV.
SEE PLATE 1	
EXCAVATION METHOD	LOGGER
WHEEL-MOUNTED BACKHOE WITH 18-INCH BUCKET	JP
DEPTH TO - Water: N/A When checked: 10/27/2018	Caving: NO CAVING

ELEVATION/ DEPTH	GRAPHIC	USCS	DESCRIPTION	% NAT. MOIST.	% OPT. MOIST.	MAX. DEN. (pcf)	DRY. DEN. (pcf)	% REL. COMPACTION	TEST METHOD
0		SM	ALLUVIUM (Qal) Fine to medium very silty sand, with some coarse material, slightly moist, loose, dark yellowish brown (10YR-3/4)						
		SM	Medium dense	12.6	10.2	129.3	105.1	81.3	Nuke
2.5									
				13.3	10.2	129.3	109.5	84.7	Nuke
5									
		SM	Dense						
7.5									
10									
12.5									
15		SM	BOTTOM OF EXCAVATION @ 15'						

Notes: NO GROUNDWATER ENCOUNTERED & NO EVIDENCE OF HISTORICAL GROUNDWATER OBSERVED

TEST PIT LOG SUMMARY
Test Pit No.: TP2

PROJECT	PROJECT NO.
AUSTIN WINERY	4436GFS
CLIENT	DATE
AUSTIN WINERY	10/27/2018
LOCATION	ELEV.
SEE PLATE 1	
EXCAVATION METHOD	LOGGER
WHEEL-MOUNTED BACKHOE WITH 18-INCH BUCKET	JP
DEPTH TO - Water: N/A When checked: 10/27/2018	Caving: NO CAVING

ELEVATION/ DEPTH	GRAPHIC	USCS	DESCRIPTION	% NAT. MOIST.	% OPT. MOIST.	MAX. DEN. (pcf)	DRY. DEN. (pcf)	% REL. COMPACTION	TEST METHOD
0		SM	COLLUVIUM (CQal) Fine to medium very silty sand, with some coarse material, slightly moist, loose, dark yellowish brown (10YR-3/6)						
		SM	PAUBA FORMATION BEDROCK? (Qps)						
		SM	Fine to medium, very silty sand with some coarse material, slightly moist, medium dense ,dark yellowish brown (10YR-3/6)	6.4	11.0	126.1	112.0	89.0	Nuke
2.5		SM	Sample Taken (A2) Dense						
5		SM		6.8	11.0	126.1	115.5	91.6	Nuke
7.5									
10									
12.5									
15		SM	BOTTOM OF EXCAVATION @ 15'						

Notes: NO GROUNDWATER ENCOUNTERED & NO EVIDENCE OF HISTORICAL GROUNDWATER OBSERVED

TEST PIT LOG SUMMARY
Test Pit No.: TP3

PROJECT	PROJECT NO.
AUSTIN WINERY	4436GFS
CLIENT	DATE
AUSTIN WINERY	10/27/2018
LOCATION	ELEV.
SEE PLATE 1	
EXCAVATION METHOD	LOGGER
WHEEL-MOUNTED BACKHOE WITH 18-INCH BUCKET	JP
DEPTH TO - Water: N/A When checked: 10/27/2018	Caving: NO CAVING

ELEVATION/ DEPTH	GRAPHIC	USCS	DESCRIPTION	% NAT. MOIST.	% OPT. MOIST.	MAX. DEN. (pcf)	DRY. DEN. (pcf)	% REL. COMPACTION	TEST METHOD
0		SM	COLLUVIUM (CQal) Fine to medium very silty sand with some coarse material, slightly moist, loose, dark yellowish brown (10YR-3/4)						
2.5		SM	PAUBA FORMATION BEDROCK (Qps) Fine to medium, very silty sand with some coarse material, slightly moist, medium dense ,dark yellowish brown (10YR-3/6)	12.2	10.2	126.1	110.6	87.7	NG
5		SM	BOTTOM OF EXCAVATION @ 5'	13.2	10.2	126.1	112.2	90.0	NG
7.5									
10									
12.5									
15									

Notes: NO GROUNDWATER ENCOUNTERED & NO EVIDENCE OF HISTORICAL GROUNDWATER OBSERVED

TEST PIT LOG SUMMARY
Test Pit No.: TP4

PROJECT	PROJECT NO.
AUSTIN WINERY	4436GFS
CLIENT	DATE
AUSTIN WINERY	10/27/2018
LOCATION	ELEV.
SEE PLATE 1	
EXCAVATION METHOD	LOGGER
WHEEL-MOUNTED BACKHOE WITH 18-INCH BUCKET	JP
DEPTH TO - Water: N/A When checked: 10/28/2018	Caving: NO CAVING

ELEVATION/ DEPTH	GRAPHIC	USCS	DESCRIPTION	% NAT. MOIST.	% OPT. MOIST.	MAX. DEN. (pcf)	DRY. DEN. (pcf)	% REL. COMPACTION	TEST METHOD
0		SM	COLLUVIUM (CQal) Fine to medium very silty sand, with some coarse material, slightly moist, loose, dark yellowish brown (10YR-3/4)	10.4	10.2	129.3	105.3	81.4	Nuke
2.5		SM	PAUBA FORMATION BEDROCK (Qps) Fine to medium, very silty sand with some coarse material, slightly moist, dense, dark yellowish brown (10YR-3/6)	8.0	11.0	126.1	112.0	88.8	Nuke
5		SM	BOTTOM OF EXCAVATION @ 5'						
7.5									
10									
12.5									
15									

Notes: NO GROUNDWATER ENCOUNTERED & NO EVIDENCE OF HISTORICAL GROUNDWATER OBSERVED

TEST PIT LOG SUMMARY
Test Pit No.: TP5

PROJECT	PROJECT NO.
AUSTIN WINERY	4436GFS
CLIENT	DATE
AUSTIN WINERY	10/27/2018
LOCATION	ELEV.
SEE PLATE 1	
EXCAVATION METHOD	LOGGER
WHEEL-MOUNTED BACKHOE WITH 18-INCH BUCKET	JP
DEPTH TO - Water: N/A When checked: 10/27/2018	Caving: NO CAVING

ELEVATION/ DEPTH	GRAPHIC	USCS	DESCRIPTION	% NAT. MOIST.	% OPT. MOIST.	MAX. DEN. (pcf)	DRY. DEN. (pcf)	% REL. COMPACTION	TEST METHOD
0		SM	COLLUVIUM (CQal) Fine to medium very silty sand, with some coarse material, slightly moist, loose, dark yellowish brown (10YR-3/4)						
				11.8	10.2	129.3	101.2	78.3	Nuke
2.5		SM	PAUBA FORMATION BEDROCK (Qps) Fine to medium, very silty sand, with some coarse material, slightly moist, medium dense, dark yellowish brown (10YR-3/6)						
5				7.1	11.0	126.1	109.6	85.0	Nuke
		SM	BOTTOM OF EXCAVATION @ 5.5'						
7.5									
10									
12.5									
15									

Notes: NO GROUNDWATER ENCOUNTERED & NO EVIDENCE OF HISTORICAL GROUNDWATER OBSERVED

KEY TO SYMBOLS

Symbol Description

Strata symbols

Silty sand

Description not given for:
"0N"

Notes:

1. **Exploratory borings were drilled on 10/27/2018 using a 4-inch diameter continuous flight power auger.**

2. **No free water was encountered at the time of drilling or when re-checked the following day.**

3. **Boring locations were taped from existing features and elevations extrapolated from the final design schematic plan.**

4. **These logs are subject to the limitations, conclusions, and recommendations in this report.**

5. **Results of tests conducted on samples recovered are reported on the logs.**

Exhibit 3

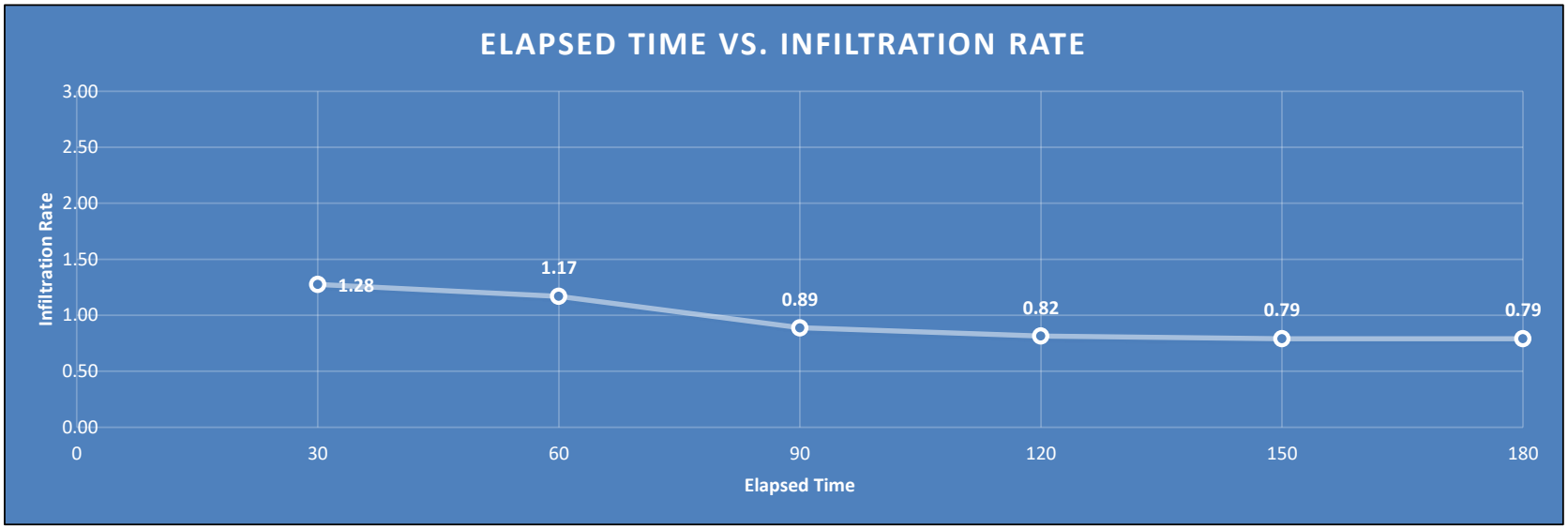
Infiltration Test Results

Project Number: 4436GFS
Job Name: AUSTIN
Test Hole Number: 1
Soil Classification: SM

Tested By: JP
Test Hole Diameter (Inches): 8
Date Excavated: 10/27/2018

Test Hole Depth (ft): 48"
Date Tested: 11/2/2018
Time Interval of Presoak 24 HOURS
Date/Time Start: 11/1/2018 7:AM

	time	Time Interval (Min)	Initial Water Level (inches)	Final Water Level (inches)	Water Level Drop	Percolation Rate (min./inch)	Total Depth of Percolation Hole	Time Interval (at)	Initial Water (Ho)	Final Water (HT)	Total Depth of Test Hole (Dt)	Raduis of Perc Hole ®	AH	H AVG	AH 60 r(/(at(r+2 Havg)) (it)	Elaspsed Time
1	10:15AM 10:45 AM	30	30	35.50	5.50	5	48	30	18	12.5	48	8	5.5	15.25	1.28	30
2	10:45 AM 11:15 AM	30	30	35.10	5.10	6	48	30	18	12.9	48	8	5.1	15.45	1.17	60
3	11:15 AM 11:45 AM	30	30	34.00	4.00	8	48	30	18	14	48	8	4	16.00	0.89	90
4	11:45 AM 12:15 AM	30	30	33.70	3.70	8	48	30	18	14.3	48	8	3.7	16.15	0.82	120
5	12:15 AM 12:45 PM	30	30	33.60	3.60	8	48	30	18	14.4	48	8	3.6	16.20	0.79	150
6	12:45 PM 1:15 PM	30	30	33.60	3.60	8	48	30	18	14.4	48	8	3.6	16.20	0.79	180
7	1:15 PM 1:45 PM	30	30	33.60	3.60	8	48	30	18	14.4	48	8	3.6	16.20	0.79	210
8	1:45 PM 2:15 PM	30	30	33.60	3.60	8	48	30	18	14.4	48	8	3.6	16.20	0.79	240
9	2:15 PM 2:45 PM	30	30	33.50	3.50	9	48	30	18	14.5	48	8	3.5	16.25	0.77	270
10	2:45 PM 3:15 PM	30	30	33.50	3.50	9	48	30	18	14.5	48	8	3.5	16.25	0.77	300
11	3:15 PM 3:45 PM	30	30	33.50	3.50	9	48	30	18	14.5	48	8	3.5	16.25	0.77	330
12	3:45 PM 4:15 PM	30	30	33.50	3.50	9	48	30	18	14.5	48	8	3.5	16.25	0.77	360



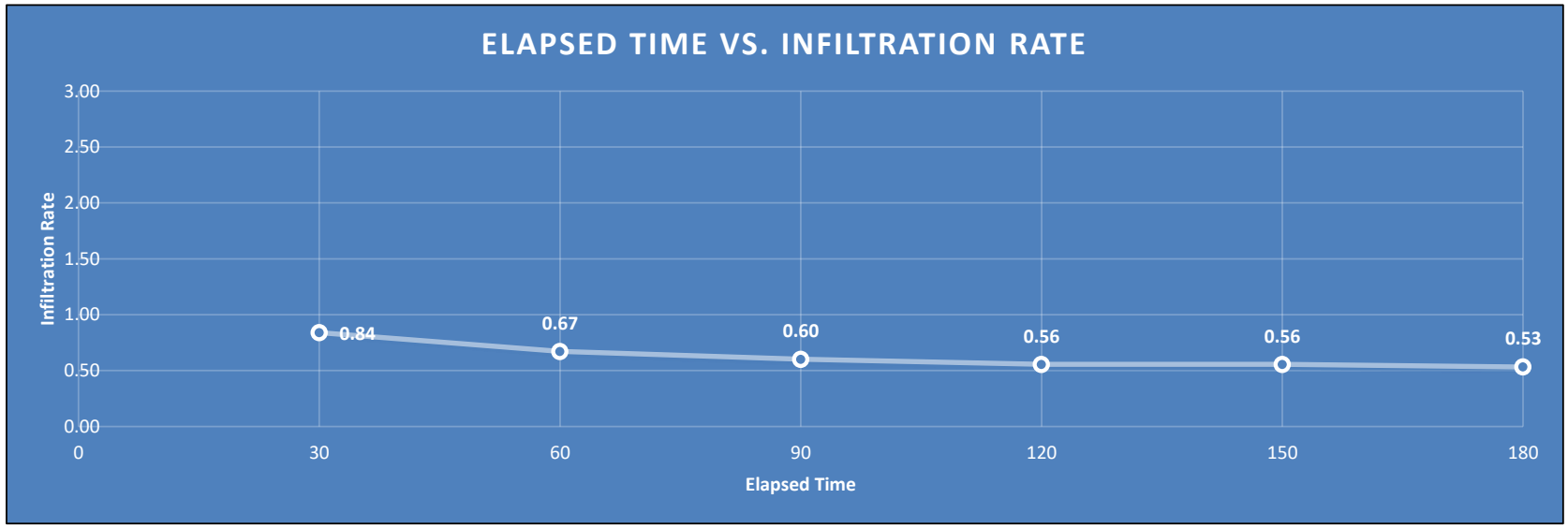
EnGEN Corporation

Project Number: 4436GFS
Job Name: AUSTIN
Test Hole Number: 2
Soil Classification: SM

Tested By: JP
Test Hole Diameter (Inches): 8
Date Excavated: 10/27/2018

Test Hole Depth (ft): 48" Date Tested: 11/2/2018
Time Interval of Presoak 24 HOURS
Date/Time Start: 11/1/2018 7:AM

	time	Time Interval (Min)	Initial Water Level (inches)	Final Water Level (inches)	Water Level Drop	Percolation Rate (min./inch)	Total Depth of Percolation Hole	Time Interval (at)	Initial Water (Ho)	Final Water (HT)	Total Depth of Test Hole (Dt)	Raduis of Perc Hole ®	AH	H AVG	AH 60 r(/(at(r+2 Havg)) (it)	Elaspsed Time
1	10:16 AM 10:46 AM	30	30	33.80	3.80	8	48	30	18	14.2	48	8	3.8	16.10	0.84	30
2	10:46 AM 11:16 AM	30	30	33.10	3.10	10	48	30	18	14.9	48	8	3.1	16.45	0.67	60
3	11:16 AM 11:46 AM	30	30	32.80	2.80	11	48	30	18	15.2	48	8	2.8	16.60	0.60	90
4	11:46 AM 12:16 PM	30	30	32.60	2.60	12	48	30	18	15.4	48	8	2.6	16.70	0.56	120
5	12:16 PM 12:46 PM	30	30	32.60	2.60	12	48	30	18	15.4	48	8	2.6	16.70	0.56	150
6	12:46 PM 1:16 PM	30	30	32.50	2.50	12	48	30	18	15.5	48	8	2.5	16.75	0.53	180
7	1:16 PM 1:46 PM	30	30	32.50	2.50	12	48	30	18	15.5	48	8	2.5	16.75	0.53	210
8	1:46 PM 2:16 PM	30	30	32.50	2.50	12	48	30	18	15.5	48	8	2.5	16.75	0.53	240
9	2:16 PM 2:46 PM	30	30	32.50	2.50	12	48	30	18	15.5	48	8	2.5	16.75	0.53	270
10	2:46 PM 3:16 PM	30	30	32.40	2.40	13	48	30	18	15.6	48	8	2.4	16.80	0.51	300
11	3:16 PM 3:46 PM	30	30	32.40	2.40	13	48	30	18	15.6	48	8	2.4	16.80	0.51	330
12	3:46 PM 4:46 PM	30	30	32.40	2.40	13	48	30	18	15.6	48	8	2.4	16.80	0.51	360



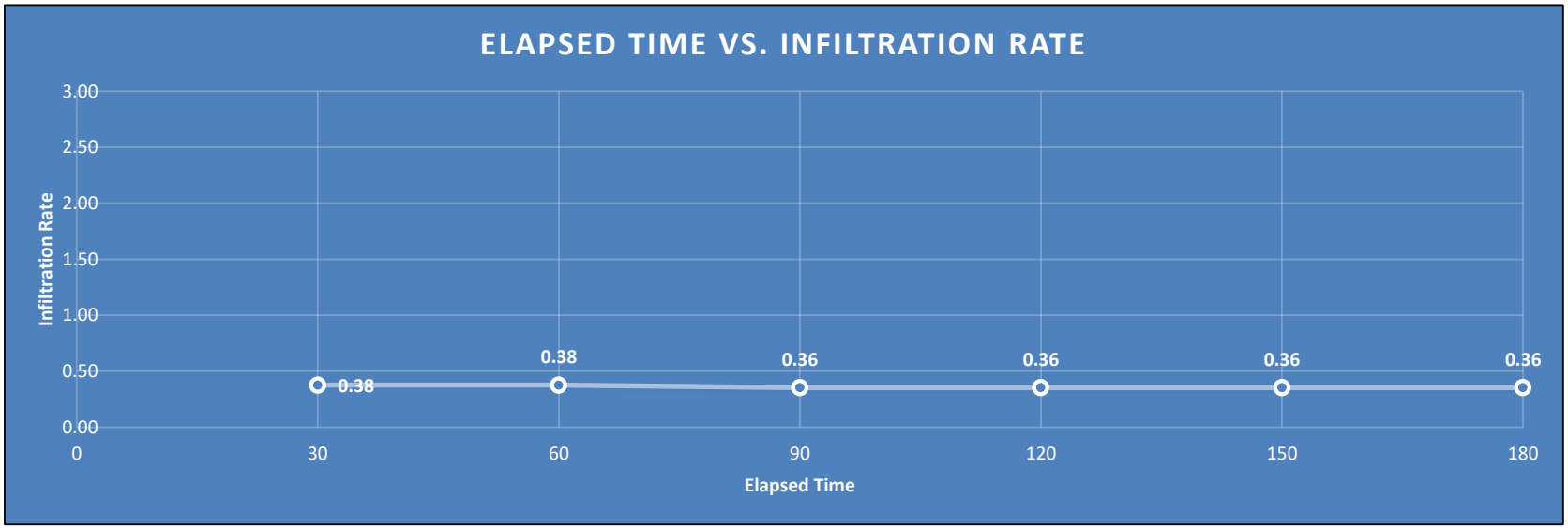
EnGEN Corporation

Project Number: 4436GFS
Job Name: AUSTIN
Test Hole Number: 3
Soil Classification: SM

Tested By: JP
Test Hole Diameter (Inches): 8
Date Excavated: 10/27/2018

Test Hole Depth (ft): 48" Date Tested: 11/2/2018
Time Interval of Presoak 24 HOURS
Date/Time Start: 11/1/2018 7:AM

	time	Time Interval (Min)	Initial Water Level (inches)	Final Water Level (inches)	Water Level Drop	Percolation Rate (min./inch)	Total Depth of Percolation Hole	Time Interval (at)	Initial Water (Ho)	Final Water (HT)	Total Depth of Test Hole (Dt)	Raduis of Perc Hole ®	AH	H AVG	AH 60 r(/(at(r+2 Havg)) (it)	Elaspsed Time
1	10:18 AM 10:48 AM	30	30	31.80	1.80	17	48	30	18	16.2	48	8	1.8	17.10	0.38	30
2	10:48 AM 11:18 AM	30	30	31.80	1.80	17	48	30	18	16.2	48	8	1.8	17.10	0.38	60
3	11:18 AM 11:48 AM	30	30	31.70	1.70	18	48	30	18	16.3	48	8	1.7	17.15	0.36	90
4	11:48 AM 12:18 PM	30	30	31.70	1.70	18	48	30	18	16.3	48	8	1.7	17.15	0.36	120
5	12:18 PM 12:48 PM	30	30	31.70	1.70	18	48	30	18	16.3	48	8	1.7	17.15	0.36	150
6	12:48 PM 1:18 PM	30	30	31.70	1.70	18	48	30	18	16.3	48	8	1.7	17.15	0.36	180
7	1:18 PM 1:48 PM	30	30	31.60	1.60	19	48	30	18	16.4	48	8	1.6	17.20	0.33	210
8	1:48 PM 2:18 PM	30	30	31.60	1.60	19	48	30	18	16.4	48	8	1.6	17.20	0.33	240
9	2:18 PM 2:48 PM	30	30	31.60	1.60	19	48	30	18	16.4	48	8	1.6	17.20	0.33	270
10	2:48 PM 3:18 PM	30	30	31.60	1.60	19	48	30	18	16.4	48	8	1.6	17.20	0.33	300
11	3:18 PM 3:48 PM	30	30	31.60	1.60	19	48	30	18	16.4	48	8	1.6	17.20	0.33	330
12	3:48 PM 4:48 PM	30	30	31.60	1.60	19	48	30	18	16.4	48	8	1.6	17.20	0.33	360



EnGEN Corporation

Project Number: 4436GFS
Job Name: AUSTIN
Test Hole Number: 4
Soil Classification: SM

Tested By: JP
Test Hole Diameter (Inches): 8
Date Excavated: 10/27/2018

Test Hole Depth (ft): 48" Date Tested: 11/2/2018
Time Interval of Presoak 24 HOURS
Date/Time Start: 11/1/2018 7:AM

	time	Time Interval (Min)	Initial Water Level (inches)	Final Water Level (inches)	Water Level Drop	Percolation Rate (min./inch)	Total Depth of Percolation Hole	Time Interval (at)	Initial Water (Ho)	Final Water (HT)	Total Depth of Test Hole (Dt)	Raduis of Perc Hole ®	AH	H AVG	AH 60 r(/(at(r+2 Havg)) (it)	Elaspsed Time
1	10:19 AM 10:49AM	30	30	32.40	2.40	13	48	30	18	15.6	48	8	2.4	16.80	0.51	30
2	10:49 AM 11:19 AM	30	30	32.30	2.30	13	48	30	18	15.7	48	8	2.3	16.85	0.49	60
3	11:19 AM 11:49 AM	30	30	32.30	2.30	13	48	30	18	15.7	48	8	2.3	16.85	0.49	90
4	11:49 AM 12:19 PM	30	30	32.20	2.20	14	48	30	18	15.8	48	8	2.2	16.90	0.47	120
5	12:19 PM 12:49 PM	30	30	32.00	2.00	15	48	30	18	16	48	8	2	17.00	0.42	150
6	12:49 PM 1:19 PM	30	30	31.90	1.90	16	48	30	18	16.1	48	8	1.9	17.05	0.40	180
7	1:19 PM 1:49 PM	30	30	31.90	1.90	16	48	30	18	16.1	48	8	1.9	17.05	0.40	210
8	1:49 PM 2:198 PM	30	30	31.90	1.90	16	48	30	18	16.1	48	8	1.9	17.05	0.40	240
9	2:19 PM 2:49 PM	30	30	31.90	1.90	16	48	30	18	16.1	48	8	1.9	17.05	0.40	270
10	2:49 PM 3:19 PM	30	30	31.90	1.90	16	48	30	18	16.1	48	8	1.9	17.05	0.40	300
11	3:19 PM 3:49 PM	30	30	31.90	1.90	16	48	30	18	16.1	48	8	1.9	17.05	0.40	330
12	3:49 PM 4:49 PM	30	30	31.90	1.90	16	48	30	18	16.1	48	8	1.9	17.05	0.40	360

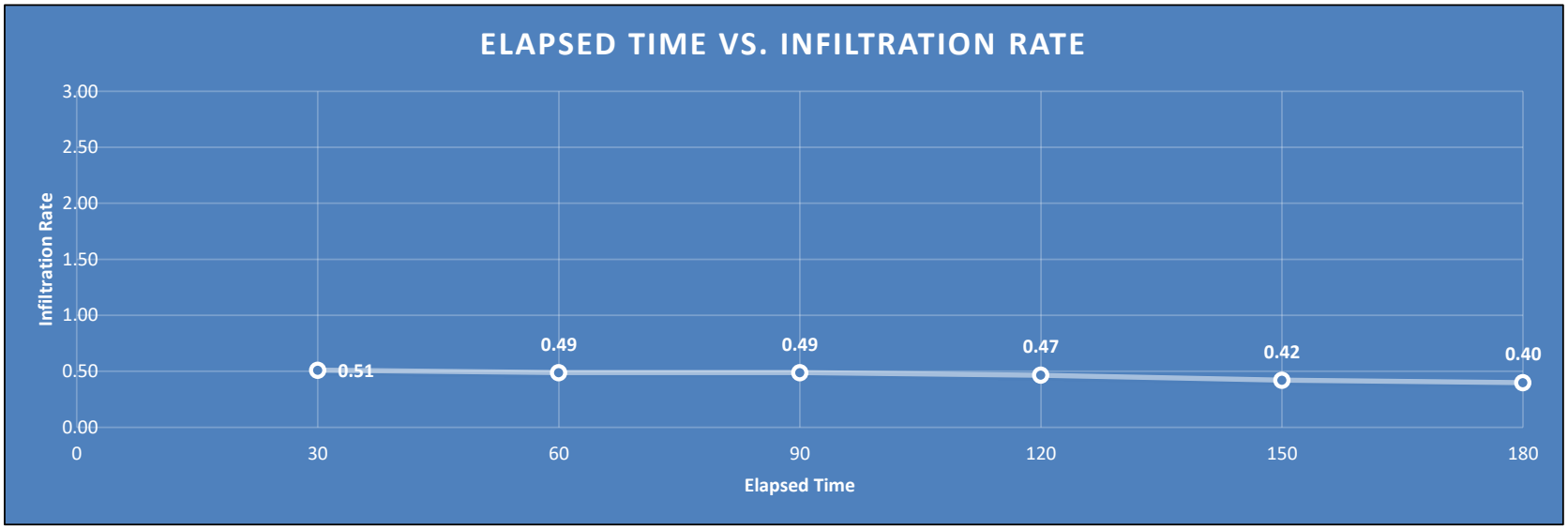


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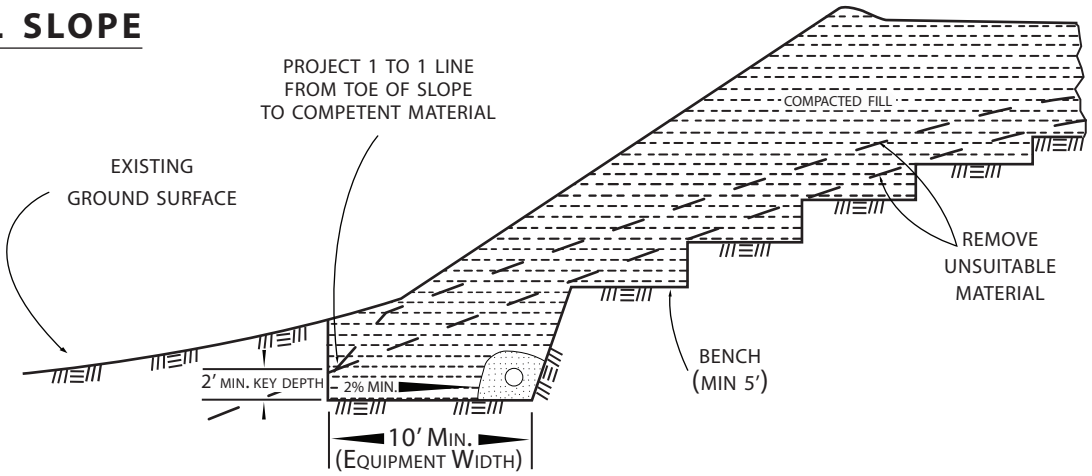
Exhibit 4

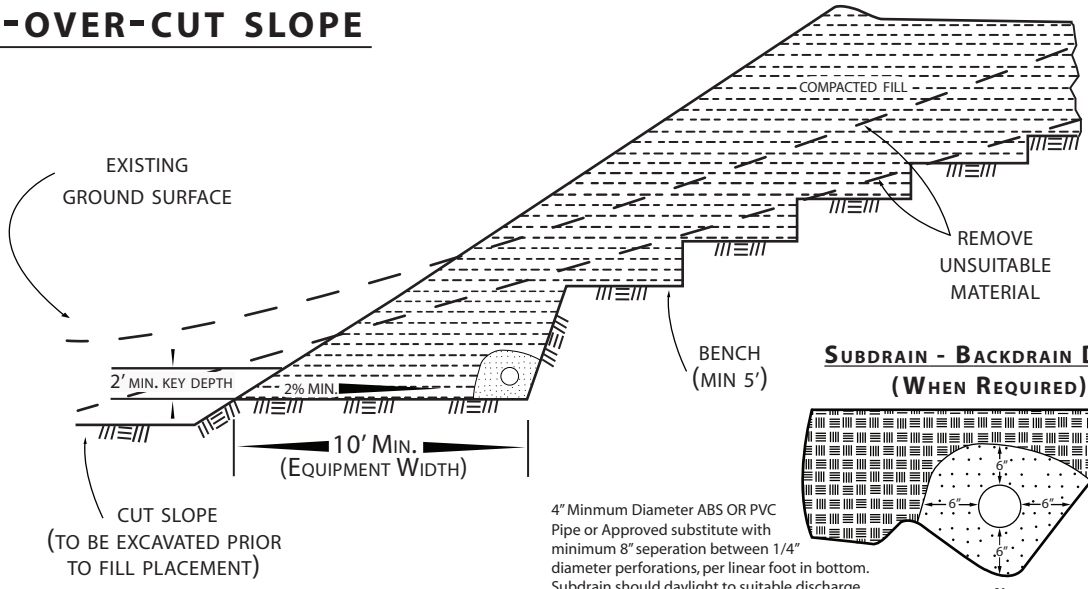
Typical Grading Detail

KEY AND BENCHING DETAIL

FILL SLOPE



FILL-OVER-CUT SLOPE

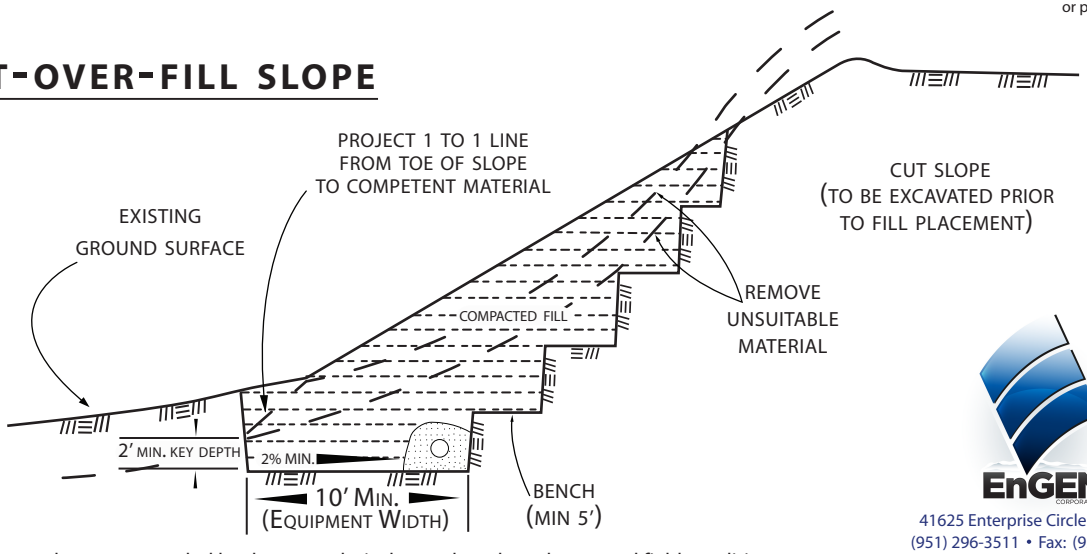


SUBDRAIN - BACKDRAIN DETAIL (WHEN REQUIRED)

4" Minmum Diameter ABS OR PVC Pipe or Approved substitute with minimum 8" seperation between 1/4" diameter perforations, per linear foot in bottom. Subdrain should daylight to suitable discharge facility per geotechnical engineer's approval.

Note: An approved filter fabric (Burrieto) may be wrapped around 3/4" crushed rock or pea gravel.

CUT-OVER-FILL SLOPE



Note: Back drain may be recommended by the geotechnical consultant based on actual field conditions encountered. Bench dimension recommendations may also be altered on field conditions encountered.

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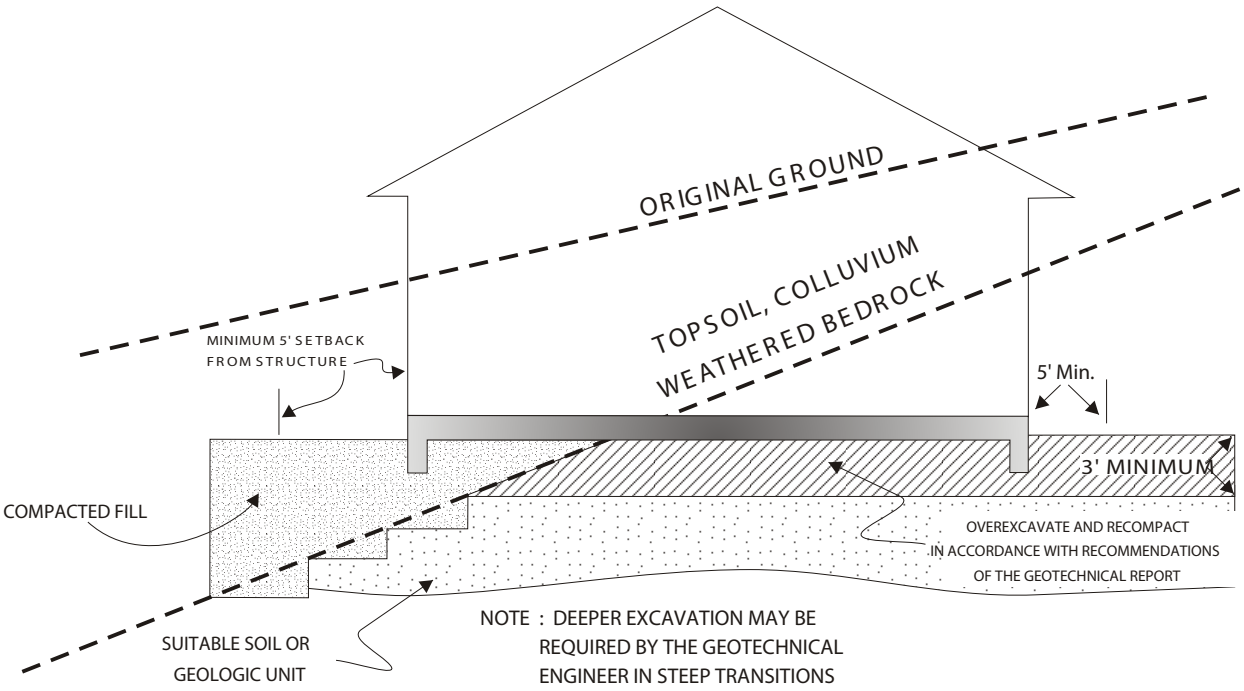
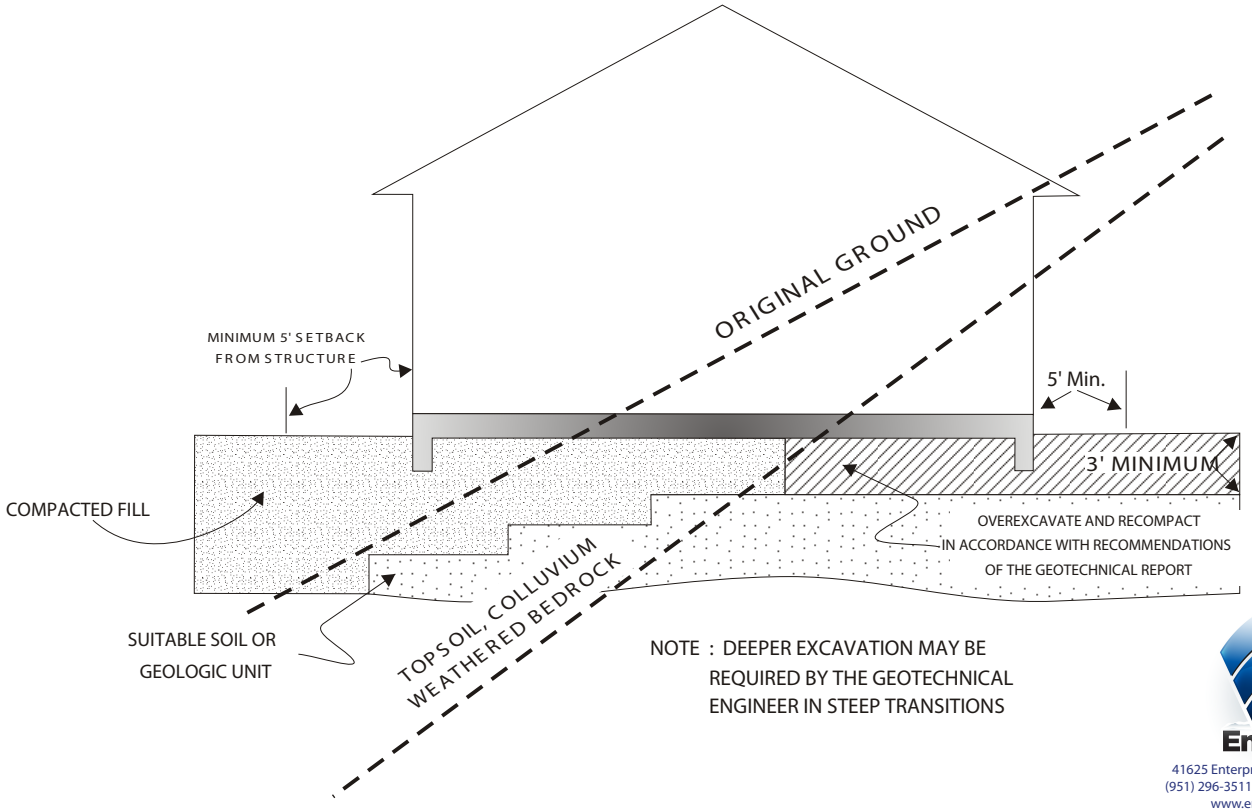
41625 Enterprise Circle South, "B-2"
(951) 296-3511 • Fax: (951) 296-3711
www.engencorp.com

GENERAL GRADING RECOMMENDATIONS

CUT LOT



CUT-FILL LOT (TRANSITION)



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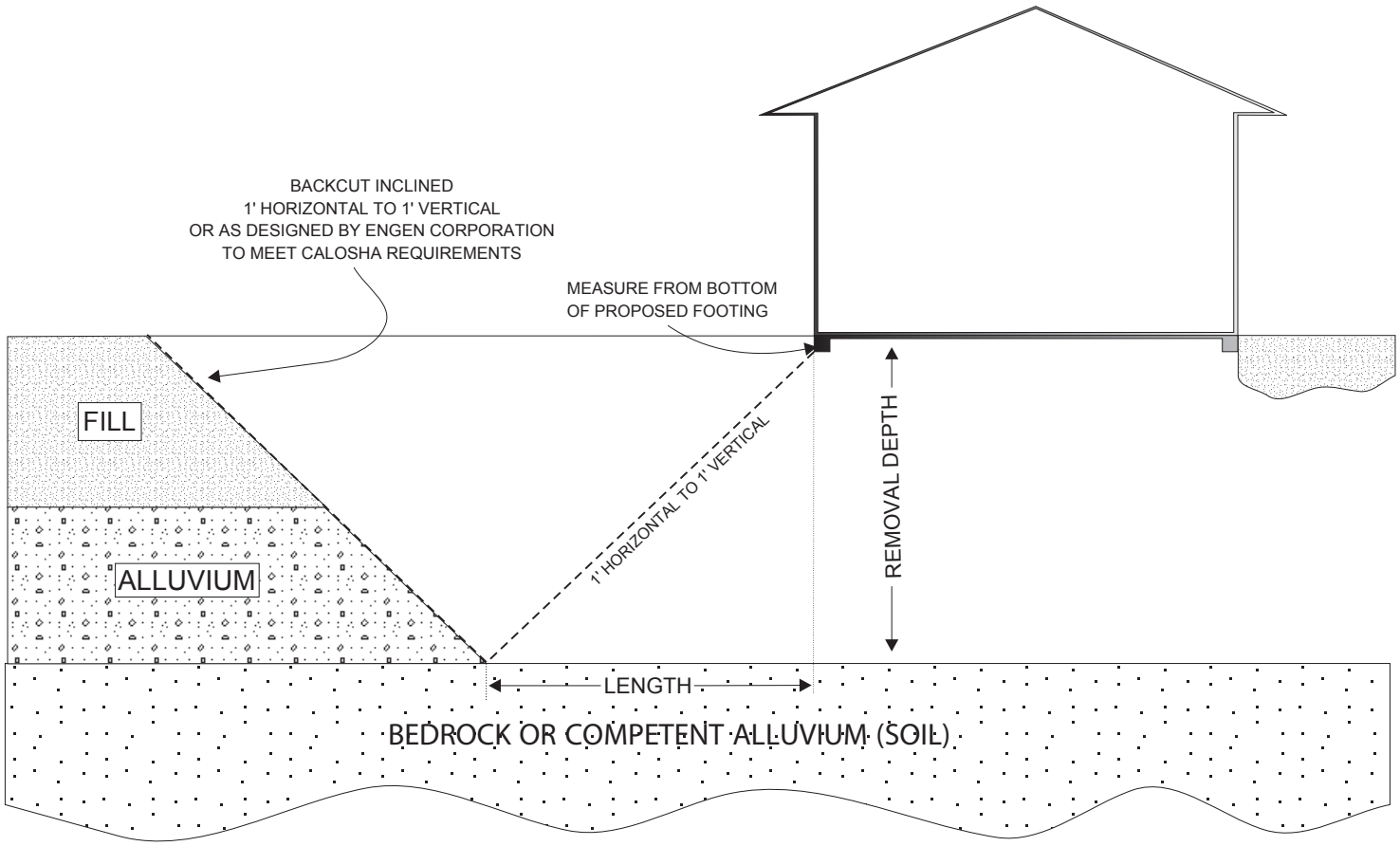
Minimum Horizontal Removal Limits



REMOVALS TO EXTEND TO THE HORIZONTAL DISTANCE OUTSIDE OF THE BUILDING LINES EQUAL TO DEPTH OF REMOVAL (LENGTH = HEIGHT)

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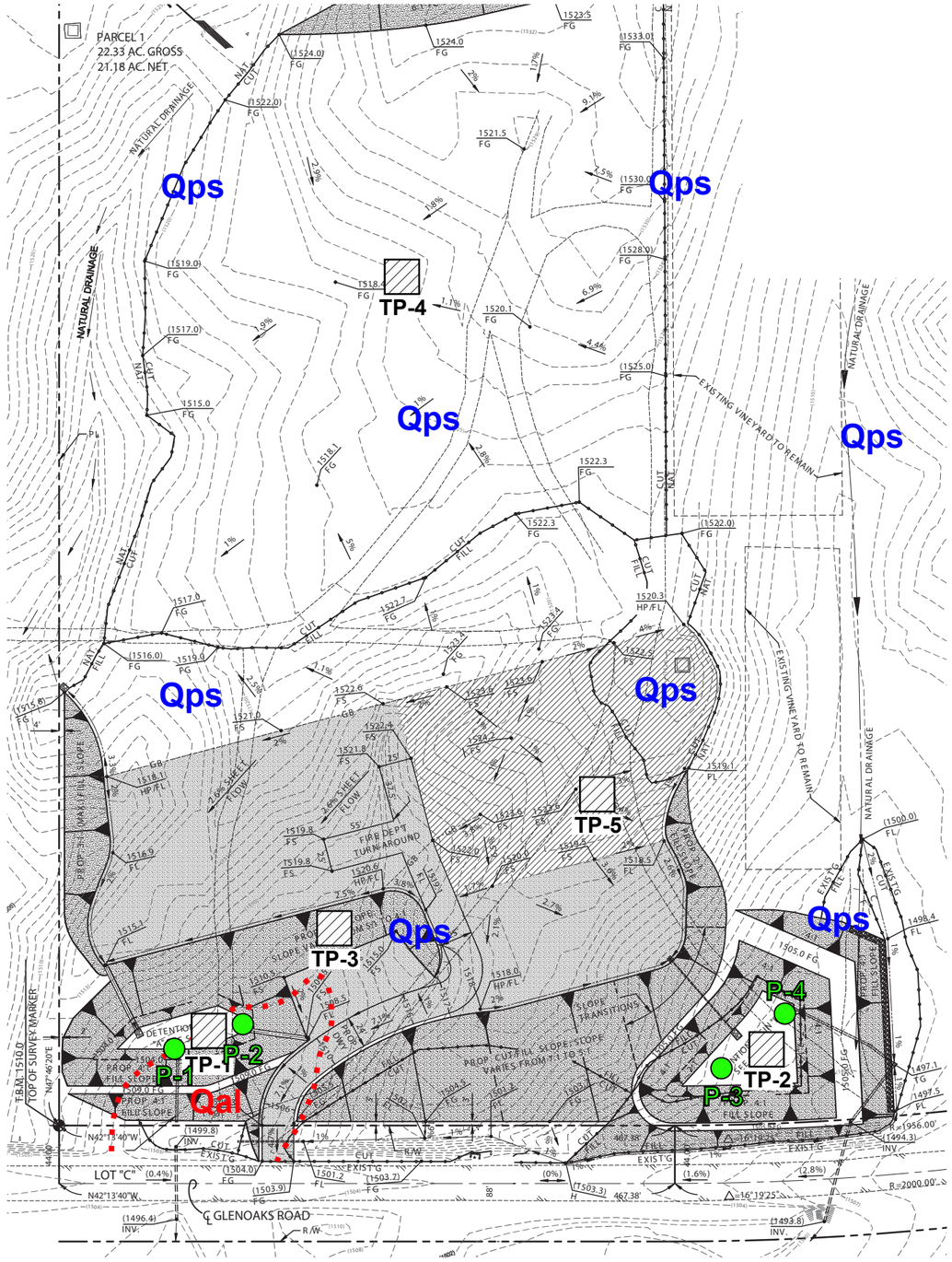
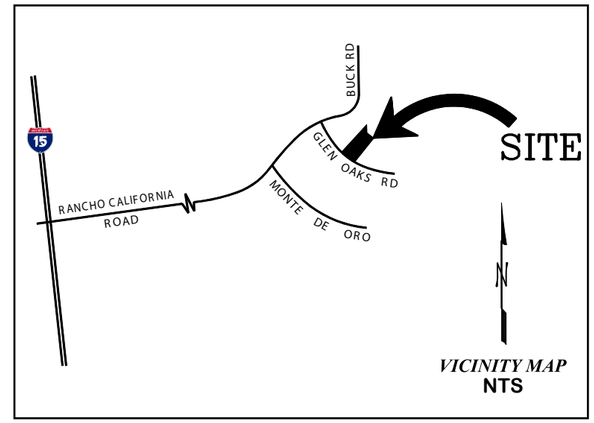
Plate 1

Geotechnical Feasibility Study Plan

PLATE 1





GRAPHIC SCALE
0 50 100 200 300 400
1" = 100'

LEGEND

- = *Approximate Boundary of Geologic Contact*
- Qal = *Alluvium*
- Qps = *Pauba Formation Bedrock overlain by 2 to 2.5-feet of colluvium.*
- TP-1 = *Approximate Location of Exploratory Test Pit*
- IT-1 = *Approximate Location of Infiltration Test Pit*

GEOTECHNICAL FEASIBILITY STUDY SITE PLAN

Project Name:	Austin Winery	Date:	11/15/18
Project Number:	4436GFS	Client:	Austin Winery
Legal Description:	APN: 942-030-006	Plate No.	1

41625 Enterprise Circle South, B-2 · Temecula, California 92590 · 951.296.3511 · engen@engencorp.com · www.engencorp.com

Appendix 4: Historical Site Conditions

Phase I Environmental Site Assessment or Other Information on Past Site Use

Examples of material to provide in Appendix 4 may include but are not limited to the following:

- Environmental Site Assessments conducted for the project,
- Other information on Past Site Use that impacts the feasibility of LID BMP implementation on the site.

This information should support the Full Infiltration Applicability, and Biofiltration Applicability sections of this Template. Refer to Section 2.3 of the SMR WQMP and Sections D of this Template.

Appendix 5: LID Feasibility Supplemental Information

Information that supports or supplements the determination of LID technical feasibility documented in Section D

Examples of material to provide in Appendix 5 may include but are not limited to the following:

- Technical feasibility criteria for DMAs
- Site specific analysis of technical infeasibility of all LID BMPs (if Alternative Compliance is needed)
- Documentation of Approval criteria for Proprietary Biofiltration BMPs

This information should support the Full Infiltration Applicability, and Biofiltration Applicability sections of this Template. Refer to Section 2.3 of the SMR WQMP and Sections D of this Template.

Appendix 6: LID BMP Design Details

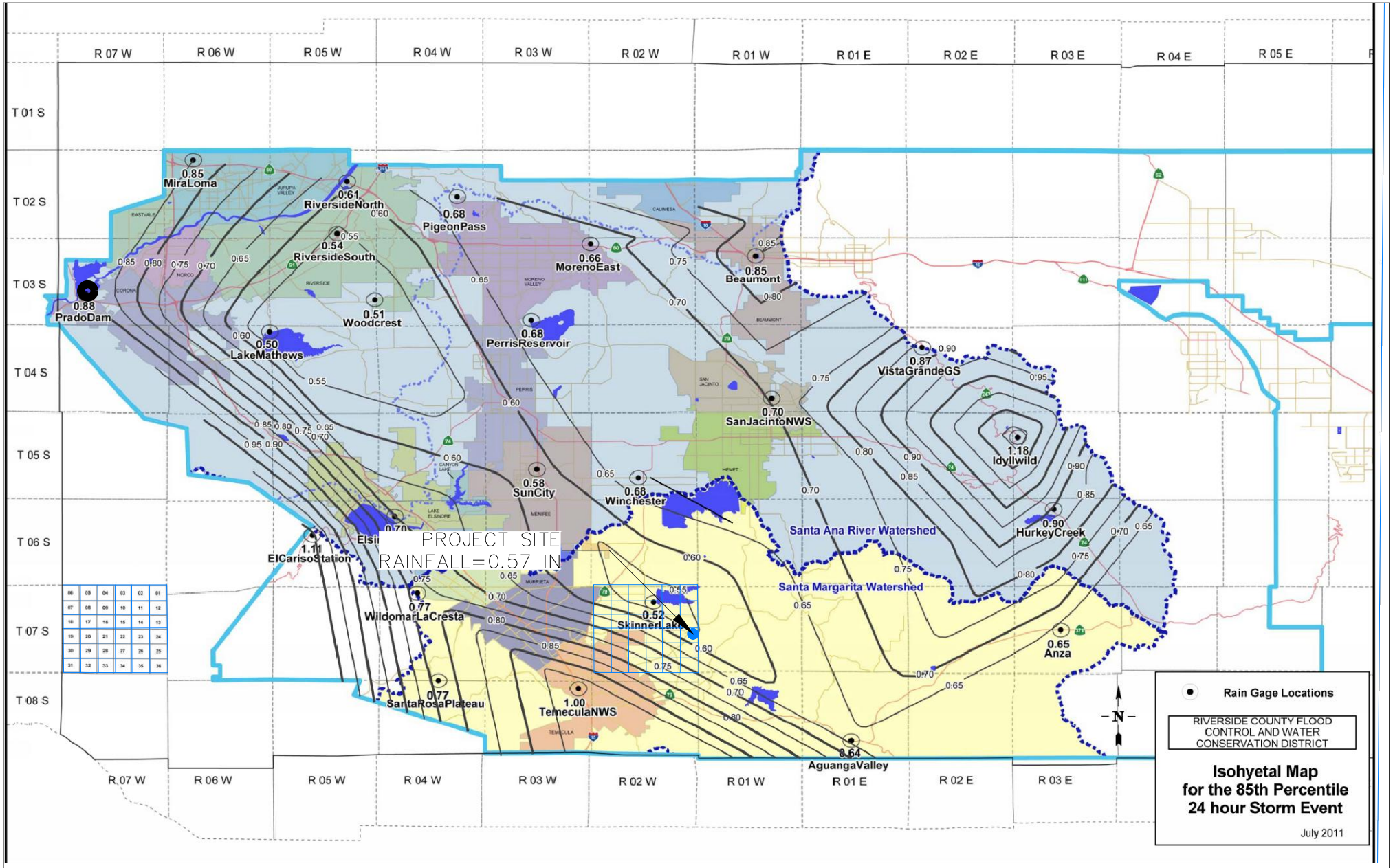
BMP Sizing, Design Details and other Supporting Documentation to supplement Section D

Examples of material to provide in Appendix 6 may include but are not limited to the following:

- DCV calculations,
- LID BMP sizing calculations from Exhibit C of the SMR WQMP
- Design details/drawings from manufacturers for proprietary BMPs

This information should support the Full Infiltration Applicability, and Biofiltration Applicability sections of this Template. Refer to Section 3.4 of the SMR WQMP and Sections D.4 of this Template.

Isohyetal Map for the 85th Percentile 24-Hour Storm Event



85TH PERCENTILE 24 HOUR STORM EVENT MAP

JLC Engineering & Consulting, Inc.
41660 IVY STREET, SUITE A
MURRIETA, CA 92562
PH. 951.304.9552 FAX 951.304.3568

Santa Margarita Watershed BMP Design Volume Spreadsheets

Santa Margarita Watershed

BMP Design Volume, V_{BMP} (Rev. 03-2012)

Legend: Required Entries / Calculated Cells

(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)

Company Name	JLC Engineering and Consulting, Inc.	Date	June 10, 022
Designed by	Joeseph Castaneda	County/City Case No	PP 210132
Company Project Number/Name	158.22.18 Austin Vineyards		
Drainage Area Number/Name	DMA A		

Enter the Area Tributary to this Feature A_T = 2.59 acres

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

Site Location

Township

Range

Section

Enter the 85th Percentile, 24-hour Rainfall Depth D_{85} = 0.56

Determine the Effective Impervious Fraction

Type of post-development surface cover (use pull down menu): Mixed Surface Types

Effective Impervious Fraction I_f = 0.34

Calculate the composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ C = 0.25

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 85% Unit Storage Volume $V_U = D_{85} \times C$ V_u = 0.14 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}.

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12\ (in/ft)}$$

V_{BMP} = 1,316 ft^3

Notes:

BASIN A WATER QUALITY STAGE STORAGE

Contour Elevation	Contour Area (sf)	Contour Area (ac)	Contour Interval Volume (ac-ft)	Total Basin Volume (ac-ft)	Total Basin Volume (ft^3)	Basin Volume for Routing (ac-ft)
1504.40	2696.4	0.062		0.000	0.0	0.000
			0.055			
1505.00	5260.9	0.121		0.055	2387.2	0.000
			0.064			
1505.50	5814.3	0.133		0.118	5156.0	0.000
			0.070			
1506.00	6367.6	0.146		0.188	8201.4	0.070
			0.160			
1507.00	7591.2	0.174		0.349	15180.8	0.230
			0.190			
1508.00	8934.7	0.205		0.538	23443.8	0.420

WATER QUALITY VOLUME = 1,316 CF. PROJECT IS USING A BIO-RETENTION BASIN. BIO-RETENTION BASIN ASSUMES 6-INCHES OF PONDING. BASIN ROUTING ACCOUNTS FOR SOIL MEDIA INFILTRATION RATE OF 2.5 IN/HR W/O SAFETY FACTOR. HYDROMODIFICATION DEPTH IS 1.1 FEET.

BIO-RETENTION INFILTRATION FLOW RATE

SOIL MEDIA AREA	INFILTRATION RATE(1)	INFILTRATION RATE	SAFETY FACTOR	INFILTRATION FLOW RATE
(SF)	IN/HR	FT/S		FT^3/S
2696.4	2.5	0.000058	3.0	0.05

(1) BASED ON RCTD HYDROMODIFICATION CALCULATIONS

Biofiltration with Partial Infiltration Facility - Design Procedure	BMP ID: A	Legend:	Required Entries / Calculated Cells
Company Name:	JLC Engineering and Consulting, Inc.	Date:	6/10/2022
Designed by:	Joseph Castaneda	County/City Case No.:	PP 210132

Design Volume

Enter the area tributary to this feature	A_T=	2.59	acres
Enter V_{BMP} determined from Section 2.1 of this Handbook	V_{BMP}=	1,316	ft^3
Enter initial estimate of footprint of BMP, $Area_{BMP}$ (Guidance: A reasonable starting point is 3% of the tributary impervious area)	$Area_{BMP}$=	2,696	ft^2

Note: This area shall be measured at the mid-ponding depth of the BMP. For systems with side-slopes, this should be the contour that is midway between the floor of the basin and the maximum water quality ponding elevation of the basin. The underlying gravel layer (infiltration storage layer) should extend to this contour. For systems with vertical walls, the effective area is the full footprint.

Portion of DCV Reliably Retained

Depth of Gravel Infiltration Storage Layer (18" minimum; 30" maximum)	dg =	18.0	inches

Portion of V_{BMP} Reliably Retained via Infiltration Storage in Gravel Layer

$V_{retained} = d_g\,(in) \times 0.4 \times Area_{BMP}\,(ft^2) \times 1/12$ → $V_{Retained}$ = 1617.8 ft^3

Portion of V_{BMP} not Reliably Retained

$V_{Not\ Reliably\ Retained} = V_{BMP} - V_{Retained}$ → $V_{Not\ Reliably\ Retained}$ = -301.8 ft^3

Biofiltration with Partial Retention Facility Surface Area

Depth of Surface Ponding Layer (6" minimum, 12" maximum)	d_P =	6.0	inches
Depth of Engineered Soil Media (24" to 36"; 18" if vertically constrained)	d_S =	18.0	inches
Design Media Filtration Rate (2.5 in/hr)	I_{design} =	2.5	in/hr
Allowable Routing Period, $T_{routing}$ (5 hrs)	$T_{routing}$ =	5.0	hr

Effective Biofiltration Depth, d_{E_bio}

$d_{E\_bio}\,(ft) = (d_P + (0.3 \times d_S) + (I_{design} * T_{routing}))\,(ft)$ → d_{E_bio} = 2.0 ft

Effective Static Depth, $d_{E\_bio\_static}$

$d_{E\_bio\_static} = (d_P + (0.3 * d_S))\,(ft)$ → $d_{E\_bio\_static}$ = 1.0 ft

$V_{biofiltered} = d_{E\_bio} * Area_{BMP}$ → $V_{biofiltered}$ = 5370.3 ft^3

$V_{biofiltered\_static} = d_{E\_bio\_static} * Area_{BMP}$ → $V_{biofiltered\_static}$ = 2561.5 ft^3

Sizing Option 1 Result

Criteria 1:	$V_{biofiltered\ (with\ routing)} > 150\%$ of $V_{not\ reliably\ retained}$	Results: PASS

Sizing Option 2 Result

Criteria 2:	$V_{biofiltered\_static} > 0.75 \times V_{Not\ Reliably\ Retained}$	Results: PASS

Note

If neither of these criteria are met, then increase retention depth, increase footprint, or both, and rerun calculations. This calculation is inherently iterative.

Biofiltration with Partial Retention Facility Properties

Side Slopes in Partial Retention with Biofiltration Facility	z = 4	:1
Diameter of Underdrain	6	inches
Longitudinal Slope of Site (3% maximum)	0	%
Check Dam Spacing	0	feet
Describe Vegetation:		

Notes: SOIL MEDIA MUST BE LIMTIED TO 18 INCHES DUE TO VERTICAL CONSTRAINT ASSOCIATED WITH EXISTING CULVERTS.

Santa Margarita Watershed

BMP Design Volume, V_{BMP} (Rev. 03-2012)

Legend: Required Entries / Calculated Cells

(Note this worksheet shall **only** be used in conjunction with BMP designs from the **LID BMP Design Handbook**)

Company Name	JLC Engineering and Consulting, Inc.	Date	6/10/2022
Designed by	Joseph Castaneda	County/City Case No	PP 210132
Company Project Number/Name	158.22.18 Austin Vineyards		
Drainage Area Number/Name	DMA B		

Enter the Area Tributary to this Feature A_T = 2.16 acres

85th Percentile, 24-hour Rainfall Depth, from the Isohyetal Map in Handbook Appendix E

Site Location

Township

Range

Section

Enter the 85th Percentile, 24-hour Rainfall Depth D_{85} = 0.56

Determine the Effective Impervious Fraction

Type of post-development surface cover (use pull down menu): Mixed Surface Types

Effective Impervious Fraction I_f = 0.51

Calculate the composite Runoff Coefficient, C for the BMP Tributary Area

Use the following equation based on the WEF/ASCE Method

$C = 0.858I_f^3 - 0.78I_f^2 + 0.774I_f + 0.04$ C = 0.35

Determine Design Storage Volume, V_{BMP}

Calculate V_U, the 85% Unit Storage Volume $V_U = D_{85} \times C$ V_u = 0.19 (in*ac)/ac

Calculate the design storage volume of the BMP, V_{BMP}.

$$V_{BMP}\ (ft^3) = \frac{V_U\ (in\text{-}ac/ac) \times A_T\ (ac) \times 43{,}560\ (ft^2/ac)}{12\ (in/ft)}$$

V_{BMP} = 1,490 ft^3

Notes:

BASIN B WATER QUALITY STAGE STORAGE

Contour Elevation	Contour Area (sf)	Contour Area (ac)	Contour Interval Volume (ac-ft)	Total Basin Volume (ac-ft)	Total Basin Volume (ft^3)	Basin Volume for Routing (ac-ft)
1501.00	6261.7	0.144		0.000	0.0	0.000
			0.159			
1502.00	7560.9	0.174		0.159	6911.3	0.000
			0.186			
1503.00	8665.2	0.199		0.345	15024.4	0.186
			0.212			
1504.00	9838.0	0.226		0.557	24276.0	0.399
			0.254			
1505.00	12300.7	0.282		0.811	35345.3	0.653

WATER QUALITY VOLUME = 1,490 CF. PROJECT IS USING A BIO-RETENTION BASIN. BIO-RETENTION BASIN ASSUMES 6-INCHES OF PONDING. BASIN ROUTING ACCOUNTS FOR SOIL MEDIA INFILTRATION RATE OF 2.5 IN/HR W/O SAFETY FACTOR. HYDROMODIFICATION PONDED DEPTH 0.5 FT.

BIO-RETENTION INFILTRATION FLOW RATE

SOIL MEDIA AREA	INFILTRATION RATE(1)	INFILTRATION RATE	SAFETY FACTOR	INFILTRATION FLOW RATE
(SF)	IN/HR	FT/S		FT^3/S
2625.6	2.5	0.000058	3.0	0.051

(1) BASED ON RCTD HYDROMODIFICATION CALCULATIONS

Biofiltration with Partial Infiltration Facility - Design Procedure	BMP ID: B	Legend:	Required Entries / Calculated Cells
Company Name: JLC Engineering and Consulting, Inc.		Date: 6/10/2022	
Designed by: Joseph Castaneda		County/City Case No.: PP 210132	

Design Volume

Enter the area tributary to this feature	A_T=	2.16	acres
Enter V_{BMP} determined from Section 2.1 of this Handbook	V_{BMP}=	1,490	ft^3
Enter initial estimate of footprint of BMP, $Area_{BMP}$ (Guidance: A reasonable starting point is 3% of the tributary impervious area)	$Area_{BMP}$=	2,626	ft^2

Note: This area shall be measured at the mid-ponding depth of the BMP. For systems with side-slopes, this should be the contour that is midway between the floor of the basin and the maximum water quality ponding elevation of the basin. The underlying gravel layer (infiltration storage layer) should extend to this contour. For systems with vertical walls, the effective area is the full footprint.

Portion of DCV Reliably Retained

Depth of Gravel Infiltration Storage Layer (18" minimum; 30" maximum)	dg =	18.0	inches

Portion of V_{BMP} Reliably Retained via Infiltration Storage in Gravel Layer

$V_{retained} = d_g\,(in) \times 0.4 \times Area_{BMP}\,(ft^2) \times 1/12$ → $V_{Retained}$ = 1575.4 ft^3

Portion of V_{BMP} not Reliably Retained

$V_{Not\ Reliably\ Retained} = V_{BMP} - V_{Retained}$ → $V_{Not\ Reliably\ Retained}$ = -85.4 ft^3

Biofiltration with Partial Retention Facility Surface Area

Depth of Surface Ponding Layer (6" minimum, 12" maximum)	d_P =	6.0	inches
Depth of Engineered Soil Media (24" to 36"; 18" if vertically constrained)	d_S =	18.0	inches
Design Media Filtration Rate (2.5 in/hr)	I_{design} =	2.5	in/hr
Allowable Routing Period, $T_{routing}$ (5 hrs)	$T_{routing}$ =	5.0	hr

Effective Biofiltration Depth, d_{E_bio}

$d_{E\_bio}\,(ft) = (d_P + (0.3 \times d_S) + (I_{design} * T_{routing}))\,(ft)$ → d_{E_bio} = 2.0 ft

Effective Static Depth, $d_{E\_bio\_static}$

$d_{E\_bio\_static} = (d_P + (0.3 * d_S))\,(ft)$ → $d_{E\_bio\_static}$ = 1.0 ft

$V_{biofiltered} = d_{E\_bio} * Area_{BMP}$ → $V_{biofiltered}$ = 5229.3 ft^3

$V_{biofiltered\_static} = d_{E\_bio\_static} * Area_{BMP}$ → $V_{biofiltered\_static}$ = 2494.3 ft^3

Sizing Option 1 Result

Criteria 1:	$V_{biofiltered\ (with\ routing)} > 150\%$ of $V_{not\ reliably\ retained}$	Results: PASS

Sizing Option 2 Result

Criteria 2:	$V_{biofiltered\_static} > 0.75 \times V_{Not\ Reliably\ Retained}$	Results: PASS

Note

If neither of these criteria are met, then increase retention depth, increase footprint, or both, and rerun calculations. This calculation is inherently iterative.

Biofiltration with Partial Retention Facility Properties

Side Slopes in Partial Retention with Biofiltration Facility	z = 4	:1
Diameter of Underdrain	6	inches
Longitudinal Slope of Site (3% maximum)	0	%
Check Dam Spacing	0	feet
Describe Vegetation:		

Notes: SOIL MEDIA MUST BE LIMTIED TO 18 INCHES DUE TO VERTICAL CONSTRAINT ASSOCIATED WITH EXISTING CULVERTS.

Appendix 7:
Hydromodification & Critical Coarse Sediment

Supporting Detail for Hydromodification compliance & Exhibit G - CCSY & PSS Areas with the project location.

The preparer shall include the following in this Appendix (Refer to Section 2.4 and 3.6 of the SMR WQMP and Sections E of this Template):

- Hydromodification Exemption Exhibit (if the project is in an area exempt from Hydromod)
- Potential Critical Coarse Sediment Yield Area Mapping (to show if the site is out of a CCSYA)
- Hydromodification BMP sizing calculations (i.e. County Hydromod Spreadsheet – Hydromod, and BMP Design tabs, SMRHM report files, or other acceptable Hydromod calculations)
- Site-Specific Critical Coarse Sediment Analysis (if a project impacts a CCSYA)
- Design details/drawings from manufacturers for proprietary BMPs (if proprietary BMPs are proposed)

In addition, the project shall comply with drainage law and good practices:

- Protect the Site and Roads from Q100yr, without impacting adjacent property owners.
- Pad elevations must be above the Q100yr water surface at all locations.

I. Identify Offsite Hydrology

A. If the project intends to allow the flows to pass through the project uninterrupted, the flows must remain along its natural flow-path and natural condition. The project must also:
   (1) Ensure that the existing stream is stable. If not, the design must include stabilization.
   (2) Does the 100 year flow path affect proposed project elements, such as streets and fill slopes? If so, the project must properly design for impingements, provide revetment, etc. If the water surface changes due to impingements on neighbor's properties, Permission to pond letters must be provided.

B. If the project intends to collect and convey the offsite flows, see the next section:

II. Hydraulics

A. Project must provide collection inlets that can be accessed for maintenance. If located outside of the project boundary, the project must provide a Permission Letter or drainage easement. If the inlet creates new ponding on private property, the project must provide a Permission to Pond letter or easement.

B. The project should not divert watershed areas over 1 acre. If so, Permission Letter to accept project's diversion and drainage concept must be received by the project.

C. The project should have an adequate outlet. If not, include Permission Letters and implement Increased Runoff criteria (2, 5,10 year storm events and the 1, 3, 6 and 24 hour durations). 100 year storm routing is not to be used. Runoff from the offsite plus onsite must be returned to its natural (existing) condition of velocity, peak flow-rate, flow-width and location/right of way, if permission letters have not been obtained.

D. The project must adequately convey the 100 year storm between the combination of street flow and pipe flow per County Ordinance.

E. The project should use the downstream connection as the Q100yr water surface control elevation, to ensure 6 inches minimum of freeboard in proposed drainage system.

III. Basin Layout

A. Implement Basin Guidelines as best as possible from Appendix C, Design Handbook for LID BMPs.

SANTA MARGARITA REGION – COUNTY HYDROMOD ITERATIVE SPREADSHEET MODEL

Santa Margarita Region - County HydroMod Iterative Spreadsheet Model

Only for use the unincorporated portions of Riverside County, unless otherwise approved by the Co-Permittee

Development Project Number(s):	PP 210132 Austin Vineyards	Rain Gauge	Temecula Valley
Latitude (decimal format):	33.5521	BMP Type (per WQMP):	BASIN A
Longitude (decimal format):	-117.0348	BMP Number (Sequential):	A

Pre-Development

Pre-Development - Hydrology Information			
DRAINAGE AREA (ACRES) - 10 acre max[1]	2.59	2-YEAR, 1-HOUR INTENSITY (IN/HR) - Plate D-4.3	0.5
LONGEST WATERCOURSE (FT) - 1,000' max [1]	429	10-YEAR, 1-HOUR INTENSITY (IN/HR) - Plate D-4.1 or D-4.5	0.8
UPSTREAM ELEVATION OF WATERCOURSE (FT)	1523	SLOPE OF THE INTENSITY DURATION - Plate D-4.6	0.55
DOWNSTREAM ELEV. OF WATERCOURSE (FT)	1500	CLOSEST IMPERVIOUS PERCENTAGE (%)	0% Undeveloped - Poor Cover
EX. IMPERV. PERCENTAGE (%), SMR requires Pre-dev. Condition	0		
Use 10% of Q2 to avoid Field Screening requirements	Yes		

Pre-Development

Pre-Development - Soils Information

Cover Type #	Subarea Acreage	Cover Type	Vegetative Cover	Soil A %	Soil B %	Soil C %	Soil D %	RI Index AMC I	RI Index AMC II	RI Index AMC III
14	2.59 Ac.	Open Brush	Fair Cover	0	0	100	0	59	**77**	89
								0	**0**	0
								0	**0**	0
	2.59 Ac.						**Weighted Average RI Numbers =**	**59.0**	**77.0**	**89.0**

Per Dr. Luis Parra, the AMC condition is based on the rainfall record. Applying NEH-4 (1964) for the non-freezing conditions in Riverside County the AMC conditions are:
AMC-I for less than 0.5" of rain the previous 5 days; AMC-II for between 0.5" to 1.1" of rain the previous 5 days; or AMC-III for more than 1.1" for the previous 5 days.

Pre-Development

Pre-Development - Calculated Range of Flow Rates analyzed for Hydromod (Suceptible Range of Flows)

Calculated Upper Flow-rate limit	Calculated Lower Flow-rate limit
Ex. 10-year Flowrate[1] = **4.023** cfs	Ex. 10% of the 2-year Flowrate[1] = **0.174** cfs
(Co-Permitte Approval is required) User-Defined Discharge Values with accompanying Hydrology Study[1]	
Ex. 10-year Flowrate (Attach Study) = cfs	Ex. 2-year Flowrate (Attach Study) = cfs

[1]The equations used to determine the 10-year and 10% of the 2-yr are limited to 10-acres and 1,000'. Flowrates from a separate study can be used to over-ride the calculated values so that larger areas (up to 20 acres) and longer watercourse lengths can be used. All values still need to be filled out, even when there is a user-defined discharge value entered.

Post-Project

Post-Project - Hydrograph Information		
DRAINAGE AREA (ACRES)	2.59	Go to "BMP Design" tab to design your BMP, then check results below. Print both this "HydroMod" Sheet and the "BMP Design" sheet for your submittal.
LONGEST WATERCOURSE (FT)	429	
DIFFERENCE IN ELEV (FT) - along watercourse	23	
PROPOSED IMPERVIOUS PERCENTAGE (%)	18	

Post-Project

Post-Project - Soils Information

Cover Type #	Subarea Acreage	Cover Type	Vegetative Cover	Soil A %	Soil B %	Soil C %	Soil D %	RI Index AMC I	RI Index AMC II	RI Index AMC III
22	2.59 Ac.	Urban Landscaping	Good Cover	0	0	100	0	50	**69**	84
								0	**0**	0
								0	**0**	0
	2.59 Ac.						**Weighted Average RI Numbers =**	**50.0**	**69.0**	**84.0**

Per Dr. Luis Parra, the AMC condition is based on the rainfall record. Applying NEH-4 (1964) for the non-freezing conditions in Riverside County the AMC conditions are:
AMC-I for less than 0.5" of rain the previous 5 days; AMC-II for between 0.5" to 1.1" of rain the previous 5 days; or AMC-III for more than 1.1" for the previous 5 days.

Results

		First result out of compliance in the rainfall record					
Hydromod Ponded depth	**1.100**					See below for the Height in the Basin (Stage) that is causing a non-compliant result	
Hydromod Drain Time (unclogged)	**10.01 hours**	Requirement		Proposed			
Is the HydroMod BMP properly sized?	**Yes, this is acceptable**	---	---	---	---		
Mitigated Q < 110% of Pre-Dev. Q?	**Yes, this is acceptable**	---	---	---	---	Issue @ Stage =	---
Mitigated Duration < 110% of Pre-Dev?*	**Yes, this is acceptable**	---	---	---	---	Issue @ Stage =	---

Responsible-in-charge: _____ Date: _____

Signature: _____ Spreadsheet Developed by: Benjie Cho, P.E.

BMP Design

Fill in **blue** shaded areas

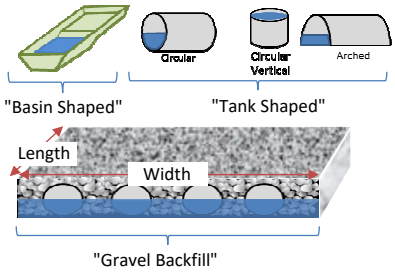
BMP Geometry, Outlets, & Detention Calculations

0.1 feet, Stage Intervals — Larger Stage Intervals may incr. the Q at the bottom stg.

PROPOSED BMP DIMENSIONS

STEP1: Size the BMP, so that the Total Vol. > Max HydroMod Vol. (Deeper is ok, it will be refined in the Minimum Design Geometry)

Is the BMP a Tank shape? **2** 1 for yes; 2 for no.



Basin Shaped BMP (Bottom Stage 1st)

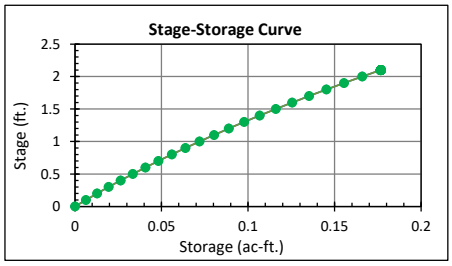
Bottom Stage H= **2.1'** SS= **4** :1

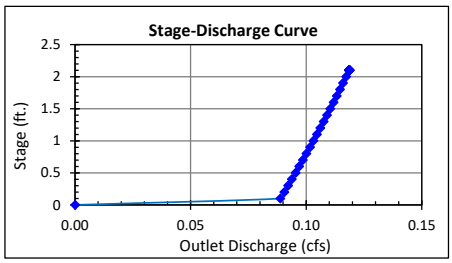
	Top Area		Bottom Area	
Width	68.7264865	Width	51.9	FT
Length	68.7264865	Length	51.9	FT
area =	4723.32995 FT2	area =	2696.4	FT2

Top Stage H=

Prop. Top Stg. Vol. =	-	FT3
Prop Bottom Stg Vol =	7,692	FT3
Total Prop. Volume[1] =	7,692	FT3
Max HydroMod Volume =	3,273	FT3
Total Surface Area[2] =	4,723	FT2
BMP % of Site =	4.19%	
Max HydroMod Depth[3] =	1.10	FT

[1]Does not include forebay, or low flow trench
[2]Does not account for freeboard or access roads
[3]Does not consider Increased Runoff





Stage-Storage-Discharge

*Q includes Q-Subdrain for Biofiltration

Stage (FT)	Storage (AC-FT)	Storage (FT3)	Q* (CFS)
0	0	0	0
0.10	0.006	274	0.09
0.20	0.013	556	0.09
0.30	0.019	847	0.09
0.40	0.026	1146	0.09
0.50	0.033	1455	0.10
0.60	0.041	1772	0.10
0.70	0.048	2098	0.10
0.80	0.056	2434	0.10
0.90	0.064	2779	0.10
1.00	0.072	3133	0.10
1.10	0.080	3497	0.10
1.20	0.089	3871	0.11
1.30	0.098	4254	0.11
1.40	0.107	4648	0.11
1.50	0.116	5051	0.11
1.60	0.125	5465	0.11
1.70	0.135	5889	0.11
1.80	0.145	6324	0.11
1.90	0.155	6769	0.12
2.00	0.166	7225	0.12
2.10	0.177	7692	0.12
2.10	0.177	7,692	

MINIMUM DESIGN GEOMETRY

STEP2: Delete outlets, then propose the largest lowest orifice that does not, exceed the ex. Q or Duration. If the Q is acceptable, but the duration is exceeded, try decreasing orifice, then adding a outlet slightly below the stage that has an issue.

VISIBLE OUTLETS (for Stage-Discharge)

Orifice Outlets			Weir Outlets		
Invert Height (FT)	Diameter (INCHES)	No. of Orifices	Crest Height (FT)	Crest Width (FT)	No. of Weirs
0	0.00	1			
0.5		2			

Hydromod Depth = 1.10 FT
+ 1' Freeboard = 2.10 FT
Resize with Hydromod Depth +1' Freeboard

Top Surface Area
Based on HydroMod Depth +1' of Freeboard

Bottom Stage		
Width	68.7264865	FT
Length	68.7264865	FT

STEP3: Complete an increased runoff analysis, if the project can impact downstream properties. Incorporate these designs into the WQMP site plan. Add emergency overflow weir, for flows that exceed the Hydromod volumes, sized to the 100-year peak flow rate. Add access roads (< 10% longitudnal slope) with enough width & turn around access for equipment that would be needed to scarify the bottom or remove Bioretention soil media.

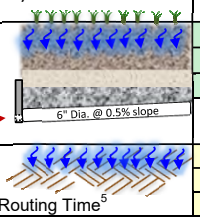
Infiltration / BioRetention / BioFiltration

SUBSURFACE DRAINAGE

Yes — **Consider Infiltration, Bioretention, or Biofiltration (Yes or No)?**

Biofiltration BMP with subdrain

1.5 inch, Restricted Subdrain Diameter



2.5	IN/HR, Infiltration rate thru soil media (K)[3]	6741	FT3, Vol. of Media Section above subdrain
1.5	FT, Ht. of Soil Media	1.006	Δh [FT], Energy Loss at Max. Hydromod depth
0.5	FT, Ht. of Sand Filter Course	0.105	CFS, Flowrate thru the subdrain at Max Hydromod
1	FT, Ht. of Gravel Layer		
1.5	IN, Restricted Subdrain Diameter	@Max Hydromod Depth:	Orifice Control: Media is fully pressurized
0	IN/HR, Infiltration rate thru subgrade[4]	-	**FT3/sec, Infiltration**
3	Factor of Safety	-	FT3, Vol. Infiltrated, over representative time
300	Minutes, Time represented by Infil. Tests or Biofiltraton Routing Time[5]	-	FT3/sec, Low-Loss after representative time

[3] For BioRetention/ BioFiltration use a rate thru the media of 2.5 in/hr (long term design rate).
[4]Measured Infiltration Rate per the LID Manual, Appendix A for Infiltration/BioRetention.
[5]Time that infiltration rate is being applied for Hydromod analysis for Infiltration/BioRention. Use 300 minutes (5hrs) for BioFiltration. Pore space is not accounted for at this time.

Santa Margarita Region - County HydroMod Iterative Spreadsheet Model

Only for use the unincorporated portions of Riverside County, unless otherwise approved by the Co-Permittee

Development Project Number(s):	PP 210132 Austin Vineyards	Rain Gauge	Temecula Valley
Latitude (decimal format):	33.5521	BMP Type (per WQMP):	BASIN B
Longitude (decimal format):	-117.0348	BMP Number (Sequential):	B

Pre-Development

Pre-Development - Hydrology Information			
DRAINAGE AREA (ACRES) - 10 acre max[1]	2.16	2-YEAR, 1-HOUR INTENSITY (IN/HR) - Plate D-4.3	0.5
LONGEST WATERCOURSE (FT) - 1,000' max [1]	303	10-YEAR, 1-HOUR INTENSITY (IN/HR) - Plate D-4.1 or D-4.5	0.8
UPSTREAM ELEVATION OF WATERCOURSE (FT)	1523.5	SLOPE OF THE INTENSITY DURATION - Plate D-4.6	0.55
DOWNSTREAM ELEV. OF WATERCOURSE (FT)	1497.3	CLOSEST IMPERVIOUS PERCENTAGE (%)	0% Undeveloped - Poor Cover
EX. IMPERV. PERCENTAGE (%), SMR requires Pre-dev. Condition	0		
Use 10% of Q2 to avoid Field Screening requirements	Yes		

Pre-Development

Pre-Development - Soils Information

Cover Type #	Subarea Acreage	Cover Type	Vegetative Cover	Soil A %	Soil B %	Soil C %	Soil D %	RI Index AMC I	RI Index AMC II	RI Index AMC III
14	2.16 Ac.	Open Brush	Fair Cover	0	0	100	0	59	**77**	89
								0	**0**	0
								0	**0**	0
	2.16 Ac.						**Weighted Average RI Numbers =**	**59.0**	**77.0**	**89.0**

Per Dr. Luis Parra, the AMC condition is based on the rainfall record. Applying NEH-4 (1964) for the non-freezing conditions in Riverside County the AMC conditions are:
AMC-I for less than 0.5" of rain the previous 5 days; AMC-II for between 0.5" to 1.1" of rain the previous 5 days; or AMC-III for more than 1.1" for the previous 5 days.

Pre-Development

Pre-Development - Calculated Range of Flow Rates analyzed for Hydromod (Suceptible Range of Flows)

Calculated Upper Flow-rate limit	Calculated Lower Flow-rate limit
Ex. 10-year Flowrate[1] = **3.894** cfs	Ex. 10% of the 2-year Flowrate[1] = **0.174** cfs
(Co-Permitte Approval is required) User-Defined Discharge Values with accompanying Hydrology Study[1]	
Ex. 10-year Flowrate (Attach Study) = cfs	Ex. 2-year Flowrate (Attach Study) = cfs

[1]The equations used to determine the 10-year and 10% of the 2-yr are limited to 10-acres and 1,000'. Flowrates from a separate study can be used to over-ride the calculated values so that larger areas (up to 20 acres) and longer watercourse lengths can be used. All values still need to be filled out, even when there is a user-defined discharge value entered.

Post-Project

Post-Project - Hydrograph Information		
DRAINAGE AREA (ACRES)	2.16	Go to "BMP Design" tab to design your BMP, then check results below. Print both this "HydroMod" Sheet and the "BMP Design" sheet for your submittal.
LONGEST WATERCOURSE (FT)	303	
DIFFERENCE IN ELEV (FT) - along watercourse	26.2	
PROPOSED IMPERVIOUS PERCENTAGE (%)	34	

Post-Project

Post-Project - Soils Information

Cover Type #	Subarea Acreage	Cover Type	Vegetative Cover	Soil A %	Soil B %	Soil C %	Soil D %	RI Index AMC I	RI Index AMC II	RI Index AMC III
22	2.16 Ac.	Urban Landscaping	Good Cover	0	0	100	0	50	**69**	84
								0	**0**	0
								0	**0**	0
	2.16 Ac.						**Weighted Average RI Numbers =**	**50.0**	**69.0**	**84.0**

Per Dr. Luis Parra, the AMC condition is based on the rainfall record. Applying NEH-4 (1964) for the non-freezing conditions in Riverside County the AMC conditions are:
AMC-I for less than 0.5" of rain the previous 5 days; AMC-II for between 0.5" to 1.1" of rain the previous 5 days; or AMC-III for more than 1.1" for the previous 5 days.

Results

		First result out of compliance in the rainfall record					
Hydromod Ponded depth	**0.500**					See below for the Height in the Basin (Stage) that is causing a non-compliant result	
Hydromod Drain Time (unclogged)	**9.07 hours**	Requirement		Proposed			
Is the HydroMod BMP properly sized?	**Yes, this is acceptable**	---	---	---	---		
Mitigated Q < 110% of Pre-Dev. Q?	**Yes, this is acceptable**	---	---	---	---	Issue @ Stage =	---
Mitigated Duration < 110% of Pre-Dev?*	**Yes, this is acceptable**	---	---	---	---	Issue @ Stage =	---

Responsible-in-charge: _____ Date: _____

Signature: _____ Spreadsheet Developed by: Benjie Cho, P.E.

BMP Design

Fill in **blue** shaded areas

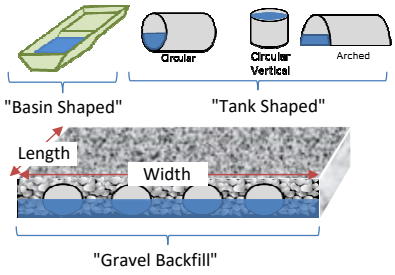
BMP Geometry, Outlets, & Detention Calculations

0.1 feet, Stage Intervals — Larger Stage Intervals may incr. the Q at the bottom stg.

PROPOSED BMP DIMENSIONS

STEP1: Size the BMP, so that the Total Vol. > Max HydroMod Vol. (Deeper is ok, it will be refined in the Minimum Design Geometry)

Is the BMP a Tank shape? **2** 1 for yes; 2 for no.



Basin Shaped BMP (Bottom Stage 1st)

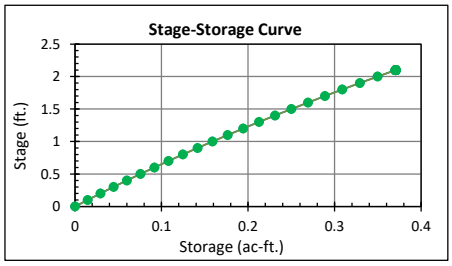
Bottom Stage H= **2.1'** SS= **4** :1

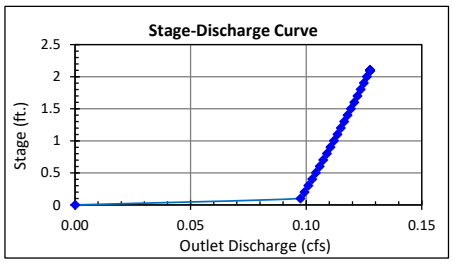
	Top Area		Bottom Area	
Width	95.9309042	Width	79.1	FT
Length	95.9309042	Length	79.1	FT
area =	9202.73838 FT2	area =	6261.7	FT2

Top Stage H=

Prop. Top Stg. Vol. =	-	FT3
Prop Bottom Stg Vol =	16,139	FT3
Total Prop. Volume[1] =	16,139	FT3
Max HydroMod Volume =	2,844	FT3
Total Surface Area[2] =	9,203	FT2
BMP % of Site =	9.78%	
Max HydroMod Depth[3] =	0.50	FT

[1]Does not include forebay, or low flow trench
[2]Does not account for freeboard or access roads
[3]Does not consider Increased Runoff





Stage-Storage-Discharge

*Q includes Q-Subdrain for Biofiltration

Stage (FT)	Storage (AC-FT)	Storage (FT3)	Q* (CFS)
0	0	0	0
0.10	0.015	633	0.10
0.20	0.029	1278	0.10
0.30	0.044	1936	0.10
0.40	0.060	2607	0.10
0.50	0.076	3292	0.10
0.60	0.092	3990	0.11
0.70	0.108	4701	0.11
0.80	0.125	5425	0.11
0.90	0.142	6164	0.11
1.00	0.159	6916	0.11
1.10	0.176	7682	0.11
1.20	0.194	8462	0.11
1.30	0.213	9257	0.12
1.40	0.231	10066	0.12
1.50	0.250	10889	0.12
1.60	*0.269*	*11727*	*0.12*
1.70	*0.289*	*12579*	*0.12*
1.80	*0.309*	*13447*	*0.12*
1.90	*0.329*	*14329*	*0.12*
2.00	*0.350*	*15226*	*0.13*
2.10	*0.370*	*16139*	*0.13*
2.10	0.370	16,139	

MINIMUM DESIGN GEOMETRY

STEP2: Delete outlets, then propose the largest lowest orifice that does not, exceed the ex. Q or Duration. If the Q is acceptable, but the duration is exceeded, try decreasing orifice, then adding a outlet slightly below the stage that has an issue.

VISIBLE OUTLETS (for Stage-Discharge)

Orifice Outlets			Weir Outlets		
Invert Height (FT)	Diameter (INCHES)	No. of Orifices	Crest Height (FT)	Crest Width (FT)	No. of Weirs
0	0.00	1			
0.5	0.00	1			

Hydromod Depth = 0.50 FT
+ 1' Freeboard = 1.50 FT
Resize with Hydromod Depth +1' Freeboard

Top Surface Area
Based on HydroMod Depth +1' of Freeboard

Bottom Stage		
Width	91.1309042	FT
Length	91.1309042	FT

STEP3: Complete an increased runoff analysis, if the project can impact downstream properties. Incorporate these designs into the WQMP site plan. Add emergency overflow weir, for flows that exceed the Hydromod volumes, sized to the 100-year peak flow rate. Add access roads (< 10% longitudnal slope) with enough width & turn around access for equipment that would be needed to scarify the bottom or remove Bioretention soil media.

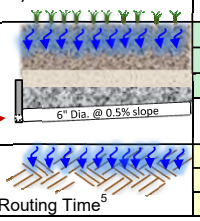
Infiltration / BioRetention / BioFiltration

SUBSURFACE DRAINAGE

Yes — **Consider Infiltration, Bioretention, or Biofiltration (Yes or No)?**

Biofiltration BMP with subdrain

1.5 inch, Restricted Subdrain Diameter



2.5	IN/HR, Infiltration rate thru soil media (K)[3]	15654	FT3, Vol. of Media Section above subdrain
1.5	FT, Ht. of Soil Media	0.431	Δh [FT], Energy Loss at Max. Hydromod depth
0.5	FT, Ht. of Sand Filter Course	0.104	CFS, Flowrate thru the subdrain at Max Hydromod
1	FT, Ht. of Gravel Layer		
1.5	IN, Restricted Subdrain Diameter	@Max Hydromod Depth:	Orifice Control: Media is fully pressurized
0	IN/HR, Infiltration rate thru subgrade[4]	-	**FT3/sec, Infiltration**
3	Factor of Safety	-	FT3, Vol. Infiltrated, over representative time
300	Minutes, Time represented by Infil. Tests or Biofiltraton Routing Time[5]	-	FT3/sec, Low-Loss after representative time

[3] For BioRetention/ BioFiltration use a rate thru the media of 2.5 in/hr (long term design rate).
[4]Measured Infiltration Rate per the LID Manual, Appendix A for Infiltration/BioRetention.
[5]Time that infiltration rate is being applied for Hydromod analysis for Infiltration/BioRention. Use 300 minutes (5hrs) for BioFiltration. Pore space is not accounted for at this time.

Potential Critical Coarse Sediment Map

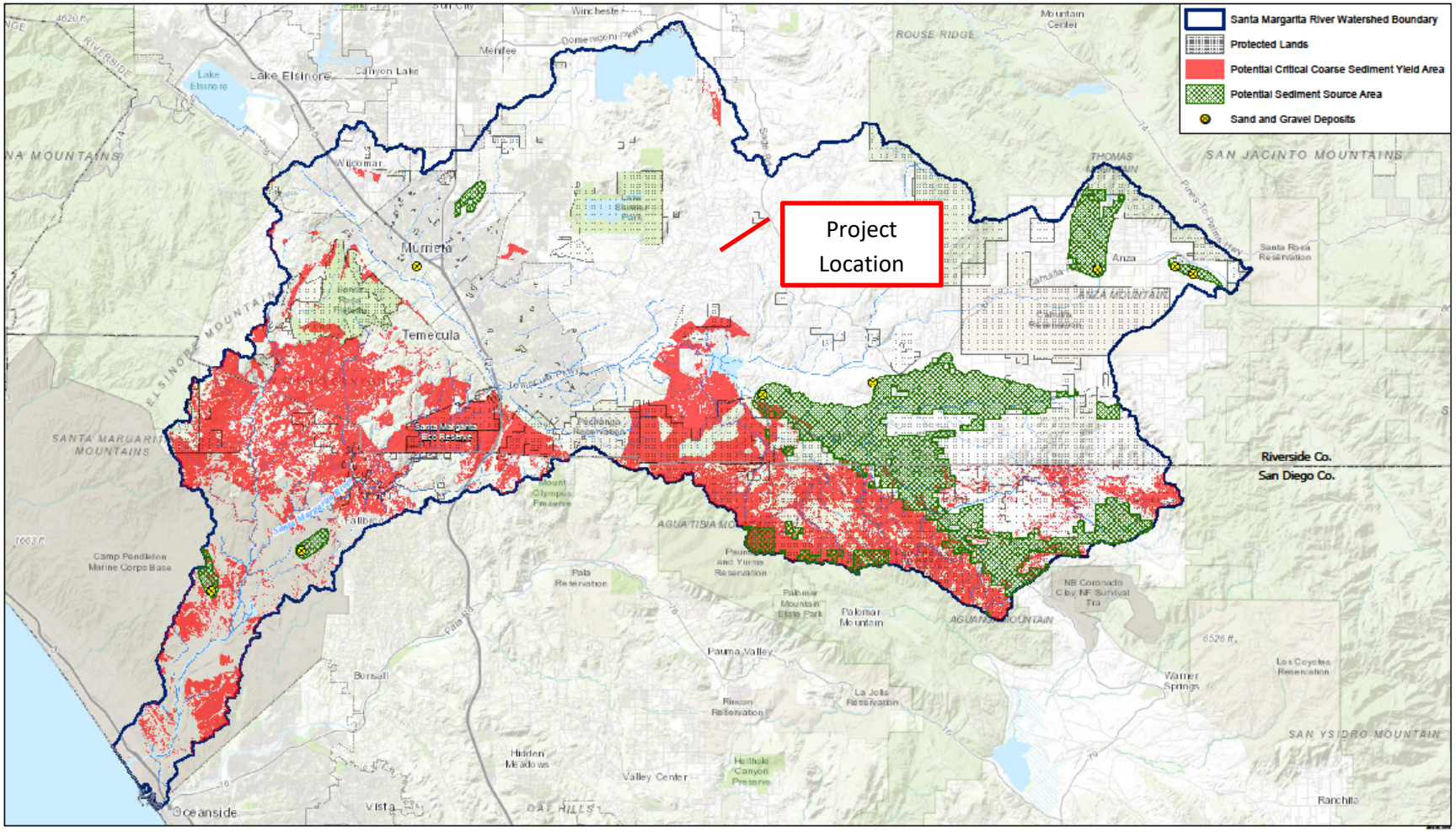


Exhibit G-1

SANTA MARGARITA RIVER WATERSHED
POTENTIAL CRITICAL COARSE SEDIMENT YIELD AREAS AND POTENTIAL SEDIMENT SOURCE AREAS

Appendix 8: Source Control

Pollutant Sources/Source Control Checklist

For Final WQMP, include a copy of the completed Pollutant Sources/Source Control Checklist in the subsequent pages and summarize Source Control BMPs in Section H of this Template.

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

How to use this worksheet (also see instructions in Section G of the WQMP Template):

1. Review Column 1 and identify which of these potential sources of stormwater pollutants apply to your site. Check each box that applies.
2. Review Column 2 and incorporate all of the corresponding applicable BMPs in your WQMP Exhibit.
3. Review Columns 3 and 4 and incorporate all of the corresponding applicable permanent controls and operational BMPs in your WQMP. Use the format shown in Table G.1on page 23 of this WQMP Template. Describe your specific BMPs in an accompanying narrative, and explain any special conditions or situations that required omitting BMPs or substituting alternative BMPs for those shown here.

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on WQMP Drawings**	**3** **Permanent Controls—List in WQMP Table and Narrative**	**4** **Operational BMPs—Include in WQMP Table and Narrative**
☒ **A.** On-site storm drain facilities	☒ Locations of stenciling.	☒ Mark southerly v-ditch with the words "Only Rain Down the Storm Drain" or similar. Catch Basin Markers may be available from the Riverside County Flood Control and Water Conservation District, call 951.955.1200 to verify.	☒ Maintain and periodically repaint or replace inlet markings. ☒ Provide stormwater pollution prevention information to new site owners, lessees, or operators. ☒ See applicable operational BMPs in Fact Sheet SC-44, "Drainage System Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com ❑ Include the following in lease agreements: "Tenant shall not allow anyone to discharge anything to storm drains or to store or deposit materials so as to create a potential discharge to storm drains."
❑ **B.** Interior floor drains and elevator shaft sump pumps		❑ State that interior floor drains and elevator shaft sump pumps will be plumbed to sanitary sewer.	❑ Inspect and maintain drains to prevent blockages and overflow.
❑ **C.** Interior parking garages		❑ State that parking garage floor drains will be plumbed to the sanitary sewer.	❑ Inspect and maintain drains to prevent blockages and overflow.

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on WQMP Drawings**	**3** **Permanent Controls—List in WQMP Table and Narrative**	**4** **Operational BMPs—Include in WQMP Table and Narrative**
☒ **D1.** Need for future indoor & structural pest control		☒ Note building design features that discourage entry of pests.	☒ Provide Integrated Pest Management information to owners, lessees, and operators.
☒ **D2.** Landscape/ Outdoor Pesticide Use	❑ Show locations of native trees or areas of shrubs and ground cover to be undisturbed and retained. ❑ Show self-retaining landscape areas, if any. ☒ Show stormwater treatment and hydrograph modification management BMPs. (See instructions in Chapter 3, Step 5 and guidance in Chapter 5.)	State that final landscape plans will accomplish all of the following. ❑ Preserve existing native trees, shrubs, and ground cover to the maximum extent possible. ☒ Design landscaping to minimize irrigation and runoff, to promote surface infiltration where appropriate, and to minimize the use of fertilizers and pesticides that can contribute to stormwater pollution. Where landscaped areas are used to retain or detain stormwater, specify plants that are tolerant of saturated ☒ soil conditions. Consider using pest-resistant ☒ plants, especially adjacent to hardscape. To ensure successful establishment, select plants appropriate to site soils, slopes, climate, sun, wind, rain, land use, air movement, ecological consistency, and plant interactions.	☒ Maintain landscaping using minimum or no pesticides. ☒ See applicable operational BMPs in **"What you should know for…..Landscape and Gardening"** at http://rcflood.org/stormwater/**Error! Hyperlink reference not valid.** Provide IPM information to new ☒ owners, lessees and operators.

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on WQMP Drawings**	3 **Permanent Controls—List in WQMP Table and Narrative**	4 **Operational BMPs—Include in WQMP Table and Narrative**
❑ **E.** Pools, spas, ponds, decorative fountains, and other water features.	❑ Show location of water feature and a sanitary sewer cleanout in an accessible area within 10 feet. (Exception: Public pools must be plumbed according to County Department of Environmental Health Guidelines.)	If the Co-Permittee requires pools to be plumbed to the sanitary sewer, place a note on the plans and state in the narrative that this connection will be made according to local requirements.	☒ See applicable operational BMPs in "Guidelines for Maintaining Your Swimming Pool, Jacuzzi and Garden Fountain" at http://rcflood.org/stormwater/
❑ **F.** Food service	❑ For restaurants, grocery stores, and other food service operations, show location (indoors or in a covered area outdoors) of a floor sink or other area for cleaning floor mats, containers, and equipment. ❑ On the drawing, show a note that this drain will be connected to a grease interceptor before discharging to the sanitary sewer.	❑ Describe the location and features of the designated cleaning area. ❑ Describe the items to be cleaned in this facility and how it has been sized to insure that the largest items can be accommodated.	❑ See the brochure, "The Food Service Industry Best Management Practices for: Restaurants, Grocery Stores, Delicatessens and Bakeries" at http://rcflood.org/stormwater/ Provide this brochure to new site owners, lessees, and operators.
☒ **G.** Refuse areas	❑ Show where site refuse and recycled materials will be handled and stored for pickup. See local municipal requirements for sizes and other details of refuse areas. ❑ If dumpsters or other receptacles are outdoors, show how the designated area will be covered, graded, and paved to prevent run-on and show locations of berms to prevent runoff from the area. ❑ Any drains from dumpsters, compactors, and tallow bin areas shall be connected to a grease removal device before discharge to sanitary sewer.	☒ State how site refuse will be handled and provide supporting detail to what is shown on plans. ❑ State that signs will be posted on or near dumpsters with the words "Do not dump hazardous materials here" or similar.	☒ State how the following will be implemented: Provide adequate number of receptacles. Inspect receptacles regularly; repair or replace leaky receptacles. Keep receptacles covered. Prohibit/prevent dumping of liquid or hazardous wastes. Post "no hazardous materials" signs. Inspect and pick up litter daily and clean up spills immediately. Keep spill control materials available on-site. See Fact Sheet SC-34, "Waste Handling and Disposal" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on WQMP Drawings**	3 **Permanent Controls—List in WQMP Table and Narrative**	4 **Operational BMPs—Include in WQMP Table and Narrative**
❑ **H.** Industrial processes.	❑ Show process area.	❑ **If industrial processes are to be located on site, state: "All process activities to be performed indoors. No processes to drain to exterior or to storm drain system."**	❑ **See Fact Sheet SC-10, "Non-Stormwater Discharges" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com** See the brochure "Industrial & Commercial Facilities Best Management Practices for: Industrial, Commercial Facilities" at http://rcflood.org/stormwater/

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on WQMP Drawings**	**3** **Permanent Controls—List in WQMP Table and Narrative**	**4** **Operational BMPs—Include in WQMP Table and Narrative**
❑ **I.** Outdoor storage of equipment or materials. (See rows J and K for source control measures for vehicle cleaning, repair, and maintenance.)	❑ Show any outdoor storage areas, including how materials will be covered. Show how areas will be graded and bermed to prevent run-on or run-off from area. ❑ Storage of non-hazardous liquids shall be covered by a roof and/or drain to the sanitary sewer system, and be contained by berms, dikes, liners, or vaults. ❑ Storage of hazardous materials and wastes must be in compliance with the local hazardous materials ordinance and a Hazardous Materials Management Plan for the site.	Include a detailed description of materials to be stored, storage areas, and structural features to prevent pollutants from entering storm drains. Where appropriate, reference documentation of compliance with the requirements of Hazardous Materials Programs for: ▪ Hazardous Waste Generation ▪ Hazardous Materials Release Response and Inventory ▪ California Accidental Release (CalARP) ▪ Aboveground Storage Tank ▪ Uniform Fire Code Article 80 Section 103(b) & (c) 1991 ▪ Underground Storage Tank www.cchealth.org/groups/hazmat/	❑ See the Fact Sheets SC-31, "Outdoor Liquid Container Storage" and SC-33, "Outdoor Storage of Raw Materials " in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	2 **Permanent Controls—Show on WQMP Drawings**	3 **Permanent Controls—List in WQMP Table and Narrative**	4 **Operational BMPs—Include in WQMP Table and Narrative**
❑ **J.** Vehicle and Equipment Cleaning	❑ Show on drawings as appropriate: **(1) Commercial/industrial facilities having vehicle/equipment cleaning needs shall either provide a covered, bermed area for washing activities or discourage vehicle/equipment washing by removing hose bibs and installing signs prohibiting such uses.** **(2) Multi-dwelling complexes shall have a paved, bermed, and covered car wash area (unless car washing is prohibited on-site and hoses are provided with an automatic shut-off to discourage such use).** **(3) Washing areas for cars, vehicles, and equipment shall be paved, designed to prevent run-on to or runoff from the area, and plumbed to drain to the sanitary sewer.** **(4) Commercial car wash facilities shall be designed such that no runoff from the facility is discharged to the storm drain system. Wastewater from the facility shall discharge to the sanitary sewer, or a wastewater reclamation system shall be installed.**	❑ **If a car wash area is not provided, describe any measures taken to discourage on-site car washing and explain how these will be enforced.** ❑ **Designated wash area shall be specified on the precise grading plans, and shall not discharge into the storm drain.**	**Describe operational measures to implement the following (if applicable):** ☒ **Washwater from vehicle and equipment washing operations shall not be discharged to the storm drain system.** Refer to "Outdoor Cleaning Activities and Professional Mobile Service Providers" for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/. The owner shall prevent car washing runoff from entering the storm. Car washing activities shall occur in pervious areas or impervious areas the flow into a pervious area. ❑ **Car dealerships and similar may rinse cars with water only.**

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 **Potential Sources of Runoff Pollutants**	**2** **Permanent Controls—Show on WQMP Drawings**	**3** **Permanent Controls—List in WQMP Table and Narrative**	**4** **Operational BMPs—Include in WQMP Table and Narrative**
❑ **K.** Vehicle/Equipment Repair and Maintenance	❑ Accommodate all vehicle equipment repair and maintenance indoors. Or designate an outdoor work area and design the area to prevent run-on and runoff of stormwater. ❑ Show secondary containment for exterior work areas where motor oil, brake fluid, gasoline, diesel fuel, radiator fluid, acid-containing batteries or other hazardous materials or hazardous wastes are used or stored. Drains shall not be installed within the secondary containment areas. ☒ Add a note on the plans that states either (1) there are no floor drains, or (2) floor drains are connected to wastewater pretreatment systems prior to discharge to the sanitary sewer and an industrial waste discharge permit will be obtained.	❑ State that no vehicle repair or maintenance will be done outdoors, or else describe the required features of the outdoor work area. ❑ State that there are no floor drains or if there are floor drains, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements. ❑ State that there are no tanks, containers or sinks to be used for parts cleaning or rinsing or, if there are, note the agency from which an industrial waste discharge permit will be obtained and that the design meets that agency's requirements.	In the Stormwater Control Plan, note that all of the following restrictions apply to use the site: ☒ No person shall dispose of, nor permit the disposal, directly or indirectly of vehicle fluids, hazardous materials, or rinsewater from parts cleaning into storm drains. ☒ No vehicle fluid removal shall be performed outside a building, nor on asphalt or ground surfaces, whether inside or outside a building, except in such a manner as to ensure that any spilled fluid will be in an area of secondary containment. Leaking vehicle fluids shall be contained or drained from the vehicle immediately. ☒ No person shall leave unattended drip parts or other open containers containing vehicle fluid, unless such containers are in use or in an area of secondary containment. Refer to "Automotive Maintenance & Car Care Best Management Practices for Auto Body Shops, Auto Repair Shops, Car Dealerships, Gas Stations and Fleet Service Operations". Brochure can be found at http://rcflood.org/stormwater/ Refer to Outdoor Cleaning Activities and Professional Mobile Service Providers for many of the Potential Sources of Runoff Pollutants categories below. Brochure can be found at http://rcflood.org/stormwater/

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ **L.** Fuel Dispensing Areas	❑ Fueling areas[6] shall have impermeable floors (i.e., portland cement concrete or equivalent smooth impervious surface) that are: a) graded at the minimum slope necessary to prevent ponding; and b) separated from the rest of the site by a grade break that prevents run-on of stormwater to the maximum extent practicable. ❑ Fueling areas shall be covered by a canopy that extends a minimum of ten feet in each direction from each pump. [Alternative: The fueling area must be covered and the cover's minimum dimensions must be equal to or greater than the area within the grade break or fuel dispensing area[1].] The canopy [or cover] shall not drain onto the fueling area.		❑ The property owner shall dry sweep the fueling area routinely. ❑ See the Fact Sheet SD-30 , "Fueling Areas" in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

[6] The fueling area shall be defined as the area extending a minimum of 6.5 feet from the corner of each fuel dispenser or the length at which the hose and nozzle assembly may be operated plus a minimum of one foot, whichever is greater.

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
❑ **M.** Loading Docks	❑ Show a preliminary design for the loading dock area, including roofing and drainage. Loading docks shall be covered and/or graded to minimize run-on to and runoff from the loading area. Roof downspouts shall be positioned to direct stormwater away from the loading area. Water from loading dock areas shall be drained to the sanitary sewer, or diverted and collected for ultimate discharge to the sanitary sewer. ❑ Loading dock areas draining directly to the sanitary sewer shall be equipped with a spill control valve or equivalent device, which shall be kept closed during periods of operation. ❑ Provide a roof overhang over the loading area or install door skirts (cowling) at each bay that enclose the end of the trailer.		❑ Move loaded and unloaded items indoors as soon as possible. ❑ See Fact Sheet SC-30, "Outdoor Loading and Unloading," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com

IF THESE SOURCES WILL BE ON THE PROJECT SITE …	… THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☒ **N.** Fire Sprinkler Test Water		☒ Provide a means to drain fire sprinkler test water to the sanitary sewer.	☒ See the note in Fact Sheet SC-41, "Building and Grounds Maintenance," in the CASQA Stormwater Quality Handbooks at www.cabmphandbooks.com
O. Miscellaneous Drain or Wash Water or Other Sources ❑ Boiler drain lines ❑ Condensate drain lines ❑ Rooftop equipment ❑ Drainage sumps ☒ Roofing, gutters, and trim. ❑ Other sources		❑ Boiler drain lines shall be directly or indirectly connected to the sanitary sewer system and may not discharge to the storm drain system. ❑ Condensate drain lines may discharge to landscaped areas if the flow is small enough that runoff will not occur. Condensate drain lines may not discharge to the storm drain system. ❑ Rooftop equipment with potential to produce pollutants shall be roofed and/or have secondary containment. ❑ Any drainage sumps on-site shall feature a sediment sump to reduce the quantity of sediment in pumped water. ☒ Avoid roofing, gutters, and trim made of copper or other unprotected metals that may leach into runoff. Include controls for other sources as specified by local reviewer.	

STORMWATER POLLUTANT SOURCES/SOURCE CONTROL CHECKLIST

IF THESE SOURCES WILL BE ON THE PROJECT SITE ...	... THEN YOUR WQMP SHOULD INCLUDE THESE SOURCE CONTROL BMPs, AS APPLICABLE		
1 Potential Sources of Runoff Pollutants	2 Permanent Controls—Show on WQMP Drawings	3 Permanent Controls—List in WQMP Table and Narrative	4 Operational BMPs—Include in WQMP Table and Narrative
☒ **P.** Plazas, sidewalks, and parking lots.			☒ Sweep plazas, sidewalks, and parking lots regularly to prevent accumulation of litter and debris. Collect debris from pressure washing to prevent entry into the storm drain system. Collect washwater containing any cleaning agent or degreaser and discharge to the sanitary sewer not to a storm drain.

Appendix 9: O&M

Operation and Maintenance Plan and Documentation of Finance, Maintenance and Recording Mechanisms

For the Final WQMP the following information shall be provided:

1. Maintenance Plan per Section 5.3.5 of the WQMP Guidance Document. County will regularly inspect BMPs, so BMPs without access (e.g. backyards, etc) will be rejected. Due to liability, the County does not allow for overlapping private maintenance in the public right-of-way.
2. For all projects, include one wet-signed and notarized hardcopy of the BMP Maintenance agreement. Please note, references to Exhibit A and B on Page 1can be struck out if the entire parcel is mentioned in the "Legal Description" on Page 1 of the agreement. Otherwise see below for Exhibit A and B standards. For BMP agreement, ensure that the name on the agreement matches throughout and the notary sheet, Notary shall be the latest California format, the date of the agreement is the date of the notary, all text does not exceed the margins, then the County will sign, attest & record
3. For Tracts, contact County EDA regarding maintenance determinations/formations. Include a completed Exhibit B.9 - WQMP O&M Cost Sheet.xlsx that is signed by both the preparer (to ensure quantities are correct) and the owner (to understand the maintenance obligations in perpetuity) & an Approved Maintenance Exhibit from EDA.
4. For Tracts or any project , written documentation from the maintenance entity that they are willing to maintain (e.g. CFD, CSA, L&LMD, etc.)

BMP EXHIBIT "A" STANDARDS

1. Use the legal description of the parcel as shown on the tentative exhibit. If not available, use the one in the most current title report.
2. As a backup, if the project is a map the description of the future lot may be included for reference

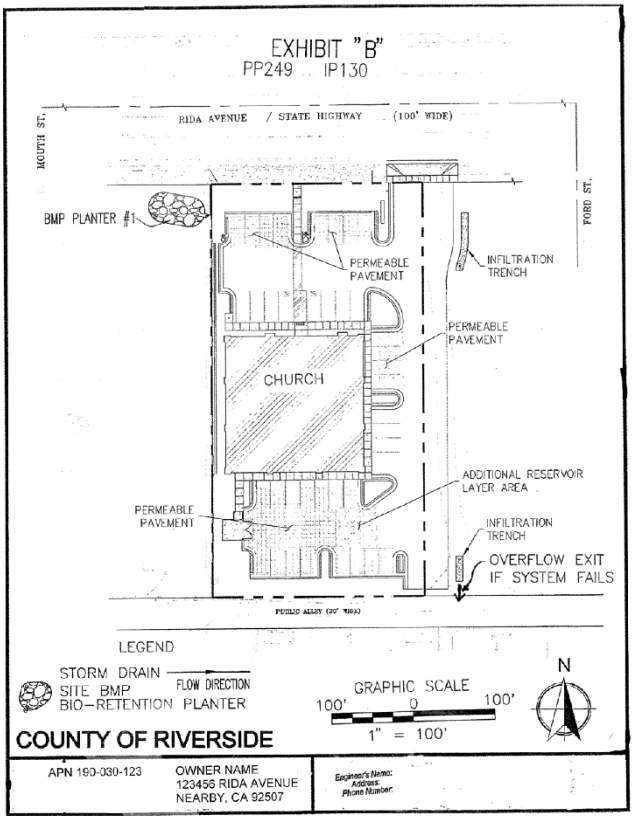
BMP EXHIBIT "B" STANDARDS

1. 0.12" minimum lettering
2. Sheet size must be 8.5" x 11"
3. Show Street names, north arrow
4. Indicate point of flow exit into street if basin system fails
5. Indicate Q100 of flow exit into street
6. Indicate direction of flow exit into street
7. Indicate by notation and/or show nearest downstream drainage facility (catch basin, culvert, riser, etc)
8. Show "Exhibit A", IP and project number (TR, PM, PUP, PP etc)
9. Title block, signature block, engineer seals, USA note is not necessary on Exhibit
10. Show scale used for drawing, provide 4" graphic scale

MAINTENANCE EXHIBIT "B" STANDARDS

1. 0.12" minimum lettering
2. Sheet size must be 8.5" x 11"
3. Show street names, north arrow
4. Show "Exhibit A", IP and project number (TR, PM, PUP, PP etc)
5. Title block, signature block, engineer seals, USA note is not necessary on Exhibit
6. Show scale used for drawing, provide 4" graphic scale

BMP EXHIBIT B EXAMPLE



Recorded at the request of: COUNTY
OF RIVERSIDE TRANSPORTATION
DEPARTMENT

THIS INSTRUMENT IS FOR THE BENEFIT
OF THE COUNTY OF RIVERSIDE AND
ENTITLED TO BE RECORDED WITHOUT
FEE.(GOV. CODE 6103)

RETURN TO:
RIVERSIDE COUNTY TRANSPORTATION
DEPARTMENT. **STOP NO. 1080**

COVENANT AND AGREEMENT REGARDING WATER QUALITY MANAGEMENT PLAN BMP, CONSENT TO INSPECT, MAINTENANCE AND INDEMNIFICATION

APN: 942-030-011 **PROJECT No.** PP 210132 **IP No.** _____

OWNER(S): AUSTIN RANDALL

PROPERTY ADDRESS: 35620 GLENOAKS ROAD

LEGAL DESCRIPTION: PARCEL 1 OF PARCEL MERGER 180016, BEING PORTIONS OF PARCELS 2 AND 3 OF PARCEL MAP 27134 IN THE COUNTY OF RIVERSIDE STATE OF CALIFORNIA, AS SHOWN BY MAP ON FILE IN BOOK 182 OF MPAS, PAGE 95 AND 96, RECORDS OF RIVERSIDE COUNTY, STATE OF CALIFORNIA.

THIS AGREEMENT is made and entered into in Riverside County, California, this _____ day of _____ Year_____, by and between_____,

(hereinafter referred to as "Covenantor" or "Owner") and the COUNTY OF RIVERSIDE via its Department of Transportation, a political subdivision of the State of California (hereinafter referred to as "County").

RECITALS

WHEREAS, the Covenantor owns real property ("Property") in the County of Riverside, State of California, more specifically described in Exhibit "A" and depicted in Exhibit "B", each of these exhibits is attached, and incorporated herein by this reference;

WHEREAS, the County is the owner of interests in that certain real property within the unincorporated area of the County of Riverside, State of California, containing storm drains, pipelines, and related appurtenances constituting the County's municipal separate storm sewer system (the County's "MS4");

WHEREAS, Covenantor intends to develop, improve, and/or use the Property is such a way that approval by the County for such development, improvement, and/or use is required pursuant to applicable laws;

WHEREAS, As a condition for said approval by the County, County required Covenantor, and Covenantor desires to, restrict the use of the Property according to the conditions, covenants, equitable servitudes, and restrictions contained herein for the express benefit of the County's MS4, which include requirements that the Property incorporate post construction on-site stormwater quality control measures;

WHEREAS, the Covenantor/Owner has chosen to install one or more _____, hereinafter referred to as "Device", as the on-site control measure to minimize pollutants in urban runoff;

WHEREAS, said Device has been installed in accordance with plans and specifications accepted by the County;

WHEREAS, said Device, with installation on private property is a private facility with all maintenance or replacement, therefore, the sole responsibility of the Covenantor/Owner in accordance with the terms of this Agreement;

WHEREAS, the Covenantor/Owner is aware that periodic and continuous maintenance, including, but not necessarily limited to, filter material replacement and sediment removal, is required to assure peak performance of Device and that, furthermore, such maintenance activity will require compliance with all Local, State, or Federal laws and regulations, including those pertaining; to confined space and waste disposal methods, in effect at the time such maintenance occurs;

NOW THEREFORE, incorporating the foregoing Recitals and in consideration of the covenants and conditions contained herein, and for other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged, and expressly for the benefit of, and to bind, their sucessors in interest, the parties hereto agree as follows:

1. Covenantor/Owner hereby provides the County or County's designee complete access to the Device and its immediate vicinity and such access onto the property to permit access to the devise at any time, upon twenty-four *(24)* hour advance notice in writing, of any duration for the purpose of inspection, sampling and testing of the Device. County shall make every effort at all times to minimize or avoid interference with Owner's use of the Property.

2. Covenantor/Owner shall use its best efforts diligently to maintain the Device in a manner assuring peak performance at all times. All reasonable precautions shall be exercised by Owner and Owner's representative or contractor in the removal and extraction of material(s) from the Device and the ultimate disposal of the material(s) in a manner consistent with all relevant laws and regulations in effect at the time. As may be requested

from time to time by the County / Regional Water Quality Control Board (RWQCB), the Owner shall provide the RWQCB with documentation identifying the material(s) removed, the quantity, and disposal destination.

3. In the event Covenantor/Owner, or its successors or assigns, fails to accomplish the necessary maintenance contemplated by this Agreement, within five (5) days of being given written notice by the County, the County is hereby authorized to cause any maintenance necessary to be done and charge the entire cost and expense to the Owner or Owner's successors or assigns, including administrative costs and interest thereon at the maximum rate authorized by the Civil Code from the date of notice of expense until paid in full.

4. The County may require the Covenantor/Owner to post security in a form and for a time period satisfactory to the County to guarantee the performance of the obligations stated herein. Should the Owner fail to perform the obligations under this Agreement, the County may, in the case of a cash deposit, certificate of deposit or letter of credit, act for the Owner using the proceeds from it, or in the case of a surety bond, require the sureties to perform the obligations of the Agreement.

5. The County may, but shall not be obligated to, enforce this Agreement by a proceeding at law or in equity against any person or persons violating or attempting to violate any condition, covenant, equitable servitude, or restriction provided for herein, either to restrain such violation or to recover damages.

6. This Agreement constitutes the entire agreement and understanding between the parties with respect to the subject matter of this Agreement and supersedes all prior or contemporaneous agreements and understandings with respect to the subject matter hereof, whether oral or written.

7. If any part of this Agreement is declared by a final decision of a court of competent jurisdiction to be invalid for any reason, such shall not affect the validity of the rest of the Agreement. The other parts of this Agreement shall remain in effect as if this Agreement had been executed without the invalid parts(s). The parties declare that they intend and desire that the remaining parts of this Agreement continue to be effective without any part(s) that have been declared invalid.

8. This Agreement may be executed in counterparts, each of which so executed shall, irrespective of the date of its execution and delivery, be deemed an orginal, and all such counterparts together shall constitute one and the same instrument.

9. This Agreement shall be recorded in the Office of the Recorder of Riverside County, California and shall constitute notice to all successors and assigns of the title to said Property of the obligation herein set forth.

10. In the event of legal action occasioned by any default or action of the Covenantor/Owner, or its successors or assigns, then the Covenantor/Owner and its

successors or assigns agree(s) to pay all costs incurred by the County in enforcing the terms of this Agreement, including reasonable attorney's fees and costs, and that the same shall become a part of the lien against said Property.

11. Covenantor/Owner agrees to indemnify, defend, and hold harmless the County, its elected officers, employees, agents, and contractors from and against any and all liability, expense, including costs and reasonable legal fees, and claims of damage of any nature whatsoever including, but not limited to, death, bodily injury, personal injury, or property damage arising from or connected with the County inspection of the Property except where such liability, expense, or claim for damage results from the sole negligence or willful misconduct of the County.

12. It is the intent of the parties hereto that burdens and benefits herein undertaken shall constitute covenants that run with said Property and constitute a lien thereon against.

13. The obligations herein undertaken shall be binding upon the heirs, successors, executors, administrators and assigns of the parties hereto and any other present or future interest holders or estate holders in the property. The term "Owner" shall include not only the present Owner, but also its heirs, successors in interest and in title to the property, executors, administrators, and assigns. Owner shall notify any successor to title of all or part of the Property about the existence of this Agreement. Owner shall provide such notice prior to such successor obtaining an interest in all or part of the Property. Owner shall provide a copy of such notice to the County at the same time such notice is provided to the successor.

14. Time is of the essence in the performance of this Agreement.

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15. Any notice to a party required or called for in this Agreement shall be served in person, or by deposit in the U.S. Mail, first class postage prepaid, to the address set forth below. Notice(s) shall be deemed effective upon receipt, or seventy-two *(72)* hours after deposit in the U.S. Mail, whichever is earlier. A party may change a notice address only by providing written notice thereof to the other party.

COVENANTOR/OWNER:

COUNTY:

Riverside County Department of Transportation
Attn: Transportation Director
4080 Lemon Street
Riverside, CA

COUNTY OF RIVERSIDE
TRANSPORTATION DEPARTMENT

Mark Lancaster, P.E.
Director of Transportation

Date

(Attest)

Date

COVENANTOR/OWNER

Company/Corporation/Partnership

(Print Name)

(Print Title)

Attach Notary