Project Number(s): PC N/A LD 23-004 GP 23-004

CITY OF VISTA
CALIFORNIA

PRIORITY DEVELOPMENT PROJECT

STORM WATER QUALITY MANAGEMENT PLAN (SWQMP)
FOR

Las Lomas Grading Project
APN 174-260-15
PM 14659, Parcel E
Vista, CA 92084

PREPARED FOR:
Wheeler Family Trust
Richard R. Wheeler & Debra K. Wheeler, Trustees
1279 Shady Mill Road
Corona, CA 92882
(951) 545-9736

August 23, 2023

NOTE: This Priority Development Project SWQMP Template and Instructions are offered as a tool to assist users in complying with RWQCB Order No. R9-2015-0001 (Permit), and is not intended to warrant or guarantee Permit compliance, which is the independent and sole responsibility of the user. This template is subject to revision without notice, at any time.

CONTENTS

ENGINEER OF WORK CERTIFICATION STATEMENT

Preparer's Certification

I hereby declare that I am the Engineer in Responsible Charge of design of storm water best management practices (BMPs) for this project, and that I have exercised responsible charge over the design of the BMPs as defined in Section 6703 of the Business and Professions Code, and that the design is consistent with the PDP requirements of the City of Vista BMP Design Manual, which is a design manual for compliance with local City and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2015-0100) requirements for storm water management.

I have read and understand that the City Engineer has adopted minimum requirements for managing urban runoff, including storm water, from land development activities, as described in the BMP Design Manual. I certify that this PDP SWQMP has been completed to the best of my ability and accurately reflects the project being proposed and the applicable BMPs proposed to minimize the potentially negative impacts of this project's land development activities on water quality. I understand and acknowledge that the plan check review of this PDP SWQMP by the City Engineer is confined to a review and does not relieve me, as the Engineer in Responsible Charge of design of storm water BMPs for this project, of my responsibilities for project design.

SWQMP PREPARED BY:

Alex J. Smith
Tory R. Walker Engineering, Inc.
122 Civic Center Drive, Suite 206
Vista, CA 92084
(760) 414-9212
info@trwengineering.com
RCE No. C90082
6/30/2023

RCE No. C90082 Exp. 6-30-2025

Signature, PE License Number & Expiration Date

[INSERT STAMP IN SPACE BELOW]

Alex J. Smith

Print Name

August 18, 2023

Date

PROJECT OWNER CERTIFICATION STATEMENT

Owners Certification

This PDP SWQMP has been prepared for the Wheeler Family Trust by Tory R. Walker Engineering. The PDP SWQMP is intended to comply with the PDP requirements of the City of Vista BMP Design Manual, which is a design manual for compliance with local City and regional MS4 Permit (California Regional Water Quality Control Board San Diego Region Order No. R9-2015-0100) requirements for storm water management.

The undersigned, while it owns the subject property, is responsible for the implementation of the provisions of this plan. Once the undersigned transfers its interests in the property, its successor-in-interest shall bear the aforementioned responsibility to implement the best management practices (BMPs) described within this plan, including ensuring on-going operation and maintenance of structural BMPs. A signed copy of this document shall be available on the subject property into perpetuity.

OWNER DETAILS:
Wheeler Family Trust
Richard R. Wheeler & Debra K. Wheeler, Trustees
1279 Shady Mill Road
Corona, CA 92882
(951) 545-9736

James W Wheeler

Project Owner's Signature

James W Wheeler

Print Name

8-18-2023

Date

CITY OF VISTA STAFF REVIEW

Reviewed and Approved:	
City Staff Signature:	Date:

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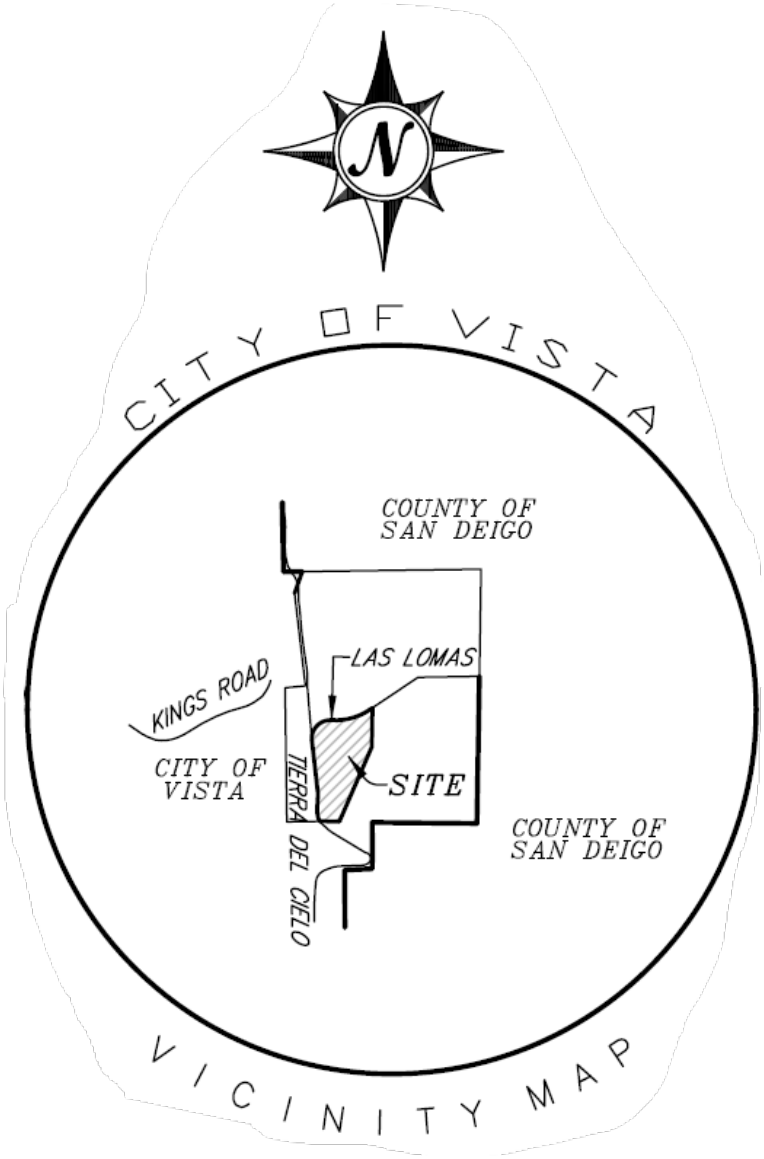
PROJECT VICINITY MAP

Project Name: Las Lomas Grading Project

Permit Application Number: LD23-004, GP23-004

Insert Project Vicinity Map Below:



FORM 1 – PROJECT CATEGORY DETERMINATION CHECKLIST

This form is used to assess stormwater BMP requirements applicable to the proposed project. The form is available as a stand-alone fillable checklist on the City's website and a completed copy must be included with the final SWQMP submitted to the City. The form is available at:

http://www.cityofvista.com/services/city-departments/community-development/building-planning-permits-applications/land-development-autocad-templates/storm-water-forms

Project ID:

CITY OF VISTA
CALIFORNIA

CHECKLIST FOR DETERMINATION OF PROJECT CATEGORY

Project Name: Rough Grading Plan Parcel E, PM 14659, Las Lomas Street Widening, Fire Access Road
Project Location: APN 174-260-15

APPLICABILITY OF PERMANENT, POST-CONSTRUCTION STORMWATER BMP REQUIREMENTS AND PROJECT TYPE DETERMINATION

Overview and Instructions

The City of Vista's (City's) Stormwater Management Program is regulated by the San Diego regional municipal stormwater permit (referred to as a Municipal Separate Storm Sewer System Permit). This permit requires that new development and redevelopment projects incorporate permanent stormwater Best Management Practices (BMPs) into the project design. The City of Vista's *BMP Design Manual* (formerly *SUSMP Manual*) discusses BMP requirements applicable to new development and redevelopment projects.

ALL STANDARD AND PRIORITY PROJECTS ARE REQUIRED TO INCORPORATE SITE DESIGN AND SOURCE CONTROL BMPS. Additional treatment control and hydromodification management BMP requirements apply to projects that meet specific criteria or thresholds. This checklist must be completed by the project applicant or proponent, and is used to determine if those additional BMPs are required.

Not all site improvements are considered "development projects" under the MS4 Permit.

Development projects are defined by the MS4 Permit as "construction, rehabilitation, redevelopment, or reconstruction of any public or private projects". Development projects are issued local permits to allow construction activities. To further clarify, this checklist applies only to new development or redevelopment activities and/or projects that have the potential to contact storm water and contribute an anthropogenic source of pollutants, or reduce the natural absorption and infiltration abilities of the land.

A project must be defined consistent with the California Environmental Quality Act (CEQA) definitions of "project."

CEQA requires that the project include "the whole of the action". "Whole of the Action" means the project may not be segmented or phased into small parts either onsite or offsite if the effect is to reduce the quantity of impervious area and fall below thresholds for applicability of storm water requirements. This requirement precludes "piece-mealing," which is the improper (and often artificial) separation of a project into smaller parts to avoid preparing Environmental Impact Report level documentation.

As indicated above, for the purposes of the *BMP Design Manual*, the "project" is the "whole of the action" which has the potential for adding or replacing or resulting in the addition or replacement of, roofs, pavement, or other impervious surfaces, thereby resulting in increased flows and storm water pollutants.

When defining the project, the following questions are considered:

- What are the project activities?
- Do they occur onsite or offsite?
- What are the limits of the project (project boundary)?
- What is the whole of the action associated with the project (i.e. what is the total amount of new or

replaced impervious area considering all of the collective project components through all phases of the project)?

- Are any facilities or agreements to build facilities offsite in conjunction with providing service to the project (street-widening, utilities)?

Responses to the checklist represent an initial assessment of the proposed project conditions and impacts. City staff will confirm this checklist based on assessment of the development application and/or project plans. Results of the checklist will classify a project as one of the following: Priority Development Project, Standard Project, or Non-development Project.

If additional information is needed while completing this checklist, please refer to the City's *BMP Design Manual*. Alternatively, contact City Land Development staff.

This Form is divided into 4 sections:

1. Post-Construction Stormwater Requirement Exemptions

2. Priority Development Project Determination

3. Special Consideration for Redevelopment Projects (50 Percent Rule)

4. Final Project Determination

SECTION 1 – POST CONSTRUCTION STORMWATER REQUIREMENT EXEMPTIONS	City of Vista BMP Design Manual	
This section will determine whether your project is exempt from post-construction BMP requirements and would be classified as a Non-Development Project. See section 1.3 of the City's *BMP Design Manual* for further discussion.	**YES**	**NO**
(a) Replacement of impervious surfaces that are part of a routine maintenance activity, such as (check yes if any apply): (i) Replacing roof material on an existing building (ii) Rebuilding a structure to original design after damage from earthquake, fire or similar disaster (iii) Restoring pavement or other surface materials affected by trenches from utility work (iv) Resurfacing existing roads and parking lots, including slurry, overlay and restriping (v) Routine replacement of damaged pavement, including full depth replacement, if the sole purpose is to repair the damage (vi) Constructing new sidewalk, pedestrian ramps or bike lanes on existing roads (within existing street right-of-way) (vii) Restoring a historic building to its original historic design (viii) Routine replacement of damaged pavement, such as pothole repair **Note**: Work that creates impervious surface outside of the existing impervious footprint is not considered routine maintenance.	☐	**X**
(b) Repair or improvements to an existing building or structure that do not alter the size (check yes if any apply): (i) Plumbing, electrical and HVAC work (ii) Interior alterations including major interior remodels and tenant build-out within an existing commercial building (iii) Exterior alterations that do not change the general dimensions and structural framing of the building (does not include building additions or projects where the existing building is demolished)	☐	**X**
If you answered **YES** to either category (a) or (b), your project is considered a Non-Development Project, and post construction BMP requirements do not apply. Please proceed to Section 4 and check the **Non-Development Project** box. If you answered **NO** to category (a) and (b), please proceed to Section 2.		

SECTION 2 – PRIORITY DEVELOPMENT PROJECT DETERMINATION	City of Vista BMP Design Manual	
This section determines whether your project is a **Priority Development Project (PDP)** or a **Standard Project.** See section 1.4 of the City's *BMP Design Manual* for further discussion. The following eight (8) types of projects are defined as **PDPs:**	**YES**	**NO**
(a) New development projects that create 10,000 square feet or more of impervious surfaces (collectively over the entire project site). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.	**X**	☐
(b) Redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site on an existing site of 10,000 square feet or more of impervious surfaces). This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.	☐	**X**
(c) New and redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface (collectively over the entire project site), and support one or more of the following uses: (i) Restaurants. This category is defined as a facility that sells prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (Standard Industrial Classification (SIC) code 5812). (ii) Hillside development projects. This category includes development on any natural slope that is twenty-five percent or greater. (iii) Parking lots. This category is defined as a land area or facility for the temporary parking or storage of motor vehicles used personally, for business, or for commerce. (iv) Streets, roads, highways, freeways, and driveways. This category is defined as any paved impervious surface used for the transportation of automobiles, trucks, motorcycles, and other vehicles.	**X**	☐

(d) New or redevelopment projects that create and/or replace 2,500 square feet or more of impervious surface (collectively over the entire project site), and discharge directly to an Environmentally Sensitive Area (ESA). "Discharging directly to" includes flow that is conveyed overland a distance of 200 feet or less from the project to the ESA, or conveyed in a pipe or open channel any distance as an isolated flow from the project to the ESA (i.e. not commingled with flows from adjacent lands). **Note:** ESAs are areas that include but are not limited to all Clean Water Act Section 303(d) impaired water bodies; State Water Quality Protected Areas; water bodies designated with the RARE beneficial use by the State Water Board and San Diego Water Board; and any other equivalent environmentally sensitive areas which have been identified by the City. For projects adjacent to an ESA, but not discharging to an ESA, the 2,500 sq-ft threshold does not apply as long as the project does not physically disturb the ESA and the ESA is upstream of the project. There are no Areas of Special Biological Significance (ASBS) or State Water Quality Protected Areas in the City's jurisdiction. The ESAs within the City's boundaries which include 303(d)-listed impairments and RARE beneficial use designations are listed below: • Agua Hedionda Creek • Buena Creek • Buena Vista Creek • Loma Alta Creek	☐	X
(e) New development projects, or redevelopment projects that create and/or replace 5,000 square feet or more of impervious surface, that support one or more of the following uses: (i) Automotive repair shops. This category is defined as a facility that is categorized in any one of the following SIC codes: 5013, 5014, 5541, 7532-7534, or 7536-7539. (ii) Retail gasoline outlets. This category includes Retail gasoline outlets that meet the following criteria: (a) 5,000 square feet or more or (b) a projected Average Daily Traffic of 100 or more vehicles per day.	☐	X
(f) New or redevelopment projects that result in the disturbance of one or more acres of land and are expected to generate pollutants post construction. This means any activity that moves soils or substantially alters the pre-existing vegetated or man-made cover of any land. This includes, but is not limited to the following: (i) Grading, digging, cutting, scraping, stockpiling, pavement removal, and exterior construction; (ii) Substantial removal of vegetation where soils are disturbed including but not limited to removal by clearing or grubbing; or (iii) Any activity which bares soil or rock or involves streambed alterations or the diversion or piping of any watercourse.	X	☐
If you answered **YES** to any of the categories above (a-f), your project is considered a PDP. Please proceed to section 3 and check the **Priority Development Project** Box in Section 4. If you answer **NO** to all categories, then your project is considered a Standard Project. Please proceed to Section 4 and check the **Standard Project Box**.		

SECTION 3 – SPECIAL CONSIDERATIONS FOR REDEVELOPMENT PROJECTS (50 PERCENT RULE)	City of Vista BMP Design Manual	
This section determines additional considerations required for **Redevelopment PDPs.** See section 1.7 of the City's *BMP Design Manual* for further discussion.	**YES**	**NO**
Will redevelopment result in the creation or replacement of impervious surface in an amount of more than 50 percent of the surface area of the previously existing development? See clarification on calculation of the ratio of impervious surface below. These requirements for managing storm water on an entire redevelopment project site are commonly referred to as the "50 Percent Rule". For the purpose of calculating the ratio, the surface area of the previously existing development shall be the area of impervious surface within the previously existing development. The following steps shall be followed to estimate the area that requires treatment to satisfy the MS4 Permit requirements: 1. How much total impervious area currently exists on the site? 2. How much existing impervious area will be replaced with new impervious area? 3. How much new impervious area will be created in areas that are pervious in the existing condition? 4. Total created and/or replaced impervious surface = Step 2 + Step 3. 5. **50 Percent Rule Test**: Is step 4 more than 50 Percent of Step 1? If yes, treat all impervious surface on the site (including existing impervious surface not being replaced or added). If no, then treat only Step 4 impervious surface and any area that comingles with created and/or replaced impervious surface area. Note: Step 2 and Step 3 must not overlap, as it is fundamentally not possible for a given area to be both "replaced" and "created" at the same time. Also activities that occur as routine maintenance (see Section 1 of this form) shall not be included in Step 2 and Step 3 calculation. For example, a 10,000 square foot development proposes replacement of 4,000 square feet of impervious area. The treated area is less than 50 percent of the total development area and only the 4,000 square foot area is required to be treated.	☐	☐

If you answered **YES**, then you must implement the PDP requirements for all impervious surfaces across the entire site. Please proceed to Section 4 and check the box under PDP indicating that the Project **Is a Redevelopment Project Subject to the 50 Percent Rule**.

If you answered **NO,** then you are only required to treat impervious surfaces that are replaced or created. Please proceed to section 4 and check the box under PDP indicating this is **Not a Redevelopment Project Subject to the 50 Percent Rule**.

SECTION 4 – FINAL PROJECT DETERMINATION

City of Vista
BMP Design Manual

BASED ON THE INFORMATION PROVIDED IN SECTIONS 1-3, THIS PROJECT IS DETERMINED TO BE A:

☒ **PRIORITY DEVELOPMENT PROJECT.** PRIORITY REQUIREMENTS APPLY AND A STORM WATER QUALITY MANAGEMENT PLAN (SWQMP) MUST BE SUBMITTED AT THE TIME OF APPLICATION.

- ☐ THIS **IS** A REDEVELOPMENT PROJECT SUBJECT TO THE 50 PERCENT RULE.
- ☐ THIS **IS NOT** A REDEVELOPMENT PROJECT SUBJECT TO THE 50 PERCENT RULE.
- ☒ THIS IS A **PDP EXEMPT GREEN STREETS PROJECT** PER BMPDM SECTION 1.4.3

☐ **STANDARD PROJECT.** STANDARD REQUIREMENTS APPLY AND APPLICABLE SECTIONS OF A STORM WATER QUALITY MANAGEMENT PLAN (SWQMP) MUST BE SUBMITTED AT THE TIME OF APPLICATION.

☐ **NON DEVELOPMENT PROJECT.**

Applicant Information and Signature Box

Address: 1757 Knoll Rd. Vista Ca.	APN(s)
Applicant Name: James W Whalen	Applicant Title: Proj. manager
Applicant Signature: James W Whalen	Date: 8-15-2023

City use only

Concur:	Yes	No
By:		
Date:		
Land Dev #:		

Supporting discussion for this checklist, as well as BMP requirements for Priority Development Projects and Standard Projects, is provided in the City of Vista *BMP Design Manual*.

FORM 2 – PROJECT OVERVIEW

Page 1 of 11

Project Name	Las Lomas Grading Project
Project Address	Tierra del Cielo Vista, CA 92084
Assessor's Parcel Number(s) (APN(s))	174-260-15
Permit Application Number	LD23-004, GP23-004
Watershed *(select <u>one</u> checkbox; use webpage below to determine watershed)* http://www.cityofvista.com/services/city-departments/community-development/building-planning-permits-applications/land-development-autocad-templates/storm-water-forms	
San Luis Rey	☐ Lower San Luis Rey – Mission, 903.11
Carlsbad	☐ Loma Alta – Loma Alta, 904.10 ☐ Buena Vista – El Salto, 904.21 ☒ Buena Vista – Vista, 904.22 ☐ Agua Hedionda – Los Monos, 904.31 ☐ Agua Hedionda – Buena, 904.32 ☐ San Marcos – Batiquitos, 904.51
Parcel Area (total area of Assessor's Parcel(s) associated with the project)	2.92 Acres (127,146 Square Feet)
Area to be Disturbed by the Project (Project Area)	1.70 Acres (74,052 Square Feet)
Project Proposed Impervious Area (subset of Project Area)	0.47 Acres (20,304 Square Feet)
Project Proposed Pervious Area (subset of Project Area)	1.23 Acres (53,748 Square Feet)
<u>NOTE</u>: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Parcel Area.	

Form 2, Page 2 of 11

DESCRIPTION OF EXISTING SITE CONDITIONS

Current Status of the Site (select all that apply and describe below):

- ☒ Existing development
- ☐ Previously graded but not built out
- ☐ Demolition completed without new construction
- ☐ Agricultural or other non-impervious use
- ☒ Vacant, undeveloped/natural

Describe:
The site features an existing paved road along Tierra del Cielo and Las Lomas leading up to the PM 14659 Parcel E. The remainder of the property is undeveloped, vegetated hillside.

Existing Land Cover Includes (select all that apply and describe below):

- ☒ Vegetative Cover 2.78 Acres (121,101 Square Feet)
- ☐ Non-Vegetated Pervious Areas Acres (Square Feet)
- ☒ Impervious Areas 0.14 Acres (6,045 Square Feet)

Describe:
The site features an existing paved road along Tierra del Cielo and Las Lomas leading up to the PM 14659 Parcel E. The remainder of the property is undeveloped, vegetated hillside.

Underlying Soil belongs to Hydrologic Soil Group (select all that apply):

- ☐ NRCS Type A
- ☐ NRCS Type B
- ☒ NRCS Type C
- ☒ NRCS Type D (Predominant)

Approximate Depth to Groundwater (GW):

- ☐ GW Depth < 5 feet
- ☐ 5 feet < GW Depth < 10 feet
- ☐ 10 feet < GW Depth < 20 feet
- ☒ GW Depth > 20 feet

Existing Natural Hydrologic Features (select all that apply and describe in next section):

- ☒ Drainage ditch/Swale/Waterway
- ☐ Seeps
- ☐ Springs
- ☐ Wetlands
- ☐ None

Form 2, Page 3 of 11

DESCRIPTION OF EXISTING SITE DRAINAGE PATTERNS

How is storm water runoff conveyed from the site? At a minimum, this description should answer:

1. Is existing site drainage conveyance natural or improved storm drain (urbanized);
2. Is runoff from offsite conveyed through the site? If yes, quantify all offsite drainage areas, design flows, and locations where offsite flows enter the project site, and summarize how such flows are conveyed through the site;
3. Provide details regarding existing project site drainage conveyance network, including any existing storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels; and
4. Identify all discharge locations from the existing project site along with a summary of conveyance system size and capacity for each of the discharge locations. Provide summary of the pre-project drainage areas and design flows to each of the existing runoff discharge locations.

Describe existing site drainage patterns:

1. The existing site drainage conveyance is urbanized, with undeveloped hillsides contributing runoff to the existing roadway along Las Lomas and Tierra del Cielo. The existing roadway discharges offsite at two main locations: a northern discharge point just northwest of Las Lomas where runoff directly discharges into the King's View Estates private storm drain system, and a southern discharge point just west of the first easterly turn along Tierra del Cielo where runoff drains through a natural drainage system until confluencing with the King's View Estates private storm drain system at Warmlands Avenue.
2. Runoff from areas beyond the property limits drain onto Las Lomas and Tierra del Cielo. A portion of the proposed graded pad on APN 174-260-15 and three existing developed single-family residences at 1988, 1966, and 1960 Las Lomas contribute runoff onto Las Lomas as sheet flow and shallow concentrated roadside flow before intercepted by a corrugated metal pipe and draining as shallow concentrated flow to the northerly King's View Estates private storm drain system as described above. A portion of the proposed graded pad on APN 174-260-15 and an existing developed single-family residence at 1515 Tierra del Cielo contribute runoff onto Tierra del Cielo as sheet flow and shallow concentrated roadside flow before draining to the southerly natural drainage system as described above.
3. The existing project site drainage conveyance network is described above as sheet flow, shallow concentrated roadside flow, pipe flow, and inlet flow at the designated ultimately discharge points described above.
4. The pre-project drainage areas consist of approximately 16 acres of offsite and onsite area draining to the northerly discharge point at King's View Estates by way of the above-described flow path and approximately 5 acres of offsite and onsite area draining to the southerly discharge point at the natural drainage system by way of the separate above-described flow path.

Form 2, Page 4 of 11

DESCRIPTION OF PROPOSED SITE DEVELOPMENT

Project Description / Proposed Land Use and/or Activities:

The project proposes to widen Tierra del Cielo and Las Lomas by approximately six to ten feet up to APN 174-260-15 to accommodate the minimum required 24-foot road width, create a 20-foot-wide fire access road between Kings Road and Las Lomas, and to rough grade for future single-family development on APN 174-260-15. Permanent post-construction BMPs associated with future development of APN 174-260-15 are omitted from this application and will be provided with the precise grading and building permit process at a later time.

List/describe proposed impervious features of the project (e.g., buildings, roadways, parking lots, courtyards, athletic courts, other impervious features):

Proposed impervious features of the project include asphaltic concrete (AC) along the approximate six-to-ten-foot widening of Tierra del Cielo and Las Lomas and the 20-foot-wide fire access road.

List/describe proposed pervious features of the project (e.g., landscape areas):

Proposed pervious features of the project not receiving runoff from impervious areas include vegetated roadside fill slopes, the proposed graded pad for future development, and vegetated swales atop upgradient roadside cut slopes. Proposed pervious features receiving runoff from impervious areas include roadside rock-lined swales along Tierra del Cielo and Las Lomas and a gravel driveway approach between the fire access road and Kings Road to provide source control of stormwater, limit its transport and pollutant conveyance to the collection system, restore predevelopment hydrology to the extent possible, and provide environmentally enhanced roads in accordance with USEPA Green Streets Guidance and the San Diego Regional MS4 Permit.

Does the project include grading and changes to site topography?

☒ Yes

☐ No

Describe:

Proposed widening along Tierra de Cielo and Las Lomas will maintain the same topography as the existing condition. The proposed rough graded pad on APN 176-260-15 will reduce the existing hillside slope to one percent to accommodate future development (post-construction BMPs for the future development is not part of this project and will therefore be provided as part of a future precise grading application).

Form 2, Page 5 of 11

DESCRIPTION OF PROPOSED SITE DRAINAGE PATTERNS

Does the project include changes to site drainage (e.g., installation of new storm water conveyance systems)?

☒ Yes

☐ No

If yes, provide details regarding the proposed project site drainage conveyance network, including storm drains, concrete channels, swales, detention facilities, storm water treatment facilities, natural or constructed channels, and the method for conveying offsite flows through or around the proposed project site. Identify all discharge locations from the proposed project site along with a summary of the conveyance system size and capacity for each of the discharge locations. Provide a summary of pre- and post-project drainage areas and design flows to each of the runoff discharge locations. Reference the drainage study for detailed calculations.

Describe proposed site drainage patterns:

1. The proposed site drainage conveyance will remain substantially similar to the existing condition as predominantly urbanized and steeply sloping shallow concentrated street flow along Las Lomas and Tierra del Cielo. Each roadway will drain sheet flow onto a proposed Green Streets roadside rock-lined swale via one-foot-wide curb cuts spaced every 15 feet along the existing road profile and proposed fire road. The proposed rock-lined swale will vary between 12 to 15 inches deep, comprised of 9-inch diameter rock underlain by a three-inch gravel filter layer (or filter fabric) and will vary between two to three feet in width. Proposed walls along the widened portion of Tierra del Cielo and Las Lomas will intercept hillside runoff via vegetated swales and discharge concentrated flows onto the proposed Green Streets roadside rock-lined swales at select locations along the road profile. Vegetated swales will be three-feet-wide, twelve-inches-deep, and comprised of Propex Pyramat 25 high performance turf reinforcement mat (HPTRM) (or equivalent). The proposed roadway widening will maintain existing points at the two main locations described previously: a northern discharge point just northwest of Las Lomas where runoff directly discharges into the King's View Estates private storm drain system, and a southern discharge point just west of the first easterly turn along Tierra del Cielo where runoff drains through a natural drainage system until confluencing with the King's View Estates private storm drain system at Warmlands Avenue. The proposed fire road incorporates a gravel driveway approach that will effectively disperse runoff from its small local drainage area and drain as shallow sheet flow onto Kings Road.
2. Runoff from areas beyond the property limits will continue to drain onto Las Lomas and Tierra del Cielo. A portion of the proposed graded pad on APN 174-260-15 and three existing developed single-family residences at 1988, 1966, and 1960 Las Lomas will continue to contribute runoff onto Las Lomas as sheet flow and shallow concentrated roadside flow before intercepted by a newly constructed Type A D-16 inlet and rock-lined swale draining shallow concentrated flow to the existing low point just east of the low point along the existing, undisturbed Tierra del Cielo alignment to the north. Newly created roadway surfaces and existing areas tributary thereto will be hydraulically isolated and drain to a proposed detention basin to mitigate potential increases in the 100-year peak flow rate due to the proposed widening. Detained outflows will drain just west of the existing Tierra del Cielo sump, where they confluence with the remaining bypassed drainage area before reaching the existing King's View Estates private storm drain system as previously described.

A portion of the proposed graded pad on APN 174-260-15 and an existing developed single-family residence at 1515 Tierra del Cielo contribute runoff onto Tierra del Cielo as sheet flow and shallow concentrated roadside flow as in the existing condition. Roadway runoff reaching the Tierra del Cielo sump from the north will continue draining to the existing southerly natural drainage system as previously described.

3. The proposed project site drainage conveyance network is described above as sheet flow, shallow concentrated roadside and swale flow, pipe flow, and inlet flow at the designated ultimately discharge points described above.
4. The proposed-project drainage areas will remain similar and consist of approximately 17 acres of onsite and offsite area draining to the northerly discharge point at King's View Estates and approximately 4 acres of onsite and offsite area draining to the southerly discharge point at the natural drainage system.

Form 2, Page 6 of 11

POTENTIAL POLLUTANT SOURCE AREAS

Identify whether any of the following features, activities, and/or pollutant source areas will be present. Select all Pollutant Source Areas that apply and include them on the DMA Exhibit. Source control BMPs must be identified for each of these areas in Form 3 of this SWQMP:

☒ On-site storm drain inlets

☐ Sump pumps or French drains

☐ Interior or sub-surface parking garages

☐ Need for future indoor & structural pest control

☐ Landscape/outdoor pesticide use

☐ Pools, spas, ponds, decorative fountains, or other water features

☐ Food preparation and/or service

☐ Refuse/trash collection areas

☐ Industrial processes

☐ Outdoor storage of equipment, chemicals, or materials

☐ Vehicle and equipment cleaning

☐ Vehicle/equipment repair and maintenance

☐ Fuel dispensing areas

☐ Loading docks

☐ Fire sprinkler test and relief point

☐ Miscellaneous drain or wash down areas

☐ Plazas, sidewalks, and parking lots

Describe:

Placards shall be placed atop the proposed D-16 Type A inlets.

Form 2, Page 7 of 11

IDENTIFICATION AND NARRATIVE OF RECEIVING WATER AND POLLUTANTS OF CONCERN

Describe flow path of storm water from the project site discharge location(s), through urban storm conveyance systems as applicable, to receiving creeks, rivers, and lagoons as applicable, and ultimate discharge to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable):

The project drains to the City of Vista MS4 as described on Form 2, Page 3. From Warmlands Avenue, the MS4 drains southwesterly through a series of closed and opened hardened and unhardened storm drain network until confluencing with Buena Vista Creek just south of the Vale Terrace Drive and East Vista Way intersection. Buena Vista Creek flows southwesterly and westerly along State Route 78 until draining reaching Buena Vista Lagoon. Buena Vista Lagoon is a non-tidally influenced lagoon overtop into the Pacific Ocean during high-flow events.

List any 303(d) impaired water bodies within the path of storm water from the project site to the Pacific Ocean (or bay, lagoon, lake or reservoir, as applicable), identify the pollutant(s)/stressor(s) causing impairment, and identify any TMDLs and/or Highest Priority Pollutants from the WQIP for the impaired water bodies:

303(d) Impaired Water Body	Pollutant(s)/Stressor(s)	TMDLs / WQIP Highest Priority Pollutant
Buena Vista Creek	Toxicity, Selenium, Benthic Community Effects, Bifenthrin	N/A
Buena Vista Lagoon	Indicator Bacteria, Nutrients, Sedimentation/Siltation, Toxicity	N/A

Identification of Project Site Pollutants*

***Identification of project site pollutants is only required if flow-thru treatment BMPs are implemented onsite in lieu of retention or biofiltration BMPs (note the project must also participate in an alternative compliance program unless prior lawful approval to meet earlier PDP requirements is demonstrated)**

Identify pollutants expected from the project site based on all proposed use(s) of the site (see BMP Design Manual Appendix B.6):

Pollutant	Not Applicable to the Project Site	Expected from the Project Site	Also a Receiving Water Pollutant of Concern
Sediment	☐	☐	☐
Nutrients	☐	☐	☐
Heavy Metals	☐	☐	☐
Organic Compounds	☐	☐	☐
Trash & Debris	☐	☐	☐
Oxygen Demanding Substances	☐	☐	☐
Oil & Grease	☐	☐	☐
Bacteria & Viruses	☐	☐	☐
Pesticides	☐	☐	☐

Form 2, Page 8 of 11

HYDROMODIFICATION MANAGEMENT REQUIREMENTS

Do hydromodification management requirements apply (see Section 1.6 of the BMP Design Manual; select one box and describe below)?

☐ Yes, hydromodification management flow control structural BMPs required.

☐ No, the project will discharge runoff directly to existing underground storm drains discharging directly to water storage reservoirs, lakes, enclosed embayments, or the Pacific Ocean.

☐ No, the project will discharge runoff directly to 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.

☐ No, the project will discharge runoff directly to an area identified as appropriate for an exemption by the WMAA for the watershed in which the project resides.

Describe:

Per Regional MS4 Permit provision E.3.b.(3)(b), the Tierra del Cielo and Los Lomas street widening and fire road will be designed and constructed in accordance with USEPA Green Streets guidance and are therefore exempt from the PDP structural BMP performance requirements set forth in provision E.3.b.(3)(b) at the discretion of the City Engineer. The design standard set forth by the USEPA Green Streets document referenced by the Regional MS4 Permit does not require the prescriptive numeric performance standard associated with PDP requirements, but rather provides a descriptive performance standard intended to, "provide source control of stormwater, limit its transport and pollutant conveyance to the collection system, restore predevelopment hydrology to the extent possible, and provide environmentally enhanced roads" (USEPA, 2008, p. 2). The proposed rock-lined swales along the existing steep (approximately 12 to 15 percent) private roadway and gravel driveway approach for the fire road will serve to intercept, slow and infiltrate stormwater runoff generated from the proposed widening to the MEP, and thereby provide source control, limits pollutant transport conveyance to the MS4, restore predevelopment hydrology to the MEP and ultimately provide environmentally enhanced roads. Therefore, the roadway widening and fire lane proposed herein meets the MS4 Permit Green Streets standard and is exempt from meeting numeric PDP structural BMP performance requirements.

The following Forms, Pages, and Attachments are not applicable to the project:

- **Form 2, Pages 9 and 10**
- **Form 5**
- **Form 6**
- **Attachment 3**

Form 2, Page 9 of 11

CRITICAL COARSE SEDIMENT YIELD AREAS

**This section only required if hydromodification management requirements apply*

Based on the maps provided within the WMAA, do potential critical coarse sediment yield areas exist within the project drainage boundaries (select all that apply and describe below)? Additional signed and stamped reports must be provided to document any exemption from coarse sediment yield requirements.

☐ Yes

☐ No, No critical coarse sediment yield areas to be protected based on WMAA maps

If yes, have any of the optional analyses presented in Section 6.2 of the BMP Design Manual been performed?

☐ 6.2.1 Verification of Geomorphic Landscape Units (GLUs) Onsite

☐ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment

☐ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite

☐ No optional analyses performed, the project will avoid critical coarse sediment yield areas identified based on WMAA maps

If optional analyses were performed, what is the final result?

☐ No critical coarse sediment yield areas to be protected based on verification of GLUs onsite

☐ Critical coarse sediment yield areas exist but additional analysis has determined that protection is not required. Documentation attached in Attachment 2.B of the SWQMP.

☐ Critical coarse sediment yield areas exist and require protection. The project will implement management measures described in Sections 6.2.4 and 6.2.5 as applicable, and the areas are identified on the SWQMP Exhibit.

Describe:

Form 2, Page 10 of 11

FLOW CONTROL FOR POST-PROJECT RUNOFF

**This section only required if hydromodification management requirements apply*

List and describe point(s) of compliance for hydromodification management flow control (see Section 6.3.1). Identify each point of compliance for flow control on the Hydromodification Management Exhibit in Attachment 2A.

Has a geomorphic assessment been performed for the receiving channel(s)?

☐ No, the low flow threshold is 0.1Q2 (default low flow threshold)
☐ Yes, the result is the low flow threshold is 0.1Q2
☐ Yes, the result is the low flow threshold is 0.3Q2
☐ Yes, the result is the low flow threshold is 0.5Q2

If a geomorphic assessment has been performed, provide the report.

Discussion / Additional Information: (optional)

Form 2, Page 11 of 11

OTHER SITE REQUIREMENTS AND CONSTRAINTS

When applicable, list other site requirements or constraints that will influence storm water management design, such as zoning requirements including setbacks and open space, or local codes governing minimum street width, sidewalk construction, allowable pavement types, and drainage requirements.

Due to the retrofit nature of the road widening, rock swales along all proposed created/replaced impervious areas along the road profile was not feasible due to the limited scope of the widening and the existing steep slope. Along most of the road profile, the join line between the existing and proposed concrete will function as a local ridge line, serving to keep local adjacent runoff from existing paved areas out of the proposed rock swales. There are a few exceptions to this general behavior along the road profile, where either small local adjacent paved surfaces drain onto the proposed rock swale or upgradient offsite areas contribute run-on into the proposed rock swale. The total existing untreated impervious roadway surface contributing run-on to the proposed network of Green Streets rock swales is 40,301 square feet from within DMAs 1, 2, 6, and 7.

The existing Tierra del Cielo sump (DMA DM 1) cannot incorporate a rock swale due to the requirement to provide a setback from the biological area, with the remaining reduced 20-foot width dedicated solely to vehicular travel (per Fire Department requirements). The southern-most portion of the widening (DMA DM 2) also does not feature a swale due to its minimal size (~400 sf). The total created/replace impervious areas associated with these two de minimis DMAs is 530 square feet.

When comparing the deficit of untreated proposed created/replaced impervious surface from DMAs DM 1 and 2 (530 sf) with the total additional treated square footage of existing untreated roadway surfaces within DMAs 1, 2, 6 and 7 (40,301 sf), the project provides a much greater overall water quality benefit than it would in the event construction of rock swales along DMAs DM 1 and 2 were technically feasible. Therefore, this in lieu treatment approach provides a greater overall water quality benefit and DMAs DM 1 and DM 2 need not incorporate their own rock-lined swale.

Optional Additional Information or Continuation of Previous Sections As Needed

This space provided for additional information or continuation of information from previous sections as needed.

FORM 3 – SOURCE CONTROL BMPS FOR ALL DEVELOPMENT PROJECTS

PROJECT IDENTIFICATION & SOURCE CONTROLS

Project Name: Las Lomas Grading Project

Permit Application Number: LD23-004, GP23-004

All development projects must implement source control BMPs SC-1 through SC-6, unless justification is provided by qualified design professional See Chapter 4 and Appendix E of the Model BMP Design Manual for information to implement source control BMPs shown in this checklist.

Answer each category below pursuant to the following, and provide description.

- "Yes" means the project will implement the source control BMP as described in Chapter 4 and/or Appendix E of the Model BMP Design Manual.
- "No" means the BMP is applicable to the project but it is not feasible to implement.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project has no outdoor materials storage areas).

Source Control Requirement	Applied?		
SC-1 Prevention of Illicit Discharges into the MS4	☒ Yes	☐ No	☐ N/A
Describe how source control will be implemented, or justify if not feasible: Privately maintained roadways are subject to City of Vista illicit discharge prohibitions.			
SC-2 Storm Drain Stenciling or Signage	☒ Yes	☐ No	☐ N/A
Describe how source control will be implemented, or justify if not feasible: Placards shall be placed atop the proposed D-16 Type A inlets.			
SC-3 Protect Outdoor Materials Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No outdoor materials storage areas proposed.			
SC-4 Protect Materials Stored in Outdoor Work Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No outdoor work areas proposed.			

Form 3, Page 2 of 4			
Source Control Requirement	**Applied?**		
SC-5 Protect Trash Storage Areas from Rainfall, Run-On, Runoff, and Wind Dispersal	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No trash storage areas proposed.			
SC-6 Additional BMPs Based on Potential Sources of Runoff Pollutants (must answer for each source listed below)	**Applied?**		
a. On-site storm drain inlets	☒ Yes	☐ No	☐ N/A
Describe how source control will be implemented, or justify if not feasible: On-site storm drain inlets will be privately maintained.			
b. Sump pumps or French drains	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No sumps pumps or French drains proposed.			
c. Interior or sub-surface parking garages	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No parking garages proposed.			
d. Need for future indoor & structural pest control	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No structures proposed.			
e. Landscape/outdoor pesticide use	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No landscape proposed.			

Form 3, Page 3 of 4			
Source Control Requirement	**Applied?**		
f. Pools, spas, ponds, decorative fountains, or other water features	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No water features proposed.			
g. Food preparation and/or service	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No food preparation and/or service proposed.			
h. Refuse/trash collection areas	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No trash collection areas proposed.			
i. Industrial processes	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No industrial processes proposed.			
j. Outdoor storage of equipment, chemicals, or materials	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No outdoor equipment, chemical, or material storage proposed.			
k. Vehicle and equipment cleaning	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No vehicle and/or equipment cleaning areas proposed.			
l. Vehicle/equipment repair and maintenance	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No vehicle and/or equipment repair or maintenance areas proposed.			
m. Fuel dispensing areas	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No fuel dispensing areas proposed.			

Form 3, Page 4 of 4			
n. Loading docks	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No loading docks proposed.			
o. Fire sprinkler test water and relief point	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No fire sprinkler test water and relief point.			
p. Miscellaneous drain or wash down areas	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No miscellaneous drain or wash down areas proposed.			
q. Plaza, sidewalks, parking lots	☐ Yes	☐ No	☒ N/A
Describe how source control will be implemented, or justify if not feasible: No plazas, sidewalks, or parking lots proposed.			
Discussion / justification if SC-6 not implemented. Clearly identify which sources of runoff pollutants are discussed. Justification must be provided for all "No" answers shown above.			

FORM 4 – SITE DESIGN BMPS FOR ALL DEVELOPMENT PROJECTS

PROJECT IDENTIFICATION

Project Name: Las Lomas Grading Project

Permit Application Number: LD23-004, GP23-004

All development projects must implement site design BMPs SD-1 through SD-8, unless justification is provided by qualified design professional. See Chapter 4 and Appendix E of the Model BMP Design Manual for information to implement site design BMPs shown in this checklist.

Answer each category below pursuant to the following, and provide description.

- "Yes" means the project will implement the site design BMP as described in Chapter 4 and/or Appendix E of the Model BMP Design Manual.
- "No" means the BMP is applicable to the project but it is not feasible to implement.
- "N/A" means the BMP is not applicable at the project site because the project does not include the feature that is addressed by the BMP (e.g., the project site has no existing natural areas to conserve).

Site Design Requirement	Applied?		
SD-1 Maintain Natural Drainage Pathways and Hydrologic Features	☒ Yes	☐ No	☐ N/A
Describe how site design will be implemented, or justify if not feasible: Existing onsite natural drainage pathways will remain undisturbed.			
SD-2 Conserve Natural Areas, Soils, and Vegetation	☒ Yes	☐ No	☐ N/A
Describe how site design will be implemented, or justify if not feasible: Existing natural soils and vegetation will remain undisturbed.			
SD-3 Minimize Impervious Area	☒ Yes	☐ No	☐ N/A
Describe how site design will be implemented, or justify if not feasible: Proposed widening has been minimized to the smallest width possible to accommodate fire department road requirements.			
SD-4 Minimize Soil Compaction	☐ Yes	☐ No	☒ N/A
Describe how site design will be implemented, or justify if not feasible: No soil compaction proposed.			

Form 4, Page 2 of 2			
SD-5 Impervious Area Dispersion	☒ Yes	☐ No	☐ N/A
Describe how site design will be implemented, or justify if not feasible: The proposed rock-lined swales along the existing steep (approximately 12 to 15 percent) private roadway and gravel driveway approach at the end of the fire road will serve to intercept, slow and infiltrate stormwater runoff generated from the proposed widening to the MEP, and thereby provide source control, limits pollutant transport conveyance to the MS4, restore predevelopment hydrology to the MEP and ultimately provide environmentally enhanced roads.			
SD-6 Runoff Collection	☒ Yes	☐ No	☐ N/A
Describe how site design will be implemented, or justify if not feasible: The proposed rock-lined swales along the existing steep (approximately 12 to 15 percent) private roadway and gravel driveway approach at the end of the fire road will serve to intercept, slow and infiltrate stormwater runoff generated from the proposed widening to the MEP, and thereby provide source control, limits pollutant transport conveyance to the MS4, restore predevelopment hydrology to the MEP and ultimately provide environmentally enhanced roads.			
SD-7 Landscaping with Native or Drought Tolerant Species	☐ Yes	☐ No	☒ N/A
Describe how site design will be implemented, or justify if not feasible: No landscaping proposed.			
SD-8 Harvest and Use of Precipitation	☐Yes	☐ No	☒ N/A
Describe how site design will be implemented, or justify if not feasible: Site design BMPs are maximized through proposed USEPA Green Streets design.			

FORM 5 – STRUCTURAL POLLUTANT CONTROL AND HYDROMODIFICATION MANAGEMENT BMPS

PROJECT IDENTIFICATION

Project Name: Las Lomas Grading Project

Permit Application Number: LD23-004, GP23-004

PDP Structural BMPs

All PDPs must implement structural BMPs for storm water pollutant control (see Chapter 5 of the *BMP Design Manual*). Selection of PDP structural BMPs for storm water pollutant control must be based on the selection process described in Chapter 5. PDPs subject to hydromodification management requirements must also implement structural BMPs for flow control for hydromodification management (see Chapter 6 of the *BMP Design Manual*). Both storm water pollutant control and flow control for hydromodification management can be achieved within the same structural BMP(s).

PDP structural BMPs must be verified by the local jurisdiction at the completion of construction. This may include requiring the project owner or project owner's representative and engineer of record to certify construction of the structural BMPs (see Section 1.12 of the *BMP Design Manual*). PDP structural BMPs must be maintained into perpetuity, and the local jurisdiction must confirm the maintenance (see Section 7 of the *BMP Design Manual*).

Use this form to provide narrative description of the general strategy for structural BMP implementation at the project site in the box below. Then complete the PDP structural BMP summary information sheet (page 3 of this form) for each structural BMP within the project (copy the BMP summary information page as many times as needed to provide summary information for each individual structural BMP).

Describe the general strategy for structural BMP implementation at the site. This information must describe how the steps for selecting and designing storm water pollutant control BMPs presented in Section 5.1 of the *BMP Design Manual* were followed, and the results (type of BMP selected). For projects requiring hydromodification flow control BMPs, indicate whether pollutant control and flow control BMPs are integrated or separate structures.

Note: Each structural pollutant control and hydromodification management BMP must be clearly identified on a site map (Attachment 1a), and described in supporting table (Attachment 1B).

The roadway widening and fire lane redevelopment/retrofits proposed herein meets the MS4 Permit Green Streets standard and is exempt from meeting numeric PDP structural BMP performance requirements.

FORM 6 – STORMWATER BMP MAINTENANCE MECHANISM

PROJECT IDENTIFICATION
Project Name: Las Lomas Grading Project
Permit Application Number: LD23-004, GP23-004
Maintenance Requirements
A stormwater structural BMP operations and maintenance plan must be prepared for PDPs. A template plan is available at: http://www.cityofvista.com/services/city-departments/community-development/building-planning-permits-applications/land-development-autocad-templates/storm-water-forms Has a stormwater structural BMP operations and maintenance plan been prepared? ☐ Yes, included with Attachment 3A ☒ No – **NOT APPLICABLE (GREEN STREETS)** [INSERT PLAN NAME] [INSERT PLAN DATE] [INSERT PREPARER'S NAME] [INSERT PREPARER'S TITLE/COMPANY]
All projects are required to maintain designed functionality of structural BMPs in perpetuity. Privately-owned projects must record a *Storm Drain Maintenance Agreement* with the County of San Diego Assessor's Office. A template *Storm Drain Maintenance Agreement* is available at: http://www.cityofvista.com/services/city-departments/community-development/building-planning-permits-applications/land-development-autocad-templates/storm-water-forms Has a Storm Drain Maintenance Agreement been submitted to the County? ☐ Yes, copy included with Attachment 3B ☒ No – **NOT APPLICABLE (GREEN STREETS)** ☐ Not Applicable (e.g., city-owned property/project)

ATTACHMENT 1 – POLLUTANT CONTROLS: SUPPORT DOCUMENT AND CHECKLIST

Each of the attachments indicated below should be considered for inclusion with the SWQMP. Use this checklist to indicate which attachments are included behind this coversheet.

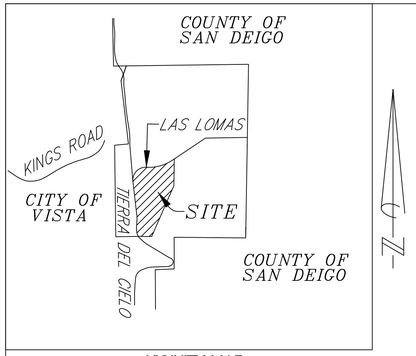
Attachment Sequence	Contents	Checklist
Attachment 1A	Drainage Management Area (DMA) Exhibit See DMA Exhibit Checklist on next page.	☒ Included
Attachment 1B	Tabular Summary of DMAs Showing DMA ID matching DMA Exhibit, DMA Area, DMA Type, and BMPs* *Provide table in this Attachment OR on DMA Exhibit in Attachment 1A	☒ Included on DMA Exhibit in Attachment 1A ☐ Included as Attachment 1B
Attachment 1C	Harvest and Use Feasibility Screening Checklist (Worksheet B.3-1) Refer to Appendix B.3-1 of the *BMP Design Manual*.	☐ Included ☐ Not included because the entire project will use Infiltration BMPs ☒ Not included because the project is exempt from PDP pollutant control requirements
Attachment 1D	Categorization of Infiltration Feasibility Condition (Worksheet C.4-1) Refer to Appendices C and D of the *BMP Design Manual*.	☐ Included ☐ Not included because the entire project will use Harvest and Use BMPs ☒ Not included because the project is exempt from PDP pollutant control requirements
Attachment 1E	Pollutant Control BMP Design Worksheets and Calculations Refer to Appendices B and E of the *BMP Design Manual* for structural pollutant control BMP design guidelines	☐ Included ☒ Not included because the project is exempt from PDP pollutant control requirements

ATTACHMENT 1A – DMA EXHIBIT CHECKLIST

For Attachment 1A, provide map(s) for the project site, titled "DMA Exhibit." The checklist below identifies minimum elements that must be included with the DMA Exhibit.

- ☒ Underlying hydrologic soil group
- ☐ Approximate depth to groundwater
- ☒ Existing natural hydrologic features (watercourses, seeps, springs, wetlands, etc.)
- ☐ Critical coarse sediment yield areas to be protected
- ☒ Existing topography and impervious areas
- ☒ Existing and proposed site drainage network and storm drain structures
- ☒ Proposed connections to offsite drainage
- ☐ Proposed demolition
- ☒ Proposed grading
- ☒ Proposed impervious features
- ☒ Proposed design features and surface treatments used to minimize imperviousness
- ☒ Drainage management area (DMA) boundaries
- ☒ DMA identification numbers (DMA ID)
- ☒ DMA areas (square footage or acreage)
- ☒ DMA type (Drains to BMP, Self-mitigating, De Minimis, or Self-retaining)
- ☒ Potential pollutant source areas and corresponding required source controls (see Form 2 and Form 3 of SWQMP, *BMP Design Manual* Chapter 4 and Appendix E.1)
- ☒ Proposed Green Streets BMPs (see Form 5 of SWQMP)

GREEN STREETS DMA EXHIBIT
LAS LOMAS GRADING PROJECT
CITY OF VISTA, CA



VICINITY MAP
NOT TO SCALE

APPLICANT
WHEELER FAMILY TRUST
RICHARD R. WHEELER & DEBRA K. WHEELER, TRUSTEES
1279 SHADY MILL ROAD
CORONA, CA 92882
(951) 545-9736

CIVIL ENGINEER
ACAL ENGINEERING & SURVEYING, INC.
145 N. MELROSE DRIVE, SUITE 200
VISTA, CA 92083
(760) 724-7674

SWQMP PREPARER
TORY R. WALKER ENGINEERING, INC.
122 CIVIC CENTER DRIVE, STE. 206
VISTA, CA 92084
(760) 414-9212

PERMANENT SOURCE CONTROL BMPs

- MARK ALL INLETS WITH THE WORDS "ONLY RAIN DOWN THE STORM DRAIN" OR SIMILAR

SITE DESIGN BMPs

- PROPOSED STREET WIDENING WILL BE HELD TO THE MINIMUM WIDTHS POSSIBLE PER THE APPLICABLE FIRE REQUIREMENTS
- USEPA GREEN STREETS FEATURES IMPLEMENTED VIA ROADSIDE ROCK-LINED SWALE AND GRAVEL DRIVEWAY APPROACH

EXHIBIT LEGEND AND SYMBOLOGY

- PARCEL E BOUNDARY
- PARCEL MAP 2626 BOUNDARY
- OFFSITE PARCEL BOUNDARY
- DRAINAGE MANAGEMENT AREA (DMA) BOUNDARY
- SELF-MITIGATING DMA BOUNDARY
- ROCK-LINED SWALE FLOWLINE
- PROPOSED PRIVATE STORM DRAIN
- EXISTING PRIVATE STORM DRAIN
- 1280 EXISTING CONTOUR LINE
- DISCHARGE POINT
- PROPOSED AC SURFACE
- PROPOSED DECOMPOSED GRANITE
- EXISTING AC/CONCRETE AREA
- EXISTING STRUCTURE ROOFTOP

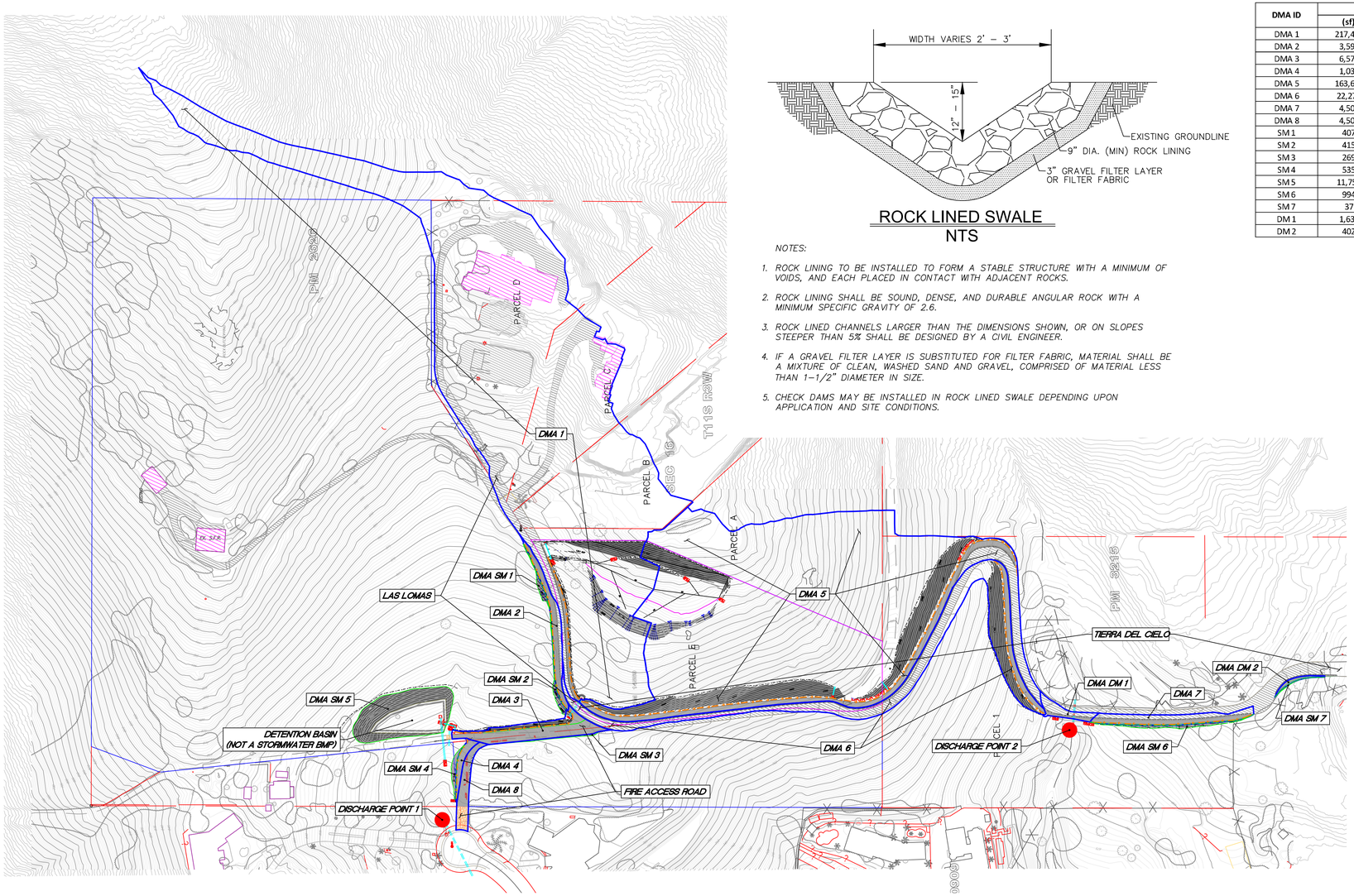
ROCK LINED SWALE
NTS

NOTES:

1. ROCK LINING TO BE INSTALLED TO FORM A STABLE STRUCTURE WITH A MINIMUM OF VOIDS, AND EACH PLACED IN CONTACT WITH ADJACENT ROCKS.
2. ROCK LINING SHALL BE SOUND, DENSE, AND DURABLE ANGULAR ROCK WITH A MINIMUM SPECIFIC GRAVITY OF 2.6.
3. ROCK LINED CHANNELS LARGER THAN THE DIMENSIONS SHOWN, OR ON SLOPES STEEPER THAN 5% SHALL BE DESIGNED BY A CIVIL ENGINEER.
4. IF A GRAVEL FILTER LAYER IS SUBSTITUTED FOR FILTER FABRIC, MATERIAL SHALL BE A MIXTURE OF CLEAN, WASHED SAND AND GRAVEL, COMPRISED OF MATERIAL LESS THAN 1-1/2" DIAMETER IN SIZE.
5. CHECK DAMS MAY BE INSTALLED IN ROCK LINED SWALE DEPENDING UPON APPLICATION AND SITE CONDITIONS.

DMA SUMMARY

DMA ID	Area (sf)	Area (ac)	DMA Type	USEPA Green Streets Feature Type	Minimum Rock Size (in)	Swale Width (ft)	Swale Depth (in)
DMA 1	217,484	4.99	USEPA Green Streets	Rock-Lined Swale	9	2	15
DMA 2	3,597	0.08			9	3	15
DMA 3	6,575	0.15			9	3	15
DMA 4	1,039	0.02			9	2	15
DMA 5	163,699	3.76			9	3	12
DMA 6	22,278	0.51			9	2	12
DMA 7	4,501	0.10			9	2	12
DMA 8	4,501	0.10		Gravel Dispersion Area	N/A		
SM 1	407	0.01	Self-Mitigating	N/A	N/A	N/A	N/A
SM 2	415	0.01					
SM 3	269	0.01					
SM 4	535	0.01					
SM 5	11,758	0.27					
SM 6	994	0.02					
SM 7	37	0.00					
DM 1	1,630	0.04	De Minimis	N/A	**Note:** 40,301 sf of existing untreated roadway area to be treated by swales within DMAs 1, 2, 6 and 7 to be treated in lieu of DMAs DM 1 and 2		
DM 2	402	0.01					



GENERAL NOTES

1. PROJECT PROPOSES A STREET WIDENING DESIGNED IN ACCORDANCE WITH USEPA GREEN STREETS FEATURES.
2. PROPOSED GREEN STREETS FEATURES PROVIDE SOURCE CONTROL OF STORMWATER, LIMITS ITS TRANSPORT AND POLLUTANT CONVEYANCE TO THE COLLECTION SYSTEM, RESTORE PREDEVELOPMENT HYDROLOGY TO THE MAXIMUM EXTENT PRACTICABLE (MEP), AND PROVIDE ENVIRONMENTALLY ENHANCED ROADS.
3. PROJECTS THAT IMPLEMENT USEPA GREEN STREETS DESIGN FEATURES ARE NOT SUBJECT TO PRIORITY DEVELOPMENT PROJECT (PDP) PERFORMANCE STANDARDS AND ARE THEREBY EXEMPT FROM POLLUTANT REMOVAL AND HYDROMODIFICATION FLOW CONTROL REQUIREMENTS.

SELF-MITIGATING DMA NOTES:

1. ALL SELF-MITIGATING DMAs ARE NATURAL, LANDSCAPED, OR STABILIZED EARTH AREAS THAT DO NOT GENERATE SIGNIFICANT POLLUTANTS AND DRAIN DIRECTLY OFFSITE OR TO THE PUBLIC STORM DRAIN SYSTEM WITHOUT BEING TREATED BY A GREEN STREETS BMP AND INCLUDE ALL THE FOLLOWING CHARACTERISTICS:
   - 1.1. VEGETATION IN THE NATURAL OR LANDSCAPED AREA IS NATIVE AND/OR NON-NATIVE/NON-INVASIVE DROUGHT TOLERANT SPECIES THAT DO NOT REQUIRE REGULAR APPLICATION OF FERTILIZERS AND PESTICIDES.
   - 1.2. SOILS ARE UNDISTURBED NATIVE TOPSOIL, OR DISTURBED SOILS THAT HAVE BEEN STABILIZED BY EROSION CONTROL BMPs TO MITIGATE AGAINST EROSION AND SEDIMENTATION.
   - 1.3. THE SELF-MITIGATING AREA IS HYDRAULICALLY SEPARATE FROM DMAs THAT CONTAIN GREEN STREETS BMPs.

N

0 50 100 200 300 400

SCALE: 1"=100'

CITY OF VISTA

GREEN STREETS DMA EXHIBIT
LAS LOMAS GRADING PROJECT

1 OF 1 SHEETS

ATTACHMENT 1B – TEMPLATE TABULAR DMA SUMMARY

See DMA Exhibit

ATTACHMENT 2 – HYDROMODIFICATION MANAGEMENT CONTROLS: SUPPORT DOCUMENTATION & CHECKLIST

☒ Check this box if this attachment is empty because the project is exempt from PDP hydromodification management requirements.

Each of the attachments indicated below should be considered for inclusion with the SWQMP. Use this checklist to indicate which attachments are included behind this coversheet.

Attachment Sequence	Contents	Checklist
Attachment 2A	Hydromodification Management Exhibit	☐ Included See Hydromodification Management Exhibit Checklist on the back of this Attachment cover sheet.
Attachment 2B	Management of Critical Coarse Sediment Yield Areas See Section 6.2 of the *BMP Design Manual*.	☐ Exhibit showing project drainage boundaries marked on WMAA Critical Coarse Sediment Yield Area Map Analyses, as applicable, for Critical Coarse Sediment Yield Area Determination, per *BMP Design Manual:* ☐ 6.2.1 Verification of Geomorphic Landscape Units Onsite ☐ 6.2.2 Downstream Systems Sensitivity to Coarse Sediment ☐ 6.2.3 Optional Additional Analysis of Potential Critical Coarse Sediment Yield Areas Onsite
Attachment 2C	Geomorphic Assessment of Receiving Channels See Section 6.3.4 of the *BMP Design Manual*.	☐ Not performed ☐ Included ☐ Submitted as separate stand-alone document
Attachment 2D	Flow Control Facility Design, including Structural BMP Drawdown Calculations and Overflow Design Summary See Chapter 6 and Appendix G of the *BMP Design Manual*	☐ Included ☐ Submitted as separate stand-alone document
Attachment 2E	Vector Control Plan	☐ Included ☐ Not required because BMPs will drain in less than 96 hours

ATTACHMENT 2A – HYDROMODIFICATION MANAGEMENT EXHIBIT

For Attachment 2A, provide map(s) for the project site, titled "Hydromodification Management Exhibit." The checklist below identifies minimum elements that must be included with the exhibit.

- ☐ Underlying hydrologic soil group
- ☐ Approximate depth to groundwater
- ☐ Existing natural hydrologic features (watercourses, seeps, springs, wetlands, etc.)
- ☐ Critical coarse sediment yield areas to be protected
- ☐ Existing topography and impervious areas
- ☐ Existing and proposed site drainage network and storm drain structures
- ☐ Proposed connections to offsite drainage
- ☐ Proposed demolition
- ☐ Proposed grading
- ☐ Proposed impervious features
- ☐ Proposed design features and surface treatments used to minimize imperviousness
- ☐ Points of Compliance for hydromodification management
- ☐ Existing and proposed drainage boundary and drainage area to each Point of Compliance (when necessary, create separate exhibits for pre-development and post-project conditions)
- ☐ Structural BMPs for hydromodification management (location, type, and size)

ATTACHMENT 3 - BMP MAINTENANCE INFORMATION

Each of the attachments indicated below should be considered for inclusion with the SWQMP. Use this checklist to indicate which attachments are included behind this coversheet.

Attachment Sequence	Contents	Checklist
Attachment 3A	Structural BMP Operations and Maintenance Plan	☐ Included ☒ **Not Applicable (no structural BMPs)** **See general rock swale maintenance information provided on the following sheets (not a structural BMP)**
Attachment 3B	Draft Maintenance Agreement	☐ Included ☒ **Not Applicable (no structural BMPs)**

ATTACHMENT 3A – MAINTENANCE PLAN REQUIREMENTS

For Attachment 3A, provide a BMP operation and maintenance plan (O&M Plan). The checklist below identifies minimum elements to be included with the O&M Plan. An O&M Plan template is available at:

http://www.cityofvista.com/services/city-departments/community-development/building-planning-permits-applications/land-development-autocad-templates/storm-water-forms

☒ Specific maintenance indicators and actions for proposed BMP(s). This shall be based on Section 7.7 of the *BMP Design Manual* and enhanced to reflect actual proposed components of the BMP(s)

☐ Use of O&M Plan template, or plan of equivalent content

4.3-j ROCK LINED AND VEGETATED SWALE

Alternative Names: Permanent Waterway, Drainage Ways, Riprap Channel

BMP DESIGN APPROACH
☐ Pollutant Source Control
☐ Hydrologic Source Control
☐ Stormwater Treatment
SCALE OF APPLICATION
■ **All SFR and MFR < 1 acre**
■ **MFR 1-5 Acre and CICU < 5 acres**
■ **MFR and CICU > 5 acres and all WQIPs**
TYPE OF APPLICATION
☐ Temporary
■ **Permanent**

Rock Lined swale surrounded by vegetation.

DESCRIPTION

Rock lined and vegetated swales are conveyance systems designed, shaped, and lined to convey surface runoff in a non-erosive manner downstream, preferably to a treatment and/or infiltration system. The primary function is to convey stormwater runoff and there is minimal water quality benefit; however, rock lined and vegetated swales may decrease the velocity of water and facilitate some infiltration. Vegetated swales may have the added benefit of filtering stormwater as it flows through the swale. A vegetated swale is not to be confused with a bioswale, whose primary purpose is biofiltration and detention, not collection and conveyance. Refer to Section 4.4-b, Bioswale, for more details regarding these systems.

APPLICABILITY

- Swales are suitable in all drainage systems which collect, concentrate, and convey stormwater at the ground surface. Swales can be used to convey runoff both to and from underground storm drain systems.
- Special design consideration should be given for swales adjacent to plowed snow areas, snow storage areas, or areas receiving runoff from snow that has accumulated significant amounts of sand or other winter abrasives. Sand and abrasives applied during the winter months can quickly fill rock-lined and vegetated swales, which are difficult to maintain.

Advantages

- Swales may be less expensive to install than other conveyance measures.
- Prevents the discharge of stormwater runoff from the site.
- Vegetated swales may enhance the aesthetics of a property.
- Swales have the added benefit of reducing velocities, infiltrating, and filtering stormwater compared to other collection and conveyance systems that have no contact with the underlying soil.

Disadvantages

- Converts sheet flow to channel flow, which may increases flow velocities and erosive energy.
- Concentrates the volume of runoff.
- Vegetated swales are not practical on slopes greater than 6 percent or when velocities are high.

DESIGN CONSIDERATIONS

- Ensure that the swale has sufficient capacity to convey a 10-year, 24-hour storm and is resistant to erosion during the peak flow.
- Line all swale regardless of slope. In choosing linings, consider flow velocities, cost, aesthetics, desirability of infiltration, and maintenance. Use permeable lining materials to promote infiltration unless the slope is unstable or steep, in which case design an impermeable lining. Permeable lining materials include vegetation, rock, or a combination of both.
- Determine the capacity of the swale and the velocity of flow from the type of swale lining, cross-sectional area and shape, and the slope of the swale.
- Give priority consideration to vegetated swales because they have the capability to filter sediment and uptake nutrients as well as being aesthetically pleasing. Vegetated swales may provide the entire stormwater conveyance system and have several advantages over rock lined swales; however, they require more space and are not suitable on steep slopes.
- If the slope exceeds 3 percent incorporate check dams to decrease the velocity and promote infiltration. Vegetated swales shall in no case exceed 6 percent.
- Choose native vegetation that establishes a dense cover and is tolerant to varying degrees of saturation.
- Use rock-lined swales to withstand high velocities (3-10 feet per second), using larger rock for the greater flow velocities. Consider incorporating sediment traps or check dams into the swale system at specific, regular intervals to encourage sedimentation, where high rates of sedimentation occur.

INSTALLATION CONSIDERATIONS

- Use qualified professionals to design and install permanent swales.
- For installation on private property, install swales within the property boundaries and not within public rights-of-way, and do not design them to convey water to a public right-of-way.
- Install small riprap-lined channels as follows:

- Size the channel to convey the peak flow during the design storm (10-year, 24-hour storm).
- Place a layer of filer fabric in a channel and up to at least 0.5 feet above the water surface during the design storm.
- Place a layer of riprap on top of the filter fabric, using a rock size gradation that will be stable during the design flood, as determined by a licensed civil engineer.

INSPECTION/MAINTENANCE

A pretreatment BMP designed to remove trash and allow coarse sediment to settle out may ease the maintenance burden for the vegetated or rock lined swale. Refer to the Rock Lined and Vegetated Swale Inspection and Maintenance Table.

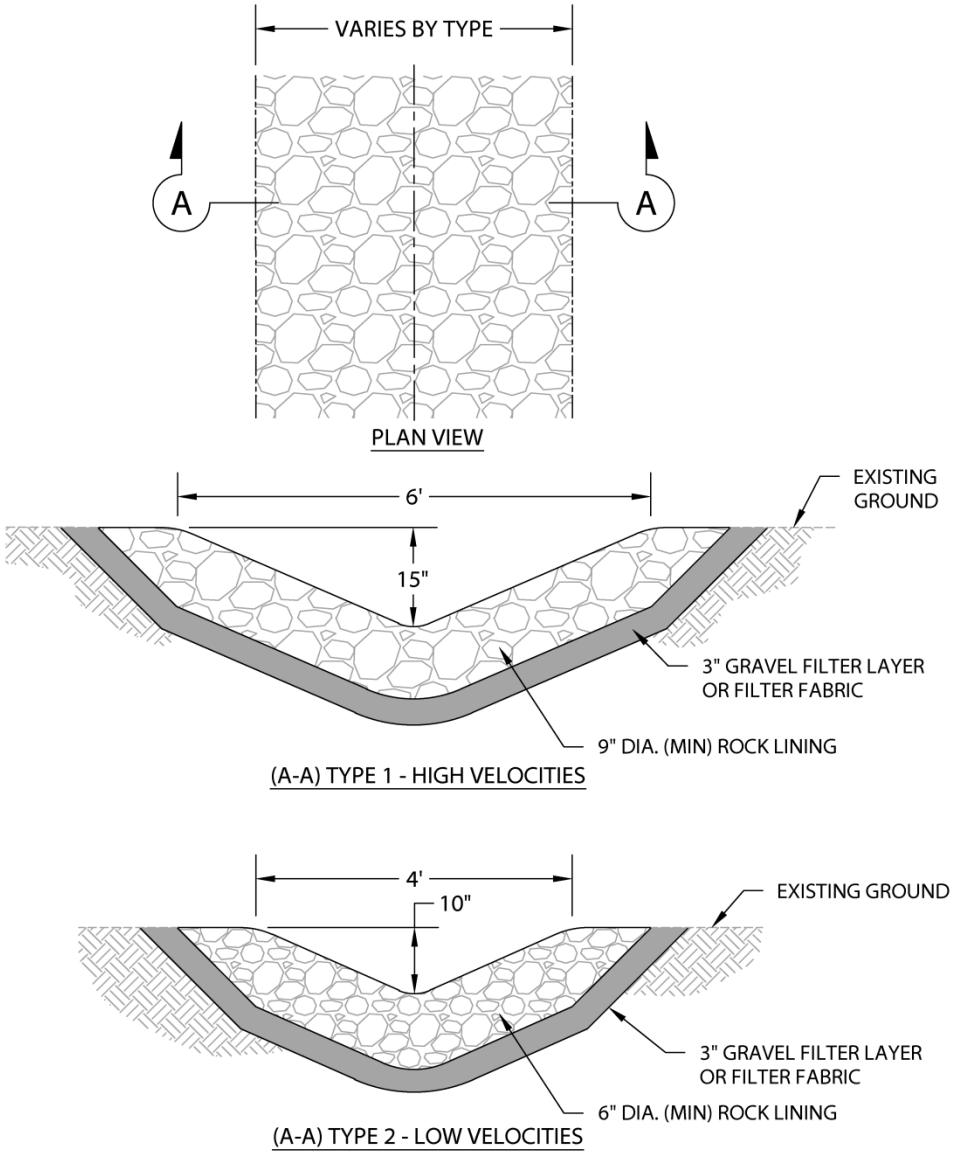
EFFECTIVENESS CONSIDERATIONS

- High maintenance costs can reduce the effectiveness of rock-lined channel.
- They are effective if properly designed and installed as part of a drainage system.

Rock Lined and Vegetated Swale Inspection and Maintenance Table

INSPECTION AND MAINTENANCE ACTIVITIES	SUGGESTED FREQUENCY	INSPECTION EQUIPMENT	MAINTENANCE EQUIPMENT
Inspect for signs that runoff is properly accessing and being conveyed by the swale. ▪ Repair any blocked or diverted conveyances. ▪ If standing water remains 96 hours after a storm, vector control for mosquitoes and rehabilitation of the swale is needed.	Before and during major storms		Trash bag Shovel
Inspect for trash and debris. ▪ Remove trash and debris from swale.	Monthly (April–Oct)		Trash bag
Inspect for erosion and undercutting, especially along the swale bottom and adjacent slopes. ▪ Stabilize eroded and undercut areas. ▪ Improve swale lining to dissipate energy.	Monthly (April–Oct)		Erosion Control Blanket, Coir Logs
For vegetated swales: Inspect for successful vegetation establishment (80% cover) and initial die off to determine if any remedial actions are needed, such as reseeding and irrigation the first year. ▪ Amend soils, reseed/replant, mulch, and irrigate as necessary to achieve desired vegetative establishment. ▪ Flows may have to be redirected if major work to the swale exposes bare soil for an extended time period.	Monthly during first growing season	Vegetation Inspector	Soil Amendment Seeds/Plants Mulch Irrigation
For rock lined swales: Inspect for dislodged or unstable rock and any erosion, especially along the channel bottom and adjacent slopes. ▪ Repair dislodged or unstable rock. ▪ Stabilize eroded and undercut areas.	Monthly (April–Oct)		Tools as needed to replace rock and address erosion
Measure depth of sediment to determine accumulated depth. ▪ If accumulated material has decreased swale capacity by 10%, is deeper than 3" in any spot or covers vegetation, removal of accumulated material is needed. ▪ Scrape bottom (shovel, backhoe, or vactor) to remove sediment and restore original cross-section. ▪ Dispose of sediment at a stable on-site location or outside of the Lake Tahoe Region. ▪ Aerate the bottom of swale to restore Ksat rate and reseed/replant if necessary.	Semi-annually (spring and fall) and after major storms	Staff Plate, Stadia Rod, or Ruler	Shovel, Backhoe, or Vactor Truck Pickup or Dump Truck Aerator for basin bottom
For vegetated swales: If vegetation exceeds 12", mow to 6" height, use care (such as not mowing while ground is moist) to avoid excess compaction. ▪ Remove and compost cut vegetation from the site to avoid release of sequestered nutrients.	Spring and fall	Qualified inspector	Clippers, Loppers Mower, Trash Bag
Inspect site for unusual or unsafe conditions (snowplow damage, structural damage, dumping, vandalism, etc.). ▪ Repair structural components as necessary.	Annually in spring		Tools as needed
Inspect for animal burrows, holes, and mounds. ▪ If burrows are causing erosion or compromising structural integrity, backfill firmly.	Annually in fall after vegetation trimming		Tools as needed to repair
Monitor ongoing effectiveness and determine whether another BMP type or additional BMPs could improve long-term effectiveness and improve benefits to costs versus the existing riprap. ▪ Prepare a plan that more effectively addresses soil stabilization, reduces long term maintenance costs and improves overall effectiveness and safety of the BMP.	Every 5 years	Qualified inspector or consultant	Qualified inspector or consultant

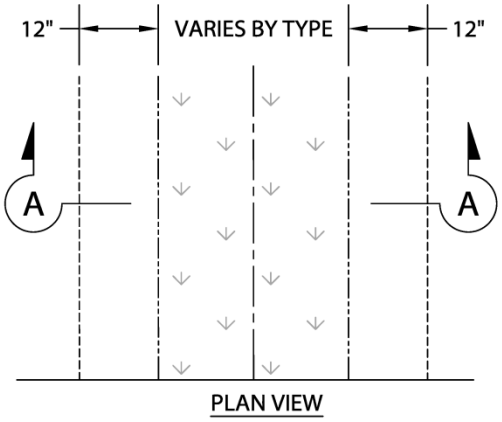
Rock Lined Swale Figure



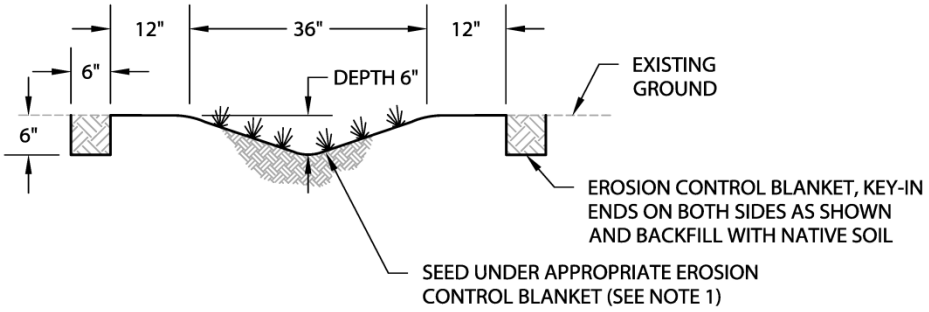
NOTES:

1. ROCK LINING TO BE INSTALLED TO FORM A STABLE STRUCTURE WITH A MINIMUM OF VOIDS, AND EACH PLACED IN CONTACT WITH ADJACENT ROCKS.
2. ROCK LINING SHALL BE SOUND, DENSE, AND DURABLE ANGULAR ROCK WITH A MINIMUM SPECIFIC GRAVITY OF 2.6.
3. ROCK LINED CHANNELS LARGER THAN THE DIMENSIONS SHOWN, OR ON SLOPES STEEPER THAN 5% SHALL BE DESIGNED BY A CIVIL ENGINEER.
4. IF A GRAVEL FILTER LAYER IS SUBSTITUTED FOR FILTER FABRIC, MATERIAL SHALL BE A MIXTURE OF CLEAN, WASHED SAND AND GRAVEL, COMPRISED OF MATERIAL LESS THAN 1 1/2" DIA. IN SIZE.
5. CHECK DAMS MAY BE INSTALLED IN ROCK LINED SWALE DEPENDING UPON APPLICATION AND SITE CONDITIONS. SEE BMP-310.

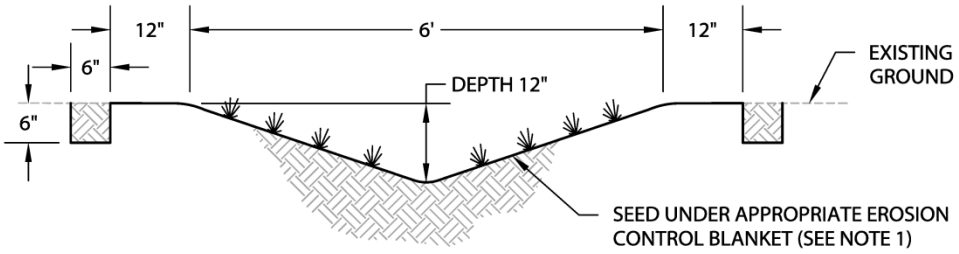
Vegetated Swale Figure



PLAN VIEW



(A-A) TYPE 1 - 2% (MAX) SLOPE



(A-A) TYPE 2 - 3% (MAX) SLOPE

NOTES:

1. FOR NON-PERMITTED PROJECTS, PREPARE SOIL AND SEED IN ACCORDANCE WITH THE TRPA BMP HANDBOOK. FOR PERMITTED PROJECTS, PREPARE SOIL AND SEED PER SPECIFICATIONS OF REVEGETATION PLAN.
2. THE APPLICABILITY OF THIS DETAIL TO A SLOPE STEEPER THAN RECOMMENDED SHOULD BE VERIFIED BY THE APPROPRIATE REVIEW AGENCY AND/OR ENGINEER.
3. INSTALL INLET OR OUTLET PROTECTION.

ATTACHMENT 4 - REQUIREMENTS FOR CONSTRUCTION PLANS

Section 8.2.2 of the *BMP Design Manual* identifies minimum requirements for storm drain construction plan sheets. Use this checklist to ensure project construction plans submitted for review include necessary information for storm drain improvements. Construction plans must include the following:

☒ All items identified in Section 8.2.2 of the *BMP Design Manual*.

LAS LOMAS GRADING PROJECT

GENERAL NOTES

1. ALL GRADING IS TO BE DONE IN ACCORDANCE WITH THE CITY OF VISTA DEVELOPMENT CODE, CHAPTER 17, SECTION 17.56 AND THE SOILS REPORT PREPARED BY SMS GEOTECHNICAL SOLUTIONS, INC. (SOILS ENGINEER), KNOWN AS JOB NUMBER GI-17-09-141(1).
2. THIS GRADING PLAN DOES NOT AUTHORIZE WORK TO COMMENCE PRIOR TO THE ISSUANCE OF A GRADING PERMIT BY THE CITY OF VISTA.
3. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO LOCATE ALL SUBSTRUCTURES, WHETHER SHOWN HEREON OR NOT, AND PROTECT THEM FROM DAMAGE. THE EXPENSE OF REPAIR OR REPLACEMENT OF SAID STRUCTURES SHALL BE BORNE BY THE CONTRACTOR.
4. BEFORE EXCAVATING, THE CONTRACTOR SHALL VERIFY THE LOCATION OF UNDERGROUND UTILITIES BY CONTACTING THE FOLLOWING:

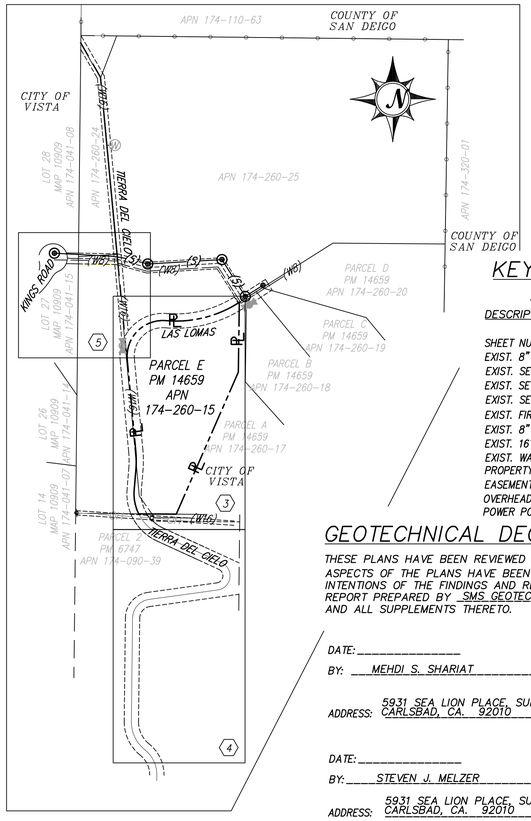
UNDERGROUND SERVICE ALERT	(800) 422-4133
UNDERGROUND SERVICE ALERT (SDG&E)	(800) 227-2600
SAN DIEGO GAS & ELECTRIC (EMERGENCY)	(800) 411-7343
PACIFIC BELL TELEPHONE CO. (EMERGENCY)	611
VISTA IRRIGATION DISTRICT (ENG. DEPT.)	(760) 597-3116
VISTA IRRIGATION DISTRICT (EMERGENCY)	(760) 597-3131
COX CABLE (EMERGENCY)	(760) 599-6063
ADELPHIA COMMUNICATIONS (EMERGENCY)	(760) 438-7741
CITY OF VISTA (MAIN NUMBER)	(760) 726-1340
CITY OF VISTA (ENG. DEPT. DIRECT LINE)	(760) 639-6111

AFTER HOURS EMERGENCY DISPATCH FOR SEWER SPILLS OR STORM DRAIN CONTAMINATION - CALL NORTH COMM FIRE DISPATCH (EMERGENCY) (858)756-3006

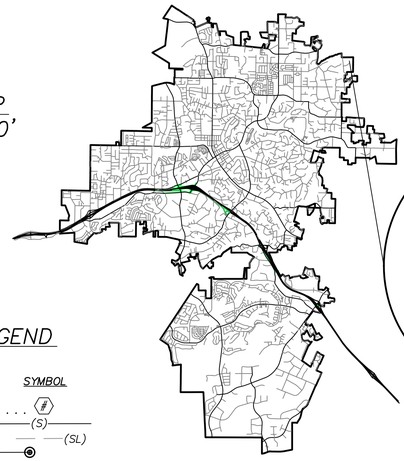
5. A PERMIT FROM THE DEVELOPMENT SERVICES DEPARTMENT WILL BE REQUIRED PRIOR TO ANY WORK WITHIN THE CITY OF VISTA RIGHT-OF-WAY.
6. NO BUILDING PERMITS WILL BE ISSUED AND NO BUILDING INSPECTIONS WILL BE MADE UNTIL ROUGH GRADING HAS BEEN APPROVED BY CITY OF VISTA.
7. ALL CUT AND FILL SLOPES SHALL BE NO STEEPER THAN TWO HORIZONTAL TO ONE VERTICAL UNLESS OTHERWISE SPECIFIED BY AN APPROVED SOILS ENGINEERING REPORT AND THE CITY ENGINEER.
8. ALL SLOPES SHALL BE PLANTED WITH A GROUND COVER AS APPROVED BY THE CITY OF VISTA PLANNING DEPARTMENT.
9. THE FACE OF CUT AND/OR FILL SLOPES SHALL BE PREPARED AND MAINTAINED TO PROTECT AGAINST EROSION PER CITY OF VISTA DEVELOPMENT CODE, CHAPTER 17, SECTION 17.56.
10. ALL MAJOR SLOPES SHALL BE ROUNDED INTO EXISTING TERRAIN TO PRODUCE A CONTOURED TRANSITION FROM CUT OR FILL TO NATURAL GROUND ABUTTING CUT OR FILL SURFACES.
11. A PRELIMINARY SOILS REPORT SHALL BE SUBMITTED PRIOR TO GRADING APPROVAL.
12. A FINAL SOILS REPORT, WITH ORIGINAL SIGNATURE/SEAL OF SOILS ENGINEER, SHALL BE SUBMITTED IN DUPLICATE PRIOR TO ROUGH GRADING APPROVAL, AND MUST PROVIDE THE FOLLOWING INFORMATION.
    A. SOILS BEARING VALUE
    B. EXPANSIVE CHARACTERISTICS
    C. FOUNDATION RECOMMENDATION
    D. DISPOSITION OF LARGE ROCKS ENCROACHING ONTO THE FOUNDATION
    E. COMPACTION REPORT ON GRADED LOTS
    F. ELEVATION OF WATER TABLE IF ENCOUNTERED
    G. A PLAT SHOWING THE LOCATIONS OF TEST BORINGS AND/OR EXCAVATIONS
13. ALL ON-SITE AND PRIVATE RESIDENTIAL DRIVEWAYS MUST HAVE A MINIMUM THICKNESS OF 4 INCHES CONCRETE OR 2 INCHES ASPHALT OVER 6 INCHES CLASS 3 BASE, AND MUST BE INSPECTED BY THE ENGINEERING DEPARTMENT.
14. THE STRUCTURAL SECTION OF PARKING LOTS AND DRIVEWAYS ON ALL COMMERCIAL AND INDUSTRIAL COMPLEXES SHALL BE DESIGNED BASED ON "R" VALUES OF SOILS AND ON A MINIMUM T.I. OF 4.5 IN PARKING STALLS AND A MINIMUM T.I. OF 6.0 IN THE DRIVE LANES. THE MINIMUM SECTION SHALL BE 3" A.C. ON 6" CLASS 2 BASE, OR MINIMUM 4" PCC ON NATIVE. STRUCTURAL SECTIONS DESIGN SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO CONSTRUCTION. ALL CURBS, GUTTERS AND SIDEWALKS MUST HAVE A MINIMUM OF 6" CLASS 3 BASE, OR AS RECOMMENDED BY THE SOILS ENGINEER AND APPROVED BY THE CITY ENGINEER.
15. THE PERMITTEE SHALL GIVE NOTICE TO THE CITY OF VISTA ENGINEERING INSPECTION DEPARTMENT FOR A PRE-CONSTRUCTION CONFERENCE AT LEAST 48 HOURS PRIOR TO COMMENCING THE WORK. ANY WORK DONE WITHOUT PROPER INSPECTION WILL BE SUBJECT TO REJECTION. PHONE (760) 639-6113 FOR INSPECTIONS.
16. A FENCE AT LEAST THREE AND ONE-HALF FEET (3-1/2') IN HEIGHT SHALL BE CONSTRUCTED AT THE TOP OF ANY VERTICAL CUT OR RETAINING WALL EXCEEDING FOUR FEET (4') IN HEIGHT, OR AT THE TOP OF ANY CUT OR FILL EXCEEDING FIFTEEN FEET (15') IN HEIGHT.
17. ALL SLOPES IN EXCESS OF 5 FEET IN VERTICAL HEIGHT SHALL BE HYDROSEEDED IN ACCORDANCE WITH THE FOLLOWING SPECIFICATIONS (UNLESS SUPERSEDED BY AN APPROVED EROSION CONTROL OR LANDSCAPING PLAN). (SEE SHEET 3 FOR SPEC'S.)
18. "AS BUILT" DRAWINGS MUST BE SUBMITTED BY THE ENGINEER OF WORK AND APPROVED BY THE CITY ENGINEER PRIOR TO FINAL ACCEPTANCE OF WORK

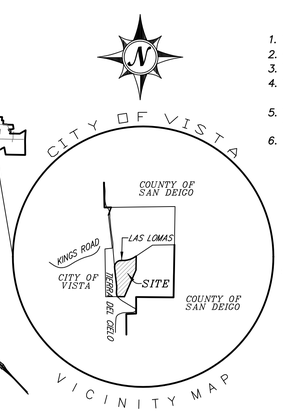
CONTRACTOR'S NOTE: CONSTRUCTION CONTRACTOR AGREES THAT IN ACCORDANCE WITH GENERALLY ACCEPTED CONSTRUCTION PRACTICES, CONSTRUCTION CONTRACTOR WILL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY; AND THAT THIS REQUIREMENT SHALL BE MADE TO APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. CONSTRUCTION CONTRACTOR FURTHER AGREES TO DEFEND, INDEMNIFY AND HOLD CITY OF VISTA HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF CITY OF VISTA PERSONNEL.

ENGINEER'S NOTE: THE ENGINEER PREPARING THESE PLANS WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES & USES OF THESE PLANS. ALL CHANGES TO THE PLANS MUST BE IN WRITTING AND MUST BE APPROVED BY THE PREPARER OF THESE PLANS.



KEY MAP
1" = 200'





KEY MAP LEGEND

SCALE: 1" =100'

DESCRIPTION	SYMBOL
SHEET NUMBER	#
EXIST. 8" PVC SEWER MAIN	(S)
EXIST. SEWER LATERAL	(SL)
EXIST. SEWER MANHOLE	
EXIST. SEWER MAIN CLEANOUT	
EXIST. FIRE HYDRANT	
EXIST. 8" AC WATER MAIN	(W8)
EXIST. 16" WATER MAIN	(W16)
EXIST. WATER METER	
PROPERTY BOUNDARY	
EASEMENT LINE	
OVERHEAD POWER LINES	OH
POWER POLE	

GEOTECHNICAL DECLARATION

THESE PLANS HAVE BEEN REVIEWED BY THE UNDERSIGNED AND THE GEOTECHNICAL ASPECTS OF THE PLANS HAVE BEEN FOUND TO BE IN CONFORMANCE WITH THE INTENTIONS OF THE FINDINGS AND RECOMMENDATIONS CONTAINED IN THE GEOTECHNICAL REPORT PREPARED BY SMS GEOTECHNICAL SOLUTIONS, INC., JOB NUMBER GI-22-01-103 AND ALL SUPPLEMENTS THERETO.

DATE: _____

BY: MEHDI S. SHARIAT R.C.E. 2885

ADDRESS: 5931 SEA LION PLACE, SUITE 109, CARLSBAD, CA. 92010 PHONE NO. (760) 602-7815

DATE: _____

BY: STEVEN J. MELZER C.E.G. 2362

ADDRESS: 5931 SEA LION PLACE, SUITE 109, CARLSBAD, CA. 92010 PHONE NO. (760) 602-7815

SOILS ENGINEER'S CERTIFICATION

I HEREBY CERTIFY THAT I HAVE PROVIDED PROFESSIONAL TESTING AND APPROVAL CONCERNING THE PREPARATION OF GROUND TO RECEIVE FILLS, TESTING FOR REQUIRED COMPACTION, STABILITY OF ALL FINISH SLOPES, DESIGN OF BUTTRESS FILLS WHERE REQUIRED, THE ADEQUACY OF THE NATURAL GROUND FOR RECEIVING FILL, THE STABILITY OF CUT SLOPES WITH RESPECT TO GEOLOGICAL MATTERS AND THE NEED FOR SUBDRAINS AND OTHER GROUNDWATER DRAINAGE DEVICES, AND THAT THESE GRADING PLANS ACCURATELY REFLECT ALL CONDITIONS AND CONSTRUCITON RECOMMENDATIONS PREPARED FOR THIS PROJECT. _____.
DATE

SOILS ENGINEER OF RECORD: _____
MEHDI S. SHARIAT, GE 2885

ENGINEERING GEOLOGIST OF RECORD: _____
STEVEN J. MELZER, CEG 2362

STORMWATER QUALITY MANAGEMENT PLAN

STORMWATER QUALITY MANAGEMENT PLAN PREPARED BY AND DATED:
BY: TORY R. WALKER ENGINEERING
DATED: 10/26/22
PROJECT No: APN 174-260-15

HYDROLOGY REPORT

HYDROLOGY STUDY REPORT PREPARED BY AND DATED:
BY: TORY R. WALKER ENGINEERING
DATED: 10/26/22
PROJECT No: APN 174-260-15

REFERENCE DRAWINGS

DWG. D-3244, GP89-092

LEGAL DESCRIPTION

A PORTION OF PARCEL 3 OF PARCEL MAP NO. 2626 TOGETHER WITH A PORTION OF PARCEL 1 OF PARCEL MAP NO. 6747

TOPOGRAPHY SOURCE

AEROTECH MAPPING, INC.
29970 TECHNOLOGY DRIVE, SUITE 220-C
MURRIETA, CA. 92563
(619) 606-5020
TOPO SOURCE METHOD: AERIAL SURVEY
TOPO SOURCE DATE: JULY 2018

UNDERGROUND SERVICE ALERT

SECTION 4216 & 4217 OF THE GOVERNMENT CODE REQUIRES A DIG ALERT IDENTIFICATON NUMBER BE ISSUED BEFORE A "PERMIT TO EXCAVATE" WILL BE VALID. FOR YOUR DIG ALERT I.D. NUMBER CALL UNDERGROUND SERVICE ALERT TOLL FREE @ 1-800-422-4133 TWO (2) WORKING DAYS BEFORE YOU DIG.
WEB ADDRESS: WWW.DIGALERT.ORG

DECLARATION OF RESPONSIBLE CHARGE

I HEREBY DECLARE THAT I AM THE ENGINEER OF WORK FOR THIS PROJECT, THAT I HAVE EXERCISED RESPONSIBLE CHARGE OVER THE DESIGN OF THE PROJECT AS DEFINED IN SECTION 6703 OF THE CALIFORNIA BUSINESS AND PROFESSIONS CODE, AND THAT THE DESIGN IS CONSISTENT WITH CURRENT CITY OF VISTA STANDARDS. I AGREE THAT THE WORK PERFORMED BY ME COMPLIES WITH GENERALLY ACCEPTED STANDARDS AND PRACTICES OF MY TRADE OR PROFESSION. I FURTHER AGREE THAT THE WORK PERFORMED HEREIN IS IN ACCORDANCE WITH THE RULES AND REGULATIONS REQUIRED BY THE CITY OF VISTA. I AGREE THAT PLAN CHECK OR REVIEW OF PROJECT DRAWINGS AND SPECIFICATIONS BY THE CITY OF VISTA, IN ITS CAPACITY AS A PUBLIC ENTITY FOR THE PLANS PREPARED BY ME, IS CONFINED TO A REVIEW ONLY AND IS NOT A DETERMINATION BY THE CITY OF VISTA OF THE TECHNICAL SUFFICIENCY OR ADEQUACY OF THE PLANS OR DESIGN AND THEREFORE DOES NOT RELIEVE ME, AS ENGINEER OF WORK, OF MY RESPONSIBILITIES FOR THE PLANS OR DESIGN OF IMPROVEMENTS BASED THEREON.

I AGREE TO INDEMNIFY AND HOLD HARMLESS THE CITY OF VISTA, ITS OFFICERS, AGENTS, AND EMPLOYEES FROM PROPERTY DAMAGE OR BODILY INJURY ARISING SOLELY FROM NEGLIGENT ACTS, ERRORS, OR OMISSIONS OF THE ENGINEER, ITS AGENTS, OR ITS EMPLOYEES, ACTING WITHIN THE COURSE AND SCOPE OF SUCH AGENCY AND EMPLOYMENT, AND ARISING OUT OF THE WORK PERFORMED BY ME.

BASIS OF BEARINGS

THE BASIS OF BEARINGS FOR THIS PROJECT IS THE NORTHERLY LINE OF RECORD OF SURVEY MAP NO. 23898, AS DETERMINED LOCALLY BETWEEN THE NORTHEAST CORNER AND THE NORTHWEST CORNER OF SAID RECORD OF SURVEY MAP NO. 23898, RECORDED 05/27/21, I.E. N. 89°21'39" W.

FEMA MAPPING:

PANEL: 06073C0759G
MAY 16, 2012
ZONE "X"

OWNER/APPLICANT

WHEELER FAMILY TRUST DATED MAY 10, 2004
RICHARD R. WHEELER & DEBRA K. WHEELER, TRUSTEES
1279 SHADY MILL ROAD
CORONA, CA. 92882
951-545-9736

PROPERTY ADDRESS

TIERRA DEL CIELLO
VISTA, CA 92084

APN

174-260-15 & 25

DISTURBED ACREAGE

1.70 ACRES

ESTIMATED GRADING QUANTITIES

DESCRIPTION	QUANTITY
CUT	6,018 C.Y.
FILL	1,313 C.Y.
IMPORT	0 C.Y.
EXPORT	4,705 C.Y.

NOTE: QUANTITIES INCLUDE ANY EARTHWORK FOR REMEDIAL PURPOSES, QUANTITIES ARE FOR PERMIT PURPOSES ONLY. CONTRACTOR SHALL CONFIRM ALL QUANTITIES. A HAUL ROUTE PERMIT IS REQUIREED FOR ANY EXPORT/IMPORT OF SOILS AND MAY BE OBTAINED AT THE DEVELOPMENT SERVICES COUNTER.

WORK TO BE DONE

THE IMPROVEMENTS CONSIST OF THE FOLLOWING WORK TO BE DONE IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING DOCUMENTS:

1. VISTA DEVELOPMENT CODE,
2. CITY OF VISTA STANDARD DRAWINGS,
3. THIS SET OF PLANS,
4. THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREEN BOOK) AND THE SAN DIEGO SPECIAL PROVISIONS,
5. THE SAN DIEGO AREA REGIONAL STANDARD DRAWINGS, AND AS MAY BE MODIFIED BY THE CITY OF VISTA STANDARDS,
6. THE VID STANDARDS AND SPECIFICATIONS FOR WATER

LEGEND

COV - CITY OF VISTA STD. DRAWING
VID - VISTA IRRIGATION DISTRICT STD. DRAWING
SDRSD - SAN DIEGO REGIONAL STD. DRAWING

DESCRIPTION	STANDARD	SYMBOL	QUANTITY
PROPERTY LINE	-----		-----
EXISTING 8" WATERLINE	-----	(W8)	-----
EXISTING 16" WATERLINE	-----	(W16)	-----
EXISTING FIRE HYDRANT	-----		-----
EXISTING SEWER MAIN	-----	(S)	-----
FINISHED GROUND CONTOUR	-----	(960)	-----
EXISTING GROUND CONTOUR	-----	960	-----
FUTURE SPOT ELEVATIONS	-----	960.00 FS	-----
FINISH SURFACE ELEV.	-----	FS	-----
FINISH GRADE/HIGH POINT	-----	FG/HP	-----
INVERT ELEVATION	-----	I.E.	-----
OUTLET ELEVATION	-----	O.E.	-----
EXISTING AC PAVING	-----		-----
PROPOSED 2" WATER LATERAL W/METER	VID 1-2	W	1 EA.
PROP. 4" SEWER LATERAL W/CLEANOUT	SS-09	SCO	1 EA.
PROPOSED CUT SLOPE	-----	1.5:1 CUT	6,018 C.Y.
PROPOSED FILL SLOPE	-----	2:1 FILL	178 C.Y.
PROPOSED EXPORT	-----		5,840 C.Y.
PROPOSED GRASS-LINED BROW, TYPE B SEE DETAIL SHEET 2	D-75		1,764 L.F.
PROPOSED RIP RAP, 1/4 TON	D-40		14 C.Y.
PROPOSED RIP RAP, 1/2 TON	D-40		2 C.Y.
PROPOSED 3" AC PAVING OVER 6" DG BASE	-----		28,884 S.F.
PROPOSED DG ROAD SURFACING	-----		798 S.F.
PROPOSED MASONRY RETAINING WALL	C-5/C-6		1,835 S.F.
GABION RETAINING WALL, 3' WIDE x 3' TALL	-----		110 L.F.
PROPOSED ROCK LINED DRAINAGE CHANNEL, SEE DETAIL SHEET 2	-----		2,103 L.F.
PROPOSED SAWCUT, REMOVE AND REPLACE	-----		4,630 S.F.
PROP. CORRIGATED STEEL PIPE INLET/GRATE	-----		1 EA.
PROP. STORM DRAIN CLEANOUT, TYPE A4	D-9		1 EA.
PROP. 4" PERFORATED PVC STORM DRAIN PIPE	-----		71 L.F.
PROP. 12"/15" PVC STORM DRAIN PIPE	-----	SD	110/25 L.F.
PROP. 24" PVC STORM DRAIN PIPE	-----	SD	70 L.F.
PROP. 12"/24" RCP STORM DRAIN PIPE	-----	SD	65/61 L.F.
PROP. 2424/3636 PRECAST INLET W/GRATE	-----		5/1 EA.
PROP. 6" AC BERM, TYPE A	G-5		1,774 L.F.
PROP. STRAIGHT HEADWALL, TYPE B	D-32		2 EA.
PROP. WING TYPE HEADWALL	D-34		2 EA.
PROP. AC SPILLWAY, SECTION B-B	D-22		1 EA.

SHEET INDEX

SITE DEVELOPMENT PLAN EXPIRES: _____
THIS PLAN IS VALID FOR 2 YEARS FROM APPROVAL

STORMWATER
INSPECTION PRIORITY HIGH WDID NO. _____

"AS BUILT"

_____ DATE
RCE _____ EXP. _____

SANITATION ENGINEER
_____ DATE
INSPECTOR

CITY OF VISTA FIRE DEPARTMENT
APPROVED DATE

VISTA IRRIGATION DISTRICT
APPROVAL OF THESE IMPROVEMENT PLANS DOES NOT COMMIT DISTRICT TO SUPPLYING WATER TO THIS PROJECT OR GUARANTEE THAT WATER WILL BE AVAILABLE.
DISTRICT ENGINEER RCE DATE
APPROVAL VALID FOR TWO (2) YEARS FROM DATE

CITY OF VISTA - SANITATION
BASIN: V-9
(REVIEWED FOR CONFLICTS ONLY)
APPROVED RCE DATE

CITY OF VISTA PLANNING DEPARTMENT
APPROVED DATE

NO.	DESCRIPTION	CITY	DATE	VID	DATE
	APPROVED CHANGES				

ACAL ENGINEERING & SURVEYING, INC.
145 N. MELROSE DRIVE, SUITE 200
VISTA, CA 92083
(760) 724-7674

31915 12/31/24 07/17/23
ENGINEER OF WORK RCE LIC. EXP. DATE

REGISTERED PROFESSIONAL ENGINEER DAVID H. LOMAS No. 31915 Exp 12/31/24 CIVIL STATE OF CALIFORNIA

CITY of VISTA

GRADING PLANS FOR:
LAS LOMAS GRADING PROJECT
TITLE SHEET
1985 LAS LOMAS VISTA, CA. 92084

APPROVED
CITY ENGINEER RCE EXPIRES DATE

SHEET 1 OF 11

BENCH MARK: CV82-67
NAIL IN LEAD LOCATED ON TOP OF CONCRETE CURB AT 2130 SUNSET DRIVE.
RECORD FROM: CITY OF VISTA ELEVATION= 220.34 MSL

GP22-003

REVISED: 07/17/23

ACAL ENGINEERING & SURVEYING, INC.
W.O. 20-1065

VID MAP LN 2022- LD # 23-004

SEWER NOTES

1. REFER TO THE IMPROVEMENT PLANS (DRAWING No.____NA_____ FOR COMPLETE SEWER NOTES.

2. ALL SEWER IMPROVEMENTS SHALL BE DONE IN ACCORDANCE WITH THIS PLAN, THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, THE SAN DIEGO REGIONAL STANDARD DRAWINGS (SDRSD), AND THE CITY OF VISTA STANDARD DRAWINGS (COVSD), ALL AS LAST AMENDED. WHERE CONFLICTS ARISE, THE MORE STRINGENT SHALL PREVAIL.

3. THE INTERNAL CONDITION OF ALL SEWER FACILIES WITHIN THE RIGHT-OF-WAY SHALL BE ASSESSED BY CLOSED-CIRCUIT TELEVISED (CCTV) AS FOLLOWS:

A. PRE-CONSTRUCTION: NO GRADING OR TRENCHING WILL BE PERMITTED BEFORE CCTV INSPECTION. CCTV INSPECTION PERFORMED ON_____.

B. POST-TELEVISING CCTV INSPECTION OF ALL NEW AND EXISTING SEWER IMPROVEMENTS IS REQUIRED BEFORE FINAL PAVING OR ACCEPTANCE OF SEWER MAINS, LATERALS, AND APPURTENANCES.

C. CCTV INSPECTION SCHEDULE AND VIDEO TAPE REVIEW FEES: CONTRACTOR IS REQUIRED TO CONTACT THE SANITATION STAFF AT (760) 726-1340, EXTENSION 5417 OR 5432 TO SCHEDULE THE TELEVISING INSPECTION AND PAY APPLICABLE FEES.

D. SUBMITTAL REQUIREMENTS (MIN.): THE TV INSPECTION SHALL BE PERFORMED ONLY BY A CITY-APPROVED FIRM WITH NATIONAL ASSOCIATION OF SEWER SERVICE COMPANIES (NASSCO) CERTIFIED INSPECTORS. THE CONTRACTOR SHALL SUBMIT TO THE CITY/DISTRICT ENGINEER COLOR CCTV ON CD-ROM WITH VERBAL DESCRIPTION, WRITTEN MANUSCRIPT OF THE PERTINENT DIALOGUE, A DIGITAL FILE OF THE TV INSPECTION DATABASE, AND STILL PICTURES. MINIMAL INFORMATION SHALL INCLUDE; PROJECT NAME, DRAWING NO., DATE & TIME, LINE ID AND LOCATION, PIPE SIZE AND MATERIAL, FOOTAGE, LATERAL LOCATION FROM THE UPSTREAM MANHOLE, AND ANY DEFECTS OR PROBLEM AREAS. VIDEO AND REPORT SHALL BE PERFORMED USING NASSCO PIPELINE ASSESSMENT AND CERTIFICATION PROGRAM (PACP) STANDARDS AT THE EXPENSE OF THE CONTRACTOR. FINAL ACCEPTANCE OF THE IMPROVEMENTS IS SUBJECT TO DISTRICT REVIEW AND APPROVAL.

4. DETAILED RECORD DRAWINGS SHALL BE MAINTAINED BY THE CONTRACTOR DURING CONSTRUCTION AND SUBMITTED TO THE ENGINEER OF WORK. "AS-BUILT" DRAWINGS SHALL BE SUBMITTED BY THE ENGINEER OF WORK TO THE CITY/DISTRICT INSPECTOR PRIOR TO ACCEPTANCE OF THE PUBLIC SEWER SYSTEM. FINAL LOCATION AND ELEVATION OF SEWER MAIN, MANHOLES, LATERALS, AND CLEANOUTS SHALL BE SHOWN ON THE RECORD DRAWING AND THE "AS-BUILT" DRAWINGS.

5. ENTRY TO MANHOLES IS PERMIT-REQUIRED CONFINED SPACE ENTRY (REF. SEC. 5156, 5157, AND 5158 OF CALIFORNIA OSHA TITLE 8 CCR GISO). SAID PERMIT AND PLAN MUST BE ISSUED BEFORE EACH ENTRY, MAINTAINED ONSITE AND PRESENTED TO CITY/DISTRICT ENGINEER UPON REQUEST. NON-COMPLIANCE MAY RESULT IN DEATH, FINES, OR IMPRISONMENT.

6. AS EARLY AS POSSIBLE, THE CONTRACTOR SHALL SUBMIT A SANITARY SEWER OVERFLOW PREVENTION AND RESPONSE (SSOP&R) PLAN. PLAN MUST BE APPROVED BY THE CITY/DISTRICT ENGINEER BEFORE ANY WORK THAT MAY AFFECT ACTIVE PRIVATE OR PUBLIC SEWER FLOW. SHOULD A SPILL OCCUR, THE CONTRACTOR SHALL CONTAIN THE SEWAGE FROM ENTERING WATER SURFACE AREAS AND IMMEDIATELY CALL THE DISTRICT WASTEWATER DEPARTMENT AND INSPECTOR FOR INSPECTION, RESPONSE, AND REPORTING:

CITY OF VISTA/ BUENA SANITATION DISTRICT

(7:30 AM TO 3:30 PM) (760) 726-6328

(AFTER WORKING HOURS) (760) 825-3135

THE CONTRACTOR IS LIABLE FOR ANY AND ALL COSTS INCURRED BY THE CITY/DISTRICT FOR RESPONSE AND REPORTING, IN ADDITION TO ANY FINES AND PENALTIES THAT MAY APPLY (REF. COV/BSD SSOP&R, RWQCB 96-04).

7. THE DISTRICT RESERVES THE RIGHT TO APPROVE OR REQUIRE ANY NECESSARY CHANGES TO ENSURE THAT ALL ACTIVE MANHOLES ARE ACCESSIBLE THROUGH ALL PHASES OF CONSTRUCTION, AND THAT ALL FINISHED MANHOLES ARE LEGALLY AND PHYSICALLY ACCESSIBLE TO DISTRICT STANDARDS. [MIN. ESMT. 15' WIDE W / MIN. 12' WIDE DRIVE LANE MEETING: MIN. 4" CL III A.B. TO 10% GRADE, MIN. 2" A.C. OVER 6" CL II A.B. TO 20% WITH DRIVEWAY APRONS AND GATES PER COVSD SWR-21A THROUGH SWR-21D, SWR-22, AND SWR-23 AS REQUIRED].

ENGINEER STATEMENT: I HEREBY CERTIFY THAT I HAVE REVIEWED THE ATTACHED PLANS AND THAT THE PLANS PROVIDE FOR MANHOLE ACCESS BY IMPROVED AND RECORDED EASEMENT IN COMPLIANCE WITH SANITATION STANDARDS.

_____

ENGINEER OF WORK P.E. EXP DATE

VISTA IRRIGATION DISTRICT (DISTRICT) STANDARD PLAN NOTES

1. THE DISTRICT'S APPROVAL GIVEN HERE IS NOT AN APPROVAL TO BEGIN THE INSTALLATION OR CONSTRUCTION OF WATER FACILITIES. APPROVAL FOR THE INSTALLATION OR CONSTRUCTION OF THE WATER FACILITIES IS ONLY GIVEN AFTER PROPER APPLICATION AND/OR EXECUTION OF A CONSTRUCTION CONTRACT AND PAYMENT OF ALL APPLICABLE FEES TO THE DISTRICT. TO BE ACCEPTED THE APPLICATIONS AND/OR THE CONSTRUCTION CONTRACT MUST BE SIGNED BY THE GENERAL MANAGER.

2. ANY WATER FACILITIES THAT WILL BE UNDER THE JURISDICTION OF THE DISTRICT SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE PLANS SIGNED BY THE DISTRICT AND WITH THE DISTRICT'S CURRENT "STANDARD SPECIFICATIONS" APPROVED BY THE BOARD OF DIRECTORS AND POSTED ON OUR WEBSITE AT WWW.VIDWATER.ORG. THE SIGNED "ORIGINAL" PLANS ON FILE AT THE DISTRICT OFFICE ARE THE ONLY PLANS RECOGNIZED BY THE DISTRICT AS "APPROVED." A SIGNED SET OF PLANS AND A COPY OF THE "STANDARD SPECIFICATIONS" MUST BE ON THE JOB SITE DURING CONSTRUCTION OR INSPECTION OF WATER FACILITIES MAY NOT BE RENDERED.

3. THE CONTRACTOR SHALL NOTIFY THE DISTRICT'S ENGINEERING DEPARTMENT OF ANY DISCREPANCIES BETWEEN THE APPROVED PLANS AND THE ACTUAL FIELD CONDITIONS. THIS INCLUDES THE CONTRACTOR'S RESPONSIBILITY FOR LOCATING AND PROTECTING ALL EXISTING UTILITIES AND SUBSTRUCTURES DURING CONSTRUCTION, WHETHER SHOWN ON THE PLANS OR NOT. THE ACTUAL LOCATION AND DEPTH OF ALL UTILITIES, SUBSTRUCTURES, AND CONNECTION POINTS ARE TO BE VERIFIED (EXCAVATED OR POTHOLED) BY THE CONTRACTOR PRIOR TO THE COMMENCEMENT OF WORK, AND ANY DISCREPANCY IS TO BE BROUGHT TO THE ATTENTION OF THE DEVELOPER'S ENGINEER FOR CORRECTION AND THEN SUBMITTED TO THE DISTRICT FOR REVIEW AND APPROVAL. ALL PROPOSED CHANGES TO THE "APPROVED" PLANS MUST BE REVIEWED AND SIGNED BY THE DISTRICT PRIOR TO THE INSTALLATION OF SUCH CHANGES AND SHALL BE INCORPORATED INTO THE "ORIGINAL" PLANS.

4. THE CONTRACTOR SHALL OBTAIN THE DISTRICT'S APPROVAL FOR THE INSTALLATION OF ANY OTHER UTILITY TO BE INSTALLED WITHIN ANY DISTRICT EASEMENT. THE APPROVAL MUST BE OBTAINED PRIOR TO INSTALLATION AND MUST BE INSPECTED BY THE DISTRICT'S INSPECTOR. THE CONTRACTOR SHALL COORDINATE WITH THE DISTRICT ALL WORK WITHIN THE DISTRICT'S EASEMENTS OR IN CLOSE PHYSICAL PROXIMITY TO DISTRICT FACILITIES. STAND-BY PERSONNEL MAY BE REQUIRED DURING ALL PHASES OF WORK AS DETERMINED BY THE DISTRICT.

5. THE CONTRACTOR AGREES TO ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF CONSTRUCTION OF THE PROJECT INCLUDING SAFETY OF ALL PERSONS AND PROPERTY. THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. TO THE FULLEST EXTENT PERMITTED BY LAW, THE CONTRACTOR, AND ANY SUBCONTRACTOR, SHALL DEFEND, INDEMNIFY AND HOLD HARMLESS THE DISTRICT, ITS DIRECTORS, OFFICERS, EMPLOYEES, AND AUTHORIZED VOLUNTEERS FROM AND AGAINST ALL CLAIMS, DAMAGES, LOSSES AND EXPENSES, INCLUDING REASONABLE ATTORNEY'S FEES AND COSTS TO DEFEND ARISING OUT OF OR RESULTING FROM OR IN CONNECTION WITH THE PERFORMANCE OF THE WORK OR CAUSED IN WHOLE OR IN PART BY ANY NEGLIGENT ACT OR OMISSION OF THE CONTRACTOR, ANY SUBCONTRACTOR, ANYONE DIRECTLY OR INDIRECTLY EMPLOYED BY ANY OF THEM, OR ANYONE WHOSE ACTS ANY OF THEM MIGHT BE LIABLE.

6. BEFORE ANY WORK IS ALLOWED TO BEGIN WITHIN DISTRICT RIGHT-OF-WAY, INCLUDING GRADING AND NON-WATER RELATED FACILITY CONSTRUCTION, THE CONTRACTOR SHALL PROCURE AND MAINTAIN INSURANCE AS REQUIRED BY THE DISTRICT AND NAME THE DISTRICT AS ADDITIONAL PRIMARY INSURED. PRIOR TO ANY WORK THAT WOULD NECESSATE CROSSING ANY DISTRICT UNDERGROUND FACILITIES, INCLUDING GRADING AND NON-WATER RELATED FACILITY CONSTRUCTION, THE DEVELOPER OR CONTRACTOR SHALL EXECUTE A TEMPORARY ENCROACHMENT PERMIT AS REQUIRED BY THE DISTRICT AND PAY ANY ASSOCIATED FEES. FOLLOWING INSURANCE AND ENCROACHMENT APPROVALS BY THE DISTRICT, THE CONTRACTOR IS TO CONTACT THE DISTRICT'S ENGINEERING DEPARTMENT AT (760) 597-3116 TO DETERMINE WHEN OR IF WORK CAN BEGIN AND TO ARRANGE A PRE-CONSTRUCTION MEETING WITH THE DISTRICT'S INSPECTOR AT (760) 597-3126. INSPECTION REQUESTS SHALL BE MADE AT LEAST 24 HOURS IN ADVANCE.

7. THE DISTRICT REQUIRES ALL NEW AND EXISTING WATER LINES TO HAVE 36 TO 42 INCHES OF FINAL COVER OR A MINIMUM OF 24 INCHES OF COVER FROM THE BOTTOM OF THE SUB-GRADE, WHICHEVER IS GREATER. THE 24-INCH COVER DOES NOT RELIEVE THE CONTRACTOR FROM LOCATING AND PROTECTING EXISTING UTILITIES DURING CONSTRUCTION. THE DISTRICT SHALL BE NOTIFIED WHEN STREET STRUCTURAL SECTIONS ARE DETERMINED BY THE APPROPRIATE ROAD AGENCY HAVING JURISDICTION OVER THE STREET. THE CONTRACTOR SHALL, AT HIS SOLE EXPENSE, COMPLY WITH THAT AGENCY'S REQUIREMENTS AND OBTAIN THE DISTRICT'S WRITTEN APPROVAL ON THE PLANS OF ANY COVER CHANGES BEFORE THE INSTALLATION OF THE WATER LINE OR BEFORE REMOVING EXISTING COVER.

8. UNAUTHORIZED CONNECTIONS TO THE DISTRICT'S WATER SYSTEM FOR CONSTRUCTION WATER OR ANY OTHER PURPOSE IS STRICTLY FORBIDDEN AND ARE SUBJECT TO ENFORCEMENT UNDER THE DISTRICT'S RULES AND REGULATIONS. THE CONTRACTOR WILL BE CHARGED A MINIMUM FEE (REFER TO CURRENT FEE SCHEDULE) FOR EACH UNAUTHORIZED CONNECTION AS THE ESTIMATED AMOUNT OF WATER USED THROUGH ANY UNAUTHORIZED CONNECTION AND THE DISTRICT MAY CONFISCATE ANY HOSES, VALVES OR OTHER APPURTENANCES USED TO MAKE ANY UNAUTHORIZED CONNECTION.

9. ANY PROPOSED FENCING OR GATES WITHIN DISTRICT RIGHT-OF-WAY MUST BE IDENTIFIED ON THE IMPROVEMENT/GRADING PLAN AND DISTRICT ACCESS COORDINATED PER THE DISTRICT'S REQUIREMENTS. FENCES WILL NOT BE PERMITTED ACROSS THE EASEMENT UNLESS GATES SATISFACTORY TO DISTRICT ARE PROVIDED AND MAINTAINED BY OWNER FOR DISTRICT USE.

10. THESE PLANS ARE SUBJECT TO ADDITIONAL WATER NOTES CONTAINED IN THE "STANDARD SPECIFICATIONS". THOSE NOTES WILL ALSO BE DISPENSED TO THE CONTRACTOR AT THE REQUIRED PRECONSTRUCTION MEETING.

SPECIAL NOTES

1. THE FOLLOWING NOTES ARE PROVIDED TO GIVE INSTRUCTIONS TO THE CONTRACTOR BY THE ENGINEER OF WORK. THE CITY ENGINEER'S SIGNATURE ON THESE PLANS DOES NOT CONSTITUTE APPROVAL OF ANY OF THESE NOTES, AND THE CITY WILL NOT BE RESPONSIBLE FOR THEIR ENFORCEMENT.

2. NEITHER THE OWNER NOR THE ENGINEER OF WORK WILL ENFORCE SAFETY MEASURES OR REGULATIONS. THE CONTRACTOR SHALL DESIGN, CONSTRUCT, AND MAINTAIN ALL SAFETY DEVICES, INCLUDING SHORING, AND SHALL BE SOLELY RESPONSIBLE FOR CONFORMING TO ALL LOCAL, STATE, AND FEDERAL SAFETY AND HEALTH STANDARDS, LAWS, AND REGULATIONS.

3. CONTRACTOR SHALL MAKE EXPLORATION EXCAVATIONS AND LOCATE EXISTING UNDERGROUND FACILITIES SUFFICIENTLY AHEAD OF CONSTRUCTION TO PERMIT REVISIONS TO PLANS IF REVISIONS ARE NECESSARY BECAUSE OF ACTUAL LOCATION OF EXISTING FACILITIES. CONTRACTOR SHALL NOTIFY ENGINEER OF WORK OF ANY DISCREPANCIES BETWEEN THESE PLANS AND ACTUAL FIELD CONDITIONS PRIOR TO STARTING CONSTRUCTION.

4. LOCATION AND ELEVATION OF IMPROVEMENTS TO BE JOINED BY PROPOSED WORK SHALL BE CONFIRMED BY FIELD MEASUREMENTS PRIOR TO STARTING CONSTRUCTION .

5. BEFORE EXCAVATING FOR THIS CONTRACT, VERIFY LOCATION OF UNDERGROUND UTILITIES. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES OR STRUCTURES SHOWN ON THESE PLANS HAS BEEN OBTAINED FROM AVAILABLE RECORDS ONLY AND MAY NOT REFLECT ALL EXISTING UTILITIES. LOCATIONS OF ALL EXISTING UTILITIES SHALL BE CONFIRMED BY FIELD MEASUREMENTS BY CONTRACTOR PRIOR TO STARTUBG CONSTRUCTION.

6. CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN HEREON AND ANY OTHER EXISTING LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS.

7. WHERE TRENCHES ARE ADJACENT TO FUTURE BUILDING SITES, SOILS REPORTS SHALL BE SUBMITTED TO THE ENGINEER OF WORK BY A QUALIFIED SOILS ENGINEER WHICH CERTIFY THAT TRENCH BACKFILL WAS COMPACTED AS DIRECTED BY THE SOILS ENGINEER IN ACCORDANCE WITH THE ON-SITE EARTHWORK SPECIFICATIONS.

8. SAFETY FENCES SHALL BE PROVIDED BY THE CONTRACTOR WHERE REQUIRED BY THE CITY ENGINEER.

9. DURING ACTIVE CONSTRUCTION, AREAS SHALL BE WATERED TO REDUCE FUGITIVE DUST.

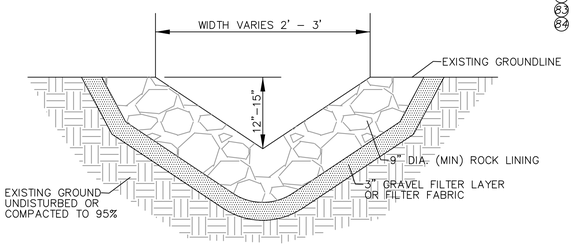
10. CONTRACTOR SHALL ADJUST ALL PROPOSED AND EXISTING FACILITIES TO GRADE.

11. CONTRACTOR SHALL REMOVE/REPLACE/RELOCATE ALL EXISTING FACILITIES AS REQUIRED TO INSTALL PROPOSED IMPROVEMENTS.

12. CONTRACTOR SHALL REMOVE/REPLACE/RELOCATE ANY LANDSCAPING/HARDSCAPING WHICH CONFLICTS IN ANY WAY WITH THE INSTALLATION OR PROPER FUNCTIONING OF THE PROPOSED IMPROVEMENTS.

13. CURB HEIGHT SHALL BE 6" FACE UNLESS OTHERWISE NOTED ON THE PLANS.

ITEM #	EXISTING ITEMS
(1)	EXISTING 8" PVC SEWER MAIN PER COV DWG. NO. D3032.
(2)	STA 5+86.65, EX. SMH. #3 PER COV DWG. NO. D3032. FL EL=871.00
(3)	APPROXIMATE LOCATION EXISTING 8" A.C. WATER MAIN
(4)	EXISTING FIRE HYDRANT
(5)	LOCATION OF EXISTING 16" A.C. WATER MAIN PER VID DWG NO D-1071
(6)	EXISTING POWER POLE
(7)	EXISTING HEADWALL
(8)	EXISTING 24" RCP STORM DRAIN PIPE, IE=689.00, OE=679.00, L=51' GRADE=19.61%
(9)	EXISTING 16" PVC WATER MAIN PER VID DWG. NO. D-1071
(10)	STA 2+56.75, EX. SMH. #1 PER COV DWG. NO. D3032. FL EL=817.50, I.E.=817.82, O.E.=817.10
(11)	EXISTING 2-12" CMP STORM DRAIN PIPES. I.E.=812.40, O.E.=808.60, L=25', GRADE=15.20%
(12)	EXISTING STREET NAME SIGN TO BE RELOCATED
	CONSTRUCTION NOTES
(36)	PROPOSED 2" WATER LATERAL W/METER PER VID STD DWG VID 1-2
(37)	PROP. 4" SEWER LATERAL W/CLEANOUT PER COV STD DWG SS-09
(38)	PROPOSED 4848 INLET W/GRATE, GRATE=813.00, FL=810.34
(39)	PROPOSED (2X)15" PVC STORM DRAIN PIPE, L=5', GRADE=1.40%, I.E.=810.34, O.E.=810.27
(40)	PROPOSED STORM DRAIN CLEANOUT PER SDRSD D-9, TYPE A4, RIM=815.00, I.E.=810.27, O.E.=810.23
(41)	PROPOSED (2X)15" PVC STORM DRAIN PIPE, L=17', GRADE=1.35%, I.E.=810.23, O.E.=810.00
(42)	PROPOSED RIP RAP PER SDRSD D-40, NO. 2 BACKING
(43)	PROPOSED 4848 PRECAST INLET W/GRATE(OR EQUILAVENT). GRATE EL=812.50, FL=805.12, WITH 3 - 12" SIDE OPENINGS. SIDE OPENING ELEVATIONS= 810.00
(44)	PROPOSED 24" PVC STORM DRAIN PIPE, L=72', GRADE=1.00%, I.E.=805.12, O.E.=804.40
(45)	PROPOSED 2424 INLET W/GRATE, GRATE=874.00, FL=872.50
(46)	PROPOSED 12" PVC STORM DRAIN PIPE, L=29', GRADE=6.90%, I.E.=872.50, O.E.=870.50
(47)	PROPOSED CORRIGATED STEEL PIPE INLET, TYPE A PER SDRSD D-16 W/TRAFFIC GRADE GRATE, GRATE EL=833.30, FL=829.22 *INLET TO INCLUDE PLACARD STATING "ONLY RAIN DOWN THE STORMDRAIN" OR SIMILAR"
(48)	PROPOSED 24" RCP STORM DRAIN PIPE. IE=829.22, OE=828.56, L=33', GRADE=2.00%
(49)	PROPOSED WING TYPE HEADWALL PER SDRSD D-34
(50)	PROPOSED 6" AC BERM PER SDRSD G-5, TYPE A
(51)	PROPOSED 6" AC BERM PER SDRSD G-5, TYPE A, 12" WIDE OPENING EVERY 15' FOR DRAINAGE
(52)	PROPOSED GRASS LINED BROW DITCH PER SDRSD D-75, TYPE A, SEE DETAIL SHEET 2
(53)	PROPOSED CORRIGATED STEEP PIPE INLET, PER SDRSD D-16, TYPE B W/GRATE, GRATE EL=693.54, FL=689.41 *INLET TO INCLUDE PLACARD STATING "ONLY RAIN DOWN THE STORMDRAIN" OR SIMILAR"
(54)	PROPOSED 24" RCP STORM DRAIN PIPE. IE=689.41, OE=686.00, L=28', GRADE=12.18%
(55)	PROPOSED 2424 INLET W/GRATE, GRATE=893.00, FL=689.44
(57)	PROPOSED RIP RAP
(58)	PROPOSED 8" AC BERM PER SDRSD G-5, TYPE B
(59)	PROPOSED 3' WIDE x 3' TALL GABION RETAINING WALL, SEE DETAIL SHEET 6
(60)	PROPOSED 2424 PRECAST INLET W/GRATE, GRATE EL=792.00, FL=790.00
(61)	PROPOSED 12" MIN. PVC STORM DRAIN PIPE. IE=790.00, OE=782.48, L=13', GRADE=57.85%
(62)	PROPOSED HEADWALL PER SDRSD D-35A, U TYPE
(63)	PROPOSED MASONRY RETAINING WALL AND CAISSONS, SEE DETAILS SHEET 7 WITH 1-2 COURSES FREEBOARD
(64)	PROPOSED MASONRY RETAINING WALL PER SDRSD C-5
(65)	PROPOSED MASONRY RETAINING WALL PER SDRSD C-6 WITH 1-2 COURSES FREEBOARD
(66)	PROPOSED STRAIGHT HEADWALL PER SDRSD D-32, TYPE B, DOUBLE
(67)	PROPOSED AC SPILLWAY PER SDRSD D-22, ALTERNATE SECTION B-B
(68)	PROPOSED GRASS LINED BROW DITCH PER SDRSD D-75, TYPE A, MODIFIED TO 2' WIDE, SEE DETAIL SHEET 2
(69)	PROPOSED 12" RCP STORM DRAIN PIPE. IE=690.48, OE=689.91, L=50', GRADE=1.00%
(70)	PROPOSED 4" PERFORATED PVC SUBDRAIN PIPE
(71)	PROPOSED 2424 PRECAST INLET W/GRATE, GRATE EL=776.75, FL=773.75
(72)	PROPOSED 12" RCP STORM DRAIN PIPE. IE=773.75, OE=765.48, L=15', GRADE=55.13%
(73)	PROPOSED 1/2 TON RIP RAP PER SDRSD D-40
(74)	PROPOSED 1/4 TON RIP RAP PER SDRSD D-40
(81)	PROPOSED 36" WIDE x 15" DEEP ROCK LINED SWALE, SEE DETAIL SHEET 2
(82)	PROPOSED 36" WIDE x 12" DEEP ROCK LINED SWALE, SEE DETAIL SHEET 2
(83)	PROPOSED 24" WIDE x 15" DEEP ROCK LINED SWALE, SEE DETAIL SHEET 2
(84)	PROPOSED 24" WIDE x 12" DEEP ROCK LINED SWALE, SEE DETAIL SHEET 2

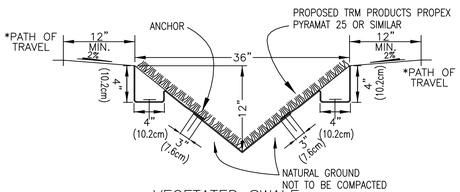


ROCK LINED SWALE

NTS

NOTES:

1. ROCK LINING TO BE INSTALLED TO FORM A STABLE STRUCTURE WITH A MINIMUM OF VOIDS, AND EACH PLACED IN CONTACT WITH ADJACENT ROCKS.
2. ROCK LINING SHALL BE SOUND, DENSE, AND DURABLE ANGULAR ROCK WITH A MINIMUM SPECIFIC GRAVITY OF 2.6.
3. ROCK LINED CHANNELS LARGER THAN THE DIMENSIONS SHOWN, OR ON SLOPES STEEPER THAN 5% SHALL BE DESIGNED BY A CIVIL ENGINEER.
4. IF A GRAVEL FILTER LAYER IS SUBSTITUTED FOR FILTER FABRIC, MATERIAL SHALL BE A MIXTURE OF CLEAN, WASHED SAND AND GRAVEL, COMPRISED OF MATERIAL LESS THAN 1-1/2" DIAMETER IN SIZE.
5. CHECK DAMS MAY BE INSTALLED IN ROCK LINED SWALE DEPENDING UPON APPLICATION AND SITE CONDITIONS.



VEGETATED SWALE

NOTES: NO SCALE

1) PLACE 3 ANCHORS PER SQUARE YARD OF MATERIAL
2) FOR GRASS OR TURF OPTION, INSTALL TURF REINFORCEMENT MAT.
* NOTE: BIOSWALES SHALL HAVE A MINIMUM OF 12" SEPERATION FROM SIDEWALKS, ROADS, OR PATHS OF TRAVEL TO PREVENT TRIPPING HAZARD.

SITE DEVELOPMENT PLAN EXPIRES: _____
THIS PLAN IS VALID FOR 2 YEARS FROM APPROVAL

STORMWATER
INSPECTION PRIORITY HIGH WDID NO. _____

CITY of VISTA

GRADING & EROSION/SEDIMENTATION CONTROL PLANS FOR:

LAS LOMAS GRADING PROJECT
NOTES, DETAILS & CONSTRUCTION ITEM NOTES

1985 LAS LOMAS VISTA, CA. 92084

APPROVED

CITY ENGINEER RCE EXPIRES DATE

SHEET 2 OF 11

BENCH MARK: CV82-67
NAIL IN LEAD LOCATED ON TOP OF CONCRETE CURB AT 2130 SUNSET DRIVE.
RECORD FROM: CITY OF VISTA ELEVATION= 220.34 MSL

GP22-003

NO.	DESCRIPTION	CITY	DATE	VID	DATE
	APPROVED CHANGES				

ACAL ENGINEERING & SURVEYING, INC.
145 N. MELROSE DRIVE, SUITE 200
VISTA, CA 92083
(760) 724-7674

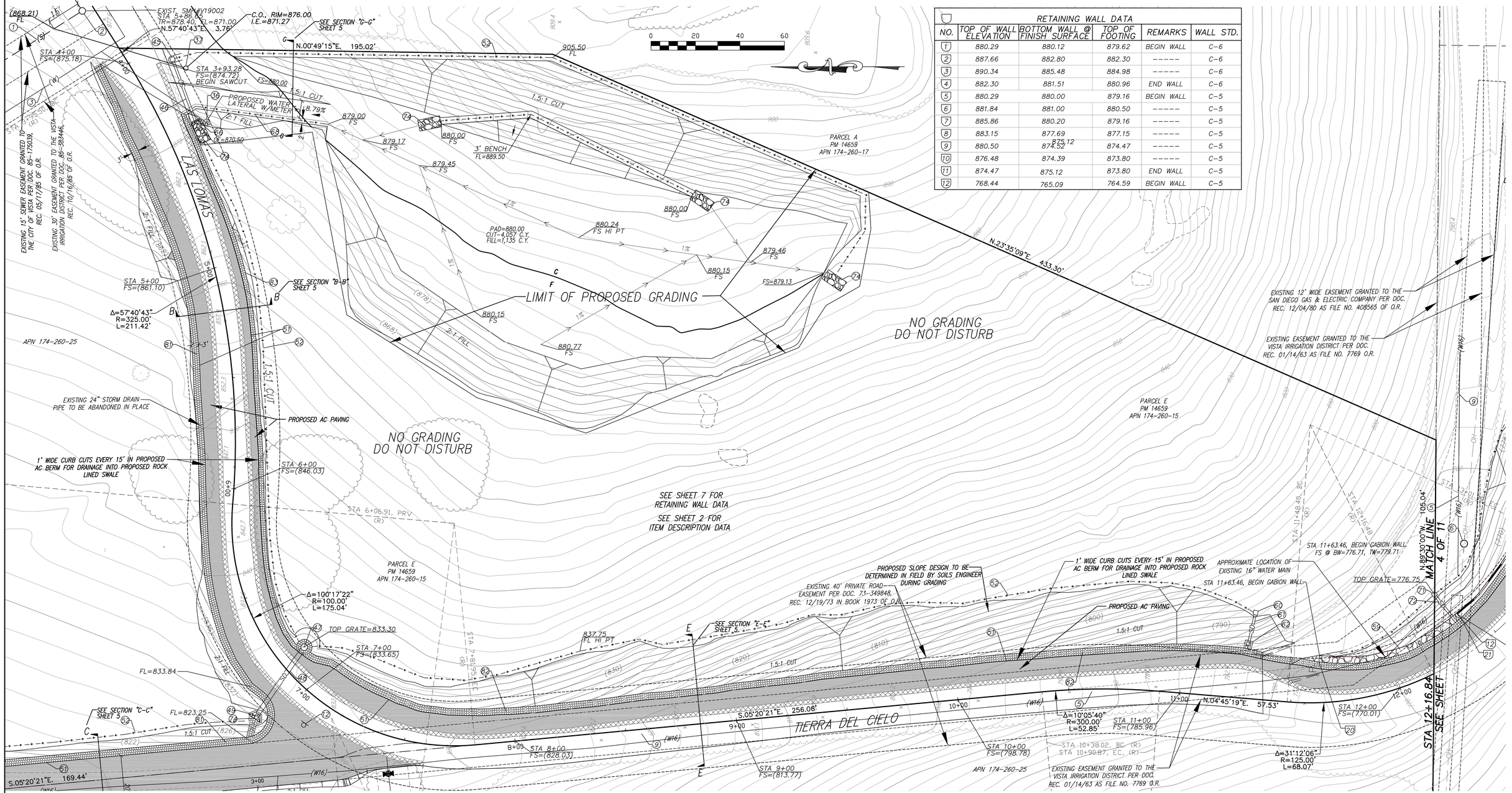
ENGINEER OF WORK 31915 RCE 12/31/24 LIC. EXP. 07/17/23 DATE

REGISTERED PROFESSIONAL ENGINEER DAVID H. LOWDEN No. 31915 Exp 12/31/24 CIVIL STATE OF CALIFORNIA

REVISED: 07/17/23

ACAL ENGINEERING & SURVEYING, INC.
W.O. 20-1065

LD # 23-004



RETAINING WALL DATA					
NO.	TOP OF WALL ELEVATION	BOTTOM WALL @ FINISH SURFACE	TOP OF FOOTING	REMARKS	WALL STD.
1	880.29	880.12	879.62	BEGIN WALL	C-6
2	887.66	882.80	882.30	-----	C-6
3	890.34	885.48	884.98	-----	C-6
4	882.30	881.51	880.96	END WALL	C-6
5	880.29	880.00	879.16	BEGIN WALL	C-5
6	881.84	881.00	880.50	-----	C-5
7	885.86	880.20	879.16	-----	C-5
8	883.15	877.69	877.15	-----	C-5
9	880.50	874.52	874.47	-----	C-5
10	876.48	874.39	873.80	-----	C-5
11	874.47	875.12	873.80	END WALL	C-5
12	768.44	765.09	764.59	BEGIN WALL	C-5

SEE SHEET 5

SEWER LATERAL DATA TABLE												
SEQ. NO.	STREET STATION OF LATERAL @ MAIN	INVERT @ MAIN ① I.E.	LENGTH OF LATERAL	DROP TO MAIN	LATERAL ELEVATION ② AT PL I.E.	LATERAL SLOPE %	GROUND ELEV. ③ AT PL	DEPTH BELOW PL ④ PL TO I.E.	PAD ELEV. FT.	UPSTREAM MH RIM ELEV.	BACKWATER VALVE REQ'D.	REMARKS
SLA	5+76.65	869.03	52.00'	1.20'	871.19	2.00%	876.00	4.81'	880.00	878.25	NO	SEE NOTE BELOW

NOTE: -PRIVATE SEWER LATERAL IS REQUIRED TO BE 4" PVC SDR-35(GREEN), WIDTH @ SCO & UTILITY BOX

SITE DEVELOPMENT PLAN EXPIRES: _____
THIS PLAN IS VALID FOR 2 YEARS FROM APPROVAL

STORMWATER
INSPECTION PRIORITY HIGH WDID NO. _____

STATEMENT OF ENGINEER OF WORK

THE UNDERSIGNED ENGINEER AGREES THAT THE WORK PERFORMED BY THE ENGINEER SHALL COMPLY WITH THE GENERALLY ACCEPTED STANDARDS AND PRACTICES OF THE ENGINEER'S TRADE OR PROFESSION. THE ENGINEER FURTHER AGREES THAT THE WORK PERFORMED HEREIN SHALL BE IN ACCORDANCE WITH THE RULES AND REGULATIONS REQUIRED BY THE CITY OF VISTA. THE ENGINEER AGREES THAT ANY PLAN CHECK OR REVIEW PERFORMED BY THE CITY OF VISTA IN ITS CAPACITY AS A PUBLIC ENTITY FOR THE PLANS PREPARED BY THE ENGINEER IS NOT A DETERMINATION BY THE CITY OF VISTA OF THE TECHNICAL SUFFICIENCY OR ADEQUACY OF THE PLANS OR DESIGN AND, THEREFORE DOES NOT RELIEVE THE ENGINEER OF RESPONSIBILITY FOR THE PLANS OR DESIGN OF IMPROVEMENTS BASED THEREON.
THE ENGINEER AGREES TO INDEMNIFY AND HOLD HARMLESS THE CITY OF VISTA, ITS OFFICERS, AGENTS AND EMPLOYEES FROM PROPERTY DAMAGE OR BODILY INHURY ARISING SOLELY FROM THE NEGLIGENT ACTS, ERRORS OR OMISSIONS OF THE ENGINEER, ITS AGENTS OR ITS EMPLOYEES, ACTING WITHIN THE COURSE AND SCOPE OF SUCH AGENCY AND EMPLOYMENT, AND ARISING OUT OF THE WORK PERFORMED BY THE ENGINEER.

07/17/23

NO.	DESCRIPTION	CITY	DATE	VID	DATE
	APPROVED CHANGES		APPROVED BY		

ACAL ENGINEERING & SURVEYING, INC.
145 N. MELROSE DRIVE, SUITE 200
VISTA, CA 92083
(760) 724-7674

ENGINEER OF WORK 31915 RCE 12/31/24 EXP. 07/17/23 DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID H. LANGER — No. 31915 — Exp. 12/31/24 — CIVIL — STATE OF CALIFORNIA

CITY of VISTA

GRADING & EROSION/SEDIMENTATION CONTROL PLANS FOR:

LAS LOMAS GRADING PROJECT
ROUGH GRADING PLAN APN 174-260-15
TIERRA DEL CIELO STREET WIDENING

1985 LAS LOMAS VISTA, CA. 92084

APPROVED

CITY ENGINEER	RCE	EXPIRES DATE

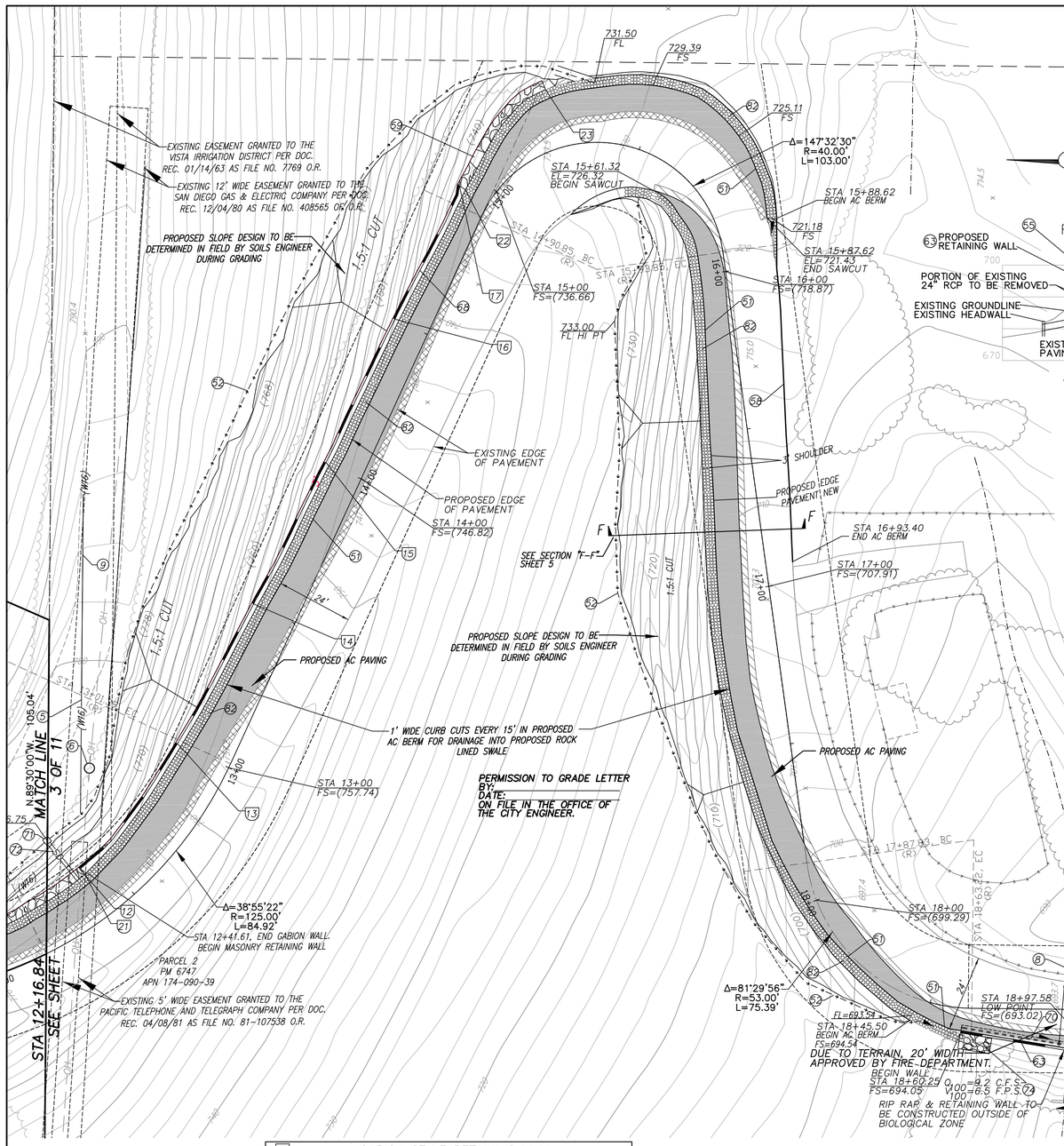
SHEET 3 OF 11

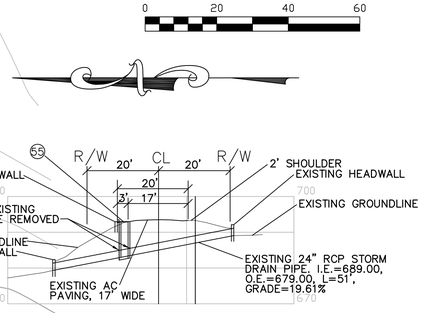
BENCH MARK: CVB2-67
NAIL IN LEAD LOCATED ON TOP OF CONCRETE CURB AT 2130 SUNSET DRIVE.
RECORD FROM: CITY OF VISTA ELEVATION= 220.34 MSL

GP22-003

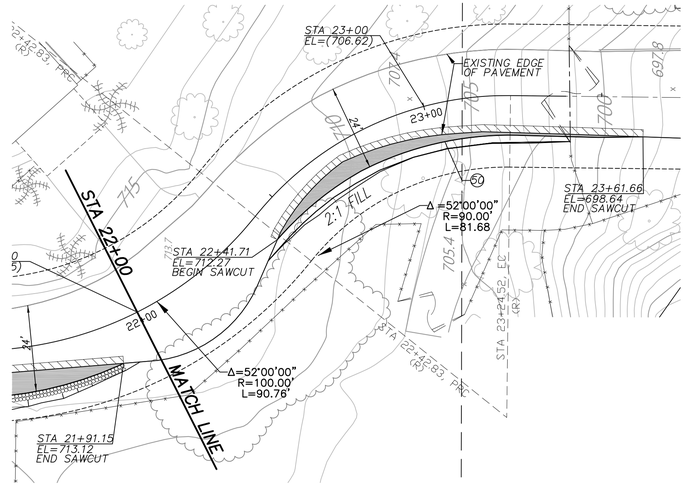
ACAL ENGINEERING & SURVEYING, INC.
W.O. 20-1065

LD # 23-004





EXIST STORM DRAIN PROFILE
NOT TO SCALE



SAME POINT

RETAINING WALL DATA					
NO.	TOP OF WALL ELEVATION	BOTTOM WALL @ FINISH SURFACE	TOP OF FOOTING	REMARKS	WALL STD.
12	768.62	765.10	764.60	BEGIN WALL	C-4
13	763.93	758.71	757.90	-----	C-4
14	757.23	752.04	751.20	-----	C-4
15	752.54	746.28	745.17	-----	C-4
16	746.51	741.30	740.48	-----	C-4
17	740.48	736.79	735.79	END WALL	C-4
18	694.48	686.00	688.45	-----	PER DETAIL

GABION STYLE RETAINING WALL				
NO.	TOP OF WALL ELEVATION	BOTTOM WALL @ FINISH SURFACE	BOTTOM OF WALL	REMARKS
20	779.71	776.71	776.38	BEGIN WALL
21	768.10	765.10	764.77	END WALL
22	739.79	736.79	736.46	BEGIN WALL
23	736.62	733.62	733.29	END WALL

SEE SHEET 7 FOR WALL DETAILS

SITE DEVELOPMENT PLAN EXPIRES:
THIS PLAN IS VALID FOR 2 YEARS FROM APPROVAL

STORMWATER
INSPECTION PRIORITY HIGH WDID NO.

REVISED: 07/17/23

STATEMENT OF ENGINEER OF WORK

THE UNDERSIGNED ENGINEER AGREES THAT THE WORK PERFORMED BY THE ENGINEER SHALL COMPLY WITH THE GENERALLY ACCEPTED STANDARDS AND PRACTICES OF THE ENGINEER'S TRADE OR PROFESSION. THE ENGINEER FURTHER AGREES THAT THE WORK PERFORMED HEREIN SHALL BE IN ACCORDANCE WITH THE RULES AND REGULATIONS REQUIRED BY THE CITY OF VISTA. THE ENGINEER AGREES THAT ANY PLAN CHECK OR REVIEW PERFORMED BY THE CITY OF VISTA IN ITS CAPACITY AS A PUBLIC ENTITY FOR THE PLANS PREPARED BY THE ENGINEER IS NOT A DETERMINATION BY THE CITY OF VISTA OF THE TECHNICAL SUFFICIENCY OR ADEQUACY OF THE PLANS OR DESIGN AND, THEREFORE DOES NOT RELIEVE THE ENGINEER OF RESPONSIBILITY FOR THE PLANS OR DESIGN OF IMPROVEMENTS BASED THEREON.
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NO.	DESCRIPTION	CITY	DATE	VID	DATE
	APPROVED CHANGES		APPROVED BY		

ACAL ENGINEERING & SURVEYING, INC.
145 N. MELROSE DRIVE, SUITE 200
VISTA, CA 92083
(760) 724-7674

31915 12/31/24 07/17/23
ENGINEER OF WORK RCE DC. EXP. DATE

REGISTERED PROFESSIONAL ENGINEER DAVID H. LOWE No. 31915 Exp 12/31/24 CIVIL STATE OF CALIFORNIA

CITY of VISTA

GRADING & EROSION/SEDIMENTATION CONTROL PLANS FOR:
LAS LOMAS GRADING PROJECT
TIERRA DEL CIELO STREET WIDENING
1985 LAS LOMAS VISTA, CA. 92084

APPROVED
CITY ENGINEER RCE EXPIRES DATE

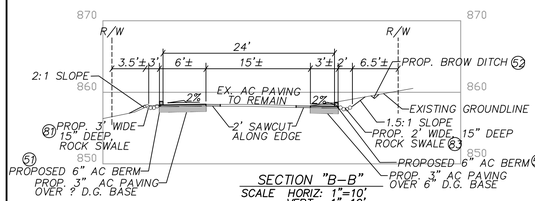
SHEET 4 OF 11

BENCH MARK: CV82-67
NAIL IN LEAD LOCATED ON TOP OF CONCRETE CURB AT 2130 SUNSET DRIVE.
RECORD FROM: CITY OF VISTA ELEVATION= 220.34 MSL

GP22-003

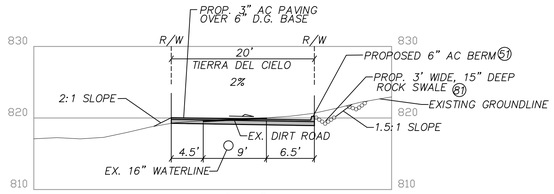
ACAL ENGINEERING & SURVEYING, INC.
W.O. 20-1065

LD # 23-004

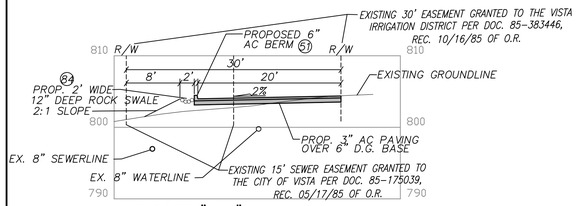


SECTION "B-B"
SCALE HORIZ: 1"=10'
VERT: 1"=10'

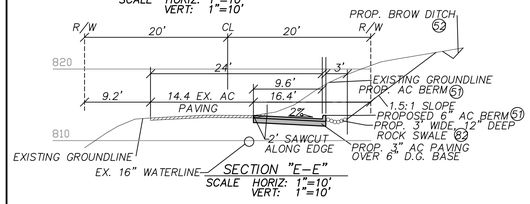
SEE SHEET 6



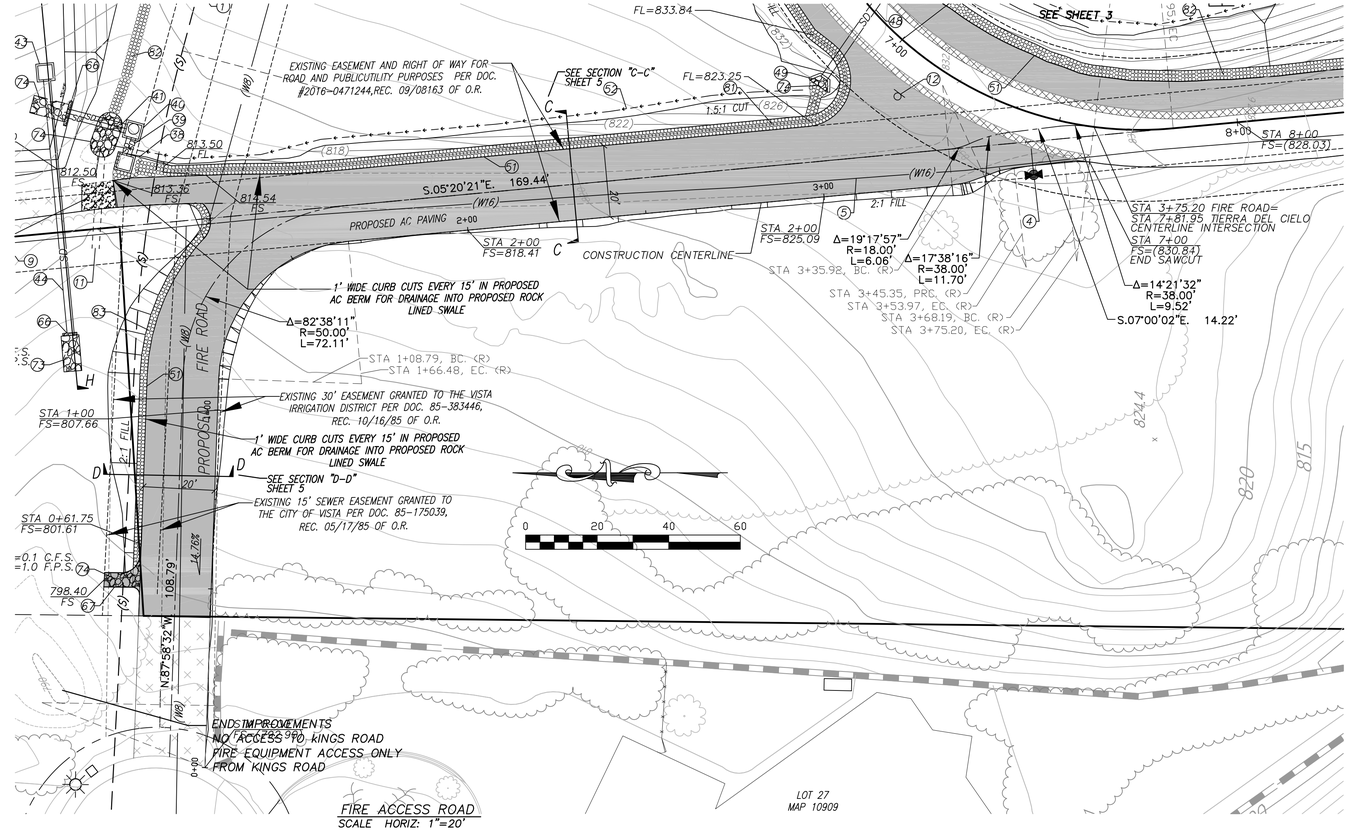
SECTION "C-C"
SCALE HORIZ: 1"=10'
VERT: 1"=10'



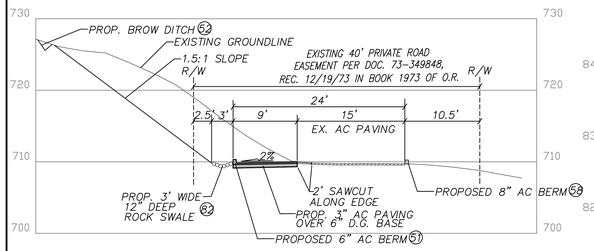
SECTION "D-D"
SCALE HORIZ: 1"=10'
VERT: 1"=10'



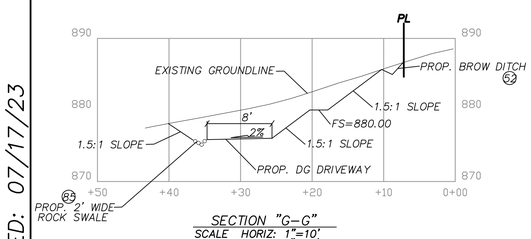
SECTION "E-E"
SCALE HORIZ: 1"=10'
VERT: 1"=10'



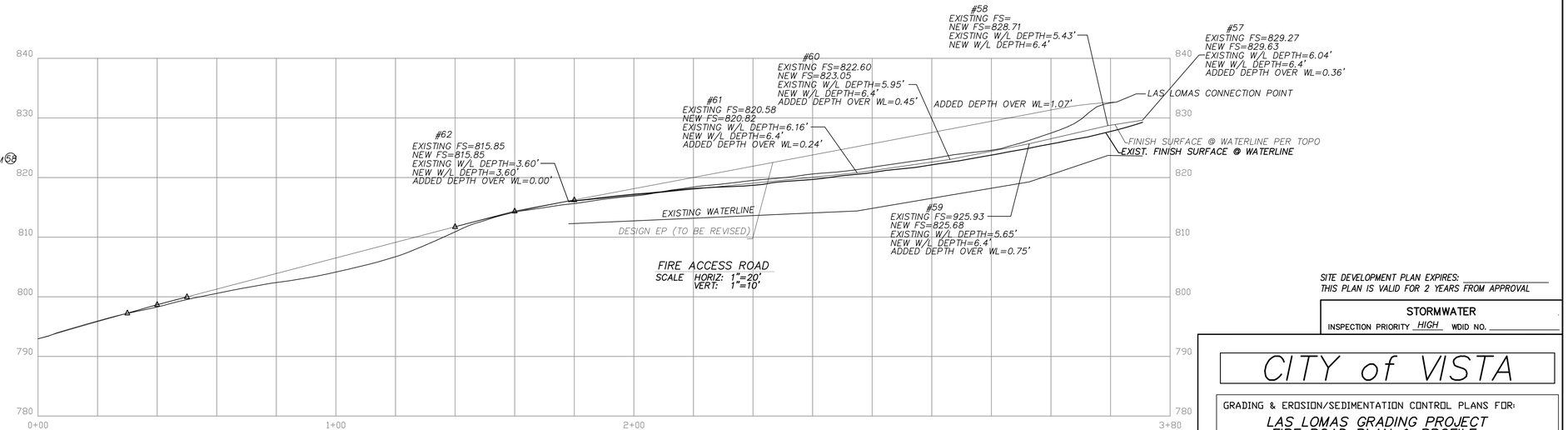
FIRE ACCESS ROAD
SCALE HORIZ: 1"=20'



SECTION "F-F"
SCALE HORIZ: 1"=10'
VERT: 1"=10'



SECTION "G-G"
SCALE HORIZ: 1"=10'
VERT: 1"=10'



FIRE ACCESS ROAD
SCALE HORIZ: 1"=20'
VERT: 1"=10'

SITE DEVELOPMENT PLAN EXPIRES: _____
THIS PLAN IS VALID FOR 2 YEARS FROM APPROVAL

STORMWATER
INSPECTION PRIORITY HIGH WDID NO. _____

CITY of VISTA

GRADING & EROSION/SEDIMENTATION CONTROL PLANS FOR:

LAS LOMAS GRADING PROJECT
FIRE ROAD PLAN & PROFILE
TYPICAL SECTION DETAILS

1985 LAS LOMAS VISTA, CA. 92084

APPROVED

CITY ENGINEER	RCE	EXPIRES DATE

SHEET 5 OF 11

BENCH MARK: CV82-67
NAIL IN LEAD LOCATED ON TOP OF CONCRETE CURB AT 2130 SUNSET DRIVE.
RECORD FROM: CITY OF VISTA ELEVATION= 220.34 MSL

GP22-003

NO.	DESCRIPTION	CITY	DATE	VID	DATE
	APPROVED CHANGES		APPROVED BY		

ACAL ENGINEERING & SURVEYING, INC.
145 N. MELROSE DRIVE, SUITE 200
VISTA, CA 92083
(760) 724-7674

REGISTERED PROFESSIONAL ENGINEER — DAVID H. LOWCHIRCO — No. 31915 Exp 12/31/24 — CIVIL — STATE OF CALIFORNIA

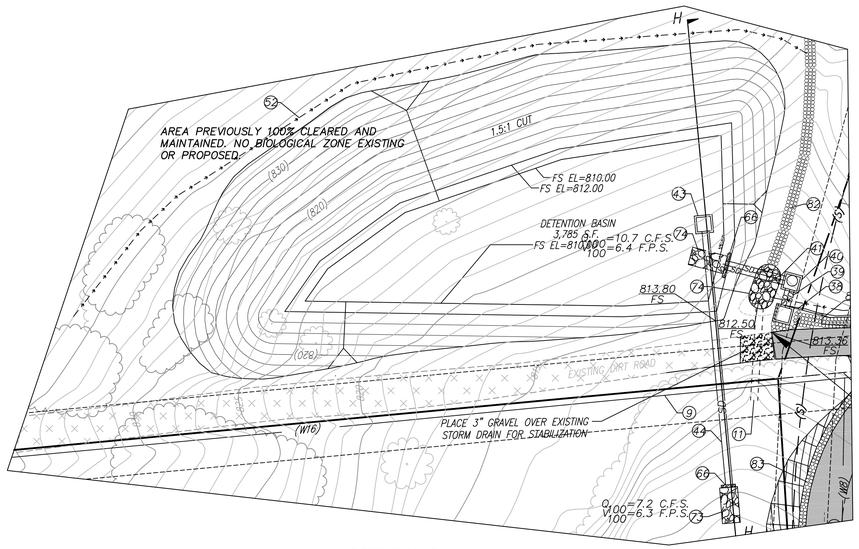
31915	12/31/24	07/17/23
ENGINEER OF WORK	RCE LIC. EXP.	DATE

REVISED: 07/17/23

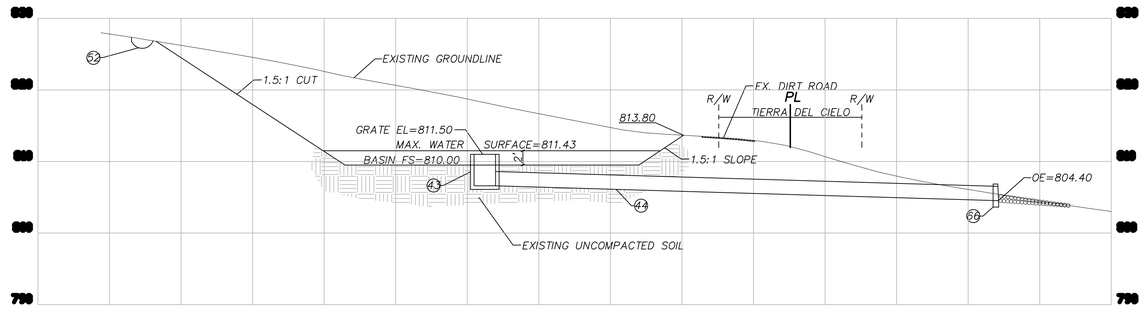
ACAL ENGINEERING & SURVEYING, INC.
W.O. 20-1065

LD # 23-004

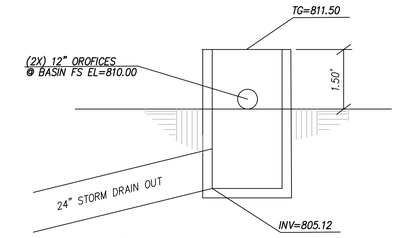
0 20 40 60



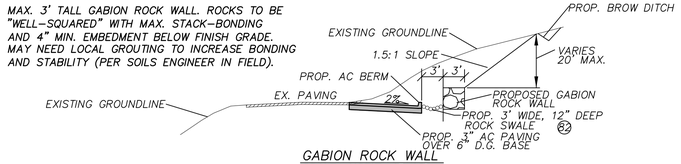
DETENTION BASIN
SCALE HORIZ: 1"=10'



SECTION "H-H"
SCALE HORIZ: 1"=10'
VERT: 1"=10'



FLOW CONTROL STRUCTURAL DETAIL
NO SCALE



GABION ROCK WALL
SCALE HORIZ: 1"=10'
VERT: 1"=10'
CONCEPT AND SCHEMATIC ONLY

NOTES:

FINISH CUT SLOPES SHOULD BE NEATLY EXCAVATED TO DESIGN GRADES.

OVER-CUT/EXCAVATED AND/OR HIGHLY IRREGULAR CUT SLOPE FACES SHALL REQUIRE APPROPRIATE MITIGATION/STABILIZATION OR A TOE RETAINING WALL SUPPORT, AS DIRECTED IN THE FIELD.

ROCKS USED FOR "ROCK WALL" SHALL BE WELL-SQUARED WITH NEARLY FLAT SIDE, GABION TYPE CONSTRUCTION WITH HEAVE GAUGE GALVANIZED STEEL MESH ENCASEMENT WILL BE REQUIRED FOR SMALLER THAT 18" ROCK SIZES

* UNLESS OTHERWISE DETERMINED IN THE FIELD BY SOILS ENGINEER.

NO.	DESCRIPTION	CITY	DATE	VID	DATE
	APPROVED CHANGES		APPROVED BY		

ACAL ENGINEERING & SURVEYING, INC.
145 N. MELROSE DRIVE, SUITE 200
VISTA, CA 92083
(760) 724-7674

31915 12/31/24 07/17/23
ENGINEER OF WORK RCE DC. EXP. DATE

REGISTERED PROFESSIONAL ENGINEER
DAVID H. LOWDEN
No. 31915
Exp. 12/31/24
CIVIL
STATE OF CALIFORNIA

SITE DEVELOPMENT PLAN EXPIRES: _____
THIS PLAN IS VALID FOR 2 YEARS FROM APPROVAL

STORMWATER
INSPECTION PRIORITY HIGH WDID NO. _____

CITY of VISTA

GRADING & EROSION/SEDIMENTATION CONTROL PLANS FOR:

LAS LOMAS GRADING PROJECT
DETENTION BASIN DETAILS
GABION WALL DETAIL

1985 LAS LOMAS VISTA, CA. 92084

APPROVED

CITY ENGINEER RCE EXPIRES DATE

SHEET 6 OF 11

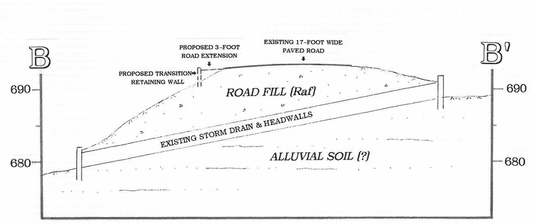
BENCH MARK: CVB2-67
NAIL IN LEAD LOCATED ON TOP OF CONCRETE CURB AT 2130 SUNSET DRIVE.
RECORD FROM: CITY OF VISTA ELEVATION= 220.34 MSL

GP22-003

LD # 23-004

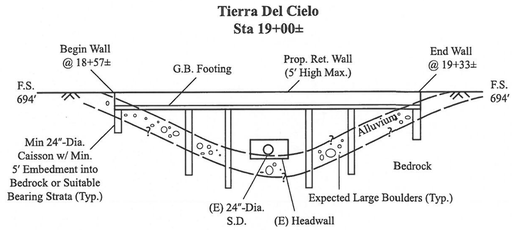
REVISED: 07/17/23

ACAL ENGINEERING & SURVEYING, INC.
W.O. 20-1065



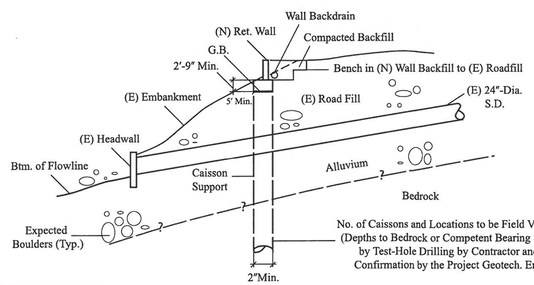
SCALE: 1" = 10'

TYPICAL RETAINING WALL SUPPORT PROFILE AND SECTION



Conceptual and Schematic
No-Scale

1. No. of Caissons and All Locations and Elevations to be Determined by the Project Design Consultant and Field Verified and Shown on the As-Built Plans
2. Actual Depths to Bedrock or Competent Bearing Strata to be Determined by Test-Hole Drilling by the Contractor and Verified by the Project Geotech. Consultant
3. Actual Ret. Wall and Caisson Designs by the Project Structural Engineer
4. Boulder Rock Removals and Difficult/Core Drilling Should be Expected for Caisson Shaft Development
5. Extending Bottom of the G.B. at Least 9" Below a "Typical" Scour Depth of 2' Min, Below the Adjacent Slope Grade (Min. 5' to Daylight) Should be Considered in the G.B. Design.

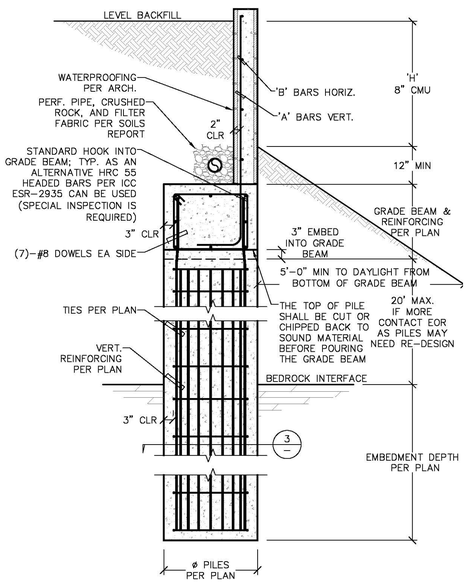


Typical Section

SMS GEOTECHNICAL SOLUTIONS INC
5931 Sea Lion Place, Suite 109
Carlsbad, CA 92010

Project Number: **GI-22-01-103**
Figure Number: 7

RETAINING WALL SCHEDULE		
H	A BARS	B BARS
0'–5'	#5 @ 8"	#4 @ 16"



RETAINING WALL + PILE ELEVATION NTS (6)

SITE DEVELOPMENT PLAN EXPIRES: _____
THIS PLAN IS VALID FOR 2 YEARS FROM APPROVAL

STORMWATER
INSPECTION PRIORITY HIGH WDID NO. _____

CITY of VISTA

ROUGH GRADING & EROSION/SEDIMENTATION CONTROL PLANS FOR:
LAS LOMAS GRADING PROJECT
RETAINING WALL DETAILS

1985 LAS LOMAS VISTA, CA. 92084

APPROVED

CITY ENGINEER	RCE	EXPIRES DATE

SHEET 7 OF 11

BENCH MARK: CV82–67
NAIL IN LEAD LOCATED ON TOP OF CONCRETE CURB AT 2130 SUNSET DRIVE.
RECORD FROM: CITY OF VISTA ELEVATION= 220.34 MSL

GP22–003

LD # 23–004

NO.	DESCRIPTION	CITY	DATE	VID	DATE
	APPROVED CHANGES		APPROVED BY		

ACAL ENGINEERING & SURVEYING, INC.
145 N. MELROSE DRIVE, SUITE 200
VISTA, CA 92083
(760) ~~724-7674~~

31915	12/31/24	07/17/23
RCE	LIC. EXP.	DATE

ENGINEER OF WORK

REGISTERED PROFESSIONAL ENGINEER — DAVID H. LOWEN — No. 31915 Exp. 12/31/24 — STATE OF CALIFORNIA

REVISED: 07/17/23

ACAL ENGINEERING & SURVEYING, INC.
W.O. 20–1065

EROSION CONTROL NOTES

STORM WATER AND EROSION CONTROL NOTES

1. TOTAL AREA OF LAND DISTURBANCE = 0.39 ACRES
2. THIS PROJECT IS SUBJECT TO ALL APPLICABLE GENERAL AND PROJECT SPECIFIC PROHIBITIONS AND REQUIREMENTS IN CHAPTERS 13.18 AND 17.56 OF THE VISTA MUNICIPAL CODE, AND THE CITY STORMWATER STANDARDS MANUAL.
3. BMPS AT MANNED FACILITIES MUST BE INSPECTED BY THE EROSION CONTROL CONTRACTOR BEFORE AND FOLLOWING PREDICTED RAIN EVENTS. BMPS AT UNMANNED FACILITIES MUST BE INSPECTED BY THE DISCHARGER REGULARLY DURING THE RAINY SEASON AND PERIODICALLY BETWEEN EACH RAINY SEASON. THESE BMPS MUST BE MAINTAINED SO THAT THEY CONTINUE TO FUNCTION AS DESIGNED. BMPS WHICH FAIL MUST BE REPAIRED AS SOON AS IT IS SAFE TO DO SO. IF THE FAILURE OF A BMP INDICATES THAT THE BMPS IN USE ARE INAPPROPRIATE OR INADEQUATE TO THE CIRCUMSTANCES, THE BMPS MUST BE MODIFIED OR UPGRADED TO PREVENT ANY FURTHER FAILURE IN THE SAME OR SIMILAR CIRCUMSTANCES.
4. IN THE EVENT OF FAILURE OR REFUSAL TO PROPERLY MAINTAIN SAID DEVICES, THE CITY ENGINEER MAY CAUSE EMERGENCY MAINTENANCE WORK TO BE DONE TO PROTECT ADJACENT PRIVATE AND PUBLIC PROPERTY, THE COST OF WHICH (INCLUDING AN INITIAL MOBILIZATION AMOUNT) SHALL BE CHARGED TO THE OWNER.
5. SEDIMENTATION BASINS MAY NOT BE REMOVED OR MADE INOPERATIVE WITHOUT PRIOR APPROVAL OF THE CITY ENGINEER.
6. TEMPORARY EROSION CONTROL DEVICES SHOWN ON THE EROSION CONTROL PLAN WHICH INTERFERE WITH THE WORK SHALL BE RELOCATED OR MODIFIED AS THE WORK PROGRESSES AS RECOMMENDED BY THE ENGINEER OF WORK AND AS APPROVED BY THE CITY ENGINEER.
7. ALL LOOSE SOIL AND DEBRIS SHALL BE REMOVED FROM THE STREET AREAS UPON STARTING OPERATIONS, AND PERIODICALLY THEREAFTER, AS DIRECTED BY THE INSPECTOR.
8. A 12-INCH HIGH BY 4-FOOT WIDE BERM SHALL BE MAINTAINED ALONG THE TOP OF SLOPE OF THOSE FILLS ON WHICH GRADING IS NOT IN PROGRESS. CONCENTRATED WATER SHALL NOT BE CARRIED WITHIN 10 FEET FROM THE TOP OF SLOPES.
9. STAND-BY CREWS SHALL BE ALERTED BY THE CONTRACTOR, PERMITTEE, OR OWNER FOR EMERGENCY WORK DURING RAINSTORMS.
10. ALL UTILITY TRENCHES SHALL BE BACKFILLED WITHIN 24 HOURS AND MUST BE BACKFILLED BEFORE THE END OF THE WORK DAY IF A 40% CHANCE OF RAIN IS PREDICTED.
11. ALL BUILDING PADS SHALL BE SLOPED TOWARDS THE DRIVEWAY AND VELOCITY CHECK DAMS PROVIDED AT THE BASE OF ALL DRIVEWAYS DRAINING INTO THE STREET. VELOCITY CHECK DAMS SHALL BE PROVIDED ACROSS THE OUTLETS OF ALL LOTS DRAINING ONTO THE STREET.
12. PROVIDE VELOCITY CHECK DAMS IN ALL STREET AREAS, PAVED OR UNPAVED, AT THE INTERVALS INDICATED BELOW. VELOCITY CHECK DAMS MAY BE CONSTRUCTED OF GRAVEL BAGS, TIMBER, OR OTHER EROSION RESISTANT MATERIALS APPROVED BY THE CITY ENGINEER, AND SHALL EXTEND COMPLETELY ACROSS THE STREET OR CHANNEL AT RIGHT ANGLES TO THE CENTERLINE. EARTHEN DIKES MAY NOT BE USED AS VELOCITY CHECK DAMS.

STREET GRADE	CHECK DAM INTERVAL
LESS THAN 2%	AS REQUIRED
2% TO 4%	100 FEET
4% TO 10%	50 FEET
OVER 10%	25 FEET

13. PROVIDE VELOCITY CHECK DAMS IN ALL UNPAVED GRADED CHANNELS AT THE INTERVALS INDICATED BELOW UNLESS CHANNELS ARE LINED WITH TEMPORARY MATERIALS SUCH AS PLASTIC SHEETING.

CHANNEL GRADE	CHECK DAM INTERVAL
LESS THAN 3%	100 FEET
3% TO 6%	50 FEET
OVER 6%	25 FEET

14. A GRAVEL BAG SILT BASIN, OR SILT TRAP, SHALL BE PROVIDED AT EVERY STORM DRAIN INLET TO PREVENT SEDIMENT FROM ENTERING THE STORM DRAIN SYSTEM.
15. A GUARD SHALL BE POSTED ON SITE WHENEVER THE DEPTH OF WATER IN ANY DEVICE EXCEEDS TWO FEET.
16. ALL REMOVABLE PROTECTION DEVICES SHOWN SHALL BE IN PLACE AT THE END OF EACH WORKING DAY WHEN THE 5-DAY RAIN FORCAST PROBABLITY EXCEEDS 40% AFTER EACH RAINSTORM EXCEEDING ¼ INCH IN A 12 HOUR PERIOD, SILT AND DEBRIS SHALL BE REMOVED FROM CHECK DAMS AND DESILTING BASINS, AND BASINS SHALL BE PUMPED DRY.
17. EFFECTIVE PLANTING SHALL BE INSTALLED, FULLY GERMINATED, AND SHALL EFFECTIVELY COVER THE REQUIRED SLOPES PRIOR TO FINAL APPROVAL. THE PLANTING MIX SHALL BE APPROVED BY THE CITY ENGINEER PRIOR TO INSTALLATION. SPRINKLER SYSTEMS ARE REQUIRED ON ALL SLOPES OVER FIVE FEET IN HEIGHT. TEMPORARY SPRINKLER SYSTEMS WILL BE REQUIRED ON ALL SLOPES UNTIL PLANTING IS ESTABLISHED, AND MAY NOT BE REMOVED WITHOUT PRIOR APPROVAL OF THE CITY ENGINEER.
18. GRAVEL BAGS AND NECESSARY MATERIALS SHALL BE AVAILABLE ON SITE AND STOCKPILED AT CONVENIENT LOCATIONS TO FACILITATE RAPID CONSTRUCTION OF TEMPORARY DEVICES OR TO REPAIR ANY DAMAGED EROSION CONTROL MEASURES, WHEN RAIN IS IMMINENT. A STAND-BY CREW SHALL BE MADE AVAILABLE AT ALL TIMES DURING THE RAINY SEASON.
19. ANY PROPOSED ALTERNATE EROSION CONTROL MEASURES ARE TO BE RECOMMENDED BY THE ENGINEER OF WORK, FOR APPROVAL BY THE CITY ENGINEER, PRIOR TO INSTALLATION.
20. FROM OCTOBER 1ST THROUGH APRIL 30TH OF EACH YEAR, COV MUNICIPAL CODE, CHAPTER 17.56, REQUIRES THAT ALL DENUDED SLOPE FACES BE PROTECTED FROM EROSION, AND THAT ALL SEDIMENT BE KEPT ON SITE. THE USE OF INDUSTRY STANDARD SLOPE PROTECTION AND SEDIMENT CONTROL METHODS ARE REQUIRED TO BE IN PLACE AND MAINTAINED 24 HOURS A DAY/7 DAYS A WEEK.
21. MATERIALS AND WASTE WITH THE POTENTIAL TO POLLUTE URBAN RUN-OFF SHALL BE USED IN ACCORDANCE WITH LABEL DIRECTIONS AND SHALL BE STORED IN A MANNER THAT EITHER PREVENTS CONTACT WITH RAINFALL OR CONTAINS CONTAMINATED RUN-OFF FOR TREATMENT AND DISPOSAL.

EROSION CONTROL NOTES (cont'd.)

23. THE OWNER DESIGNATED 24-HOUR TELEPHONE NUMBER AND THE NAME(S) OF THE PERSON(S) RESPONSIBLE FOR EMERGENCY WORK APPEARS BELOW AND SHALL AT ALL TIMES BE POSTED IN A CONSPICUOUS PLACE ONSITE TO FACILITATE PUBLIC REPORTING OF PROBLEMS. (A TELEPHONE ANSWERING MACHINE OR ANSWERING SERVICE IS UNACCEPTABLE.)

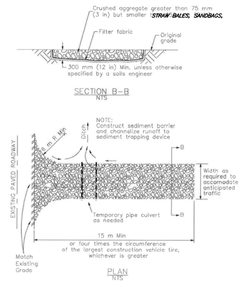
TJ AMOS
NAME

760-801-1602
24 HOUR PHONE NUMBER

CONTRACTOR SHALL IMPLEMENT AND MAINTAIN ONSITE AT ALL TIMES A STORMWATER MANAGEMENT PLAN (SWMP) OR STORMWATER POLLUTION PREVENTION PLAN (SWPPP) IN CITY APPROVED FORMAT WHICH IS HEREBY INCORPORATED WITH THESE PLANS BY REFERENCE. SAID PLAN SHALL BE KEPT CURRENT AND REFLECTIVE OF CURRENT SITE CONDITIONS.

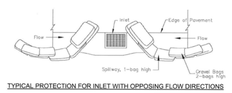
EROSION CONTROL DETAILS

Stabilized Construction Entrance/Exit TC-1

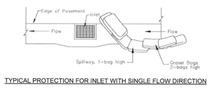


Stabilized Contraction Entrance/Exit (Type 1)

Storm Drain Inlet Protection SC-10



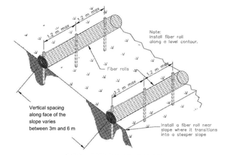
TYPICAL PROTECTION FOR INLET WITH OPPOSING FLOW DIRECTIONS



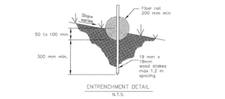
TYPICAL PROTECTION FOR INLET WITH SINGLE FLOW DIRECTION

NOTES
1. Intended for short-term use.
2. Use to inhibit non-storm water flow.
3. Allow for proper maintenance and cleanup.
4. Bags must be removed after adjacent operation is completed.
5. Not applicable in areas with high silts and clays without filter fabric.

Fiber Rolls SC-5

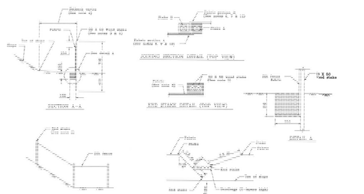


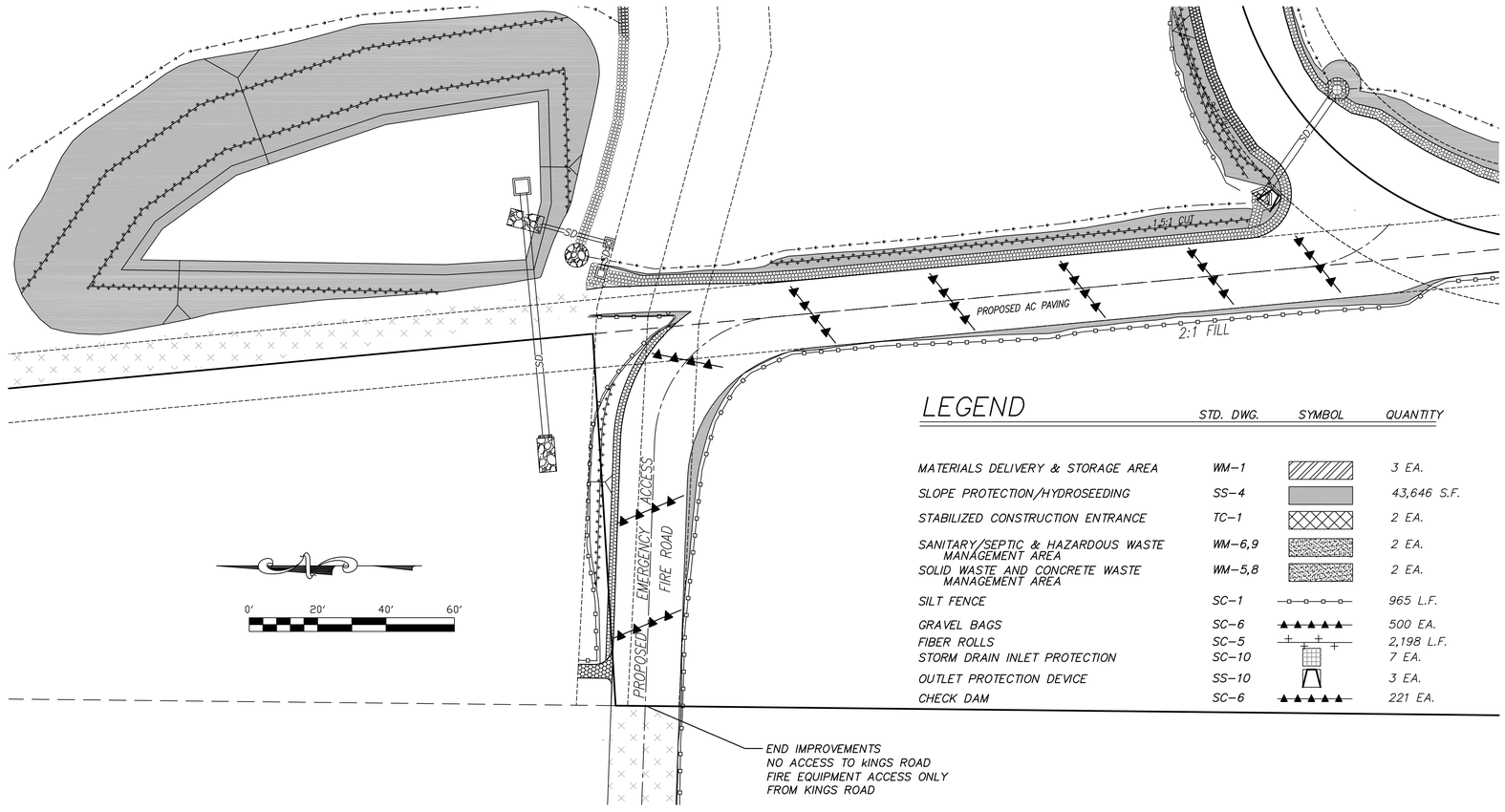
TYPICAL FIBER ROLL INSTALLATION
N.T.S.



ENTRENCHMENT DETAIL
N.T.S.

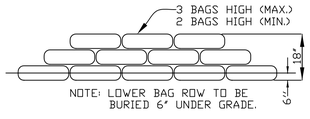
SILT FENCE SC-1





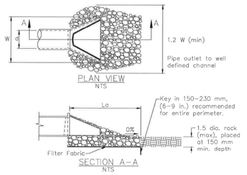
LEGEND

	STD. DWG.	SYMBOL	QUANTITY
MATERIALS DELIVERY & STORAGE AREA	WM-1		3 EA.
SLOPE PROTECTION/HYDROSEEDING	SS-4		43,646 S.F.
STABILIZED CONSTRUCTION ENTRANCE	TC-1		2 EA.
SANITARY/SEPTIC & HAZARDOUS WASTE MANAGEMENT AREA	WM-6,9		2 EA.
SOLID WASTE AND CONCRETE WASTE MANAGEMENT AREA	WM-5,8		2 EA.
SILT FENCE	SC-1		965 L.F.
GRAVEL BAGS	SC-6		500 EA.
FIBER ROLLS	SC-5		2,198 L.F.
STORM DRAIN INLET PROTECTION	SC-10		7 EA.
OUTLET PROTECTION DEVICE	SS-10		3 EA.
CHECK DAM	SC-6		221 EA.



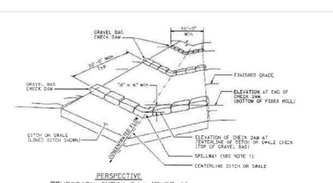
SC-6
GRAVEL BAG CHECK DAM
NO SCALE

Outlet Protection/Velocity Dissipation Devices SS-10



Pipe Diameter mm	Discharge m^3/s	Apron Length, La m	Rip Rap D_{50} Diameter Min mm
300	0.14	3	100
	0.28	4	150
450	0.28	3	150
	0.57	5	200
	0.85	7	300
	1.13	8	400
600	0.85	5	200
	1.13	8	200
	1.42	8	300
	1.70	9	400
For larger or higher flows, consult a Registered Civil Engineer			

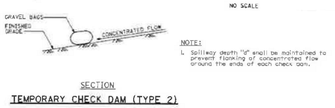
Source: USDA - SCS



STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

SC-4 TEMPORARY WATER POLLUTION CONTROL DETAILS (TEMPORARY CHECK DAM)

NO SCALE



SECTION
TEMPORARY CHECK DAM (TYPE 2)

SITE DEVELOPMENT PLAN EXPIRES: _____
THIS PLAN IS VALID FOR 2 YEARS FROM APPROVAL

STORMWATER
INSPECTION PRIORITY HIGH WDID NO. _____

CITY of VISTA

GRADING & EROSION/SEDIMENTATION CONTROL PLANS FOR:
LAS LOMAS GRADING PROJECT
EROSION CONTROL

1985 LAS LOMAS VISTA, CA. 92084

APPROVED

CITY ENGINEER	RCE	EXPIRES DATE

SHEET 8 OF 11

BENCH MARK: CV82-67
NAIL IN LEAD LOCATED ON TOP OF CONCRETE CURB AT 2130 SUNSET DRIVE.
RECORD FROM: CITY OF VISTA ELEVATION= 220.34 MSL

GP22-003

NO.	DESCRIPTION	CITY	DATE	VID	DATE
	APPROVED CHANGES		APPROVED BY		

ACAL ENGINEERING & SURVEYING, INC.
145 N. MELROSE DRIVE, SUITE 200
VISTA, CA 92083
(760) 724-7674

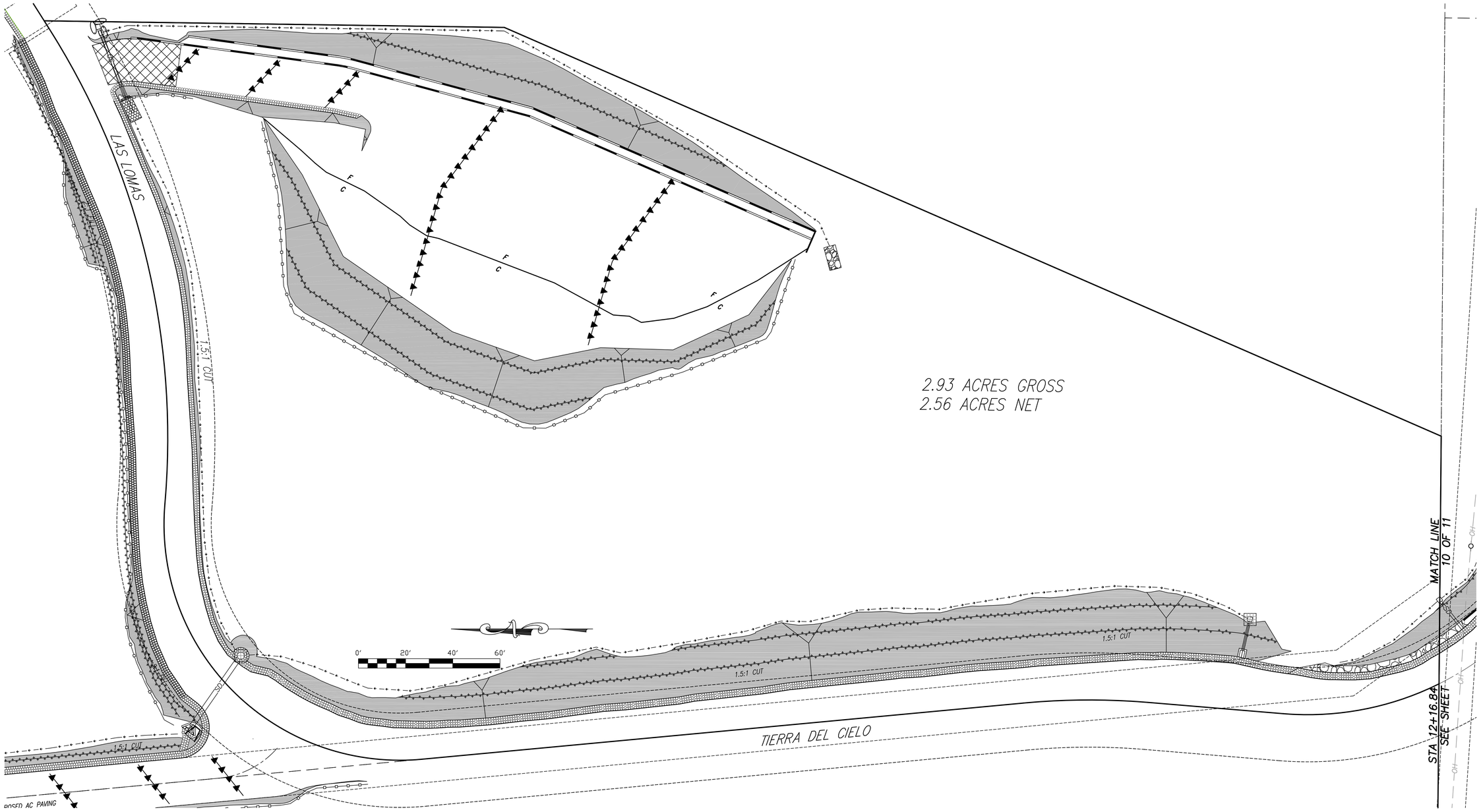
ENGINEER OF WORK	31915 RCE	12/31/24 LIC. EXP.	07/17/23 DATE

REGISTERED PROFESSIONAL ENGINEER
DAVID H. LOWEN
No. 31915
Exp 12/31/24
CIVIL
STATE OF CALIFORNIA

LD # 23-004

REVISED: 07/17/23

ACAL ENGINEERING & SURVEYING, INC.
W.O. 20-1065



SITE DEVELOPMENT PLAN EXPIRES: _____
THIS PLAN IS VALID FOR 2 YEARS FROM APPROVAL

STORMWATER
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CITY of VISTA

GRADING & EROSION/SEDIMENTATION CONTROL PLANS FOR:
LAS LOMAS GRADING PROJECT
EROSION CONTROL

1985 LAS LOMAS VISTA, CA. 92084

APPROVED

CITY ENGINEER	RCE	EXPIRES DATE

SHEET 9 OF 11

BENCH MARK: CV82-67
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GP22-003

LD # 23-004

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145 N. MELROSE DRIVE, SUITE 200
VISTA, CA 92083
(760) 724-7674

31915	12/31/24	07/17/23
RCE	DC. EXP.	DATE

ENGINEER OF WORK

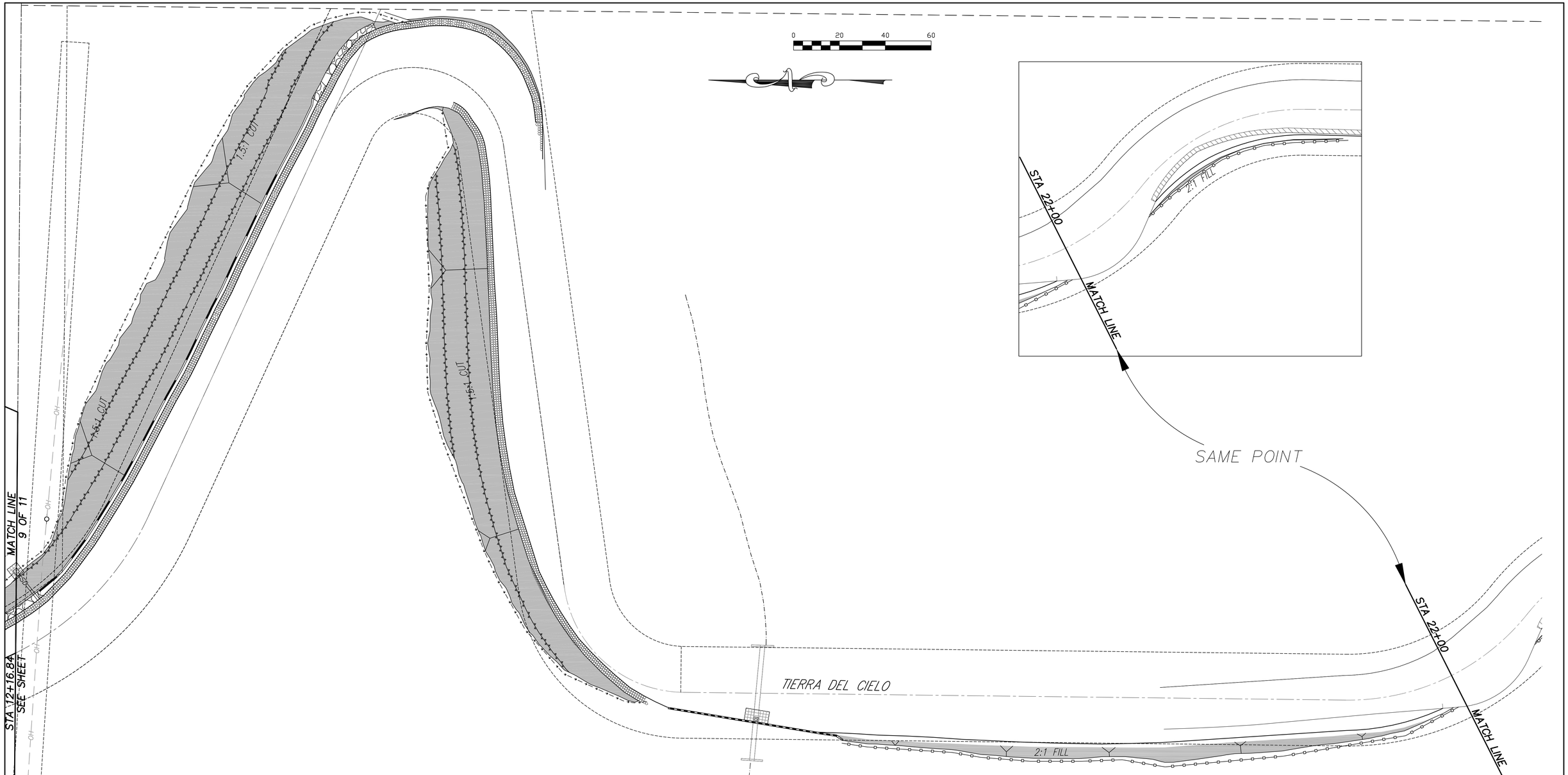
REGISTERED PROFESSIONAL ENGINEER
DAVID H. LINDH
No. 31915
Exp 12/31/24
CIVIL
STATE OF CALIFORNIA

REVISED: 07/17/23

ACAL ENGINEERING & SURVEYING, INC.
W.O. 20-1065

0 20 40 60

SAME POINT



SITE DEVELOPMENT PLAN EXPIRES: _____
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STORMWATER
INSPECTION PRIORITY HIGH WDID NO. _____

CITY of VISTA

GRADING & EROSION/SEDIMENTATION CONTROL PLANS FOR:

LAS LOMAS GRADING PROJECT
EROSION CONTROL

1985 LAS LOMAS VISTA, CA. 92084

APPROVED

CITY ENGINEER	RCE	EXPIRES DATE

SHEET 10 OF 11

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ACAL ENGINEERING & SURVEYING, INC.
145 N. MELROSE DRIVE, SUITE 200
VISTA, CA 92083
(760) 724-7674

ENGINEER OF WORK	31915 RCE	12/31/24 LIC. EXP.	07/17/23 DATE

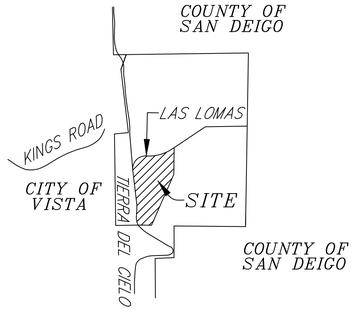
REGISTERED PROFESSIONAL ENGINEER — DAVID H. ELDRIDGE — No. 31915 Exp 12/31/24 — CIVIL — STATE OF CALIFORNIA

REVISED: 07/17/23

ACAL ENGINEERING & SURVEYING, INC.
W.O. 20-1065

LD # 23-004

GREEN STREETS DMA EXHIBIT
LAS LOMAS GRADING PROJECT
CITY OF VISTA, CA



VICINITY MAP
NOT TO SCALE

APPLICANT
WHEELER FAMILY TRUST
RICHARD R. WHEELER & DEBRA K. WHEELER, TRUSTEES
1279 SHADY MILL ROAD
CORONA, CA 92882
(951) 545-9736

CIVIL ENGINEER
ACAL ENGINEERING & SURVEYING, INC.
145 N. MELROSE DRIVE, SUITE 200
VISTA, CA 92083
(760) 724-7674

SWQMP PREPARER
TORY R. WALKER ENGINEERING, INC.
122 CIVIC CENTER DRIVE, STE. 206
VISTA, CA 92084
(760) 414-9212

PERMANENT SOURCE CONTROL BMPs

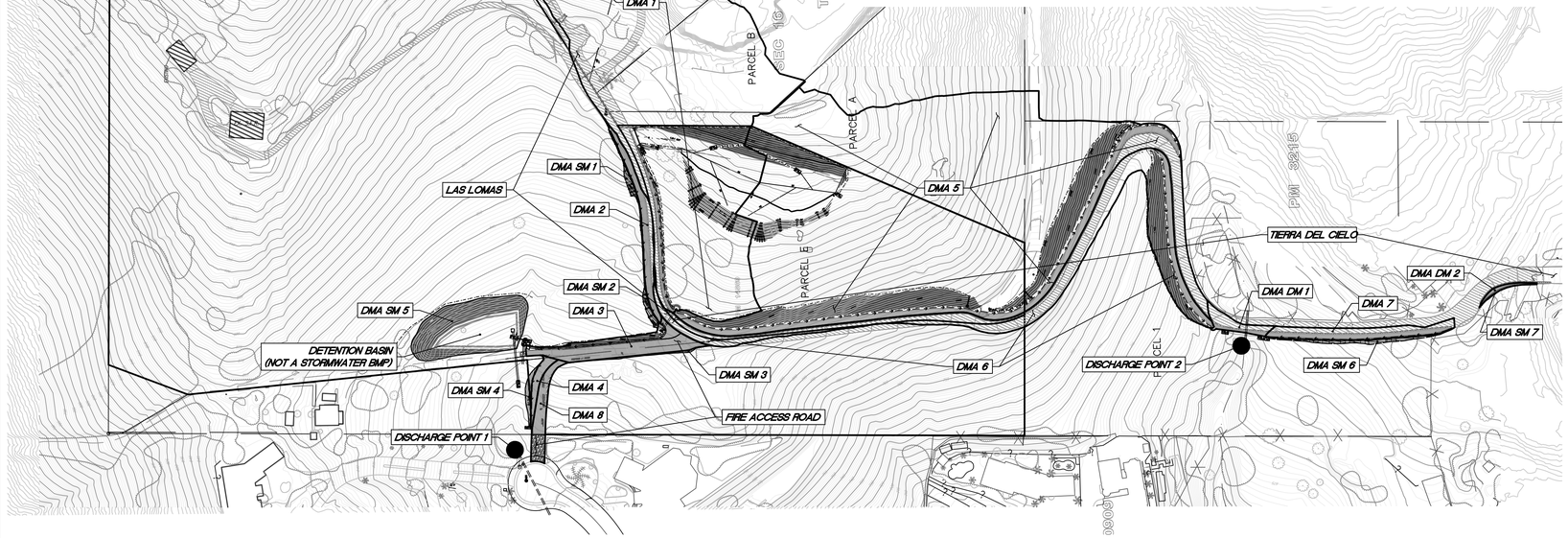
- MARK ALL INLETS WITH THE WORDS "ONLY RAIN DOWN THE STORM DRAIN" OR SIMILAR

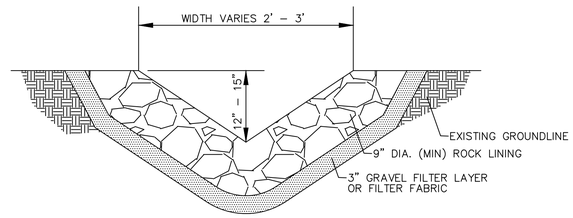
SITE DESIGN BMPs

- PROPOSED STREET WIDENING WILL BE HELD TO THE MINIMUM WIDTHS POSSIBLE PER THE APPLICABLE FIRE REQUIREMENTS
- USEPA GREEN STREETS FEATURES IMPLEMENTED VIA ROADSIDE ROCK-LINED SWALE AND GRAVEL DRIVEWAY APPROACH

EXHIBIT LEGEND AND SYMBOLOGY

- PARCEL E BOUNDARY
- PARCEL MAP 2626 BOUNDARY
- OFFSITE PARCEL BOUNDARY
- DRAINAGE MANAGEMENT AREA (DMA) BOUNDARY
- SELF-MITIGATING DMA BOUNDARY
- ROCK-LINED SWALE FLOWLINE
- PROPOSED PRIVATE STORM DRAIN
- EXISTING PRIVATE STORM DRAIN
- 1280 EXISTING CONTOUR LINE
- DISCHARGE POINT
- PROPOSED AC SURFACE
- PROPOSED DECOMPOSED GRANITE
- EXISTING AC/CONCRETE AREA
- EXISTING STRUCTURE ROOFTOP





ROCK LINED SWALE
NTS

NOTES:

1. ROCK LINING TO BE INSTALLED TO FORM A STABLE STRUCTURE WITH A MINIMUM OF VOIDS, AND EACH PLACED IN CONTACT WITH ADJACENT ROCKS.
2. ROCK LINING SHALL BE SOUND, DENSE, AND DURABLE ANGULAR ROCK WITH A MINIMUM SPECIFIC GRAVITY OF 2.6.
3. ROCK LINED CHANNELS LARGER THAN THE DIMENSIONS SHOWN, OR ON SLOPES STEEPER THAN 5% SHALL BE DESIGNED BY A CIVIL ENGINEER.
4. IF A GRAVEL FILTER LAYER IS SUBSTITUTED FOR FILTER FABRIC, MATERIAL SHALL BE A MIXTURE OF CLEAN, WASHED SAND AND GRAVEL, COMPRISED OF MATERIAL LESS THAN 1-1/2" DIAMETER IN SIZE.
5. CHECK DAMS MAY BE INSTALLED IN ROCK LINED SWALE DEPENDING UPON APPLICATION AND SITE CONDITIONS.

DMA SUMMARY

DMA ID	Area (sf)	Area (ac)	DMA Type	USEPA Green Streets Feature Type	Minimum Rock Size (in)	Swale Width (ft)	Swale Depth (in)
DMA 1	217,484	4.99	USEPA Green Streets	Rock-Lined Swale	9	2	15
DMA 2	3,597	0.08			9	3	15
DMA 3	6,575	0.15			9	3	15
DMA 4	1,039	0.02			9	2	15
DMA 5	163,699	3.76			9	3	12
DMA 6	22,278	0.51			9	2	12
DMA 7	4,501	0.10			9	2	12
DMA 8	4,501	0.10		Gravel Dispersion Area	N/A		
SM 1	407	0.01	Self-Mitigating	N/A	N/A	N/A	N/A
SM 2	415	0.01					
SM 3	269	0.01					
SM 4	535	0.01					
SM 5	11,758	0.27					
SM 6	994	0.02					
SM 7	37	0.00					
DM 1	1,630	0.04	De Minimis	N/A	**Note**: 40,301 sf of existing untreated roadway area to be treated by swales within DMAs 1, 2, 6 and 7 to be treated in lieu of DMAs DM 1 and 2		
DM 2	402	0.01					

GENERAL NOTES

1. PROJECT PROPOSES A STREET WIDENING DESIGNED IN ACCORDANCE WITH USEPA GREEN STREETS FEATURES.
2. PROPOSED GREEN STREETS FEATURES PROVIDE SOURCE CONTROL OF STORMWATER, LIMITS ITS TRANSPORT AND POLLUTANT CONVEYANCE TO THE COLLECTION SYSTEM, RESTORE PREDEVELOPMENT HYDROLOGY TO THE MAXIMUM EXTENT PRACTICABLE (MEP), AND PROVIDE ENVIRONMENTALLY ENHANCED ROADS.
3. PROJECTS THAT IMPLEMENT USEPA GREEN STREETS DESIGN FEATURES ARE NOT SUBJECT TO PRIORITY DEVELOPMENT PROJECT (PDP) PERFORMANCE STANDARDS AND ARE THEREBY EXEMPT FROM POLLUTANT REMOVAL AND HYDROMODIFICATION FLOW CONTROL REQUIREMENTS.

SELF-MITIGATING DMA NOTES:

1. ALL SELF-MITIGATING DMAs ARE NATURAL, LANDSCAPED, OR STABILIZED EARTH AREAS THAT DO NOT GENERATE SIGNIFICANT POLLUTANTS AND DRAIN DIRECTLY OFFSITE OR TO THE PUBLIC STORM DRAIN SYSTEM WITHOUT BEING TREATED BY A GREEN STREETS BMP AND INCLUDE ALL THE FOLLOWING CHARACTERISTICS:
   1.1. VEGETATION IN THE NATURAL OR LANDSCAPED AREA IS NATIVE AND/OR NON-NATIVE/NON-INVASIVE DROUGHT TOLERANT SPECIES THAT DO NOT REQUIRE REGULAR APPLICATION OF FERTILIZERS AND PESTICIDES.
   1.2. SOILS ARE UNDISTURBED NATIVE TOPSOIL, OR DISTURBED SOILS THAT HAVE BEEN STABILIZED BY EROSION CONTROL BMPs TO MITIGATE AGAINST EROSION AND SEDIMENTATION.
   1.3. THE SELF-MITIGATING AREA IS HYDRAULICALLY SEPARATE FROM DMAs THAT CONTAIN GREEN STREETS BMPs.

ACAL ENGINEERING & SURVEYING, INC.
145 N. MELROSE DRIVE, SUITE 200
VISTA, CA 92083
(760) 724-7674

ENGINEER OF WORK | 31915 RCE | 12/31/24 LIC. EXP. | 07/17/23 DATE

REGISTERED PROFESSIONAL ENGINEER — DAVID H. LOWEN — No. 31915 — Exp 12/31/24 — CIVIL — STATE OF CALIFORNIA

SITE DEVELOPMENT PLAN EXPIRES: _____
THIS PLAN IS VALID FOR 2 YEARS FROM APPROVAL

STORMWATER
INSPECTION PRIORITY HIGH WDID NO. _____

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

CITY of VISTA

GRADING & EROSION/SEDIMENTATION CONTROL PLANS FOR:

LAS LOMAS GRADING PROJECT
GREEN STREETS DMA EXHIBIT
1985 LAS LOMAS VISTA, CA. 92084

APPROVED

CITY ENGINEER | RCE | EXPIRES DATE

SHEET 11 OF 11

BENCH MARK: CV82-67
NAIL IN LEAD LOCATED ON TOP OF CONCRETE CURB AT 2130 SUNSET DRIVE.
RECORD FROM: CITY OF VISTA ELEVATION= 220.34 MSL

GP23-004

REVISED: 07/17/23

ACAL ENGINEERING & SURVEYING, INC.
W.O. 20-1065

LD # 23-004