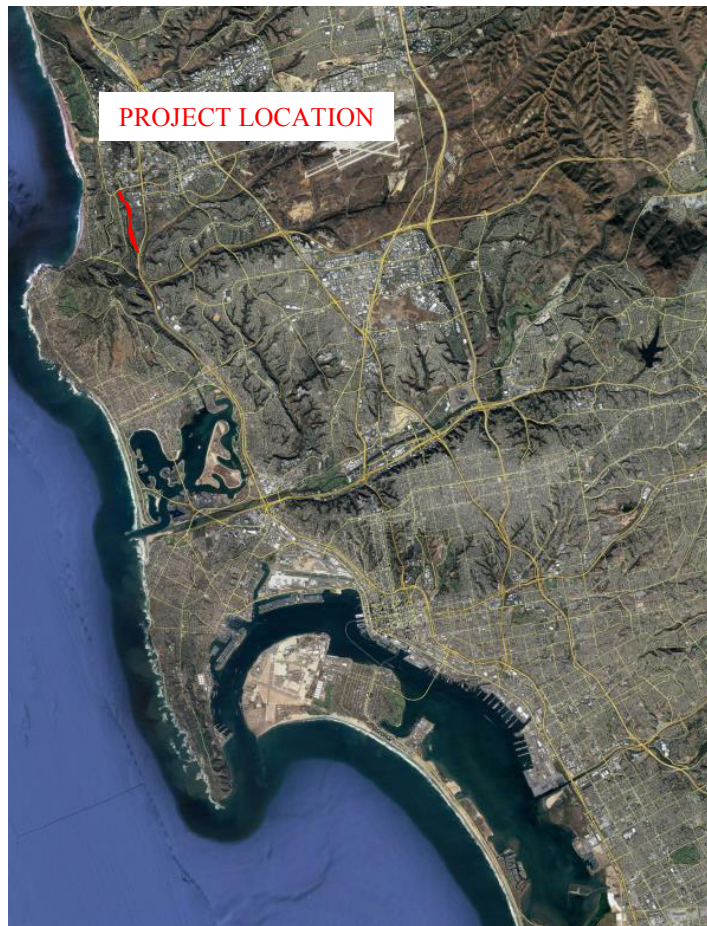


Water Quality Assessment Report

Coastal Rail Trail, Gilman Drive Segment La Jolla, CA

April, 2018



Water Quality Assessment Report

Coastal Rail Trail, Gilman Drive Segment

Rose Canyon Bikeway to UCSD

La Jolla, CA 92037

April 2018

STATE OF CALIFORNIA
Department of Transportation

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Executive Summary

This Water Quality Assessment Report (WQAR) has been prepared to comply with requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA). The purpose of this document is to identify information such as project description, project location, drainage, water quality conditions and any associated impacts for the proposed Gilman Segment of the Coastal Rail Trail

The proposed project represents a segment of the Coastal Rail Trail (CRT), as identified in the Regional Bike Plan (RBP) and the Coastal Rail Trail Project Study Report (October 2000). The proposed One Way Cycle Track will run on either side of Gilman Drive and connect Rose Canyon Bikeway to UCSD. The Coastal Rail Trail, Gilman Drive Segment is approximately 1.85 miles.

The Gilman Drive Segment will:

- Provide a north and south bound 7 foot wide one-way protected cycle track;
- Create continuous sidewalk along the west side of the corridor;
- Street re-striping;
- Retain street parking;
- Provide Street Lighting;
- Connect in the north to UCSD and Genesee Ave Class I bikeways;
- Connect in the South to the Existing Class I Rose Canyon Bikeway;
- Update and maintain the existing drainage facilities currently in place.

In general, other proposed physical improvements include painted markings for crosswalks, re-striping of vehicle lanes, curb ramps, curb and gutters, drainage inlets, modifications to existing curb inlets, new signage, bus stop improvements, a retaining walls, new pervious areas or other measures to treat stormwater, repaving the roadway surface (e.g. slurry seal, full pavement sections, etc.), and other minor physical improvements.

The project is located within the Los Penasquitos Watershed. The site indirectly drains into Rose Creek which ultimately discharges into Mission Bay. A Basin and Outfall Study for the project has been prepared and is located in *Appendix A*.

The following water quality associated permits are anticipated:

- State Water Resources Control Board – Construction General Permit

The City of San Diego Stormwater Requirements Applicability Checklist was completed and is located in *Appendix B*. This project is in accordance with the City of San Diego's BMP Design Manual. This project is considered to be exempt from being a priority development project and therefore permanent BMPs are not required. Source control and site design stormwater requirements are still applicable to all projects even if the project is exempt from priority development project requirements. The project is anticipated to be Risk Level 2. A Storm Water Pollution Prevention Plan (SWPPP) for the project will be prepared separately during the construction permit phase of the project.

Table of Contents

EXECUTIVE SUMMARY	i
Table of Contents	ii
List of Figures.....	iii
List of Tables	iii
List of Appendices.....	iii
1. INTRODUCTION.....	1
1.1 Project Description	1
1.2 Approach to Water Quality Assessment.....	3
2. REGULATORY SETTING	4
2.1 Federal Laws and Requirements	4
2.2 State Laws and Requirements	5
2.3 Regional and Local Requirements	8
3. AFFECTED ENVIRONMENT	9
3.1 Introduction.....	9
3.2 General Setting.....	9
3.3 Water Quality Objectives/standards and Beneficial Uses.....	10
3.4 Existing Water Quality.....	12
4. ENVIRONMENTAL CONSEQUENCES	14
4.1 Introduction.....	14
4.2 Potential Impacts to Water Quality	14
4.3 Impact Assessment Methodology	16
4.4 Cumulative Impacts.....	16
5. AVOIDANCE AND MINIMIZATION MEASURES	17
6. REFERENCES.....	18
6.1 Works Cited.....	18
6.2 Preparer(s) Qualifications.....	18

List of Figures

Figure 1 - Project Location	2
Figure 2 – Los Penasquitos Watershed	13

List of Tables

Table 1-1 Surface Water Beneficial Use Designations.....	11
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List of Appendices

Appendix A – Basins and Outfalls Study for the Coastal Rail Trail Gilman Drive Segment

Appendix B – City of San Diego PDP Exemption Report.

Appendix C – Biological impacts.

Appendix D – Caltrans Construction Site BMP Fact Sheets.

1. INTRODUCTION

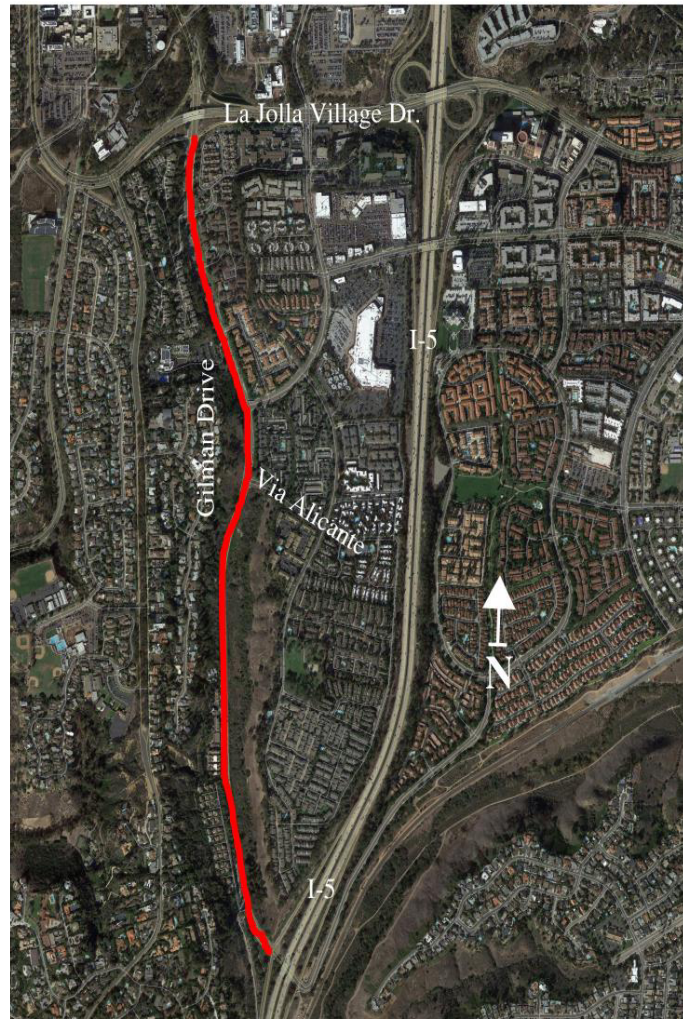
1.1 Project Description

The Coastal Rail Trail (CRT) Project will develop nearly 40-miles of continuous corridor of multi-use, Class I, Class II, and Class III bicycle facilities along the railroad right of way (ROW). The CRT is a regional project that will establish a multi-use trail to better connect the coastal cities of Oceanside, Del Mar, Carlsbad, Encinitas, Solana Beach, and San Diego identified in the Coastal Rail Trail Project Study Report, October 2000(PSR). Each City entered into a Memorandum of Understanding to plan, design, and construct segments of the trail within their respective jurisdictions.

The proposed project is the Gilman Segment that will follow Gilman Drive for approximately 1.8 miles between UCSD and the Rose Canyon Bikeway, representing Segment 9 of the RSP. The site is located in an urban area of apartments and single-family homes. Natural open space is present on steeper, eroded slopes, and in drainage that parallels Gilman Drive from Via Alicante to the I-5 freeway (at the base of the slope along the west side of the roadway). The site is located within the City of San Diego's Multiple Species Conservation Program (MSCP) Subarea Plan. The proposed project includes a one-way protected cycle track on each side of Gilman Drive and a continuous sidewalk on the west side of Gilman Drive over a project distance of approximately 8,800 linear feet. The cycle track will be separated from vehicular traffic by either a raised median or on-street parking. To accommodate the cycle tracks, the project would include roadway widening on the west side of Gilman Drive from Villa La Jolla Drive southerly to an existing private driveway, an approximate distance of 3,000 lf, and on the east side of Gilman Drive from Via Alicante to Interstate 5 southbound off ramp, an approximate distance of 4,500 lf. In addition roadway widening, the project includes roadway restriping, street lighting, landscaping, retaining walls, drainage improvements, bus stop improvements, and traffic signal modifications at the existing traffic signals at the I-5, Via Alicante, Villa La Jolla Drive, and La Jolla Village Drive. Acquisition of additional roadway right-of-way is required from several parcels east of Gilman Drive, south of Via Alicante and temporary construction easements are required for several parcels for slope grading and retaining wall construction.

The CRT will result in a number of benefits to regional mobility, including:

- Providing a direct north-south connection for bicycles, pedestrians and joggers.
- Links to regional employment centers in Sorrento Valley, UCSD, and University City for residential communities to the north and south
- Providing connections to future Trolley Station in the project area
- Creates an important point of connectivity for active transportation
- A safe recreational route for the local community



Map data ©2018 Google

Figure 1: Project Location

A Preliminary Basin and Outfall Study for the project has been prepared and is located in *Appendix A*. Through analysis of the current Coastal Rail Trail Gilman Drive Segment design and Basin Study, *Appendix A*, Nasland Engineering found that the existing drainage patterns will not be negatively impacted from the post project conditions and all runoff is directed towards storm drain facilities or drainage channels.

Based on the project location, anticipated length of construction, this project is anticipated to be a risk level of 2. At this time, there is no allocated funding for this project but it is estimated to begin in the winter of 2020. The City of San Diego's Stormwater Requirements Applicability Checklist was completed and is located in *Appendix B*. This project is considered to be exempt from being a priority development project and therefore permanent BMP are not required. These exemptions are in accordance with the Category 1 PDP Exemption listed in section 1.4.3 of the City of San Diego's Stormwater Standards BMP Design Manual.

1.2 Approach to Water Quality Assessment

The purpose of the Water Quality Assessment Report (WQAR) is to fulfill the requirements of the National Environmental Policy Act (NEPA) and the California Environmental Quality Act (CEQA), and to provide information, to the extent possible, for National Pollution Discharge Elimination System (NPDES) permitting. This document includes a discussion of the proposed project, the physical setting of the project area, and the regulatory framework with respect to water quality. Additionally, this WQAR also provides: data on surface water within the project area, describes water quality impairments and beneficial uses, and identifies potential water quality impacts/benefits associated with the proposed project. Ultimately, this WQAR recommends avoidance and/or minimization measures for potentially adverse impacts.

2. Regulatory Setting

2.1 Federal Laws and Requirements

Clean Water Act

In 1972 Congress amended the Federal Water Pollution Control Act, making the addition of pollutants to the waters of the United States (U.S.) from any point source unlawful unless the discharge is in compliance with a NPDES permit. Known today as the Clean Water Act (CWA), Congress has amended it several times. In the 1987 amendments, Congress directed dischargers of storm water from municipal and industrial/construction point sources to comply with the NPDES permit scheme. Important CWA sections are:

- Sections 303 and 304 require states to promulgate water quality standards, criteria, and guidelines.
- Section 401 requires an applicant for a federal license or permit to conduct any activity, which may result in a discharge to waters of the U.S., to obtain certification from the State that the discharge will comply with other provisions of the act. (Most frequently required in tandem with a Section 404 permit request. See below).
- Section 402 establishes the NPDES, a permitting system for the discharges (except for dredge or fill material) of any pollutant into waters of the U.S. Regional Water Quality Control Boards (RWQCB) administer this permitting program in California. Section 402(p) requires permits for discharges of storm water from industrial/construction and Municipal Separate Storm Sewer Systems (MS4s).
- Section 404 establishes a permit program for the discharge of dredge or fill material into waters of the U.S. This permit program is administered by the U.S. Army Corps of Engineers (USACE).

The objective of the CWA is “to restore and maintain the chemical, physical, and biological integrity of the Nation’s waters.”

USACE issues two types of 404 permits: Standard and General permits. For General permits there are two types: Regional permits and Nationwide permits. Regional permits are issued for a general category of activities when they are similar in nature and cause minimal environmental effect. Nationwide permits are issued to authorize a variety of minor project activities with no more than minimal effects.

There are also two types of Individual permits: Standard Individual permit and Letter of Permission. Ordinarily, projects that do not meet the criteria for a Nationwide Permit may be permitted under one of USACE’s Standard permits. For Standard permits, the USACE decision to approve is based on compliance with U.S. Environmental Protection Agency’s (EPA) Section 404 (b)(1) Guidelines (U.S. EPA CFR 40 Part 230), and whether permit approval is in the public interest. The 404(b)(1) Guidelines were developed by the U.S. EPA in conjunction with USACE, and allow the discharge of dredged or fill material into the aquatic system (waters of the U.S.) only if there is no practicable alternative which would have less adverse effects. The

Guidelines state that USACE may not issue a permit if there is a least environmentally damaging practicable alternative (LEDPA), to the proposed discharge that would have fewer effects on waters of the U.S., and not have any other significant adverse environmental consequences. Per Guidelines, documentation is needed that a sequence of avoidance, minimization, and compensation measures have been followed, in that order. The Guidelines also restrict permitting activities that violate water quality or toxic effluent standards, jeopardize the continued existence of listed species, violate marine sanctuary protections, or cause “significant degradation” to waters of the U.S. In addition, every permit from the USACE, even if not subject to the 404(b)(1) Guidelines, must meet general requirements. See 33 CFR 320.4.

2.2 State Laws and Requirements

Porter-Cologne Water Quality Control Act

California’s Porter-Cologne Act, enacted in 1969, provides the legal basis for water quality regulation within California. This Act requires a “Report of Waste Discharge” for any discharge of waste (liquid, solid, or gaseous) to land or surface waters that may impair beneficial uses for surface and/or groundwater of the State. It predates the CWA and regulates discharges to waters of the State. Waters of the State include more than just waters of the U.S., like groundwater and surface waters not considered waters of the U.S. Additionally, it prohibits discharges of “waste” as defined and this definition is broader than the CWA definition of “pollutant”. Discharges under the Porter-Cologne Act are permitted by Waste Discharge Requirements (WDRs) and may be required even when the discharge is already permitted or exempt under the CWA.

The State Water Resources Control Board (SWRCB) and RWQCBs are responsible for establishing the water quality standards (objectives and beneficial uses) required by the CWA, and regulating discharges to ensure compliance with the water quality standards. Details regarding water quality standards in a project area are contained in the applicable RWQCB Basin Plan. In California, Regional Boards designate beneficial uses for all water body segments in their jurisdictions, and then set criteria necessary to protect these uses. Consequently, the water quality standards developed for particular water segments are based on the designated use and vary depending on such use. In addition, the SWRCB identifies waters failing to meet standards for specific pollutants, which are then state-listed in accordance with CWA Section 303(d). If a state determines that waters are impaired for one or more constituents and the standards cannot be met through point source or non-source point controls (NPDES permits or Waste Discharge Requirements), the CWA requires the establishment of Total Maximum Daily Loads (TMDLs). TMDLs specify allowable pollutant loads from all sources (point, non-point, and natural) for a given watershed.

State Water Resources Control Board and Regional Water Quality Control Boards

The SWRCB adjudicates water rights, sets water pollution control policy, and issues water board orders on matters of statewide application, and oversees water quality functions throughout the state by approving Basin Plans, TMDLs, and NPDES permits. RWQCBs are responsible for protecting beneficial uses of water resources within their regional jurisdiction using planning, permitting, and enforcement authorities to meet this responsibility.

- **National Pollution Discharge Elimination System (NPDES) Program**

Municipal Separate Storm Sewer Systems (MS4)

Section 402(p) of the CWA requires the issuance of NPDES permits for five categories of storm water dischargers, including MS4s. The U.S. EPA defines an MS4 as “any conveyance or system of conveyances (roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, human-made channels, and storm drains) owned or operated by a state, city, town, county, or other public body having jurisdiction over storm water, that are designed or used for collecting or conveying storm water.” The SWRCB has identified the Department as an owner/operator of an MS4 pursuant to federal regulations. The Department’s MS4 permit covers all Department rights-of-way, properties, facilities, and activities in the state. The SWRCB or the RWQCB issues NPDES permits for five years, and permit requirements remain active until a new permit has been adopted.

The Department’s MS4 Permit, currently under revision, contains three basic requirements:

1. The Department must comply with the requirements of the CGP (see below);
2. The Department must implement a year-round program in all parts of the State to effectively control storm water and non-storm water discharges; and
3. The Department storm water discharges must meet water quality standards through implementation of permanent and temporary (construction) Best Management Practices (BMPs) to the Maximum Extent Practicable, and other measures as the SWRCB determines to be necessary to meet the water quality standards.

To comply with the permit, the Department developed the Statewide Storm Water Management Plan (SWMP) to address storm water pollution controls related to highway planning, design, construction, and maintenance activities throughout California. The SWMP assigns responsibilities within the Department for implementing storm water management procedures and practices as well as training, public education and participation, monitoring and research, program evaluation, and reporting activities. The SWMP describes the minimum procedures and practices the Department uses to reduce pollutants in storm water and non-storm water discharges. It outlines procedures and responsibilities for protecting water quality, including the selection and implementation of BMPs.

Construction General Permit

Construction General Permit Order No. 2009-0009-DWQ (amended by 2010-0014-DWQ and 2012-0006-DWQ) regulates storm water discharges from construction sites which result in a Disturbed Soil Area (DSA) of one acre or greater, and/or are smaller sites that are part of a larger common plan of development. For all projects subject to the CGP, applicants are required to develop and implement an effective Storm Water Pollution Prevention Plan (SWPPP). In accordance with the Department’s Standard Specifications, a Water Pollution Control Plan (WPCP) is necessary for projects with DSA less than one acre.

By law, all storm water discharges associated with construction activity where clearing, grading, and excavation results in soil disturbance of at least one acre must comply with the

provisions of the CGP. Construction activity that results in soil disturbances of less than one acre is subject to this CGP if there is potential for significant water quality impairment resulting from the activity as determined by the RWQCB. Operators of regulated construction sites are required to develop storm water pollution prevention plans; to implement sediment, erosion, and pollution prevention control measures; and to obtain coverage under the CGP.

The CGP separates projects into Risk Levels 1, 2, or 3. Risk levels are determined during the planning and design phases, and are based on potential erosion and transport to receiving waters. Requirements apply according to the Risk Level determined. For example, a Risk Level 3 (highest risk) project would require compulsory storm water runoff pH and turbidity monitoring, and pre- and post-construction aquatic biological assessments during specified seasonal windows.

Section 401 Permitting

Under Section 401 of the CWA, any project requiring a federal license or permit that may result in a discharge to a water of the United States must obtain a 401 Certification, which certifies that the project will be in compliance with State water quality standards. The most common federal permit triggering 401 Certification is a CWA Section 404 permit, issued by USACE. The 401 permit certifications are obtained from the appropriate RWQCB, dependent on the project location, and are required before USACE issues a 404 permit.

In some cases the RWQCB may have specific concerns with discharges associated with a project. As a result, the RWQCB may issue a set of requirements known as Waste Discharge Requirements (WDRs) under the State Water Code (Porter-Cologne Act) that define activities, such as the inclusion of specific features, effluent limitations, monitoring, and plan submittals that are to be implemented for protecting or benefiting water quality. WDRs can be issued to address both permanent and temporary discharges of a project.

No RWQCB permits are expected with the proposed project.

2.3 Regional and Local Requirements

The proposed Coastal Rail Trail Gilman Drive Segment will be required to comply with the current San Diego Region MS4 Permit, and the City of San Diego's Storm Water Standards BMP Design Manual dated 2016 at the preparation of this report.

The City of San Diego's Storm Water Standards BMP Design Manual presents a unified BMP design approach that meets the performance standards specified in the MS4 Permit. The Storm water Requirements Applicability Checklist, *Appendix B*, was used to determine whether stormwater management requirements defined in the MS4 Permit and presented in the City of San Diego BMP Design Manual apply to the project. If a project meets one of the exemptions taken from section 1.4.3, then the project is considered PDP exempt.

As defined in the MS4 Permit, projects that meet the following criteria may qualify for an exemption from Priority Development Project (PDP) requirements:

- New or retrofit paved sidewalks, bicycle lanes, or trails that meet the following criteria:
 - Designed and constructed to direct stormwater runoff to adjacent pervious areas, or other non-erodible permeable areas; OR
 - Designed and constructed to be hydraulically disconnected from paved streets or roads

The City of San Diego's Storm water Requirements Applicability Checklist was completed and is located in *Appendix B*. This project is considered to be exempt from being a priority development project and therefore PDP requirements do not apply. It should be noted that Source control and site design stormwater requirements are still applicable to all projects even if the project is exempt from priority development project requirements.

3. AFFECTED ENVIRONMENT

3.1 Introduction

This section reviews General Setting, Water Quality Objectives and Existing Water Quality for the proposed project.

3.2 General Setting

The project site is located at the west end of Los Penasquitos watershed, Hydrologic sub-area #906.40. This watershed drains through Rose Canyon and ultimately to Mission Bay San Diego. There is no anticipation of encountering groundwater or major aquifers due to the location and proposed work of this project.

3.2.1 Population and Land Use

The adjacent land uses include residential and undeveloped open space. The project proposes a one way cycle track in both directions and continuous sidewalk along the west side of Gilman drive and stays within the existing roadway whenever possible. The project was determined to be exempt from being a priority development project and permanent BMP requirements do not apply. The project does not promote additional vehicular use but instead promotes active transportation, multi-modal transportation, and recreational use. The project does not significantly alter the drainage patterns and takes measures to mitigate erosion. The project does not generate additional pollutants which will affect the water quality downstream.

3.2.2 Topography

The existing site includes Gilman Drive, an existing roadway connecting The University of California San Diego (UCSD) in the north to the Interstate 5 Freeway. The Site has undeveloped open space adjacent to the roadway which varies from gradual pervious slopes to steep cliff areas. The Street is crowned to allow water to sheet flow to either side. Existing Contours of the site can be found in the Existing Basin Exhibit located in the Basin and Outfall Study, *Appendix A*.

3.2.3 Hydrology

A preliminary Basin and Outfall Study for the Coastal Rail Trail Gilman Drive Segment, dated January 2018, has been prepared by Nasland Engineering and is located in *Appendix A*. The purpose of this study is to examine the existing and proposed drainage conditions and evaluate the impact of constructing the proposed multi-use pathway. The study concludes that the proposed improvements would not change drainage patterns or negatively impact the site because, storm water continue to follow the existing drainage patterns. The proposed Sidewalks and Bike paths are designed to be hydraulically disconnected from existing paved surfaces.

3.2.4 Geology/Soils

A Geotechnical report is not available at this time.

3.2.5 Biological Communities

3.2.5.1.1 Special Status Species

Special Status Plant Species

A study performed by AECOM determined that there are several sensitive plant species adjacent to the site. Torrey Pines appear in several locations outside the AMP limits of this project and will not be impacted. A patch of Nuttall's Scrub Oak that exists near the site would not be impacted by developments. There are several locations of Palmer's Sagebrush within the limits of the temporary Impacts as determined by AECOM's Impacts and Biological Resources Map, *Appendix C*.

Special Status Animal Species

Several sensitive bird species including the: Yellow Warbler, Cooper's Hawk, and Western Blue Bird, were noted as living in the adjacent open space to the project. See *appendix C*.

3.2.5.1.2 Stream/Riparian Habitats

The adjacent Southern Riparian Woodlands would be affected by the permanent impacts as seen in appendix C, Impacts and Biological Resources Map. Please refer to the NES report for this project for additional information.

3.2.5.1.3 Wetlands

A Wetland Delineation Report was not available at this time.

3.2.5.1.4 Fish Passage

The project would not construct structures that would result in blocking fish passage.

3.3 Water Quality Objectives/standards and Beneficial Uses

3.3.1 Surface Water Quality Objectives/standards and Beneficial Uses

The San Diego Regional Water Quality Control board has outlined the Beneficial Uses in the Basin Plan for Region 9. The inland surface water beneficial uses are identified for Carlsbad Watershed. The beneficial use for this water body is identified in Table 1-1 Below.

Table 1-1: Surface Water Beneficial Use Designations

Water Body Name	AGR	COLD	IND	MUN	REC1	REC2	WARM	WILD
Rose Canyon		✗	✗		✗	✗	✗	✗

AGR= Agricultural Supply

COLD=Cold Freshwater Habitat

IND=Industrial Service Supply

MUN=Municipal and Domestic Supply

REC1= Contact Water Recreation

REC2= Non-Contact Water Recreation

WARM=Warm Freshwater Habitat

WILD= Wildlife Habitat

The San Diego RWQCB's Basin Plan defines the beneficial use abbreviations as the following:

- **Agricultural Supply (AGR)** – Includes uses of water for farming, horticulture, or ranching including, but not limited to, irrigation, stock watering, or support of vegetation for range grazing.
- **Cold Freshwater Habitat (COLD)** – Includes uses of water that support cold water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates.
- **Industrial Service Supply (IND)** – Includes uses of water for industrial activities that do not depend primarily on water quality including, but not limited to, mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, or oil well re-pressurization.
- **Municipal and Domestic Supply (MUN)** – Includes uses of water for community, military, or individual water supply systems including, but not limited to, drinking water supply.
- **Contact Water Recreation (REC-1)** – Includes uses of water for recreational activities including body contact with water, where ingestion of water is reasonable possible. These uses include, but are not limited to, swimming, wading, water-skiing, skin and SCUBA diving, surfing, white water activities, fishing, or use of natural hot springs.
- **Non-contact Water Recreation (REC-2)** – Includes the uses of water for recreational activities involving proximity to water, but not normally involving body contact with water, where ingestion of water is reasonably possible. These uses include, but are not limited to, picnicking, sunbathing, hiking, beachcombing, camping, boating, tide pool and marine life study, hunting, sightseeing, or aesthetic enjoyment in conjunction with the above activities.
- **Warm Freshwater Habitat (WARM)** – Includes uses of water that support warm water ecosystems including, but not limited to, preservation or enhancement of aquatic habitats, vegetation, fish or wildlife, including invertebrates.
- **Wildlife Habitat (WILD)** – Includes uses of water that support terrestrial ecosystems including, but not limited to, preservation and enhancement of terrestrial habitats, vegetation, wildlife (e.g., mammals, birds, reptiles, amphibians, invertebrates), or wildlife water and food sources.

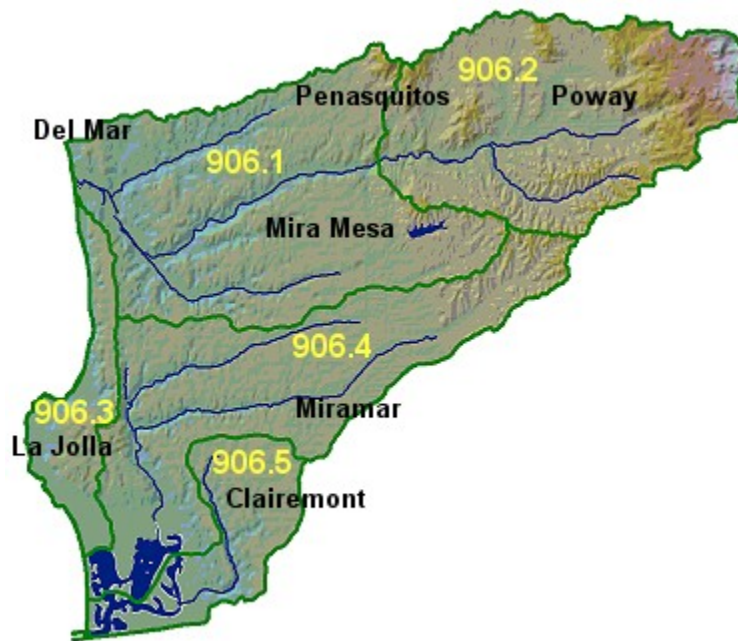


Figure 2 – Los Penasquitos Watershed

3.3.2 Groundwater Quality Objectives/standards and Beneficial Uses

Ground water is not anticipated to be encountered or impacted by this project.

3.4 Existing Water Quality

3.4.1 Regional Water Quality

3.4.2 List of Impaired Waters

Hydrologic Unit – Penasquitos
Hydrologic Area – Miramar
Hydrologic Sub-Area 906.40
Hydrologic Sub-Area Name – Undefined
HAS Area (acres) – 25,180

Watershed – Mission Bay
Subwatershed – Rose Canyon
Hydrologic Unit Code – 180703041101
Average Annual Precipitation – 11.88

TMDLs & 303(d) Listed Water Bodies:

- Rose Creek
- Selenium
 - Toxicity

Mission Bay (Area at mouth of Rose Creek)

- Eutrophic
- Lead

3.4.3 Areas of Special Biological Significance (ASBS)

The proposed project would not discharge directly to an ASBS, which consist of 34 ocean areas monitored and maintained for water quality by the State Water Resources Control Board. The ASBS nearest to the project is the San Diego-Scripps ASBS in the City of San Diego, approximately 1.5 miles to the west.

4. ENVIRONMENTAL CONSEQUENCES

4.1 Introduction

The Coastal Rail Trail Gilman Drive Segment proposes some roadway widening for the purpose of sidewalks and the one way cycle track; however, this project stays within the confines of the existing roadway when possible and intends to implement source and site control BMPs.

4.2 Potential Impacts to Water Quality

The project was determined to be exempt from being a priority development project therefore permanent BMP requirements do not apply per the exemptions set forth in Section 1.4.3 of the City of San Diego BMP Design Manual.

PDP exempt projects are expected to include Source Control and Site Design BMPs. Additional information about the applicable Source Control and Site Design BMPs are indicated in section 5 of this report. The project's one way cycle track and sidewalk are proposed as an impervious material which is discharged to adjacent pervious areas or is hydraulically disconnected from the adjoining paved street.

4.2.1 Anticipated Changes to the Biological Characteristics of the Aquatic Environment

4.2.1.1 Special aquatic sites

As Seen in appendix C, the Temporary and Permanent impacts of this project would not impact any special aquatic sites.

4.2.1.2 Habitat for Fish and Other Aquatic Organisms

The Coastal Rail Trail Gilman Drive Segment would not result in changes to water quality that would affect habitat for fish or other aquatic organisms.

4.2.1.2.1 Fish Passage (Beneficial Uses)

The project does not impact any fish passage.

4.2.1.3 Wildlife Habitat

Although permanent impacts to wildlife habitat would occur, project implementation would not adversely affect water quality. Impacts to wildlife habitat would be mitigated in accordance with federal, state, and local regulations.

4.2.1.3.1 Wildlife Passage (Beneficial Uses)

This project will not affect the passage of any wildlife.

4.2.1.4 Endangered or Threatened Species

The proposed project is not expected to result in adverse effects on any endangered or threatened species.

4.2.1.5 Invasive Species

There are no expected invasive species within the project area.

4.2.2 Short Term Impacts During Construction

The following is a list of construction materials that will be used and activities to be performed known to have the potential to contribute pollutants, other than sediment, to stormwater runoff:

Materials associated with roadway paving operations
Materials associated with roadway striping
Joint and curing compounds
Concrete curing compounds
Raw landscaping materials and waste
Portable toilet waste products
Vehicle and equipment fluids
General Litter

The following is a list of construction activities that have the potential to contribute sediment to stormwater discharges include:

Grading Activities
Excavation
Utilities Relocation
Hardscape improvements
Concrete pouring and curing
Concrete waste management areas
Landscaping, planning and plant maintenance, amending of soil and mulching

A list of the proposed BMPs to address impacts during construction is listed below:

- SS-01 Scheduling
- SS-02 Preservation of Existing Vegetation
- SS-10 Outlet Protection & Velocity Dissipation Devices
- SC-01 Silt Fence
- SC-05 Fiber Rolls
- SC-07 Street Sweeping and Vacuuming
- SC-10 Storm Drain Inlet Protection
- WE-1 Wind Erosion Control
- TC-1 Stabilized Construction Entrance
- TC-2 Stabilized Construction Roadway
- TC-3 Entrance/Outlet Tire Wash
- NS-01 Non-Storm water Management
- NS-03 Paving and Grinding Operations
- NS-06 Illicit Connection/Illegal Discharge Detection and Reporting
- NS-08 Vehicle and Equipment Cleaning

- NS-09 Vehicle and Equipment Fueling
- NS-10 Vehicle and Equipment Maintenance
- NS-14 Concrete finishing
- WM-01 Material Delivery and Storage
- WM-02 Material Use
- WM-03 Stockpile Management
- WM-04 Spill Prevention and Control
- WM-05 Solid Waste Management
- WM-08 (Managed) Concrete Waste Management
- WM-08 (Portable) Temporary Concrete Washout (Portable)
- WM-09 Sanitary/ Septic Waste Management

A Storm Water Pollution Prevention Plan (SWPPP) for the project will be prepared separately during the construction permit phase of the project. Section 5 of this report identifies BMPs that will be used during construction to ensure these types of materials and activities do not adversely affect water quality. The source control BMPs are proposed in order to control erosion, sediment, sediment tracking, wind erosion, non-stormwater pollutants and pollutants from construction site wastes and materials. Caltrans Construction BMP fact sheets for all the BMPs listed in this section can be located in appendix D of this report.

4.2.3 Long-Term Impacts During Operation and Maintenance

The following is a list of operation and maintenance activities that have the potential to contribute pollutants and sediments to stormwater runoff:

- Trash and debris
- Oil (Maintenance Vehicles)
- Grease (Maintenance Vehicles)

As a PDP exempt project, permanent BMPs are not needed or required. As a Pollutant Source control BMP stormdrain stenciling shall be included with this project. Stenciling and Operation/maintenance of sufficient trash and recycling receptacles shall be used to discourage littering.

The Coastal Rail Trail Gilman Drive Segment used site design BMP requirements as guidance during the design phase. This project will conserve Natural areas, soils, and vegetation as much as is feasible and maintains natural drainage pathways and Hydraulic features. This project uses minimum lane and striping requirements when feasible to keep the design within the existing curb to curb. Keeping the design within the existing curb to curb was used to minimize the necessity of expanding the roadway for the cycle track and ultimately reduce the creation of new impervious area. For more information of the Site Design BMPs used in this design see Form I-5A found in appendix B of this report.

4.3 Impact Assessment Methodology

The design of this project considered alternatives for all site design and source control BMPs as a means to assess the short and long term impacts of this project. The impacts associated with the alternative routes are considered negligible because there is no change to the existing conditions. The methodology used for impact assessment is based on Engineering judgment of the the various studies, research, documentation, and the careful design used to create the Coastal Rail Trail Gilman Drive Segment.

4.4 Cumulative Impacts

The proposed one way cycle track and sidewalks will direct stormwater runoff to adjacent pervious areas or be hydraulically disconnected from the roadway. The existing and proposed drainage will consist of urban drainage collected in the stormdrain inlets across the site and outlet into natural drainage channel located to the south east of the site. Therefore, the proposed project would not contribute to cumulative adverse water quality impact when considered in combination with other past, present, and reasonably foreseeable projects in the project area.

5. AVOIDANCE AND MINIMIZATION MEASURES

Water Quality Measures taken by this project include a design intended to maintain the existing drainage patterns on site as well as site and source control BMPs. The primary minimization method was to keep design and roadway expansion to the minimum requirements to meet code. The Gilman Drive Segment maintains the existing drainage patterns, connects to existing stormdrain conveyance systems instead of proposing new storm drain lines and keeps the roadway design within the existing curb to curb when feasible. The only new proposed impervious surface is that used for the proposed sidewalk along the west side of Gilman Drive and a segment of the Cycle track.

The proposed Gilman Drive Segment will include a non-erodible permeable surface as part of the proposed sidewalk. The permeable strip besides meeting the PDP exemption requirements of the City of San Diego's Stormwater Standards Manual will assure that the addition of this sidewalk causes negligible impacts.

The proposed cycle track will be hydraulically disconnected from the roadway to prevent the comingling of stormwater run off and minimize the area of pollutant generating roadway. As a part of the PDP exemption this project is subject to Standard Development requirements, which only requires site and source control BMPs.

6. REFERENCES

Caltrans Water Quality Planning Tool
<http://svctenvims.dot.ca.gov/wqpt/wqpt.aspx>

San Diego Regional Water Quality Control Board
http://www.waterboards.ca.gov/sandiego/water_issues/programs/basin_plan/index.shtml

City of San Diego's Storm Water Standards BMP Design Manual
<https://www.sandiego.gov/sites/default/files/storm-water-standards-manual-2016-1.pdf>

Project Cleanwater
<http://www.projectcleanwater.org/los-penasquitos-wma/>

Water Boards Storm Water Multiple Application and Report Tracking System
<https://smarts.waterboards.ca.gov/smarts/faces/SwSmartsLogin.jsp>

6.1 Works Cited

San Diego Region – Watershed Management Chapter
http://www.waterboards.ca.gov/sandiego/water_issues/programs/wmc/index.shtml

6.2 Preparer(s) Qualifications

Samuel Waisbord – Civil Engineer, Project Manager.

Appendices

Appendix A

Basin and Outfall Study

Basin and Outfall Study

For

**Coastal Rail Trail, Gilman Drive Segment
Rose Canyon Bikeway to UCSD
La Jolla, CA 92037**

Prepared for

The City of San Diego - Public Works

525 B St. Suite 750

San Diego, CA 92101

Prepared by

Nasland Engineering

4740 Ruffner Street

San Diego, CA 92111

(858) 292-7770

N.E. Job No. 110-134.2

April, 2018

Samuel Waisbord

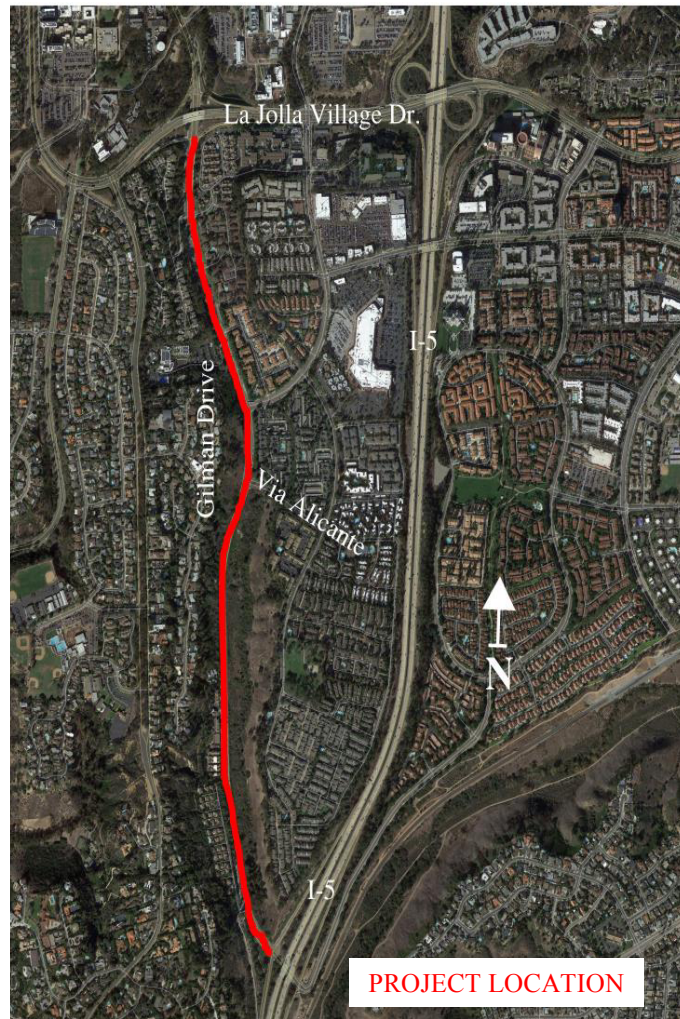
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Date

TABLE OF CONTENTS

<i>Section</i>		<i>Description</i>	<i>Page</i>
		Title Page	
		Table of Contents	1
1.0		Vicinity Map	2
2.0		Purpose	2
3.0		Project Description	3
4.0		Drainage	4
	4.1	Existing Drainage	4
	4.2	Proposed Drainage	4
5.0		Analysis	5
6.0		Conclusion	5
7.0		Declaration of Responsible Charge	5
8.0		Engineer of Work	5
<i>Attachment</i>			
Attachment A – Existing Basins Exhibit			
Attachment B – Proposed Basins Exhibit			

1.0 VICINITY MAP



Map data ©2018 Google Earth

2.0 PURPOSE

The purpose of this Basin and Outfall study is to examine the existing and proposed drainage conditions for the Coastal Rail Trail Gilman Drive Segment located in La Jolla, within the City of San Diego. This study will evaluate the impacts of constructing a new One Way Cycle Track along Gilman Drive from the I-5 Freeway to La Jolla Village Drive. This preliminary study will comply with standards and codes from all relevant parties and entities associated with the Coastal Rail Trail Gilman Drive Segment to ensure appropriate design.

3.0 PROJECT DESCRIPTION

The Coastal Rail Trail (CRT) Project will develop nearly 40-miles of continuous corridor of multi-use, Class I, Class II, and Class III bicycle facilities along the railroad right of way (ROW). The CRT is a regional project that will establish a multi-use trail to better connect the coastal cities of Oceanside, Del Mar, Carlsbad, Encinitas, Solana Beach, and San Diego identified in the Coastal Rail Trail Project Study Report, October 2000(PSR). Each City entered into a Memorandum of Understanding to plan, design, and construct segments of the trail within their respective jurisdictions. The City of San Diego will develop approximately half of the CRT.

The proposed project is the Gilman Segment that will follow Gilman Drive for approximately 1.8 miles between UCSD and the Rose Canyon Bikeway, representing Segment 9 of the PSR. The site is located in an urban area of apartments and single-family homes. Natural open space is present on steeper, eroded slopes, and in drainage that parallels Gilman Drive from Via Alicante to the I-5 freeway (at the base of the slope along the west side of the roadway). The site is located within the City of San Diego's Multiple Species Conservation Program (MSCP) Subarea Plan. The proposed project includes a one-way protected cycle track on each side of Gilman Drive and a continuous sidewalk on the west side of Gilman Drive over a project distance of approximately 8,800 linear feet. The Cycle track would include a raised buffer between traffic or parking and the cycle track. To accommodate the cycle tracks, the project would include roadway widening on the west side of Gilman Drive from Villa La Jolla Drive southerly to an existing private driveway (An approximate distance of 3,000 lf) and on the east side of Gilman Drive from Via Alicante to Interstate 5 southbound off0ramp (an approximate distance of 4,500 lf). In addition roadway widening, the project includes roadway restriping, street lighting, landscaping, retaining walls, drainage improvements, bus stop improvements, and traffic signal modifications at the existing traffic signals at the I-5, Via Alicante, Villa La Jolla Drive, and La Jolla Village Drive. Acquisition of additional roadway right-of-way is required from several parcels east of Gilman Drive, south of Via Alicante and temporary construction easements are required for several parcels for slope grading and retaining wall construction.

The CRT will result in a number of benefits to regional mobility, including:

- Providing a direct north-south connection for bicycles, pedestrians and joggers.
- Links to regional employment centers in Sorrento Valley, UCSD, and University City for residential communities to the north and south
- Providing connections to future Trolley Station in the project area

4.0 DRAINAGE

4.1 EXISTING DRAINAGE

The existing site includes urban drainage on Gilman drive and adjacent Residential that outlets into the roadway. Runoff also flows from the steep pervious cliffs on the west side of the project. The general direction of stormwater run off flows towards the south, outlets into the natural and pervious drainage channel on the south eastern side of the project. The existing drainage conditions have been broken up into several basins, see Appendix A. The existing roadway is crowned and drainage collects in the gutter system and begins to flow south. The runoff that is collected via curb inlets, storm drain risers, and/or cross gutters is conveyed by the stormdrain system to outfall into the open space to the south eastern side of the project. The runoff is then collected by adjacent vegetation, native soils, and the existing natural channel.

See the following Appendices for further information:
Appendix A – Existing Basins Exhibit

4.2 PROPOSED DRAINAGE:

The existing drainage patterns will not be changed as a result of the proposed improvements. This project will require improving some of the existing drainage facilities as well as stormwater mitigation to promote positive drainage conditions and minimize erosion concerns. These improvements include the construction of: curb and gutters, curb inlets, cleanouts, storm drains, and brow ditches.

The northern portion of the Coastal Rail Trail Gilman Drive Segment includes medians and bus stop improvements that shall not impede the storm water runoff from being collected by the existing stormdrain system.

Portions of this project include the development of several walls that will route runoff via a brow ditch into the existing stormdrain structures on site. The sidewalk improvements at the base of these walls will follow a design to be hydraulically disconnected from the roadway. This will be achieved by having a 5 foot side walk draining to a 2.5 foot pervious strip to collect stormwater. This flow from the proposed sidewalk shall not intermingle with the roadway runoff. The cycle track running along both sides of Gilman Drive shall be hydraulically disconnected by means of protective medians.

See the following Appendices for further information:
Appendix B – Proposed Basins Exhibit

5.0 ANALYSIS

The proposed improvements include roadway widening for sidewalks and a cycle track that shall be hydraulically disconnected from the roadway drainage. The roadway center medians, protective bike medians, and bus islands do not disrupt or change the current flow patterns on site and shall mitigate stormwater to the existing drainage conveyance systems.

Outfall Location Summary:

All basins and drainage conveyance systems on site drain towards the natural channel located directly south east of the site. This drainage channel eventually flows into Rose Creek.

See the following Appendices for further information:

Appendix A – Existing Basins Exhibit

Appendix B – Proposed Basins Exhibit

6.0 CONCLUSION:

Existing drainage patterns will not be negatively impacted from the post project conditions and all runoff is directed towards storm drain facilities or drainage channels that are properly sized for a 50-year storm event. The proposed sidewalks and cycle track shall be hydraulically disconnected from the roadway stormwater run off.

7.0 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 business and professions code, and that the design is consistent with current standards.

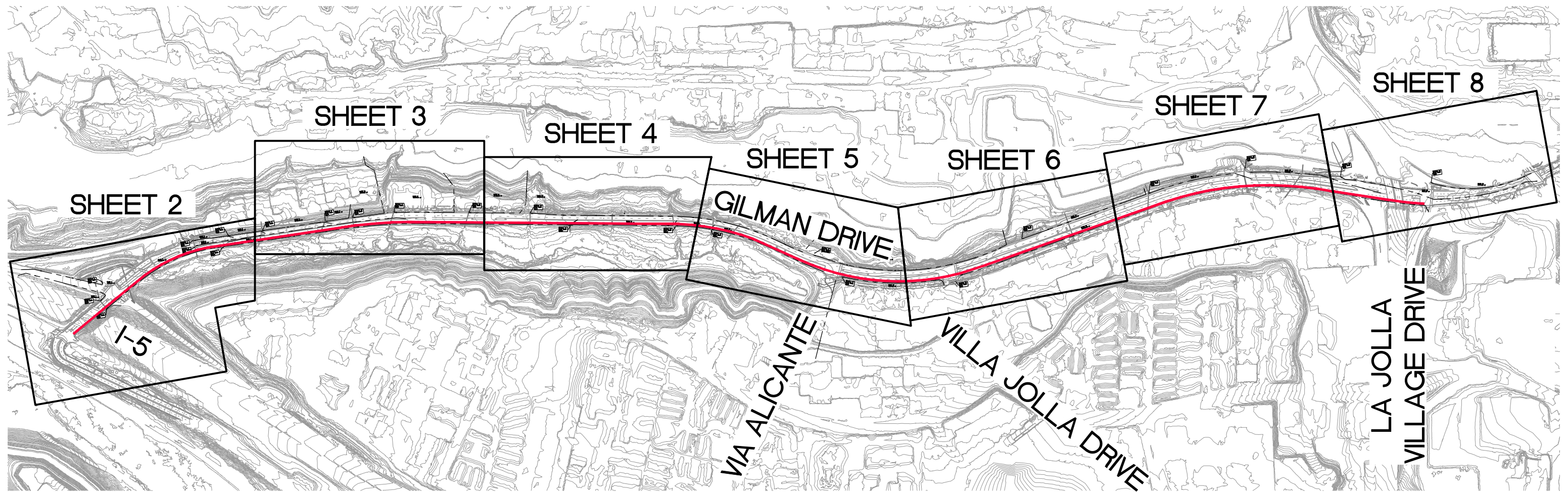
I understand that the check of project drawings and specification by the City of Encinitas is confined to a review only and does not relieve me, as engineer of work, of my responsibilities for project design.

8.0 ENGINEER OF WORK:

This report was prepared under the supervision of Samuel Waisbord, PE, Project Manager for Nasland Engineering.

ATTACHMENT

ATTACHMENT A



BASIN AND OUTFALL STUDY

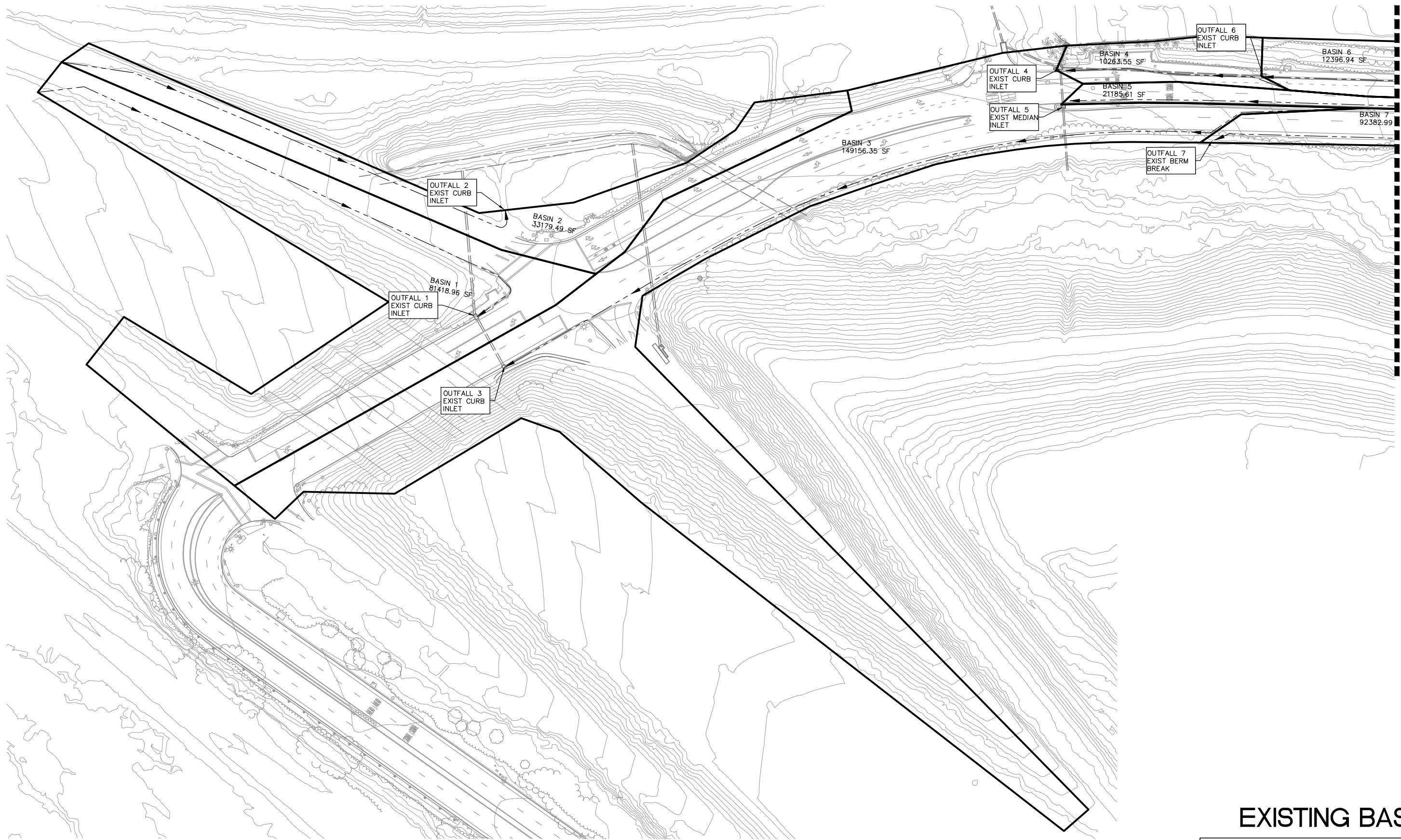
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I-5 TO LA JOLLA VILLAGE DRIVE

EXISTING BASINS

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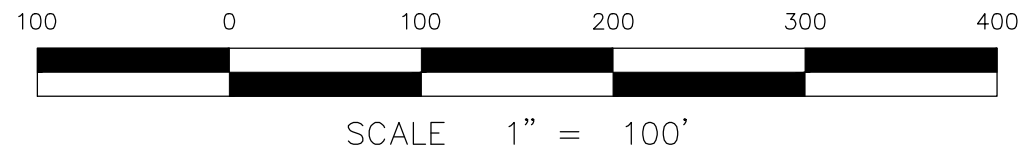
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San Diego, CA 92111 nasland.com
Civil Engineering Surveying Land Planning

MATCHLINE: SEE SHEET 3



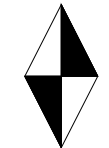
BASIN AND OUTFALL STUDY

COASTAL RAIL TRAIL - GILMAN DRIVE
I-5 TO LA JOLLA VILLAGE DRIVE



EXISTING BASINS

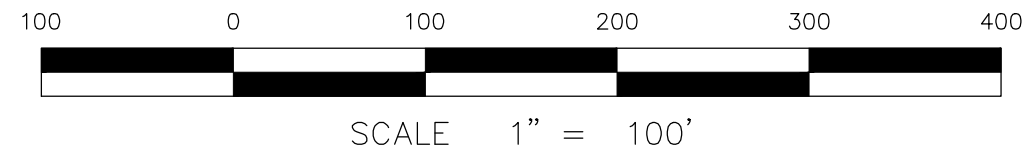
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BASIN AND OUTFALL STUDY

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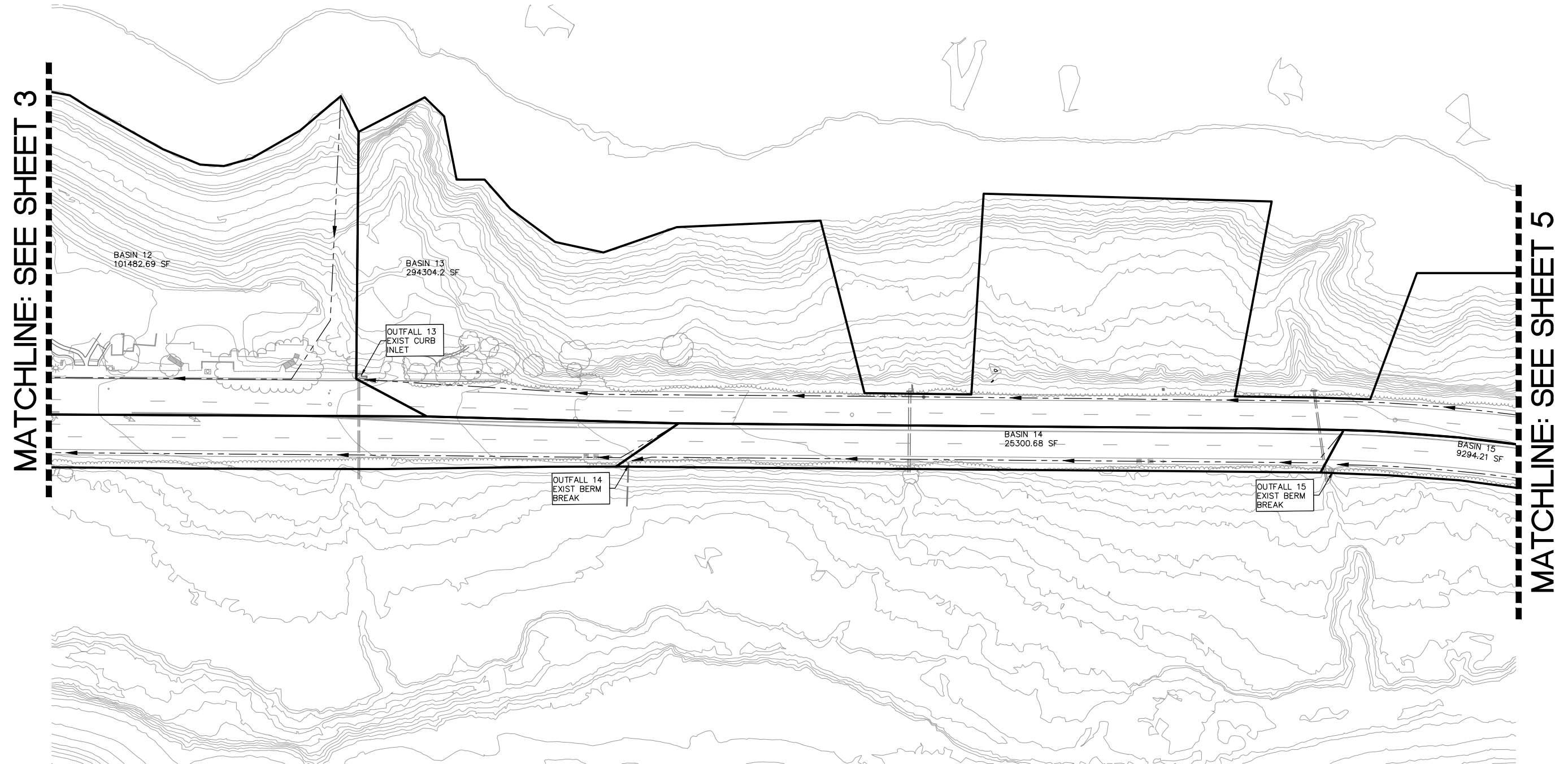


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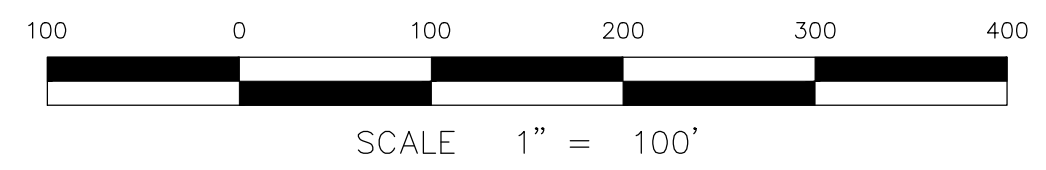
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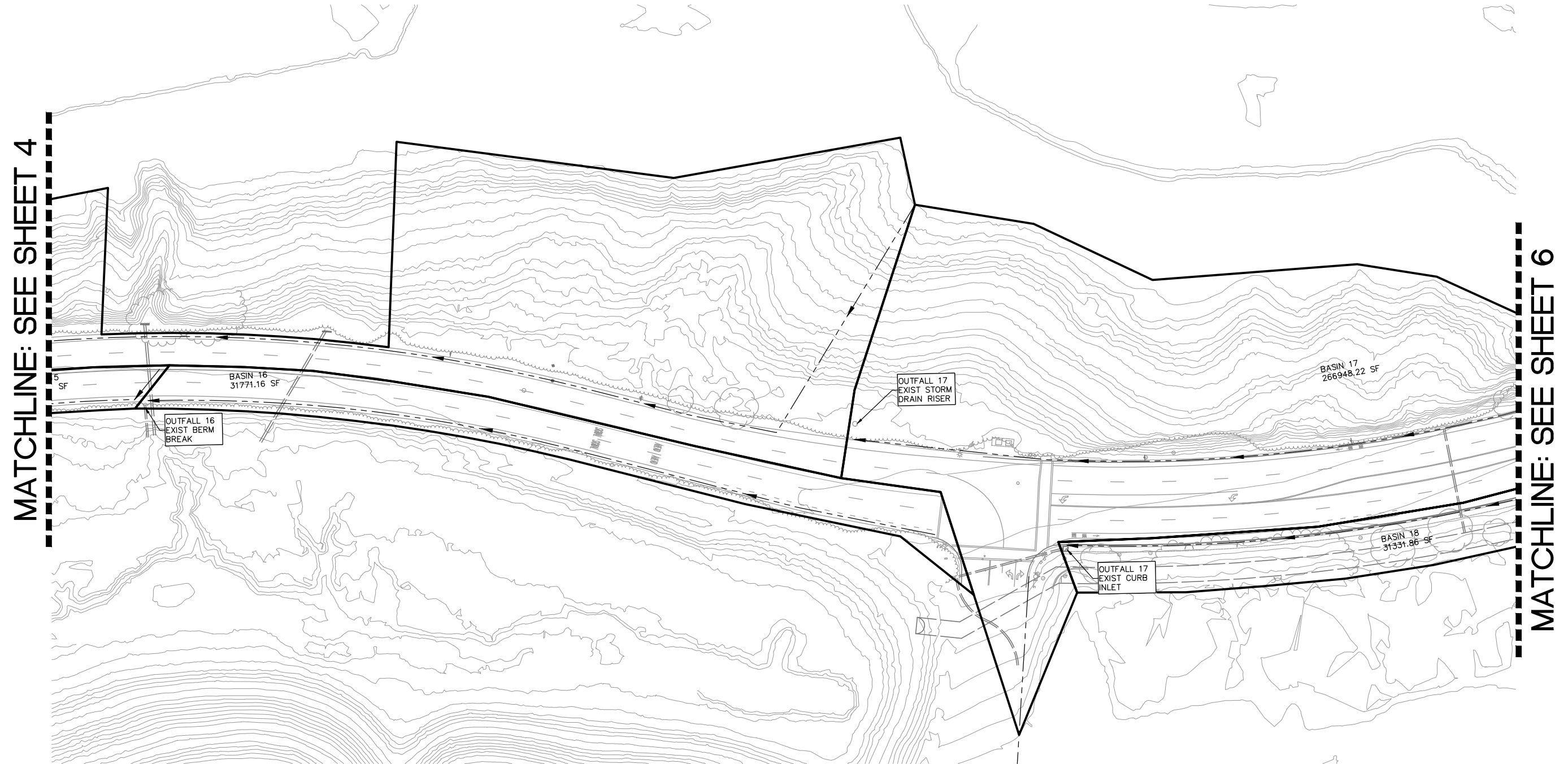
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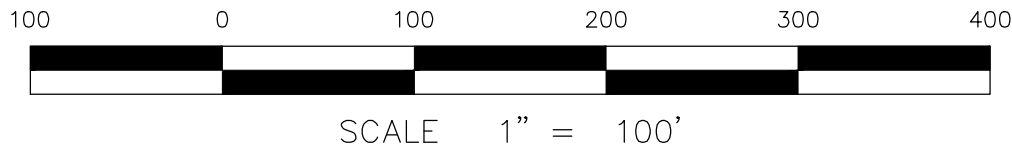
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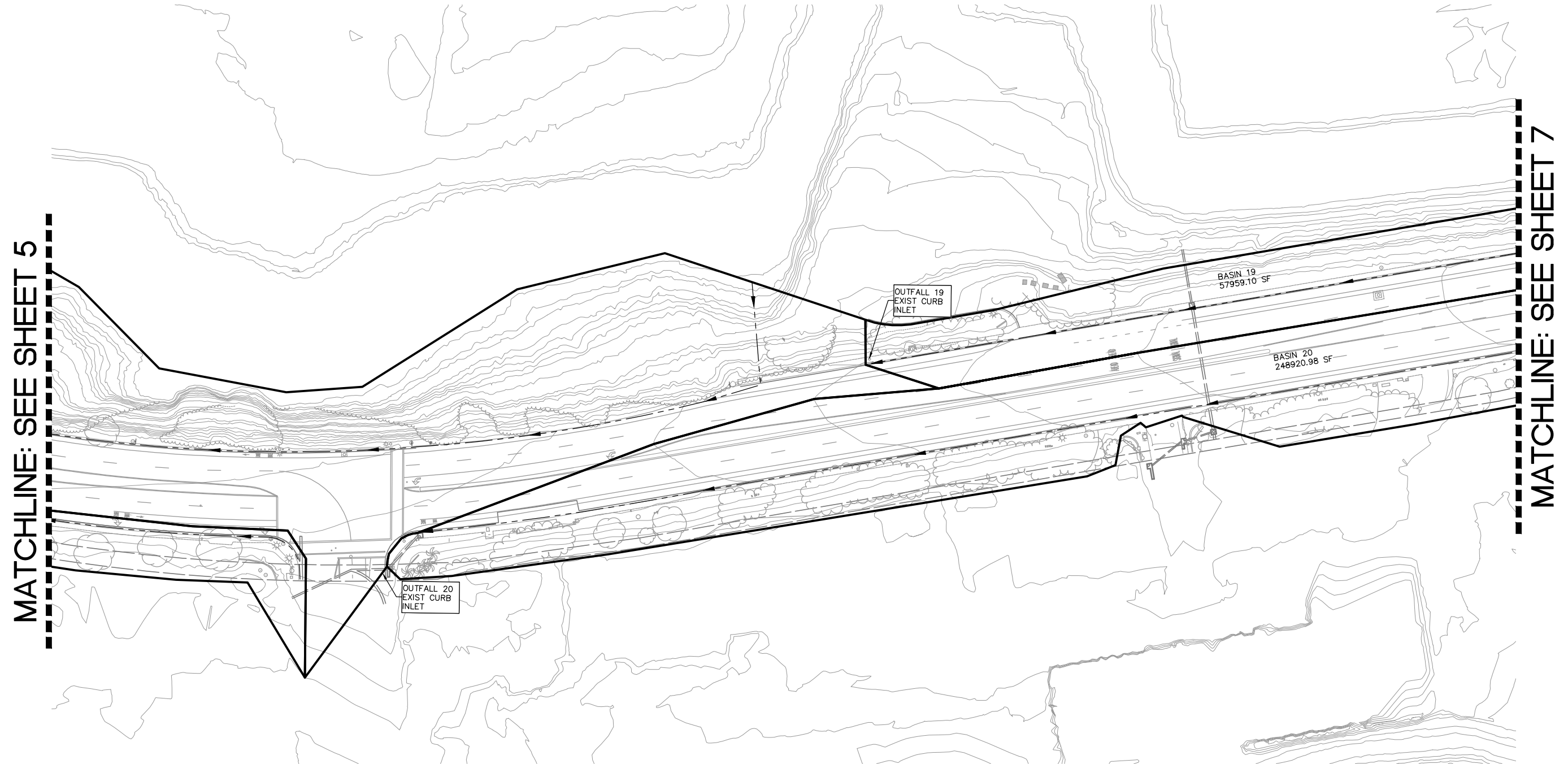
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COASTAL RAIL TRAIL - GILMAN DRIVE
I-5 TO LA JOLLA VILLAGE DRIVE



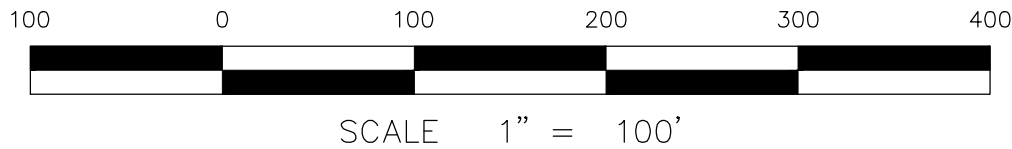
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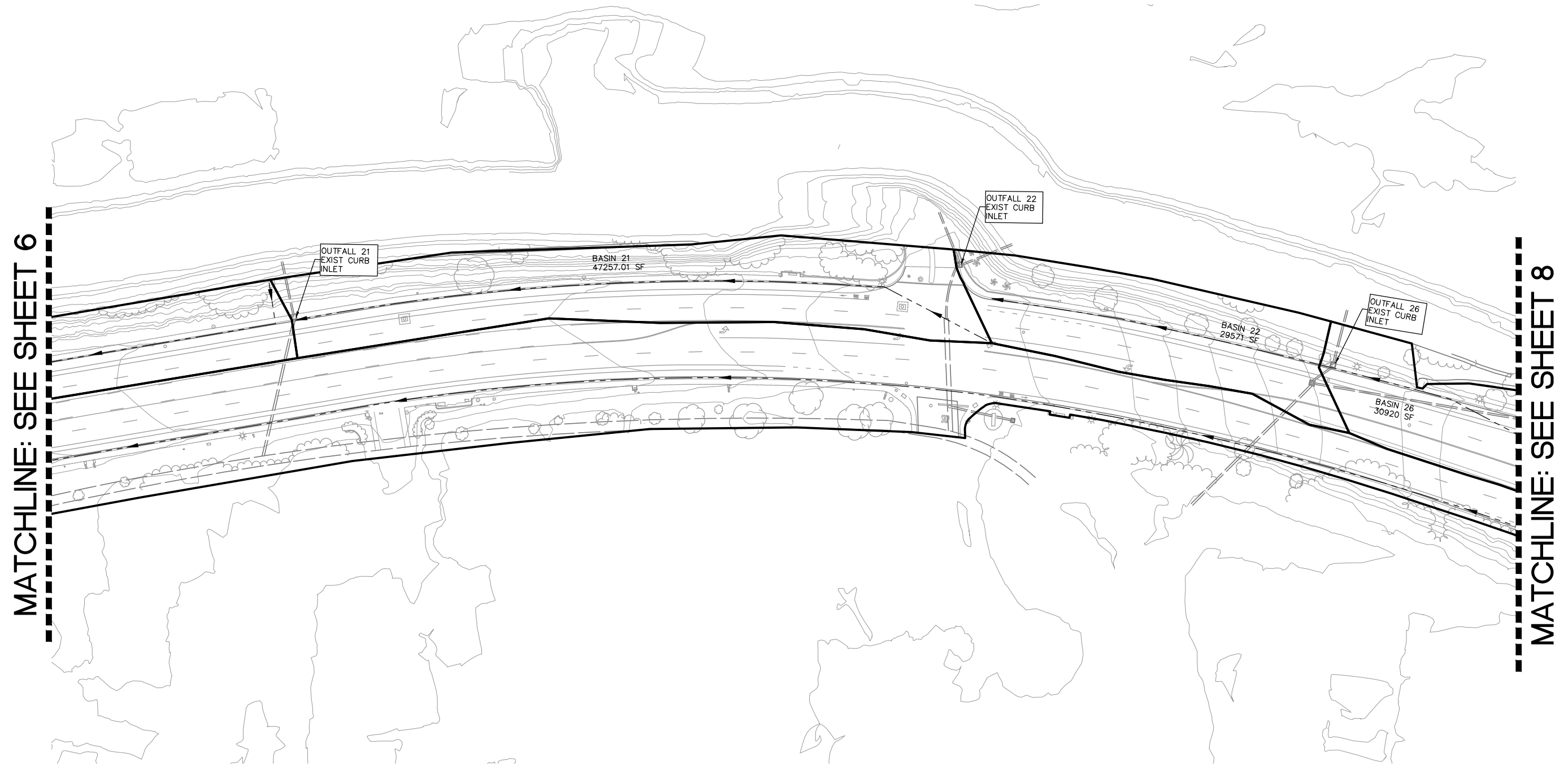
BASIN AND OUTFALL STUDY
COASTAL RAIL TRAIL - GILMAN DRIVE
I-5 TO LA JOLLA VILLAGE DRIVE



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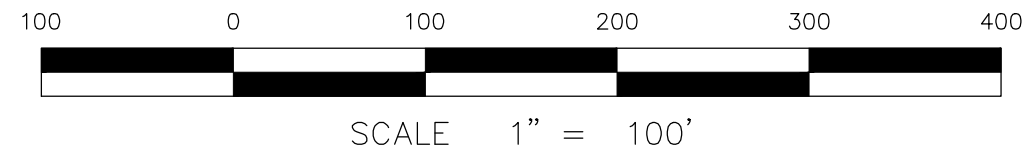
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BASIN AND OUTFALL STUDY

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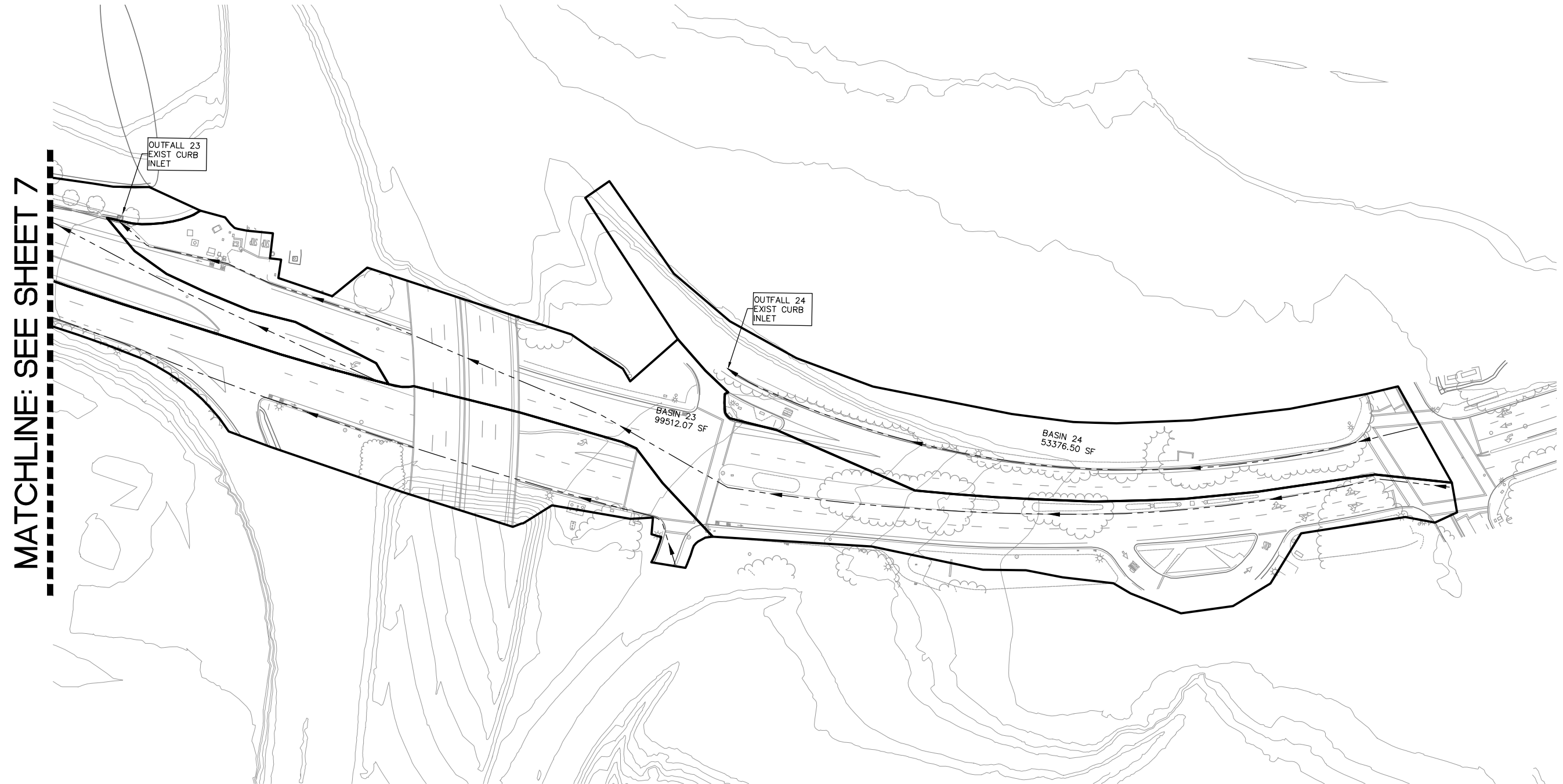
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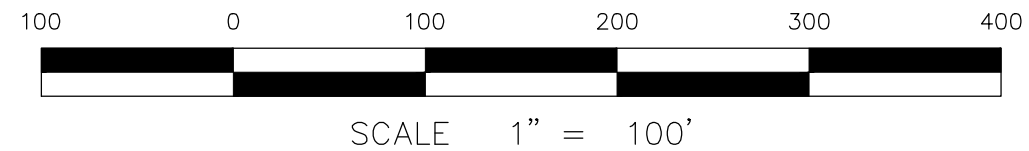
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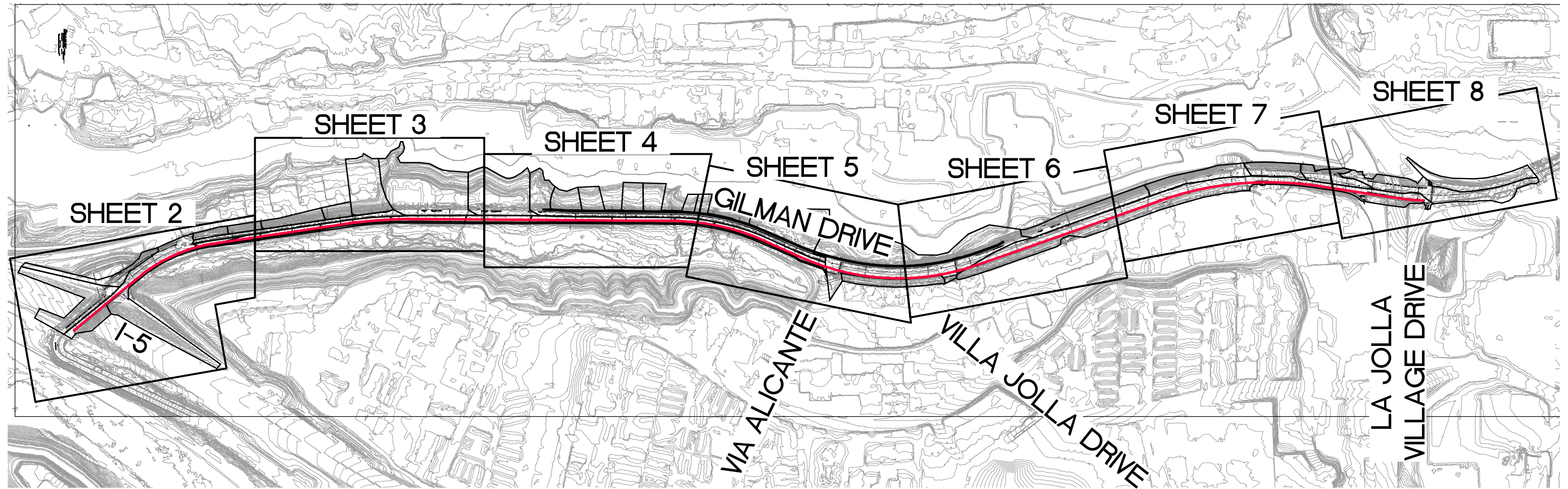


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ATTACHMENT B



BASIN AND OUTFALL STUDY

COASTAL RAIL TRAIL - GILMAN DRIVE
I-5 TO LA JOLLA VILLAGE DRIVE

PROPOSED BASINS

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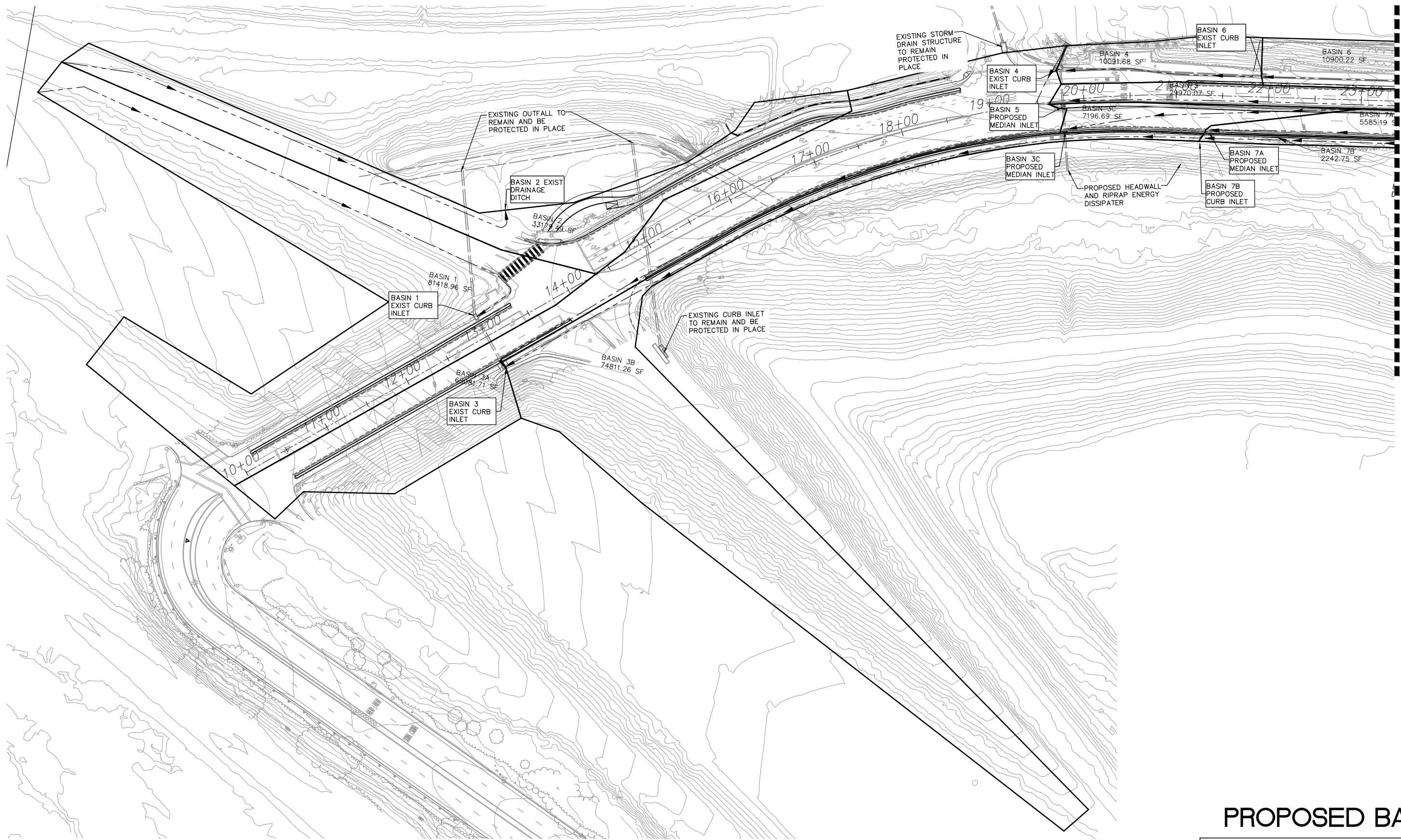


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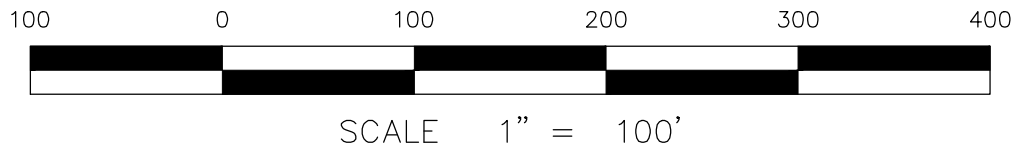
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BASINS AND OUTFALL STUDY

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I-5 TO LA JOLLA VILLAGE DRIVE



PROPOSED BASINS

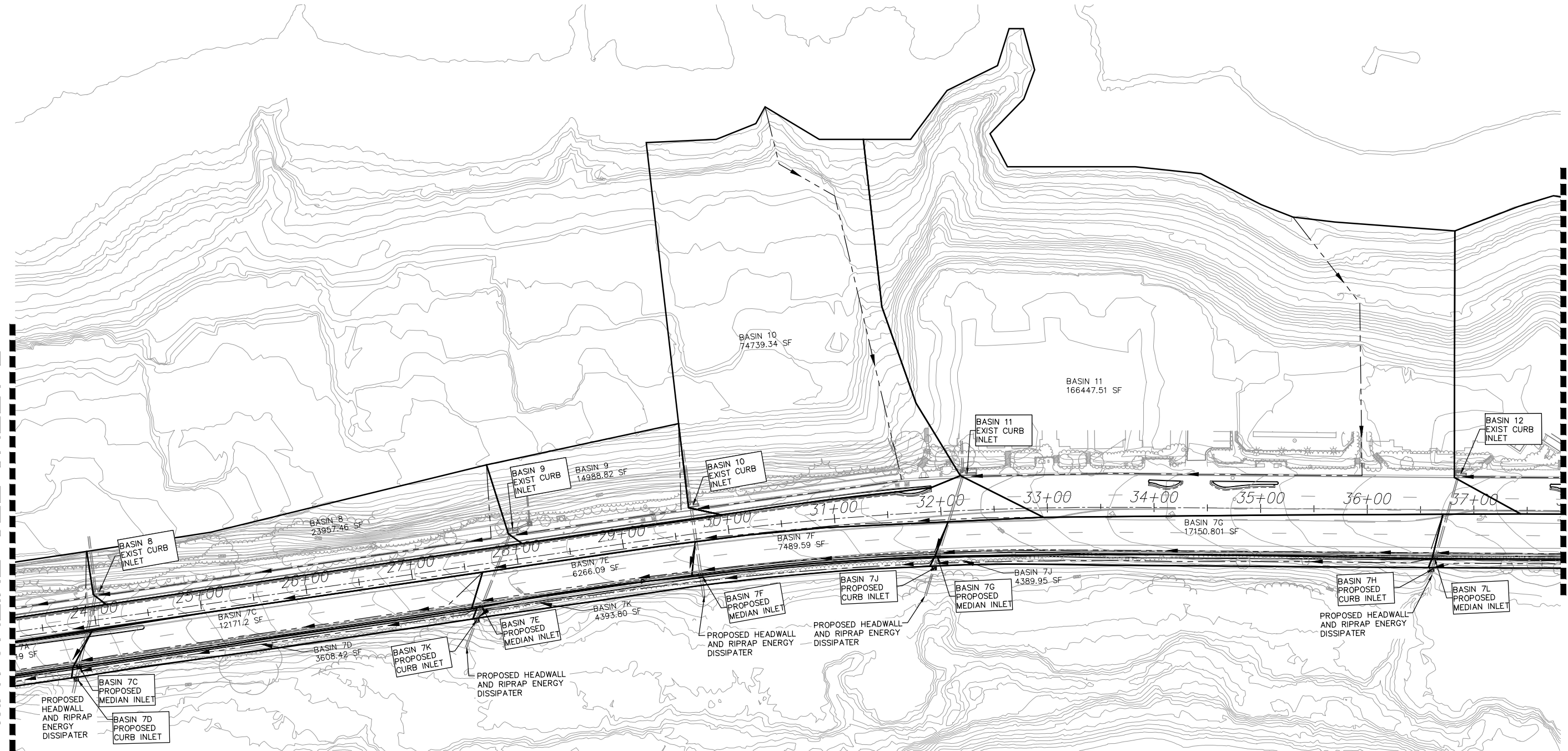


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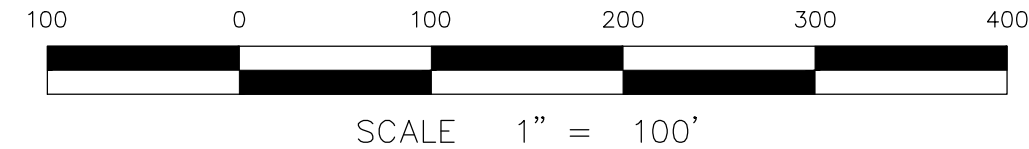
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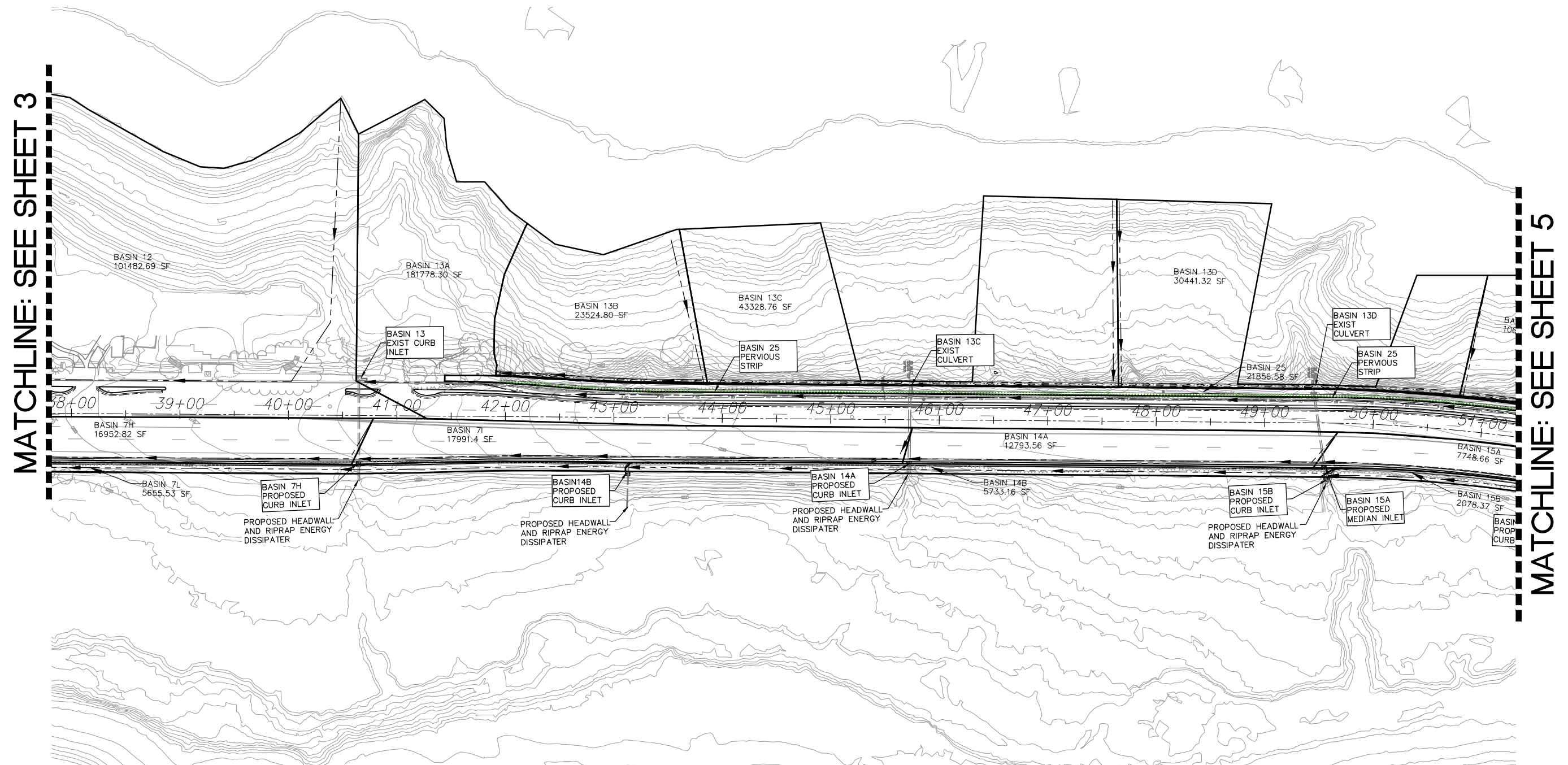
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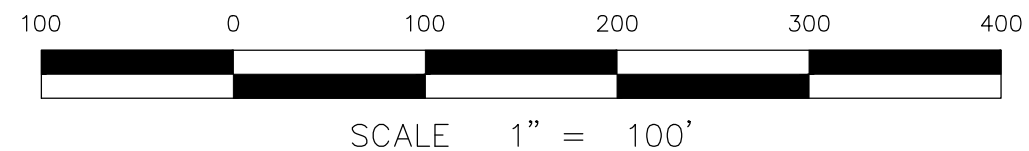
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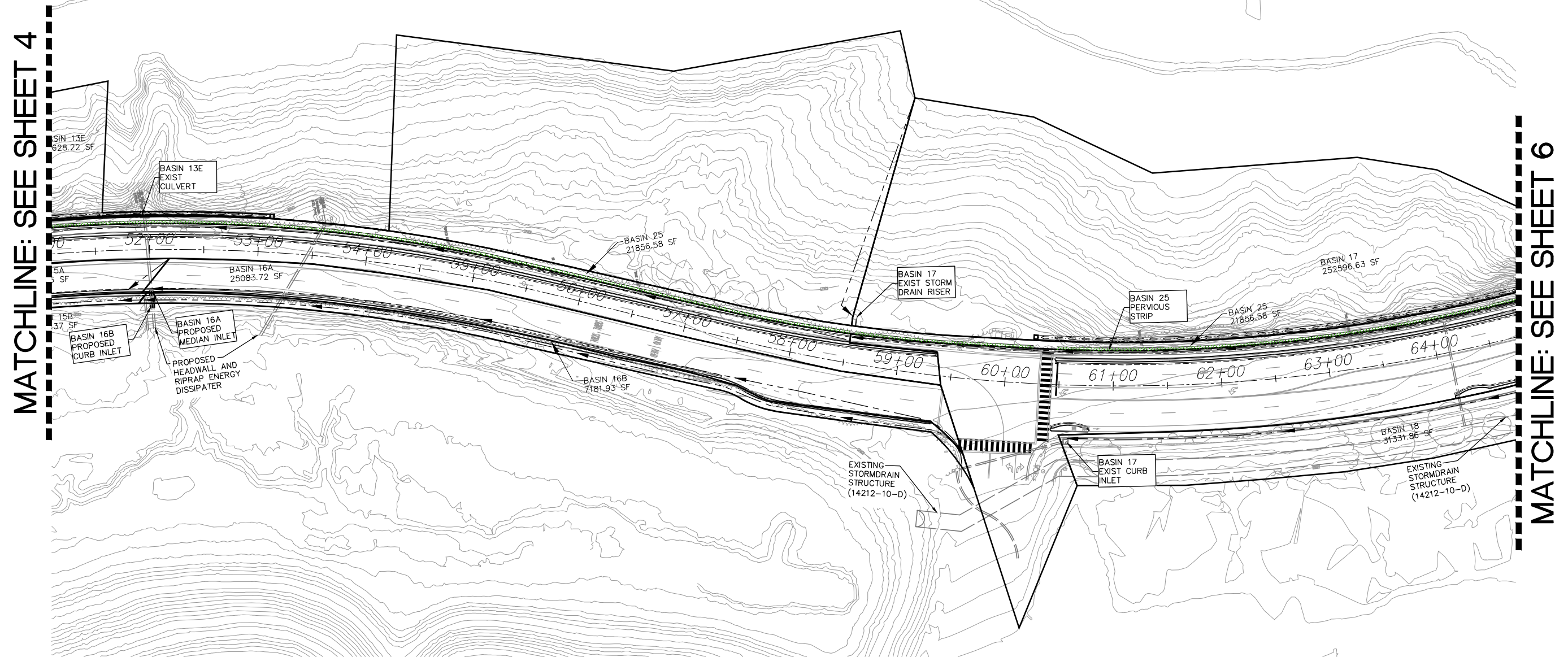
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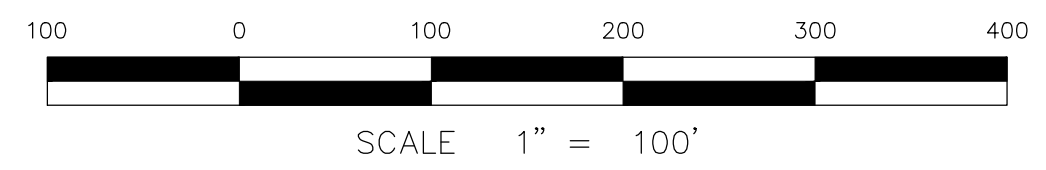
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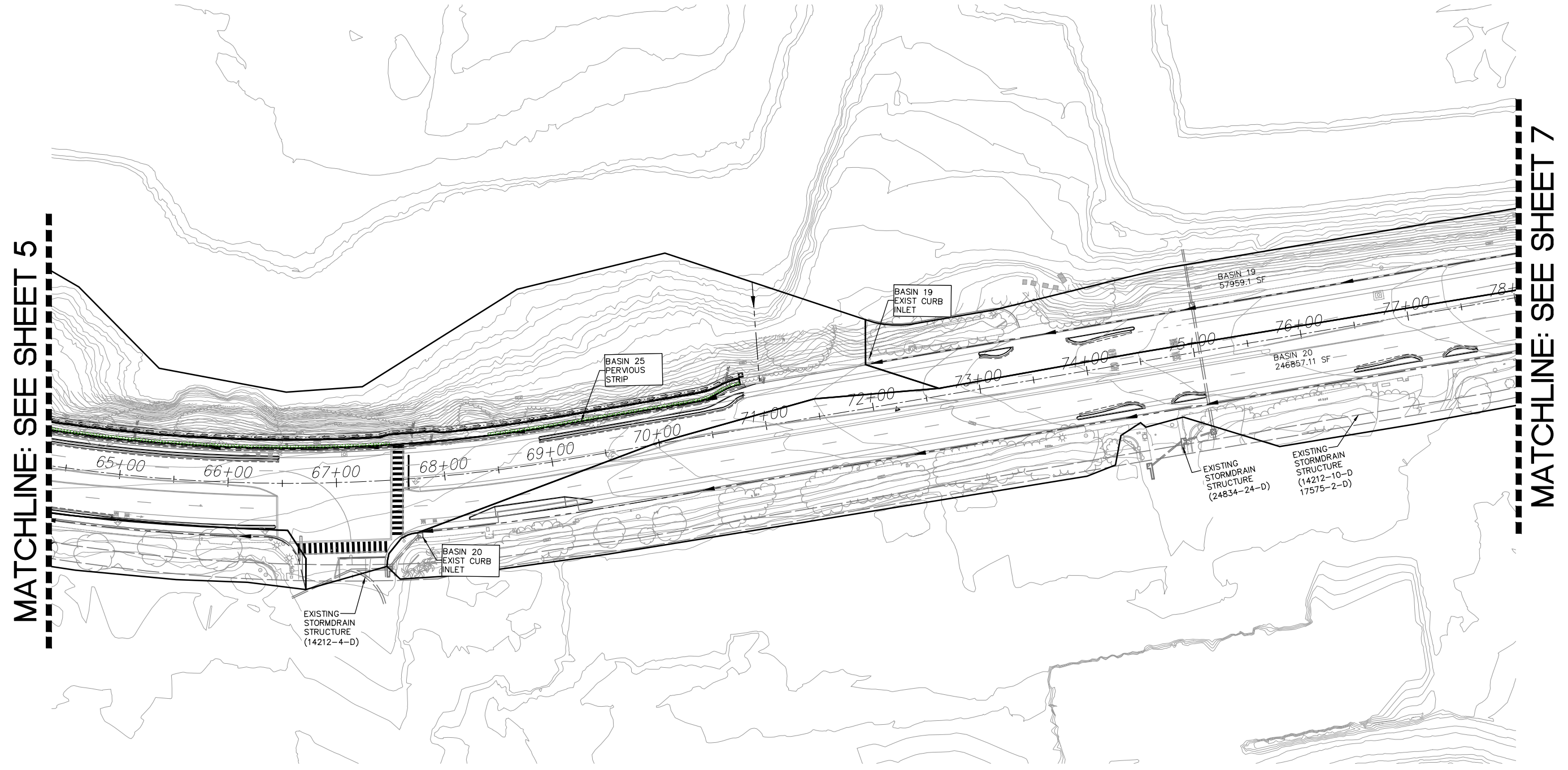
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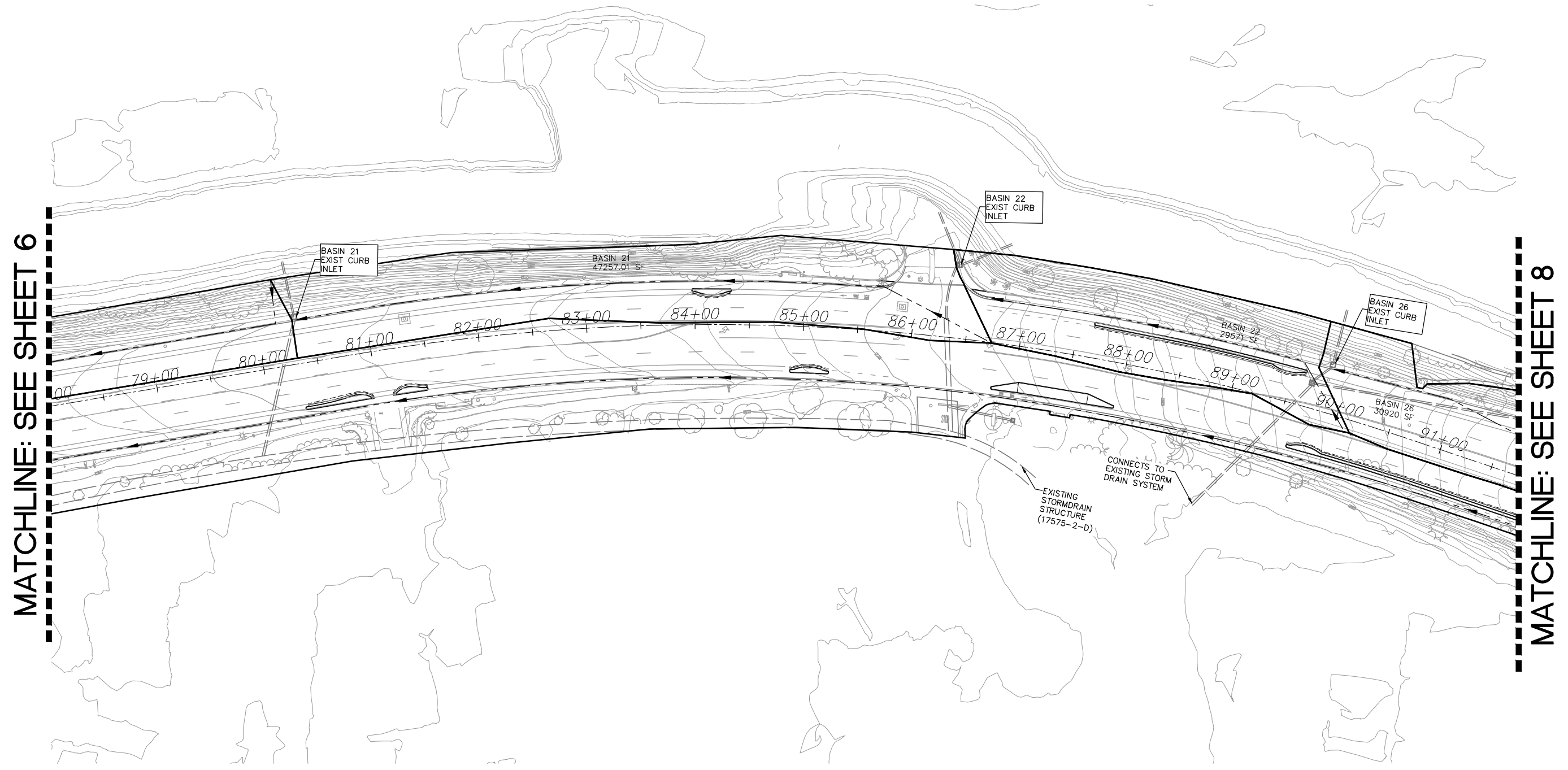


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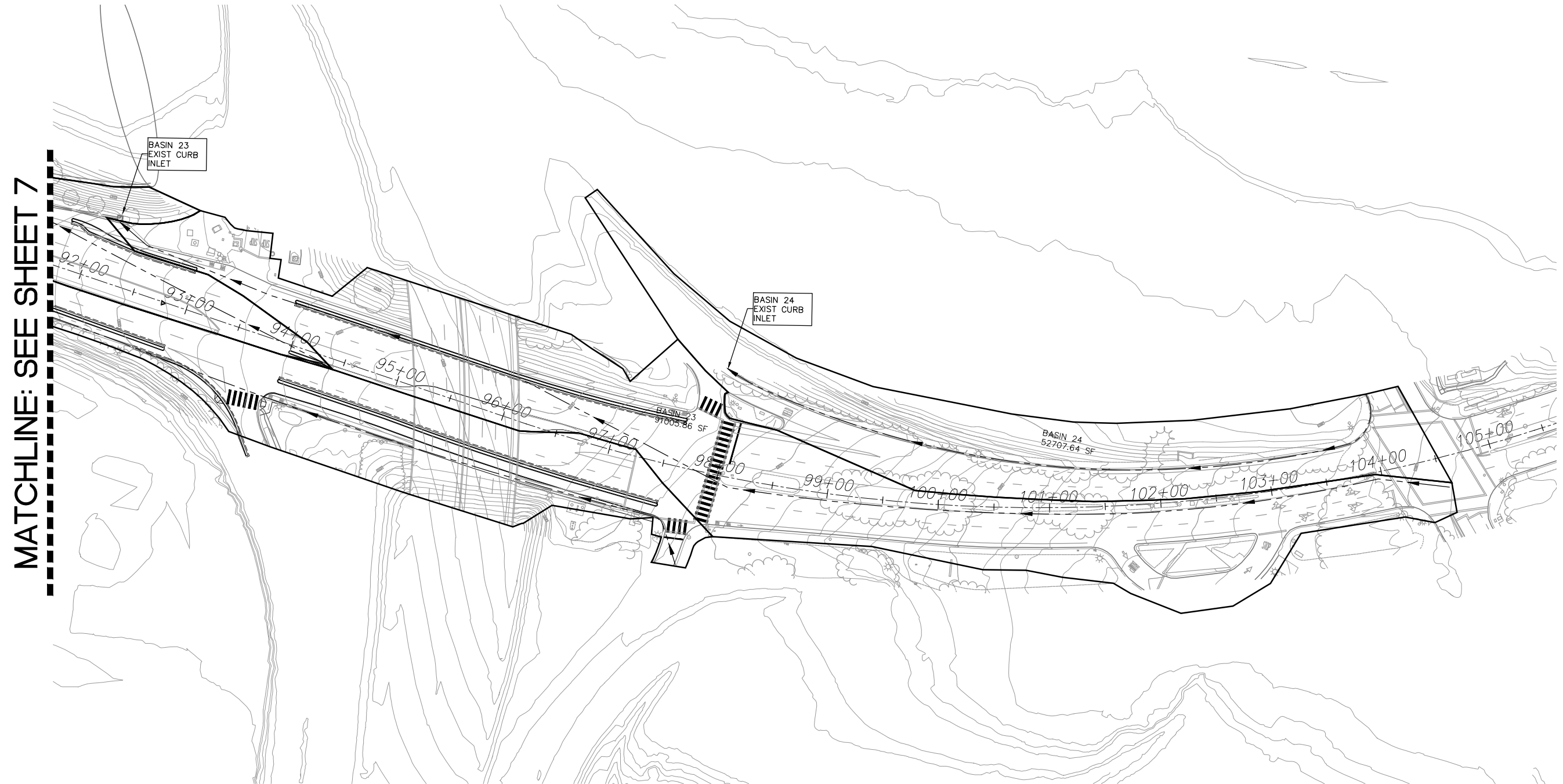


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Appendix B

PDP Exemption Report

PRIORITY DEVELOPMENT EXEMPTION REPORT

FOR

COASTAL RAIL TRAIL GILMAN DRIVE SEGMENT

Prepared for



Public Works Department

Prepared by

Nasland Engineering

Samuel Waisbord, PE

(858) 292-7770

Samw@nasland.com

April, 2018

TABLE OF CONTENTS

Purpose	2
Introduction	2
City of San Diego Exemption Criteria.....	4
Summary of Exempt Areas.....	4
Conclusions and Observations.....	6

APPENDIX

Attachment A – City of San Diego’s DS-560 Form	
Attachment B – City of San Diego Stormwater Checklists	
-Form I-1	
-Form I-3A	
-Form I-4A	
-Form I-5A	
Attachment C – Proposed Basin and Outfall Exhibit	

PURPOSE

This Priority Development Exemption Report has been prepared to provide an understanding of how the Coastal Rail Trail Gilman Drive Segment Project complies with City of San Diego's Storm Water Requirements for Priority Development Exempt Status.

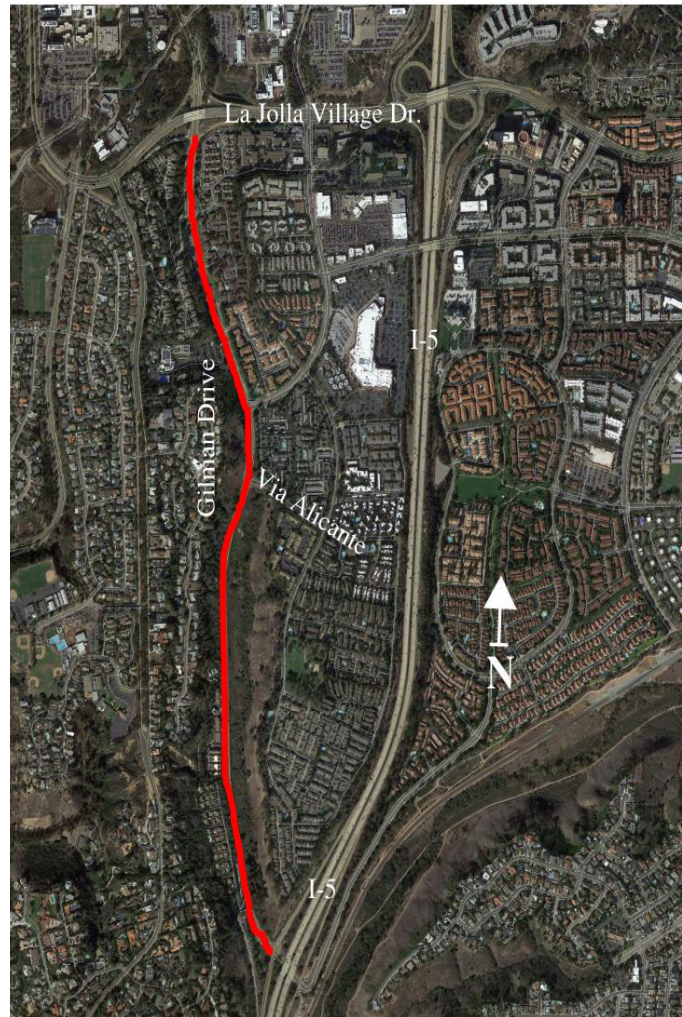


Figure 1: Project Location

INTRODUCTION

The Coastal Rail Trail (CRT) Project will develop nearly 40-miles of continuous corridor of multi-use, Class I, Class II, and Class III bicycle facilities along the railroad right of way (ROW). The CRT is a regional project that will establish a multi-use trail to better connect the coastal cities of Oceanside, Del Mar, Carlsbad, Encinitas, Solana Beach, and San Diego identified in the Coastal Rail Trail Project Study Report, October 2000(PSR). Each City entered into a Memorandum of Understanding to plan, design, and construct segments of the trail within their respective jurisdictions. The proposed project is the Gilman Segment that will follow Gilman Drive for approximately 1.8 miles between UCSD and the Rose Canyon Bikeway, representing Segment 9 of the PSR.

The site is located in an urban area of apartments and single-family homes. Natural open space is present on steeper, eroded slopes, and the in open space that parallels Gilman Drive from Via Alicante to the I-5 freeway (at the base of the slope along the west side of the roadway). The site is located within the City of San Diego's Multiple Species Conservation Program (MSCP) Subarea Plan. The proposed project includes a one-way protected cycle track on each side of Gilman Drive and a continuous sidewalk on the west side of Gilman Drive over a project distance of approximately 8,800 linear feet. The cycle track will be separated from vehicular traffic by either a raised median or on-street parking. To accommodate the cycle tracks, the project would include roadway widening in two stretches along the roadway. Roadway expansion for the proposed sidewalk will be a stretch on the west side of Gilman Drive from Villa La Jolla Drive heading southerly to an existing private driveway, an approximate distance of 3,000 lf. Roadway expansion to allow for the cycle track will be on the east side of Gilman Drive from Via Alicante to Interstate 5 southbound off ramp (an approximate distance of 4,500 LF). In addition to roadway widening for sidewalk and the cycle track, the project includes roadway restriping, street lighting, landscaping, retaining walls, drainage improvements, bus stop improvements, and traffic signal modifications at the existing traffic signals at the I-5, Via Alicante, Villa La Jolla Drive, and La Jolla Village Drive. Acquisition of additional roadway right-of-way is required from several parcels east of Gilman Drive, south of Via Alicante and temporary construction easements are required for several parcels for slope grading and retaining wall construction.

The CRT Gilman Segment will result in a number of benefits to regional mobility, including:

- Providing a direct north-south connection for bicycles, pedestrians and joggers.
- Links to regional employment centers in Sorrento Valley, UCSD, and University City for residential communities to the north and south
- Providing connections to future Trolley Station in the project area
- Creates an important point of connectivity for active transportation
- A safe recreational route for the local community

The City of San Diego's Stormwater Requirements Applicability Checklist was completed and is located in *Attachment 1*. This project is considered to be exempt from being a priority development project and therefore permanent BMP are not required. These exemptions are in accordance with the Category 1 PDP Exemption listed in section 1.4.3 of the City of San Diego's Stormwater Standards BMP Design Manual.

CITY OF SAN DIEGO EXEMPTION CRITERIA

This project is PDP Exempt per section 1.4.3 of the 2018 City of San Diego's Stormwater Standards manual. The project falls under the "PDP Exemption Category 1". The proposed improvements of this project consist of a sidewalk and cycle track.

PDP Exemption Category 1, cited below, per Section 1.4.3 of the City of San Diego *Storm Water Standards Manual (2018)*:

- **PDP Exemption Category 1: PDP exemption for new or retrofit paved sidewalks, bicycle lanes or trails:**

This exemption may be applied to new or retrofit paved sidewalks, bicycle lanes, or trails if the project meets one of the following criteria:

1. Designed and constructed to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas; OR
2. Designed and constructed to be hydraulically disconnected from paved streets or roads; OR
3. Designed and constructed with permeable pavements or surfaces listed in Appendix J.1.3

SUMMARY OF EXEMPT AREAS

For the purpose of this report the two separate improvement areas, the sidewalk and cycle track, will be discussed separately as Area 1 and Area 2 respectively. The projects drainage and the areas being examined can be seen in the Attachment 3 - The Proposed Basin and Outfall Exhibit.

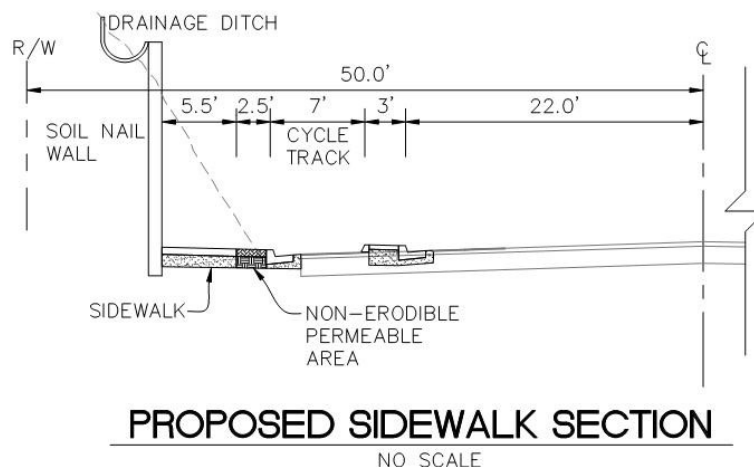


Figure 2: Area 1 proposed sidewalk typical section

"Area 1"

The proposed sidewalk and wall will be five feet wide with a two and a half foot permeable strip which is proposed for approximately 2,900 FT. See Stations 42+00 to Station 71+00 of Attachment 3. A Typical section of the proposed sidewalk is shown above, see Figure 2. The two and a half foot strip is compliant as a non-erodible permeable area per the definition of PDP Exemption Category 1 based on Appendix J.1 of the City of San Diego's 2018 Stormwater Standards manual.

An example image taken from “Appendix J.1.1: PDP Exemption Guidance” of the Storm Water Standards Manual is shown below, See Figure 3.

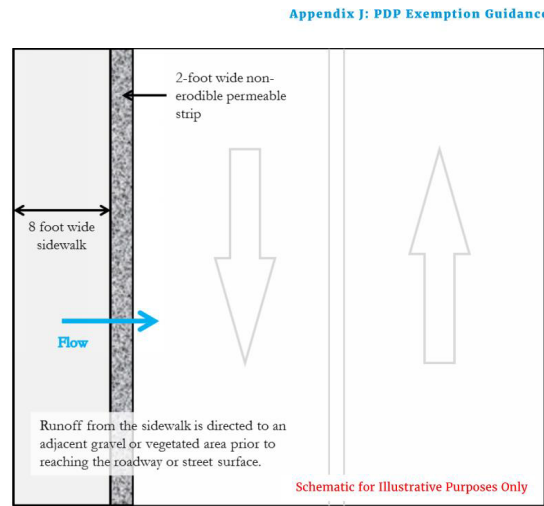


Figure 3: City of San Diego Stormwater Standards Exemption Guidance

Area 1 of the CRT Gilman Segment project complies with the PDP Exemption Category 1 by being, “Designed and constructed to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas.” As defined in J.1.1 of the Storm Water Standards Manual (2018).

“Area 2”

A portion of the proposed Cycle track, an approximate length of 4,100 ft, will include new roadway for the cycle track. See Station 18+50 to Station 59+50 of Attachment 3. Area 2 of the CRT Gilman Drive Segment meets the Category 1 PDP Exemption status by being “Designed and constructed to be hydraulically disconnected from paved streets or roads,” as stated in the City of San Diego Storm Water Standards Manual (2018).

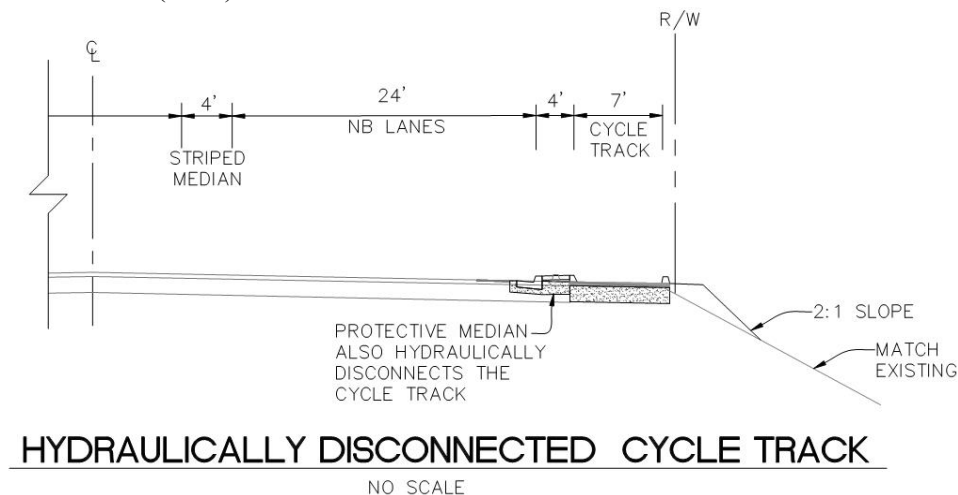


Figure 4: Area 2 Typical Section

Area 2 of the cycle track utilizes protective medians to safely separate bicyclists from the road. The protective median hydraulically separates the proposed cycle track from the existing roadway. Median inlets shall be used to prevent the co-mingling of stormwater run off until after it enters the drainage conveyance system. The proposed cycle track is consistent with the recommendations of Appendix J.2 of the City of San Diego's Stormwater Standards manual to meet the requirements of the Category 1 PDP Exemption status.

CONCLUSIONS AND OBSERVATIONS

The CRT Gilman Drive Segment qualifies for Priority Development Project Exemption because it complies with exemption category 1 listed in the Storm Water Requirement Applicability Checklist (DS-560), see Attachment 1 of this report. "Area 1" consisting of a proposed sidewalk will drain directly to an adjacent non-erodible permeable area, while "Area 2" complies with hydraulic disconnection criteria.

Projects that meet the PDP Exemption are instead required to meet Standard Project requirements for Site and Source control BMPS. Structural Pollutant Control and Hydromodification Management requirements do not apply. This project proposes the use of Site and Source control BMPs to achieve negligible impacts on water quality. All of the related forms for Standard Project requirements are located in Attachment 2 of this report.

Prepared under the supervision of:

Samuel Waisbord, RCE 78071

Date: _____

APPENDIX

Attachment A – City of San Diego’s DS-560 Form

Attachment B – City of San Diego Stormwater Checklists

- Form I-1

- Form I-3A

- Form I-4A

- Form I-5A

Attachment C – Proposed Basin and Outfall Exhibit

ATTACHMENT A – City of San Diego’s DS-560 Form



City of San Diego
Development Services
1222 First Ave., MS-302
San Diego, CA 92101
(619) 446-5000

Storm Water Requirements Applicability Checklist

FORM
DS-560
OCTOBER 2016

Project Address:

Project Number (for City Use Only):

SECTION 1. Construction Storm Water BMP Requirements:

All construction sites are required to implement construction BMPs in accordance with the performance standards in the [Storm Water Standards Manual](#). Some sites are additionally required to obtain coverage under the State Construction General Permit (CGP)¹, which is administered by the State Water Resources Control Board.

For all projects complete PART A: If project is required to submit a SWPPP or WPCP, continue to PART B.

PART A: Determine Construction Phase Storm Water Requirements.

1. Is the project subject to California's statewide General NPDES permit for Storm Water Discharges Associated with Construction Activities, also known as the State Construction General Permit (CGP)? (Typically projects with land disturbance greater than or equal to 1 acre.)

☐ Yes; SWPPP required, skip questions 2-4 ☐ No; next question

2. Does the project propose construction or demolition activity, including but not limited to, clearing, grading, grubbing, excavation, or any other activity resulting in ground disturbance and contact with storm water runoff?

☐ Yes; WPCP required, skip 3-4 ☐ No; next question

3. Does the project propose routine maintenance to maintain original line and grade, hydraulic capacity, or original purpose of the facility? (Projects such as pipeline/utility replacement)

☐ Yes; WPCP required, skip 4 ☐ No; next question

4. Does the project only include the following Permit types listed below?

- Electrical Permit, Fire Alarm Permit, Fire Sprinkler Permit, Plumbing Permit, Sign Permit, Mechanical Permit, Spa Permit.
- Individual Right of Way Permits that exclusively include only ONE of the following activities: water service, sewer lateral, or utility service.
- Right of Way Permits with a project footprint less than 150 linear feet that exclusively include only ONE of the following activities: curb ramp, sidewalk and driveway apron replacement, pot holing, curb and gutter replacement, and retaining wall encroachments.

☐ Yes; no document required

Check one of the boxes below, and continue to PART B:

☐ If you checked "Yes" for question 1,
a SWPPP is REQUIRED. Continue to PART B

☐ If you checked "No" for question 1, and checked "Yes" for question 2 or 3,
a WPCP is REQUIRED. If the project proposes less than 5,000 square feet of ground disturbance AND has less than a 5-foot elevation change over the entire project area, a Minor WPCP may be required instead. **Continue to PART B.**

☐ If you checked "No" for all questions 1-3, and checked "Yes" for question 4
PART B does not apply and no document is required. Continue to Section 2.

1. More information on the City's construction BMP requirements as well as CGP requirements can be found at: www.sandiego.gov/stormwater/regulations/index.shtml

PART B: Determine Construction Site Priority

This prioritization must be completed within this form, noted on the plans, and included in the SWPPP or WPCP. The city reserves the right to adjust the priority of projects both before and after construction. Construction projects are assigned an inspection frequency based on if the project has a "high threat to water quality." The City has aligned the local definition of "high threat to water quality" to the risk determination approach of the State Construction General Permit (CGP). The CGP determines risk level based on project specific sediment risk and receiving water risk. Additional inspection is required for projects within the Areas of Special Biological Significance (ASBS) watershed. **NOTE:** The construction priority does **NOT** change construction BMP requirements that apply to projects; rather, it determines the frequency of inspections that will be conducted by city staff.

Complete PART B and continued to Section 2

1. ☐ **ASBS**
 - a. Projects located in the ASBS watershed.
2. ☐ **High Priority**
 - a. Projects 1 acre or more determined to be Risk Level 2 or Risk Level 3 per the Construction General Permit and not located in the ASBS watershed.
 - b. Projects 1 acre or more determined to be LUP Type 2 or LUP Type 3 per the Construction General Permit and not located in the ASBS watershed.
3. ☐ **Medium Priority**
 - a. Projects 1 acre or more but not subject to an ASBS or high priority designation.
 - b. Projects determined to be Risk Level 1 or LUP Type 1 per the Construction General Permit and not located in the ASBS watershed.
4. ☐ **Low Priority**
 - a. Projects requiring a Water Pollution Control Plan but not subject to ASBS, high, or medium priority designation.

SECTION 2. Permanent Storm Water BMP Requirements.

Additional information for determining the requirements is found in the [Storm Water Standards Manual](#).

PART C: Determine if Not Subject to Permanent Storm Water Requirements.

Projects that are considered maintenance, or otherwise not categorized as "new development projects" or "redevelopment projects" according to the [Storm Water Standards Manual](#) are not subject to Permanent Storm Water BMPs.

If "yes" is checked for any number in Part C, proceed to Part F and check "Not Subject to Permanent Storm Water BMP Requirements".

If "no" is checked for all of the numbers in Part C continue to Part D.

1. Does the project only include interior remodels and/or is the project entirely within an existing enclosed structure and does not have the potential to contact storm water? ☐ Yes ☐ No
2. Does the project only include the construction of overhead or underground utilities without creating new impervious surfaces? ☐ Yes ☐ No
3. Does the project fall under routine maintenance? Examples include, but are not limited to: roof or exterior structure surface replacement, resurfacing or reconfiguring surface parking lots or existing roadways without expanding the impervious footprint, and routine replacement of damaged pavement (grinding, overlay, and pothole repair). ☐ Yes ☐ No

PART D: PDP Exempt Requirements.

PDP Exempt projects are required to implement site design and source control BMPs.

If “yes” was checked for any questions in Part D, continue to Part F and check the box labeled “PDP Exempt.”

If “no” was checked for all questions in Part D, continue to Part E.

1. Does the project ONLY include new or retrofit sidewalks, bicycle lanes, or trails that:

- **Are designed and constructed to direct storm water runoff to adjacent vegetated areas, or other non-erodible permeable areas? Or;**
- **Are designed and constructed to be hydraulically disconnected from paved streets and roads? Or;**
- **Are designed and constructed with permeable pavements or surfaces in accordance with the Green Streets guidance in the City’s Storm Water Standards manual?**

☐ Yes; PDP exempt requirements apply

☐ No; next question

2. Does the project ONLY include retrofitting or redeveloping existing paved alleys, streets or roads designed and constructed in accordance with the Green Streets guidance in the [City’s Storm Water Standards Manual](#)?

☐ Yes; PDP exempt requirements apply

☐ No; project not exempt.

PART E: Determine if Project is a Priority Development Project (PDP).

Projects that match one of the definitions below are subject to additional requirements including preparation of a Storm Water Quality Management Plan (SWQMP).

If “yes” is checked for any number in PART E, continue to PART F and check the box labeled “Priority Development Project”.

If “no” is checked for every number in PART E, continue to PART F and check the box labeled “Standard Development Project”.

1. New Development that creates 10,000 square feet or more of impervious surfaces collectively over the project site. This includes commercial, industrial, residential, mixed-use, and public development projects on public or private land.

☐ Yes ☐ No

2. Redevelopment project that creates and/or replaces 5,000 square feet or more of impervious surfaces 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.

☐ Yes ☐ No

3. New development or redevelopment of a restaurant. Facilities that sell prepared foods and drinks for consumption, including stationary lunch counters and refreshment stands selling prepared foods and drinks for immediate consumption (SIC 5812), and where the land development creates and/or replace 5,000 square feet or more of impervious surface.

☐ Yes ☐ No

4. New development or redevelopment on a hillside. The project creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site) and where the development will grade on any natural slope that is twenty-five percent or greater.

☐ Yes ☐ No

5. New development or redevelopment of a parking lot that creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site).

☐ Yes ☐ No

6. New development or redevelopment of streets, roads, highways, freeways, and driveways. The project creates and/or replaces 5,000 square feet or more of impervious surface (collectively over the project site).

☐ Yes ☐ No

7. **New development or redevelopment discharging directly to an Environmentally Sensitive Area.** The project creates and/or replaces 2,500 square feet of impervious surface (collectively over project site), and discharges 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). ☐ Yes ☐ No
8. **New development or redevelopment projects of a retail gasoline outlet (RGO) that create and/or replaces 5,000 square feet of impervious surface.** The development project meets the following criteria: (a) 5,000 square feet or more or (b) has a projected Average Daily Traffic (ADT) of 100 or more vehicles per day. ☐ Yes ☐ No
9. **New development or redevelopment projects of an automotive repair shops that creates and/or replaces 5,000 square feet or more of impervious surfaces.** Development projects categorized in any one of Standard Industrial Classification (SIC) codes 5013, 5014, 5541, 7532-7534, or 7536-7539. ☐ Yes ☐ No
10. **Other Pollutant Generating Project.** The project is not covered in the categories above, results in the disturbance of one or more acres of land and is expected to generate pollutants post construction, such as fertilizers and pesticides. This does not include projects creating less than 5,000 sf of impervious surface and where added landscaping does not require regular use of pesticides and fertilizers, such as slope stabilization using native plants. Calculation of the square footage of impervious surface need not include linear pathways that are for infrequent vehicle use, such as emergency maintenance access or bicycle pedestrian use, if they are built with pervious surfaces or if they sheet flow to surrounding pervious surfaces. ☐ Yes ☐ No

PART F: Select the appropriate category based on the outcomes of PART C through PART E.

1. The project is **NOT SUBJECT TO PERMANENT STORM WATER REQUIREMENTS.** ☐
2. The project is a **STANDARD DEVELOPMENT PROJECT.** Site design and source control BMP requirements apply. See the [Storm Water Standards Manual](#) for guidance. ☐
3. The project is **PDP EXEMPT.** Site design and source control BMP requirements apply. See the [Storm Water Standards Manual](#) for guidance. ☐
4. The project is a **PRIORITY DEVELOPMENT PROJECT.** Site design, source control, and structural pollutant control BMP requirements apply. See the [Storm Water Standards Manual](#) for guidance on determining if project requires a hydromodification plan management ☐

Name of Owner or Agent (Please Print)

Title

Signature

Date

ATTACHMENT B – City of San Diego Stormwater Checklists

-Form I-1

-Form I-3A

-Form I-4A

-Form I-5A

Applicability of Permanent, Post-Construction Storm Water BMP Requirements		Form I-1
Project Identification		
Project Name:		
Permit Application Number:		Date:
Determination of Requirements		
The purpose of this form is to identify permanent, post-construction requirements that apply to the project. This form serves as a short <u>summary</u> of applicable requirements, in some cases referencing separate forms that will serve as the backup for the determination of requirements. Answer each step below, starting with Step 1 and progressing through each step until reaching "Stop". Refer to the manual sections and/or separate forms referenced in each step below.		
Step	Answer	Progression
Step 1: Is the project a "development project"? See Section 1.3 of the manual (Part 1 of Storm Water Standards) for guidance.	☐ Yes	Go to Step 2 .
	☐ No	Stop. Permanent BMP requirements do not apply. No SWQMP will be required. Provide discussion below.
Discussion / justification if the project is <u>not</u> a "development project" (e.g., the project includes <i>only</i> interior remodels within an existing building):		
Step 2: Is the project a Standard Project, PDP, or PDP Exempt? To answer this item, see Section 1.4 of the manual in its entirety for guidance AND complete Form DS-560, Storm Water Requirements Applicability Checklist.	☐ Standard Project	Stop. Standard Project requirements apply
	☐ PDP	PDP requirements apply, including PDP SWQMP. Go to Step 3 .
	PDP Exempt	Stop. Standard Project requirements apply. Provide discussion and list any additional requirements below.
Discussion / justification, and additional requirements for exceptions to PDP definitions, if applicable:		

Form I-1 Page 2 of 2

Step	Answer	Progression
Step 3. Is the project subject to earlier PDP requirements due to a prior lawful approval? See Section 1.10 of the manual (Part 1 of Storm Water Standards) for guidance.	☐ Yes	Consult the City Engineer to determine requirements. Provide discussion and identify requirements below. Go to Step 4.
	☐ No	BMP Design Manual PDP requirements apply. Go to Step 4.
Discussion / justification of prior lawful approval, and identify requirements (<u>not required if prior lawful approval does not apply</u>):		
Step 4. Do hydromodification control requirements apply? See Section 1.6 of the manual (Part 1 of Storm Water Standards) for guidance.	☐ Yes	PDP structural BMPs required for pollutant control (Chapter 5) and hydromodification control (Chapter 6). Go to Step 5.
	☐ No	Stop. PDP structural BMPs required for pollutant control (Chapter 5) only. Provide brief discussion of exemption to hydromodification control below.
Discussion / justification if hydromodification control requirements do <u>not</u> apply:		
Step 5. Does protection of critical coarse sediment yield areas apply? See Section 6.2 of the manual (Part 1 of Storm Water Standards) for guidance.	☐ Yes	Management measures required for protection of critical coarse sediment yield areas (Chapter 6.2). Stop.
	☐ No	Management measures not required for protection of critical coarse sediment yield areas. Provide brief discussion below. Stop.
Discussion / justification if protection of critical coarse sediment yield areas does <u>not</u> apply:		

Site Information Checklist For Standard Projects		Form I-3A
Project Summary Information		
Project Name		
Project Address		
Assessor's Parcel Number(s) (APN(s))		
Permit Application Number		
Project Watershed	Select One: ☐ San Dieguito River ☐ Penasquitos ☐ Mission Bay ☐ San Diego River ☐ San Diego Bay ☐ Tijuana River	
Hydrologic subarea name with Numeric Identifier up to two decimal places (9XX.XX)		
Project Area (total area of Assessor's Parcel(s) associated with the project or total area of the right-of-way)	_____ Acres (_____ Square Feet)	
Area to be disturbed by the project (Project Footprint)	_____ Acres (_____ Square Feet)	
Project Proposed Impervious Area (subset of Project Footprint)	_____ Acres (_____ Square Feet)	
Project Proposed Pervious Area (subset of Project Footprint)	_____ Acres (_____ Square Feet)	
Note: Proposed Impervious Area + Proposed Pervious Area = Area to be Disturbed by the Project. This may be less than the Project Area.		

Description of Existing Site Condition and Drainage Patterns

Current Status of the Site (select all that apply)

- ☐ Existing development
- ☐ Previously graded but not built out
- ☐ Agricultural or other non-impervious use
- ☐ Vacant, undeveloped/natural

Description / Additional Information

Existing Land Cover Includes (select all that apply)

- ☐ Vegetative Cover
- ☐ Non-Vegetated Pervious Areas
- ☐ Impervious Areas

Description / Additional Information

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

- ☐ NRCS Type A
- ☐ NRCS Type B
- ☐ NRCS Type C
- ☐ NRCS Type D

Existing Natural Hydrologic Features (select all that apply)

- ☐ Watercourses
- ☐ Seeps
- ☐ Springs
- ☐ Wetlands
- ☐ None

Description / Additional Information

Description of Existing Site Drainage:

Description of Proposed Site Development and Drainage Patterns

Project Description / Proposed Land Use and/or Activities

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

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

Does the project include grading and changes to site topography?

☐ Yes

☐ No

Description / Additional Information

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

☐ Yes

☐ No

Description / Additional Information

Identify whether any of the following features, activities, and/or pollutant source areas will be present (select all that apply)

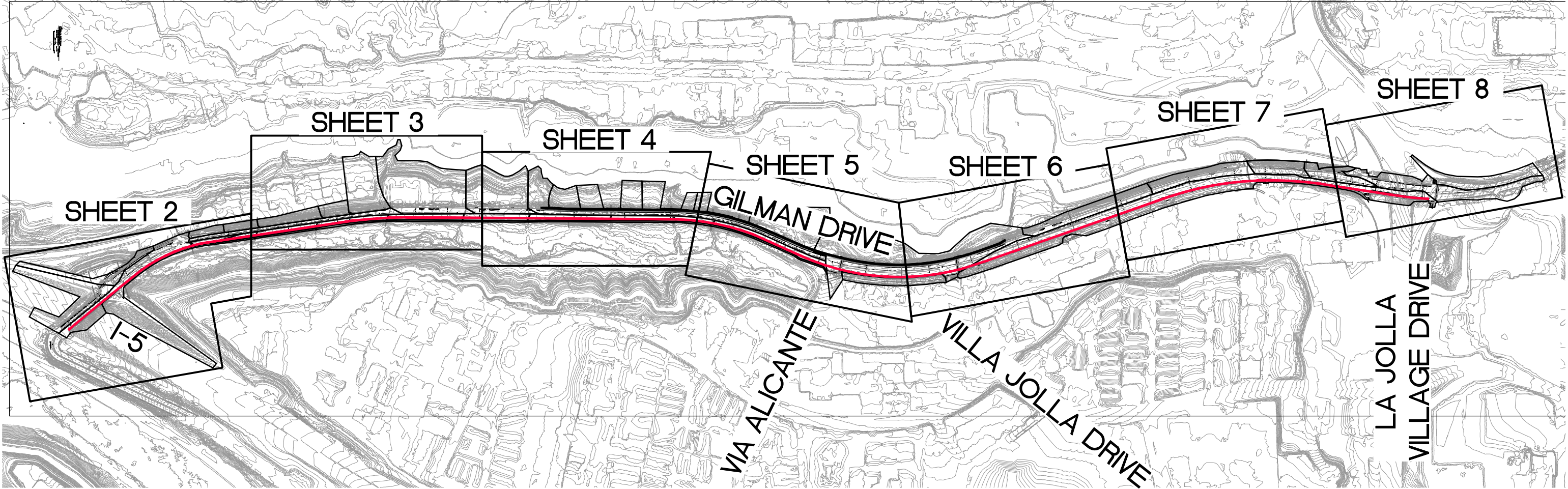
- ☐ Onsite storm drain inlets
- ☐ Interior floor drains and elevator shaft sump pumps
- ☐ Interior parking garages
- ☐ Need for future indoor & structural pest control
- ☐ Landscape/outdoor pesticide use
- ☐ Pools, spas, ponds, decorative fountains, and other water features
- ☐ Food service
- ☐ Refuse areas
- ☐ Industrial processes
- ☐ Outdoor storage of equipment or materials
- ☐ Vehicle and equipment cleaning
- ☐ Vehicle/equipment repair and maintenance
- ☐ Fuel dispensing areas
- ☐ Loading docks
- ☐ Fire sprinkler test water
- ☐ Miscellaneous drain or wash water
- ☐ Plazas, sidewalks, and parking lots

Description / Additional Information

(1) Answer for each source control and site design category shall be pursuant to the following:

- "Yes" means the project will implement the BMP as described in Chapter 4 and/or Appendix E of the BMP Design Manual. Discussion / justification is not required.
- "No" means the BMP is applicable to the project but it is not feasible to implement. Discussion / justification must be provided.
- "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). Discussion / justification may be provided.

ATTACHMENT C – Proposed Basin and Outfall Exhibit



BASIN AND OUTFALL STUDY

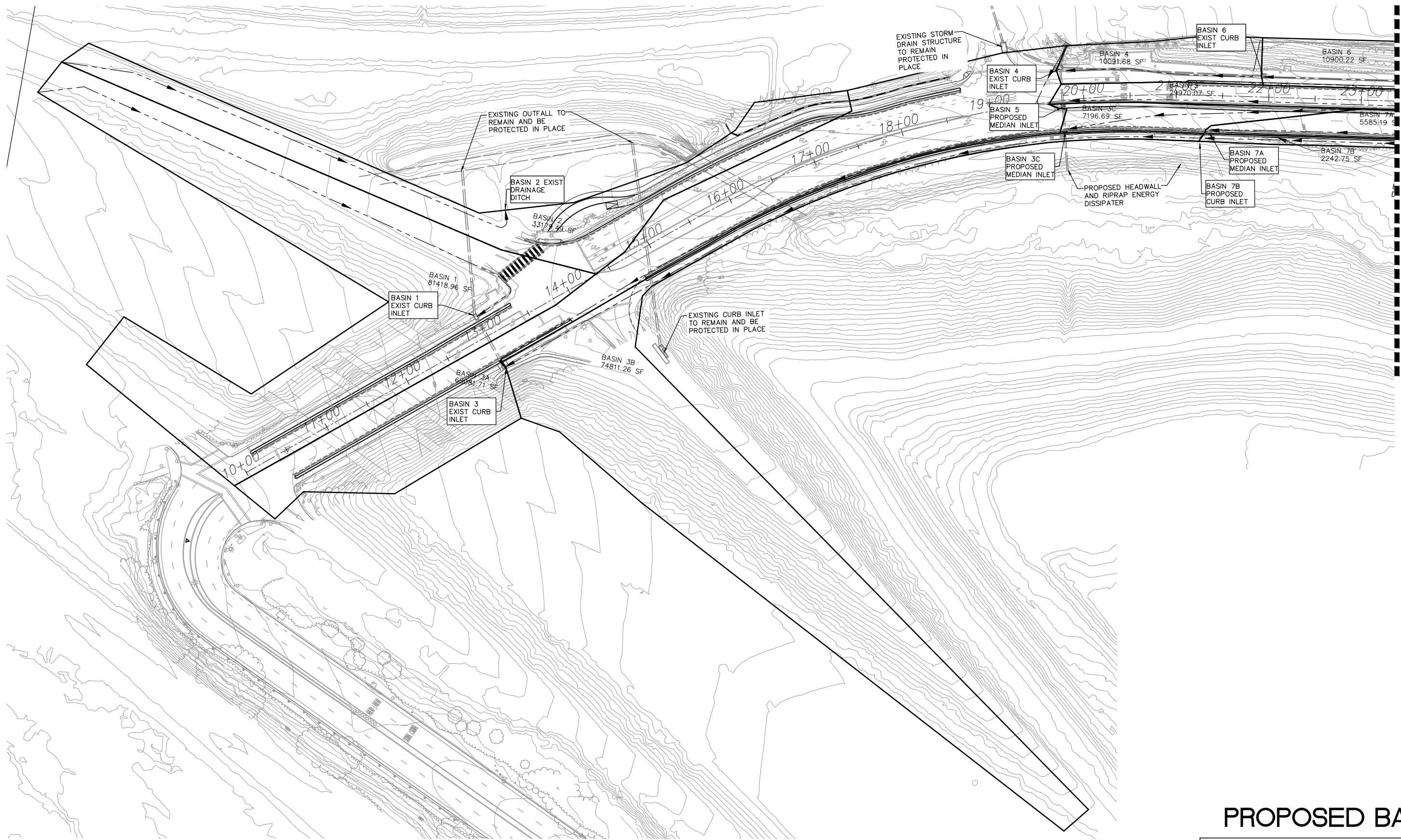
COASTAL RAIL TRAIL - GILMAN DRIVE
I-5 TO LA JOLLA VILLAGE DRIVE

PROPOSED BASINS

110134.2

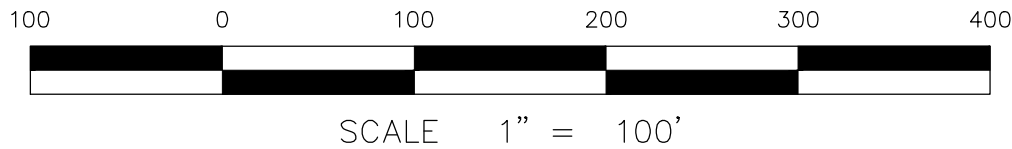
 **Nasland**
4740 Ruffner Street T (858) 292-7770
San Diego, CA 92111 nasland.com
Civil Engineering Surveying Land Planning

MATCHLINE: SEE SHEET 3



BASINS AND OUTFALL STUDY

COASTAL RAIL TRAIL - GILMAN DRIVE
I-5 TO LA JOLLA VILLAGE DRIVE



PROPOSED BASINS

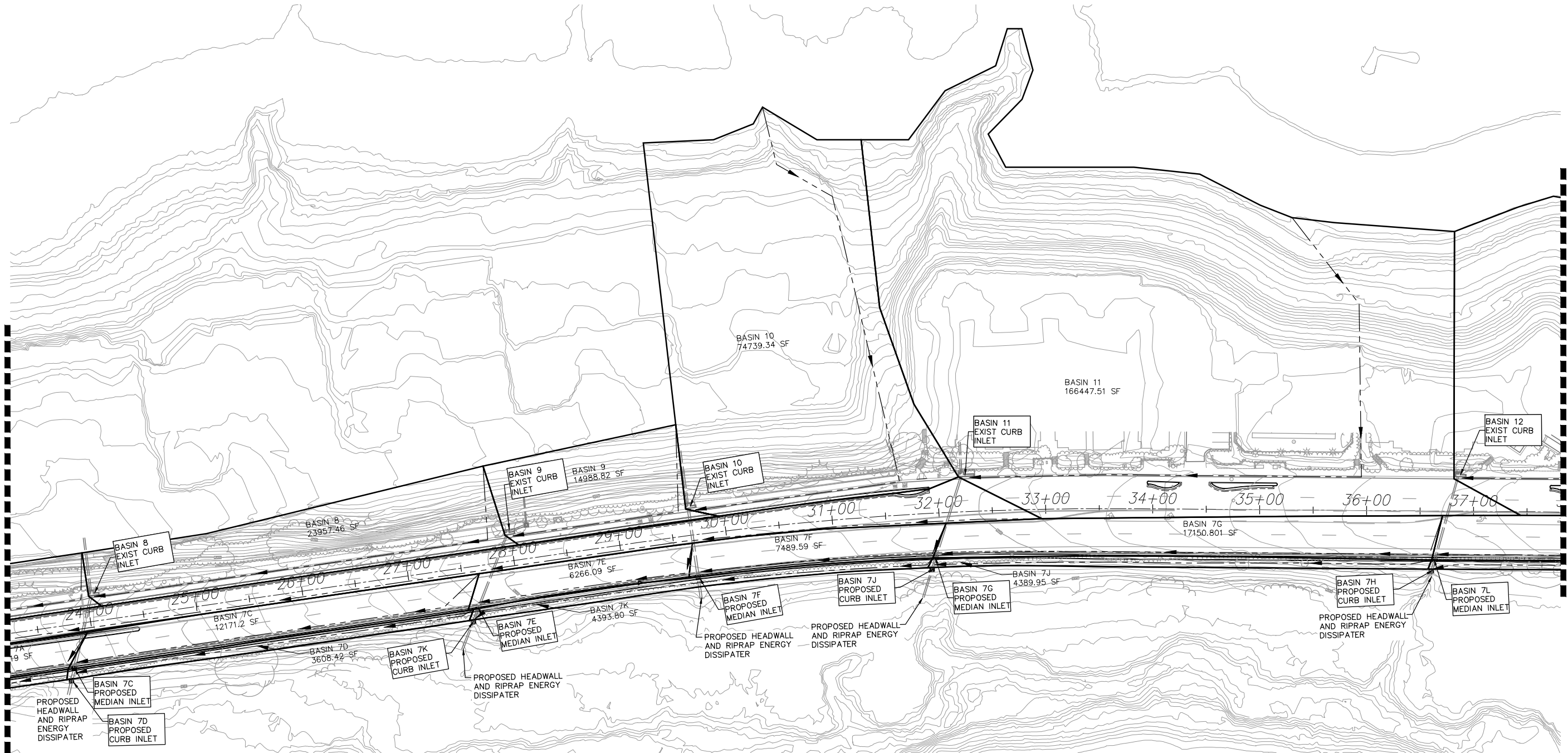
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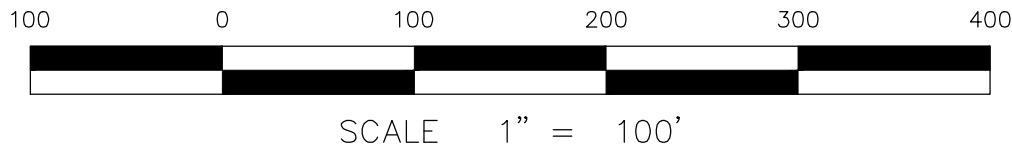
MATCHLINE: SEE SHEET 2

MATCHLINE: SEE SHEET 4



BASINS AND OUTFALL STUDY

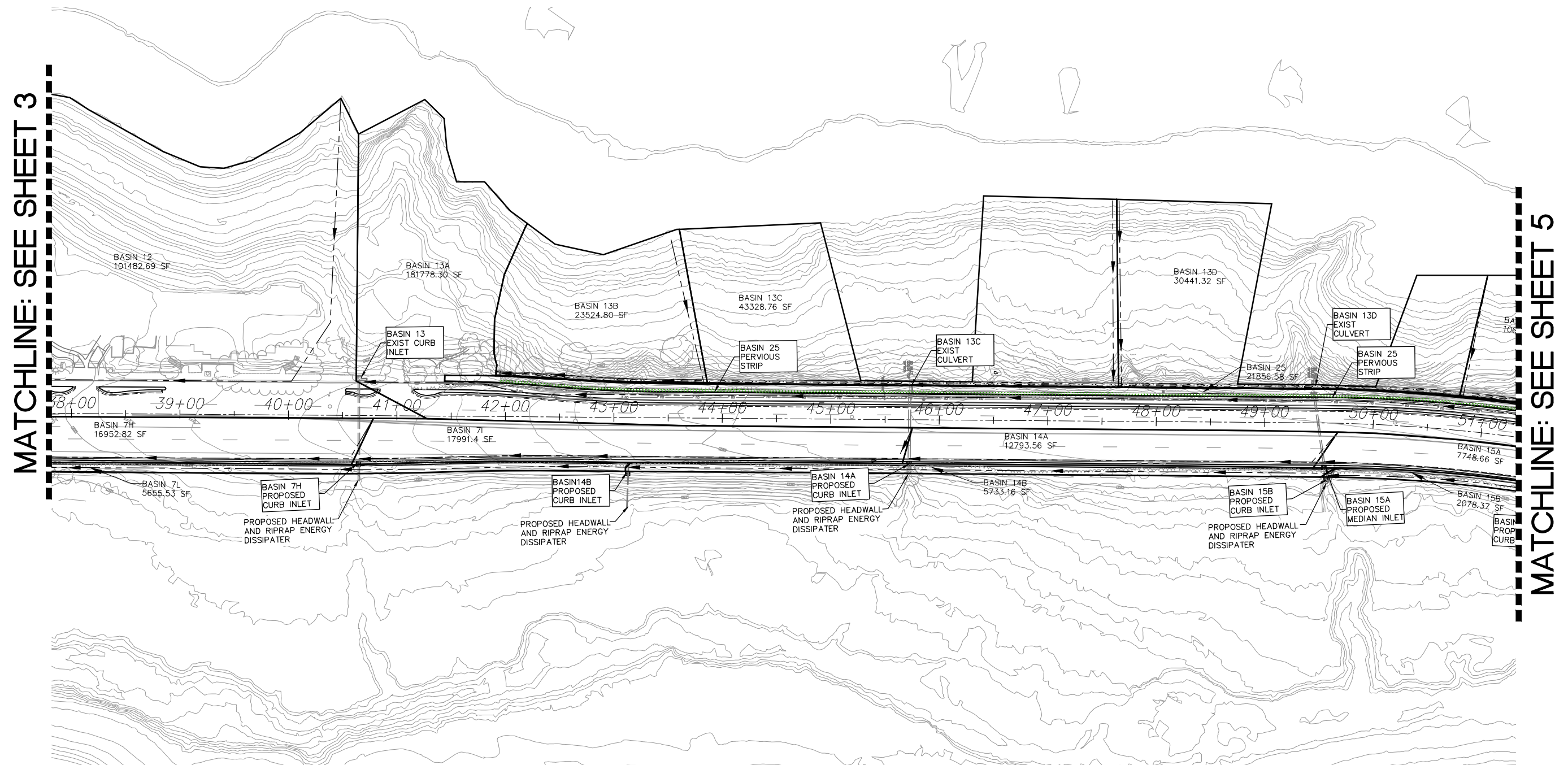
COASTAL RAIL TRAIL - GILMAN DRIVE
I-5 TO LA JOLLA VILLAGE DRIVE



PROPOSED BASINS

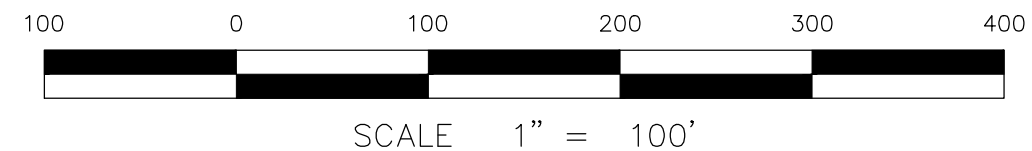
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BASINS AND OUTFALL STUDY

COASTAL RAIL TRAIL - GILMAN DRIVE I-5 TO LA JOLLA VILLAGE DRIVE



PROPOSED BASINS

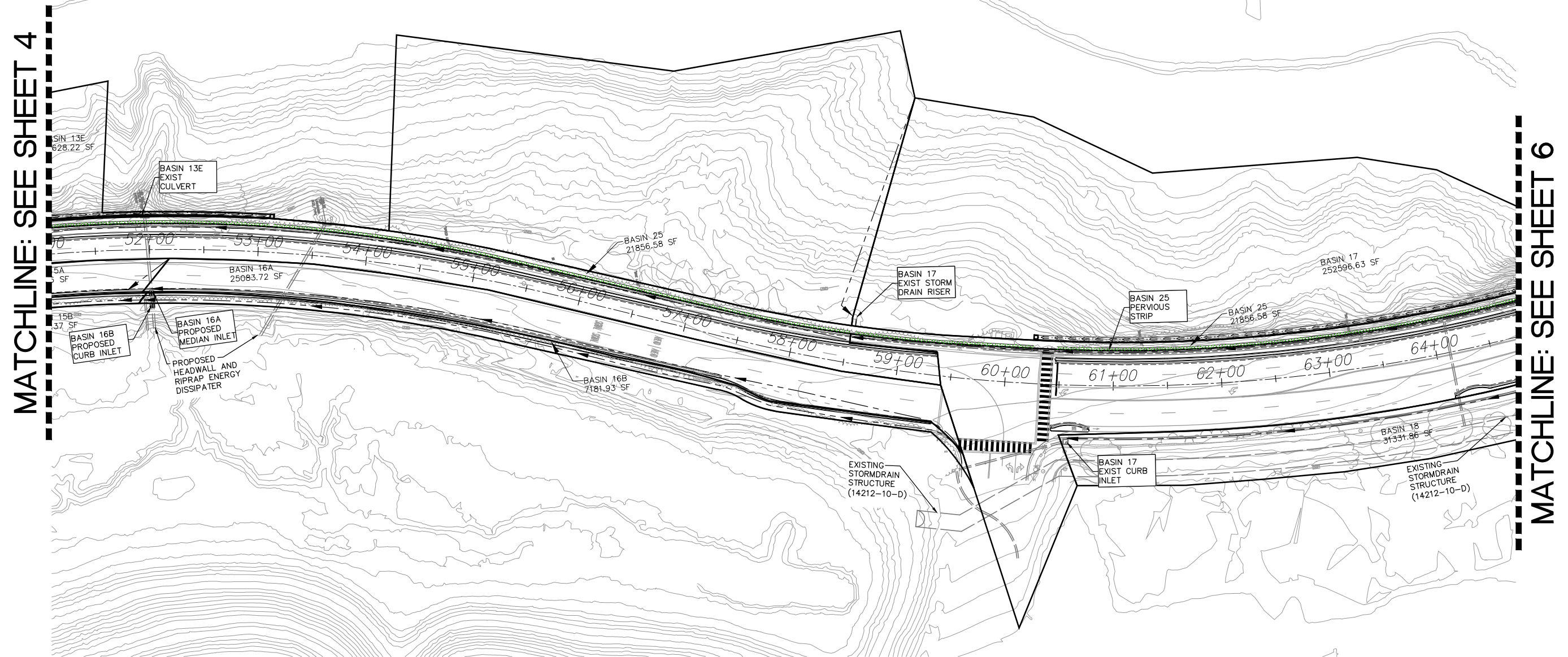
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San Diego, CA 92111 **nasland.com**

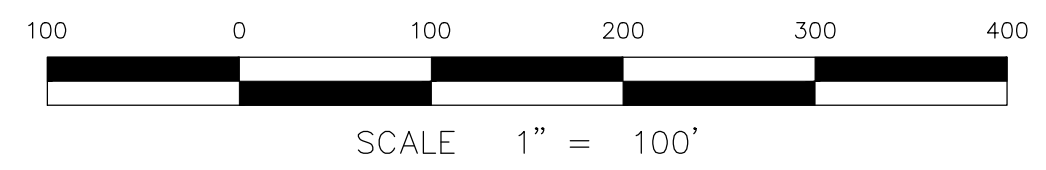
Civil Engineering Surveying Land Planning



BASINS AND OUTFALL STUDY

COASTAL RAIL TRAIL - GILMAN DRIVE

I-5 TO LA JOLLA VILLAGE DRIVE



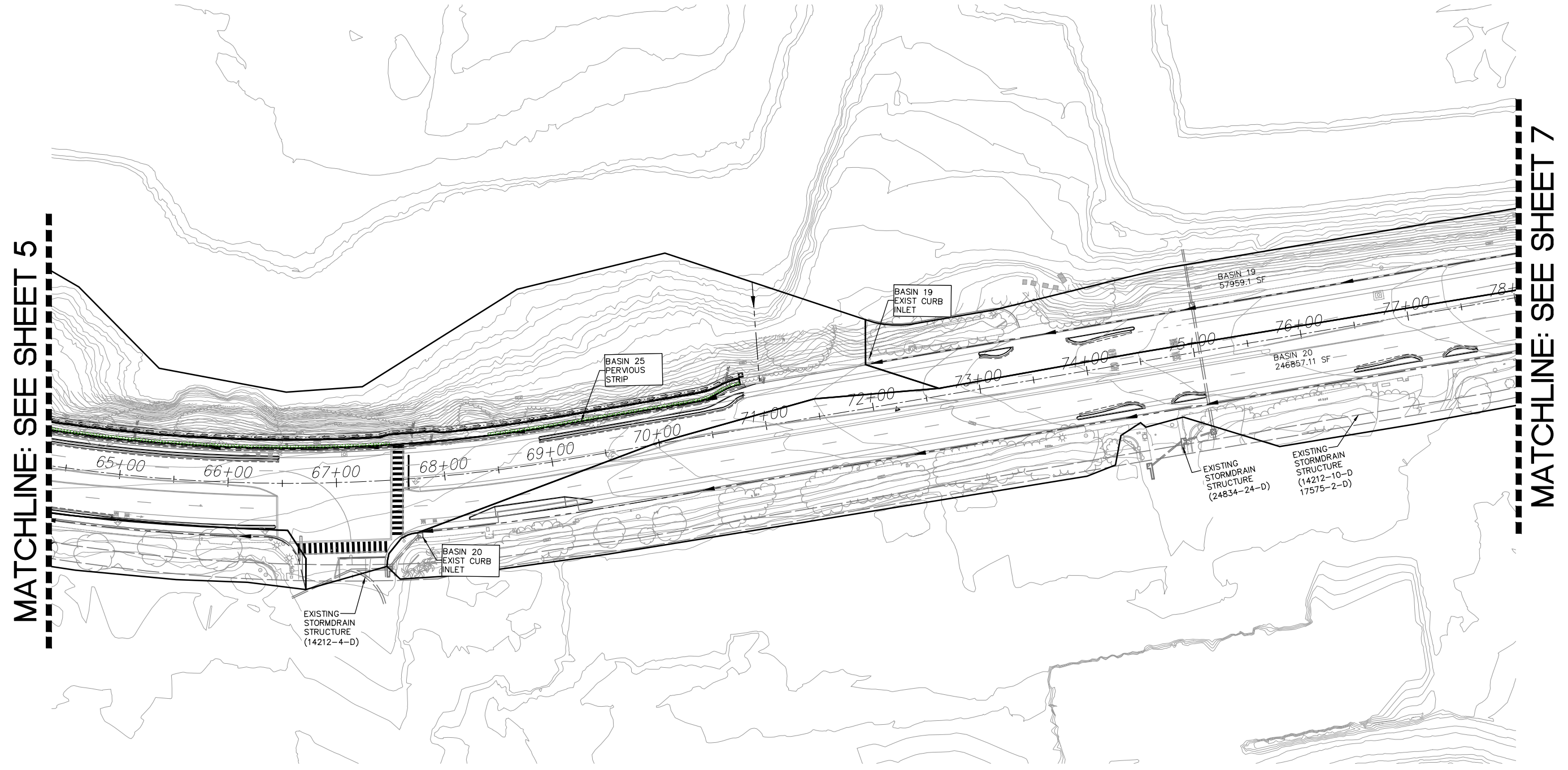
PROPOSED BASINS

110134.2

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Civil Engineering Surveying Land Planning

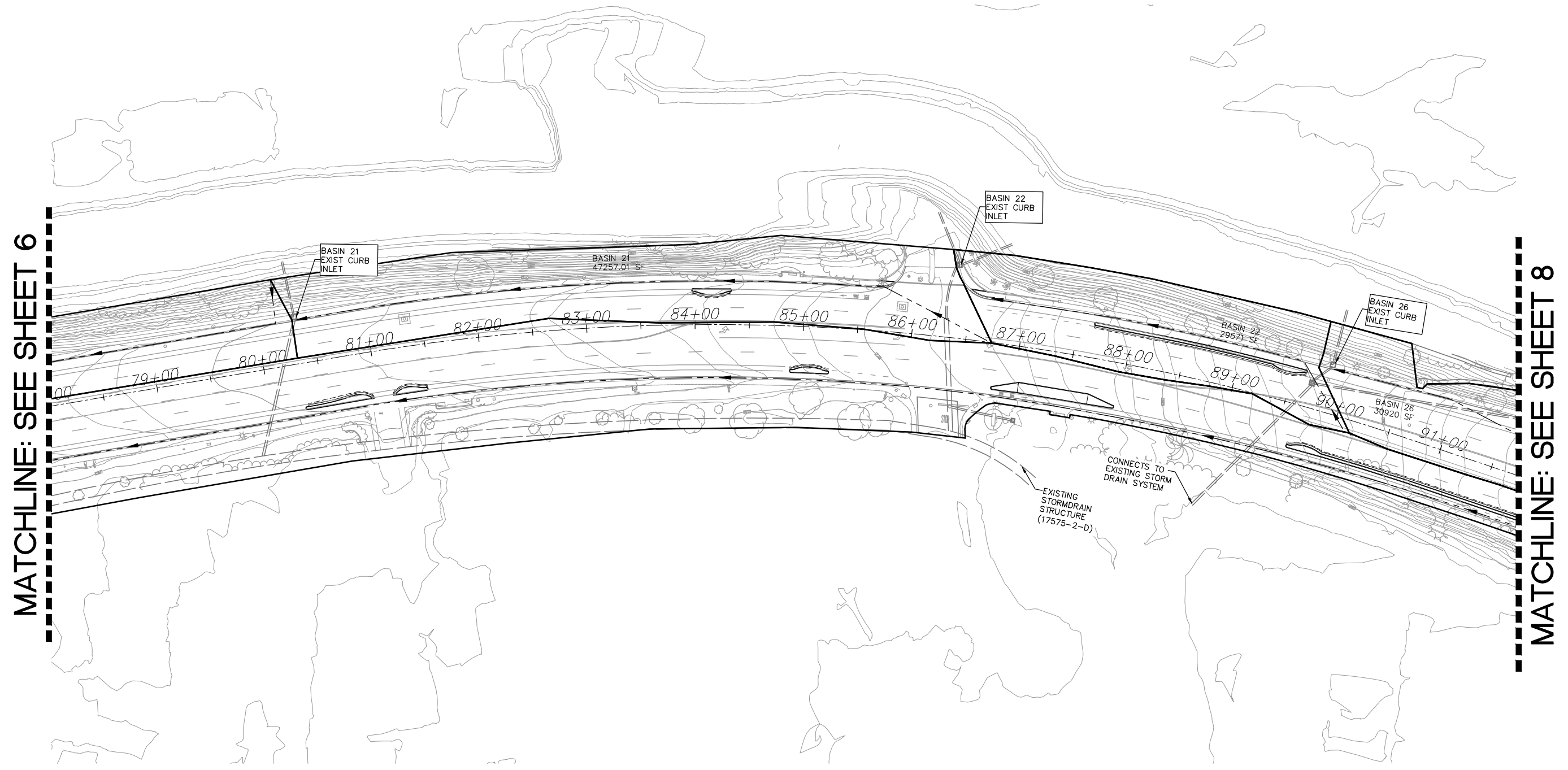


BASINS AND OUTFALL STUDY
COASTAL RAIL TRAIL - GILMAN DRIVE
I-5 TO LA JOLLA VILLAGE DRIVE

PROPOSED BASINS

110134.2

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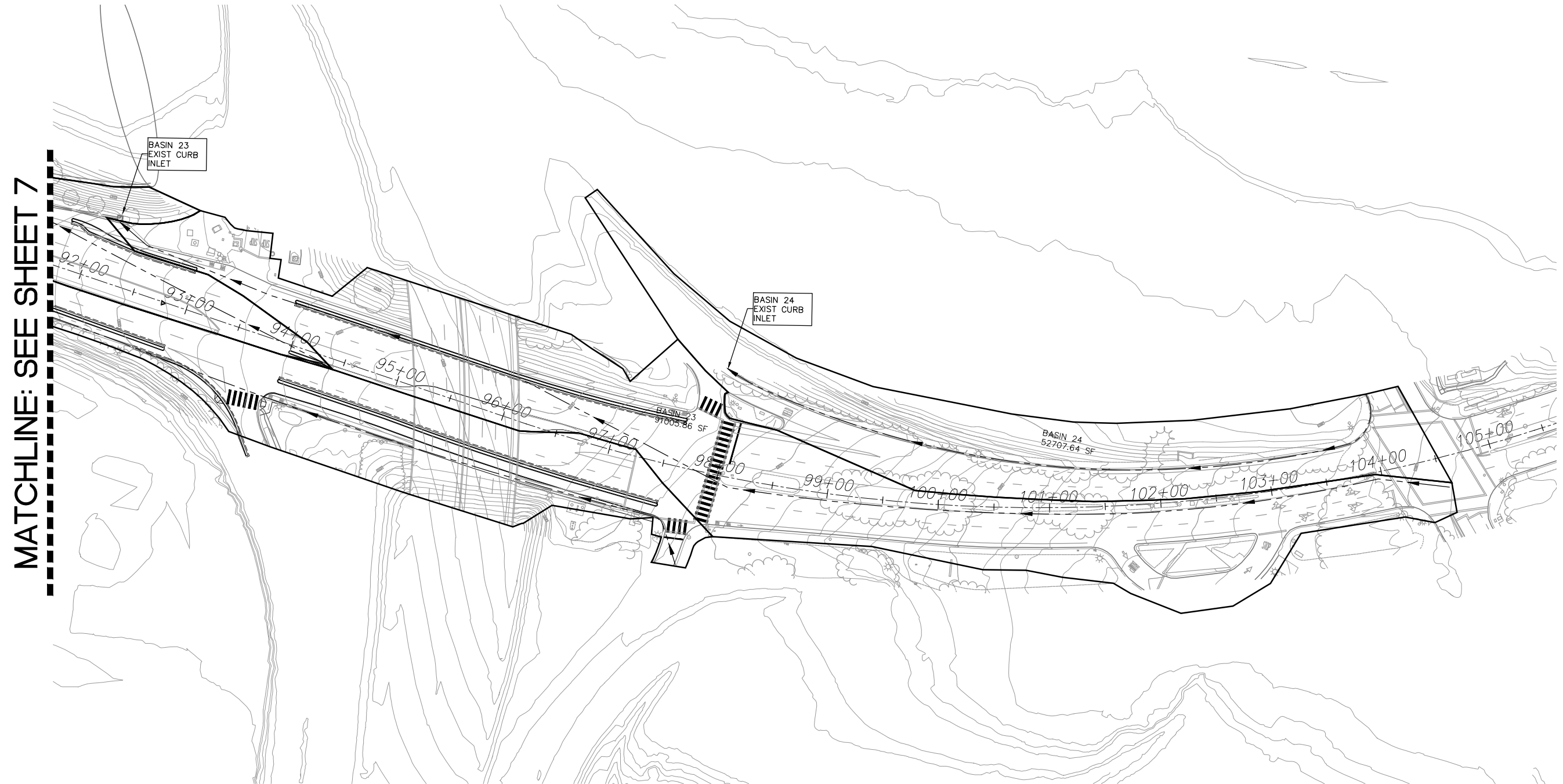


BASINS AND OUTFALL STUDY
COASTAL RAIL TRAIL - GILMAN DRIVE
I-5 TO LA JOLLA VILLAGE DRIVE

PROPOSED BASINS

110134.2

 **Nasland**
4740 Ruffner Street T (858) 292-7770
San Diego, CA 92111 nasland.com
Civil Engineering Surveying Land Planning



MATCHLINE: SEE SHEET 7

BASINS AND OUTFALL STUDY
COASTAL RAIL TRAIL - GILMAN DRIVE
I-5 TO LA JOLLA VILLAGE DRIVE

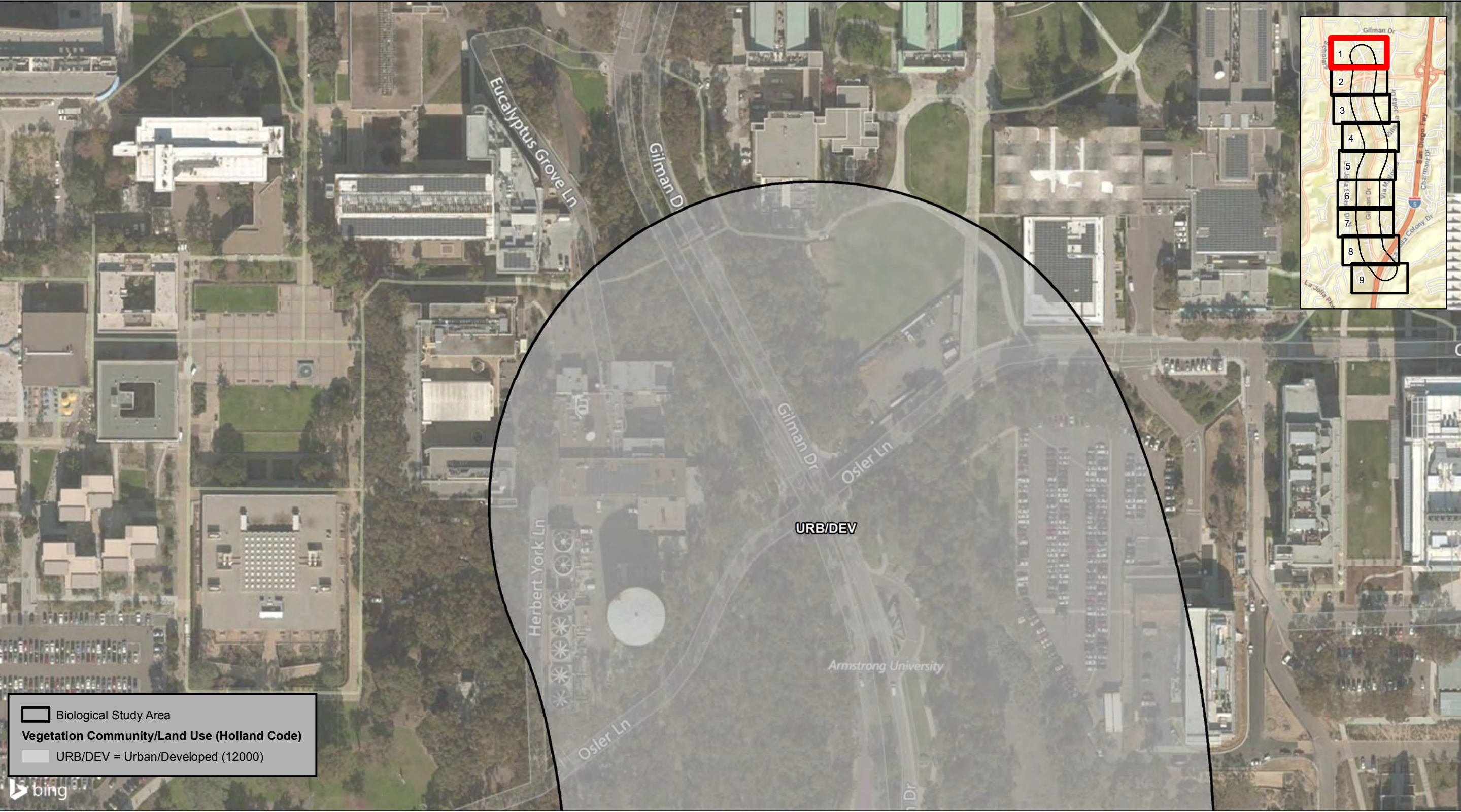
PROPOSED BASINS

110134.2

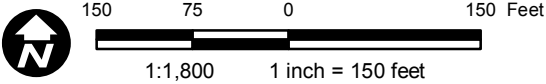
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Civil Engineering Surveying Land Planning

Appendix C

Biological Resource Map, Prepared by AECOM as part of the NES for this project.

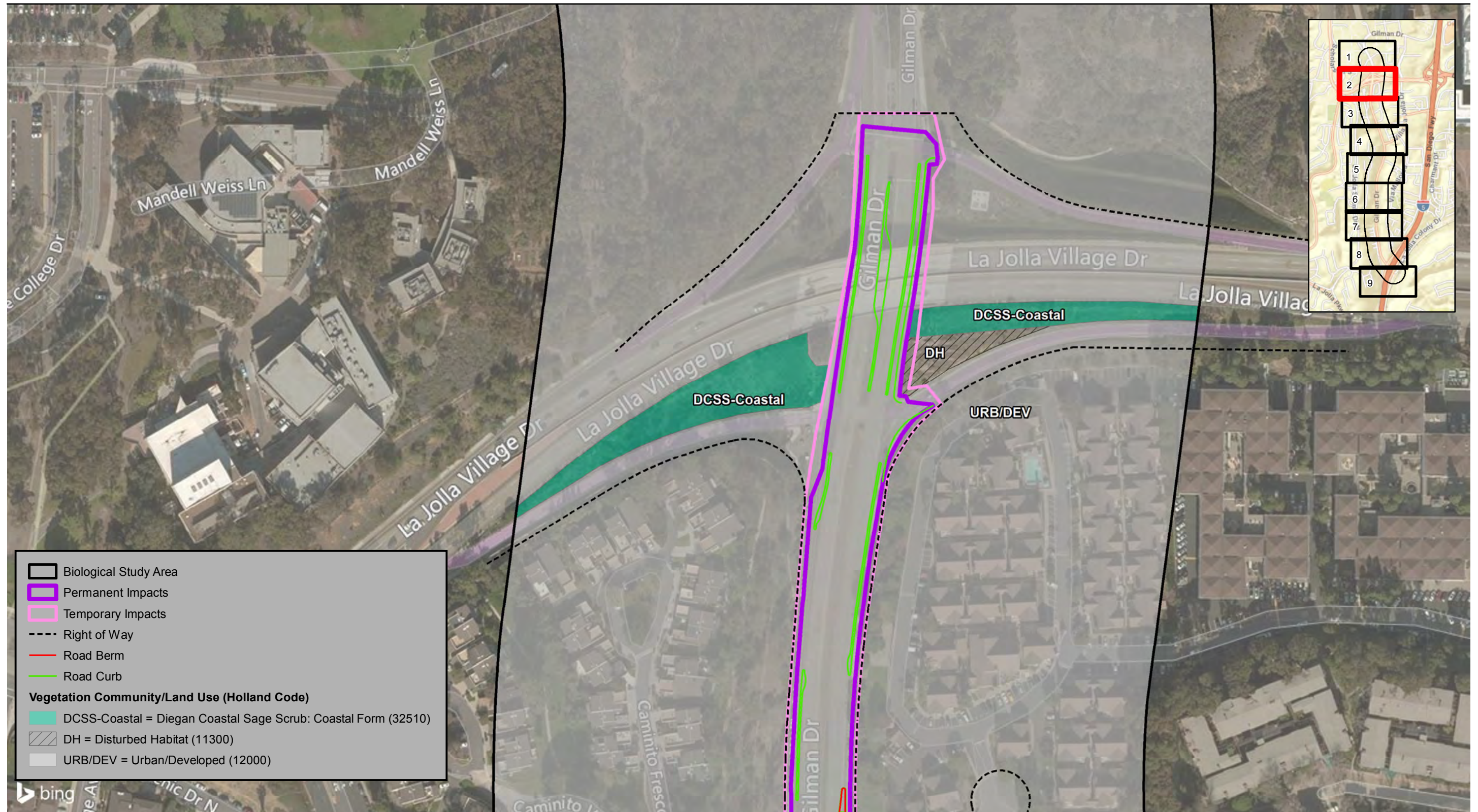


Source: NASLAND 2018; SanGIS 2015

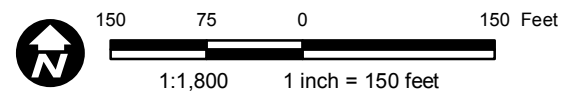


Coastal Rail Trail - San Diego, CA

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Source: NASLAND 2018; SanGIS 2015



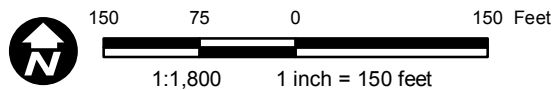
Coastal Rail Trail - San Diego, CA

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Appendix A
Biological Resources Map
Sheet 2 of 9



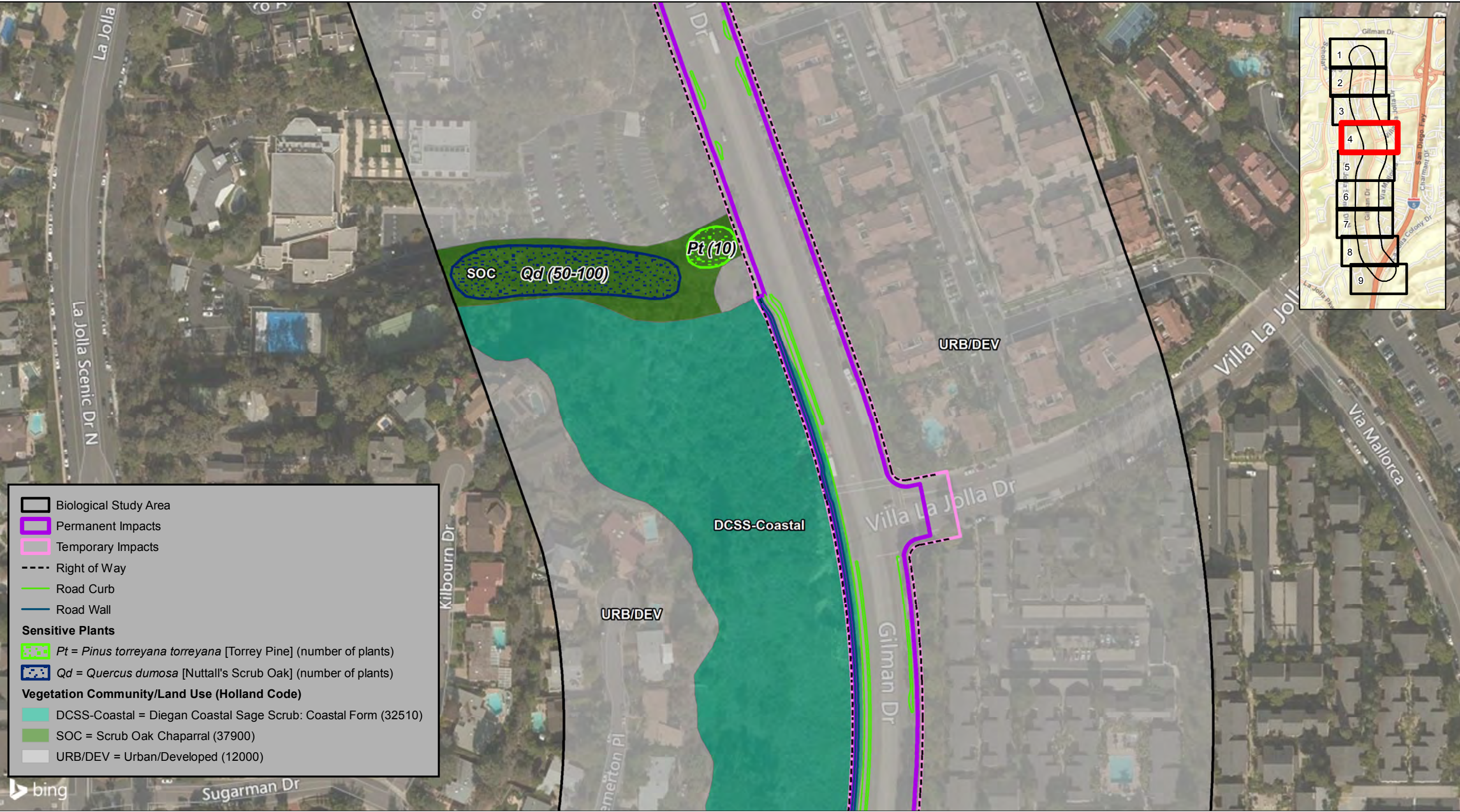
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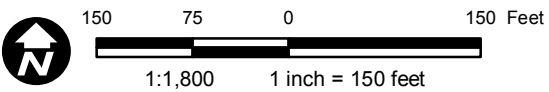
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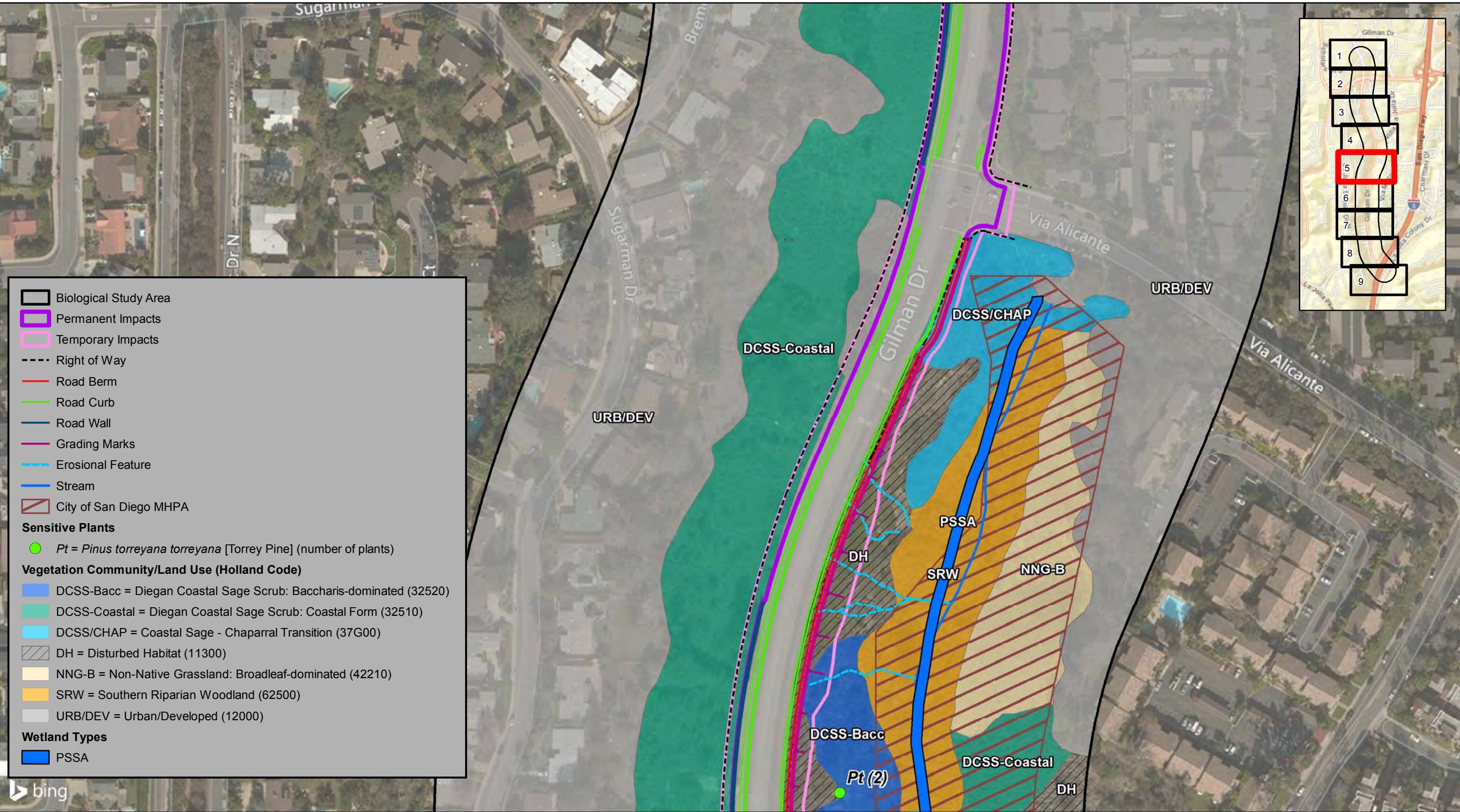
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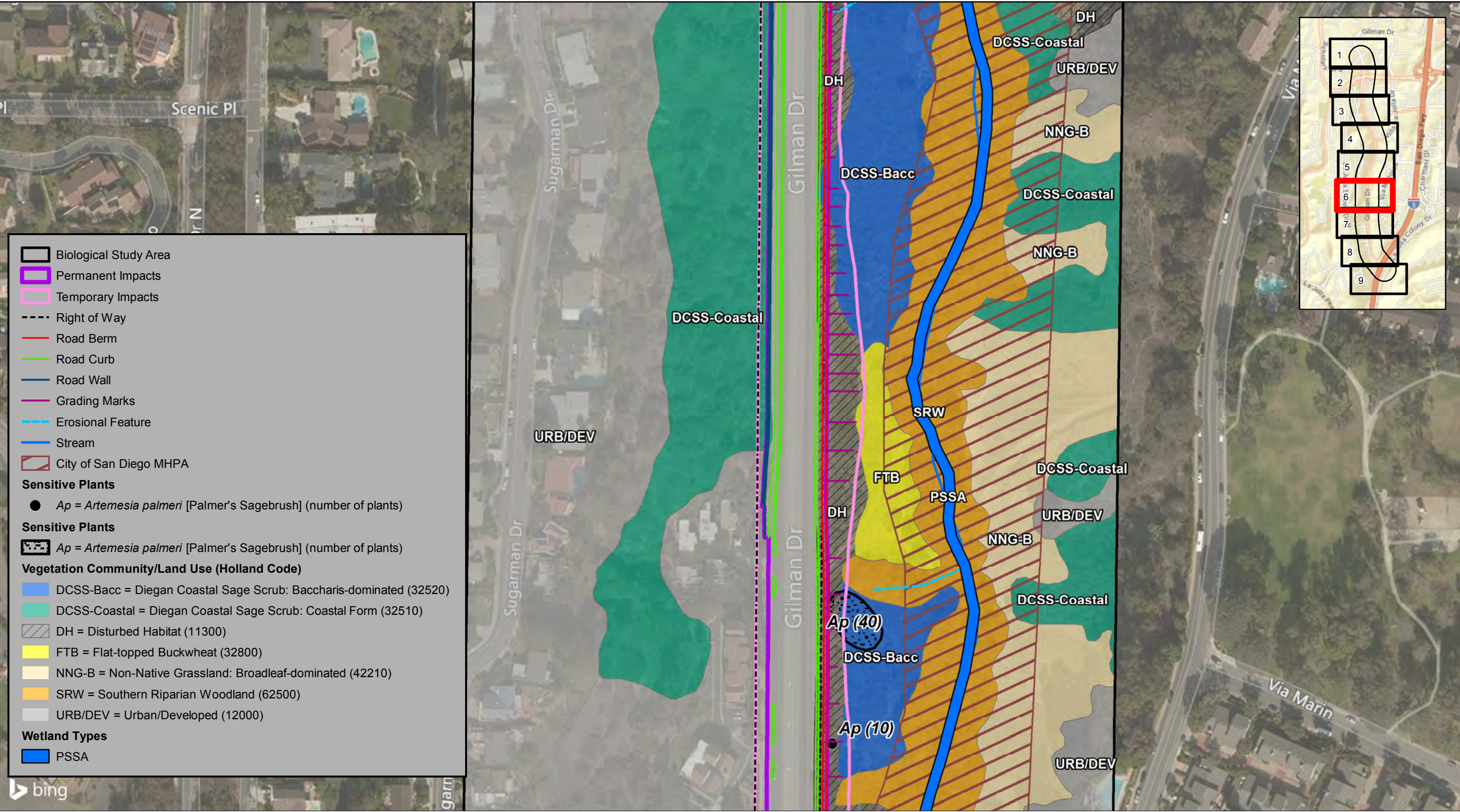
Appendix A
Biological Resources Map
Sheet 3 of 9



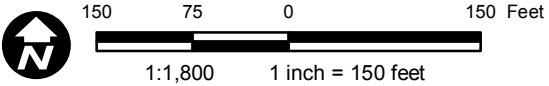
Source: NASLAND 2018; SanGIS 2015





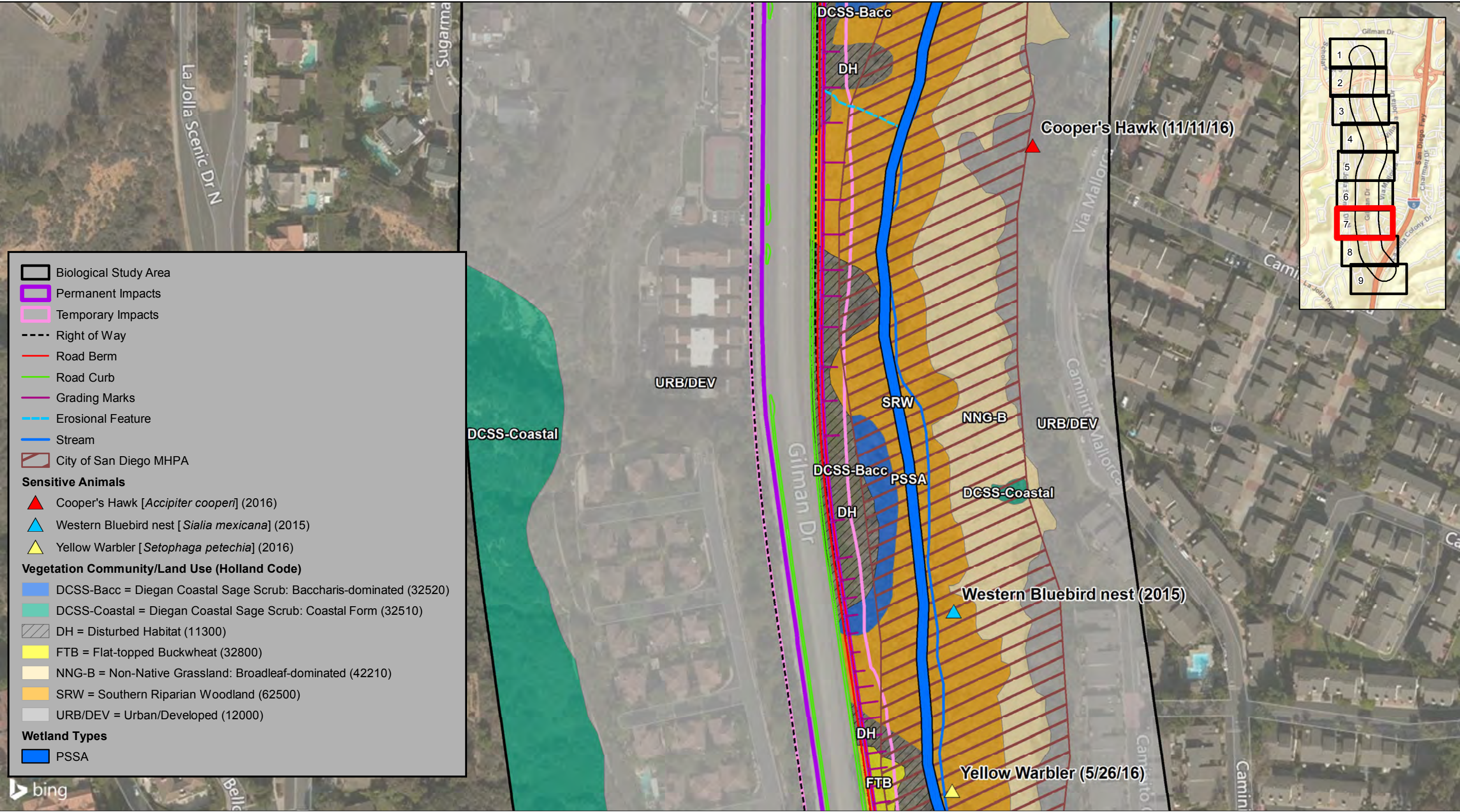


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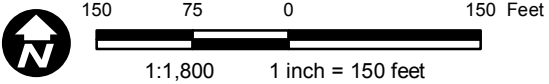


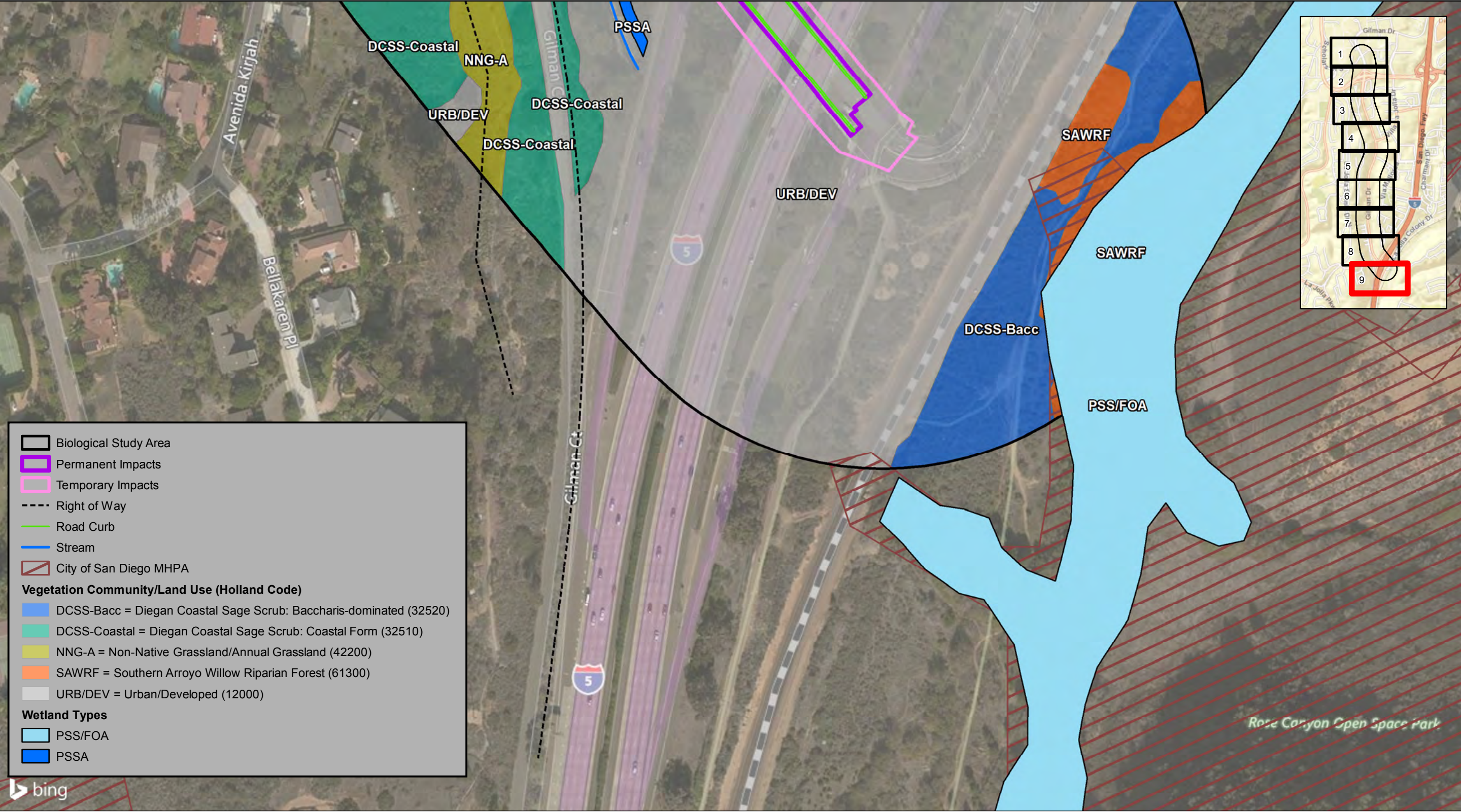
Coastal Rail Trail - San Diego, CA

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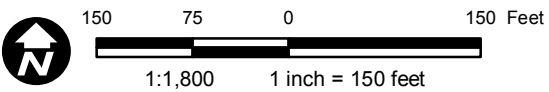


Source: NASLAND 2018; SanGIS 2015





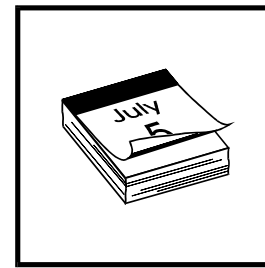
Source: NASLAND 2018; SanGIS 2015



Appendix D

Caltrans Construction BMP Fact Sheets

JANUARY				
MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
		1	2 NTP MOBILIZATION	3
			9	10 Grading
6 Install erosion & sediment control measures	7	8 Land clearing	15	16
12		13	14	22
				23



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose This best management practice (BMP) involves developing, for every project, a schedule that includes sequencing of construction activities with the implementation of construction site BMPs such as temporary soil stabilization (erosion control) and temporary sediment controls measures. The purpose is to reduce the amount and duration of soil exposed to erosion by wind, rain, runoff and vehicle tracking, and to perform the construction activities and control practices in accordance with the planned schedule.

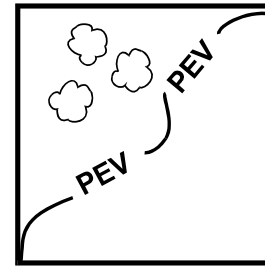
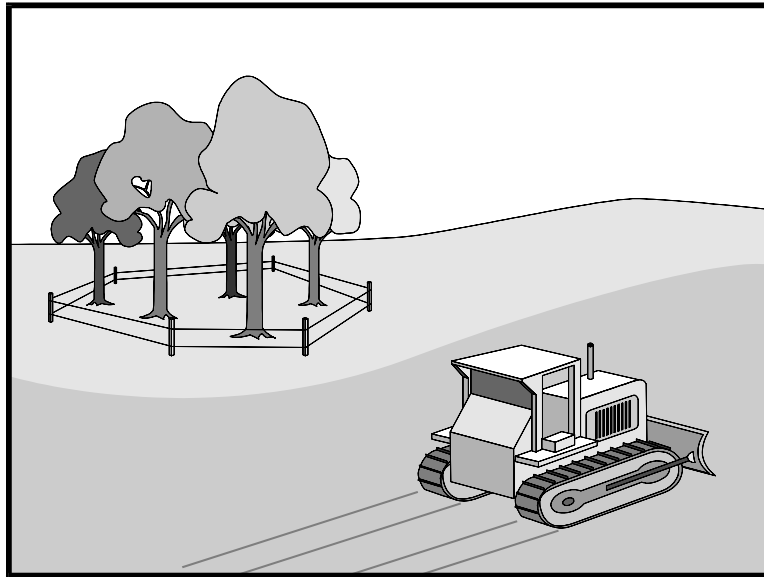
Appropriate Applications Construction sequencing shall be scheduled to minimize land disturbance for all projects during the rainy and non-rainy season. Appropriate BMPs shall be implemented during both rainy and non-rainy seasons.

Limitations None identified.

- Standards and Specifications**
- Developing a schedule and planning the project are the very first steps in an effective storm water program. The schedule shall clearly show how the rainy season relates to soil-disturbing and re-stabilization activities. The construction schedule shall be incorporated into the SWPPP or WPCP.
 - The schedule shall include detail on the rainy season implementation and deployment of:
 - Temporary soil stabilization BMPs.
 - Temporary sediment control BMPs.
 - Tracking control BMPs.
 - Wind erosion control BMPs.

- Non-storm water BMPs.
- Waste management and materials pollution control BMPs.
- Schedule shall also include dates for significant long-term operations or activities that may have planned non-storm water discharges such as dewatering, sawcutting, grinding, drilling, boring, crushing, blasting, painting, hydro-demolition, mortar mixing, bridge cleaning, etc.
- Schedule work to minimize soil disturbing activities during the rainy season.
- Develop the sequencing and timetable for the start and completion of each item such as site clearing and grubbing, grading, excavation, paving, pouring foundations, installing utilities, etc., to minimize the active construction area during the rainy season.
- Schedule major grading operations for the non-rainy season when practical.
- Stabilize non-active areas within 14 days from the cessation of soil-disturbing activities or one day prior to the onset of precipitation, whichever occurs first.
- Monitor the weather forecast for rainfall.
- When rainfall is predicted, adjust the construction schedule to allow the implementation of soil stabilization and sediment controls and sediment treatment controls on all disturbed areas prior to the onset of rain.
- Be prepared year-round to deploy soil stabilization and sediment control practices as required by Section 2 of this Manual. Erosion may be caused during dry seasons by unseasonal rainfall, wind, and vehicle tracking. Keep the site stabilized year-round, and retain and maintain rainy season sediment trapping devices in operational condition.
- Sequence trenching activities so that most open portions are closed before new trenching begins.
- Incorporate staged seeding and re-vegetation of graded slopes as work progresses.
- Consider scheduling when establishing permanent vegetation (appropriate planting time for specified vegetation).
- Apply permanent erosion control to areas deemed substantially complete during the project's defined seeding window.

- | | |
|----------------------------|---|
| Maintenance and Inspection | <ul style="list-style-type: none">■ Verify that work is progressing in accordance with the schedule. If progress deviates, take corrective actions.■ Amend the schedule when changes are warranted or when directed by the Resident Engineer (RE).■ The Special Provisions require annual submittal of a rainy season implementation schedule. Amend the schedule prior to the rainy season to show updated information on the deployment and implementation of construction site BMPs. |
|----------------------------|---|



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose Preservation of existing vegetation is the identification and protection of desirable vegetation that provides erosion and sediment control benefits.

- Appropriate Applications**
- Preserve existing vegetation at areas on a site where no construction activity is planned or will occur at a later date. Specifications for preservation of existing vegetation can be found in Standard Specifications, Section 7-1.11.
 - On a year-round basis, temporary fencing shall be provided prior to the commencement of clearing and grubbing operations or other soil-disturbing activities in areas.
 - Clearing and grubbing operations should be staged to preserve existing vegetation.

Limitations Protection of existing vegetation requires planning, and may limit the area available for construction activities.

Standards and Specifications

Timing

- Preservation of existing vegetation shall be provided prior to the commencement of clearing and grubbing operations or other soil-disturbing activities in areas identified on the plans to be preserved, especially on areas designated as Environmentally Sensitive Areas (ESAs).
- Preservation of existing vegetation shall conform to scheduling requirements set forth in the special provisions.

Design and Layout

- Mark areas to be preserved with temporary fencing made of orange polypropylene that is stabilized against ultraviolet light. The temporary fencing shall be at least 1 meter (3.2. ft) tall and shall have openings not larger than 50 mm by 50 mm (2 in by 2 in).

- Fence posts shall be either wood or metal, at the Contractor's discretion, as appropriate for the intended purpose. The post spacing and depth shall be adequate to completely support the fence in an upright position.
- Minimize the disturbed areas by locating temporary roadways to avoid stands of trees and shrubs and to follow existing contours to reduce cutting and filling.
- Consider the impact of grade changes to existing vegetation and the root zone.

Installation

- Construction materials, equipment storage, and parking areas shall be located where they will not cause root compaction.
- Keep equipment away from trees to prevent trunk and root damage.
- Maintain existing irrigation systems.
- Employees and subcontractors shall be instructed to honor protective devices. No heavy equipment, vehicular traffic, or storage piles of any construction materials shall be permitted within the drip line of any tree to be retained. Removed trees shall not be felled, pushed, or pulled into any retained trees. Fires shall not be permitted within 30 m (100 ft) of the drip line of any retained trees. Any fires shall be of limited size, and shall be kept under continual surveillance. No toxic or construction materials (including paint, acid, nails, gypsum board, chemicals, fuels, and lubricants) shall be stored within 15 m (50 ft) of the drip line of any retained trees, nor disposed of in any way which would injure vegetation.

Trenching and Tunneling

- Trenching shall be as far away from tree trunks as possible, usually outside of the tree drip line or canopy. Curve trenches around trees to avoid large roots or root concentrations. If roots are encountered, consider tunneling under them. When trenching and/or tunneling near or under trees to be retained, tunnels shall be at least 450 mm (18 in) below the ground surface, and not below the tree center to minimize impact on the roots.
- Tree roots shall not be left exposed to air; they shall be covered with soil as soon as possible, protected, and kept moistened with wet burlap or peat moss until the tunnel and/or trench can be completed.
- The ends of damaged or cut roots shall be cut off smoothly.
- Trenches and tunnels shall be filled as soon as possible. Careful filling and tamping will eliminate air spaces in the soil which can damage roots.
- Remove any trees intended for retention if those trees are damaged seriously enough to affect their survival. If replacement is desired or required, the new tree shall be of similar species, and at least 50 mm (2 in) caliper, unless

otherwise required by the contract documents.

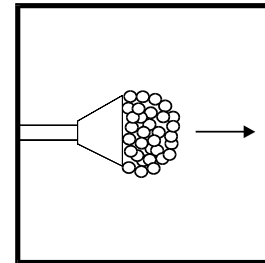
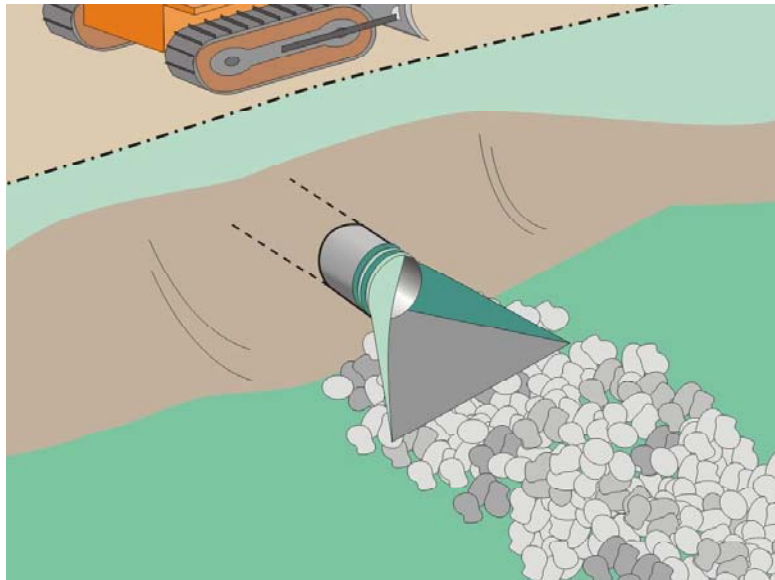
- After all other work is complete, fences and barriers shall be removed last. This is because protected trees may be destroyed by carelessness during the final cleanup and landscaping.

Maintenance and Inspection During construction, the limits of disturbance shall remain clearly marked at all times. Irrigation or maintenance of existing vegetation shall conform to the requirements in the landscaping plan. If damage to protected trees still occurs, maintenance guidelines described below shall be followed:

- Serious tree injuries shall be attended to by an arborist.
- During construction, District Environmental shall be contacted to ensure that ESAs are protected.

Outlet Protection/Velocity Dissipation Devices

SS-10



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose These devices are placed at pipe outlets to prevent scour and reduce the velocity and/or energy of storm water flows.

Appropriate Applications

- These devices may be used at the following locations:
 - Outlets of pipes, drains, culverts, slope drains, diversion ditches, swales, conduits or channels.
 - Outlets located at the bottom of mild to steep slopes.
 - Discharge outlets that carry continuous flows of water.
 - Outlets subject to short, intense flows of water, such as flash floods.
 - Points where lined conveyances discharge to unlined conveyances.
- This BMP may be implemented on a project-by-project basis with other BMPs when determined necessary and feasible by the Resident Engineer (RE).

Limitations

- Loose rock may have stones washed away during high flows.
- Grouted riprap may break up in areas of freeze and thaw.
- If there is not adequate drainage, and water builds up behind grouted riprap, it may cause the grouted riprap to break up due to the resulting hydrostatic pressure.

Outlet Protection/Velocity Dissipation Devices

SS-10

Standards and Specifications

- There are many types of energy dissipaters, with rock being the one that is represented in the figure on Page 3. Please note that this is only one example and the RE may approve other types of devices proposed by the contractor.
- Install riprap, grouted riprap, or concrete apron at selected outlet. Riprap aprons are best suited for temporary use during construction.
- Carefully place riprap to avoid damaging the filter fabric.
- For proper operation of apron:
 - Align apron with receiving stream and keep straight throughout its length. If a curve is needed to fit site conditions, place it in upper section of apron.
 - If size of apron riprap is large, protect underlying filter fabric with a gravel blanket.
- Outlets on slopes steeper than 10% shall have additional protection.

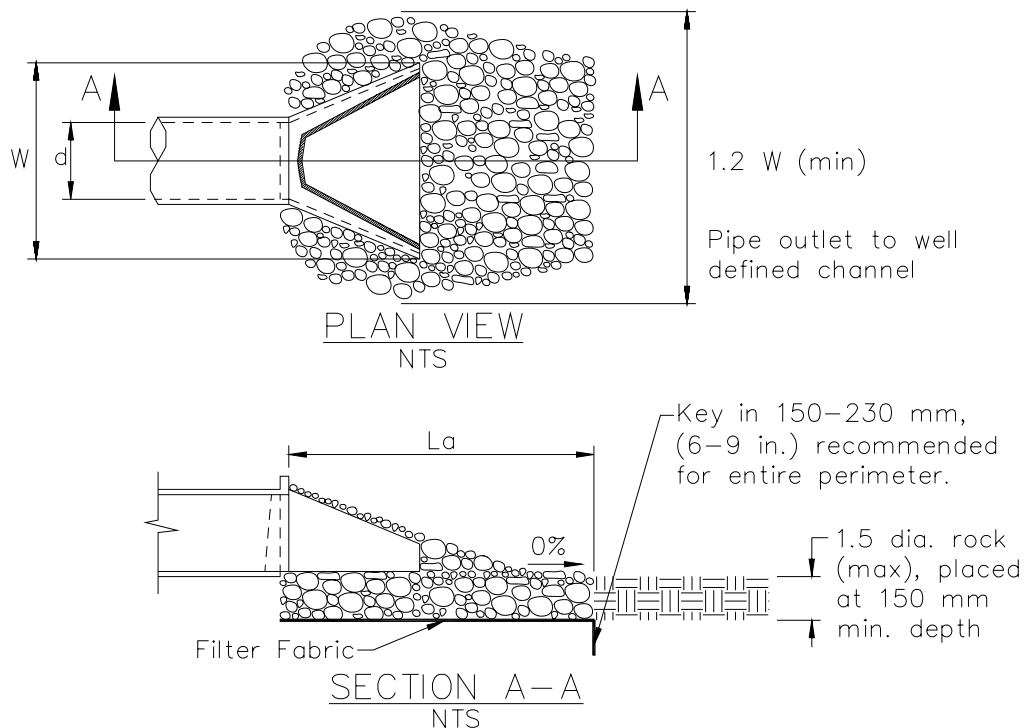
Maintenance and Inspection

- Inspect temporary measures prior to the rainy season, after rainfall events, and regularly (approximately once per week) during the rainy season.
- Inspect apron for displacement of the riprap and/or damage to the underlying fabric. Repair fabric and replace riprap that has washed away.
- Inspect for scour beneath the riprap and around the outlet. Repair damage to slopes or underlying filter fabric immediately.
- Temporary devices shall be completely removed as soon as the surrounding drainage area has been stabilized, or at the completion of construction.



Outlet Protection/Velocity Dissipation Devices

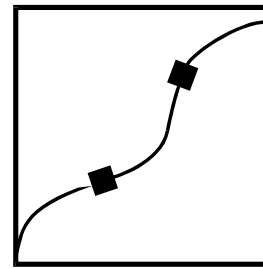
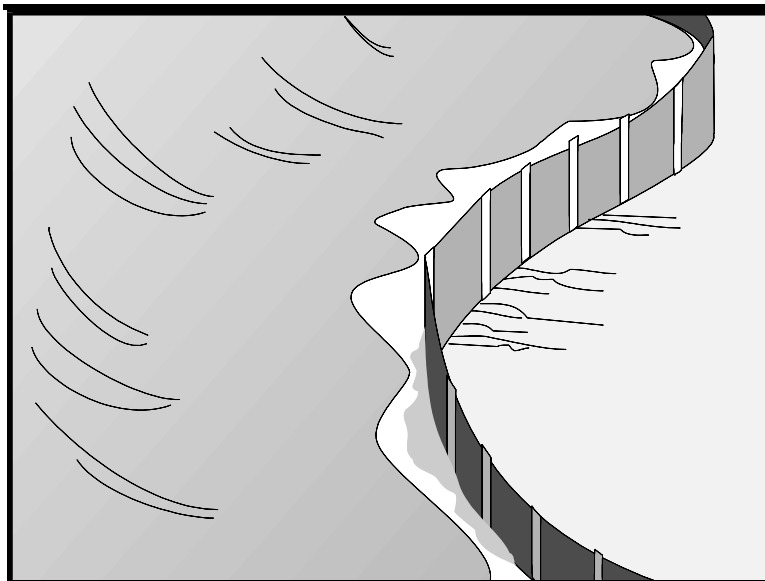
SS-10



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





Standard Symbol

BMP Objectives

- ☐ Soil Stabilization
- ☒ Sediment Control
- ☐ Tracking Control
- ☐ Wind Erosion Control
- ☐ Non-Storm Water Management
- ☐ Materials and Waste Management

Definition and Purpose A silt fence is a temporary linear sediment barrier of permeable fabric designed to intercept and slow the flow of sediment-laden sheet flow runoff. Silt fences allow sediment to settle from runoff before water leaves the construction site.

Appropriate Applications Silt fences are placed:

- Below the toe of exposed and erodible slopes.
- Down-slope of exposed soil areas.
- Around temporary stockpiles.
- Along streams and channels.
- Along the perimeter of a project.

Limitations

- Not effective unless trenched and keyed in.
- Not intended for use as mid-slope protection on slopes greater than 1:4 (V:H).
- Must be maintained.
- Must be removed and disposed of.
- Don't use below slopes subject to creep, slumping, or landslides.
- Don't use in streams, channels, drain inlets, or anywhere flow is concentrated.
- Don't use silt fences to divert flow.

Standards and Specifications

Design and Layout

- The maximum length of slope draining to any point along the silt fence shall be 61 m (200 ft) or less.
- Slope of area draining to silt fence shall be less than 1:1 (V:H).
- Limit to locations suitable for temporary ponding or deposition of sediment.
- Fabric life span generally limited to between five and eight months. Longer periods may require fabric replacement.
- Silt fences shall not be used in concentrated flow areas.
- Lay out in accordance with Pages 5 and 6 of this BMP.
- For slopes steeper than 1:2 (V:H) and that contain a high number of rocks or large dirt clods that tend to dislodge, it may be necessary to install additional protection immediately adjacent to the bottom of the slope, prior to installing silt fence. Additional protection may be a chain link fence or a cable fence.
- For slopes adjacent to water bodies or Environmentally Sensitive Areas (ESAs), additional temporary soil stabilization BMPs shall be used.

Materials

- Silt fence fabric shall be woven polypropylene with a minimum width of 900 mm (36 inches) and a minimum tensile strength of 0.45-kN. The fabric shall conform to the requirements in ASTM designation D4632 and shall have an integral reinforcement layer. The reinforcement layer shall be a polypropylene, or equivalent, net provided by the manufacturer. The permittivity of the fabric shall be between 0.1 sec^{-1} and 0.15 sec^{-1} in conformance with the requirements in ASTM designation D4491. Contractor must submit certificate of compliance in accordance with Standard Specifications Section 6-1.07.
- Wood stakes shall be commercial quality lumber of the size and shape shown on the plans. Each stake shall be free from decay, splits or cracks longer than the thickness of the stake or other defects that would weaken the stakes and cause the stakes to be structurally unsuitable.
- Bar reinforcement may be used, and its size shall be equal to a number four (4) or greater. End protection shall be provided for any exposed bar reinforcement.
- Staples used to fasten the fence fabric to the stakes shall be not less than 45 mm (1.75 inches) long and shall be fabricated from 1.57 mm (0.06 inch) or heavier wire. The wire used to fasten the tops of the stakes together when

joining two sections of fence shall be 3.05 mm (0.12 inch) or heavier wire. Galvanizing of the fastening wire is not required.

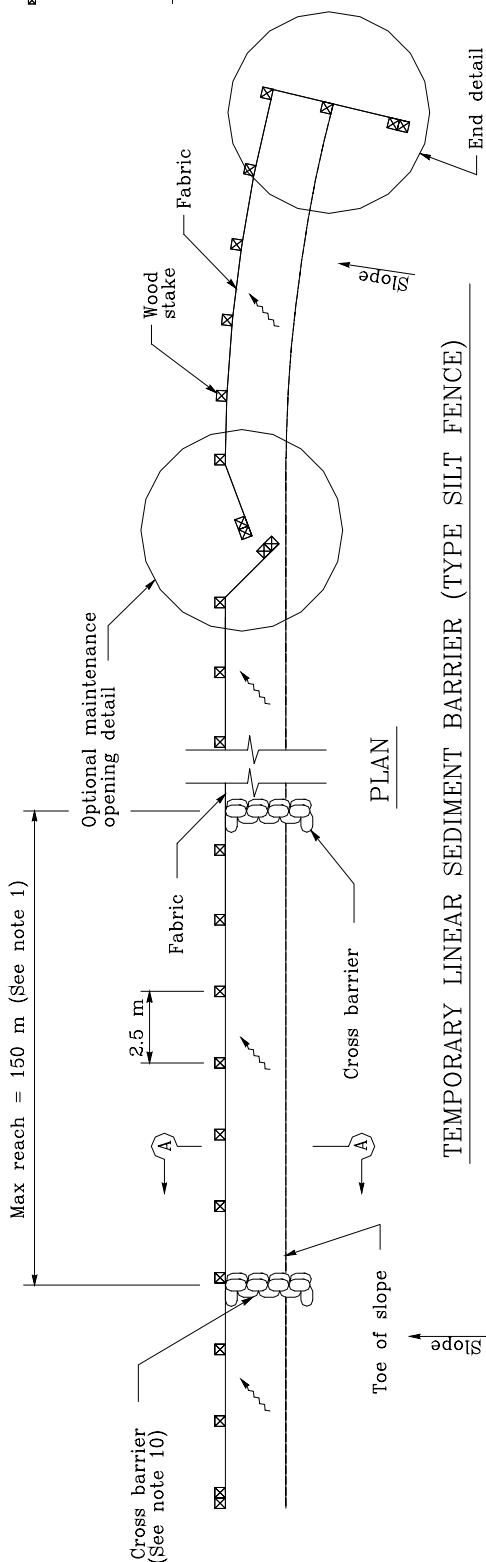
Installation

- Generally, silt fences shall be used in conjunction with soil stabilization source controls up slope to provide effective erosion and sediment control.
- Bottom of the silt fence shall be keyed-in a minimum of 150 mm (12 inches).
- Trenches shall not be excavated wider and deeper than necessary for proper installation of the temporary linear sediment barriers.
- Excavation of the trenches shall be performed immediately before installation of the temporary linear sediment barriers.
- Construct silt fences with a set-back of at least 1m (3 ft) from the toe of a slope. Where a silt fence is determined to be not practical due to specific site conditions, the silt fence may be constructed at the toe of the slope, but shall be constructed as far from the toe of the slope as practical.
- Construct the length of each reach so that the change in base elevation along the reach does not exceed 1/3 the height of the barrier; in no case shall the reach exceed 150 meters (490 ft).
- Cross barriers shall be a minimum of 1/3 and a maximum of 1/2 the height of the linear barrier.
- Install in accordance with Pages 5 and 6 of this BMP.

Maintenance and Inspection

- Repair undercut silt fences.
- Repair or replace split, torn, slumping, or weathered fabric.
- Inspect silt fence when rain is forecast. Perform necessary maintenance, or maintenance required by the Resident Engineer (RE).
- Inspect silt fence following rainfall events. Perform maintenance as necessary, or as required by the RE.
- Maintain silt fences to provide an adequate sediment holding capacity. Sediment shall be removed when the sediment accumulation reaches one-third (1/3) of the barrier height. Removed sediment shall be incorporated in the project at locations designated by the RE or disposed of outside the right-of-way in conformance with the Standard Specifications.
- Silt fences that are damaged and become unsuitable for the intended purpose, as determined by the RE, shall be removed from the site of work, disposed of outside the highway right-of-way in conformance with the Standard Specifications, and replaced with new silt fence barriers.

-
- Holes, depressions or other ground disturbance caused by the removal of the temporary silt fences shall be backfilled and repaired in conformance with the Standard Specifications.
 - Remove silt fence when no longer needed or as required by the RE. Fill and compact post holes and anchorage trench, remove sediment accumulation, and grade fence alignment to blend with adjacent ground.



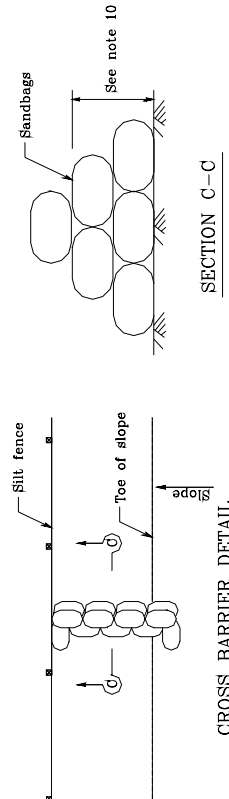
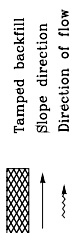
TEMPORARY LINEAR SEDIMENT BARRIER (TYPE SILT FENCE)



NOTES

1. Construct the length of each reach so that the change in base elevation along the reach does not exceed 1/3 the height of the linear barrier, in no case shall the reach length exceed 150m.
2. The last 2.5 m of fence shall be turned up slope.
3. Stake dimensions are nominal.
4. Dimension may vary to fit field condition.
5. Stakes shall be spaced at 2.5 m maximum and shall be positioned on downstream side of fence.
6. Stakes to overlap and fence fabric to fold around each stake one full turn. Secure fabric to stake with 4 staples.
7. Stakes shall be driven tightly together to prevent potential flow-through of sediment at joint. The tops of the stakes shall be secured with wire.
8. For end stake, fence fabric shall be folded around two stakes one full turn and secured with 4 staples.
9. Minimum 4 staples per stake. Dimensions shown are typical.
10. Cross barriers shall be a minimum of 1/3 and a maximum of 1/2 the height of the linear barrier.
11. Maintenance openings shall be constructed in a manner to ensure sediment remains behind silt fence.
12. Joining sections shall not be placed at sump locations.
13. Sandbag rows and layers shall be offset to eliminate gaps.

LEGEND



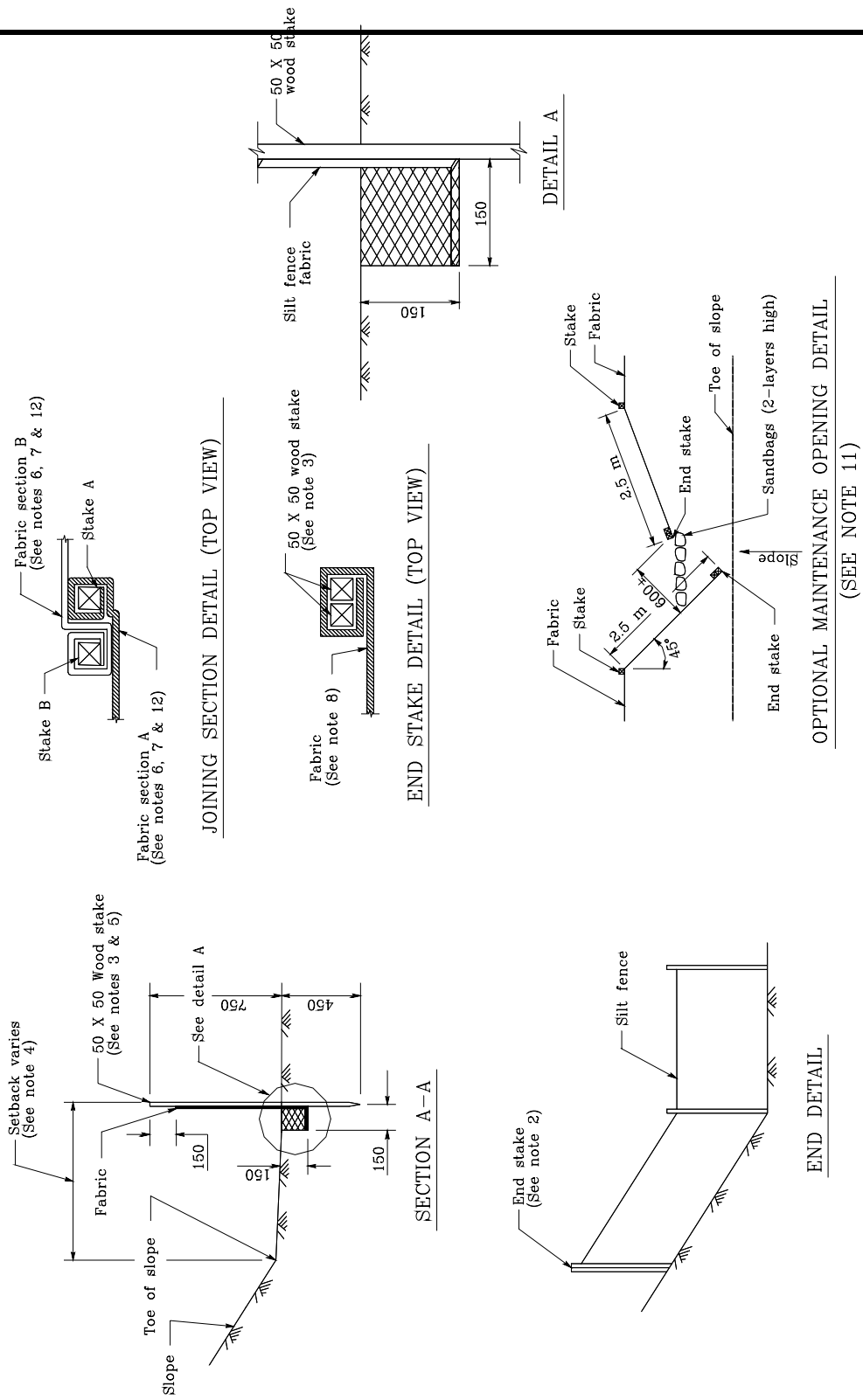
SECTION C-C

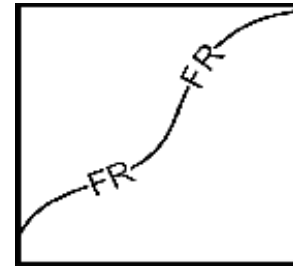
STATE OF CALIFORNIA
DEPARTMENT OF TRANSPORTATION

TEMPORARY LINEAR SEDIMENT BARRIER (TYPE SILT FENCE)

NO SCALE

ALL DIMENSIONS ARE IN
MILLIMETERS UNLESS OTHERWISE SHOWN





Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose

A fiber roll consists of wood excelsior, rice or wheat straw, or coconut fibers that is rolled or bound into a tight tubular roll and placed on the toe and face of slopes to intercept runoff, reduce its flow velocity, release the runoff as sheet flow and provide removal of sediment from the runoff. Fiber rolls may also be used for inlet protection and as check dams under certain situations.

Appropriate Applications

- This BMP may be implemented on a project-by-project basis with other BMPs when determined necessary and feasible by the RE.
- Along the toe, top, face, and at grade breaks of exposed and erodible slopes to shorten slope length and spread runoff as sheet flow.
- Below the toe of exposed and erodible slopes.
- Fiber rolls may be used as check dams in unlined ditches if approved by the Resident Engineer (RE) or the District Construction Storm Water Coordinator (refer to SC-4 “Check Dams”).
- Fiber rolls may be used for drain inlet protection if approved by the RE or the District Construction Storm Water Coordinator (refer to SC-10 “Storm Drain Inlet Protection”).
- Down-slope of exposed soil areas.
- Around temporary stockpiles.
- Along the perimeter of a project.

- Limitations**
- Runoff and erosion may occur if fiber roll is not adequately trenched in.
 - Fiber rolls at the toe of slopes greater than 1:5 may require the use of 500 mm (20" diameter) or installations achieving the same protection (i.e., stacked smaller diameter fiber rolls, etc.).
 - Fiber rolls may be used for drainage inlet protection if they can be properly anchored.
 - Difficult to move once saturated.
 - Fiber rolls could be transported by high flows if not properly staked and trenched in.
 - Fiber rolls have limited sediment capture zone.
 - Do not use fiber rolls on slopes subject to creep, slumping, or landslide.

Standards and Specifications

Fiber Roll Materials

- Fiber rolls shall be either:
 - (1) Prefabricated rolls.
 - (2) Rolled tubes of erosion control blanket.

Assembly of Field Rolled Fiber Roll

- Roll length of erosion control blanket into a tube of minimum 200 mm (8 in) diameter.
- Bind roll at each end and every 1.2 m (4 ft) along length of roll with jute-type twine.

Installation

- Slope inclination of 1:4 or flatter: fiber rolls shall be placed on slopes 6.0 m apart.
- Slope inclination of 1:4 to 1:2: fiber rolls shall be placed on slopes 4.5 m apart.
- Slope inclination 1:2 or greater: fiber rolls shall be placed on slopes 3.0 m apart.
- Stake fiber rolls into a 50 to 100 mm (2 to 4 in) trench.

- Drive stakes at the end of each fiber roll and spaced 600 mm (2 ft) apart if Type 2 installation is used (refer to Page 4). Otherwise, space stakes 1.2 m (4 ft) maximum on center if installed as shown on Pages 5 and 6.
- Use wood stakes with a nominal classification of 19 by 19 mm (3/4 by 3/4 in), and minimum length of 600 mm (24 in).
- If more than one fiber roll is placed in a row, the rolls shall be overlapped; not abutted.

Removal

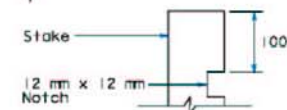
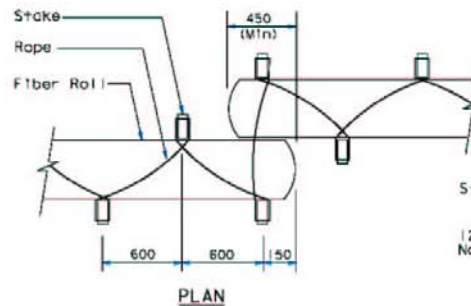
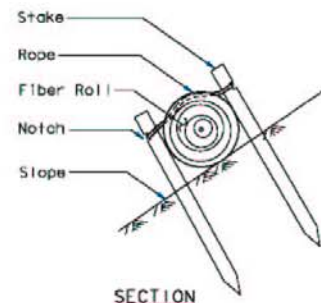
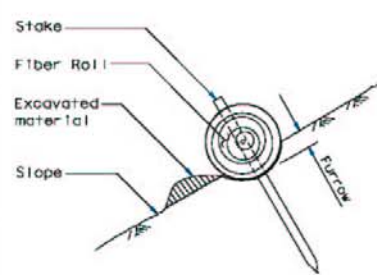
- Fiber rolls are typically left in place.
- If fiber rolls are removed, collect and dispose of sediment accumulation, and fill and compact holes, trenches, depressions or any other ground disturbance to blend with adjacent ground.

Maintenance and Inspection

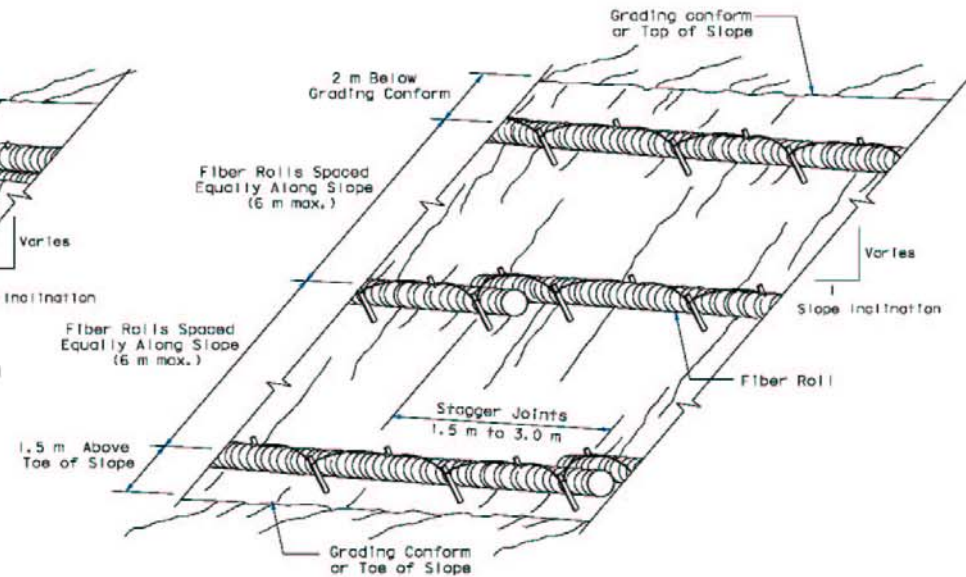
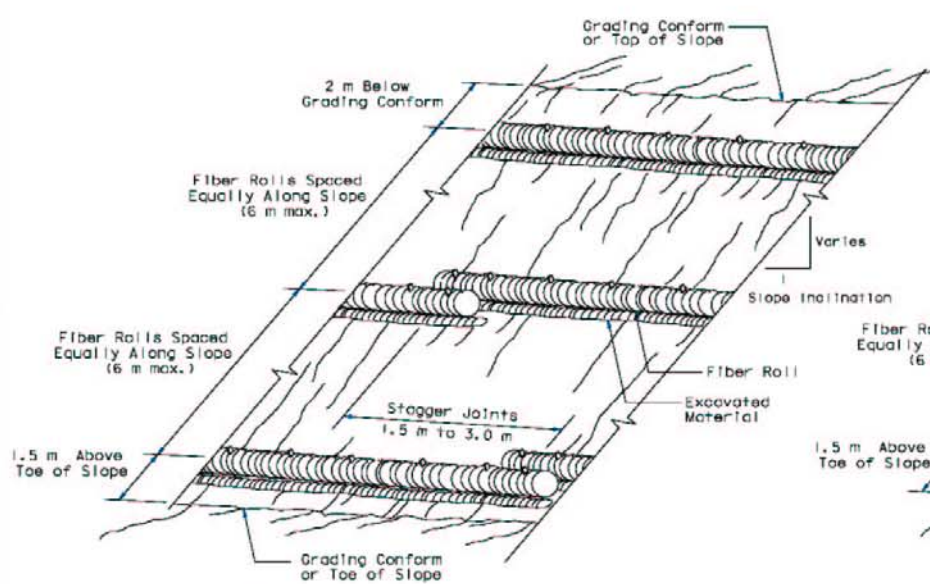
- Repair or replace split, torn, unraveling, or slumping fiber rolls.
- Inspect fiber rolls when rain is forecast. Perform maintenance as needed or as required by the RE.
- Inspect fiber rolls following rainfall events and at least daily during prolonged rainfall. Perform maintenance as needed or as required by the RE.
- Maintain fiber rolls to provide an adequate sediment holding capacity. Sediment shall be removed when the sediment accumulation reaches three quarters (3/4) of the barrier height. Removed sediment shall be incorporated in the project at locations designated by the RE or disposed of outside the highway right-of-way in conformance with the Standard Specifications.

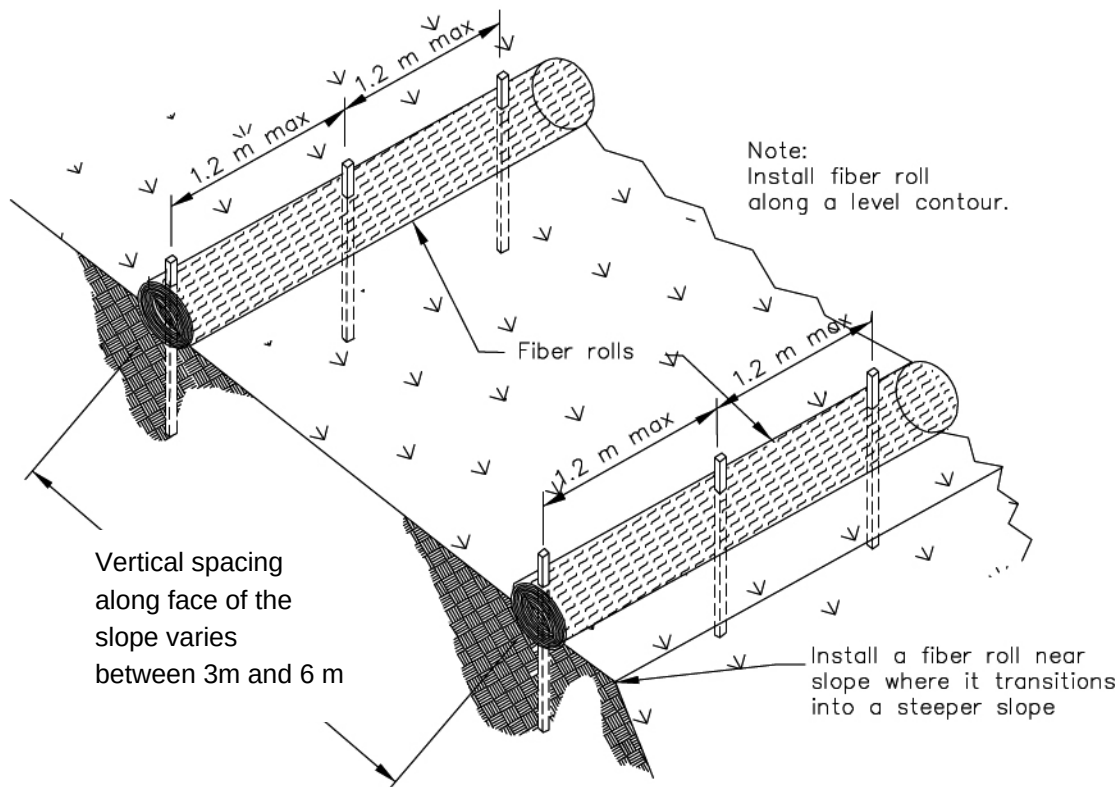
Fiber Rolls

SC-5

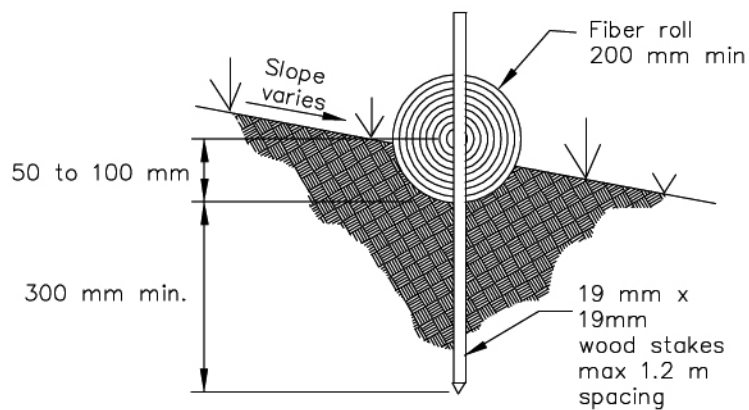


NOTE
1. Temporary fiber roll spacing varies depending upon slope inclination.

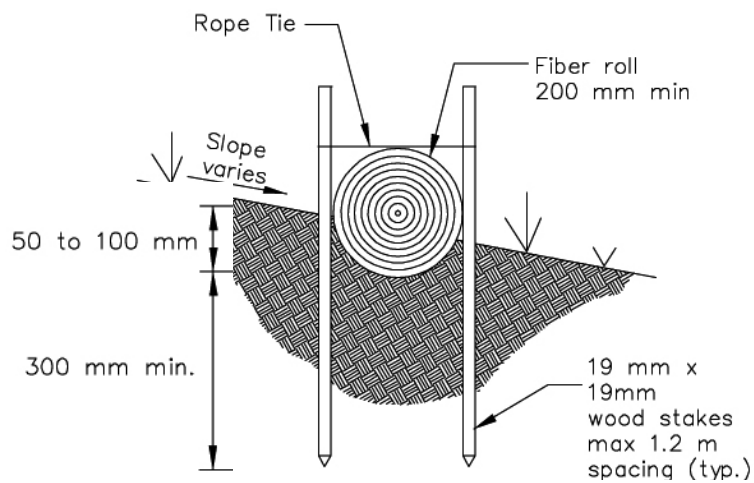
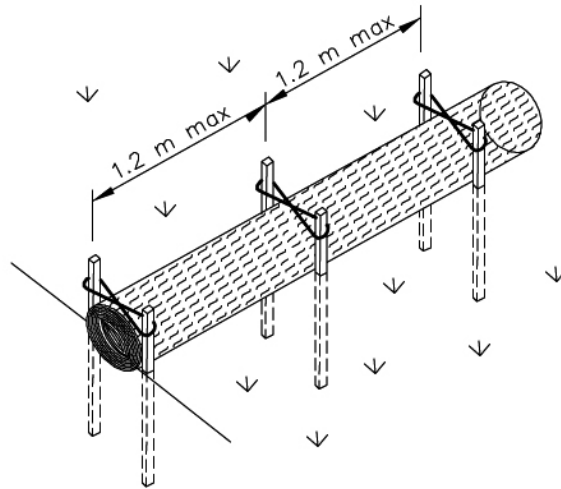




TYPICAL FIBER ROLL INSTALLATION
N.T.S.

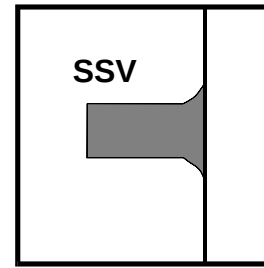


ENTRENCHMENT DETAIL
N.T.S.



OPTIONAL ENTRENCHMENT DETAIL

N.T.S.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose Practices to remove tracked sediment to prevent the sediment from entering a storm drain or watercourse.

Appropriate Applications These practices are implemented anywhere sediment is tracked from the project site onto public or private paved roads, typically at points of ingress/egress.

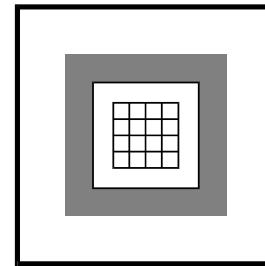
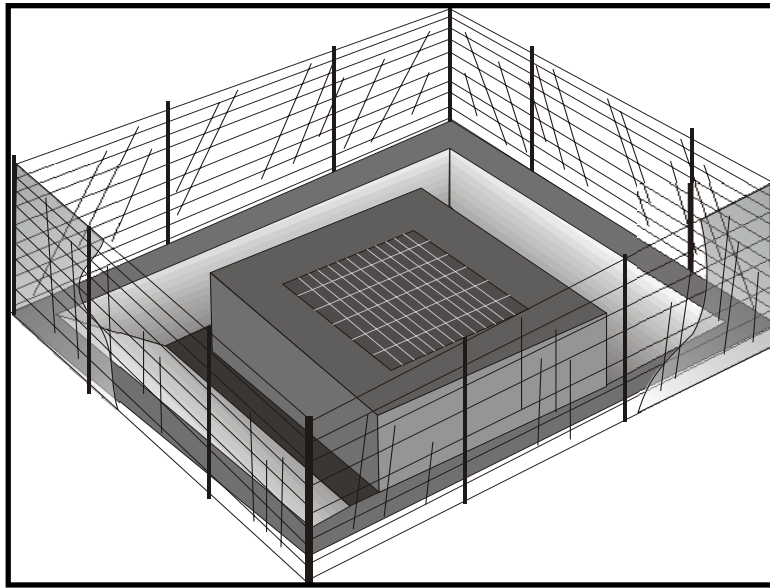
Limitations Sweeping and vacuuming may not be effective when soil is wet or muddy.

Standards and Specifications

- Kick brooms or sweeper attachments shall not be used.
- Inspect potential sediment tracking locations daily.
- Visible sediment tracking shall be swept and/or vacuumed daily.
- If not mixed with debris or trash, consider incorporating the removed sediment back into the project.

Maintenance and Inspection

- Inspect ingress/egress access points daily and sweep tracked sediment as needed, or as required by the Resident Engineer (RE).
- Be careful not to sweep up any unknown substance or any object that may be potentially hazardous.
- Adjust brooms frequently; maximize efficiency of sweeping operations.
- After sweeping is finished, properly dispose of sweeper wastes at an approved dumpsite in conformance with the provisions in Standard Specifications Section 7-1.13 .



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose

Devices used at storm drain inlets that are subject to runoff from construction activities to detain and/or to filter sediment-laden runoff to allow sediment to settle and/or to filter sediment prior to discharge into storm drainage systems or watercourses.

Appropriate Applications

- Where ponding will not encroach into highway traffic.
- Where sediment laden surface runoff may enter an inlet.
- Where disturbed drainage areas have not yet been permanently stabilized.
- Where the drainage area is 0.4 ha (1 ac) or less.
- Appropriate during wet and snow-melt seasons.

Limitations

- Requires an adequate area for water to pond without encroaching upon traveled way and should not present itself to be an obstacle to oncoming traffic.
- May require other methods of temporary protection to prevent sediment-laden storm water and non-storm water discharges from entering the storm drain system.
- Sediment removal may be difficult in high flow conditions or if runoff is heavily sediment laden. If high flow conditions are expected, use other on-site sediment trapping techniques (e.g. check dams) in conjunction with inlet protection.
- Frequent maintenance is required.
- For drainage areas larger than 0.4 ha (1 ac), runoff shall be routed to a sediment trapping device designed for larger flows. See BMPs SC-2, "Sediment/Desilting Basin," and SC-3 "Sediment Trap."

- Filter fabric fence inlet protection is appropriate in open areas that are subject to sheet flow and for flows not exceeding 0.014 m³/s (0.5 cfs).
- Gravel bag barriers for inlet protection are applicable when sheet flows or concentrated flows exceed 0.014 m³/s (0.5 cfs), and it is necessary to allow for overtopping to prevent flooding.
- Fiber rolls and foam barriers are not appropriate for locations where they cannot be properly anchored to the surface.
- Excavated drop inlet sediment traps are appropriate where relatively heavy flows are expected and overflow capability is needed.

Standards and Specifications

Identify existing and/or planned storm drain inlets that have the potential to receive sediment-laden surface runoff. Determine if storm drain inlet protection is needed, and which method to use.

Methods and Installation

- **DI Protection Type 1 - Filter Fabric Fence** - The filter fabric fence (Type 1) protection is illustrated on Page 5. Similar to constructing a silt fence. See BMP SC-1, "Silt Fence." Do not place filter fabric underneath the inlet grate since the collected sediment may fall into the drain inlet when the fabric is removed or replaced.
- **DI Protection Type 2 - Excavated Drop Inlet Sediment Trap** - The excavated drop inlet sediment trap (Type 2) is illustrated in Page 6. Similar to constructing a temporary silt fence, See BMP SC-1, "Silt Fence." Size excavated trap to provide a minimum storage capacity calculated at the rate of 130 m³/ha (67 yd³/ac) of drainage area.
- **DI Protection Type 3 – Gravel bag** - The gravel bag barrier (Type 3) is illustrated in Page 7. Flow from a severe storm shall not overtop the curb. In areas of high clay and silts, use filter fabric and gravel as additional filter media. Construct gravel bags in accordance with BMP SC-6, "Gravel Bag Berm." Gravel bags shall be used due to their high permeability.
- **DI Protection Type 4 – Foam Barriers and Fiber Rolls** – Foam barrier or fiber roll (Type 4) is placed around the inlet and keyed and anchored to the surface. Foam barriers and fiber rolls are intended for use as inlet protection where the area around the inlet is unpaved and the foam barrier or fiber roll can be secured to the surface. RE or Construction Storm Water Coordinator approval is required.

Maintenance and Inspection

General

- Inspect all inlet protection devices before and after every rainfall event, and weekly during the rest of the rainy season. During extended rainfall events, inspect inlet protection devices at least once every 24 hours.

- Inspect the storm drain inlet after severe storms in the rainy season to check for bypassed material.
- Remove all inlet protection devices within thirty days after the site is stabilized, or when the inlet protection is no longer needed.
 - Bring the disturbed area to final grade and smooth and compact it. Appropriately stabilize all bare areas around the inlet.
 - Clean and re-grade area around the inlet and clean the inside of the storm drain inlet as it must be free of sediment and debris at the time of final inspection.

Requirements by Method

■ ***Type 1 - Filter Fabric Fence***

- This method shall be used for drain inlets requiring protection in areas where finished grade is established and erosion control seeding has been applied or is pending.
- Make sure the stakes are securely driven in the ground and are structurally sound (i.e., not bent, cracked, or splintered, and are reasonably perpendicular to the ground). Replace damaged stakes.
- Replace or clean the fabric when the fabric becomes clogged with sediment. Make sure the fabric does not have any holes or tears. Repair or replace fabric as needed or as directed by the RE.
- At a minimum, remove the sediment behind the fabric fence when accumulation reaches one-third the height of the fence or barrier height. Removed sediment shall be incorporated in the project at locations designated by the RE or disposed of outside the highway right-of-way in conformance with the Standard Specifications Section 7-1.13.

■ ***Type 2 – Excavated Drop Inlet Sediment Trap***

- This method may be used for drain inlets requiring protection in areas that have been cleared and grubbed, and where exposed soil areas are subject to grading.
- Remove sediment from basin when the volume of the basin has been reduced by one-half.

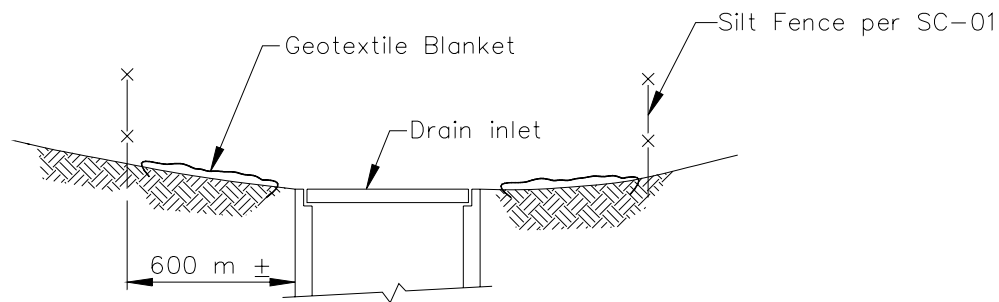
■ ***Type 3 - Gravel Bag Barrier***

- This method may be used for drain inlets surrounded by AC or paved surfaces.
- Inspect bags for holes, gashes, and snags.

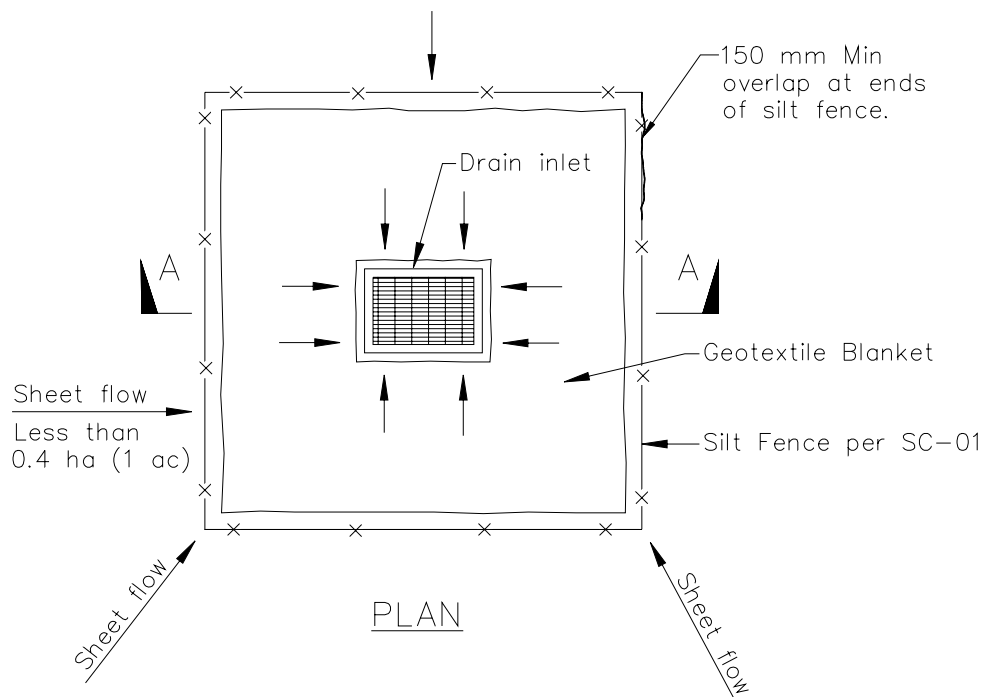
- Check gravel bags for proper arrangement and displacement. Remove the sediment behind the barrier when it reaches one-third the height of the barrier. Removed sediment shall be incorporated in the project at locations designated by the RE or disposed of outside the highway right-of-way in conformance with the Standard Specifications Section 7-1.13.

■ ***Type 4 Foam Barriers and Fiber Rolls***

- This method may be used for drain inlets requiring protection in areas that have been cleared and grubbed, and where exposed soil areas subject to grading. RE or Construction Storm Coordinator approval is required.
- Check foam barrier or fiber roll for proper arrangement and displacement. Remove the sediment behind the barrier when it reaches one-third the height of the barrier. Removed sediment shall be incorporated in the project at locations designated by the RE or disposed of outside the highway right-of-way in conformance with the Standard Specifications.



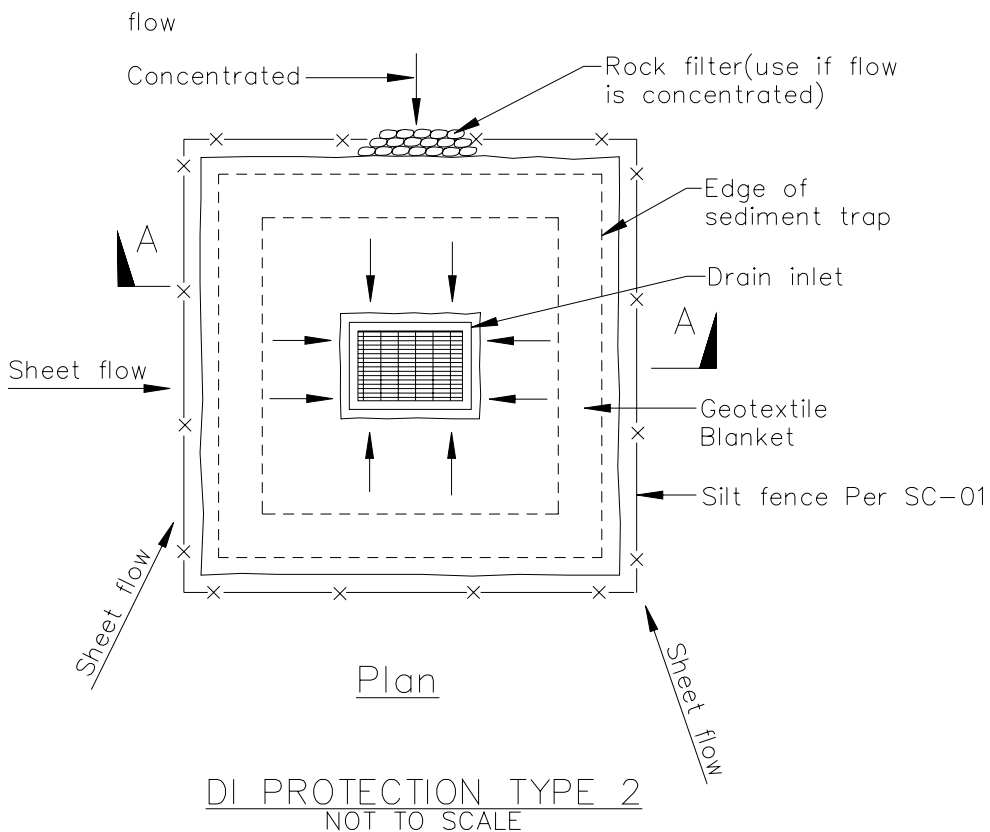
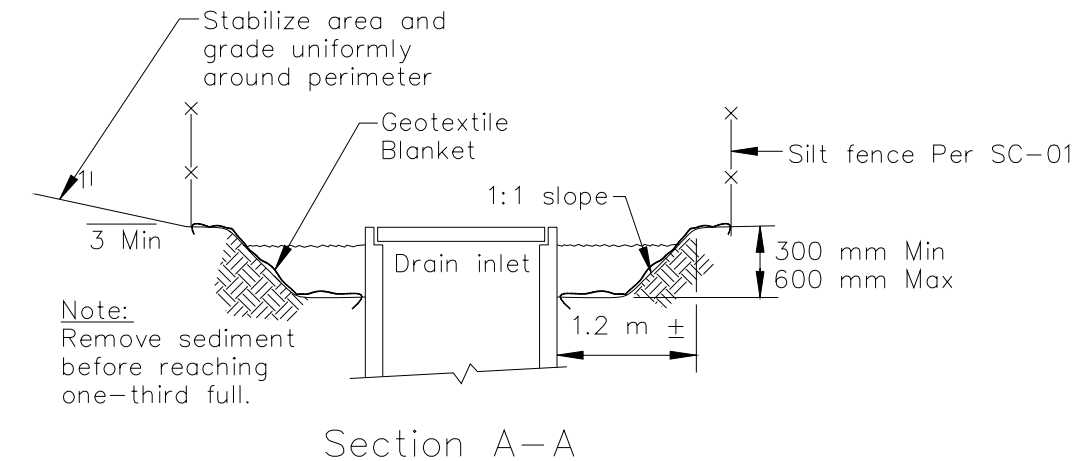
SECTION A-A



DI PROTECTION TYPE 1
NOT TO SCALE

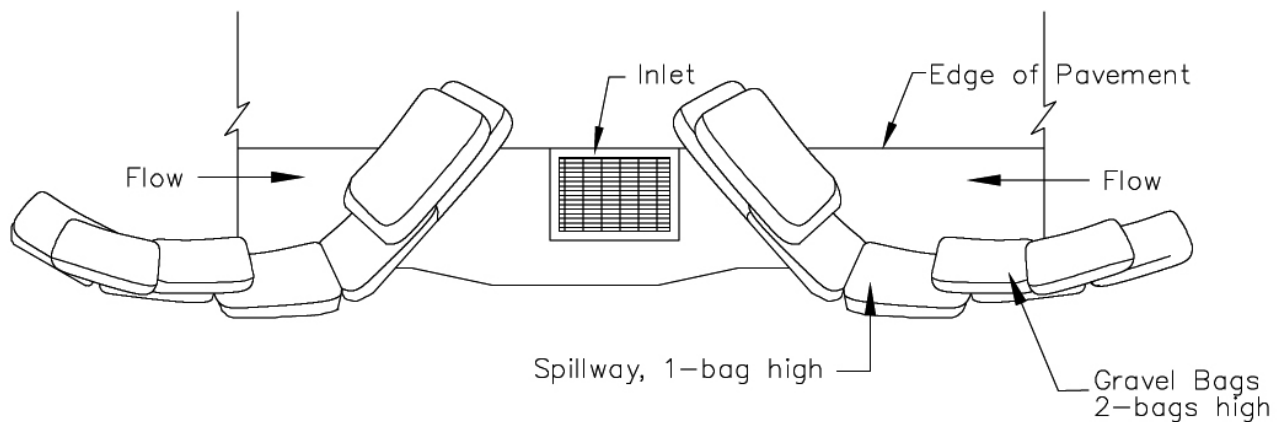
NOTES:

1. For use in areas where grading has been completed and final soil stabilization and seeding are pending.
2. Not applicable in paved areas.
3. Not applicable with concentrated flows.

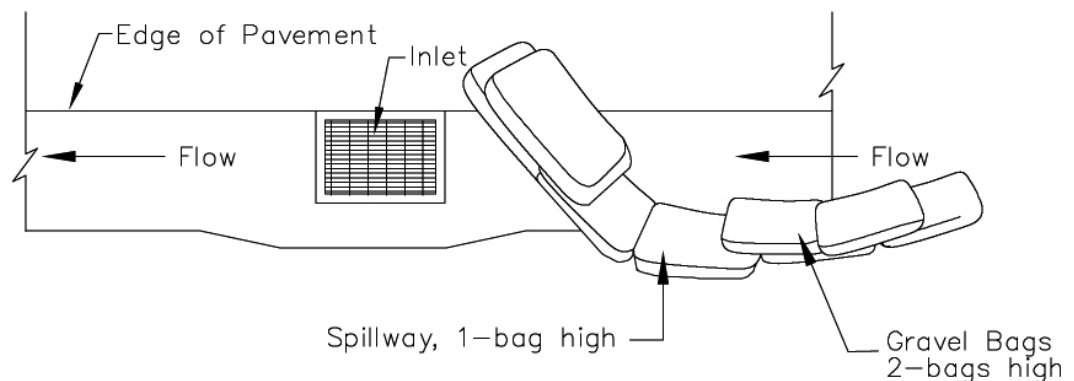


Notes

1. For use in cleared and grubbed and in graded areas.
2. Shape basin so that longest inflow area faces longest length of trap.
3. For concentrated flows, shape basin in 2:1 ratio with length oriented towards direction of flow.



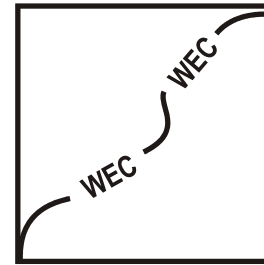
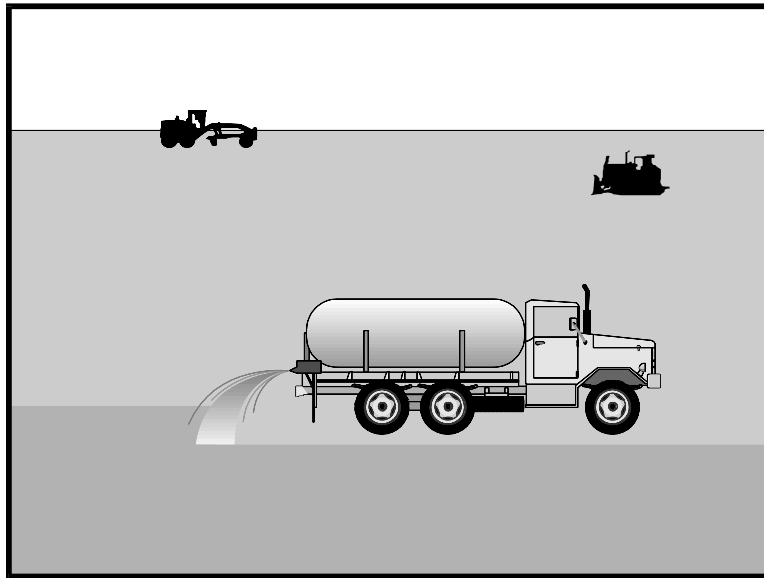
TYPICAL PROTECTION FOR INLET WITH OPPOSING FLOW DIRECTIONS



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.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose Wind erosion control consists of applying water and/or other dust palliatives as necessary to prevent or alleviate erosion by the forces of wind. Dust control shall be applied in accordance with Caltrans standard practices. Covering of small stockpiles or areas is an alternative to applying water or other dust palliatives.

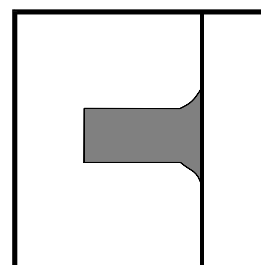
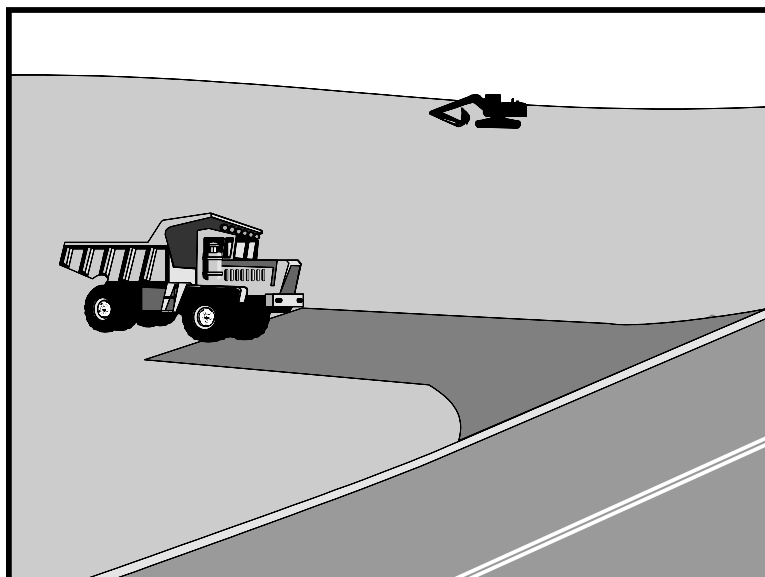
Appropriate Applications ■ This practice is implemented on all exposed soils subject to wind erosion.

Limitations ■ Effectiveness depends on soil, temperature, humidity and wind velocity.

Standards and Specifications

- Water shall be applied by means of pressure-type distributors or pipelines equipped with a spray system or hoses and nozzles that will ensure even distribution.
- All distribution equipment shall be equipped with a positive means of shutoff.
- Unless water is applied by means of pipelines, at least one mobile unit shall be available at all times to apply water or dust palliative to the project.
- If reclaimed water is used, the sources and discharge must meet California Department of Health Services water reclamation criteria and the Regional Water Quality Control Board requirements. Non-potable water shall not be conveyed in tanks or drain pipes that will be used to convey potable water and there shall be no connection between potable and non-potable supplies. Non-potable tanks, pipes and other conveyances shall be marked "NON-POTABLE WATER - DO NOT DRINK."
- Materials applied as temporary soil stabilizers and soil binders will also provide wind erosion control benefits.

Maintenance and Inspection ■ Check areas that have been protected to ensure coverage.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose

A stabilized construction access is defined by a point of entrance/exit to a construction site that is stabilized to reduce the tracking of mud and dirt onto public roads by construction vehicles.

Appropriate Applications

- Use at construction sites:
 - Where dirt or mud can be tracked onto public roads.
 - Adjacent to water bodies.
 - Where poor soils are encountered.
 - Where dust is a problem during dry weather conditions.
- This BMP may be implemented on a project-by-project basis in addition to other BMPs when determined necessary and feasible by the Resident Engineer (RE).

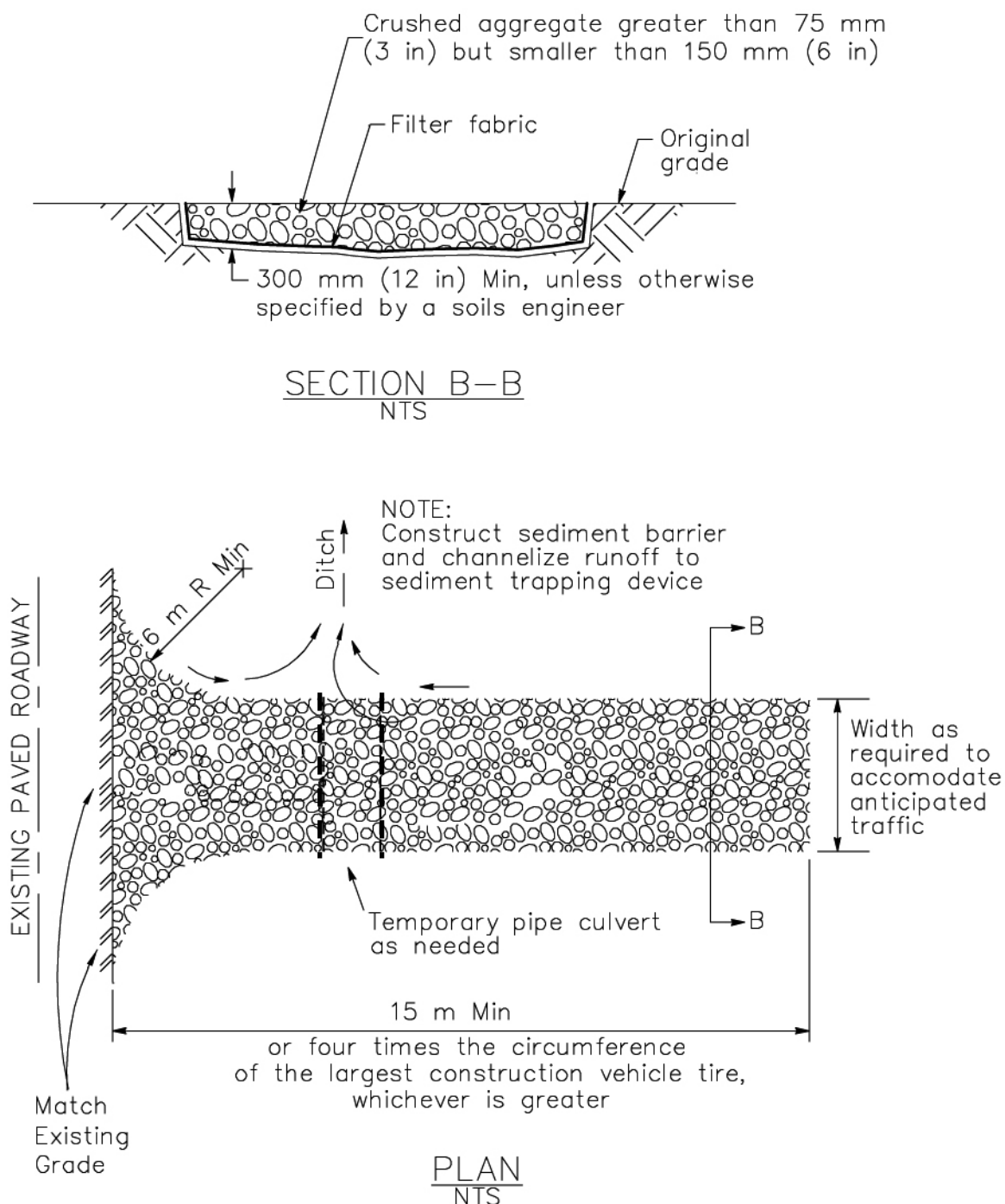
Limitations

- Site conditions will dictate design and need.

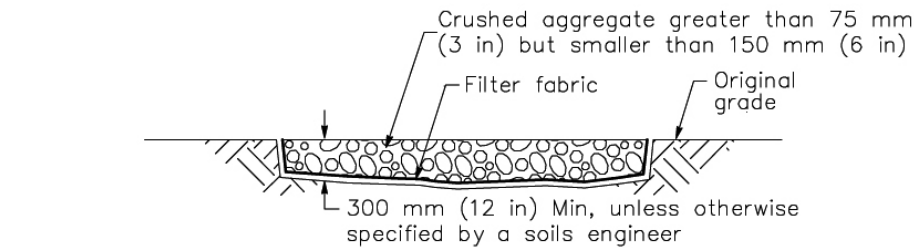
Standards and Specifications

- Limit the points of entrance/exit to the construction site.
- Limit speed of vehicles to control dust.
- Properly grade each construction entrance/exit to prevent runoff from leaving the construction site.
- Route runoff from stabilized entrances/exits through a sediment-trapping device before discharge.
- Design stabilized entrance/exit to support the heaviest vehicles and equipment that will use it.

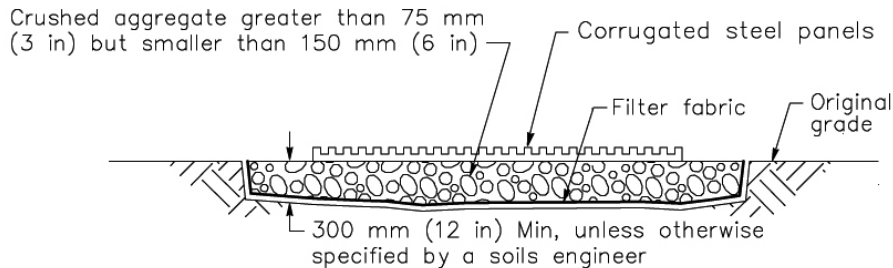
- Select construction access stabilization (aggregate, asphaltic concrete, concrete) based on longevity, required performance, and site conditions. The use of asphalt concrete (AC) grindings for stabilized construction access/roadway is not allowed.
 - Use of constructed/manufactured steel plates with ribs for entrance/exit access is allowed with written approval from the RE.
 - If aggregate is selected, place crushed aggregate over geotextile fabric to at least 300 mm (12 in) depth, or place aggregate to a depth recommended by the RE. Crushed aggregate greater than 75 mm (3 inches) and smaller than 150 mm (6 inches) shall be used.
 - Designate combination or single purpose entrances and exits to the construction site.
 - Implement BMP SC-7, “Street Sweeping and Vacuuming” as needed and as required.
 - Require all employees, subcontractors, and suppliers to utilize the stabilized construction access.
 - All exit locations intended to be used continuously and for a period of time shall have stabilized construction entrance/exit BMPs (TC-1 “Stabilized Construction Entrance/Exit” or TC-3 “Entrance/Outlet Tire Wash”).
- Maintenance and Inspection
- Inspect routinely for damage and assess effectiveness of the BMP. Remove aggregate, separate and dispose of sediment if construction entrance/exit is clogged with sediment or as directed by the RE.
 - Keep all temporary roadway ditches clear.
 - Inspect for damage and repair as needed.



Stabilized Construction Entrance/Exit (Type 1)

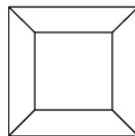


SECTION B-B
NTS

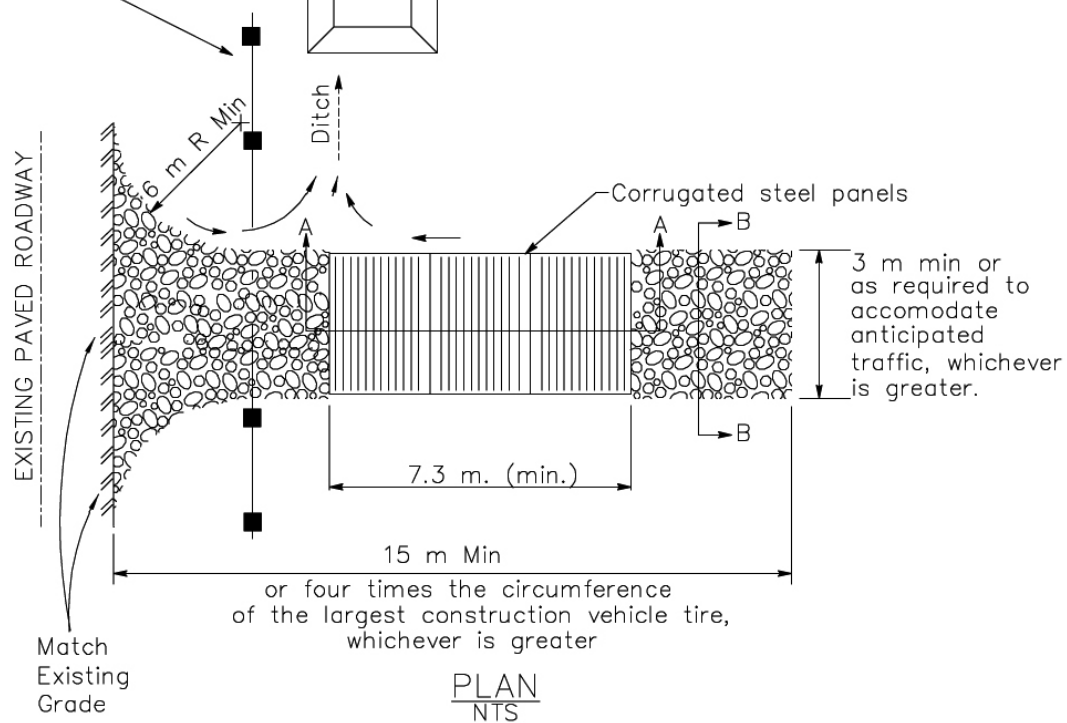


SECTION A-A
NOT TO SCALE

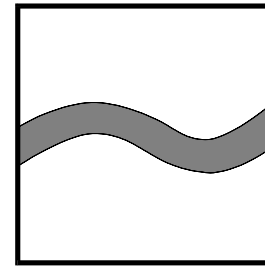
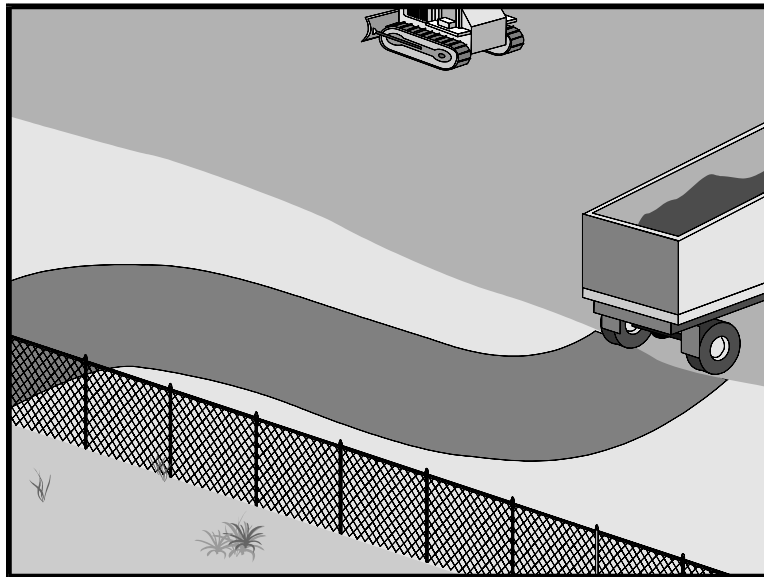
NOTE:
Construct sediment barrier
and channelize runoff to
sediment trapping device



Sediment trapping
device



Stabilized Construction Entrance/Exit (Type 2)



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose A stabilized construction roadway is a temporary access road. It is designed for the control of dust and erosion created by vehicular tracking.

Appropriate Applications

- Construction roadways and short-term detour roads:
 - Where mud tracking is a problem during wet weather.
 - Where dust is a problem during dry weather.
 - Adjacent to water bodies.
 - Where poor soils are encountered.
 - Where there are steep grades and additional traction is needed.
- This BMP may be implemented on a project-by-project basis with other BMPs when determined necessary and feasible by the Resident Engineer (RE).

Limitations

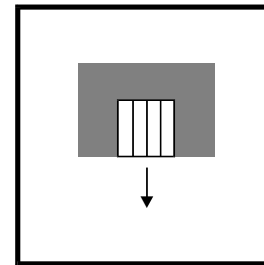
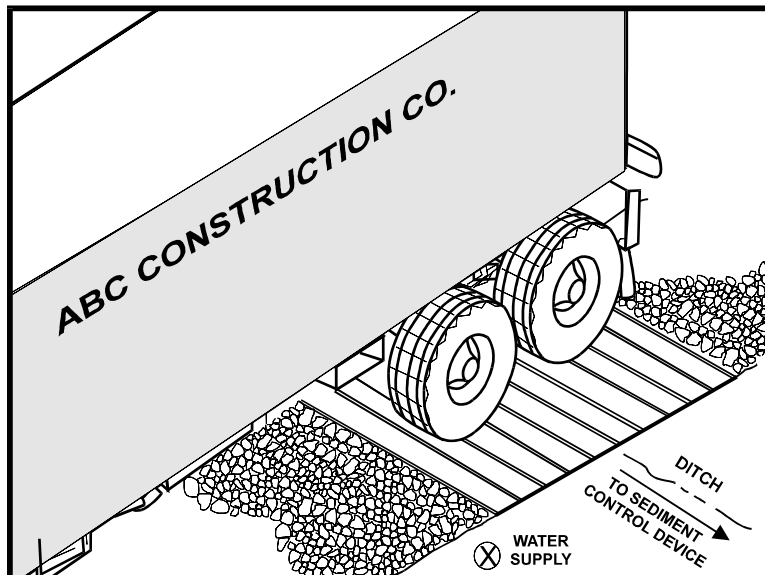
- Materials will likely need to be removed prior to final project grading and stabilization.
- Site conditions will dictate design and need.
- May not be applicable to very short duration projects.
- Limit speed of vehicles to control dust.

Standards and Specifications

- Properly grade roadway to prevent runoff from leaving the construction site.
- Design stabilized access to support the heaviest vehicles and equipment that will use it.
- Stabilize roadway using aggregate, asphalt concrete, or concrete based on longevity, required performance, and site conditions. The use of cold mix asphalt or asphalt concrete (AC) grindings for stabilized construction roadway is not allowed.
- Coordinate materials with those used for stabilized construction entrance/exit points.
- If aggregate is selected, place crushed aggregate over geotextile fabric to at least 300 mm (12 in) depth, or place aggregate to a depth recommended by the RE or Construction Storm Water Coordinator. Crushed aggregate greater than 75 mm (3 inches) and smaller than 150 mm (6 inches) shall be used.

Maintenance and Inspection

- Inspect routinely for damage and repair as needed, or as directed by the RE.
- Keep all temporary roadway ditches clear.
- When no longer required, remove stabilized construction roadway and re-grade and repair slopes.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose A tire wash is an area located at stabilized construction access points to remove sediment from tires and undercarriages, and to prevent sediment from being transported onto public roadways.

Appropriate Applications

- Tire washes may be used on construction sites where dirt and mud tracking onto public roads by construction vehicles may occur.
- This BMP may be implemented on a project-by-project basis with other BMPs when determined necessary and feasible by the Resident Engineer (RE).

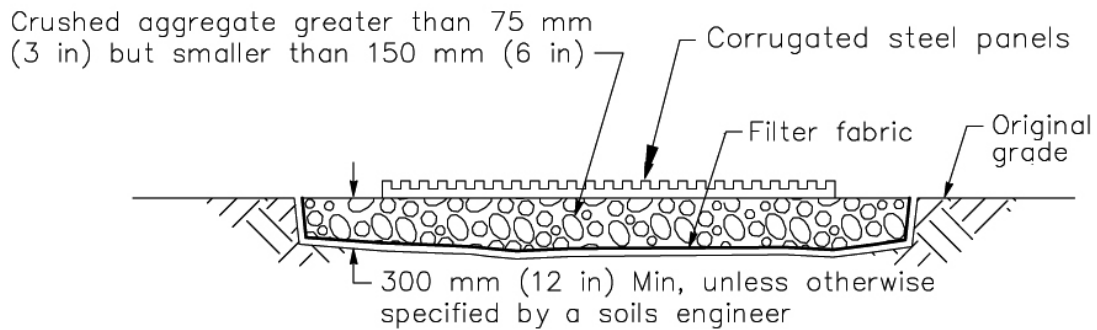
Limitations

- Requires a supply of wash water.
- Requires a turnout or doublewide exit to avoid having entering vehicles drive through the wash area.

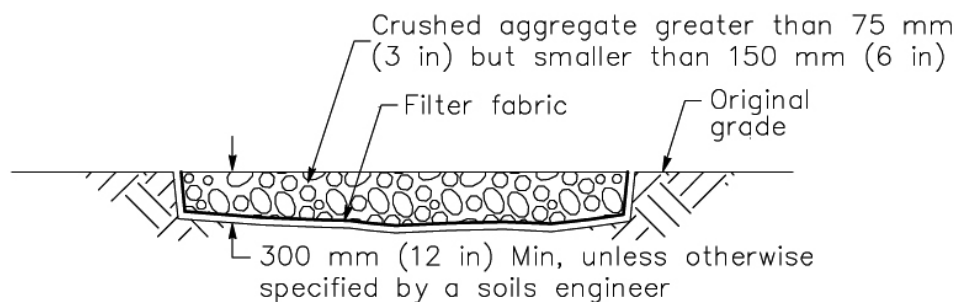
Standards and Specifications

- Incorporate with a stabilized construction entrance/exit. See BMP TC-1, "Stabilized Construction Entrance/Exit."
- Construct on level ground when possible, on a pad of coarse aggregate, greater than 75 mm (3 inches) and smaller than 150 mm (6 inches). A geotextile fabric shall be placed below the aggregate.
- Wash rack shall be designed and constructed/manufactured for anticipated traffic loads.
- Provide a drainage ditch that will convey the runoff from the wash area to a sediment trapping device. The drainage ditch shall be of sufficient grade, width, and depth to carry the wash runoff.

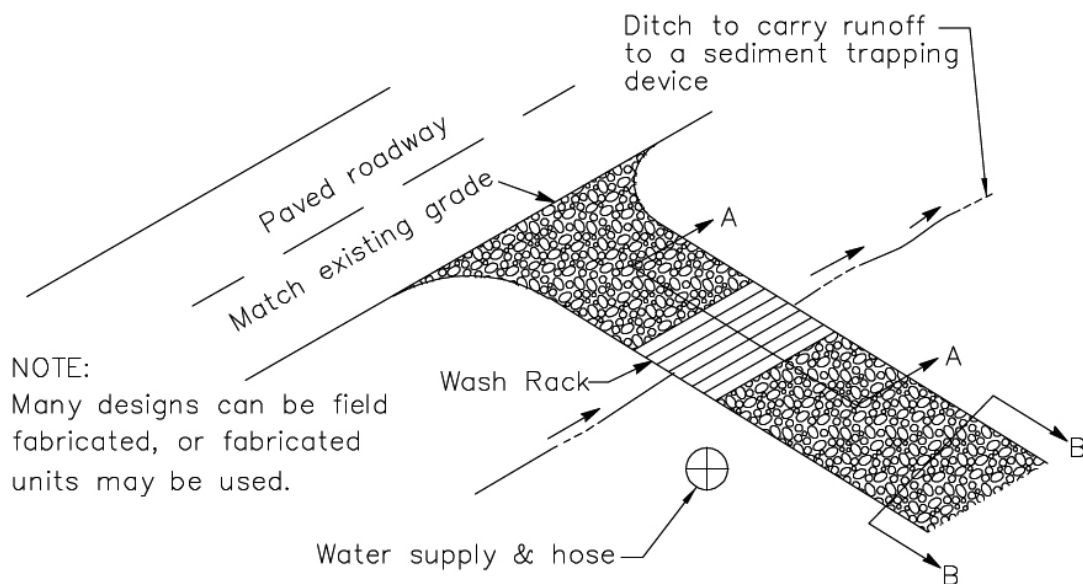
- Require all employees, subcontractors, and others that leave the site with mud-caked tires and/or undercarriages to use the wash facility.
 - Implement BMP SC-7, “Street Sweeping and Vacuuming” as needed.
 - Use of constructed or prefabricated steel plate with ribs for entrance/exit access is allowed with written approval of RE.
- Maintenance and Inspection
- Remove accumulated sediment in wash rack and/or sediment trap to maintain system performance.
 - Inspect routinely for damage and repair as needed.



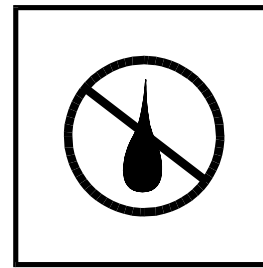
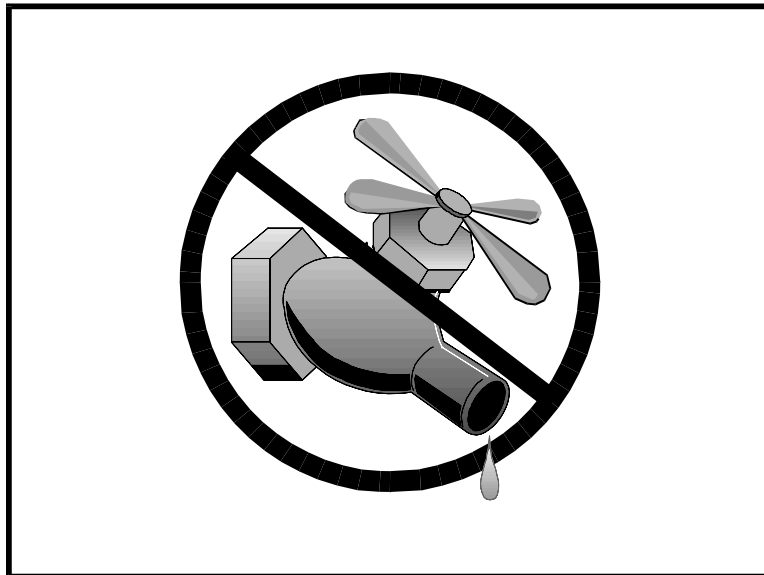
SECTION A-A
NOT TO SCALE



SECTION B-B
NTS



TYPICAL TIRE WASH
NOT TO SCALE



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose Water conservation practices are activities that use water during the construction of a project in a manner that avoids causing erosion and/or the transport of pollutants off site.

Appropriate Applications

- Water conservation practices are implemented on all construction sites and wherever water is used.
- Applies to all construction projects.

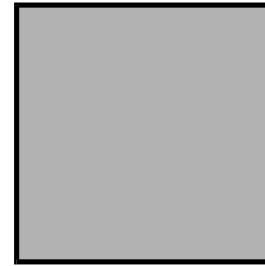
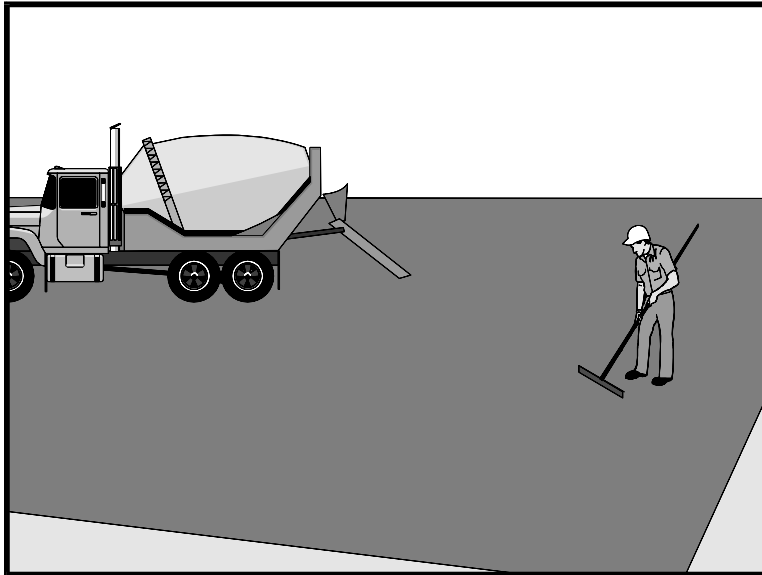
Limitations

- None identified.

Standards and Specifications

- Keep water equipment in good working condition.
- Stabilize water truck filling area.
- Repair water leaks promptly.
- Vehicles and equipment washing on the construction site is discouraged.
- Avoid using water to clean construction areas. Do not use water to clean pavement. Paved areas shall be swept and vacuumed.
- Direct construction water runoff to areas where it can infiltrate into the ground.
- Apply water for dust control in accordance with the Standard Specifications Section 10, and WE-1, "Wind Erosion Control."
- Report discharges to RE immediately.

- Maintenance and Inspection
- Inspect water equipment at least weekly.
 - Repair water equipment as needed.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose

Procedures and practices for conducting paving, saw cutting, and grinding operations to minimize the transport of pollutants to the storm drain system or receiving water body.

Appropriate Applications

These procedures are implemented where paving, surfacing, resurfacing, grinding or sawcutting, may pollute storm water runoff or discharge to the storm drain system or watercourses.

Limitations

- Finer solids are not effectively removed by filtration systems.
- Paving opportunities may be limited during wet weather.

Standards and Specifications

- Substances used to coat asphalt transport trucks, asphalt trucks, and asphalt spreading equipment shall not contain soap and shall be non-foaming and non-toxic.
- Place plastic materials under asphaltic concrete (AC) paving equipment while not in use, to catch and/or contain drips and leaks. See also BMP WM-4, "Spill Prevention and Control."
- When paving involves AC, the following steps shall be implemented to prevent the discharge of uncompacted or loose AC, tack coats, equipment cleaners, or other paving materials:
 - Minimize sand and gravel from new asphalt from getting into storm drains, streets, and creeks by sweeping.
 - Old or spilled asphalt must be recycled or disposed as approved by the Resident Engineer (RE).

- AC grindings, pieces, or chunks used in embankments or shoulder backing must not be allowed to enter any storm drain or watercourses. Install silt fence until structure is stabilized or permanent controls are in place.
- Collect and remove all broken asphalt and recycle when practical; otherwise, dispose in accordance with Standard Specification 7-1.13.
- Any AC chunks and pieces used in embankments must be placed above the water table and covered by at least 0.3 m (1 ft) of material.
- During chip seal application and sweeping operations, petroleum or petroleum covered aggregate must not be allowed to enter any storm drain or water courses. Use silt fence until installation is complete.
- Use only non-toxic substances to coat asphalt transport trucks and asphalt spreading equipment.
- Drainage inlet structures and manholes shall be covered with filter fabric during application of seal coat, tack coat, slurry seal, and/or fog seal.
- Seal coat, tack coat, slurry seal, or fog seal shall not be applied if rainfall is predicted to occur during the application or curing period.
- Paving equipment parked onsite shall be parked over plastic to prevent soil contamination.
- Clean asphalt-coated equipment off-site whenever possible. When cleaning dry, hardened asphalt from equipment, manage hardened asphalt debris as described in BMP WM-5, “Solid Waste Management.” Any cleaning onsite shall follow BMP NS-8, “Vehicle and Equipment Cleaning.”
- Do not wash sweepings from exposed aggregate concrete into a storm drain system. Collect and return to aggregate base stockpile, or dispose of properly.
- Allow aggregate rinse to settle. Then, either allow rinse water to dry in a temporary pit as described in BMP WM-8, “Concrete Waste Management,” or dispose in accordance with Standard Specifications Section 7-1.13.
- Do not allow saw-cut Portland Concrete Cement (PCC) slurry to enter storm drains or watercourses.

Pavement Grinding or Removal

- Residue from PCC grinding operations shall be picked up by means of a vacuum attachment to the grinding machine, shall not be allowed to flow across the pavement, and shall not be left on the surface of the pavement. See also BMP WM-8, “Concrete Waste Management;” and BMP WM-10, “Liquid Waste Management,” and Standard Specifications Section 42-2

“Grindings.”

- Collect pavement digout material by mechanical or manual methods. This material may be recycled if approved by the RE for use as shoulder backing or base material at locations approved by the RE.
- If digout material cannot be recycled, transport the material back to a maintenance facility or approved storage site.
- Digout activities shall not be conducted in the rain.
- When approved by the RE, stockpile material removed from roadways away from drain inlets, drainage ditches, and watercourses and stored consistent with BMP WM-3, “Stockpile Management.”
- Disposal or use of AC grindings shall be approved by the RE. See also BMP WM-8, “Concrete Waste Management.”

Thermoplastic Striping

- All thermoplastic striper and pre-heater equipment shutoff valves shall be inspected to ensure that they are working properly to prevent leaking thermoplastic from entering drain inlets, the storm water drainage system, or watercourses.
- The pre-heater shall be filled carefully to prevent splashing or spilling of hot thermoplastic. Leave six inches of space at the top of the pre-heater container when filling thermoplastic to allow room for material to move when the vehicle is deadheaded.
- Contractor shall not pre-heat, transfer, or load thermoplastic near drain inlets or watercourses.
- Clean truck beds daily of loose debris and melted thermoplastic. When possible recycle thermoplastic material. Thermoplastic waste shall be disposed of in accordance with Standard Specification 7-1.13.

Raised/Recessed Pavement Marker Application and Removal

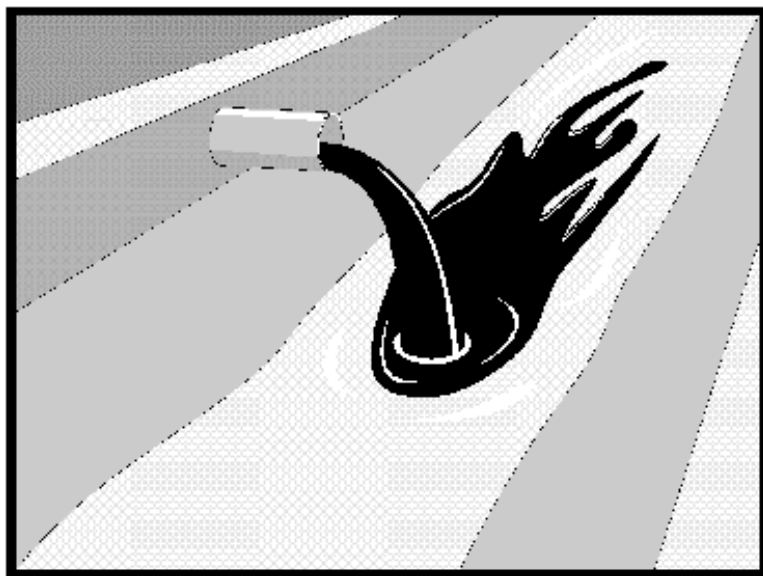
- Do not transfer or load bituminous material near drain inlets, the storm water drainage system or watercourses.
- Melting tanks shall be loaded with care and not filled to beyond six inches from the top to leave room for splashing when vehicle is deadheaded.
- When servicing or filling melting tanks, ensure all pressure is released before removing lids to avoid spills.
- On large scale projects, use mechanical or manual methods to collect excess

bituminous material from the roadway after removal of markers.

- Waste shall be disposed of in accordance with Standard Specification 7-1.13.
- Maintenance and Inspection
- Inspect and maintain machinery regularly to minimize leaks and drips.
 - Ensure that employees and subcontractors are implementing appropriate measures during paving operations.

Illicit Connection/Illegal Discharge Detection and Reporting

NS-6



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

- | | |
|---------------------------------|--|
| Definition and Purpose | Procedures and practices designed for construction contractors to recognize illicit connections or illegally dumped or discharged materials on a construction site and report incidents to the Resident Engineer (RE). |
| Appropriate Applications | <ul style="list-style-type: none">■ Illicit connection/illegal discharge detection and reporting is applicable anytime an illicit connection or discharge is discovered or illegally dumped material is found on the construction site.■ This best management practice (BMP) applies to all construction projects. |
| Limitations | <ul style="list-style-type: none">■ Unlabeled or non-identifiable material shall be assumed to be hazardous.■ Illicit connections and illegal discharges or dumping, for the purposes of this BMP, refer to discharges and dumping caused by parties other than the contractor.■ Procedures and practices presented in this BMP are general. Contractor shall use extreme caution, immediately notify the RE when illicit connections or illegal dumping or discharges are discovered, and take no further action unless directed by the RE.■ If pre-existing hazardous materials or wastes are known to exist onsite, the contractor's responsibility will be detailed in separate special provisions. |

Illicit Connection/Illegal Discharge Detection and Reporting

NS-6

Standards and Specifications *Planning*

- Inspect site before beginning the job for evidence of illicit connections or illegal dumping or discharges.
- Inspect site regularly during project execution for evidence of illicit connections or illegal dumping or discharges.
- Observe site perimeter for evidence or potential of illicitly discharged or illegally dumped material, which may enter the job site.

Identification of illicit connections and illegal dumping or discharges.

- Solids - Look for debris, or rubbish piles. Solid waste dumping often occurs on roadways with light traffic loads or in areas not easily visible from the traveled way.
- Liquids – signs of illegal liquid dumping or discharge can include:
 - Visible signs of staining or unusual colors to the pavement or surrounding adjacent soils.
 - Pungent odors coming from the drainage systems.
 - Discoloration or oily substances in the water or stains and residues detained within ditches, channels or drain boxes.
 - Abnormal water flow during the dry weather season.
- Urban Areas - Evidence of illicit connections or illegal discharges is typically detected at storm drain outfall locations or at manholes. Signs of an illicit connection or illegal discharge can include:
 - Abnormal water flow during the dry weather season.
 - Unusual flows in subdrain systems used for dewatering.
 - Pungent odors coming from the drainage systems.
 - Discoloration or oily substances in the water or stains and residues detained within ditches, channels or drain boxes.
 - Excessive sediment deposits, particularly adjacent to or near active off-site construction projects.



Illicit Connection/Illegal Discharge Detection and Reporting

NS-6

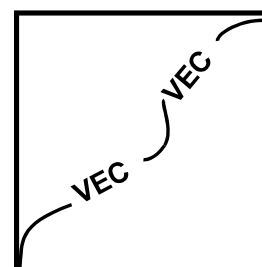
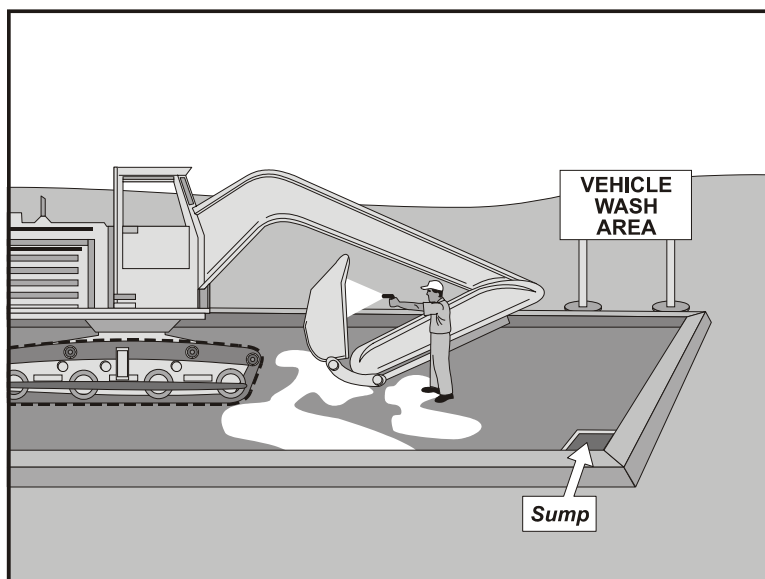
- Rural Areas - Illicit connections or illegal discharges involving irrigation drainage ditches are detected by visual inspections. Signs of an illicit discharge can include:
 - Abnormal water flow during the dry weather season.
 - Non-standard junction structures.
 - Broken concrete or other disturbances at or near junction structures.

Reporting

- Notify the RE of any illicit connections and illegal dumping or discharge incidents at the time of discovery. The RE will notify the District Construction Storm Water Coordinator and the Construction Hazmat Coordinator for reporting.

Cleanup and Removal The contractor is not responsible for investigation and clean up of illicit or illegal dumping or discharges not generated by the contractor. Caltrans may direct contractor to clean up non-hazardous dumped or discharged material on the construction site.





Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose Vehicle and equipment cleaning procedures and practices are used to minimize or eliminate the discharge of pollutants from vehicle and equipment cleaning operations to storm drain system or to watercourses.

Appropriate Applications These procedures are applied on all construction sites where vehicle and equipment cleaning is performed.

Limitations ■ None.

- Standards and Specifications**
- On-site vehicle and equipment washing is discouraged.
 - Cleaning of vehicles and equipment with soap, solvents or steam shall not occur on the project site unless the Resident Engineer (RE) has been notified in advance and the resulting wastes are fully contained and disposed of outside the highway right-of-way in conformance with the provisions in the Standard Specifications Section 7-1.13. Resulting wastes and by-products shall not be discharged or buried within the highway right-of-way, and must be captured and recycled or disposed according to the requirements of WM-10, "Liquid Waste Management" or WM-6, "Hazardous Waste Management," depending on the waste characteristics. Minimize use of solvents. The use of diesel for vehicle and equipment cleaning is prohibited.
 - Vehicle and equipment wash water shall be contained for percolation or evaporative drying away from storm drain inlets or watercourses and shall not be discharged within the highway right-of-way. Apply sediment control BMPs if applicable.
 - All vehicles/equipment that regularly enter and leave the construction site must be cleaned off-site.
 - When vehicle/equipment washing/cleaning must occur onsite, and the

operation cannot be located within a structure or building equipped with appropriate disposal facilities, the outside cleaning area shall have the following characteristics, and shall be arranged with the construction storm water coordinator:

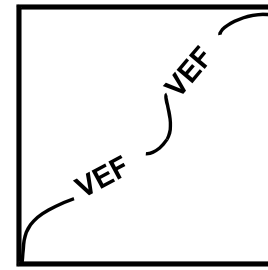
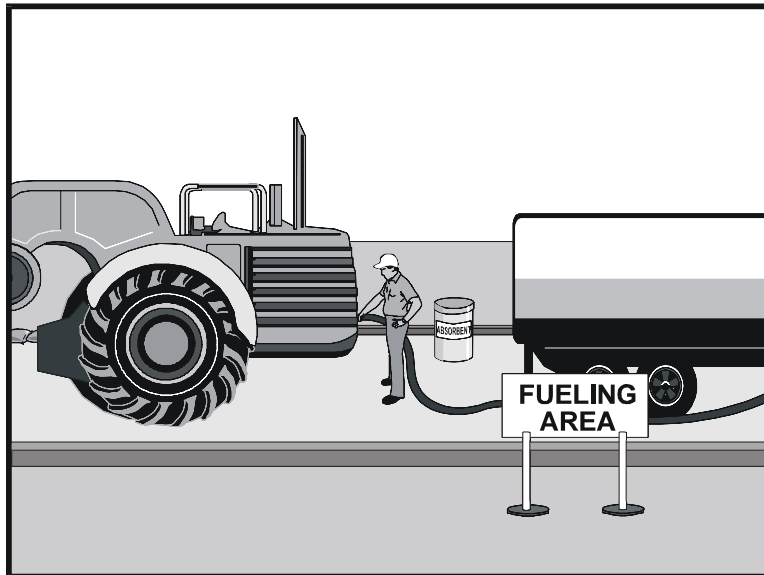
- Located away from storm drain inlets, drainage facilities, or watercourses.
- Paved with concrete or asphalt and bermed to contain wash waters and to prevent run-on and runoff.
- Configured with a sump to allow collection and disposal of wash water.
- Wash waters shall not be discharged to storm drains or watercourses.
- Used only when necessary.

■ When cleaning vehicles/equipment with water:

- Use as little water as possible. High pressure sprayers may use less water than a hose, and shall be considered.
- Use positive shutoff valve to minimize water usage.
- Facility wash racks shall discharge to a sanitary sewer, recycle system or other approved discharge system and shall not discharge to the storm drainage system or watercourses.

Maintenance and Inspection

- The control measure shall be inspected at a minimum of once a week.
- Monitor employees and subcontractors throughout the duration of the construction project to ensure appropriate practices are being implemented.
- Inspect sump regularly and remove liquids and sediment as needed or as directed by the RE.



Standard Symbol

BMP Objectives

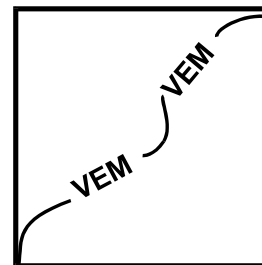
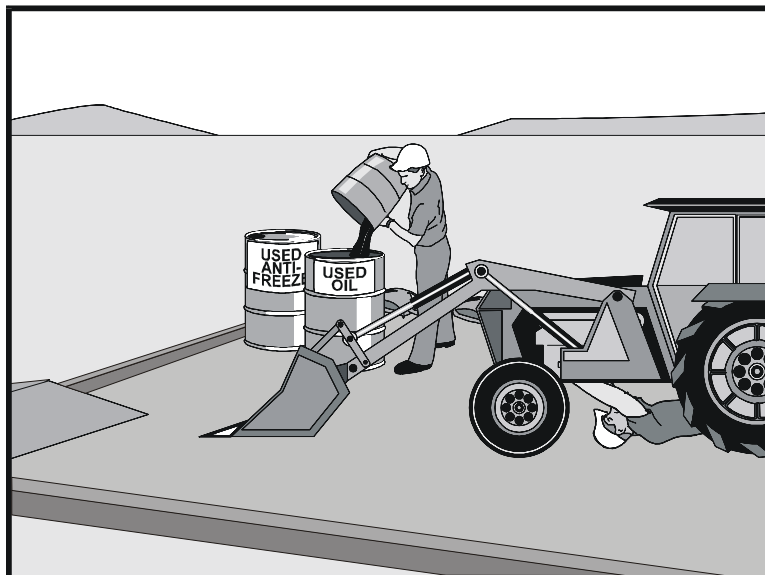
- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose	Vehicle and equipment fueling procedures and practices are designed to minimize or eliminate the discharge of fuel spills and leaks into storm drain systems or to watercourses.
Appropriate Applications	These procedures are applied on all construction sites where vehicle and equipment fueling takes place.
Limitations	■ Onsite vehicle and equipment fueling shall only be used where it's impractical to send vehicles and equipment off-site for fueling.
Standards and Specifications	■ When fueling must occur onsite, the contractor shall select and designate an area to be used, subject to approval of the Resident Engineer (RE). ■ Absorbent spill clean-up materials and spill kits shall be available in fueling areas and on fueling trucks and shall be disposed of properly after use. ■ Drip pans or absorbent pads shall be used during vehicle and equipment fueling, unless the fueling is performed over an impermeable surface in a dedicated fueling area. ■ Dedicated fueling areas shall be protected from storm water run-on and runoff, and shall be located at least 15 m (50 ft) from downstream drainage facilities and watercourses. Fueling must be performed on level-grade areas. ■ Nozzles used in vehicle and equipment fueling shall be equipped with an automatic shut-off to control drips. Fueling operations shall not be left unattended. ■ Protect fueling areas with berms and/or dikes to prevent run-on, runoff, and to contain spills.

- Use vapor recovery nozzles to help control drips as well as air pollution where required by Air Quality Management Districts (AQMD). Ensure the nozzle is secured upright when not in use.
- Fuel tanks shall not be "topped-off."
- Vehicles and equipment shall be inspected on each day of use for leaks. Leaks shall be repaired immediately or problem vehicles or equipment shall be removed from the project site.
- Absorbent spill clean-up materials shall be available in fueling and maintenance areas and used on small spills instead of hosing down or burying techniques. The spent absorbent material shall be removed promptly and disposed of properly.
- Federal, state, and local requirements shall be observed for any stationary above ground storage tanks. Refer to WM-1, "Material Delivery and Storage."
- Mobile fueling of construction equipment throughout the site shall be minimized. Whenever practical, equipment shall be transported to the designated fueling area.

Maintenance and Inspection

- Fueling areas and storage tanks shall be inspected regularly.
- Keep an ample supply of spill cleanup material on the site.
- Immediately cleanup spills and properly dispose of contaminated soil and cleanup materials.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose Procedures and practices to minimize or eliminate the discharge of pollutants to the storm drain systems or to watercourses from vehicle and equipment maintenance procedures.

Appropriate Applications These procedures are applied on all construction projects where an onsite yard area is necessary for storage and maintenance of heavy equipment and vehicles.

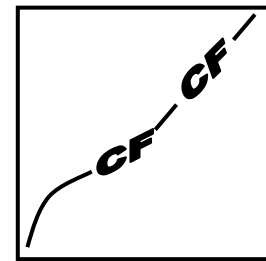
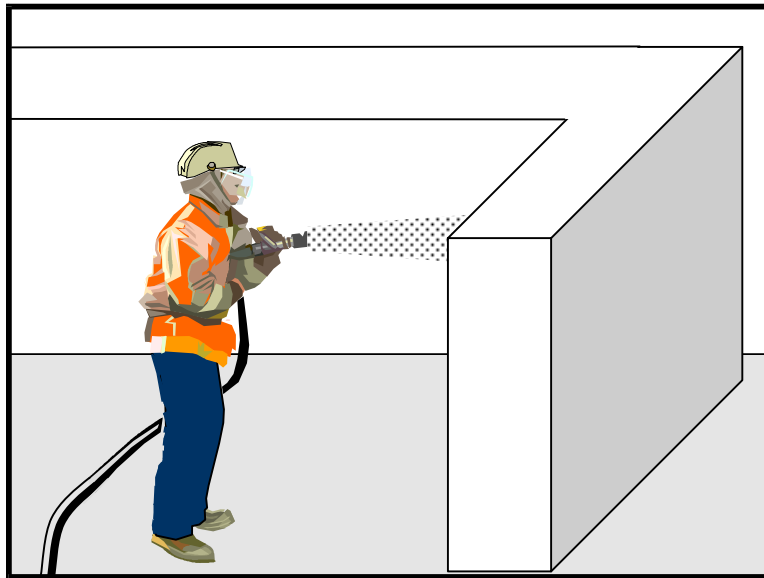
Limitations ■ None identified.

- Standards and Specifications**
- Drip pans or absorbent pads shall be used during vehicle and equipment maintenance work that involves fluids, unless the maintenance work is performed over an impermeable surface in a dedicated maintenance area.
 - All maintenance areas are required to have spill kits and/or use other spill protection devices.
 - Dedicated maintenance areas shall be protected from storm water run-on and runoff, and shall be located at least 15 m (50 ft) from downstream drainage facilities and watercourses.
 - Drip Pans or plastic sheeting shall be placed under all vehicles and equipment placed on docks, barges, or other structures over water bodies when the vehicle or equipment is planned to be idle for more than one hour.
 - Absorbent spill clean-up materials shall be available in maintenance areas and shall be disposed of properly after use. Substances used to coat asphalt transport trucks and asphalt-spreading equipment shall be non-toxic.
 - Use off-site maintenance facilities whenever practical.

- For long-term projects, consider constructing roofs or using portable tents over maintenance areas.
- Properly dispose of used oils, fluids, lubricants, and spill cleanup materials.
- Do not dump fuels and lubricants onto the ground.
- Do not place used oil in a dumpster or pour into a storm drain or watercourse.
- Properly dispose or recycle used batteries.
- Do not bury used tires.
- Repair of fluid and oil leaks immediately.
- Provide spill containment dikes or secondary containment around stored oil and chemical drums.

Maintenance and Inspection

- Maintain waste fluid containers in leak proof condition.
- Vehicle and equipment maintenance areas shall be inspected regularly.
- Vehicles and equipment shall be inspected on each day of use. Leaks shall be repaired immediately or the problem vehicle(s) or equipment shall be removed from the project site.
- Inspect equipment for damaged hoses and leaky gaskets routinely. Repair or replace as needed.



Standard Symbol

BMP Objectives

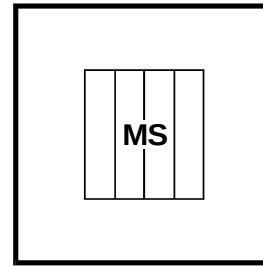
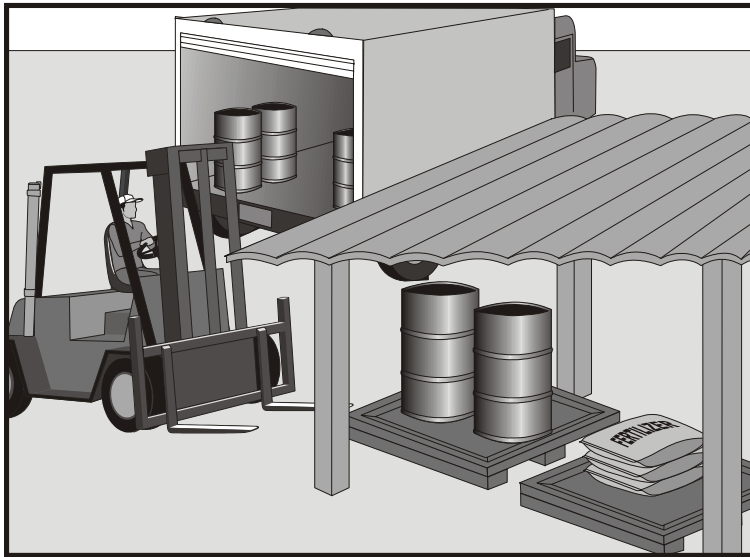
- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose	Concrete finishing methods are used for bridge deck rehabilitation, paint removal, curing compound removal, and final surface finish appearances. Methods include sand blasting, shot blasting, grinding, or high pressure water blasting. Proper procedures minimize the impact that concrete finishing methods may have on runoff.
Appropriate Applications	These procedures apply to all construction locations where concrete finishing operations are performed.
Limitations	■ Specific permit requirements may be included in the contract documents for certain concrete finishing operations.
Standards and Specifications	■ Follow containment requirements stated in the project special provisions, if any. ■ Collect and properly dispose of water and solid waste from high-pressure water blasting operations. ■ Collect water from blasting operations and transport or dispose of water in a non-erodible manner. Refer to BMPs SS-9, "Earth Dikes/Drainage Swales & Lined Ditches," SS-10, "Outlet Protection/Velocity Dissipation Devices," and SS-11, "Slope Drains." ■ Direct water from blasting operations away from inlets and watercourses to collection areas for removal (e.g., dewatering) as approved in advance by the RE and in accordance with applicable permits. ■ Protect inlets during sandblasting operations. Refer to BMP SC-10, "Storm Drain Inlet Protection."

- Refer to BMP WM-8, “Concrete Waste Management.”
- Minimize the drift of dust and blast material as much as possible by keeping the blasting nozzle close to the surface.
- When blast residue contains a potentially hazardous waste, refer to BMP WM-6, “Hazardous Waste Management.”

Maintenance and Inspection

- Follow inspection procedure as required in the project special provisions.
- At a minimum, inspect containment structures, if any, for damage or voids prior to use each day and prior to the onset of rain.
- At the end of each work shift, remove and contain the liquid and solid wastes from containment structures, if any, and from the general work area.
- Discharges to waterways shall be reported to RE immediately upon discovery. A written discharge notification must follow within 7 days or as required by special provisions.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose

Procedures and practices for the proper handling and storage of materials in a manner that minimizes or eliminates the discharge of these materials to the storm drain system or to watercourses.

Appropriate Applications

These procedures are implemented at all construction sites with delivery and storage of the following:

- Hazardous chemicals such as:
 - Acids,
 - lime,
 - glues,
 - adhesives,
 - paints,
 - solvents, and
 - curing compounds.
- Soil stabilizers and binders.
- Fertilizers.
- Detergents.
- Plaster.
- Petroleum products such as fuel, oil, and grease.
- Asphalt and concrete components.
- Pesticides and herbicides.

- Other materials that may be detrimental if released to the environment.
- Space limitation may preclude indoor storage.
- Storage sheds must meet building & fire code requirements.

Standards and Specifications

General

- Train employees and subcontractors on the proper material delivery and storage practices.
- Temporary storage area shall be located away from vehicular traffic.
- Material Safety Data Sheets (MSDS) shall be supplied to the Resident Engineer (RE) for all materials stored.

Material Storage Areas and Practices

- Liquids, petroleum products, and substances listed in 40 CFR Parts 110, 117, or 302 shall be stored in approved containers and drums and shall be placed in temporary containment facilities for storage.
- Throughout the rainy season, each temporary containment facility shall have a permanent cover and side wind protection or be covered during non-working days and prior to and during rain events.
- A temporary containment facility shall provide for a spill containment volume able to contain precipitation from a 24-hour, 25-year storm event, plus the greater of 10% of the aggregate volume of all containers or 100% of the capacity of the largest container within its boundary, whichever is greater.
- A temporary containment facility shall be impervious to the materials stored therein for a minimum contact time of 72 hours.
- A temporary containment facility shall be maintained free of accumulated rainwater and spills. In the event of spills or leaks, accumulated rainwater and spills shall be collected and placed into drums. These liquids shall be handled as a hazardous waste unless testing determines them to be non-hazardous. All collected liquids or non-hazardous liquids shall be sent to an approved disposal site.
- Sufficient separation shall be provided between stored containers to allow for spill cleanup and emergency response access.
- Incompatible materials, such as chlorine and ammonia, shall not be stored in the same temporary containment facility.
- Materials shall be stored in their original containers and the original product labels shall be maintained in place in a legible condition. Damaged or otherwise illegible labels shall be replaced immediately.

-
- Bagged and boxed materials shall be stored on pallets and shall not be allowed to accumulate on the ground. To provide protection from wind and rain, throughout the rainy season, bagged and boxed materials shall be covered during non-working days and prior to rain events.
- Stockpiles shall be protected in accordance with BMP WM-3, “Stockpile Management.”
- Minimize the material inventory stored on-site (e.g., only a few days supply).
- Have proper storage instructions posted at all times in an open and conspicuous location.
- Do not store hazardous chemicals, drums, or bagged materials directly on the ground. Place these items on a pallet and when possible, under cover in secondary containment.
- Keep hazardous chemicals well labeled and in their original containers.
- Keep ample supply of appropriate spill clean up material near storage areas.
- Also see BMP WM-6, “Hazardous Waste Management”, for storing of hazardous materials.

Material Delivery Practices

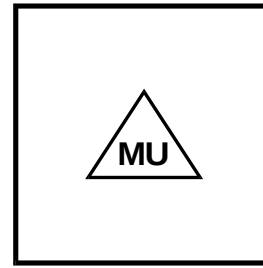
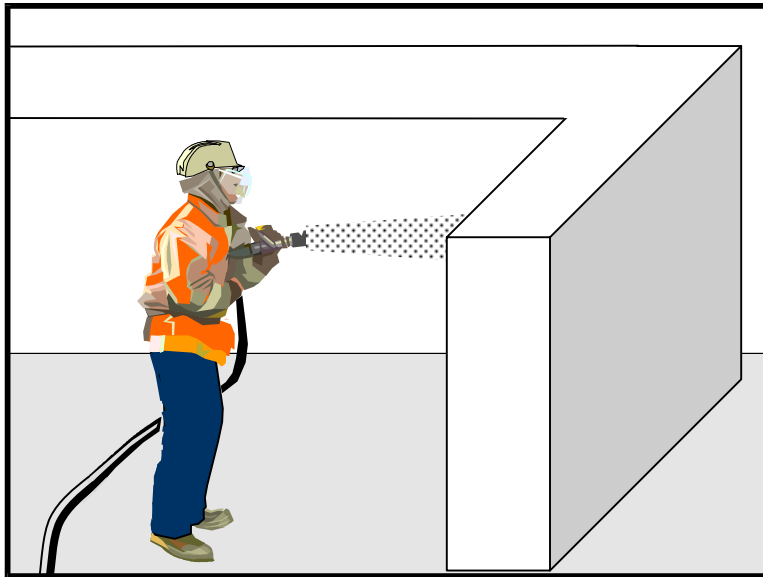
- Keep an accurate, up-to-date inventory of material delivered and stored on-site.
- Employees trained in emergency spill clean-up procedures shall be present when dangerous materials or liquid chemicals are unloaded.

Spill Clean-up

- Contain and clean up any spill immediately.
- If significant residual materials remain on the ground after construction is complete, properly remove and dispose any hazardous materials or contaminated soil.
- See BMP WM-4, “Spill Prevention and Control”, for spills of chemicals and/or hazardous materials.

Maintenance and Inspection

- Storage areas shall be kept clean, well organized, and equipped with ample clean-up supplies as appropriate for the materials being stored.
- Perimeter controls, containment structures, covers, and liners shall be repaired or replaced as needed to maintain proper function.
- Inspect storage areas before and after rainfall events, and at least weekly during other times. Collect and place into drums any spills or accumulated rainwater.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose

These are procedures and practices for use of construction material in a manner that minimizes or eliminates the discharge of these materials to the storm drain system or to watercourses.

Appropriate Applications

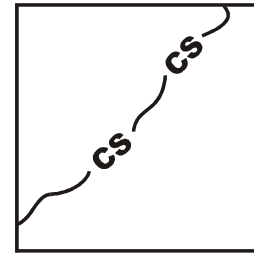
This BMP applies to all construction projects. These procedures apply when the following materials are used or prepared on site:

- Hazardous chemicals such as:

Acids,
lime,
glues,
adhesives,
paints,
solvents, and
curing compounds.

- Soil stabilizers and binders.
- Fertilizers.
- Detergents.
- Plaster.
- Petroleum products such as fuel, oil, and grease.
- Asphalt and concrete components.
- Pesticides and herbicides.
- Other materials that may be detrimental if released to the environment.

- Limitations** ■ Safer alternative building and construction products may not be available or suitable in every instance.
- Standards and Specifications** ■ Material Safety Data Sheets (MSDS) shall be supplied to the Resident Engineer (RE) for all materials.
 - Latex paint and paint cans, used brushes, rags, absorbent materials, and drop cloths, when thoroughly dry and are no longer hazardous, may be disposed of with other construction debris.
 - Do not remove the original product label, it contains important safety and disposal information. Use the entire product before disposing of the container.
 - Mix paint indoors, or in a containment area. Never clean paintbrushes or rinse paint containers into a street, gutter, storm drain or watercourse. Dispose of any paint thinners, residue and sludge(s), that cannot be recycled, as hazardous waste.
 - For water-based paint, clean brushes to the extent practical, and rinse to a drain leading to a sanitary sewer where permitted, or into a concrete washout pit. For oil-based paints, clean brushes to the extent practical and filter and reuse thinners and solvents.
 - Use recycled and less hazardous products when practical. Recycle residual paints, solvents, non-treated lumber, and other materials.
 - Use materials only where and when needed to complete the construction activity. Use safer alternative materials as much as possible. Reduce or eliminate use of hazardous materials on-site when practical.
 - Do not over-apply fertilizers and pesticides. Prepare only the amount needed. Strictly follow the recommended usage instructions. Apply surface dressings in smaller applications, as opposed to large applications, to allow time for it to work in and to avoid excess materials being carried off-site by runoff.
 - Application of herbicides and pesticides shall be performed by a licensed applicator.
 - Contractors are required to complete the “Report of Chemical Spray Forms” when spraying herbicides and pesticides.
 - Keep an ample supply of spill clean up material near use areas. Train employees in spill clean up procedures.
 - Avoid exposing applied materials to rainfall and runoff unless sufficient time has been allowed for them to dry.
- Maintenance and Inspections** ■ Spot check employees and subcontractors monthly throughout the job to ensure appropriate practices are being employed.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose

Stockpile management procedures and practices are designed to reduce or eliminate air and storm water pollution from stockpiles of soil, and paving materials such as portland cement concrete (PCC) rubble, asphalt concrete (AC), asphalt concrete rubble, aggregate base, aggregate subbase or pre-mixed aggregate, asphalt binder (so called “cold mix” asphalt) and pressure treated wood.

Appropriate Applications

Implemented in all projects that stockpile soil and other materials.

Limitations

- None identified

Standards and Specifications

- Protection of stockpiles is a year-round requirement.
- Locate stockpiles a minimum of 15 m (50 ft) away from concentrated flows of storm water, drainage courses, and inlets.
- Implement wind erosion control practices as appropriate on all stockpiled material. For specific information see BMP WE-1, “Wind Erosion Control.”
- Stockpiles of contaminated soil shall be managed in accordance with BMP WM-7, “Contaminated Soil Management.”
- Bagged materials should be placed on pallets and under cover.

Protection of Non-Active Stockpiles

Non-active stockpiles of the identified materials shall be protected further as follows:

- ***Soil stockpiles:***

- During the rainy seasons, soil stockpiles shall be covered or protected with soil stabilization measures and a temporary perimeter sediment barrier at all times.
- During the non-rainy season, soil stockpiles shall be covered and protected with a temporary perimeter sediment barrier prior to the onset of precipitation.

- ***Stockpiles of portland cement concrete rubble, asphalt concrete, asphalt concrete rubble, aggregate base, or aggregate subbase:***

- During the rainy season, the stockpiles shall be covered or protected with a temporary perimeter sediment barrier at all times.
- During the non-rainy season, the stockpiles shall be covered or protected with a temporary perimeter sediment barrier prior to the onset of precipitation.

- ***Stockpiles of “cold mix”:***

- During the rainy season, cold mix stockpiles shall be placed on and covered with plastic or comparable material at all times.
- During the non-rainy season, cold mix stockpiles shall be placed on and covered with plastic or comparable material prior to the onset of precipitation.

- ***Stockpiles/Storage of pressure treated wood with copper, chromium, and arsenic or ammonical, copper, zinc, and arsenate:***

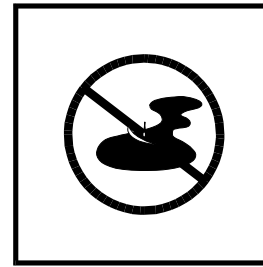
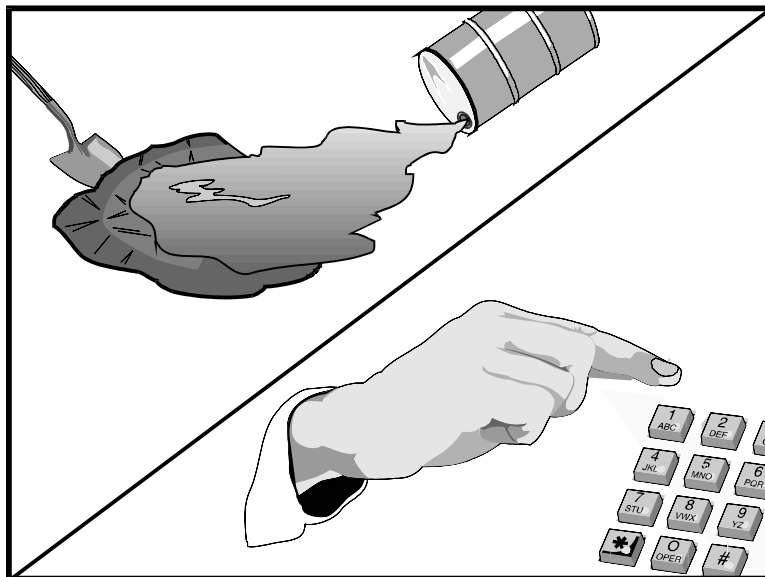
- During the rainy season, treated wood shall be covered with plastic or comparable material at all times.
- During the non-rainy season, treated wood shall be covered with plastic or comparable material and shall be placed on pallets prior to the onset of precipitation.

Protection of Active Stockpiles

Active stockpiles of the identified materials shall be protected further as follows:

- All stockpiles shall be covered, stabilized, or protected with a temporary linear sediment barrier prior to the onset of precipitation.
- Stockpiles of “cold mix” shall be placed on and covered with plastic or comparable material prior to the onset of precipitation.

- Maintenance and Inspections
- Repair and/or replace perimeter controls and covers as needed, or as directed by the RE, to keep them functioning properly. Sediment shall be removed when sediment accumulation reaches one-third ($1/3$) of the barrier height.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose

These procedures and practices are implemented to prevent and control spills in a manner that minimizes or prevents the discharge of spilled material to the drainage system or watercourses.

Appropriate Application

This best management practice (BMP) applies to all construction projects. Spill control procedures are implemented anytime chemicals and/or hazardous substances are stored. Substances may include, but are not limited to:

- Soil stabilizers/binders.
- Dust Palliatives.
- Herbicides.
- Growth inhibitors.
- Fertilizers.
- Deicing/anti-icing chemicals.
- Fuels.
- Lubricants.
- Other petroleum distillates.

To the extent that the work can be accomplished safely, spills of oil, petroleum products, substances listed under 40 CFR parts 110, 117, and 302, and sanitary and septic wastes shall be contained and cleaned up immediately.

Limitations ■ This BMP only applies to spills caused by the contractor.

- Procedures and practices presented in this BMP are general. Contractor shall identify appropriate practices for the specific materials used or stored on-site.

Standards and Specifications

- To the extent that it doesn't compromise clean up activities, spills shall be covered and protected from storm water run-on during rainfall.
- Spills shall not be buried or washed with water.
- Used clean up materials, contaminated materials, and recovered spill material that is no longer suitable for the intended purpose shall be stored and disposed of in conformance with the special provisions.
- Water used for cleaning and decontamination shall not be allowed to enter storm drains or watercourses and shall be collected and disposed of in accordance with BMP WM-10, "Liquid Waste Management."
- Water overflow or minor water spillage shall be contained and shall not be allowed to discharge into drainage facilities or watercourses.
- Proper storage, clean-up and spill reporting instruction for hazardous materials stored or used on the project site shall be posted at all times in an open, conspicuous and accessible location.
- Waste storage areas shall be kept clean, well organized and equipped with ample clean-up supplies as appropriate for the materials being stored. Perimeter controls, containment structures, covers and liners shall be repaired or replaced as needed to maintain proper function.

Education

- Educate employees and subcontractors on what a "significant spill" is for each material they use, and what is the appropriate response for "significant" and "insignificant" spills.
- Educate employees and subcontractors on potential dangers to humans and the environment from spills and leaks.
- Hold regular meetings to discuss and reinforce appropriate disposal procedures (incorporate into regular safety meetings).
- Establish a continuing education program to indoctrinate new employees.
- The Contractor's Water Pollution Control Manager (WPCM) shall oversee and enforce proper spill prevention and control measures.

Cleanup and Storage Procedures

■ Minor Spills

- Minor spills typically involve small quantities of oil, gasoline, paint, etc., which can be controlled by the first responder at the discovery of the spill.
- Use absorbent materials on small spills rather than hosing down or burying the spill.
- Remove the absorbent materials promptly and dispose of properly.
- The practice commonly followed for a minor spill is:
 - Contain the spread of the spill.
 - Recover spilled materials.
 - Clean the contaminated area and/or properly dispose of contaminated materials.

■ Semi-Significant Spills

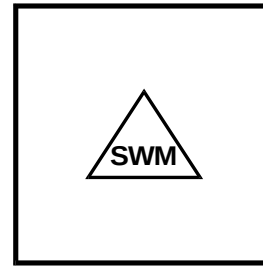
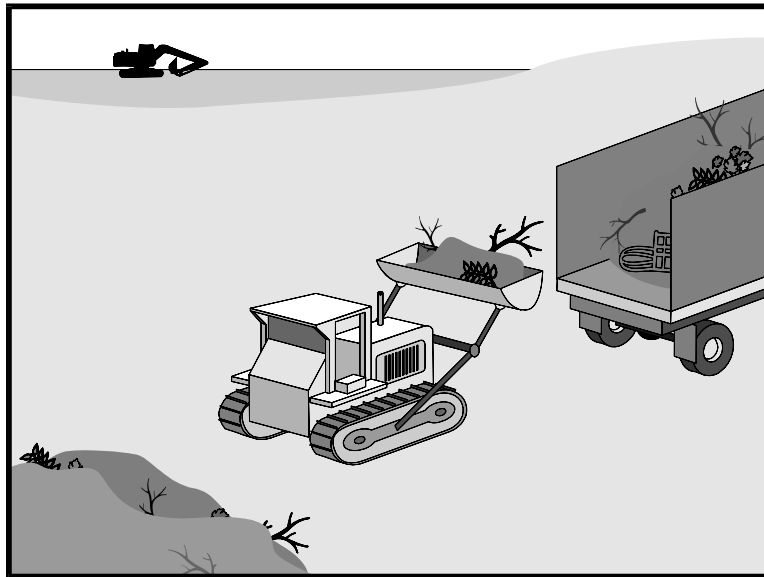
- Semi-significant spills still can be controlled by the first responder along with the aid of other personnel such as laborers and the foreman, etc. This response may require the cessation of all other activities.
- Clean up spills immediately:
 - Notify the project foreman immediately. The foreman shall notify the Resident Engineer (RE).
 - Contain spread of the spill.
 - If the spill occurs on paved or impermeable surfaces, clean up using "dry" methods (absorbent materials, cat litter and/or rags). Contain the spill by encircling with absorbent materials and do not let the spill spread widely.
 - If the spill occurs in dirt areas, immediately contain the spill by constructing an earthen dike. Dig up and properly dispose of contaminated soil.
 - If the spill occurs during rain, cover spill with tarps or other material to prevent contaminating runoff.

- Significant/Hazardous Spills

- For significant or hazardous spills that cannot be controlled by personnel in the immediate vicinity, the following steps shall be taken:
 - Notify the RE immediately and follow up with a written report.
 - Notify the local emergency response by dialing 911. In addition to 911, the contractor will notify the proper county officials. It is the contractor's responsibility to have all emergency phone numbers at the construction site.
 - Notify the Governor's Office of Emergency Services Warning Center, (805) 852-7550.
 - For spills of federal reportable quantities, in conformance with the requirements in 40 CFR parts 110,119, and 302, the contractor shall notify the National Response Center at (800) 424-8802.
 - Notification shall first be made by telephone and followed up with a written report.
 - The services of a spills contractor or a Haz-Mat team shall be obtained immediately. Construction personnel shall not attempt to clean up the spill until the appropriate and qualified staff have arrived at the job site.
 - Other agencies which may need to be consulted include, but are not limited to, the Fire Department, the Public Works Department, the Coast Guard, the Highway Patrol, the City/County Police Department, Department of Toxic Substances, California Division of Oil and Gas, Cal/OSHA, RWQCB, etc.

**Maintenance and
Inspection**

- Verify weekly that spill control clean up materials are located near material storage, unloading, and use areas.
- Update spill prevention and control plans and stock appropriate clean-up materials whenever changes occur in the types of chemicals used or stored onsite.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose

Solid waste management procedures and practices are designed to minimize or eliminate the discharge of pollutants to the drainage system or to watercourses as a result of the creation, stockpiling, or removal of construction site wastes.

Appropriate Applications

Solid waste management procedures and practices are implemented on all construction projects that generate solid wastes.

Solid wastes include but are not limited to:

- Construction wastes including brick, mortar, timber, steel and metal scraps, sawdust, pipe and electrical cuttings, non-hazardous equipment parts, styrofoam and other materials used to transport and package construction materials.
- Highway planting wastes, including vegetative material, plant containers, and packaging materials.
- Litter, including food containers, beverage cans, coffee cups, paper bags, plastic wrappers, and smoking materials, including litter generated by the public.

Limitations

- Temporary stockpiling of certain construction wastes may not necessitate stringent drainage related controls during the non-rainy season or in desert areas with low rainfall.

Standards and Specifications *Education*

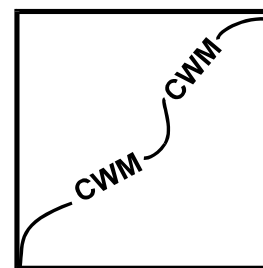
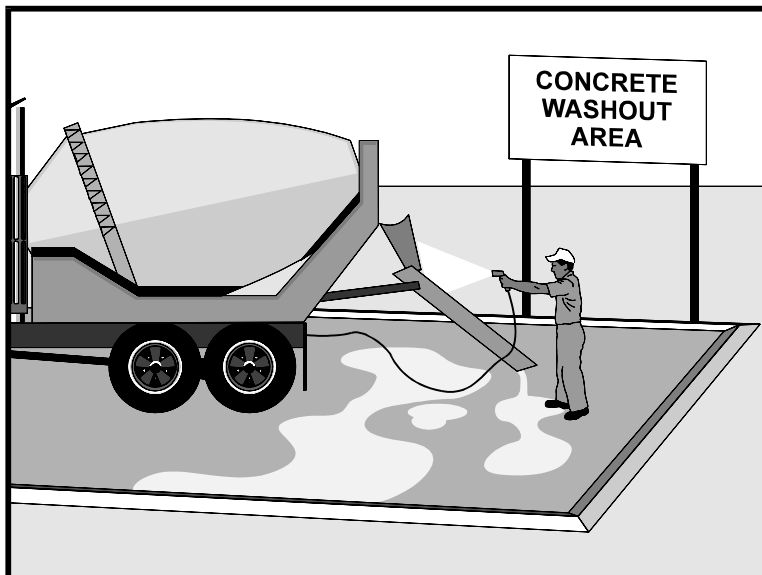
- The Contractor's Water Pollution Control Manager (WPCM) shall oversee and enforce proper solid waste procedures and practices.
- Instruct employees and subcontractors on identification of solid waste and hazardous waste.
- Educate employees and subcontractors on solid waste storage and disposal procedures.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).
- Require that employees and subcontractors follow solid waste handling and storage procedures.
- Prohibit littering by employees, subcontractors, and visitors.
- Wherever possible, minimize production of solid waste materials.

Collection, Storage, and Disposal

- Dumpsters of sufficient size and number shall be provided to contain the solid waste generated by the project and properly serviced.
- Littering on the project site shall be prohibited.
- To prevent clogging of the storm drainage system litter and debris removal from drainage grates, trash racks, and ditch lines shall be a priority.
- Trash receptacles shall be provided in the Contractor's yard, field trailer areas, and at locations where workers congregate for lunch and break periods.
- Construction debris and litter from work areas within the construction limits of the project site shall be collected and placed in watertight dumpsters at least weekly regardless of whether the litter was generated by the Contractor, the public, or others. Collected litter and debris shall not be placed in or next to drain inlets, storm water drainage systems or watercourses.
- Full dumpsters shall be removed from the project site and the contents shall be disposed of outside the highway right-of-way in conformance with the provisions in the Standard Specifications Section 7-1.13.
- Litter stored in collection areas and containers shall be handled and disposed of by trash hauling contractors.
- Construction debris and waste shall be removed from the site every two weeks or as directed by the RE.

- Construction material visible to the public shall be stored or stacked in an orderly manner to the satisfaction of the RE.
- Storm water run-on shall be prevented from contacting stored solid waste through the use of berms, dikes, or other temporary diversion structures or through the use of measures to elevate waste from site surfaces.
- Solid waste storage areas shall be located at least 15 m (50 ft) from drainage facilities and watercourses and shall not be located in areas prone to flooding or ponding.
- Except during fair weather, construction and highway planting waste not stored in watertight dumpsters shall be securely covered from wind and rain by covering the waste with tarps or plastic sheeting or protected in conformance with the applicable Disturbed Soil Area protection section.
- Dumpster washout on the project site is not allowed.
- Notify trash hauling contractors that only watertight dumpsters are acceptable for use on-site.
- Plan for additional containers during the demolition phase of construction.
- Plan for more frequent pickup during the demolition phase of construction.
- Construction waste shall be stored in a designated area approved by the RE.
- Segregate potentially hazardous waste from non-hazardous construction site waste.
- Keep the site clean of litter debris.
- Make sure that toxic liquid wastes (e.g., used oils, solvents, and paints) and chemicals (e.g., acids, pesticides, additives, curing compounds) are not disposed of in dumpsters designated for construction debris.
- Dispose of non-hazardous waste in accordance with Standard Specification 7-1.13, Disposal of Material Outside the Highway Right of Way.
- For disposal of hazardous waste, see BMP WM-6, "Hazardous Waste Management." Have hazardous waste hauled to an appropriate disposal and/or recycling facility.
- Salvage or recycle useful vegetation debris, packaging and/or surplus building materials when practical. For example, trees and shrubs from land clearing can be converted into wood chips, then used as mulch on graded areas. Wood pallets, cardboard boxes, and construction scraps can also be recycled.

- Maintenance and Inspection
- The WPCM shall monitor onsite solid waste storage and disposal procedures.
 - Police site for litter and debris.



Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose

These are procedures and practices that are designed to minimize or eliminate the discharge of concrete waste materials to the storm drain systems or watercourses.

Appropriate Applications

- Concrete waste management procedures and practices are implemented on construction projects where concrete is used as a construction material or where concrete dust and debris result from demolition activities.
- Where slurries containing portland cement concrete (PCC) or asphalt concrete (AC) are generated, such as from sawcutting, coring, grinding, grooving, and hydro-concrete demolition.
- Where concrete trucks and other concrete-coated equipment are washed on site, when approved by the Resident Engineer (RE). See also NS-8, "Vehicle and Equipment Cleaning."
- Where mortar-mixing stations exist.

Limitations

- None identified.

Standards and Specifications

Education

- Educate employees, subcontractors, and suppliers on the concrete waste management techniques described herein.
- The Contractor's Water Pollution Control Manager (WPCM) shall oversee and enforce concrete waste management procedures.

Concrete Slurry Wastes

- PCC and AC waste shall not be allowed to enter storm drains or watercourses.

- PCC and AC waste shall be collected and properly disposed of outside the highway right-of-way in conformance with Standard Specifications Section 7-1.13 or placed in a temporary concrete washout facility as shown in the figures on Pages 5 and 6.
- Disposal of hardened PCC and AC waste shall be in conformance with Standard Specifications Section 15-3.02.
- A sign shall be installed adjacent to each temporary concrete washout facility to inform concrete equipment operators to utilize the proper facilities as shown on Page 6.
- A foreman and/or construction supervisor shall monitor onsite concrete working tasks, such as saw cutting, coring, grinding and grooving to ensure proper methods are implemented.
- Do not allow saw-cut PCC slurry to enter storm drains or watercourses. See also BMP NS-3, "Paving and Grinding Operations;" and BMP WM-10, "Liquid Waste Management." Residue from grinding operations shall be picked up by means of a vacuum attachment to the grinding machine. Saw cutting residue shall not be allowed to flow across the pavement, and shall not be left on the surface of the pavement.
- Vacuum slurry residue and dispose in a temporary facility (as described in Onsite Temporary Concrete Washout Facility, Concrete Transit Truck Washout Procedures, below) and allow slurry to dry. Dispose of dry slurry residue in accordance with BMP WM-5, "Solid Waste Management", or, for on-site disposal, in accordance with Standard Specification 15-3.02, Removal Methods.
- Collect and dispose of residue from grooving and grinding operations in accordance with Standard Specifications Section 42-1.02 and 42-2.02.

Onsite Temporary Concrete Washout Facility, Concrete Transit Truck Washout Procedures

- Temporary concrete washout facilities shall be located a minimum of 15 m (50 ft) from storm drain inlets, open drainage facilities, and watercourses, unless determined infeasible by the RE. Each facility shall be located away from construction traffic or access areas to prevent disturbance or tracking.
- A sign shall be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities. The sign shall be installed as shown on the plans and in conformance with the provisions in Standard Specifications Section 56-2, Roadside Signs.

- Temporary concrete washout facilities shall be constructed above grade or below grade at the option of the Contractor. Temporary concrete washout facilities shall be constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated by washout operations.
- Temporary washout facilities shall have a temporary pit or bermed areas of sufficient volume to completely contain all liquid and waste concrete materials generated during washout procedures.
- Perform washout of concrete mixer trucks in designated areas only.
- Wash concrete only from mixer truck chutes into approved concrete washout facility. Washout may be collected in an impermeable bag for disposal.
- Pump excess concrete in concrete pump bin back into concrete mixer truck.
- Concrete washout from concrete pumper bins can be washed into concrete pumper trucks and discharged into designated washout area or properly disposed offsite.
- Once concrete wastes are washed into the designated area and allowed to harden, the concrete shall be broken up, removed, and disposed of per BMP WM-5, "Solid Waste Management", and in conformance with the provisions in Standard Specifications Section 15-3.02, "Removal Methods."

Temporary Concrete Washout Facility Type "Above Grade"

- Temporary concrete washout facility Type "Above Grade" shall be constructed as shown on Page 5 or 6, with a recommended minimum length and minimum width of 3 m (10 ft), but with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations. The length and width of a facility may be increased, at the Contractor's expense, upon approval from the RE.
- Straw bales, wood stakes, and sandbag materials shall conform to the provisions in BMP SC-9, "Straw Bale Barrier."
- Plastic lining material shall be a minimum of 10-mil polyethylene sheeting and shall be free of holes, tears or other defects that compromise the impermeability of the material.
- Portable delineators shall conform to the provisions in Standard Specifications Section 12-3.04, "Portable Delineators.". The delineator bases shall be cemented to the pavement in the same manner as provided for cementing pavement markers to pavement in Standard Specifications Section 85-1.06, "Placement." Portable delineators shall be applied only to a clean, dry surface.

Temporary Concrete Washout Facility (Type Below Grade)

- Temporary concrete washout facility Type “Below Grade” shall be constructed as shown on page 6, with a recommended minimum length and minimum width of 3m (10 ft). The quantity and volume shall be sufficient to contain all liquid and concrete waste generated by washout operations. The length and width of a facility may be increased, at the Contractor’s expense, upon approval of the RE. Lath and flagging shall be commercial type.
- Plastic lining material shall be a minimum of 10-mil polyethylene sheeting and shall be free of holes, tears or other defects that compromise the impermeability of the material.
- The soil base shall be prepared free of rocks or other debris that may cause tears or holes in the plastic lining material.

Removal of Temporary Concrete Washout Facilities

- When temporary concrete washout facilities are no longer required for the work, as determined by the RE, the hardened concrete shall be removed and disposed of in conformance with the provisions in Standard Specifications Section 15-3.02. Disposal of PCC slurries or liquid waste shall be disposed of outside the highway right-of-way in conformance with provisions of Standard Specifications Section 7-1-13. Materials used to construct temporary concrete washout facilities shall become the property of the Contractor, shall be removed from the site of the work, and shall be disposed of outside the highway right-of-way in conformance with the provisions of the Standard Specifications, Section 7-1.13.
- Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities shall be backfilled and repaired in conformance with the provisions in Standard Specifications Section 15-1.02, "Preservation of Property."

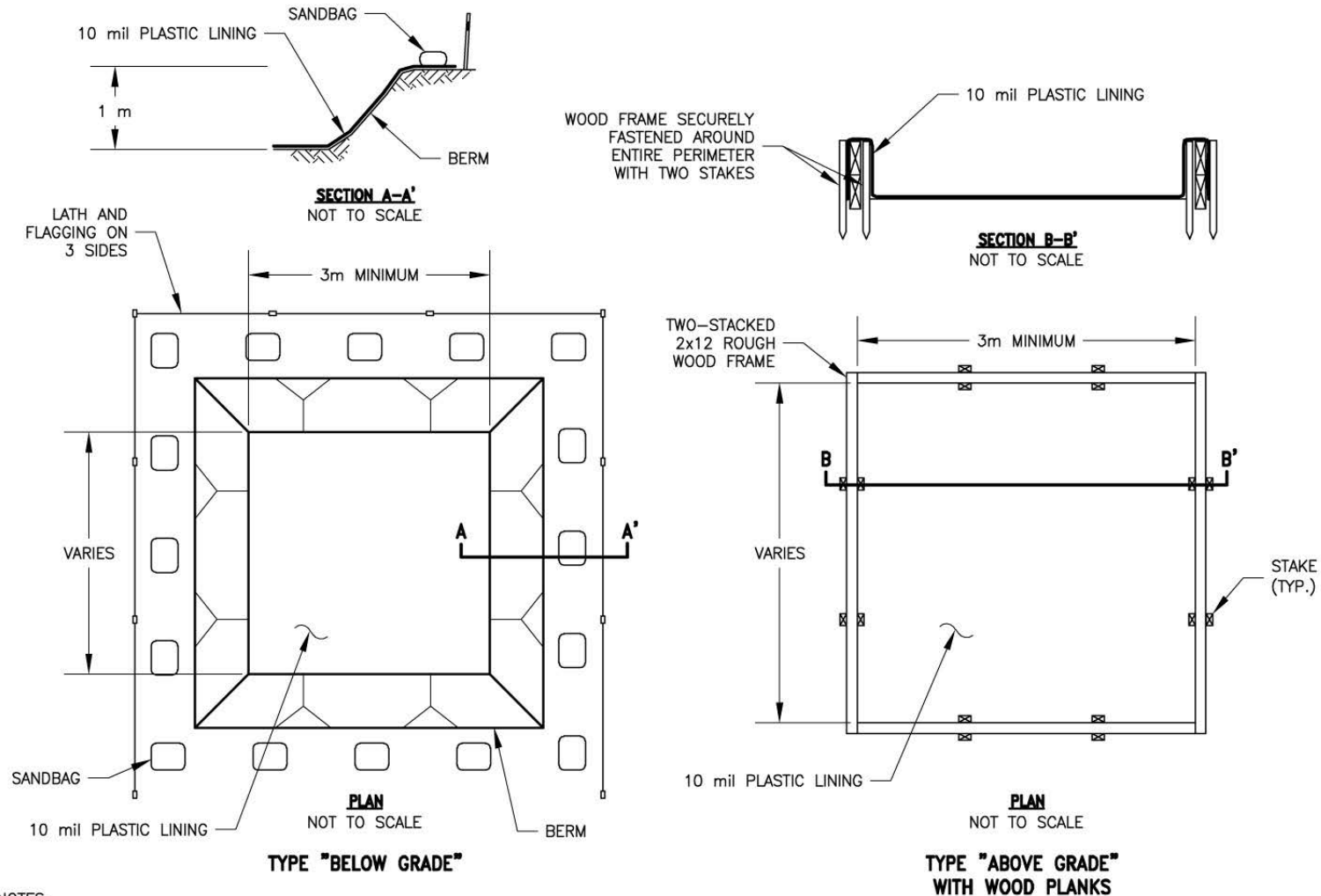
Maintenance and Inspection

- The Contractor’s Water Pollution Control Manager (WPCM) shall monitor on site concrete waste storage and disposal procedures at least weekly or as directed by the RE.
- The WPCM shall monitor concrete working tasks, such as saw cutting, coring, grinding and grooving daily to ensure proper methods are employed or as directed by the RE.

- Temporary concrete washout facilities shall be maintained to provide adequate holding capacity with a minimum freeboard of 100 mm (4 inches) for above grade facilities and 300 mm (12 inches) for below grade facilities. Maintaining temporary concrete washout facilities shall include removing and disposing of hardened concrete and returning the facilities to a functional condition. Hardened concrete materials shall be removed and disposed of in conformance with the provisions in Standard Specifications Section 15-3.02, "Removal Methods."
- Existing facilities must be cleaned, or new facilities must be constructed and ready for use once the washout is 75% full.
- Temporary concrete washout facilities shall be inspected for damage (i.e. tears in PVC liner, missing sand bags, etc.). Damaged facilities shall be repaired.

Concrete Waste Management

WM-8



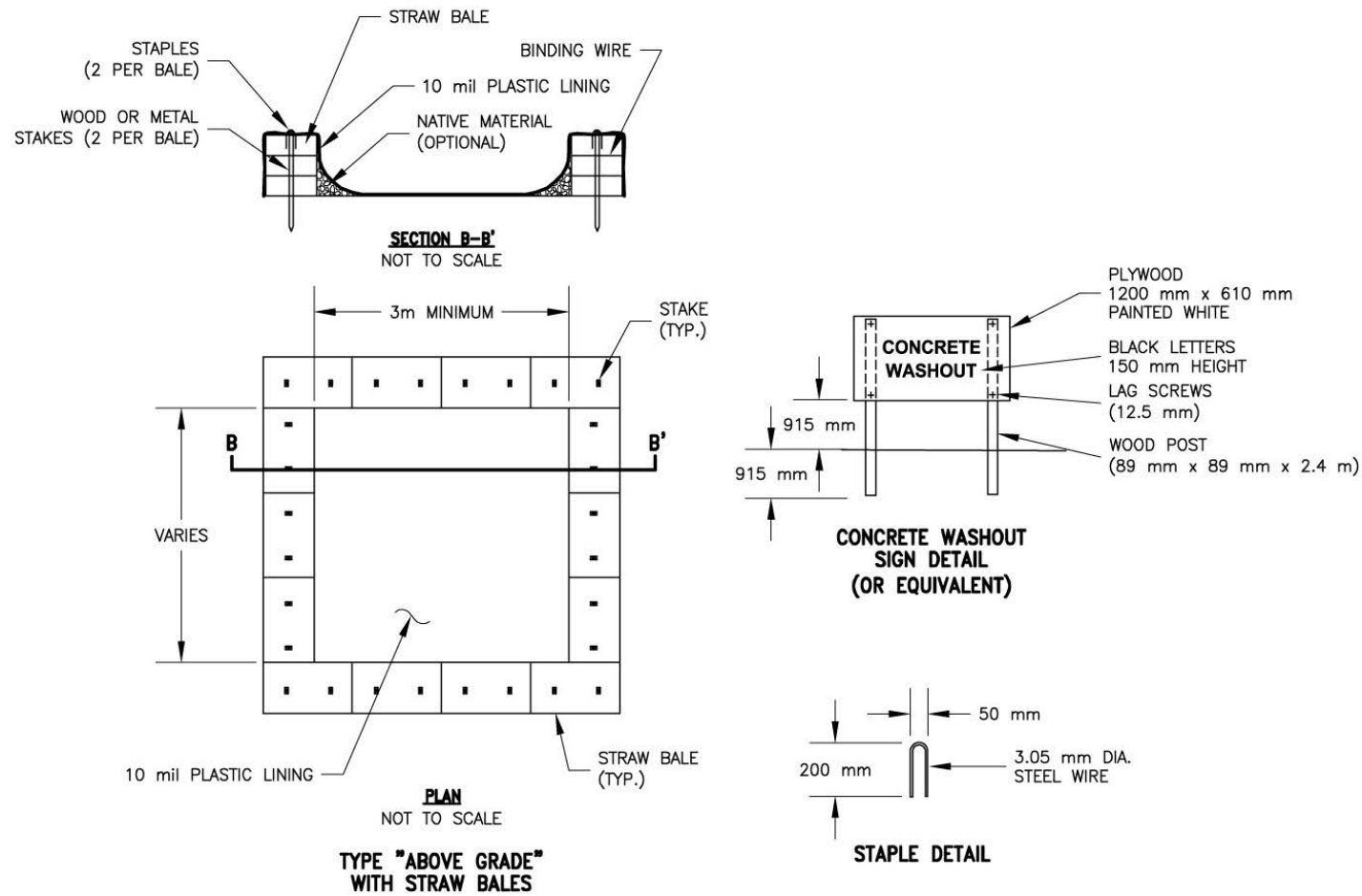
NOTES:

1. ACTUAL LAYOUT DETERMINED IN THE FIELD.
2. THE CONCRETE WASHOUT SIGN (SEE PAGE 6) SHALL BE INSTALLED WITHIN 10 m OF THE TEMPORARY CONCRETE WASHOUT FACILITY.



Concrete Waste Management

WM-8

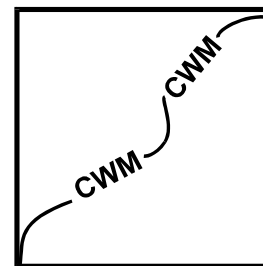
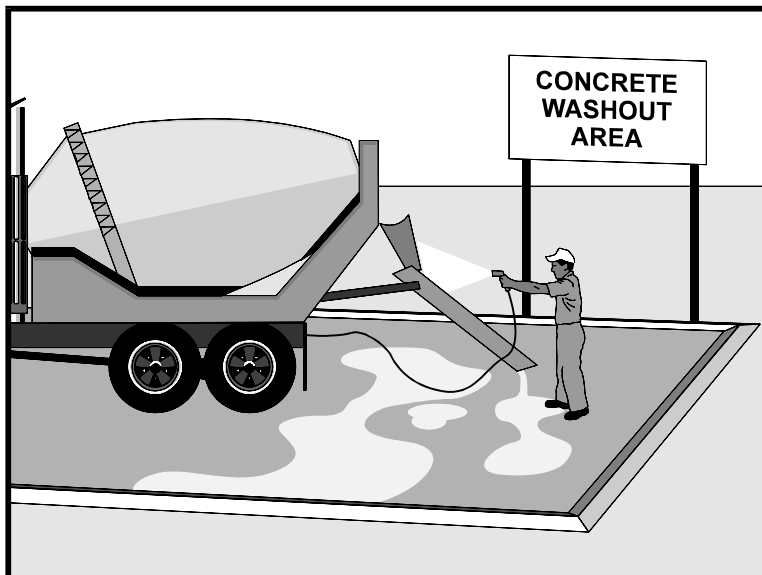


NOTES:

1. ACTUAL LAYOUT DETERMINED IN THE FIELD.
2. THE CONCRETE WASHOUT SIGN (SEE FIG. 4-15) SHALL BE INSTALLED WITHIN 10 m OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

CALTRANS/FIG4-14.DWG SAC 8-14-02





Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose

These are procedures and practices that are designed to minimize or eliminate the discharge of concrete waste materials to the storm drain systems or watercourses.

Appropriate Applications

- Concrete waste management procedures and practices are implemented on construction projects where concrete is used as a construction material or where concrete dust and debris result from demolition activities.
- Where slurries containing portland cement concrete (PCC) or asphalt concrete (AC) are generated, such as from sawcutting, coring, grinding, grooving, and hydro-concrete demolition.
- Where concrete trucks and other concrete-coated equipment are washed on site, when approved by the Resident Engineer (RE). See also NS-8, "Vehicle and Equipment Cleaning."
- Where mortar-mixing stations exist.

Limitations

- None identified.

Standards and Specifications

Education

- Educate employees, subcontractors, and suppliers on the concrete waste management techniques described herein.
- The Contractor's Water Pollution Control Manager (WPCM) shall oversee and enforce concrete waste management procedures.

Concrete Demolition Wastes

- Stockpile concrete demolition wastes in accordance with BMP WM-3, "Stockpile Management."
- Disposal of hardened PCC and AC waste shall be in conformance with

Standard Specifications Section 7-1.13 or 15-3.02.

Concrete Slurry Waste Management and Disposal

- PCC and AC waste shall not be allowed to enter storm drainage systems or watercourses.
- A sign shall be installed adjacent to each temporary concrete washout facility to inform concrete equipment operators to utilize the proper facilities as shown on Page 7.
- A foreman and/or construction supervisor shall monitor onsite concrete working tasks, such as saw cutting, coring, grinding and grooving to ensure proper methods are implemented.
- Residue from saw cutting, coring and grinding operations shall be picked up by means of a vacuum device. Residue shall not be allowed to flow across the pavement and shall not be left on the surface of the pavement. See also BMP NS-3, "Paving and Grinding Operations."
- Vacuumed slurry residue shall be disposed in accordance with BMP WM-5, "Solid Waste Management" and Standard Specifications Section 7-1.13. Slurry residue shall be temporarily stored in a facility as described in "Onsite Temporary Concrete Washout Facility, Concrete Transit Truck Washout Procedures" below), or within an impermeable containment vessel or bin approved by the Engineer.
- Collect and dispose of all residues from grooving and grinding operations in accordance with Standard Specifications Section 7-1.13, 42-1.02 and 42-2.02.

Onsite Temporary Concrete Washout Facility, Concrete Transit Truck Washout Procedures

- Temporary concrete washout facilities shall be located a minimum of 15 m (50 ft) from storm drain inlets, open drainage facilities, and watercourses, unless determined infeasible by the RE. Each facility shall be located away from construction traffic or access areas to prevent disturbance or tracking.
- A sign shall be installed adjacent to each washout facility to inform concrete equipment operators to utilize the proper facilities. The sign shall be installed as shown on the plans and in conformance with the provisions in Standard Specifications Section 56-2, Roadside Signs.
- Temporary concrete washout facilities shall be constructed above grade or below grade at the option of the Contractor. Temporary concrete washout facilities shall be constructed and maintained in sufficient quantity and size to contain all liquid and concrete waste generated by washout operations.
- Temporary washout facilities shall have a temporary pit or bermed areas of sufficient volume to completely contain all liquid and waste concrete

materials generated during washout procedures.

- Perform washout of concrete mixers, delivery trucks, and other delivery systems in designated areas only.
- Wash concrete only from mixer chutes into approved concrete washout facility. Washout may be collected in an impermeable bag or other impermeable containment devices for disposal.
- Pump excess concrete in concrete pump bin back into concrete mixer truck.
- Concrete washout from concrete pumper bins can be washed into concrete pumper trucks and discharged into designated washout area or properly disposed offsite.
- Once concrete wastes are washed into the designated area and allowed to harden, the concrete shall be broken up, removed, and disposed of in conformance with the provisions in Standard Specifications Section 7-1.13 or 15-3.02.

Temporary Concrete Washout Facility Type “Above Grade”

- Temporary concrete washout facility Type “Above Grade” shall be constructed as shown on Page 6 or 7, with a recommended minimum length and minimum width of 3 m (10 ft), but with sufficient quantity and volume to contain all liquid and concrete waste generated by washout operations. The length and width of a facility may be increased, at the Contractor’s expense, upon approval from the RE.
- Straw bales, wood stakes, and sandbag materials shall conform to the provisions in BMP SC-9, "Straw Bale Barrier."
- Plastic lining material shall be a minimum of 10-mil polyethylene sheeting and shall be free of holes, tears or other defects that compromise the impermeability of the material. Liner seams shall be installed in accordance with manufacturers’ recommendations.
- Portable delineators shall conform to the provisions in Standard Specifications Section 12-3.04, "Portable Delineators." The delineator bases shall be cemented to the pavement in the same manner as provided for cementing pavement markers to pavement in Standard Specifications Section 85-1.06, "Placement." Portable delineators shall be applied only to a clean, dry surface.

Temporary Concrete Washout Facility (Type Below Grade)

- Temporary concrete washout facility Type “Below Grade” shall be constructed as shown on page 6, with a recommended minimum length and minimum width of 3m (10 ft). The quantity and volume shall be sufficient to contain all liquid and concrete waste generated by washout operations. The length and width of a facility may be increased, at the Contractor’s expense,

upon approval of the RE. Lath and flagging shall be commercial type.

- Plastic lining material shall be a minimum of 10-mil polyethylene sheeting and shall be free of holes, tears or other defects that compromise the impermeability of the material. Liner seams shall be installed in accordance with manufacturers' recommendations.
- The soil base shall be prepared free of rocks or other debris that may cause tears or holes in the plastic lining material.

Removal of Temporary Concrete Washout Facilities

- When temporary concrete washout facilities are no longer required for the work, as determined by the RE, the hardened concrete shall be removed and disposed of in conformance with the provisions in Standard Specifications Section 7-1.13 or 15-3.02. Disposal of PCC dried residues, slurries or liquid waste shall be disposed of outside the highway right-of-way in conformance with provisions of Standard Specifications Section 7-1-13. Materials used to construct temporary concrete washout facilities shall become the property of the Contractor, shall be removed from the site of the work, and shall be disposed of outside the highway right-of-way in conformance with the provisions of the Standard Specifications, Section 7-1.13.
- Holes, depressions or other ground disturbance caused by the removal of the temporary concrete washout facilities shall be backfilled and repaired in conformance with the provisions in Standard Specifications Section 15-1.02, "Preservation of Property."

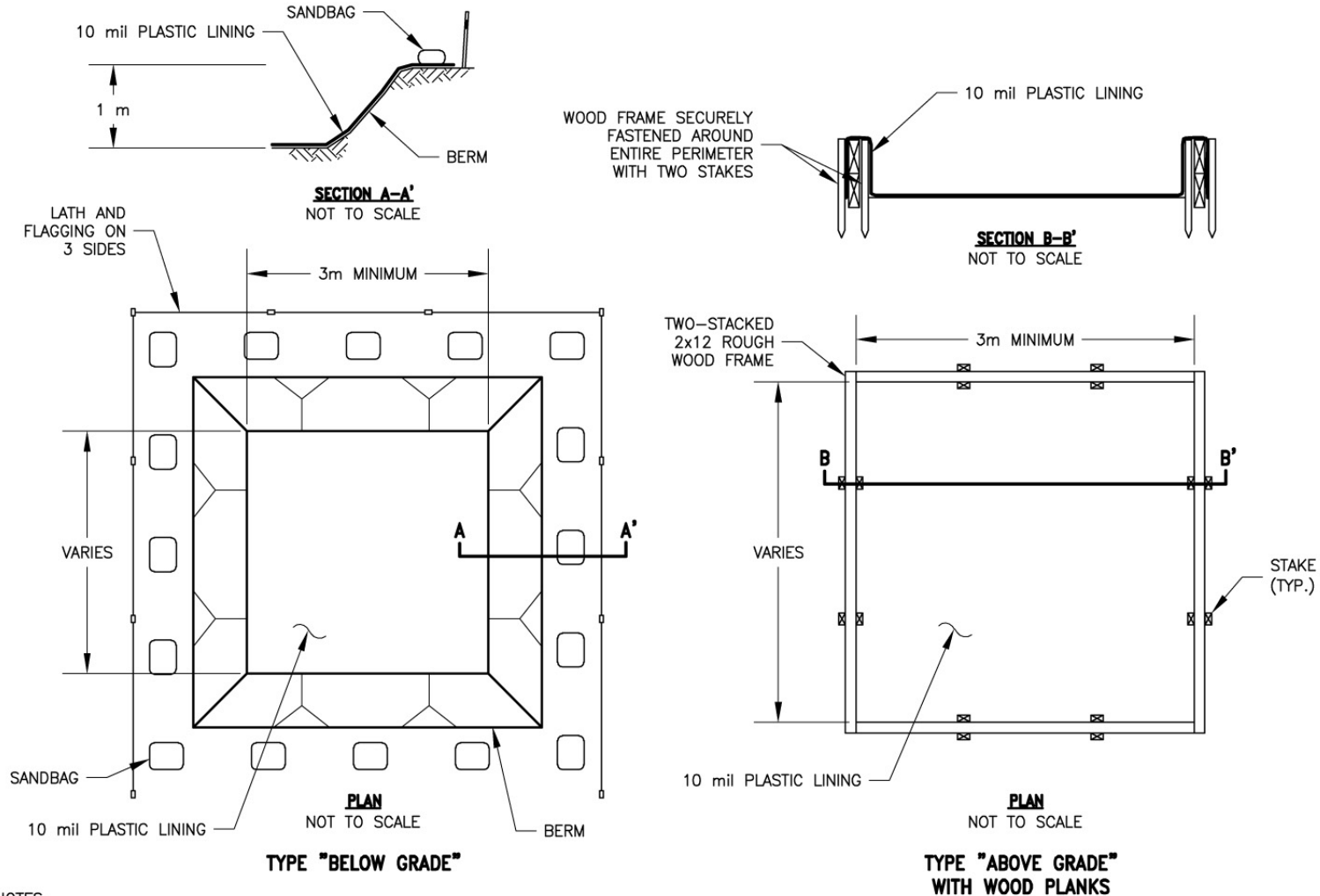
Maintenance and Inspection

- The Contractor's Water Pollution Control Manager (WPCM) shall monitor on site concrete waste storage and disposal procedures at least weekly or as directed by the RE.
- The WPCM shall monitor concrete working tasks, such as saw cutting, coring, grinding and grooving daily to ensure proper methods are employed or as directed by the RE.
- Temporary concrete washout facilities shall be maintained to provide adequate holding capacity with a minimum freeboard of 100 mm (4 inches) for above grade facilities and 300 mm (12 inches) for below grade facilities. Maintaining temporary concrete washout facilities shall include removing and disposing of hardened concrete and returning the facilities to a functional condition. Hardened concrete materials shall be removed and disposed of in conformance with the provisions in Standard Specifications Section 7-1.13 or 15-3.02.
- Existing facilities must be cleaned, or new facilities must be constructed and ready for use once the washout is 75% full.
- Temporary concrete washout facilities shall be inspected for damage (i.e.

tears in polyethylene liner, missing sandbags, etc.). Damaged facilities shall be repaired.

Concrete Waste Management

WM-8



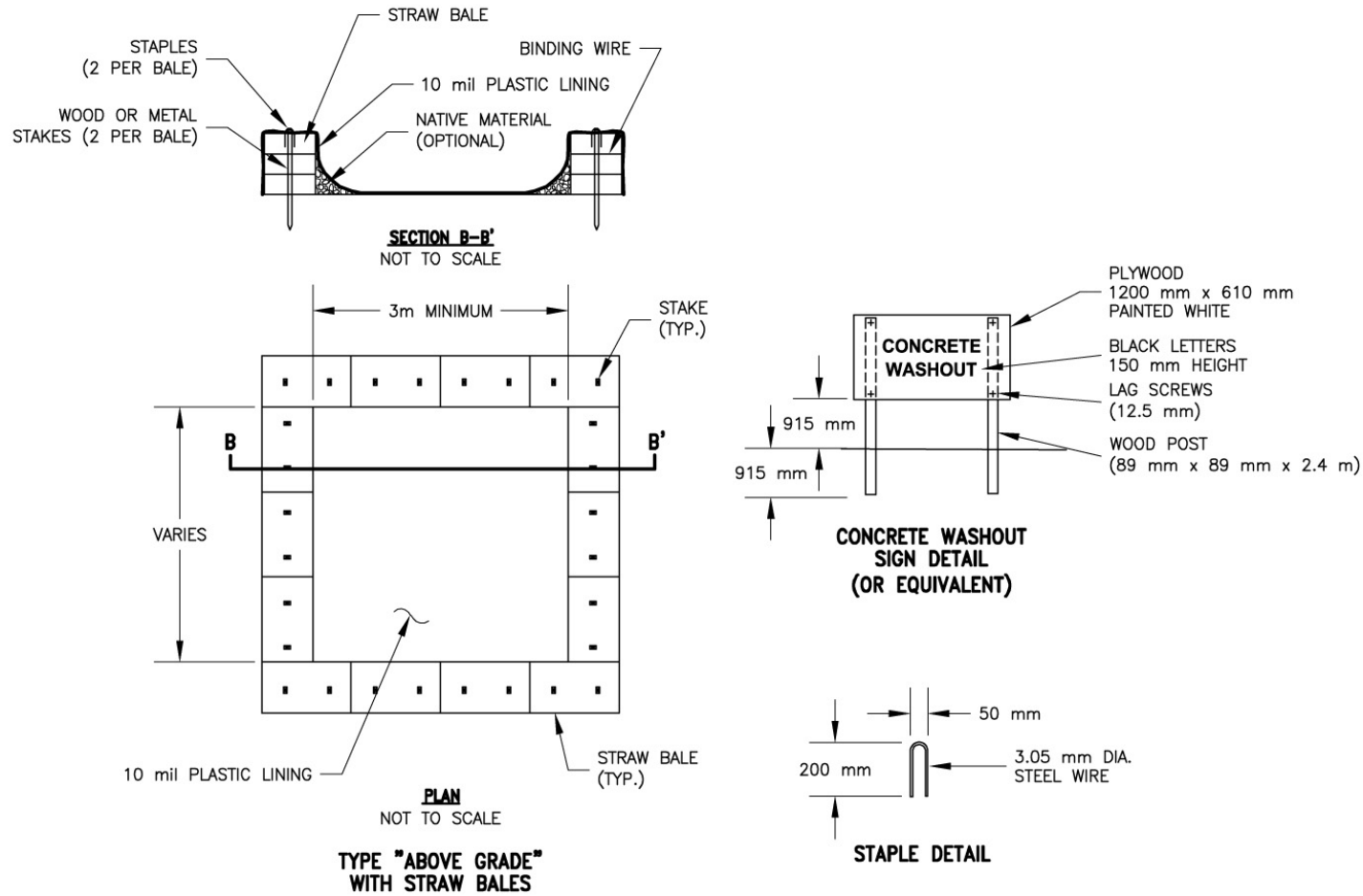
NOTES:

1. ACTUAL LAYOUT DETERMINED IN THE FIELD.
2. THE CONCRETE WASHOUT SIGN (SEE PAGE 6) SHALL BE INSTALLED WITHIN 10 m OF THE TEMPORARY CONCRETE WASHOUT FACILITY.



Concrete Waste Management

WM-8

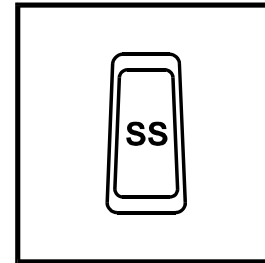
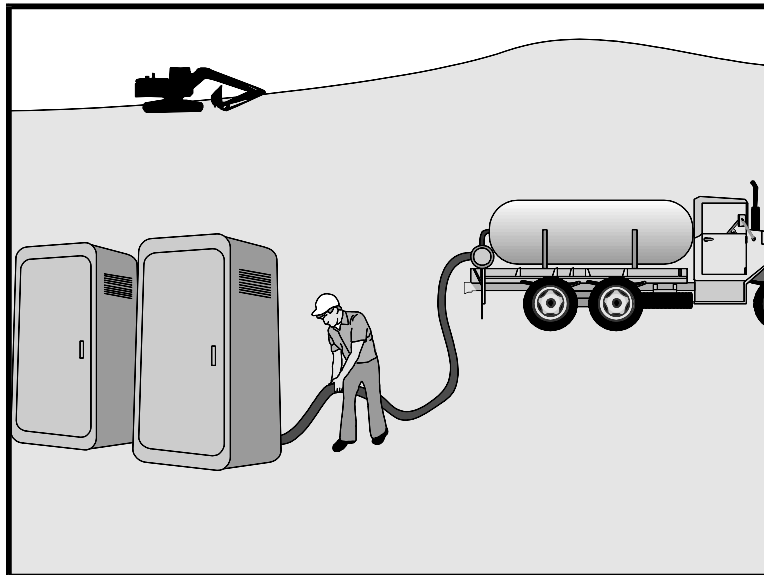


NOTES:

1. ACTUAL LAYOUT DETERMINED IN THE FIELD.
2. THE CONCRETE WASHOUT SIGN (SEE FIG. 4-15) SHALL BE INSTALLED WITHIN 10 m OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

CALTRANS/FIG4-14.DWG SAC 8-14-02





Standard Symbol

BMP Objectives

- Soil Stabilization
- Sediment Control
- Tracking Control
- Wind Erosion Control
- Non-Storm Water Management
- Materials and Waste Management

Definition and Purpose Procedures and practices to minimize or eliminate the discharge of construction site sanitary/septic waste materials to the storm drain system or to watercourses.

Appropriate Applications Sanitary/septic waste management practices are implemented on all construction sites that use temporary or portable sanitary/septic waste systems.

Limitations ■ None identified.

Standards and Specifications

Education

- Educate employees, subcontractors, and suppliers on sanitary/septic waste storage and disposal procedures.
- Educate employees, subcontractors, and suppliers of potential dangers to humans and the environment from sanitary/septic wastes.
- Instruct employees, subcontractors, and suppliers in identification of sanitary/septic waste.
- Hold regular meetings to discuss and reinforce disposal procedures (incorporate into regular safety meetings).
- Establish a continuing education program to indoctrinate new employees.

Storage and Disposal Procedures

- Temporary sanitary facilities shall be located away from drainage facilities, watercourses, and from traffic circulation. When subjected to high winds or risk.

- Wastewater shall not be discharged or buried within the highway right-of-way.
 - Sanitary and septic systems that discharge directly into sanitary sewer systems, where permissible, shall comply with the local health agency, city, county, and sewer district requirements.
 - If using an on site disposal system, such as a septic system, comply with local health agency requirements.
 - Properly connect temporary sanitary facilities that discharge to the sanitary sewer system to avoid illicit discharges.
 - Ensure that sanitary/septic facilities are maintained in good working order by a licensed service.
 - Use only reputable, licensed sanitary/septic waste haulers.
- Maintenance and Inspection
- The Contractor's Water Pollution Control Manager (WPCM) shall monitor onsite sanitary/septic waste storage and disposal procedures at least weekly.