

Preliminary Low Impact Development Plan (LID)

Project Name:

Parnell Park

15390 Lambert Road

Whittier, CA 90604

Prepared for:

City of Whittier

13230 Penn Street

Whittier, CA 90602

Submitted to:

County of Los Angeles

1320 W Imperial Highway

Los Angeles, CA 90044

Prepared by:

Tait & Associates, Inc.

Engineer: David Sloan Registration No.: RCE #

701 N. Parkcenter Drive

Santa Ana , CA. 92705

(714)560-8200



Date: 8/5/2022

Revised Date: TBD

OWNER'S CERTIFICATION

Owner Certification			
Owner's Name:			
Company			
Address			
Email			
Telephone			
<p>This Low Impact Development (LID) Plan is intended to comply with the requirements of County of Los Angeles for CAS004001, ORDER NO R4-2012-0175 which includes the requirement for the preparation and implementation of a LID Plan.</p> <p>The undersigned, while owning the property/project described in the preceding paragraph, shall be responsible for the implementation and funding of this LID Plan and will ensure that this LID Plan is amended as appropriate to reflect up-to-date conditions on the site. In addition, the property owner accepts responsibility for interim operation and maintenance of Stormwater BMPs until such time as this responsibility is formally transferred to a subsequent owner. This LID Plan will be reviewed with the facility operator, facility supervisors, employees, tenants, maintenance and service contractors, or any other party (or parties) having responsibility for implementing portions of this LID. At least one copy of this LID Plan will be maintained at the project site or project office in perpetuity. The undersigned is authorized to certify and to approve implementation of this LID Plan. The undersigned is aware that implementation of this LID Plan is enforceable under County of Los Angeles Water Quality Ordinance (Municipal Code Section CAS004001, ORDER NO R4-2012-0175).</p> <p>"I, the undersigned, certify under penalty of law that the provisions of this LID have been reviewed and accepted and that the LID will be transferred to future successors in interest."</p>			
Owner's Signature		Date	Click here to enter a date.

PREPARER'S CERTIFICATION

Preparer (Engineer) Certification			
Preparer (Engineer): David Sloan, P.E.			
Title	Director of Engineering	RCE #:	
Company	Tait & Associates		
Address	701 N. Parkcenter Drive, Santa Ana, CA 92705		
Email	dsloan@tait.com		
Telephone	714-560-8200		
<p>I hereby certify that this Low Impact Development (LID) Plan is in compliance with and meets the requirements of the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit for stormwater and non-stormwater discharges from the MS4 within the coastal watersheds of Los Angeles County (CAS004001, Order No R4-2012-0175).</p> <p>I certify under penalty of law that this document and all attachments were prepared under my jurisdiction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations</p>			
Preparer Signature		Date	Click here to enter a date.
Place Stamp Here			

Table of Contents

A. LID REQUIREMENTS 4

 A.1 LID Background 4

 A.2 Designated Priority Project Categories 5

B. PROJECT AND SITE INFORMATION 7

 B.1 Project Site Summary 7

 B.2 Receiving Waters 8

 B.3 Geotechnical Conditions 9

 B.4 Other Site Considerations 11

C. BEST MANAGEMENT PRACTICES 12

 C.1 Site Design Principles 12

 C.2 Source Control Measures 15

D. STORMWATER QUALITY DESIGN VOLUME CALCULATION..... 16

E. STORMWATER QUALITY CONTROL MEASURES –LID BMPs 17

F. HYDROMODIFICATION..... 24

G. STORMWATER BMP MAINTENANCE 25

A. LID REQUIREMENTS

A.1 LID Background

In 1987, The Federal Water Pollution Control Act (also referred to as the Clean Water Act [CWA] was amended to provide that the discharge of pollutants to waters of the United States from stormwater is effectively prohibited, unless the discharge is in compliance with a National Pollutant Discharge Elimination System (NPDES) Permit. The 1987 amendments to the CWA added Section 402 (p), which established a framework for regulating municipal, industrial and construction stormwater discharges under the NPDES program. In California, these permits are issued through the State Water Resources Control Board - (SWRCB) and the nine Regional Water Quality Control Boards.

On November 8, 2012, the Regional Water Quality Control Board, Los Angeles Region (RWQCB), adopted Order No. R4-2012-0175. This Order is the NPDES Permit (NPDES No. CAS004001) for municipal stormwater and urban runoff discharges within the County of Los Angeles.

As adopted in November 2012, the requirements of Order No. R4-2012-0175 (the "Permit") cover 84 cities and the unincorporated areas of Los Angeles County. Under the Permit, the Los Angeles County Flood Control District is designated as the Principal Permittee; the County of Los Angeles along with the 84 incorporated cities is designated as Permittees.

In compliance with the Permit, the Permittees have implemented a stormwater quality management program (SQMP) with the ultimate goal of accomplishing the requirements of the Permit and reducing the amount of pollutants in stormwater and urban runoff wherein new development/redevelopment projects are required to prepare a Low Impact Development (LID) report.

A.2 Designated Priority Project Categories

The project is classified as category item(s) Redevelopment as listed in Table 1 below and is therefore classified as a Designated Project.

TABLE 1 PROJECT PRIORITY CATEGORIES		
ITEM	APPLICABLE	DESCRIPTION
1		All development projects equal to 1 acre or greater of disturbed area that adds more than 10,000 square feet of impervious surface area.
2		Industrial parks 10,000 square feet or more of surface area.
3		Commercial malls 10,000 square feet or more of surface area.
4		Retail gasoline outlets with 5,000 square feet or more of surface area.
5		Restaurants (Standard Industrial Classification (SIC) of 5812) with 5,000 Square feet or more of surface area.
6		Parking lots with 5,000 square feet or more of impervious surface area, or with 25 or more parking spaces.
7		Streets and roads construction of 10,000 square feet or more of impervious surface area. Street and road construction applies to standalone streets, roads, highways, and freeway projects, and also applies to streets within larger projects.
8		Automotive service facilities (Standard Industrial Classification (SIC) of 5013, 5014, 5511, 5541, 7532-7534 and 7536-7539) 5,000 square feet or more of surface area.
9		Projects located in or directly adjacent to, or discharging directly to an Environmentally Sensitive Area (ESA), where the development will:
		a. Discharge stormwater runoff that is likely to impact a sensitive biological species or habitat; and
		b. Create 2,500 square feet or more of impervious surface area
10		Single-family hillside homes.
11		Redevelopment Projects:
	X	a. Land disturbing activity that results in the creation or addition or replacement of 5,000 square feet or more of impervious surface area on an already developed site on Planning Priority Project categories.
		b. Where Redevelopment results in an alteration to more than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, the entire project must be mitigated.
		c. Where Redevelopment results in an alteration of less than fifty percent of impervious surfaces of a previously existing development, and the existing development was not subject to post-construction stormwater quality control requirements, only the alteration must be mitigated, and not the entire development.

		d. Redevelopment does not include routine maintenance activities that are conducted to maintain original line and grade, hydraulic capacity, original purpose of facility or emergency redevelopment activity required to protect public health and safety. Impervious surface replacement, such as the reconstruction of parking lots and roadways which does not disturb additional area and maintains the original grade and alignment, is considered a routine maintenance activity. Redevelopment does not include the repaving of existing roads to maintain original line and grade.
		e. Existing single-family dwelling and accessory structures are exempt from the Redevelopment requirements unless such projects create, add or replace 1,000 square feet of impervious surface area.

B. PROJECT AND SITE INFORMATION

B.1 Project Site Summary

Table B.1

PROJECT INFORMATION	
Type of Project:	Public Park
Planning Area:	City of Whittier
Community Name:	n/a
Development Name:	Parnell Park
PROJECT LOCATION	
Latitude & Longitude (DMS): 33°56'10.4"N 118°00'06.3"W	
Project Watershed and Sub-Watershed: San Gabriel River Watershed	
APN(s): TBD	
Map Book and Page No.:	
PROJECT CHARACTERISTICS	
Proposed or Potential Land Use(s)	Public Park
Area of Project Footprint (SF)	501811 SF
Total Area of <u>proposed</u> Impervious Surfaces within the Project Limits (SF)/or Replacement	194090 sf
Does the project consist of offsite road improvements?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Does the project propose to construct unpaved roads?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
Is the project part of a larger common plan of development (phased project)?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N
EXISTING SITE CHARACTERISTICS	
Total area of <u>existing</u> Impervious Surfaces within the project limits (SF)	130344 sf
Are there any natural hydrologic features on the project site?	<input type="checkbox"/> Y <input checked="" type="checkbox"/> N

B.2 Receiving Waters

Table B.2 below lists the stormwater runoff discharge points from the project site, classified as either a storm drain system or receiving waters. The table lists the receiving waters in order of travel, starting with the most upstream discharge point.

Table B.2

STORM DRAIN SYSTEM OR RECEIVING WATER	EPA APPROVED 303(d) LIST IMPAIRMENTS	DESIGNATED BENEFICIAL USES
San Gabriel River	Copper, Diazinon, Nickel, Oxygen	IND, NAV, COMM, EST, MAR, WILD, RARE, MIGR, SPWN, SHELL

Additional refer to Appendix 1 for receiving waters maps.

B.3 Geotechnical Conditions

a. Topography

Existing Drainage Condition:

The project area is 11.6 acres. In the existing condition there are three distinct drainage areas. The northern portion of the site sheet flows generally in an northwest direction toward Lambert Street (Outlet 1). A majority of the site sheet flows over turf grass in a east to west direction. Water flows to a channel and discharge structure near the western property line. (Outlet 2) The eastern and southern parking areas sheet flows to the southern driveways and eventually discharge as surface flow to Mulberry Drive. (Outlet 3) All stormwater from the project site is then conveyed to the LACFCD channel across Mulberry Drive. Once stormwater enters the public storm drain system all flow is conveyed to the San Gabriel River where it is discharged and travels to the Pacific Ocean.

Outlet 1 – 1.39 acres flows generally northwesterly via sheet flow. Stormwater is then tributary to Lambert Street curb and gutter near the driveway entrances along the northern property boundary. Flows are then conveyed westerly along Lambert street as mentioned above.

Outlet 2 – A large portion of the site, 7.27 acres overland flows in a westerly direction. Along the western property boundary an existing concrete channel and grated inlet collect flows. Flows then discharge via a parkway drain to the adjacent neighborhood cul-de-sac. Stormwater is then conveyed westerly via curb and gutter towards the intersection of Cole Road and Lambert Street

Outlet 3 – 2.97 acres flows via sheet flow southerly through the existing parking lot. Stormwater is then tributary to the Mulberry Street curb and gutter near the driveway entrances along the Southern property boundary. Flows are then conveyed westerly along Mulberry street as mentioned above.

Proposed Drainage Condition:

The project will comprise of redeveloping the existing city park to include improved public park facilities, including several sport fields, petting zoo, and splash pad. In the proposed condition the project site will be three drainage areas and will mimic existing conditions. The current design intent is to allow stormwater flows to sheet flow across the site before being intercepted by either curb and gutter. From there all flows will be conveyed to a BMP prior to offsite discharge.

Outlet 1 (1.58 ac) – As occurs in the existing condition the northern parking facility will sheet flow. Flows are then tributary to Lambert Street via the existing driveways.

Outlet 2 (3.51 ac) – Drainage area “B” will overland flow towards the existing parkway drain located near the western property boundary. A portion of the existing condition has been diverted to drain southerly toward Outlet 3 to reduce the surface flows discharging to the residential neighborhood.

Outlet 3 (4.43 ac) – Flows will mimic existing conditions and overland flow southerly. Flows will then discharge to Mulberry Street as occurs in the existing condition and flow westerly.

b. Soil Type:

In accordance with Los Angeles County Public Works Soil Classification Maps, the project site is designated as soil classification 16, Yolo Loam. The referenced map is provided in Appendix 1.

Results of the infiltration test performed by GLC Geotechnical found low infiltration rates not conducive to an infiltration BMP. See Appendix 3 for data.

c. Groundwater:

As determined through the State Water Board Geotracker database, this project site. does not have any known groundwater contaminationisted by the Regional Water Board's Leaking Underground Storage Tank (LUST) Program and Site Cleanup Program (SCP) See Appendix 1.

d. Other Geotechnical Issues:

To summarize the other site Geotechnical issues listed in the Geotechnical Report prepared by [Click here to enter text.](#), dated [Click here to enter text.](#), refer to Table d.1 below.

Table B.3.d

OTHER GEOTECHNICAL ISSUES		
Collapsible Soil	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Expansive Soil	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Liquefaction	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N

B.4 Other Site Considerations

a. Off-site Drainage:

The project site does not anticipate any off-site run-on.

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b. Significant Ecological Areas (SEAs)

The project's Significant Ecological Areas (SEAs) are listed in Table B.4.b below and require a separate regulatory permit.

Table B.4.b

Agency	Permit Required	
State Department of Fish and Game, 1602 Streambed Alteration Agreement	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
State Water Resources Control Board, Clean Water Act (CWA) Section 401 Water Quality Cert.	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
US Army Corps of Engineers, CWA Section 404 Permit	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
US Fish and Wildlife, Endangered Species Act Section 7 Biological Opinion	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N

C. BEST MANAGEMENT PRACTICES

C.1 *Site Design Principles*

a. Natural Areas:

Table c.1.a

Natural Area Design Criteria	Implemented		
Preserve historically undisturbed areas.	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
Maintain surface flow patterns of undeveloped sites, including water body alignments, sizes and shapes	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
Reserve areas with high permeability soils for either open space or retention based stormwater quality control measures.	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
Incorporate existing trees into site layout	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
Identify areas that may be restored or revegetated either during or post-construction	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
Identify and avoid areas susceptible to erosion and sediment loss.	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
Concentrate or cluster development on less sensitive areas of the project site, while leaving the remaining land in a natural, undisturbed state. Less sensitive areas may include, but are not limited to, areas that are not adjacent to receiving waters or areas where erosion may be an issue.	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
Protect slopes from erosion by safely conveying stormwater runoff from the tops of slopes.	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
Limit clearing and grading of native vegetation at the project site to minimum amount needed to build lots, allow access, and provide fire protection.	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
Maintain existing topography and existing drainage divides to encourage dispersed flow.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A
Maximize trees and other vegetation at the project site by planting additional vegetation, clustering tree areas, and promoting use of native and/or drought tolerant plants.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A
Promote natural vegetation by using parking lot islands and other landscaped areas. Integrate vegetation-based stormwater quality control measures within parking lot islands and landscaped areas.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A

b. Minimize Land Disturbance:

To maintain the native soil compaction and infiltration rates, the following measures shall be applied where practical on the construction site. These measures are not to supersede compaction requirements associated with the applicable building codes.

- Delineate and mark the development envelope for the project site on the site plan and physically demarcate the development envelope at the project site using temporary orange construction

fencing or flagging. The development envelope is established by identifying the minimum area needed to build lots, allow access, provide fire protection, and protect and buffer sensitive features such as streams, floodplains, steep slopes, and wetlands. Concentrate building and paved areas on the least permeable soils, with the least intact habitat.

- Restrict equipment access and construction equipment storage to the development envelope.
- Consider soil amendments to restore permeability and organic content.

c. Minimize Impervious Area:

The project will comply with all applicable building and fire codes and ordinances. Additional consideration was given to minimize the project site impervious area by implementing the following site designs where applicable and site feasible:

- Use minimum allowable roadway and sidewalk cross sections, driveway lengths, and parking stall sizes.
- Use two-track/ribbon alleyways/driveways or shared driveways.
- Include landscape islands in cul-de-sacs streets (where approved). Consider alternatives to cul-de-sacs to increase connectivity.
- Reduce building and parking lot footprints. Building footprints may be reduced by building taller.
- Use pervious pavement material, such as modular paving blocks, turf blocks, porous concrete and asphalt, brick, and gravel or cobble, to accommodate overflow parking, if feasible.
- Cluster buildings and paved areas to maximize pervious area.
- Maximize tree preservation or tree planting.
- Avoid compacting or paving over soils with high infiltration rates (see Minimize Land Disturbance section).
- Use vegetated swales to convey stormwater runoff instead of paved gutters.
- Build compactly at redevelopment sites to avoid disturbing natural and agricultural lands and to reduce per capita impacts.

d. Protect and Restore Natural Areas:

If feasible, and consistent with applicable General Plan or Local Area Plan policies, for the project site, the following design features or elements must be included:

- Preserve historically undisturbed areas. Identify and cordon off streams and their buffers, floodplains, wetlands, and steep slopes.
- Maintain surface flow patterns of undeveloped sites, including water body alignments, sizes, and shapes.
- Reserve areas with high permeability soils for either open space or retention-based stormwater quality control measures.
- Incorporate existing tree into site layout.
- Identify areas that may be restored or revegetated either during or post-construction.
- Identify and avoid areas susceptible to erosion and sediment loss.

- Concentrate or cluster development on less sensitive areas of the project site, while leaving the remaining land in a natural state, undisturbed state. Less sensitive areas may include, but are not limited to, areas that are not adjacent to receiving waters or areas where erosion may be an issue.
- Protect slopes from erosion by safely conveying stormwater runoff from the tops of slopes.
 - Vegetate slopes with native or drought-tolerant species.
 - Ensure slope protection practices conform to the applicable local erosion and sediment control standards and design standards. The design criteria described in this section are intended to enhance and be consistent with these local standards.
- Limit clearing and grading of native vegetation at the project site to the minimum amount needed to build lots, allow access, and provide fire protection.
- Maintain existing topography and existing drainage divides to encourage dispersed flow.
- Maximize trees and other vegetation at the project site by planting additional vegetation, clustering tree areas, and promoting use of native and/or drought-tolerant plants.
- Promote natural vegetation by using parking lot islands and other landscaped areas. Integrate vegetation-based stormwater quality control measures within parking lot islands and landscaped areas.

C.2 Source Control Measures

Per the Los Angeles County Public Works Low Impact Development Manual, the following source control measures shall be implemented in the project design and as listed per LID Manual Table 5-1, also referenced in Appendix 9.

Fact sheets for each of the source control measures listed in Table C.2 below can be found in Appendix 9. The source controls shall be designed and implemented in accordance with these fact sheets.

Table C.2

Source Control Measures	Implemented		
Storm drain message and signage (S-1)	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A
Outdoor Material Storage Areas (S-2)	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
Outdoor Trash Storage/Waste Handling Areas (S-3)	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A
Outdoor Loading/Unloading Dock Areas (S-4)	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
Outdoor Vehicle/Equipment Repair/Maintenance Areas (S-5)	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
Outdoor Vehicle/Equipment/Accessory Wash Areas (S-6)	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
Fuel & Maintenance Areas (S-7)	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A
Landscape Irrigation Practices (S-8)	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A
Building Materials (S-9)	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A
Animal Care and Handling Facilities (S-10)	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N	<input type="checkbox"/> N/A
Outdoor Horticulture Areas (S-11)	<input type="checkbox"/> Y	<input type="checkbox"/> N	<input checked="" type="checkbox"/> N/A

D. STORMWATER QUALITY DESIGN VOLUME CALCULATION

The design storm, from which the Stormwater Quality Design Volume (SWQDv) is calculated, is defined as the **greater of**:

The 0.75-inch, 24 hour storm rain event, or

The 85th percentile, 24 hour rain event as determined from Los Angeles County 85th percentile precipitation isohyetal map, as provided in Appendix 5.

D.1 Project Rainfall Depth:

85th Percentile, 24 Hour Rain Event

0.95 Inches

The 85th percentile, 24 hour storm event is greater and therefore a rainfall depth of 0.95 inches is used to calculate the SWQDv.

D.2 Project Calculated SWQDv:

Per County of Los Angeles HydroCalc Program, the input and output values as calculated for the site SWQDv is provided in Appendix 5.

Below is a provided summary of the SWQDv calculated.

Table D.2

DMA NAME OR ID	AREA (AC)	SOIL TYPE	FLOW PATH	PERCENT IMPERVIOUS	TREATMENT VOLUME (CF)
A1	0.99	12	375	0.85	2662
A2	0.59	12	355	0.79	1494
B1	3.51	12	738	0.21	3217
C1	2.6	12	703	0.15	1956
C2	2.21	12	817	0.46	3537
C3	1.62	12	755	0.62	3332
TOTAL SWQDv=					16198

E. STORMWATER QUALITY CONTROL MEASURES –LID BMPs

Stormwater Quality Control Measures must be designed and implemented to detain the calculated SWQDV in the following order:

- 1) **Infiltration (On-site Retention)**
- 2) **Runoff Harvest and Use**
- 3) **On-site biofiltration**, off-site groundwater replenishment, off-site infiltration and/or bioremediation, and off-site retrofit.

Additionally, pretreatment must be provided for stormwater quality control measures whose function may be adversely affected by sediment or other pollutants.

E.1 Infiltration (On-Site Retention):

The project site was analyzed for Infiltration feasibility.

Table E.1

Infiltration Infeasibility		
The corrected in-situ infiltration rate is less than 0.5 inches per hour, as determined according to the most recent GMED Policy GS 200.1, and it is not technically feasible to amend the in-situ soils to attain an infiltration rate necessary to achieve reliable	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Locations where the seasonal high groundwater level is within 10 feet of the surface, as determined according to the most recent GMED Policy GS 200.1;	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Locations within 100 feet of a groundwater well used for drinking water;	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Brownfield development sites where infiltration poses a risk of pollutant mobilization;	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Other locations where pollutant mobilization is a documented concern (e.g., at or near properties that are contaminated or store hazardous substances underground);	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Locations with potential geotechnical hazards;	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Smart growth and infill or redevelopment locations where the density and/or nature of the project would create significant difficulty for compliance with the onsite retention requirement;	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Locations where infiltration may adversely impact biological resources; or	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Locations where infiltration may cause health and safety concerns.	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Other: _____	<input type="checkbox"/> Y	<input type="checkbox"/> N

If yes has been checked for any of the above questions, then infiltration BMPs will not be used for the site and Harvest and Use will be assessed next for site feasibility. Additional Infiltration Infeasibility narrative is provided below.

If no has been checked for all above questions, then site infiltration is feasible and Table E.2 below lists the implemented Infiltration based BMPs.

Additional Infiltration Infeasibility Narrative:

Infiltration test performed by LGC Geotechnical (See Appendix 3)found unfactored infiltration rates of 0 in/hr. Utilizing the County of LA LID Manual and factor of safety of 3 was applied which brought the design infiltration rate below the minimum of 0.5 in/hr threshold required to utilize an infiltration bmp as described in the County of LA LID Manual. Potential connection to a higher infiltrating soil layer is not deemed feasible at this time.

Implemented Infiltration BMPs

Table E.1

Infiltration based BMPs	Implemented	
Bioretention (RET-1)	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Infiltration Basin (RET-2)	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Infiltration Trench (RET-3)	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Dry Well (RET-4)	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Permeable Pavement without an Underdrain (RET-5)	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Other: _____	<input type="checkbox"/> Y	<input type="checkbox"/> N

Infiltration BMP Narrative:

Infiltration BMPs have not been chosen for this site due to infeasible infiltration rates. The DCV will be treated with other measures

E.2 Runoff Harvest and Reuse Assessment:

Does the site capture 100% of the SWQDv through Infiltration based BMPs as listed above?

☐ Y ☒ N

If yes has been checked, Harvest and Reuse BMP assessment is not required.

If no has been checked, Harvest and Reuse assessment is required. See feasibility analysis provided in Appendix 4. The following Harvest and Use BMPs have been implemented on-site.

A. Harvest and Reuse- Indoor Use

Per the 2014 California Department of Public Health Regulations Related to Recycled Water- Article 5. Dual Plumbed Recycled Water Systems 60313 (a), no person other than a recycled water agency shall deliver recycled water to a dual plumbed facility. In conclusion, the reuse of water for internal plumbing use is considered infeasible per the CDPH Regulations.

B. Harvest and Reuse- Outdoor Use (Irrigation)

Table E.2B

Capture and Use Infeasibility		
Projects that would not provide sufficient irrigation or (where permitted) domestic grey water demand for use of stored stormwater runoff due to limited landscaping or extensive use of low water use plant palettes in landscaped areas; (See calculations provided in Appendix 4)	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
0 ac Actual provided Landscape Area		
Projects that are required to use recycled water for landscape irrigation;	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Projects in which the harvest and use of stormwater runoff would conflict with local, state, or federal ordinances or building codes;	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Locations where storage facilities may cause potential geotechnical hazards as outlined in the geotechnical report; or	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Locations where storage facilities may cause health and safety concerns.	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N

If yes has been checked for any of the above questions, then Harvest and Use BMPs will not be used for the site and Alternative Compliance is required.

If no has been checked for all above questions, then site Capture and Use is feasible and Table E 2.B below lists the implemented Capture and Use BMPs.

Additional Harvest and Reuse Infeasibility Narrative:

The project is has a significant enough landscape for harvest and reuse to be feasible. And Cistern will be implemented with pump to use for irrigation.

Implemented Capture and Use BMPs

Table E. 2.B

Harvest & Use BMPs	Implemented	
Rain Barrel/Cistern (RET-6)	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Green Roof (RET-7)	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Other: _____	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N

Additional Capture and Use Narrative:

Harvest and Reuse BMPs have been deemed feasible for the site. The DCV will be treated with through Harvest and Reuse. See appendix for calculations

E.3 Alternative Compliance:

Does the site capture 100% of the SWQDv through Infiltration and/or
Runoff Harvest and Use based BMPs as listed above?

☒ Y ☐ N

If yes has been checked, Alternative Compliance is not required.

If no has been checked, Alternative Compliance is required.

A. Implemented Alternative Compliance Measures:

Table E.3.A

Alternative Compliance Measures	Implemented	
On-site biofiltration of 1.5 times the volume of the SWQDv that is not reliably retained on-site; _____ Calculated Treatment rate (See Appendix 5 for Calculations)	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
On-site treatment and off-site infiltration/bioretenion for the volume of the SWQDv that is not reliably retained on-site	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Replenishment of groundwater supplies that have a designated beneficial use in the Water Quality Control Plan: Los Angeles Region, Basin Plan for the Coastal Watersheds of Los Angeles and Ventura Counties (Basin Plan), which was most recently adopted in June 1994 by the Regional Water Board and subsequently amended; or	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
On-site treatment and off-site infiltration/bioretenion or stormwater runoff harvest and use of the volume of SWQDv that is not reliably retained on-site through retrofit an existing development with similar land uses as the project.	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Other: Treatment using Stormwater Planter basin using the sizing calculations as described in the technical guidance manual	<input type="checkbox"/> Y	<input type="checkbox"/> N

Acceptable Alternative Compliance BMPs are listed and implemented on-site as listed below in Table E.3.B.

Table E.3.B

On-site Biofiltration and Vegetation based Stormwater Quality Control Measures	Implemented	
Biofiltration (BIO-1)	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Stormwater Planter (VEG-1)	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Tree-well Filter (VEG-2)	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Vegetated Filter Strips (VEG-3)	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Vegetated Swales (VEG-4)	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Other: _____	<input type="checkbox"/> Y	<input type="checkbox"/> N

Additional Alternative Compliance Narrative:

The project site will be treated with one Biofiltration and storage system (MWS A) shown in the LID plan in attachment A.

E.4 Pretreatment BMPs:

Is pretreatment required for the project site?

☐ Y ☒ N

If yes has been checked, the following Pretreatment BMPs will be implemented on-site.

Table E.4

Treatment-based Stormwater Quality Control Measures		
Sand Filters (T-1)	<input type="checkbox"/> Y	<input type="checkbox"/> N
Constructed Wetlands (T-2)	<input type="checkbox"/> Y	<input type="checkbox"/> N
Extended Detention Basins (T-3)	<input type="checkbox"/> Y	<input type="checkbox"/> N
Wet Pond (T-4)	<input type="checkbox"/> Y	<input type="checkbox"/> N
Permeable Pavement with an Underdrain (T-5)	<input type="checkbox"/> Y	<input type="checkbox"/> N
Proprietary Devices (T-6)	<input type="checkbox"/> Y	<input type="checkbox"/> N
Other: _____	<input type="checkbox"/> Y	<input type="checkbox"/> N

F. HYDROMODIFICATION

Projects may be exempt from implementation of hydromodification control measures where assessment of downstream channel conditions and proposed discharge hydrology indicate the adverse hydromodification effects to beneficial uses of natural drainage systems are unlikely.

Table F.1

Exemptions		
The replacement, maintenance, or repair of an existing permitted publicly-maintained flood control facility, storm drain, or transportation network	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Redevelopment of a previously developed site in an urbanized area that does not increase the effective impervious area or decrease the infiltration capacity of pervious areas compared to the pre-project conditions _____ % Pre Development Imperviousness _____ % Post Development Imperviousness	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Projects that have any increased discharge directly or through a storm drain to a sump, lake, area under tidal influence, into a waterway that has an estimated hundred year peak flow of 25,000 cfs or more, or other receiving water that is not susceptible to hydromodification impacts	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Projects that discharge directly or through a storm drain into concrete or otherwise engineered channel (channelized or armored with rip-rap, shotcrete), which in turn, discharge into receiving water that is not susceptible to hydromodification impacts.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Non-designated project disturbing less than 1 acre or creating less than 10,000 square feet of new impervious area; or	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Single-family homes that incorporate LID BMPs in accordance with the LID Standards Manual	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N

If yes has been checked, Hydromodification control measures are not required. Refer to additional Hydromodification exemption narrative given below.

If no has been checked, Hydromodification control measures are required and must meet the design criteria set forth by the Los Angeles County LID Manual and as given below.

Additional Hydromodification Exemption Narrative:

Hydromodification is not required as project site discharge to a lined LACFCD channel.

G. STORMWATER BMP MAINTENANCE

Maintenance Plan Requirements

A Maintenance Plan is provided in Appendix X for each individual stormwater BMP.
The Maintenance plan includes the following items:

Table G.1

Maintenance Plan		
Operation plan and schedule, including a site map	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Maintenance and cleaning activities and schedule	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Equipment and resource requirements necessary to operate and maintain stormwater quality control measure	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Responsible party for operation and maintenance.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

Table G.2

Site Map		
Provide a site map showing boundaries of the site, acreage, and drainage patterns/contour lines. Show each discharge location from the project site and any drainage flowing onto the site. Distinguish between pervious and impervious surfaces on the map.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Identify locations of existing and proposed storm drain facilities, private sanitary sewer systems, and grade breaks for purposes of pollution preventions.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
With a legend, identify locations of expected sources of pollution generation (e.g. outdoor work and storage areas, heavy traffic areas, delivery areas, trash enclosures, fueling areas, industrial clarifies, and wash-racks). Identify any areas having contaminated soil or where pollutants are stored or have been stored/disposed of in the past.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
With a legend, indicate types and locations of stormwater quality control measures that will be built to permanently control stormwater pollution, including Global Positioning System X and Y coordinates. Distinguish between pollution prevention, treatment, sewer diversion, and contaminated devices.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

Table G.3

Baseline Descriptions		
List property owners and persons responsible for operation and maintenance of the on-site stormwater quality control measures. Include phone numbers and addresses.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Identify the intended method of funding (i.e., homeowners association fees) for operation, inspection, routine maintenance, and upkeep of stormwater quality control measures.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
List all permanent stormwater quality control measures. Provide a brief description of each stormwater quality control measure and, if appropriate, fact sheets or additional	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

information.		
A written description and checklist of all maintenance and waste disposal activities that will be performed. Distinguish between the maintenance appropriate for a 2-year establishment period and expected long-term maintenance. For example, maintenance requirements for vegetation in a constructed wetland may be more intensive during the first few years until the vegetation is established. The post-establishment maintenance plan must address maintenance needs (e.g., pruning, irrigation, weeding) for a larger, more stable system. Include maintenance performance procedures for facility components that require relatively unique maintenance knowledge, such as specific plant removal/replacement, landscape features, or constructed wetland maintenance. These procedures must provide sufficient detail to a person unfamiliar with maintenance to perform the activity or identify the specific skills or knowledge to perform and document the maintenance.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
A description of site inspection procedures and documentation system, including recordkeeping and retention requirements.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
An inspection and maintenance schedule, preferably in the form of a table or matrix, for each activity for all facility components. The schedule must show how it will satisfy the specified level of performance and how maintenance/inspection activities relate to storm events and seasonal issues.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Identification of equipment and materials required to perform maintenance.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
As appropriate, list all housekeeping procedures for prohibiting illicit discharges or potential illicit discharges to the storm drain system. Identify housekeeping BMPs that reduce maintenance of stormwater quality control measures.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

Table G.4

Spill Plan		
Provide emergency notification procedures (phone and agency/persons to contact).	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
As appropriate for site, provide emergency containment and cleaning procedures.	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Note downstream receiving waters, wetlands, or SEAs that may be affected by spills or chronic untreated discharges.	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
As appropriate, create an emergency sampling procedure for spills. Emergency sampling can protect the property owner from erroneous liability for downstream receiving area cleanups.	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N

Identify appropriate persons to be properly trained and assure documentation of training. Training should include:

Table G.5

Training		
Good housekeeping procedures defined in the Maintenance Plan;	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Proper maintenance of all pollution mitigation devices	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

Identification and cleanup procedures for spills and overflows	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Large-scale spill or hazardous material response; and	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N
Safety concerns when maintain devices and cleaning spills.	<input type="checkbox"/> Y	<input checked="" type="checkbox"/> N

Table G.6

Basic Inspection and Maintenance Activities		
Create and maintain on-site, a log for inspector names, dates, and stormwater quality control measure to be inspected and maintained. Provide a checklist for each inspection and maintenance category.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Perform and document annual testing of any mechanical or electrical devices prior to wet weather.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Report any significant changes in stormwater quality control measures to the site management. As appropriate, assure mechanical devices are working properly and/or landscaped plants are irrigated and nurtured to promote thick growth.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Note any significant maintenance requirements due to spills or unexpected discharges.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
As appropriate, perform maintenance and replacement as scheduled or as needed in a timely manner to assure stormwater quality control measures are performing as designed and approved.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Assure unauthorized low-flow discharges from the property do not bypass stormwater quality control measures.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Perform an annual assessment of each pollution-generating operation and its associated stormwater quality control measures to determine if any part of the pollution reduction train can be improved. Annual assessment reports must be submitted to LACDPW.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

Operational or facility conditions or changes that significantly affect the character or quantity of pollutants discharging into the stormwater quality control measures may require modifications to the Maintenance Plan and/or additional stormwater quality control measures.

If future correction or modification of past stormwater quality control measures or procedures is required, the owner must obtain approval from LACDPW prior to commencing any work. Corrective measures or modifications must not cause discharges to bypass or otherwise impede existing stormwater quality control measures.

Maintenance Agreement:

Verification of maintenance provisions is required for all stormwater quality control measures. If required, verification, at a minimum, must include:

Table G.7

Verification of Maintenance Provisions		
The owner/developer's signed statement accepting responsibility for inspection and maintenance until the responsibility is legally transferred. An example Owners Certification Statement is provided in Appendix G; and either	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

A signed statement from the public entity assuming responsibility for stormwater quality control measure inspection and maintenance and certifying that it meets all design standards; or	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Written conditions in the sales or lease agreement that require the recipient to assume responsibility for inspection and maintenance activities and to conduct a maintenance inspection at least once a year; or	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
Written text in project conditions, covenants, and restrictions for residential properties that assign maintenance responsibilities to a Home Owners Association for inspection and maintenance of stormwater quality control measures; or	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N
A legally enforceable maintenance agreement that assigns responsibility for inspection and maintenance of stormwater quality control measures to the owner/operator. A Maintenance Agreement with LACDPW must be executed by the owner/operator before occupancy of the project is approved.	<input checked="" type="checkbox"/> Y	<input type="checkbox"/> N

APPENDICES

APPENDIX 1

MAPS AND SITE PLANS

Hydrologic Soil Group—Los Angeles County, California, Southeastern Part

118° 0' 12" W 118° 0' 1" W 33° 56' 18" N 33° 56' 5" N

407290 407330 407370 407410 407450 407490 407530

3755770 3755730 3755690 3755650 3755610 3755570 3755530 3755490 3755450 3755410

1136

1134

Lambert Rd

Ramp

Scott Ave

Mulberry Dr

Soil Map may not be valid at this scale.

Map Scale: 1:1,830 if printed on A portrait (8.5" x 11") sheet.


0 25 50 100 150 Meters

0 50 100 200 300 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84

Map Scale: 1:1,830 if printed on A portrait (8.5" x 11") sheet.

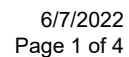
N



0 25 50 100 150 Meters

0 50 100 200 300 Feet

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 11N WGS84



MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Lines

 A
 A/D
 B
 B/D
 C
 C/D
 D
 Not rated or not available

Soil Rating Points

 A
 A/D
 B
 B/D

 C
 C/D
 D
 Not rated or not available

Water Features

 Streams and Canals

Transportation

 Rails
 Interstate Highways
 US Routes
 Major Roads
 Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Los Angeles County, California, Southeastern Part
 Survey Area Data: Version 8, Sep 13, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Nov 19, 2020—Dec 5, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
1134	Urban land-Thums-Piervue complex, 0 to 5 percent slopes	C	10.1	75.8%
1136	Urban land-Sorrento-Arbolado complex, 2 to 9 percent slopes	C	3.2	24.2%
Totals for Area of Interest			13.3	100.0%

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

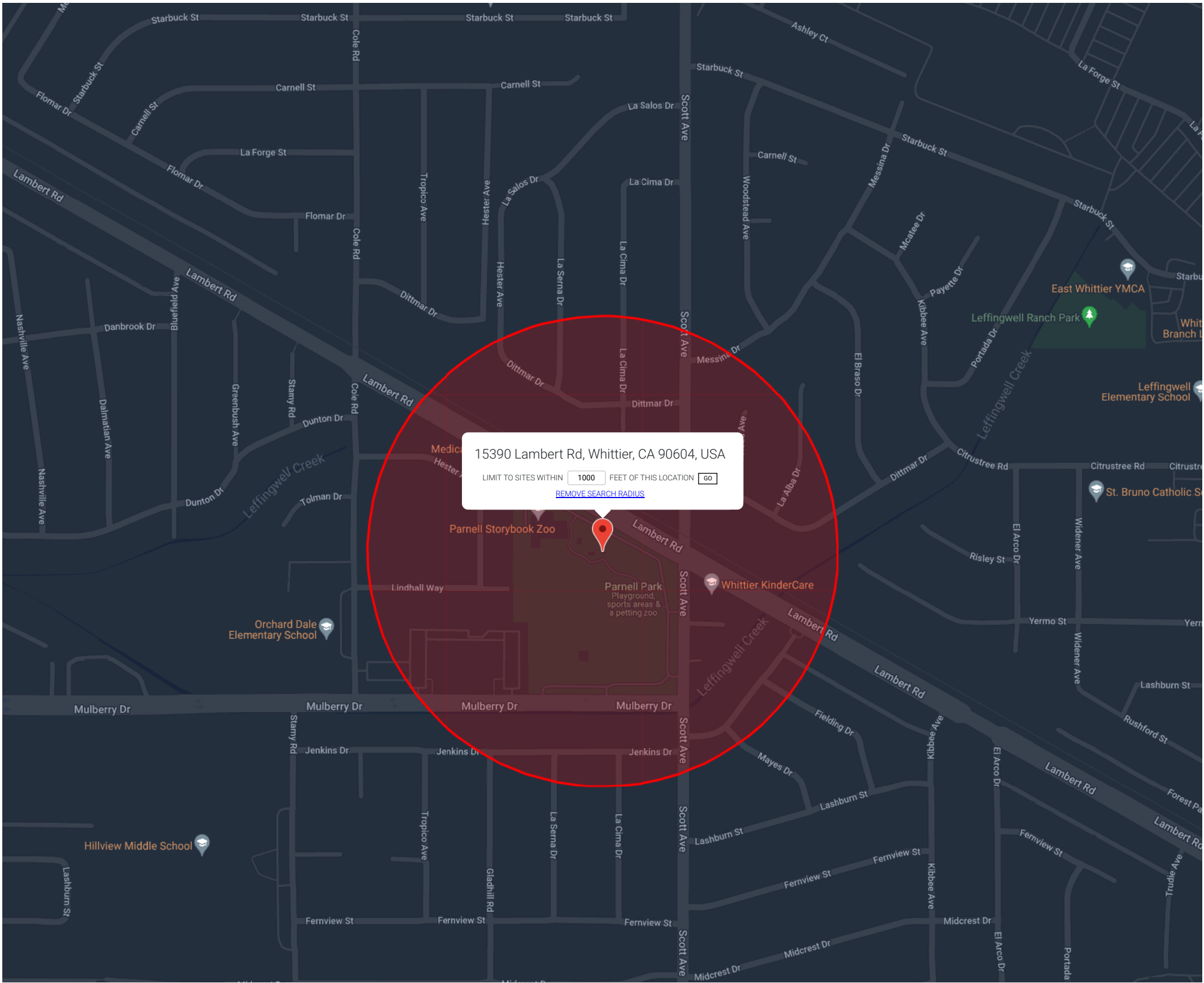
If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher



LEGEND - [CHOOSE MORE SITES](#)

LUST Cleanup Sites - [REMOVE](#)

Cleanup Program Sites - [REMOVE](#)

Military Cleanup Sites - [REMOVE](#)

Military Privatized Sites - [REMOVE](#)

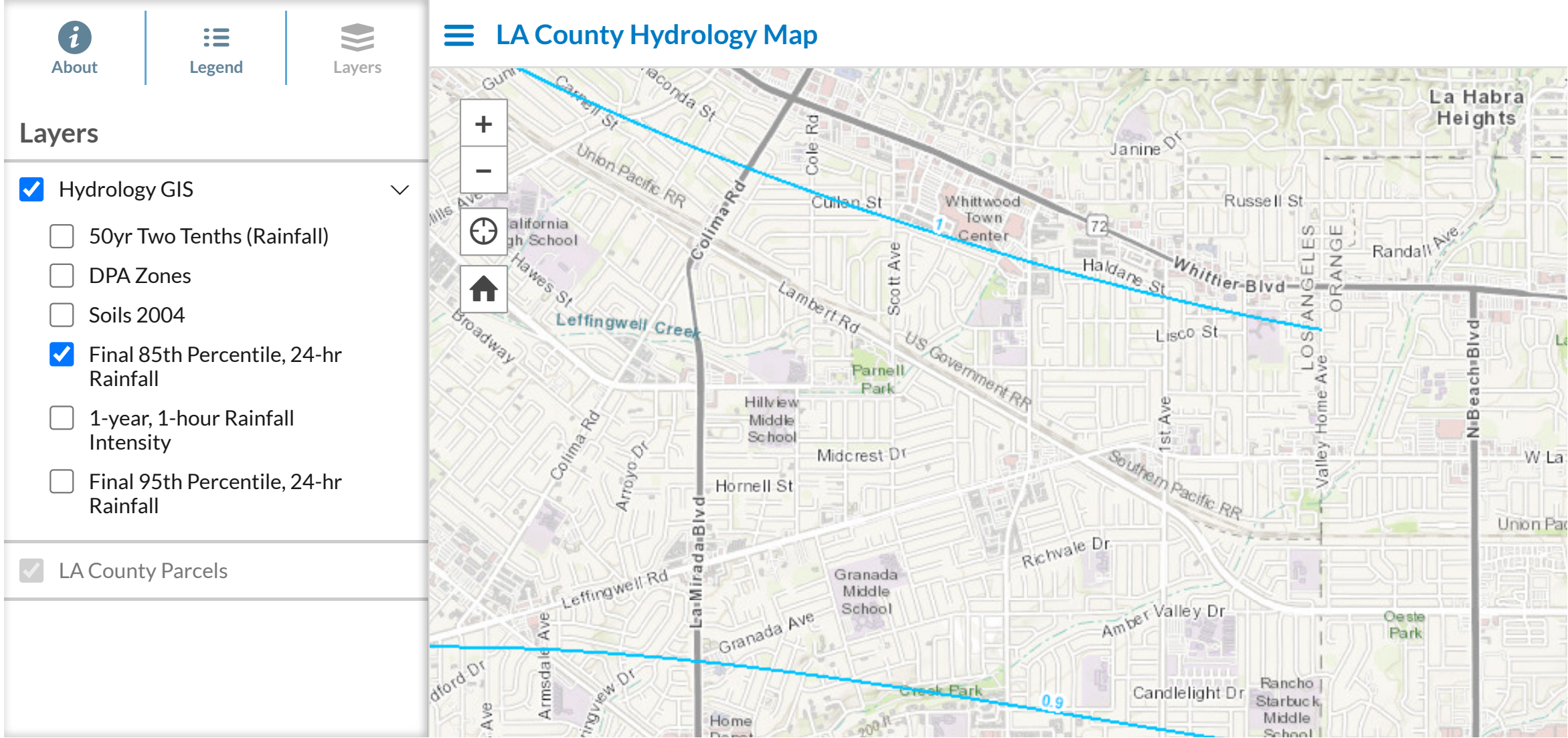
Military UST Sites - [REMOVE](#)

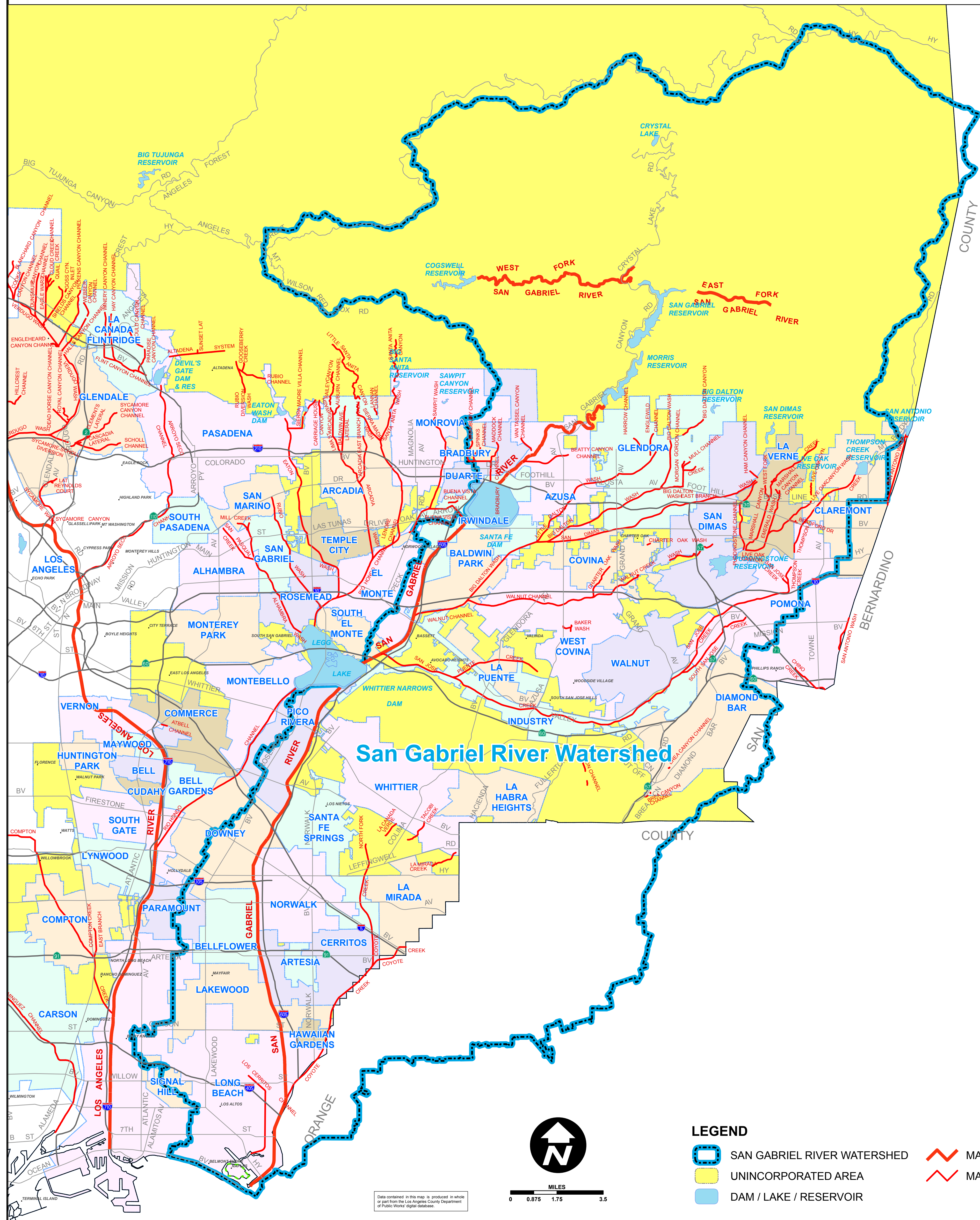
☒ Signifies a Closed Site

ACTIVE MAP COVERAGES:

Military Bases - [REMOVE](#)

LIST SITES VISIBLE ON MAP



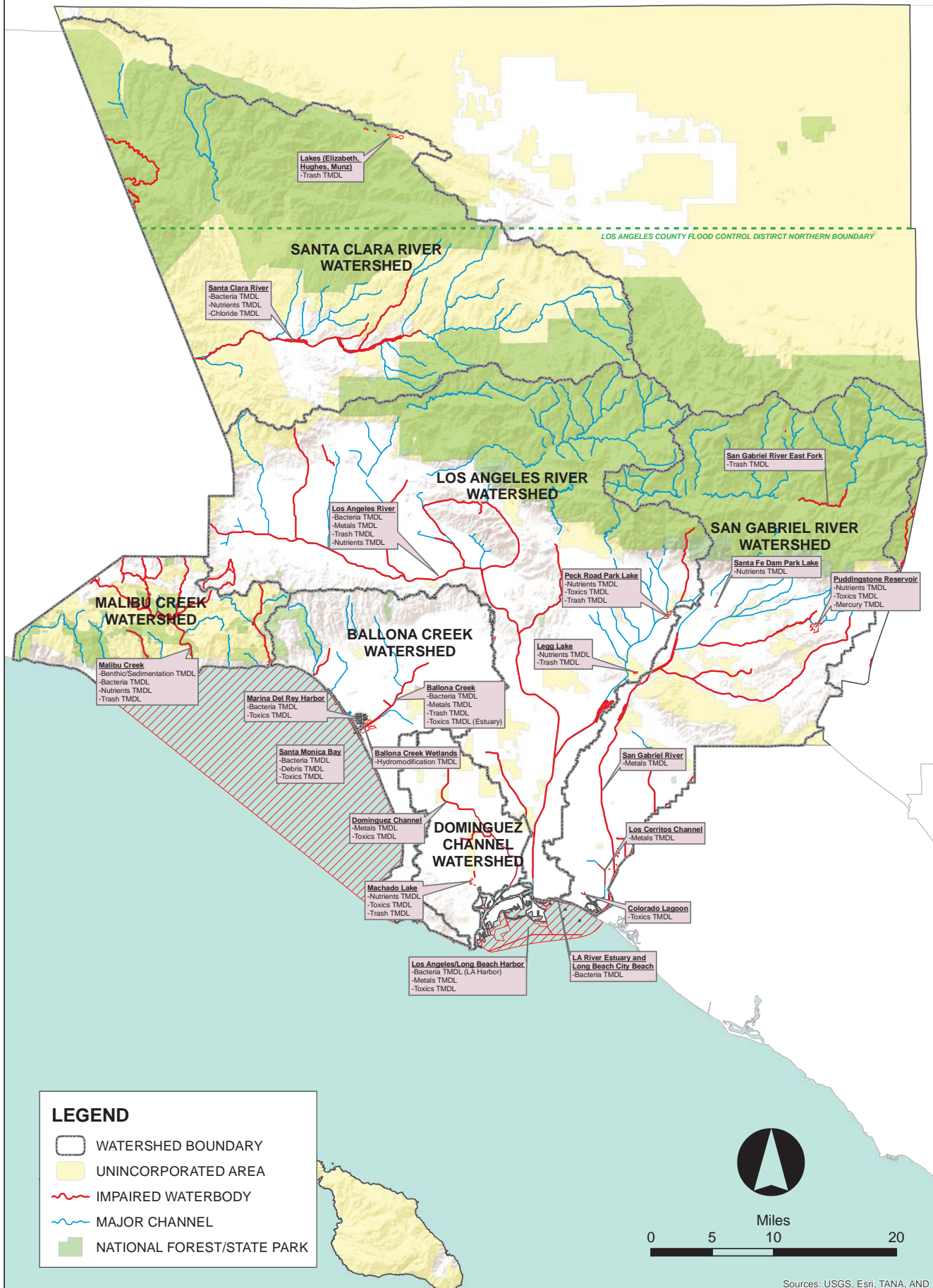


Soil Identification Table

Number	Name	Original Name
2	ALTAMONT CLAY LOAM	A
3	CHINO SILT LOAM	CS-1
4	DIABLO CLAY LOAM	DY
5	HANFORD FINE SANDY LOAM	HF
6	HANFORD FINE SANDY LOAM	HF-1
7	HANFORD GRAVELLY SANDY LOAM	HG
8	HANFORD SILT LOAM	HN
9	MONTEZUMA CLAY ADOBE	M
10	OAKLEY FINE SAND	OS
11	PLACENTIA LOAM	PL
12	RAMONA CLAY LOAM	RC- 1
13	RAMONA LOAM	RO
14	RAMONA SANDY LOAM	RS
15	TUJUNGA FINE SANDY LOAM	TF
16	YOLO LOAM	Y
17	YOLO CLAY LOAM	YC
18	YOLO FINE SANDY LOAM	YF
19	YOLO GRAVELLY SANDY LOAM	YG
20	YOLO SANDY LOAM	YS
21	SANTA MONICA MOUNTAINS	SMM-1
22	SANTA MONICA MOUNTAINS	SMM-2
23	SANTA MONICA MOUNTAINS	SMM-3
24	SANTA MONICA MOUNTAINS	SMM-4
25	SANTA MONICA MOUNTAINS	SMM-5
26	SANTA MONICA MOUNTAINS	SMM-6
27	SANTA MONICA MOUNTAINS	SMM-7
28	SANTA MONICA MOUNTAINS	SMM-8
29	SANTA MONICA MOUNTAINS	SMM-9
30	SANTA MONICA MOUNTAINS	SMM-10
31	SANTA MONICA MOUNTAINS	SMM- 11
32	SANTA MONICA MOUNTAINS	SMM-12
33	SANTA MONICA MOUNTAINS	SMM-13
34	SANTA MONICA MOUNTAINS	SMM-14
35	SANTA MONICA MOUNTAINS	SMM-15
36	SANTA MONICA MOUNTAINS	SMM-16
37	SANTA MONICA MOUNTAINS	SMM- 17
38	SANTA MONICA MOUNTAINS	SMM- 18



COUNTY OF LOS ANGELES
MAJOR WATERSHEDS
and
EFFECTIVE TOTAL MAXIMUM DAILY LOADS
(as of October 2013)



APPENDIX 2

CONSTRUCTION PLANS

APPENDIX 3
SOILS INFORMATION/REPORT

Infiltration Test Data Sheet

LGC Geotechnical, Inc

131 Calle Iglesia Suite A, San Clemente, CA 92672 tel. (949) 369-6141

Project Name: SWA - Parnell Park
Project Number: 21291-01
Date: 7/22/2022
Location: I-1

Test hole dimensions (if circular)

Boring Depth (feet)*: 7
Boring Diameter (inches): 8
Pipe Diameter (inches): 3

*measured at time of test

Test pit dimensions (if rectangular)

Pit Depth (feet):
Pit Length (feet):
Pit Breadth (feet):

Pre-Soak /Pre-Test

No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval (min)	Initial Depth to Water (feet)	Final Depth to Water (feet)	Total Change in Water Level (feet)	Comments
PS-1	7:20	7:50	30.0	1.00	1.04	0.04	
PS-2	7:50	8:20	30.0	1.04	1.09	0.05	
Pre-Test	8:20	8:50	30.0	1.09	1.13	0.04	

Main Test Data

Trial No.	Start Time (24:HR)	Stop Time (24:HR)	Time Interval, Δt (min)	Initial Depth to Water, D_o (feet)	Final Depth to Water, D_f (feet)	Change in Water Level, ΔD (feet)	Surface Area of Test Section (feet ²)	Raw Percolation Rate (in/hr)
1	8:50	9:20	30.0	1.13	1.17	0.04	12.64	0.0
2	9:20	9:50	30.0	1.17	1.20	0.03	12.56	0.0
3	9:50	10:20	30.0	1.20	1.23	0.03	12.50	0.0
4	10:20	10:50	30.0	1.23	1.26	0.03	12.43	0.0
5	10:50	11:20	30.0	1.26	1.29	0.03	12.37	0.0
6	11:20	11:50	30.0	1.29	1.32	0.03	12.31	0.0
7								
8								
9								
10								
11								
12								

Measured Infiltration Rate 0.0

Feasibility Factor of Safety 2

Feasibility Infiltration Rate 0.0

Sketch:

Notes:

Based on Guidelines from: LA County dated 06/2017

Spreadsheet Revised on: 12/23/2019



APPENDIX 4

LID INFEASIBILITY

NOTE: This publication is meant to be an aid to the staff of the CDPH—formerly the Department of Health Services (DHS)—Drinking Water Program and cannot be relied upon by the regulated community as the State of California's representation of the law. The published codes are the only official representation of the law. Refer to the published codes—in this case, Title 17 and 22 CCR—whenever specific citations are required.

Article 5. Dual Plumbed Recycled Water Systems.

§60313. General requirements.

(a) No person other than a recycled water agency shall deliver recycled water to a dual plumbed facility.

(b) No recycled water agency shall deliver recycled water for any internal use to any individually-owned residential units including free-standing structures, multiplexes, or condominiums.¹

(c) No recycled water agency shall deliver recycled water for internal use except for fire suppression systems, to any facility that produces or processes food products or beverages. For purposes of this Subsection, cafeterias or snack bars in a facility whose primary function does not involve the production or processing of foods or beverages are not considered facilities that produce or process foods or beverages.

(d) No recycled water agency shall deliver recycled water to a facility using a dual plumbed system unless the report required pursuant to section 13522.5 of the Water Code, and which meets the requirements set forth in section 60314, has been submitted to, and approved by, the regulatory agency.

§60314. Report submittal.

(a) For dual-plumbed recycled water systems, the report submitted pursuant to section 13522.5 of the Water Code shall contain the following information in addition to the information required by section 60323:

- (1) A detailed description of the intended use area identifying the following:
 - (A) The number, location, and type of facilities within the use area proposing to use dual plumbed systems,
 - (B) The average number of persons estimated to be served by each facility on a daily basis,
 - (C) The specific boundaries of the proposed use area including a map showing the location of each facility to be served,
 - (D) The person or persons responsible for operation of the dual plumbed system at each facility, and
 - (E) The specific use to be made of the recycled water at each facility.
- (2) Plans and specifications describing the following:
 - (A) Proposed piping system to be used,
 - (B) Pipe locations of both the recycled and potable systems,

¹ AB 1406, Chapter 537, Statutes of 2007, Water Code 13553, et seq., allows condominiums to be plumbed with recycled water, subject to a number of provisions. This regulation will be changed in future CDPH rulemaking to be consistent with the revised statutory requirements.

Los Angeles Regional Water Quality Control Board

Table 2-1. Beneficial Uses of Inland Surface Waters.

WATERSHED ^a	WBD No.	MUN	IND	PROC	AGR	GWR	FRSH	NAV	POW	COMM	AQUA	WARM	COLD	SAL	EST	MAR	WILD	BIOL	RARE	MIGR	SPWN	SHELL	WET ^b
VENTURA COUNTY COASTAL STREAMS																							
Los Sauces Creek	180701010202	P*	I	I	I	I						I	I				E			I	I		
Poverty Canyon	180701010202	P*	I	I	I	I						I	I				E			I	I		
Madranio Canyon	180701010202	P*	I	I	I	I						I	I				E			I	I		
Javon Canyon	180701010202	P*	I	I	I	I						I	I				E			I	I		E
Padre Juan Canyon	180701010202	P*	I	I	I	I						I	I				E			I	I		
McGrath Lake	180701010202									P					E		E		Ee				E
Big Sycamore Canyon Creek	180701040201	P*				I						I	E				E			P	P		E
Little Sycamore Canyon Creek	180701040202	P*										I					E		E		P		
VENTURA RIVER WATERSHED																							
Ventura River Estuary ^c	180701010106							E		E		E			E	E	E		Ee	Ef	Ef	E	E
Ventura River Reach 1 (Ventura River Estuary to Main St.)	180701010106	P*	E			E	E					E	E				E		E	E	E		E
Ventura River Reach 2 (Main St. to Weldon Canyon)	180701010106	P*	E			E	E					E	E				E		E	E	E		E
Cañada Larga	180701010106	P*		I	I	I	I					I	I				E			I	I		
Lake Casitas	180701010105	E	E	E	E	P	P		P			E	E				E		E				
Lake Casitas tributaries	180701010105	E*				P	E					E	E				E		P	E	E		E
Ventura River Reach 3 (Weldon Canyon to Casitas Vista Rd.)	180701010106	P*	E			E	E					E	E				E		E	E	E		E
Ventura River Reach 4 (Casitas Vista Rd. to San Antonio Creek)	180701010106	P*	E			E	E					E	E				E		E	E	E		E
Ventura River Reach 4 (San Antonio Creek to Camino Cielo Rd.)	180701010104	E	E	E	E	E	E					E	E				E		Eg	E	E		E
Coyote Creek	180701010105	P*				E						E	E				E			E	E		E
San Antonio Creek (Ventura River Reach 4 to Lion Creek)	180701010103	E	E	E	E	E						E	E				E			E	E		E
San Antonio Creek (above Lion Creek)	180701010103	E	E	E	E	E	E					E	E				E			E	E		E
Lion Creek	180701010103	I*	I	I	I							I	I				E						
Reeves Creek	180701010103	I*	I	I	I							I	I				E			I	I		
Mirror Lake	180701010104	P*				E						E					E						E
Ojai Wetland	180701010104	P*										E					E						E
Ventura River Reach 5 (above Camino Cielo Rd.)	180701010104	E	E	E	E	E	E					E	E				E		Eg	E	E		E
Matilija Creek Reach 1 (Ventura River Reach 5 to Matilija Reservoir)	180701010101	P*				E							E				E			E	E		E
Matilija Creek Reach 2 (above Matilija Reservoir)	180701010101	P*				E							E				E			E	E		E
Murietta Canyon Creek	180701010101	P*				E							E				E			E	E		E
North Fork Matilija Creek	180701010102	E*	E	E	E	E						E	E				E		E	E	E		E
Matilija Reservoir	180701010101	E				E	E					E	E				E			E	E		E

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

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Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

b: Waterbodies designated as WET may have wetlands habitat associated with only a portion of the waterbody. Any regulatory action would require a detailed analysis of the area.

c: Coastal waterbodies which are also listed in inland Surface Waters Tables (2-1) or in Wetlands Table (2-4).

e: One or more rare species utilizes all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

f: Aquatic organisms utilize all bays, estuaries, lagoons, and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas which are heavily influenced by freshwater inputs.

g: Condor refuge.

Los Angeles Regional Water Quality Control Board

Table 2-1. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a	WBD No.	MUN	IND	PROC	AGR	GWR	FRSH	NAV	POW	COMM	AQUA	WARM	COLD	SAL	EST	MAR	WILD	BIOL	RARE	MIGR	SPWN	SHELL	WET ^b
SANTA CLARA RIVER WATERSHED																							
Santa Clara River Estuary (Ends at Harbor Blvd.) ^c	180701020904							E		E					E	E	E		Ee	Ef	Ef		E
Santa Clara River Reach 1																							
Santa Clara River (Estuary to Highway 101 bridge)	180701020904	P*	E	E	E	E	E					E	E				E		E	E			E
Santa Clara River Reach 2																							
Santa Clara River (Highway 101 bridge to Ellsworth Barranca)	180701020904	P*	E	E	E	E	E					E	E				E		E	E			E
Santa Clara River (Ellsworth Barranca to Freeman Diversion)	180701020903	P*	E	E	E	E	E					E	E				E		E	E			E
Santa Clara River Reach 3																							
Santa Clara River (Freeman Diversion Dam to Santa Paula Creek)	180701020903	P*	E	E	E	E	E					E					E		E	E			E
Santa Clara River (Santa Paula Creek to Sespe Creek)	180701020902	P*	E	E	E	E	E					E					E		E	E			E
Santa Clara River (Sespe Creek to A Street, Fillmore)	180701020802	P*	E	E	E	E	E					E					E		E	E			E
Santa Clara River Reach 4A																							
Santa Clara River (A Street, Fillmore to Piru Creek)	180701020802	P*	E	E	E	E	E					E					E		E	E			E
Santa Clara River Reach 4B																							
Santa Clara River (Piru Creek to Blue Cut gaging station)	180701020403	P*	E	E	E	E	E					E					E		E	E			E
Santa Clara River Reach 5																							
Santa Clara River (Blue Cut gaging station to West Pier Highway 99)	180701020403	P*	E	E	E	E	E					E					E		E				E
Santa Clara River Reach 6																							
Santa Clara River (West Pier Highway 99 to Bouquet Canyon Rd.)	180701020403	P*	E	E	E	E	E					E					E		E				E
Santa Clara River Reach 7																							
Santa Clara River (Bouquet Canyon Rd. to Lang gaging station)	180701020107	P*	E	E	E	E	E					E					E		E				E
Santa Clara River Reach 8																							
Soledad Canyon (Lang gaging station to Agua Dulce Canyon Creek)	180701020107	E*	E	E	E	E	E					E					E		Ei				E
Soledad Canyon (Agua Dulce Canyon Creek to Aliso Canyon Creek)	180701020105	E*	E	E	E	E	E					E					E		Ei				E
Soledad Canyon (above Aliso Canyon Creek)	180701020102	E*	E	E	E	E	E					E					E		Ei				E
Santa Clara River Reach 9																							
Santa Paula Creek (above Santa Paula Water Works Diversion Dam)	180701020901	P	E	E	E	E	E					E	E				E		E	E	E		
Santa Clara River Reach 10																							
Sespe Creek (gaging station below Little Sespe Creek to Hot Springs Canyon)	180701020705	P	E	P	E	E						E	E				E	E	Eg	E	E		E
Sespe Creek (Hot Springs Canyon to Piedra Blanca Creek)	180701020703	P	E	P	E	E						E	E				E	E	Eg	E	E		E
Sespe Creek (Piedra Blanca Creek to Potrero John Creek)	180701020702	P	E	P	E	E						E	E				E	E	Eg	E	E		E
Sespe Creek (above Potrero John Creek)	180701020701	P	E	P	E	E						E	E				E	E	Eg	E	E		E
Santa Clara River Reach 11																							
Piru Creek (gaging station below Santa Felicia Dam to Agua Blanca Creek)	180701020603	P	E	E	E	E	E					E	E				E		Eg	E	E		E
Piru Creek (Agua Blanca Creek to Pyramid Lake)	180701020602	P	E	E	E	E	E					E	E				E		Eg		E		E
Piru Creek (Pyramid Lake to Snowy Creek)	180701020508	P	E	E	E	E	E					E	E				E		Eg		E		E
Piru Creek (Snowy Creek to Lockwood Creek)	180701020505	P	E	E	E	E	E					E	E				E		Eg		E		E
Piru Creek (above Lockwood Creek)	180701020502	P	E	E	E	E	E					E	E				E		Eg		E		E
Santa Paula Creek (Santa Clara River R4A to Santa Paula Water Works Diversion Dam)	180701020901	P	E	E	E	E	E					E	E				E		E	E	E		
Sisar Creek	180701020901	P	E	P	E	E						E	E				E		Eg		E		E

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

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b: Waterbodies designated as WET may have wetlands habitat associated with only a portion of the waterbody. Any regulatory action would require a detailed analysis of the area.

c: Coastal waterbodies which are also listed in Coastal Features Table (2-3) or in Wetlands Table (2-4).

e: One or more rare species utilizes all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

f: Aquatic organisms utilize all bays, estuaries, lagoons, and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas which are heavily influenced by freshwater inputs.

g: Condor refuge.

i: Soledad Canyon is the habitat of the Unarmored Three-Spine Stickleback.

Los Angeles Regional Water Quality Control Board

Table 2-1. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a	WBD No.	MUN	IND	PROC	AGR	GWR	FRSH	NAV	POW	COMM	AQUA	WARM	COLD	SAL	EST	MAR	WILD	BIOL	RARE	MIGR	SPWN	SHELL	WET ^b
SANTA CLARA RIVER WATERSHED (Cont.)																							
Sespe Creek (Santa Clara River R3 to gaging station below Little Sespe Creek)	180701020706	P	E	E	E	E						E	E				E	E	E	E	E		E
Timber Creek	180701020703	P*				E						E	E				E	E	E	E	E		E
Bear Canyon	180701020703	P*				E						E	P				E	E	E	E	E		E
Trout Creek	180701020703	P*				E						E	E				E		E	E	E		E
Piedra Blanca Creek	180701020703	P*				E						E	E				E		E	E	E		E
Lion Canyon	180701020702	P*				E						E	E				E			E	E		E
Rose Valley Creek	180701020702	P*				E						E	E				E				E		E
Howard Creek	180701020702	P*				E						E	E				E	E	E	E	E		E
Tule Creek	180701020702	P*				E							P				E	E	E	E	E		E
Potrero John Creek	180701020701	P*				E							P				E			E	E		E
Hopper Creek	180701020801	P*	E			E	E					E	E				E		Eg				E
Piru Creek (Santa Clara River R4A to Santa Paula Water Works Diversion Dam)	180701020604	P	E	E	E	E	E					E	E				E		Eg	E	E		E
Lake Piru	180701020603	P	E	E	E	E	P					E	E				E		E		E		
Lake Piru	180701020603	P	E	E	E	E	P		P			E	E				E		E		E		
Pyramid Lake	180701020509	E	E	E	E	E	P		E			E	E				E		E				
Gorman Creek	180701020507	I*				I	I					I	I				E		P				
Canada de los Alamos	180701020506	I*				I	I	I				I	I				E		E				
Lockwood Creek	180701020504	I*				I	I					I	I				E						
Lockwood Creek	180701020504	I*				I	I	I				I	I				E						
Tapo Canyon	180701020403	P*				P						E					E						
Castaic Creek (Santa Clara River R5 to Castaic Lake)	180701020306	I	I	I	I	I	I					I					E		E				
Castaic Creek (Castaic Lake to Fish Canyon)	180701020305	I	I	I	I	I	I					I					E		E				
Castaic Creek (above Fish Canyon)	180701020304	I	I	I	I	I	I					I					E		E				
Castaic Lagoon	180701020306	E*	E	E	E	E	E					E					E						
Castaic Lake	180701020305	E	E	E	E	E	E		E			E	I				E		E		E		
Castaic Lake	180701020304	E	E	E	E	E	E		E			E	I				E		E		E		
Elderberry Forebay	180701020305	E	E	E	E	E	E		E			E					E		E		E		
Elizabeth Lake Canyon	180701020304	I	I	I	I	I	I					I					E						
San Francisquito Canyon I	180701020402	I	I	I	I	I	I					I					E		E		I		E
Drinkwater Reservoir	180701020402	P*				E						P					E		E				E
South Fork Santa Clara River	180701020401	I*	I	I	I	I	I					I					E						
Bouquet Canyon (Santa Clara River R6 to Vasquez Canyon)	180701020401	E	I	E	I	P	I	E	P			E	E				E				P		E
Bouquet Canyon (above Vasquez Canyon)	180701020401	P	P	P	P	E	E	P				E	E				E		E				E
Dry Canyon Creek	180701020202	I	I	I	I	I	I					I					E						
Dry Canyon Reservoir ^j	180701020201	E	E	E	E	P	P		P			E					E						
Bouquet Reservoir	180701020201	E	E	E	E	E	E		P			E					E						
Mint Canyon Creek Reach 1 (Santa Clara River R7 to Rowher Canyon)	180701020106	I	I	I	I	I	I					I					E						
Mint Canyon Creek Reach 2 (above Rowher Canyon)	180701020106	I*	I	I	I	I	I					I					E						
Agua Dulce Canyon Creek (Santa Clara River R8 to Escondido Canyon Rd.)	180701020104	I*	I	I	I	I	I					I					E		E				
Agua Dulce Canyon Creek (above Escondido Canyon Rd.)	180701020104	I*				I	I					I					E						
Aliso Canyon Creek	180701020101	P*				P	E					E					E						E
Lake Hughes	180701020301	P	P	P	P	P	P					E					E						
Munz Lake	180701020301	P*	P	P	P	P	E	P				E					E						
Lake Elizabeth	180701020301	P	P	P	P	P	P					E					E		E				

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

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Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

b: Waterbodies designated as WET may have wetlands habitat associated with only a portion of the waterbody. Any regulatory action would require a detailed analysis of the area.

g: Condor refuge.

j: Out of service.

Los Angeles Regional Water Quality Control Board

Table 2-1. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a	WBD No.	MUN	IND	PROC	AGR	GWR	FRSH	NAV	POW	COMM	AQUA	WARM	COLD	SAL	EST	MAR	MILD	BIOL	RARE	MIGR	SPWN	SHELL	WET ^b
CALLEGUAS-CONEJO CREEK WATERSHED																							
Calleguas Creek Estuary ^c	180701030107							P		E					E		E		Ee,p	Ef	Ef		E
Calleguas Creek Reach 1																							
Mugu Lagoon ^c	180701030102							E		Ed					E	E	Ed	E	Ee,p	Ef	Ef	Ed	E
Calleguas Creek Reach 2																							
Calleguas Creek (Estuary to Potrero Rd.)	180701030107	P*			E	E	E					E	E				E		Ep				E
Calleguas Creek Reach 3																							
Calleguas Creek (Potrero Rd. to Conejo Creek)	180701030107	P*	E	E	E	E						E					E						
Calleguas Creek Reach 4																							
Revolon Slough (Calleguas Creek Rch 2 to Pleasant Valley Rd.)	180701030107	P*	P		E	E						E					E						E
Revolon Slough (Pleasant Valley Rd. to Central Ave.)	180701030106	P*	P		E	E						E					E						E
Calleguas Creek Reach 5																							
Beardsley Channel (above Central Ave.)	180701030106	P*					E					E					E						
Calleguas Creek Reach 6																							
Arroyo Las Posas (Calleguas Creek Rch 3 to Long Canyon)	180701030103	P*	P	P	P	E						E	P				E						
Arroyo Las Posas (Long Canyon to Hitch Rd.)	180701030103	P*	P	P	P	E	E					E	P				E						
Calleguas Creek Reach 7																							
Arroyo Simi (Hitch Rd. to Happy Camp Canyon)	180701030103	P*	I			I	I					I					E		E				
Arroyo Simi (Happy Camp Canyon to Alamos Canyon)	180701030102	P*	I			I	I					I					E		E				
Arroyo Simi (Alamos Canyon to Tapo Canyon Creek)	180701030102	I*	I			I	I					I					E						
Arroyo Simi (above Tapo Canyon Creek)	180701030101	I*	I			I	I					I					E						
Calleguas Creek Reach 8																							
Tapo Canyon Creek (above Arroyo Simi)	180701030101	I*		P	P	I						I					E						
Calleguas Creek Reach 9A																							
Conejo Creek (Camrosa Diversion to Camarillo Rd.)	180701030105	P*	E	E	E	E						E					E						
Conejo Creek (Camarillo Rd. to Arroyo Santa Rosa)	180701030105	P*				I	I					I					E				E		
Calleguas Creek Reach 9B																							
Conejo Creek (Calleguas Creek Rch 3 to Camrosa Diversion)	180701030105	P*	E	E	E	E						E					E						
Calleguas Creek Reach 10																							
Arroyo Conejo (Conejo Creek to North Fork Arroyo Conejo)	180701030105	P*				I	I					I					E		E				
Calleguas Creek Reach 11 (Arroyo Santa Rosa)																							
Arroyo Santa Rosa (above confl. with Conejo Creek)	180701030105	P*				I	I					I					E						
Calleguas Creek Reach 12																							
North Fork Arroyo Conejo (above confl. with Arroyo Conejo)	180701030104	P*			E	E						E					E				E		
Calleguas Creek Reach 13																							
Arroyo Conejo (above confl. with North Fork Arroyo Conejo)	180701030104	P*				I	I					I					E						
Gillibrand Canyon Creek (Tapo Canyon Creek to Windmill Canyon)	180701030101	P*				I	I					I					E						
Gillibrand Canyon Creek (above Windmill Canyon)	180701030101	P*				I						I					E						
Lake Bard (Wood Ranch Reservoir)	180701030102	E	E	E	E	P						E					E						

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P: Potential beneficial use

I: Intermittent beneficial use

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c: Coastal waterbodies which are also listed in Coastal Features Table (2-3) or in Wetlands Table (2-4).

d: Limited public access precludes full utilization.

e: One or more rare species utilizes all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

f: Aquatic organisms utilize all bays, estuaries, lagoons, and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas which are heavily influenced by freshwater inputs.

o: Marine habitats of the Channel Islands and Mugu Lagoon serve as pinniped haul-out areas for one or more species (i.e. sea lions).

p: Habitat of the Clapper Rail.

Los Angeles Regional Water Quality Control Board

Table 2-1. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a	WBD No.	MUN	IND	PROC	AGR	GWR	FRSH	NAV	POW	COMM	AQUA	WARM	COLD	SAL	EST	MAR	MILD	BIOL	RARE	MIGR	SPWN	SHELL	WET ^b
LOS ANGELES COUNTY COASTAL STREAMS																							
Arroyo Sequit	180701040202	P*				I						E	E				E		E	E	E		E
San Nicholas Canyon Creek	180701040202	P*										I					E						
Los Alisos Canyon Creek	180701040202	P*										I					E		E				
Lachusa Canyon Creek	180701040202	P*										I					E						
Encinal Canyon Creek	180701040202	P*										I					E		E				
Trancas Canyon Creek	180701040203	E*										E					E		E				
Dume Lagoon ^c	180701040203							E		E					E		E		Ee	Pf	Pf		E
Dume Creek (Zuma Canyon)	180701040203	E*										E	E				E		E	P	P		
Ramirez Canyon Creek	180701040204	I*										I					E				P		
Escondido Canyon Creek	180701040204	I*										I					E		E				
Latigo Canyon Creek	180701040204	I*										I					E		E				
Solstice Canyon Creek	180701040204	E*										E					E			P	P		
Puerco Canyon Creek	180701040204	I*										I					E						
Corral Canyon Creek	180701040204	I*										I					E						
Carbon Canyon Creek	180701040403	P*										I					E						
Las Flores Canyon Creek	180701040403	P*										I					E						
Piedra Gorda Canyon Creek	180701040403	P*										I					E						
Pena Canyon Creek	180701040403	P*										I	E				E						
Tuna Canyon Creek	180701040403	P*										I					E						
Topanga Lagoon ^c	180701040401							E		E					E		E		Ee	Ef	Ef		E
Topanga Canyon Creek	180701040401	P*										E	E				E			P	I		
Santa Ynez Canyon	180701040403	P*										I					E		E				
Santa Ynez Lake (Lake Shrine)	180701040403	P*										E					E						
Santa Monica Canyon Channel	180701040402	P*										P					P						
Rustic Canyon Creek	180701040402	P*										I					E						
Sullivan Canyon Creek	180701040402	P*										I					E						
Mandeville Canyon Creek	180701040402	P*										I					E						
Coastal Streams of Palos Verdes	180701040500	P*				I						I					E		E				
Canyon Streams of Palos Verdes	180701040701	P*				I						I					E		Et				
Bixby Slough	180701040701	P*										E					E		E				E
Machado Lake	180701040701	P*										E					E		E				E
Madrona Marsh	180701040701											P					E						E
Stone Canyon Reservoir	180701040300	E*	E	E		P						E					E						
Hollywood Reservoir	180701040300	E*	E	E		P						E					E						
Franklin Canyon Reservoir	180701040300	E*										Pu											
Upper Franklin Canyon Reservoir	180701040300	E*	E	E		P						E					E						E

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P: Potential beneficial use

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E,P, and I: shall be protected as required.

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Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

b: Waterbodies designated as WET may have wetlands habitat associated with only a portion of the waterbody. Any regulatory action would require a detailed analysis of the area.

c: Coastal waterbodies which are also listed in Coastal Features Table (2-3) or in Wetlands Table (2-4).

e: One or more rare species utilizes all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

f: Aquatic organisms utilize all bays, estuaries, lagoons, and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas which are heavily influenced by freshwater inputs.

t: Rare applies only to Agua Magna canyon and Sepluvada Canyon areas.

u: This reservoir is covered and thus inaccessible.

Los Angeles Regional Water Quality Control Board

Table 2-1. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a	WBD No.	MUN	IND	PROC	AGR	GWR	FRSH	NAV	POW	COMM	AQUA	WARM	COLD	SAL	EST	MAR	MILD	BIOL	RARE	EMIGR	SPWN	SHELL	WET ^b
MALIBU CREEK WATERSHED																							
Malibu Lagoon ^c	180701040104							E							E	E	E		Ee	Ef	Ef		E
Malibu Creek	180701040104	P*										E	E				E		E	E	E		E
Cold Creek	180701040104	P*											P				E		E		P		E
Las Virgenes Creek	180701040103	P*										E	P				E		E	P	P		E
Century Reservoir	180701040104	P*										E					E						E
Malibu Lake	180701040104	P*						E				E					E		E				E
Medea Creek Reach 1 (Malibu Lake to Lindero Creek Reach 1)	180701040102	P*					I					I	P				E		E				E
Medea Creek Reach 2 (above Lindero Creek Reach 1)	180701040102	I*					I					E					E						E
Lindero Creek Reach 1 (Medea Creek Reach 1 to Lake Lindero)	180701040102	P*										I					E						
Lindero Creek Reach 2 (above Lake Lindero)	180701040102	P*										I					E						
Triunfo Creek Reach 1 (Malibu Lake to Lobo Canyon)	180701040104	P*										I					E						
Triunfo Creek Reach 2 (Lobo Canyon to Westlake Lake)	180701040101	P*					I					I					E		E				
Westlake Lake	180701040101	P*						E				E					E						
Potrero Valley Creek	180701040101	P*					I					P					E						
Lake Eleanor Creek	180701040101	P*					I					I					E						
Lake Eleanor	180701040101	P*					E					E					E		E				E
Las Virgenes (Westlake) Reservoir	180701040101	E	E	E	E							P					E						
Hidden Valley Creek	180701040101	I*					I					I					E						
Lake Sherwood	180701040101	P*					E					E					E						E
BALLONA CREEK WATERSHED																							
Ballona Creek Estuary (ends at Centinela Creek) ^{c,w}	180701040300							E		E					E	E	E		Ee	Ef	Ef	E	
Ballona Lagoon/ Venice Canals ^c	180701040403							E		E					E	E	E		Ee	Ef	Ef	E	E
Ballona Wetlands ^c	180701040300														E		E		Ee	Ef	Ef		E
Del Rey Lagoon ^c	180701040500							E		E					E		E		Ee	Ef	Ef		E
Ballona Creek Reach 2 (Estuary to National Blvd.)	180701040300	P*										P					P						
Ballona Creek Reach 1 (above National Blvd.)	180701040300	P*										P					E						
LOS CERRITOS CHANNEL WATERSHED																							
Los Cerritos Wetlands ^c	180701040702							E		E					E		E		Ee	Pf	Pf	E	E
Los Cerritos Channel Estuary (Ends at Anaheim Rd.) ^c	180701040702		E					E		E					E	E	E		Ee	Ef	Ef	E	
Sims Pond	180701040702	P*										P					E						E
Los Cerritos Channel	180701040702	P*										I					E						
Colorado Lagoon	180701040702									E		P					E					E	

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

* Asterisked MUN designations are designated under SB 88-63 and RB 89-03. Some designations may be considered for exemption at a later date (See pages 2-3, 4 for more details).

au: The REC-1 use designation does not apply to recreational activities associated with the swimmable goal as expressed in the Federal Clean Water Act section 101(a)(2) and regulated under the REC-1 use in the Basin Plan, or the associated bacteriological objectives set to protect those activities. However, water quality objectives set to protect other REC-1 uses associated with the fishable goal as expressed in the Federal Clean Water Act section 1010(a)(2) shall remain in effect for waters where the (au) footnote appears.

av: The High Flow Suspension only applies to water contact recreational activities associated with the swimmable goal as expressed in the federal Clean Water Act section 101(a)(2) and regulated under the REC-1 use, non-contact water recreation involving incidental water contact regulated under the REC-2 use, and the associated bacteriological objectives set to protect those activities. Water quality objectives set to protect (1) other recreational uses associated with the fishable goal as expressed in the federal Clean Water Act section 101(a)(2) and regulated under the REC-1 use and (2) other REC-2 uses (e.g., uses involving the aesthetic aspects of water) shall remain in effect at all times for waters where the (av) footnote appears.

** The dividing line between "Ballona Creek" and "Ballona Creek to Estuary" is the point at which the vertical channel walls transition to sloping walls.

Footnotes are consistent for all beneficial use tables.

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b: Waterbodies designated as WET may have wetlands habitat associated with only a portion of the waterbody. Any regulatory action would require a detailed analysis of the area.

c: Coastal waterbodies which are also listed in Coastal Features Table (2-3) or in Wetlands Table (2-4).

e: One or more rare species utilizes all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

f: Aquatic organisms utilize all bays, estuaries, lagoons, and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas which are heavily influenced by freshwater inputs.

w: These areas are engineered channels. All references to Tidal Prisms in Regional Board documents are functionally equivalent to estuaries.

Los Angeles Regional Water Quality Control Board

Table 2-1. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a	WBD No.	MUN	IND	PROC	AGR	GWR	FRSH	NAV	POW	COMM	AQUA	WARM	COLD	SAL	EST	MAR	WLD	BIOL	RARE	MIGR	SPWN	SHELL	WET ^b
DOMINGUEZ CHANNEL WATERSHED																							
Dominguez Channel Estuary (Ends at Vermont Ave.) ^{c,w}	180701060102							P		E					E	E	E		Ee	Ef	Ef		
Dominguez Channel (Estuary to 135th St.)	180701060102	P*										P					P		E				
Dominguez Channel (above 135th St)	180701060101	P*										P					P		E				
LOS ANGELES RIVER WATERSHED																							
Los Angeles River Estuary (Ends at Willow St.) ^{c,w}	180701050402		E					E		E					E	E	E		Ee	Ef	Ef	P	E
Los Angeles River Reach 1 (Estuary to Carson St.)	180701050402	P*	P	P								E				E	E		E	P	P	Ps	
Compton Creek	180701050402	P*				E						E					E						E
Los Angeles River Reach 2 (Carson St. to Rio Hondo Reach 1)	180701050402	P*	P			E						E					P						
Los Angeles River Reach 2 (Rio Hondo Reach 1 to Figueroa St.)	180701050401	P*	P			E						E					P						
Rio Hondo Reach 1 (Los Angeles River Reach 2 to Santa Ana Freeway)	180701050303	P*				I						P					I						
Rio Hondo Reach 2 (Santa Ana Freeway to Whittier Narrows Dam)	180701050303	P*				I						P					I						
Rio Hondo Reach 3 (above Whittier Narrows Dam)	180701050302	P*				I						P					I		E				E
Alhambra Wash	180701050303	P*				I						P					P		E				
Rubio Wash	180701050303	P*				I						I					E		P				
Rubio Canyon	180701050301	P*				E						I					E		E				E
Eaton Wash	180701050301	P*				I						I					E						
Eaton Wash (below dam) (Rio Hondo Reach 3 to Eaton Dam)	180701050301	P*				I						I					E						
Eaton Wash (above dam) (Eaton Dam to Mount Wilson Toll Rd.)	180701050301	P*				I						I					E						
Eaton Reservoir	180701050301	P*				I						I					E						
Eaton Canyon Creek (above Mount Wilson Toll Rd.)	180701050301	P*				E						E					E		E				E
Arcadia Wash	180701050302	P*				I						P					P						
Arcadia Wash	180701050302	P*				I						P					P						
Santa Anita Wash (lower) (Rio Hondo Reach 3 to Elkins Ave.)	180701050302	P*				I						P					P		E				
Santa Anita Wash (upper) (Elkins Ave. to Big Santa Anita Reservoir)	180701050302	P*				E						E					E		E				
Little Santa Anita Canyon Creek	180701050302	P*				I						I					E						
Big Santa Anita Reservoir	180701050302	P*				E						E	E				E						
Santa Anita Canyon Creek	180701050302	E*				E						E	E				E		E		E		E
Winter Creek	180701050302	P*				I						I					E						E
East Fork Santa Anita Canyon	180701050302	P*				E						E	E				E				E		E
Sawpit Wash	180701050302	I				I						I					E						
Sawpit Canyon Creek	180701050302	P*				I						I					E		E				
Sawpit Reservoir	180701050302	P*				I						I					E						
Monrovia Canyon Creek	180701050302	I				I						I					E						E
Arroyo Seco Reach 1 (Los Angeles River Reach 2 to Holly St.)	180701050209	P*										P					P						
Arroyo Seco Reach 2 (Holly St. to Devils Gate Dam)	180701050209	P*										P					P		E				
Devils Gate Reservoir (lower)	180701050209	P*				I						I					E						
Devils Gate Reservoir (upper)	180701050209	I*				I						I					E						
Arroyo Seco Reach 3 (above Devils Gate Dam)	180701050209	E	E	E		E						E	E				E						E
Millard Canyon Creek	180701050209	E*	E	E		E						E					E		E				E
El Prieto Canyon Creek	180701050209	I	I	I		I						I					E						
Little Bear Canyon Creek	180701050209	P*				I						I	I				E						E
Los Angeles River Reach 3 (Figueroa St. to Riverside Dr.)	180701050402	P*	P			E						E					E						E
Verdugo Wash Reach 1 (Los Angeles River Rch 3 to Verdugo Rd./Towne St.)	180701050207	P*				I						P					P						
Verdugo Wash Reach 2 (above Verdugo Rd. @ Towne St.)	180701050207	P*				I						P					P						
Halls Canyon Channel	180701050207	P*	I	I		I						I					E						
Snover Canyon	180701050207	I	I	I		I						I					E						
Pickens Canyon	180701050207	I*				I						I					E						
Shields Canyon	180701050207	I	I	I		I						I					E						

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

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Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

b: Waterbodies designated as WET may have wetlands habitat associated with only a portion of the waterbody. Any regulatory action would require a detailed analysis of the area.

c: Coastal waterbodies which are also listed in Coastal Features Table (2-3) or in Wetlands Table (2-4).

e: One or more rare species utilizes all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

f: Aquatic organisms utilize all bays, estuaries, lagoons, and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas which are heavily influenced by freshwater inputs.

s: Access prohibited by Los Angeles County Department of Public Works.

w: These areas are engineered channels. All references to Tidal Prisms in Regional Board documents are functionally equivalent to estuaries.

Los Angeles Regional Water Quality Control Board

Table 2-1. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a	WBD No.	MUN	IND	PROC	AGR	GWR	FRSH	NAV	POW	COMM	AQUA	WARM	COLD	SAL	EST	MAR	WILD	BIOL	RARE	MIGR	SPWN	SHELL	WET ^b
LOS ANGELES RIVER WATERSHED (cont.)																							
Dunsmore Canyon Creek	180701050207	I	I	I		I						I					E						
Burbank Western Channel	180701050208	P*										P					P						
La Tuna Canyon Lateral and Creek	180701050208	P*				I						I					E						
Tujunga Wash	180701050208	P*				I						P	P				P						
Hansen Flood Control Basin & Lakes	180701050105	P*				E						E	E				E		E				
Lopez Canyon Creek	180701050105	P*				I						I					E						
Little Tujunga Canyon Creek	180701050104	P*				I						I	I				E		E				
Kagel Canyon Creek	180701050104	P*				I						I					E						
Big Tujunga Canyon Creek (Hansen Flood Control Basin to Big Tujunga Reservoir)	180701050105	P*				E						E	E				E		E		E		E
Big Tujunga Canyon Creek (above Big Tujunga Reservoir)	180701050103	P*				E						E	E				E		E		E		E
Upper Big Tujunga Canyon Creek	180701050103	P*				E						I	P				E						E
Haines Canyon Creek	180701050105	P*				I						I					E		E				
Vasquez Creek	180701050105	P*				E						P	P				E						E
Clear Creek	180701050105	P*				E						E	E				E						E
Big Tujunga Reservoir	180701050105	P*				E						E	P				E				E		
Mill Creek	180701050102	P*				E						E	E				E						E
Los Angeles River Reach 4 (Riverside Dr. to Sepulveda Dam)	180701050208	P*	P			E						E					E						E
Pacoima Wash	180701050206	P*				E						E					E		E				
Pacoima Reservoir	180701050205	P*				E						E					E						
Pacoima Canyon Creek	180701050205	P*				E						E	E				E		E		E		E
May Canyon Creek	180701050206	P*				I						I					E						
Wilson Canyon Creek	180701050206	P*				I						I					E						
Stetson Canyon Creek	180701050204	P*				I						P					P						
Los Angeles River Reach 5 (Sepulveda Dam to Balboa Blvd.)	180701050208	P*	P			E						E					E						E
Sepulveda Flood Control Basin	180701050208	P*				E						E					E						E
Bull Creek	180701050204	P*				I						I					E						
Los Angeles Reservoir	180701050204	E	E	E		P						E					E		E				
Lower Van Norman Reservoir	180701050204	E*	E	E		E						E					E		E				
Upper Van Norman Reservoir	180701050204	E*										Pu					E						
Los Angeles River Reach 6 (above Balboa Blvd.)	180701050208	P*	P			E						E					E						E
Caballero Creek	180701050208	P*				I						I					E						
Aliso Canyon Wash (Los Angeles River Reach 6 to State Hwy 118)	180701050203	P*				I						I					E						
Aliso Canyon Creek (above State Hwy 118)	180701050203	P*				I						I					E						
Limekiln Canyon Wash	180701050203	P*				I						I					E						
Browns Canyon Wash (Los Angeles River Reach 6 to State Hwy 118)	180701050202	P*				I						I					E						
Browns Canyon Creek (above State Hwy 118)	180701050202	P*				I						I					E						
Arroyo Calabasas	180701050201	P*										P					P						
Dry Canyon Creek	180701050201	P*				I						I					E						
McCoy Canyon Creek	180701050201	P*				I						I					E						
Bell Creek	180701050201	P*				I						I					E						
Chatsworth Reservoir ^y	180701050201	E	E	E								E					E						
Dayton Canyon Creek	180701050201	P*				I						I					E						

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E, P, and I: shall be protected as required.

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Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

b: Waterbodies designated as WET may have wetlands habitat associated with only a portion of the waterbody. Any regulatory action would require a detailed analysis of the area.

u: This reservoir is covered and thus inaccessible.

y: Currently dry and no plans for restoration.

Los Angeles Regional Water Quality Control Board

Table 2-1. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a	WBD No.	MUN	IND	PROC	AGR	GWR	FRSH	NAV	POW	COMM	AQUA	WARM	COLD	SAL	EST	MAR	MILD	BIOL	RARE	MIGR	SPWN	SHELL	WET ^b
LOS ANGELES RIVER WATERSHED (cont.)																							
ISOLATED LAKES AND RESERVOIRS:																							
Eagle Rock Reservoir	180701050402	E*										Pu											
Echo Lake	180701040200	P*										P					E						
El Dorado Lakes	180701060606	P*										P					E						E
Elysian Reservoir	180701050403	E*	E	E								P					E						
Encino Reservoir	180701050208	E*	E	E								P					E						
Ivanhoe Reservoir	180701040200	E*	E	E								P					E						
Lincoln Park Lake Silver Reservoir	180701050403	P*										P					E						
Silver Lake Reservoir	180701040200	E*	E	E								P					E						
Toluca Lake	180701050208	P*										P					E						
SAN GABRIEL RIVER WATERSHED																							
San Gabriel River Estuary (Ends at Willow St.) ^{c,w}	180701060606		E					E		E					E	E	E		Ee	Ef	Ef	P	
Coyote Creek (San Gabriel River Estuary to La Canada Verde Creek)	180701060506	P*	P	P								P					P		E				
Coyote Creek (above La Canada Verde Creek)	180701060603	P*	P	P								P					P		E				
San Gabriel River Reach 1 (San Gabriel River Estuary to Firestone Blvd.)	180701060606	P*										P					P						
San Gabriel River Reach 2 (Firestone Blvd. to Whittier Narrows Dam)	180701060606	P*	P	P		I						I					E		E				
Whittier Narrows Flood Control Basin	180701060303	P*				E						E					E		P				
Legg Lake	180701060303	P*				E						E	E				E						E
San Gabriel River Reach 3 (Whittier Narrows Dam to San Jose Creek)	180701060601	P*				I						I					E						
San Gabriel River Reach 3 (San Jose Creek to Ramona Blvd.)	180701060601	P*				I						I					E						
San Jose Creek Reach 1 (San Gabriel River Reach 3 to Temple Ave.)	180701060502	P*				I						I					E						
San Jose Creek Reach 2 (Temple Ave. to Thompson Wash)	180701060501	P*				I						I					E						
Puente Creek	180701060502	P*				I						P					P						
Thompson Wash (San Jose Creek Reach 2 to Web Canyon)	180701060501	P*				I						I					E						
Thompson Creek (above Web Canyon)	180701060501	P*				I						I					E		E				
Thompson Creek Reservoir	180701060501	P*				I						I					E		E				
Walnut Creek Wash	180701060402	P*				I						I					E						E
Big Dalton Wash	180701060402	P*				I						P					P						
Big Dalton Canyon Creek	180701060402	P*				I						I					E						E
Mystic Canyon	180701060402	P*				I						I					E						
Big Dalton Reservoir	180701060402	P*				E						E					E						
Bell Canyon Creek	180701060402	P*				I						I					E						
Little Dalton Wash	180701060402	P*				I						P					P						
Little Dalton Canyon Creek	180701060402	P*				I						I					E						E
San Dimas Wash (lower) (Big Dalton wash to Ham Canyon)	180701060402	P*				I						I					E		E				
San Dimas Wash (upper) (above Ham Canyon)	180701060401	P*				E						I					E						
San Dimas Reservoir	180701060401	E*				E						E	E				E						
San Dimas Canyon Creek	180701060401	E*				E						E	E				E						E
West Fork San Dimas Canyon	180701060401	E*				E						E	P				E						E
Wolfskill Canyon	180701060401	E*				E						E	P				E		E				E
Puddingstone Reservoir	180701060402	E*			E	E						E	E				E		E				
Live Oak Wash	180701060402	E*				I	I					I					E						
Live Oak Creek	180701060402	E*				I	I					I					E						
Live Oak Reservoir	180701060402	E*				E	E					E					E						
Puddingstone Wash	180701060402	E*				I						I					E						
Marshall Creek and Wash (Puddingstone Reservoir to Via Arroyo)	180701060402	E*				I						I					E						

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P: Potential beneficial use

I: Intermittent beneficial use

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c: Coastal waterbodies which are also listed in Coastal Features Table (2-3) or in Wetlands Table (2-4).

e: One or more rare species utilizes all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

f: Aquatic organisms utilize all bays, estuaries, lagoons, and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas which are heavily influenced by freshwater inputs.

w: These areas are engineered channels. All references to Tidal Prisms in Regional Board documents are functionally equivalent to estuaries.

u: This reservoir is covered and thus inaccessible.

Los Angeles Regional Water Quality Control Board

Table 2-1. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a	WBD No.	MUN	IND	PROC	AGR	GRW	FRSH	NAV	POW	COMM	AQUA	WARM	COLD	SALE	EST	MAR	WILD	BIOL	RARE	MIGR	SPWN	SHELL	WET ^b
SAN GABRIEL RIVER WATERSHED (cont.)																							
Marshall Creek and Wash (above Via Arroyo)	180701060402	E*				I	I					I					E		E				E
Emerald Creek And Wash	180701060402	E*				I	I					I					E						
San Gabriel River Reach 4 (Ramona Blvd. to Santa Fe Dam)	180701060601	P*				I						I					E						
Santa Fe Flood Control Basin	180701060601	P*				I						I					E						E
UPPER SAN GABRIEL RIVER TRIBUTARIES																							
San Gabriel River Reach 5 (Santa Fe Dam to Huntington Dr.)	180701060601	P*				I						I					E						
San Gabriel River Reach 5 (Huntington Dr. to Van Tassel Canyon)	180701060601	E	E	E	E	E						E	E				E		E				
San Gabriel River Reach 5 (Van Tassel canyon to San Gabriel Reservoir)	180701060601	E	E	E	E	E						E	E				E				E		E
Bradbury Canyon Creek	180701060601	P*				I						I					E						
Sprinks Canyon Creek	180701060601	P*				I						I					E						
Maddock Canyon Creek	180701060601	P*				I						I					E						
Van Tassel Canyon	180701060601	P*				I						I					E		E				
Fish Canyon Creek	180701060601	P*	I			E						E					E		E		E		E
Roberts Canyon Creek	180701060601	P*				I						I					E		E				E
Morris Reservoir	180701060601	E	E	E	E	E			E			E	E				E				E		
San Gabriel Reservoir	180701060601	E	E	E	E	E			E			E	E				E						
East Fork San Gabriel River (San Gabriel Reservoir to Fish Fork)	180701060301	P*				E						E	E				E		E		E		E
East Fork San Gabriel River (above Fish Fork)	180701060303	P*				E						E	E				E		E		E		E
Cattle Canyon Creek	180701060302	P*				E						E	E				E		E		E		E
Coldwater Canyon Creek	180701060302	P*				E						E	E				E		E		E		E
Cow Canyon Creek	180701060302	P*				E						E	E				E		E		E		E
Allison Gulch	180701060303	P*				E						E	E				E				E		E
Fish Fork	180701060301	P*				E						E	E				E				E		E
West Fork San Gabriel River (San Gabriel Reservoir to Bear Creek)	180701060205	P*				E						E	E				E		E		E		E
West Fork San Gabriel River (above Bear Creek)	180701060202	P*				E						E	E				E		E		E		E
North Fork San Gabriel River	180701060204	P*				E						E	E				E		E		E		E
Bichota Canyon	180701060204	P*				E						E	E				E		P		E		
Coldbrook Creek	180701060204	P*				I						I					E				E		
Soldier Creek	180701060204	P*				I						I					E				E		
Cedar Creek	180701060204	P*				E						E	E				E		E		E		E
Crystal Lake	180701060204	P*										E	E				E				E		
Bear Creek	180701060205	P*				E						E	E				E		E		E		E
Cogswell Reservoir	180701060202	P*				E						E	E				E				E		
Devils Canyon Creek	180701060201	P*				E						E	E				E				E		E
ISLAND WATERCOURSES																							
Anacapa Island	180600140203	P*										P					E		E				
San Nicolas Island	180701070001	P*										P					E		Eaa				
Santa Barbara Island	180701070003	P*										P					E		E				
Santa Catalina Island	180701070002	E*				E						E					E		E				
Middle Ranch System	180701070003	P*				E						E					E		E				
San Clemente Island	180701070004	E*				E						E					E		E				
SAN ANTONIO CREEK WATERSHED ^{ab}																							
San Antonio Dam And Reservoir	180702030701	E*				E						E					E						
San Antonio Canyon Creek	180702030701	E			E	E	E		E			E	E				E				E		

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

* Asterisked MUN designations are designated under SB 88-63 and RB 89-03. Some designations may be considered for exemption at a later date (See pages 2-3, 4 for more details).

Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

b: Waterbodies designated as WET may have wetlands habitat associated with only a portion of the waterbody. Any regulatory action would require a detailed analysis of the area.

aa: Habitat of the Channel Island Fox.

ab: This watershed is also in Region 8 (801.23).

Los Angeles Regional Water Quality Control Board

Table 2-1a. Beneficial Uses of Inland Surface Waters.

WATERSHED ^a	WBD No.	REC1	LREC-1	REC2	High Flow Suspension
VENTURA COUNTY COASTAL STREAMS					
Los Sauces Creek	180701010202	I		I	
Poverty Canyon	180701010202	I		I	
Madranio Canyon	180701010202	I		I	
Javon Canyon	180701010202	I		I	
Padre Juan Canyon	180701010202	I		I	
McGrath Lake	180701010202	Ed		Ed	
Big Sycamore Canyon Creek	180701040201	I		I	
Little Sycamore Canyon Creek	180701040202	I		I	
VENTURA RIVER WATERSHED					
Ventura River Estuary ^c	180701010106	E		E	
Ventura River Reach 1 (Ventura River Estuary to Main St.)	180701010106	E		E	
Ventura River Reach 2 (Main St. to Weldon Canyon)	180701010106	E		E	
Cañada Larga	180701010106	I		I	
Lake Casitas	180701010105	Ph		E	
Lake Casitas tributaries	180701010105	E		E	
Ventura River Reach 3 (Weldon Canyon to Casitas Vista Rd.)	180701010106	E		E	
Ventura River Reach 4 (Casitas Vista Rd. to San Antonio Creek)	180701010106	E		E	
Ventura River Reach 4 (San Antonio Creek to Camino Cielo Rd.)	180701010104	E		E	
Coyote Creek	180701010105	P			
San Antonio Creek (Ventura River Reach 4 to Lion Creek)	180701010106	E		E	
San Antonio Creek (above Lion Creek)	180701010103	E		E	
Lion Creek	180701010103	I		I	
Reeves Creek	180701010103	I		I	
Mirror Lake	180701010104	P		E	
Ojai Wetland	180701010104	P		E	
Ventura River Reach 5 (above Camino Cielo Rd.)	180701010104	E		E	
Matilija Creek Reach 1 (Ventura River Reach 5 to Matilija Reservoir)	180701010101	E		E	
Matilija Creek Reach 2 (above Matilija Reservoir)	180701010104	E		E	
Murietta Canyon Creek	180701010101	E		E	
North Fork Matilija Creek	180701010102	E		E	
Matilija Reservoir	180701010101	E		E	

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

* Asterisked MUN designations are designated under SB 88-63 and RB 89-03. Some designations may be considered for exemption at a later date (See pages 2-3, 4 for more details).

Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

c: Coastal waterbodies which are also listed in inland Surface Waters Tables (2-1) or in Wetlands Table (2-4).

d: Limited public access precludes full utilization.

h: Water contact recreational activities prohibited by Casitas MWD.

Los Angeles Regional Water Quality Control Board

Table 2-1a. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a	WBD No.	REC1	LREC-1	REC2	High Flow Suspension
SANTA CLARA RIVER WATERSHED					
Santa Clara River Estuary (Ends at Harbor Blvd.) ^c	180701020904	E		E	
Santa Clara River Reach 1					
Santa Clara River (Estuary to Highway 101 bridge)	180701020904	E		E	
Santa Clara River Reach 2					
Santa Clara River (Highway 101 bridge to Ellsworth Barranca)	180701020904	E		E	
Santa Clara River (Ellsworth Barranca to Freeman Diversion)	180701020903	E		E	
Santa Clara River Reach 3					
Santa Clara River (Freeman Diversion Dam to Santa Paula Creek)	180701020903	Ed		E	
Santa Clara River (Santa Paula Creek to Sespe Creek)	180701020902	Ed		E	
Santa Clara River (Sespe Creek to A Street, Fillmore)	180701020802	Ed		E	
Santa Clara River Reach 4A					
Santa Clara River (A Street, Fillmore to Piru Creek)	180701020802	E		E	
Santa Clara River Reach 4B					
Santa Clara River (Piru Creek to Blue Cut gaging station)	180701020403	E		E	
Santa Clara River Reach 5					
Santa Clara River (Blue Cut gaging station to West Pier Highway 99)	180701020403	E		E	
Santa Clara River Reach 6					
Santa Clara River (West Pier Highway 99 to Bouquet Canyon Rd.)	180701020403	E		E	
Santa Clara River Reach 7					
Santa Clara River (Bouquet Canyon Rd. to Lang gaging station)	180701020107	E		E	
Santa Clara River Reach 8					
Soledad Canyon (Lang gaging station to Agua Dulce Canyon Creek)	180701020107	E		E	
Soledad Canyon (Agua Dulce Canyon Creek to Aliso Canyon Creek)	180701020105	E		E	
Soledad Canyon (above Aliso Canyon Creek)	180701020102	E		E	
Santa Clara River Reach 9					
Santa Paula Creek (above Santa Paula Water Works Diversion Dam)	180701020901	E		E	
Santa Clara River Reach 10					
Sespe Creek (gaging station below Little Sespe Creek to Hot Springs Canyon)	180701020705	E		E	
Sespe Creek (Hot Springs Canyon to Piedra Blanca Creek)	180701020703	E		E	
Sespe Creek (Piedra Blanca Creek to Potrero John Creek)	180701020702	E		E	
Sespe Creek (above Potrero John Creek)	180701020701	E		E	
Santa Clara River Reach 11					
Piru Creek (gaging station below Santa Felicia Dam to Agua Blanca Creek)	180701020603	E		E	
Piru Creek (Agua Blanca Creek to Pyramid Lake)	180701020602	E		E	
Piru Creek (Pyramid Lake to Snowy Creek)	180701020508	E		E	
Piru Creek (Snowy Creek to Lockwood Creek)	180701020505	E		E	
Piru Creek (above Lockwood Creek)	180701020502	E		E	
Santa Paula Creek (Santa Clara River R4A to Santa Paula Water Works Diversion Dam)	180701020901	E		E	
Sisar Creek	180701020901	E		E	

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

c: Coastal waterbodies which are also listed in inland Surface Waters Tables (2-1) or in Wetlands Table (2-4).

d: Limited public access precludes full utilization.

Los Angeles Regional Water Quality Control Board

Table 2-1a. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a		WBD No.	REC1	LREC-1	REC2	High Flow Suspension
SANTA CLARA RIVER WATERSHED (Cont.)						
Sespe Creek (Santa Clara River R3 to gaging station below Little Sespe Creek)		180701020706	E		E	
Timber Creek		180701020703	E		E	
Bear Canyon		180701020703	E		E	
Trout Creek		180701020703	E		E	
Piedra Blanca Creek		180701020703	E		E	
Lion Canyon		180701020702	E		E	
Rose Valley Creek		180701020702	E		E	
Howard Creek		180701020702	E		E	
Tule Creek		180701020702	P		E	
Potrero John Creek		180701020701	E		E	
Hopper Creek		180701020801	E		E	
Piru Creek (Santa Clara River R4A to Santa Paula Water Works Diversion Dam)		180701020604	E		E	
Lake Piru		180701020603	E		E	
Lake Piru		180701020603	E		E	
Pyramid Lake		180701020509	E		E	
Gorman Creek		180701020507	I		I	
Canada de los Alamos		180701020506	I		I	
Lockwood Creek		180701020504	I		I	
Lockwood Creek		180701020504	I		I	
Tapo Canyon		180701020403	P		E	
Castaic Creek (Santa Clara River R5 to Castaic Lake)		180701020306	I		E	
Castaic Creek (Castaic Lake to Fish Canyon)		180701020305	I		E	
Castaic Creek (above Fish Canyon)		180701020304	I		E	
Castaic Lagoon		180701020306	E		E	
Castaic Lake		180701020305	E		E	
Castaic Lake		180701020304	E		E	
Elderberry Forebay		180701020305	Ek		E	
Elizabeth Lake Canyon		180701020304	I		E	
San Francisquito Canyon I		180701020402	I		I	
Drinkwater Reservoir		180701020402	Pk		E	
South Fork Santa Clara River		180701020401	I		I	
Bouquet Canyon (Santa Clara River R6 to Vasquez Canyon)		180701020401	Em		E	
Bouquet Canyon (above Vasquez Canyon)		180701020401	Em		E	
Dry Canyon Creek		180701020202	I		I	
Dry Canyon Reservoir ^j		180701020201	Pk		E	
Bouquet Reservoir		180701020201	Pk		E	
Mint Canyon Creek Reach 1 (Santa Clara River R7 to Rowher Canyon)		180701020106	Im		I	
Mint Canyon Creek Reach 2 (above Rowher Canyon)		180701020106	Im		I	
Agua Dulce Canyon Creek (Santa Clara River R8 to Escondido Canyon Rd.)		180701020104	I		I	
Agua Dulce Canyon Creek (above Escondido Canyon Rd.)		180701020104	I		I	
Aliso Canyon Creek		180701020101	E		E	
Lake Hughes		180701020301	E		E	
Munz Lake		180701020301	E		E	
Lake Elizabeth		180701020301	E		E	

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

* Asterisked MUN designations are designated under SB 88-63 and RB 89-03. Some designations may be considered for exemption at a later date (See pages 2-3, 4 for more details).

Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

k: Public access to reservoir and its surrounding watershed is prohibited by Los Angeles County Department of Public Works.

l: The majority of the reach is intermittent; there is a small area of rising ground water creating perennial flow.

m: Access prohibited by Los Angeles Department in the concrete-channelized areas.

j: Out of service.

Los Angeles Regional Water Quality Control Board

Table 2-1a. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a		WBD No.	REC1	LREC-1	REC2	High Flow Suspension
CALLEGUAS-CONEJO CREEK WATERSHED						
Calleguas Creek Estuary ^c		180701030107	Pn		E	
Calleguas Creek Reach 1						
Mugu Lagoon ^c		180701030102	Pn		E	
Calleguas Creek Reach 2						
Calleguas Creek (Estuary to Potrero Rd.)		180701030107	E		E	
Calleguas Creek Reach 3						
Calleguas Creek (Potrero Rd. to Conejo Creek)		180701030107	Eq		E	
Calleguas Creek Reach 4						
Revolon Slough (Calleguas Creek Rch 2 to Pleasant Valley Rd.)		180701030107	Eq		E	
Revolon Slough (Pleasant Valley Rd. to Central Ave.)		180701030106	Eq		E	
Calleguas Creek Reach 5						
Beardsley Channel (above Central Ave.)		180701030106	E		E	
Calleguas Creek Reach 6						
Arroyo Las Posas (Calleguas Creek Rch 3 to Long Canyon)		180701030103	E		E	
Arroyo Las Posas (Long Canyon to Hitch Rd.)		180701030103	E		E	
Calleguas Creek Reach 7						
Arroyo Simi (Hitch Rd. to Happy Camp Canyon)		180701030103	I		I	
Arroyo Simi (Happy Camp Canyon to Alamos Canyon)		180701030102	I		I	
Arroyo Simi (Alamos Canyon to Tapo Canyon Creek)		180701030102	I		I	
Arroyo Simi (above Tapo Canyon Creek)		180701030101	I		I	
Calleguas Creek Reach 8						
Tapo Canyon Creek (above Arroyo Simi)		180701030101	I		I	
Calleguas Creek Reach 9A						
Conejo Creek (Camrosa Diversion to Camarillo Rd.)		180701030105	Eq		E	
Conejo Creek (Camarillo Rd. to Arroyo Santa Rosa)		180701030105	I		I	
Calleguas Creek Reach 9B						
Conejo Creek (Calleguas Creek Rch 3 to Camrosa Diversion)		180701030105	Eq		E	
Calleguas Creek Reach 10						
Arroyo Conejo (Conejo Creek to North Fork Arroyo Conejo)		180701030105	I		I	
Calleguas Creek Reach 11 (Arroyo Santa Rosa)						
Arroyo Santa Rosa (above confl. with Conejo Creek)		180701030105	I		I	
Calleguas Creek Reach 12						
North Fork Arroyo Conejo (above confl. with Arroyo Conejo)		180701030104	E		E	
Calleguas Creek Reach 13						
Arroyo Conejo (above confl. with North Fork Arroyo Conejo)		180701030104	I		I	
Gillibrand Canyon Creek (Tapo Canyon Creek to Windmill Canyon)		180701030101	I		I	
Gillibrand Canyon Creek (above Windmill Canyon)		180701030101	I		I	
Lake Bard (Wood Ranch Reservoir)		180701030102	Pr		Er	

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

* Asterisked MUN designations are designated under SB 88-63 and RB 89-03. Some designations may be considered for exemption at a later date (See pages 2-3, 4 for more details).

Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

c: Coastal waterbodies which are also listed in Coastal Features Table (2-3) or in Wetlands table (2-4).

n: Area is currently under control of the Navy; swimming is prohibited.

q: Whenever flow conditions are suitable.

r: Public access prohibited by Calleguas MWD.

Los Angeles Regional Water Quality Control Board

Table 2-1a. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a		WBD No.	REC1	LREC-1	REC2	High Flow Suspension
LOS ANGELES COUNTY COASTAL STREAMS						
Arroyo Sequit		180701040202	E		E	
San Nicholas Canyon Creek		180701040202	I		I	
Los Alisos Canyon Creek		180701040202	I		I	
Lachusa Canyon Creek		180701040202	I		I	
Encinal Canyon Creek		180701040202	I		I	
Trancas Canyon Creek		180701040203	Em		E	
Dume Lagoon ^c		180701040203	E		E	
Dume Creek (Zuma Canyon)		180701040203	E		E	
Ramirez Canyon Creek		180701040204	I		I	
Escondido Canyon Creek		180701040204	I		I	
Latigo Canyon Creek		180701040204	I		I	
Solstice Canyon Creek		180701040204	E		E	
Puerco Canyon Creek		180701040204	I		I	
Corral Canyon Creek		180701040204	I		I	
Carbon Canyon Creek		180701040403	I		I	
Las Flores Canyon Creek		180701040403	I		I	
Piedra Gorda Canyon Creek		180701040403	I		I	
Pena Canyon Creek		180701040403	I		I	
Tuna Canyon Creek		180701040403	I		I	
Topanga Lagoon ^c		180701040401	E		E	
Topanga Canyon Creek		180701040401	I		I	
Santa Ynez Canyon		180701040403	I		E	
Santa Ynez Lake (Lake Shrine)		180701040403	Pk		E	
Santa Monica Canyon Channel		180701040402	Ps		I	
Rustic Canyon Creek		180701040402	I		I	
Sullivan Canyon Creek		180701040402	I		I	
Mandeville Canyon Creek		180701040402	I		I	
Coastal Streams of Palos Verdes		180701040500	I		I	
Canyon Streams of Palos Verdes		180701040701	I		I	
Bixby Slough		180701040701	E		E	
Machado Lake		180701040701	E		E	
Madrona Marsh		180701040701	P		E	
Stone Canyon Reservoir		180701040300	Pk		E	
Hollywood Reservoir		180701040300	Pk		E	
Franklin Canyon Reservoir		180701040300	Pk,u			
Upper Franklin Canyon Reservoir		180701040300	P		E	

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

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Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

c: Coastal waterbodies which are also listed in Coastal Features Table (2-3) or in Wetlands table (2-4).

k: Public access to reservoir and its surrounding watershed is prohibited by Los Angeles County Department of Public Works.

m: Access prohibited by Los Angeles County Department in the concrete-channelized areas.

s: Access prohibited by Los Angeles County Department of Public works.

u: This reservoir is covered and thus inaccessible.

Los Angeles Regional Water Quality Control Board

Table 2-1a. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a		WBD No.	REC1	LREC-1	REC2	High Flow Suspension
MALIBU CREEK WATERSHED						
Malibu Lagoon ^c		180701040104	E		E	
Malibu Creek		180701040104	E		E	
Cold Creek		180701040104	E		E	
Las Virgenes Creek		180701040103	Em		E	
Century Reservoir		180701040104	E		E	
Malibou Lake		180701040104	E		E	
Medea Creek Reach 1 (Malibou Lake to Lindero Creek Reach 1)		180701040102	Im		I	
Medea Creek Reach 2 (above Lindero Creek Reach 1)		180701040104	Em		E	
Lindero Creek Reach 1 (Medea Creek Reach 1 to Lake Lindero)		180701040102	I		I	
Lindero Creek Reach 2 (above Lake Lindero)		180701040102	I		I	
Triunfo Creek Reach 1 (Malibou Lake to Lobo Canyon)		180701040101	Im		I	
Triunfo Creek Reach 2 (Lobo Canyon to Westlake Lake)		180701040104	Im		I	
Westlake Lake		180701040101	E		E	
Potrero Valley Creek		180701040101	I		I	
Lake Eleanor Creek		180701040101	I		I	
Lake Eleanor		180701040101	E		E	
Las Virgenes (Westlake) Reservoir		180701040101	Pk,v		E	
Hidden Valley Creek		180701040101	I		I	
Lake Sherwood		180701040101	E		E	
BALLONA CREEK WATERSHED						
Ballona Creek Estuary (ends at Centinela Creek) ^{c,w}		180701040300	E		E	
Ballona Lagoon/ Venice Canals ^c		180701040403	E		E	
Ballona Wetlands ^c		180701040300	E		E	
Del Rey Lagoon ^c		180701040500	E		E	
Ballona Creek Reach 2 (Estuary to National Blvd.)		180701040300	Ps,au	E	E	Yav
Ballona Creek Reach 1 (above National Blvd.)		180701040300	Ps,au		E	Yav
LOS CERRITOS CHANNEL WATERSHED						
Los Cerritos Wetlands ^c		180701040702	E		E	
Los Cerritos Channel Estuary (Ends at Anaheim Rd.) ^c		180701040702	Es		E	
Sims Pond		180701040702	P		E	
Los Cerritos Channel		180701040702	P		I	
Colorado Lagoon		180701040702	E		E	

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

* Asterisked MUN designations are designated under SB 88-63 and RB 89-03. Some designations may be considered for exemption at a later date (See pages 2-3, 4 for more details).

au: The REC-1 use designation does not apply to recreational activities associated with the swimmable goal as expressed in the Federal Clean Water Act section 101(a)(2) and regulated under the REC-1 use in the Basin Plan, or the associated bacteriological objectives set to protect those activities. However, water quality objectives set to protect other REC-1 uses associated with the fishable goal as expressed in the Federal Clean Water Act section 1010(a)(2) shall remain in effect for waters where the (au) footnote appears.

av: The High Flow Suspension only applies to water contact recreational activities associated with the swimmable goal as expressed in the federal Clean Water Act section 101(a)(2) and regulated under the REC-1 use, non-contact water recreation involving incidental water contact regulated under the REC-2 use, and the associated bacteriological objectives set to protect those activities. Water quality objectives set to protect (1) other recreational uses associated with the fishable goal as expressed in the federal Clean Water Act section 101(a)(2) and regulated under the REC-1 use and (2) other REC-2 uses (e.g., uses involving the aesthetic aspects of water) shall remain in effect at all times for waters where the (av) footnote appears.

** The dividing line between “Ballona Creek” and “Ballona Creek to Estuary” is the point at which the vertical channel walls transition to sloping walls.

Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

c: Coastal waterbodies which are also listed in Coastal Features Table (2-3) or in Wetlands table (2-4).

k: Public access to reservoir and its surrounding watershed is prohibited by Los Angeles County Department of Public Works.

m: Access prohibited by Los Angeles County Department in the concrete-channelized areas.

s: Access prohibited by Los Angeles County Department of Public Works.

v: Public water supply reservoir. Owner prohibits public entry.

w: These areas are engineered channels. All references to Tidal Prisms in Regional Board documents are functionally equivalent to estuaries.

Los Angeles Regional Water Quality Control Board

Table 2-1a. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ³	WBD No.	REC1	LREC-1	REC2	High Flow Suspension
DOMINGUEZ CHANNEL WATERSHED					
Dominguez Channel Estuary (Ends at Vermont Ave.) ^{c,w}	180701060102	Es		E	
Dominguez Channel (Estuary to 135th St.)	180701060102	Ps		E	Yav
Dominguez Channel (above 135th St)	180701060101	Ps		E	Yav
LOS ANGELES RIVER WATERSHED					
Los Angeles River Estuary (Ends at Willow St.) ^{c,w}	180701050404	E		E	
Los Angeles River Reach 1 (Estuary to Carson St.)	180701050404	Es		E	Yav
Compton Creek	180701050404	Es		E	
Los Angeles River Reach 2 (Carson St. to Rio Hondo Reach 1)	180701050404	Es		E	Yav
Los Angeles River Reach 2 (Rio Hondo Reach 1 to Figueroa St.)	180701050403	Es		E	Yav
Rio Hondo Reach 1 (Los Angeles River Reach 2 to Santa Ana Freeway)	180701050403	Pm		E	Yav
Rio Hondo Reach 2 (Santa Ana Freeway to Whittier Narrows Dam)	180701050403	Im		E	Yav
Rio Hondo Reach 3 (above Whittier Narrows Dam)	180701050402	Im		E	Yav
Alhambra Wash	180701050403	Pm		I	
Rubio Wash	180701050403	Im		I	Yav
Rubio Canyon	180701050401	I		I	
Eaton Wash	180701050401	I		I	
Eaton Wash (below dam) (Rio Hondo Reach 3 to Eaton Dam)	180701050401	Im		I	Yav
Eaton Wash (above dam) (Eaton Dam to Mount Wilson Toll Rd.)	180701050401	I		I	
Eaton Reservoir	180701050401	P		Id	
Eaton Canyon Creek (above Mount Wilson Toll Rd.)	180701050401	E		E	
Arcadia Wash	180701050302	Pm		I	Yav
Arcadia Wash	180701050302	Pm		I	Yav
Santa Anita Wash (lower) (Rio Hondo Reach 3 to Elkins Ave.)	180701050302	Pm		E	Yav
Santa Anita Wash (upper) (Elkins Ave. to Big Santa Anita Reservoir)	180701050302	Em		E	
Little Santa Anita Canyon Creek	180701050302	I		I	
Big Santa Anita Reservoir	180701050302	Px		E	
Santa Anita Canyon Creek	180701050302	E		E	
Winter Creek	180701050302	I		E	
East Fork Santa Anita Canyon	180701050302	E		E	
Sawpit Wash	180701050302	Im		I	Yav
Sawpit Canyon Creek	180701050302	I		I	
Sawpit Reservoir	180701050302	Px		I	
Monrovia Canyon Creek	180701050302	I		I	
Arroyo Seco Reach 1 (Los Angeles River Reach 2 to Holly St.)	180701050209	I		I	
Arroyo Seco Reach 2 (Holly St. to Devils Gate Dam)	180701050209	Im		I	
Devils Gate Reservoir (lower)	180701050209	Im		I	
Devils Gate Reservoir (upper)	180701050209	I		I	
Arroyo Seco Reach 3 (above Devils Gate Dam)	180701050209	Em		E	
Millard Canyon Creek	180701050209	E		E	
El Prieto Canyon Creek	180701050209	I		I	
Little Bear Canyon Creek	180701050209	I		I	
Los Angeles River Reach 3 (Figueroa St. to Riverside Dr.)	180701050402	E		E	Yav
Verdugo Wash Reach 1 (Los Angeles River Rch 3 to Verdugo Rd./Towne St.)	180701050207	Pm		I	Yav
Verdugo Wash Reach 2 (above Verdugo Rd. @ Towne St.)	180701050207	Pm		I	Yav
Halls Canyon Channel	180701050207	Im		I	
Snover Canyon	180701050207	Im		I	Yav
Pickens Canyon	180701050207	Im		I	
Shields Canyon	180701050207	Im		I	Yav

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

Footnotes are consistent for all beneficial use tables.

d: Limited public access precludes full utilization.

m: Access prohibited by Los Angeles County Department in the Concrete-channelized areas.

s: Access prohibited by Los Angeles County Department of Public Works.

x: Owner prohibits entry.

av: The High Flow Suspension only applies to water contact recreational activities associated with the swimmable goal as expressed in the federal Clean Water Act section 101(a)(2) and regulated under the REC-1 use, non-contact water recreation involving incidental water contact regulated under the REC-2 use, and the associated bacteriological objectives set to protect those activities. Water quality objectives set to protect (1) other recreational uses associated with the fishable goal as expressed in the federal Clean Water Act section 101(a)(2) and regulated under the REC-1 use and (2) other REC-2 uses (e.g., uses involving the aesthetic aspects of water) shall remain in effect at all times for waters where the (av) footnote appears.

Los Angeles Regional Water Quality Control Board

Table 2-1a. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a		WBD No.	REC1	LREC-1	REC2	High Flow Suspension
LOS ANGELES RIVER WATERSHED (cont.)						
Dunsmore Canyon Creek		180701050207	I		I	
Burbank Western Channel		180701050208	Pm		I	Yav
La Tuna Canyon Lateral and Creek		180701050208	Im		I	
Tujunga Wash		180701050208	Pm		I	Yav
Hansen Flood Control Basin & Lakes		180701050105	E		E	
Lopez Canyon Creek		180701050105	Im		I	
Little Tujunga Canyon Creek		180701050104	I		E	
Kagel Canyon Creek		180701050104	Im		I	
Big Tujunga Canyon Creek (Hansen Flood Control Basin to Big Tujunga Reservoir)		180701050105	E		E	
Big Tujunga Canyon Creek (above Big Tujunga Reservoir)		180701050103	E		E	
Upper Big Tujunga Canyon Creek		180701050103	E		E	
Haines Canyon Creek		180701050105	Im		I	Yav
Vasquez Creek		180701050105	E		E	
Clear Creek		180701050105	E		E	
Big Tujunga Reservoir		180701050105	Pk		E	
Mill Creek		180701050102	E		E	
Los Angeles River Reach 4 (Riverside Dr. to Sepulveda Dam)		180701050208	E		E	Yav
Pacoima Wash		180701050206	Pm		E	
Pacoima Reservoir		180701050205	E		E	
Pacoima Canyon Creek		180701050205	E		E	
May Canyon Creek		180701050206	I		E	
Wilson Canyon Creek		180701050206	Em		E	Yav
Stetson Canyon Creek		180701050204	Pm		E	Yav
Los Angeles River Reach 5 (Sepulveda Dam to Balboa Blvd.)		180701050208	E		E	Yav
Sepulveda Flood Control Basin		180701050208	E		E	
Bull Creek		180701050204	Im		I	
Los Angeles Reservoir		180701050204	Pk		E	
Lower Van Norman Reservoir		180701050204	E		E	
Upper Van Norman Reservoir		180701050204	Pk,u			
Los Angeles River Reach 6 (above Balboa Blvd.)		180701050208	E		E	Yav
Caballero Creek		180701050208	Im		I	Yav
Aliso Canyon Wash (Los Angeles River Reach 6 to State Hwy 118)		180701050203	Im		I	Yav
Aliso Canyon Creek (above State Hwy 118)		180701050203	Im		I	Yav
Limekiln Canyon Wash		180701050203	Im		I	
Browns Canyon Wash (Los Angeles River Reach 6 to State Hwy 118)		180701050202	Im		I	
Browns Canyon Creek (above State Hwy 118)		180701050202	Im		I	
Arroyo Calabasas		180701050201	Pm		I	Yav
Dry Canyon Creek		180701050201	Im		I	
McCoy Canyon Creek		180701050201	I		I	
Bell Creek		180701050201	Im		I	Yav
Chatsworth Reservoir ^y		180701050201	P		E	
Dayton Canyon Creek		180701050201	I		I	

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

* Asterisked MUN designations are designated under SB 88-63 and RB 89-03.

Some designations may be considered for exemption at a later date (See pages 2-3, 4 for more details).

av: The High Flow Suspension only applies to water contact recreational activities associated with the swimmable goal as expressed in the federal Clean Water Act section 101(a)(2) and regulated under the REC-1 use, non-contact water recreation involving incidental water contact regulated under the REC-2 use, and the associated bacteriological objectives set to protect those activities. Water quality objectives set to protect (1) other recreational uses associated with the fishable goal as expressed in the federal Clean Water Act section 101(a)(2) and regulated under the REC-1 use and (2) other REC-2 uses (e.g., uses involving the aesthetic aspects of water) shall remain in effect at all times for waters where the (av) footnote appears.

Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

k: Public access to reservoir and its surrounding watershed is prohibited by Los Angeles County Department of Public Works.

m: Access prohibited by Los Angeles County Department in the Concrete-channelized areas.

u: This reservoir is covered and thus inaccessible.

y: Currently dry and no plans for restoration.

Los Angeles Regional Water Quality Control Board

Table 2-1a. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a		WBD No.	REC1	LREC-1	REC2	High Flow Suspension
LOS ANGELES RIVER WATERSHED (cont.)						
ISOLATED LAKES AND RESERVOIRS:						
Eagle Rock Reservoir		180701050402	Pk,u			
Echo Lake		180701040200	P		E	
El Dorado Lakes		180701060606	E		E	
Elysian Reservoir		180701050403	Pk		E	
Encino Reservoir		180701050208	Pk		E	
Ivanhoe Reservoir		180701040200	Pk		E	
Lincoln Park Lake Silver Reservoir		180701050403	P		E	
Silver Lake Reservoir		180701040200	Pk		E	
Toluca Lake		180701050208	Pk		E	
SAN GABRIEL RIVER WATERSHED						
San Gabriel River Estuary (Ends at Willow St.) ^{c,w}		180701060606	E		E	
Coyote Creek (San Gabriel River Estuary to La Canada Verde Creek)		180701060506	Pm		I	Yav
Coyote Creek (above La Canada Verde Creek)		180701060603	Pm		I	Yav
San Gabriel River Reach 1 (San Gabriel River Estuary to Firestone Blvd.)		180701060606	Em		E	Yav
San Gabriel River Reach 2 (Firestone Blvd. to Whittier Narrows Dam)		180701060606	Em		E	Yav
Whittier Narrows Flood Control Basin		180701060303	E		E	
Legg Lake		180701060303	E		E	
San Gabriel River Reach 3 (Whittier Narrows Dam to San Jose Creek)		180701060601	Im		I	Yav
San Gabriel River Reach 3 (San Jose Creek to Ramona Blvd.)		180701060601	Im		I	Yav
San Jose Creek Reach 1 (San Gabriel River Reach 3 to Temple Ave.)		180701060502	Pm		I	Yav
San Jose Creek Reach 2 (Temple Ave. to Thompson Wash)		180701060501	Pm		I	Yav
Puente Creek		180701060502	P		I	
Thompson Wash (San Jose Creek Reach 2 to Web Canyon)		180701060501	Im		I	Yav
Thompson Creek (above Web Canyon)		180701060501	I		I	
Thompson Creek Reservoir		180701060501	Px		I	
Walnut Creek Wash		180701060402	Im		I	
Big Dalton Wash		180701060402	Pm		I	Yav
Big Dalton Canyon Creek		180701060402	I		I	
Mystic Canyon		180701060402	I		I	
Big Dalton Reservoir		180701060402	Px		E	
Bell Canyon Creek		180701060402	I		I	
Little Dalton Wash		180701060402	Pm		I	
Little Dalton Canyon Creek		180701060402	I		I	
San Dimas Wash (lower) (Big Dalton wash to Ham Canyon)		180701060402	Im		I	Yav
San Dimas Wash (upper) (above Ham Canyon)		180701060401	Im		I	
San Dimas Reservoir		180701060401	Px		E	
San Dimas Canyon Creek		180701060401	E		E	
West Fork San Dimas Canyon		180701060401	E		E	
Wolfskill Canyon		180701060401	E		E	
Puddingstone Reservoir		180701060402	E		E	
Live Oak Wash		180701060402	I		I	
Live Oak Creek		180701060402	I		I	
Live Oak Reservoir		180701060402	E		E	
Puddingstone Wash		180701060402	Im		I	Yav
Marshall Creek and Wash (Puddingstone Reservoir to Via Arroyo)		180701060402	Im		I	Yav

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

av: The High Flow Suspension only applies to water contact recreational activities associated with the swimmable goal as expressed in the federal Clean Water Act section 101(a)(2) and regulated under the REC-1 use, non-contact water recreation involving incidental water contact regulated under the REC-2 use, and the associated bacteriological objectives set to protect those activities. Water quality objectives set to protect (1) other recreational uses associated with the fishable goal as expressed in the federal Clean Water Act section 101(a)(2) and regulated under the REC-1 use and (2) other REC-2 uses (e.g., uses involving the aesthetic aspects of water) shall remain in effect at all times for waters where the (av) footnote appears.

Footnotes are consistent for all beneficial use tables.

m: Access prohibited by Los Angeles County Department in the Concrete-channelized areas.

u: This reservoir is covered and thus inaccessible.

x: Owner prohibits entry.

w: These areas are engineered channels. All references to Tidal Prisms in Regional Board documents are functionally equivalent to estuaries.

k: Public access to reservoir and its surrounding watershed is prohibited by Los Angeles County Department of Public Works.

Los Angeles Regional Water Quality Control Board

Table 2-1a. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a	WBD No.	REC1	LREC-1	REC2	High Flow Suspension
SAN GABRIEL RIVER WATERSHED (cont.)					
Marshall Creek and Wash (above Via Arroyo)	180701060402	Im		I	
Emerald Creek And Wash	180701060402	Im		I	Yav
San Gabriel River Reach 4 (Ramona Blvd. to Santa Fe Dam)	180701060601	Im		I	Yav
Santa Fe Flood Control Basin	180701060601	P		I	
UPPER SAN GABRIEL RIVER TRIBUTARIES					
San Gabriel River Reach 5 (Santa Fe Dam to Huntington Dr.)	180701060601	Im		I	Yav
San Gabriel River Reach 5 (Huntington Dr. to Van Tassel Canyon)	180701060601	E		E	
San Gabriel River Reach 5 (Van Tassel Canyon to San Gabriel Reservoir)	180701060601	E		E	
Bradbury Canyon Creek	180701060601	I		I	
Sprinks Canyon Creek	180701060601	I		I	
Maddock Canyon Creek	180701060601	I		I	
Van Tassel Canyon	180701060601	I		I	
Fish Canyon Creek	180701060601	E		E	
Roberts Canyon Creek	180701060601	I		I	
Morris Reservoir	180701060601	P		E	
San Gabriel Reservoir	180701060601	E		E	
East Fork San Gabriel River (San Gabriel Reservoir to Fish Fork)	180701060301	E		E	
East Fork San Gabriel River (above Fish Fork)	180701060303	E		E	
Cattle Canyon Creek	180701060302	E		E	
Coldwater Canyon Creek	180701060302	E		E	
Cow Canyon Creek	180701060302	E		E	
Allison Gulch	180701060303	E		E	
Fish Fork	180701060301	E		E	
West Fork San Gabriel River (San Gabriel Reservoir to Bear Creek)	180701060205	E		E	
West Fork San Gabriel River (above Bear Creek)	180701060202	E		E	
North Fork San Gabriel River	180701060204	E		E	
Bichota Canyon	180701060204	E		E	
Coldbrook Creek	180701060204	I		I	
Soldier Creek	180701060204	I		I	
Cedar Creek	180701060204	E		E	
Crystal Lake	180701060204	E		E	
Bear Creek	180701060205	E		E	
Cogswell Reservoir	180701060202	E		E	
Devils Canyon Creek	180701060201	E		E	
ISLAND WATERCOURSES					
Anacapa Island	180600140203	P			
San Nicolas Island	180701070001	P			
Santa Barbara Island	180701070003	E		E	
Santa Catalina Island	180701070002	E		E	
Middle Ranch System	180701070003	E		E	
San Clemente Island	180701070004	E		E	
SAN ANTONIO CREEK WATERSHED ^{ab}					
San Antonio Dam And Reservoir		E		E	
San Antonio Canyon Creek		E		E	

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

m: Access prohibited by Los Angeles County Department in the Concrete-channelized areas.

ab: This watershed is also in Region 8 (801.23).

av: The High Flow Suspension only applies to water contact recreational activities associated with the swimmable goal as expressed in the federal Clean Water Act section 101(a)(2) and regulated under the REC-1 use, non-contact water recreation involving incidental water contact regulated under the REC-2 use, and the associated bacteriological objectives set to protect those activities. Water quality objectives set to protect (1) other recreational uses associated with the fishable goal as expressed in the federal Clean Water Act section 101(a)(2) and regulated under the REC-1 use and (2) other REC-2 uses (e.g., uses involving the aesthetic aspects of water) shall remain in effect at all times for waters where the (av) footnote appears.

Los Angeles Regional Water Quality Control Board

Table 2-1a. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a			WBD No.	REC1	LREC-1	REC2	High Flow Suspension
VENTURA COUNTY COASTAL FEATURE^a			WBD NO.				
Nearshore ^				E		E	
Offshore Zone				E		E	
Rincon Beach			180701010201	E		E	
Ventura River Estuary c			180701010106	E		E	
Ventura Keys (Marina)			180701010202	E		E	
Ventura Marina			180701010904	E		E	
Santa Clara River Estuary c			180701010904	E		E	
Mandalay Beach			180701010201	E		E	
McGrath Lake c			180701010201	Ed		Ed	
Edison Canal Estuary			180701010201	Eao		E	
Channel Islands Harbor			180701010201	Eap		E	
Mandalay Bay (Marina)			180701010201	Eaq		E	
Port Hueneme (Harbor)			180701010201	E		E	
Ormond Beach			180701010201	E		E	
Ormond Beach Wetlands c			180701010202	E		E	
Mugu Lagoon c			180701010202	Pn		E	
Calleguas Creek Estuary c			180701010202	Pn		E	
LOS ANGELES COUNTY COASTAL FEATURE^a							
Nearshore Zone ^				E		E	
Offshore Zone				E		E	
Nicholas Canyon Beach			180701040402	E		E	
Trancas Beach			180701040403	E		E	
Zuma County (Westward) Beach			180701040403	E		E	
Dume State Beach			180701040404	E		E	
Dume Lagoon c			180701040403	E		E	
Escondido Beach			180701040404	E		E	
Dan Blocker Memorial (Corral) Beach			180701040404	E		E	

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

^: Nearshore is defined as the zone bounded by the shoreline and a line 1000 feet from the shoreline or the 30-foot depth contours, whichever is further from the shore line.

Longshore extent is from Rincon Creek to the San Gabriel River estuary.

Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

b: Waterbodies designated as WET may have wetlands habitat associated with only a portion of the waterbody. Any regulatory action would require a detailed analysis of the area.

c: Coastal waterbodies which are also listed in Coastal Features Table (2-3) or in Wetlands Table (2-4).

d: Limited public access precludes full utilization.

e: One or more rare species utilizes all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

f: Aquatic organisms utilize all bays, estuaries, lagoons, and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas which are heavily influenced by freshwater inputs.

n: Area is currently under control of the Navy: swimming is prohibited.

o: Marine Habitats of the Channel islands and Mugu Lagoon serve as pinniped haul-out areas for one or more species (i.e., sea lions).

p: Habitat of the Clapper Rail.

an: Areas of Special Biological Significance (along coast from Latigo Point to Laguna Point) and Big Sycamore Canyon and Abalone Cove Ecological Reserves and Point Femin Marine Life Refuge.

ar: Areas exhibiting large shellfish populations include Malibu, Point Dume, Point Fermin, White Point and Zuma Beach.

ap: Water contact recreational activities are limited to the beach area at the harbor by Marina Authorities.

aq: Water contact recreational activities are limited by City of Oxnard to within the easement area of each home.

Los Angeles Regional Water Quality Control Board

Table 2-1a. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a		WBD No.	REC1	LREC-1	REC2	High Flow Suspension
LOS ANGELES COUNTY COASTAL FEATURE^a (CONT.)		WBD NO.				
Puerco Beach		180701040404	E		E	
Amarillo Beach		180701040404	E		E	
Malibu Beach		180701040404	E		E	
Malibu Lagoon c		180701040404	E		E	
Carbon Beach		180701040502	E		E	
La Costa Beach		180701040502	E		E	
Las Flores Beach		180701040502	E		E	
Las Tunas Beach		180701040502	E		E	
Topanga Beach		180701040502	E		E	
Topanga Lagoon c		180701040501	E		E	
Will Rogers State Beach		180701040502	E		E	
Santa Monica Beach		180701040502	E		E	
Venice Beach		180701040502	E		E	
Marina Del Rey			E			
Harbor		180701040502	E		E	
Public Beach Areas		180701040502	E		E	
All other Areas		180701040502	P		E	
Entrance Channel		180701040502	E		E	
Ballona Creek Estuary c, w		180701040200	E		E	
Ballona Lagoon/Venice Canals c		180701040502	E		E	
Ballona Wetlands c		180701040200	E		E	
Del Rey Lagoon c		180701040601	E		E	
Dockweiler Beach		180701040601	E		E	
Manhattan Beach		180701040601	E		E	
Hermosa Beach		180701040601	E		E	
King Harbor		180701040601	E		E	
Redondo Beach		180701040601	E		E	
Torrance Beach		180701040601	E		E	
Port Vicente Beach		180701040601	E		E	
Royal Palms Beach		180701040601	E		E	

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

b: Waterbodies designated as WET may have wetlands habitat associated with only a portion of the waterbody. Any regulatory action would require a detailed analysis of the area.

c: Coastal waterbodies which are also listed in Coastal Features Table (2-3) or in Wetlands Table (2-4).

e: One or more rare species utilizes all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

f: Aquatic organisms utilize all bays, estuaries, lagoons, and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas which are heavily influenced by freshwater inputs.

ar: Areas exhibiting large shellfish populations include Malibu, Point Dume, Point Fermin, White Point and Zuma Beach.

as: Most frequently used grunion spawning beaches. Other beaches may be used as well.

w: These areas are engineered channels. All references to Tidal Prisms in Regional Board documents are functionally equivalent to estuaries.

Los Angeles Regional Water Quality Control Board

Table 2-1a. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a	WBD No.	REC1	LREC-1	REC2	High Flow Suspension
LOS ANGELES COUNTY COASTAL FEATURE^a (Cont.)	WBD NO.				
Whites Point County Beach	180701040601	E		E	
Cabrillo Beach	180701040302	E		E	
Los Angeles - Long Beach Harbor	180701040602			E	
Outer Harbor	180701040602	E		E	
Marinas	180701040602	E		E	
Public Beach Areas	180701040602	E		E	
All Other Inner Areas	180701040602	P		E	
Dominguez Channel Estuary c,w	180701040302	E		E	
Los Angeles River Estuary c,w	180701040404	E		E	
Alamitos Bay	180701040600	E		E	
Los Cerritos Wetlands c	180701040600	E		E	
Los Cerritos Channel Estuary c	180701040600	E		E	
San Gabriel Estuary c, w	180701040506	E		E	
Long Beach Marina	180701040600	P		E	
Public Beach Areas	180701040600	E		E	
All other Areas	180701040600	P		E	
Marine Stadium	180701040600	P		E	
Long Beach	180701040600	E		E	
ISLANDS:NEARSHORE ZONES ^					
Anacapa Island	180600140203	E		E	
San Nicolas Island	180701070001	E		E	
Begg Rock Nearshore Zone	180701070001	E		E	
Santa Barbara Island	180701070003	E		E	
Santa Catalina Island	180701070003	E		E	
Santa Catalina Island	180701070002	E		E	
San Clemente Island	180701070004	E		E	

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

* Asterisked MUN designations are designated under SB 88-63 and RB 89-03. Some designations may be considered for exemption at a later date (See pages 2-3, 4 for more details).

^: Nearshore is defined as the zone bounded by the shoreline and a line 1000 feet from the shoreline or the 30-foot depth contours, whichever is further from the shore line.

Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

b: Waterbodies designated as WET may have wetlands habitat associated with only a portion of the waterbody. Any regulatory action would require a detailed analysis of the area.

c: Coastal waterbodies which are also listed in Coastal Features Table (2-3) or in Wetlands Table (2-4).

e: One or more rare species utilizes all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

f: Aquatic organisms utilize all bays, estuaries, lagoons, and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas which are heavily influenced by freshwater inputs.

n: Area is currently under control of the Navy: swimming is prohibited.

p: Habitat of the Clapper Rail.

an: Areas of Special Biological Significance (along coast from Latigo Point to Laguna Point) and Big Sycamore Canyon and Abalone Cove Ecological Reserves and Point Femin Marine Life Refuge.

ar: Areas exhibiting large shellfish populations include Malibu, Point Dume, Point Fermin, White Point and Zuma Beach.

ap: Water contact recreational activities are limited to the beach area at the harbor by Marina Authorities.

Los Angeles Regional Water Quality Control Board

Table 2-1a. Beneficial Uses of Inland Surface Waters (Continued).

WATERSHED ^a		WBD No.	REC1	LREC-1	REC2	High Flow Suspension
WETLAND^a		WBD No.				
Ventura River Estuary c		180701010106	E		E	
Santa Clara River Estuary c		180701020904	E		E	
McGrath Lake c		180701030201	Ed		Ed	
Ormond Beach Wetlands c		180701030202	E		E	
Mugu Lagoon c		180701030202	Pn		E	
Dume Lagoon c		180701040403	E		E	
Malibu Lagoon c		180701040104	E		E	
Topanga Lagoon c		180701040501	E		E	
Ballona Lagoon/Venice Canals c		180701040502	E		E	
Ballona Wetlands c		180701040200	E		E	
Del Rey Lagoon c		180701040601	E		E	
Los Cerritos Wetlands c		180701060600	E		E	

*: This list may not be all inclusive. More areas may be added as information becomes available.

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

c: Coastal waterbodies which are also listed in inland Surface Waters Table (2-1) or in Wetlands Table (2-4).

d: Limited public access precludes full utilization.

n: Area is currently under control of the Navy: swimming is prohibited.

Los Angeles Regional Water Quality Control Board

Table 2-2 Beneficial Uses of Ground Waters.^{ac}

DWR ^{ad} Basin No.	BASIN	MUN	IND	PROC	AGR	AQUA
	PITAS POINT AREA ae	E	E	P	E	
4-1	UPPER OJAI VALLEY	E	E	E	E	
4-2	LOWER OJAI VALLEY	E	E	E	E	
4-3	VENTURA RIVER VALLEY					
4-3.01	Upper Ventura	E	E	E	E	
4-3.02	Lower Ventura	P	E	P	E	
4-4	SANTA CLARA RIVER VALLEY af					
4-4.02	Oxnard					
4-4.02	Oxnard Forebay	E	E	E	E	
4-4.02	Confined aquifers	E	E	E	E	
4-4.02	Unconfined and perched aquifers	E	P		E	
4-4.03	Mound					
4-4.03	Confined aquifers	E	E	E	E	
4-4.03	Unconfined and perched aquifers	E	P		E	
4-4.04	Santa Paula					
4-4.04	East of Peck Road	E	E	E	E	
4-4.04	West of Peck Road	E	E	E	E	
4-4.05	Fillmore					
4-4.05	Pole Creek Fan area	E	E	E	E	
4-4.05	South side of Santa Clara River	E	E	E	E	
4-4.05	Remaining Fillmore area	E	E	E	E	E
4-4.05	Topa Topa (upper Sespe) area	P	E	P	E	
4-4.06	Piru					
4-4.06	Upper area (above Lake Piru)	P	E	E	E	
4-4.06	Lower area east of Piru Creek	E	E	E	E	
4-4.06	Lower area west of Piru Creek	E	E	E	E	
4-4.07	Santa Clara River Valley East					
4-4.07	Mint Canyon	E	E	E	E	
4-4.07	South Fork	E	E	E	E	
4-4.07	Placerita Canyon	E	E	E	E	
4-4.07	Bouquet and San Francisquito Canyons	E	E	E	E	
4-4.07	Castaic Valley	E	E	E	E	
4-4.07	Saugus Aquifer	E				
4-5	ACTON VALLEY af					
4-5	Acton Valley	E	E	E	E	
4-5	Sierra Pelona Valley (Agua Dulce)	E	E		E	
4-5	Upper Mint Canyon	E	E	E	E	
4-5	Upper Bouquet Canyon	E	P	P	E	
4-5	Green Valley	E	P	P	E	
4-5	Lake Elizabeth - Lake Hughes area	E	P	P	E	
4-6	PLEASANT VALLEY ag					
4-6	Confined aquifers	E	E	E	E	
4-6	Unconfined and perched aquifers	P	E	E	E	

DWR ^{ad} Basin No.	BASIN	MUN	IND	PROC	AGR	AQUA
4-7	ARROYO SANTA ROSA VALLEY ag	E	E	E	E	
4-8	LAS POSAS VALLEY ag	E	E	E	E	
4-9	SIMI VALLEY					
	Simi Valley Basin					
	Confined aquifers	E	E	E	E	
	Unconfined aquifers	E	E	E	E	
	Gillibrand Basin	E	E	P	E	
4-10	CONEJO VALLEY	E	E	E	E	
4-11	COASTAL PLAIN OF LOS ANGELES					
4-11.01	Santa Monica	E	E	E	E	
4-11.02	Hollywood	E	E	E	E	
4-11.03	West Coast					
4-11.03	Underlying Ports of Los Angeles & Long Beach		E	E	E	
4-11.03	Underlying El Segundo, Seaward of Barrier		E	E	E	
4-11.03	Remainder of Basin	E	E	E	E	
4-11.04	Central	E	E	E	E	
4-12	SAN FERNANDO VALLEY	Eah	E	E	E	
4-13	SAN GABRIEL VALLEY ai	E	E	E	E	
4-15	TIERRA REJADA	E	P	P	E	
4-16	HIDDEN VALLEY	E	P		E	
4-17	LOCKWOOD VALLEY	E	E		E	
4-18	HUNGRY VALLEY	E	P	E	E	
4-19	THOUSAND OAKS AREA aj	E	E	E	E	
4-19	Triunfo Canyon area	P	P		E	
4-19	Lindero Canyon area	P	P		E	
4-19	Las Virgenes Canyon area	P	P		E	
4-20	RUSSELL VALLEY	E	P		E	
4-21	CONEJO-TIERRA REJADA VOLCANIC ak	E			E	
4-22	MALIBU VALLEY al					
4-22	Camarillo area	E	P		E	
4-22	Point Dume area	E	P		E	
4-22	Malibu Valley	P	P		E	
4-22	Topanga Canyon area	P	P		E	
4-23	RAYMOND	E	E	E	E	
	SAN PEDRO CHANNEL ISLANDS am					
	Anacapa Island	P	P			
	San Nicolas Island	E	P			
	Santa Catalina Island	E	P		E	
	San Clemente Island	P	P			
	Santa Barbara Island	P	P			

E: Existing beneficial use

P: Potential beneficial use

See pages 2-1 to 2-3 for description of beneficial use

Footnotes are consistent for all beneficial use tables

ac: Beneficial uses for ground waters outside of the major basins listed on this table and outlined in Fig 1-9 have not been specifically listed. However, ground waters outside of the major basins are, in many cases, significant sources of water. Furthermore, ground waters outside of the major basins are either potential or existing sources of water for downgradient basins, and as such, beneficial uses in the downgradient basins shall apply to these areas.

ad: Basins are numbered according to DWR Bulletin No. 118-Update 2003 (DWR, 2003).

ae: Ground waters in the Pitas Point area (between the lower Ventura River and Rincon Point) are not considered to comprise a major basin and, accordingly, have not been designated a basin number by the DWR or outlined on Fig. 1-9.

af: Santa Clara River Valley Basin was formerly Ventura Central Basin and Acton Valley Basin was formerly Upper Santa Clara Basin (DWR, 1980)

ag: Pleasant Valley, Arroyo Santa Rosa Valley, and Las Posas Valley Basins were formerly subbasins of Ventura Central (DWR, 1980).

ah: Nitrite pollution in the groundwater of the Sunland-Tujunga area currently precludes direct MUN uses. Since the ground water in this area can be treated or blended (or both), it retains the MUN designation.

ai: Raymond Basin was formerly a subbasin of San Gabriel Valley and is now a separate basin. The Main San Gabriel Basin was formerly separated into Eastern and Western areas. Since these areas had the same beneficial uses as Puente Basin all three areas have been combined into San Gabriel Valley. Any ground water upgradient of these areas is subject to downgradient beneficial uses and objectives, as explained in Footnote ac.

aj: These areas were formerly part of the Russell Valley Basin (DWR, 1980)

ak: Groundwater in the Conejo-Tierra Rejada Volcanic Area occurs primarily in fractured volcanic rocks in the western Santa Monica Mountains and Conejo Mountain areas. These areas have not been delineated on Fig.1-9.

al: With the exception of ground water in Malibu Valley (DWR Basin No. 4-22) ground waters along the southern slopes of the Santa Monica Mountains are not considered to comprise a major basin and accordingly have not been designated a basin number by DWR

am: DWR has not designated basins for groundwaters on the San Pedro Channel Islands.

Table 2-3. Beneficial Uses of Coastal Waters.

Los Angeles Regional Water Quality Control Board

COASTAL FEATURE ^a	WBD No.	MUN	IND	PROC	NAV	POW	COMM	WARM	COLD	EST	MAR	WILD	BIOL	RARE	MIGR	SPWN	SHELL	WET ^b
VENTURA COUNTY COASTAL																		
Nearshore [^]			E		E		E				E	E	Ean	Ee	Ef	Ef	E	
Offshore Zone					E		E				E	E		Ee	Ef	Ef	E	
Rincon Beach	180701010201				E		E				E	E			E		E	
Ventura River Estuary c	180701010106				E		E	E		E	E	E		Ee	Ef	Ef	E	E
Ventura Keys (Marina)	180701010202				E		E	E			E	E						
Ventura Marina	180701010904		E		E		E				E	E					E	
Santa Clara River Estuary c	180701010904				E		E			E	E	E		Ee	Ef	Ef		E
Mandalay Beach	180701010201				E		E				E	E		Ee			E	
McGrath Lake c	180701010201						P			E		E		Ee				E
Edison Canal Estuary	180701010201		E								E	E		Ee				
Channel Islands Harbor	180701010201		E		E		E				E	E						
Mandalay Bay (Marina)	180701010201		E		E						E	E						
Port Hueneme (Harbor)	180701010201			E	E		E				E	E						
Ormond Beach	180701010201		E		E	E	E				E	E		Ee		P	E	
Ormond Beach Wetlands c	180701010202									E		E		Ee				E
Mugu Lagoon c	180701010202				E		Ed			E	E	Eo	E	Ee,p	Ef	Ef	Ed	E
Calleguas Creek Estuary c	180701010202				P		E			E		E		Ee,p	Ef	Ef		E
LOS ANGELES COUNTY COASTAL																		
Nearshore Zone [^]			E		E		E				E	E	Ean	Ee	Ef	Ef	Ean	
Offshore Zone			E		E		E				E	E		Ee	Ef	Ef	E	
Nicholas Canyon Beach	180701040402				E		E				E	E				P	E	
Trancas Beach	180701040403				E		E				E	E				P	E	
Zuma County (Westward) Beach	180701040403				E		E				E	E				P	Ean	
Dume State Beach	180701040404				E		E				E	E				P	E	
Dume Lagoon c	180701040403				E		E			E		E		Ee	Pf	Pf		E
Escondido Beach	180701040404				E		E				E	E				P	E	
Dan Blocker Memorial (Corral) Beach	180701040404				E		E				E	E				P	E	

*: This list may not be all inclusive. More areas may be added as information becomes available.

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

[^]: Nearshore is defined as the zone bounded by the shoreline and a line 1000 feet from the shoreline or the 30-foot depth contours, whichever is further from the shoreline.

Longshore extent is from Rincon Creek to the San Gabriel River Estuary.

Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

b: Waterbodies designated as WET may have wetlands habitat associated with only a portion of the waterbody. Any regulatory action action would require a detailed analysis of the area.

c: Coastal waterbodies which are also listed in inland Surface Waters Tables (2-1) or in Wetlands Table (2-4).

d: Limited public access precludes full utilization.

e: One or more rare species utilizes all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

f: Aquatic organisms utilize all bays, estuaries, lagoons, and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas which are heavily influenced by freshwater inputs.

o: Marine Habitats of the Channel islands and Mugu Lagoon serve as pinniped haul-out areas for one or more species (.e. sea lions)

p: Habitat of the Clapper Rail.

an: Areas of Special Biological Significance (along coast from Latigo Point to Laguna Point) and Big Sycamore Canyon and Abalone Cove Ecological Reserves and Point Fermin Marine Life Refuge.

ar: Areas exhibiting large shellfish populations include Malibu, Point Dume, Point Fermin, White Point and Zuma Beach.

Table 2-3. Beneficial Uses of Coastal Features (Continued).

Los Angeles Regional Water Quality Control Board

COASTAL FEATURE ^a	WBD No.	MUN	IND	PROC	NAV	POW	COMM	WARM	COLD	EST	MAR	WLD	BIOL	RARE	MIGR	SPWN	SHELL	WET ^b
LOS ANGELES COUNTY COASTAL (CONT.)																		
Puerto Beach	180701040404				E		E				E	E				P	E	
Amarillo Beach	180701040404				E		E				E	E				P	E	
Malibu Beach	180701040404				E		E				E	E			E	Eas	Ear	
Malibu Lagoon c	180701040404				E					E	E	E		Ee	Ef	Ef		E
Carbon Beach	180701040502				E		E				E	E				P	E	
La Costa Beach	180701040502				E		E				E	E				P	E	
Las Flores Beach	180701040502				E		E				E	E				P	E	
Las Tunas Beach	180701040502				E		E				E	E				P	E	
Topanga Beach	180701040502				E		E				E	E				P	E	
Topanga Lagoon c	180701040501				E		E			E		E		Ee	Ef	Ef		E
Will Rogers State Beach	180701040502				E		E				E	E				P	E	
Santa Monica Beach	180701040502				E		E				E	E			E	Eas	E	
Venice Beach	180701040502				E		E				E	E		E	E	Eas	E	
Marina Del Rey																		
Harbor	180701040502				E		E				E	E					E	
Public Beach Areas	180701040502				E		E				E	E		E				
All other Areas	180701040502				E		E				E	E		E			E	
Entrance Channel	180701040502				E		E				E	E		E			E	
Ballona Creek Estuary c, w	180701040200				E		E			E	E	E		Ee	Ef	Ef	E	
Ballona Lagoon/Venice Canals c	180701040502				E		E			E	E	E		Ee	Ef	Ef	E	E
Ballona Wetlands c	180701040200									E		E		Ee	Ef	Ef		E
Del Rey Lagoon c	180701040601				E		E			E		E		Ee	Ef	Ef		E
Dockweiler Beach	180701040601		E		E		E				E	E				P		
Manhattan Beach	180701040601				E		E				E	E				P	E	
Hermosa Beach	180701040601				E		E				E	E				Eas	E	
King Harbor	180701040601		E		E		E				E	E		E				
Redondo Beach	180701040601		E		E		E				E	E		E	E	Eas	E	
Torrance Beach	180701040601				E		E				E	E			E	Eas	E	
Port Vicente Beach	180701040601				E		E				E	E				P	E	
Royal Palms Beach	180701040601				E		E				E	E				P	E	

*: This list may not be all inclusive. More areas may be added as information becomes available.

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

b: Waterbodies designated as WET may have wetlands habitat associated with only a portion of the waterbody. Any regulatory action action would require a detailed analysis of the area.

c: Coastal waterbodies which are also listed in inland Surface Waters Tables (2-1) or in Wetlands Table (2-4).

e: One or more rare species utilizes all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

f: Aquatic organisms utilize all bays, estuaries, lagoons, and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas which are heavily influenced by freshwater inputs.

ar: Areas exhibiting large shellfish populations include Malibu, Point Dume, Point Fermin, White Point and Zuma Beach

as: Most frequently used grunion spawning beaches. Other beaches may be used as well.

w: These areas are engineered channels. All references to Tidal Prisms in Regional Board documents are functionally equivalent to estuaries.

Table 2-3. Beneficial Uses of Coastal Features (Continued).

Los Angeles Regional Water Quality Control Board

COASTAL FEATURE ^a	WBD No.	MUN	IND	PROC	NAV	POW	COMM	WARM	COLD	EST	MAR	WILD	BIOL	RARE	MIGR	SPWN	SHELL	WET ^b
LOS ANGELES COUNTY COASTAL (Cont.)																		
Whites Point County Beach	180701040601				E		E				E	E				P	E	
Cabrillo Beach	180701040302				E		E				E	E			E	Eas	E	
Los Angeles - Long Beach Harbor	180701040602																	
Outer Harbor	180701040602				E		E				E			E			P	
Marinas	180701040602		E		E		E				E			E			P	
Public Beach Areas	180701040602				E		E				E	E		E		P	E	
All Other Inner Areas	180701040602		E		E		E				E			Ee			P	
Dominguez Channel Estuary c,w	180701040302				P		E			E	E	E		Ee	Ef	Ef		
Los Angeles River Estuary c,w	180701040404		E		E		E			E	E	E		Ee	Ef	Ef	P	E
Alamitos Bay	180701040600		E		E		E			E	E	E		E			E	E
Los Cerritos Wetlands c	180701040600				E		E			E		E		Ee	Pf	Pf	E	E
Los Cerritos Channel Estuary c	180701040600		E		E		E			E	E	E		Ee	Ef	Ef	E	
San Gabriel Estuary c, w	180701040506		E		E		E			E	E	E		Ee	Ef	Ef	P	
Long Beach Marina	180701040600						E				E			E				E
Public Beach Areas	180701040600				E		E				E			E		P		
All other Areas	180701040600						E				E			E			P	
Marine Stadium	180701040600						E				E			E			E	
Long Beach	180701040600				E		E				E	E			E	Eas	E	
ISLANDS:NEARSHORE ZONES ^																		
Anacapa Island	180600140203				E		E				E	Eo	Eat	E		P	E	
San Nicolas Island	180701070001				E		E				E	Eo	Eat	E		P	E	
Begg Rock Nearshore Zone	180701070001						E				E	Eo	Eat	E		P	E	
Santa Barbara Island	180701070003				E		E				E	Eo	Eat	E		P	E	
Santa Catalina Island	180701070003				E		E				E	Eo	Eat	E		P	E	
Santa Catalina Island	180701070002				E		E				E	Eo	Eat	E		P	E	
San Clemente Island	180701070004				E		E				E	Eo	Eat	E		P	E	

*: This list may not be all inclusive. More areas may be added as information becomes available.

E: Existing beneficial use

P: Potential beneficial use

I: Intermittent beneficial use

E,P, and I: shall be protected as required.

*Asterisked MUN designations are designated under SB 88-63 and RB-03. Some designations may be considered for exemptions at a later date (See pages 2-3 and 2-4 for more details).

^: Nearshore is defined as the zone bounded by the shoreline and a line 1000 feet from the shoreline or the 30-foot depth contours, whichever is further from the shoreline.

Footnotes are consistent for all beneficial use tables.

a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.

b: Waterbodies designated as WET may have wetlands habitat associated with only a portion of the waterbody. Any regulatory action action would require a detailed analysis of the area.

c: Coastal waterbodies which are also listed in inland Surface Waters Tables (2-1) or in Wetlands Table (2-4).

e: One or more rare species utilizes all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.

f: Aquatic organisms utilize all bays, estuaries, lagoons, and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas which are heavily influenced by freshwater inputs.

o: Marine Habitats of the Channel islands and Mugu Lagoon serve as pinniped haul-out areas for one or more species (i.e., sea lions).

w: These areas are engineered channels. All references to Tidal Prisms in Regional Board documents are functionally equivalent to estuaries.

as: Most frequently used grunion spawning beaches. Other beaches may be used as well.

at: Areas of Special Biological Significance or ecological reserves.

Table 2-4. Beneficial Uses of Significant Coastal Wetlands.*

Los Angeles Regional Water Quality Control Board

WETLAND ^a	WBD No.	MUN	IND	PROC	AGR	GWR	FRSH	NAV	POW	COMM	AQUA	WARM	COLD	SAL	EST	MAR	WILD	BIOL	RARE	MIGR	SPWN	SHELL	WET ^b
Ventura River Estuary c	180701010106							E		E		E			E	E	E		Ee	Ef	Ef	E	E
Santa Clara River Estuary c	180701020904							E		E					E	E	E		Ee	Ef	Ef		E
McGrath Lake c	180701030201									P					E		E		Ee				E
Ommond Beach Wetlands c	180701030202														E		E		Ee				E
Mugu Lagoon c	180701030202							E		Ed					E	E	Eo	E	Ee,p	Ef	Ef	Ed	E
Dume Lagoon c	180701040403							E		E					E		E		Ee	Pf	Pf		E
Malibu Lagoon c	180701040104							E							E	E	E		Ee	Ef	Ef		E
Topanga Lagoon c	180701040501							E		E					E		E		Ee	Ef	Ef		E
Ballona Lagoon/Venice Canals c	180701040502							E		E					E	E	E		Ee	Ef	Ef	E	E
Ballona Wetlands c	180701040200														E		E		Ee	Ef	Ef		E
Del Rey Lagoon c	180701040601							E		E					E		E		Ee	Ef	Ef		E
Los Cerritos Wetlands c	180701060600							E		E					E		E		Ee	Pf	Pf	E	E

*: This list may not be all inclusive. More areas may be added as information becomes available.

E: Existing beneficial use
P: Potential beneficial use
I: Intermittent beneficial use
E, P, and I: shall be protected as required

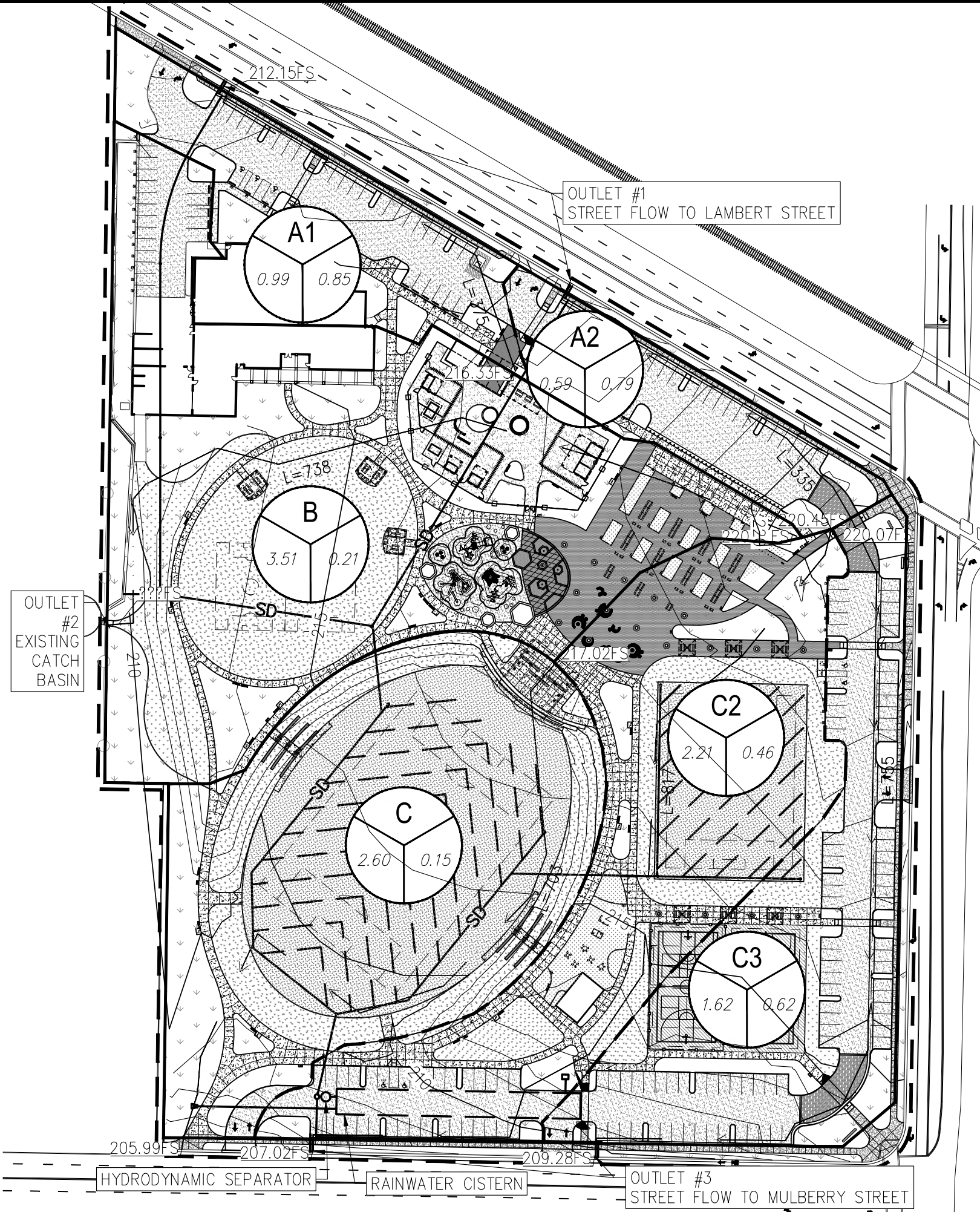
Footnotes are consistent for all beneficial use tables.

- a: Waterbodies are listed multiple times if they cross hydrologic area or subarea boundaries. Beneficial use designations apply to all tributaries to the indicated waterbody, if not listed separately.
b: Waterbodies designated as WET may have wetlands habitat associated with only a portion of the waterbody. Any regulatory action would require a detailed analysis of the area
c: Coastal waterbodies which are also listed in inland Surface Waters Tables (2-1) or in Wetlands Table (2-4).
d: Limited public access precludes full utilization.
e: One or more rare species utilizes all ocean, bays, estuaries, and coastal wetlands for foraging and/or nesting.
f: Aquatic organisms utilize all bays, estuaries, lagoons, and coastal wetlands, to a certain extent, for spawning and early development. This may include migration into areas which are heavily influenced by freshwater inputs.
o: Marine Habitats of the Channel islands and Mugu Lagoon serve as pinniped haul-out areas for one or more species (.e. sea lions)
p: Habitat of the Clapper Rail.

APPENDIX 5

BMP CALCULATIONS

Jan 23, 2023 - 10:05am by sshire K:\Drawings\ME\ME0432A - Parnell Park - Whittier - CD\ENG\LD\ME0432A_LID.dwg



LEGEND

- 180 PROPOSED CONTOUR
- FLOW LINE
- SURFACE DIRECTION OF FLOW
- SD EXISTING STORM DRAIN
- SD PROPOSED STORM DRAIN $\leq 12"$
- PROPOSED STORM DRAIN $> 12"$
- STORM DRAIN PIPE FLOW
- AREA BOUNDARY
- SUB-AREA BOUNDARY
- AREA ID
- AREA (AC)
- RUNOFF COEFFICIENT
- PERVIOUS AREA

ABBREVIATIONS

- FS FINISHED SURFACE
- INV INVERT
- FF FINISHED FLOOR ELEVATION
- CF CUBIC FEET

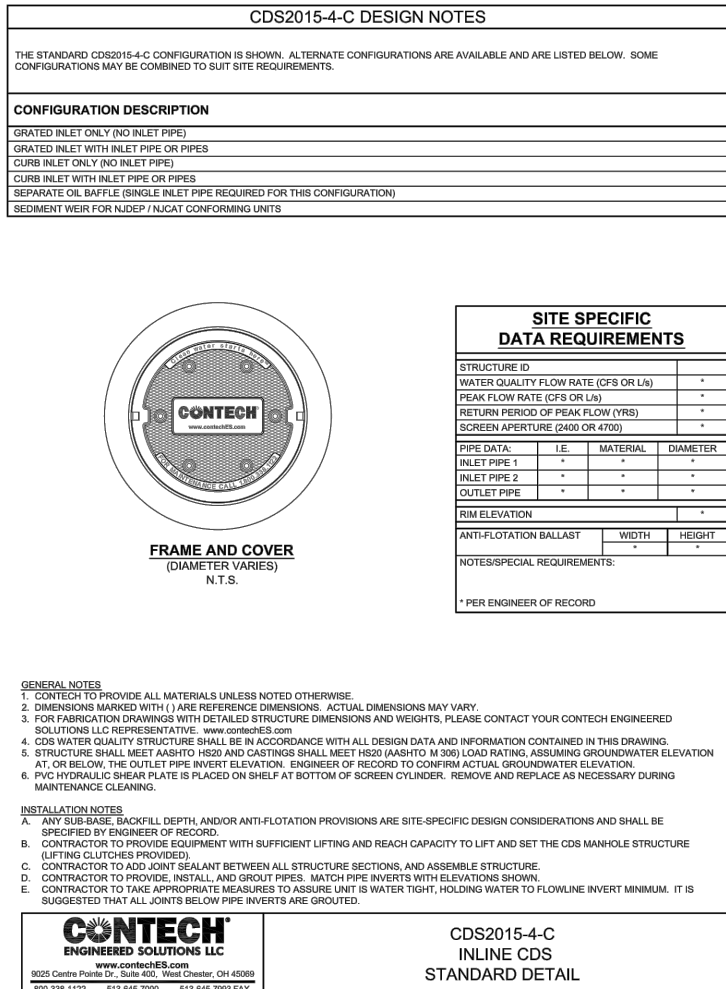
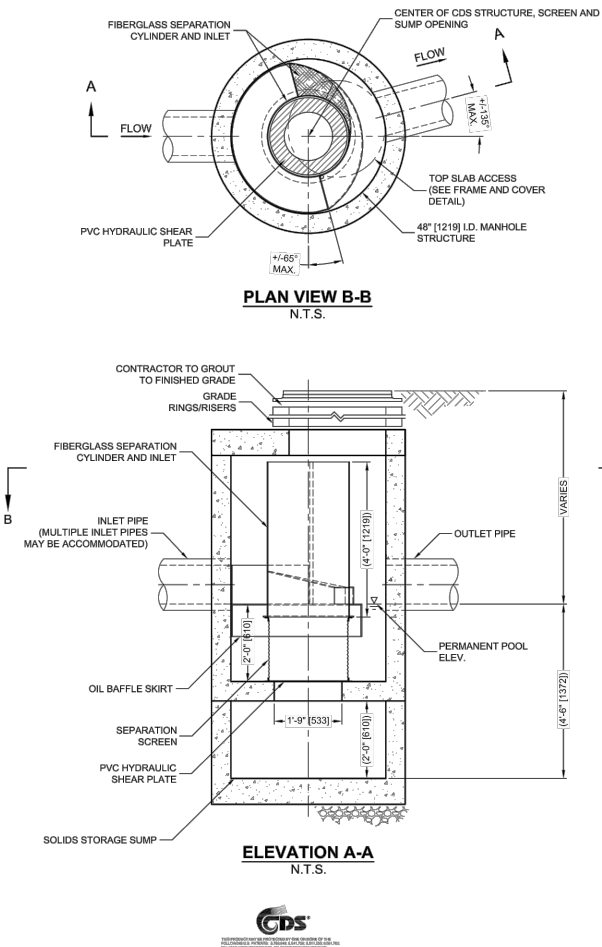
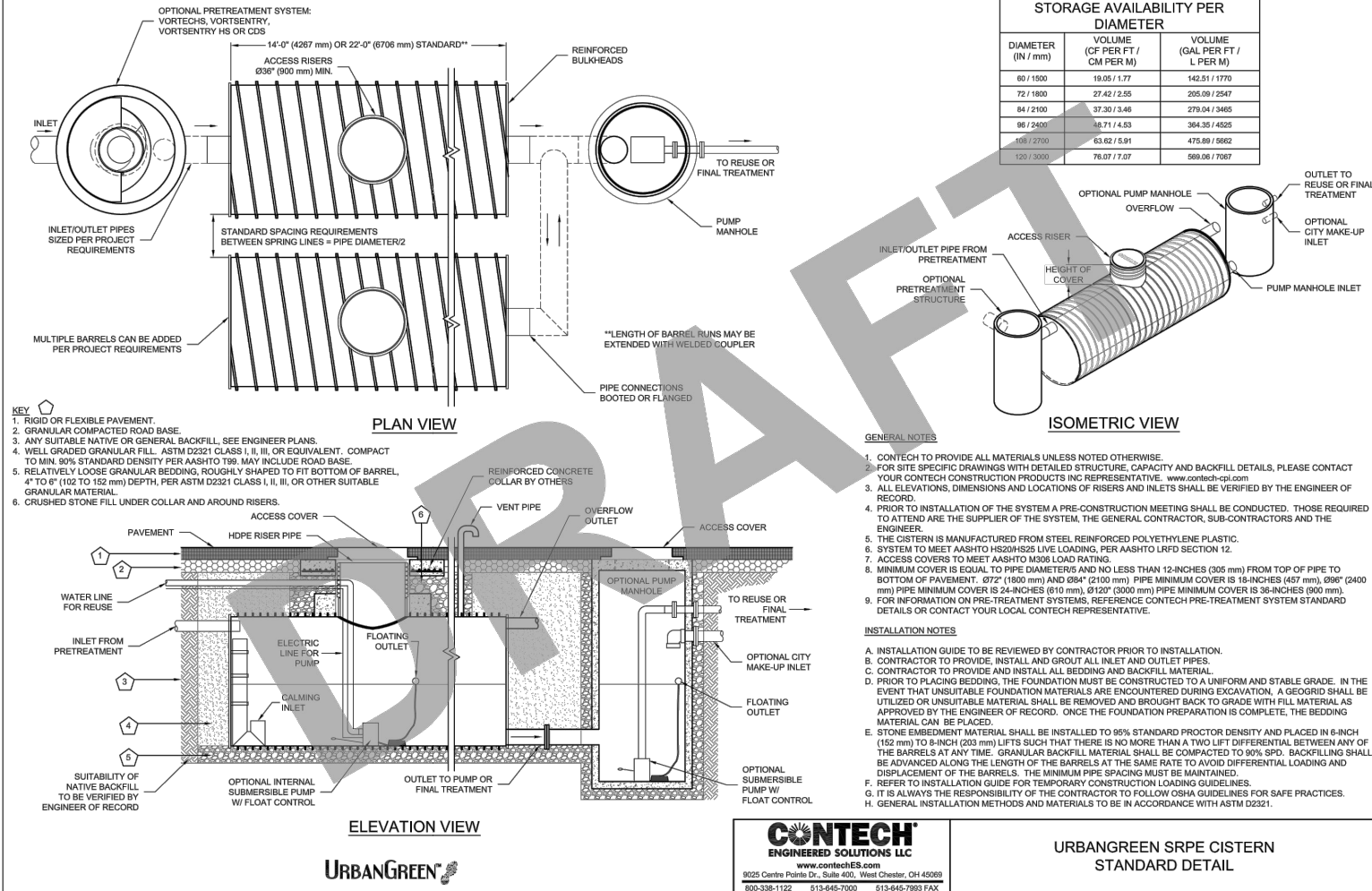


0 100' 200'
SCALE: 1" = 100'

ME0432A PARNELL PARK STORM WATER QUALITY DESIGN SUMMARY								
Drainage Area/ Basin	Outfall	Area (ac)	Flowpath Length (ft)	Flowpath Slope	85th percentile Rain Depth (in)	Soil Type	Imperviousness Ratio	SWQDv (ft ³)
A1	1	0.99	375	0.013	0.95	12	0.85	2662
A2	1	0.59	355	0.011	0.95	12	0.79	1494
B1	2	3.51	738	0.014	0.95	12	0.21	3217
C1	3	2.6	703	0.017	0.95	12	0.15	1956
C2	3	2.21	817	0.016	0.95	12	0.46	3537
C3	3	1.62	755	0.014	0.95	12	0.62	3332
Total		11.52					0.39	16198

Jan 23, 2023 - 10:05am by sshire K:\Drawings\ME\ME0432A - Parnell Park - Whittier - CDs\ENG\LD\ME0432A.LD.dwg

PROJECT ME04320 - Parnell Park			
CAPTURE AND USE SIZING			
Note: Blue Values Changed by User Black Values are automatically calculated			
[1]	Total Area (SF)		501811.2
[2]	Impervious area		194090.292
[3]	Pervious area **	[1]-[2]	307720.908
[4]	Catchment area	([2]*0.9)+([3]*0.1)	205453.3536
[5]	Design rainfall Depth (in)		0.95
[6]	Vdesign (gal)	([5]/12)*7.48*[4]	121662.6276
[7]	Planting Area (SF)		307720.908
[8]	Plant Factor*		0.5
[9]	ETWU (7-month)	21.7*0.62*[8]*[7]	2070038.548
[10]	Is ETWU > V design		YES



LID EXHIBIT
PARNELL PARK
CITY OF WHITTIER

DRAWN: DE
DATE: 02/17/2020
CHECKED: PM
DATE: 12/12/2020
JOB NO: AB1234

701 North Parkcenter Drive
Santa Ana, CA 92705

P: 714.540.8200
www.tait.com

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Boyle
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1/23/2023 Exhibit XX

SP8887 ENCINO STORM WATER QUALITY DESIGN SUMMARY								
Drainage Area/ Basin	Outfall	Area (ac)	Flowpath Length (ft)	Flowpath Slope	85th percentile Rain Depth (in)	Soil Type	Imperviousness Ratio	SWQDv (ft ³)
A1	1	0.99	375	0.013	0.95	12	0.85	2662
A2	1	0.59	355	0.011	0.95	12	0.79	1494
B1	2	3.51	738	0.014	0.95	12	0.21	3217
C1	3	2.6	703	0.017	0.95	12	0.15	1956
C2	3	2.21	817	0.016	0.95	12	0.46	3537
C3	3	1.62	755	0.014	0.95	12	0.62	3332
Total		11.52					0.39	16198

PROJECT ME04320 - Parnell Park			
CAPTURE AND USE SIZING			
Note: Blue Values Changed by User Black Values are automatically calculated			
[1]	Total Area (SF)		501811.2
[2]	Impervious area		194090.292
[3]	Pervious area **	[1]-[2]	307720.908
[4]	Catchment area	([2]*0.9)+([3]*0.1)	205453.3536
[5]	Design rainfall Depth (in)		0.95
[6]	Vdesign (gal)	([5]/12)*7.48*[4]	121662.6276
[7]	Planting Area (SF)		307720.908
[8]	Plant Factor*		0.5
[9]	ETWU (7-month)	21.7*0.62*[8]*[7]	2070038.548
[10]	Is ETWU > V design		YES

*The plant factor used shall be from WUCOLS. The plant factor ranges from 0 to 0.3 for low water use plants, from 0.4 to 0.6 for moderate water use plants, and from 0.7 to 1.0 for high water use plants.

Peak Flow Hydrologic Analysis

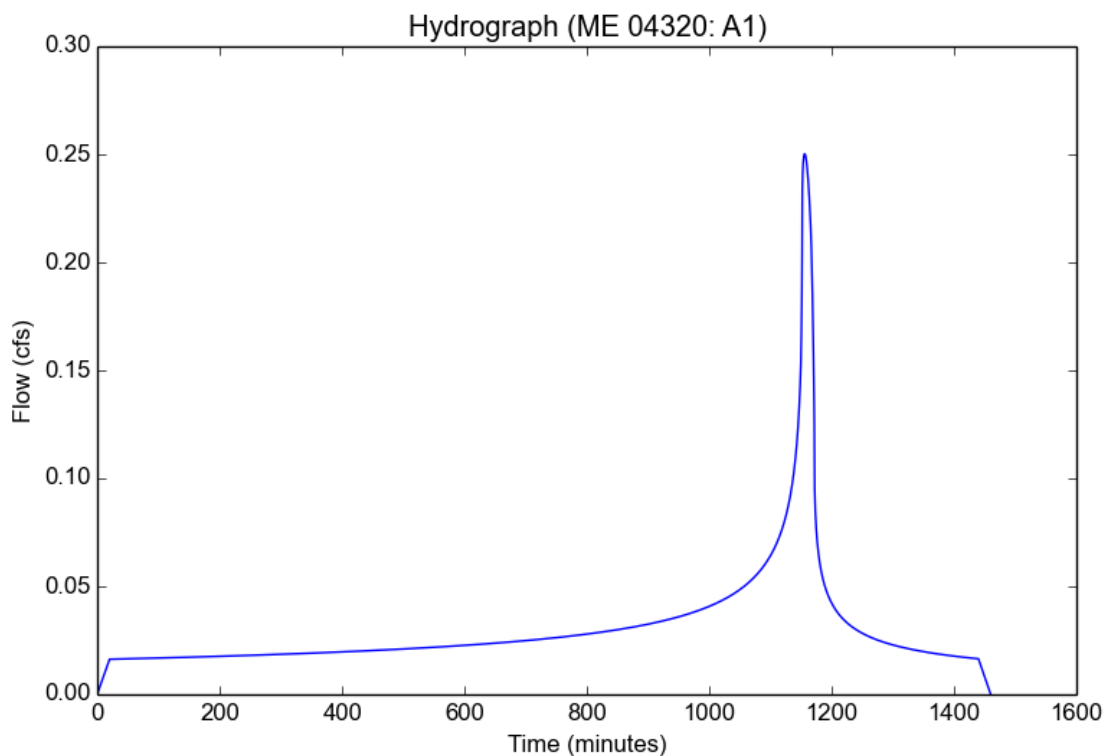
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	A1
Area (ac)	0.99
Flow Path Length (ft)	375.0
Flow Path Slope (vft/hft)	0.013
85th Percentile Rainfall Depth (in)	0.95
Percent Impervious	0.85
Soil Type	12
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.95
Peak Intensity (in/hr)	0.2954
Undeveloped Runoff Coefficient (Cu)	0.6039
Developed Runoff Coefficient (Cd)	0.8556
Time of Concentration (min)	20.0
Clear Peak Flow Rate (cfs)	0.2502
Burned Peak Flow Rate (cfs)	0.2502
24-Hr Clear Runoff Volume (ac-ft)	0.0611
24-Hr Clear Runoff Volume (cu-ft)	2662.2459



Peak Flow Hydrologic Analysis

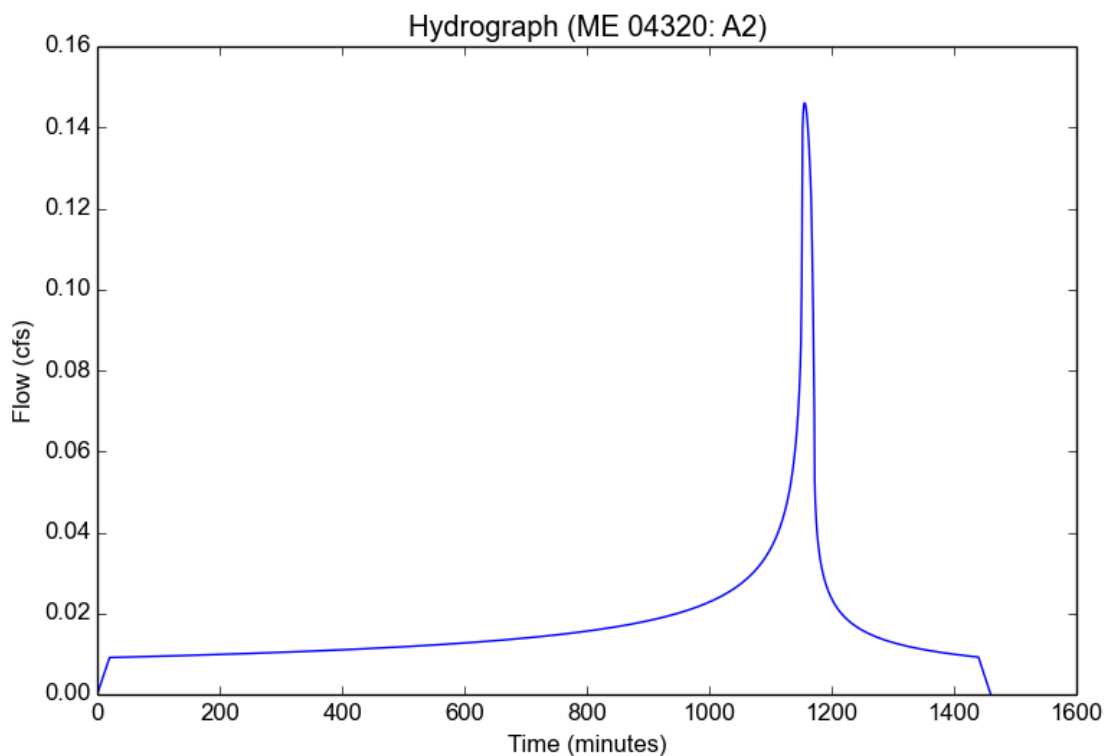
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	A2
Area (ac)	0.59
Flow Path Length (ft)	355.0
Flow Path Slope (vft/hft)	0.011
85th Percentile Rainfall Depth (in)	0.95
Percent Impervious	0.79
Soil Type	12
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.95
Peak Intensity (in/hr)	0.2954
Undeveloped Runoff Coefficient (Cu)	0.6039
Developed Runoff Coefficient (Cd)	0.8378
Time of Concentration (min)	20.0
Clear Peak Flow Rate (cfs)	0.146
Burned Peak Flow Rate (cfs)	0.146
24-Hr Clear Runoff Volume (ac-ft)	0.0343
24-Hr Clear Runoff Volume (cu-ft)	1494.8157



Peak Flow Hydrologic Analysis

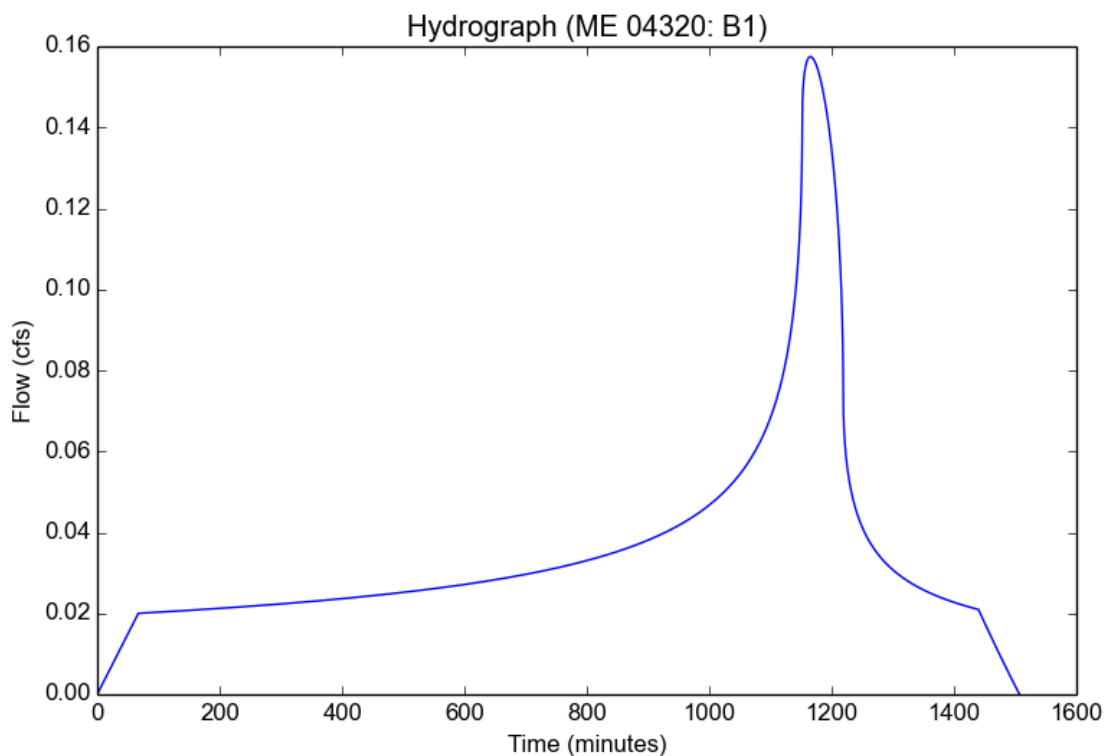
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	B1
Area (ac)	3.51
Flow Path Length (ft)	738.0
Flow Path Slope (vft/hft)	0.014
85th Percentile Rainfall Depth (in)	0.95
Percent Impervious	0.21
Soil Type	12
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.95
Peak Intensity (in/hr)	0.1674
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.268
Time of Concentration (min)	67.0
Clear Peak Flow Rate (cfs)	0.1574
Burned Peak Flow Rate (cfs)	0.1574
24-Hr Clear Runoff Volume (ac-ft)	0.0739
24-Hr Clear Runoff Volume (cu-ft)	3217.3144



Peak Flow Hydrologic Analysis

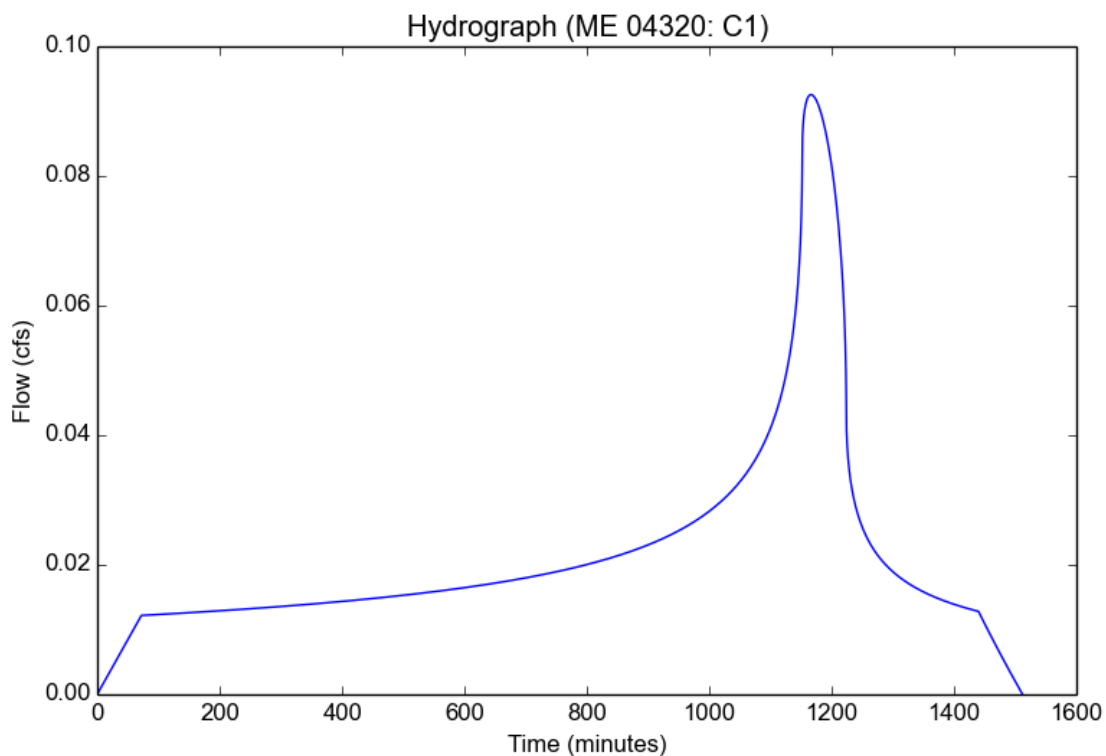
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	C1
Area (ac)	2.6
Flow Path Length (ft)	703.0
Flow Path Slope (vft/hft)	0.017
85th Percentile Rainfall Depth (in)	0.95
Percent Impervious	0.15
Soil Type	12
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.95
Peak Intensity (in/hr)	0.1618
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.22
Time of Concentration (min)	72.0
Clear Peak Flow Rate (cfs)	0.0926
Burned Peak Flow Rate (cfs)	0.0926
24-Hr Clear Runoff Volume (ac-ft)	0.0449
24-Hr Clear Runoff Volume (cu-ft)	1956.373



Peak Flow Hydrologic Analysis

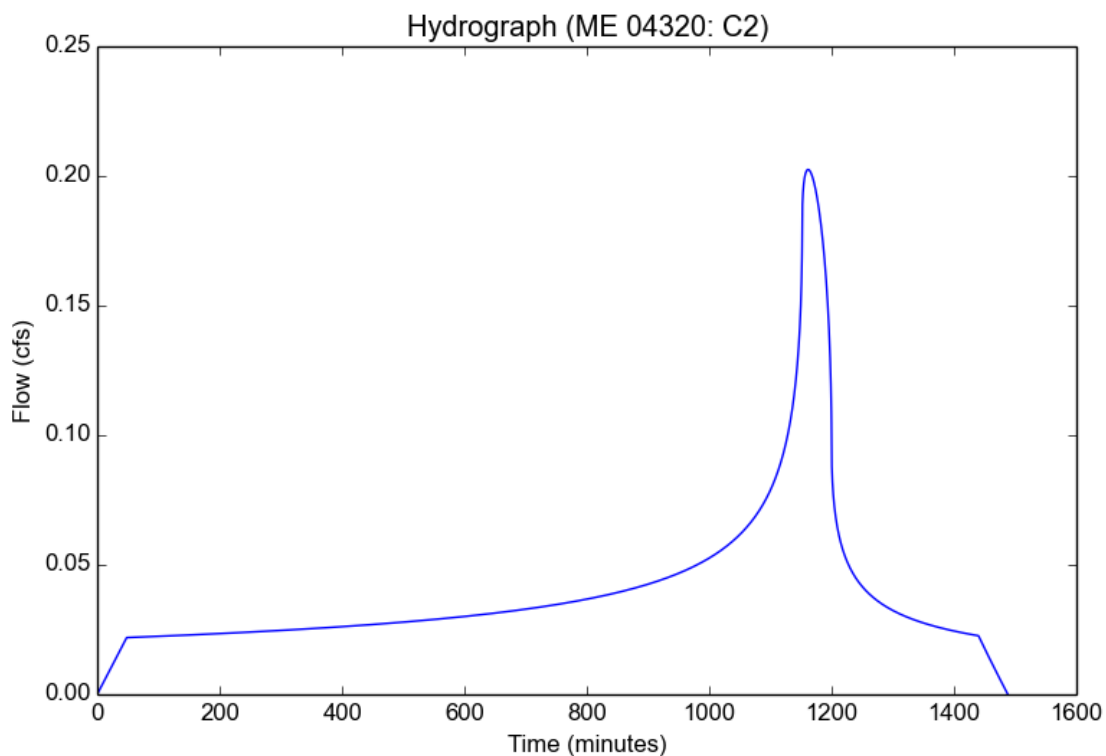
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	C2
Area (ac)	2.21
Flow Path Length (ft)	817.0
Flow Path Slope (vft/hft)	0.016
85th Percentile Rainfall Depth (in)	0.95
Percent Impervious	0.46
Soil Type	12
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

Modeled (85th percentile storm) Rainfall Depth (in)	0.95
Peak Intensity (in/hr)	0.1958
Undeveloped Runoff Coefficient (Cu)	0.1
Developed Runoff Coefficient (Cd)	0.468
Time of Concentration (min)	48.0
Clear Peak Flow Rate (cfs)	0.2025
Burned Peak Flow Rate (cfs)	0.2025
24-Hr Clear Runoff Volume (ac-ft)	0.0812
24-Hr Clear Runoff Volume (cu-ft)	3537.3428



Peak Flow Hydrologic Analysis

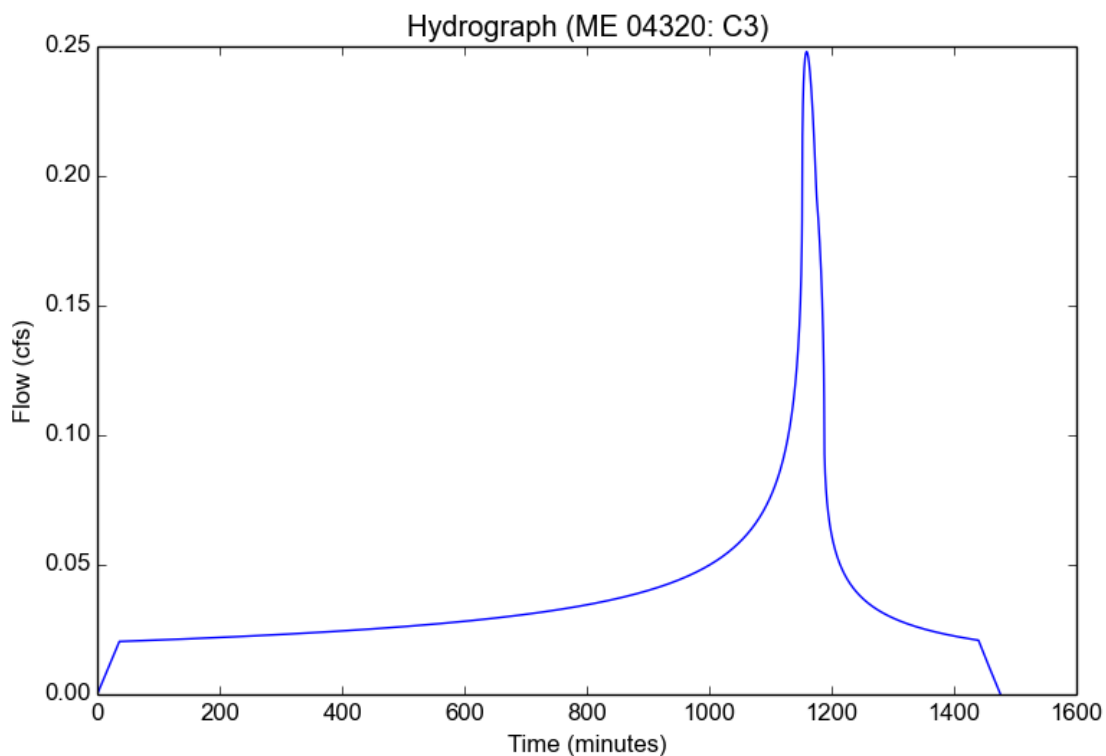
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Version: HydroCalc 1.0.3

Input Parameters

Project Name	ME 04320
Subarea ID	C3
Area (ac)	1.62
Flow Path Length (ft)	755.0
Flow Path Slope (vft/hft)	0.014
85th Percentile Rainfall Depth (in)	0.95
Percent Impervious	0.62
Soil Type	12
Design Storm Frequency	85th percentile storm
Fire Factor	0
LID	True

Output Results

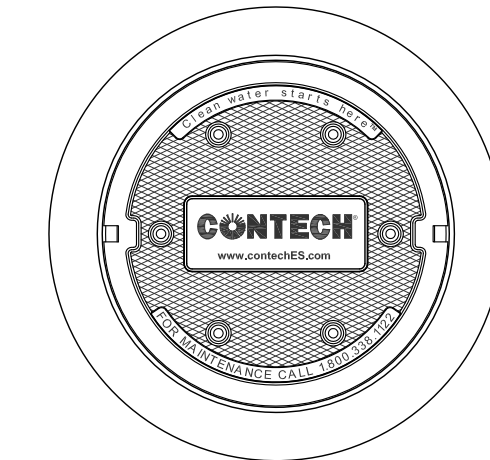
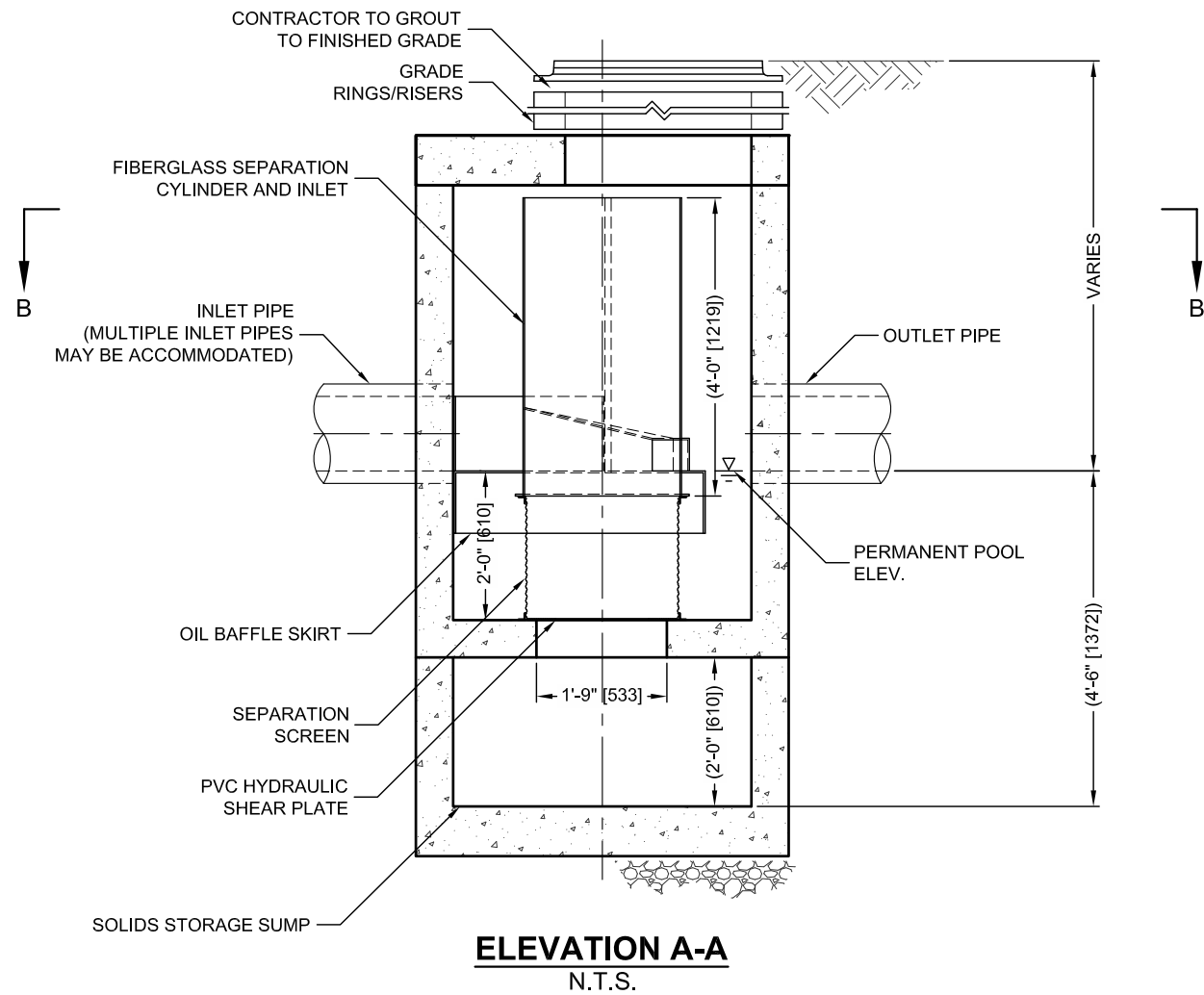
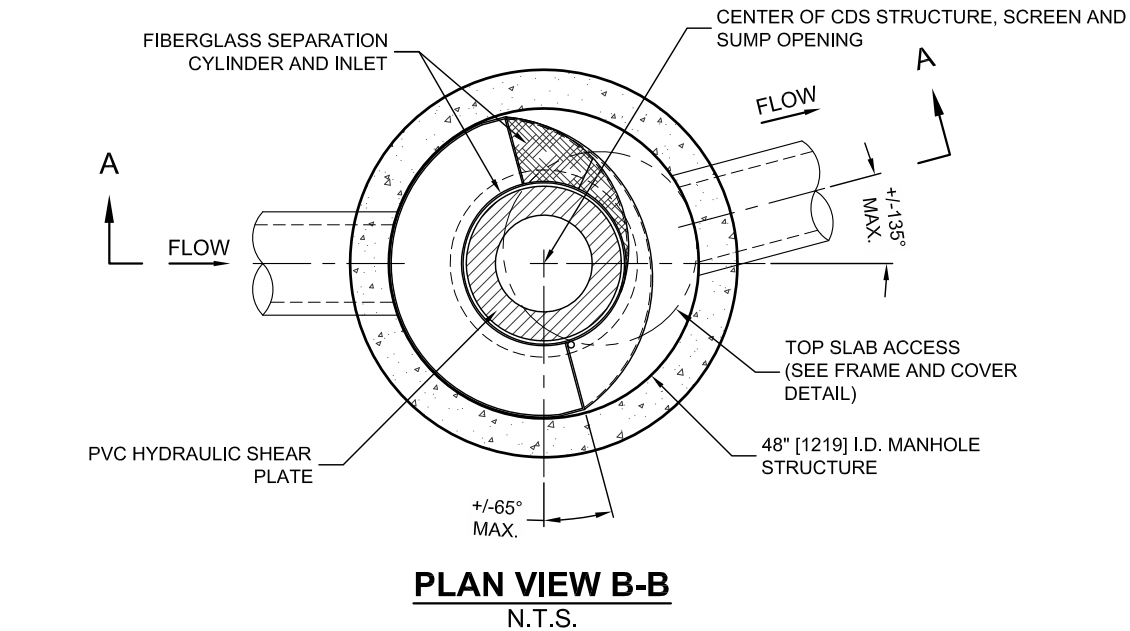
Modeled (85th percentile storm) Rainfall Depth (in)	0.95
Peak Intensity (in/hr)	0.2241
Undeveloped Runoff Coefficient (Cu)	0.3287
Developed Runoff Coefficient (Cd)	0.6829
Time of Concentration (min)	36.0
Clear Peak Flow Rate (cfs)	0.2479
Burned Peak Flow Rate (cfs)	0.2479
24-Hr Clear Runoff Volume (ac-ft)	0.0765
24-Hr Clear Runoff Volume (cu-ft)	3332.6152



APPENDIX 6

BMP DETAIL AND FACT SHEETS

C:\USERS\SCHLACHER\DESKTOP\CDS DETAILS 180 MICRON SIZING\ACAD\CDS2015-4-C-DTL.DWG 5/19/2014 5:16 PM



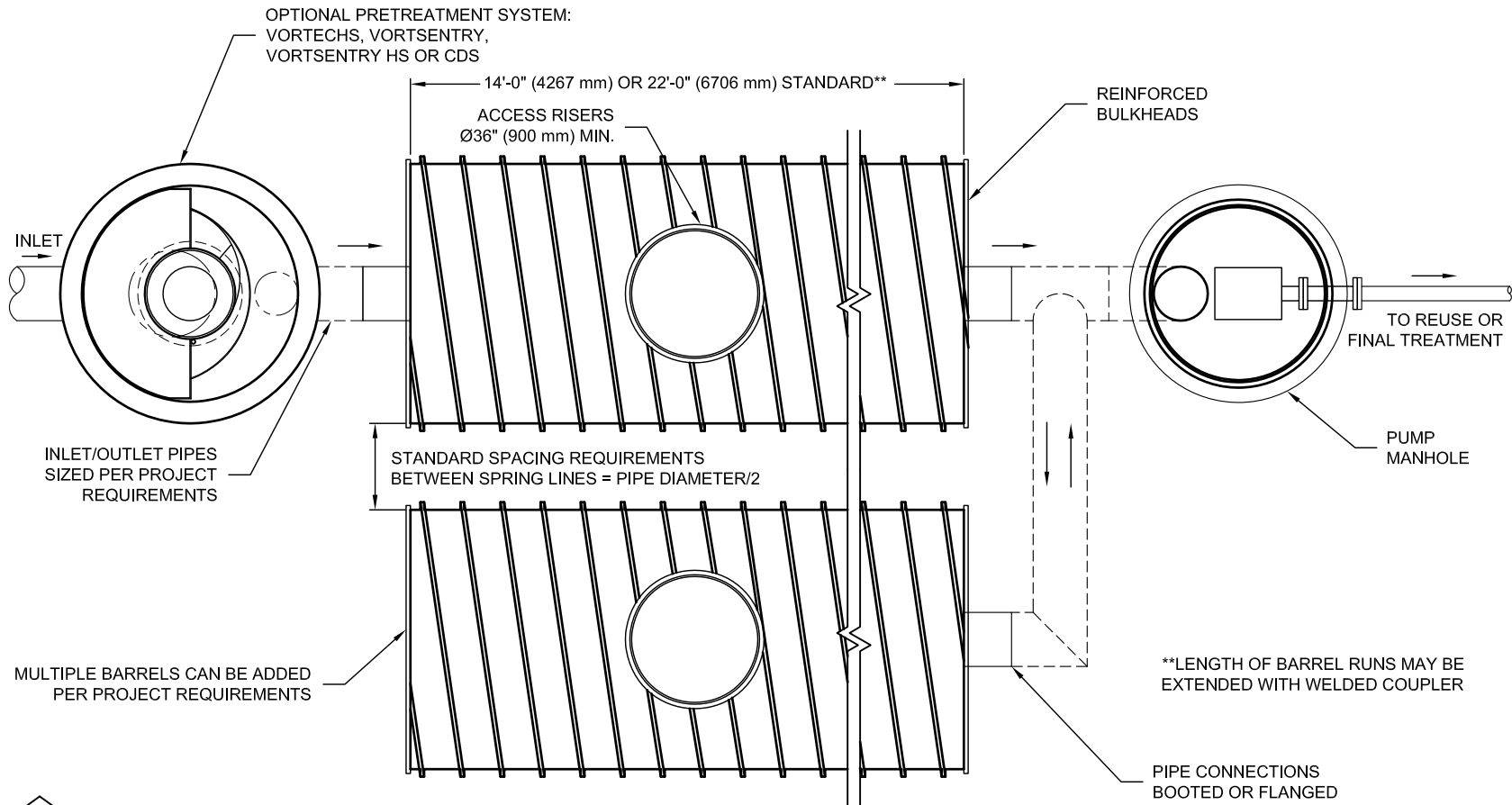
SITE SPECIFIC DATA REQUIREMENTS			
STRUCTURE ID			
WATER QUALITY FLOW RATE (CFS OR L/s)			*
PEAK FLOW RATE (CFS OR L/s)			*
RETURN PERIOD OF PEAK FLOW (YRS)			*
SCREEN APERTURE (2400 OR 4700)			*
PIPE DATA:	I.E.	MATERIAL	DIAMETER
INLET PIPE 1	*	*	*
INLET PIPE 2	*	*	*
OUTLET PIPE	*	*	*
RIM ELEVATION			*
ANTI-FLOTATION BALLAST		WIDTH	HEIGHT
		*	*
NOTES/SPECIAL REQUIREMENTS:			
* PER ENGINEER OF RECORD			

- GENERAL NOTES**
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
 2. DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
 3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH ENGINEERED SOLUTIONS LLC REPRESENTATIVE. www.contechES.com
 4. CDS WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING.
 5. STRUCTURE SHALL MEET AASHTO HS20 AND CASTINGS SHALL MEET HS20 (AASHTO M 306) LOAD RATING, ASSUMING GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION.
 6. PVC HYDRAULIC SHEAR PLATE IS PLACED ON SHELF AT BOTTOM OF SCREEN CYLINDER. REMOVE AND REPLACE AS NECESSARY DURING MAINTENANCE CLEANING.
- INSTALLATION NOTES**
- A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
 - B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE CDS MANHOLE STRUCTURE (LIFTING CLUTCHES PROVIDED).
 - C. CONTRACTOR TO ADD JOINT SEALANT BETWEEN ALL STRUCTURE SECTIONS, AND ASSEMBLE STRUCTURE.
 - D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH PIPE INVERTS WITH ELEVATIONS SHOWN.
 - E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO ASSURE UNIT IS WATER TIGHT, HOLDING WATER TO FLOWLINE INVERT MINIMUM. IT IS SUGGESTED THAT ALL JOINTS BELOW PIPE INVERTS ARE GROUTED.

CONTECH
ENGINEERED SOLUTIONS LLC
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9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069
800-338-1122 513-645-7000 513-645-7993 FAX

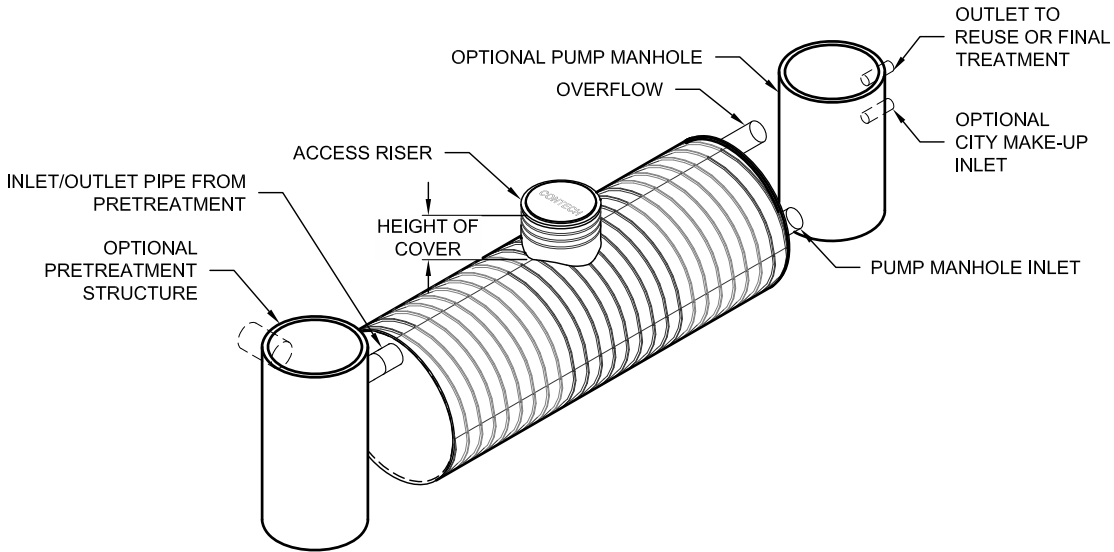
CDS2015-4-C
INLINE CDS
STANDARD DETAIL

GDS
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING U.S. PATENTS: 6,768,840; 6,841,720; 6,911,585; 6,981,762. RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.



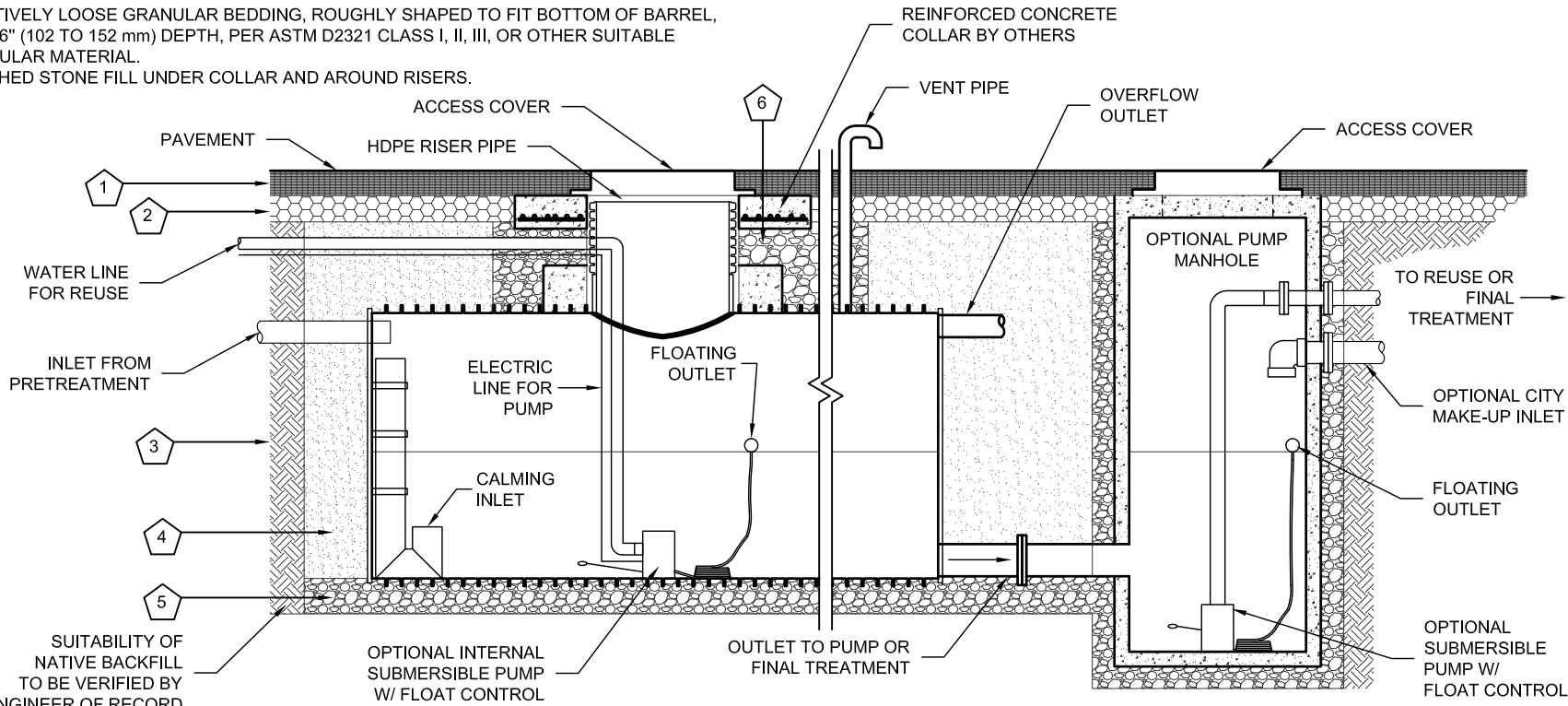
PLAN VIEW

STORAGE AVAILABILITY PER DIAMETER		
DIAMETER (IN / mm)	VOLUME (CF PER FT / CM PER M)	VOLUME (GAL PER FT / L PER M)
60 / 1500	19.05 / 1.77	142.51 / 1770
72 / 1800	27.42 / 2.55	205.09 / 2547
84 / 2100	37.30 / 3.46	279.04 / 3465
96 / 2400	48.71 / 4.53	364.35 / 4525
108 / 2700	63.62 / 5.91	475.89 / 5662
120 / 3000	76.07 / 7.07	569.06 / 7067



ISOMETRIC VIEW

- KEY**
1. RIGID OR FLEXIBLE PAVEMENT.
 2. GRANULAR COMPACTED ROAD BASE.
 3. ANY SUITABLE NATIVE OR GENERAL BACKFILL, SEE ENGINEER PLANS.
 4. WELL GRADED GRANULAR FILL. ASTM D2321 CLASS I, II, III, OR EQUIVALENT. COMPACT TO MIN. 90% STANDARD DENSITY PER AASHTO T99. MAY INCLUDE ROAD BASE.
 5. RELATIVELY LOOSE GRANULAR BEDDING, ROUGHLY SHAPED TO FIT BOTTOM OF BARREL, 4" TO 6" (102 TO 152 mm) DEPTH, PER ASTM D2321 CLASS I, II, III, OR OTHER SUITABLE GRANULAR MATERIAL.
 6. CRUSHED STONE FILL UNDER COLLAR AND AROUND RISERS.



ELEVATION VIEW

GENERAL NOTES

1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. FOR SITE SPECIFIC DRAWINGS WITH DETAILED STRUCTURE, CAPACITY AND BACKFILL DETAILS, PLEASE CONTACT YOUR CONTECH CONSTRUCTION PRODUCTS INC REPRESENTATIVE. www.contech-cpi.com
3. ALL ELEVATIONS, DIMENSIONS AND LOCATIONS OF RISERS AND INLETS SHALL BE VERIFIED BY THE ENGINEER OF RECORD.
4. PRIOR TO INSTALLATION OF THE SYSTEM A PRE-CONSTRUCTION MEETING SHALL BE CONDUCTED. THOSE REQUIRED TO ATTEND ARE THE SUPPLIER OF THE SYSTEM, THE GENERAL CONTRACTOR, SUB-CONTRACTORS AND THE ENGINEER.
5. THE CISTERN IS MANUFACTURED FROM STEEL REINFORCED POLYETHYLENE PLASTIC.
6. SYSTEM TO MEET AASHTO HS20/HS25 LIVE LOADING, PER AASHTO LRFD SECTION 12.
7. ACCESS COVERS TO MEET AASHTO M306 LOAD RATING.
8. MINIMUM COVER IS EQUAL TO PIPE DIAMETER/5 AND NO LESS THAN 12-INCHES (305 mm) FROM TOP OF PIPE TO BOTTOM OF PAVEMENT. Ø72" (1800 mm) AND Ø84" (2100 mm) PIPE MINIMUM COVER IS 18-INCHES (457 mm), Ø96" (2400 mm) PIPE MINIMUM COVER IS 24-INCHES (610 mm), Ø120" (3000 mm) PIPE MINIMUM COVER IS 36-INCHES (900 mm).
9. FOR INFORMATION ON PRE-TREATMENT SYSTEMS, REFERENCE CONTECH PRE-TREATMENT SYSTEM STANDARD DETAILS OR CONTACT YOUR LOCAL CONTECH REPRESENTATIVE.

INSTALLATION NOTES

- A. INSTALLATION GUIDE TO BE REVIEWED BY CONTRACTOR PRIOR TO INSTALLATION.
- B. CONTRACTOR TO PROVIDE, INSTALL AND GROUT ALL INLET AND OUTLET PIPES.
- C. CONTRACTOR TO PROVIDE AND INSTALL ALL BEDDING AND BACKFILL MATERIAL.
- D. PRIOR TO PLACING BEDDING, THE FOUNDATION MUST BE CONSTRUCTED TO A UNIFORM AND STABLE GRADE. IN THE EVENT THAT UNSUITABLE FOUNDATION MATERIALS ARE ENCOUNTERED DURING EXCAVATION, A GEOGRID SHALL BE UTILIZED OR UNSUITABLE MATERIAL SHALL BE REMOVED AND BROUGHT BACK TO GRADE WITH FILL MATERIAL AS APPROVED BY THE ENGINEER OF RECORD. ONCE THE FOUNDATION PREPARATION IS COMPLETE, THE BEDDING MATERIAL CAN BE PLACED.
- E. STONE EMBEDMENT MATERIAL SHALL BE INSTALLED TO 95% STANDARD PROCTOR DENSITY AND PLACED IN 6-INCH (152 mm) TO 8-INCH (203 mm) LIFTS SUCH THAT THERE IS NO MORE THAN A TWO LIFT DIFFERENTIAL BETWEEN ANY OF THE BARRELS AT ANY TIME. GRANULAR BACKFILL MATERIAL SHALL BE COMPACTED TO 90% SPD. BACKFILLING SHALL BE ADVANCED ALONG THE LENGTH OF THE BARRELS AT THE SAME RATE TO AVOID DIFFERENTIAL LOADING AND DISPLACEMENT OF THE BARRELS. THE MINIMUM PIPE SPACING MUST BE MAINTAINED.
- F. REFER TO INSTALLATION GUIDE FOR TEMPORARY CONSTRUCTION LOADING GUIDELINES.
- G. IT IS ALWAYS THE RESPONSIBILITY OF THE CONTRACTOR TO FOLLOW OSHA GUIDELINES FOR SAFE PRACTICES.
- H. GENERAL INSTALLATION METHODS AND MATERIALS TO BE IN ACCORDANCE WITH ASTM D2321.



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URBANGREEN SRPE CISTERN
STANDARD DETAIL

RET-6: Rain Barrel/Cistern



Description

Rain barrels and cisterns are containers that collect and store precipitation from rooftop drainage systems that would otherwise be lost to stormwater runoff and diverted to the storm drain system or receiving water. Collection of this precipitation reduces the volume of stormwater runoff and reduces the mobilization of potential pollutants.

Rain barrels are placed above ground beneath a shortened downspout next to a home or building and typically range in size

from 50 to 180 gallons. Cisterns are larger storage tanks that may be located above or below ground. Both cisterns and rain barrels rely on gravity flow, not pumping devices. Rain barrels are equipped with a removable cover to allow access for maintenance, a screened inlet opening to trap debris and exclude vectors, an outlet spigot typically fitted for garden hose attachment, and an overflow outlet with discharge pipe or hose. Stored precipitation is typically used for landscape irrigation, but may also be used for washing. Water stored in rain barrels and cisterns should not be discharged to the storm drain system.

A schematic of a typical rain barrel is presented in Figure E-6.

LID Ordinance Requirements

Rain barrels and cisterns may be used to comply with the on-site retention requirements of the LID Ordinance for at least its tributary rooftop drainage area. The remaining project site SWQDv may need to be routed to other stormwater quality control measures for on-site retention. Rain barrels and cisterns will prevent pollutants in the SWQDv in its tributary rooftop drainage area from being discharged off-site.

Advantages

- Has a low installation cost
- Has a small footprint
- Reduces stormwater runoff volume and pollutant discharge
- Conserves water usage
- Is easy to maintain

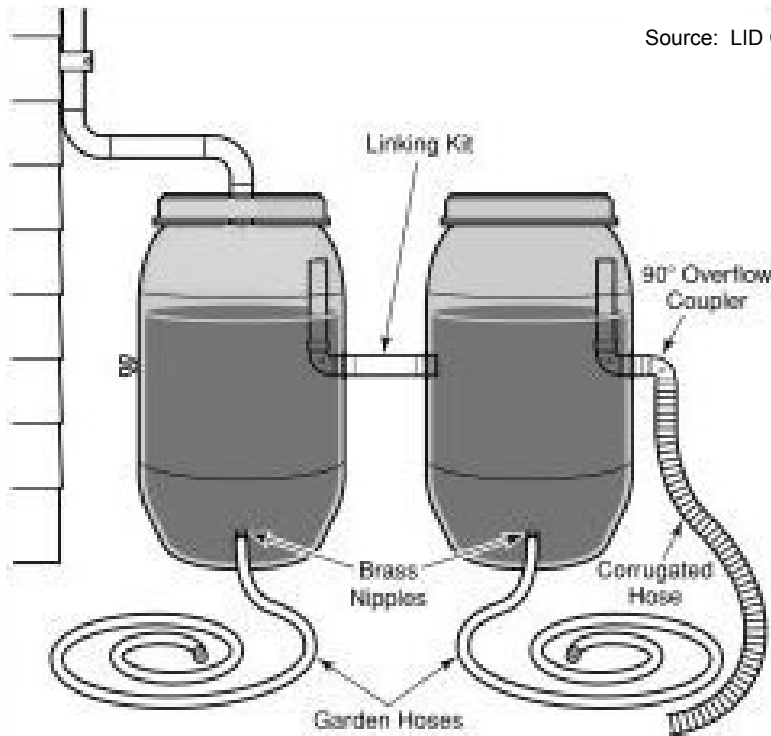


Figure E-6. Rain Barrel Schematic

Disadvantages

- May have limited storage volume
- Collects water that is not suitable for human or pet consumption or contact with fruits/vegetables
- May not be compatible with site aesthetics
- May result in standing water, which may allow vector breeding if not properly covered and maintained
- Requires individual owners/tenants to perform maintenance and empty rain barrels between storms

General Constraints and Implementation Considerations

- Rain barrels and cisterns should be located to allow for easy access and maintenance.
- Rain barrels should be elevated above the ground surface with a sturdy platform to provide spigot clearance.
- Screens or deflectors on rain gutters should be installed to minimize discharge of debris to rain barrels.
- Overflow from cisterns must be directed away from building foundations and to vegetated areas.

Maintenance Requirements

Maintenance and regular inspections are important for proper function of rain barrels and cisterns. Maintenance requirements for rain barrels are minimal and consist only of regular inspection of the unit as a whole and any of its constituent parts and accessories. The following are general maintenance requirements:

- Inspect all components (i.e., roof connection, gutter, downspout, rain barrel/cistern, mosquito screen, overflow pipe) at least twice per year, and repair or replace as needed.
- Clean insect and debris screens as needed.
- Eliminate standing water to prevent vector breeding.

A summary of potential problems that may need to be addressed by maintenance activities is presented in Table E-11.

The County requires execution of a maintenance agreement to be recorded by the property owner for the on-going maintenance of any privately-maintained stormwater quality control measures. The property owner is responsible for compliance with the maintenance agreement. A sample maintenance agreement is presented in Appendix H.

Table E-11: Rain Barrel/Cistern Troubleshooting Summary

Problem	Conditions When Maintenance Is Needed	Maintenance Required
Vector Breeding	Standing water longer than 96 hours after storm event	Empty rain barrel/cistern. Inspect insect screen to determine if it needs to be replaced.
Obstructions	Flow into rain barrel/cistern impeded	Remove obstructions.
Leaks	Leaks observed at roof connection, gutter, downspout, overflow pipe	Replace or repair components as needed. Replace entire rain barrel/cistern if necessary.

S-1: Storm Drain Message and Signage

Purpose

Waste material dumped into storm drain inlets can adversely impact surface and ground waters. In fact, any material discharged into the storm drain system has the potential to significantly impact downstream receiving waters. Storm drain messages have become a popular method of alerting and reminding the public about the effects of and the prohibitions against waste disposal into the storm drain system. The signs are typically stenciled or affixed near the storm drain inlet or catch basin. The message simply informs the public that dumping of wastes into storm drain inlets is prohibited and/or that the drain ultimately discharges into receiving waters.

General Guidance

- The signs must be placed so they are easily visible to the public.
- Be aware that signs placed on sidewalk will be worn by foot traffic.

Design Specifications

- Signs with language and/or graphical icons that prohibit illegal dumping, must be posted at designated public access points along channels and streams within the project area. Consult with Los Angeles County Department of Public Works (LACDPW) staff to determine specific signage requirements for channels and streams.
- Storm drain message markers, placards, concrete stamps, or stenciled language/icons (e.g., “No Dumping – Drains to the Ocean”) are required at all storm drain inlets and catch basins within the project area to discourage illegal or inadvertent dumping. Signs should be placed in clear sight facing anyone approaching the storm drain inlet or catch basin from either side (see Figure D-1 and Figure D-2). LACDPW staff should be contacted to determine specific requirements for types of signs and methods of application. A stencil can be purchased for a nominal fee from LACDPW Building and Safety Office by calling (626) 458-3171. All storm drain inlet and catch basin locations must be identified on the project site map.

Maintenance Requirements

Legibility and visibility of markers and signs should be maintained (e.g., signs should be repainted or replaced as necessary). If required by LACDPW, the owner/operator or homeowner’s association shall enter into a maintenance agreement with the agency or record a deed restriction upon the property title to maintain the legibility of placards and signs.

S-1: Storm Drain Message and Signage

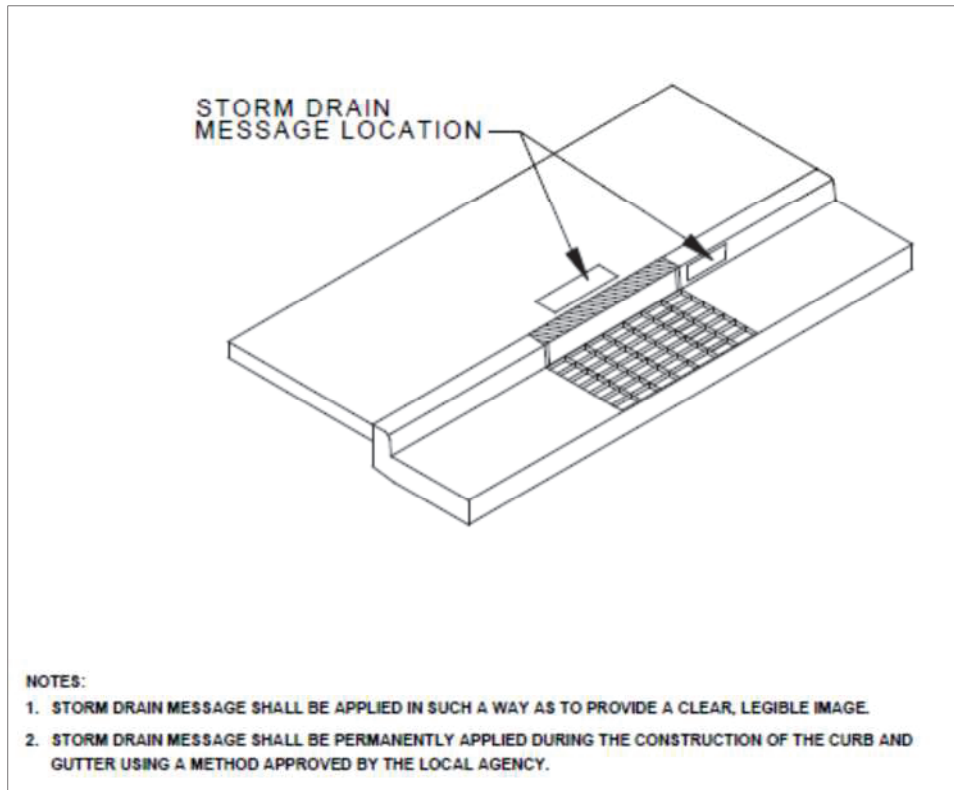


Figure D-1. Storm Drain Message Location – Curb Type Inlet

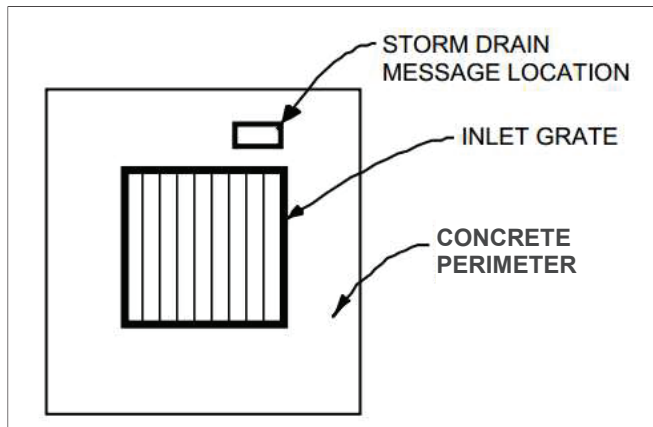


Figure D-2. Storm Drain Message Location – Catch Basin/Area Type Inlet

S-2: Outdoor Material Storage Area

Purpose

The County defines outdoor material storage areas as areas or facilities whose sole purpose is the storage of materials. Materials, including raw materials, by-products, finished products, and waste products, stored outdoors can become sources of pollutants in stormwater runoff if not handled or stored properly. The type of pollutants associated with the materials will vary depending on the type of commercial or industrial activity present.

Materials may be stored in a variety of ways, including bulk piles, containers, shelving, stacking, and tanks. Contamination of stormwater runoff may be prevented by eliminating the possibility of stormwater runoff contact with the material storage areas either through diversion, cover, or capture of the stormwater runoff. Design considerations may also include minimizing the storage area. The source control measures presented in this fact sheet must meet local permitting requirements.

Some materials, such as those containing heavy metals or toxic compounds, are of more concern than other materials. Toxic and hazardous materials must be prevented from coming in contact with stormwater runoff. Non-toxic or non-hazardous materials, such as debris and sediment, can also have significant impacts on receiving waters. Contact between non-toxic or non-hazardous materials and stormwater runoff should be limited, and such materials prevented from being discharged with stormwater runoff.

Materials are classified into three categories based on the potential risk of pollutant release associated with stormwater runoff contact – high risk, medium risk, and low risk. General types of materials under each category are presented in Table D-1. The categorization of the potential pollutant risk is used to determine the design specifications, which are presented in Table D-2, for design features at the project site.

S-2: Outdoor Material Storage Area

Table D-1. Classification of Materials for Potential Pollutant Risk

High Risk Materials	Medium Risk Materials	Low Risk Materials
<ul style="list-style-type: none">• Recycled materials with discharge potential• Corrosives• Food items• Chalk/gypsum products• Scrap or salvage goods• Feedstock/grain• Fertilizers• Pesticides• Compost• Asphalt• Lime/lye/soda ash• Animal/human wastes• Rubber and plastic pellets or other small pieces• Uncured concrete/cement• Lead and copper, and any metals with oil/grease coating	<ul style="list-style-type: none">• Clean recycled materials without discharge potential• Metal (excluding lead and copper, and any metals with oil/grease coating)• Sawdust/bark chips• Sand/soil• Unwashed gravel/rock	<ul style="list-style-type: none">• Washed gravel/rock• Finished lumber (non-pressure treated)• Rubber or plastic products (excluding small pieces)• Clean, precast concrete products• Glass products (new)• Inert products• Gaseous products• Products in containers that prevent contact with stormwater (fertilizers and pesticides excluded)

Design Specifications

Design specifications for material storage areas are regulated by local building and fire codes, ordinances, and zoning requirements. Source control measures presented in this fact sheet are intended to enhance and be consistent with local code and ordinance requirements while addressing stormwater runoff concerns. The design specifications, presented in Table D-2, must be incorporated into the design of outdoor material storage areas when stored materials could contribute pollutants to the storm drain system. The level of controls required varies relative to the risk category of the material stored.

As general guidance, downspouts and roofs should be directed away from outdoor materials storage areas, and such storage areas should slope towards a dead-end sump to collect stormwater runoff, non-stormwater runoff, and spills. Stormwater runoff, non-stormwater runoff, and spills must be disposed of in accordance with local, state, and federal laws. Locations of design features, including the features presented in Table D-2, must be included on site maps or plans. Additionally, site maps or plans must show all storage areas for chemicals and/or waste materials, with a tank/drum schedule indicating tank capacities, materials of construction, and contents.

S-2: Outdoor Material Storage Area

Table D-2. Design Specifications for Outdoor Material Storage Areas

Design Feature	Design Specifications
Surfacing	<ul style="list-style-type: none"> High-Risk Materials: <ul style="list-style-type: none"> Construct/pave outdoor material storage areas with Portland cement concrete or an equivalent impervious surface. Ensure that the surfacing material is chemically-resistant to the materials being stored. Medium-Risk Materials: <ul style="list-style-type: none"> Construct/pave outdoor material storage areas with Portland cement concrete. Low-Risk Materials: <ul style="list-style-type: none"> There are no requirements for surfacing.
Enclosures and Covers	<ul style="list-style-type: none"> High-Risk Materials: <ul style="list-style-type: none"> Place materials in an enclosure such as a shed, cabinet, or other structure that prevents contact with stormwater runoff; or Cover entire storage area with a permanent canopy, roof, or awning to prevent precipitation from making direct contact with and collecting within the storage area. Direct stormwater runoff from the cover away from the storage area to a stormwater runoff disposal point that meets all applicable code, ordinance, and LID Standards Manual requirements. For cover structures that do not include sidewalls, include a roof overhang that extends beyond the grade break. <ul style="list-style-type: none"> Covers 10 feet high or less should extend a minimum of 3 feet beyond the perimeter of the hydraulically-isolated storage area. Covers higher than 10 feet should extend a minimum of either 20 percent of the cover's height or 5 feet beyond the perimeter of the hydraulically-isolated storage area, whichever is greater. LACDPW may grant waivers for covers on a case-by-case basis. Medium-Risk Materials: <ul style="list-style-type: none"> At a minimum, completely cover material with temporary plastic sheeting during storm events. Low-Risk Materials: <ul style="list-style-type: none"> There are no requirements for enclosures or covers.

Table D-2. Design Specifications for Outdoor Material Storage Areas (continued)

Hydraulic Isolation and Drainage	<ul style="list-style-type: none">• High-Risk Materials:<ul style="list-style-type: none">◦ Hydraulically-isolate storage area with grading, berms, drains, dikes, or curbs to prevent stormwater run-on from surrounding areas or roof drains.◦ Direct stormwater runoff from surrounding areas away from the hydraulically-isolated storage area to a stormwater runoff disposal point that meets all applicable LID Standards Manual requirements.◦ Drainage facilities are not required for the hydraulically-isolated storage area. However, if drainage facilities are provided, drainage from the hydraulically-isolated storage area must be directed to a stormwater runoff disposal point as determined by LACDPW.• Medium-Risk Materials:<ul style="list-style-type: none">◦ Drainage from storage area may be allowed, on a case-by-case basis with approval from LACDPW, to a treatment control measure or standard storm drain(s).◦ For erodible material, provide grading and a structural containment barrier on at least three sides of each stockpile to prevent stormwater run-on from surrounding areas and migration of material due to wind erosion.• Low-Risk Materials:<ul style="list-style-type: none">◦ Provide appropriate drainage from the storage area to minimize contact with materials.
Spill Containment	<ul style="list-style-type: none">• All Materials:<ul style="list-style-type: none">◦ Implement spill containment measures where materials are stored in tanks, drums, or similar containers and that may potentially enter the storm drain system, sanitary sewer system, or contaminate the soil. Spill containment must be designed for the volume of the largest tank/drum or 10 percent of the tank/drum total (whichever is greater).◦ Separate spill containment systems for all tanks containing incompatible materials such as acids, bases, reactive or flammable materials.◦ Clean, repair, and seal (using epoxy or equivalent sealant compatible with the stored materials) the interior wall and floors within all spill containment areas. Identify the areas to be sealed on the site maps.◦ Bond the contact joint for spill containment walls or dikes constructed on existing concrete, masonry or asphalt to the existing surface. Identify the areas to be bonded on the site maps.◦ Cover the spill containment areas with a roof or awning to minimize collection of stormwater runoff within.◦ Store materials collected in spill containment areas until its quality and an appropriate approved disposal method have been determined.

Accumulated Water

Stormwater runoff, non-stormwater runoff, and spills will accumulate in containment areas and sumps with impervious surfaces. Contaminated accumulated water must be disposed of in accordance with applicable laws and regulations, and cannot be discharged directly to the storm drain or sanitary sewer system without appropriate

S-2: Outdoor Material Storage Area

permitting. Contact LACDPW (1-888-CLEAN-LA) for information regarding discharge of contaminated accumulated water.

Maintenance Requirements

The integrity of structural elements that are subject to damage (e.g., screens, covers, signs) must be maintained by the owner/operator as required by local codes and ordinances. Outdoor material storage areas must be checked periodically to ensure containment of accumulated water and prevention of stormwater run-on. Any enclosures and secondary/spill containment areas should be checked periodically to ensure spills are contained efficiently. Maintenance agreements between LACDPW and the owner/operator may be required. Failure to properly maintain building and property may subject the property owner to citation.

S-3: Outdoor Trash Storage and Waste Handling Area

Purpose

Stormwater runoff from areas where trash is stored or handled can be polluted. Loose trash and debris can be easily transported by water or wind into nearby storm drain inlets, channels, and/or receiving waters. Waste handling operations (i.e., dumpsters, litter control, waste piles) may be sources of stormwater pollution.

Design Specifications

Wastes from commercial and industrial sites are typically hauled away for disposal by either public or commercial carriers that may have design or access requirements for waste storage areas. Design specifications for waste handling areas are regulated by local building and fire codes and by current County ordinances and zoning requirements. The design specifications, listed below in Table D-3, are recommendations and are not intended to conflict with requirements established by the waste hauler. The design specifications are intended to enhance local codes and ordinances while addressing stormwater runoff concerns. The waste hauler should be contacted prior to the design of trash storage and collection areas to determine established and accepted guidelines for designing trash collection areas. All hazardous waste must be handled in accordance with the legal requirements established in Title 22 of the California Code of Regulations. Conflicts or issues should be discussed with LACDPW staff.

Table D-3. Design Specifications for Outdoor Trash Storage and Waste Handling Area

Design Feature	Design Specifications
Surfacing	<ul style="list-style-type: none">Construct/pave outdoor trash storage and waste handling area with Portland cement concrete or an equivalent impervious surface.
Screens/Covers	<ul style="list-style-type: none">Install a screen or wall around trash storage area to prevent off-site transport of loose trash.Use lined bins or dumpsters to reduce leaking of liquid wastes.Use waterproof lids on bins/dumpsters or provide a roof to cover storage area enclosure (LACDPW discretion) to prevent precipitation from entering containers.
Grading/Drainage	<ul style="list-style-type: none">Berm and/or grade waste handling area to prevent stormwater run-on.Locate waste handling area at least 35 feet from storm drains.Divert drainage from adjoining roofs and pavement away from adjacent trash storage areas.
Signs	<ul style="list-style-type: none">Post signs on all dumpsters and/or inside enclosures prohibiting disposal of liquids and hazardous materials in accordance with any waste disposal ordinance.

S-3: Outdoor Trash Storage and Waste Handling Area

Accumulated Water

Stormwater runoff, non-stormwater runoff, and spills will accumulate in containment areas and sumps with impervious surfaces. Contaminated accumulated water must be disposed of in accordance with applicable laws and regulations, and cannot be discharged directly to the storm drain or sanitary sewer system without appropriate permitting. Contact LACDPW (1-888-CLEAN-LA) for information regarding discharge of contaminated accumulated water.

Maintenance Requirements

The integrity of structural elements that are subject to damage (e.g., screens, covers, signs) must be maintained by the owner/operator as required by local codes and ordinances. Outdoor trash storage and waste handling areas must be checked periodically to ensure containment of accumulated water and prevention of stormwater run-on. Maintenance agreements between LACDPW and the owner/operator may be required. Failure to properly maintain building and property may subject the property owner to citation.

S-8: Landscape Irrigation Practices

Purpose

Irrigation runoff provides a pathway for pollutants (i.e., nutrients, bacteria, organics, sediment) to enter the storm drain system. By effectively irrigating, less runoff is produced resulting in less potential for pollutants to enter the storm drain system.

General Guidance

- Do not allow irrigation runoff from the landscaped area to drain directly to storm drain system.
- Minimize use of fertilizer, pesticides, and herbicides on landscaped areas.
- Plan sites with sufficient landscaped area and dispersal capacity (e.g., ability to receive irrigation water without generating runoff).
- Consult a landscape professional regarding appropriate plants, fertilizer, mulching applications, and irrigation requirements (if any) to ensure healthy vegetation growth.

Design Specifications

- Choose plants that minimize the need for fertilizer and pesticides.
- Group plants with similar water requirements and water accordingly.
- Use mulch to minimize evaporation and erosion.
- Include a vegetative boundary around project site to act as a filter.
- Design the irrigation system to only water areas that need it.
- Install an approved subsurface drip, pop-up, or other irrigation system.¹ The irrigation system should employ effective energy dissipation and uniform flow spreading methods to prevent erosion and facilitate efficient dispersion.
- Install rain sensors to shut off the irrigation system during and after storm events.
- Include pressure sensors to shut off flow-through system in case of sudden pressure drop. A sudden pressure drop may indicate a broken irrigation head or water line.
- If the hydraulic conductivity in the soil is not sufficient for the necessary water application rate, implement soil amendments to avoid potential geotechnical hazards (i.e., liquefaction, landslide, collapsible soils, and expansive soils).

¹ If alternative distribution systems (e.g., spray irrigation) are approved, the County will establish guidelines to implement these new systems.

S-8: Landscape Irrigation Practices

- For sites located on or within 50 feet of a steep slope (15% or greater), do not irrigate landscape within three days of a storm event to avoid potential geotechnical instability.²
- Implement Integrated Pest Management practices.

For additional guidelines and requirements, refer to the Los Angeles County Department of Health Services.

Maintenance Requirements

Maintain irrigation areas to remove trash and debris and loose vegetation. Rehabilitate areas of bare soil. If a rain or pressure sensor is installed, it should be checked periodically to ensure proper function. Inspect and maintain irrigation equipment and components to ensure proper functionality. Clean equipment as necessary to prevent algae growth and vector breeding. Maintenance agreements between LACDPW and the owner/operator may be required. Failure to properly maintain building and property may subject the property owner to citation.

² As determined by the City of Los Angeles, Building and Safety Division

S-9: Building Materials Selection

Purpose

Building materials can potentially contribute pollutants of concern to stormwater runoff through leaching. For example, metal buildings, roofing, and fencing materials may be significant sources of metals in stormwater runoff, especially due to acidic precipitation. The use of alternative building materials can reduce pollutant sources in stormwater runoff by eliminating compounds that can leach into stormwater runoff. Alternative building materials may also reduce the need to perform maintenance activities (i.e., painting) that involve pollutants of concern, and may reduce the volume of stormwater runoff. Alternative materials are available to replace lumber and paving.

Design Specifications

Lumber

Decks and other house components constructed using pressure-treated wood that is typically treated using arsenate, copper, and chromium compounds are hazardous to the environment. Pressure-treated wood may be replaced with cement-fiber or vinyl.

Roofs, Fencing, and Metals

Minimizing the use of copper and galvanized (zinc-coated) metals on buildings and fencing can reduce leaching of these pollutants into stormwater runoff. The following building materials are conventionally made of galvanized metals:

- Metal roofs;
- Chain-link fencing and siding; and
- Metal downspouts, vents, flashing, and trim on roofs.

Architectural use of copper for roofs and gutters should be avoided. As an alternative to copper and galvanized materials, coated metal products are available for both roofing and gutter application. Vinyl-coated fencing is an alternative to traditional galvanized chain-link fences. These products eliminate contact of bare metal with precipitation or stormwater runoff, and reduce the potential for stormwater runoff contamination. Roofing materials are also made of recycled rubber and plastic.

Green roofs may be an option. Green roofs use vegetation such as grasses and other plants as an exterior surface. The plants reduce the velocity of stormwater runoff and absorb water to reduce the volume of stormwater runoff. One potential problem with using green roofs in the Los Angeles County area is the long, hot and dry summers, which may kill the plants if they are not watered. See the Green Roof Fact Sheet (RET-7) in Appendix E.

Pesticides

The use of pesticides around foundations can be reduced through the use of alternative barriers. Sand barriers can be applied around foundations to deter termites, as they cannot tunnel through sand. Metal shields also block termites from tunneling. Additionally, diatomaceous earth can be used to repel or kill a wide variety of other pests.

Maintenance Requirements

The integrity of structural elements that are subject to damage (e.g., signs) must be maintained by the owner/operator as required by local codes and ordinances. Maintenance agreements between LACDPW and the owner/operator may be required. Failure to properly maintain building and property may subject the property owner to citation.

S-10: Animal Care and Handling Facilities

Purpose

Animal care, confinement, and slaughter may potentially contribute nutrients, bacteria and viruses, and other pollutants to stormwater runoff. Implementing source control measures, such as preventing stormwater runoff in animal care and confinement areas and good housekeeping, reduces the potential for pollutant mobilization from animal care and handling facilities into stormwater runoff.

It should be noted that this fact sheet does not address concentrated animal feeding operations, as defined by the USEPA.

Design Specifications

General Specifications

- Site barns, corrals, and pastures on property that drains away from the storm drain system and receiving waters.
- Locate animal washing areas, pastures, horse riding areas, stalls, or cages at least 50 feet away from storm drains, domestic wells, septic tank or leach field sites, and receiving waters.
- Design berms, gutters, or grassed ditches to divert stormwater runoff away from animal area, storm drain system, and receiving waters.
- Cover animal enclosures (i.e., stables) to protect them from precipitation.
- Prevent animals from entering sensitive environmental areas.
- Regularly sweep or shovel animal holding areas.

Grazing Management

- Focus on protecting the pasture's soil and vegetative cover. Prevent bare areas from forming.
- Clip tall weeds and old grass to control weeds and stimulate grass growth.
- Establish healthy and vigorous pastures with at least three inches of leafy material present.
- Subdivide grazing areas into three or more units of equal size, which can be grazed in rotation.
- Allow pastures to grow to 8-10 inches before allowing grazing.
- Rotate animals to clean pastures when grass is grazed down to 3-4 inches.
- Manage grazing so that a cover of dry residual vegetation protects soil from the first storm event of the season.
- Keep animals away from wet fields when possible.

S-10: Animal Care and Handling Facilities

- During periods of heavy precipitation, consider indoor feeding.
- Use manure and soiled bedding sparingly to fertilize pastures and croplands.
- Use turnout paddocks as "sacrifice areas" to preserve pastures.

Horse Access to Waterways

- Prevent trampling of streamside vegetation.
- Design stream crossings to minimize erosion.

Horse Waste Management

- Collect manure to prevent it from entering the storm drain system or receiving waters.
- Store collected manure on high ground to reduce contact with stormwater runoff.
- After clean-up during the summer, water the areas where horses frequently deposit manure to promote decomposition.
- Store horse waste in sturdy, insect-resistant, and seepage-free units that have an impervious surface bottom and a cover to prevent leaching and runoff, such as:
 - Plastic garbage cans with lids;
 - Fly-tight wooden or concrete storage sheds;
 - Composters; or
 - Pits or trenches lined with an impermeable layer.
- Remove accumulated manure from the site frequently using the following methods:
 - Composting. Keep compost piles moist and well-aerated to promote decomposition;
 - Give away composted material to local greenhouses, nurseries and botanical gardens;
 - Transport manure to topsoil companies or composting centers; or
 - Fertilize pastures, cropland, and lawns with manure and soiled bedding. Do not apply fertilizer just before or during storm events and apply these materials sparingly.

Maintenance Requirements

The integrity of structural elements that are subject to damage (e.g., enclosures) must be maintained by the owner/operator as required by local codes and ordinances. Manure must be collected from site frequently and covered until properly disposed of. Enclosures must be checked periodically to ensure roof is leak-free. Maintenance agreements between LACDPW and the owner/operator may be required. Failure to properly maintain building and property may subject the property owner to citation.

S-11: Outdoor Horticulture Areas

Purpose

Horticulture areas may potentially contribute nutrients, bacteria, organics, sediment, and other pollutants to the stormwater runoff. Irrigation runoff provides a pathway for pollutants to enter the storm drain system. Implementation of source control measures can reduce the potential for pollutant mobilization from outdoor horticulture areas into stormwater runoff.

General Guidance

- Do not allow wash water from the horticulture area to drain directly to the storm drain system or receiving waters.

Maintenance Requirements

Preventative maintenance includes weeding, pruning back excess plant growth, and removing leaf and other debris. Maintenance agreements between LACDPW and the owner/operator may be required. Failure to properly maintain building and property may subject the property owner to citation.

Low Impact Development Standards Manual

Table 5-1. Source Control Measures Selection Matrix

Project Type	Source Control Measure										
	Storm Drain Message and Signage (S-1)	Outdoor Material Storage Area (S-2)	Outdoor Trash Storage/ Waste Handling Area (S-3)	Outdoor Loading/Unloading Dock Area (S-4)	Outdoor Vehicle/Equipment Repair/Maintenance Area (S-5)	Outdoor Vehicle/ Equipment/ Accessory Wash Area (S-6)	Fuel & Maintenance Area (S-7)	Landscape Irrigation Practices (S-8)	Building Materials (S-9)	Animal Care and Handling Facilities (S-10)	Outdoor Horticulture Areas (S-11)
Designated Projects – New Development											
Development ≥1 acre and ≥10,000 ft ² new impervious area	R	R ¹	R ¹	R ¹	R ¹	R ¹	R ¹	R	R	R ¹	R ¹
Industrial parks (≥10,000 ft ²)	R	R ¹	R ¹	R ¹	R ¹	R ¹	R ¹	R	R	–	–
Commercial malls (≥10,000 ft ²)	R	R ¹	R ¹	R ¹	R ¹	R ¹	–	R	R	R ¹	R ¹
Retail gasoline outlets (≥5,000 ft ²)	R	R ¹	R ¹	R ¹	R ¹	R ¹	R ¹	R	R	–	–
Restaurants (≥5,000 ft ²)	R	R ¹	R ¹	R ¹	–	–	–	R	R	–	–
Parking lots (≥5,000 ft ² or ≥25 parking spaces)	R	R ¹	R ¹	R ¹	–	–	–	R	R	R ¹	R ¹
Automotive service facilities (5,000 ft ²)	R	R ¹	R ¹	R ¹	R ¹	R ¹	R ¹	R	R	–	–
Projects in/around Significant Ecologic Areas	R	R ¹	R ¹	R ¹	R ¹	R ¹	R ¹	R	R	R ¹	R ¹
Projects potentially impacting sensitive biological species or habitats	R	R ¹	R ¹	R ¹	R ¹	R ¹	R ¹	R	R	R ¹	R ¹
Projects adding ≥2,500 ft ² of impervious area	R	R ¹	R ¹	R ¹	R ¹	R ¹	R ¹	R	R	R ¹	R ¹

R = required; R¹ = required if outdoor activity area is included in project; R² = required for multi-family dwellings

Table 5-1. Source Control Measures Selection Matrix (continued)

Project Type	Source Control Measure										
	Storm Drain Message and Signage (S-1)	Outdoor Material Storage Area (S-2)	Outdoor Trash Storage/ Waste Handling Area (S-3)	Outdoor Loading/Unloading Dock Area (S-4)	Outdoor Vehicle/Equipment Repair/Maintenance Area (S-5)	Outdoor Vehicle/ Equipment/ Accessory Wash Area (S-6)	Fuel & Maintenance Area (S-7)	Landscape Irrigation Practices (S-8)	Building Materials (S-9)	Animal Care and Handling Facilities (S-10)	Outdoor Horticulture Areas (S-11)
Designated Projects – Redevelopment											
Projects creating or adding $\geq 5,000$ ft ²	R	R ¹	R ¹	R ¹	R ¹	R ¹	R ¹	R	R	R ¹	R ¹
Projects altering existing impervious surface	R	R ¹	R ¹	R ¹	R ¹	R ¹	R ¹	R	R	R ¹	R ¹
Non-Designated Projects											
Small-Scale Residential Projects	R	R ¹	R ²	–	–	–	–	R	R	–	–
Large-Scale Projects	R	R ¹	R ¹	R ¹	R ¹	R ¹	R ¹	R	R	R ¹	R ¹

R = required; R¹ = required if outdoor activity area is included in project; R² = required for multi-family dwellings

APPENDIX 7
OPERATION AND MAINTENANCE PLAN

Not included as apart of the Preliminary LID report. Will be included, as applicable, in the Final LID Report

Recording requested by and mail to:

Name: _____

Address: _____

***** Space Above This Line For Recorder's Use *****

MASTER COVENANT AND AGREEMENT
REGARDING ON-SITE STORMWATER MITIGATION MEASURES AND MAINTENANCE

I (We), the undersigned, hereby certify that I am (we are) the owner(s) of the hereinafter legally described real property ("Property") located in the City of Los Angeles, County of Los Angeles, State of California (please give the legal description):

LEGAL DESCRIPTION

ASSESSOR'S ID# _____ TRACT NO. _____ BLOCK NO. _____ LOT NO _____

Site Address _____

In consideration of the City of Los Angeles allowing _____ development on said Property, I (we) do hereby covenant and agree to install, operate and maintain in a good operable condition at all times, at my (our) sole cost, all on-site stormwater Best Management Practices (BMPs) per approved plans. The location and type of each BMP feature installed on the Subject Property is identified on the site diagram attached hereto as Exhibit 1. I (we) shall maintain, in accordance with the attached Operation & Maintenance Plan (Attachment 1), the following on-site stormwater BMPs:

- | | |
|--|---|
| <input type="checkbox"/> Rain Tank (min 55 gal): # of barrels _____; _____ total gallons, with minimum of _____ Sq. Ft of vegetated landscaping | |
| <input type="checkbox"/> Rain Tank / Cistern: # of tanks / cistern _____; _____ total gallons, with minimum of _____ Sq. Ft of vegetated landscaping | |
| <input type="checkbox"/> Porous pavement/pavers: _____ Sq. Ft (for incidental rainfall); and / or _____ Sq. Ft. with _____ ft sub base | |
| <input type="checkbox"/> Rain Garden (lined): # of rain gardens _____; _____ total Sq. Ft. | <input type="checkbox"/> Dry Well: _____ Cu. Ft. |
| <input type="checkbox"/> Rain Garden (unlined): # of rain gardens _____; _____ total Sq. Ft. | <input type="checkbox"/> Infiltration Trench: _____ Cu. Ft. |
| <input type="checkbox"/> Flow Thru Planter: # of planters _____; _____ total Sq. Ft. | <input type="checkbox"/> Green Roof: _____ Sq. Ft. |
| <input type="checkbox"/> Other: _____ | |

Owner further covenants and agrees that the above-described stormwater device(s) shall not be removed from the Subject Property unless a revised Plan is approved by the Bureau of Sanitation. In the event that any portion of the above-specified on-site stormwater pollution removal device(s) or BMPs is modified, I (we) shall immediately provide the Bureau of Sanitation of the City of Los Angeles with a revised Plan for their approval, and sign and record a Supplemental Covenant and Agreement, specifying all of the on-site stormwater pollution removal device(s) and BMPs, as modified (along with a modified O&M Plan). No Supplemental Covenant and Agreement shall, in any way, limit or diminish my (our) General Maintenance Obligation.

This Master Covenant and Agreement, and all obligations herein, shall run with the Property and shall be binding upon any future owners, encumbrancers, their successors, heirs or assigns and shall continue in effect until the Bureau of Sanitation approves the termination hereof.

Owner further covenants and agrees that if Owner hereafter sells the Subject Property, Owner shall provide printed educational materials to the buyer regarding the stormwater device(s) that are located on the Subject Property, including the type(s) and location(s) of all such devices, and instructions for properly maintaining all such devices.

(Print Name of Property Owner)

(Print Name of Property Owner)

(Signature of Property Owner)

(Signature of Property Owner)

Dated this _____ day of _____ 20_____.

Dated this _____ day of _____ 20_____.

(PLEASE ATTACH NOTARY ACKNOWLEDGEMENT)

***** Space Below This Line For Bureau Internal Use *****

Permit No. _____

Approved for recording by: Department of Public Works, Bureau of Sanitation

(Print Name) Engineering Associate

(Signature)

Date: _____

Operation and Maintenance Plan

The responsible party of inspection and Maintenance for the plan will be the project owner. The "Owner" as referred below is **City of Whittier**

The owner is aware of the maintenance responsibilities of the proposed BMP's. A funding mechanism will be established to maintain the BMP's at the frequency stated in the table below.

The owner will be responsible for long term funding for the inspection and maintenance of the proposed BMP's.

BMP Maintenance Responsibility/Frequency Matrix			
BMP	Responsible Party(s)	Inspection/Maintenance Activities Required	Minimum Frequency of Activities
Education for Property Owners, tenants and occupants & Employee training	Owner	The owner shall prepare a training manual for existing and future employees. The manual should include information on non-point source pollution and how to use Best Management Practices. Training shall be provided upon hire and at regular intervals thereafter.	Quarterly
Common Area Landscape Management	Owner	Ongoing maintenance is conducted to minimize erosion and over-irrigation, conserve water and reduce pesticide and fertilizer applications.	Weekly
Common Area Litter Control	Owner	The Owner will be required to implement trash management and litter control procedures in the common areas aimed at reducing pollution of drainage water. The Owner may contract with their landscape maintenance firm to provide this service with regularly scheduled maintenance, which should consist of litter patrol, emptying of trash receptacles in common areas, and noting trash disposal violations and reporting the violations to the Owner for investigation.	Continual

Catch Basin/Inlet Inspection	Owner	The Owner must ensure that the on-site drain inlets, grates, and drainpipes will be periodically inspected visually. Cleaning should take place in the late summer/early fall prior to the start of the rainy season. If necessary, clean, repair, or replace any drainage facility prior to the start of each rainy season (no later than October 15 of each year)	Monthly Before and after predicted storm events
Street Sweeping Private Streets and Parking Lots	Owner	The Owner must sweep outdoor lots regularly (minimum monthly), and prior to the storm season (no later than October 15 each year). Sweeping shall be done with a vacuum-type sweeper. Under no circumstances are outdoor areas/lots to be rinsed or washed with water unless said rinse/wash water is collected and disposed of properly (i.e. into the sewer)	Monthly
Provide Storm Drain Stenciling and Signage	Owner	All catch basins/inlets/outlets on site must be marked using the City's "No Dumping – Drains to Ocean" curb marker or stenciled using an approved stencil to paint this message on the top of curb directly above the inlet, and on one side of the curb face. Labeling for catch basins is to be inspected regularly and maintained so as to be reasonably legible at all times. The inspection and maintenance is to be performed by the Owner. This stencil is to alert the public/employees to the destination of pollutants discharged into the storm water.	Annual
Rainwater Cistern	Owner	Inspection through inspection porthole for trash and debris, removal of sediment should occur using vacuum truck. Refer to the maintenance specifications from manufacturer included in the following pages.	Monthly, Refer to the maintenance specifications provided by manufacturer included in the following pages.

APPENDIX 8

BMP INSPECTION MAINTENANCE RECORDS

BMP Inspection Maintenance Reports to be Added to this Appendix 8 upon Completion.

See Appendix 7 for Maintenance Requirements.

APPENDIX 9

SOURCE CONTROL MEASURES

Spill Prevention, Control & Cleanup SC-11



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

Spills and leaks, if not properly controlled, can adversely impact the storm drain system and receiving waters. Due to the type of work or the materials involved, many activities that occur either at a municipal facility or as a part of municipal field programs have the potential for accidental spills and leaks. Proper spill response planning and preparation can enable municipal employees to effectively respond to problems when they occur and minimize the discharge of pollutants to the environment.

Approach

- An effective spill response and control plan should include:
 - Spill/leak prevention measures;
 - Spill response procedures;
 - Spill cleanup procedures;
 - Reporting; and
 - Training
- A well thought out and implemented plan can prevent pollutants from entering the storm drainage system and can be used as a tool for training personnel to prevent and control future spills as well.

Pollution Prevention

- Develop and implement a Spill Prevention Control and Response Plan. The plan should include:

Targeted Constituents

Sediment	
Nutrients	✓
Trash	
Metals	✓
Bacteria	
Oil and Grease	✓
Organics	✓
Oxygen Demanding	✓



SC-11 Spill Prevention, Control & Cleanup

- A description of the facility, the address, activities and materials involved
- Identification of key spill response personnel
- Identification of the potential spill areas or operations prone to spills/leaks
- Identification of which areas should be or are bermed to contain spills/leaks
- Facility map identifying the key locations of areas, activities, materials, structural BMPs, etc.
- Material handling procedures
- Spill response procedures including:
 - Assessment of the site and potential impacts
 - Containment of the material
 - Notification of the proper personnel and evacuation procedures
 - Clean up of the site
 - Disposal of the waste material and
 - Proper record keeping
- Product substitution – use less toxic materials (i.e. use water based paints instead of oil based paints)
- Recycle, reclaim, or reuse materials whenever possible. This will reduce the amount of materials that are brought into the facility or into the field.

Suggested Protocols

Spill/Leak Prevention Measures

- If possible, move material handling indoors, under cover, or away from storm drains or sensitive water bodies.
- Properly label all containers so that the contents are easily identifiable.
- Berm storage areas so that if a spill or leak occurs, the material is contained.
- Cover outside storage areas either with a permanent structure or with a seasonal one such as a tarp so that rain can not come into contact with the materials.
- Check containers (and any containment sumps) often for leaks and spills. Replace containers that are leaking, corroded, or otherwise deteriorating with containers in good condition. Collect all spilled liquids and properly dispose of them.

Spill Prevention, Control & Cleanup SC-11

- Store, contain and transfer liquid materials in such a manner that if the container is ruptured or the contents spilled, they will not discharge, flow or be washed into the storm drainage system, surface waters, or groundwater.
- Place drip pans or absorbent materials beneath all mounted taps and at all potential drip and spill locations during the filling and unloading of containers. Any collected liquids or soiled absorbent materials should be reused/recycled or properly disposed of.
- For field programs, only transport the minimum amount of material needed for the daily activities and transfer materials between containers at a municipal yard where leaks and spill are easier to control.
- If paved, sweep and clean storage areas monthly, do not use water to hose down the area unless all of the water will be collected and disposed of properly.
- Install a spill control device (such as a tee section) in any catch basins that collect runoff from any storage areas if the materials stored are oil, gas, or other materials that separate from and float on water. This will allow for easier cleanup if a spill occurs.
- If necessary, protect catch basins while conducting field activities so that if a spill occurs, the material will be contained.

Training

- Educate employees about spill prevention, spill response and cleanup on a routine basis.
- Well-trained employees can reduce human errors that lead to accidental releases or spills:
 - The employees should have the tools and knowledge to immediately begin cleaning up a spill if one should occur.
 - Employees should be familiar with the Spill Prevention Control and Countermeasure Plan if one is available.
- Training of staff from all municipal departments should focus on recognizing and reporting potential or current spills/leaks and who they should contact.
- Employees responsible for aboveground storage tanks and liquid transfers for large bulk containers should be thoroughly familiar with the Spill Prevention Control and Countermeasure Plan and the plan should be readily available.

Spill Response and Prevention

- Identify key spill response personnel and train employees on who they are.
- Store and maintain appropriate spill cleanup materials in a clearly marked location near storage areas; and train employees to ensure familiarity with the site's spill control plan and/or proper spill cleanup procedures.
- Locate spill cleanup materials, such as absorbents, where they will be readily accessible (e.g. near storage and maintenance areas, on field trucks).

SC-11 Spill Prevention, Control & Cleanup

- Follow the Spill Prevention Control and Countermeasure Plan if one is available.
- If a spill occurs, notify the key spill response personnel immediately. If the material is unknown or hazardous, the local fire department may also need to be contacted.
- If safe to do so, attempt to contain the material and block the nearby storm drains so that the area impacted is minimized. If the material is unknown or hazardous wait for properly trained personnel to contain the materials.
- Perform an assessment of the area where the spill occurred and the downstream area that it could impact. Relay this information to the key spill response and clean up personnel.

Spill Cleanup Procedures

- Small non-hazardous spills
 - Use a rag, damp cloth or absorbent materials for general clean up of liquids
 - Use brooms or shovels for the general clean up of dry materials
 - If water is used, it must be collected and properly disposed of. The wash water can not be allowed to enter the storm drain.
 - Dispose of any waste materials properly
 - Clean or dispose of any equipment used to clean up the spill properly
- Large non-hazardous spills
 - Use absorbent materials for general clean up of liquids
 - Use brooms, shovels or street sweepers for the general clean up of dry materials
 - If water is used, it must be collected and properly disposed of. The wash water can not be allowed to enter the storm drain.
 - Dispose of any waste materials properly
 - Clean or dispose of any equipment used to clean up the spill properly
- For hazardous or very large spills, a private cleanup company or Hazmat team may need to be contacted to assess the situation and conduct the cleanup and disposal of the materials.
- Chemical cleanups of material can be achieved with the use of absorbents, gels, and foams. Remove the adsorbent materials promptly and dispose of according to regulations.
- If the spilled material is hazardous, then the used cleanup materials are also hazardous and must be sent to a certified laundry (rags) or disposed of as hazardous waste.

Reporting

- Report any spills immediately to the identified key municipal spill response personnel.

Spill Prevention, Control & Cleanup SC-11

- Report spills in accordance with applicable reporting laws. Spills that pose an immediate threat to human health or the environment must be reported immediately to the Office of Emergency Service (OES)
- Spills that pose an immediate threat to human health or the environment may also need to be reported within 24 hours to the Regional Water Quality Control Board.
- Federal regulations require that any oil spill into a water body or onto an adjoining shoreline be reported to the National Response Center (NRC) at 800-424-8802 (24 hour)
- After the spill has been contained and cleaned up, a detailed report about the incident should be generated and kept on file (see the section on Reporting below). The incident may also be used in briefing staff about proper procedures

Other Considerations

- State regulations exist for facilities with a storage capacity of 10,000 gallons or more of petroleum to prepare a Spill Prevention Control and Countermeasure Plan (SPCC) Plan (Health & Safety Code Chapter 6.67).
- State regulations also exist for storage of hazardous materials (Health & Safety Code Chapter 6.95), including the preparation of area and business plans for emergency response to the releases or threatened releases.
- Consider requiring smaller secondary containment areas (less than 200 sq. ft.) to be connected to the sanitary sewer, if permitted to do so, prohibiting any hard connections to the storm drain.

Requirements

Costs

- Will vary depending on the size of the facility and the necessary controls.
- Prevention of leaks and spills is inexpensive. Treatment and/or disposal of wastes, contaminated soil and water is very expensive

Maintenance

- This BMP has no major administrative or staffing requirements. However, extra time is needed to properly handle and dispose of spills, which results in increased labor costs

Supplemental Information

Further Detail of the BMP

Reporting

Record keeping and internal reporting represent good operating practices because they can increase the efficiency of the response and containment of a spill. A good record keeping system helps the municipality minimize incident recurrence, correctly respond with appropriate containment and cleanup activities, and comply with legal requirements.

SC-11 Spill Prevention, Control & Cleanup

A record keeping and reporting system should be set up for documenting spills, leaks, and other discharges, including discharges of hazardous substances in reportable quantities. Incident records describe the quality and quantity of non-stormwater discharges to the storm drain.

These records should contain the following information:

- Date and time of the incident
- Weather conditions
- Duration of the spill/leak/discharge
- Cause of the spill/leak/discharge
- Response procedures implemented
- Persons notified
- Environmental problems associated with the spill/leak/discharge

Separate record keeping systems should be established to document housekeeping and preventive maintenance inspections, and training activities. All housekeeping and preventive maintenance inspections should be documented. Inspection documentation should contain the following information:

- The date and time the inspection was performed
- Name of the inspector
- Items inspected
- Problems noted
- Corrective action required
- Date corrective action was taken

Other means to document and record inspection results are field notes, timed and dated photographs, videotapes, and drawings and maps.

Examples

The City of Palo Alto includes spill prevention and control as a major element of its highly effective program for municipal vehicle maintenance shops.

References and Resources

King County Stormwater Pollution Control Manual - <http://dnr.metrokc.gov/wlr/dss/spcm.htm>

Orange County Stormwater Program

http://www.ocwatersheds.com/stormwater/swp_introduction.asp

Spill Prevention, Control & Cleanup SC-11

San Diego Stormwater Co-permittees Jurisdictional Urban Runoff Management Program (URMP)

<http://www.projectcleanwater.org/pdf/Model%20Program%20Municipal%20Facilities.pdf>

Parking/Storage Area Maintenance SC-43



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Description

Parking lots and storage areas can contribute a number of substances, such as trash, suspended solids, hydrocarbons, oil and grease, and heavy metals that can enter receiving waters through stormwater runoff or non-stormwater discharges. The following protocols are intended to prevent or reduce the discharge of pollutants from parking/storage areas and include using good housekeeping practices, following appropriate cleaning BMPs, and training employees.

Approach

Pollution Prevention

- Encourage alternative designs and maintenance strategies for impervious parking lots. (See New Development and Redevelopment BMP Handbook).
- Keep accurate maintenance logs to evaluate BMP implementation.

Suggested Protocols

General

- Keep the parking and storage areas clean and orderly. Remove debris in a timely fashion.
- Allow sheet runoff to flow into biofilters (vegetated strip and swale) and/or infiltration devices.
- Utilize sand filters or oleophilic collectors for oily waste in low concentrations.

Targeted Constituents

Sediment	✓
Nutrients	✓
Trash	✓
Metals	✓
Bacteria	✓
Oil and Grease	✓
Organics	✓
Oxygen Demanding	✓



SC-43 Parking/Storage Area Maintenance

- Arrange rooftop drains to prevent drainage directly onto paved surfaces.
- Design lot to include semi-permeable hardscape.

Controlling Litter

- Post “No Littering” signs and enforce anti-litter laws.
- Provide an adequate number of litter receptacles.
- Clean out and cover litter receptacles frequently to prevent spillage.
- Provide trash receptacles in parking lots to discourage litter.
- Routinely sweep, shovel and dispose of litter in the trash.

Surface cleaning

- Use dry cleaning methods (e.g. sweeping or vacuuming) to prevent the discharge of pollutants into the stormwater conveyance system.
- Establish frequency of public parking lot sweeping based on usage and field observations of waste accumulation.
- Sweep all parking lots at least once before the onset of the wet season.
- If water is used follow the procedures below:
 - Block the storm drain or contain runoff.
 - Wash water should be collected and pumped to the sanitary sewer or discharged to a pervious surface, do not allow wash water to enter storm drains.
 - Dispose of parking lot sweeping debris and dirt at a landfill.
- When cleaning heavy oily deposits:
 - Use absorbent materials on oily spots prior to sweeping or washing.
 - Dispose of used absorbents appropriately.

Surface Repair

- Pre-heat, transfer or load hot bituminous material away from storm drain inlets.
- Apply concrete, asphalt, and seal coat during dry weather to prevent contamination from contacting stormwater runoff.
- Cover and seal nearby storm drain inlets (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc., where applicable. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal.

Parking/Storage Area Maintenance SC-43

- Use only as much water as necessary for dust control, to avoid runoff.
- Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.

Inspection

- Have designated personnel conduct inspections of the parking facilities and stormwater conveyance systems associated with them on a regular basis.
- Inspect cleaning equipment/sweepers for leaks on a regular basis.

Training

- Provide regular training to field employees and/or contractors regarding cleaning of paved areas and proper operation of equipment.
- Train employees and contractors in proper techniques for spill containment and cleanup.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Keep your Spill Prevention Control and countermeasure (SPCC) plan up-to-date, and implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Limitations related to sweeping activities at large parking facilities may include high equipment costs, the need for sweeper operator training, and the inability of current sweeper technology to remove oil and grease.

Requirements

Costs

Cleaning/sweeping costs can be quite large, construction and maintenance of stormwater structural controls can be quite expensive as well.

Maintenance

- Sweep parking lot to minimize cleaning with water.
- Clean out oil/water/sand separators regularly, especially after heavy storms.
- Clean parking facilities on a regular basis to prevent accumulated wastes and pollutants from being discharged into conveyance systems during rainy conditions.

SC-43 Parking/Storage Area Maintenance

Supplemental Information

Further Detail of the BMP

Surface Repair

Apply concrete, asphalt, and seal coat during dry weather to prevent contamination from contacting stormwater runoff. Where applicable, cover and seal nearby storm drain inlets (with waterproof material or mesh) and manholes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from these covered manholes and drains for proper disposal. Use only as much water as necessary for dust control, to avoid runoff.

References and Resources

<http://www.stormwatercenter.net/>

California's Nonpoint Source Program Plan <http://www.swrcb.ca.gov/nps/index.html>

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality control Board. July 1998 (Revised February 2002 by the California Coastal Commission).

Orange County Stormwater Program

http://www.ocwatersheds.com/StormWater/swp_introduction.asp

Oregon Association of Clean Water Agencies. Oregon Municipal Stormwater Toolbox for Maintenance Practices. June 1998.

Pollution from Surface Cleaning Folder. 1996. Bay Area Stormwater Management Agencies Association (BASMAA) <http://www.basma.org>

San Diego Stormwater Co-permittees Jurisdictional Urban Runoff Management Program (URMP)

<http://www.projectcleanwater.org/pdf/Model%20Program%20Municipal%20Facilities.pdf>

Description

Promote efficient and safe housekeeping practices (storage, use, and cleanup) when handling potentially harmful materials such as fertilizers, pesticides, cleaning solutions, paint products, automotive products, and swimming pool chemicals. Related information is provided in BMP fact sheets SC-11 Spill Prevention, Control & Cleanup and SC-34 Waste Handling & Disposal.

Approach

Pollution Prevention

- Purchase only the amount of material that will be needed for foreseeable use. In most cases this will result in cost savings in both purchasing and disposal. See SC-61 Safer Alternative Products for additional information.
- Be aware of new products that may do the same job with less environmental risk and for less or the equivalent cost. Total cost must be used here; this includes purchase price, transportation costs, storage costs, use related costs, clean up costs and disposal costs.

Suggested Protocols

General

- Keep work sites clean and orderly. Remove debris in a timely fashion. Sweep the area.
- Dispose of wash water, sweepings, and sediments, properly.
- Recycle or dispose of fluids properly.
- Establish a daily checklist of office, yard and plant areas to confirm cleanliness and adherence to proper storage and security. Specific employees should be assigned specific inspection responsibilities and given the authority to remedy any problems found.
- Post waste disposal charts in appropriate locations detailing for each waste its hazardous nature (poison, corrosive, flammable), prohibitions on its disposal (dumpster, drain, sewer) and the recommended disposal method (recycle, sewer, burn, storage, landfill).
- Summarize the chosen BMPs applicable to your operation and post them in appropriate conspicuous places.

Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	<input checked="" type="checkbox"/>
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>
Oxygen Demanding	<input checked="" type="checkbox"/>



- Require a signed checklist from every user of any hazardous material detailing amount taken, amount used, amount returned and disposal of spent material.
- Do a before audit of your site to establish baseline conditions and regular subsequent audits to note any changes and whether conditions are improving or deteriorating.
- Keep records of water, air and solid waste quantities and quality tests and their disposition.
- Maintain a mass balance of incoming, outgoing and on hand materials so you know when there are unknown losses that need to be tracked down and accounted for.
- Use and reward employee suggestions related to BMPs, hazards, pollution reduction, work place safety, cost reduction, alternative materials and procedures, recycling and disposal.
- Have, and review regularly, a contingency plan for spills, leaks, weather extremes etc. Make sure all employees know about it and what their role is so that it comes into force automatically.

Training

- Train all employees, management, office, yard, manufacturing, field and clerical in BMPs and pollution prevention and make them accountable.
- Train municipal employees who handle potentially harmful materials in good housekeeping practices.
- Train personnel who use pesticides in the proper use of the pesticides. The California Department of Pesticide Regulation license pesticide dealers, certify pesticide applicators and conduct onsite inspections.
- Train employees and contractors in proper techniques for spill containment and cleanup. The employee should have the tools and knowledge to immediately begin cleaning up a spill if one should occur.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Keep your Spill Prevention Control and Countermeasure (SPCC) plan up-to-date, and implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- There are no major limitations to this best management practice.
- There are no regulatory requirements to this BMP. Existing regulations already require municipalities to properly store, use, and dispose of hazardous materials

Requirements

Costs

- Minimal cost associated with this BMP. Implementation of good housekeeping practices may result in cost savings as these procedures may reduce the need for more costly BMPs.

Maintenance

- Ongoing maintenance required to keep a clean site. Level of effort is a function of site size and type of activities.

Supplemental Information

Further Detail of the BMP

- The California Integrated Waste Management Board's Recycling Hotline, 1-800-553-2962, provides information on household hazardous waste collection programs and facilities.

Examples

There are a number of communities with effective programs. The most pro-active include Santa Clara County and the City of Palo Alto, the City and County of San Francisco, and the Municipality of Metropolitan Seattle (Metro).

References and Resources

British Columbia Lake Stewardship Society. Best Management Practices to Protect Water Quality from Non-Point Source Pollution. March 2000.

<http://www.nalms.org/bclss/bmphome.html#bmp>

King County Stormwater Pollution Control Manual - <http://dnr.metrokc.gov/wlr/dss/spcm.htm>

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities, Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July, 1998, Revised by California Coastal Commission, February 2002.

Orange County Stormwater Program

http://www.ocwatersheds.com/stormwater/swp_introduction.asp

San Mateo STOPPP - (<http://stoppp.tripod.com/bmp.html>)



Objectives

- Cover
- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>
Oxygen Demanding	<input checked="" type="checkbox"/>

Description

Streets, roads, and highways are significant sources of pollutants in stormwater discharges, and operation and maintenance (O&M) practices, if not conducted properly, can contribute to the problem. Stormwater pollution from roadway and bridge maintenance should be addressed on a site-specific basis. Use of the procedures outlined below, that address street sweeping and repair, bridge and structure maintenance, and unpaved roads will reduce pollutants in stormwater.

Approach

Pollution Prevention

- Use the least toxic materials available (e.g. water based paints, gels or sprays for graffiti removal)
- Recycle paint and other materials whenever possible.
- Enlist the help of citizens to keep yard waste, used oil, and other wastes out of the gutter.

Suggested Protocols

Street Sweeping and Cleaning

- Maintain a consistent sweeping schedule. Provide minimum monthly sweeping of curbed streets.
- Perform street cleaning during dry weather if possible.



- Avoid wet cleaning or flushing of street, and utilize dry methods where possible.
- Consider increasing sweeping frequency based on factors such as traffic volume, land use, field observations of sediment and trash accumulation, proximity to water courses, etc. For example:
 - Increase the sweeping frequency for streets with high pollutant loadings, especially in high traffic and industrial areas.
 - Increase the sweeping frequency just before the wet season to remove sediments accumulated during the summer.
 - Increase the sweeping frequency for streets in special problem areas such as special events, high litter or erosion zones.
- Maintain cleaning equipment in good working condition and purchase replacement equipment as needed. Old sweepers should be replaced with new technologically advanced sweepers (preferably regenerative air sweepers) that maximize pollutant removal.
- Operate sweepers at manufacturer requested optimal speed levels to increase effectiveness.
- To increase sweeping effectiveness consider the following:
 - Institute a parking policy to restrict parking in problematic areas during periods of street sweeping.
 - Post permanent street sweeping signs in problematic areas; use temporary signs if installation of permanent signs is not possible.
 - Develop and distribute flyers notifying residents of street sweeping schedules.
- Regularly inspect vehicles and equipment for leaks, and repair immediately.
- If available use vacuum or regenerative air sweepers in the high sediment and trash areas (typically industrial/commercial).
- Keep accurate logs of the number of curb-miles swept and the amount of waste collected.
- Dispose of street sweeping debris and dirt at a landfill.
- Do not store swept material along the side of the street or near a storm drain inlet.
- Keep debris storage to a minimum during the wet season or make sure debris piles are contained (e.g. by berming the area) or covered (e.g. with tarps or permanent covers).

Street Repair and Maintenance

Pavement marking

- Schedule pavement marking activities for dry weather.

- Develop paint handling procedures for proper use, storage, and disposal of paints.
- Transfer and load paint and hot thermoplastic away from storm drain inlets.
- Provide drop cloths and drip pans in paint mixing areas.
- Properly maintain application equipment.
- Street sweep thermoplastic grindings. Yellow thermoplastic grindings may require special handling as they may contain lead.
- Paints containing lead or tributyltin are considered a hazardous waste and must be disposed of properly.
- Use water based paints whenever possible. If using water based paints, clean the application equipment in a sink that is connected to the sanitary sewer.
- Properly store leftover paints if they are to be kept for the next job, or dispose of properly.

Concrete installation and repair

- Schedule asphalt and concrete activities for dry weather.
- Take measures to protect any nearby storm drain inlets and adjacent watercourses, prior to breaking up asphalt or concrete (e.g. place sand bags around inlets or work areas).
- Limit the amount of fresh concrete or cement mortar mixed, mix only what is needed for the job.
- Store concrete materials under cover, away from drainage areas. Secure bags of cement after they are open. Be sure to keep wind-blown cement powder away from streets, gutters, storm drains, rainfall, and runoff.
- Return leftover materials to the transit mixer. Dispose of small amounts of hardened excess concrete, grout, and mortar in the trash.
- Do not wash sweepings from exposed aggregate concrete into the street or storm drain. Collect and return sweepings to aggregate base stockpile, or dispose in the trash.
- When making saw cuts in pavement, use as little water as possible and perform during dry weather. Cover each storm drain inlet completely with filter fabric or plastic during the sawing operation and contain the slurry by placing straw bales, sandbags, or gravel dams around the inlets. After the liquid drains or evaporates, shovel or vacuum the slurry residue from the pavement or gutter and remove from site. Alternatively, a small onsite vacuum may be used to pick up the slurry as this will prohibit slurry from reaching storm drain inlets.
- Wash concrete trucks off site or in designated areas on site designed to preclude discharge of wash water to drainage system.

Patching, resurfacing, and surface sealing

- Schedule patching, resurfacing and surface sealing for dry weather.
- Stockpile materials away from streets, gutter areas, storm drain inlets or watercourses. During wet weather, cover stockpiles with plastic tarps or berm around them if necessary to prevent transport of materials in runoff.
- Pre-heat, transfer or load hot bituminous material away from drainage systems or watercourses.
- Where applicable, cover and seal nearby storm drain inlets (with waterproof material or mesh) and maintenance holes before applying seal coat, slurry seal, etc. Leave covers in place until job is complete and until all water from emulsified oil sealants has drained or evaporated. Clean any debris from covered maintenance holes and storm drain inlets when the job is complete.
- Prevent excess material from exposed aggregate concrete or similar treatments from entering streets or storm drain inlets. Designate an area for clean up and proper disposal of excess materials.
- Use only as much water as necessary for dust control, to avoid runoff.
- Sweep, never hose down streets to clean up tracked dirt. Use a street sweeper or vacuum truck. Do not dump vacuumed liquid in storm drains.
- Catch drips from paving equipment that is not in use with pans or absorbent material placed under the machines. Dispose of collected material and absorbents properly.

Equipment cleaning maintenance and storage

- Inspect equipment daily and repair any leaks. Place drip pans or absorbent materials under heavy equipment when not in use.
- Perform major equipment repairs at the corporation yard, when practical.
- If refueling or repairing vehicles and equipment must be done onsite, use a location away from storm drain inlets and watercourses.
- Clean equipment including sprayers, sprayer paint supply lines, patch and paving equipment, and mud jacking equipment at the end of each day. Clean in a sink or other area (e.g. vehicle wash area) that is connected to the sanitary sewer.

*Bridge and Structure Maintenance**Paint and Paint Removal*

- Transport paint and materials to and from job sites in containers with secure lids and tied down to the transport vehicle.
- Do not transfer or load paint near storm drain inlets or watercourses.

- Test and inspect spray equipment prior to starting to paint. Tighten all hoses and connections and do not overfill paint container.
- Plug nearby storm drain inlets prior to starting painting where there is significant risk of a spill reaching storm drains. Remove plugs when job is completed.
- If sand blasting is used to remove paint, cover nearby storm drain inlets prior to starting work.
- Perform work on a maintenance traveler or platform, or use suspended netting or tarps to capture paint, rust, paint removing agents, or other materials, to prevent discharge of materials to surface waters if the bridge crosses a watercourse. If sanding, use a sander with a vacuum filter bag.
- Capture all clean-up water, and dispose of properly.
- Recycle paint when possible (e.g. paint may be used for graffiti removal activities). Dispose of unused paint at an appropriate household hazardous waste facility.

Graffiti Removal

- Schedule graffiti removal activities for dry weather.
- Protect nearby storm drain inlets prior to removing graffiti from walls, signs, sidewalks, or other structures needing graffiti abatement. Clean up afterwards by sweeping or vacuuming thoroughly, and/or by using absorbent and properly disposing of the absorbent.
- When graffiti is removed by painting over, implement the procedures under Painting and Paint Removal above.
- Direct runoff from sand blasting and high pressure washing (with no cleaning agents) into a landscaped or dirt area. If such an area is not available, filter runoff through an appropriate filtering device (e.g. filter fabric) to keep sand, particles, and debris out of storm drains.
- If a graffiti abatement method generates wash water containing a cleaning compound (such as high pressure washing with a cleaning compound), plug nearby storm drains and vacuum/pump wash water to the sanitary sewer.
- Consider using a waterless and non-toxic chemical cleaning method for graffiti removal (e.g. gels or spray compounds).

Repair Work

- Prevent concrete, steel, wood, metal parts, tools, or other work materials from entering storm drains or watercourses.
- Thoroughly clean up the job site when the repair work is completed.
- When cleaning guardrails or fences follow the appropriate surface cleaning methods (depending on the type of surface) outlined in SC-71 Plaza & Sidewalk Cleaning fact sheet.

- If painting is conducted, follow the painting and paint removal procedures above.
- If graffiti removal is conducted, follow the graffiti removal procedures above.
- If construction takes place, see the Construction Activity BMP Handbook.
- Recycle materials whenever possible.

Unpaved Roads and Trails

- Stabilize exposed soil areas to prevent soil from eroding during rain events. This is particularly important on steep slopes.
- For roadside areas with exposed soils, the most cost-effective choice is to vegetate the area, preferably with a mulch or binder that will hold the soils in place while the vegetation is establishing. Native vegetation should be used if possible.
- If vegetation cannot be established immediately, apply temporary erosion control mats/blankets; a comma straw, or gravel as appropriate.
- If sediment is already eroded and mobilized in roadside areas, temporary controls should be installed. These may include: sediment control fences, fabric-covered triangular dikes, gravel-filled burlap bags, biobags, or hay bales staked in place.

Non-Stormwater Discharges

Field crews should be aware of non-stormwater discharges as part of their ongoing street maintenance efforts.

- Refer to SC-10 Non-Stormwater Discharges
- Identify location, time and estimated quantity of discharges.
- Notify appropriate personnel.

Training

- Train employees regarding proper street sweeping operation and street repair and maintenance.
- Instruct employees and subcontractors to ensure that measures to reduce the stormwater impacts of roadway/bridge maintenance are being followed.
- Require engineering staff and/or consulting A/E firms to address stormwater quality in new bridge designs or existing bridge retrofits.
- Use a training log or similar method to document training.
- Train employees on proper spill containment and clean up, and in identifying non-stormwater discharges.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup.
- Keep your Spill Prevention Control and countermeasure (SPCC) plan up-to-date, and implement accordingly.
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Densely populated areas or heavily used streets may require parking regulations to clear streets for cleaning.
- No currently available conventional sweeper is effective at removing oil and grease. Mechanical sweepers are not effective at removing finer sediments.
- Limitations may arise in the location of new bridges. The availability and cost of land and other economic and political factors may dictate where the placement of a new bridge will occur. Better design of the bridge to control runoff is required if it is being placed near sensitive waters.

Requirements

Costs

- The maintenance of local roads and bridges is already a consideration of most community public works or transportation departments. Therefore, the cost of pollutant reducing management practices will involve the training and equipment required to implement these new practices.
- The largest expenditures for street sweeping programs are in staffing and equipment. The capital cost for a conventional street sweeper is between \$60,000 and \$120,000. Newer technologies might have prices approaching \$180,000. The average useful life of a conventional sweeper is about four years, and programs must budget for equipment replacement. Sweeping frequencies will determine equipment life, so programs that sweep more often should expect to have a higher cost of replacement.
- A street sweeping program may require the following.
 - Sweeper operators, maintenance, supervisory, and administrative personnel are required.
 - Traffic control officers may be required to enforce parking restrictions.
 - Skillful design of cleaning routes is required for program to be productive.
 - Arrangements must be made for disposal of collected wastes.

- If investing in newer technologies, training for operators must be included in operation and maintenance budgets. Costs for public education are small, and mostly deal with the need to obey parking restrictions and litter control. Parking tickets are an effective reminder to obey parking rules, as well as being a source of revenue.

Maintenance

- Not applicable

Supplemental Information***Further Detail of the BMP******Street sweeping***

There are advantages and disadvantages to the two common types of sweepers. The best choice depends on your specific conditions. Many communities find it useful to have a compliment of both types in their fleet.

Mechanical Broom Sweepers - More effective at picking up large debris and cleaning wet streets. Less costly to purchase and operate. Create more airborne dust.

Vacuum Sweepers - More effective at removing fine particles and associated heavy metals. Ineffective at cleaning wet streets. Noisier than mechanical broom sweepers which may restrict areas or times of operation. May require an advance vehicle to remove large debris.

Street Flushers - Not affected by biggest interference to cleaning, parked cars. May remove finer sediments, moving them toward the gutter and stormwater inlets. For this reason, flushing fell out of favor and is now used primarily after sweeping. Flushing may be effective for combined sewer systems. Presently street flushing is not allowed under most NPDES permits.

Cross-Media Transfer of Pollutants

The California Air Resources Board (ARB) has established state ambient air quality standards including a standard for respirable particulate matter (less than or equal to 10 microns in diameter, symbolized as PM₁₀). In the effort to sweep up finer sediments to remove attached heavy metals, municipalities should be aware that fine dust, that cannot be captured by the sweeping equipment and becomes airborne, could lead to issues of worker and public safety.

Bridges

Bridges that carry vehicular traffic generate some of the more direct discharges of runoff to surface waters. Bridge scupper drains cause a direct discharge of stormwater into receiving waters and have been shown to carry relatively high concentrations of pollutants. Bridge maintenance also generates wastes that may be either directly deposited to the water below or carried to the receiving water by stormwater. The following steps will help reduce the stormwater impacts of bridge maintenance:

- Site new bridges so that significant adverse impacts to wetlands, sensitive areas, critical habitat, and riparian vegetation are minimized.

- Design new bridges to avoid the use of scupper drains and route runoff to land for treatment control. Existing scupper drains should be cleaned on a regular basis to avoid sediment/debris accumulation.
- Reduce the discharge of pollutants to surface waters during maintenance by using suspended traps, vacuums, or booms in the water to capture paint, rust, and paint removing agents. Many of these wastes may be hazardous. Properly dispose of this waste by referring to CA21 (Hazardous Waste Management) in the Construction Handbook.
- Train employees and subcontractors to reduce the discharge of wastes during bridge maintenance.

De-icing

- Do not over-apply deicing salt and sand, and routinely calibrate spreaders.
- Near reservoirs, restrict the application of deicing salt and redirect any runoff away from reservoirs.
- Consider using alternative deicing agents (less toxic, biodegradable, etc.).

References and Resources

Model Urban Runoff Program: A How-To Guide for Developing Urban Runoff Programs for Small Municipalities. Prepared by City of Monterey, City of Santa Cruz, California Coastal Commission, Monterey Bay National Marine Sanctuary, Association of Monterey Bay Area Governments, Woodward-Clyde, Central Coast Regional Water Quality Control Board. July. 1998.

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http://www.ocwatersheds.com/stormwater/swp_introduction.asp

Oregon Association of Clean Water Agencies. Oregon Municipal Stormwater Toolbox for Maintenance Practices. June 1998.

Santa Clara Valley Urban Runoff Pollution Prevention Program. 1997 Urban Runoff Management Plan. September 1997, updated October 2000.

Santa Clara Valley Urban Runoff Pollution Prevention Program. 2001. Fresh Concrete and Mortar Application Best Management Practices for the Construction Industry. June.

Santa Clara Valley Urban Runoff Pollution Prevention Program. 2001. Roadwork and Paving Best Management Practices for the Construction Industry. June.

United States Environmental Protection Agency (USEPA). 2002. Pollution Prevention/Good Housekeeping for Municipal Operations Roadway and Bridge Maintenance. On-line http://www.epa.gov/npdes/menuofbmps/poll_13.htm



Description

Landscape maintenance activities include vegetation removal; herbicide and insecticide application; fertilizer application; watering; and other gardening and lawn care practices. Vegetation control typically involves a combination of chemical (herbicide) application and mechanical methods. All of these maintenance practices have the potential to contribute pollutants to the storm drain system. The major objectives of this BMP are to minimize the discharge of pesticides, herbicides and fertilizers to the storm drain system and receiving waters; prevent the disposal of landscape waste into the storm drain system by collecting and properly disposing of clippings and cuttings, and educating employees and the public.

Approach

Pollution Prevention

- Implement an integrated pest management (IPM) program. IPM is a sustainable approach to managing pests by combining biological, cultural, physical, and chemical tools.
- Choose low water using flowers, trees, shrubs, and groundcover.
- Consider alternative landscaping techniques such as naturescaping and xeriscaping.
- Conduct appropriate maintenance (i.e. properly timed fertilizing, weeding, pest control, and pruning) to help preserve the landscapes water efficiency.

Objectives

- Contain
- Educate
- Reduce/Minimize
- Product Substitution

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	
Bacteria	
Oil and Grease	
Organics	
Oxygen Demanding	<input checked="" type="checkbox"/>



- Consider grass cycling (grass cycling is the natural recycling of grass by leaving the clippings on the lawn when mowing. Grass clippings decompose quickly and release valuable nutrients back into the lawn).

Suggested Protocols***Mowing, Trimming, and Weeding***

- Whenever possible use mechanical methods of vegetation removal (e.g mowing with tractor-type or push mowers, hand cutting with gas or electric powered weed trimmers) rather than applying herbicides. Use hand weeding where practical.
- Avoid loosening the soil when conducting mechanical or manual weed control, this could lead to erosion. Use mulch or other erosion control measures when soils are exposed.
- Performing mowing at optimal times. Mowing should not be performed if significant rain events are predicted.
- Mulching mowers may be recommended for certain flat areas. Other techniques may be employed to minimize mowing such as selective vegetative planting using low maintenance grasses and shrubs.
- Collect lawn and garden clippings, pruning waste, tree trimmings, and weeds. Chip if necessary, and compost or dispose of at a landfill (see waste management section of this fact sheet).
- Place temporarily stockpiled material away from watercourses, and berm or cover stockpiles to prevent material releases to storm drains.

Planting

- Determine existing native vegetation features (location, species, size, function, importance) and consider the feasibility of protecting them. Consider elements such as their effect on drainage and erosion, hardiness, maintenance requirements, and possible conflicts between preserving vegetation and the resulting maintenance needs.
- Retain and/or plant selected native vegetation whose features are determined to be beneficial, where feasible. Native vegetation usually requires less maintenance (e.g., irrigation, fertilizer) than planting new vegetation.
- Consider using low water use groundcovers when planting or replanting.

Waste Management

- Compost leaves, sticks, or other collected vegetation or dispose of at a permitted landfill. Do not dispose of collected vegetation into waterways or storm drainage systems.
- Place temporarily stockpiled material away from watercourses and storm drain inlets, and berm or cover stockpiles to prevent material releases to the storm drain system.
- Reduce the use of high nitrogen fertilizers that produce excess growth requiring more frequent mowing or trimming.

- Avoid landscape wastes in and around storm drain inlets by either using bagging equipment or by manually picking up the material.

Irrigation

- Where practical, use automatic timers to minimize runoff.
- Use popup sprinkler heads in areas with a lot of activity or where there is a chance the pipes may be broken. Consider the use of mechanisms that reduce water flow to sprinkler heads if broken.
- Ensure that there is no runoff from the landscaped area(s) if re-claimed water is used for irrigation.
- If bailing of muddy water is required (e.g. when repairing a water line leak), do not put it in the storm drain; pour over landscaped areas.
- Irrigate slowly or pulse irrigate to prevent runoff and then only irrigate as much as is needed.
- Apply water at rates that do not exceed the infiltration rate of the soil.

Fertilizer and Pesticide Management

- Utilize a comprehensive management system that incorporates integrated pest management (IPM) techniques. There are many methods and types of IPM, including the following:
 - Mulching can be used to prevent weeds where turf is absent, fencing installed to keep rodents out, and netting used to keep birds and insects away from leaves and fruit.
 - Visible insects can be removed by hand (with gloves or tweezers) and placed in soapy water or vegetable oil. Alternatively, insects can be sprayed off the plant with water or in some cases vacuumed off of larger plants.
 - Store-bought traps, such as species-specific, pheromone-based traps or colored sticky cards, can be used.
 - Slugs can be trapped in small cups filled with beer that are set in the ground so the slugs can get in easily.
 - In cases where microscopic parasites, such as bacteria and fungi, are causing damage to plants, the affected plant material can be removed and disposed of (pruning equipment should be disinfected with bleach to prevent spreading the disease organism).
 - Small mammals and birds can be excluded using fences, netting, tree trunk guards.
 - Beneficial organisms, such as bats, birds, green lacewings, ladybugs, praying mantis, ground beetles, parasitic nematodes, trichogramma wasps, seed head weevils, and spiders that prey on detrimental pest species can be promoted.
- Follow all federal, state, and local laws and regulations governing the use, storage, and disposal of fertilizers and pesticides and training of applicators and pest control advisors.

- Use pesticides only if there is an actual pest problem (not on a regular preventative schedule).
- Do not use pesticides if rain is expected. Apply pesticides only when wind speeds are low (less than 5 mph).
- Do not mix or prepare pesticides for application near storm drains.
- Prepare the minimum amount of pesticide needed for the job and use the lowest rate that will effectively control the pest.
- Employ techniques to minimize off-target application (e.g. spray drift) of pesticides, including consideration of alternative application techniques.
- Fertilizers should be worked into the soil rather than dumped or broadcast onto the surface.
- Calibrate fertilizer and pesticide application equipment to avoid excessive application.
- Periodically test soils for determining proper fertilizer use.
- Sweep pavement and sidewalk if fertilizer is spilled on these surfaces before applying irrigation water.
- Purchase only the amount of pesticide that you can reasonably use in a given time period (month or year depending on the product).
- Triple rinse containers, and use rinse water as product. Dispose of unused pesticide as hazardous waste.
- Dispose of empty pesticide containers according to the instructions on the container label.

Inspection

- Inspect irrigation system periodically to ensure that the right amount of water is being applied and that excessive runoff is not occurring. Minimize excess watering, and repair leaks in the irrigation system as soon as they are observed.
- Inspect pesticide/fertilizer equipment and transportation vehicles daily.

Training

- Educate and train employees on use of pesticides and in pesticide application techniques to prevent pollution. Pesticide application must be under the supervision of a California qualified pesticide applicator.
- Train/encourage municipal maintenance crews to use IPM techniques for managing public green areas.
- Annually train employees within departments responsible for pesticide application on the appropriate portions of the agency's IPM Policy, SOPs, and BMPs, and the latest IPM techniques.

- Employees who are not authorized and trained to apply pesticides should be periodically (at least annually) informed that they cannot use over-the-counter pesticides in or around the workplace.
- Use a training log or similar method to document training.

Spill Response and Prevention

- Refer to SC-11, Spill Prevention, Control & Cleanup
- Have spill cleanup materials readily available and in a known location
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- The Federal Pesticide, Fungicide, and Rodenticide Act and California Title 3, Division 6, Pesticides and Pest Control Operations place strict controls over pesticide application and handling and specify training, annual refresher, and testing requirements. The regulations generally cover: a list of approved pesticides and selected uses, updated regularly; general application information; equipment use and maintenance procedures; and record keeping. The California Department of Pesticide Regulations and the County Agricultural Commission coordinate and maintain the licensing and certification programs. All public agency employees who apply pesticides and herbicides in “agricultural use” areas such as parks, golf courses, rights-of-way and recreation areas should be properly certified in accordance with state regulations. Contracts for landscape maintenance should include similar requirements.
- All employees who handle pesticides should be familiar with the most recent material safety data sheet (MSDS) files.
- Municipalities do not have the authority to regulate the use of pesticides by school districts, however the California Healthy Schools Act of 2000 (AB 2260) has imposed requirements on California school districts regarding pesticide use in schools. Posting of notification prior to the application of pesticides is now required, and IPM is stated as the preferred approach to pest management in schools.

Requirements

Costs

Additional training of municipal employees will be required to address IPM techniques and BMPs. IPM methods will likely increase labor cost for pest control which may be offset by lower chemical costs.

Maintenance

Not applicable

Supplemental Information***Further Detail of the BMP******Waste Management***

Composting is one of the better disposal alternatives if locally available. Most municipalities either have or are planning yard waste composting facilities as a means of reducing the amount of waste going to the landfill. Lawn clippings from municipal maintenance programs as well as private sources would probably be compatible with most composting facilities

Contractors and Other Pesticide Users

Municipal agencies should develop and implement a process to ensure that any contractor employed to conduct pest control and pesticide application on municipal property engages in pest control methods consistent with the IPM Policy adopted by the agency. Specifically, municipalities should require contractors to follow the agency's IPM policy, SOPs, and BMPs; provide evidence to the agency of having received training on current IPM techniques when feasible; provide documentation of pesticide use on agency property to the agency in a timely manner.

References and Resources

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Photo Credit: Geoff Brosseau

Objectives

- Contain
- Educate
- Reduce/Minimize

Description

As a consequence of its function, the stormwater conveyance system collects and transports urban runoff that may contain certain pollutants. Maintaining catch basins, stormwater inlets, and other stormwater conveyance structures on a regular basis will remove pollutants, prevent clogging of the downstream conveyance system, restore catch basins' sediment trapping capacity, and ensure the system functions properly hydraulically to avoid flooding.

Approach

Suggested Protocols

Catch Basins/Inlet Structures

- Municipal staff should regularly inspect facilities to ensure the following:
 - Immediate repair of any deterioration threatening structural integrity.
 - Cleaning before the sump is 40% full. Catch basins should be cleaned as frequently as needed to meet this standard.
 - Stenciling of catch basins and inlets (see SC-75 Waste Handling and Disposal).
- Clean catch basins, storm drain inlets, and other conveyance structures in high pollutant load areas just before the wet season to remove sediments and debris accumulated during the summer.

Targeted Constituents

Sediment	<input checked="" type="checkbox"/>
Nutrients	<input checked="" type="checkbox"/>
Trash	<input checked="" type="checkbox"/>
Metals	<input checked="" type="checkbox"/>
Bacteria	<input checked="" type="checkbox"/>
Oil and Grease	<input checked="" type="checkbox"/>
Organics	<input checked="" type="checkbox"/>
Oxygen Demanding	<input checked="" type="checkbox"/>



SC-74 Drainage System Maintenance

- Conduct inspections more frequently during the wet season for problem areas where sediment or trash accumulates more often. Clean and repair as needed.
- Keep accurate logs of the number of catch basins cleaned.
- Record the amount of waste collected.
- Store wastes collected from cleaning activities of the drainage system in appropriate containers or temporary storage sites in a manner that prevents discharge to the storm drain.
- Dewater the wastes with outflow into the sanitary sewer if permitted. Water should be treated with an appropriate filtering device prior to discharge to the sanitary sewer. If discharge to the sanitary sewer is not allowed, water should be pumped or vacuumed to a tank and properly disposed of. Do not dewater near a storm drain or stream.
- Except for small communities with relatively few catch basins that may be cleaned manually, most municipalities will require mechanical cleaners such as eductors, vacuums, or bucket loaders.

Storm Drain Conveyance System

- Locate reaches of storm drain with deposit problems and develop a flushing schedule that keeps the pipe clear of excessive buildup.
- Collect flushed effluent and pump to the sanitary sewer for treatment.

Pump Stations

- Clean all storm drain pump stations prior to the wet season to remove silt and trash.
- Do not allow discharge from cleaning a storm drain pump station or other facility to reach the storm drain system.
- Conduct quarterly routine maintenance at each pump station.
- Inspect, clean, and repair as necessary all outlet structures prior to the wet season.
- Sample collected sediments to determine if landfill disposal is possible, or illegal discharges in the watershed are occurring.

Open Channel

- Consider modification of storm channel characteristics to improve channel hydraulics, to increase pollutant removals, and to enhance channel/creek aesthetic and habitat value.
- Conduct channel modification/improvement in accordance with existing laws. Any person, government agency, or public utility proposing an activity that will change the natural (emphasis added) state of any river, stream, or lake in California, must enter into a stream or Lake Alteration Agreement with the Department of Fish and Game. The developer-applicant should also contact local governments (city, county, special districts), other state agencies

(SWRCB, RWQCB, Department of Forestry, Department of Water Resources), and Federal Corps of Engineers and USFWS

Illicit Connections and Discharges

- During routine maintenance of conveyance system and drainage structures field staff should look for evidence of illegal discharges or illicit connections:
 - Is there evidence of spills such as paints, discoloring, etc.
 - Are there any odors associated with the drainage system
 - Record locations of apparent illegal discharges/illicit connections
 - Track flows back to potential dischargers and conduct aboveground inspections. This can be done through visual inspection of up gradient manholes or alternate techniques including zinc chloride smoke testing, fluorometric dye testing, physical inspection testing, or television camera inspection.
 - Once the origin of flow is established, require illicit discharger to eliminate the discharge.
- Stencil storm drains, where applicable, to prevent illegal disposal of pollutants. Storm drain inlets should have messages such as “Dump No Waste Drains to Stream” stenciled next to them to warn against ignorant or intentional dumping of pollutants into the storm drainage system.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

Illegal Dumping

- Regularly inspect and clean up hot spots and other storm drainage areas where illegal dumping and disposal occurs.
- Establish a system for tracking incidents. The system should be designed to identify the following:
 - Illegal dumping hot spots
 - Types and quantities (in some cases) of wastes
 - Patterns in time of occurrence (time of day/night, month, or year)
 - Mode of dumping (abandoned containers, “midnight dumping” from moving vehicles, direct dumping of materials, accidents/spills)
 - Responsible parties
- Post “No Dumping” signs in problem areas with a phone number for reporting dumping and disposal. Signs should also indicate fines and penalties for illegal dumping.
- Refer to fact sheet SC-10 Non-Stormwater Discharges.

SC-74 Drainage System Maintenance

- The State Department of Fish and Game has a hotline for reporting violations called Cal TIP (1-800-952-5400). The phone number may be used to report any violation of a Fish and Game code (illegal dumping, poaching, etc.).
- The California Department of Toxic Substances Control's Waste Alert Hotline, 1-800-69TOXIC, can be used to report hazardous waste violations.

Training

- Train crews in proper maintenance activities, including record keeping and disposal.
- Only properly trained individuals are allowed to handle hazardous materials/wastes.
- Train municipal employees from all departments (public works, utilities, street cleaning, parks and recreation, industrial waste inspection, hazardous waste inspection, sewer maintenance) to recognize and report illegal dumping.
- Train municipal employees and educate businesses, contractors, and the general public in proper and consistent methods for disposal.
- Train municipal staff regarding non-stormwater discharges (See SC-10 Non-Stormwater Discharges).

Spill Response and Prevention

- Refer to SC-11, Prevention, Control & Cleanup
- Have spill cleanup materials readily available and in a known location.
- Cleanup spills immediately and use dry methods if possible.
- Properly dispose of spill cleanup material.

Other Considerations

- Cleanup activities may create a slight disturbance for local aquatic species. Access to items and material on private property may be limited. Trade-offs may exist between channel hydraulics and water quality/riparian habitat. If storm channels or basins are recognized as wetlands, many activities, including maintenance, may be subject to regulation and permitting.
- Storm drain flushing is most effective in small diameter pipes (36-inch diameter pipe or less, depending on water supply and sediment collection capacity). Other considerations associated with storm drain flushing may include the availability of a water source, finding a downstream area to collect sediments, liquid/sediment disposal, and disposal of flushed effluent to sanitary sewer may be prohibited in some areas.
- Regulations may include adoption of substantial penalties for illegal dumping and disposal.
- Municipal codes should include sections prohibiting the discharge of soil, debris, refuse, hazardous wastes, and other pollutants into the storm drain system.
- Private property access rights may be needed to track illegal discharges up gradient.

- Requirements of municipal ordinance authority for suspected source verification testing for illicit connections necessary for guaranteed rights of entry.

Requirements

Costs

- An aggressive catch basin cleaning program could require a significant capital and O&M budget. A careful study of cleaning effectiveness should be undertaken before increased cleaning is implemented. Catch basin cleaning costs are less expensive if vacuum street sweepers are available; cleaning catch basins manually can cost approximately twice as much as cleaning the basins with a vacuum attached to a sweeper.
- Methods used for illicit connection detection (smoke testing, dye testing, visual inspection, and flow monitoring) can be costly and time-consuming. Site-specific factors, such as the level of impervious area, the density and ages of buildings, and type of land use will determine the level of investigation necessary. Encouraging reporting of illicit discharges by employees can offset costs by saving expense on inspectors and directing resources more efficiently. Some programs have used funds available from “environmental fees” or special assessment districts to fund their illicit connection elimination programs.

Maintenance

- Two-person teams may be required to clean catch basins with vector trucks.
- Identifying illicit discharges requires teams of at least two people (volunteers can be used), plus administrative personnel, depending on the complexity of the storm sewer system.
- Arrangements must be made for proper disposal of collected wastes.
- Requires technical staff to detect and investigate illegal dumping violations, and to coordinate public education.

Supplemental Information

Further Detail of the BMP

Storm Drain flushing

Sanitary sewer flushing is a common maintenance activity used to improve pipe hydraulics and to remove pollutants in sanitary sewer systems. The same principles that make sanitary sewer flushing effective can be used to flush storm drains. Flushing may be designed to hydraulically convey accumulated material to strategic locations, such as to an open channel, to another point where flushing will be initiated, or over to the sanitary sewer and on to the treatment facilities, thus preventing re-suspension and overflow of a portion of the solids during storm events. Flushing prevents “plug flow” discharges of concentrated pollutant loadings and sediments. The deposits can hinder the designed conveyance capacity of the storm drain system and potentially cause backwater conditions in severe cases of clogging.

Storm drain flushing usually takes place along segments of pipe with grades that are too flat to maintain adequate velocity to keep particles in suspension. An upstream manhole is selected to place an inflatable device that temporarily plugs the pipe. Further upstream, water is pumped into the line to create a flushing wave. When the upstream reach of pipe is sufficiently full to

cause a flushing wave, the inflated device is rapidly deflated with the assistance of a vacuum pump, releasing the backed up water and resulting in the cleaning of the storm drain segment.

To further reduce the impacts of stormwater pollution, a second inflatable device, placed well downstream, may be used to re-collect the water after the force of the flushing wave has dissipated. A pump may then be used to transfer the water and accumulated material to the sanitary sewer for treatment. In some cases, an interceptor structure may be more practical or required to re-collect the flushed waters.

It has been found that cleansing efficiency of periodic flush waves is dependent upon flush volume, flush discharge rate, sewer slope, sewer length, sewer flow rate, sewer diameter, and population density. As a rule of thumb, the length of line to be flushed should not exceed 700 feet. At this maximum recommended length, the percent removal efficiency ranges between 65-75 percent for organics and 55-65 percent for dry weather grit/inorganic material. The percent removal efficiency drops rapidly beyond that. Water is commonly supplied by a water truck, but fire hydrants can also supply water. To make the best use of water, it is recommended that reclaimed water be used or that fire hydrant line flushing coincide with storm drain flushing.

Flow Management

Flow management has been one of the principal motivations for designing urban stream corridors in the past. Such needs may or may not be compatible with the stormwater quality goals in the stream corridor.

Downstream flood peaks can be suppressed by reducing through flow velocity. This can be accomplished by reducing gradient with grade control structures or increasing roughness with boulders, dense vegetation, or complex banks forms. Reducing velocity correspondingly increases flood height, so all such measures have a natural association with floodplain open space. Flood elevations laterally adjacent to the stream can be lowered by increasing through flow velocity.

However, increasing velocity increases flooding downstream and inherently conflicts with channel stability and human safety. Where topography permits, another way to lower flood elevation is to lower the level of the floodway with drop structures into a large but subtly excavated bowl where flood flows we allowed to spread out.

Stream Corridor Planning

Urban streams receive and convey stormwater flows from developed or developing watersheds. Planning of stream corridors thus interacts with urban stormwater management programs. If local programs are intended to control or protect downstream environments by managing flows delivered to the channels, then it is logical that such programs should be supplemented by management of the materials, forms, and uses of the downstream riparian corridor. Any proposal for steam alteration or management should be investigated for its potential flow and stability effects on upstream, downstream, and laterally adjacent areas. The timing and rate of flow from various tributaries can combine in complex ways to alter flood hazards. Each section of channel is unique, influenced by its own distribution of roughness elements, management activities, and stream responses.

Flexibility to adapt to stream features and behaviors as they evolve must be included in stream reclamation planning. The amenity and ecology of streams may be enhanced through the landscape design options of 1) corridor reservation, 2) bank treatment, 3) geomorphic restoration, and 4) grade control.

Corridor reservation - Reserving stream corridors and valleys to accommodate natural stream meandering, aggradation, degradation, and over bank flows allows streams to find their own form and generate less ongoing erosion. In California, open stream corridors in recent urban developments have produced recreational open space, irrigation of streamside plantings, and the aesthetic amenity of flowing water.

Bank treatment - The use of armoring, vegetative cover, and flow deflection may be used to influence a channel's form, stability, and biotic habitat. To prevent bank erosion, armoring can be done with rigid construction materials, such as concrete, masonry, wood planks and logs, riprap, and gabions. Concrete linings have been criticized because of their lack of provision of biotic habitat. In contrast, riprap and gabions make relatively porous and flexible linings. Boulders, placed in the bed reduce velocity and erosive power.

Riparian vegetation can stabilize the banks of streams that are at or near a condition of equilibrium. Binding networks of roots increase bank shear strength. During flood flows, resilient vegetation is forced into erosion-inhibiting mats. The roughness of vegetation leads to lower velocity, further reducing erosive effects. Structural flow deflection can protect banks from erosion or alter fish habitat. By concentrating flow, a deflector causes a pool to be scoured in the bed.

Geomorphic restoration – Restoration refers to alteration of disturbed streams so their form and behavior emulate those of undisturbed streams. Natural meanders are retained, with grading to gentle slopes on the inside of curves to allow point bars and riffle-pool sequences to develop. Trees are retained to provide scenic quality, biotic productivity, and roots for bank stabilization, supplemented by plantings where necessary.

A restorative approach can be successful where the stream is already approaching equilibrium. However, if upstream urbanization continues new flow regimes will be generated that could disrupt the equilibrium of the treated system.

Grade Control - A grade control structure is a level shelf of a permanent material, such as stone, masonry, or concrete, over which stream water flows. A grade control structure is called a sill, weir, or drop structure, depending on the relation of its invert elevation to upstream and downstream channels.

A sill is installed at the preexisting channel bed elevation to prevent upstream migration of nick points. It establishes a firm base level below which the upstream channel can not erode.

A weir or check dam is installed with invert above the preexisting bed elevation. A weir raises the local base level of the stream and causes aggradation upstream. The gradient, velocity, and erosive potential of the stream channel are reduced. A drop structure lowers the downstream invert below its preexisting elevation, reducing downstream gradient and velocity. Weirs and drop structure control erosion by dissipating energy and reducing slope velocity.

When carefully applied, grade control structures can be highly versatile in establishing human and environmental benefits in stabilized channels. To be successful, application of grade control structures should be guided by analysis of the stream system both upstream and downstream from the area to be reclaimed.

Examples

The California Department of Water Resources began the Urban Stream Restoration Program in 1985. The program provides grant funds to municipalities and community groups to implement stream restoration projects. The projects reduce damages from streambank and watershed instability and floods while restoring streams' aesthetic, recreational, and fish and wildlife values.

In Buena Vista Park, upper floodway slopes are gentle and grassed to achieve continuity of usable park land across the channel of small boulders at the base of the slopes.

The San Diego River is a large, vegetative lined channel, which was planted in a variety of species to support riparian wildlife while stabilizing the steep banks of the floodway.

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APPENDIX 10

HYDROMODIFICATION

Not included as apart of the Preliminary LID report. Will be included, as applicable, in the Final LID Report