Ventura Countywide Stormwater Quality Management Program

2018-2019 Permit Year

Ventura Countywide Stormwater Quality Management Program Annual Report

Attachment E – TMDL Reports (2/3)

December 13, 2019

Camarillo
County of Ventura
Fillmore
Moorpark
Ojai
Oxnard
Port Hueneme
Santa Paula
Simi Valley
Thousand Oaks
Ventura
Ventura County Watershed Protection District

CALLEGUAS CREEK

A COOPERATIVE STRATEGY FOR
RESOURCE MANAGEMENT & PROTECTION

January 28, 2019

Jenny Newman
Los Angeles Regional Water Quality Control Board
320 W. 4th St., Suite 200
Los Angeles, CA 90013

Subject: Revolon Slough and Beardsley Wash Trash TMDL 2017-2018 Annual Monitoring Report

Dear Ms. Newman,

Enclosed for your review and consideration is the Revolon Slough and Beardsley Wash (RSBW) Trash Total Maximum Daily Load (TMDL) Annual Monitoring Report (AMR) for 2017-2018. The AMR is being submitted per the requirements of the Revolon Slough and Beardsley Wash Trash TMDL, Los Angeles Regional Water Quality Control Board (Regional Board) Resolution No. R4-2007-007 on behalf of the following responsible parties: City of Camarillo, City of Oxnard, County of Ventura, Ventura County Watershed Protection District, California Department of Transportation (Caltrans), and participants in the Ventura County Agricultural Irrigated Lands Group (VCAILG), which is a subdivision of the Farm Bureau of Ventura County.

The AMR provides a summary of the monitoring conducted, a summary of the monitoring results, and proposed revisions to the minimum frequency of collection and assessment/best management practice program (MFAC/BMP Program). The 2017-2018 monitoring year was the second full year where visual monitoring was conducted. The visual-based assessment program was detailed in the Regional Board-approved Addendum No. 1 to the Trash Monitoring and Reporting Program (TMRP).

If you have any comments or questions regarding the attached document, please contact Ewelina Mutkowska via email (Ewelina.Mutkowska@ventura.org) or by phone at (805) 645-1382.

Sincerely,

Lucia McGovern, Chair
Stakeholders Implementing TMDLs in the Calleguas Creek Watershed

cc: Stefanie Hada, Regional Board
Jeff Pratt, Ventura County PWA Director
Glenn Shephard, Director of VCWPD
Arne Anselm, Deputy Director of VCWPD
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JANUARY 2019

Revolon Slough/Beardsley Wash Trash TMDL TMRP/MFAC 2017-2018 Annual Report

submitted to

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD,
LOS ANGELES REGION

on behalf of the

COUNTY OF VENTURA, VENTURA COUNTY WATERSHED PROTECTION DISTRICT, CITY OF CAMARILLO, CITY OF OXNARD, PARTICIPANTS IN THE VENTURA COUNTY AGRICULTURAL IRRIGATED LANDS GROUP, AND CALIFORNIA DEPARTMENT OF TRANSPORTATION

LARRY WALKER ASSOCIATES

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Introduction

This Annual Report is being submitted to fulfill the compliance requirements of the Amendments to the Water Quality Control Plan – Los Angeles Region for the Revolon Slough and Beardsley Wash Trash TMDL (Trash TMDL), Resolution No. R4-2007-007 (effective March 6, 2008). The purpose of this Annual Report is to present the results of ninth-year (2017-2018) monitoring efforts associated with the Revolon Slough/Beardsley Wash (RSBW) Trash Monitoring and Reporting Plan (TMRP) - Addendum No. 1 and associated Minimum Frequency of Assessment and Collection/Best Management Practice (MFAC/BMP) Program.

The Annual Report includes:

- Monitoring Summary;
- MFAC Events/BMP Implementation Summary; and
- Program Evaluation and Revision Recommendations.

This effort is being completed on behalf of the Responsible Parties to the Trash TMDL as listed in **Table 1**.

Table 1. Responsible Parties Participating in this TMRP and MFAC/BMP Program

Responsible Party	Non-point Source	Point Source
City of Camarillo	X	X[1]
City of Oxnard	X	X[6]
County of Ventura	X	X[2]
Ventura County Watershed Protection District (VCWPD)	X	X
Participants in the VCAILG[3, 4]	X	
California Department of Transportation (Caltrans)[5]		X[2]

1. The City of Camarillo is complying with the point source requirements through a point source-specific MFAC/BMP Program, but intends to attain point source compliance with the revised Revolon Slough/Beardsley Wash Trash TMDL through installation of certified trash full capture devices in priority land use areas.
2. These Responsible Parties are complying with the point source requirements through installation of certified trash full capture devices on all conveyances discharging to Revolon Slough and Beardsley Wash.
3. Ventura County Agricultural Irrigated Lands Group.
4. Not listed as point sources in the Trash TMDL.
5. Caltrans was not given a non-point source Load Allocation (LA) in the TMDL yet is voluntarily participating in the MFAC to meet the TMDL goals.
6. City of Oxnard intends to comply with the point source requirements of the existing TMDL through a MFAC/BMP Program as proposed in this report, but intends to attain point source compliance with the revised Revolon Slough/Beardsley Wash Trash TMDL through installation of certified trash full capture devices in priority land use areas.

To complete this effort, the Responsible Parties hired the California Conservation Corps (CCC) to conduct field monitoring efforts and Larry Walker Associates (LWA) to oversee and conduct monitoring efforts as well as complete reporting requirements. In June 2018 (4 months before the conclusion of the 2017-2018 reporting period), LWA staff trained the Ventura Land Trust (VLT) on monitoring oversight. VLT successfully completed field monitoring efforts for the remaining 4 months of the monitoring year, and will be implementing the MFAC/BMP Program hereafter, in addition to managing all reporting requirements.

The monitoring efforts during 2017-2018 were conducted according to TMRP Addendum No. 1, which was submitted to the Los Angeles Regional Water Quality Control Board (Regional Board) in June 2015. TMRP Addendum No. 1 revised the non-point source MFAC Program

from a quantitative to a visual assessment-based program. A TMRP update was necessary to improve the effectiveness of the MFAC Program to more efficiently assess trash levels in RSBW, target actions towards reducing trash quantities, and better utilize available resources. The TMRP update was also based on a comprehensive review of the monitoring data collected under the original TMRP and removed sites where trash was consistently observed at levels that were meeting the Basin Plan objective. [1]The revised MFAC Program was initiated in July 2015 and this Annual Report provides the results from October 2017 to September 2018.

The Regional Board revised the RSBW Trash TMDL in June 2018, but it is currently awaiting approval by the State Water Resources Control Board, U.S. Environmental Protection Agency, and Office of Administrative Law and is not yet effective. The RSBW Trash TMDL revision modified the compliance requirements for point sources in the TMDL to align with the Statewide Trash Amendments. The modifications altered the number and location of full capture systems that would need to be installed in the RSBW subwatershed to achieve compliance with the TMDL requirements. Although the revisions are not yet effective, the Responsible Parties have begun evaluating their compliance approaches and have made modifications to their plans for BMP implementation and compliance determination for point source requirements based on the modified TMDL requirements. The proposed approaches and BMP modifications are discussed in the BMP Implementation Summary section of this report.

[1] "Waters shall not contain floating materials, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses."

Monitoring Summary

ASSESSMENTS AND COLLECTION EVENTS

The goal of the MFAC/BMP program is to address non-point sources of trash in the RSBW subwatershed. The MFAC/BMP program includes implementing BMPs as outlined in the TMRP and conducting monitoring to assess the effectiveness of BMP implementation.

The revised MFAC/BMP Program includes the following elements:

1. **Conduct monthly assessments and trash collection events (MFAC)**

   MFAC events are conducted monthly at the monitoring sites. The collection aspect of the MFAC utilizes information from the assessments (visual surveys) to determine the locations where trash collection efforts should be focused for the event.

2. **Conduct regular cleanups (BMP for all Responsible Parties)**

   Although the TMRP outlined quarterly cleanups, the Responsible Parties have been conducting monthly cleanups to reduce the amount of trash entering RSBW.

3. **Employ additional BMPs (Agency-specific)**

Information gathered during the MFAC events are used to inform the Responsible Parties as to the level and frequency of BMP implementation, including special trash cleanups, needed to achieve a Category 1 level of trash corresponding to "optimal" or low levels of trash, as detailed in **Assessment Findings**.

Five visual assessment sites were included in TMRP Addendum No. 1, with four of the sites comprised of assessment sites from the previous MFAC Program (Sites 1, 3a, 5 and 8) and one site comprised of an assessment location in the City of Oxnard (Site 10) that was not included in the original TMRP. The assessment sites listed below are also depicted in **Figure 1Error! Reference source not found.** and detailed in **Appendix 1**.

Assessment Sites:

- Site 1: Revolon Slough and its adjacent land areas at Wood Road (the end of the concrete-lined channel) (MFAC-required);
- Site 3a: Drain outlet on the north side of Camarillo Hills Drain between Las Posas Road and Springville Drive (MFAC-required);
- Site 5: Agriculture Drain – East of Wood Road on Etting Road;
- Site 8: Caltrans Site at the 101 Freeway Bridge over Revolon Slough; and
- Site 10: 5th Street Drain in the City of Oxnard (MFAC-required).

A summary of the Special Cleanup and Visual Assessment event dates is presented in **Table 2**. **Appendix 3** contains example MFAC Event Visual Assessment Worksheets used during the 2017-2018 reporting year.

Table 2. Special Cleanup and Visual Assessment Dates for October 2017-September 2018

Site	Event Type	Month											
		Oct	Nov	Dec	Jan	Feb	Mar	Apr[1]	May	Jun	Jul	Aug	Sep
1	Special Cleanup	10/17/17	11/16/17	12/13/17	1/16/18	2/21/18	3/15/18	4/20/18	5/10/18	6/22/18	7/19/18	8/24/18	9/21/18
	Visual Assessment	10/23/17	11/29/17	12/20/17	1/23/18	2/27/18	3/23/18	4/27/18	5/23/18	6/28/18	7/24/18	8/28/18	9/28/18
3a	Special Cleanup	10/17/17	11/16/17	12/13/17	1/16/18	2/21/18	3/15/18	4/20/18	5/10/18	6/22/18	7/19/18	8/24/18	9/21/18
	Visual Assessment	10/23/17	11/29/17	12/20/17	1/23/18	2/27/18	3/23/18	4/27/18	5/23/18	6/28/18	7/24/18	8/28/18	9/28/18
5	Special Cleanup	10/17/17	11/16/17	12/13/17	1/16/18	2/21/18	3/15/18	4/20/18	5/10/18	6/22/18	7/19/18	8/24/18	9/21/18
	Visual Assessment	10/23/17	11/29/17	12/20/17	1/23/18	2/27/18	3/23/18	4/27/18	5/23/18	6/28/18	7/24/18	8/28/18	9/28/18
8	Special Cleanup	10/17/17	11/16/17	12/13/17	1/16/18	2/21/18	3/15/18	4/23/18	5/10/18	6/22/18	7/19/18	8/24/18	9/21/18
	Visual Assessment	10/23/17	11/29/17	12/20/17	1/23/18	2/27/18	3/23/18	4/27/18	5/23/18	6/28/18	7/24/18	8/28/18	9/28/18
10	Special Cleanup	10/17/17	11/16/17	12/13/17	1/16/18	2/21/18	3/15/18	4/23/18	5/10/18	6/22/18	7/19/18	8/24/18	9/21/18
	Visual Assessment	10/23/17	11/29/17	12/20/17	1/23/18	2/27/18	3/23/18	4/27/18	5/23/18	6/28/18	7/24/18	8/28/18	9/28/18

1. The April 2018 Special Cleanup Event was conducted over 2 days (4/20/18 & 4/23/18) due to crew time constraints and high levels of debris.

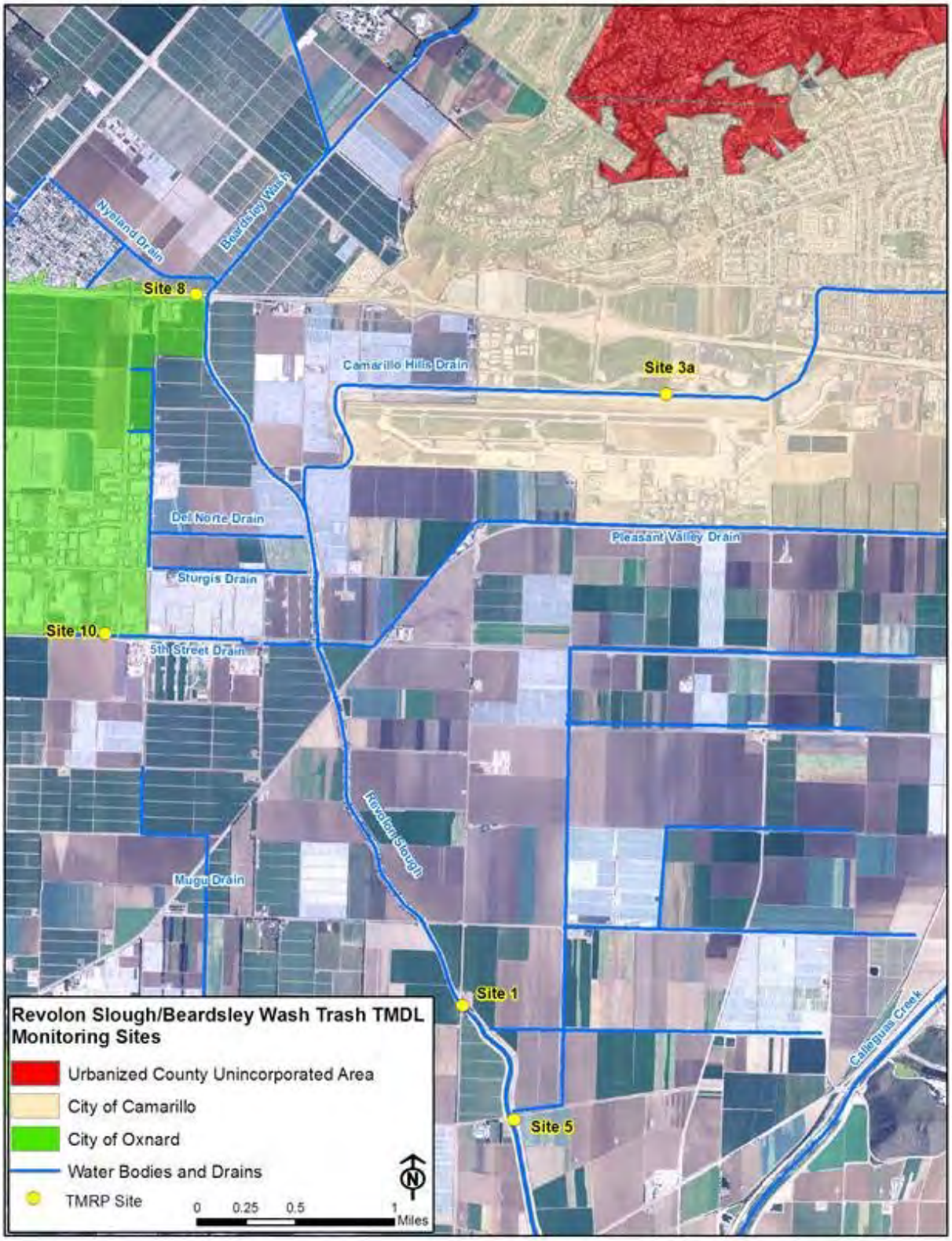


Figure 1. TMRP/MFAC Program Sites

ASSESSMENT FINDINGS

The monitoring approach is comprised of a streamlined visual survey of trash levels at select sites within RSBW and sites within conveyances that discharge to RSBW. The visual survey uses a component of the Surface Water Ambient Monitoring Program Rapid Trash Assessment Protocol (SWAMP Protocol) and visual assessment approaches being utilized by the City of Ventura, the Santa Clara Valley Urban Runoff Pollution Prevention Program in the San Francisco Bay Area, and a number of cities and municipalities throughout the country.

The visual surveys utilize a three-point system based on the "Level of Trash" scoring category discussed in the SWAMP Protocol to estimate the presence of litter in a specific area. Individuals performing the visual surveys are trained to properly conduct these assessments and ensure consistency between sites and personnel by rating the amount of litter observed based on the following categories:

- Category 1 – Represents the SWAMP Category "Optimal;"
- Category 2 – Represents the SWAMP Category "Suboptimal;" and
- Category 3 – Represents the SWAMP Category "Poor."

Category 1 is defined as a condition where:

> "On first glance, no trash visible. Little or no trash (<10 pieces) evident when streambed and stream banks are closely examined for litter and debris, for instance by looking under leaves."

Category 2 is defined as a condition where:

> "On first glance, low to medium levels of trash are evident (10 – 100 pieces). Stream, bank surfaces, and riparian zone contain some litter and debris. Possible evidence of site being used by people: scattered cans, bottles, food wrappers, blankets, clothing."

Category 3 is defined as a condition where:

> "Trash distracts the eye on first glance. Stream, bank surfaces, and immediate riparian zone contain substantial levels of litter and debris (>100 pieces). Evidence of site being used frequently by people: many cans, bottles, and food wrappers, blankets, clothing."

Ninth-year visual monitoring was the third year to exclusively include Visual Assessment Monitoring methods. The visual assessment categories for each site during the monthly MFAC events from October 2017 to September 2018 are presented in **Table 3**.

Table 3. Visual Assessment Trash Categories by Monitoring Site

Site	Visual Assessment Trash Category[1]											
	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	2	2	2	2	2	3	2	2	2	2	2	1
3a	1	1	1	1	1	1	1	1	1	1	1	1
5	2	2	2	2	1	3	2	1	1	1	1	1
8	2	1	2	1	1	1	1	1	1	1	1	1
10	1	2	1	1	2	1	1	1	1	2	1	1

1. Number indicates visual assessment trash category.

MFAC Events/BMP Implementation Summary

Results of the monitoring are used to evaluate the effectiveness of the MFAC/BMP Program and to identify any necessary modifications. The MFAC/BMP Program is continuously evaluated and modified using an adaptive management approach consistent with the procedures outlined in the TMRP - Addendum No. 1 and as summarized below:

1. Monitoring sites classified in Category 1 during the visual monitoring event are noted and any trash observed is collected during the visual monitoring event.
2. Monitoring sites classified in Category 2 are evaluated to determine if and what type of additional BMPs are needed to reduce the accumulation of trash between visual monitoring events with intent to move these sites to Category 1.
3. Monitoring sites classified in Category 3 for four (4) consecutive monthly visual monitoring events initiate more frequent additional cleanups in the areas surrounding the sites to address trash. It is anticipated that the additional cleanups will address trash thereby moving the site to Category 2 and then to Category 1.

MFAC COLLECTION EVENTS AND ADDITIONAL CLEAN UP EVENTS

During the MFAC events, any trash found during the assessments is cleaned up after the assessment is completed. This is done to ensure that zero pieces of trash are present after the assessment. **Table 4** presents the trash collected during the events carried out in the 2017-2018 reporting year.

In addition to the trash cleanups that occur in conjunction with a MFAC event, the Responsible Parties have chosen to conduct additional clean ups at monitoring sites where trash is found to be accumulating in deleterious amounts between assessments. These additional cleanups are one of the key BMPs that all Responsible Parties implement as part of the MFAC/BMP program. The Responsible Parties conducted monthly Special Cleanup Events at each monitoring site in an attempt to address high observed rates of trash accumulation. Site 1 boundaries for the Special Cleanup Events were expanded in September 2016 due to the site not consistently assessed as Category 1 during the assessments. All other site boundaries for the Monthly Monitoring Events remained the same during the entire monitoring year because the assessment results for most sites are regularly assessed as Category 1 and therefore did not trigger the need to implement additional BMPs.

Table 5 lists the date of the Special Cleanup Events and provides the amount of trash/debris removed. From October 2017 through September 2018, the total annual amount of trash removed was approximately 4,040.51 pounds, in 576 33-gallon bags. Example photos taken during the Special Cleanup Events are presented in **Appendix 4**.

Table 4. Summary of Trash Collected during the MFAC Collection Events (in lbs.)

Date	Site 1	Site 3a	Site 5	Site 8	Site 10
10/23/17	2.75	0.39	2.55	1.10	1.54
11/29/17	9.76	0.22	6.51	0.74	1.15
12/20/17	8.46	0.26	7.74	2.16	0.55
1/23/18	20.14	1.18	3.00	0.94	2.52
2/27/18	15.38	1.89	3.87	0.99	10.62
3/23/18	76.39	5.25	116.84	1.43	17.71
4/27/18	35.96	1.99	9.73	0.33	0.80
5/23/18	29.98	0.98	3.82	1.21	2.24
6/28/18	19.93	0.17	1.40	1.27	1.73
7/24/18	11.44	0.23	0.53	0.64	4.38
8/28/18	3.78	2.69	2.00	0.31	0.56
9/28/18	43.19	0.63	5.63	0.22	0.59
Total	**277.16**	**15.88**	**163.62**	**11.34**	**44.39**
Grand Total	**512.39**				

Table 5. Summary of Trash Collected during Special Clean Up Events (in lbs.)

Date	Site 1	Site 3a	Site 5	Site 8	Site 10
10/17/17	22.29	60.62	0.74	4.65	3.94
11/16/17	9.37	60.51	3.05	2.18	1.26
12/13/17	50.48	41.70	1.86	1.01	3.96
1/16/18	38.00	511.68	29.96	1.01	3.34
2/21/18	72.66	275.88	17.07	2.16	2.50
3/15/18	45.46	484.68	16.03	1.25	1.62
4/20/18 – 4/23/18[1]	277.78	632.12	16.54	1.19	56.23
5/10/18	165.08	243.07	8.43	1.30	2.40
6/22/18	91.99	45.91	2.54	0.74	1.23
7/19/18	25.28	25.9	2.72	0.68	16.26
8/24/18	5.23	29.81	4.20	2.77	2.02
9/21/18	70.36	23.19	0.42	0.66	1.15
Total	**873.98**	**2,435.07**	**103.56**	**19.60**	**95.91**
Grand Total	**3,528.12**				

1. The April 2018 Special Cleanup Event was conducted over 2 days (4/20/18 & 4/23/18) due to crew time constraints and high levels of debris.

BMP IMPLEMENTATION

TMRP - Addendum No. 1 lists a suite of BMPs that each responsible party is implementing in their respective jurisdiction. This suite of BMPs represents the baseline MFAC/BMP program being used to comply with the non-point source requirements of the TMDL. Each year, the Responsible Parties review this baseline list of BMPs and the assessment findings to determine if modifications or additional BMPs are needed to achieve a Category 1 level of trash corresponding to "optimal" or low levels of trash, at the assessment sites.

As noted above, one of the primary modifications to the baseline MFAC/BMP Program outlined in TMRP – Addendum No. 1 was the increase in special trash cleanups from quarterly to monthly. This modification was made in response to the assessment results and has resulted in all but one site regularly being assessed as Category 1. As a result, this higher frequency of special trash cleanups will be maintained for the next year. In addition, as noted above, for Site 1, additional area has been added for the special cleanups to help move that site from Category 2 to Category 1. Per the TMRP – Addendum No. 1 approach, some new BMPs have been implemented this year and additional BMPs are being evaluated for areas in the vicinity of Site 1 with the goal of moving that site to Category 1. These BMPs are discussed for each Responsible Party in the following sections along with the status of implementation of the BMPs in the baseline program and the point source compliance actions for Responsible Parties with point source requirements in the TMDL.

County of Ventura and VCWPD BMPs

The County of Ventura and VCWPD are listed as both point and non-point sources in the TMDL. This section provides an overview of the BMPs implemented to address both sets of requirements.

County of Ventura and VCWPD Non-Point Source BMPs

The County and VCWPD continue to implement the baseline BMPs outlined in the TMRP Addendum No. 1 and has updated BMPs in response to the assessment results. The ongoing efforts to manage trash within the RSBW subwatershed include:

1. Catch basin cleaning - Catch basins are inspected at least once a year and cleaned when filled to 25 percent or more of the catch basin's capacity. During storm season, all drainage facilities are inspected and cleaned as necessary.
2. Open channel storm drain maintenance - All VCWPD-owned and maintained channels are cleared, inspected, and cleaned as required at least once per year. During the annual 2017-2018 channel sediment cleaning of RSBW, approximately three tons of trash were removed.
3. Trash Management at Public Events - A proper Management of Trash and Litter Plan is required when obtaining a permit for staging public events. This Plan requires adequate facilities for trash collection and disposal.
4. Public areas - Trash receptacles have been placed within high trash generation areas. These devices are cleaned and maintained regularly to prevent trash overflow.
5. The Stormwater Quality Management Ordinance for Unincorporated Areas (Ventura County Ordinance No. 4450) includes litter and trash specific prohibitions for the

discharge or deposition of trash that may enter the County storm drain system or receiving waters (Section 6942). The ordinance also includes civil penalties for violations and provisions for issuing administrative fines, recovery of costs and misdemeanor violations.

6. County catch basins are labeled, "Don't Pollute, Flows to Waterways".
7. Watershed awareness signs have been installed at key locations at major roadway crossings of RSBW, stating "Calleguas Creek Watershed, Keep It Clean!"
8. On July 31, 2012 the County of Ventura Board of Supervisors received and filed a draft model Single-Use Bag Ordinance referred to the County by the Beach Erosion Authority for Clean Oceans and Nourishment (BEACON). The County endorsed the use of up to $8,000 as the County's pro-rata share of a regional Environmental Impact Report (EIR) to be prepared by BEACON, which is required to be completed under the California Environmental Quality Act (CEQA) before the model single-use bag ban can be adopted. This was the first step for the County to move forward with the consideration of adoption of a single-use plastic bag ban.
9. On June 24, 2014 the County of Ventura Board of Supervisors approved a motion directing the County of Ventura Executive Officer to have staff prepare a Single-Use Bag Ordinance modeled on the BEACON Ordinance.
10. The County and VCWPD continue to participate in the Countywide Stormwater Program to provide outreach and education retaining the services of Sagent, a professional advertisement group that designs and conducts Countywide, bilingual outreach programs advocating proper trash disposal. The most recent addition to the outreach program is trash prevention and protection of stormwater quality education using Facebook®.
11. The County conducts commercial, industrial, and construction facility/site inspections to ensure proper pollutant prevention BMPs are being applied and to educate the employees on the importance of pollution prevention. The County inspects over 360 businesses at least twice during the Ventura County MS4 Permit Term.

The following are enhancements/revisions made to the non-point source BMPs listed in the TMRP for the County and VCWPD to address assessment results:

1. Eleven (11) bilingual "No Dumping Allowed" signs have been installed at six locations at access points along Revolon Slough and Beardsley Wash, where illegal dumping has been observed.
2. The County requires private owners to provide proof of maintenance of their post construction treatment devices annually.
3. On September 15, 2018, County staff captained a Coastal Cleanup Day site in Beardsley Wash. The site was first added to Coastal Cleanup Day in 2016. In 2018, 12 volunteers cleaned two sections of Beardsley Wash and removed 464 pounds of trash that included food and tobacco product wrappers, cigarette butts, as well as glass and plastic bottles. Example photos from this year's Coastal Cleanup Day are provided in **Appendix 6**.

County of Ventura and VCWPD Point Source BMPs

The County/VCWPD have a very limited storm drain system within the area subject to the Trash TMDL. In 2014, eight StormTek® connector pipe screen full capture devices were installed. Final inspection of the eight full capture devices was completed in October 2014, a key step in moving toward 100 percent Trash TMDL compliance. However, additional storm drain system analysis indicated the installed devices were insufficient to meet point source compliance requirements. In May 2015, the County issued a contract for a site suitability analysis for installation of additional full capture devices within the RSBW subwatershed. The results of this study showed that 48 additional full capture devices were required to meet the 100 percent full capture requirement. The County installed the remaining 48 full capture devices and is meeting the 100 percent point source compliance requirement for both the County and VCWPD. During the 2017-2018 monitoring year, the County continued maintenance of all installed full capture devices and removed 49.84 cubic feet of trash. For full capture device installation details, refer to "County of Ventura Full Capture Connector Pipe Screen Trash Excluder Certification Report" provided in the 2015-2016 Annual Report.

Future Potential Best Management Practices

The County/VCWPD will continue to install and implement the structural and non-structural BMPs described above and the monthly special trash cleanups to address non-point source trash from their jurisdictions as part of the MFAC/BMP Program. Additionally, the County will conduct targeted outreach to schools within the area covered by the Trash TMDL to educate the students, staff, and faculty on the importance of pollution prevention with a focus on trash to support reducing trash at Site 1. The County will continue to maintain the installed full capture devices to ensure their proper functioning.

City of Camarillo BMPs

The City of Camarillo is listed as both a point and non-point source in the TMDL. This section provides an overview of the BMPs implemented to address both sets of requirements.

City of Camarillo Non-Point Source BMPs

TMRP Addendum No. 1 BMP list for the City of Camarillo (Camarillo):

1. Catch basin cleaning - All Camarillo catch basins outside of the RSBW subwatershed are inspected at least once per year and those in high-trash generating areas are inspected four times per year. All are cleaned when filled with trash to 25 percent or more of the catch basin's capacity. As identified in the Camarillo's March 2016 letter to Regional Board staff, starting in July 2016, inspection frequencies for all catch basins in the RSBW subwatershed were changed to quarterly. The metric used to determine when a catch basin needs to be cleaned was also changed to 25 percent or more of trash capacity, the same metric used for the nonpoint source program. A total of 835 pounds of trash was removed in cleanouts from October 2017 through September 2018. Example photos from a Camarillo full capture device inspection and cleaning event are presented in **Appendix 5**.
2. Open channel maintenance - All Camarillo-maintained channels are inspected and cleaned at least once before the wet season and at least once after the wet season.

3. Trash Management at Public Events - All special use permits for events in the public right of way require proper management of trash and litter.
4. Trash removal was also performed along Camarillo fence lines near city stormwater system structures in the RSBW subwatershed. Approximately 420 pounds of trash was collected during the fence line trash removals this year.
5. Camarillo's arterial streets are swept weekly and residential streets are swept monthly in an attempt to reduce trash accumulation in deleterious amounts on streets within the city. An estimated 710,000 pounds of debris was removed by the street sweepers from streets in the RSBW subwatershed this year.
6. Camarillo requires conditions pertaining to trash to be met for all new development and redevelopment projects within the subwatershed, including:
    A. Full capture trash devices and post-construction treatment devices for other pollutants of concern must be installed in drain inlets;
    B. Trash enclosures and/or recycling areas must be properly implemented (e.g., covered and including structures to direct stormwater away from entering the enclosures/areas);
    C. All property areas must be maintained free of litter/debris;
    D. Onsite storm drains must be cleaned at least twice per year, including once before the beginning of the wet season; and
    E. Private roads and parking lots must be swept at a minimum of once per month, with two sweepings occurring in October before the beginning of the wet season.
7. Camarillo requires private owners to provide proof of maintenance of their post construction treatment devices annually.
8. Camarillo hosts household hazardous waste collection events two days per month to provide residents a place to properly dispose of their materials. This reduces the amount of illegal dumping and diverts household hazardous waste from landfills. Camarillo successfully diverted 204,106 pounds of household hazardous waste in 2017-2018 which equals a 99.9 percent diversion rate of items collected during the events.
9. Camarillo adopted Stormwater Ordinance No. 1032 in December 2012 which includes trash specific prohibitions and fines and penalties for violations of the prohibitions.
10. Camarillo engages in several outreach and education campaigns including:
    A. Disseminating a litter prevention message, at least annually, in its quarterly Cityscene Newsletter, which is distributed to all residents.
    B. Including an insert with all utility bills soliciting volunteers to remove trash in the city on Coastal Cleanup Day and which also educates residents on pollution prevention.

C. Conducting commercial and industrial facility inspections to ensure proper pollutant prevention BMPs are being applied and educating employees on the importance of pollution prevention. Camarillo inspected 69 facilities during 2017-2018.

D. Sending out letters to all commercial, industrial, and high-density residential property managers requesting assistance in controlling trash on their property.

E. Inspecting all construction sites to ensure application of proper pollution prevention BMPs. Camarillo inspected 193 sites in 2017-2018 and also inspected 15 construction sites prior to certificate of occupancy to verify that site design and that source control and treatment control BMPs were installed and maintained properly.

F. Mailing construction site BMP brochures to contractors and developers annually, during the fall, to ensure proper pollutant prevention BMPs are being applied especially before the wet season.

G. Participating in the Countywide Stormwater Public Outreach Program that includes litter outreach, which can be reviewed at www.cleanwatershed.org. In 2017-2018, over 6 million impressions were made via this program with 12 percent of those in Spanish.

The following are enhancements/revisions made to the non-point source BMPs listed in the TMRP for Camarillo to address assessment results:

1. Camarillo performs annual debris and trash removal from city-maintained ditches/channels and detention basins. Approximately 1,080 pounds of materials was removed from these structures within the RSBW subwatershed.
2. Camarillo adopted additional measures to its Water Conservation Ordinance limiting lawn watering to four days per week, no washing of hard surfaces (i.e., driveways, sidewalks), and imposing penalties for runoff. Furthermore, the Camarillo reduced its water usage by 27.9 percent for the six-month period ending July 2018 compared to usage in 2013. These measures will reduce dry weather flows to the storm drain system thereby reducing trash transport.

City of Camarillo Point Source BMPs

As discussed in last year's annual report, Camarillo is currently employing a point source MFAC/BMP Program to meet the point source compliance requirements of the Trash TMDL. However, once the Revised Trash TMDL becomes effective, Camarillo intends to comply by installing certified full capture devices in the drainages from priority land uses in the RSBW subwatershed.

To make progress towards the point source compliance with the Revised Trash TMDL using full capture devices, Camarillo installed an additional 124 trash full capture devices in city storm drains within the RSBW subwatershed priority land use areas in September 2018. This is in addition to the 39 devices that were previously installed in the RSBW subwatershed. Camarillo has installed and is maintaining 201 trash full capture devices across their jurisdictional area.

The section below provides information on Camarillo's point source MFAC/BMP Program.

Point Source MFAC/BMP Program

In May 2015, Camarillo submitted a letter to the Regional Board staff detailing a proposed point source compliance option and requesting Regional Board approval. In July 2015 Camarillo staff met with Regional Board staff to discuss the May 2015 letter. In October 2015, per a Regional Board staff request, Camarillo submitted additional data related to the point source compliance option. On December 14, 2015, Camarillo received a response letter from the Regional Board stating it was unable to approve Camarillo's requested point source strategy. On March 3, 2016, Camarillo submitted another letter to the Regional Board in response to the December 14, 2015 letter detailing a revised, proposed point source compliance strategy (listed below). As of the submittal date of this Annual Report, Camarillo has not received approval of the proposed point source compliance option.

As mentioned in the Introduction of this Annual Report, the Regional Board revised the RSBW Trash TMDL on June 14, 2017, modifying compliance to align with the Statewide Trash Amendments, which is currently awaiting approval by the State Water Resources Control Board and Office of Administrative Law. Until the revised Trash TMDL is approved and becomes effective, Camarillo will continue to address all land uses (non-priority and priority) within the RSBW subwatershed by conducting the point source MFAC/BMP Program. The MFAC/BMP Program consists of implementing the suite of BMPs currently employed by Camarillo, as detailed in TMRP - Addendum No. 1 and Annual Monitoring Reports, as well as inspecting and monitoring catch basins for trash and/or anthropogenic landscaping litter. Camarillo is implementing the following inspection and collection schedule for non-priority land use area catch basins to serve as the assessment collection aspect of the MFAC/BMP Program:

- Conducting quarterly visual inspections for all non-priority land use catch basins.
- Inspection frequencies may be modified for particular catch basins based on the amount of trash and/or anthropogenic landscape litter (dumped grass clippings) present during initial quarterly inspections. A minimum inspection frequency interval will be selected that prevents trash and/or leaf litter from accumulating in deleterious amounts between collections.
- Collection events are occurring concurrently with the assessments and Camarillo ensures zero trash and/or leaf litter will remain after the collection event.

Based on this inspection and cleaning schedule, catch basins cleaned one or fewer times (i.e., no trash/anthropogenic landscaping litter found during inspections) over a rolling three-year period are considered equivalent to catch basins with full capture devices installed. This determination is based on trash and/or anthropogenic landscaping litter not accumulating in the catch basins and therefore not being discharged to RSBW. This also indicates the BMPs implemented by Camarillo are addressing trash equivalent to full capture devices. If any catch basin does not maintain its one or fewer cleaning frequency status during the current rolling three-year period, the catch basin and/or area surrounding the catch basin will be addressed via trash-control BMPs to return the catch basin to the one or fewer cleaning frequency category. Once the revised RSBW Trash TMDL becomes effective and full capture systems are installed in all of the priority land use areas, the MFAC/BMP Program outlined in this section for point source compliance will cease and the inspection and cleaning protocols for catch basins will revert to the requirements of the Ventura County MS4 Permit.

During quarterly inspections for the 2017-2018 monitoring year, 128 catch basins had to be cleaned more than once, which equates to approximately 20 percent of the total 612 catch basins within the RSBW subwatershed not addressed by full capture systems. The remaining 484 catch basins were cleaned one or fewer times due to non-trash accumulation. Of the 128 catch basins cleaned more than once, 2 were a Category 3 level (100+ pieces of trash), 12 were found to be Category 2 (10+ pieces of trash) and 114 were found to be in Category 1 (<10 pieces of trash). As this was the second full year of quarterly inspections and cleanings, Camarillo is still assessing whether additional trash BMPs are needed to address these catch basins. However, based on the fact that most of the catch basins within the subwatershed were a Category 1 or less (indicating that trash is not accumulating in deleterious amounts) and the amount of trash being removed by the existing BMPs is sufficient to meet the WLA (per the assessment below), it appears that additional BMPs may not be needed.

In order to assess compliance with the 100 percent reduction from the baseline wasteload allocation (WLA) requirement, Camarillo calculated a point source baseline WLA for: (1) all land uses and (2) only priority land uses, using land use acreage determined through geographic information system (GIS) analyses and trash generation rate (TGR) data obtained through a review of reports that contain trash generation rate data. A baseline WLA of 2,738 gallons per year was calculated for all land uses and a baseline WLA of 1,653 gallons per year was calculated for only the priority land use areas with RSBW. In essence, if Camarillo's BMPs address at least 2,738 gallons per year of trash, then they will be in compliance with the 100 percent reduction from the baseline WLA. During the 2017-2018 monitoring year, Camarillo removed 57,324 gallons of trash through the implemented trash control measures, a volume much greater than the estimated baseline of 2,738 gallons of trash baseline WLA (**Table 6**).

Based on the catch basin inspections and clean outs as well as the amount of trash removed by Camarillo's trash control measures, trash and debris are not accumulating in deleterious amounts between the inspection and collection events and Camarillo is meeting the point source requirements of the Trash TMDL through it's existing MFAC/BMP Program.

Table 6. Materials Removed via Various City of Camarillo Trash-Control Measures Implemented in 2017-2018

BMP	Estimated Amount Removed	Amount of Trash	Amount of Leaf Litter[2]	Amount of Sediment
Amount of trash collected in pounds				
Catch Basin Cleaning	29,928	835	22,446	6,647
Street Sweeping	710,000	142,000	355,000	213,000
Ditch, Channel, and Detention Basin Cleaning	1,080	54	810	216
Fence Line Trash Removal	420	420	0	0
Total	**741,428**	**143,309**	**378,256**	**219,863**
Amount of trash collected in gallons[1]				
Catch Basin Cleaning	11,971	334	8,978	2,659
Street Sweeping	284,000	56,800	142,000	85,200
Ditch, Channel, and Detention Basin Cleaning	432	22	324	86
Fence Line Trash Removal	168	168	0	0
Total	**296,571**	**57,324**	**151,302**	**87,945**

1. Pounds converted to gallons using 2.5 pounds=1 gallon from: Maryland Department of the Environment. TMDLs of Trash and Debris for the Middle Branch and Northwest Branch Portions of the Patapsco River Mesohaline Tidal Chesapeake Bay Segment. December 2014.
2. Leaf litter is not anthropogenic landscaping litter but literally leaves from adjacent trees. Dumped landscaping litter is considered trash and is accounted for under "trash" category.

Future Potential Best Management Practices

To address non-point sources, Camarillo will focus BMP efforts on high trash generating areas identified through the MFAC Program and continue subwatershed-wide BMP activities as a means to further reduce the discharge of trash to RSBW.

Until the revised Trash TMDL is in effect, to address point sources, Camarillo will continue implementing the MFAC/BMP program (inspection and cleanout, if needed, of all catch basins in the RSBW subwatershed four times a year) for its drainage areas in the priority land use areas until full capture trash devices have been installed in all 223 catch basins in those drainage areas. Currently, Camarillo has installed full capture trash devices in 112 of its 223 priority land use area catch basins. Camarillo will continue the MFAC/BMP program for the remaining 111 priority land use area catch basins until they have been addressed with a full capture trash device.

City of Oxnard BMPs

The City of Oxnard is listed as both a point and non-point source in the TMDL. This section provides an overview of the BMPs implemented to address both sets of requirements.

City of Oxnard Non-Point Source BMPs

TMRP Addendum No. 1 BMP list for the City of Oxnard (Oxnard):

1. Catch basin cleaning - All Oxnard catch basins are inspected at least once per year.

2. Open channel maintenance - All Oxnard-maintained channels are inspected and cleaned at least once per year before the wet season and at least once per year after the wet season.
3. Oxnard arterial streets are swept weekly and residential streets are swept monthly in an attempt to reduce trash accumulating in deleterious amounts on streets within the city's jurisdiction.
4. Trash Management at Public Events - All special use permits for events in the public right of way require proper management of trash and litter.
5. Oxnard requires conditions pertaining to trash to be met for all new development and redevelopment projects within the subwatershed, including:
    A. Trash full capture devices and post-construction treatment devices for other pollutants of concern must be installed in drain inlets;
    B. Trash enclosures and/or recycling areas must be properly installed (e.g., covered and including structures to direct stormwater away from entering the enclosures/areas);
    C. All property areas must be maintained free of litter/debris;
    D. Onsite storm drains must be cleaned at least twice per year, including once before the beginning of the wet season; and
    E. Private roads and parking lots must be swept at a minimum of once per month, with two sweepings occurring in October before the beginning of the wet season.
6. Oxnard requires private owners to provide proof of maintenance of their post construction treatment devices annually.
7. Oxnard accepts household hazardous wastes at the Del Norte Regional Recycling Station Monday through Saturday to provide residents a place to properly dispose of their materials. This reduces the amount of illegal dumping.
8. Oxnard adopted Stormwater Ordinance No. 2876 in November 2013, which includes trash specific prohibitions and fines and penalties for violations of the prohibitions.
9. Oxnard imposed additional measures to its Water Conservation Ordinance in 2014 by prohibiting lawn watering except between 4 PM and 9 AM or 6 PM and 9 AM during daylight savings, no washing of hard surfaces (i.e., driveways, sidewalks), and imposing penalties for runoff. These measures will reduce dry weather flows to the storm drain system thereby reducing trash transport.
10. Oxnard's catch basins are labeled, "Don't Dump, Drains to Ocean."
11. Oxnard engages in several outreach and education campaigns including:
    A. Establishing the www.oxnard.org website which disseminates information regarding pollution prevention, household hazardous waste roundups, Coastal Clean-up day and water conservation.

B. Including an insert with all utility bills soliciting volunteers to remove trash in the City of Oxnard on Coastal Cleanup Day which also educates residents on pollution prevention.

C. Conducting commercial, industrial, and construction facility/site inspections to ensure proper pollutant prevention BMPs are being applied and to educate the employees on the importance of pollution prevention.

D. Sending out letters to all commercial, industrial, and high-density residential property managers requesting assistance in controlling trash on their property.

E. Inspecting all construction sites to ensure application of proper pollution prevention BMPs.

F. Oxnard participates in the Countywide Stormwater Public Outreach Program that includes litter outreach, which can be reviewed at www.cleanwatershed.org.

The following are enhancements/revisions made to the non-point source BMPs listed in the TMRP for Oxnard to address assessment results:

Oxnard owns and operates the Del Norte Regional Recycling and Transfer Station, which is responsible for accepting, transferring and disposing of approximately 200,000 solid waste tons each year from the city, permitted haulers, and self-haulers throughout the region, as well as materials recovery, which is responsible for diverting material from the waste stream to prevent marketable recyclable material and divertible material from entering the landfill. Oxnard has entered into agreements with organizations such as the Carpet America Recovery Effort (carpetrecovery.org) and Recycle with Paint Care (paintcare.org) for recycling of post-consumer products. Green waste is recycled to provide compost soil amendments and other beneficial environmental products. The Del Norte Regional Recycling and Transfer Station includes a buyback center, which is responsible for accepting and dispensing payments to customers that redeem California Redemption Value material such as aluminum cans, plastic beverage containers, and glass. In addition, the Del Norte Regional Recycling and Transfer Station contains the Recyclable Household Hazardous Waste Center, which is responsible for accepting and recycling material from Oxnard residents that drop-off antifreeze, batteries, used motor oil, water-based paint and electronic devices. For hazardous wastes that are not accepted at Del Norte Regional Recycling and Transfer Station**,** Oxnard offers Household Hazardous Waste Collection Events which are held at a separate location and allow residents to transport up to 15 gallons or 125 lbs household hazardous waste to the event. There is also a special program available once per month for Oxnard Conditionally Exempt Small Quantity Generator Businesses (CESQG's). A CESQG generates or stores less than 27 gallons or 200 pounds of Hazardous Waste per month. A CESQG may qualify for a limited amount of free disposal.

Oxnard will continue to promote the City's Green Sustainability Programs with robust outreach focused on pollution prevention and environmental sustainability. Oxnard has started a new "On the Road to Zero Waste" campaign which encourages community participation through a series of workshops designed to educate the public and garner community input. The program has vision of zero waste with a guiding principle to protect the environment and public health.

City of Oxnard Point Source BMPs

For point sources, Oxnard planned to address point source compliance by installing full capture system devices. However, the development of the trash amendments created uncertainty as to the number and location of devices that were needed (e.g. all drainages or just those from priority land uses). As a result, Oxnard has not yet been able to install full capture devices for conveyances discharging to RSBW until 2019. After the adoption of the Revised Trash TMDL, City staff identified 108 catch basins that require retrofitting in priority land uses. Oxnard recently secured funding to install the full capture devices as a Capital Improvement Project (CIP). Oxnard plans to address point source compliance by installing full capture system devices by June 30, 2019. Once the full capture systems are installed, Oxnard will be attaining the point source requirements of the Revised Trash TMDL.

Future Potential Best Management Practices

Oxnard will focus BMP efforts at the high trash generating areas identified through the MFAC Program and continue subwatershed-wide BMP activities as a means to further reduce the discharge of trash to RSBW.

VCAILG BMPs

TMRP Addendum No. 1 BMPs for VCAILG:

On April 14, 2016 the Los Angeles Regional Water Quality Control Board (Regional Board) adopted a Conditional Waiver of Waste Discharge Requirements for Discharges from Irrigated Lands within the Los Angeles Region ("Conditional Waiver", Order No. R4-2016-0143). As specified in the Conditional Waiver, if an applicable water quality benchmark has not been met, then a Water Quality Management Plan (WQMP), which includes BMPs to address constituents of concern, must be developed. While trash is not required to be addressed in the WQMP, VCAILG takes actions to incorporate trash into the WQMP. The previous WQMP included the results of two survey questions[2] related to trash that demonstrated the BMPs were fully implemented (between 95% - 100%). VCAILG continues to incorporate trash management as part of their outreach and education activities.

In addition, third party trash BMPs are available in Revolon Slough and Beardsley Wash. Both Community Recycling & Resource Recovery, Inc. (Community Recycling) and E.J. Harrison & Sons, Inc. provide recycling services to local farmers. Recycling efforts are focused on drip tape and agricultural plastic used to cover strawberry beds and used in some vegetable fields during growing. Community Recycling estimates they collect approximately 70 percent of the agricultural plastic in Ventura County. The used plastic is cleaned, processed, and turned into pellets to be used in new products. Researchers are testing the use of recycled plastic in the fields and determining the percent recycled material that will still stretch and maintain the necessary strength. Collection and recycling of the plastic is an effective method for reducing plastic trash from entering Revolon Slough and Beardsley Wash.

[2] The survey questions were 1) The property is kept clean and free of trash and 2) The property has an adequate number of trash containers that are covered and emptied regularly. Modifications to the survey were made in response to the new conditional waiver and these questions were removed based on the fact that the BMPs were already fully implemented by members.

The following are enhancements/revisions made to the BMPs listed in the TMRP for VCAILG to address assessment results:

During the 2017-2018 monitoring year, the VCAILG provided education and outreach to a diverse group of owners and growers throughout Ventura County. Certain aspects of the education and outreach discuss trash BMPs for agricultural areas and information regarding the Trash TMDL. The VCAILG conducted three education and outreach classes during the 2017-2018 reporting year: October 18, 2017, November 14, 2017, and May 15, 2018. Additionally, the VCAILG has been conducting direct outreach to agricultural areas surrounding Site 1 and Site 5 to address agricultural trash that was found near those sites and VCAILG installed anti-littering signs near the agricultural areas surrounding Site 1 and Site 5.

Future Potential Best Management Practices

As part of the current Conditional Waiver, VCAILG provides educational classes focused on improving water quality, including identifying trash as an impairment of water quality. VCAILG continues to make a concerted effort to make trash management a focus during educational classes. Furthermore, based on 2017-2018 monitoring results, the VCAILG will assist its members with the implementation of additional BMPs as necessary by following the adaptive process identified in the WQMP. For properties adjacent to MFAC monitoring sites along Revolon Slough and Beardsley Wash with known debris issues, VCAILG is conducting outreach efforts with individual landowners. In addition, VCAILG members will continue to be billed separately for Trash TMDLs to further reinforce the idea, through a fiscal measure, that there are trash problems in the subwatershed

Department of Transportation (Caltrans) Litter Management Program BMPs

Caltrans implements a variety of BMPs in the watershed along the freeways and highways. These BMPs are a suite of programs to reduce trash as follows:

- Caltrans currently uses a variety of methods to educate the public about the importance of managing stormwater. These are intended to change public behavior regarding the release of potential pollutants (e.g., litter, spilled loads, and oil leaks).
    - The outreach program consists of a variety of written materials, monthly and quarterly bulletins, websites, workshops, and Caltrans's Adopt-a-Highway Program, as described below.
- Caltrans installs "No Dumping" and "Litter Fine" signs at selected locations on highways and freeways. Stenciled warnings prohibiting discharges to drain inlets at state-owned park-and-ride lots, rest areas, vista points, and other areas with pedestrian traffic are also used to increase public awareness.
- Litter and debris removal activities include sweeping of shoulders, paved medians, etc., and litter removal along the roadsides.
- Caltrans uses venues such as public schools, community-sponsored clean-up events, Bring Your Child to Work Day, and Earth Day to educate the public about the importance of excluding pollutants from stormwater.
- Caltrans's Adopt-A-Highway program is an opportunity for volunteers to make a tangible contribution to community and roadside aesthetics, and acts as a way to inform the public

about the stormwater problems related to illegal dumping of litter and debris. As part of this program, signs are posted along roadways acknowledging groups that have volunteered to plant wildflowers, trees and/or shrubs, collect litter, or remove graffiti from structures.

- In the metropolitan portions of Los Angeles, San Diego, Orange, and Ventura Counties, storm drain inlets are inspected and cleaned annually prior to the rainy season. Those storm drain inlets that contain 12 inches or more of accumulated material will be cleaned.
- Litter and debris are periodically collected from Caltrans's rights-of-way and removed from drainage grates, trash racks, and ditch lines. Maintenance supervisors inspect highways in their assigned sections for the accumulation of litter. Signs may be installed where litter accumulation is a concern.
- "Protect Every Drop" is a statewide Caltrans education and outreach pollution reduction public program that has been conducted since March 2016. The program uses public service announcements through various media such as television and radio broadcasts, billboards, newspapers, public outreach events, banners, posters, tip cards etc., and focuses on behavior changes. The program encourages the public to learn more about sources and pathways of stormwater pollution and teaches motorists what to do to reduce pollutants like trash. Caltrans promotes public action to stop pollution at the source by: (1) properly disposing of trash and other items containing pollutants, (2) covering truckloads that may fall or blow off during transport, and (3) perform routine vehicle and tire maintenance. For more information, please refer to website www.protecteverydrop.com.
- Caltrans has constructed five (5) Gross Solids Removal Devices-Inclined Screen (EA: 2750U4) and two (2) Biofiltration Swales on Route 101.

Future Potential Best Management Practices

- Caltrans has two (2) Gross Solids Removal Devices-Inclined Screen still under CCO (EA: 2750U4). There is one (1) Biofiltration Swale on Route 33 proposed to be constructed (EA: 295404).
- In addition to local anti-litter ordinances, Caltrans relies on Sections 23112, 23113, 23114, and 23115 of the Vehicle Code as legal authority to prevent spills, dumping or disposal of materials on the highways and freeways under its jurisdiction, as enforced by the California Highway Patrol.
    - Section 23112 states:

      No person shall throw or deposit, nor shall the registered owner or the driver, if such owner is not then present in the vehicle, aid or abet in the throwing or depositing upon any highway any bottle, can, garbage, glass, nail, offal, paper, wire, any substance likely to injure or damage traffic using the highway, or any noisome, nauseous, or offensive matter of any kind.

      No person shall place, deposit, or dump, or cause to be placed, deposited, or dumped, any rocks, refuse, garbage, or dirt in or upon any highway, including

any portion of the right-of-way thereof, without the consent of the state or local agency having jurisdiction over the highway.

- Section 23113 states:

  Any person who drops, dumps, deposits, places or throws, or causes or permits to be dropped, dumped, deposited, placed or thrown, upon any highway or street any material described in Section 23112 or in subdivision (d) of Section 23114 shall immediately remove the material or cause the material to be removed.

  If the person fails to comply with subdivision (a), the governmental agency responsible for the maintenance of the street or highway on which the material has been deposited may remove the material and collect, by civil action, if necessary, the actual cost of the removal operation in addition to any other damages authorized by law from the person made responsible under subdivision (a).

- Section 23114 states (in pertinent part):

  No vehicle shall be driven or moved on any highway unless the vehicle is so constructed, covered, or loaded as to prevent any of its contents or load other than clear water or feathers from live birds from dropping, sifting, leaking, blowing, spilling, or otherwise escaping from the vehicle.

- Section 23115 of the Vehicle Code states (in pertinent part):

  No vehicle loaded with garbage, swill, cans, bottles, waste papers, ashes, refuse, trash, or rubbish, or any other noisome, nauseous, or offensive matter, or anything being transported to a dump site for disposal shall be driven or moved upon any highway unless the load is totally covered in a manner which will prevent the load or any part of the load from spilling or falling from the vehicle.

MFAC/BMP Program Evaluation and Revision Recommendations

The Trash TMDL requires the Responsible Parties to conduct "an evaluation of the effectiveness of the MFAC/BMP Program to prevent trash from accumulating in deleterious amounts that cause nuisance or adversely affect beneficial uses between collections." Under the previous MFAC/BMP Program and TMRP, the following steps were used to assess MFAC/ BMP Program effectiveness:

1. A review of BMP implementation, including identification of BMPs, location of BMPs, and time frame (e.g., when an activity was implemented or installed);
2. A comparison of monitoring results between monitoring locations and between events before and after BMP implementation; and
3. Comprehensive review and assessment of MFAC/BMP Program.

Overall, the non-point source MFAC/BMP Program is effectively addressing trash as none of the five monitoring sites met the criteria for increased BMP implementation defined as four consecutive months of Category 3 trash conditions (100+ pieces of trash). In addition, the current monthly non-point source MFAC monitoring schedule is appropriate for assessing trash conditions within the RSBW subwatershed. Additional BMPs have been identified, as noted in the previous sections, to support moving Site 1 from Category 2 to Category 1. In September, Site 1 was assessed in Category 1 for the first time in the 2017-2018 monitoring year, indicating progress is being made. Further assessment will be conducted in the 2018-2019 monitoring year.

In addition, as discussed in the section describing Camarillo's point source BMPs, the City of Camarillo's point source-specific MFAC/BMP Program is effectively addressing trash and the quarterly inspection and collection frequency is appropriate for assessing trash conditions within Camarillo's portion of the RSBW subwatershed.

No modifications to the MFAC program were identified based on the assessment. Any necessary revisions identified during the implementation of the 2018-2019 monitoring year will be proposed in the tenth-year monitoring annual report in January 2020.

Appendix 1. MFAC Program Site Descriptions

Site 1 – Revolon Slough at Wood Road

This site consists of Revolon Slough and its adjacent land areas. It begins at the end of a concrete channel and includes the 100 foot downstream portion of Revolon Slough and the banks on both sides of the water body.

GPS Coordinates:
Latitude: 34.169771
Longitude: -119.095591

Site 3a – Camarillo Hills Drain Outlet

This site begins at the upstream end of a drain outlet and includes the in-stream portions of the Camarillo Hills Drain and the banks on either side of the drain.

GPS Coordinates:
Latitude: 34.215486
Longitude: -119.076388

Site 5 – Revolon Slough at Etting Road

This site begins at the downstream end of an agricultural drain that discharges into Revolon Slough and includes the in-stream portions of Revolon Slough as well as the land areas within the slough and the banks.

GPS Coordinates:
Latitude: 34.161731
Longitude: -119.091460

Site 8 – Caltrans Site on U.S. 101 Freeway	
This site is located on the south side of U.S. 101 Freeway near Revolon Slough. The site begins at the end of the guard rail and ends at the fence surrounding Revolon Slough. GPS Coordinates: Latitude: 34.221799 Longitude: -119.120400	

Site 10 – 5th Street Drain at Del Norte Blvd.	
This site is located within the 5th Street Drain near the intersection of Del Norte Boulevard and 5th Street. This site was added to the MFAC Program in July 2015. GPS Coordinates: Latitude: 34.191006 Longitude: -119.107392	

Appendix 2. Example MFAC Event Photos

Site 1 – Revolon Slough at Wood Road

Figure 1: Site 1 before a MFAC Event in December, 2017

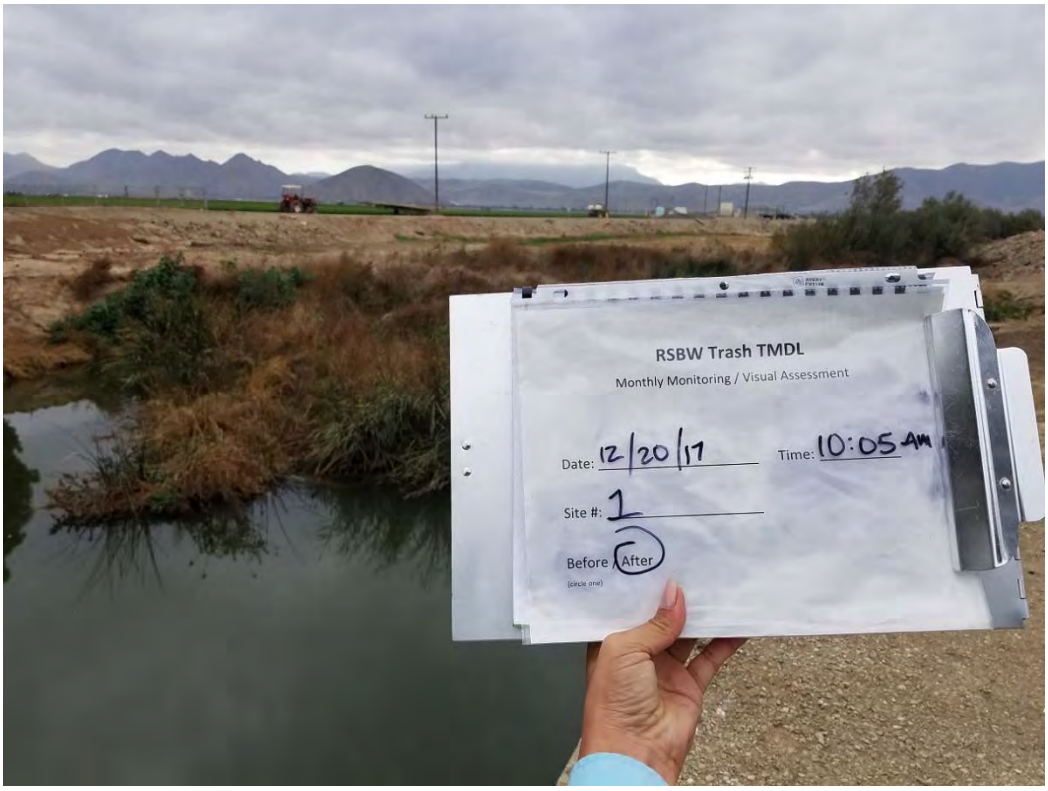


Figure 2: Site 1 after a MFAC Event in December, 2017

Site 3a – Camarillo Hills Drain Outlet

Figure 3: Site 3a before a MFAC Event in February, 2018

Figure 4: Site 3a after a MFAC Event in February, 2018

Site 5 – Revolon Slough at Etting Road

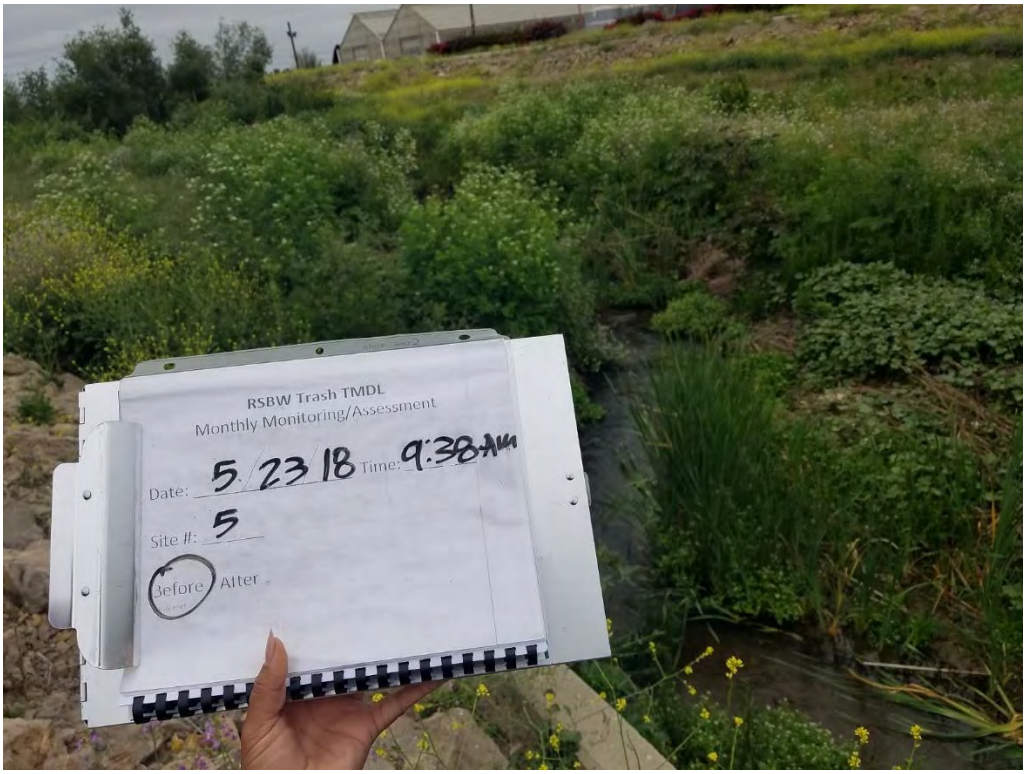


Figure 5: Site 5 before a MFAC Event in May, 2018

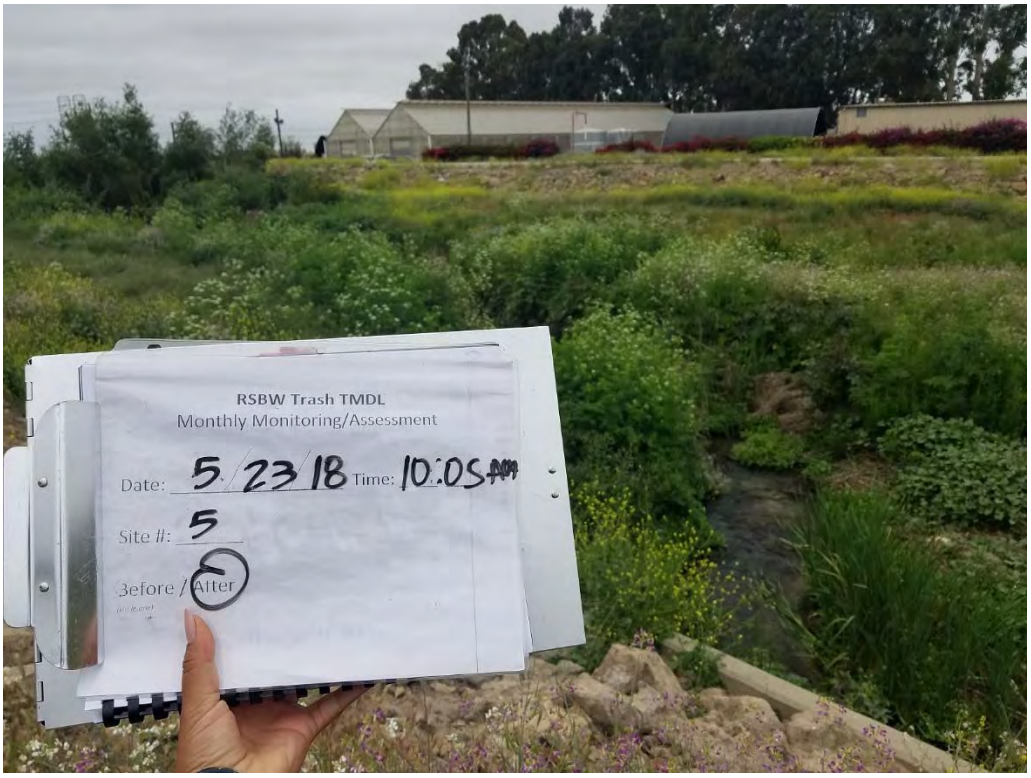


Figure 6: Site 5 after a MFAC Event in February, 2018

Site 8 – Caltrans Site on U.S. 101 Freeway

Figure 7: Site 8 before a MFAC Event in June, 2018

Figure 8: Site 8 after a MFAC Event in March, 2018

Site 10 – Revolon Slough at Del Norte Blvd.

Figure 9. Site 10 before a MFAC Event in March, 2018

Figure 10. Site 10 before a MFAC Event in March, 2018

Appendix 3. Example Visual Assessment Forms

Site 1 – Revolon Slough at Wood Road

Revolon Slough/Beardsley Wash Trash TMDL

Visual Assessment Worksheet

Event Date: 10/23/17 — Event Start Time: 9:50 AM
Field Technician Names: A Stovall +CCC — Event End Time: 10:10 AM
Current Weather Conditions: hot, windy — # of Pictures Taken: 2
Antecedent Weather Conditions: ☒ Wind ☐ Rain: ____ inches

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the site. If necessary, categorize these areas individually.

Key: Category 1: (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Site ID	Category	Reason for Category Rating
1	2	Moderate levels of debris

Types of Trash Observed (check all that apply)

- ☒ Plastic/Styrofoam
- ☐ Landscape Materials
- ☐ Toxic/Hazardous/Biohazardous Materials
- ☒ Paper Products/Biodegradable
- ☒ Aluminum/Metal
- ☐ Glass
- ☐ Household Items
- ☐ Automotive
- ☒ Agricultural Plastics/Trash
- ☐ Other: _____

Notes:

Estimated # of Follow-up Clean-up Events Needed:

N/A

Additional Notes:

Moderate levels of urban + ag debris

Figure 1: Site 1 Visual Assessment Worksheet October, 2017

Site 3a-Camarillo Hills Drain Outlet

Revolon Slough/Beardsley Wash Trash TMDL

Visual Assessment Worksheet

Event Date: 12/20/17 — Event Start Time: 8:32 AM
Field Technician Names: A. Stovall + CCC — Event End Time: 8:40 AM
Current Weather Conditions: Cold, Cloudy — # of Pictures Taken: 2
Antecedent Weather Conditions: ☐ Wind ☐ Rain: ____ inches N/A

Level of Trash Observed:
Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the site. If necessary, categorize these areas individually.

Key: Category 1: (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Site ID	Category	Reason for Category Rating
3A	1	Minimal debris found

Types of Trash Observed (check all that apply)

- ☑ Plastic/Styrofoam
- ☐ Landscape Materials
- ☐ Toxic/Hazardous/Biohazardous Materials
- ☑ Paper Products/Biodegradable
- ☑ Aluminum/Metal
- ☐ Glass
- ☐ Household Items
- ☐ Automotive
- ☐ Agricultural Plastics/Trash
- ☐ Other: _____

Notes:

Estimated # of Follow-up Clean-up Events Needed:

N/A

Additional Notes:

Site in very good condition. Minimal debris found.

Figure 2: Site 3a Visual Assessment Worksheet December, 2017

Site 5 – Revolon Slough at Etting Road

Revolon Slough/Beardsley Wash Trash TMDL

Visual Assessment Worksheet

Event Date: 2/27/18 Event Start Time: 9:10 AM

Field Technician Names: A. Storm + CCC Event End Time: 9:30 AM

Current Weather Conditions: Sunny, cold # of Pictures Taken: 2

Antecedent Weather Conditions: ☐ Wind ☐ Rain: ____ inches N/A

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the site. If necessary, categorize these areas individually.

Key: Category 1: (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Site ID	Category	Reason for Category Rating
5	1	Minimal debris present

Types of Trash Observed (check all that apply)

- ☑ Plastic/Styrofoam
- ☐ Landscape Materials
- ☐ Toxic/Hazardous/Biohazardous Materials
- ☐ Paper Products/Biodegradable
- ☐ Aluminum/Metal
- ☐ Glass
- ☑ Household Items
- ☐ Automotive
- ☑ Agricultural Plastics/Trash
- ☐ Other: _____

Notes:

Estimated # of Follow-up Clean-up Events Needed:

N/A

Additional Notes:

Minimal debris present at site, mostly urban + ag. trash. Crew was able to remove easily.

Figure 3: Site 5 Visual Assessment Worksheet February, 2018

Site 8 – Caltrans Site on U.S. 101 Freeway

Revelon Slough/Beardsley Wash Trash TMDL

Visual Assessment Worksheet

Event Date: 5/22/18 — Event Start Time: 12:13 PM

Field Technician Names: A. Stovall + CCC — Event End Time: 12:31 PM

Current Weather Conditions: Cloudy, cool — # of Pictures Taken: 2

Antecedent Weather Conditions: ☐ Wind ☐ Rain: ____ inches N/A

Level of Trash Observed:

Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the site. If necessary, categorize these areas individually.

Key: Category 1: (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Site ID	Category	Reason for Category Rating
8	1	Minimal surface debris present

Types of Trash Observed (check all that apply)

- ☑ Plastic/Styrofoam
- ☐ Landscape Materials
- ☐ Toxic/Hazardous/Biohazardous Materials
- ☑ Paper Products/Biodegradable
- ☑ Aluminum/Metal
- ☑ Glass
- ☐ Household Items
- ☑ Automotive
- ☑ Agricultural Plastics/Trash
- ☐ Other: _____

Notes:

Estimated # of Follow-up Clean-up Events Needed:

N/A

Additional Notes:

Minimal urban + ag. debris present on surface of site. easily removed by crew.

Figure 4: Site 8 Visual Assessment Worksheet May, 2018

Site 10 – Revolon Slough at Del Norte Blvd.

Revolon Slough/Beardsley Wash Trash TMDL
Visual Assessment Worksheet

Event Date: 4/27/18 — Event Start Time: 10:44 AM
Field Technician Names: A Stovall + CCC — Event End Time: 10:57 AM
Current Weather Conditions: Overcast — # of Pictures Taken: 2
Antecedent Weather Conditions: ☐ Wind ☐ Rain: ___ inches N/A

Level of Trash Observed:
Refer to Program Monitoring Area Map as necessary. Note any categorical variation in levels of trash observed in different areas of the site. If necessary, categorize these areas individually.

Key: Category 1: (<10 pcs), Category 2 (10-100 pcs), Category 3 (>100 pcs)

Site ID	Category	Reason for Category Rating
10	1	Minimal debris present

Types of Trash Observed (check all that apply)

- ☑ Plastic/Styrofoam
- ☐ Landscape Materials
- ☐ Toxic/Hazardous/Biohazardous Materials
- ☐ Paper Products/Biodegradable
- ☐ Aluminum/Metal
- ☑ Glass
- ☑ Household Items
- ☐ Automotive
- ☑ Agricultural Plastics/Trash
- ☐ Other: _____

Notes:

Estimated # of Follow-up Clean-up Events Needed:
N/A

Additional Notes:
Minimal urban + agricultural debris present
Easily removed by crew.

Figure 5. Site 10 Visual Assessment Worksheet April, 2018

Appendix 4. Example Special Cleanup Event Photos

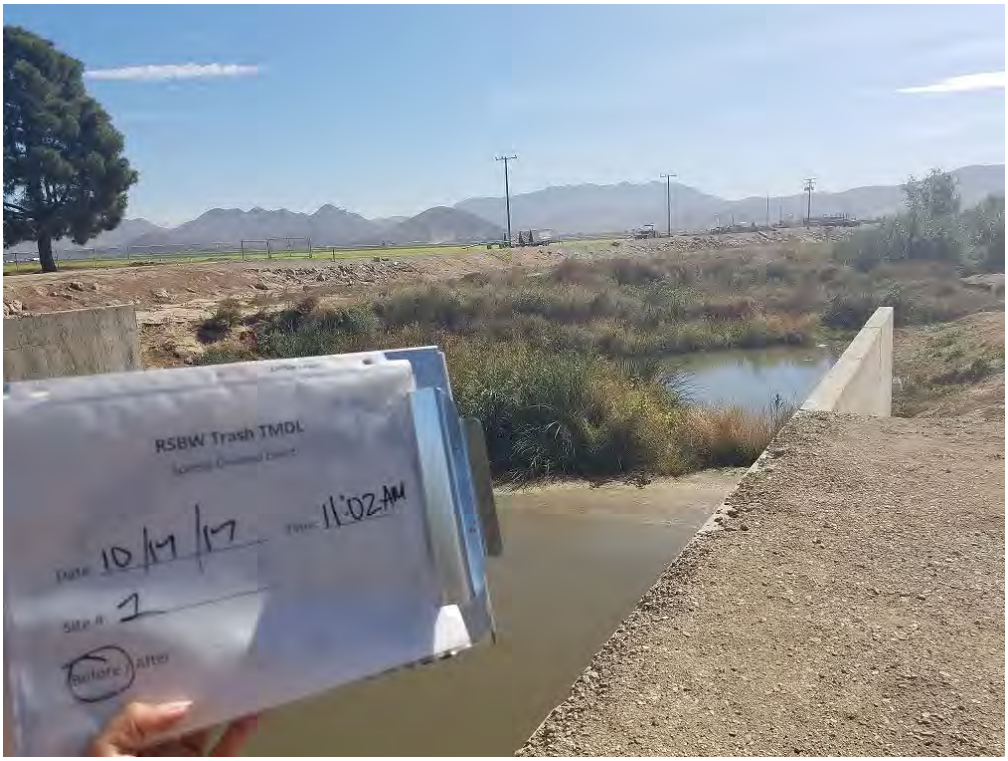


Figure 1. Site 1 before a Special Cleanup Event in October, 2017

Figure 2. Site 1 before a Special Cleanup Event in October, 2017

Figure 3. Site 3a before a Special Cleanup Event in December, 2017

Figure 4. Site 3a before a Special Cleanup Event in December, 2017

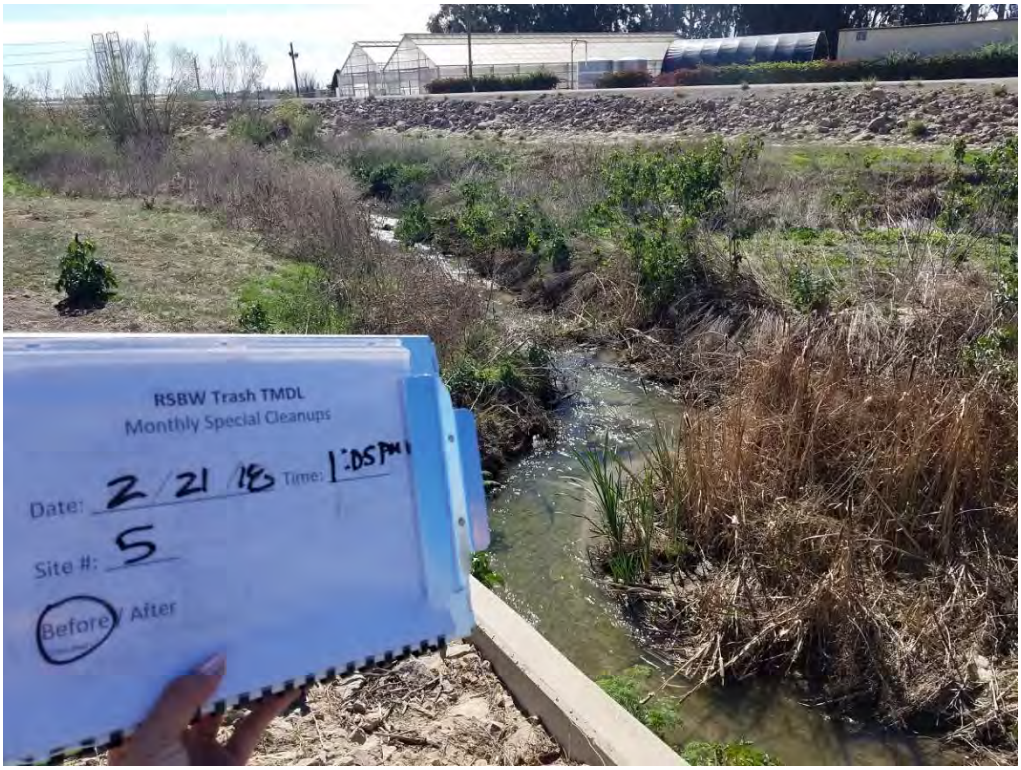


Figure 5. Site 5 before a Special Cleanup Event in February, 2018

Figure 6. Site 5 before a Special Cleanup Event in February, 2018

Figure 7. Site 8 before a Special Cleanup Event in March, 2018

Figure 8. Site 8 before a Special Cleanup Event in March, 2018

Figure 9. Site 10 before a Special Cleanup Event in March, 2018

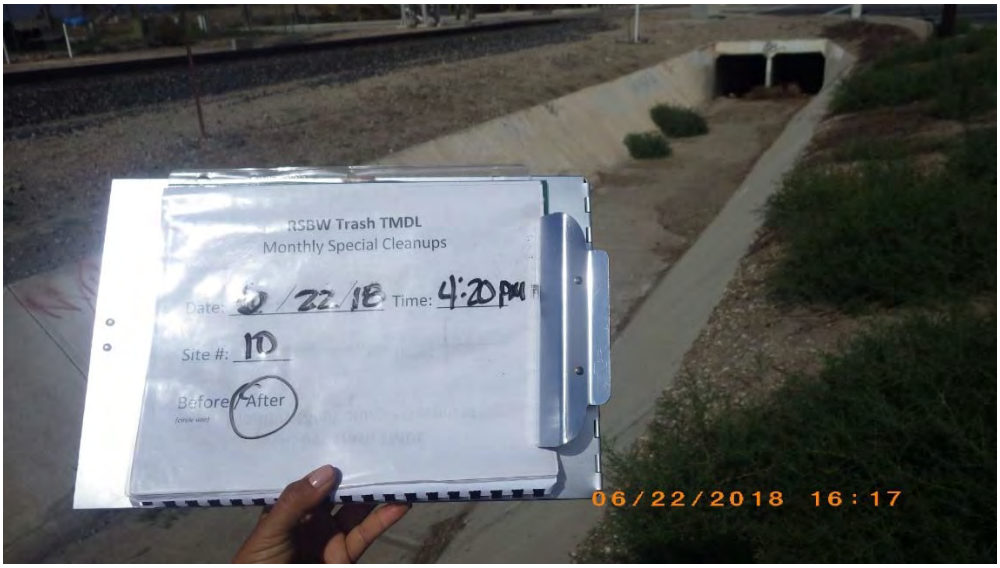


Figure 11. Site 10 before a Special Cleanup Event in March, 2018

Appendix 5. City of Camarillo Example Full Capture Device Cleaning Photos

Figure 1. Catch Basin # K-10-121 view from street in June, 2018

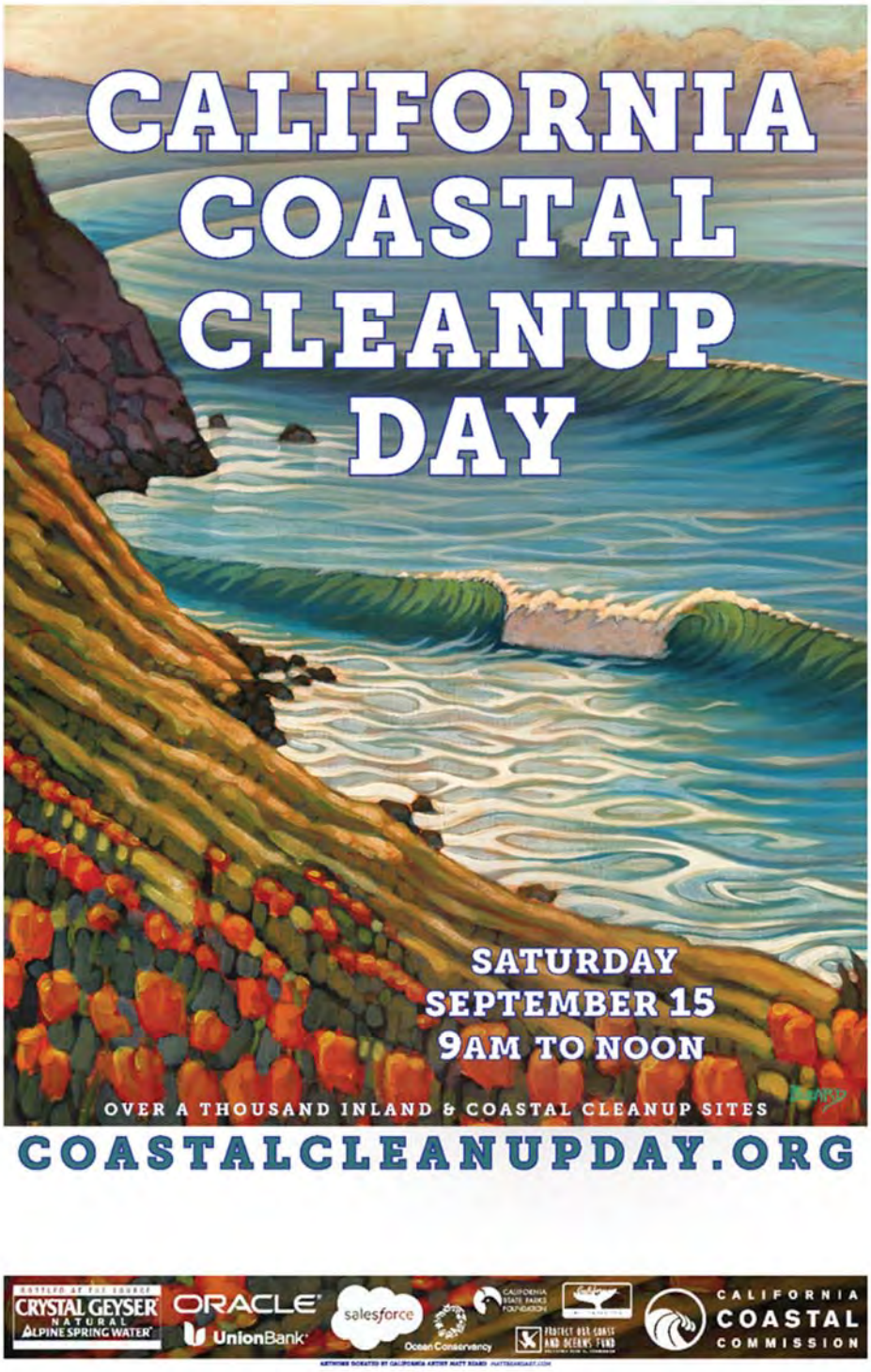
Figure 2. Full capture device before cleaning in June, 2018

Figure 3. Full capture device after cleaning in June, 2018

Appendix 6. 2018 Coastal Cleanup Day and Social Media Educational Outreach


Harrison
1-800-41-TRASH
Day 2018


CUENCAS
DEL CONDADO DE VENTURA
POR UNA
VIDA BELLA
PROTÉJALAS
PARA EL FUTURO
Averigüe cómo puede ayudar en cleanwatershed.org


CALIFORNIA
COASTAL
CLEANUP
DAY
SATURDAY
SEPTEMBER 15
9AM TO NOON
OVER A THOUSAND INLAND & COASTAL CLEANUP SITES
COASTALCLEANUPDAY.ORG
CRYSTAL GEYSER
NATURAL
ALPINE SPRING WATER
ORACLE
UnionBank
salesforce
Ocean Conservancy
CALIFORNIA
COASTAL
COMMISSION

Community for a Clean Watershed
November 14 at 11:00 PM ·

Did you know? Cigarette filters are made of plastic, which isn't biodegradable. Litter gets into our waterways and can harm aquatic life. Kick the habit now for the health of #VenturaCounty watersheds! Learn more at http://www.cleanwatershed.org/watershed-trash-facts/

7 Likes · 1 Comment

Community for a Clean Watershed
December 1 at 8:00 PM ·

Did you know that when it rains, water accumulates on our streets & flows into storm drains, bringing pollutants with it? This stormwater ends up in our creeks, rivers & oceans. Please properly dispose of trash. #KeepVenturaBeautiful

Community for a Clean Watershed
November 1 at 12:00 AM ·

Happy Halloween #VenturaCounty! Make sure your candy wrappers don't become litter. Wrappers made of plastic and foil are not biodegradable and can pollute our waterways, potentially harming aquatic life.

12 Likes · 1 Comment

Community for a Clean Watershed shared **Ventura County Annual Coastal Cleanup Day**'s **post**.
October 1 at 10:51 PM ·

WELL DONE VENTURA COUNTY!

Ventura County Annual Coastal Cleanup Day
September 26 at 9:41 PM ·

We would like to take a moment and thank all of our volunteers who contributed to the success of Coastal Cleanup Day 2018! Here is a summary of our preliminary results.

Although our event is over, our efforts shouldn't be. Let's strive to keep our beaches and waterways clean every day!

5 Likes

California Department of Transportation

Protect Every Drop

Campaign Artwork Guidelines

A public education campaign guide for promoting clean water.

A Campaign Developed by Caltrans®

Protect Every Drop℠

I. Introduction

About the Campaign

"Protect Every Drop" was created by the Caltrans' Stormwater Management Program team to help encourage positive behaviors by the motoring public to help improve water quality throughout the state. By reducing stormwater pollution in and around the roadway and highway systems throughout California, water that flows into major watersheds in the state will carry less pollutants and reduce the impact to our precious waterways.

The campaign also addresses pollutants found in highway stormwater that may originate from non-highway sources such as pesticides and bacteria from natural sources. This campaign aims to help improve water quality in our streams, rivers, lakes and coastal waters, keeping them drinkable, swimmable and fishable.

Key Actions

Most Californians are unaware of stormwater runoff pollution and what they can do to reduce its effects. The campaign addresses key actions the public can take to stop pollution at its source, including:

- Recycle and properly dispose of trash and other items containing pollutants
- Cover and secure loads so items do not fall out or blow off onto the roadway
- Perform routine vehicle maintenance to reduce and eliminate leaks
- Properly inflate tires to reduce wear and emissions and help reduce pollution
- Wipe off wheel wells and tire rims to clean off brake dust and heavy metals
- Properly dispose of cigarettes so they don't end up on the roadway, highway or waterbodies
- Keep vehicles clean to prevent residue from washing off when it rains
- Only use ecofriendly fertilizers and pesticides when rain and wind is not in the forecast
- Pick up and properly dispose of pet waste

II. Resources

Campaign Materials

All campaign materials developed are available free of charge to partners and include a series of template materials.

Materials can be used "as is" or customized, with Caltrans approval, to address local or regional needs. This is available to any clean water, stormwater, solid waste or other relevant agency who share the same mission.

All campaign materials can be downloaded at
http://www.protecteverydrop.com/doing-your-part/public-materials-toolkit

Logo

Protect Every Drop℠

Infographic

Continued on the next page...

II. Resources Continued

Billboards

Northern California

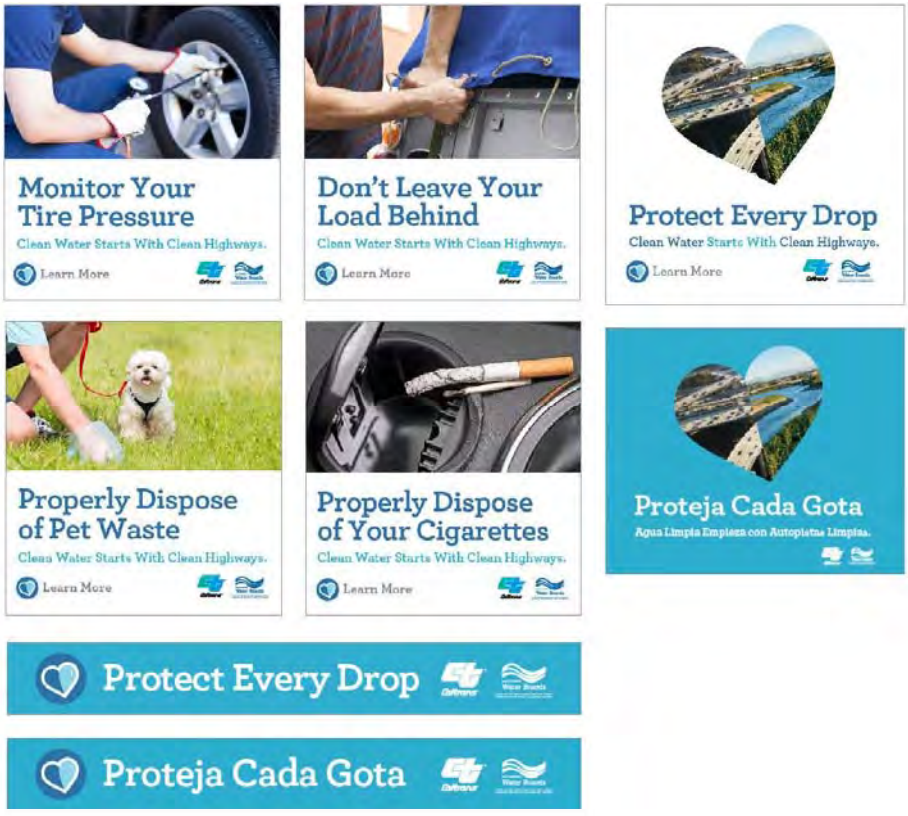
Southern California

Alternate Messaging

Continued on the next page...

II. Resources Continued

Digital Banner Ads



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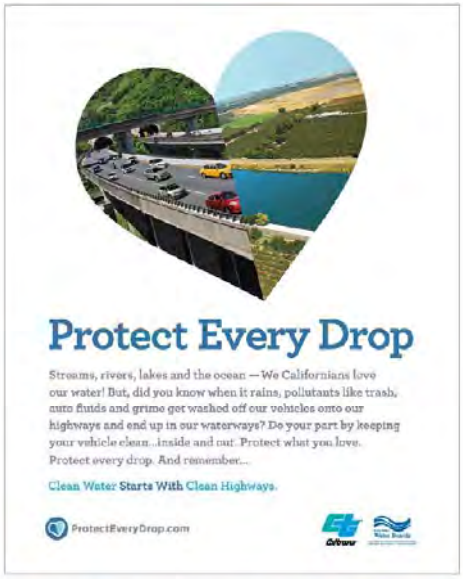
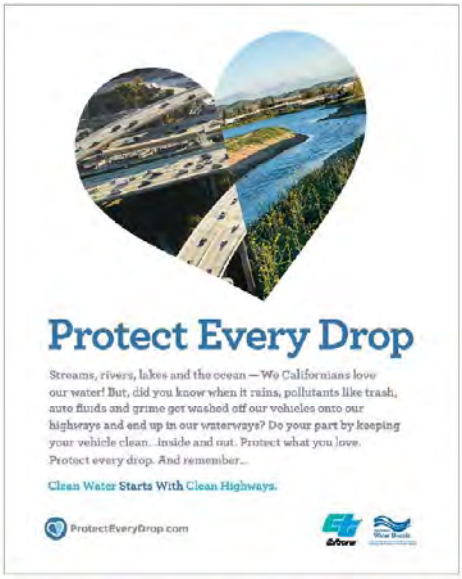
II. Resources Continued

Mall Backlit Signs





Continued on the next page...

6

II. Resources Continued

Posters

Northern California

Southern California

Continued on the next page...

7

II. Resources Continued

Tip Flyer

Simple Ways

To Reduce Stormwater Pollution

Streams, rivers, lakes and the ocean—Californians love their water! But, did you know when it rains, pollutants like trash, auto fluids and grime get washed off our vehicles onto our highways and end up in our waterways? Here's how you can help prevent pollution!

Properly inflated tires decrease wear, improve gas mileage and make your tires less susceptible to blowouts which all decrease pollution.

Maintain your vehicle to fix any leaks quickly to prevent auto fluids from dripping on the road. One vehicle dripping may not seem like much but thousands of vehicles dripping on our highways add up quickly!

Swing by a car wash facility to get the dirt, grime and other residue washed off your vehicle to prevent polluted runoff during a rainstorm.

Properly dispose of trash and recycling into a receptacle at the gas station or at home before they fly from a window or truck bed into a storm drain.

When hauling loads, make sure that items are properly secured with tarps and tie downs so items don't fly out of the bed of your truck.

Do your part by maintaining your vehicle and keeping it clean...inside and out. Protect our water. Protect Every Drop! And remember...

Clean Water Starts With Clean Highways.

ProtectEveryDrop.com

Available Languages:

- English
- Spanish
- Chinese
- Hmong
- Russian
- Vietnamese
- Punjabi
- Korean

8

III. Behavior Focused

Behavior Focused Creative Elements

Billboards

Mall Signs

Online Banner Ads

9

IV. Adapting Materials

Add Your Logo

This is a guide for how and where you can display your logo on creative.

Add Your Logo Here

Creative integrity must not be altered. However, the roadway/ highway image and the water body image in the heart can be customized to fit your area.

The tone of the copy must stay the same to maintain the Caltrans Protect Every Drop campaign brand integrity, but the specific words can be altered to fit the needs of your area and must be presented to Caltrans contract manager for approval.

Can alter with one of the pre-approved taglines or a tagline approved by Caltrans contract manager.

Add Your Logo Here

10

V. Taglines

Tagline Options

Having a campaign tagline that fits your area is important. Below are some pre-approved tagline options. **Any other custom tagline must be approved by Caltrans.**

Clean Water Starts With Clean Highways

Clean Water Starts With Clean Roadways

Clean Water Starts With Clean Streets

Clean Water Starts With a Clean City

Clean Creeks Start With Clean Streets

Clean Rivers Start with Clean Roads

Clean Streams Start With Clean Streets

VI. Contact

Contact Us

For more information, or to request the use of these materials, please contact:

Ana Serrano

Protect Every Drop Program Contract Manager
Senior Transportation Engineer
Office of Stormwater Program Implementation
Division of Environmental Analysis
(916) 653-2351

Or

Shelley Cousineau

Protect Every Drop Project Manager
Sagent
(916) 359-8316

Appendix 7. RSBW Trash TMDL Revisions Presentation

CALLEGUAS CREEK

Watershed Management Plan

Revolon Slough & Beardsley Wash Trash TMDL Revisions

Presentation to

Los Angeles Regional Water Quality Control Board

Ewelina Mutkowska, County Stormwater Program Manager
Ventura County Public Works Agency

June 14, 2018

TMDL Implementation

- Six Responsible Parties within CCW TMDL MOA
- Trash monitoring (including trash collection) since October 2009
- Special cleanups since 2012
- MOA with Ventura Land Trust for monitoring oversight, public outreach, and additional volunteer cleanup events.

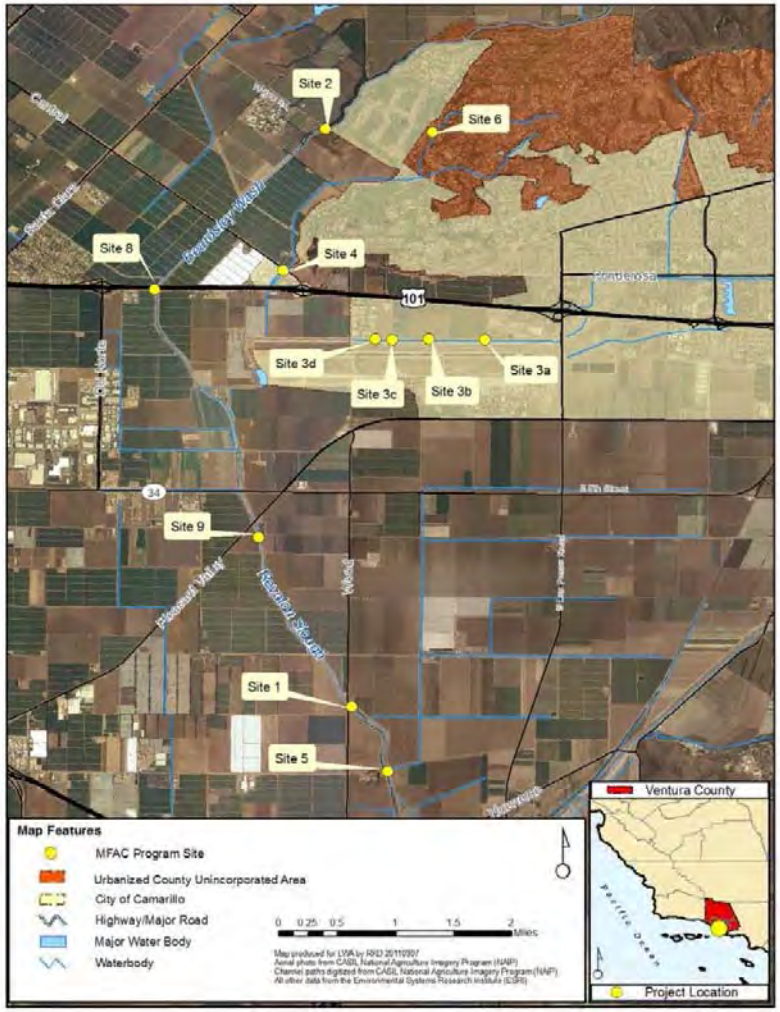
PUBLIC WORKS
VENTURA COUNTY

CITY OF OXNARD CALIFORNIA

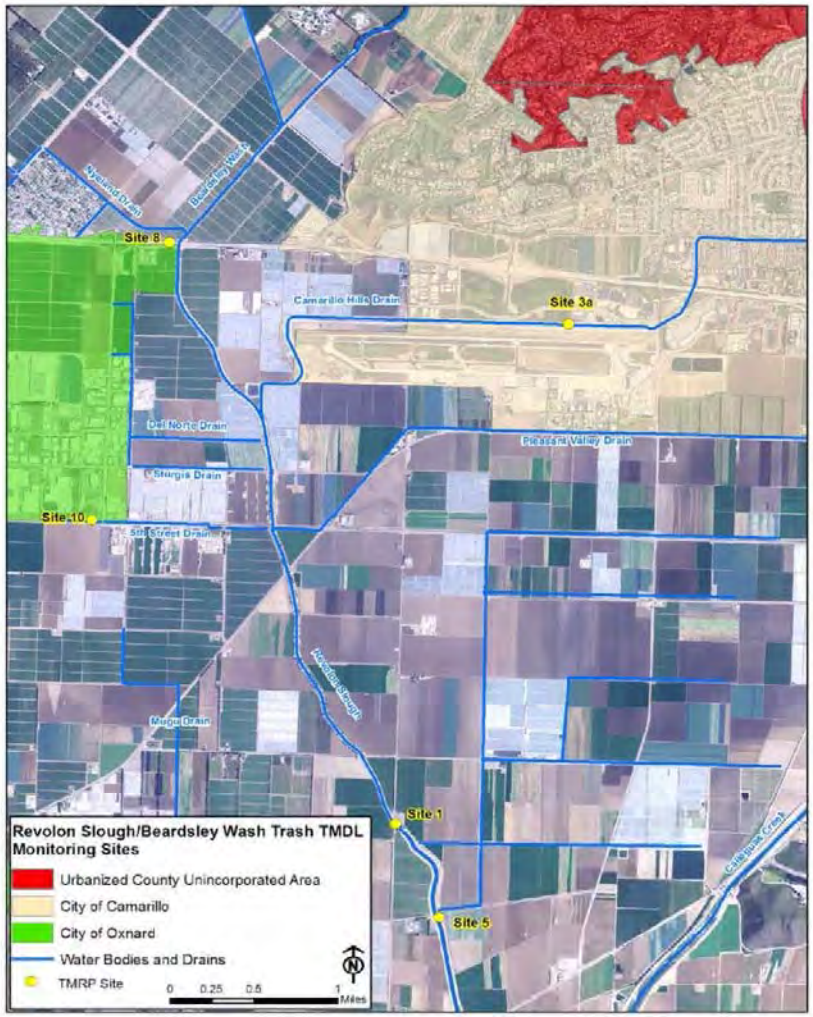
VENTURA COUNTY Agricultural Irrigated Lands Group

Caltrans

2

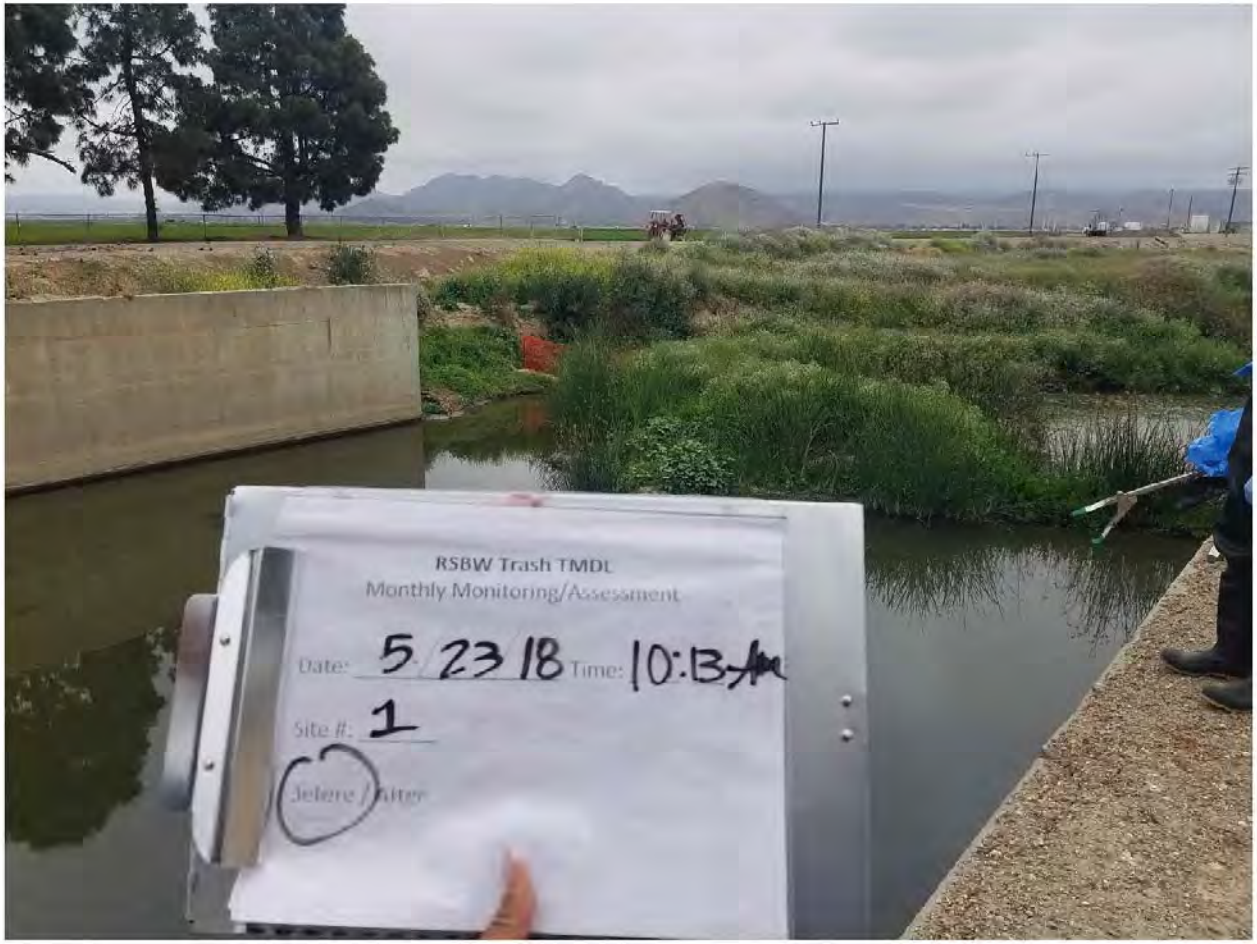


2008 TMRP



2015 TMRP Addendum No. 1

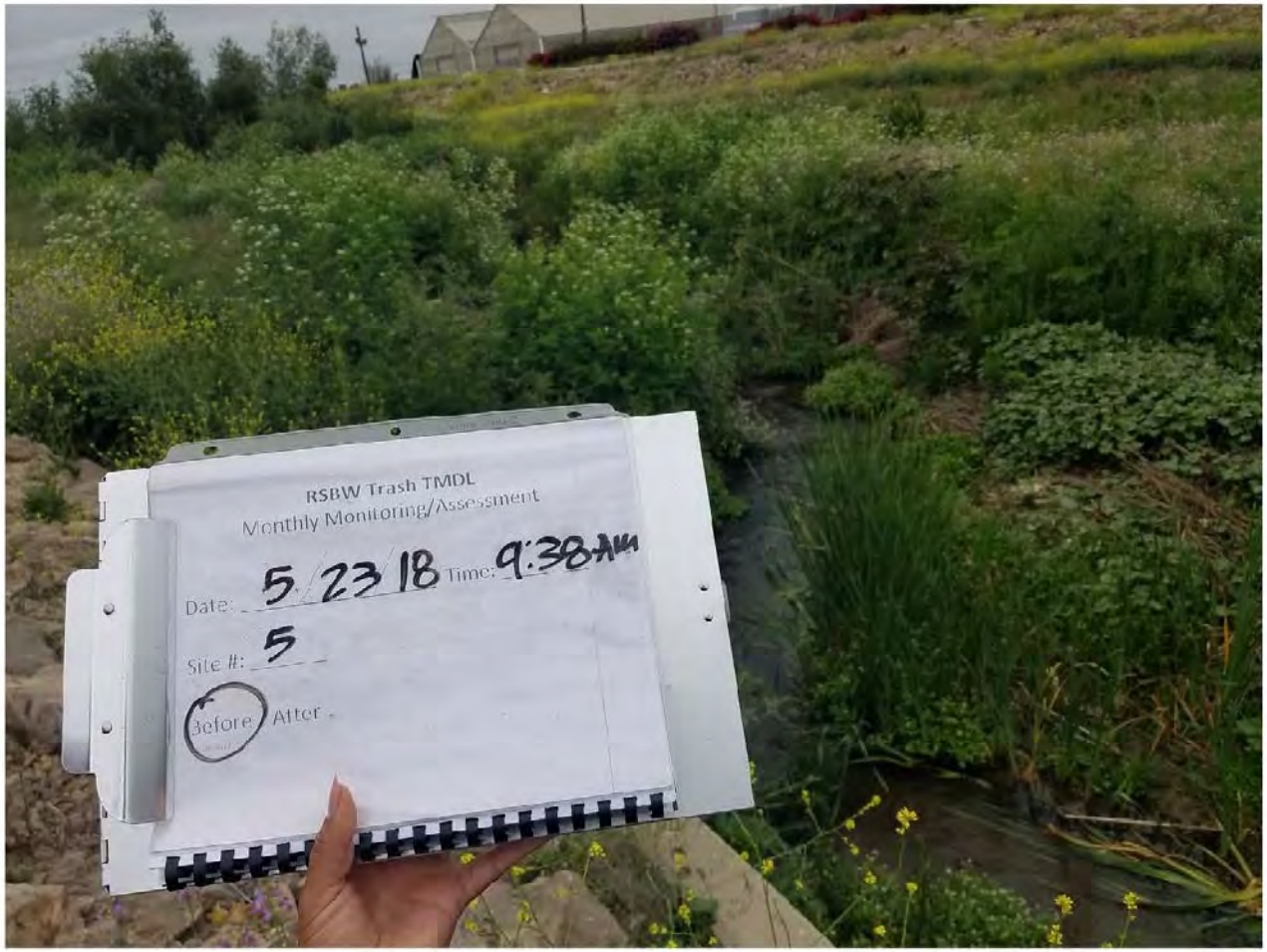
3



Moderate levels of urban and ag debris (Category 2 less than 100 pieces)

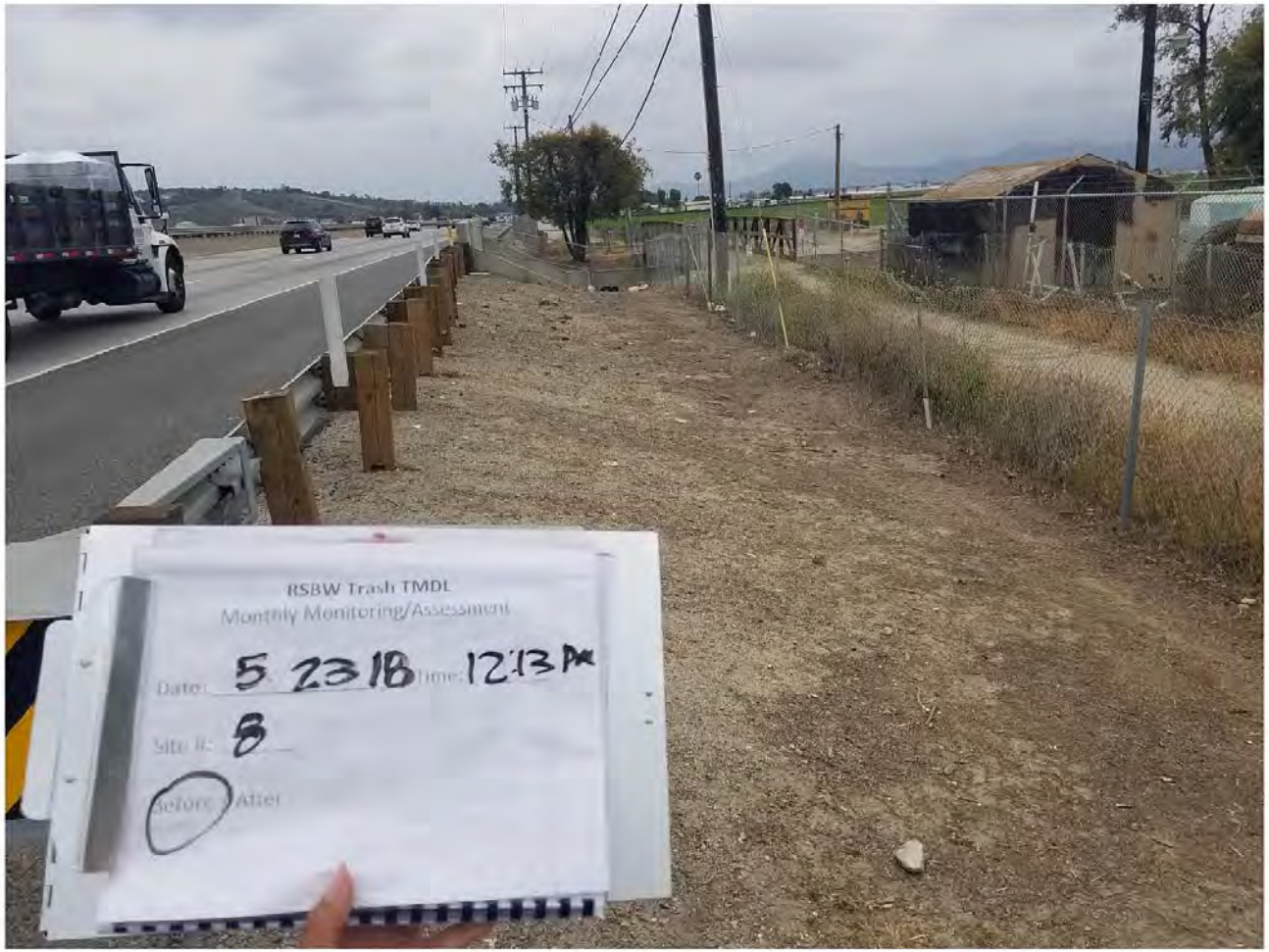
4

Minimal debris present – Category 1 (less than 10 pieces)



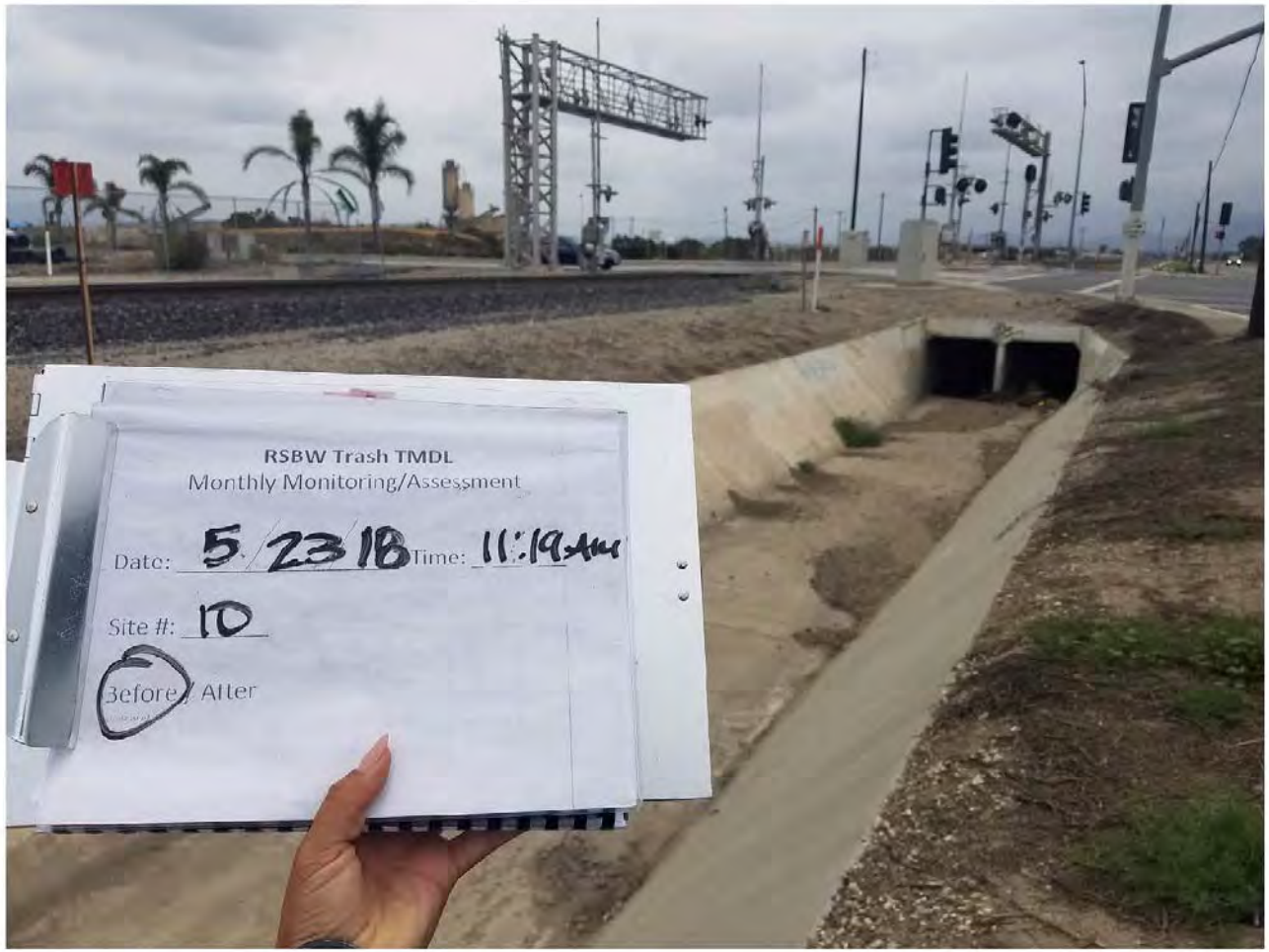
Minimal debris present – Category 1 (less than 10 pieces)

6



Minimal debris (Category 1 less than 10 pieces)

7



Minimal debris (Category 1 less than 10 pieces)

8

Site 1 - Revolon Slough at Wood Road

Monthly Special Cleanup

Monthly Monitoring Event

9

TMDL Implementation

- Litter Management Programs – details are provided in the Annual Reports.
- Enhanced point-source specific MFAC/BMPs
- Full trash capture devices – County (100%), Cities and Caltrans in progress.

10

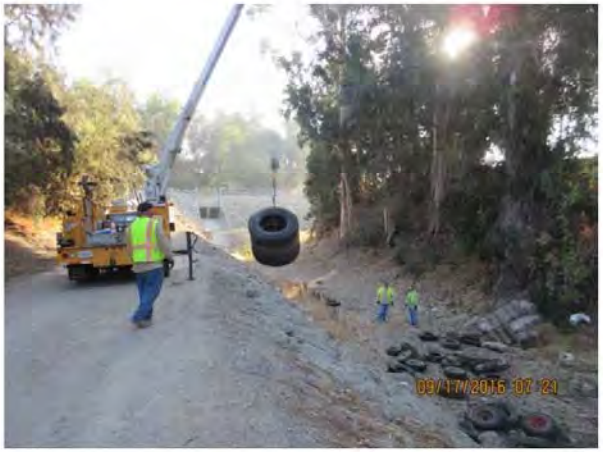
Catch Basins Cleanouts

Example from City of Camarillo

11

Coastal Cleanup Day

BW site since 2016



12

Public Outreach

13

Eco-Hero Shows for Schools

Ventura Countywide Stormwater Quality Management Program

14

RS/BW Trash TMDL Revisions Letter - Comment no. 4

Additional MFAC Revisions – recommended language:

"For Revolon Slough and Beardsley Wash, the initial minimum frequency shall be set as follows:

1. Monthly on Revolon Slough and its adjacent land areas at Wood Road (the end of the concrete-lined channel), as defined in the Executive Officer approved-Trash Monitoring and Reporting Plan (TMRP) Addendum No. 1.

2. Monthly ~~assessment and collection~~ at outlet~~s~~ on north side of Camarillo Hills Drain between Las Posas Rd. and Wood Rd as defined in the Executive Officer approved TMRP Addendum No. 1.

3. Monthly in Revolon Slough downstream of the agriculture drain discharging from the left bank just south of Etting Rd as defined in the Executive Officer approved TMRP Addendum No. 1.

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RS/BW Trash TMDL Revisions Letter - Comment No. 5

Request for an extension of the final point source compliance date from March 6, 2016 to **July 8, 2020**.

- Consistency with the State Trash Amendments
  - 10 yr implementation timeline per 2010 Ventura MS4 Permit
  - TMDL milestones of 20% installation/reduction per year vs. State Trash Amendments' 10% installation/reduction per year

16

Questions?

Ewelina Mutkowska, County Stormwater Program Manager
Ventura County Public Works Agency
(805) 645-1382 or Ewelina.Mutkowska@ventura.org

Acknowledgements

VCAILG
City of Camarillo
City of Oxnard
County of Ventura
Caltrans
Larry Walker Associates, Inc.
John Krist & Nancy Broschart
Lucia McGovern
Badaoui Mouderres
Glenn Shephard & Arne Anselm
Chien Pei Yu

county of ventura

PUBLIC WORKS
VENTURA COUNTY

JEFF PRATT
Agency Director

Central Services Department
Debra Cavaletto, Acting Director

Engineering Services Department
Christopher Cooper, Director

Transportation Department
David Fleisch, Director

Water & Sanitation Department
Michaela Brown, Director

Watershed Protection District
Glenn Shephard, Director

January 31, 2019

Jenny Newman, Regional Programs Section Chief
Regional Water Quality Control Board
Los Angeles Region
320 West 4th Street, Suite 200
Los Angeles, CA 90013

SUBJECT: UPPER MALIBU CREEK TRASH TMDL 2016-2017 ANNUAL MONITORING REPORT DATED JANUARY 2019

Dear Ms. Newman:

Enclosed for your review and consideration is the Upper Malibu Creek Trash Total Maximum Daily Load (TMDL) Annual Monitoring Report (AMR) for 2016-2017 monitoring year. The AMR is being submitted per the requirements of the Malibu Creek Trash Total Maximum Daily Load (TMDL), Los Angeles Regional Water Quality Control Board Resolution No. 2008-007 on behalf of the County of Ventura and Ventura County Watershed Protection District.

AMR documents sixth year implementation of the Malibu Creek Watershed Trash Monitoring and Reporting Plan and Minimum Frequency of Assessment and Collection (TMRP/MFAC) program, submitted collaboratively by the County, the District, and the City of Thousand Oaks on April 30, 2010. It provides a summary of conducted monitoring activities, a summary of the monitoring results, and documentation of implemented BMPs including installation of full capture devices towards point source compliance, refer to Appendix 4 for "Full Trash Capture Device Installation Report for Upper Malibu Creek Watershed Trash Total Maximum Daily Load" dated May 2018.

If you have any comments or question regarding the attached document, please contact me via email (Ewelina.Mutkowska@ventura.org) or by phone at (805) 645-1382.

Sincerely,

Ewelina Mutkowska
County Stormwater Program Manager

CC: Stefanie Hada, RWQCB-Los Angeles Region, Environmental Scientist
Jeff Pratt, Ventura County Public Works Agency, Director
Glenn Shephard, Ventura County Watershed Protection District, Director
Arne Anselm, Ventura County Watershed Protection District, Deputy Director

JANUARY 2019

Upper Malibu Creek Watershed Trash TMDL 2016-2017 Annual Monitoring Report

submitted to

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD,
LOS ANGELES REGION

on behalf of the

COUNTY OF VENTURA AND
VENTURA COUNTY WATERSHED PROTECTION DISTRICT

LARRY WALKER ASSOCIATES

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Table of Contents

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Executive Summary

The purpose of this report is to present the results of the fifth-year (2016-2017) monitoring efforts conducted by the County of Ventura (County) and the Ventura County Watershed Protection District (VCWPD). The program is designed to comply with the requirements of the Amendments to the Water Quality Control Plan – Los Angeles Region for the Malibu Creek Watershed Trash TMDL (Trash TMDL), Resolution No. R4-2008-007 (effective July 7, 2009). The trash monitoring results and compliance assessments are reported for point source waste load allocations (WLAs) and non-point source load allocations (LAs). Monitoring efforts were conducted according to the Trash Monitoring and Report Plan (TMRP) for the Malibu Creek Trash TMDL submitted to the California Regional Water Quality Control Board, Los Angeles Region (Los Angeles Water Board) on April 30, 2010.

The County and VCWPD are complying with the point source requirements of the Trash TMDL through the installation of full capture systems in all conveyances collecting drainage from Priority Land Use areas and implementation of a MFAC/BMP Program in all the non-priority land use areas. To comply with the point source requirement of a 100 percent reduction of trash from the baseline WLA, the County and VCWPD needs to show a minimum of a 30 percent decrease from at least one of the three baseline WLAs listed in the TMRP. This is due to the installed full capture systems collecting 70 percent of the total trash generated in the County/VCWPD's jurisdictions.

The MFAC trash data showed a 67 percent reduction in the volume of trash compared to the baseline WLA and a 41 percent reduction in trash from the pieces baseline WLA. Based on the amount of trash captured by the County/VCWPD'S full capture systems, and the greater than 30 percent reduction shown in two of the three baseline WLA metrics, the County/VCWPD are complying with the final July 2017 point source requirement of a 100 percent reduction in trash from the baseline WLA.

The County/VCWPD are complying with the non-point source requirements of the Trash TMDL through the implementation of a MFAC/BMP Program. Immediately following each MFAC Event, the MFAC/BMP Program resulted in zero trash as required by the Trash TMDL. Furthermore, the average monthly volume of trash, weight of trash, and the amount of trash were 0.2 cubic feet, 2.48 pounds, and 48 pieces, respectively. This indicates that trash is not accumulating in deleterious amounts that cause nuisance or adversely affect beneficial uses between collections. Therefore, the MFAC/BMP Program is effective for meeting the Trash TMDL's non-point source requirements.

As the County/VCWPD may need to revise and re-submit their TMRP, the County/VCWPD do not have any recommended MFAC Program changes at this time and will continue implementing their MFAC Program and TMRP until the proposed revised Trash TMDL is approved and effective. After which, the County/VCWPD will likely switch their MFAC Program from quantitative to visual as an assessment of the reduction from the baseline WLA will no longer be needed.

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1 Overview

The purpose of this Annual Report is to present the results of the fifth-year (2016-2017) monitoring efforts conducted by County of Ventura (County) and the Ventura County Watershed Protection District (VCWPD). The monitoring efforts are designed to comply with the requirements of the Amendments to the Water Quality Control Plan – Los Angeles Region for the Malibu Creek Watershed Trash TMDL (Trash TMDL), Resolution No. R4-2008-007 (effective July 7, 2009). Monitoring efforts were conducted according to the Trash Monitoring and Report Plan (TMRP) for the Malibu Creek Trash TMDL submitted to the California Regional Water Quality Control Board, Los Angeles Region (Los Angeles Water Board) on April 30, 2010. To complete this effort, the responsible parties hired the California Conservation Corps (CCC) to conduct field monitoring efforts and Larry Walker Associates, Inc. (LWA) to complete reporting requirements.

The Trash TMDL assigns the County and the VCWPD point source waste load allocations (WLAs) and non-point source load allocations (LAs) as well as a numeric target of "zero trash in the above listed subwatersheds of the Malibu Creek Watershed, and on the shorelines of those waterbodies." For point sources, zero is defined "as no trash discharged into the listed waterbodies of the Malibu Creek Watershed and on the shorelines of those waterbodies." For non-point sources, zero is defined as "no trash immediately following each assessment and collection event with an established Minimum Frequency of Assessment and Collection Program (MFAC Program). The MFAC Program is established at an interval that prevents trash from accumulating in deleterious amounts that cause nuisance or adversely affect beneficial uses between collections." The MFAC Program and TMRP were developed to meet the requirements of the Trash TMDL and to assess compliance with the point source WLAs and non-point source LAs.

This TMRP Annual Report includes:

- A description of the MFAC Site and a summary of the monitoring events conducted during the 2016-2017 reporting year;
- A discussion of the data collected during the 2016-2017 reporting year;
- A compliance discussion for point and non-point sources;
- A summary of trash best management practices (BMPs) implemented; and
- Recommended changes to the MFAC/BMP Program and TMRP.

2 MFAC Site and Monitoring Events

The following subsections provide information for the MFAC Site and for the completed monitoring events during the 2016-2017 reporting year.

2.1 MFAC SITE LOCATION

The Medea Creek MFAC site (MC1) location was selected at the lowest point of flow from the subwatershed in Ventura County where creek morphology is conducive to accumulate trash deposits. This provides a measure of the level of trash movement in the subwatershed. This location was also judged to be accessible and safe for entry. The area within the County unincorporated community of Oak Park with drainage to Reach 2 of Medea Creek is 3.3 square miles. A breakdown of land uses for this area is: 6.93 percent commercial and community facilities; 30.1 percent residential; and 62.9 percent open space. The population in Oak Park is about 13,800. Medea Creek follows a single flow path as it moves through the assessment area. When flow levels rise due to a storm event, the stream configuration causes bank overflow and deposition of transported trash and debris onto an existing flood plain. The Medea Creek assessment site is shown in **Figure 1**.

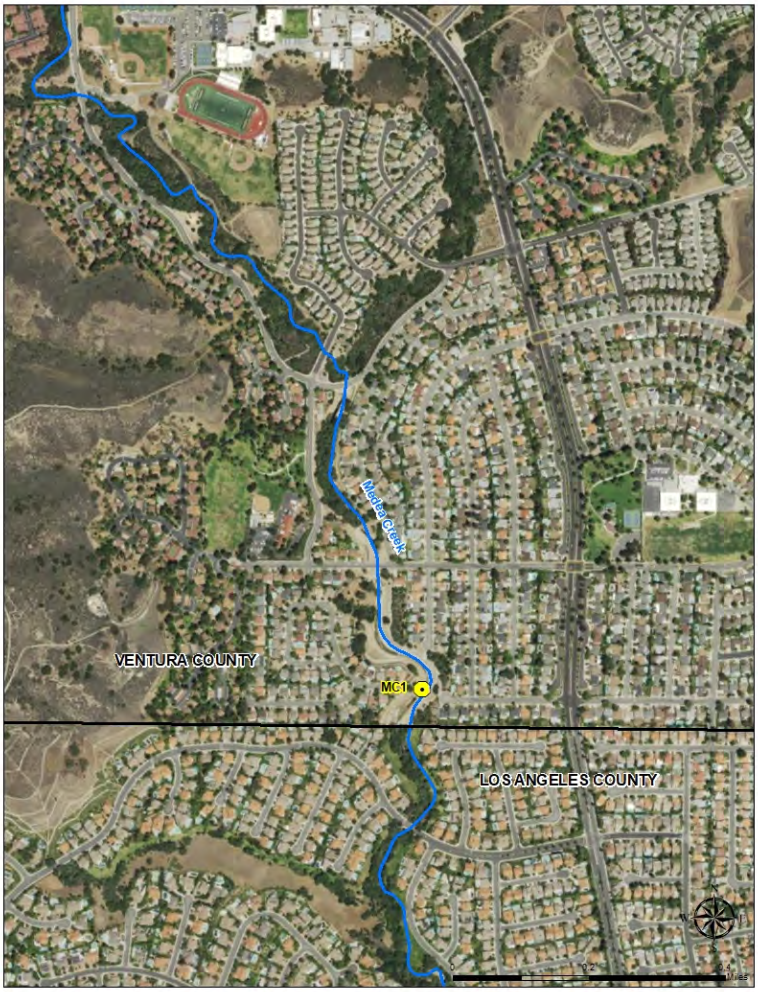


Figure 1. Medea Creek MFAC Site (MC1) Location

2.2 SUMMARY OF MONITORING EVENTS

As specified in the TMRP, a minimum of one MFAC Event per month is conducted at the Medea Creek site. As mentioned above, the CCC conducted all MFAC Events, which were completed as indicated in **Table 1**. The CCC utilized an equivalent method/variation of the Rapid Trash Assessment Protocol (RTAP), developed by the San Francisco Bay Water Board. The CCC began each MFAC event at the lower site boundary and moved upstream making sure to differentiate between items found above and below the high-water line. The CCC collected all identified trash, while simultaneously categorizing and tabulating trash items on the field log (Appendix 1). After the collection was completed, the sum of each item found above and below the high-water line was written next to the item's respective category. The trash collected was then weighed and the volume measured.

Table 1. MFAC Event Completion Summary

Monitoring Date	Medea Creek Reach 2, MC1 Site
7/6/2016	X
8/18/2016	X
9/15/2016	X
10/13/2016	X
11/22/2016	X
12/22/2016	X
1/19/2017	X
2/23/2017	X
3/23/2017	X
4/26/2017	X
5/26/2017	X
6/30/2017	X

"X" indicates a completed MFAC Event

3 Data Collection Discussion

The location of trash (i.e., above or below the high-water line) at the site is likely associated with the method that the debris was deposited and can assist the Responsible Parties with sourcing the debris. Items found above the high-water line may have been deposited by wind transport, littering from adjacent land uses, and illegal dumping. Items found below the high-water line may have been deposited by downstream accumulation. During the monitoring year, the types of trash found were consistently urban and recreational.

The trash data collected during the 2016-2017 reporting year were highly variable in that during some months, the volume, weight, and pieces were higher above the high-water line than below and in some months, this trend was reversed. In addition, it is difficult to correlate the volume-to-weight-to-pieces data as the they often do not align. That is, one month there might be a high volume of trash, but a low weight of trash and a low number of pieces. Again, this trend might be reversed another month. Overall, the highest volume of trash occurred during February 2017, the highest weight in March 2017, and the highest number of pieces also in March 2017. Generally, the highest volume of trash was found in the winter and spring, the highest weight in winter, and there is no clear pattern for pieces of trash. **Table 2** summarizes the volume, weight and pieces of trash found above and below the high-water line as well as the total amount of trash collected at MC1 site, by month. **Figure 2**, **Figure 3**, and **Figure 4** show the volume of trash collected, the weight of trash collected, and the pieces of trash collected, respectively.

Table 2. Trash Data Collected Above and Below the High-Water Line and Total Trash Collected at MC1

Date	Above High-Water Line			Below High-Water Line			Total Trash Collected		
	Volume (CF)	Weight (lbs)	Total Pieces of Trash	Volume (CF)	Weight (lbs)	Total Pieces of Trash	Volume (CF)	Weight (lbs)	Total Pieces of Trash
7/6/2016	0.05	0.19	3	0.05	0.69	18	0.1	0.9	21
8/18/2016	0.05	0.08	6	0.05	0.7	71	0.1	0.8	77
9/15/2016	0.05	0.41	21	0.05	0.92	37	0.1	1.3	58
10/13/2016	0.05	0.17	14	0.05	0.44	3	0.1	0.6	17
11/22/2016	0.05	1.03	27	0.05	0.33	31	0.1	1.4	58
12/22/2016	0.05	0.33	17	0.15	0.59	25	0.2	0.9	42
1/19/2017	0.05	0.52	14	0.1	1.19	30	0.2	1.7	44
2/23/2017	0.39	5.13	48	0.1	4.07	21	0.5	9.2	69
3/23/2017	0.05	0.25	14	0.3	10.2	65	0.4	10.5	79
4/26/2017	0.1	0.19	39	0.1	0.26	9	0.2	0.5	48
5/26/2017	0.1	0.33	18	0.2	1.16	15	0.3	1.5	33
6/30/2017	0.1	0.33	4	0.1	0.26	22	0.2	0.6	26
Totals	**1.1**	**8.9**	**225**	**1.3**	**20.8**	**347**	**2.4**	**29.8**	**572**

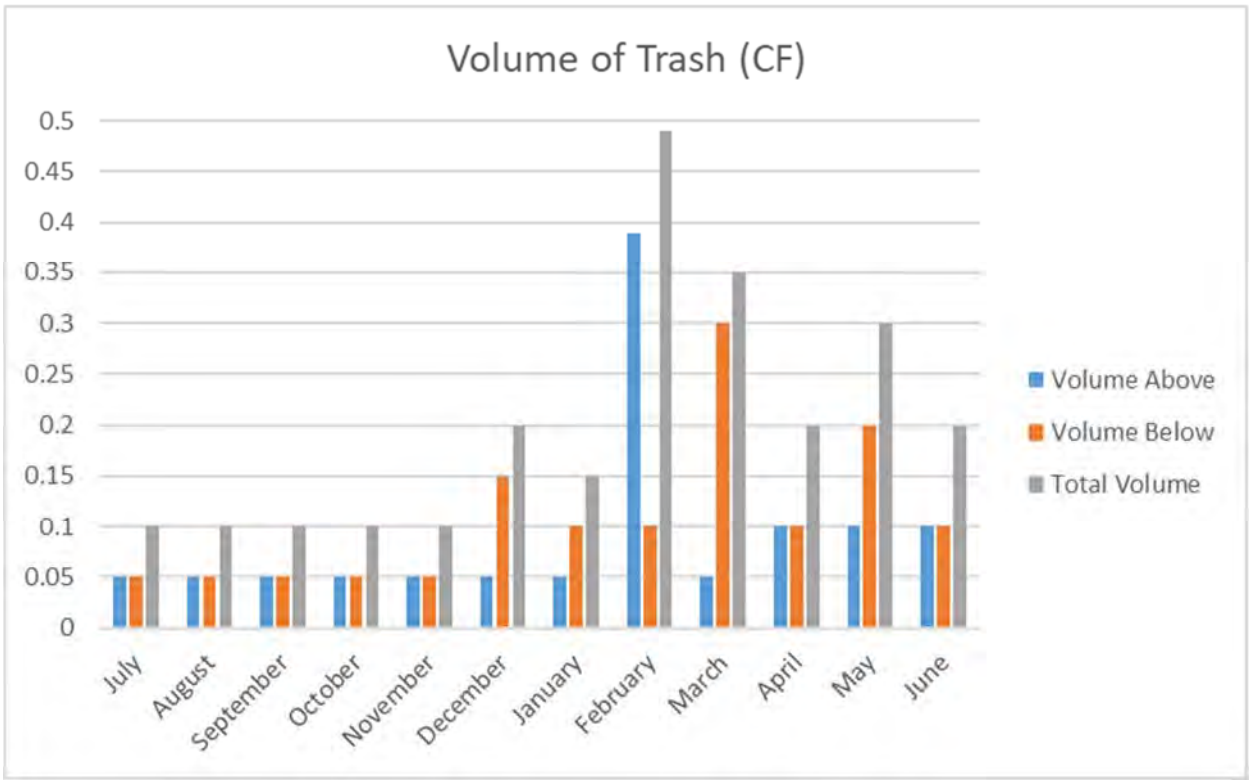


Figure 2. Volume of Trash Collected at MC1

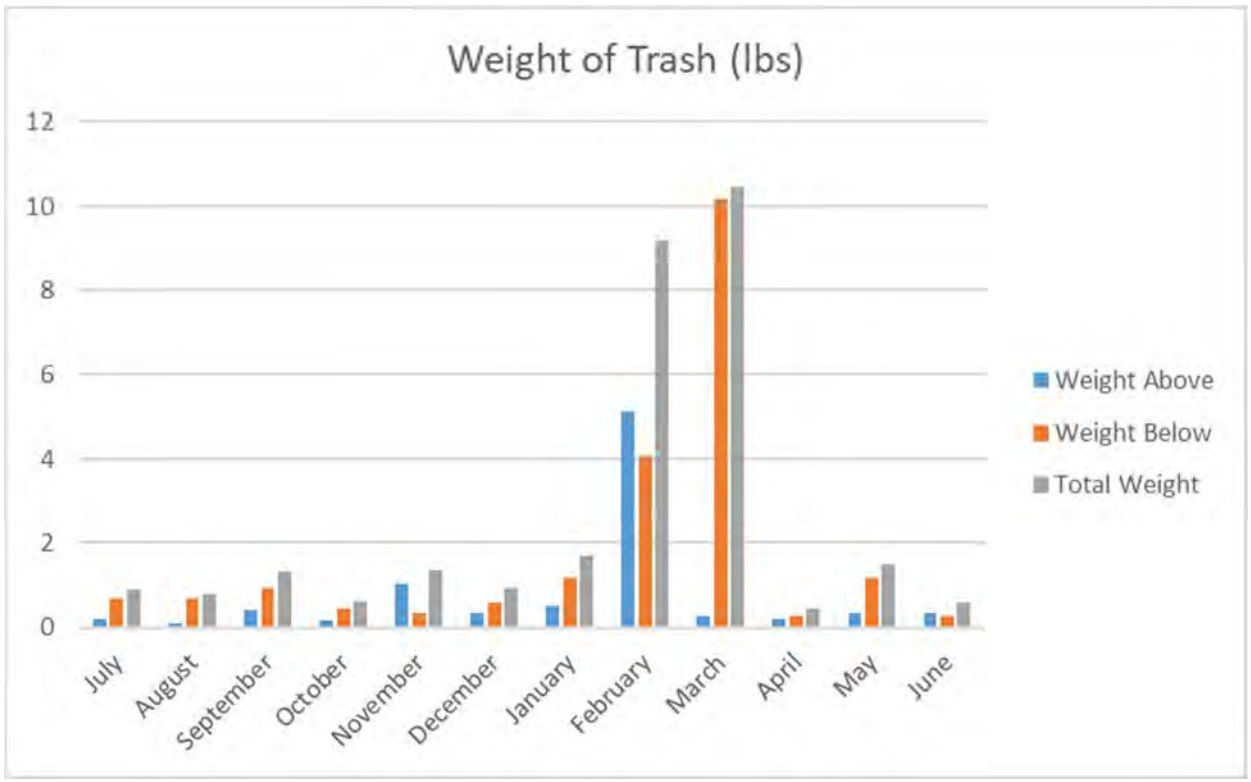


Figure 3. Weight of Trash Collected at MC1

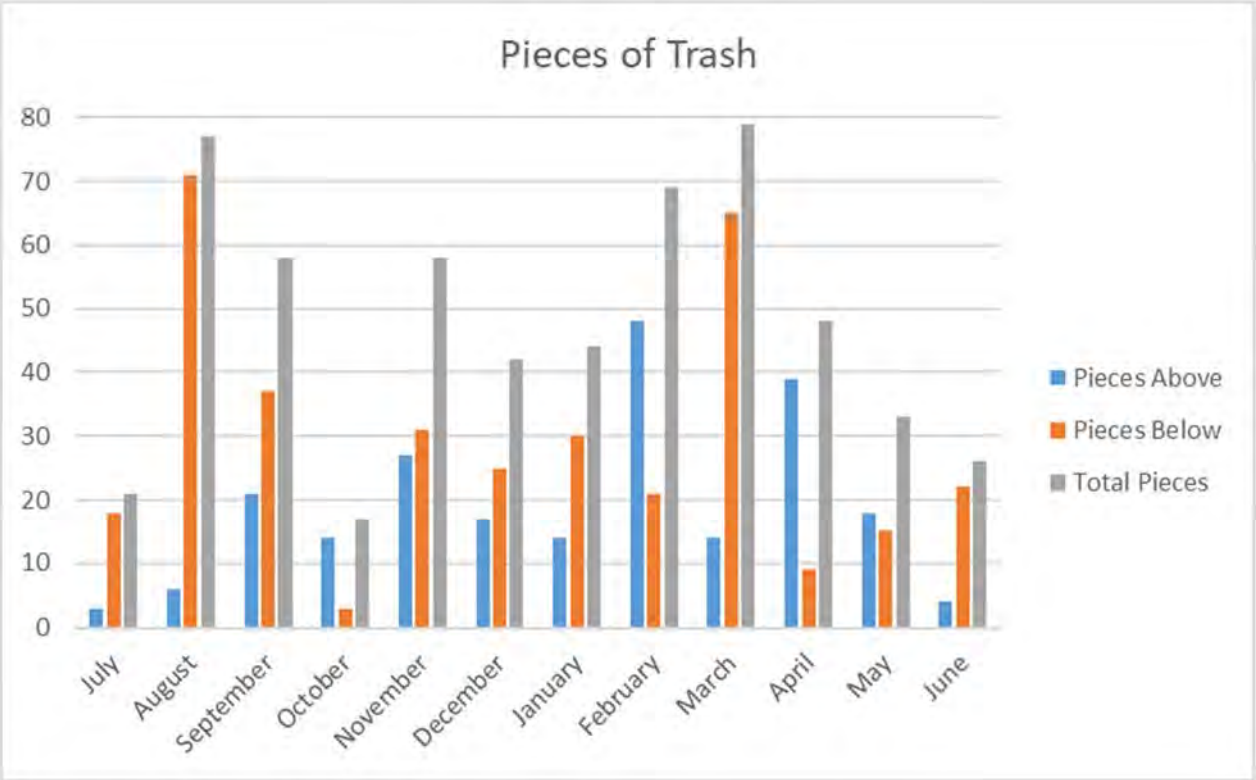


Figure 4. Pieces of Trash Collected at MC1

4 Point and Non-Point Source Compliance Discussion

4.1 POINT SOURCES

To address the point source requirements of the Trash TMDL, the County/VCWPD originally implemented a MFAC/BMP Program, which was detailed in the TMRP submitted to the Los Angeles Water Board on April 30, 2010. The Trash TMDL requires implementation of the TMRP six months from receipt of the letter of approval from Regional Board (Table 7-31.2a of the Trash TMDL). The County/VCWPD did not receive a response or approval from Los Angeles Water Board regarding the submitted TMRP and on March 25, 2011, submitted a Notice of Intent (NOI) to proceed with implementing the proposed TMRP. In July 2011, the County/VCWPD commenced implementing the proposed MFAC/BMP Program towards meeting the Trash TMDL's requirements.

The Trash TMDL requires point source dischargers to achieve a stepwise reduction in trash from the baseline WLA in 20 percent increments or install full captures systems in the corresponding percentages of conveyances discharging to the Malibu Creek Watershed. During the first year of monitoring, July 1, 2011 through June 30, 2012, trash volume, weight, and pieces data collected at the Medea Creek (MC1) monitoring location served as the baseline WLAs from which, the County/VCWPD have been assessing compliance (**Table 3**).

Table 3. Baseline WLAs for the Medea Creek Reach 2 (MC1) Sampling Site

Medea Creek Reach 2 (MC1) Sampling Site Baseline WLAs		
Volume (CF)	**Weight (lbs)**	**Pieces**
7.2	16.3	970

In October 2016, the County/VCWPD submitted a letter to Sam Unger, Executive Officer of the Los Angeles Water Board at the time, detailing a revised point source compliance strategy that was based on the Track 1 Compliance Option from the Proposed Final Amendment to the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) and the Proposed Final Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE Plan) (together, "Statewide Trash Policies").

The Track 1 Compliance Option requires municipal separate storm sewer system (MS4) permittees with regulatory authority over priority land uses[1] to install, operate, and maintain any combination of full capture systems for all storm drains that capture runoff from the priority land uses areas within the jurisdiction of the MS4 permittee. Priority land uses are those land uses that studies have shown generate significant amounts of trash. The intent of prioritizing land uses is to allow MS4 permittees to allocate trash-control resources to developed areas that generate the highest

[1] Priority land uses include: high-density residential, industrial, commercial, mixed urban (combination of high-density residential, industrial, and commercial), public transportation stations, or equivalent alternate land uses (MS4 permittees can petition the permitting agency to consider equivalent alternate land uses based on trash generation rates determined though a quantitative assessment).

amounts of trash. This is different than most of the TMDLs in the Los Angeles region, which require a MS4 permittee to address all land uses within its jurisdiction.

The County/VCWPD proposed, that until the Los Angeles Water Board re-considered the Trash TMDL related to the Statewide Trash Policies' priority land use areas, the County/VCWPD would address all priority land uses by installing full capture systems in catch basins along the storm drain system capturing runoff from the priority land use area and would address all non-priority land uses through a MFAC/BMP Program. To demonstrate compliance with the phased percent reductions required by the Trash TMDL, the County/VCWPD proposed to use the percent reduction identified by the trash data collected during the MFAC Events combined with the percent of total trash generated that is captured by the full capture systems in the priority land use areas.

As mentioned above, the TMRP lists three baseline WLA metrics that are used for determining the percent reduction in trash: pieces, volume (cubic feet), and weight (pounds). Over the past three monitoring years, no correlation has been shown between the three metrics. That is, there is no correlation between the pieces of trash collected, the volume of the trash collected, and/or the weight of the trash collected. As such, the County/VCWPD proposed that so long as one of the three metrics met the required phased percent reduction, then the County/VCWPD would be considered meeting the compliance target.

As the County/VCWPD proposed to utilize the amount of trash collected from the full capture systems installed as part of the compliance determination, the amount of trash they capture needed to be calculated. To determine the amount of trash the full capture systems capture, trash generation from the County unincorporated MS4 areas were calculated. Using land use acreage determined through geographic information system (GIS) analyses and trash generation rate (TGR) data obtained through a review of reports that contain TGR data, the County/VCWPD calculated trash generation rates for: (1) all land uses; (2) priority land uses; and (3) non-priority land uses (please see the October 10, 2016 and July 26, 2017 letters provided in Appendix 3 for the calculation steps).

Based on the GIS analyses and the review of the TGRs, 456 gallons/year of trash generated was calculated for all land uses, 323 gallons/year of trash generated was calculated for the priority land use areas, and 133 gallons/year of trash generated was calculated for non-priority land use areas. **Table 4** lists the estimated annual trash generation for each land use category within the County unincorporated areas. As the County/VCWPD installed full capture systems in the priority land use areas (See Appendix 4), this means the County/VCWPD captured 323 gallons/year of the 456 gallons/year or 70 percent of the total trash generated within the County unincorporated MS4 areas. This means that the County/VCWPD needs to show at least a 30 percent reduction from one of the baselines WLAs through the MFAC/BMP Program to comply with the final July 2017's 100 percent reduction from the baseline WLA requirement.

As shown in Table 5, the trash data collected during the 2016-2017 reporting year through the MFAC Program at MC1 showed a 67 percent reduction in the volume of trash compared to the baseline WLA and a 41 percent reduction in trash from the pieces baseline WLA. Conversely, the weight of trash collected in 2016-2017 was higher than the baseline WLA. As mentioned above, trash data are highly variable, which explains how two of the three metrics can show a reduction, while another can show an increase. Based on the amount of trash captured by the County's/VCWPD'S full capture systems, and the greater than 30 percent reduction shown in

two of the three baseline WLA metrics, the County/VCWPD are complying with the final July 2017 point source requirement of a 100 percent reduction in trash from the baseline WLA.

Table 4. County Unincorporated Area Trash Generation (Priority Land Uses in Bold)

Land Use	Acreage	TGR (gal/acre/year)	Trash Generated (gal/year)
Low-Medium Density Residential	792	0.1	79
High Density Residential	**221**	**1.2**	**265**
Commercial	**18**	**3.2**	**58**
Public/Semi-Public Buildings	107	0.5	54
Total	1,138		456
Priority Land Use Total	**239**		**323**
Non-Priority Land Use Total	899		133

Table 5. 2016-2017 Percent Reductions from Baseline WLAs

Metric	Volume (CF)	Weight (lbs)	Pieces
Baseline WLA	7.2	16.3	970
30 percent Reduction from Baseline WLA Values	5.04	11.41	649
2016-2017 Trash Data	2.39	29.77	572
Percent Reduction from Baseline WLA	67 percent	-83 percent	41 percent

4.2 NON-POINT SOURCES

As mentioned above, for non-point sources, the numeric target of zero trash is defined as "no trash immediately following each assessment and collection event with an established Minimum MFAC Program, where the MFAC Program is established at an interval that prevents trash from accumulating in deleterious amounts that cause nuisance or adversely affect beneficial uses between collections.

Immediately following each 2016-2017 MFAC Event, the MFAC Program resulted in zero trash as required by the Trash TMDL for non-point sources. Furthermore, the average monthly volume, weight, and amount of trash were 0.2 cubic feet, 2.48 pounds, and 48 pieces, respectively. This indicates that trash is not accumulating in deleterious amounts that cause nuisance or adversely affect beneficial uses between collections. Therefore, the MFAC/BMP Program is effective for meeting the Trash TMDL's non-point source requirements.

5 Trash BMPs Implemented

The County/VCWPD Litter Management Program includes the following:

- Catch basin cleaning - Catch basins are inspected at least once a year and cleaned when filled to 25 percent or more of the catch basin's capacity. During the storm season, all drainage facilities are inspected and cleaned as necessary.
- Ventura County's catch basins are labeled, "Don't Pollute, Flows to Waterways."
- Open channel storm drain maintenance - All channels owned and maintained by VCWPD are cleared, inspected, and cleaned as required, at least once per year.
- Trash Management at Public Events - A trash and litter management plan is required when obtaining a permit for staging public events. This plan requires adequate facilities for trash collection and disposal.
- Public areas - Trash receptacles have been placed within high trash generation areas. These devices are cleaned and maintained regularly to prevent trash overflow.
- The amended Ventura County Stormwater Quality Management Ordinance for Unincorporated Areas (Ventura County Ordinance No. 4450) has been in effect since August 2012. It includes litter and trash specific prohibitions (§ 6942) on the discharge or deposition of trash that may enter the County storm drain system or receiving waters. The revised ordinance also includes increased civil penalties for violations and provisions for issuing administrative fines, recovery of costs, and misdemeanor violations.
- The County and VCWPD participate in the Ventura Countywide Stormwater Quality Management Program to that provides outreach and education facilitated by contracted services from "The Agency," a professional advertisement group that designs and conducts countywide, bilingual outreach programs advocating proper trash disposal. Outreach includes social media messages about litter prevention and the protection of stormwater quality. During this reporting period, the following educational events were organized in the upper Malibu Creek Watershed, refer to Appendix 2 for photos:
    - Big Sunday on May 7, 2017 annual community cleanup event organized by the Oak Park Unified School District in collaboration with Ventura County Public Works Agency.
    - Ventura County Public Works Agency's Watershed Protection District offered free to public Watershed Friendly Garden™ workshops and seminars in September and October of 2016 funded by Proposition 84 Storm Water Grant Program.
    - Spring 2017 "Youth outreach presentation at Red Oak Elementary School and Oak Hill Elementary School in Oak Park, CA.
    - Various Stormwater Pollution Prevention -related social media posts by the Ventura County Community for Clean Watersheds.
- The County conducts commercial, industrial, and construction facility/site inspections to ensure pollution prevention BMPs are adequate and maintained and to educate employees about the importance of pollution prevention.

6 Recommended MFAC Program and TMRP Changes

On April 10, 2018, the Los Angeles Water Board released proposed revisions to the Trash TMDL that align the Trash TMDL with the Statewide Trash Amendments. In the proposed revised Basin Plan Amendment (BPA), the Los Angeles Water Board indicated that the Trash TMDL's responsible parties will be required to submit a revised TMRP that may include an updated MFAC Program. As such, the County/VCWPD do not have any recommended MFAC Program changes at this time and will continue implementing their MFAC Program and TMRP until the proposed revised Trash TMDL is approved and effective.

The proposed revised BPA indicates the responsible parties will only need to address priority land uses within their jurisdictions to meet the point source requirements. The County/VCWPD have installed full capture systems all conveyances collecting drainage from priority land use areas within their jurisdictions. As such, they will no longer need to use a reduction from the baseline WLAs for compliance. Therefore, if the proposed revised Trash TMDL, with the priority land uses component, is adopted by the Los Angeles Water Board, the County/VCWPD will likely revise their MFAC to a visual screening approach that will allow to allow for program effectiveness assessment and will eliminate the collection of quantitative data. The MFAC will continue to address non-point sources and will address trash from non-priority land use areas.

As outlined in the TMRP, a further assessment of BMP efficiency is to be conducted after each year of monitoring. Given the broad nature of most of the BMPs implemented to date (*e.g.*, education programs, ordinances), the highly variable amounts of trash collected each year, and the relatively short time frame that full capture systems have been installed, trends were not identified in the monitoring data that could be used to determine effectiveness of individual BMPs. As such, the implementation of the BMPs is not clearly reflected in the trash monitoring results and program implementation continues to be evaluated to consider these results. The County/VCWPD are confident the currently implemented BMPs are adequately addressing trash and ongoing activities by the County/VCWPD continue to assess and improve litter control in urban and recreational areas.

7 Conclusion

The County/VCWPD conducted monthly MFAC Events at the MC1 site in Medea Creek Reach 2. Trash volume, weight, and pieces data were collected during each MFAC Event. The trash data collected during the 2016-2017 reporting year were highly variable and it is difficult to correlate the volume-to-weight-to-pieces data as the they often do not align. Overall, the highest volume of trash occurred during February 2017, the highest weight in March 2017, and the highest number of pieces also in March 2017. Generally, the highest volume of trash was found in the winter and spring, the highest weight in winter, and there is no clear pattern for pieces of trash.

The County/VCWPD are complying with the point source requirements of the Trash TMDL through the installation of full capture systems in all conveyances collecting drainage from priority land uses areas and implementation of a MFAC/BMP Program in all the non-priority land use areas. Based on the analysis completed for the October 10, 2016 letter to the Los Angeles Water Board detailing the County/VCWPD's proposed compliance option, the installed full capture systems address 70 percent of the total trash generated within the County unincorporated MS4

areas. As such, to comply with the point source requirement of a 100 percent reduction of trash from the baseline WLA, the County/VCWPD needs to show a minimum of a 30 percent decrease from at least one of the three the baseline WLAs listed in the TMRP.

The MFAC trash data showed a 67 percent reduction in the volume of trash compared to the baseline WLA and a 41 percent reduction in trash from the pieces baseline WLA. Conversely, the weight of trash collected in 2016-2017 was higher than the baseline WLA. As mentioned above, trash data are highly variable, which explains how two of the three metrics can show a reduction, while another can show an increase. Based on the amount of trash captured by the County's/VCWPD'S full capture systems, and the greater than 30 percent reduction shown in two of the three baseline WLA metrics, the County/VCWPD are complying with the final July 2017 point source requirement of a 100 percent reduction in trash from the baseline WLA.

The County/VCWPD are complying with the non-point source requirements of the Trash TMDL through the implementation of a MFAC/BMP Program. Immediately following each MFAC Event, the MFAC/BMP Program resulted in zero trash as required by the Trash TMDL. Furthermore, the average monthly volume of trash, weight of trash, and the amount of trash were 0.2 cubic feet, 2.48 pounds, and 48 pieces, respectively. This indicates that trash is not accumulating in deleterious amounts that cause nuisance or adversely affect beneficial uses between collections. Therefore, the MFAC/BMP Program is effective for meeting the Trash TMDL's non-point source requirements.

As the County/VCWPD may need to revise and re-submit their TMRP, the County/VCWPD do not have any recommended MFAC Program changes at this time and will continue implementing their MFAC Program and TMRP until the proposed revised Trash TMDL is approved and effective. After which, the County/VCWPD will likely switch their MFAC Program from quantitative to visual as an assessment of the reduction from the baseline WLA will no longer be needed. All proposed changes will be included in the revised TMRP.

Appendix 1

Field Logs and Photos

Malibu Creek Trash TMDL
Trash Identification Form

Event Date: 06 July 2016
Site: medea Crk
Staff: T. Balboni
Event Comments: 3 corpsmembers

☐ No Trash Observed
☐ Intractable Trash?

Above High Water Line
Volume: 0.05 cubic feet
Weight: 3 oz

Below High Water Line
Volume: 0.05 cubic feet
Weight: 1 oz

Material	Category	Above High Water Line	Below High Water Line	Notes
(Miscellaneous)				
	(Other/Unknown)			
	Automotive			
	Cigarette			
	Food Container			
	Furniture			
	Household Items			
	Sporting Good		1	Golf Ball
Biohazard				
	(Other/Unknown)			
	Diaper			
	Excrement			
	Syringe or Pipette			
Construction				
	(Other/Unknown)			
	Brick			
	Concrete			
	Rebar			
	Wood			
Fabric				
	(Other/Unknown)			
	Natural (i.e. cotton)			
	Synthetic (i.e. nylon)			
Glass				
	(Other/Unknown)			
	Bottle			

Material	Category	Above High Water Line	Below High Water Line	Notes
Glass				
	Shattered Glass			
Metal				
	(Other/Unknown)	I		aluminum
	Bottle			
	Can			
Paper				
	(Other/Unknown)		III	
	Box			
	Cardboard			
	Cup			
	Office			
	Paper Bags			
Plastic				
	(Other/Unknown)		I	
	Ammo			
	Balloon			
	Bottle	I	I	Pill Bottle
	Bottle Cap		I	
	CD / DVD			
	Cup			
	Food Container			
	Glove			
	Hose			
	Lid / Straw			
	Pipe / Rope			
	Plastic Bags		I	
	Six-Pack Ring			
	Tarp			
	Tire			
	Wrapper	I	II	Welches Fruit Snacks
Styrofoam				

Material	Category	Above High Water Line	Below High Water Line	Notes
Styrofoam				
	(Other/Unknown)		IIII II	
	Block			
	Cup			
	Food Container			
Toxic				
	(Other/Unknown)			
	Battery (Small)			
	Battery (Vehicle)			
	Chemical Container			
	Electronics			

Malibu Creek Trash TMDL
Trash Identification Form

Event Date: 8-18-16
Site: Medea Crk
Staff: T. Balbonit
Event Comments: D. Alvarez 3 corpsmembers

☐ No Trash Observed
☐ Intractable Trash?

Above High Water Line
Volume: 0.05 cubic feet
Weight: 0.08 pounds

Below High Water Line
Volume: 0.05 cubic feet
Weight: 0.70 pounds

Material	Category	Above High Water Line	Below High Water Line	Notes
(Miscellaneous)				
	(Other/Unknown)			
	Automotive			
	Cigarette			
	Food Container			
	Furniture			
	Household Items		11	Pen
	Sporting Good			
Biohazard				
	(Other/Unknown)			
	Diaper			
	Excrement			
	Syringe or Pipette			
Construction				
	(Other/Unknown)			
	Brick			
	Concrete			
	Rebar			
	Wood			
Fabric				
	(Other/Unknown)			
	Natural (i.e. cotton)			
	Synthetic (i.e. nylon)			
Glass				
	(Other/Unknown)			
	Bottle			

Material	Category	Above High Water Line	Below High Water Line	Notes
Glass				
	Shattered Glass			
Metal				
	(Other/Unknown)			
	Bottle			
	Can			
Paper				
	(Other/Unknown)	1	1	Newspaper
	Box			
	Cardboard			
	Cup			
	Office			
	Paper Bags			
Plastic				
	(Other/Unknown)	11	11	Oxygen Absorber
	Ammo			
	Balloon			
	Bottle			
	Bottle Cap		1	
	CD / DVD			
	Cup		1	
	Food Container			
	Glove			
	Hose			
	Lid / Straw			
	Pipe / Rope		1	
	Plastic Bags			
	Six-Pack Ring			
	Tarp			
	Tire			
	Wrapper	11	1	
Styrofoam				

Material	Category	Above High Water Line	Below High Water Line	Notes
Styrofoam				
	(Other/Unknown)	1	# 62	Packing Peanuts
	Block			
	Cup			
	Food Container			
Toxic				
	(Other/Unknown)			
	Battery (Small)			
	Battery (Vehicle)			
	Chemical Container			
	Electronics			

Medea Creek:
Before cleanup event

Medea Creek:
After cleanup event

Malibu Creek Trash TMDL
Trash Identification Form

Event Date: 9/15/16
Site: Medea Creek
Staff: D. Alvarez
Event Comments: 4 Corpsmembers

☐ No Trash Observed
☐ Intractable Trash?

Above High Water Line
Volume: .05 cubic feet
Weight: .41 pounds

Below High Water Line
Volume: .05 cubic feet
Weight: .92 pounds

Material	Category	Above High Water Line	Below High Water Line	Notes
(Miscellaneous)				
	(Other/Unknown)			
	Automotive		1	Lift cap
	Cigarette		1	
	Food Container		1	Yogurt lid-foil
	Furniture			
	Household Items		1	Shiny toy material
	Sporting Good			
Biohazard				
	(Other/Unknown)		1	Paint
	Diaper			
	Excrement			
	Syringe or Pipette			
Construction				
	(Other/Unknown)			
	Brick			
	Concrete			
	Rebar			
	Wood			
Fabric				
	(Other/Unknown)			
	Natural (i.e. cotton)			
	Synthetic (i.e. nylon)			
Glass				
	(Other/Unknown)			
	Bottle			

Material	Category	Above High Water Line	Below High Water Line	Notes
Glass				
	Shattered Glass	𝍸 1111	1	clear
Metal				
	(Other/Unknown)		1	aluminum foil
	Bottle			
	Can	1		soda
Paper				
	(Other/Unknown)	11	11	bottle wrapper
	Box			
	Cardboard		111	
	Cup			
	Office	11	𝍸	
	Paper Bags			
Plastic				
	(Other/Unknown)	1	1	hard Plastic box of rubber bands
	Ammo			
	Balloon			
	Bottle			
	Bottle Cap		1	
	CD / DVD			
	Cup			
	Food Container			
	Glove			
	Hose			
	Lid / Straw		1	Starbucks
	Pipe / Rope	11		PVC
	Plastic Bags		𝍸	
	Six-Pack Ring			
	Tarp			
	Tire			
	Wrapper		𝍸 1	Granola bar, candy, foil gum wrapper
Styrofoam				

Material	Category	Above High Water Line	Below High Water Line	Notes
Styrofoam				
	(Other/Unknown)		IIII	peanut
	Block			
	Cup	IIII		
	Food Container			
Toxic				
	(Other/Unknown)			
	Battery (Small)			
	Battery (Vehicle)			
	Chemical Container			
	Electronics			

Medea Creek: After cleanup event

Medea Creek:
Volume of trash
above high water line

Medea Creek:
Volume of trash
below high water line

Malibu Creek Trash TMDL
Trash Identification Form

Event Date: October 13, 2016
Site: Medea Creek
Staff: D. Alvarez
Event Comments: 4 Corpsmembers

☐ No Trash Observed
☐ Intractable Trash?

Above High Water Line
Volume: 0.05 cubic feet
Weight: 0.17 pounds

Below High Water Line
Volume: 0.05 cubic feet
Weight: 0.44 pounds

Material	Category	Above High Water Line	Below High Water Line	Notes
(Miscellaneous)				
	(Other/Unknown)			
	Automotive			
	Cigarette	1		
	Food Container			
	Furniture			
	Household Items		1	Paint Scraper
	Sporting Good			
Biohazard				
	(Other/Unknown)			
	Diaper			
	Excrement			
	Syringe or Pipette			
Construction				
	(Other/Unknown)			
	Brick			
	Concrete			
	Rebar			
	Wood			
Fabric				
	(Other/Unknown)			
	Natural (i.e. cotton)			
	Synthetic (i.e. nylon)			
Glass				
	(Other/Unknown)			
	Bottle	11		Shards

Material	Category	Above High Water Line	Below High Water Line	Notes
Glass				
	Shattered Glass			
Metal				
	(Other/Unknown)			
	Bottle	I		Bottle cap
	Can			
Paper				
	(Other/Unknown)			
	Box			
	Cardboard	III		Tag
	Cup			
	Office	I		Receipt
	Paper Bags			
Plastic				
	(Other/Unknown)			
	Ammo			
	Balloon			
	Bottle			
	Bottle Cap			
	CD / DVD			
	Cup			
	Food Container			
	Glove			
	Hose			
	Lid / Straw	II		
	Pipe / Rope			
	Plastic Bags		II	
	Six-Pack Ring			
	Tarp			
	Tire			
	Wrapper			
Styrofoam				

Material	Category	Above High Water Line	Below High Water Line	Notes

Styrofoam

(Other/Unknown)		1	Packing peanut
Block			
Cup		1	
Food Container		1	

Toxic

(Other/Unknown)			
Battery (Small)			
Battery (Vehicle)			
Chemical Container			
Electronics			

Medea Creek: Volume of trash **above** high water line

Medea Creek:
Before cleanup event

Medea Creek:
After cleanup event

Malibu Creek Trash TMDL
Trash Identification Form

Event Date: 11/22/16
Site: Medea Creek
Staff: D. Alvarez
Event Comments: 2 Corpsmembers

☐ No Trash Observed
☐ Intractable Trash?

Above High Water Line
Volume: 0.05 cubic feet
Weight: 1.03 pounds

Below High Water Line
Volume: 0.05 cubic feet
Weight: 0.33 pounds

Material	Category	Above High Water Line	Below High Water Line	Notes
(Miscellaneous)				
	(Other/Unknown)			
	Automotive			
	Cigarette		II	
	Food Container			
	Furniture			
	Household Items	I	II	Toothbrush Black Tape/Plastic framing
	Sporting Good	I		Tennis Ball
Biohazard				
	(Other/Unknown)			
	Diaper			
	Excrement			
	Syringe or Pipette			
Construction				
	(Other/Unknown)			
	Brick			
	Concrete			
	Rebar			
	Wood			
Fabric				
	(Other/Unknown)			
	Natural (i.e. cotton)			
	Synthetic (i.e. nylon)			
Glass				
	(Other/Unknown)			
	Bottle			

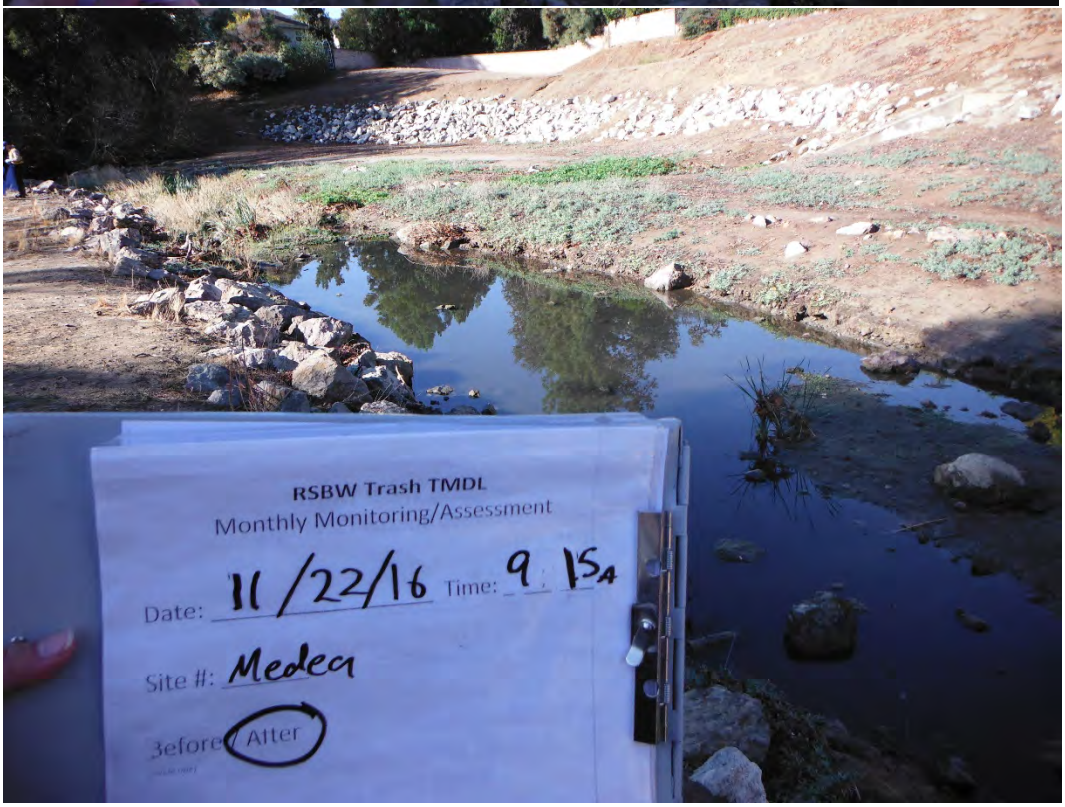
Material	Category	Above High Water Line	Below High Water Line	Notes
Glass				
	Shattered Glass	𝍸 𝍸 𝍸 | |||		Clear glass / green glass
Metal				
	(Other/Unknown)			
	Bottle			
	Can			
Paper				
	(Other/Unknown)		||	Receipts
	Box			
	Cardboard			
	Cup			
	Office			
	Paper Bags			
Plastic				
	(Other/Unknown)	||	||||	Electrical wire sleeve Electrical Tape / Flagging Tape
	Ammo			
	Balloon			
	Bottle			
	Bottle Cap	|	|	
	CD / DVD			
	Cup	|||	|	
	Food Container		|	spork
	Glove			
	Hose			
	Lid / Straw		|||	Coffee lid
	Pipe / Rope	|	|	Black Pipe fitting / Plastic shipping tie
	Plastic Bags		|	
	Six-Pack Ring			
	Tarp			
	Tire			
	Wrapper	|	||	Granola Bar / candywrapper
Styrofoam				

Material	Category	Above High Water Line	Below High Water Line	Notes
Styrofoam				
	(Other/Unknown)		𝍸	Packing fill
	Block			
	Cup	I	III	
	Food Container			
Toxic				
	(Other/Unknown)			
	Battery (Small)			
	Battery (Vehicle)			
	Chemical Container			
	Electronics			

Medea Creek: Volume of trash **above** high water line

Medea Creek: Volume of trash **below** high water line

Medea Creek:
Before cleanup event



Medea Creek:
After cleanup event

Malibu Creek Trash TMDL
Trash Identification Form

Event Date: December 22, 2016
Site: Medea Creek
Staff: D. Alvarez
Event Comments: 3 Corps members

☐ No Trash Observed
☐ Intractable Trash?

Above High Water Line
Volume: 0.05 cubic feet
Weight: 0.33 pounds

Below High Water Line
Volume: 0.15 cubic feet
Weight: 0.59 pounds

Material	Category	Above High Water Line	Below High Water Line	Notes
(Miscellaneous)				
	(Other/Unknown)			
	Automotive			
	Cigarette	11		
	Food Container			
	Furniture			
	Household Items			
	Sporting Good			
Biohazard				
	(Other/Unknown)			
	Diaper			
	Excrement			
	Syringe or Pipette			
Construction				
	(Other/Unknown)			
	Brick			
	Concrete			
	Rebar			
	Wood			
Fabric				
	(Other/Unknown)			
	Natural (i.e. cotton)			
	Synthetic (i.e. nylon)			
Glass				
	(Other/Unknown)			
	Bottle			

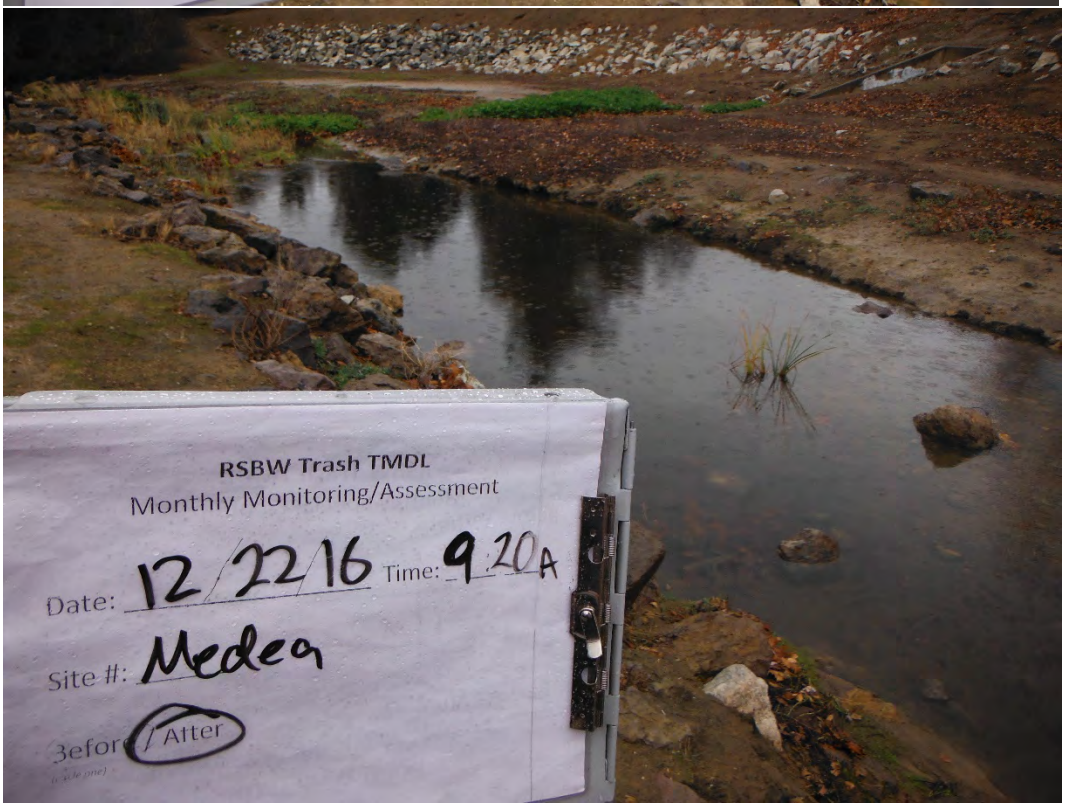
Material	Category	Above High Water Line	Below High Water Line	Notes
Glass				
	Shattered Glass	𝍸 𝍸		
Metal				
	(Other/Unknown)		I	Tin foil
	Bottle	I		bottle cap
	Can		𝍸	food can / soda can fragment
Paper				
	(Other/Unknown)	II		Tags
	Box			
	Cardboard			
	Cup			
	Office		I	Water bottle wrapper
	Paper Bags			
Plastic				
	(Other/Unknown)		I	Marker top
	Ammo			
	Balloon			
	Bottle		II	
	Bottle Cap		I	
	CD / DVD			
	Cup			
	Food Container			
	Glove			
	Hose			
	Lid / Straw		I	
	Pipe / Rope		II	PVC fragment / plastic strong
	Plastic Bags		III	
	Six-Pack Ring			
	Tarp			
	Tire			
	Wrapper	I	𝍸	
Styrofoam				

MidLevId	Category	Above High Water Line	Below High Water Line	Notes
Styrofoam				
	(Other/Unknown)	1	11	Shipping peanut
	Block		1	
	Cup			
	Food Container			
Toxic				
	(Other/Unknown)			
	Battery (Small)			
	Battery (Vehicle)			
	Chemical Container			
	Electronics			

Medea Creek: Volume of trash **above** high water line

Medea Creek: Volume of trash **below** high water line

Medea Creek:
Before cleanup event



Medea Creek:
After cleanup event

Malibu Creek Trash TMDL
Trash Identification Form

Event Date: January 19, 2017
Site: Medea Creek
Staff: D. Alvarez
Event Comments: 3 Corpsmembers

☐ No Trash Observed
☐ Intractable Trash?

Above High Water Line
Volume: 0.05 cubic feet
Weight: 0.52 pounds

Below High Water Line
Volume: 0.1 cubic feet
Weight: 1.19 pounds

Material	Category	Above High Water Line	Below High Water Line	Notes
(Miscellaneous)				
	(Other/Unknown)			
	Automotive			
	Cigarette			
	Food Container			
	Furniture			
	Household Items		1	Cable/wire
	Sporting Good	1		Tennis ball
Biohazard				
	(Other/Unknown)			
	Diaper			
	Excrement			
	Syringe or Pipette			
Construction				
	(Other/Unknown)			
	Brick			
	Concrete			
	Rebar			
	Wood			
Fabric				
	(Other/Unknown)		1	meat package liner
	Natural (i.e. cotton)			
	Synthetic (i.e. nylon)			
Glass				
	(Other/Unknown)			
	Bottle	1		Fragment

Material	Category	Above High Water Line	Below High Water Line	Notes
Glass				
	Shattered Glass	II	IIII	
Metal				
	(Other/Unknown)			
	Bottle			
	Can		II	
Paper				
	(Other/Unknown)			
	Box			
	Cardboard			
	Cup			
	Office	II		Mail
	Paper Bags			
Plastic				
	(Other/Unknown)	III	I	Plastic battery cap, hard plastics
	Ammo			
	Balloon			
	Bottle			
	Bottle Cap	I		
	CD / DVD			
	Cup			
	Food Container		I	
	Glove			
	Hose			
	Lid / Straw			
	Pipe / Rope		II	PVC, pipe tape
	Plastic Bags		IIII	
	Six-Pack Ring			
	Tarp		I	
	Tire			
	Wrapper	III	IIII II	
Styrofoam				

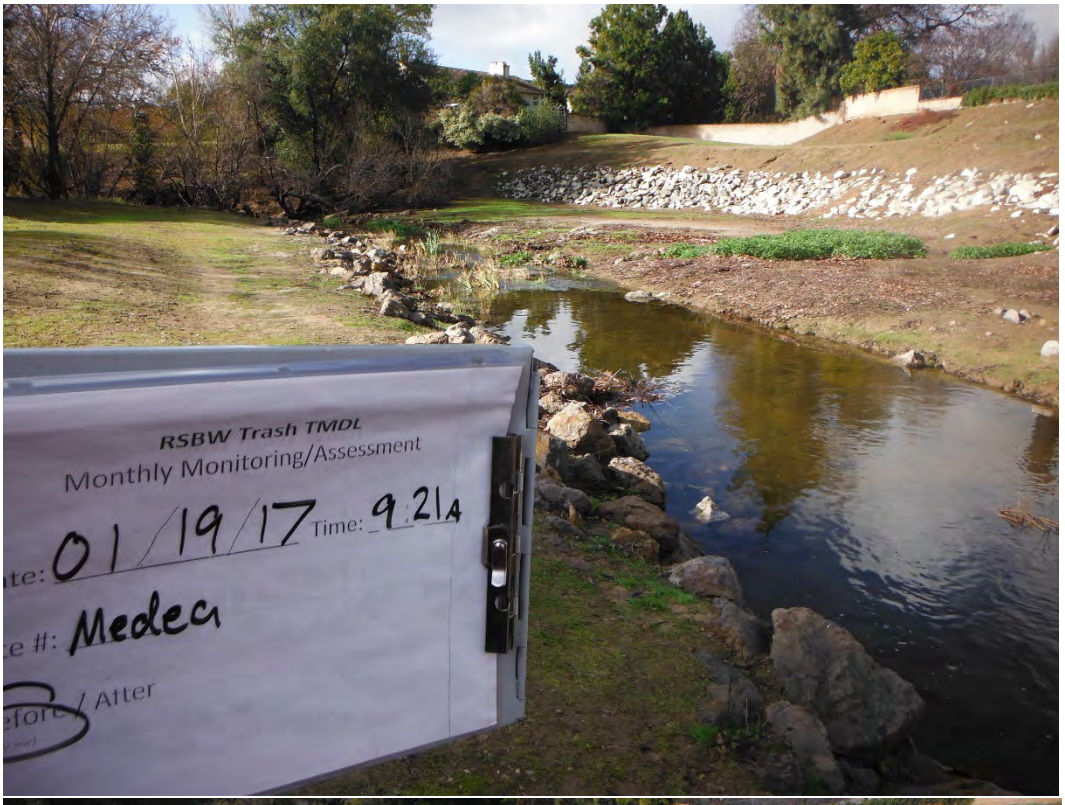
Material	Category	Above High Water Line	Below High Water Line	Notes

Styrofoam

(Other/Unknown)		I	Peanut
Block		II	
Cup	I	III	
Food Container			

Toxic

(Other/Unknown)			
Battery (Small)			
Battery (Vehicle)			
Chemical Container			
Electronics			



Medea Creek:
Before cleanup event

Medea Creek:
After cleanup event

Malibu Creek Trash TMDL
Trash Identification Form

Event Date: 2-23-16
Site: Malibu
Staff: N/A
Event Comments:

☐ No Trash Observed
☐ Intractable Trash?

Above High Water Line
Volume: 0.39 cubic feet
Weight: 5.13 pounds

Below High Water Line
Volume: 0.1 cubic feet
Weight: 4.97 pounds

Material	Category	Above High Water Line	Below High Water Line	Notes
(Miscellaneous)				
	(Other/Unknown)	II	I	
	Automotive			
	Cigarette		I	
	Food Container			
	Furniture			
	Household Items	I		
	Sporting Good	I	I	baseball,
Biohazard				
	(Other/Unknown)			
	Diaper			
	Excrement			
	Syringe or Pipette			
Construction				
	(Other/Unknown)		I	nail,
	Brick			
	Concrete			
	Rebar			
	Wood			
Fabric				
	(Other/Unknown)			
	Natural (i.e. cotton)			
	Synthetic (i.e. nylon)			
Glass				
	(Other/Unknown)	II		marbles
	Bottle			

Material	Category	Above High Water Line	Below High Water Line	Notes
Glass				
	Shattered Glass	𝍸		
Metal				
	(Other/Unknown)		II	sprinkler,
	Bottle			
	Can	II	𝍸	E
Paper				
	(Other/Unknown)			
	Box			
	Cardboard			
	Cup			>
	Office			
	Paper Bags			
Plastic				
	(Other/Unknown)	III	I	gift card,
	Ammo			
	Balloon			
	Bottle	III	I	
	Bottle Cap	I		
	CD / DVD			
	Cup			
	Food Container			
	Glove			
	Hose			
	Lid / Straw	I		
	Pipe / Rope	I		
	Plastic Bags	𝍸 II	III	
	Six-Pack Ring	I		
	Tarp			
	Tire			
	Wrapper	𝍸 II	II	
Styrofoam				

Material	Category	Above High Water Line	Below High Water Line	Notes
Styrofoam				
	(Other/Unknown)	7	1	Peanut
	Block	11	1	
	Cup	11	1	
	Food Container			
Toxic				
	(Other/Unknown)			
	Battery (Small)			
	Battery (Vehicle)			
	Chemical Container			
	Electronics			

Malibu Creek Trash TMDL
Trash Identification Form

Event Date: 3/23/17
Site: Medea Creek
Staff: Sarah Kates
Event Comments: Sunny, ~80°F

☐ No Trash Observed
☐ Intractable Trash?

Above High Water Line
Volume: .05 cubic feet
Weight: .25 pounds
est. convert from Vol later

Below High Water Line
Volume: .3 cubic feet
Weight: 10.2 pounds

Material	Category	Above High Water Line	Below High Water Line	Notes
(Miscellaneous)				
	(Other/Unknown)	II		electrical tape(1) sticker(1)
	Automotive			
	Cigarette			
	Food Container			
	Furniture			
	Household Items			
	Sporting Good			
Biohazard				
	(Other/Unknown)			
	Diaper			
	Excrement			
	Syringe or Pipette			
Construction				
	(Other/Unknown)		I	Flag
	Brick			
	Concrete			
	Rebar			
	Wood			
Fabric				
	(Other/Unknown)			
	Natural (i.e. cotton)			
	Synthetic (i.e. nylon)		II	spongy blanket
Glass				
	(Other/Unknown)	IIII II	I	
	Bottle			

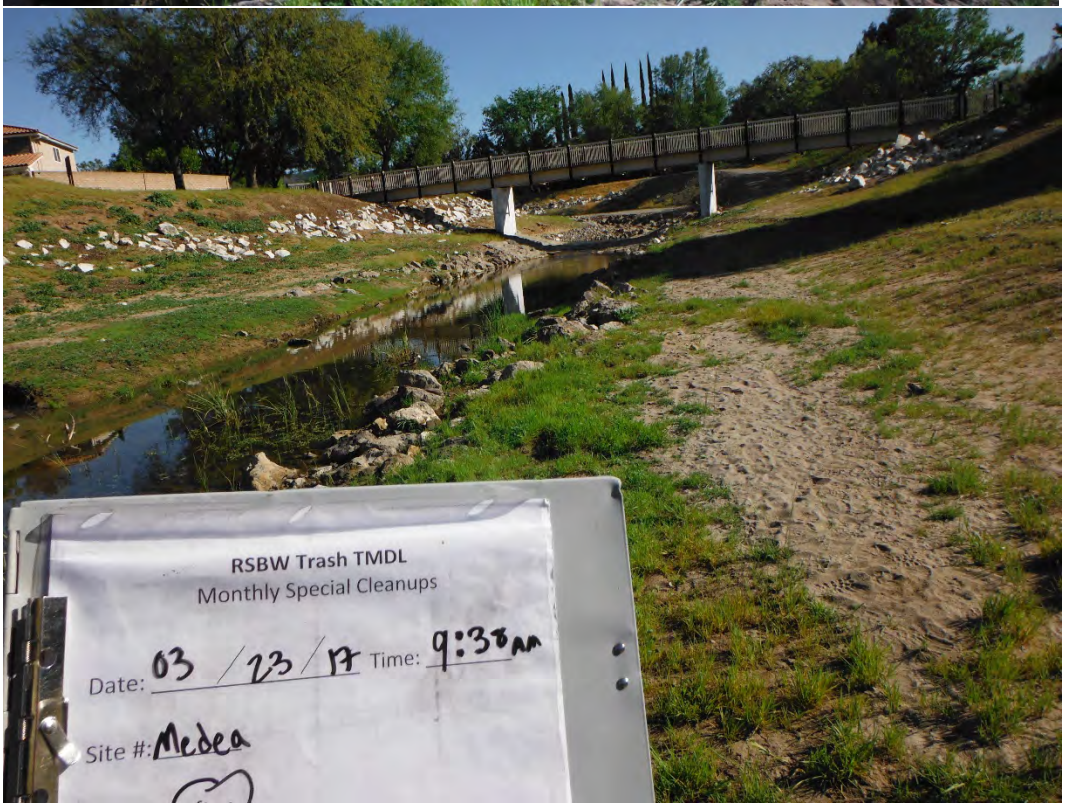
Material	Category	Above High Water Line	Below High Water Line	Notes
Glass				
	Shattered Glass			
Metal				
	(Other/Unknown)			
	Bottle			
	Can			
Paper				
	(Other/Unknown)			
	Box			
	Cardboard			
	Cup			
	Office			
	Paper Bags			
Plastic				
	(Other/Unknown)			
	Ammo			
	Balloon			
	Bottle			
	Bottle Cap			
	CD / DVD			
	Cup			
	Food Container			
	Glove			
	Hose			
	Lid / Straw			
	Pipe / Rope			
	Plastic Bags			
	Six-Pack Ring			
	Tarp			
	Tire			
	Wrapper			
Styrofoam				

medea 2

Material	Category	Above High Water Line	Below High Water Line	Notes
Styrofoam				
	(Other/Unknown)	1	1 (46 pcs) pcbs wls	
	Block		1	
	Cup			
	Food Container			
Toxic				
	(Other/Unknown)			
	Battery (Small)			
	Battery (Vehicle)			
	Chemical Container			
	Electronics			

Medea Creek: Volume of trash **below** high water line

Medea Creek:
Before cleanup event



Medea Creek:
After cleanup event

Malibu Creek Trash TMDL
Trash Identification Form

Event Date: 4/26/17
Site: Medea Creek
Staff: Sarah Yates
Event Comments: heavy algea blooms in water. Minimal trash observed

☐ No Trash Observed
☐ Intractable Trash?

Above High Water Line
Volume: .1 cubic feet (last)
Weight: .19 pounds

Below High Water Line
Volume: .1 cubic feet (2nd-to-last)
Weight: .26 pounds

Material	Category	Above High Water Line	Below High Water Line	Notes
(Miscellaneous)				
	(Other/Unknown)			
	Automotive			
	Cigarette			
	Food Container			
	Furniture			
	Household Items			
	Sporting Good			
Biohazard				
	(Other/Unknown)			
	Diaper			
	Excrement			
	Syringe or Pipette			
Construction				
	(Other/Unknown)			
	Brick			
	Concrete			
	Rebar			
	Wood			
Fabric				
	(Other/Unknown)			
	Natural (i.e. cotton)			
	Synthetic (i.e. nylon)			
Glass				
	(Other/Unknown)			
	Bottle			

Material	Category	Above High Water Line	Below High Water Line	Notes
Glass				
	Shattered Glass			
Metal				
	(Other/Unknown)			
	Bottle			
	Can			
Paper				
	(Other/Unknown)			
	Box			
	Cardboard			
	Cup			
	Office			
	Paper Bags			
Plastic				
	(Other/Unknown)			
	Ammo			
	Balloon			
	Bottle			
	Bottle Cap			
	CD / DVD			
	Cup			
	Food Container			
	Glove			
	Hose			
	Lid / Straw			
	Pipe / Rope			
	Plastic Bags			
	Six-Pack Ring			
	Tarp			
	Tire			
	Wrapper			
Styrofoam				

Material	Category	Above High Water Line	Below High Water Line	Notes
Styrofoam				
	(Other/Unknown)			
	Block			
	Cup			
	Food Container			
Toxic				
	(Other/Unknown)			
	Battery (Small)			
	Battery (Vehicle)			
	Chemical Container			
	Electronics			

Medea Creek: Volume of trash **below** high water line

Medea Creek:
Before cleanup event

Medea Creek:
After cleanup event

Malibu Creek Trash TMDL
Trash Identification Form

Event Date: 5/26/17
Site: Medea Creek
Staff: Sarah Kates
Event Comments: dense algal bloom, several crawfish (in use) traps. (not collected)

☐ No Trash Observed
☐ Intractable Trash?

Historically found at both sites as buried trash

Above High Water Line
Volume: .1 cubic feet
Weight: .33 pounds

Below High Water Line
Volume: .2 cubic feet
Weight: 1.16 pounds

Material	Category	Above High Water Line	Below High Water Line	Notes
(Miscellaneous)				
	(Other/Unknown)			
	Automotive			
	Cigarette			
	Food Container			
	Furniture			
	Household Items			
	Sporting Good			
Biohazard				
	(Other/Unknown)			
	Diaper			
	Excrement			
	Syringe or Pipette			
Construction				
	(Other/Unknown)			
	Brick			
	Concrete			
	Rebar			
	Wood			
Fabric				
	(Other/Unknown)			
	Natural (i.e. cotton)			
	Synthetic (i.e. nylon)			
Glass				
	(Other/Unknown)			
	Bottle			

Material	Category	Above High Water Line	Below High Water Line	Notes
Glass				
	Shattered Glass			
Metal				
	(Other/Unknown)	1	1	long metal sheet (1) Sunken unused Crawfish trap (Mountain restoration trust)
	Bottle			
	Can			
Paper				
	(Other/Unknown)	1		
	Box			
	Cardboard			
	Cup			
	Office			
	Paper Bags			
Plastic				
	(Other/Unknown)	1	IN1	
	Ammo			
	Balloon			
	Bottle	1		
	Bottle Cap			
	CD / DVD			
	Cup			
	Food Container			
	Glove			
	Hose			
	Lid / Straw		1	
	Pipe / Rope			
	Plastic Bags		1	
	Six-Pack Ring			
	Tarp			
	Tire			
	Wrapper		1111	
Styrofoam				

Material	Category	Above High Water Line	Below High Water Line	Notes
Styrofoam				
	(Other/Unknown)	IIII IIII	II	
	Block			
	Cup			
	Food Container			
Toxic				
	(Other/Unknown)			
	Battery (Small)			
	Battery (Vehicle)			
	Chemical Container			
	Electronics			

Material	Category	Above High Water Line	Below High Water Line	Notes
Glass				
	Shattered Glass	1		
Metal				
	(Other/Unknown)			
	Bottle			
	Can			
Paper				
	(Other/Unknown)	1		
	Box			
	Cardboard			
	Cup			
	Office			
	Paper Bags			
Plastic				
	(Other/Unknown)	11	1	
	Ammo			
	Balloon			
	Bottle			
	Bottle Cap			
	CD / DVD			
	Cup			
	Food Container			
	Glove			
	Hose			
	Lid / Straw			
	Pipe / Rope			
	Plastic Bags			
	Six-Pack Ring			
	Tarp			
	Tire			
	Wrapper		NI	
Styrofoam				

Material	Category	Above High Water Line	Below High Water Line	Notes
Styrofoam				
	(Other/Unknown)		IIII	
	Block			
	Cup			
	Food Container			
Toxic				
	(Other/Unknown)			
	Battery (Small)			
	Battery (Vehicle)			
	Chemical Container			
	Electronics			

Medea Creek:
Before cleanup event

Medea Creek:
After cleanup event

Appendix 2

Upper Malibu Creek Watershed Outreach Materials

2017 Annual **Big Sunday** Community Cleanup Event

May 7, 2017

Organized by Oak Park Unified School District in collaboration with Ventura County Public Works Agency

September 2016 – October 2016
Watershed Friendly Garden Program at Oak Park High School

September 2016 – October 2016
Watershed Friendly Garden Program at Oak Park High School (Continued)

Watershed Friendly Garden Program

2nd Seminar: **Evaluate the Site**
October, 1 2016

Instructor:
Jan Bird and Laura Bauer, Green Gardens Group

49 Participants at Oak Park High School

Watershed Friendly Garden Program

3rd Seminar: Landscape Design
October 8, 2016

Instructor:
Kathy Nolan and Natasha Elliott, Green Gardens Group

49 Participants at Oak Park High School

September 2016 – October 2016
Watershed Friendly Garden Program at Oak Park High School (Continued)

Watershed Friendly Garden Program

4th Seminar: Lawn Be Gone – Build Soil and Capture Rain
October 29, 2016

Instructor:
John Tikotsky and Jan Bird, Green Garden Group

24 Participants at Oak Park High School

Watershed Friendly Garden Program

5th Seminar: Planting and Irrigation
November 5, 2016

Instructor:
John Tikotsky and Jan Bird, Green Garden Group

23 Participants at Oak Park High School

September 2016 – October 2016
Watershed Friendly Garden Program at Oak Park High School (Continued)

September 2016 – October 2016
Watershed Friendly Garden Program at Oak Park High School (Continued)

Spring 2017

Summer 2017

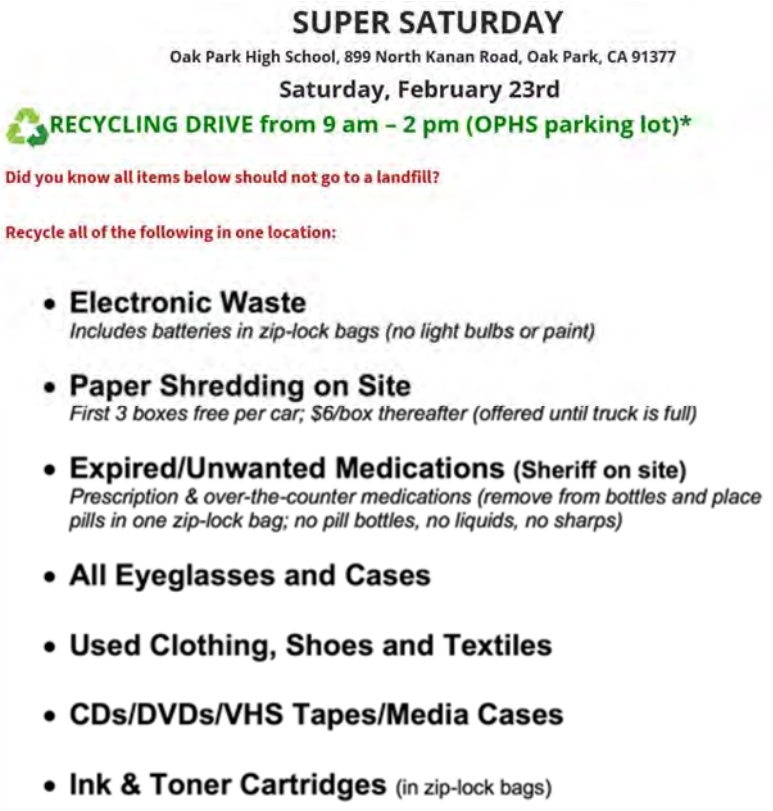
Spring 2017- Youth Outreach Presentation

Spring 2017- Youth outreach presentation at Red Oak Elementary School in Oak Park, CA

Spring 2017-Youth outreach presentation at Oak Hill Elementary School in Oak Park, CA

Ventura County Community for Clean Watershed Social Media Posts

April 2017- Ventura County Community for a Clean Watershed Twitter post advertising a Free Landfill Day Event



February 2017- Super Saturday Recycling Drive

June 2017- Ventura County Community for a Clean Watershed Facebook post advertising free community compost

September 2016-Ventura County Community for a Clean Watershed Facebook post advertising a Watershed Friendly Garden Workshop series

September 2016- Ventura County Community for a Clean Watershed Facebook post informing the community about Coastal Cleanup Day 2016

Appendix 3

"Proposed County of Ventura and Ventura County Watershed Protection District Point Source Compliance Strategy for the Malibu Creek Watershed Trash Total Maximum Daily Load" Letter dated October 10, 2016

and

"County of Ventura and Ventura County Watershed Protection District Point Source Compliance for the Malibu Creek Watershed Trash Total Maximum Daily Load" Letter dated July 26, 2017

county of ventura

PUBLIC WORKS AGENCY
JEFF PRATT
Agency Director

Central Services Department
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Engineering Services Department
Christopher E. Cooper, Director

Transportation Department
David L. Fleisch, Director

Water & Sanitation Department
Michaela Brown, Director

Watershed Protection District
Peter Sheydayi, Interim Director

October 10, 2016

Mr. Samuel Unger, Executive Officer
California Regional Water Quality Control Board, Los Angeles Region
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

Subject: PROPOSED COUNTY OF VENTURA AND VENTURA COUNTY WATERSHED PROTECTION DISTRICT POINT SOURCE COMPLIANCE STRATEGY FOR THE MALIBU CREEK WATERSHED TRASH TOTAL MAXIMUM DAILY LOAD

Dear Mr. Unger:

County of Ventura (County) and the Ventura County Watershed Protection District (VCWPD) are submitting this letter to propose a strategy for complying with the point source requirements of the Amendments to the Water Quality Control Plan – Los Angeles Region for the Malibu Creek Watershed Trash Total Maximum Daily Load (Trash TMDL), Resolution No. R4-2008-007 (effective July 7, 2009). The compliance strategy is based on the Track 1 compliance option from the Proposed Final Amendment to the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) and the Proposed Final Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE Plan) (together, "Statewide Trash Policies").

The Track 1 compliance option requires municipal separate storm sewer system (MS4) permittees with regulatory authority over priority land uses[1] to install, operate, and maintain any combination of full capture devices (FCDs) for all storm drains that capture runoff from the priority land uses areas within the jurisdiction of the municipal separate storm sewer system (MS4) permittee. Priority land uses are those land uses that studies have shown generate significant amounts of trash. The intent of prioritizing land uses is to allow MS4 permittees to allocate trash-control resources to developed areas that generate the highest amounts of trash. This is different than most of the TMDLs in the Los Angeles region, which require a MS4 permittee to address all land uses within its jurisdiction.

The County and VCWPD believe addressing trash via the Track 1 compliance option of the Statewide Trash Policies will be an effective and efficient way of managing trash within County Unincorporated areas and will satisfy the point source requirements of the Trash TMDL.

[1] Priority land uses include: high-density residential, industrial, commercial, mixed urban (combination of high-density residential, industrial, and commercial), public transportation stations, or equivalent alternate land uses (MS4 permittees can petition the permitting agency to consider equivalent alternate land uses based on trash generation rates determined though a quantitative assessment).

Current Point Source Compliance Actions

To address the point source requirements of the Trash TMDL, the County and VCWPD have been implementing a Minimum Frequency of Assessment and Collection/Best Management Practice (MFAC/BMP) Program, which was detailed in the Malibu Creek Watershed Trash TMDL Trash Monitoring and Reporting Plan (TMRP) MFAC/BMP Program. The County and VCWPD submitted the TMRP to the California Regional Water Quality Control Board, Los Angeles Region (Regional Board) on April 30, 2010. The Trash TMDL requires implementation of the TMRP six months from receipt of the letter of approval from Regional Board (Table 7-31.2a of the Trash TMDL). The County and VCWPD did not receive a response or approval from Regional Board regarding the submitted TMRP; however, considering TMDL implementation schedule and required compliance milestones, on March 25, 2011, the County and VCPWD submitted a Notice of Intent (NOI) to proceed with implementing the proposed TMRP. In July 2011, the County and VCWPD commenced implementing the proposed TMRP towards meeting the Trash TMDL's phased percent reduction milestones.

During the first year of monitoring, July 1, 2011 through June 30, 2012, trash data collected at the Medea Creek (MC1) monitoring location served as the baseline Waste Load Allocation (WLA) from which, the County and VCWPD have been assessing compliance (**Table 1**). Based on trash data collected during the three subsequent monitoring years, the County and VCWPD are in compliance with the required percent reduction from the baseline WLAs except for the 2015 weight WLA (**Table 2**).

Table 1. Baseline WLAs for the Medea Creek (MC1) Sampling Site

Medea Creek (MC1) Sampling Site Baseline WLAs		
Pieces	**Volume (cf)**	**Weight (lbs)**
970	7.2	16.3

Table 2. Trash Data Comparison to Required Percent Reductions from Baseline WLA for MC1

	Pieces	**Volume (cf)**	**Weight (lbs)**
2013 20% Reduction from Baseline WLA Values	776	5.8	13.0
2012-2013 Trash Data	163	3.7	8.6
Percent Reduction from Baseline WLA	83%	49%	47%
2014 40% Reduction from Baseline WLA Values	582	4.3	9.8
2013-2014 Trash Data	170	2.2	8.3
Percent Reduction from Baseline WLA	82%	69%	49%
2015 60% Reduction from Baseline WLA Values	388	2.9	6.5
2014-2015 Trash Data	105	1.7	9.4
Percent Reduction from Baseline WLA	89%	76%	42%

Proposed Compliance Strategy

Per the Statewide Trash Policies, within one year of the effective date, the Regional Board shall convene a public meeting to reconsider the scope of its trash TMDLs to particularly consider an approach that would focus MS4 permittees' trash-control efforts on high-trash generation areas within their jurisdictions (i.e., priority land uses). Until the Regional Board re-considers the Trash TMDL related to the Statewide Trash Policies' priority land use areas, the County and VCWPD will address all priority land uses by installing FCDs in catch basins along the storm drain system capturing runoff from the priority land use areas. In addition, the County and VCWPD will address all non-priority land uses through a MFAC/BMP Program. If the Regional Board amends the Trash TMDL to only include priority land use areas and the County and VCWPD have installed all of the FCDs, then the County and VCWPD will cease implementing the MFAC portion of the MFAC/BMP program, but will continue implementing trash-control BMPs throughout the County unincorporated areas.

The County and VCWPD respectfully requests the Regional Board to consider amending the Trash TMDL to focus on the priority land use areas rather than all land use areas within the Malibu Creek watershed. As discussed above, the Statewide Trash Policies are based on addressing the land uses that generate large amounts of trash and that some areas do not generate large amounts of trash and it is not necessary or effective to address these low trash generating, non-priority, land uses. The County and VCWPD believes addressing priority land use areas rather than addressing all land uses within the County unincorporated areas, as required in the Trash TMDL, will allow for a more effective and efficient manner of dealing with trash within the County unincorporated areas. Installing FCDs in priority land use areas would allow the County and VCWPD to focus resources in areas generating trash rather than distributing resources to areas that may not generate significant levels of trash. Further, it would allow the County and VCWPD to reprioritize scarce resources to meet MS4 Permit regulations and regulations from other TMDLs. The number of catch basins the County and VCWPD would need to address in the County unincorporated areas under the Statewide Trash Polices is 25 with the majority located in high-density residential areas (**Figure 1**).

Trash TMDL Compliance Assessment

To demonstrate compliance with the phased percent reductions required by the Trash TMDL, the County and VCWPD will use the percent reduction identified by the trash data collected during the MFAC Events combined with the percent of total trash generated that will be captured by the FCDs in the priority land use areas.

The TMRP lists three baseline WLA metrics that are used to calculate the percent reduction in trash: pieces, volume (cubic feet), and weight (pounds). Over the past three monitoring years, no correlation has been shown between the three metrics. That is, there is no correlation between the pieces of trash collected, the volume of the trash collected, and/or the weight of the trash collected. As such, the County and VCWPD is proposing that so long as one of the three metrics is meeting the required phased percent reduction, then the County and VCWPD will be considered meeting the compliance target. Based on the 2014-2015 trash monitoring data, both the pieces and volume metrics are meeting the required percent reductions, with the trash data showing an 89 percent reduction from the baseline WLA for pieces of

trash collected. These data indicate the County and VCWPD are currently meeting the required percent reduction from the baseline WLA.

As the County and VCWPD are proposing to utilize the amount of trash collected from the FCDs that will be installed as part of the compliance determination, the amount of trash they will capture needed to be calculated. In order to determine the amount of trash the FCDs will capture once installed, trash generation from the County unincorporated MS4 areas first had to be calculated. Using land use acreage determined through geographic information system (GIS) analyses and trash generation rate (TGR) data obtained through a review of reports that contain TGR data, the County and VCWPD calculated trash generation rates for: (1) all land uses; (2) priority land uses; and (3) non-priority land uses.

To generate land use acreage, the County unincorporated MS4 area's existing land use GIS data were processed so the land use classifications matched those of the Statewide Trash Policies' priority land uses. To determine the most appropriate TGRs for the County unincorporated areas, several studies within California and the United States were reviewed. TGRs from studies in the City of Los Angeles[2], the San Francisco Bay Area[3,4], and Baltimore County, Maryland[5] were utilized to calculate the amount of trash generated in the County unincorporated areas. TGRs were selected based on the similarities the study areas shared with the County unincorporated areas' land use and demographics.

Three land use TGRs from the Maryland TMDL Study were adopted for the County unincorporated areas including: Low-Medium Density Residential, High Density Residential, and Commercial. It was assumed that these areas were the most similar to the County unincorporated areas out of the four studies reviewed. However, the lowest TGR values from the range of values presented in the Maryland TMDL Study were selected as it was assumed the County unincorporated areas primarily have a lower land use density across all land uses than the areas in the Maryland TMDL Study. For the County unincorporated Public/Semi-Public Buildings land use, the average of the low range TGRs from the 2014 San Francisco Bay Area Study and Maryland TMDL Study was used. The Open Space land use was not included in the analyses as the open space in the County unincorporated areas is not part of the MS4. Public Transportation Land uses were also not included in the analyses due to the nature of the land use. That is, the public transportation locations within the County unincorporated areas include bus stops, which are only points rather than areas. In addition, the County unincorporated areas do not contain industrial or mixed use land uses. **Table 3** presents the TGR values from the studies reviewed.

Based on the GIS analyses and the review of the TGRs, 456 gallons/year of trash generated was calculated for all land uses, 323 gallons/year of trash generated was calculated for the priority land use areas, and 133 gallons/year of trash generated was calculated for non-priority land use areas. **Table 4** lists the estimated annual trash generation for each land use category within the County unincorporated areas. As the County and VCWPD will install FCDs in the priority land use areas, this indicates the FCDs will capture 323 gallons/year of the 456 gallons/year or 70 percent of the total trash generated within the

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[2]Black & Veatch. Quantification Study of Institutional Measures for Trash TMDL Compliance 2012-2013. December 2013. Prepared for City of Los Angeles.

[3]EOA Inc. San Francisco Bay Area Stormwater Trash Generation Rates Final Technical Report. June 2014. Prepared for BASMAA.

[4] EOA, Inc. Technical Memorandum: Preliminary Baseline Trash Generation Rates for San Francisco Bay Area MS4s. February 2012.

[5]Maryland Department of the Environment. TMDLs of Trash and Debris for the Middle Branch and Northwest Branch Portions of the Patapsco River Mesohaline Tidal Chesapeake Bay Segment. December 2014

County unincorporated MS4 areas. This means that the County and VCWPD will need to show at least a 30 percent reduction from the baseline WLA through the MFAC/BMP Program to be in compliance with the final 100 percent reduction from the baseline WLA requirement.

Table 3. TGR Values by Land Use from Studies Reviewed (gal/acre/year)[1]

Land Use	TGR Range	City of Los Angeles Study	SF Bay Area Studies	Maryland TMDL Study[5]
Low-Medium Density Residential	Low	0.5	0.3[2]	***0.1***
	High	3.3	1.0[2]	0.9
High Density Residential	Low	1.2	0.9[2]	***1.2***
	High	6.5	7.4[2]	1.3
Commercial	Low	2.7	0.7-2.1[3]	***3.2***
	High	42.2	4.6-40.0[3]	
Public/Semi-Public Buildings	Low	N/A	***0.7***[4]	***0.3***
	High	N/A	17.3[4]	1.4

1. ***Bold Italicized*** values indicate the TGRs chosen for the County unincorporated land uses.
2. Numbers represent those from Table 4.2 of the 2014 San Francisco Bay Area Study for the greater than $100,000 median household income bracket as the County unincorporated area median household income, according to the United States Census Bureau, is $117,326. Residential TGRs were presented as a range; the lower range values for the Low and High TGRs were used for the Low-Medium Density Residential land use in the above table and the higher range values for the Low and High TGRs were used for the High Density Residential land use in the above table.
3. Numbers represent those from Table 4.2 of the 2014 San Francisco Bay Area Study for the greater than $100,000 median household income bracket as the County unincorporated area median household income, according to the United States Census Bureau, is $117,326.
4. Numbers represent those from Table 4.2 of the 2014 San Francisco Bay Area Study Commercial & Services.
5. Numbers converted from pounds/acre to gallons/acre using 2.5 pounds=1 gallon from: Michael Baker International. Literature Review for Trash Amendment Compliance Strategy. Contract No. 534079, Task Order 52. Prepared for: County of San Diego Department of Public Works. July 2015.

Table 4. County Unincorporated Area Trash Generation (Priority Land Uses in Bold)

Land Use	Acreage	TGR (gal/acre/year)	Trash Generated (gal/year)
Low-Medium Density Residential	792	0.1[1]	79
High Density Residential	**221**	**1.2**[1]	**265**
Commercial	**18**	**3.2**[1]	**58**
Public/Semi-Public Buildings	107	0.5[2]	54
Total	1,138		456
Priority Land Use Total	**239**		**323**
Non-Priority Land Use Total	899		133

1. TGR was obtained from the Maryland TMDL Study.

2. TGR is the average of TGRs from the 2014 San Francisco Bay Area Study and the Maryland Study. TGRs from the Maryland study were converted from pounds to gallons by using a conversion factor (2.5 pounds =1 gallon) from: Michael Baker International. Literature Review for Trash Amendment Compliance Strategy. Contract No. 534079, Task Order 52. Prepared for: County of San Diego Department of Public Works. July 2015.

If the MFAC/BMP Program data do not show at least a 30 percent reduction from the baseline WLA, then the County and VCWPD may implement the following inspection and collection schedule for non-priority land use area catch basins:

- Initially, the County and VCWPD will conduct quarterly inspections for all non-priority land use catch basins.
- Inspection frequencies may be modified for particular catch basins based on the amount of trash and/or anthropogenic landscape litter (dumped grass clippings) present during initial quarterly inspections. A minimum inspection frequency interval will be selected that prevents trash and/or leaf litter from accumulating in deleterious amounts between collections.
- Collection events will occur concurrently with the assessments and the County and VCWPD will ensure zero trash and/or leaf litter will remain after the collection event.

Based on this inspection and cleaning schedule, catch basins cleaned one or fewer times (i.e., no trash/anthropogenic landscaping litter found during inspections) over a rolling three-year period will be considered equivalent to catch basins with FCDs installed. This determination is based on trash and/or anthropogenic landscaping litter not accumulating in the catch basins and therefore not being discharged to Medea Creek. This also indicates the BMPs implemented by the County and VCWPD are addressing trash equivalent to FCDs. If any catch basin does not maintain its one or fewer cleaning status, the catch basin and/or area surrounding the catch basin will be addressed via trash-control BMPs to return the catch basin to the one or fewer cleaning category and may be addressed by a FCD. If the Regional Board revises the Trash TMDL to only focus on priority land uses, the inspections and collections will be ceased for the non-priority areas and the inspection and cleaning protocols will revert to the requirements of the Ventura County MS4 Permit.

Conclusion

The County and VCWPD are proposing to install FCDs in priority land use areas and to continue implementing the MFAC/BMP Program for all non-priority land use areas. To assess compliance with the Trash TMDL, the County and VCWPD will combine the trash reduction data collected during the MFAC Events with the percent of trash generated that will be collected by the FCDs.

The County and VCWPD calculated trash generation rates for all land uses, for priority land use areas, and non-priority land use areas utilizing acreage obtained from GIS land use analyses and TGRs identified through a literature review. Based on the trash generation calculations, the County and VCWPD will capture 70 percent of the trash generated within the County unincorporated areas through the installation of FCDs. The remaining 30 percent of trash generated is and will be addressed through the trash-control BMPs currently being implemented by the County and VCWPD. The MFAC Event trash data show the County and VCWPD are currently meeting the required percent reduction from the baseline

WLA and will also meet the subsequent required percent reductions through the installation of FCDs and the implementation of BMPs.

Finally, the County and VCWPD respectfully request the Regional Board to consider amending the Trash TMDL to focus on the priority land use areas rather than all land use areas within the Malibu Creek watershed during its required evaluation.

If you have any questions or require more information related to the County and VCWPD's proposed compliance strategy, please contact me at Ewelina.Mutkowska@ventura.org or 805 645-1382.

Sincerely,

Jeff Pratt, P.E.
Director

Attachment 1: High Trash Areas Requiring Full Capture Devices in the Upper MCW County Unincorporated Area

CC: Renee Purdy, Regional Programs Chief, Los Angeles Regional Water Quality Control Board (LARWQCB)
Jenny Newman, TMDL Section Chief, LARWQCB
Peter Sheydayi, Interim Director, Ventura County Watershed Protection District (VC WPD)
Arne Anselm, Deputy Director, VC WPD
Ewelina Mutkowska, County Stormwater Program Manager, VC WPD

High Trash Areas Requiring Full Capture Devices in the Upper MCW County Unincorporated Area

N

0 500 1,000 Feet

- County Catch Basin Locations
- 1122 - Duplexes, Triplexes, and 2- or 3-Unit Condominiums and Townhouses
- 1123 - Low-Rise Apartments, Condominiums, and Townhouses
- 1124 - Medium-Rise Apartments and Condominiums
- 1222 - Retail Centers
- 1223 - Retail Strip

LINDERO CREEK

WEST FORK MEDEA CREEK

MEDEA CREEK

MEDEA CREEK

City of Thousand Oaks

Ventura County

Los Angeles County

county of ventura

PUBLIC WORKS
VENTURA COUNTY

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Water & Sanitation Department
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Watershed Protection District
Glenn Shephard, Director

July 26, 2017

Mr. Samuel Unger, Executive Officer
California Regional Water Quality Control Board, Los Angeles Region
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

Subject: **County of Ventura and Ventura County Watershed Protection District Point Source Compliance for the Malibu Creek Watershed Trash Total Maximum Daily Load**

Dear Mr. Unger:

County of Ventura (County) and the Ventura County Watershed Protection District (District) are submitting this letter to update the Los Angeles Regional Water Quality Control Board (LARWQCB) regarding implementation of point source compliance strategy for the Malibu Creek Watershed Trash Total Maximum Daily Load (Trash TMDL), Resolution No. R4-2008-007 (effective July 7, 2009). This compliance strategy was based on the Track 1 compliance option from the Amendment to the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) and the Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE Plan) adopted in December 2016 (together, "Statewide Trash Amendments"). Details of the compliance strategy were described in the County letter dated October 10, 2016 (Attachment 1) and discussed with LARWQCB staff on November 4, 2016.

As proposed, the County and the District continue to implement the Minimum Frequency of Assessment and Collection/Best Management Practice (MFAC/BMP) Program as described in the Trash Monitoring and Reporting Plan (TMRP), dated April 30, 2010, and documented in the Annual Reports submitted to LARWQCB in 2013, 2014, 2015, 2016, and 2017 (pending submittal). In addition, priority land use analysis for installation of required full capture devices (FCDs) within the County unincorporated areas in the upper Malibu Creek Watershed (MCW) was completed and updated per direction from the LARWQCB staff provided at a workshop titled "Reconsideration of MS4 Approach to the Los Angeles Region Trash TMDLs" on November 28, 2016. Table 1 presents summary of provided guidance in determining priority land uses, which have been shown to generate significant amounts of trash and are subject to installation of FCDs per Statewide Trash Amendments. LARWQCB provided guidance for identification of priority land uses utilizing the Southern California Area Government's (SCAG) Land Use Categories/Codes. The County unincorporated area land uses were analyzed using 2005 SCAG Land Use Geographic Information System (GIS) shapefile.

Table 1. LARWQCB's Guidance for Priority Land Uses

PRIORITY LAND USES	SCAG LAND USE CATEGORIES/CODES
High-density residential	Multi-family residential: 1121, 1122, 1123, 1124, 1125 Mobile Homes and Trailer Parks: 1131 Mixed Residential: 1140 Rural Residential: 1151
Industrial	Industrial: 1300
Commercial	Commercial and Services: 1200
Mixed urban	Mixed urban: 1600
Public transportation stations	Transportation, Communication, and Utilities: 1400

* Mixed Commercial and Industrial (1500)

Following LARWQCB's guidelines presented in Table 1, the following priority land uses were identified within the Ventura County unincorporated areas in upper MCW:

- High Density Residential – All High Density Residential classifications (1122, 1123, and 1124) were identified and selected for installation of FCDs. It was determined that Multi-Family Residential (1121 or 1125), Mobile Homes/Trailer Parks (1131), Mixed Residential (1140), or Rural Residential (1151) land use classifications were absent. Total of 22 catch basins were selected within High Density Residential land use areas (Attachment 2).

- Industrial - There are no land use classifications for Industrial (1300) thus, no catch basins were identified for this land use category.

- Commercial – Table 1 indicates that all SCAG land use Codes of 1200, "Commercial and Services", may be included as priority land uses. The SCAG definition for 1200 Codes reads "*Commercial and Services includes areas used predominantly for business or the sale of products and their associated services. Also included are some non-commercial uses such as government and public service offices. This class does not include industrial activities.*" It was realized that the 1200 Codes include schools and churches which are not under County's jurisdiction, therefore, not included for FCD installation by the County. In addition, 1200 Codes include fire stations which are not commercial land uses and do not generate high volumes of trash. All other Commercial land uses (Retail Centers – 1222 & Retail Strip – 1223) were included for selection of catch basins for FCDs. A total of three catch basins were selected within Commercial land use areas (Attachment 2).

- Mixed Urban – No Mixed Urban land use classifications (1600) were identified thus, no catch basins were identified for this land use category.

- Public Transportation Stations – The County identified locations of Kanan Shuttle bus stops and associated storm drain catch basins that are likely to capture their runoff, i.e., catch basins located within 1,500 feet downstream from a bus stop and likely to capture the bus stop runoff. In addition, three areas under the SCAG land use Codes of 1400 were identified outside of County's jurisdiction which included 1431 (Electrical Power Facilities) owned by Southern California Edison (SCE), 1436 (Water Transfer Facilities), and 1437 (Improved Flood Waterways and Structures); however, since they are not public transportation stations, they were not selected for FCDs. A total of nine catch basins were selected for addressing trash from the Public Transportation Stations (Attachment 2).

Outside of the Oak Park urban area, the only other priority land uses identified from the SCAG 2005 data were mostly private areas within the Lake Sherwood subwatershed, identified as either Commercial, Industrial, or High Density land uses. The red-shaded areas depicted in Figure 1 include a private service yard, residential duplexes, a storage yard, and low rise office buildings under Lake Sherwood Homeowners Association's jurisdiction with no discharge into County storm drain system, but direct discharge into Lake Sherwood. The yellow highlighted area indicates County's Fire Station, which as discussed above, is not a Commercial land use and does not generate high volumes of trash.

Figure 1. Priority Land Uses Outside Oak Park in Upper MCW

In addition to 34 catch basins located within the identified priority land use areas, one FCD was installed in a catch basin adjacent to Oak Park High School at Calle Rio Vista.

This catch basin directly discharges to Medea Creek and was noted as a potential contributor to trash found in Medea Creek based on regular field observations collected as a part of on-going MFAC/BMP Program. As a result, a total of 35 FCDs were installed to address discharges from high trash generating areas within County unincorporated areas in upper MCW.

Conclusion

The County and the District installed 35 FCDs in the identified priority land use areas in upper MCW and will continue implementing the MFAC/BMP Program. As discussed previously, the County and the District believe that addressing trash via the Track 1 compliance option of the Statewide Trash Amendments is an effective and efficient way of managing trash within County unincorporated areas and combined with ongoing MFAC/BMP Program, will satisfy the point source requirements of the Trash TMDL.

As discussed in the October 10, 2016 letter (Attachment 1), the County and the District will follow the proposed Trash TMDL compliance assessment process using the percent reduction determined by the trash monitoring data collected during the MFAC events combined with the percent of total trash generated that will be captured by the FCDs in the priority land use areas. Based on the trash generation calculations, the County and the District will capture 70 percent of the stormwater collection system generated trash within the County unincorporated areas through the installed FCDs. The remaining 30 percent of generated trash will be addressed through the trash controlling BMPs currently being implemented by the County and the District. In the future, if the MFAC/BMP Program data does not show at least a 30 percent reduction from the baseline Waste Load Allocations, then the County and the District may initiate proposed quarterly inspections for all non-priority land use catch basins and, based on the inspection data, modify inspection frequency to a minimum that prevents trash from accumulating in deleterious amounts between inspections as described in section "TMDL Compliance Assessment" in the October 10, 2016 letter (Attachment 1).

If you have any questions or require more information related to the County and District's implementation of Trash TMDL requirements, please contact Ewelina Mutkowska at (805) 645-1382 or Ewelina.Mutkowska@ventura.org.

Sincerely,

Glenn Shephard, P.E.
Director, Ventura County Watershed Protection District

Attachments:

1 "Proposed County of Ventura and Ventura County Watershed Protection District Point Source Compliance Strategy for the Malibu Creek Watershed Trash Total Maximum Daily Load" Letter Dated October 10, 2016

2 Priority Land Uses, County Storm Drain System, and Locations of Installed Full Trash Capture Devices (35)

CC: Renee Purdy, Los Angeles Regional Water Quality Control Board
Jenny Newman, Los Angeles Regional Water Quality Control Board
Stefanie Hada, Los Angeles Regional Water Quality Control Board
Jeff Pratt, Ventura County Public Works Agency
Arne Anselm, Ventura County Watershed Protection District
Ewelina Mutkowska, Ventura County Watershed Protection District

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county of ventura

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October 10, 2016

Mr. Samuel Unger, Executive Officer
California Regional Water Quality Control Board, Los Angeles Region
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

Subject: PROPOSED COUNTY OF VENTURA AND VENTURA COUNTY WATERSHED PROTECTION DISTRICT POINT SOURCE COMPLIANCE STRATEGY FOR THE MALIBU CREEK WATERSHED TRASH TOTAL MAXIMUM DAILY LOAD

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The County and VCWPD believe addressing trash via the Track 1 compliance option of the Statewide Trash Policies will be an effective and efficient way of managing trash within County Unincorporated areas and will satisfy the point source requirements of the Trash TMDL.

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Current Point Source Compliance Actions

To address the point source requirements of the Trash TMDL, the County and VCWPD have been implementing a Minimum Frequency of Assessment and Collection/Best Management Practice (MFAC/BMP) Program, which was detailed in the Malibu Creek Watershed Trash TMDL Trash Monitoring and Reporting Plan (TMRP) MFAC/BMP Program. The County and VCWPD submitted the TMRP to the California Regional Water Quality Control Board, Los Angeles Region (Regional Board) on April 30, 2010. The Trash TMDL requires implementation of the TMRP six months from receipt of the letter of approval from Regional Board (Table 7-31.2a of the Trash TMDL). The County and VCWPD did not receive a response or approval from Regional Board regarding the submitted TMRP; however, considering TMDL implementation schedule and required compliance milestones, on March 25, 2011, the County and VCPWD submitted a Notice of Intent (NOI) to proceed with implementing the proposed TMRP. In July 2011, the County and VCWPD commenced implementing the proposed TMRP towards meeting the Trash TMDL's phased percent reduction milestones.

During the first year of monitoring, July 1, 2011 through June 30, 2012, trash data collected at the Medea Creek (MC1) monitoring location served as the baseline Waste Load Allocation (WLA) from which, the County and VCWPD have been assessing compliance (**Table 1**). Based on trash data collected during the three subsequent monitoring years, the County and VCWPD are in compliance with the required percent reduction from the baseline WLAs except for the 2015 weight WLA (**Table 2**).

Table 1. Baseline WLAs for the Medea Creek (MC1) Sampling Site

Medea Creek (MC1) Sampling Site Baseline WLAs		
Pieces	**Volume (cf)**	**Weight (lbs)**
970	7.2	16.3

Table 2. Trash Data Comparison to Required Percent Reductions from Baseline WLA for MC1

	Pieces	**Volume (cf)**	**Weight (lbs)**
2013 20% Reduction from Baseline WLA Values	776	5.8	13.0
2012-2013 Trash Data	163	3.7	8.6
Percent Reduction from Baseline WLA	83%	49%	47%
2014 40% Reduction from Baseline WLA Values	582	4.3	9.8
2013-2014 Trash Data	170	2.2	8.3
Percent Reduction from Baseline WLA	82%	69%	49%
2015 60% Reduction from Baseline WLA Values	388	2.9	6.5
2014-2015 Trash Data	105	1.7	9.4
Percent Reduction from Baseline WLA	89%	76%	42%

Proposed Compliance Strategy

Per the Statewide Trash Policies, within one year of the effective date, the Regional Board shall convene a public meeting to reconsider the scope of its trash TMDLs to particularly consider an approach that would focus MS4 permittees' trash-control efforts on high-trash generation areas within their jurisdictions (i.e., priority land uses). Until the Regional Board re-considers the Trash TMDL related to the Statewide Trash Policies' priority land use areas, the County and VCWPD will address all priority land uses by installing FCDs in catch basins along the storm drain system capturing runoff from the priority land use areas. In addition, the County and VCWPD will address all non-priority land uses through a MFAC/BMP Program. If the Regional Board amends the Trash TMDL to only include priority land use areas and the County and VCWPD have installed all of the FCDs, then the County and VCWPD will cease implementing the MFAC portion of the MFAC/BMP program, but will continue implementing trash-control BMPs throughout the County unincorporated areas.

The County and VCWPD respectfully requests the Regional Board to consider amending the Trash TMDL to focus on the priority land use areas rather than all land use areas within the Malibu Creek watershed. As discussed above, the Statewide Trash Policies are based on addressing the land uses that generate large amounts of trash and that some areas do not generate large amounts of trash and it is not necessary or effective to address these low trash generating, non-priority, land uses. The County and VCWPD believes addressing priority land use areas rather than addressing all land uses within the County unincorporated areas, as required in the Trash TMDL, will allow for a more effective and efficient manner of dealing with trash within the County unincorporated areas. Installing FCDs in priority land use areas would allow the County and VCWPD to focus resources in areas generating trash rather than distributing resources to areas that may not generate significant levels of trash. Further, it would allow the County and VCWPD to reprioritize scarce resources to meet MS4 Permit regulations and regulations from other TMDLs. The number of catch basins the County and VCWPD would need to address in the County unincorporated areas under the Statewide Trash Polices is 25 with the majority located in high-density residential areas (**Figure 1**).

Trash TMDL Compliance Assessment

To demonstrate compliance with the phased percent reductions required by the Trash TMDL, the County and VCWPD will use the percent reduction identified by the trash data collected during the MFAC Events combined with the percent of total trash generated that will be captured by the FCDs in the priority land use areas.

The TMRP lists three baseline WLA metrics that are used to calculate the percent reduction in trash: pieces, volume (cubic feet), and weight (pounds). Over the past three monitoring years, no correlation has been shown between the three metrics. That is, there is no correlation between the pieces of trash collected, the volume of the trash collected, and/or the weight of the trash collected. As such, the County and VCWPD is proposing that so long as one of the three metrics is meeting the required phased percent reduction, then the County and VCWPD will be considered meeting the compliance target. Based on the 2014-2015 trash monitoring data, both the pieces and volume metrics are meeting the required percent reductions, with the trash data showing an 89 percent reduction from the baseline WLA for pieces of

trash collected. These data indicate the County and VCWPD are currently meeting the required percent reduction from the baseline WLA.

As the County and VCWPD are proposing to utilize the amount of trash collected from the FCDs that will be installed as part of the compliance determination, the amount of trash they will capture needed to be calculated. In order to determine the amount of trash the FCDs will capture once installed, trash generation from the County unincorporated MS4 areas first had to be calculated. Using land use acreage determined through geographic information system (GIS) analyses and trash generation rate (TGR) data obtained through a review of reports that contain TGR data, the County and VCWPD calculated trash generation rates for: (1) all land uses; (2) priority land uses; and (3) non-priority land uses.

To generate land use acreage, the County unincorporated MS4 area's existing land use GIS data were processed so the land use classifications matched those of the Statewide Trash Policies' priority land uses. To determine the most appropriate TGRs for the County unincorporated areas, several studies within California and the United States were reviewed. TGRs from studies in the City of Los Angeles[2], the San Francisco Bay Area[3,4], and Baltimore County, Maryland[5] were utilized to calculate the amount of trash generated in the County unincorporated areas. TGRs were selected based on the similarities the study areas shared with the County unincorporated areas' land use and demographics.

Three land use TGRs from the Maryland TMDL Study were adopted for the County unincorporated areas including: Low-Medium Density Residential, High Density Residential, and Commercial. It was assumed that these areas were the most similar to the County unincorporated areas out of the four studies reviewed. However, the lowest TGR values from the range of values presented in the Maryland TMDL Study were selected as it was assumed the County unincorporated areas primarily have a lower land use density across all land uses than the areas in the Maryland TMDL Study. For the County unincorporated Public/Semi-Public Buildings land use, the average of the low range TGRs from the 2014 San Francisco Bay Area Study and Maryland TMDL Study was used. The Open Space land use was not included in the analyses as the open space in the County unincorporated areas is not part of the MS4. Public Transportation Land uses were also not included in the analyses due to the nature of the land use. That is, the public transportation locations within the County unincorporated areas include bus stops, which are only points rather than areas. In addition, the County unincorporated areas do not contain industrial or mixed use land uses. **Table 3** presents the TGR values from the studies reviewed.

Based on the GIS analyses and the review of the TGRs, 456 gallons/year of trash generated was calculated for all land uses, 323 gallons/year of trash generated was calculated for the priority land use areas, and 133 gallons/year of trash generated was calculated for non-priority land use areas. **Table 4** lists the estimated annual trash generation for each land use category within the County unincorporated areas. As the County and VCWPD will install FCDs in the priority land use areas, this indicates the FCDs will capture 323 gallons/year of the 456 gallons/year or 70 percent of the total trash generated within the

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[2]Black & Veatch. Quantification Study of Institutional Measures for Trash TMDL Compliance 2012-2013. December 2013. Prepared for City of Los Angeles.

[3]EOA Inc. San Francisco Bay Area Stormwater Trash Generation Rates Final Technical Report. June 2014. Prepared for BASMAA.

[4] EOA, Inc. Technical Memorandum: Preliminary Baseline Trash Generation Rates for San Francisco Bay Area MS4s. February 2012.

[5]Maryland Department of the Environment. TMDLs of Trash and Debris for the Middle Branch and Northwest Branch Portions of the Patapsco River Mesohaline Tidal Chesapeake Bay Segment. December 2014

County unincorporated MS4 areas. This means that the County and VCWPD will need to show at least a 30 percent reduction from the baseline WLA through the MFAC/BMP Program to be in compliance with the final 100 percent reduction from the baseline WLA requirement.

Table 3. TGR Values by Land Use from Studies Reviewed (gal/acre/year)[1]

Land Use	TGR Range	City of Los Angeles Study	SF Bay Area Studies	Maryland TMDL Study[5]
Low-Medium Density Residential	Low	0.5	0.3[2]	***0.1***
	High	3.3	1.0[2]	0.9
High Density Residential	Low	1.2	0.9[2]	***1.2***
	High	6.5	7.4[2]	1.3
Commercial	Low	2.7	0.7-2.1[3]	***3.2***
	High	42.2	4.6-40.0[3]	
Public/Semi-Public Buildings	Low	N/A	***0.7***[4]	***0.3***
	High	N/A	17.3[4]	1.4

1. ***Bold Italicized*** values indicate the TGRs chosen for the County unincorporated land uses.
2. Numbers represent those from Table 4.2 of the 2014 San Francisco Bay Area Study for the greater than $100,000 median household income bracket as the County unincorporated area median household income, according to the United States Census Bureau, is $117,326. Residential TGRs were presented as a range; the lower range values for the Low and High TGRs were used for the Low-Medium Density Residential land use in the above table and the higher range values for the Low and High TGRs were used for the High Density Residential land use in the above table.
3. Numbers represent those from Table 4.2 of the 2014 San Francisco Bay Area Study for the greater than $100,000 median household income bracket as the County unincorporated area median household income, according to the United States Census Bureau, is $117,326.
4. Numbers represent those from Table 4.2 of the 2014 San Francisco Bay Area Study Commercial & Services.
5. Numbers converted from pounds/acre to gallons/acre using 2.5 pounds=1 gallon from: Michael Baker International. Literature Review for Trash Amendment Compliance Strategy. Contract No. 534079, Task Order 52. Prepared for: County of San Diego Department of Public Works. July 2015.

Table 4. County Unincorporated Area Trash Generation (Priority Land Uses in Bold)

Land Use	Acreage	TGR (gal/acre/year)	Trash Generated (gal/year)
Low-Medium Density Residential	792	0.1[1]	79
High Density Residential	**221**	**1.2**[1]	**265**
Commercial	**18**	**3.2**[1]	**58**
Public/Semi-Public Buildings	107	0.5[2]	54
Total	1,138		456
Priority Land Use Total	**239**		**323**
Non-Priority Land Use Total	899		133

1. TGR was obtained from the Maryland TMDL Study.

2. TGR is the average of TGRs from the 2014 San Francisco Bay Area Study and the Maryland Study. TGRs from the Maryland study were converted from pounds to gallons by using a conversion factor (2.5 pounds =1 gallon) from: Michael Baker International. Literature Review for Trash Amendment Compliance Strategy. Contract No. 534079, Task Order 52. Prepared for: County of San Diego Department of Public Works. July 2015.

If the MFAC/BMP Program data do not show at least a 30 percent reduction from the baseline WLA, then the County and VCWPD may implement the following inspection and collection schedule for non-priority land use area catch basins:

- Initially, the County and VCWPD will conduct quarterly inspections for all non-priority land use catch basins.
- Inspection frequencies may be modified for particular catch basins based on the amount of trash and/or anthropogenic landscape litter (dumped grass clippings) present during initial quarterly inspections. A minimum inspection frequency interval will be selected that prevents trash and/or leaf litter from accumulating in deleterious amounts between collections.
- Collection events will occur concurrently with the assessments and the County and VCWPD will ensure zero trash and/or leaf litter will remain after the collection event.

Based on this inspection and cleaning schedule, catch basins cleaned one or fewer times (i.e., no trash/anthropogenic landscaping litter found during inspections) over a rolling three-year period will be considered equivalent to catch basins with FCDs installed. This determination is based on trash and/or anthropogenic landscaping litter not accumulating in the catch basins and therefore not being discharged to Medea Creek. This also indicates the BMPs implemented by the County and VCWPD are addressing trash equivalent to FCDs. If any catch basin does not maintain its one or fewer cleaning status, the catch basin and/or area surrounding the catch basin will be addressed via trash-control BMPs to return the catch basin to the one or fewer cleaning category and may be addressed by a FCD. If the Regional Board revises the Trash TMDL to only focus on priority land uses, the inspections and collections will be ceased for the non-priority areas and the inspection and cleaning protocols will revert to the requirements of the Ventura County MS4 Permit.

Conclusion

The County and VCWPD are proposing to install FCDs in priority land use areas and to continue implementing the MFAC/BMP Program for all non-priority land use areas. To assess compliance with the Trash TMDL, the County and VCWPD will combine the trash reduction data collected during the MFAC Events with the percent of trash generated that will be collected by the FCDs.

The County and VCWPD calculated trash generation rates for all land uses, for priority land use areas, and non-priority land use areas utilizing acreage obtained from GIS land use analyses and TGRs identified through a literature review. Based on the trash generation calculations, the County and VCWPD will capture 70 percent of the trash generated within the County unincorporated areas through the installation of FCDs. The remaining 30 percent of trash generated is and will be addressed through the trash-control BMPs currently being implemented by the County and VCWPD. The MFAC Event trash data show the County and VCWPD are currently meeting the required percent reduction from the baseline

WLA and will also meet the subsequent required percent reductions through the installation of FCDs and the implementation of BMPs.

Finally, the County and VCWPD respectfully request the Regional Board to consider amending the Trash TMDL to focus on the priority land use areas rather than all land use areas within the Malibu Creek watershed during its required evaluation.

If you have any questions or require more information related to the County and VCWPD's proposed compliance strategy, please contact me at Ewelina.Mutkowska@ventura.org or 805 645-1382.

Sincerely,

Jeff Pratt, P.E.
Director

Attachment 1: High Trash Areas Requiring Full Capture Devices in the Upper MCW County Unincorporated Area

CC: Renee Purdy, Regional Programs Chief, Los Angeles Regional Water Quality Control Board (LARWQCB)
Jenny Newman, TMDL Section Chief, LARWQCB
Peter Sheydayi, Interim Director, Ventura County Watershed Protection District (VC WPD)
Arne Anselm, Deputy Director, VC WPD
Ewelina Mutkowska, County Stormwater Program Manager, VC WPD

High Trash Areas Requiring Full Capture Devices in the Upper MCW County Unincorporated Area

N

0 500 1,000 Feet

- County Catch Basin Locations
- 1122 - Duplexes, Triplexes, and 2- or 3-Unit Condominiums and Townhouses
- 1123 - Low-Rise Apartments, Condominiums, and Townhouses
- 1124 - Medium-Rise Apartments and Condominiums
- 1222 - Retail Centers
- 1223 - Retail Strip

LINDERO CREEK

WEST FORK MEDEA CREEK

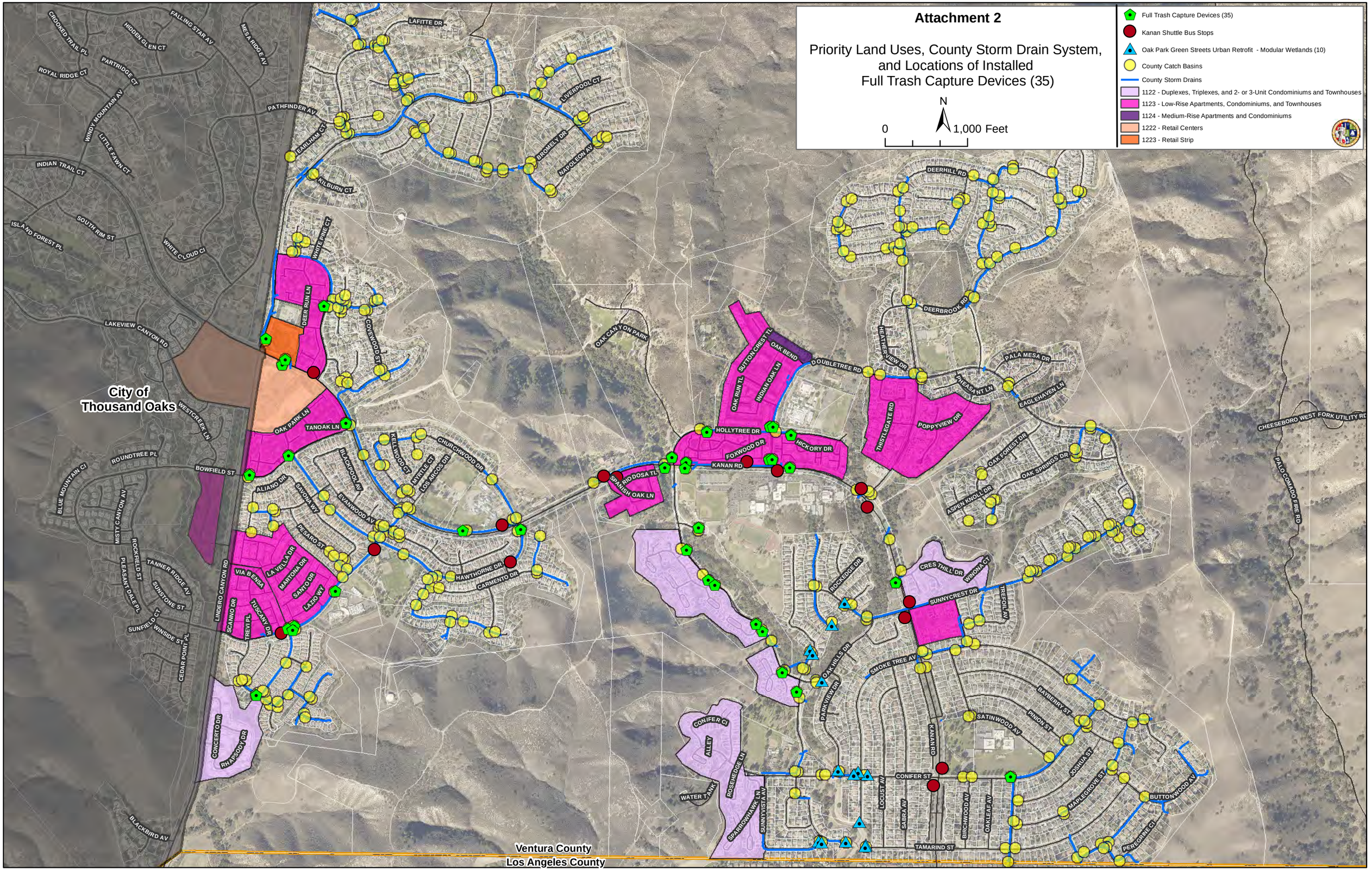
MEDEA CREEK

MEDEA CREEK

City of Thousand Oaks

Ventura County

Los Angeles County


Attachment 2
Priority Land Uses, County Storm Drain System, and Locations of Installed Full Trash Capture Devices (35)
N
0
1,000 Feet
Full Trash Capture Devices (35)
Kanan Shuttle Bus Stops
Oak Park Green Streets Urban Retrofit - Modular Wetlands (10)
County Catch Basins
County Storm Drains
1122 - Duplexes, Triplexes, and 2- or 3-Unit Condominiums and Townhouses
1123 - Low-Rise Apartments, Condominiums, and Townhouses
1124 - Medium-Rise Apartments and Condominiums
1222 - Retail Centers
1223 - Retail Strip
City of Thousand Oaks
Ventura County
Los Angeles County
LAFITTE DR
LIVERPOOL CT
BROMLEY DR
NAPOLEON AV
CARLHAM CT
KILBURN CT
PATHFINDER AV
CROOKED TRAIL PL
HIDDEN GLEN CT
FALLING STAR AV
MESA RIDGE AV
ROYAL RIDGE CT
PARTRIDGE CT
WINDY MOUNTAIN AV
LITTLE FAWN CT
INDIAN TRAIL CT
ISLAND FOREST PL
SOUTH RIM ST
WHITE CLOUD CI
WHITE PINE CT
DEER RUN LN
COVEWOOD ST
LAKEVIEW CANYON RD
OAK CANYON PARK
DEERHILL RD
DEERBROOK RD
HEATHERVIEW DR
PALA MESA DR
PHEASANT LN
EAGLEHAVEN LN
DOUBLETREE RD
OAK BEND
SUTTON CREST TL
OAK RUN TL
INDIAN OAK LN
HOLLYTREE DR
FOXWOOD DR
HICKORY DR
KANAN RD
RIODOSA TL
SPANISH OAK LN
THISTLEGATE RD
POPPYVIEW DR
OAK FOREST DR
OAK SPRINGS DR
ASPEN KNOLL DR
CHEESEBORO WEST FORK UTILITY RD
PALO COMADO FIRE RD
OAK PARK LN
TANO AK LN
WESTCREEK LN
ROUNDTREE PL
BOWFIELD ST
BLUE MOUNTAIN CI
MISTY CANYON AV
ROCKFIELD ST
PLEASANT DALE PL
SUNFIELD CT
TANNER RIDGE AV
SUNSTONE ST
WINSIDE ST
CEDAR POINT PL
LINDERO CANYON RD
SCANNO DR
TREVI PL
TUSCANY DR
VIA BENSA
LA VELLA DR
MARTONA DR
SANTO DR
LAZIO WY
ALIANO DR
SAVONA WY
PESARO ST
EVANWOOD AV
BLACKPOOL AV
KELLWOOD CT
MYRTLE CT
LOS ARCOS DR
CHURCHWOOD DR
HAWTHORNE DR
CARMENTO DR
CONCERTO DR
RHAPSODY DR
BLACKBIRD AV
ROCKEDGE DR
CRES THILL DR
WINONA CT
SUNNYCREST DR
TREFOIL AV
OAK HILLS DR
SMOKE TREE AV
PARKVIEW DR
CONIFER CI
ALLEY
ROSEHEDGE LN
WATER TANK
SPARROWHAWK LN
SUNNYVISTA AV
CONIFER ST
LOCUST AV
SABRA AV
BIRCHWOOD AV
OAKLEAF AV
TAMARIND ST
KANAN RD
BAYBERRY ST
PINION ST
SATINWOOD AV
JOSHUA ST
MAPLEGROVE ST
BUTTONWOOD AV
PEREGRINE CI

Appendix 4

Upper Malibu Creek Watershed
Trash Total Maximum Daily Load
Full Trash Capture Device Installation Report
May 2018

Upper Malibu Creek Watershed
Trash Total Maximum Daily Load

FULL TRASH CAPTURE DEVICE INSTALLATION REPORT

Prepared By:

Ventura County Public Works Agency's
Watershed Protection District

800 S. Victoria Avenue

Ventura, CA 93009-1610

MAY 2018

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Appendices

Background

The purpose of this report is to document the installation of 35 adequately sized and maintained connector pipe screen (CPS) 100% full capture trash devices for all priority land use areas as defined in the Amendment to the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) and the Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE Plan) adopted in December 2016 (together, "Statewide Trash Amendments") within Ventura County Unincorporated (County) areas draining to the County's MS4 in the Malibu Creek Watershed (MCW) as part of the Point Source requirements of the Malibu Creek Watershed Trash Total Maximum Daily Load (MCW Trash TMDL) (Los Angeles Regional Water Quality Control Board Resolution No. R4-2008-007).

The content of this report documents the design, sizing and installation of CPS devices as described in the July 26, 2017 letter to the Los Angeles Regional Water Quality Control Board, titled 'County of Ventura and Ventura County Watershed Protection District Point Source Compliance for the Malibu Creek Watershed Trash Total Maximum Daily Load' provided in **Appendix A**. This letter outlines the County and VCWPD's strategy of installing CPS devices within catch basins that capture runoff from priority land uses within the County areas while continuing to implement the MFAC/BMP Program.

The Los Angeles Regional Water Quality Control Board (LARWQCB) adopted the definition of "full capture system" for the Ballona Creek Trash Total Maximum Daily Load (TMDL) per Resolution No. 04-023 on March 4, 2004. This definition is considered applicable for all receiving waters in the Los Angeles Region identified as being impaired for trash. The definition is as follows:

"A full capture system is any single device or series of devices that traps all particles retained by a 5 mm mesh screen and has a design treatment capacity of not less than the peak flow rate (Q) resulting from a one-year, one-hour, storm in the subdrainage area. Rational equation is used to compute the peak flow rate: Q = C x I x A, where Q = design flow rate (cubic feet per second, cfs); C = runoff coefficient (dimensionless); I = design rainfall intensity (inches per hour, as determined per the rainfall isohyetal map), and A = subdrainage area (acres)."

On August 1, 2007 the Los Angeles County Division of Public Works (LACDPW) received full capture certification from the LARWQCB for semi-circular connector pipe screens that were the basis of the submitted technical report "Connector Pipe Screen Design, Full Capture TMDL Compliance, Screen and Bypass Sizing Requirements (LACDPW Technical Report)," dated April 2007. Following the guidelines of the technical report, the County of Ventura hired contractors to design, manufacture and install these types of devices in the MCW, in order to claim full capture credit towards the Trash TMDL requirements. The United Storm Water Inc., CPS devices installed within MCW are certified for 100% trash capture per LACDPW Technical Report requirements.

During Summer 2015, the County hired Stantec Consulting Services, Inc. to perform a site suitability analysis study of both land use and the storm drain system to determine County owned catch basins requiring installation of full capture devices within the unincorporated County areas

of MCW. This analysis included field reconnaissance findings with key information pertaining to physical measurements, photos, and field sketches, in addition to required drainage area delineation and hydrology calculations. Based on this site suitability analysis and numerous additional field investigations and desktop analyses performed by County staff, in Summer 2017, 35 County owned and maintained catch basins were retrofitted with United Storm Water, Inc. CPS devices with 5 mm mesh screen designed to provide 100% capture of trash within their respective drainage areas. All devices were installed on the downstream connector pipe at strategic locations within their respective drainage areas to ensure 100% full trash capture for the areas draining to these devices.

Potential Point Sources and Responsible Jurisdiction

The MCW Trash TMDL Staff Report describes the MCW as "… located roughly 35 miles west of Los Angeles. Approximately two-thirds of the watershed is in northwestern Los Angeles County, and the remaining third is in southeastern Ventura County. The watershed contains about 69,900 acres, and drains a 109 square mile area. Malibu Creek drains into Malibu Lagoon, and then into Santa Monica Bay." **Figure 1** depicts the extent of the MCW and the County of Ventura Unincorporated Urban Infill areas.

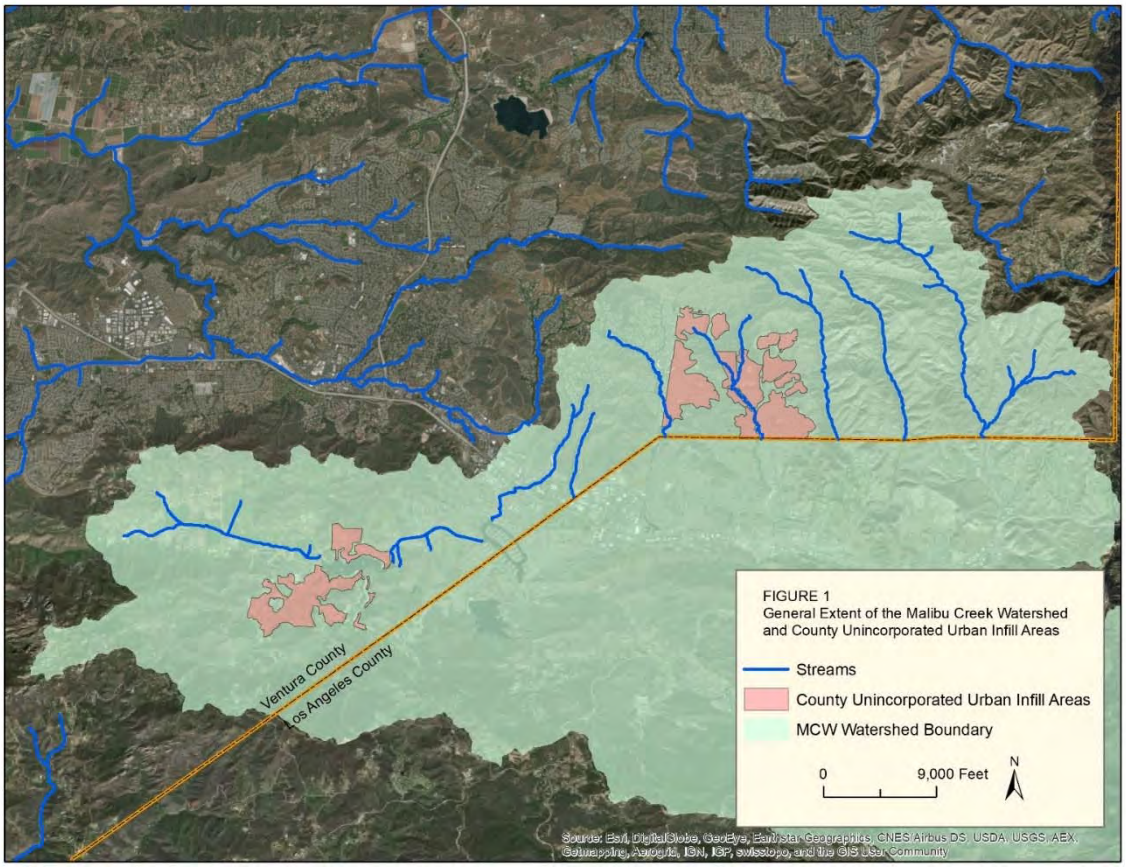

Figure 1 – Extent of the Malibu Creek Watershed, and County Unincorporated Infill Areas

The County's MS4 storm drain network within upper MCW and the priority land use areas was analyzed to identify the catch basin locations requiring CPS installations. Each catch basin location was also evaluated for feasibility of installation of CPS devices based on its dimensions, inlet type and existing storm drain infrastructure. The following priority land uses were identified within the County Unincorporated Urban Infill Areas in upper MCW, see **Figure 2**:

- High Density Residential – All High Density Residential classifications (1122, 1123, and 1124) were identified and selected for installation of CPS devices. It was determined that Multi-Family Residential (1121 or 1125), Mobile Homes/Trailer Parks (1131), Mixed Residential (1140), or Rural Residential (1151) land use classifications were absent. Total of 22 catch basins were selected within High Density Residential land use areas.

- Industrial - There are no land use classifications for Industrial (1300) thus, no catch basins were identified for this land use category.

- Commercial – The SCAG definition for 1200 Codes reads "*Commercial and Services includes areas used predominantly for business or the sale of products and their associated services. Also included are some non-commercial uses such as government and public service offices. This class does not include industrial activities."* It was realized that the 1200 Codes include schools and churches which are not under County's jurisdiction, therefore, not included for CPS installation by the County. In addition, 1200 Codes include fire stations which are not commercial land uses and do not generate high volumes of trash. All other Commercial land uses (Retail Centers – 1222 & Retail Strip – 1223) were included for selection of catch basins for CPS devices. A total of three catch basins were selected within Commercial land use areas.

- Mixed Urban – No Mixed Urban land use classifications (1600) were identified thus, no catch basins were identified for this land use category.

- Public Transportation Stations – The County identified locations of Kanan Shuttle bus stops and associated storm drain catch basins that are likely to capture their runoff, i.e., catch basins located within 1,500 feet downstream from a bus stop and likely to capture the bus stop runoff. In addition, three areas under the SCAG land use Codes of 1400 were identified outside of County's jurisdiction which included 1431 (Electrical Power Facilities) owned by Southern California Edison (SCE), 1436 (Water Transfer Facilities), and 1437 (Improved Flood Waterways and Structures); however, since they are not public transportation stations, they were not selected for CPS installation. A total of nine catch basins were selected for addressing trash from the Public Transportation Stations.

In addition to 34 catch basins located within the identified priority land use areas, one CPS device was installed in a catch basin adjacent to Oak Park High School at Calle Rio Vista. This catch basin directly discharges to Medea Creek and was noted as a potential contributor to trash found in Medea Creek based on regular field observations collected as a part of on-going MFAC/BMP

Program. As a result, a total of 35 CPS devices were installed to address discharges from high trash generating areas within County unincorporated areas in upper MCW.

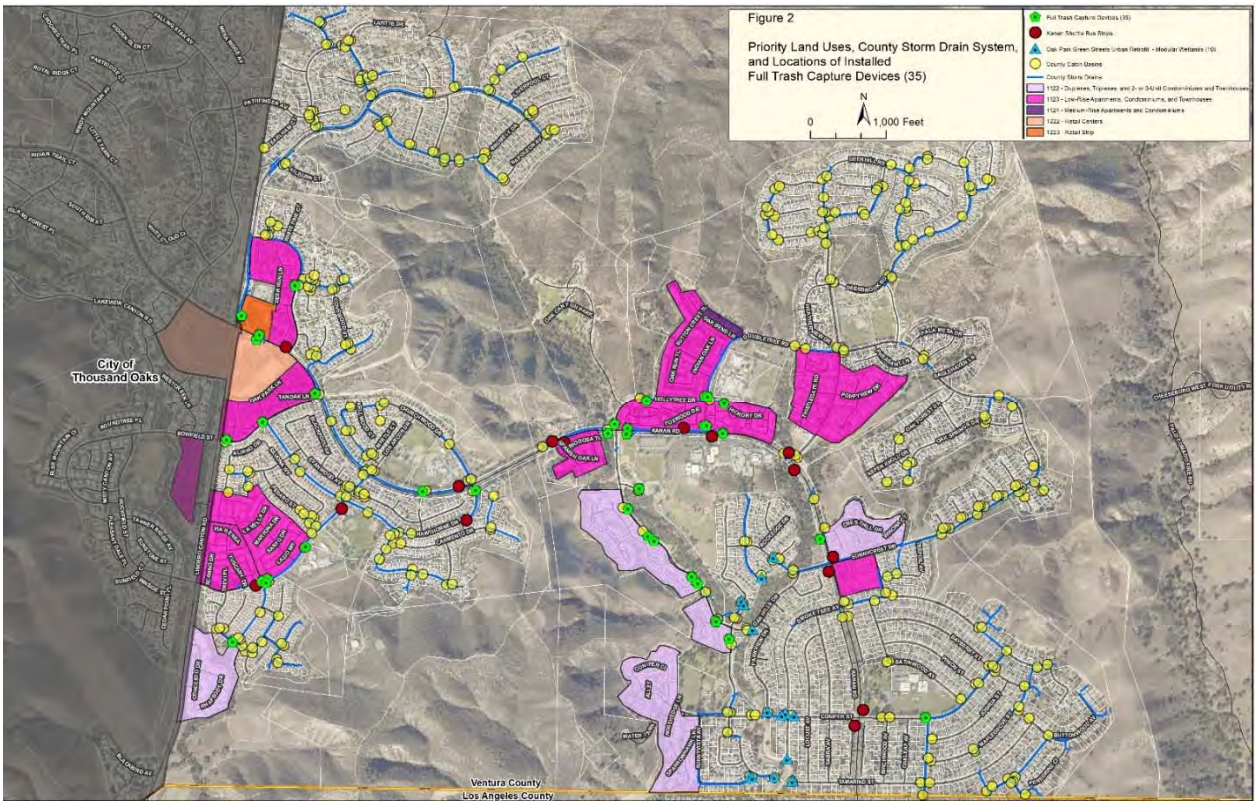

Figure 2 - Priority Land Uses, County Storm Drain System and Locations of Installed CPS Devices (35)

Outside of the Oak Park urban area, the only other priority land uses identified from the SCAG 2005 data were mostly private areas within the Lake Sherwood subwatershed, identified as either Commercial, Industrial, or High Density land uses. These red highlighted areas depicted in **Figure 3** include a private service yard, residential duplexes, a storage yard, and low rise office buildings under Lake Sherwood Homeowners Association's jurisdiction with no discharge into County storm drain system, but direct discharge into Lake Sherwood. The yellow highlighted area indicates County's Fire Station, which as discussed above, is not a Commercial land use and does not generate high volumes of trash.

Figure 3- Priority Land Use Areas Outside of Oak Park Urban Area

CPS Device Trash Excluder Locations

Figures 4, 5 and 6 show detailed maps of the County MS4 and the installed CPS devices with their drainage areas. **Appendix B** contains photos of the installed for each of the locations using their unique device identification number. The installed devices as-built drawings can be found in **Appendix C.**

Each of the CPS devices will be inspected and maintained by responsible personnel in accordance with the 'Connector Pipe Screen (CPS) Trash Excluders – Operation and Maintenance Plan' (O&M Plan) which is detailed in the Inspection and Maintenance Procedures chapter and included in **Appendix B**.

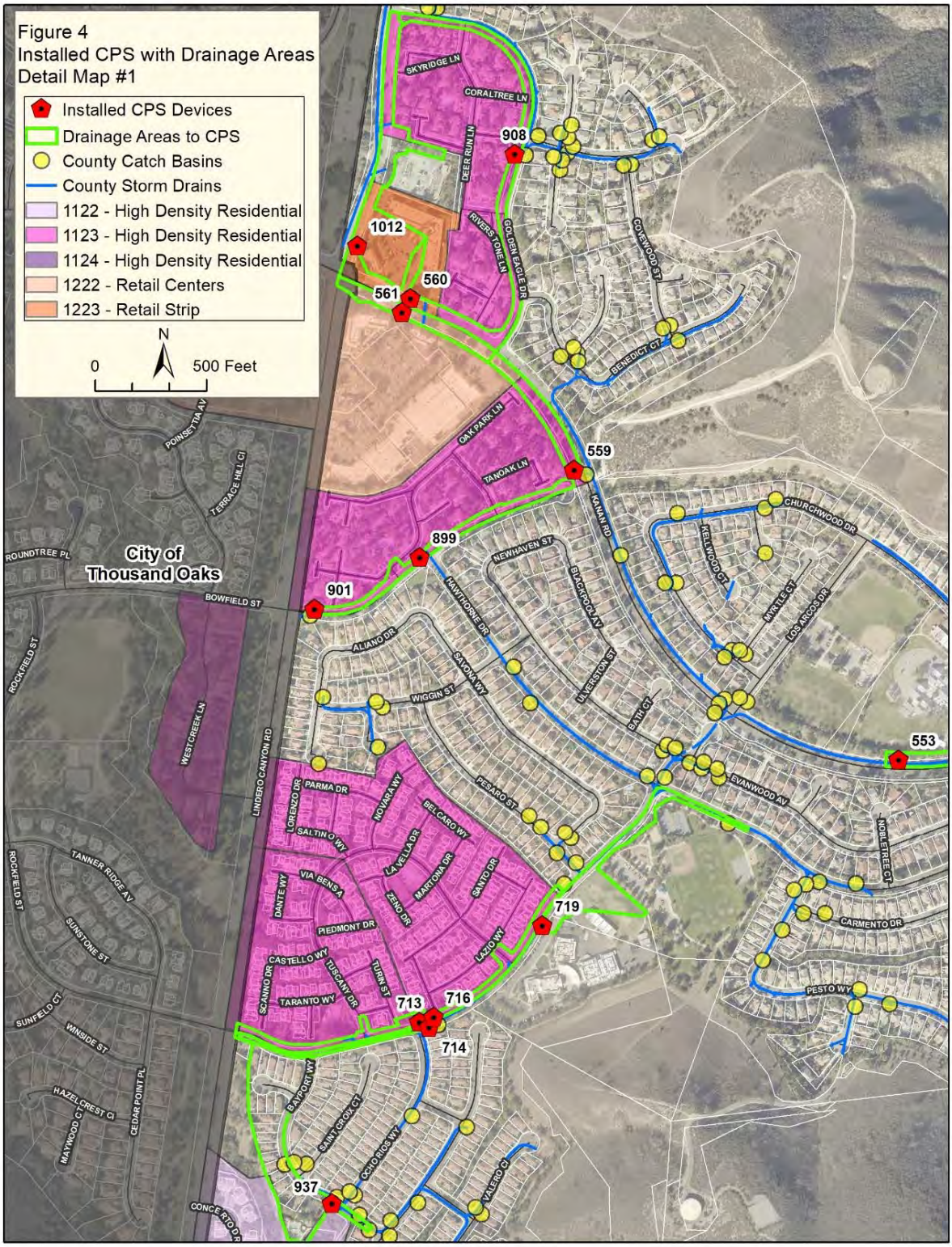

Figure 4 – Installed CPS with Drainage Areas Oak Park Area #1

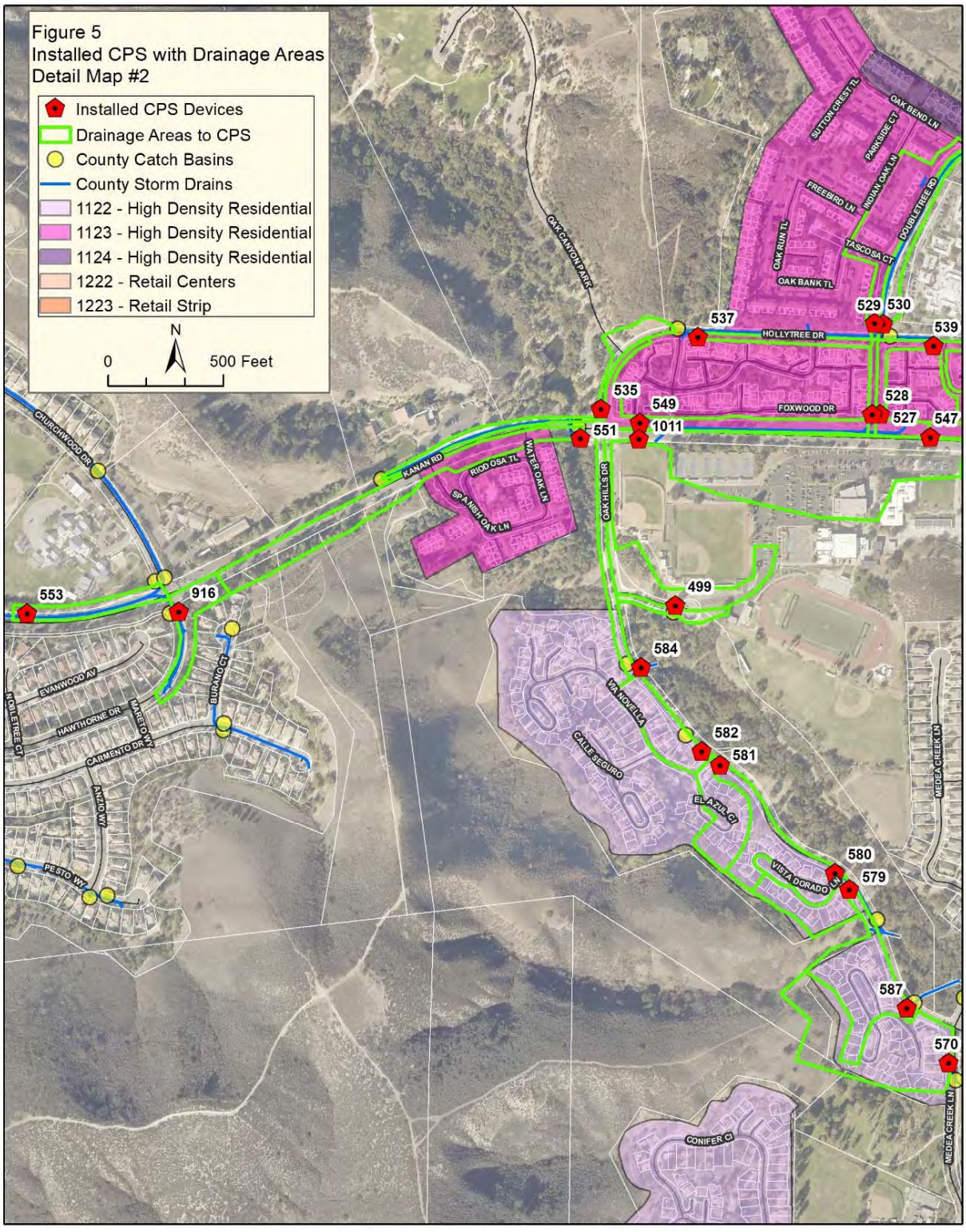

Figure 5 - Installed CPS with Drainage Areas – Oak Park Area #2

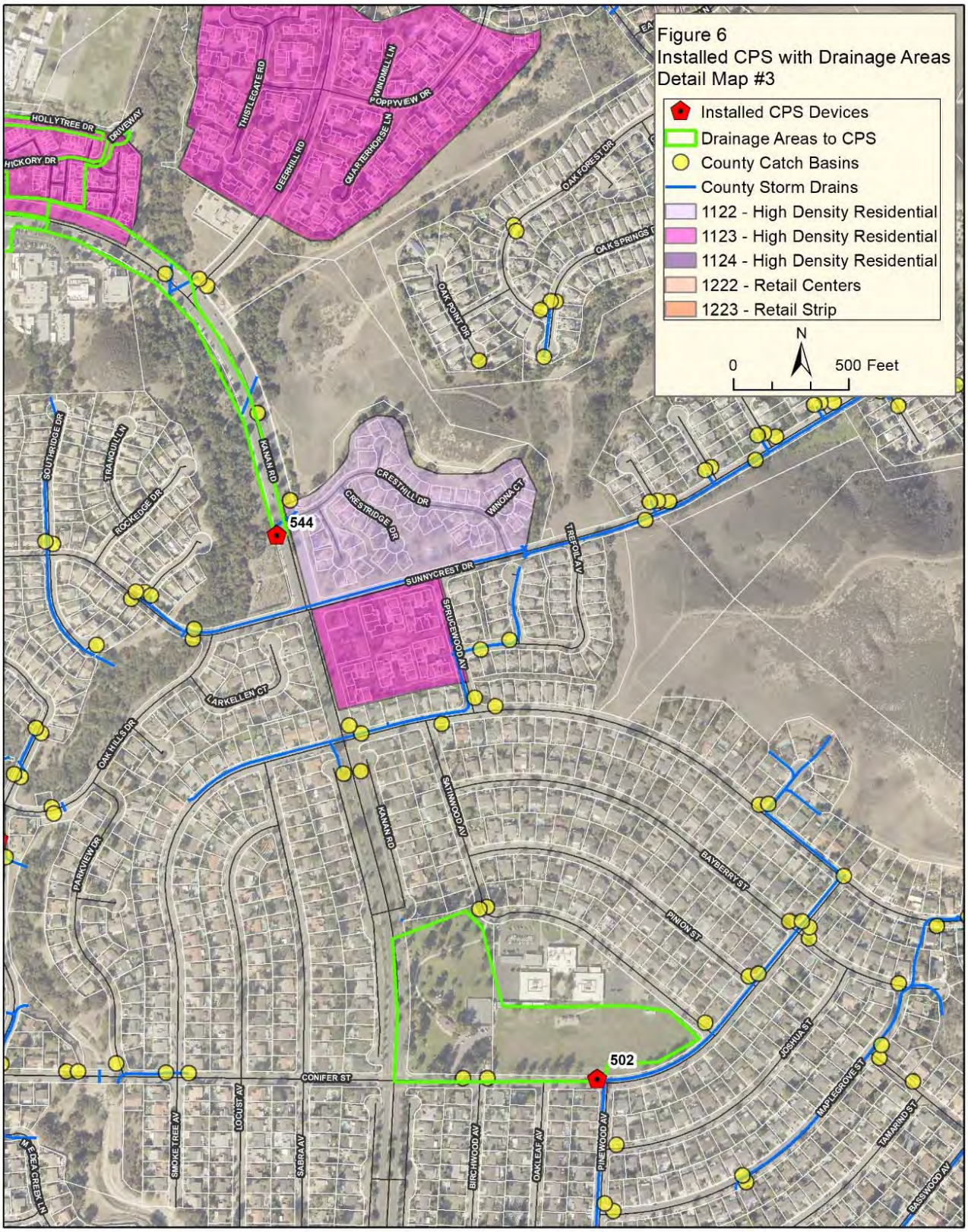

Figure 6 - Installed CPS with Drainage Areas – Oak Park Area #3

Design Hydrology

Stantec Consulting Services, Inc. was hired in Summer 2015 to perform a complete site suitability analysis study of both land use and the storm drain system to determine additional County owned catch basins requiring installation of full capture devices within MCW. This analysis included field reconnaissance findings with key information pertaining to physical measurements, photos, and field sketches, in addition to required drainage area delineation and hydrology calculations. Additional desktop analysis and field verification work was performed by County staff to ensure all applicable catch basins were identified and drainage areas correctly delineated. This work by County staff included additional analysis of the Kanan shuttle bus stop locations and the storm drain system capturing the runoff from these locations. Since the majority of Ventura County drainage facilities are designed for a 10-yr design storm frequency (Q_{10}), the calculations in this report for the sizing of the CPS devices are for a catch basin designed with a 10-year storm frequency. The VCWPD hydrology section provided guidance on the recommended hydrologic calculations method to determine flow rates to each catch basin for the 1-yr/1hr ($Q_{1\text{-}1}$) treatment flow. The methods utilized within the MCW watershed to determine the $Q_{1\text{-}1}$ design flow for CPS device treatment flow to attain full capture requirements are discussed below.

Calculation of 1-Yr/1-Hr Design Flow

Guidance on acceptable analysis methods were provided by the VCWPD Hydrology Section. Mark Bandurraga, Design Hydrologist with VCWPD provided information and assistance regarding the correct method of hydrologic analysis. The following procedure was used for determining the design flow for the $Q_{1\text{-}1}$ storm within the MCW watershed:

- The Rational Equation Method (Q = CIA) was used to determine the runoff generated from the tributary area "A" of each inlet analyzed.
    - The "C" coefficients were determined from the Ventura County Technical Guidance Manual (TGM).
    - The equation for coefficient "C" = 0.95 * imp + Cp (1-imp).
        - "Cp" values are based on the Ventura Soil Type

- (Soil Number 1 – 7) and are depicted on Table 2-3 of the TGM.

Table 2-3: Ventura Soil Type Pervious Runoff Coefficients

Ventura Soil Type (Soil Number)	C_p value
1	0.15
2	0.10
3	0.10
4	0.05
5	0.05
6	0
7	0

- Intensity "I" values were determined using the Precipitation Frequency Data Server on NOAA's Hydrometeorological Design Studies Center website http://hdsc.nws.noaa.gov/hdsc/pfds/).
  - The latitude and longitude of each inlet location was entered on the website.
  - A site specific table of the precipitation frequency estimates for the 1-yr/1-hr storm event were provide for each location.
  - Please note that for Device ID #'s 499, 502, 529, 544, 547, 551, 553, 714, 719, 916, and 1011 calculations were performed using the original VCWPD design hydrology intensity of 0.4 in/hr.
- The tributary areas for the inlets analyzed in MCW were digitized using elevation contours from LIDAR data, aerial photography, and various GIS layers, including the storm drain system. Drainage delineations were verified through field investigations. Drainage areas were delineated for each catch basin with a CPS device installed. See **Figures 4, 5 & 6** – Installed CPS with Drainage Areas Detail Maps.
- The results of the design flows for both storm events are included in **Table 1.**

Table 1 – $Q_{1\text{-}1}$ Hydrology Peak Flow Rates and Parameters

Device ID	C	Intensity (in/hr)	Tributary Area (acres)	$Q_{1\text{-}1}$ Design Flow (cfs)
499	0.48	0.4	2.87	**0.55**
502	0.17	0.4	12.06	**0.81**
527	0.69	0.543	1.38	**0.51**
528	0.69	0.543	0.31	**0.11**

Device ID	C	Intensity (in/hr)	Tributary Area (acres)	$Q_{1\text{-}1}$ Design Flow (cfs)
529	0.53	0.4	1.13	**0.24**
530	0.69	0.543	3.00	**1.12**
535	0.68	0.4	1.37	**0.37**
537	0.69	0.543	0.55	**0.20**
539	0.69	0.543	2.04	**0.76**
544	0.86	0.4	3.77	**1.30**
547	0.78	0.4	0.52	**0.16**
549	0.69	0.543	1.94	**0.72**
551	0.64	0.4	3.44	**0.87**
553	0.57	0.4	0.97	**0.22**
559	0.53	0.537	0.92	**0.26**
560	0.82	0.537	2.27	**1.00**
561	0.82	0.537	1.03	**0.46**
570	0.31	0.547	4.50	**0.77**
579	0.31	0.547	1.26	**0.22**
580	0.31	0.547	2.35	**0.40**
581	0.31	0.547	1.69	**0.29**
582	0.31	0.547	1.62	**0.28**
584	0.31	0.547	0.98	**0.17**
587	0.31	0.547	2.80	**0.48**
713	0.42	0.542	0.80	**0.18**
714	0.91	0.4	0.34	**0.12**
716	0.42	0.542	0.75	**0.17**
719	0.48	0.4	2.00	**0.39**
899	0.82	0.537	0.71	**0.31**
901	0.82	0.537	0.52	**0.23**
908	0.82	0.537	0.79	**0.35**
916	0.44	0.4	1.24	**0.22**
937	0.42	0.542	3.98	**0.91**
1011	0.64	0.4	8.58	**2.18**
1012	0.82	0.537	3.20	**1.41**

Note: 1-Yr/1-Hr Design Flow Analysis (NOAA Intensity with TGM "C" Coefficients)

The contractor sized the screens, their length and height and the vertical opening around the perimeter at the top of the screen for each device according to the recommended calculations and dimensions as shown in the LACDPW Technical Report. Each unit was custom designed and constructed for the catch basin based on its dimensions, outflow pipe and modeled flow rates. **Table 2** lists the catch basin dimensions, installed CPS dimensions, and the LACDPW Technical Report minimum sizes and design screen capacities.

Hydraulic Analysis

A conservative estimate of catch basin flows based on curb openings widths must be determined in order to calculate the $Q_{1\text{-}1}$. The bypass structure must also be able to pass the maximum catch basin flow in order to provide proper flood protection. The LACDPW Technical Report was used for guidance in this analysis. The table in the Appendix of the LACDPW Technical Report was used to define the minimum screen capacity and minimum screen surface area for each catch basin. The majority of the catch basins were categorized as CB 300 – Standard Catch Basin, with only one categorized as CB 301 – Side Inlet with Grate Catch Basin. By using the table, the catch basin type and their dimensions as well as the installed CPS device dimensions, the minimum screen capacity (cfs) and minimum screen surface area (sq in) were compared to the installed device capacity and surface area. For those catch basins where the CPS device was installed underneath the catch basin opening, a lid was installed on top of the device to ensure trash coming in through the opening would not fall behind or bypass the CPS Device. **Table 2** lists these values and dimensions.

As noted in the LACDPW Technical Report some combinations of V-depths, connector pipe sizes and catch basin dimensions made installation of recommended size CPS devices impossible. The constructed screens that are below the recommended screen surface as defined in the LACDPW Technical Report are noted in the Full Capture Equivalency and corresponding Equivalency Validation Comments field of **Table 2.** Although the screen surface areas of some devices were less than the recommended screen surface area from the LACDPW Technical Report, the screen capacity at these locations is more than adequate to treat the calculated $Q_{1\text{-}1}$ flows. As shown in **Table 2**, all of the installed devices meet the performance criteria for full capture certification.

Table 2 – Catch Basin/CPS Dimensions & Minimum Recommended Screen Size/Capacity

Constructed Information (From United Stormwater)									County Info (Pipe Dia. And Q1-1 from Plans, constructed screen area calc'd)			References from LA County 2007 Approved Full Capture Report Appendix Tables					Full Capture Equivalency		Equivalency Validation Comments
CB ID No	CB WIDTH "W" (ft)	CPS Design	V DEMENSION IN (FEET)	CURB FACE HEIGHT "X" (IN)	Bypass Height (IN)	Removable Screen Length (IN)	Screen Height (IN)	Wing Wall Screen Widths (IN)	Constructed Screen Surface Area Calc (SQ. IN)	Discharge Pipe Diameter per Plans (IN)	Q1-1 Per Plans (cfs)	CB Type per 2007 LA Approved Full Capture Report Appendix Tables	Min Screen Height (IN)	Min Screen Length (FT)	Min Screen Surface Area (SQ IN)	Min. Screen Capacity (CFS)	Constructed screen area > min req'd	Constructed screen capacity > calc'd Q1-1	
499	7	Wall to Wall	4.67	8	12	36	24	N/A	864	18	0.55	300	30	2.1	756	3.5	Yes	Yes	
502	21	L-Shape	4.08	13	12	84	16	11	1,520	18	0.81	300	24	3.8	1094.4	5	Yes	Yes	
527	14	L-Shape	6.67	9	12	72	24	11	1,992	24	0.51	300	50	3.1	1860	N/A	Yes	Yes	6-ft V-depth is max tables go to so uncertain of a larger screen capacity/screen height for deeper v-depths. But, even the 6-ft v-depth had a min screen capacity of 7.2 cfs which is much larger than the calc'd Q1-1 of 0.51 cfs.
528	7	L-Shape	8.25	9	12	53	24	11	1,536	18	0.11	300	69	2.1	1738.8	N/A	No	Yes	Small TDA resulting in Q1-1 of 0.11 cfs. Massive screen as proposed in tables not applicable
529	10	L-Shape	6.58	8	12	72	24	11	1,992	18	0.24	300	49	3	1764	N/A	Yes	Yes	6-ft V-depth is max tables go to so uncertain of a larger screen capacity/screen height for deeper v-depths. But, even the 6-ft v-depth had a min screen capacity of 6.9 cfs which is much larger than the calc'd Q1-1 of 0.24 cfs.
530	10	3D	2.92	8	10	72	16	11 & 24	1,712	18	1.12	300	18	3.8	820.8	N/A	Yes	Yes	
535	7	L-Shape	6.75	8	N/A	48	24	11	1,416	18	0.37	300	51	2.1	1285.2	N/A	Yes	Yes	6-ft V-depth is max tables go to so uncertain of a larger screen capacity/screen height for deeper v-depths. But, even the 6-ft v-depth had a min screen capacity of 4.9 cfs which is much larger than the calc'd Q1-1 of 0.37 cfs.
537	10	L-Shape	4.25	8	12	72	24	11	1,992	18	0.2	300	24	3	864	4	Yes	Yes	
539	21	Square	4.67	9	12	84	24	11 (x2)	2,544	18	0.76	300	30	3.6	1296	6	Yes	Yes	
544	21	Wall to Wall	4.17	10	N/A	36	24	N/A	864	24	1.3	300	24	3.6	1036.8	4.8	No	Yes	Constructed screen is 83% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 from the screens drainage only requires 27% of the LA Reports recommended screen capacity.
547	3	Wall to Wall	3.33	0	12	18	18	N/A	324	18	0.16	303 (1 grate)	18	3	648	3	No	Yes	Very small drainage area. So, recommended screen size for a capacity of 3 cfs per CB type 303 is way too large considering the Q1-1 for the TDA calc'd is only 0.16 cfs. So, 1/2 screen area is fine.
549	7	L-Shape	5.83	9	12	48	24	11	1,416	24	0.72	300	42	2.1	1058.4	4.9	Yes	Yes	
551	10	Wall to Wall	8.42	8	12	36	24	N/A	864	18	0.87	300	71	3	2556	6.9	No	Yes	6-ft V-depth is max tables go to so uncertain of a larger screen capacity/screen height for deeper v-depths. But, the calc'd Q1-1 of 0.87 cfs is 12% of the screen capacity recommended (6.9 cfs) per the table. So even though the
553	14	Wall to Wall	3.58	8	8	36	20	N/A	720	18	0.22	300	18	3.1	669.6	3.1	Yes	Yes	
559	10	Wall to Wall	6.92	8	12	36	24	N/A	864	21	0.26	300	53	3	1908	6.9	No	Yes	6-ft V-depth is max tables go to so uncertain of a larger screen capacity/screen height for deeper v-depths. But, the calc'd Q1-1 of 0.26 cfs is 4% of the screen capacity recommended (6.9 cfs) per the table. So even though the screen
560	14	Wall to Wall	3.00	8	8	36	13	N/A	468	18	1	300	18	3.1	669.6	3.1	No	Yes	Constructed screen is 70% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 from the screens drainage only requires 33% of the LA Reports recommended screen capacity.
561	14	Wall to Wall	3.58	8	10	36	18	N/A	648	18	0.46	300	18	3.1	669.6	3.1	No	Yes	Constructed screen is 95% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 from the screens drainage only requires 15% of the LA Reports recommended screen capacity.
570	7	Triangle	4.50	8	12	36	24	2	912	18	0.77	300	24	2.1	604.8	2.8	Yes	Yes	
579	21	Triangle	4.17	9	12	36	20	2	760	18	0.22	300	24	3.6	1036.8	4.8	No	Yes	Constructed screen is 73% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 is very small at 0.22 cfs when recommended screen capacity in report is 4.8 cfs.
580	21	Wall to Wall	4.00	8	12	36	20	N/A	720	18	0.4	300	24	3.8	1094.4	5	No	Yes	Constructed screen is 66% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 is very small at 0.4 cfs when recommended screen capacity in report is 5 cfs.
581	21	Triangle	3.58	8	10	36	18	2	684	18	0.29	300	18	4.3	928.8	4.3	No	Yes	Constructed screen is 74% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 is very small at 0.29 cfs when recommended screen capacity in report is 4.3 cfs.
582	14	Wall to Wall	4.75	8	12	36	24	N/A	864	18	0.28	300	30	3.1	1116	5.1	No	Yes	Constructed screen is 77% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 is very small at 0.28 cfs when recommended screen capacity in report is 5.1 cfs.
584	10	Wall to Wall	6.00	9	N/A	36	24	N/A	864	30	0.17	300	42	3	1512	6.9	No	Yes	Constructed screen is 57% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 is very small at 0.19 cfs when recommended screen capacity in report is 6.9 cfs.
587	21	Triangle	4.17	8	12	36	24	2	912	18	0.48	300	24	3.6	1036.8	4.8	No	Yes	Constructed screen is 88% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 is very small at 0.48 cfs when recommended screen capacity in report is 4.8 cfs.
713	7	Triangle	4.25	8	12	36	20	2	760	18	0.18	300	24	2.1	604.8	2.8	Yes	Yes	
714	7	Wall to Wall	4.00	9	12	38	20	N/A	760	18	0.12	300	24	2.9	835.2	3.8	No	Yes	Constructed screen is 91% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 is very small at 0.12 cfs when recommended screen capacity in report is 3.8 cfs.
716	10	Wall to Wall	10.25	9	12	36	24	N/A	864	18	0.17	300	93	3	3348	6.9	No	Yes	Constructed screen is 26% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 is very small at 0.17 cfs when recommended screen capacity in report is 6.9 cfs.
719	14	Wall to Wall	10.25	9	12	36	24	N/A	864	24	0.39	300	93	3.1	3459.6	7.2	No	Yes	Constructed screen is 25% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 is very small at 0.39 cfs when recommended screen capacity in report is 7.2 cfs.
899	10	Wall to Wall	3.58	8	12	36	18	N/A	648	21	0.31	300	24	4.1	1180.8	5.4	No	Yes	Constructed screen is 55% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 is very small at 0.31 cfs when recommended screen capacity in report is 5.4 cfs.
901	4	Wall to Wall	8.17	10	12	42	24	N/A	1,008	24	0.23	300	68	2.9	2366.4	2.9	No	Yes	Constructed screen is 43% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 is very small at 0.23 cfs when recommended screen capacity in report is 2.9 cfs.
908	14	Wall to Wall	5.00	10	12	36	24	N/A	864	18	0.35	300	30	3.1	1116	5.1	No	Yes	Constructed screen is 77% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 is very small at 0.35 cfs when recommended screen capacity in report is 5.1 cfs.
916	14	Triangle	7.83	9	12	36	24	2	912	24	0.22	300	68	3.1	2529.6	7.2	No	Yes	Constructed screen is 36% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 is very small at 0.22 cfs when recommended screen capacity in report is 7.2 cfs.
937	14	Square	6.17	9	12	72	24	11 (x2)	2,256	24	0.91	300	44	3.1	1636.8	7.2	Yes	Yes	
1011	7	Wall to Wall	5.83	9	12	42	24	N/A	1,008	18	2.18	300	42	2.1	1058.4	4.9	No	Yes	Constructed screen is 95% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 is 2.18 cfs which is less that 50% of the recommended screen capacity in report is 4.9 cfs.
1012	14	Wall to Wall	7.25	8	12	36	24	N/A	864	21	1.41	300	57	3.1	2120.4	7.2	No	Yes	Constructed screen is 41% of the recommended screen surface area in LA Report. But, the calc'd Q1-1 is 1.14 cfs when the recommended screen capacity in report is 7.2 cfs.

Inspections and Maintenance Procedures

To aid in the inspection and maintenance of the CPS devices, the County has created a custom O&M Plan for the Department responsible for maintenance of the CPS devices within MCW, the Ventura County Public Works Agency's Transportation Department (VCPWATD). This document includes comprehensive information on all aspects of required inspection and maintenance of the CPS devices. The O&M Plan also acts as an official interagency maintenance agreement between VCWPD and the VCPWATD. Included in the O&M Plans are location maps with unique identification numbers, photos, inspection procedures and frequency, equipment needed, maintenance procedures, emergency flood response, project contacts and documentation submittal details and required forms. The O&M Plans are considered living documents and are subject to minor revisions over time. Please see **Appendix B,** for the Connector Pipe Screen (CPS) Trash Excluders (aka Full Trash Capture Systems) Operations and Maintenance Plan – Amendment No. 1 dated October 2017.

Conclusion and Summary

As shown in this report, the County CPS devices installed within the upper MCW meet the definition of full capture system and are certified as a full capture system by trapping all particles retained by a 5-mm mesh screen, and having a treatment capacity exceeding the peak flow rate resulting from a 1-yr/1-hr storm in the subdrainage area. In addition, the following requirements are met:

1. Adequate Pipe Sizing: The pipes carrying the flows from the subdrainage area are able to convey peak flows: and
2. Regular Inspections and Maintenance: The full capture system will be regularly inspected and serviced to continually maintain adequate flow through capacity.

The County priority land use areas within the MCW that drain to County MS4 system have been treated by the installations of the CPS devices. This report serves as a determination that the vertical CPS devices, as described and identified in this Report, when installed and maintained in appropriately sized catch basins, satisfy the full capture requirements as outlined in the July 26, 2017 letter to the Los Angeles Regional Water Quality Control Board, titled "County of Ventura and Ventura County Watershed Protection District Point Source Compliance for the Malibu Creek Watershed Trash Total Maximum Daily Load" for County Unincorporated areas. It is understood that the County will have an on-going obligation to demonstrate that the installation of these devices are appropriately sized and meet the intent of this program. Likewise, the County is responsible for on-going maintenance to ensure the systems perform to design specifications.

APPENDIX A

"Proposed County of Ventura and Ventura County Watershed Protection District Point Source Compliance Strategy for the Malibu Creek Watershed Trash Total Maximum Daily Load" Letter dated October 10, 216

and

"County of Ventura and Ventura County Watershed Protection District Point Source Compliance for the Malibu Creek Watershed Trash Total Maximum Daily Load" Letter dated July 26, 2017

county of ventura

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Michaela Brown, Director

Watershed Protection District
Peter Sheydayi, Interim Director

October 10, 2016

Mr. Samuel Unger, Executive Officer
California Regional Water Quality Control Board, Los Angeles Region
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

Subject: PROPOSED COUNTY OF VENTURA AND VENTURA COUNTY WATERSHED PROTECTION DISTRICT POINT SOURCE COMPLIANCE STRATEGY FOR THE MALIBU CREEK WATERSHED TRASH TOTAL MAXIMUM DAILY LOAD

Dear Mr. Unger:

County of Ventura (County) and the Ventura County Watershed Protection District (VCWPD) are submitting this letter to propose a strategy for complying with the point source requirements of the Amendments to the Water Quality Control Plan – Los Angeles Region for the Malibu Creek Watershed Trash Total Maximum Daily Load (Trash TMDL), Resolution No. R4-2008-007 (effective July 7, 2009). The compliance strategy is based on the Track 1 compliance option from the Proposed Final Amendment to the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) and the Proposed Final Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE Plan) (together, "Statewide Trash Policies").

The Track 1 compliance option requires municipal separate storm sewer system (MS4) permittees with regulatory authority over priority land uses[1] to install, operate, and maintain any combination of full capture devices (FCDs) for all storm drains that capture runoff from the priority land uses areas within the jurisdiction of the municipal separate storm sewer system (MS4) permittee. Priority land uses are those land uses that studies have shown generate significant amounts of trash. The intent of prioritizing land uses is to allow MS4 permittees to allocate trash-control resources to developed areas that generate the highest amounts of trash. This is different than most of the TMDLs in the Los Angeles region, which require a MS4 permittee to address all land uses within its jurisdiction.

The County and VCWPD believe addressing trash via the Track 1 compliance option of the Statewide Trash Policies will be an effective and efficient way of managing trash within County Unincorporated areas and will satisfy the point source requirements of the Trash TMDL.

[1] Priority land uses include: high-density residential, industrial, commercial, mixed urban (combination of high-density residential, industrial, and commercial), public transportation stations, or equivalent alternate land uses (MS4 permittees can petition the permitting agency to consider equivalent alternate land uses based on trash generation rates determined though a quantitative assessment).

Current Point Source Compliance Actions

To address the point source requirements of the Trash TMDL, the County and VCWPD have been implementing a Minimum Frequency of Assessment and Collection/Best Management Practice (MFAC/BMP) Program, which was detailed in the Malibu Creek Watershed Trash TMDL Trash Monitoring and Reporting Plan (TMRP) MFAC/BMP Program. The County and VCWPD submitted the TMRP to the California Regional Water Quality Control Board, Los Angeles Region (Regional Board) on April 30, 2010. The Trash TMDL requires implementation of the TMRP six months from receipt of the letter of approval from Regional Board (Table 7-31.2a of the Trash TMDL). The County and VCWPD did not receive a response or approval from Regional Board regarding the submitted TMRP; however, considering TMDL implementation schedule and required compliance milestones, on March 25, 2011, the County and VCPWD submitted a Notice of Intent (NOI) to proceed with implementing the proposed TMRP. In July 2011, the County and VCWPD commenced implementing the proposed TMRP towards meeting the Trash TMDL's phased percent reduction milestones.

During the first year of monitoring, July 1, 2011 through June 30, 2012, trash data collected at the Medea Creek (MC1) monitoring location served as the baseline Waste Load Allocation (WLA) from which, the County and VCWPD have been assessing compliance (**Table 1**). Based on trash data collected during the three subsequent monitoring years, the County and VCWPD are in compliance with the required percent reduction from the baseline WLAs except for the 2015 weight WLA (**Table 2**).

Table 1. Baseline WLAs for the Medea Creek (MC1) Sampling Site

Medea Creek (MC1) Sampling Site Baseline WLAs		
Pieces	**Volume (cf)**	**Weight (lbs)**
970	7.2	16.3

Table 2. Trash Data Comparison to Required Percent Reductions from Baseline WLA for MC1

	Pieces	**Volume (cf)**	**Weight (lbs)**
2013 20% Reduction from Baseline WLA Values	776	5.8	13.0
2012-2013 Trash Data	163	3.7	8.6
Percent Reduction from Baseline WLA	83%	49%	47%
2014 40% Reduction from Baseline WLA Values	582	4.3	9.8
2013-2014 Trash Data	170	2.2	8.3
Percent Reduction from Baseline WLA	82%	69%	49%
2015 60% Reduction from Baseline WLA Values	388	2.9	6.5
2014-2015 Trash Data	105	1.7	9.4
Percent Reduction from Baseline WLA	89%	76%	42%

Proposed Compliance Strategy

Per the Statewide Trash Policies, within one year of the effective date, the Regional Board shall convene a public meeting to reconsider the scope of its trash TMDLs to particularly consider an approach that would focus MS4 permittees' trash-control efforts on high-trash generation areas within their jurisdictions (i.e., priority land uses). Until the Regional Board re-considers the Trash TMDL related to the Statewide Trash Policies' priority land use areas, the County and VCWPD will address all priority land uses by installing FCDs in catch basins along the storm drain system capturing runoff from the priority land use areas. In addition, the County and VCWPD will address all non-priority land uses through a MFAC/BMP Program. If the Regional Board amends the Trash TMDL to only include priority land use areas and the County and VCWPD have installed all of the FCDs, then the County and VCWPD will cease implementing the MFAC portion of the MFAC/BMP program, but will continue implementing trash-control BMPs throughout the County unincorporated areas.

The County and VCWPD respectfully requests the Regional Board to consider amending the Trash TMDL to focus on the priority land use areas rather than all land use areas within the Malibu Creek watershed. As discussed above, the Statewide Trash Policies are based on addressing the land uses that generate large amounts of trash and that some areas do not generate large amounts of trash and it is not necessary or effective to address these low trash generating, non-priority, land uses. The County and VCWPD believes addressing priority land use areas rather than addressing all land uses within the County unincorporated areas, as required in the Trash TMDL, will allow for a more effective and efficient manner of dealing with trash within the County unincorporated areas. Installing FCDs in priority land use areas would allow the County and VCWPD to focus resources in areas generating trash rather than distributing resources to areas that may not generate significant levels of trash. Further, it would allow the County and VCWPD to reprioritize scarce resources to meet MS4 Permit regulations and regulations from other TMDLs. The number of catch basins the County and VCWPD would need to address in the County unincorporated areas under the Statewide Trash Polices is 25 with the majority located in high-density residential areas (**Figure 1**).

Trash TMDL Compliance Assessment

To demonstrate compliance with the phased percent reductions required by the Trash TMDL, the County and VCWPD will use the percent reduction identified by the trash data collected during the MFAC Events combined with the percent of total trash generated that will be captured by the FCDs in the priority land use areas.

The TMRP lists three baseline WLA metrics that are used to calculate the percent reduction in trash: pieces, volume (cubic feet), and weight (pounds). Over the past three monitoring years, no correlation has been shown between the three metrics. That is, there is no correlation between the pieces of trash collected, the volume of the trash collected, and/or the weight of the trash collected. As such, the County and VCWPD is proposing that so long as one of the three metrics is meeting the required phased percent reduction, then the County and VCWPD will be considered meeting the compliance target. Based on the 2014-2015 trash monitoring data, both the pieces and volume metrics are meeting the required percent reductions, with the trash data showing an 89 percent reduction from the baseline WLA for pieces of

trash collected. These data indicate the County and VCWPD are currently meeting the required percent reduction from the baseline WLA.

As the County and VCWPD are proposing to utilize the amount of trash collected from the FCDs that will be installed as part of the compliance determination, the amount of trash they will capture needed to be calculated. In order to determine the amount of trash the FCDs will capture once installed, trash generation from the County unincorporated MS4 areas first had to be calculated. Using land use acreage determined through geographic information system (GIS) analyses and trash generation rate (TGR) data obtained through a review of reports that contain TGR data, the County and VCWPD calculated trash generation rates for: (1) all land uses; (2) priority land uses; and (3) non-priority land uses.

To generate land use acreage, the County unincorporated MS4 area's existing land use GIS data were processed so the land use classifications matched those of the Statewide Trash Policies' priority land uses. To determine the most appropriate TGRs for the County unincorporated areas, several studies within California and the United States were reviewed. TGRs from studies in the City of Los Angeles[2], the San Francisco Bay Area[3,4], and Baltimore County, Maryland[5] were utilized to calculate the amount of trash generated in the County unincorporated areas. TGRs were selected based on the similarities the study areas shared with the County unincorporated areas' land use and demographics.

Three land use TGRs from the Maryland TMDL Study were adopted for the County unincorporated areas including: Low-Medium Density Residential, High Density Residential, and Commercial. It was assumed that these areas were the most similar to the County unincorporated areas out of the four studies reviewed. However, the lowest TGR values from the range of values presented in the Maryland TMDL Study were selected as it was assumed the County unincorporated areas primarily have a lower land use density across all land uses than the areas in the Maryland TMDL Study. For the County unincorporated Public/Semi-Public Buildings land use, the average of the low range TGRs from the 2014 San Francisco Bay Area Study and Maryland TMDL Study was used. The Open Space land use was not included in the analyses as the open space in the County unincorporated areas is not part of the MS4. Public Transportation Land uses were also not included in the analyses due to the nature of the land use. That is, the public transportation locations within the County unincorporated areas include bus stops, which are only points rather than areas. In addition, the County unincorporated areas do not contain industrial or mixed use land uses. **Table 3** presents the TGR values from the studies reviewed.

Based on the GIS analyses and the review of the TGRs, 456 gallons/year of trash generated was calculated for all land uses, 323 gallons/year of trash generated was calculated for the priority land use areas, and 133 gallons/year of trash generated was calculated for non-priority land use areas. **Table 4** lists the estimated annual trash generation for each land use category within the County unincorporated areas. As the County and VCWPD will install FCDs in the priority land use areas, this indicates the FCDs will capture 323 gallons/year of the 456 gallons/year or 70 percent of the total trash generated within the

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[2]Black & Veatch. Quantification Study of Institutional Measures for Trash TMDL Compliance 2012-2013. December 2013. Prepared for City of Los Angeles.

[3]EOA Inc. San Francisco Bay Area Stormwater Trash Generation Rates Final Technical Report. June 2014. Prepared for BASMAA.

[4] EOA, Inc. Technical Memorandum: Preliminary Baseline Trash Generation Rates for San Francisco Bay Area MS4s. February 2012.

[5]Maryland Department of the Environment. TMDLs of Trash and Debris for the Middle Branch and Northwest Branch Portions of the Patapsco River Mesohaline Tidal Chesapeake Bay Segment. December 2014

County unincorporated MS4 areas. This means that the County and VCWPD will need to show at least a 30 percent reduction from the baseline WLA through the MFAC/BMP Program to be in compliance with the final 100 percent reduction from the baseline WLA requirement.

Table 3. TGR Values by Land Use from Studies Reviewed (gal/acre/year)[1]

Land Use	TGR Range	City of Los Angeles Study	SF Bay Area Studies	Maryland TMDL Study[5]
Low-Medium Density Residential	Low	0.5	0.3[2]	***0.1***
	High	3.3	1.0[2]	0.9
High Density Residential	Low	1.2	0.9[2]	***1.2***
	High	6.5	7.4[2]	1.3
Commercial	Low	2.7	0.7-2.1[3]	***3.2***
	High	42.2	4.6-40.0[3]	
Public/Semi-Public Buildings	Low	N/A	***0.7***[4]	***0.3***
	High	N/A	17.3[4]	1.4

1. ***Bold Italicized*** values indicate the TGRs chosen for the County unincorporated land uses.
2. Numbers represent those from Table 4.2 of the 2014 San Francisco Bay Area Study for the greater than $100,000 median household income bracket as the County unincorporated area median household income, according to the United States Census Bureau, is $117,326. Residential TGRs were presented as a range; the lower range values for the Low and High TGRs were used for the Low-Medium Density Residential land use in the above table and the higher range values for the Low and High TGRs were used for the High Density Residential land use in the above table.
3. Numbers represent those from Table 4.2 of the 2014 San Francisco Bay Area Study for the greater than $100,000 median household income bracket as the County unincorporated area median household income, according to the United States Census Bureau, is $117,326.
4. Numbers represent those from Table 4.2 of the 2014 San Francisco Bay Area Study Commercial & Services.
5. Numbers converted from pounds/acre to gallons/acre using 2.5 pounds=1 gallon from: Michael Baker International. Literature Review for Trash Amendment Compliance Strategy. Contract No. 534079, Task Order 52. Prepared for: County of San Diego Department of Public Works. July 2015.

Table 4. County Unincorporated Area Trash Generation (Priority Land Uses in Bold)

Land Use	Acreage	TGR (gal/acre/year)	Trash Generated (gal/year)
Low-Medium Density Residential	792	0.1[1]	79
High Density Residential	**221**	**1.2**[1]	**265**
Commercial	**18**	**3.2**[1]	**58**
Public/Semi-Public Buildings	107	0.5[2]	54
Total	1,138		456
Priority Land Use Total	**239**		**323**
Non-Priority Land Use Total	899		133

1. TGR was obtained from the Maryland TMDL Study.

2. TGR is the average of TGRs from the 2014 San Francisco Bay Area Study and the Maryland Study. TGRs from the Maryland study were converted from pounds to gallons by using a conversion factor (2.5 pounds =1 gallon) from: Michael Baker International. Literature Review for Trash Amendment Compliance Strategy. Contract No. 534079, Task Order 52. Prepared for: County of San Diego Department of Public Works. July 2015.

If the MFAC/BMP Program data do not show at least a 30 percent reduction from the baseline WLA, then the County and VCWPD may implement the following inspection and collection schedule for non-priority land use area catch basins:

- Initially, the County and VCWPD will conduct quarterly inspections for all non-priority land use catch basins.
- Inspection frequencies may be modified for particular catch basins based on the amount of trash and/or anthropogenic landscape litter (dumped grass clippings) present during initial quarterly inspections. A minimum inspection frequency interval will be selected that prevents trash and/or leaf litter from accumulating in deleterious amounts between collections.
- Collection events will occur concurrently with the assessments and the County and VCWPD will ensure zero trash and/or leaf litter will remain after the collection event.

Based on this inspection and cleaning schedule, catch basins cleaned one or fewer times (i.e., no trash/anthropogenic landscaping litter found during inspections) over a rolling three-year period will be considered equivalent to catch basins with FCDs installed. This determination is based on trash and/or anthropogenic landscaping litter not accumulating in the catch basins and therefore not being discharged to Medea Creek. This also indicates the BMPs implemented by the County and VCWPD are addressing trash equivalent to FCDs. If any catch basin does not maintain its one or fewer cleaning status, the catch basin and/or area surrounding the catch basin will be addressed via trash-control BMPs to return the catch basin to the one or fewer cleaning category and may be addressed by a FCD. If the Regional Board revises the Trash TMDL to only focus on priority land uses, the inspections and collections will be ceased for the non-priority areas and the inspection and cleaning protocols will revert to the requirements of the Ventura County MS4 Permit.

Conclusion

The County and VCWPD are proposing to install FCDs in priority land use areas and to continue implementing the MFAC/BMP Program for all non-priority land use areas. To assess compliance with the Trash TMDL, the County and VCWPD will combine the trash reduction data collected during the MFAC Events with the percent of trash generated that will be collected by the FCDs.

The County and VCWPD calculated trash generation rates for all land uses, for priority land use areas, and non-priority land use areas utilizing acreage obtained from GIS land use analyses and TGRs identified through a literature review. Based on the trash generation calculations, the County and VCWPD will capture 70 percent of the trash generated within the County unincorporated areas through the installation of FCDs. The remaining 30 percent of trash generated is and will be addressed through the trash-control BMPs currently being implemented by the County and VCWPD. The MFAC Event trash data show the County and VCWPD are currently meeting the required percent reduction from the baseline

WLA and will also meet the subsequent required percent reductions through the installation of FCDs and the implementation of BMPs.

Finally, the County and VCWPD respectfully request the Regional Board to consider amending the Trash TMDL to focus on the priority land use areas rather than all land use areas within the Malibu Creek watershed during its required evaluation.

If you have any questions or require more information related to the County and VCWPD's proposed compliance strategy, please contact me at Ewelina.Mutkowska@ventura.org or 805 645-1382.

Sincerely,

Jeff Pratt, P.E.
Director

Attachment 1: High Trash Areas Requiring Full Capture Devices in the Upper MCW County Unincorporated Area

CC: Renee Purdy, Regional Programs Chief, Los Angeles Regional Water Quality Control Board (LARWQCB)
Jenny Newman, TMDL Section Chief, LARWQCB
Peter Sheydayi, Interim Director, Ventura County Watershed Protection District (VC WPD)
Arne Anselm, Deputy Director, VC WPD
Ewelina Mutkowska, County Stormwater Program Manager, VC WPD

High Trash Areas Requiring Full Capture Devices in the Upper MCW County Unincorporated Area

N

0 500 1,000 Feet

- County Catch Basin Locations
- 1122 - Duplexes, Triplexes, and 2- or 3-Unit Condominiums and Townhouses
- 1123 - Low-Rise Apartments, Condominiums, and Townhouses
- 1124 - Medium-Rise Apartments and Condominiums
- 1222 - Retail Centers
- 1223 - Retail Strip

LINDERO CREEK

WEST FORK MEDEA CREEK

MEDEA CREEK

MEDEA CREEK

City of Thousand Oaks

Ventura County

Los Angeles County

county of ventura

PUBLIC WORKS
VENTURA COUNTY

JEFF PRATT
Agency Director

Central Services Department
J. Tabin Cosio, Director

Engineering Services Department
Christopher Cooper, Director

Transportation Department
David Fleisch, Director

Water & Sanitation Department
Michaela Brown, Director

Watershed Protection District
Glenn Shephard, Director

July 26, 2017

Mr. Samuel Unger, Executive Officer
California Regional Water Quality Control Board, Los Angeles Region
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

Subject: **County of Ventura and Ventura County Watershed Protection District Point Source Compliance for the Malibu Creek Watershed Trash Total Maximum Daily Load**

Dear Mr. Unger:

County of Ventura (County) and the Ventura County Watershed Protection District (District) are submitting this letter to update the Los Angeles Regional Water Quality Control Board (LARWQCB) regarding implementation of point source compliance strategy for the Malibu Creek Watershed Trash Total Maximum Daily Load (Trash TMDL), Resolution No. R4-2008-007 (effective July 7, 2009). This compliance strategy was based on the Track 1 compliance option from the Amendment to the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) and the Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE Plan) adopted in December 2016 (together, "Statewide Trash Amendments"). Details of the compliance strategy were described in the County letter dated October 10, 2016 (Attachment 1) and discussed with LARWQCB staff on November 4, 2016.

As proposed, the County and the District continue to implement the Minimum Frequency of Assessment and Collection/Best Management Practice (MFAC/BMP) Program as described in the Trash Monitoring and Reporting Plan (TMRP), dated April 30, 2010, and documented in the Annual Reports submitted to LARWQCB in 2013, 2014, 2015, 2016, and 2017 (pending submittal). In addition, priority land use analysis for installation of required full capture devices (FCDs) within the County unincorporated areas in the upper Malibu Creek Watershed (MCW) was completed and updated per direction from the LARWQCB staff provided at a workshop titled "Reconsideration of MS4 Approach to the Los Angeles Region Trash TMDLs" on November 28, 2016. Table 1 presents summary of provided guidance in determining priority land uses, which have been shown to generate significant amounts of trash and are subject to installation of FCDs per Statewide Trash Amendments. LARWQCB provided guidance for identification of priority land uses utilizing the Southern California Area Government's (SCAG) Land Use Categories/Codes. The County unincorporated area land uses were analyzed using 2005 SCAG Land Use Geographic Information System (GIS) shapefile.

Table 1. LARWQCB's Guidance for Priority Land Uses

PRIORITY LAND USES	SCAG LAND USE CATEGORIES/CODES
High-density residential	Multi-family residential: 1121, 1122, 1123, 1124, 1125 Mobile Homes and Trailer Parks: 1131 Mixed Residential: 1140 Rural Residential: 1151
Industrial	Industrial: 1300
Commercial	Commercial and Services: 1200
Mixed urban	Mixed urban: 1600
Public transportation stations	Transportation, Communication, and Utilities: 1400

* Mixed Commercial and Industrial (1500)

Following LARWQCB's guidelines presented in Table 1, the following priority land uses were identified within the Ventura County unincorporated areas in upper MCW:

- High Density Residential – All High Density Residential classifications (1122, 1123, and 1124) were identified and selected for installation of FCDs. It was determined that Multi-Family Residential (1121 or 1125), Mobile Homes/Trailer Parks (1131), Mixed Residential (1140), or Rural Residential (1151) land use classifications were absent. Total of 22 catch basins were selected within High Density Residential land use areas (Attachment 2).

- Industrial - There are no land use classifications for Industrial (1300) thus, no catch basins were identified for this land use category.

- Commercial – Table 1 indicates that all SCAG land use Codes of 1200, "Commercial and Services", may be included as priority land uses. The SCAG definition for 1200 Codes reads "*Commercial and Services includes areas used predominantly for business or the sale of products and their associated services. Also included are some non-commercial uses such as government and public service offices. This class does not include industrial activities.*" It was realized that the 1200 Codes include schools and churches which are not under County's jurisdiction, therefore, not included for FCD installation by the County. In addition, 1200 Codes include fire stations which are not commercial land uses and do not generate high volumes of trash. All other Commercial land uses (Retail Centers – 1222 & Retail Strip – 1223) were included for selection of catch basins for FCDs. A total of three catch basins were selected within Commercial land use areas (Attachment 2).

- Mixed Urban – No Mixed Urban land use classifications (1600) were identified thus, no catch basins were identified for this land use category.

- Public Transportation Stations – The County identified locations of Kanan Shuttle bus stops and associated storm drain catch basins that are likely to capture their runoff, i.e., catch basins located within 1,500 feet downstream from a bus stop and likely to capture the bus stop runoff. In addition, three areas under the SCAG land use Codes of 1400 were identified outside of County's jurisdiction which included 1431 (Electrical Power Facilities) owned by Southern California Edison (SCE), 1436 (Water Transfer Facilities), and 1437 (Improved Flood Waterways and Structures); however, since they are not public transportation stations, they were not selected for FCDs. A total of nine catch basins were selected for addressing trash from the Public Transportation Stations (Attachment 2).

Outside of the Oak Park urban area, the only other priority land uses identified from the SCAG 2005 data were mostly private areas within the Lake Sherwood subwatershed, identified as either Commercial, Industrial, or High Density land uses. The red-shaded areas depicted in Figure 1 include a private service yard, residential duplexes, a storage yard, and low rise office buildings under Lake Sherwood Homeowners Association's jurisdiction with no discharge into County storm drain system, but direct discharge into Lake Sherwood. The yellow highlighted area indicates County's Fire Station, which as discussed above, is not a Commercial land use and does not generate high volumes of trash.

Figure 1. Priority Land Uses Outside Oak Park in Upper MCW

In addition to 34 catch basins located within the identified priority land use areas, one FCD was installed in a catch basin adjacent to Oak Park High School at Calle Rio Vista.

This catch basin directly discharges to Medea Creek and was noted as a potential contributor to trash found in Medea Creek based on regular field observations collected as a part of on-going MFAC/BMP Program. As a result, a total of 35 FCDs were installed to address discharges from high trash generating areas within County unincorporated areas in upper MCW.

Conclusion

The County and the District installed 35 FCDs in the identified priority land use areas in upper MCW and will continue implementing the MFAC/BMP Program. As discussed previously, the County and the District believe that addressing trash via the Track 1 compliance option of the Statewide Trash Amendments is an effective and efficient way of managing trash within County unincorporated areas and combined with ongoing MFAC/BMP Program, will satisfy the point source requirements of the Trash TMDL.

As discussed in the October 10, 2016 letter (Attachment 1), the County and the District will follow the proposed Trash TMDL compliance assessment process using the percent reduction determined by the trash monitoring data collected during the MFAC events combined with the percent of total trash generated that will be captured by the FCDs in the priority land use areas. Based on the trash generation calculations, the County and the District will capture 70 percent of the stormwater collection system generated trash within the County unincorporated areas through the installed FCDs. The remaining 30 percent of generated trash will be addressed through the trash controlling BMPs currently being implemented by the County and the District. In the future, if the MFAC/BMP Program data does not show at least a 30 percent reduction from the baseline Waste Load Allocations, then the County and the District may initiate proposed quarterly inspections for all non-priority land use catch basins and, based on the inspection data, modify inspection frequency to a minimum that prevents trash from accumulating in deleterious amounts between inspections as described in section "TMDL Compliance Assessment" in the October 10, 2016 letter (Attachment 1).

If you have any questions or require more information related to the County and District's implementation of Trash TMDL requirements, please contact Ewelina Mutkowska at (805) 645-1382 or Ewelina.Mutkowska@ventura.org.

Sincerely,

Glenn Shephard, P.E.
Director, Ventura County Watershed Protection District

Attachments:

1 "Proposed County of Ventura and Ventura County Watershed Protection District Point Source Compliance Strategy for the Malibu Creek Watershed Trash Total Maximum Daily Load" Letter Dated October 10, 2016

2 Priority Land Uses, County Storm Drain System, and Locations of Installed Full Trash Capture Devices (35)

CC: Renee Purdy, Los Angeles Regional Water Quality Control Board
Jenny Newman, Los Angeles Regional Water Quality Control Board
Stefanie Hada, Los Angeles Regional Water Quality Control Board
Jeff Pratt, Ventura County Public Works Agency
Arne Anselm, Ventura County Watershed Protection District
Ewelina Mutkowska, Ventura County Watershed Protection District

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county of ventura

PUBLIC WORKS AGENCY
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Michaela Brown, Director

Watershed Protection District
Peter Sheydayi, Interim Director

October 10, 2016

Mr. Samuel Unger, Executive Officer
California Regional Water Quality Control Board, Los Angeles Region
320 West Fourth Street, Suite 200
Los Angeles, CA 90013

Subject: PROPOSED COUNTY OF VENTURA AND VENTURA COUNTY WATERSHED PROTECTION DISTRICT POINT SOURCE COMPLIANCE STRATEGY FOR THE MALIBU CREEK WATERSHED TRASH TOTAL MAXIMUM DAILY LOAD

Dear Mr. Unger:

County of Ventura (County) and the Ventura County Watershed Protection District (VCWPD) are submitting this letter to propose a strategy for complying with the point source requirements of the Amendments to the Water Quality Control Plan – Los Angeles Region for the Malibu Creek Watershed Trash Total Maximum Daily Load (Trash TMDL), Resolution No. R4-2008-007 (effective July 7, 2009). The compliance strategy is based on the Track 1 compliance option from the Proposed Final Amendment to the Water Quality Control Plan for Ocean Waters of California (Ocean Plan) and the Proposed Final Part 1 Trash Provisions of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (ISWEBE Plan) (together, "Statewide Trash Policies").

The Track 1 compliance option requires municipal separate storm sewer system (MS4) permittees with regulatory authority over priority land uses[1] to install, operate, and maintain any combination of full capture devices (FCDs) for all storm drains that capture runoff from the priority land uses areas within the jurisdiction of the municipal separate storm sewer system (MS4) permittee. Priority land uses are those land uses that studies have shown generate significant amounts of trash. The intent of prioritizing land uses is to allow MS4 permittees to allocate trash-control resources to developed areas that generate the highest amounts of trash. This is different than most of the TMDLs in the Los Angeles region, which require a MS4 permittee to address all land uses within its jurisdiction.

The County and VCWPD believe addressing trash via the Track 1 compliance option of the Statewide Trash Policies will be an effective and efficient way of managing trash within County Unincorporated areas and will satisfy the point source requirements of the Trash TMDL.

[1] Priority land uses include: high-density residential, industrial, commercial, mixed urban (combination of high-density residential, industrial, and commercial), public transportation stations, or equivalent alternate land uses (MS4 permittees can petition the permitting agency to consider equivalent alternate land uses based on trash generation rates determined though a quantitative assessment).

Current Point Source Compliance Actions

To address the point source requirements of the Trash TMDL, the County and VCWPD have been implementing a Minimum Frequency of Assessment and Collection/Best Management Practice (MFAC/BMP) Program, which was detailed in the Malibu Creek Watershed Trash TMDL Trash Monitoring and Reporting Plan (TMRP) MFAC/BMP Program. The County and VCWPD submitted the TMRP to the California Regional Water Quality Control Board, Los Angeles Region (Regional Board) on April 30, 2010. The Trash TMDL requires implementation of the TMRP six months from receipt of the letter of approval from Regional Board (Table 7-31.2a of the Trash TMDL). The County and VCWPD did not receive a response or approval from Regional Board regarding the submitted TMRP; however, considering TMDL implementation schedule and required compliance milestones, on March 25, 2011, the County and VCPWD submitted a Notice of Intent (NOI) to proceed with implementing the proposed TMRP. In July 2011, the County and VCWPD commenced implementing the proposed TMRP towards meeting the Trash TMDL's phased percent reduction milestones.

During the first year of monitoring, July 1, 2011 through June 30, 2012, trash data collected at the Medea Creek (MC1) monitoring location served as the baseline Waste Load Allocation (WLA) from which, the County and VCWPD have been assessing compliance (**Table 1**). Based on trash data collected during the three subsequent monitoring years, the County and VCWPD are in compliance with the required percent reduction from the baseline WLAs except for the 2015 weight WLA (**Table 2**).

Table 1. Baseline WLAs for the Medea Creek (MC1) Sampling Site

Medea Creek (MC1) Sampling Site Baseline WLAs		
Pieces	**Volume (cf)**	**Weight (lbs)**
970	7.2	16.3

Table 2. Trash Data Comparison to Required Percent Reductions from Baseline WLA for MC1

	Pieces	**Volume (cf)**	**Weight (lbs)**
2013 20% Reduction from Baseline WLA Values	776	5.8	13.0
2012-2013 Trash Data	163	3.7	8.6
Percent Reduction from Baseline WLA	83%	49%	47%
2014 40% Reduction from Baseline WLA Values	582	4.3	9.8
2013-2014 Trash Data	170	2.2	8.3
Percent Reduction from Baseline WLA	82%	69%	49%
2015 60% Reduction from Baseline WLA Values	388	2.9	6.5
2014-2015 Trash Data	105	1.7	9.4
Percent Reduction from Baseline WLA	89%	76%	42%

Proposed Compliance Strategy

Per the Statewide Trash Policies, within one year of the effective date, the Regional Board shall convene a public meeting to reconsider the scope of its trash TMDLs to particularly consider an approach that would focus MS4 permittees' trash-control efforts on high-trash generation areas within their jurisdictions (i.e., priority land uses). Until the Regional Board re-considers the Trash TMDL related to the Statewide Trash Policies' priority land use areas, the County and VCWPD will address all priority land uses by installing FCDs in catch basins along the storm drain system capturing runoff from the priority land use areas. In addition, the County and VCWPD will address all non-priority land uses through a MFAC/BMP Program. If the Regional Board amends the Trash TMDL to only include priority land use areas and the County and VCWPD have installed all of the FCDs, then the County and VCWPD will cease implementing the MFAC portion of the MFAC/BMP program, but will continue implementing trash-control BMPs throughout the County unincorporated areas.

The County and VCWPD respectfully requests the Regional Board to consider amending the Trash TMDL to focus on the priority land use areas rather than all land use areas within the Malibu Creek watershed. As discussed above, the Statewide Trash Policies are based on addressing the land uses that generate large amounts of trash and that some areas do not generate large amounts of trash and it is not necessary or effective to address these low trash generating, non-priority, land uses. The County and VCWPD believes addressing priority land use areas rather than addressing all land uses within the County unincorporated areas, as required in the Trash TMDL, will allow for a more effective and efficient manner of dealing with trash within the County unincorporated areas. Installing FCDs in priority land use areas would allow the County and VCWPD to focus resources in areas generating trash rather than distributing resources to areas that may not generate significant levels of trash. Further, it would allow the County and VCWPD to reprioritize scarce resources to meet MS4 Permit regulations and regulations from other TMDLs. The number of catch basins the County and VCWPD would need to address in the County unincorporated areas under the Statewide Trash Polices is 25 with the majority located in high-density residential areas (**Figure 1**).

Trash TMDL Compliance Assessment

To demonstrate compliance with the phased percent reductions required by the Trash TMDL, the County and VCWPD will use the percent reduction identified by the trash data collected during the MFAC Events combined with the percent of total trash generated that will be captured by the FCDs in the priority land use areas.

The TMRP lists three baseline WLA metrics that are used to calculate the percent reduction in trash: pieces, volume (cubic feet), and weight (pounds). Over the past three monitoring years, no correlation has been shown between the three metrics. That is, there is no correlation between the pieces of trash collected, the volume of the trash collected, and/or the weight of the trash collected. As such, the County and VCWPD is proposing that so long as one of the three metrics is meeting the required phased percent reduction, then the County and VCWPD will be considered meeting the compliance target. Based on the 2014-2015 trash monitoring data, both the pieces and volume metrics are meeting the required percent reductions, with the trash data showing an 89 percent reduction from the baseline WLA for pieces of

trash collected. These data indicate the County and VCWPD are currently meeting the required percent reduction from the baseline WLA.

As the County and VCWPD are proposing to utilize the amount of trash collected from the FCDs that will be installed as part of the compliance determination, the amount of trash they will capture needed to be calculated. In order to determine the amount of trash the FCDs will capture once installed, trash generation from the County unincorporated MS4 areas first had to be calculated. Using land use acreage determined through geographic information system (GIS) analyses and trash generation rate (TGR) data obtained through a review of reports that contain TGR data, the County and VCWPD calculated trash generation rates for: (1) all land uses; (2) priority land uses; and (3) non-priority land uses.

To generate land use acreage, the County unincorporated MS4 area's existing land use GIS data were processed so the land use classifications matched those of the Statewide Trash Policies' priority land uses. To determine the most appropriate TGRs for the County unincorporated areas, several studies within California and the United States were reviewed. TGRs from studies in the City of Los Angeles[2], the San Francisco Bay Area[3,4], and Baltimore County, Maryland[5] were utilized to calculate the amount of trash generated in the County unincorporated areas. TGRs were selected based on the similarities the study areas shared with the County unincorporated areas' land use and demographics.

Three land use TGRs from the Maryland TMDL Study were adopted for the County unincorporated areas including: Low-Medium Density Residential, High Density Residential, and Commercial. It was assumed that these areas were the most similar to the County unincorporated areas out of the four studies reviewed. However, the lowest TGR values from the range of values presented in the Maryland TMDL Study were selected as it was assumed the County unincorporated areas primarily have a lower land use density across all land uses than the areas in the Maryland TMDL Study. For the County unincorporated Public/Semi-Public Buildings land use, the average of the low range TGRs from the 2014 San Francisco Bay Area Study and Maryland TMDL Study was used. The Open Space land use was not included in the analyses as the open space in the County unincorporated areas is not part of the MS4. Public Transportation Land uses were also not included in the analyses due to the nature of the land use. That is, the public transportation locations within the County unincorporated areas include bus stops, which are only points rather than areas. In addition, the County unincorporated areas do not contain industrial or mixed use land uses. **Table 3** presents the TGR values from the studies reviewed.

Based on the GIS analyses and the review of the TGRs, 456 gallons/year of trash generated was calculated for all land uses, 323 gallons/year of trash generated was calculated for the priority land use areas, and 133 gallons/year of trash generated was calculated for non-priority land use areas. **Table 4** lists the estimated annual trash generation for each land use category within the County unincorporated areas. As the County and VCWPD will install FCDs in the priority land use areas, this indicates the FCDs will capture 323 gallons/year of the 456 gallons/year or 70 percent of the total trash generated within the

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[2]Black & Veatch. Quantification Study of Institutional Measures for Trash TMDL Compliance 2012-2013. December 2013. Prepared for City of Los Angeles.

[3]EOA Inc. San Francisco Bay Area Stormwater Trash Generation Rates Final Technical Report. June 2014. Prepared for BASMAA.

[4] EOA, Inc. Technical Memorandum: Preliminary Baseline Trash Generation Rates for San Francisco Bay Area MS4s. February 2012.

[5]Maryland Department of the Environment. TMDLs of Trash and Debris for the Middle Branch and Northwest Branch Portions of the Patapsco River Mesohaline Tidal Chesapeake Bay Segment. December 2014

County unincorporated MS4 areas. This means that the County and VCWPD will need to show at least a 30 percent reduction from the baseline WLA through the MFAC/BMP Program to be in compliance with the final 100 percent reduction from the baseline WLA requirement.

Table 3. TGR Values by Land Use from Studies Reviewed (gal/acre/year)[1]

Land Use	TGR Range	City of Los Angeles Study	SF Bay Area Studies	Maryland TMDL Study[5]
Low-Medium Density Residential	Low	0.5	0.3[2]	***0.1***
	High	3.3	1.0[2]	0.9
High Density Residential	Low	1.2	0.9[2]	***1.2***
	High	6.5	7.4[2]	1.3
Commercial	Low	2.7	0.7-2.1[3]	***3.2***
	High	42.2	4.6-40.0[3]	
Public/Semi-Public Buildings	Low	N/A	***0.7***[4]	***0.3***
	High	N/A	17.3[4]	1.4

1. ***Bold Italicized*** values indicate the TGRs chosen for the County unincorporated land uses.
2. Numbers represent those from Table 4.2 of the 2014 San Francisco Bay Area Study for the greater than $100,000 median household income bracket as the County unincorporated area median household income, according to the United States Census Bureau, is $117,326. Residential TGRs were presented as a range; the lower range values for the Low and High TGRs were used for the Low-Medium Density Residential land use in the above table and the higher range values for the Low and High TGRs were used for the High Density Residential land use in the above table.
3. Numbers represent those from Table 4.2 of the 2014 San Francisco Bay Area Study for the greater than $100,000 median household income bracket as the County unincorporated area median household income, according to the United States Census Bureau, is $117,326.
4. Numbers represent those from Table 4.2 of the 2014 San Francisco Bay Area Study Commercial & Services.
5. Numbers converted from pounds/acre to gallons/acre using 2.5 pounds=1 gallon from: Michael Baker International. Literature Review for Trash Amendment Compliance Strategy. Contract No. 534079, Task Order 52. Prepared for: County of San Diego Department of Public Works. July 2015.

Table 4. County Unincorporated Area Trash Generation (Priority Land Uses in Bold)

Land Use	Acreage	TGR (gal/acre/year)	Trash Generated (gal/year)
Low-Medium Density Residential	792	0.1[1]	79
High Density Residential	**221**	**1.2**[1]	**265**
Commercial	**18**	**3.2**[1]	**58**
Public/Semi-Public Buildings	107	0.5[2]	54
Total	1,138		456
Priority Land Use Total	**239**		**323**
Non-Priority Land Use Total	899		133

1. TGR was obtained from the Maryland TMDL Study.

2. TGR is the average of TGRs from the 2014 San Francisco Bay Area Study and the Maryland Study. TGRs from the Maryland study were converted from pounds to gallons by using a conversion factor (2.5 pounds =1 gallon) from: Michael Baker International. Literature Review for Trash Amendment Compliance Strategy. Contract No. 534079, Task Order 52. Prepared for: County of San Diego Department of Public Works. July 2015.

If the MFAC/BMP Program data do not show at least a 30 percent reduction from the baseline WLA, then the County and VCWPD may implement the following inspection and collection schedule for non-priority land use area catch basins:

- Initially, the County and VCWPD will conduct quarterly inspections for all non-priority land use catch basins.
- Inspection frequencies may be modified for particular catch basins based on the amount of trash and/or anthropogenic landscape litter (dumped grass clippings) present during initial quarterly inspections. A minimum inspection frequency interval will be selected that prevents trash and/or leaf litter from accumulating in deleterious amounts between collections.
- Collection events will occur concurrently with the assessments and the County and VCWPD will ensure zero trash and/or leaf litter will remain after the collection event.

Based on this inspection and cleaning schedule, catch basins cleaned one or fewer times (i.e., no trash/anthropogenic landscaping litter found during inspections) over a rolling three-year period will be considered equivalent to catch basins with FCDs installed. This determination is based on trash and/or anthropogenic landscaping litter not accumulating in the catch basins and therefore not being discharged to Medea Creek. This also indicates the BMPs implemented by the County and VCWPD are addressing trash equivalent to FCDs. If any catch basin does not maintain its one or fewer cleaning status, the catch basin and/or area surrounding the catch basin will be addressed via trash-control BMPs to return the catch basin to the one or fewer cleaning category and may be addressed by a FCD. If the Regional Board revises the Trash TMDL to only focus on priority land uses, the inspections and collections will be ceased for the non-priority areas and the inspection and cleaning protocols will revert to the requirements of the Ventura County MS4 Permit.

Conclusion

The County and VCWPD are proposing to install FCDs in priority land use areas and to continue implementing the MFAC/BMP Program for all non-priority land use areas. To assess compliance with the Trash TMDL, the County and VCWPD will combine the trash reduction data collected during the MFAC Events with the percent of trash generated that will be collected by the FCDs.

The County and VCWPD calculated trash generation rates for all land uses, for priority land use areas, and non-priority land use areas utilizing acreage obtained from GIS land use analyses and TGRs identified through a literature review. Based on the trash generation calculations, the County and VCWPD will capture 70 percent of the trash generated within the County unincorporated areas through the installation of FCDs. The remaining 30 percent of trash generated is and will be addressed through the trash-control BMPs currently being implemented by the County and VCWPD. The MFAC Event trash data show the County and VCWPD are currently meeting the required percent reduction from the baseline

WLA and will also meet the subsequent required percent reductions through the installation of FCDs and the implementation of BMPs.

Finally, the County and VCWPD respectfully request the Regional Board to consider amending the Trash TMDL to focus on the priority land use areas rather than all land use areas within the Malibu Creek watershed during its required evaluation.

If you have any questions or require more information related to the County and VCWPD's proposed compliance strategy, please contact me at Ewelina.Mutkowska@ventura.org or 805 645-1382.

Sincerely,

Jeff Pratt, P.E.
Director

Attachment 1: High Trash Areas Requiring Full Capture Devices in the Upper MCW County Unincorporated Area

CC: Renee Purdy, Regional Programs Chief, Los Angeles Regional Water Quality Control Board (LARWQCB)
Jenny Newman, TMDL Section Chief, LARWQCB
Peter Sheydayi, Interim Director, Ventura County Watershed Protection District (VC WPD)
Arne Anselm, Deputy Director, VC WPD
Ewelina Mutkowska, County Stormwater Program Manager, VC WPD

High Trash Areas Requiring Full Capture Devices in the Upper MCW County Unincorporated Area

N

0 500 1,000 Feet

- County Catch Basin Locations
- 1122 - Duplexes, Triplexes, and 2- or 3-Unit Condominiums and Townhouses
- 1123 - Low-Rise Apartments, Condominiums, and Townhouses
- 1124 - Medium-Rise Apartments and Condominiums
- 1222 - Retail Centers
- 1223 - Retail Strip

LINDERO CREEK

WEST FORK MEDEA CREEK

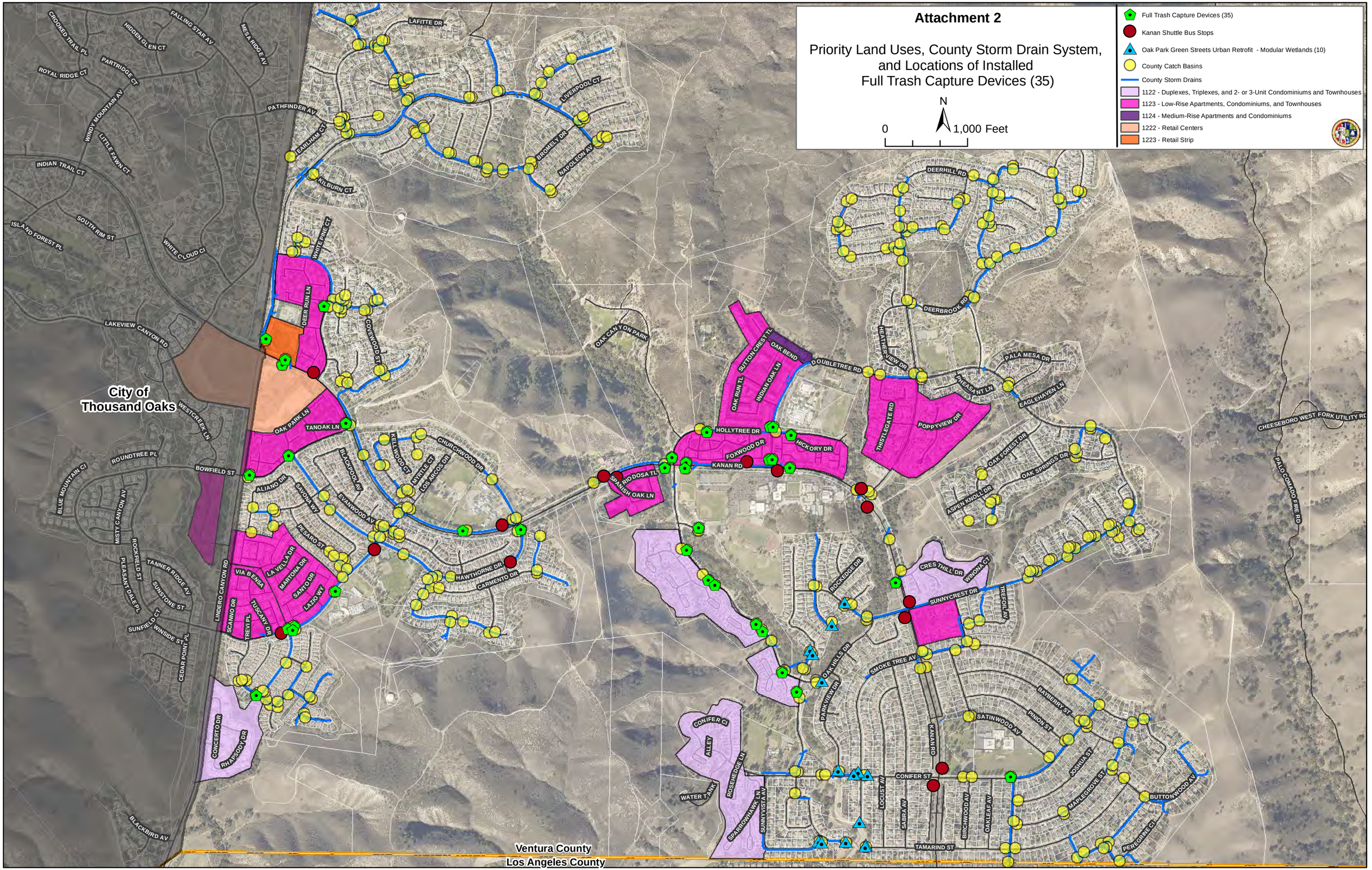
MEDEA CREEK

MEDEA CREEK

City of Thousand Oaks

Ventura County

Los Angeles County


Attachment 2
Priority Land Uses, County Storm Drain System, and Locations of Installed Full Trash Capture Devices (35)
N
0
1,000 Feet
Full Trash Capture Devices (35)
Kanan Shuttle Bus Stops
Oak Park Green Streets Urban Retrofit - Modular Wetlands (10)
County Catch Basins
County Storm Drains
1122 - Duplexes, Triplexes, and 2- or 3-Unit Condominiums and Townhouses
1123 - Low-Rise Apartments, Condominiums, and Townhouses
1124 - Medium-Rise Apartments and Condominiums
1222 - Retail Centers
1223 - Retail Strip
City of Thousand Oaks
Ventura County
Los Angeles County
LAFITTE DR
LIVERPOOL CT
BROMLEY DR
NAPOLEON AV
CARLHAM CT
KILBURN CT
PATHFINDER AV
CROOKED TRAIL PL
HIDDEN GLEN CT
FALLING STAR AV
MESA RIDGE AV
ROYAL RIDGE CT
PARTRIDGE CT
WINDY MOUNTAIN AV
LITTLE FAWN CT
INDIAN TRAIL CT
ISLAND FOREST PL
SOUTH RIM ST
WHITE CLOUD CI
WHITE PINE CT
DEER RUN LN
COVEWOOD ST
LAKEVIEW CANYON RD
OAK CANYON PARK
DEERHILL RD
DEERBROOK RD
HEATHERVIEW DR
PALA MESA DR
PHEASANT LN
EAGLEHAVEN LN
DOUBLETREE RD
OAK BEND
SUTTON CREST TL
OAK RUN TL
INDIAN OAK LN
HOLLYTREE DR
FOXWOOD DR
HICKORY DR
KANAN RD
RIODOSA TL
SPANISH OAK LN
THISTLEGATE RD
POPPYVIEW DR
OAK FOREST DR
OAK SPRINGS DR
ASPEN KNOLL DR
CHEESEBORO WEST FORK UTILITY RD
PALO COMADO FIRE RD
OAK PARK LN
TANO AK LN
WESTCREEK LN
ROUNDTREE PL
BOWFIELD ST
BLUE MOUNTAIN CI
MISTY CANYON AV
ROCKFIELD ST
PLEASANT DALE PL
SUNFIELD CT
TANNER RIDGE AV
SUNSTONE ST
WINSIDE ST
CEDAR POINT PL
LINDERO CANYON RD
SCANNO DR
TREVI PL
TUSCANY DR
VIA BENSA
LA VELLA DR
MARTONA DR
SANTO DR
LAZIO WY
ALIANO DR
SAVONA WY
PESARO ST
EVANWOOD AV
BLACKPOOL AV
KELLWOOD CT
MYRTLE CT
LOS ARCOS DR
CHURCHWOOD DR
HAWTHORNE DR
CARMENTO DR
CONCERTO DR
RHAPSODY DR
BLACKBIRD AV
ROCKEDGE DR
CRES THILL DR
WINONA CT
SUNNYCREST DR
TREFOIL AV
OAK HILLS DR
SMOKE TREE AV
PARKVIEW DR
CONIFER CI
ALLEY
ROSEHEDGE LN
WATER TANK
SPARROWHAWK LN
SUNNYVISTA AV
CONIFER ST
LOCUST AV
SABRA AV
BIRCHWOOD AV
OAKLEAF AV
TAMARIND ST
KANAN RD
BAYBERRY ST
PINION ST
SATINWOOD AV
JOSHUA ST
MAPLEGROVE ST
BUTTONWOOD AV
PEREGRINE CI

APPENDIX B

"Connector Pipe Screen (CPS) Trash Excluders
(aka Full Trash Capture Systems)
Operations & Maintenance Plan - Amendment No. 1"
October 2017

CONNECTOR PIPE SCREEN (CPS) TRASH EXCLUDERS

(aka Full Trash Capture Systems)

OPERATIONS & MAINTENANCE PLAN

Prepared By:

Ventura County Watershed Protection District's Water Resources Division

County Stormwater Program Section

DECEMBER 2015
AMENDMENT NO. 1: OCTOBER 2017

The PARTIES have agreed to the contents herein on the dates indicated below.

VENTURA COUNTY PUBLIC WORKS AGENCY
TRANSPORTATION DEPARTMENT

Date 11/1/17

David Fleisch, P.E.
Director

VENTURA COUNTY PUBLIC WORKS AGENCY
WATERSHED PROTECTION DISTRICT

Date 11/1/17

Glenn Shephard, P.E.
Director

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Amendment Log

No.	O&M Plan Date	Reason for Amendment	Description
1	December 2015 (Final)	Construction completed for WP15-02(N)	1) Original O&M Plan & Agreement 2) Installed 23 new CPSs (StormTek): a. 15 in North Ventura area (Maps 1 – 2) b. 8 in Las Posas Estates (Map 4)
2	June 2017 (Draft Amendment No. 1)	Construction completed for WP16-11(I)	1) Installed 35 new CPSs (United Storm Water): a. 24 in Nyeland Acres (Map 3) b. 11 in Los Posas Estates (Maps 5 – 6) 2) Updated report to include field ID tags as well as CPS warranty and waste disposal information 3) Updated Appendix A maps and CPS information to match new unique catch basin IDs provided by Transportation and to include new 35 CPSs
2	October 2017 (Final Amendment No. 1)	Construction completed for WP17-14(N)	1) Installed 36 new CPSs (United Storm Water): a. 1 in North Ventura area (#1010, Map 1) b. 35 in Oak Park area (Maps 7 - 10) 2) Replaced 3 damaged CPSs identified by O&M crew in North Ventura area (#s 315, 321 & 323) 3) Installed 8-inch diameter maintenance access ports at catch basin #s 319, 329, 330, 331, 502, 529 & 539 per O&M crew request 4) Updated report to include section for new maintenance access ports 5) Updated Appendix A maps and CPS information to include new 36 CPSs 6) Updated Appendix B inspection form to be an editable PDF per O&M crew request

Background

Total Maximum Daily Loads (TMDLs) for Trash have been adopted by the Los Angeles Regional Water Quality Control Board (LARWQCB) for three waterbodies in Ventura County including:

1. Ventura River Estuary Trash TMDL Resolution No. 2007-008,
2. Revolon Slough & Beardsley Wash Trash TMDL Resolution No. 2007-007, and
3. Malibu Creek Trash TMDL Resolution No. 2008-007.

These TMDLs require installation of "full trash capture systems[1]" at all point source discharges from the County storm drain system or municipal separate storm sewer system (MS4), i.e., roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or storm drains that drain into trash impaired waterbodies and its tributaries or within high trash generated areas.

The Statewide Trash Policy (adopted in December 2016) or future TMDLs adopted by the State Water Resources Control Board may require additional trash control measures to be implemented by MS4s. Consequently, this O&M Plan will be amended to include information and locations of additional devices.

[1] *The Connector Pipe Screen (CPS) devices installed and discussed in this plan have been designed to meet the requirements set by the LARWQCB for full trash capture systems.*

Trash Excluder Locations

Appendix A contains applicable maps identifying the County-maintained catch basins that have been retrofitted with full capture CPS trash excluders. It also includes pictures and detailed information of each CPS device and associated catch basins. The maps and CPS device information incorporate the unique catch basin identification numbering system implemented within the Transportation Department catch basin Geographical Information System (GIS) database. Each catch basin retrofitted with a CPS device will be identified in the field by a thermoplastic medallion. Until the permanent medallions have been installed, temporary medallions or a 4-inch diameter red spray paint dot have been implemented for field identification (refer to **Figure 1**).

Figure 1 - Temporary Filed Identification

Inspection and Maintenance Frequency

All CPS devices will have inspection and maintenance completed a minimum of three times per fiscal year (July 1 through June 30). Each occurrence must be separated by at least 30 calendar days.

- One (1) before the wet season (before October 1),
- One (1) during the wet season (October 1 – April 15), and
- One (1) after the wet season (after April 15).

All inspections and maintenance performed will be recorded by the designated Transportation Department O&M staff on the form provided in **Appendix B**.

Equipment

The following minimum equipment is required by inspection and maintenance personnel in order to complete inspections and maintenance of the CPS devices (see **Appendix C**). Other items preferred by field staff may substitute for items listed below as long as worker safety is not jeopardized.

Small equipment:

- Personal Protective Equipment (PPE) such as hardhat, reflective vest, gloves & steel toed boots
- Traffic cones for notification to drivers and pedestrians of work area
- One (1) rebar J hook for removal of storm drain manhole covers
- Two (2) grate lifting hooks for removal of storm drain inlet grates
- Small (approx. 9"x12") dry erase board and markers for device # ID inclusion in all pictures
- Measuring tape
- Small hand brush for sweeping debris at bottom of catch basin or off screen
- Short handle (< 30") square end shovel for use in catch basins
- Camera or phone capable for photo documentation of field issues (including day/time stamp)
- Clip board and pens

Large equipment:

- Tow-behind vactor with long flexible hose capable of maintaining suction for debris removal
- (*optional*) Truck mounted winch for catch basin grate removal

Maintenance Access Ports

Difficulty accessing existing device numbers 319, 329, 330 and 331 in the North Ventura area (See Map 2 of **Appendix A**) was encountered during past inspection and maintenance activities. As worker safety is the number one priority, 8-inch diameter maintenance access ports were constructed in mid-2017 in order to remove the need for any worker to enter a catch basin during the routine inspection and maintenance procedures. The typical tow-behind vactor flexible hoses utilized by the maintenance crews has an outside diameter of less than 6 inches allowing for efficient use of the maintenance access ports. **Figure 2** shows the customized 12-inch diameter stainless steel lid that includes two pentagon tipped

vandal proof screws that covers each maintenance access port. The transportation roads O&M District 1 & 2 representatives have been provided with extra screws as well as customized bits for operating them.

Figure 2 - Maintenance Access Port & Lid

Inspection and Maintenance Procedure

The following inspection and maintenance procedure must be followed and documented accordingly on the inspection and maintenance form (See **Appendix B**).

Prior to starting the following procedural steps the crew performing the inspection and maintenance must first verify that the crew's vehicle(s) has its warning lights turned on and traffic cones have been positioned appropriately for early warning of motorists and pedestrians, and all applicable PPE is worn.

Note: The small white board shall be shown in all pictures with the appropriate device number (as listed in the maps in **Appendix A**) written on it. This will easily associate pictures with the correct CPS devices.

Step 1 → Exterior Check

- Take picture of catch basin and grate prior to any external work (ID# on white board in pic)
- Document exterior comments in the section provided. Items such as "street is flooded at catch basin with about 6 inches of standing water" or "grate is clogged with vegetative debris but no standing water" or "device medallion is missing" should be noted
- Remove and vactor any trash and debris from the curb inlet and/or drop inlet grate. *Note this has been completed on the inspection and maintenance form*
- Remove the manhole lid or drop inlet grate to gain access to the catch basin and CPS device.

Step 2 → Interior Check

- Take picture of catch basin and device prior to any internal work (ID# on white board in pic)
- Document interior comments in the section provided. Items such as "debris is stuck in the device screen" or "standing water is present in catch basin" should be noted.
- Using the measuring tape (or other suitable equipment) measure the depth of sediment in the catch basin (this may require digging small hole to concrete bottom of catch basin to get an accurate measurement). ***Note that depth on the inspection and maintenance form***

- Remove all debris that is stuck in the device. This includes items stuck in the screen face, on top of the device, and anything stuck in the overflow orifice.
- Based on visual observation alone, estimate the percentage of the total debris that was retained by the device for three distinct categories. The options are limited to Trash, Vegetation Debris, and Sediment. For example, the retained debris may be estimated as consisting of 10% trash, 40% vegetation debris, and 50% sediment (all three must add up to 100%). Trash would be considered items such as plastic bottles, bags, cups, cigarettes, shoes, etc. Vegetation debris would be items like leaves, twigs, mulch, pine needles, etc. Sediment is self-explanatory. ***Note the observed percentages on the inspection and maintenance form***
- Remove all the debris from the catch basin using the tow behind vactor. If compacted debris is difficult to remove use hand equipment to loosen the debris to aid in vacuuming.
- Take a picture of the device after all debris is removed from the catch basin and off the screen (ID# on white board in pic)
- Document applicable comments in area provided. Items like "the device screen is bent and needs repair" or "the mounting frame is coming loose and needs to be reset" should be noted.
- Take pictures of any damage (if applicable) to the device (ID# on white board in pic).
- Ensure the device is in operating position (see **Figure 3**).
- Replace the manhole lid or drop inlet grate accordingly.
- Review inspection and maintenance form to ensure all sections have been completed.

Figure 3 - Proper Installation of CPS Device

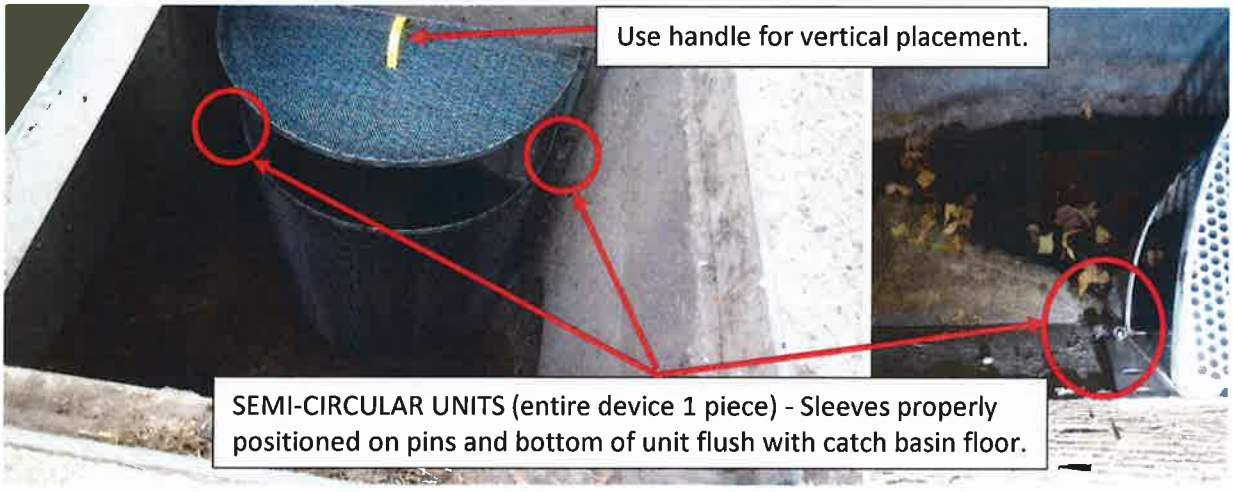
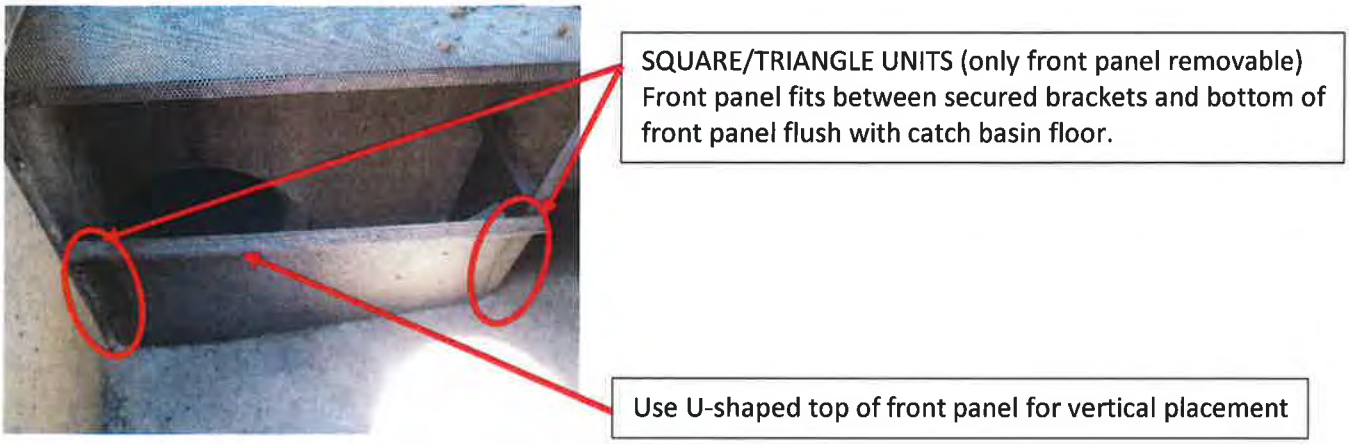


Figure 4 - Proper Installation of CPS Device (Continued)



Emergency Flood Response

The following procedure should be followed when responding due to reported flooding.

a) Take pictures of the exterior showing the flooded condition.

b) Remove all debris clogging the exterior catch basin to allow water to enter the catch basin.

c) Review device information in **Appendix A** for access type and location verification.

d) Locate the device medallion or spray paint to identify location of the device in the catch basin.

e) Engage the welded handle on top of the device (semi-circular units) or u-shaped top of removable front panel (square/triangle units) using equipment available. Pull upwards to remove the device from its operating position. If the device can be removed through the access point then do so. Otherwise, leave the device unseated in the catch basin. **Figure 4** shows emergency access. Note: The square/triangle units have a stamped nameplate fixed to the back of the removable front panel with the device number matching maps in **Appendix A**. This is shown in **Figure 4**.

f) Do not set the device into operating position until after all water has drained. Resetting the device will most likely require removal of debris to ensure the sleeve and pins are fully engaged and the device bottom is flush with the bottom of the catch basin.

Figure 5 - Typical Emergency Access and Device Identification

Example on back of panel (Square/Triangle devices). If panels are removed from the catch basin the nameplate will help identify which panel belongs in which location.

Warranty Information

The full capture screens are typically under full contractor warranty for 1 year from the time of construction field completion per the Ventura County Standard Specifications. This was the case for the semi-circular devices constructed by StormTek in 2014 as well as the devices constructed by United Storm Water in 2017. The warranty period for the devices installed by United Storm Water in 2016 was negotiated during a construction contract change order to be extended to 3 years. As a result, those devices are under warranty until August 26, 2019.

Applicable warranty information is identified per device in **Appendix A**.

Waste Disposal

Any trash, sediment or debris collected during O&M activities should be disposed of properly in accordance with federal, state and local laws. Before disposal, the waste may be stored temporarily either (1) in a covered container or (2) on an impervious surface/excavated area with an impermeable liner, covered with a waterproof material, and contained within a perimeter of sandbags. The containment must be maintained for the duration of the storage period to prevent runoff, run-on, leaching and provide protection from wind. Storage should not occur in an area where the material could be washed or airborne into wetlands, waterways, storm drains, or County road right-of-way.

Waste and materials removed as part of O&M activities does not typically contain levels of contaminants or specially regulated substances unless the waste originates from hazardous a waste cleanup site or area where spills of hazardous substances have occurred. O&M staff should be aware of general conditions of cleanup areas and if any questions come up, contact their immediate supervisor. If O&M staff suspects any hazardous conditions or presence of hazardous spills, they should call 911 and County Environmental Health Department at (805) 654-2813.

Project Contacts

Transportation Department O&M District contacts are responsible for collecting and submitting all completed inspection and maintenance forms and pictures in their respective district to the Watershed Protection District County Stormwater Program Section (CSWP).

Transportation Department O&M District 1 contact:

Rudy Munoz	805-320-3856
Name	Cell Phone Number

Transportation Department O&M District 2 contact:

Rodney Perez	805-340-3555
Name	Cell Phone Number

County Stormwater Program Section of Ventura County Watershed Protection District contacts:

David Kirby, PE	(805) 662-6737
Name	Phone Number

Ewelina Mutkowska	(805) 645-1382
Name	Phone Number

Documentation Submittal

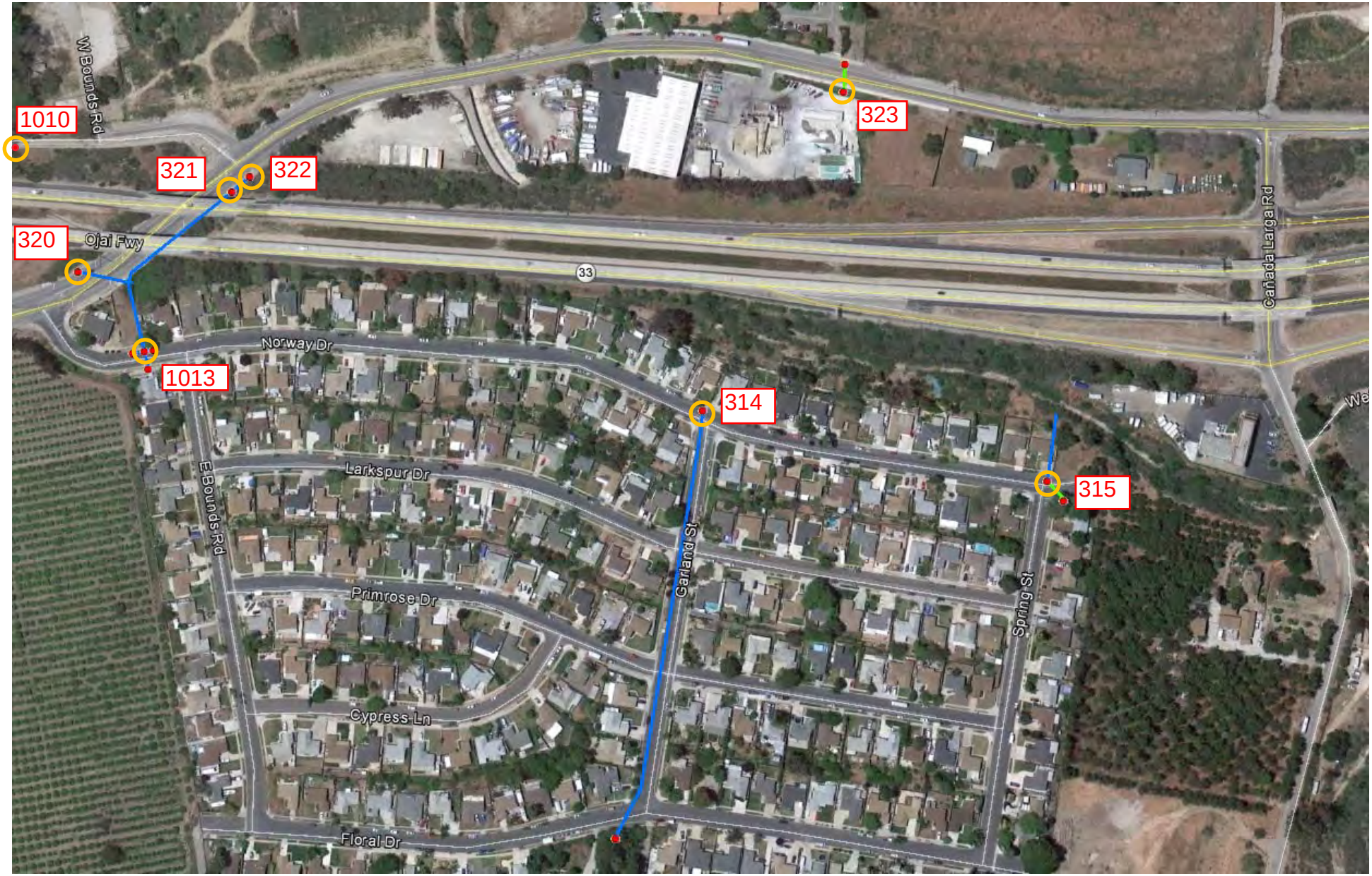
Completed inspection and maintenance forms and pictures shall be submitted to CSWP by July 30th each year for inclusion within the Stormwater Annual Report or upon request as needed for inclusion into the TMDL Compliance Reports. CSWP shall be notified within 1 week of any device removals or those identified as damaged.

CSWP will collect all inspection and maintenance forms and record all data within a spreadsheet for TMDL reporting requirements. Additionally, CSWP will coordinate required repairs identified on the inspection forms with the contractor that manufactured and installed the devices.

APPENDIX A

MAPS AND DEVICE INFORMATION

MAP 1 OF 10



LEGEND (for all maps)

XXXX Transportation Catch Basin #

Catch Basin Retrofitted with CPS Device

Catch Basin Retrofitted with CPS Device & Access Port

MAP 1 of 10 - Trash Excluders

314

Road = Norway Dr
Access Type = Manhole Lid (Rectangle)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.92	Diameter (ft)	3
Width (ft)	2.17	Circumfrence (ft)	4.75
Length (ft)	6	Height (ft)	3.33
Outlet Dia (ft)	2.33	Config = Semi-Circular	

Warranty Status = Expired


315

Road = Norway Dr
Access = Manhole Lid (Rectangle)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	5.83	Bypass (in)	12
Width (ft)	2.5	Length (in)	60
Length (ft)	6	Screen Height (in)	22
Outlet Dia (ft)	2	Config = Square	

Warranty Status = Expires 7/14/2018


320

Road = N Ventura Ave
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.33	Diameter (ft)	2.58
Width (ft)	3	Circumfrence (ft)	4.08
Length (ft)	5	Height (ft)	2.67
Outlet Dia (ft)	2	Config = Semi-Circular	

Warranty Status = Expired


321

Road = N Ventura Ave
Access Type = Manhole Lid (Square)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4.83	Bypass (in)	22
Width (ft)	3.5	Length (in)	42
Length (ft)	4	Screen Height (in)	24
Outlet Dia (ft)	3	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018


322

Road = N Ventura Ave
Access Type = Manhole Lid (Square)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	2.83	Diameter (ft)	2.5
Width (ft)	2.83	Circumfrence (ft)	3.92
Length (ft)	7	Height (ft)	2.5
Outlet Dia (ft)	2	Config = Semi-Circular	

Warranty Status = Expired


323

Road = N Ventura Ave
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4	Bypass (in)	12
Width (ft)	4	Length (in)	36
Length (ft)	4	Screen Height (in)	20
Outlet Dia (ft)	1.83	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018


MAP 1 of 10 - Trash Excluders

1010

Road = Crooked Palm Rd

Access = Manhole Lid (Circular) + Access Port

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.5	Bypass (in)	N/A
Width (ft)	4.5	Length (in)	48
Length (ft)	4.5	Screen Height (in)	24
Outlet Dia (ft)	4'x3' RCB	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

1013

Road = Norway Dr

Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3	Diameter (ft)	2.5
Width (ft)	3.27	Circumfrence (ft)	3.92
Length (ft)	5	Height (ft)	2.5
Outlet Dia (ft)	2	Config = Semi-Circular	

Warranty Status = Expired

MAP 2 OF 10


Ojai Fwy
Cracked Palm Rd
33
Hackberry Dr
Magnolia Dr
Kimberly Dr
Poteau Dr
Mulberry Dr
Barnes Dr
Mill Dr
N Ventura Ave
McKee St
Holt St
Fraser Ln
Los Cabos Ln
Floral Dr
Encino Ln
308
317
318
319
329
330
331
332
© 2014 Google

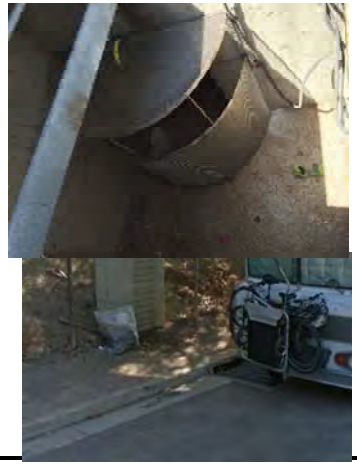
MAP 2 of 10 - Trash Excluders

308

Road = Crooked Palm Rd
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	2.83	Diameter (ft)	2.5
Width (ft)	4	Circumfrence (ft)	3.92
Length (ft)	5	Height (ft)	2.5
Outlet Dia (ft)	2	Config = Semi-Circular	

Warranty Status = Expired



317

Road = N Ventura Ave
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.5	Diameter (ft)	1.67
Width (ft)	3.17	Circumfrence (ft)	2.58
Length (ft)	15	Height (ft)	2.5
Outlet Dia (ft)	1	Config = Semi-Circular	

Warranty Status = Expired

318

Road = N Ventura Ave
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.83	Diameter (ft)	3
Width (ft)	2.67	Circumfrence (ft)	4.75
Length (ft)	6	Height (ft)	2.5
Outlet Dia (ft)	2.67	Config = Semi-Circular	

Warranty Status = Expired

319 (Double-Unit)

Road = N Ventura Ave
Access = Manhole Lid (Circular) + Access Port

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	6	Diameter (ft) each	3.17
Width (ft)	7	Circum. (ft) each	5
Length (ft)	6	Height (ft) each	4.17
Outlet Dia (ft)	7'x3' RCB	Config = Semi-Circulars	

Warranty Status = Expired

329

Road = Los Cabos Ln
Access = Manhole Lid (Circular) + Access Port

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3	Diameter (ft)	2.17
Width (ft)	3.33	Circumfrence (ft)	3.42
Length (ft)	15	Height (ft)	2.33
Outlet Dia (ft)	1.67	Config = Semi-Circular	

Warranty Status = Expired

330

Road = Los Cabos Ln
Access = Manhole Lid (Circular) + Access Port

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3	Diameter (ft)	1.67
Width (ft)	3.17	Circumfrence (ft)	2.58
Length (ft)	5	Height (ft)	2.33
Outlet Dia (ft)	1.67	Config = Semi-Circular	

Warranty Status = Expired

MAP 2 of 10 - Trash Excluders

331

Road = Los Cabos Ln

Access = Manhole Lid (Circular) + Access Port

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	2.83	Diameter (ft)	1.67
Width (ft)	2.67	Circumfrence (ft)	2.58
Length (ft)	5	Height (ft)	2.33
Outlet Dia (ft)	1.67	Config = Semi-Circular	

Warranty Status = Expired

332

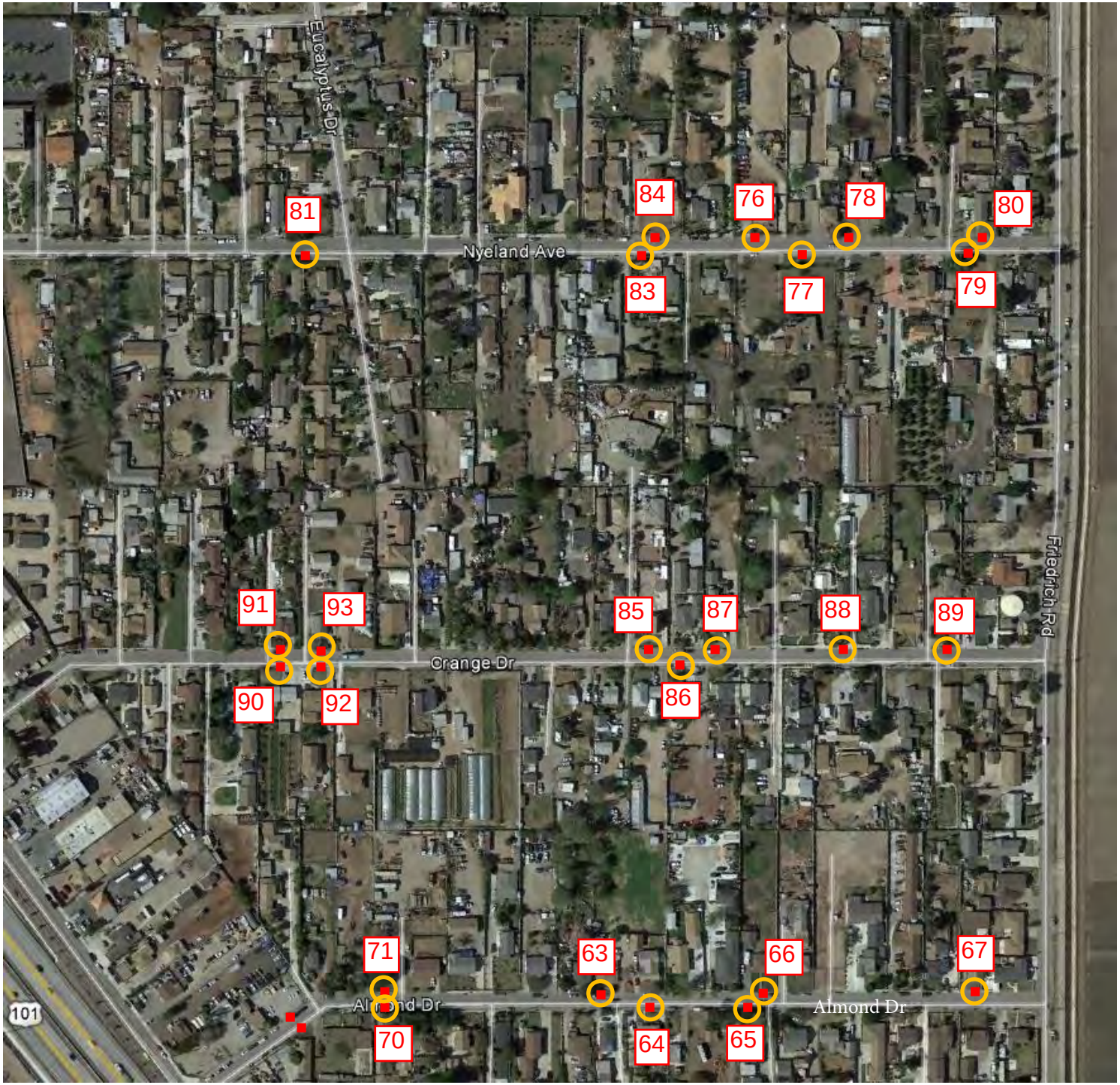
Road = Los Cabos Ln

Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.83	Diameter (ft)	1.67
Width (ft)	3.33	Circumfrence (ft)	2.58
Length (ft)	7	Height (ft)	2.33
Outlet Dia (ft)	1.67	Config = Semi-Circular	

Warranty Status = Expired

MAP 3 OF 10

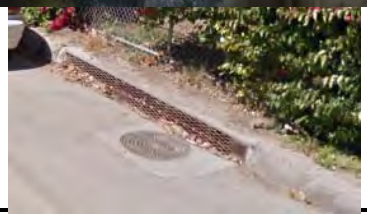

Eucalyptus Dr
Nyeland Ave
Orange Dr
Almond Dr
Almond Dr
Friedrich Rd
101
81
84
76
78
80
83
77
79
91
93
85
87
88
89
90
92
86
71
63
66
67
70
64
65

MAP 3 of 10 - Trash Excluders

63

Road = Almond Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.5	Bypass (in)	N/A
Width (ft)	4.6	Length (in)	37
Length (ft)	3	Screen Height (in)	18
Outlet D (in)	18	Config = "L" Shaped	

64

Road = Almond Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.6	Bypass (in)	N/A
Width (ft)	4.5	Length (in)	37
Length (ft)	3.5	Screen Height (in)	18
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 8/26/2019


65

Road = Almond Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.8	Bypass (in)	N/A
Width (ft)	4.5	Length (in)	43
Length (ft)	3.6	Screen Height (in)	20
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 8/26/2019


66

Road = Almond Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4.35	Bypass (in)	N/A
Width (ft)	4.5	Length (in)	39
Length (ft)	3	Screen Height (in)	20
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 8/26/2019


67

Road = Almond Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.3	Bypass (in)	N/A
Width (ft)	4.5	Length (in)	37
Length (ft)	3	Screen Height (in)	18
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 8/26/2019


70

Road = Almond Dr
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4.2	Bypass (in)	N/A
Width (ft)	4.5	Length (in)	40
Length (ft)	3	Screen Height (in)	24
Outlet D (in)	24	Config = Triangle	


MAP 3 of 10 - Trash Excluders

71

Road = Almond Dr
Access Type = Drop Inlet Grate

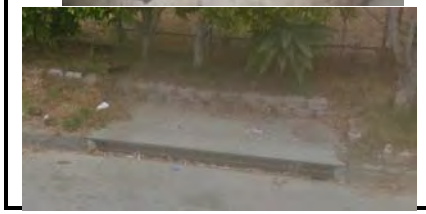
Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.44	Bypass (in)	12
Width (ft)	4.5	Length (in)	35
Length (ft)	3	Screen Height (in)	24
Outlet D (in)	24	Config = Triangle	


76

Road = Nyeland Ave
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4	Bypass (in)	12
Width (ft)	3.15	Length (in)	90
Length (ft)	10	Screen Height (in)	20
Outlet D (in)	18	Config = Square	

Warranty Status = Expires 8/26/2019

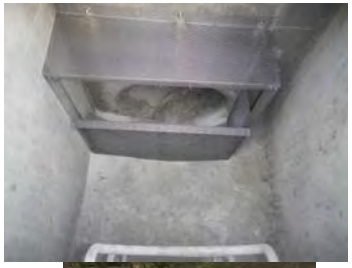



77

Road = Nyeland Ave
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4.7	Bypass (in)	12
Width (ft)	3.15	Length (in)	43
Length (ft)	3.5	Screen Height (in)	20
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 8/26/2019




78

Road = Nyeland Ave
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4	Bypass (in)	12
Width (ft)	3.15	Length (in)	90
Length (ft)	10	Screen Height (in)	20
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 8/26/2019


79

Road = Nyeland Ave
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4.6	Bypass (in)	12
Width (ft)	3.4	Length (in)	43
Length (ft)	3	Screen Height (in)	20
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 8/26/2019


80

Road = Nyeland Ave
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	5	Bypass (in)	12
Width (ft)	3.15	Length (in)	90
Length (ft)	10	Screen Height (in)	20
Outlet D (in)	18	Config = Square	

Warranty Status = Expires 8/26/2019


MAP 3 of 10 - Trash Excluders

81

Road = Nyeland Ave
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4	Bypass (in)	N/A
Width (ft)	4.6	Length (in)	60
Length (ft)	6.5	Screen Height (in)	24
Outlet D (in)	36	Config = "L" Shpaed	

Warranty Status = Expires 8/26/2019


83

Road = Nyeland Ave
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4.6	Bypass (in)	12
Width (ft)	3.15	Length (in)	36
Length (ft)	3.5	Screen Height (in)	24
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 8/26/2019


84

Road = Nyeland Ave
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4	Bypass (in)	12
Width (ft)	3.15	Length (in)	72
Length (ft)	10	Screen Height (in)	24
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 8/26/2019


85

Road = Orange Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4.8	Bypass (in)	N/A
Width (ft)	3.4	Length (in)	37
Length (ft)	3	Screen Height (in)	24
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 8/26/2019


86

Road = Orange Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4.3	Bypass (in)	N/A
Width (ft)	3.5	Length (in)	36
Length (ft)	3.4	Screen Height (in)	18
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 8/26/2019


87

Road = Orange Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.6	Bypass (in)	N/A
Width (ft)	4.5	Length (in)	37
Length (ft)	3	Screen Height (in)	18
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 8/26/2019


MAP 3 of 10 - Trash Excluders

88

Road = Orange Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.2	Bypass (in)	N/A
Width (ft)	4.4	Length (in)	37
Length (ft)	3	Screen Height (in)	18
Outlet D (in)	18	Config = Triangle	

Warranty Status = Expires 8/26/2019


89

Road = Orange Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.8	Bypass (in)	N/A
Width (ft)	4.3	Length (in)	37
Length (ft)	3	Screen Height (in)	18
Outlet D (in)	18	Config = Triangle	

Warranty Status = Expires 8/26/2019


90

Road = Orange Dr
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.8	Bypass (in)	12
Width (ft)	4.5	Length (in)	48
Length (ft)	3	Screen Height (in)	18
Outlet D (in)	24	Config = Triangle	

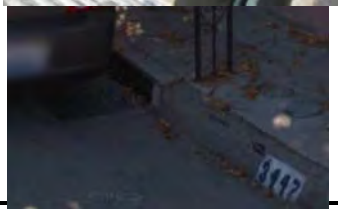
Warranty Status = Expires 8/26/2019


91

Road = Orange Dr
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.3	Bypass (in)	12
Width (ft)	4.5	Length (in)	36
Length (ft)	3	Screen Height (in)	18
Outlet D (in)	24	Config = Triangle	

Warranty Status = Expires 8/26/2019

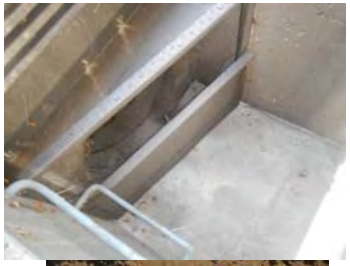



92

Road = Orange Dr
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4.18	Bypass (in)	12
Width (ft)	4.5	Length (in)	36
Length (ft)	4.5	Screen Height (in)	18
Outlet D (in)	24	Config = Triangle	

Warranty Status = Expires 8/26/2019

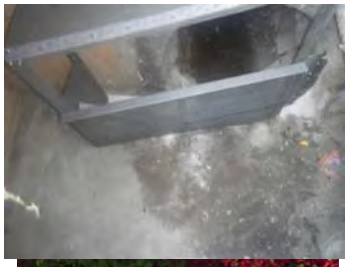



93

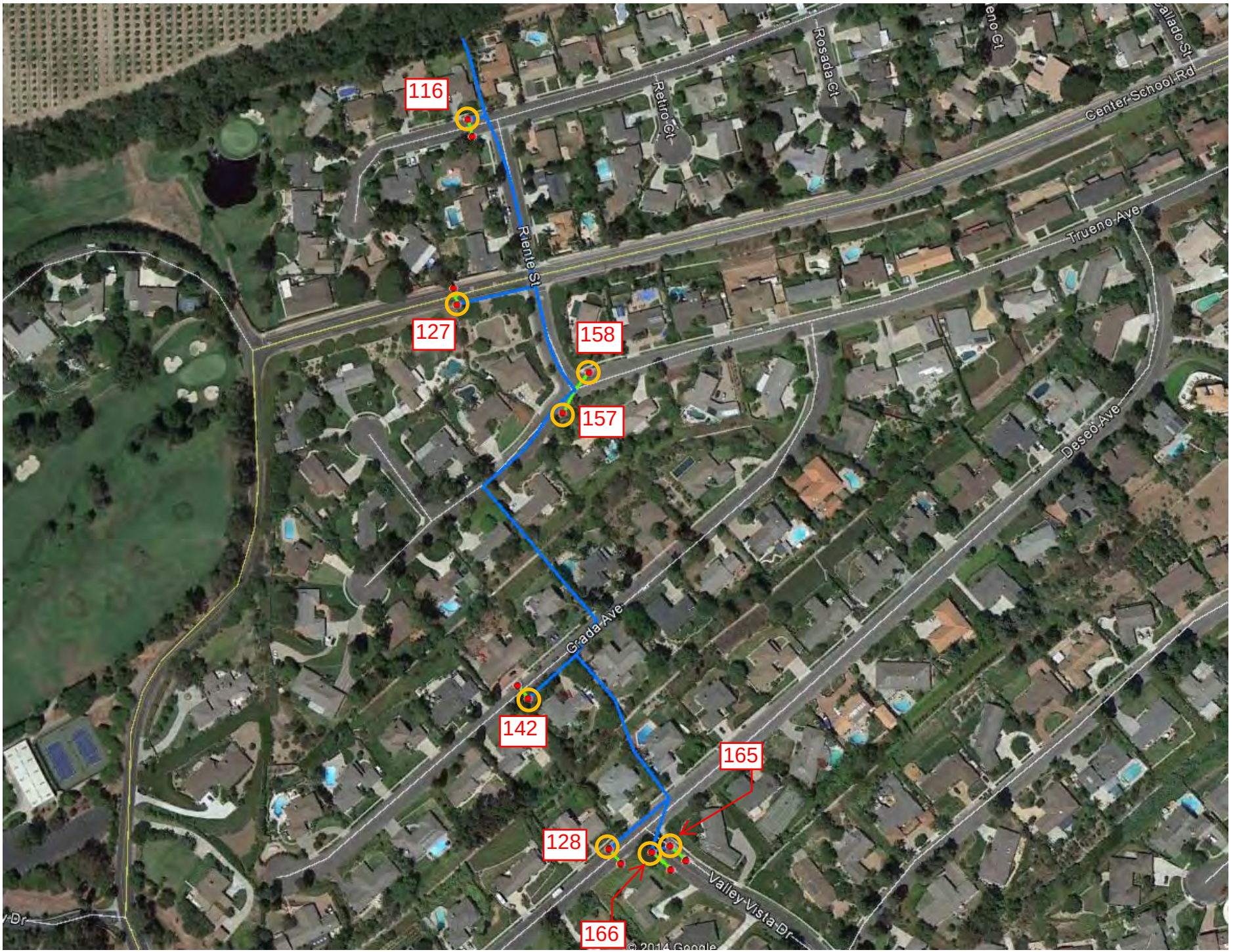
Road = Orange Dr
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.45	Bypass (in)	12
Width (ft)	4.5	Length (in)	48
Length (ft)	4.5	Screen Height (in)	16
Outlet D (in)	24	Config = Triangle	

Warranty Status = Expires 8/26/2019




MAP 4 OF 10


116
127
158
157
142
165
128
166
Retiro Ct
Rosada Ct
Center School Rd
Trueno Ave
Riente St
Deseo Ave
Grada Ave
Valley Vista Dr
© 2014 Google

MAP 4 of 10 - Trash Excluders

116

Road = Callado St
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4	Diameter (ft)	2.33
Width (ft)	4	Circumfrence (ft)	3.75
Length (ft)	10	Height (ft)	3.17
Outlet Dia (ft)	2	Config = Semi-Circular	

Warranty Status = Expired

127

Road = Center School Rd
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4.17	Diameter (ft)	2.5
Width (ft)	4	Circumfrence (ft)	3.75
Length (ft)	7	Height (ft)	2.92
Outlet Dia (ft)	2.33	Config = Semi-Circular	

Warranty Status = Expired

128

Road = Deseo Ave
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3	Diameter (ft)	2.33
Width (ft)	3.83	Circumfrence (ft)	3.67
Length (ft)	10	Height (ft)	1.5
Outlet Dia (ft)	1.5	Config = Semi-Circular	

Warranty Status = Expired

142

Road = Grada Ave
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4	Diameter (ft)	2.5
Width (ft)	3	Circumfrence (ft)	3.92
Length (ft)	7	Height (ft)	3.33
Outlet Dia (ft)	1.33	Config = Semi-Circular	

Warranty Status = Expired

157

Road = Trueno Ave
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4.17	Diameter (ft)	3
Width (ft)	3.83	Circumfrence (ft)	4.75
Length (ft)	14	Height (ft)	2.5
Outlet Dia (ft)	1.67	Config = Semi-Circular	

Warranty Status = Expired

158

Road = Trueno Ave
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	5	Diameter (ft)	2.33
Width (ft)	4	Circumfrence (ft)	4.67
Length (ft)	14	Height (ft)	3.33
Outlet Dia (ft)	2	Config = Semi-Circular	

Warranty Status = Expired

MAP 4 of 10 - Trash Excluders

165

Road = Valley Vista Dr
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.83	Diameter (ft)	2.33
Width (ft)	3.83	Circumfrence (ft)	3.67
Length (ft)	20	Height (ft)	2.5
Outlet Dia (ft)	2	Config = Semi-Circular	

Warranty Status = Expired

166

Road = Valley Vista Dr
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.83	Diameter (ft)	2.83
Width (ft)	4.17	Circumfrence (ft)	4.42
Length (ft)	20	Height (ft)	2.83
Outlet Dia (ft)	2	Config = Semi-Circular	

Warranty Status = Expired

MAP 5 OF 10


138
Fairway Dr
Center School Rd
137
Fairway Ct
Trueno Ave


144
La Crescenta Dr
Avacado Pl
143

MAP 5 of 10 - Trash Excluders

137

Road = Fairway Dr
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	2.83	Bypass (in)	10
Width (ft)	1.75	Length (in)	42
Length (ft)	3.5	Screen Height (in)	16
Outlet D (in)	15	Config = Triangle	

Warranty Status = Expires 8/26/2019

138

Road = Fairway Dr
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	5	Bypass (in)	12
Width (ft)	2	Length (in)	42
Length (ft)	3.5	Screen Height (in)	24
Outlet D (in)	36	Config = Wall to Wall	

Warranty Status = Expires 8/26/2019

143

Road = La Crescenta Dr
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	2.7	Bypass (in)	10
Width (ft)	1.83	Length (in)	42
Length (ft)	3.5	Screen Height (in)	14
Outlet D (in)	12	Config = Triangle	

Warranty Status = Expires 8/26/2019

144

Road = La Crescenta Dr
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	2.83	Bypass (in)	10
Width (ft)	1.75	Length (in)	42
Length (ft)	3.33	Screen Height (in)	16
Outlet D (in)	14	Config = Triangle	

Warranty Status = Expires 8/26/2019

MAP 6 OF 10


168
174
175
179
176
178
177
Via Del Cerro
Vista Del Campo
Vista Del Cima
Via Con Dios
Calle Aurora
Fairway Dr

MAP 6 of 10 - Trash Excluders

168

Road = Villa Del Cerro
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.92	Bypass (in)	10
Width (ft)	1.75	Length (in)	42
Length (ft)	3.5	Screen Height (in)	16
Outlet D (in)	18	Config = Triangle	

Warranty Status = Expires 8/26/2019

174

Road = Via Con Dios
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4.3	Bypass (in)	12
Width (ft)	3	Length (in)	42
Length (ft)	3.5	Screen Height (in)	24
Outlet D (in)	18	Config = Wall to Wall	

Warranty Status = Expires 8/26/2019

175

Road = Via Con Dios
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.92	Bypass (in)	12
Width (ft)	3	Length (in)	72
Length (ft)	10	Screen Height (in)	18
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 8/26/2019

176

Road = Vista Del Campo
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	5.17	Bypass (in)	12
Width (ft)	3	Length (in)	48
Length (ft)	7	Screen Height (in)	24
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 8/26/2019

177

Road = Vista Del Campo
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.5	Bypass (in)	12
Width (ft)	3	Length (in)	48
Length (ft)	7	Screen Height (in)	20
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 8/26/2019

178

Road = Vista Del Cima
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3	Bypass (in)	10
Width (ft)	3	Length (in)	48
Length (ft)	7	Screen Height (in)	16
Outlet D (in)	18	Config = Square	

Warranty Status = Expires 8/26/2019

MAP 6 of 10 - Trash Excluders

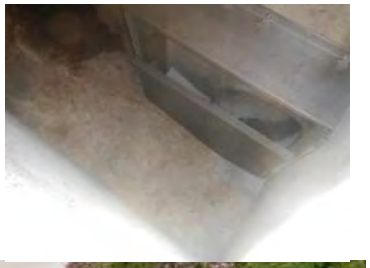
179

Road = Vista Del Cima

Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	6	Bypass (in)	12
Width (ft)	3	Length (in)	48
Length (ft)	7	Screen Height (in)	24
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 8/26/2019



MAP 7 OF 10


530
529
537
539
Hollytree Dr
Foxwood Dr
Dogwood Rd
Hickory Dr
535
549
528
527
Kanan Rd
547
551
1011
Oak Hills Dr
499
Gil Rio Vista
502
Conifer St
Kanan Rd
Pinewood Ave

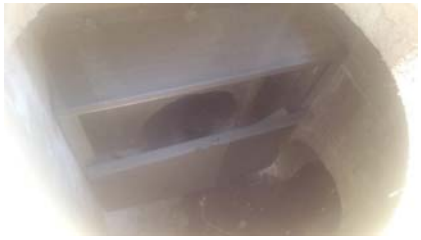
MAP 7 of 10 - Trash Excluders

499

Road = Calle Rio Vista
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.75	Bypass (in)	12
Width (ft)	3	Length (in)	36
Length (ft)	3.5	Screen Height (in)	24
Outlet D (in)	18	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018



502

Road = Conifer St
Access = Manhole Lid (Circular) + Access Port

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.5	Bypass (in)	12
Width (ft)	3	Length (in)	84
Length (ft)	20	Screen Height (in)	16
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 7/14/2018

527

Road = Doubletree Rd
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	5.75	Bypass (in)	12
Width (ft)	3	Length (in)	72
Length (ft)	10	Screen Height (in)	24
Outlet D (in)	24	Config = "L" Shaped	

Warranty Status = Expires 7/14/2018

528

Road = Doubletree Rd
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	8	Bypass (in)	12
Width (ft)	3	Length (in)	53
Length (ft)	7	Screen Height (in)	24
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 7/14/2018

529

Road = Doubletree Rd
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	6.25	Bypass (in)	12
Width (ft)	3	Length (in)	72
Length (ft)	10	Screen Height (in)	24
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 7/14/2018

530

Road = Doubletree Rd
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.5	Bypass (in)	10
Width (ft)	3	Length (in)	72
Length (ft)	10	Screen Height (in)	16
Outlet D (in)	18	Config = 3D	

Warranty Status = Expires 7/14/2018

MAP 7 of 10 - Trash Excluders

535

Road = Hollytree Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	6	Bypass (in)	N/A
Width (ft)	3	Length (in)	48
Length (ft)	7	Screen Height (in)	24
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 7/14/2018

537

Road = Hollytree Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4.5	Bypass (in)	12
Width (ft)	3	Length (in)	72
Length (ft)	10	Screen Height (in)	24
Outlet D (in)	18	Config = "L" Shaped	

Warranty Status = Expires 7/14/2018

539

Road = Hollytree Dr
Access = Manhole Lid (Circular) + 2 Access Ports

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4	Bypass (in)	12
Width (ft)	3	Length (in)	84
Length (ft)	20	Screen Height (in)	24
Outlet D (in)	18	Config = Square	

Warranty Status = Expires 7/14/2018

547

Road = Kanan Rd
Access Type = Drop Inlet Grate

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3	Bypass (in)	12
Width (ft)	1.5	Length (in)	18
Length (ft)	3	Screen Height (in)	18
Outlet D (in)	18	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

549

Road = Kanan Rd
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	6	Bypass (in)	12
Width (ft)	3	Length (in)	48
Length (ft)	7	Screen Height (in)	24
Outlet D (in)	24	Config = "L" Shaped	

Warranty Status = Expires 7/14/2018

551

Road = Kanan Rd
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	8	Bypass (in)	12
Width (ft)	3	Length (in)	36
Length (ft)	10	Screen Height (in)	24
Outlet D (in)	18	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

MAP 7 of 10 - Trash Excluders

1011

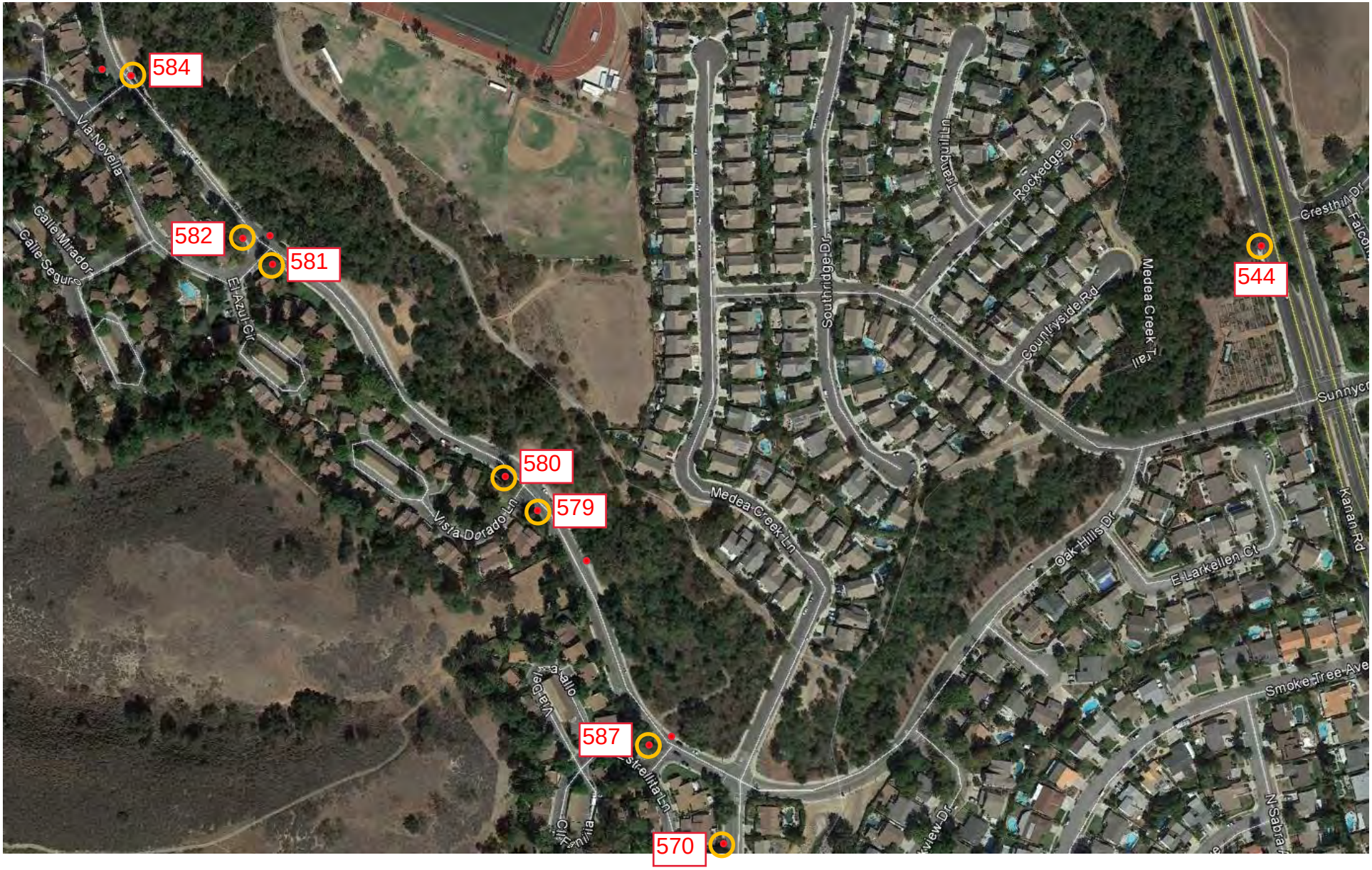
Road = Kanan Rd

Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	5.5	Bypass (in)	12
Width (ft)	3	Length (in)	42
Length (ft)	7	Screen Height (in)	24
Outlet D (in)	18	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

MAP 8 OF 10


584
582
581
580
579
587
570
544
Via Novella
Calle Mirador
Calle Segura
El Azul Cir
Vista Dorado Ln
Medea Creek Ln
Southridge Dr
Tranquil Ln
Rockledge Dr
Countryside Rd
Medea Creek Trail
Oak Hills Dr
E Larkellen Ct
Kanan Rd
Smoke Tree Ave
Vaquero
Estrellita Ln
Cliffview Dr

MAP 8 of 10 - Trash Excluders

544

Road = Kanan Rd
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4.5	Bypass (in)	N/A
Width (ft)	3	Length (in)	36
Length (ft)	20	Screen Height (in)	24
Outlet D (in)	24	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

570

Road = Medea Creek Ln
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4	Bypass (in)	12
Width (ft)	3	Length (in)	36
Length (ft)	3	Screen Height (in)	24
Outlet D (in)	18	Config = Triangle	

Warranty Status = Expires 7/14/2018

579

Road = Oak Hills Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4	Bypass (in)	12
Width (ft)	3	Length (in)	36
Length (ft)	3	Screen Height (in)	20
Outlet D (in)	18	Config = Triangle	

Warranty Status = Expires 7/14/2018

580

Road = Oak Hills Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3.5	Bypass (in)	12
Width (ft)	3	Length (in)	36
Length (ft)	3	Screen Height (in)	20
Outlet D (in)	18	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

581

Road = Oak Hills Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3	Bypass (in)	10
Width (ft)	3	Length (in)	36
Length (ft)	3	Screen Height (in)	18
Outlet D (in)	18	Config = Triangle	

Warranty Status = Expires 7/14/2018

582

Road = Oak Hills Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4.25	Bypass (in)	12
Width (ft)	3	Length (in)	36
Length (ft)	3	Screen Height (in)	24
Outlet D (in)	18	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

MAP 8 of 10 - Trash Excluders

584

Road = Oak Hills Dr

Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	5.5	Bypass (in)	N/A
Width (ft)	3	Length (in)	36
Length (ft)	3	Screen Height (in)	24
Outlet D (in)	30	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

587

Road = Oak Hills Dr

Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4	Bypass (in)	12
Width (ft)	3	Length (in)	36
Length (ft)	3	Screen Height (in)	24
Outlet D (in)	18	Config = Triangle	

Warranty Status = Expires 7/14/2018

MAP 9 OF 10


719
Santo Dr
Tuscany Dr
Rockfield St
Castello Way
La Rosa Dr
Turin St
Lugano Way
716
Scanno Dr
Taranto Way
Trevi Pl
Matteo St
713
714
Lindero Canyon Rd
Key Largo Ct
St Croix Ct
Ocho Rios Way
Trobago
Bayport Way
937


Churchwood Dr
916
Kanan Rd
553
Hawthorne Dr

MAP 9 of 10 - Trash Excluders

553

Road = Kanan Rd
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3	Bypass (in)	8
Width (ft)	3	Length (in)	36
Length (ft)	14	Screen Height (in)	20
Outlet D (in)	18	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

713

Road = Rockfield St
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4	Bypass (in)	12
Width (ft)	3	Length (in)	36
Length (ft)	3	Screen Height (in)	20
Outlet D (in)	18	Config = Triangle	

Warranty Status = Expires 7/14/2018

714

Road = Rockfield St
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4	Bypass (in)	12
Width (ft)	3	Length (in)	38
Length (ft)	7	Screen Height (in)	20
Outlet D (in)	18	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

716

Road = Rockfield St
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	9.5	Bypass (in)	12
Width (ft)	3	Length (in)	36
Length (ft)	3	Screen Height (in)	24
Outlet D (in)	18	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

719

Road = Rockfield St
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	10	Bypass (in)	12
Width (ft)	3	Length (in)	36
Length (ft)	14	Screen Height (in)	24
Outlet D (in)	24	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

916

Road = Hawthorne Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	6.5	Bypass (in)	12
Width (ft)	3	Length (in)	36
Length (ft)	14	Screen Height (in)	24
Outlet D (in)	24	Config = Triangle	

Warranty Status = Expires 7/14/2018

MAP 9 of 10 - Trash Excluders

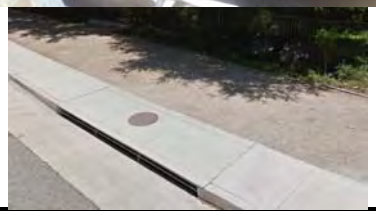
937

Road = Bayport Way

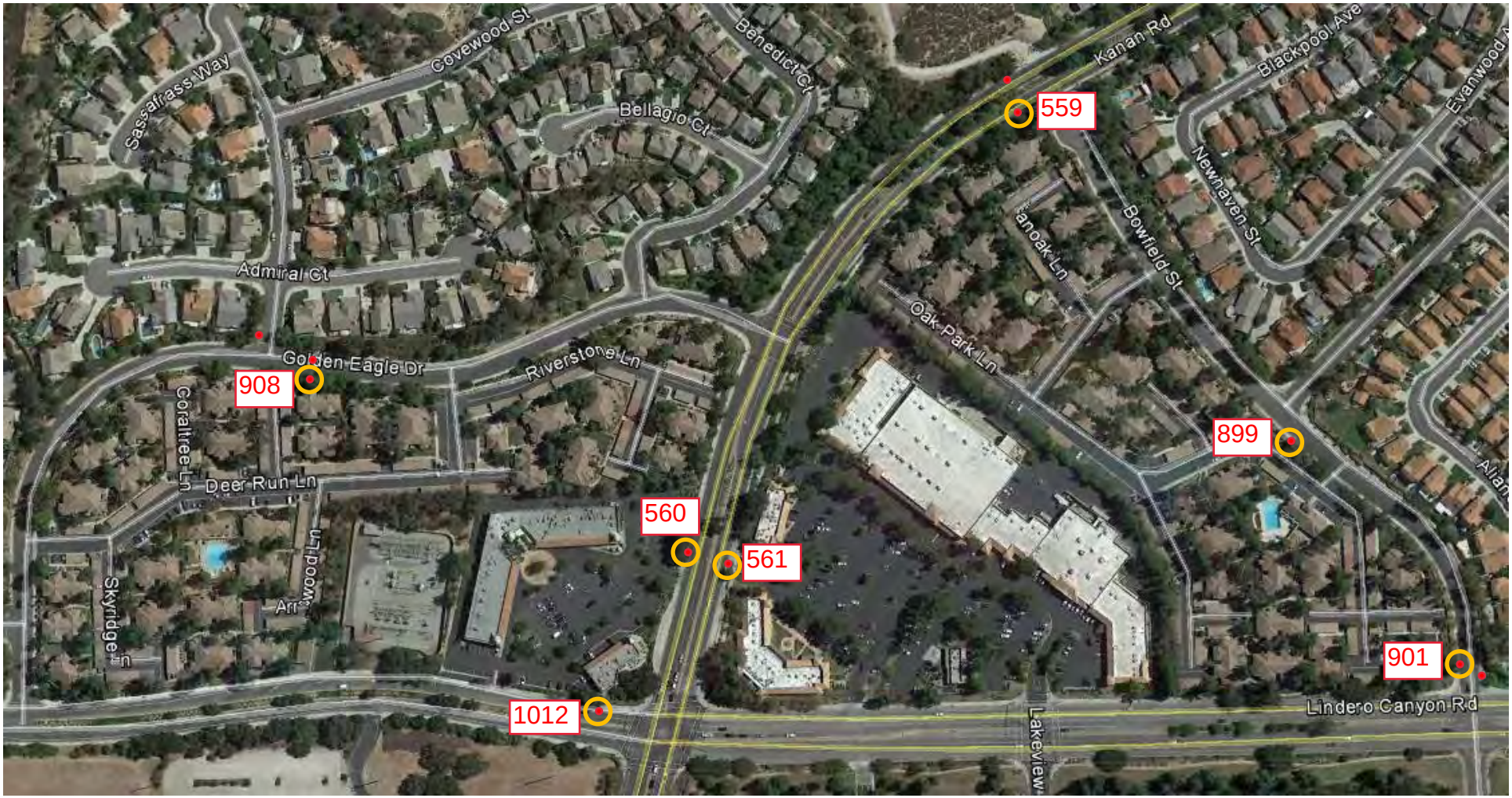
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	6	Bypass (in)	12
Width (ft)	3	Length (in)	72
Length (ft)	14	Screen Height (in)	24
Outlet D (in)	24	Config = Square	

Warranty Status = Expires 7/14/2018



MAP 10 OF 10


559
908
560
561
899
901
1012
Kanan Rd
Covewood St
Benedict Ct
Bellagio Ct
Sassafrass Way
Admiral Ct
Golden Eagle Dr
Riverstone Ln
Coraltree Ln
Deer Run Ln
Skyridge Ln
Woodlark Ln
Oak Park Ln
Lanoak Ln
Bowfield St
Newhaven St
Blackpool Ave
Lakeview
Lindero Canyon Rd

MAP 10 of 10 - Trash Excluders

559

Road = Kanan Rd
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	9	Bypass (in)	12
Width (ft)	3	Length (in)	36
Length (ft)	3	Screen Height (in)	24
Outlet D (in)	21	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

560

Road = Kanan Rd
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	3	Bypass (in)	8
Width (ft)	3	Length (in)	36
Length (ft)	3	Screen Height (in)	13
Outlet D (in)	18	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

561

Road = Kanan Rd
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4.75	Bypass (in)	10
Width (ft)	3	Length (in)	36
Length (ft)	3	Screen Height (in)	18
Outlet D (in)	18	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

899

Road = Bowfield St
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4	Bypass (in)	12
Width (ft)	3	Length (in)	36
Length (ft)	3	Screen Height (in)	18
Outlet D (in)	21	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

901

Road = Bowfield St
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	9	Bypass (in)	12
Width (ft)	3	Length (in)	42
Length (ft)	3.5	Screen Height (in)	24
Outlet D (in)	24	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

908

Road = Golden Eagle Dr
Access Type = Manhole Lid (Circular)

Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	4.75	Bypass (in)	12
Width (ft)	3	Length (in)	36
Length (ft)	3	Screen Height (in)	24
Outlet D (in)	18	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

MAP 10 of 10 - Trash Excluders

1012

		Road =	Lindero Canyon Rd
		Access Type =	Manhole Lid (Circular)
Catch Basin Dimensions		CPS Device Dimensions	
Depth (ft)	9	Bypass (in)	12
Width (ft)	3	Length (in)	36
Length (ft)	3	Screen Height (in)	24
Outlet D (in)	21	Config = Wall to Wall	

Warranty Status = Expires 7/14/2018

APPENDIX B

INSPECTION AND MAINTENANCE FORM

CHECKLIST FOR INSPECTION AND MAINTENANCE
FULL CAPTURE CONNECTOR PIPE SCREEN (CPS) TRASH EXCLUDERS

Date: _____ Time: ☐ AM ☐ PM

Device #: _____ Inspection: ☐ Before October 1

Road: _____ ☐ During Wet Season

Inspector: _____ ☐ After April 15

STEP 1: EXTERIOR CHECK

Exterior Comments: _____

_____

_____

Yes	No	
		Has all trash and debris been removed from curb/grate inlet?

STEP 2: INTERIOR CHECK

Interior Comments: _____

_____

_____

_____

	(inches) What is the measured depth of sediment/debris?

Estimated % of debris based on visual observation (must add up to 100%)					
	Sediment		Vegetation Debris		Trash

Yes	No	
		Has all debris been removed from the device screen?
		Has all debris/sediment/trash been removed from catch basin?

APPENDIX C

EQUIPMENT

Required Equipment (Non-Standard)

Small White Board &
Dry Erase Marker

Grate Lifting Hook

Rebar J Hook

Hand Brush

Short Handle Square End Shovel

Camera

Tow Behind Vactor

Truck Mounted Winch (optional)

APPENDIX C

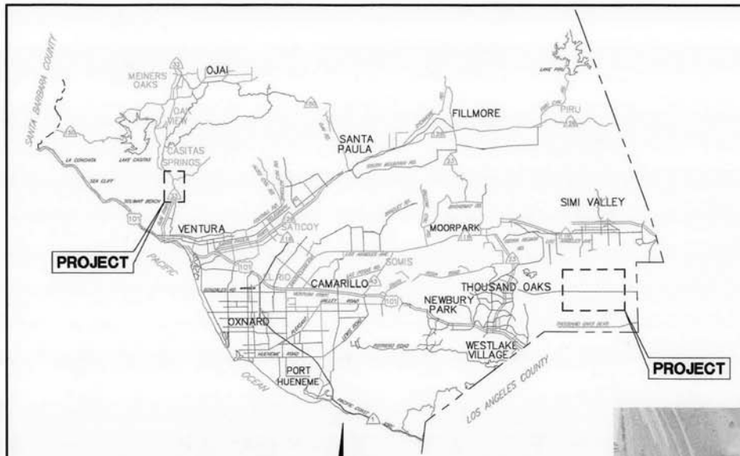
As-Built Drawings

COUNTY OF VENTURA
PUBLIC WORKS AGENCY
VENTURA COUNTY WATERSHED PROTECTION DISTRICT

ZONES 1 AND 4

FULL CAPTURE TRASH DEVICES

INDEX TO SHEETS



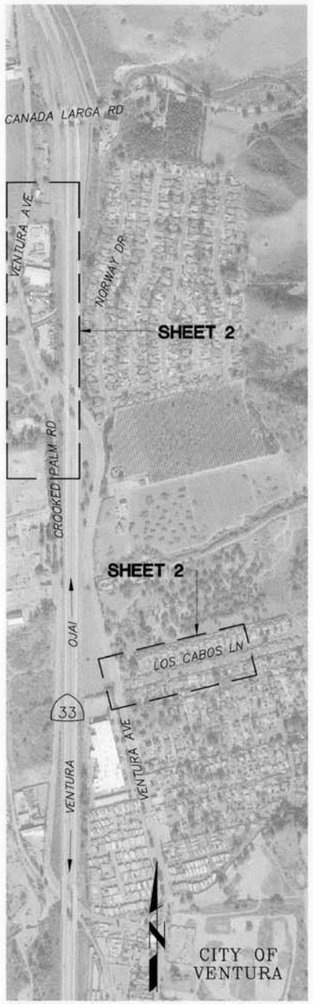
VICINITY MAP
N.T.S.

GENERAL NOTES

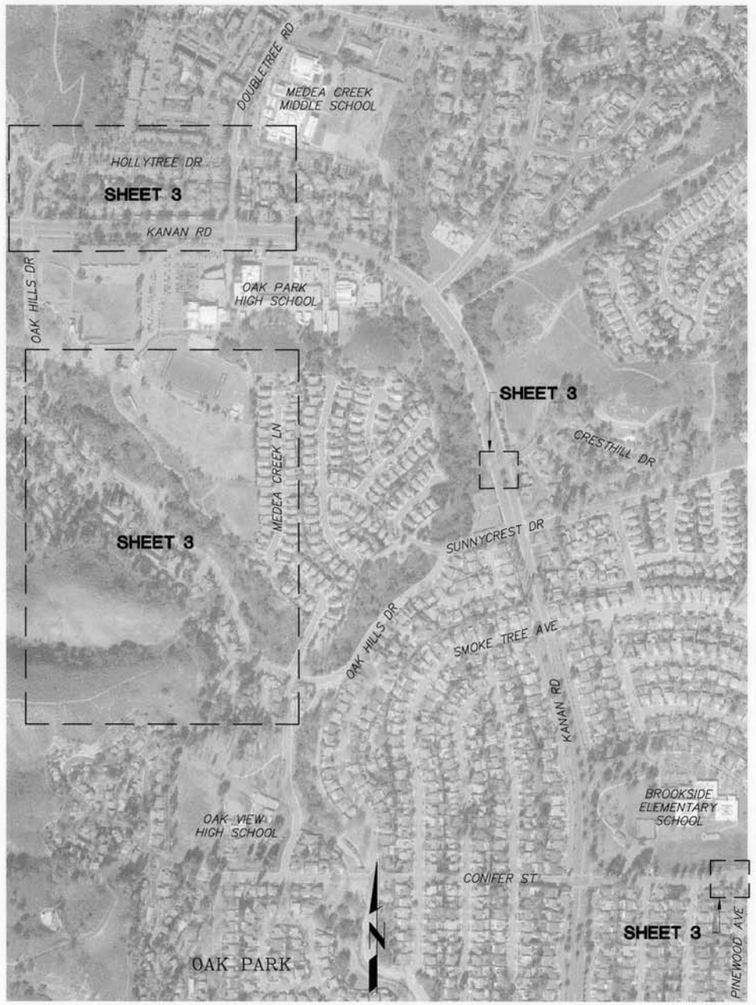
1. NUMBERS IN ⟨–⟩ INDICATE BID ITEMS FOR WHICH PAYMENT WILL BE MADE.
2. LETTERS AND NUMBERS INDICATED IN (–/–) ARE THE DETAIL CALL-OUT AND SHEET ON WHICH IT IS SHOWN.
3. NUMBERS IN △ REFER TO NOTES ON SAME SHEET UNLESS OTHERWISE NOTED.
4. EXISTING IMPROVEMENTS WITHIN THE RIGHT OF WAY AND WORK AREAS SHALL REMAIN AND SHALL BE PROTECTED UNLESS OTHERWISE NOTED. DAMAGED IMPROVEMENTS SHALL BE REPLACED IN KIND TO A CONDITION EQUAL TO OR BETTER THAN THAT WHICH EXISTED PRIOR TO CONSTRUCTION.
5. CONTRACTOR SHALL REMOVE AND DISPOSE OF TRASH, SEDIMENT AND DEBRIS INSIDE CATCH BASINS IDENTIFIED FOR DEVICE INSTALLATION IN ACCORDANCE WITH SPECIFICATIONS.
6. CONTRACTOR SHALL FIELD VERIFY CATCH BASIN DIMENSIONS AND CONFIRM FEASIBILITY OF INSTALLING DEVICES PRIOR TO DEVICE MANUFACTURE/ORDER.
7. SOME CATCH BASIN WORK MAY BE CONSIDERED CONFINED SPACE. CONTRACTOR TO FOLLOW ALL CONFINED SPACE REQUIREMENTS OUTLINED IN SPECIFICATIONS.

UNDERGROUND SERVICE ALERT
1-800-422-4133
CALL USA/SC
FOR UNDERGROUND LOCATION
2 WORKING DAYS BEFORE YOU DIG

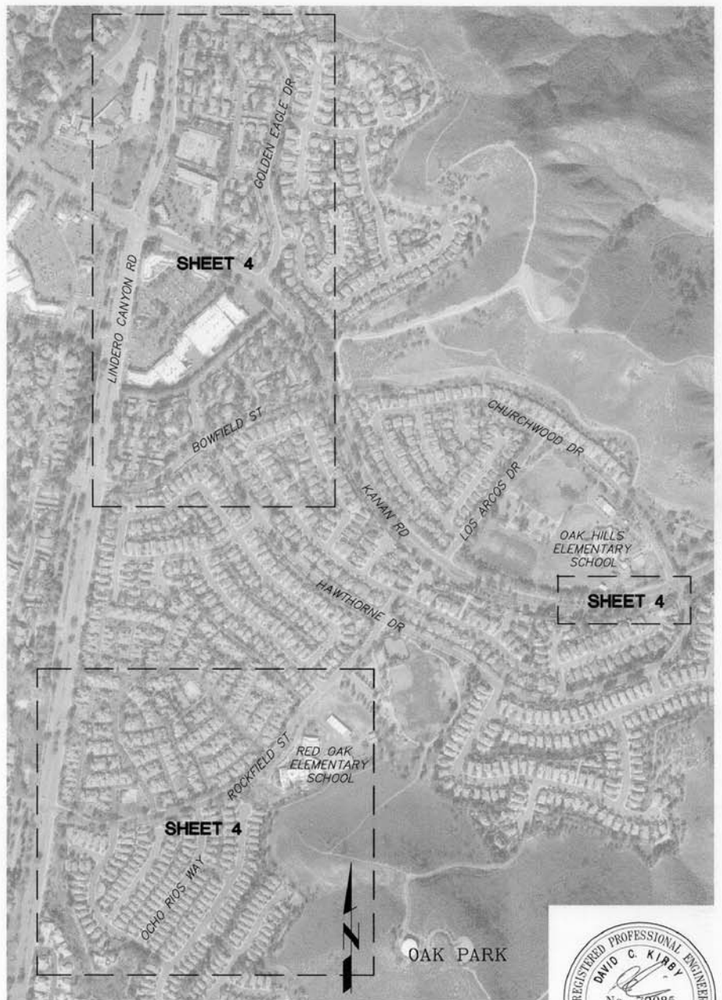
RECORD DRAWING
DATE PROJECT COMPLETED 7/14/2017
REVISIONS SUBMITTED BY D. YANT
DRAWING REVISED BY D. KIRBY
APPROVED BY D. KIRBY DATE 9/13/17



GENERAL LOCATION PLAN
VENTURA RIVER WATERSHED
N.T.S.



GENERAL LOCATION PLAN
MALIBU CREEK WATERSHED - EAST
N.T.S.



GENERAL LOCATION PLAN
MALIBU CREEK WATERSHED - WEST
N.T.S.

REGISTERED PROFESSIONAL ENGINEER
DAVID C. KIRBY
No. 79085
Exp. 3/31/18
CIVIL
STATE OF CALIFORNIA

PLOT DATE: 4/12/17
SAVE DATE: 4/8/17 MACHARIA, ROBERT K:\PROGRAMS\COUNTYSTORMWATERPROGRAM\0405130_MCW_CPS\DESIGN\DESIGNDRAWINGS\RG_PERCENT_PLANS\SHT_01.DWG

	REVISION	DESCRIPTION	APP.	DATE
D				
C				
B				
A				
△				

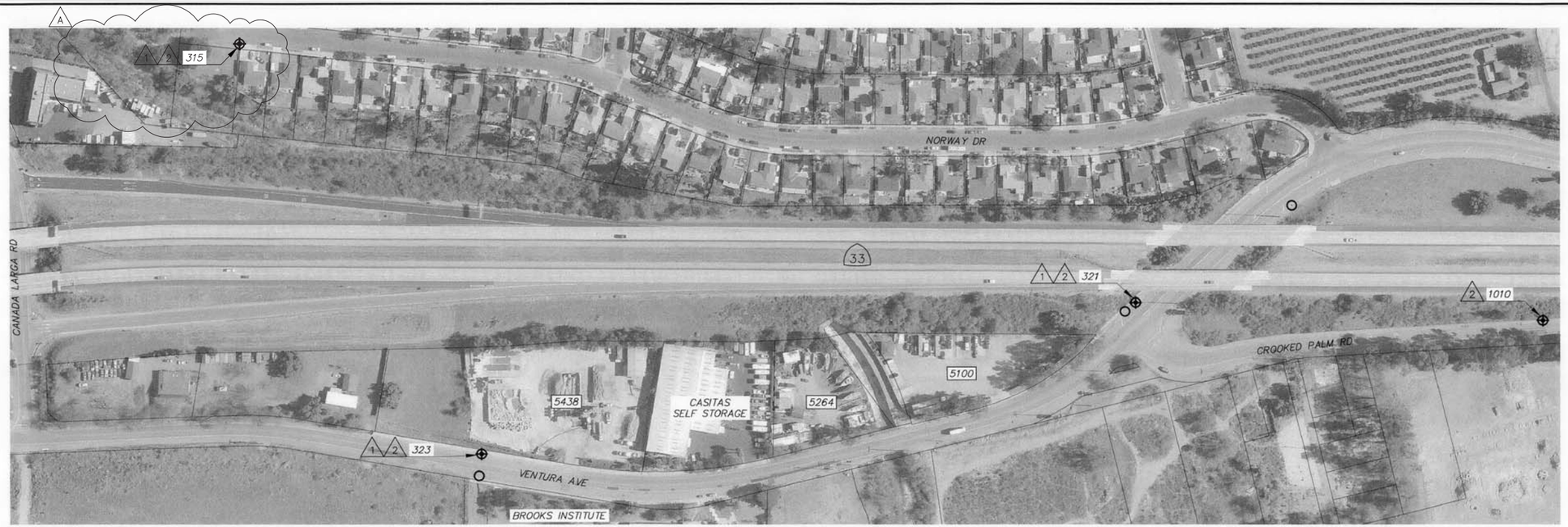
DEPUTY DIRECTOR 4/12/17 DATE
DISTRICT DIRECTOR 4/13/17 DATE
AGENCY DIRECTOR 4/24/17 DATE

COUNTY OF VENTURA
PUBLIC WORKS AGENCY
WATERSHED PROTECTION DISTRICT

SPEC. NO. WP17-14(N)
PROJ. NO. 40530

FULL CAPTURE TRASH DEVICES
GENERAL PLAN

SHEET 1 OF 5
DRAWING NO. Y-4-092



PLAN

120 0 120 240

SCALE OF FEET

PLAN

60 0 60 120

SCALE OF FEET

NOTES:

1. REMOVE AND DISPOSE OF EXISTING DAMAGED SEMI-CIRCULAR FULL CAPTURE TRASH DEVICE. (3)
2. CONSTRUCT FULL CAPTURE TRASH DEVICE FOR THE OUTLET PIPE WITHIN THE EXISTING CATCH BASIN. CATCH BASIN INFORMATION ON SHEET 5 TO BE VERIFIED BY CONTRACTOR IN FIELD. (3)
3. CONSTRUCT NEW CATCH BASIN MAINTENANCE ACCESS PORT PER. (A/5 4)

LEGEND:

- EXISTING CATCH BASIN
- EXISTING CATCH BASIN DESIGNATED FOR FULL CAPTURE TRASH DEVICE INSTALLATION
- #### PARCEL ADDRESS NUMBER
- XXX CATCH BASIN NUMBER

REGISTERED PROFESSIONAL ENGINEER
DAVID C. KIRBY
No. 79085
Exp. 3/31/18
CIVIL
STATE OF CALIFORNIA

RECORD DRAWING

DATE PROJECT COMPLETED 7/14/2017
REVISIONS SUBMITTED BY D. YANT
DRAWING REVISED BY D. KIRBY
APPROVED BY D. KIRBY DATE 9/13/17

PLOT DATE: 4/12/17

SAVE DATE: 4/12/17 MACHARIA, ROBERT K:\PROGRAMS\COUNTYSTORMWATERPROGRAM\040530_MCW_CPS\DESIGN\DESIGNDRAWINGS\90_PERCENT_PLANS\SHT_02.DWG

D			
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A	CCO #1 – 315 REMOVE & REPLACE	DK	9/13/17
△	REVISION DESCRIPTION	APP.	DATE

DESIGNED DK
DRAWN DK,AR,RM
CHECKED SDR

DISTRICT PROJECT MANAGER — DATE 4/12/17
DEPUTY DIRECTOR — DATE 4/12/17
DISTRICT DIRECTOR — DATE 4/13/17

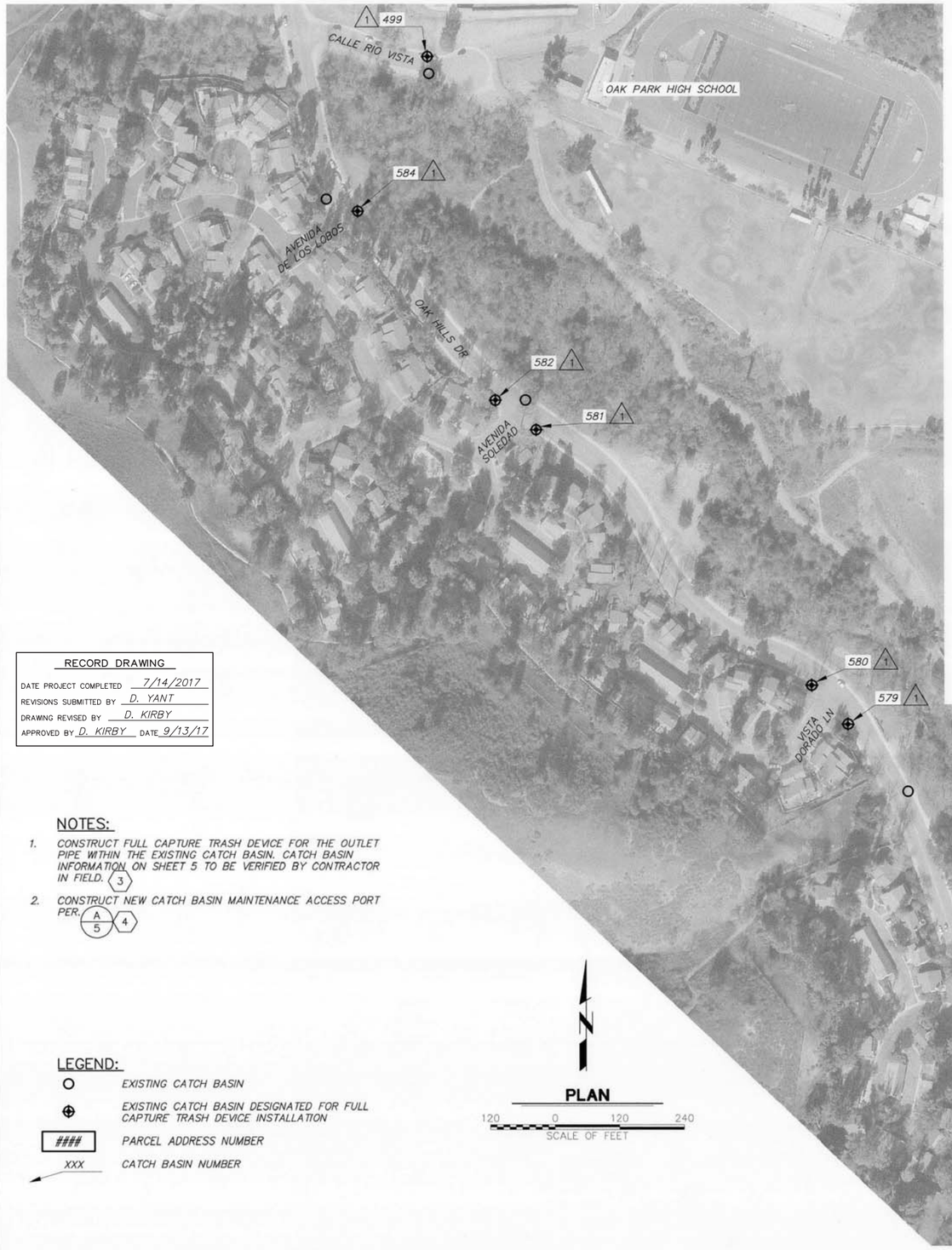
COUNTY OF VENTURA
PUBLIC WORKS AGENCY
WATERSHED PROTECTION DISTRICT

SPEC. NO. WP17-14(N)
PROJ. NO. 40530

FULL CAPTURE TRASH DEVICES

VENTURA RIVER WATERSHED

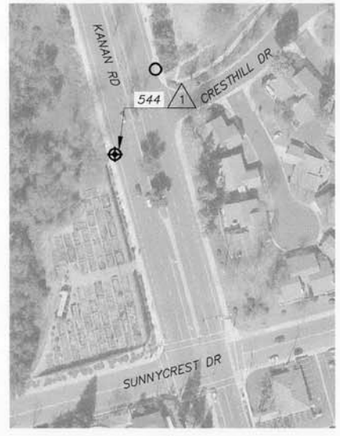
SHEET 2 OF 5
DRAWING NO. Y-4-093

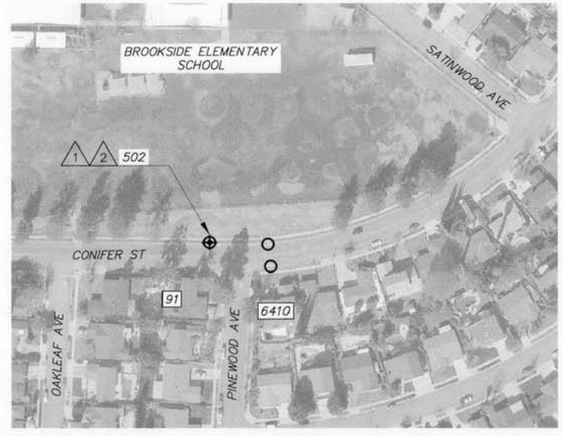


N

PLAN

120 0 120 240
SCALE OF FEET





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PLAN

120 0 120 240
SCALE OF FEET

N

PLAN

120 0 120 240
SCALE OF FEET

RECORD DRAWING

DATE PROJECT COMPLETED 7/14/2017
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NOTES:

1. CONSTRUCT FULL CAPTURE TRASH DEVICE FOR THE OUTLET PIPE WITHIN THE EXISTING CATCH BASIN. CATCH BASIN INFORMATION ON SHEET 5 TO BE VERIFIED BY CONTRACTOR IN FIELD. (3)
2. CONSTRUCT NEW CATCH BASIN MAINTENANCE ACCESS PORT PER. (A-5) (4)

LEGEND:

- ○ EXISTING CATCH BASIN
- ⊕ EXISTING CATCH BASIN DESIGNATED FOR FULL CAPTURE TRASH DEVICE INSTALLATION
- #### PARCEL ADDRESS NUMBER
- XXX CATCH BASIN NUMBER

N

PLAN

120 0 120 240
SCALE OF FEET

REGISTERED PROFESSIONAL ENGINEER
DAVID C. KIRBY
No. 79085
Exp. 3/31/18
CIVIL
STATE OF CALIFORNIA

PLOT DATE 4/12/17

SAVE DATE 4/6/17 MACHARIA, ROBERT K:\PROGRAMS\COUNTYSTORMWATERPROGRAM\040530_MCW_CPS\DESIGN\DESIGNDRAWINGS\90_PERCENT_PLANS\SHT_03.DWG

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DK DESIGNED
DK,AR,RM DRAWN
SDR CHECKED

DISTRICT PROJECT MANAGER — DATE 4/12/17
DEPUTY DIRECTOR — DATE 4/12/17
DISTRICT DIRECTOR — DATE 4/13/17

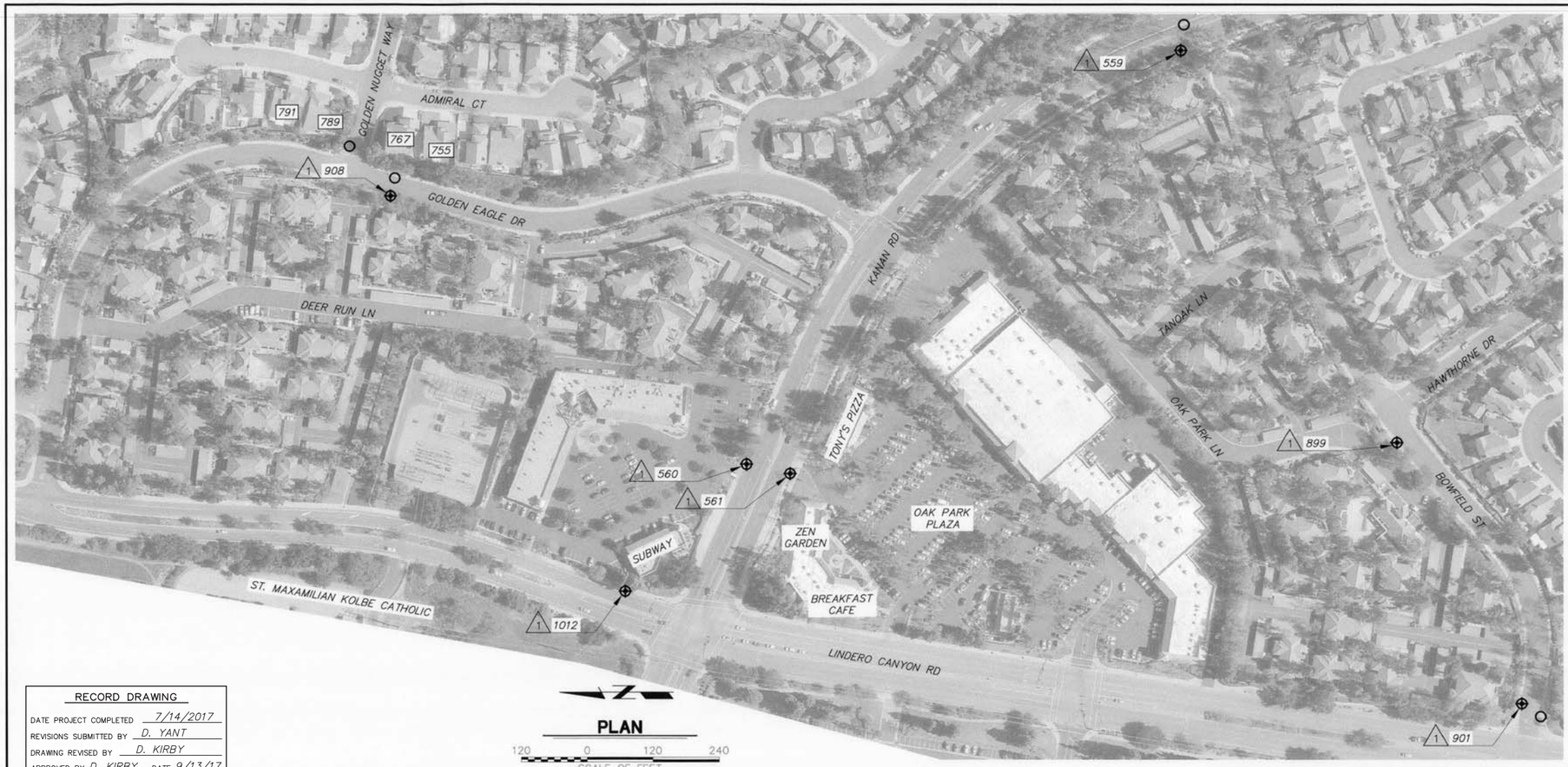
COUNTY OF VENTURA
PUBLIC WORKS AGENCY
WATERSHED PROTECTION DISTRICT

SPEC. NO. WP17-14(N)
PROJ. NO. 40530

FULL CAPTURE TRASH DEVICES

MALIBU CREEK WATERSHED – EAST

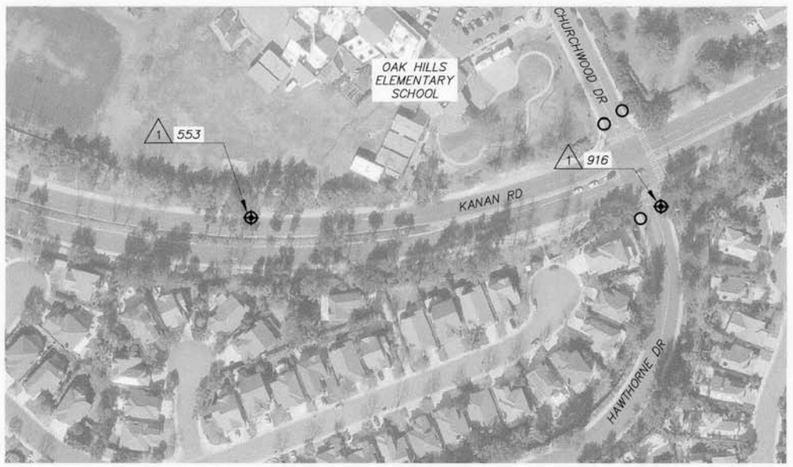
SHEET 3 OF 5
DRAWING NO. Y-4-094



PLAN

120 0 120 240

SCALE OF FEET



PLAN

120 0 120 240

SCALE OF FEET

PLAN

120 0 120 240

SCALE OF FEET

NOTES:

1. CONSTRUCT FULL CAPTURE TRASH DEVICE FOR THE OUTLET PIPE WITHIN THE EXISTING CATCH BASIN. CATCH BASIN INFORMATION ON SHEET 5 TO BE VERIFIED BY CONTRACTOR IN FIELD. (3)

LEGEND:

- EXISTING CATCH BASIN
- EXISTING CATCH BASIN DESIGNATED FOR FULL CAPTURE TRASH DEVICE INSTALLATION
- #### PARCEL ADDRESS NUMBER
- XXX CATCH BASIN NUMBER

RECORD DRAWING

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APPROVED BY D. KIRBY DATE 9/13/17

REGISTERED PROFESSIONAL ENGINEER
DAVID C. KIRBY
No. 79085
Exp. 3/31/18
CIVIL
STATE OF CALIFORNIA

PLOT DATE: 4/12/17

SAVE DATE: 4/6/17 MACHARIA, ROBERT K:\PROGRAMS\COUNTYSTORMWATERPROGRAM\040530_MCW_CPS\DESIGN\DESIGNDRAWINGS\90_PERCENT_PLANS\SHT_04.DWG

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DK,AR,RM DRAWN
SDR CHECKED

DISTRICT PROJECT MANAGER 4/12/17 DATE
DEPUTY DIRECTOR 4/12/17 DATE
DISTRICT DIRECTOR 4/13/17 DATE

COUNTY OF VENTURA
PUBLIC WORKS AGENCY
WATERSHED PROTECTION DISTRICT

SPEC. NO. WP17-14(N)
PROJ. NO. 40530

FULL CAPTURE TRASH DEVICES

MALIBU CREEK WATERSHED – WEST

SHEET 4 OF 5
DRAWING NO. Y-4-095

FULL CAPTURE TRASH DEVICES

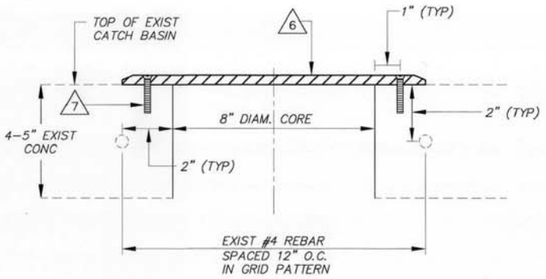
	1 DEVICE NO.	CATCH BASIN INFO 2 LENGTH	WIDTH	DEPTH	3 OUTLET PIPE	4 ACCESS TYPE	5 Q (CFS)
SHEET 2	321	4'–0"	3'–6"	4'–10"	36"	LID (SQUARE)	0.59
	323	4'–0"	4'–0"	4'–0"	22"	MANHOLE	1.49
	1010	4'–6"	4'–6"	3'–6"	48"X36" RCB	MANHOLE	0.47
SHEET 3	499	3'–6"	3'–0"	3'–9"	18"	MANHOLE	0.55
	502	20'–0"	3'–0"	3'–6"	18"	MANHOLE	0.81
	527	10'–0"	3'–0"	5'–9"	24"	MANHOLE	0.51
	528	7'–0"	3'–0"	8'–0"	18"	MANHOLE	0.11
	529	10'–0"	3'–0"	6'–3"	18"	MANHOLE	0.24
	530	10'–0"	3'–0"	3'–6"	18"	MANHOLE	1.12
	535	7'–0"	3'–0"	6'–0"	18"	MANHOLE	0.37
	537	10'–0"	3'–0"	4'–6"	18"	MANHOLE	0.20
	539	20'–0"	3'–0"	4'–0"	18"	MANHOLE	0.76
	544	20'–0"	3'–0"	4'–6"	24"	MANHOLE	1.30
	547	3'–0"	1'–6"	3'–0"	18"	GRATE	0.16
	549	7'–0"	3'–0"	6'–0"	24"	MANHOLE	0.72
	551	10'–0"	3'–0"	8'–0"	18"	MANHOLE	0.87
	570	3'–0"	3'–0"	4'–0"	18"	MANHOLE	0.77
	579	3'–0"	3'–0"	4'–0"	18"	MANHOLE	0.22
	580	3'–0"	3'–0"	3'–6"	18"	MANHOLE	0.40
	581	3'–0"	3'–0"	3'–0"	18"	MANHOLE	0.29
	582	3'–0"	3'–0"	4'–3"	18"	MANHOLE	0.28
	584	3'–0"	3'–0"	5'–6"	30"	MANHOLE	0.17
	587	3'–0"	3'–0"	4'–0"	18"	MANHOLE	0.48
A	~~1011~~	~~7'–0"~~	~~3'–0"~~	~~5'–6"~~	~~18"~~	~~MANHOLE~~	~~2.18~~
	315	6'–0"	2'–6"	5'–10"	24"	MANHOLE	4.85

FULL CAPTURE TRASH DEVICES

	1 DEVICE NO.	CATCH BASIN INFO 2 LENGTH	WIDTH	DEPTH	3 OUTLET PIPE	4 ACCESS TYPE	5 Q (CFS)
SHEET 4	553	14'–0"	3'–0"	3'–0"	18"	MANHOLE	0.22
	559	3'–0"	3'–0"	9'–0"	21"	MANHOLE	0.26
	560	3'–0"	3'–0"	3'–0"	18"	MANHOLE	1.00
	561	3'–0"	3'–0"	4'–9"	18"	MANHOLE	0.46
	713	3'–0"	3'–0"	4'–0"	18"	MANHOLE	0.18
	714	7'–0"	3'–0"	4'–0"	18"	MANHOLE	0.12
	716	3'–0"	3'–0"	9'–6"	18"	MANHOLE	0.17
	719	14'–0"	3'–0"	10'–0"	24"	MANHOLE	0.39
	899	3'–0"	3'–0"	4'–0"	21"	MANHOLE	0.31
	901	3'–6"	3'–0"	9'–0"	24"	MANHOLE	0.23
	908	3'–0"	3'–0"	4'–9"	18"	MANHOLE	0.35
	916	14'–0"	3'–0"	6'–6"	24"	MANHOLE	0.22
	937	14'–0"	3'–0"	6'–0"	24"	MANHOLE	0.91
	1012	3'–0"	3'–0"	9'–0"	21"	MANHOLE	1.41

NOTES:

1. FULL CAPTURE TRASH DEVICES SHALL BE OF UNITED STORM WATER, INC. MANUFACTURE UNLESS OTHERWISE APPROVED. CONFIGURATIONS SHALL BE CHOSEN TO AVOID MAINTENANCE ACCESS AND EXISTING IMPROVEMENT IMPACTS.
2. CATCH BASIN INFORMATION TO BE VERIFIED BY CONTRACTOR. MANY DEVICES WILL REQUIRE CUSTOM BOTTOM EXTENSIONS TO FIT NON–UNIFORM CATCH BASIN FLOORS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY, MEASURE, AND CONSTRUCT EXTENSIONS.
3. CONTRACTOR TO VERIFY OUTLET PIPE LOCATION AND SIZE WITHIN EXISTING CATCH BASINS. IF OUTLET PIPE IS LOCATED DIRECTLY BELOW CURB OR GRATE INLET, A DEFLECTOR LID SHALL BE CONSTRUCTED. OVERFLOW CLEARANCE BENEATH THE DEFLECTOR LID MUST BE AT LEAST 10 INCHES UNLESS OTHERWISE APPROVED.
4. MANHOLE OR GRATE LIDS MAY BE HEX–BOLTED OR RUSTED. THE CONTRACTOR SHALL TAKE CARE IN GAINING ACCESS AND REPAIR OR REPLACE PARTS DAMAGED ACCORDINGLY.
5. DESIGN FLOW SIZING OF THE FULL CAPTURE TRASH DEVICE BASED ON THE TRIBUTARY DRAINAGE AREA PER SPECIFICATIONS.
6. MAINTENANCE ACCESS PORT LID AND TAMPER PROOF SCREWS (2 PER LID) PROVIDED BY AGENCY PER SPECIFICATIONS.
7. CONTRACTOR TO PROVIDE AND INSTALL THREADED CONCRETE DROP IN ANCHORS (2 PER LID) PER SPECIFICATIONS.
8. CONSTRUCT FULL CAPTURE TRASH DEVICE FOR THE OUTLET PIPE WITHIN THE EXISTING CATCH BASIN. (3)
9. CONSTRUCT NEW CATCH BASIN MAINTENANCE ACCESS PORT PER DETAIL AND SCHEMATIC HEREON. (4)



NOTE: EXISTING CONCRETE THICKNESS, REBAR SPACING AND CLEARANCES PER STANDARD DRAWINGS. PRIOR TO CORING, LOCATION OF MAINTENANCE ACCESS PORT BASED ON FIELD VERIFICATION OF EXISTING REBAR PER SPECIFICATIONS MUST BE APPROVED BY ENGINEER.

SCHEMATIC

SCALE: 1"=1/2'

QUANTITIES

DESCRIPTION	SHEET 2	SHEET 3	SHEET 4	TOTAL
REMOVE AND DISPOSE OF EXISTING DAMAGED SEMI–CIRCULAR FULL CAPTURE TRASH DEVICE (3)	3	–	–	3
CONSTRUCT FULL CAPTURE TRASH DEVICE FOR THE OUTLET PIPE WITHIN THE EXISTING CATCH BASIN (3)	4	21	14	39
CONSTRUCT NEW CATCH BASIN MAINTENANCE ACCESS PORT (4)	4	4	–	8

RECORD DRAWING

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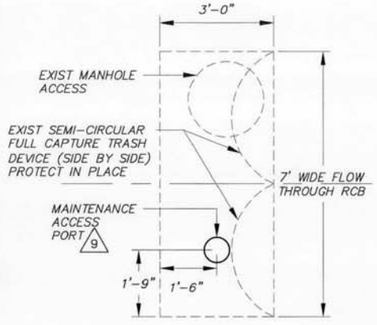

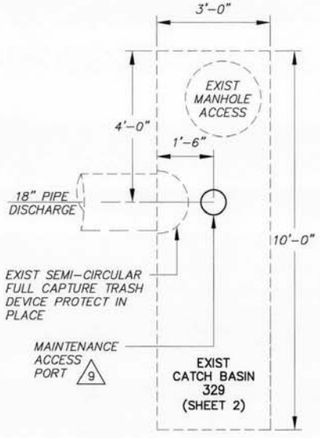

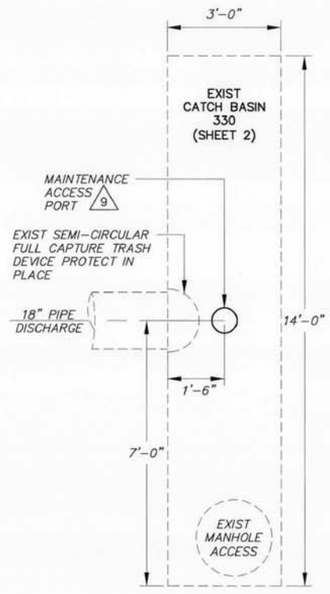

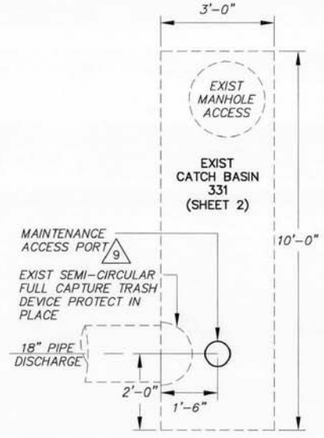

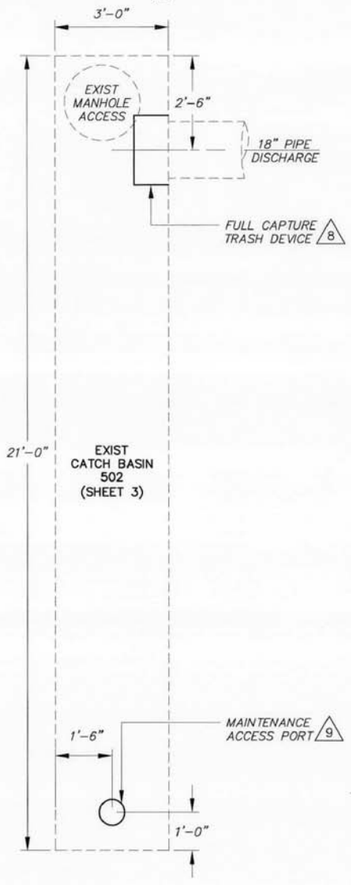

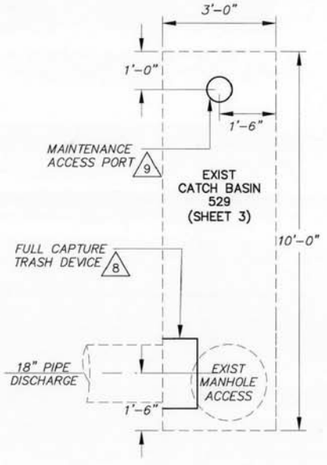

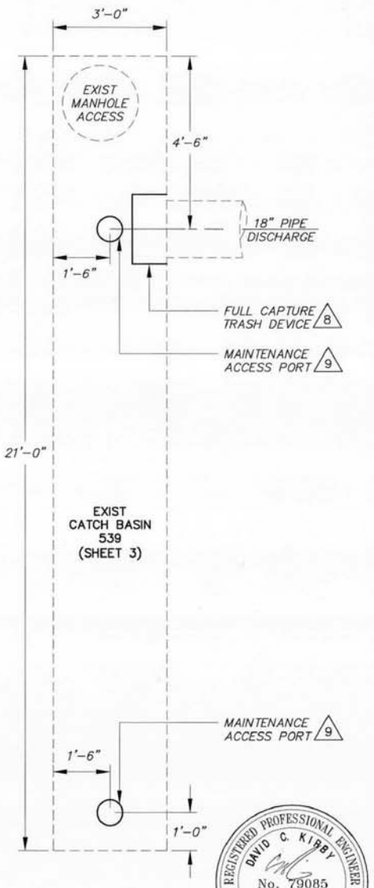

MAINTENANCE ACCESS PORT DETAIL (A–3–4)

SCALE: 1" = 2'

REGISTERED PROFESSIONAL ENGINEER DAVID C. KIRBY No. 79085 Exp. 3/31/18 CIVIL STATE OF CALIFORNIA

PLOT DATE: 4/6/17

SAVE DATE: 4/6/17 RAMIREZ, ALEJANDRO K:\PROGRAMS\COUNTYSTORMWATERPROGRAM\040530_MCW_CPS\DESIGN\DESIGNDRAWINGS\90_PERCENT_PLANS\SHT_05.DWG

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SDR CHECKED

DISTRICT PROJECT MANAGER 4/2/17 DATE
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COUNTY OF VENTURA
PUBLIC WORKS AGENCY
WATERSHED PROTECTION DISTRICT

SPEC. NO. WP17–14(N)
PROJ. NO. 40530

FULL CAPTURE TRASH DEVICES
TABLES AND DETAILS

SHEET 5 OF 5
DRAWING NO. Y–4–096