ASBS SPECIAL PROTECTIONS

DRAFT COMPLIANCE PLAN

for the

CITY OF CARMEL-BY-THE-SEA

September 15, 2014

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Background

This Compliance Plan is intended to fulfill the requirements contained in Section I.A.2 of the SWRCB's *Special Protections for Areas of Special Biological Significance, Governing Point Source Discharges of Storm Water and Nonpoint Source Waste Discharges*, (hereinafter referred to simply as the "Special Protections"). The City uses its *Guidance Document* based on the *Monterey Regional Storm Water Management Program* (MRSWMP) as its Storm Water Management Program to comply with its MS4 NPDES Permit that authorizes and governs the discharges from its storm drainage system. Certain of the activities required under the Compliance Plan are carried out by the City under its Storm Water Management Program.

The City's plans to comply with each required element of the Compliance Plan are described below.

Required Elements of the Compliance Plan

a. **Mapping Section.**
Required content: This element must show and describe:
- Areas of sheet runoff.
- Prioritized discharges, i.e. those that pose the greatest water quality threat and which may need to have structural BMPs installed on them to achieve compliance.
- Descriptions of any structural BMPs already employed and/or BMPs to be employed in the future.
- Storm water conveyances in relation to other features such as service areas, sewage conveyances and treatment facilities, landslides, areas prone to erosion and waste and hazardous material storage areas, if applicable.
- A procedure for updating the map and plan when changes are made to the storm water conveyance facilities.

Compliance Plan:
- **Areas of Sheet Runoff**. There are no areas of sheet runoff within the City. All runoff flows into the City's storm drainage system which is shown on the map in Attachment 1.
- **Prioritized Discharges**. All but one of the City's storm drain outfalls discharge into the Carmel Bay ASBS. The one outfall that does not discharge to this ASBS is the one that discharges into the Carmel River (Outfall C-11 in the map in Attachment 1). Of the outfalls which discharge to the ASBS there are two principle ones which have the largest drainage areas and which include both commercial and residential land uses within their drainage areas. These are Outfalls C-1 and C-2, both shown on the map in Attachment 1. Because these are the outfalls that have the highest volumes of discharge, and because they drain the City's commercial area (central business district), they are considered to have the greatest potential to affect water quality in the ASBS.
- **Structural BMPs.** The only structural BMPs currently installed in the City are the Continuous Deflection Separation (CDS) units on Outfalls C-1, C-2, C-3, and C-11. CDS units screen, separate, and trap debris, sediment, and oil and grease from stormwater runoff. A drawing showing a typical CDS unit is contained in Attachment

2. Future additional structural BMPs that may be needed to achieve compliance cannot be determined until the Receiving Water and Reference Station monitoring has been performed in order to see if any such additional BMPs will be needed.

- **Storm Water Conveyances.** The City's storm drainage piping and open channel storm water conveyances are located within the paved public right-of-way, or in public utility corridors located in or adjacent to private property parcels, as shown on the map in Attachment 1. Throughout the City these pipelines parallel or cross sanitary sewer pipelines which are owed and operated by the Carmel Area Wastewater District (CAWD). They are not located in the vicinity of the CAWD wastewater treatment facility which is located to the south of the City and outside of the City limits. The storm water facilities are located within the drainage area (service area) that is tributary to the outfall from which runoff from these areas is discharged. The City is largely built-out, and improvements on both public and private property include structures and other measures to prevent erosion. There are no areas within the City that flow into the City's storm drainage system and which are prone to either landslides or erosion. The only hazardous material storage areas are those at the City's Public Works Corporation Yard, located on Junipero Avenue between 4th and 5th Avenues. This facility is inspected annually by the County of Monterey Department of Public Health, Division of Environmental Health, to ensure that all hazardous materials are properly stored and managed, and that no discharge of such materials to the City's storm drainage system is occurring. There are no waste storage areas within the City, other than small localized refuse collection areas at businesses located in the City's commercial area.
- **Map Updating.** The City's storm drainage map is updated as necessary to reflect any changes or additions that have been made to it. These updates to the map are included in the City's Annual Report required under its MS4 NPDES Permit.

b. **Dry Weather Discharge Description Section.**

Required content: This element must show and describe:

- The measures by which all non-authorized non-storm water runoff (e.g., dry weather flows) have been eliminated
- How these measures will be maintained over time, and
- How these measures will be monitored and documented.

Compliance Plan:

- **Elimination of Dry Weather Discharges.** The City was awarded a Proposition 84 ASBS Grant to plan, design, and construct a Dry Weather Diversion Project to enable it to comply with the Special Protections requirement that there be no dry weather flows discharged from its storm drainage system and into the Carmel Bay ASBS. The planning phase of this Project began in mid-2011 and construction of the Project will be completed in midsummer of 2014. The following is a brief overview of this Project:

    - Runoff that flows into catch basins and would normally be discharged from the outfalls during non-rainfall periods will instead be captured by plugging the inlets to the outfall pipes and retaining the runoff water within the catch basins immediately upstream of the outfalls. This captured storm water will then be disposed of using a combination of the following two approaches:

(1) For outfalls having very small dry weather flows, portable vacuum or pumping equipment will be used to periodically remove captured water from these catch basins. This water will be trucked to the City's Corporation Yard where it will be discharged into the sanitary sewer connection at that location.
(2) For outfalls having higher dry weather flows, water captured in these drainage structures will be diverted through a gravity flow pipeline for subsurface disposal in a nearby landscaped area.

- Runoff that flows into curbface inlets where no catch basins exist will be captured and percolated in small open-bottom catch basins installed in front of these curbface inlets. These small open-bottom catch basins will only operate during the dry weather period, and will be covered over by plates during the wet weather period.

A detailed description of the facilities that are being installed under this Project is contained in Attachment 3.

- **Maintenance, Monitoring, and Documentation of Dry Weather Diversion Facilities.** A detailed set of Standard Operating Procedures has been prepared governing the operation, maintenance, monitoring, and documentation of the dry weather diversion facilities. These are contained in Attachment 4.

c. **Inspection Section.**

Required content: This element must ensure that business and construction site inspections are performed at the following minimum inspection frequencies:

- The minimum inspection frequency for construction sites shall be weekly during the rainy season;
- The minimum inspection frequency for industrial facilities shall be monthly during the rainy season;
- The minimum inspection frequency for commercial facilities (e.g., restaurants) shall be twice during the rainy season; and
- Storm water outfall drains equal to or greater than 18 inches (457 mm) in diameter or width shall be inspected once prior to the beginning of the rainy season and once during the rainy season and maintained to remove trash and other anthropogenic debris.

Compliance Plan:

The City's inspection schedules under its Storm Water Management Program will be revised to comply with these minimum inspection frequencies. The results of these inspections will be included in the City's Storm Water Program Annual Report that is required under that NPDES Permit.

d. **Wet Weather Discharge Description Section.**

Required content: This element must address storm water discharges (wet weather flows) and, in particular, describe how pollutant reductions in storm water runoff that are necessary to comply with the Special Protections will be achieved through BMPs.

Compliance Plan:

Pollutant reductions will only be necessary if the monitoring required under Section IV *Monitoring Requirements* of the Special Protections shows that the City's storm water discharges are altering natural ocean water quality in the Carmel Bay ASBS. Specifically, as set forth in Section I.A.3.e, if the initial results of post-storm receiving water quality testing indicate levels higher than the 85th percentile threshold of reference water quality data and the pre-storm receiving water levels, then the City must re-sample the receiving water, pre- and post-storm. If, after re-sampling, the post-storm levels are still higher than the 85th percentile threshold of reference water quality data and the pre-storm receiving water levels, for any constituent, then natural ocean water quality is being exceeded. If this occurs, the City must comply with section I.A.2.h. Determining compliance with this natural water quality requirement is illustrated in Attachment 1 to the Special Protections, and is contained in Attachment 5.

The City has already implemented a number of non-structural BMPs including public education, source control, and good municipal housekeeping practices as part of its Storm Water Management Program. The City has also installed structural BMPs consisting of CDS units upstream of its largest outfalls. As discussed in the Monitoring Program Report prepared by the *Monterey Regional Areas of Special Biological Significance Dischargers Monitoring Program* to fulfill the requirements of Section IV of the Special Protections, preliminary (Year 1) monitoring performed during the winter season of 2013-2014 indicates that for certain parameters the City's discharge may exceed some of the Natural Water Quality levels established by the Reference Sites used in that monitoring program. However, as also discussed in the Monitoring Program Report, there were problems with data quality and reliability for some of these parameters, and there were also gaps in the data making it difficult or impossible to compare receiving water quality with discharge water quality. Thus, the preliminary monitoring results were incomplete and therefore could not be used for decision-making with regard to the need for, or types of, additional structural BMPs that might be necessary in order for the City to comply with the Natural Water Quality requirements. Year 2 monitoring data will be necessary in order to make those determinations.

If it is found that the City's discharges are causing an exceedance of natural water quality, then the City will address this by preparing and submitting a report as required by Section I.A.2.h of the Special Protections. It is anticipated that the approach the City will propose taking will generally be as described in Attachment 7.

e. **Erosion Control Section.**

Required content: This element shall address erosion control and the prevention of anthropogenic sedimentation in ASBS, such that natural habitat conditions in the ASBS are not altered by anthropogenic sedimentation caused by discharges from the City's storm drainage system.

Compliance Plan:

The CDS units installed on the City's largest discharges to the ASBS (Outfall C-1 at the end of 4th Avenue and Outfall C-2 at the end of Ocean Avenue, and Outfall C-3 at the end of 8th Avenue) were installed for the purpose of removing trash and sediment from these discharges. Discharges from the City's other outfalls to the ASBS are much smaller in volume and do not contain high amounts of sediment. The City therefore believes that the Biological and Bioaccumulation Monitoring components of the *Monterey Regional Areas of Special Biological Significance Dischargers Monitoring Program* will show that sediment from the discharges is not altering natural habitat conditions.

If it is found that sediments contained in the City's discharges are altering natural habitat conditions, the City will address this by preparing and submitting a report evaluating this and describing BMPs the City will implement to remedy this situation.

f. **BMPs Section.**

Required content: This element must describe the non-structural BMPs currently employed and planned in the future (including those for construction activities), and include an implementation schedule. Public education and outreach must be one of the non-structural BMPs, and these must adequately inform the public that direct discharges of pollutants from private property not entering the City's storm drainage system are prohibited.

This element must also describe the structural BMPs, including any low impact development (LID) measures, currently employed and planned for higher threat discharges and include an implementation schedule. To control storm water runoff discharges (at the end-of-pipe) during a design storm, permittees must first consider, and where feasible use, LID practices to infiltrate, use, or evapotranspire storm water runoff on-site, if LID practices would be the most effective at reducing pollutants from entering the ASBS.

Compliance Plan:

Non-Structural BMPs

Public Education and Outreach:

The City is a Participating Entity in the Monterey Regional Storm Water Management Program (MRSWMP). Public Education and Public Outreach Programs are carried out under Sections E.7 and E.8 of the NPDES Permit Requirements of the MRSWMP.

The existing Public Education BMPs which the City is carrying out under Section E.7 are intended to increase public awareness of what constitutes poor stewardship of storm water as a resource. The Public Education Plan focuses on topics such as reducing pollution from lawn and gardening activities, improper disposal of household hazardous wastes, illegal disposal activities, pet wastes, improper handling and disposal of trash, restaurant activities, and automotive activities.

The existing Public Outreach BMPs which the City is carrying out under Section E.8 provide opportunities for public hands-on involvement in a variety of activities to

increase public awareness of what constitutes poor stewardship of storm water as a resource, and to increase public actions such as reporting of problems to authorities.

Details of the Public Education and Public Outreach activities carried out each year are included in the MRSWMP Annual Reports, which can be viewed and downloaded at www.montereysea.org, under the Program Documents tab. An overview of the Program is contained in Attachment 6. In addition to these activities the City has been conducting its own focused public education and outreach to reduce storm water pollution from pet waste. This has included adding signs at its "Mutt Mitt" dispensers reminding people to properly dispose of pet waste that they can picked up and put into Mutt Mitts, rather than leaving the bags of pet waste along the walkways, and by articles in the local news media on this same topic.

Construction Activities:
At the time of preparation of this Compliance Plan the City was still finalizing its Guidance Document for compliance with the new MS4 General Permit adopted by the SWRCB in 2013. However, it is expected that the City will continue to implement the following types of Construction BMPs that it was carrying out under MCM No. 4 of the MRSWMP. The following is a listing of the MCM No. 4 BMPs which the City is currently carrying out:

BMP 4-1.a: The City has adopted storm water ordinances containing specific requirements pertaining to storm water pollution prevention from construction activities.

BMP 4-2.a: The City has trained appropriate staff on the "Guidance Document for Policies and Procedures pertaining to Construction Sites" and "Construction Site Plan Review and Inspection procedures" contained in the MRSWMP.

BMP 4-2.b: The City uses the "Construction Sites BMPs", the "Guidance Document for Policies and Procedures pertaining to Construction Sites", and the "Construction Site Plan Review and Inspection Procedures" contained in the MRSWMP, or as subsequently updated, when reviewing construction site plans.

BMP 4-3.a: The City has trained appropriate staff on the construction site inspection procedures contained in the MRSWMP.

BMP 4-3.b: The City uses the "Guidance Document for Policies and Procedures pertaining to Construction Sites" and the "Construction Site Plan Review and Inspection Procedures" contained in the MRSWMP, or as subsequently updated, to inspect construction sites subject to the storm water ordinance and takes appropriate enforcement action to have any observed violations corrected.

BMP 4-3.c: The City has a representative attend an annual meeting of construction inspectors from all of the MRSWMP participating entities prior to

the start of rainy season to discuss and share ideas regarding construction site BMPs.

BMP 4-4.a: The City uses the procedures in the "Protocol for Responding to Reports of Illegal Discharges and Illicit Connections" in the MRSWMP to facilitate the receipt of, and the response to, reports from the public of storm water pollution from construction sites.

BMP 4-4.b: Through its participation in the MRSWMP City assists with regional sponsorship of, and/or presents, educational programs regarding prevention of storm water pollution from construction sites at construction contractor meetings, workshops, or seminars. These programs cover one or more of the four guiding principles for controlling runoff from construction sites:

- Construction site planning
- Minimization of soil movement
- Capturing of Sediment
- Good housekeeping practices

At these presentations handouts are distributed providing participants with information on resources for construction site BMPs and where to access construction site permitting procedures.

New Development and Redevelopment Projects:
At the time of preparation of this Compliance Plan the City was still finalizing its Guidance Document for compliance with the new MS4 General Permit adopted by the SWRCB in 2013. However, it is expected that the City will continue to implement the following types of Storm water pollution prevention BMPs pertaining to New Development and Redevelopment Projects that it was carrying out under MCM No. 5 of the MRSWMP. The following is a listing of the MCM No. 5 BMPs which the City is currently carrying out:

BMP 5-1.a: The City has adopted storm water ordinances containing specific design and post-construction requirements pertaining to storm water pollution prevention from new development and redevelopment projects.

BMP 5-2.a: The City has trained appropriate staff on the "Development Projects Plan Review and Inspection Procedures" contained in the MRSWMP.

BMP 5-2.b: The City uses the "Development Projects Plan Review and Inspection Procedures" contained in the MRSWMP, or as subsequently updated, to review 100% of project plans subject to the post-construction requirements of the City's storm water ordinance for compliance with the ordinance requirements pertaining to design and construction of new development and redevelopment projects..

BMP 5-3.a: The City uses the "Post-Construction BMPs for New Development and Redevelopment" and the "Post-Construction Site Inspection Checklist" contained in the MRSWMP to inspect projects and/or require self-certification by owners following completion of construction.

BMP 5-3.b: The City uses the "Protocol for taking action against violators of the municipal storm water ordinance" in the MRSWMP to enforce post-construction compliance with the City's storm water ordinance.

BMP 5-4.a: The City conducted an analysis of all of its applicable codes, regulations, standards, and/or specifications to determine if any modifications needed to be made to fulfill the post-construction requirements set forth in the MRSWMP. Following this analysis the City adopted additional requirements in the form of the *BMP Guidance Series* for Construction activities contained in the MRSWMP, and prepared and adopted its own *Low Impact Development (LID) Guidance Manual*. These are updated from time-to-time as the RWQCB develops additional requirements, and are posted on the City's website.

BMP 5-4.b: The City's analysis found that it did not have to modify any of its existing enforceable mechanisms to eliminate regulatory conflicts and provide effective implementation of hydromodification and LID in new and redevelopment projects.

BMP 5-4.c: The City has implemented hydromodification controls and LID for all applicable new and redevelopment projects.

BMP 5-5.a: The City has developed hydromodification control criteria which are applied to applicable new development and redevelopment projects within its jurisdiction.

BMP 5-6.a: The City has selected Applicability Thresholds for application of hydromodification control criteria

BMP 5-7.a: The City has made LID BMP Design Guidance available for all stakeholders.

BMP 5-7.b: The City has developed guidance for achieving compliance with hydromodification control criteria and LID requirements for use by project applicants.

BMP 5-7.c: The City has provided appropriate education and outreach for all applicable target audiences, including specific guidance for LID BMP design and compliance with hydromodification control criteria.

BMP 5-7.d: The City has created and maintains tracking reports indicating education and outreach program activities addressing LID and hydromodification control implementation.

BMP 5-7e: The City has implemented procedures for the permit application review process to ensure that LID practices are applied to 100% of all applicable new development and redevelopment projects.

BMP 5-7.f: The City has developed and maintains tracking reports for use during the permit application review process listing the LID design principles and features that are incorporated into each applicable new development and redevelopment project.

Structural BMPs

New Development and Redevelopment Projects:

The City requires that structural BMPs, including LID measures, be included in the design and post-construction operation of applicable new development and redevelopment projects. These requirements are contained in the City's *LID Guidance Manual* mentioned above, which is enforceable under the City's ordinances.

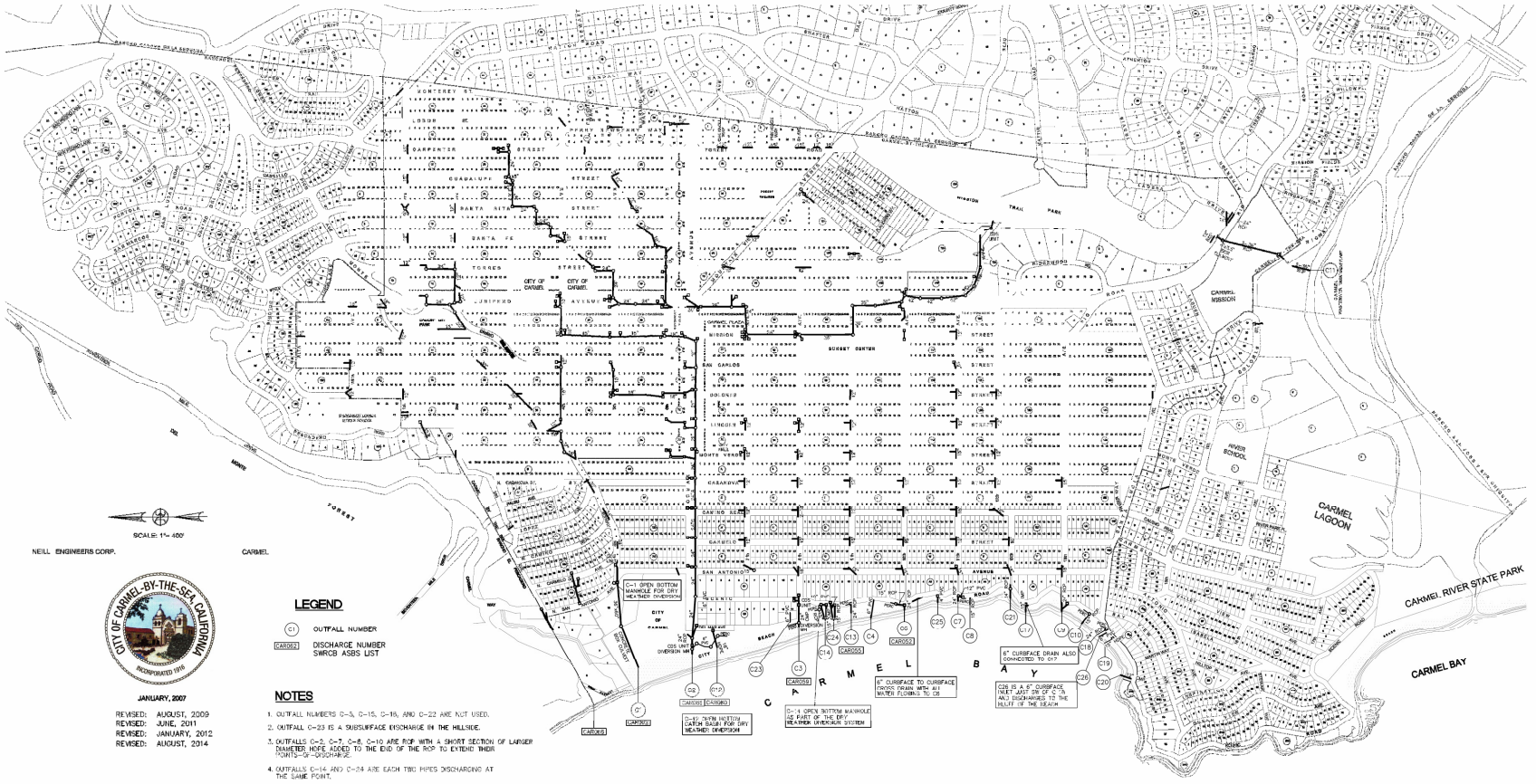
Implementation Schedule

Since all of the BMPs described in this Section of the Compliance Plan are already being implemented, no Implementation Schedule is needed for them. As discussed above under the Wet Weather Discharge Description Section, the need for any additional structural BMPs to comply with the Special Protections will only be known after the monitoring work being conducted under the *Monterey Regional Areas of Special Biological Significance Dischargers Monitoring Program* has been completed. If any additional structural BMPs are needed, an Implementation Schedule for them will be prepared at that time.

ATTACHMENT 1

STORM DRAINAGE SYSTEM MAP

CITY OF CARMEL-BY-THE-SEA
DRAINAGE SYSTEM - EXISTING FACILITIES



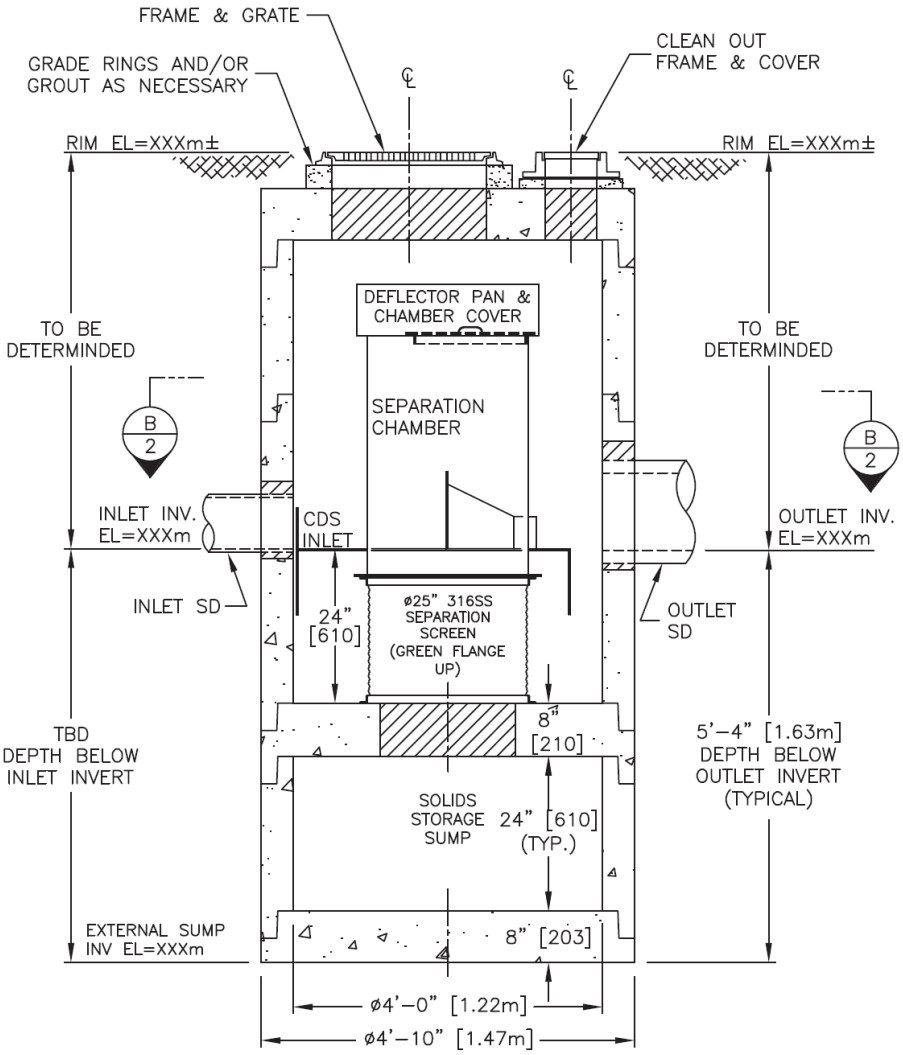
ATTACHMENT 2

CONTINUOUS DEFLECTION SEPARATION (CDS) UNIT

SECTION A–A

TYPICAL / GENERIC INSTALLATION

ELEVATION VIEW



NOTES:

1. OVERSIZED CORES ARE PROVIDED TO ACCOUNT FOR DIFFERENT PIPEWALL THICKNESSES–ENSURE SUFFICIENT EXCAVATION DEPTH TO ATTAIN INDICATED (EXTERNAL) SUMP INVERT ELEVATION.
2. FOR PROPER INSTALLATION, GREEN FLANGE ON SCREEN FACES UP & FASTENS TO FIBERGLASS CYLINDER FLANGE; RED FLANGE FASTENS TO SEPARATION SLAB WITH PROVIDED ANCHOR BOLTS.

CDS MODEL PMIU20_15
STORMWATER TREATMENT UNIT

CDS™ TECHNOLOGIES PATENTED	PROJECT NAME	DATE –	SCALE 1"=2'
		DRAWN –	SHEET 3
		APPROV. –	

ATTACHMENT 3

DESCRIPTION OF DRY WEATHER DIVERSION PROJECT FACILITIES

The ASBS Dry Weather Diversion facilities consist of:

1. **Aluminum Bulkheads**. These are installed in certain catch basins at the beginning of the dry weather period (nominally around May 1 of each year but this date will be later if rainfall later than May 1 is forecast) and removed at the beginning of the wet weather period (October 1 of each year). Each bulkhead consists of two pieces, one piece being the frame that is permanently installed on the wall of the catch basin from which the outfall pipe exits, and the other piece is the plate that bolts to this frame. These bulkheads are installed at the following 14 locations:

Outfall No.	Catch Basin Location
C-6	Scenic Road @ 10th Avenue
C-7	Scenic Road @11th Avenue
C-9 North	Scenic Road @13th Avenue
C-9 South	Scenic Road @13th Avenue
C-10	Scenic Road northwest of Santa Lucia Avenue
C-13	Scenic Road @ 9th Avenue
C-14 South	Scenic Road between 8th and 9th Avenues
C-14 North	Scenic Road between 8th and 9th Avenues
C-17	Scenic Road between 12th and 13th Avenues
C-18 East	Scenic Road southwest of Santa Lucia Avenue
C-18 West	Scenic Road southwest of Santa Lucia Avenue
C-19	Scenic Road southwest of Santa Lucia Avenue
C-21	Scenic Road @12th Avenue
C-24 West	Scenic Road between 8th and 9th Avenues

Notes:

1. "North" and "South" indicate there are two catch basins at this location, "North" being the northerly of the two, and "South" being the southerly of the two.
2. "East" and "West" indicate there are two catch basins at this location, "East" being the one on the east side of Scenic Road and "West" being the one on the west side of Scenic Road.

2. **Small Open-Bottom Catch Basins**. These are installed in front of certain curbface inlets. A metal plate covering the catch basin is removed at the beginning of the dry weather period and is replaced with a grate. At the end of the dry weather period the grate is removed and the cover plate is reinstalled. Removing the plate allows the small amounts of dry weather flow to percolate into the ground and not flow out the outfalls. Reinstalling the plate prevents the gravel in the bottom of the catch basin from becoming plugged by sediment during the wet weather period. These open-bottom catch basins are installed at the following 6 locations:

Outfall No.	Curb Inlet Location
C-1	Intersection of San Antonio and 4th Avenues. This is not a curbface inlet, it is a street inlet. Instead of a small open-bottom catch basin, an open-bottom manhole has been installed here. There is a valve in the street which is opened to allow flow to go into this manhole during dry weather and closed to prevent flow from going into it during wet weather.
C-8	Two curbface inlets on the west side of Scenic Road between 11th and 12th Avenues
C-12	Southwest corner of the Del Mar Avenue parking lot. In this location rather than installing a new open-bottom catch basin, the bottom of the existing catch basin was cut out and removed and gravel was placed in the bottom to allow percolation during dry weather. A metal plate is to be installed over the gravel bottom during wet weather, so the gravel will not become clogged with sediment, and removed to allow percolation during dry weather.
C-17	West side of Scenic Road between 12th and 13th Avenues
C-20	Scenic Road southwest of Santa Lucia Avenue
C-26	Scenic Road southwest of Santa Lucia Avenue

3. **Diversion Manholes with Large Percolation Trenches.** These are installed at two locations:
    a. On Outfall No. C-2 south and southwest of the west end of Ocean Avenue.
    b. On Outfall No. C-3 west of the west end of 8th Avenue.

There are manually operated gates inside these manholes with extended operator handles that allow them to be opened and closed without having to go down inside the manholes. The gate on the outlet pipe going to the outfall is closed during dry weather and the gate on the pipe leading to the percolation trench is opened during dry weather, so that no flow will go out the outfall. During wet weather the gate on the outlet pipe going to the outfall is opened and the gate on the pipe leading to the percolation trench is closed, so that all flow will go out the outfall and no flow will go to the percolation trench, because sediment in the wet weather flow could plug the percolation trench.

4. **Small Percolation Trenches.** These are installed at six locations:
    a. On Outfall No. C-6 on the west side of Scenic Road north of 10th Avenue. The percolation trench is connected to the northerly of the two catch basins discharging into this Outfall.
    b. On Outfall No. C-7 on the west side of Scenic Road at 11th Avenue.
    c. On Outfall No. C-10 on the west side of Scenic Road northwest of Santa Lucia Avenue.
    d. On Outfall No. C-13 on the west side of Scenic Road northwest at 9th Avenue.
    e. On Outfall No. C-14, on the west side of Scenic Road between 8th and 9th Avenues. There are two catch basins comprising the discharges to Outfall No.

C-14 (C-14 North and C-14 South). Both of these catch basins are connected to the percolation trench.

f. On Outfall No. C-18 (West) on the west side of Scenic Road southwest of Santa Lucia Avenue.

Diversion pipes from each of these catch basins allows excessive dry weather flows that are backed up by the bulkheads installed in them to be diverted by gravity to the percolation trenches where it will percolate into the ground and not be discharged from the outfall. To keep sediment from flowing into the percolation beds the inverts of the diversion pipes are located 3 inches above the floor of the catch basins. Flow will only go to the percolation trenches when water has backed up behind the bulkhead plate deep enough to reach the invert of the diversion pipe. There is a cap on the inlet end of the diversion pipe which is removed to allow flow to go to the percolation trench during dry weather and reinstalled to prevent flow from going into it during wet weather. A screen installed just inside the cap keeps debris from entering the diversion pipe.

5. **Relocated Residential Sump Drain Discharges.** Residential sump drainage is an allowable dry weather discharge under the ASBS Special Protections requirements. However, if this flow has picked up contaminants by running down a street gutter or across a street, it is considered to be "urban runoff" and is not allowed to be discharged during dry weather. To keep sump drain discharges during dry weather from flowing across a roadway and into catch basins which discharge into the outfalls, several existing residential sump drains were re-piped as part of the ASBS Dry Weather Diversion Project. They are now connected directly into the outfall piping just downstream of the catch basins. This allows them to discharge to the outfall during dry weather, while the bulkheads in these catch basins capture any street runoff that may occur during dry weather. The residential sump drains that were re-piped as part of the ASBS Dry Weather Diversion Project are in the vicinity of outfalls C-10 (located on Scenic Road between 9th and 10th Avenues) and C-19 (located on Scenic Road southwest of Santa Lucia Avenue).

ATTACHMENT 4

STANDARD OPERATING PROCEDURES
FOR
MAINTENANCE, MONITORING, AND DOCUMENTATION
OF
DRY WEATHER DIVERSION FACILITIES

OPERATIONS AND MAINTENANCE ACTIVITIES

Description of Operations and Maintenance Activities

In order for the ASBS Dry Weather Diversion Project facilities to operate properly and to achieve the desired results, the following operations and maintenance (O&M) activities need to be performed:

Before the Start of the Dry Weather Period (on or about May 1 of each year)

Task 1. Determine whether an outside contractor or City staff will install the bulkheads in the catch basins on or about May 1. If an outside contractor will be used, make arrangements with the contractor so he is able to perform this work on or about May 1. Note: For years 2013 and 2014, Utility Services has been selected by the City to perform this work. This contractor may or may not be willing to continue providing these services in future years, so it would be good to be thinking of a backup contractor in case one is needed.

Task 2. Arrange to have the Vactor truck go to each catch basin that has a bulkhead to be installed in it and clean out any debris that has collected in them so the bulkheads can be installed. Also have the Vactor truck completely pump down the CDS units located at the intersections of 4th Avenue and San Antonio Avenues on outfall C-1, at the foot of Ocean Avenue on outfall C-2, and the new CDS unit on outfall C-3 at the foot of 8th Avenue. The CDS unit on outfall C-1 must be emptied at the start of the dry weather period so that it can capture any dry weather runoff and prevent it from discharging from this outfall. The CDS units on outfalls C-2 and C-3 should be cleaned prior to the dry weather period to prevent any sediment or debris from flowing into and potentially plugging the percolation trenches.

Task 3. Each of the fourteen catch basins that needs to have an Aluminum Bulkhead installed in it during the dry weather period has its bulkhead plate stored on a side wall inside of the catch basin during the wet weather period. The bulkhead plate in storage is attached to the catch basin wall with two nuts on two anchor bolts.

To install the bulkhead plate to its frame over the outfall pipe, first remove it from its storage location. Then examine the face of the mounting frame on the wall of the catch basin that the outfall pipe exits from, and the back edge of the bulkhead plate, for any debris that may have accumulated. Thoroughly clean these mating surfaces, so that when the bulkhead plate is installed it will produce a water-tight seal.

Apply adhesive-backed foam strips along the edges of the bulkhead frame so that when the bulkhead plate is installed and the mounting nuts are tightened, the foam strips will be compressed and a water-tight seal will be achieved.

Attach the bulkhead plate to the wall-mounted frame using the stainless steel nuts and bolts that are already loosely screwed into the holes in the frame. Tighten these evenly so a watertight seal will be formed and the plate will not bend.

Task 4. Remove and store the metal cover plates from all six of the small open-bottomed catch basins, and from the bottom of the open-bottom catch basin on outfall C-12. Store the six plates in a safe place so they can be reinstalled at the end of the dry weather period. In their place install the grates on each of the six small open-bottomed catch basins.

Task 5. At each of the two Diversion Manholes with Large Percolation Trenches, clean any debris out of the bottom of the manhole that may have accumulated during the wet weather period, and then open the gate on the pipe leading to the percolation trench and close the gate leading to the outfall pipe.

On the 8th Avenue outfall C-3, open one of the two ball valves at the upstream end of the two parallel percolation trenches, and leave the other ball valve closed. The design intent is to alternate between the two percolation trenches in alternating years, so that only one of the two trenches is in use in any given year. This will allow a trench to "rest" for a year to prevent biofouling from eventually plugging the drain rock in the trench. If it is found that both trenches are needed to accommodate the dry weather flow without overtopping the gate on the outlet pipe to the outfall, open both valves so that both trenches are in use.

Task 6. On each of the six catch basins that have piping to Small Percolation Trenches, remove the end-cap on the diversion pipe inside each of these catch basins so that excessive dry weather flows that are backed up by the bulkheads installed in them will flow by gravity to the percolation trenches. Store the end caps by hanging them on the studs used to store the bulkhead plates during the wet weather period, so they can be reinstalled at the end of the dry weather period. Check the debris strainer located just inside the entrance of the pipe and clean it if necessary so flow can freely enter the pipe to go to the percolation bed.

Task 7. Throughout the dry weather period, periodically inspect each of the outfalls at the beach to ensure there is no discharge from any of them, and inspect the upstream ASBS Dry Weather Diversion Project facilities for proper operation.

> Bulkheaded Catch Basins: If any discharge is found from an outfall that has a bulkheaded catch basin, check to see if the water level behind the bulkhead plate is below the top of the plate. If it is, examine the bulkhead to determine whether it has been improperly installed and is not producing a watertight seal. If the discharge is caused by not having a watertight seal on the bulkhead, take the plate off, clean the mating surfaces, and reinstall it until a watertight seal has been achieved. If the water is just groundwater that is seeping into the outfall pipe downstream of the catch basin, no action needs to be taken because groundwater

is an allowable dry weather discharge. If the water in the catch basin has backed up deep enough to overtop the bulkhead plate, have the catch basin pumped out to keep the discharge from occurring. Water that is pumped out of the catch basin should be disposed of to the sanitary sewer connection at the City's Corporation Yard on Junipero Avenue.

Curbface Inlets with Small Open-Bottomed Catch Basins: If any discharge is found from an outfall that has a curbface inlet with a small open-bottomed catch basin in front of it, inspect the catch basin to determine why water in it is not percolating, and correct the problem to keep the discharge from occurring. If the water is just groundwater that is seeping into the outfall pipe downstream of the curbface inlet, no action needs to be taken because groundwater is an allowable dry weather discharge.

Diversion Manholes: If any discharge is found from an outfall that has a diversion manhole with a large percolation trench, open the manhole cover and inspect the interior to confirm that the gate on the outlet pipe to the outfall is backing up the water so that all flow is going to the percolation trenches.

On the Ocean Avenue outfall C-2, also open the manhole just upstream of the perforated pipe section of the percolation trench to ensure that flow is going through this manhole and into the percolation trench.

If water is backed up by the gate on the outlet pipe, but the depth of the backed up water is high enough to overtop the outlet gate, this means that the dry weather flow is so large that the percolation trench cannot dispose of it fast enough. Previous monitoring of these outfalls determined that the normal amount of dry weather flow can be accommodated by the size of the as-designed percolation trenches. The cause of excessive dry weather flow should be identified by doing upstream source-tracking to determine the source of the flow, and it should be eliminated at the source. If the discharge from the outfall is just groundwater that is seeping into the outfall pipe downstream of the catch basin, no action needs to be taken because groundwater is an allowable dry weather discharge.

Small Percolation Trenches:, If any discharge is found from an outfall that has a bulkheaded catch basin with a small percolation trench, if water is backed up by the bulkhead on the outlet pipe but the depth of the backed up water is high enough to overtop the bulkhead, this means that the dry weather flow is so large that the percolation trench cannot dispose of it fast enough. Previous monitoring of these outfalls determined that the normal amount of dry weather flow can be accommodated by the size of the as-designed percolation trenches. The cause of excessive dry weather flow should be identified by doing upstream source-tracking to determine the source of the flow, and it should be eliminated at the source. If the discharge from the outfall is just groundwater that is seeping into the outfall pipe downstream of the catch basin, no action needs to be taken because groundwater is an allowable dry weather discharge.

Outfall C-1: The water level in the CDS unit upstream of this outfall must be kept at least 4 feet lower than the CDS unit manhole rim in order to ensure no flow is discharged from the unit. If any discharge is found from this outfall it means that there is excessive dry weather flow coming into either the CDS unit or into the street inlet, both located at the intersection of 4th and San Antonio Avenues. Previous monitoring of this outfall determined that the normal amounts of dry weather flow can be accommodated by the open-bottom percolation manhole (for the street inlet) and the CDS unit (for all other upstream flows). The cause of excessive dry weather flow should be identified by doing upstream source-tracking to determine the source of the flow, and it should be eliminated at the source. The CDS unit should then be pumped down again to provide storage capacity for dry weather flows. If the discharge from the outfall is just groundwater that is seeping into the outfall pipe downstream of the street inlet, no action needs to be taken because groundwater is an allowable dry weather discharge.

Task 8. Several times during the dry weather period check the manhole on Outfall No. C-10 into which the relocated sump drain discharges have been routed, and if possible (using a light) look downstream of the bulkhead in the catch basin on Outfall No. C-19, to confirm that the sump drains are properly flowing to the outfall and that no backup into the sump drain piping is occurring.

At the Start of the Wet Weather Period (on or about October 1 of each year)

Task 9. In the catch basins that have bulkheads installed and which have accumulated a significant amount of water, use the vactor truck to first pump out and properly dispose of this water at the City's Public Works Yard sanitary sewer connection. Then remove the Aluminum Bulkhead plates installed in each of the fourteen catch basins that have bulkheads, and store the bulkhead plate on a side wall inside of the catch basin during the wet weather period. Attach the bulkhead plate to the catch basin wall with two nuts on the two anchor bolts that are installed there for storage purposes.

Task 10. Remove and store the grates on all six of the small open-bottomed catch basins, and install the solid metal cover plates in each of these catch basins, and on the bottom of the catch basin for C-12.

Task 11. At each of the two Diversion Manholes with Large Percolation Trenches, close the gate on the pipe leading to the percolation trench and open the gate leading to the outfall pipe.

On the 8th Avenue outfall C-3, close both of the two ball valves at the upstream end of the two parallel percolation trenches, and make a note in the logbook as to which of the trenches was used, so that the other trench can be used in the next year.

Task 12. On each of the six catch basins that have piping to Small Percolation Trenches, clean the debris strainer that is installed just inside the entrance to the percolation bed pipe and then install the end-caps on these pipes inside these catch basins so that no wet weather flow will go to the percolation trenches.

During the Dry Weather Period (on or about May 1 until October 1 of each year)

Task 13. Prepare and maintain the log sheets contained in Attachment C (or an equivalent form of documentation) showing the dates and brief descriptions of what work was done in conjunction with carrying out Tasks 1 through 12, as well as any maintenance work that needed to be done on the ASBS Dry Weather Diversion facilities to maintain them in proper operation. This documentation will need to be reported to the State to demonstrate that the dry weather diversion facilities were properly operated to comply with the requirements of the ASBS Special Protections, and to fulfill the Annual Reporting requirements of the Grant Contract that provided State funding to construct the Dry Weather Diversion Project.

Schedule for Operations and Maintenance Activities

TASK NO.	PERFORMANCE DATE
1	April 1
2	Last week in April (assuming no further rain is forecast)
3	Just prior to May 1*
4	Just prior to May 1*
5	Just prior to May 1*
6	Just prior to May 1*
7	At least once per month between May 1* and October 1
8	Just after October 1
9	Just after October 1
10	Just after October 1
11	Just after October 1
12	Just after October 1
13	From May 1 until October 1

* The May 1 date may be later in the year if rain is still being forecast as of May 1.

Operations and Maintenance Log Sheets

Going from north to south, the Outfalls occur in the following sequence:

OUTFALL	CATCH BASIN AND CURBFACE INLET LOCATIONS
C-1	Intersection of San Antonio and 4th Avenues.
C-2	South and southwest of the west end of Ocean Avenue
C-12	Southwest corner of the Del Mar Avenue parking lot.
C-3	West of the west end of 8th Avenue.
C-14 North	Scenic Road between 8th and 9th Avenues
C-14 South	Scenic Road between 8th and 9th Avenues
C-24 West	Scenic Road between 8th and 9th Avenues
C-13	Scenic Road @ 9th Avenue
C-6 North	Scenic Road @ 10th Avenue
C-6 South	Scenic Road @ 10th Avenue
C-7	Scenic Road @11th Avenue
C-8	West side of Scenic Road between 11th and 12th Avenues
C-21	Scenic Road @12th Avenue
C-17 North	CB on Scenic Road between 12th and 13th Avenues
C-17 South	CB on Scenic Road between 12th and 13th Avenues
C-9 North	Scenic Road @13th Avenue
C-9 South	Scenic Road @13th Avenue
C-10	Scenic Road northwest of Santa Lucia Avenue
C-18 East	Scenic Road southwest of Santa Lucia Avenue
C-18 West	Scenic Road southwest of Santa Lucia Avenue
C-26	Curbface inlet on west side of Scenic Road southwest of Santa Lucia Avenue
C-19	Scenic Road southwest of Santa Lucia Avenue
C-20	Scenic Road southwest of Santa Lucia Avenue

BEGINNING OF DRY WEATHER PERIOD ACTIVITIES

Year: _____

Note: Place an "X" in each non-shaded box below to indicate the activity that was performed. Add comments to describe anything that was unusual or that required follow-up action.

DATE	OUTFALL NO.	LOCATION	BEGINNING OF DRY WEATHER PERIOD ACTIVITY								COMMENTS
			Cleaned Catch Basin	Installed Bulkhead Plate	Removed Plate from Beneath Grate	Inspected Diversion MH and Cleaned if Necessary	Opened Gate to Percolation Trench and Closed Gate to Outfall	Opened Valve to One Percolation Trench	Removed End-Cap on Piping from CB to Percolation Trench	Pumped Down CDS Unit	
	C-1	Intersection of San Antonio and 4th Avenues.									
	C-2	South and southwest of the west end of Ocean Avenue									
	C-3	West of the west end of 8th Avenue.									
	C-6 North	Scenic Road @ 10th Avenue									
	C-6 South	Scenic Road @ 10th									

DATE	OUTFALL NO.	LOCATION	BEGINNING OF DRY WEATHER PERIOD ACTIVITY								COMMENTS
			Cleaned Catch Basin	Installed Bulkhead Plate	Removed Plate from Beneath Grate	Inspected Diversion MH and Cleaned if Necessary	Opened Gate to Percolation Trench and Closed Gate to Outfall	Opened Valve to One Percolation Trench	Removed End-Cap on Piping from CB to Percolation Trench	Pumped Down CDS Unit	
		Avenue									
	C-7 North	Scenic Road @11th Avenue									
	C-8	West side of Scenic Road between 11th and 12th Avenues									
	C-9 North	Scenic Road @13th Avenue									
	C-9 South	Scenic Road @13th Avenue									
	C-10	Scenic Road northwest of Santa Lucia Avenue									

DATE	OUTFALL NO.	LOCATION	BEGINNING OF DRY WEATHER PERIOD ACTIVITY								COMMENTS
			Cleaned Catch Basin	Installed Bulkhead Plate	Removed Plate from Beneath Grate	Inspected Diversion MH and Cleaned if Necessary	Opened Gate to Percolation Trench and Closed Gate to Outfall	Opened Valve to One Percolation Trench	Removed End-Cap on Piping from CB to Percolation Trench	Pumped Down CDS Unit	
	C-12	Southwest corner of the Del Mar Avenue parking lot.									
	C-13	Scenic Road @ 9th Avenue									
	C-14 South	Scenic Road between 8th and 9th Avenues									
	C-14 North	Scenic Road between 8th and 9th Avenues									
	C-17 North	CB on Scenic Road between 12th and 13th Avenues									
	C-17 South	Curbface inlet on west									

DATE	OUTFALL NO.	LOCATION	BEGINNING OF DRY WEATHER PERIOD ACTIVITY								COMMENTS
			Cleaned Catch Basin	Installed Bulkhead Plate	Removed Plate from Beneath Grate	Inspected Diversion MH and Cleaned if Necessary	Opened Gate to Percolation Trench and Closed Gate to Outfall	Opened Valve to One Percolation Trench	Removed End-Cap on Piping from CB to Percolation Trench	Pumped Down CDS Unit	
		side of Scenic Road between 12th and 13th Avenues									
	C-18 East	Scenic Road southwest of Santa Lucia Avenue									
	C-18 West	Scenic Road southwest of Santa Lucia Avenue									
	C-19	Scenic Road southwest of Santa Lucia Avenue									
	C-20	Scenic Road southwest of Santa Lucia Avenue									
	C-21	Scenic Road @12th									

DATE	OUTFALL NO.	LOCATION	BEGINNING OF DRY WEATHER PERIOD ACTIVITY								COMMENTS
			Cleaned Catch Basin	Installed Bulkhead Plate	Removed Plate from Beneath Grate	Inspected Diversion MH and Cleaned if Necessary	Opened Gate to Percolation Trench and Closed Gate to Outfall	Opened Valve to One Percolation Trench	Removed End-Cap on Piping from CB to Percolation Trench	Pumped Down CDS Unit	
		Avenue									
	C-24 West	Scenic Road between 8th and 9th Avenues									
	C-26	Scenic Road southwest of Santa Lucia Avenue									

DRY WEATHER PERIOD ACTIVITIES

Year: _____

Place an "X" in each non-shaded box below to indicate the activity that was performed. In the "Comments" section at the end of the checklist, describe anything that was unusual or that required follow-up action.

DATE	OUT-FALL NO.	LOCATION	DRY WEATHER PERIOD ACTIVITY							
			Inspected Catch Basin		Inspected Open-Bottom Catch Basin or Manhole		Inspected Diversion MH		Inspected Sump Drain Discharges	
			Water being contained by bulkhead and no problems noted	Water not being contained by bulkhead or other problems noted – see "Comments" for description	Open-bottomed catch basin preventing street runoff from going into curbface inlet and no problems noted	Open-bottomed catch basin not operating properly – see "Comments" for description	Water being contained by gate on outfall pipe and all flow going into percolation bed with no problems noted	Diversion manhole not operating properly – see "Comments" for description	Sump drains are properly flowing to the outfall	Sump drains not properly flowing to the outfall - see "Comments" for description
	C-1	Intersection of San Antonio and 4th Avenues.								

DATE	OUT-FALL NO.	LOCATION	DRY WEATHER PERIOD ACTIVITY							
			Inspected Catch Basin		Inspected Open-Bottom Catch Basin or Manhole		Inspected Diversion MH		Inspected Sump Drain Discharges	
			Water being contained by bulkhead and no problems noted	Water <u>not</u> being contained by bulkhead or other problems noted – see "Comments" for description	Open-bottomed catch basin preventing street runoff from going into curbface inlet and no problems noted	Open-bottomed catch basin <u>not</u> operating properly – see "Comments" for description	Water being contained by gate on outfall pipe and all flow going into percolation bed with no problems noted	Diversion manhole <u>not</u> operating properly – see "Comments" for description	Sump drains are properly flowing to the outfall	Sump drains <u>not</u> properly flowing to the outfall - see "Comments" for description
	C-2	South and southwest of the west end of Ocean Avenue								
	C-3	West of the west end of 8th Avenue.								
	C-6	Scenic Road @ 10th Avenue								
	C-7	Scenic Road @11th Avenue								

DATE	OUT-FALL NO.	LOCATION	DRY WEATHER PERIOD ACTIVITY							
			Inspected Catch Basin		Inspected Open-Bottom Catch Basin or Manhole		Inspected Diversion MH		Inspected Sump Drain Discharges	
			Water being contained by bulkhead and no problems noted	Water <u>not</u> being contained by bulkhead or other problems noted – see "Comments" for description	Open-bottomed catch basin preventing street runoff from going into curbface inlet and no problems noted	Open-bottomed catch basin <u>not</u> operating properly – see "Comments" for description	Water being contained by gate on outfall pipe and all flow going into percolation bed with no problems noted	Diversion manhole <u>not</u> operating properly – see "Comments" for description	Sump drains are properly flowing to the outfall	Sump drains <u>not</u> properly flowing to the outfall - see "Comments" for description
	C-8	West side of Scenic Road between 11th and 12th Avenues								
	C-9 North	Scenic Road @13th Avenue								
	C-9 South	Scenic Road @13th Avenue								
	C-10	Scenic Road northwest of Santa Lucia Avenue								

DATE	OUT-FALL NO.	LOCATION	DRY WEATHER PERIOD ACTIVITY							
			Inspected Catch Basin		Inspected Open-Bottom Catch Basin or Manhole		Inspected Diversion MH		Inspected Sump Drain Discharges	
			Water being contained by bulkhead and no problems noted	Water <u>not</u> being contained by bulkhead or other problems noted – see "Comments" for description	Open-bottomed catch basin preventing street runoff from going into curbface inlet and no problems noted	Open-bottomed catch basin <u>not</u> operating properly – see "Comments" for description	Water being contained by gate on outfall pipe and all flow going into percolation bed with no problems noted	Diversion manhole <u>not</u> operating properly – see "Comments" for description	Sump drains are properly flowing to the outfall	Sump drains <u>not</u> properly flowing to the outfall - see "Comments" for description
	C-12	Southwest corner of the Del Mar Avenue parking lot.								
	C-13	Scenic Road @ 9th Avenue								
	C-14 North	Scenic Road between 8th and 9th Avenues								
	C-14 South	Scenic Road between 8th and 9th Avenues								

DATE	OUT-FALL NO.	LOCATION	DRY WEATHER PERIOD ACTIVITY							
			Inspected Catch Basin		Inspected Open-Bottom Catch Basin or Manhole		Inspected Diversion MH		Inspected Sump Drain Discharges	
			Water being contained by bulkhead and no problems noted	Water <u>not</u> being contained by bulkhead or other problems noted – see "Comments" for description	Open-bottomed catch basin preventing street runoff from going into curbface inlet and no problems noted	Open-bottomed catch basin <u>not</u> operating properly – see "Comments" for description	Water being contained by gate on outfall pipe and all flow going into percolation bed with no problems noted	Diversion manhole <u>not</u> operating properly – see "Comments" for description	Sump drains are properly flowing to the outfall	Sump drains <u>not</u> properly flowing to the outfall - see "Comments" for description
	C-17 North	CB on Scenic Road between 12th and 13th Avenues								
	C-17 South	Curbface inlet on west side of Scenic Road between 12th and 13th Avenues								
	C-18 East	Scenic Road southwest of Santa Lucia Avenue								

DATE	OUT-FALL NO.	LOCATION	DRY WEATHER PERIOD ACTIVITY							
			Inspected Catch Basin		Inspected Open-Bottom Catch Basin or Manhole		Inspected Diversion MH		Inspected Sump Drain Discharges	
			Water being contained by bulkhead and no problems noted	Water <u>not</u> being contained by bulkhead or other problems noted – see "Comments" for description	Open-bottomed catch basin preventing street runoff from going into curbface inlet and no problems noted	Open-bottomed catch basin <u>not</u> operating properly – see "Comments" for description	Water being contained by gate on outfall pipe and all flow going into percolation bed with no problems noted	Diversion manhole <u>not</u> operating properly – see "Comments" for description	Sump drains are properly flowing to the outfall	Sump drains <u>not</u> properly flowing to the outfall - see "Comments" for description
	C-18 West	Scenic Road southwest of Santa Lucia Avenue								
	C-19	Scenic Road southwest of Santa Lucia Avenue								
	C-20	Scenic Road southwest of Santa Lucia Avenue								
	C-21	Scenic Road @12th Avenue								

DATE	OUT-FALL NO.	LOCATION	DRY WEATHER PERIOD ACTIVITY							
			Inspected Catch Basin		Inspected Open-Bottom Catch Basin or Manhole		Inspected Diversion MH		Inspected Sump Drain Discharges	
			Water being contained by bulkhead and no problems noted	Water <u>not</u> being contained by bulkhead or other problems noted – see "Comments" for description	Open-bottomed catch basin preventing street runoff from going into curbface inlet and no problems noted	Open-bottomed catch basin <u>not</u> operating properly – see "Comments" for description	Water being contained by gate on outfall pipe and all flow going into percolation bed with no problems noted	Diversion manhole <u>not</u> operating properly – see "Comments" for description	Sump drains are properly flowing to the outfall	Sump drains <u>not</u> properly flowing to the outfall - see "Comments" for description
	C-24 West	Scenic Road between 8th and 9th Avenues								
	C-26	Scenic Road southwest of Santa Lucia Avenue								

OUT-FALL NO.	COMMENTS

DATE	OUT-FALL NO.	LOCATION	DRY WEATHER PERIOD ACTIVITY			
			Inspected Outfalls at End-of-Pipe on the Beach or Hillside Bluff			Checked Water Level in CDS Unit
			No discharge	Small discharge of only groundwater	Discharge of non-groundwater – see "Comments" for description	Water Level Distance Below Top-of-Manhole
	C-1	West of the end of 4th Avenue.				
	C-2	West of the end of Ocean Avenue				
	C-3	West of the end of 8th Avenue.				
	C-6	West of 10th Avenue				
	C-7	West of 11th Avenue				
	C-8	West between 11th and 12th Avenues				
	C-9	West of 13th Avenue				
	C-10	Northwest of Santa Lucia Avenue				
	C-12	West of the southwest corner of the Del Mar Avenue parking lot.				
	C-13	West of 9th Avenue				
	C-14	West between 8th and 9th Avenues				
	C-17	West between 12th and 13th Avenues				
	C-18	Southwest of Santa Lucia Avenue				

DATE	OUT-FALL NO.	LOCATION	DRY WEATHER PERIOD ACTIVITY			
			Inspected Outfalls at End-of-Pipe on the Beach or Hillside Bluff			Checked Water Level in CDS Unit
			No discharge	Small discharge of only groundwater	Discharge of non-groundwater – see "Comments" for description	Water Level Distance Below Top-of-Manhole
	C-19	Southwest of Santa Lucia Avenue				
	C-20	Southwest of Santa Lucia Avenue				
	C-21	West of 12th Avenue				
	C-24 West	West between 8th and 9th Avenues				
	C-26	Southwest of Santa Lucia Avenue				

OUT-FALL NO.	COMMENTS

BEGINNING OF WET WEATHER PERIOD ACTIVITIES

Year: _____

Note: Place an "X" in each non-shaded box below to indicate the activity that was performed. Add comments to describe anything that was unusual or that required follow-up action.

DATE	OUTFALL NO.	LOCATION	BEGINNING OF WET WEATHER PERIOD ACTIVITY							COMMENTS
			Cleaned Catch Basin	Removed Bulkhead Plate	Re-installed Solid Plate Over Catch Basin	Inspected Diversion MH and Cleaned if Necessary	Closed Gate to Percolation Trench and Opened Gate to Outfall	Closed Valves to Both Percolation Trenches	Installed End-Cap on piping from CB to Percolation Trench	
	C-1	Intersection of San Antonio and 4th Avenues.								
	C-2	South and southwest of the west end of Ocean Avenue								
	C-3	West of the west end of 8th Avenue.								
	C-6 North	Scenic Road @ 10th Avenue								
	C-6 South	Scenic Road @ 10th Avenue								

DATE	OUTFALL NO.	LOCATION	BEGINNING OF WET WEATHER PERIOD ACTIVITY							COMMENTS
			Cleaned Catch Basin	Removed Bulkhead Plate	Re-installed Solid Plate Over Catch Basin	Inspected Diversion MH and Cleaned if Necessary	Closed Gate to Percolation Trench and Opened Gate to Outfall	Closed Valves to Both Percolation Trenches	Installed End-Cap on piping from CB to Percolation Trench	
	C-7 North	Scenic Road @11th Avenue								
	C-8 North	West side of Scenic Road between 11th and 12th Avenues								
	C-8 South	West side of Scenic Road between 11th and 12th Avenues								
	C-9 North	Scenic Road @13th Avenue								
	C-9 South	Scenic Road @13th Avenue								
	C-10	Scenic Road northwest of Santa Lucia Avenue								

DATE	OUTFALL NO.	LOCATION	BEGINNING OF WET WEATHER PERIOD ACTIVITY							COMMENTS
			Cleaned Catch Basin	Removed Bulkhead Plate	Re-installed Solid Plate Over Catch Basin	Inspected Diversion MH and Cleaned if Necessary	Closed Gate to Percolation Trench and Opened Gate to Outfall	Closed Valves to Both Percolation Trenches	Installed End-Cap on piping from CB to Percolation Trench	
	C-12	Southwest corner of the Del Mar Avenue parking lot.			(Plate goes on bottom of catch basin on top of gravel bed)					
	C-13	Scenic Road @ 9th Avenue								
	C-14 North	Scenic Road between 8th and 9th Avenues								
	C-14 South	Scenic Road between 8th and 9th Avenues								
	C-17 North	CB on Scenic Road between 12th and 13th Avenues								

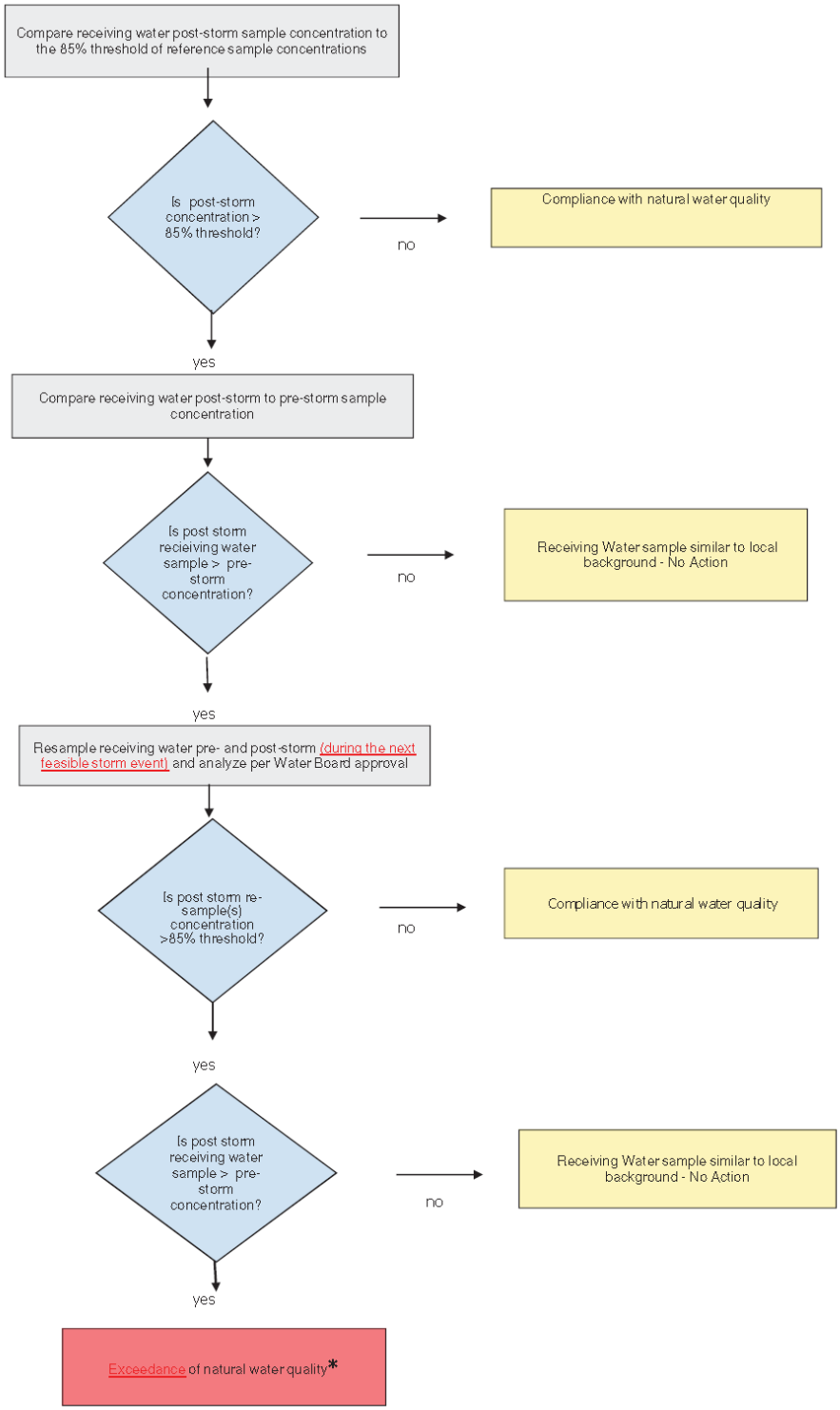
DATE	OUTFALL NO.	LOCATION	BEGINNING OF WET WEATHER PERIOD ACTIVITY							COMMENTS
			Cleaned Catch Basin	Removed Bulkhead Plate	Re-installed Solid Plate Over Catch Basin	Inspected Diversion MH and Cleaned if Necessary	Closed Gate to Percolation Trench and Opened Gate to Outfall	Closed Valves to Both Percolation Trenches	Installed End-Cap on piping from CB to Percolation Trench	
	C-17 South	Curbface inlet on west side of Scenic Road between 12th and 13th Avenues								
	C-18 East	Scenic Road southwest of Santa Lucia Avenue								
	C-18 West	Scenic Road southwest of Santa Lucia Avenue								
	C-19	Scenic Road southwest of Santa Lucia Avenue								
	C-20	Scenic Road southwest of Santa Lucia Avenue								
	C-21	Scenic Road @12th								

DATE	OUTFALL NO.	LOCATION	BEGINNING OF WET WEATHER PERIOD ACTIVITY							COMMENTS
			Cleaned Catch Basin	Removed Bulkhead Plate	Re-installed Solid Plate Over Catch Basin	Inspected Diversion MH and Cleaned if Necessary	Closed Gate to Percolation Trench and Opened Gate to Outfall	Closed Valves to Both Percolation Trenches	Installed End-Cap on piping from CB to Percolation Trench	
		Avenue								
	C-24 West	Scenic Road between 8th and 9th Avenues								
	C-26	Scenic Road southwest of Santa Lucia Avenue								

ATTACHMENT 5

FLOW CHART
FOR
DETERMINING COMPLIANCE
WITH
NATURAL WATER QUALITY

Attachment 1
Special Protections Sections I(A)(3)(e) and I(B)(3)(e)
Flowchart to Deteremine Compliance with Natural Water Quality



*** When an exceedance of natural water quality occurs, the discharger must comply with section I.A.2.h (for permitted storm water) or section I.B.2.c (for nonpoint sources). Note, when sampling data is available, end-of-pipe effluent concentrations will be considered by the Water Boards in making this determination.**

ATTACHMENT 6

OVERVIEW
OF THE
PUBLIC EDUCATION AND PUBLIC OUTREACH PROGRAM
BEING CARRIED OUT BY THE CITY

The Public Education and Outreach Program carried out for the City under the Monterey Regional Storm Water Management Program (MRSWMP) is referred to locally as the Stormwater & Education Alliance (SEA) program. SEA is the education arm of the MRSWMP. The main components of the Program are:

- **Schools***:* Distribute educational materials to students in grades K-12 and/or provide classroom educational presentations. For grades 4-college offer opportunities for students to participate in storm drain stenciling and community service projects. Train teachers on stormwater pollution prevention and collect evaluations from teachers on classroom presentations.
- **Sea Otter Mortality:** Increase general public awareness on sea otter protection.
- **Selected BMP Brochures: Make** BMP brochures available to businesses and the general public.
- **Residential Outreach:** Disseminate information to homeowners and residents.
- **House Hold Wastes in Monterey County:** Report on used oil and used oil filter collection numbers.
- **Our Water Our World (OWOW) Displays:** Outreach to the public through information in nurseries.
- **OWOW Outreach Events:** Conduct outreach events to the general public, residents, and tourists.
- **Restaurant Outreach:** Partner with other agencies, provide training materials and pollution prevention materials to restaurants.
- **Bilingual Radio, TV, and Movie Ads:** Educational messages to residents, the general public, and tourists.
- **SEA Website and Publicity/Press Releases:** Educational messages to the general public.
- **Events:** Conduct public events in partnership with Monterey Bay National Marine Sanctuary & Save the Whales.
- **Public Attitude Survey:** Conduct attitude surveys to assess the general public's understanding and awareness of storm water pollution prevention issues.
- **Large hands-on Storm Drain Model:** Maintain and make available a storm drain demonstration/educational model for display in various high-visibility locations.
- **Printing of Educational Materials:** Print storm water pollution prevention materials for distribution to the general public, tourists, and schools.

ATTACHMENT 7

PLANNED APPROACH
FOR
ADDRESSING INSTANCES OF EXCEEDENCE
OF
NATRUAL WATER QUALITY

PARTICIPATION IN REGIONAL MONITORING PROGRAM

The Central Coast ASBS Regional Monitoring Program (RMP) is a collaboration of various agencies and entities on the Coast, covering an area from Big Sur, in Monterey County, to Pt. Reyes, in Marin County. The project includes monitoring requirements (i.e. water sampling and analysis for various pollutants of concern) specified in the Special Protections for ten (10) participants designated as Responsible Parties that include: The Counties of Marin, Monterey, San Mateo; the Cities of Carmel-by-the-Sea, Monterey, Pacific Grove; Caltrans, Hopkins Marine Station, Monterey Bay Aquarium and the Pebble Beach Company. The Scope of Work for the Central Coast ASBS RMP has been developed through discussions with staff from State and Regional Water Boards, as well as the responsible parties discharging storm water into ASBS.

The Ocean Plan prohibits the discharge of both point and non-point source waste into ASBS unless the SWRCB grants an "exception". In 2012, the SWRCB approved a list of direct or indirect storm water discharges into local ASBS, including the Pacific Grove ASBS, which included the City of Pacific Grove and City of Monterey. The City of Carmel-by-the-Sea has direct discharge points into the Carmel Bay ASBS.

Water quality and biological sampling of urban storm water discharges and receiving waters are a mandatory stipulation of the Special Protections for Areas of Special Biological Significance. In 2012, the City of Carmel-by-the-Sea joined forces with nine (9) other ASBS permittees along the Central Coast of California to form a collaborative RMP to comply with the monitoring requirements of the Special Protections. The purposes of the RMP are to leverage limited agency funds to address shared monitoring compliance needs by providing consistent methods and data quality among all participants, while also performing the scientific work required by the Special Protections in such a manner that the final data can be compared to or contrasted with those from other regional efforts along the California coastline.

In early 2013, a RMP Memorandum of Agreement was executed between all parties to perform a coordinated monitoring effort to investigate concentrations of pollutants of concern at particular freshwater reference sites, ocean receiving water sites, and urban storm water discharge sites. Additionally, the program includes biological and bioaccumulation monitoring.

Applied Marine Sciences (AMS) was selected to direct and perform the scientific monitoring needs of the RMP members, including field and follow-up analytical and statistical work. Monterey Bay National Marine Sanctuary staff and volunteers also assist with portions of the ASBS monitoring program.

In total, the RMP has 40 sampling locations. Nine (9) urban storm water discharges are sampled from the City of Carmel-by-the-Sea along the Carmel Bay ASBS to assist in better understanding the relative health of this ASBS ecosystem and the effects of discharges entering it. A list of all sampling sites, including their respective sampling requirements and the overall sampling scheme, are outlined in Appendix C, AMS Scope of Work.

Water quality and biological results received over two years of the RMP program will be analyzed to determine the relative health or lack thereof of the ASBSs being studied as a part of this RMP. These efforts are also meant to identify any potential urban storm water discharges that may be impacting the health of the ASBSs, including that of the Carmel Bay ASBS.

As of September 2014, only one sampling season has been completed – Season 1, Winter 2013/2014. Season 1 data are undergoing quality assurance/quality control (QA/QC) review and statistical analyses. Preliminary results were received in late August 2014, and final report generation is scheduled to occur in October 2014 (after the submittal deadline set for Draft Compliance Plans). Final results were not available for inclusion in this Draft Compliance Plan; however, study results will be shared as they become available, and subsequent water quality reports shall be incorporated into this Plan in future finalization efforts. Season 2, Winter 2014/2015 sampling results are expected to be received for preliminary review in summer 2015 with subsequent analytical report finalization in the fall of 2015.

The RMP efforts at Carmel Bay ASBS sampling locations and all others in the region are providing the scientific water quality and biological data necessary to comply with the monitoring requirements of the Special Protections at this time. The study results are anticipated to provide insight to the local agencies and SWRCB as to the current and relative health and quality of California ASBS. Additionally, further study of the RMP's reference site water quality data is planned for utilization as part of an SWRCB contract to analyze the North Coast, Central Coast, and South Coast reference data report to be produced by contractor Ken Schiff.

BACKGROUND

At its own expense the City conducted one Receiving Water sampling event during the winter of 2011-2012. This was done during a moderate rainfall storm between March 11 and March 17, 2012 and was done on the City's only outfall having a diameter greater than 36 inches, the 4th Avenue Outfall (Outfall No. C-1). The sampling was done in conformance with the Receiving Water sampling requirements of the Special Protections in order to see whether or not the discharge was potentially causing "an exceedence of natural water quality" as defined in the Special Protections. The work consisted of taking one pre-storm Receiving Water sample on March 11 and one during-storm Receiving Water sample on March 17 at the point where the discharge from the Outfall reaches the ocean on Carmel Beach.

While the vast majority of constituents in the during-storm sample were at or below the pre-storm sample concentrations, there were several that were higher. Specifically:

- Two Pyrethroids (Bifenthrin and Permethrin) were detected, albeit a very low levels, in the during-storm sample but were not detected (ND) in the pre-storm sample.
- Cadmium, copper, lead, mercury, nickel and zinc were detected at slightly higher levels in the during-storm sample than in the pre-storm sample.
- Coliform organisms were detected at higher levels in the during-storm sample than in the pre-storm sample.

First Flush sampling conducted for several years by the Citizens Monitoring Group of the Monterey Bay National Marine Sanctuary also found metal concentrations for zinc, copper, and lead in the discharge from the 4th Avenue outfall at levels above those specified in the Central Coast Basin Plan as Water Quality Objectives (WQO) for the protection of marine aquatic life. Although First Flush samples likely produced the highest annual levels of pollutant concentration, because they contained accumulated sediments and other materials from the dry weather months, this data is nevertheless a further indication that these discharges might lead to an exceedence of the Special Protections receiving water quality limits for certain metals.

As discussed in the Monitoring Program Report prepared by the *Monterey Regional Areas of Special Biological Significance Dischargers Monitoring Program* to fulfill the requirements of Section IV of the Special Protections, preliminary (Year 1) monitoring performed during the winter season of 2013-2014 indicated that for certain parameters the City's discharge may exceed some of the Natural Water Quality levels established by the Reference Sites used in that monitoring program.

The Special Protections call for resampling to be done to confirm the results of the initial sampling before reaching the conclusion that an exceedence of natural water quality is occurring. However, for cost and other reasons resampling was not done in the sampling events described above.

If the Year 2 monitoring data provided by the *Monterey Regional Areas of Special Biological Significance Dischargers Monitoring Program* confirms that for some parameters the City's 4th Avenue outfall is causing Natural Water Quality to be exceeded the City will likely wish to pursue the Source Tracking and BMP installation approach described herein. However, it should be recognized that the process is still under development for evaluating whether alterations of natural ocean water quality are caused by storm water discharges from the City into the Carmel Bay ASBS. If exceedences of Ocean Plan Water Quality Objectives (WQOs) are observed, it does not necessarily imply that natural ocean water quality is being altered by, nor would observed alterations in natural ocean water quality necessarily be caused by, discharges from the City's storm drainage system. Dispersion processes within the receiving water are an important consideration as well as ocean influences that may not be detected at reference points. The challenges in establishing these types of regulatory links will be considered as the regional natural water quality process and standards are defined.

SOURCE TRACKING

The term "source-tracking" refers to taking samples within the watershed upstream of a point of discharge in order to determine the source(s) of pollutants of interest.

The City would propose to collect a total of approximately 20 upstream samples from within the watershed of the 4th Avenue outfall during two rainfall events, and to analyze each sample for the constituents that were potentially causing Natural Water Quality exceedences. It is estimated that the labor costs to collect these samples and to deliver them to the laboratory would be approximately $1,000 (10 man-hours @ $100/hour). It is estimated that the per-sample

laboratory analytical costs to perform the analyses on the 20 samples would be approximately as follows:

- Priority Pollutant Metals (all of the metals potentially found to be exceeding the pre-storm levels, except mercury) - $225/sample
- Mercury - $80/sample
- Pyrethroids - $280/sample

The estimated total laboratory cost to analyze the 20 samples would therefore be approximately $11,700. Compiling the sampling results and developing conclusions from the data would cost approximately $2,000 (20 man-hours @ $100/hour). The total estimated cost to conduct this source-tracking would therefore be approximately $14,700.

SELECT AND INSTALL STRUCTURAL BMPs (TREATMENT DEVICES)

Installing any type of treatment technology to remove constituents that may be causing an exceedence of Natural Water Quality on the full amount of flow coming out of the 4th Avenue outfall would require a substantial treatment facility with a very substantial cost and a large footprint. Such a facility would only be used during the occasional storms that occur each year, and not used during the vast portion of the year. Constructing such a facility is therefore not a viable approach.

The City's research, however, indicates that there may be viable technologies available to remove these types of constituents on fairly small flows. If the constituents of concern are entering the drainage system at a reasonable number of discrete locations, presumably specific storm drain inlets/catch basins, it may be possible to install treatment devices (inserts) at these locations to remove or reduce the concentrations of these constituents, and to thereby potentially achieve Receiving Water compliance for this discharge.

Evaluation of Treatment Devices

Based on the results of the source-tracking described above, an evaluation of these types of devices would be performed to determine the most suitable type(s) and to estimate the number, location, and cost to purchase, install, operate, and maintain them.

Preparing the evaluation would include performing a search of manufacturers of such devices to determine the most suitable type(s) for use in the City's storm drainage system.

It is estimated that performing this evaluation would take approximately 40 man-hours at a cost of approximately $4,000 (40 man-hours @ $100/hour)

Prepare Technical Report

A Technical Report summarizing the source-tracking and treatment device evaluation would be prepared, including findings and recommendations.

It is estimated that preparing this Technical Report would take approximately 40 man-hours at a cost of approximately $4,000 (40 man-hours @ $100/hour).

Purchase and Install Treatment Devices

For the storm drain inlets/catch basins that the Technical Report concludes are feasible for the installation of devices to remove constituents that are contributing to an exceedence of Natural Water Quality, the treatment devices would be purchased and installed. Figures showing a potential type of device to be installed are attached at end of this Description.

Without yet knowing how many devices might be required, and of what type, it is not possible to accurately estimate the costs to purchase and install them. However, based on preliminary cost information provided by potential suppliers of such devices, and assuming that as many as 20 of them might need to be installed, a preliminary budgeting estimate for this is $28,000 (20 inlets @ $1,400/inlet).

Field Evaluation of Performance of Treatment Devices

The sampling results from the City's Special Protections monitoring conducted by the *Monterey Regional Areas of Special Biological Significance Dischargers Monitoring Program* will provide data to assess the effectiveness of the treatment devices in helping the discharges to comply with the Special Protections requirements.

COST SUMMARY

The approximate total estimated cost to perform the work described above for this source-tracking work and the follow-up installation of treatment devices is **$50,700**.

FIGURES SHOWING POTENTIAL TYPE OF TREATMENT DEVICE

FOR CATCH BASIN INSTALLED IN CURB AND GUTTER