



- LEGEND**
- POINT OF COMPLIANCE (POC)
 - POC ANALYZED IN GEOMORPHIC ASSESSMENT
 - RECEIVING CHANNELS

**NEWLAND SIERRA
GEOMORPHIC ASSESSMENT PHOTO EXHIBIT
FEBRUARY 2017**

Attachment 2e

Vector Control Plan

Not applicable as BMPs will drain in less than 96 hours.

ATTACHMENT 3**Structural BMP Maintenance Information**

This is the cover sheet for Attachment 3.

Indicate which Items are Included behind this cover sheet:

Attachment Sequence	Contents	Checklist
Attachment 3a	Structural BMP Maintenance Plan (Required)	<input checked="" type="checkbox"/> Included See Structural BMP Maintenance Information Checklist on the back of this Attachment cover sheet.
Attachment 3b	Draft Stormwater Maintenance Notification / Agreement (when applicable)	<input type="checkbox"/> Included <input checked="" type="checkbox"/> Not Applicable

Use this checklist to ensure the required information has been included in the Structural BMP Maintenance Information Attachment:

Attachment 3a must identify:

- ☒ Specific maintenance indicators and actions for proposed structural BMP(s). This must be based on Section 7.7 of the BMP Design Manual and enhanced to reflect actual proposed components of the structural BMP(s)
- ☒ How to access the structural BMP(s) to inspect and perform maintenance
- ☒ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
- ☒ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
- ☒ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
- ☒ Recommended equipment to perform maintenance
- ☒ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management

Attachment 3b: For all Structural BMPs, Attachment 3b must include a draft maintenance agreement in the County's standard format depending on the Category (PDP applicant to contact County staff to obtain the current maintenance agreement forms). Refer to Section 7.3 in the BMP Design Manual for a description of the different categories.

Attachment 3a

Structural BMP Maintenance Plan

Operation & Maintenance Manual – BIOFILTRATION BMP

1. PURPOSE OF THE BIOFILTRATION BMP MAINTENANCE MANUAL

The purpose of this manual is to provide maintenance instructions for the Biofiltration BMPs located within the Newland Sierra neighborhoods. The Biofiltration basin is a pollution control device designed to treat urban runoff before it enters in to the storm drain systems located on the project site. Regular maintenance will help to ensure that the biofiltration functions as it has been designed.

This manual will serve as a reference guide and filed manual to assist the property owner with:

- An overview of the Biofiltration BMP and how it functions
- A description of the location of the Biofiltration BMP
- An understanding of the procedures required to effectively maintain the Biofiltration BMP on a regular basis
- Reproducible copies of the forms, logs and guidance sheets necessary for recording maintenance activities associated with the Biofiltration BMP.

2. GENERAL DESCRIPTION AND FUNCTION OF THE BIOFILTRATION BMP

The Biofiltration BMP is a structure filled with gravel soil and vegetation that drain to an underdrain which connects to the storm drain system. These systems also have an overflow structure to prevent high flows from leaving the planter area. From the top of the curb or concrete step-off to the bottom, the porous materials consist of

- 18" of Biofiltration Soil Media (BSM)
- 4" of "Birdseye" Washed Pea Gravel Chocker Stone
- 12" of Caltrans Class 2 Permeable

A 4" diameter perforated pvc will be installed at the bottom of the 12" layer. This pipe connects to the storm drain.

Pollution is mitigated through infiltration of runoff into the porous materials within the planter and ultimately through infiltration through the biofiltration soil media and stone layers.

3. MAINTENANCE RESPONSIBILITY

Prior to the transfer of responsibility, Newland Sierra will be responsible for Site Design, Source Control and Treatment Control BMPs. Once the structures are complete, the County of San Diego is ultimately responsible for maintaining the Biofiltration BMP. The goal in maintaining the planter is to ensure that Infiltration is occurring. Regular inspection and replacement of materials within the planter once it becomes ineffective in performing as designed are the major components in the maintenance program. In order to achieve this, the following general procedures shall be followed:

- Qualified maintenance personnel should periodically inspect the planter at least twice a year. The first inspection should happen prior to August 1 and the subsequent inspection should happen during the period between February 1 and March 31.
- If a problem is identified, it should be rectified as soon as possible to ensure that the trench functions as designed,
- Regular removal of trash and debris should occur as needed. Trash and debris, visible along the surface of the trench shall be promptly removed.

Detailed maintenance procedures are outlined 5.

4. MAINTENANCE INDICATORS AND ACTIVITIES

Functional Maintenance:

Regular functional maintenance is required to ensure that the Biofiltration BMP performs in an effective manner. Functional maintenance consists of both preventative and corrective activities. Logs and guidance sheets are contained herein to use in recording vital information while performing operation Inspection and other infiltration trench maintenance activities. Maintenance records shall be maintained by the property owner for a minimum of five years. The proper use and subsequent storage of these records will assure the County of San Diego that the Biofiltration BMP is functioning as designed.

Preventative Maintenance:

Preventative maintenance shall be performed on a regular basis. Checklists are included herein to track and record preventative maintenance activities. These activities include trash and debris removal and sediment management,

Trash and debris removal shall be performed to ensure that runoff has adequate surface area to infiltrate through the various layers that comprise the cross section of the trench.

Sediment management will occur when testing Indicates that the Infiltration rate has diminished below the stated acceptable rate.

Corrective Maintenance:

Corrective maintenance will be required on an emergency or non-routine basis to correct problems and restore the intended operation and safe function of the Biofiltration BMP.

Biofiltration BMP Maintenance

- Inspect a minimum of once per year, before the rainy season, and after large storm events or more frequently as needed.
- Clean the planter when the loss of infiltrative capacity is observed. When the standing water is present for a period of time in excess of 72 hours, removal of sediment may be necessary.
- Control mosquitoes as necessary.
- Remove litter and debris from surface as required.

Maintenance Indicators:

Maintenance Indicators are signs or triggers that indicate that maintenance personnel need to check the Biofiltration BMP for maintenance needs. The most common triggers include warnings or accounts of standing water and sediment accumulation. Inspection and Maintenance Checklist in Section 5 below shows conditions and criteria that trigger the need for some specific routine infiltration trench maintenance activities. Emergencies may occasionally arise that would require a more urgent, critical response.

Sediment Management:

The types of storm water pollutants that accumulate in sediment varies, but may include contaminants such as heavy metals, petroleum hydrocarbons, and other organic compounds such as pesticides or solvents. When the sediment has clogged the Biofiltration BMP, remove and properly dispose of Sediment. Regrade if necessary.

Sediment Disposal:

Several methods for disposal are available depending on the concentration of toxins in the waste. Methods can range from recycling the material, to depositing the sediment into appropriate landfills.

At the time of disposal, if the wastes are deemed to be unfit for disposal in a municipal landfill, a full and comprehensive testing program should be run by a qualified person to test for all the constituents outlined under California code of Regulations (CCR) Title 22. Title 22 list concentrations of certain chemicals and their soluble threshold limit concentrations (STLC's) and their total threshold limit concentrations (TTLC's). Chemicals that exceed the allowable concentrations are considered hazardous wastes and must be removed from the sediment.

5. INSPECTION AND MAINTENANCE CHECKLIST

See following page.

Biofiltration BMP Inspection and Maintenance Checklist

Date of Inspection: _____ BMP Name/Location: _____ Inspected by: _____

Type of Inspection: ☐ Monthly ☐ Pre-Wet Season ☐ After Heavy Runoff (1" or greater) ☒ Annual Prior to Start of Wet Season
☐ Other _____

Defect	Conditions When Maintenance is Required	Field Measurement	Measurement Frequency	Maintenance Activity	Maintenance Needed (yes/no)	Comments (Describe maintenance completed and if needed maintenance was not conducted, note when it will be done)
Vegetation Management for Aesthetics (optional)	Visual observation and random measurements throughout the side slope area	Visual observation and random measurements throughout the side slope area	Annually, prior to start of wet season	Cut vegetation to an average height of 6-inches and remove trimmings. Remove any trees, or woody vegetation.		
Standing Water	Visual observation	Visual observation	Annually, 96 hours after a target storm (0.60 in) event	Drain facility. Corrective action prior to wet season. Consult engineers if immediate solution is not evident.		
Trash and Debris	Visual observation	Visual observation	Annually, prior to start of wet season	Remove and dispose of trash and debris		
Sediment Management	Measure depth at apparent maximum and minimum accumulation of sediment. Calculate average depth	Measure depth at apparent maximum and minimum accumulation of sediment. Calculate average depth	Annually, prior to start of wet season	Remove and properly dispose of sediment. Regrade if necessary. (expected every 2 years)		
Underdrains	Visual Observation	Visual Observation	Annually, prior to start of wet season	Corrective action prior to wet season. Consult engineers if immediate solution is not evident.		
General Maintenance Inspection	Visual observation	Visual observation	Annually, prior to start of wet season	Corrective action prior to wet season. Consult engineers if immediate solution is not evident.		

BIOFILTRATION BMP MAINTENANCE ACTIVITIES

ROUTINE ACTION	MAINTENANCE INDICATOR	FIELD MEASUREMENT	MEASUREMENT FREQUENCY	MAINTENANCE ACTIVITY	Frequency (# of times per year)	Hours per Event	Average Labor Crew Size	Avg. (Pro-Rated) Labor Rate/Hr. (\$)	Equipment	Equipment Cost/Hour (\$)	Materials & Incidentals Cost or Disposal Cost/Event (\$)	Total cost per visit (\$)	Total cost per year (\$)
Vegetation Management for Aesthetics (optional)	Average vegetation height greater than 12-inches, emergence of trees or woody vegetation,	Visual observation and random measurements through out the side slope area	Annually, prior to start of wet season	Cut vegetation to an average height of 6-inches and remove trimmings. Remove any trees, or woody vegetation.	1.0	2.0	2	\$ 74.97	Utility Truck	\$ 14.39	\$ 50.00	\$ 379	\$ 379
Standing Water	Standing water for more than 96 hrs	Visual observation	Annually, 96 hours after a target storm (0.60 in) event	Drain facility. Corrective action prior to wet season. Consult engineers if immediate solution is not evident.	1.0	1.0	2	\$ 74.97	Utility Truck	\$ 14.39		\$ 164	\$ 164
Trash and Debris	Trash and Debris present	Visual observation	Annually, prior to start of wet season	Remove and dispose of trash and debris	1.0	2.0	2	\$ 74.97	Utility Truck	\$ 14.39		\$ 329	\$ 329
Sediment Management	Sediment depth exceeds 10% of the facility design	Measure depth at apparent maximum and minimum accumulation of sediment. Calculate average depth	Annually, prior to start of wet season	Remove and properly dispose of sediment. Regrade if necessary. (expected every 2 years)	0.5	8.0	2	\$ 74.97	Utility Truck, 10-15 yd Truck, Backhoe	\$ 56.02	\$ 400.00	\$ 2,048	\$ 1,024
Underdrains	Evidence of Clogging	Visual Observation	Annually, prior to start of wet season	Corrective action prior to wet season. Consult engineers if immediate solution is not evident.	1.0	0.5	2	\$ 74.97	Utility Truck	\$ 14.39		\$ 82	\$ 82
General Maintenance Inspection	Inlet structures, outlet structures, side slopes or other features damaged, significant erosion, burrows, emergence of trees or woody vegetation, graffiti or vandalism, fence damage, etc	Visual observation	Annually, prior to start of wet season	Corrective action prior to wet season. Consult engineers if immediate solution is not evident.	1.0	1.0	2	\$ 74.97	Utility Truck	\$ 14.39		\$ 164	\$ 164
Reporting					1.0	3.0	1	\$ 74.97				\$ 225	\$ 225
Average Annual Total						24.0							\$ 2,367

Labor Rate	\$74.97/hr
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Equipment	Equipment Cost
Utility Truck	\$14.39/hr
10-15 yd truck	\$28.27/hr
Backhoe	\$13.36/hr
Vactor	\$62.70/hr
Sweeper	\$123.26/hr

Small Flow-through Planter (200 sf)	24.0		\$ 2,367
Medium Flow-through Planter (1000 sf)	30.0		\$ 2,882
Large Flow-through Planter (2000 sf)	42.0		\$ 3,781

Total Estimated Annual Maintenance Cost for Newland Sierra BMPs

72 Large Biofiltration BMPs x \$3,781 = \$283,575

Attachment 3b

Draft Storm Water Maintenance Notification / Agreement

To be included with final site design submittal.

ATTACHMENT 4

**County of San Diego PDP Structural BMP Verification for
Permitted Land Development Projects**

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County of San Diego BMP Design Manual Verification Form	
Project Summary Information	
Project Name	Newland Sierra
Record ID (e.g., grading/improvement plan number)	TM-5597
Project Address	Deer Springs Road San Marcos, CA 92069
Assessor's Parcel Number(s) (APN(s))	172-091-07, 172-220-14,-16, -18 174-190-12,-13,-20,-41,-43,-44 174-210-01,-05,-07,-08,-17,-18 174-211-04,-05,-06,-07 174-280-11,-14, 174-290-02, 178-100-05,-07,-26 178-101-01,-16,-17,-25-26,-27,-28 178-221-09, 178-222-14,-16, 182-040-36,-69 182-020-28,-29 186-250-13 186-611-01,-07,-08,-09,-11,-14,-15,-16,-17,-23 187-540-49,-50,-51
Project Watershed (Complete Hydrologic Unit, Area, and Subarea Name with Numeric Identifier)	Moosa Hydrologic Sub-Area 903.13 Bonsall Hydrologic Sub-Area 903.12 Twin Oaks Hydrologic Sub-Area 904.53
Responsible Party for Construction Phase	
Developer's Name	To be determined
Address	
Email Address	
Phone Number	
Engineer of Work	
Engineer's Phone Number	
Responsible Party for Ongoing Maintenance	
Owner's Name(s)*	To be determined
Address	
Email Address	
Phone Number	
*Note: If a corporation or LLC, provide information for principal partner or Agent for Service of Process. If an HOA, provide information for the Board or property manager at time of project closeout.	

County of San Diego BMP Design Manual Verification Form Page 2 of 4					
Stormwater Structural Pollutant Control & Hydromodification Control BMPs* (List all from SWQMP)					
Description/Type of Structural BMP	Plan Sheet #	STRUCTURAL BMP ID#	Maintenance Category	Maintenance Agreement Recorded Doc #	Revisions
Biofiltration Basin	14	CM1	3** Public		
Biofiltration Basin	14	CM2	3** Public		
Biofiltration Basin	14	CM3	3** Public		
Biofiltration Basin	14	CM4	3** Public		
Biofiltration Basin	14	CM5	3** Public		
Biofiltration Basin	14	CM10	2 - HOA		
Biofiltration Basin	8	H1	2 - HOA		
Biofiltration Basin	8	H2	2 - HOA		
Biofiltration Basin	8	H3A	2 - HOA		
Biofiltration Basin	8	H3B	2 - HOA		
Biofiltration Basin	8	H4	2 - HOA		
Biofiltration Basin	8	H5	2 - HOA		
Biofiltration Basin	8	H6	2 - HOA		
Biofiltration Basin	8	H7	2 - HOA		
Biofiltration Basin	8	H8HR1	3** Public		
Biofiltration Basin	8	H9HR2	3** Public		
Biofiltration Basin	8	H10	2 - HOA		
Biofiltration Basin	8	H11	2 - HOA		
Biofiltration Basin	8	H12	2 - HOA		
Biofiltration Basin	8	H13	2 - HOA		
Biofiltration Basin	8	H14A	2 - HOA		
Biofiltration Basin	8	H14B	2 - HOA		
Biofiltration Basin	8	H15	2 - HOA		
Biofiltration Basin	11	KR1	3** Public		
Biofiltration Basin	11	K2	2 - HOA		
Biofiltration Basin	11	K3	2 - HOA		
Biofiltration Basin	11	K4	2 - HOA		
Biofiltration Basin	11	K5	2 - HOA		
Biofiltration Basin	11	K6	2 - HOA		
Biofiltration Basin	11	K7K9	2 - HOA		
Biofiltration Basin	11	K8	2 - HOA		
Biofiltration Basin	11	K10	3** Public		
Biofiltration Basin	11	M1MR1K1	3** Public		
Biofiltration Basin	9	M2	2 - HOA		

Biofiltration Basin	9	M3A	2 - HOA		
Biofiltration Basin	9	M3B	2 -HOA		
Biofiltration Basin	9	M4	2 - HOA		
Biofiltration Basin	9	M8	2 - HOA		
Biofiltration Basin	10	S1	2 - HOA		
Biofiltration Basin	10	S2	2 - HOA		
Biofiltration Basin	10	S3	2 - HOA		
Biofiltration Basin	10	S4	2 - HOA		
Biofiltration Basin	10	S5	2 - HOA		
Biofiltration Basin	10	S6	2 - HOA		
Biofiltration Basin	10	S7	2 - HOA		
Biofiltration Basin	10	S8	2 - HOA		
Biofiltration Basin	10	S9	2 - HOA		
Biofiltration Basin	10	S10	3** Public		
Biofiltration Basin	6, 7	TR1T1T2	3** Public		
Biofiltration Basin	7	TR2	3** Public		
Biofiltration Basin	6, 7	T3	2 – HOA		
Biofiltration Basin	6, 7	T4	2 - HOA		
Biofiltration Basin	6, 7	T5	2 - HOA		
Biofiltration Basin	6, 7	T6	2 - HOA		
Biofiltration Basin	6, 7	T7	2 - HOA		
Biofiltration Basin	6, 7	TC1	2 - HOA		
Biofiltration Basin	6, 7	TC2TCR1	3 - Public		
Biofiltration Basin	7	TC3	2 – HOA		
Biofiltration Basin	7	TC4	2 - HOA		
Biofiltration Basin	7	TC5	2 - HOA		
Biofiltration Basin	7	TCR2	3** Public		
Biofiltration Basin	6	TCR3	3** Public		
Biofiltration Basin	12	V1	2 – HOA		
Biofiltration Basin	12	V2	2 - HOA		
Biofiltration Basin	12	V3	2 - HOA		
Biofiltration Basin	12	V4	2 - HOA		
Biofiltration Basin	12	V5	2 - HOA		
Biofiltration Basin	12	V6	2 - HOA		
Biofiltration Basin	12	V7	2 - HOA		
Biofiltration Basin	12	V8	2 - HOA		
Biofiltration Basin	12	V9	2 - HOA		
Biofiltration Basin	12	V10	2 - HOA		
Biofiltration Basin	12	V11VR2	3** Public		
Biofiltration Basin	12	V12VR1	3** Public		

Biofiltration Basin	12	V13	2- HOA		
Biofiltration Basin	12	V14	2 - HOA		
Biofiltration Basin	12	V15	2 - HOA		
Biofiltration Basin	12	V16	2- HOA		
Biofiltration Basin	12	V17	2- HOA		
Biofiltration Plus Cistern	16	D1	3** Public		
Biofiltration Plus Cistern	16	D2	3** Public		
Biofiltration Plus Cistern	16	D3	3** Public		
Biofiltration Plus Cistern	16	D4	3** Public		
Biofiltration Plus Cistern	16	D6	3** Public		
Biofiltration Plus Cistern	16	D7	3** Public		
Biofiltration Plus Cistern	16	D8	3** Public		
Biofiltration	17	D9	3** Public		
Biofiltration	17	D10	3** Public		
Biofiltration	17	D11	3** Public		
Biofiltration	17	D12	3** Public		
Biofiltration	17	D13	3** Public		
Biofiltration	17	D14	3** Public		
Biofiltration	17	D15	3** Public		
Biofiltration	17	D16	3** Public		
Biofiltration	17	D17	3** Public		
Biofiltration	17	D18	3** Public		
Biofiltration	17	D19	3** Public		
Biofiltration	17	D20A	3** Public		
Biofiltration	17	D20B	3** Public		
Biofiltration	17	D21	3** Public		
Biofiltration	17	D22	3** Public		
Biofiltration	17	D23	3** Public		
Biofiltration Plus Cistern	17	D24	3** Public		
Biofiltration	17	D25W	3** Public		
Biofiltration	17	D25E	3** Public		
Biofiltration Plus Cistern	13	SL1	3** Public		
Biofiltration Plus Cistern	13	SL2	3** Public		
Biofiltration Plus Cistern	13	SL3	3** Public		
Biofiltration Plus Cistern	13	SL4	3** Public		
Biofiltration Plus Cistern	13	SL8	2 - HOA		
Biofiltration Plus Cistern	13	SL9	2 - HOA		

**All Public BMPs to be Category 2, Maintained by HOA, Until CFD has been Established					
*All Priority Development Projects (PDPs) require a Structural BMP					

Note: If this is a partial verification of Structural BMPs, provide a list and map denoting Structural BMPs that have already been submitted, those for this submission, and those anticipated in future submissions.

County of San Diego BMP Design Manual Verification Form Page 3 of 4

Checklist for Applicant to submit to PDCI:

- ☐ Copy of the final accepted SWQMP and any accepted addendum.
- ☐ Copy of the most current plan showing the Stormwater Structural BMP Table, plans/cross-section sheets of the Structural BMPs and the location of each verified as-built Structural BMP.
- ☐ Photograph of each Structural BMP.
- ☐ Photograph(s) of each Structural BMP during the construction process to illustrate proper construction.
- ☐ Copy of the approved Structural BMP maintenance agreement and associated security

By signing below, I certify that the Structural BMP(s) for this project have been constructed and all BMPs are in substantial conformance with the approved plans and applicable regulations. I understand the County reserves the right to inspect the above BMPs to verify compliance with the approved plans and Watershed Protection Ordinance (WPO). Should it be determined that the BMPs were not constructed to plan or code, corrective actions may be necessary before permits can be closed.

Please sign your name and seal.

Professional Engineer's Printed Name:

Kenneth T. Kozlik, P.E.

Professional Engineer's Signed Name:

Date: _____

[SEAL]

ATTACHMENT 5**Copy of Plan Sheets Showing Permanent Storm Water BMPs,
Source Control, and Site Design**

This is the cover sheet for Attachment 5.

Use this checklist to ensure the required information has been included on the plans:

The plans must identify:

- ☒ Structural BMP(s) with ID numbers matching Step 6 Summary of PDP Structural BMPs
- ☒ The grading and drainage design shown on the plans must be consistent with the delineation of DMAs shown on the DMA exhibit
- ☒ Details and specifications for construction of structural BMP(s)
- ☒ Signage indicating the location and boundary of structural BMP(s) as required by County staff
- ☒ How to access the structural BMP(s) to inspect and perform maintenance
- ☒ Features that are provided to facilitate inspection (e.g., observation ports, cleanouts, silt posts, or other features that allow the inspector to view necessary components of the structural BMP and compare to maintenance thresholds)
- ☒ Manufacturer and part number for proprietary parts of structural BMP(s) when applicable
- ☒ Maintenance thresholds specific to the structural BMP(s), with a location-specific frame of reference (e.g., level of accumulated materials that triggers removal of the materials, to be identified based on viewing marks on silt posts or measured with a survey rod with respect to a fixed benchmark within the BMP)
- ☒ Recommended equipment to perform maintenance
- ☒ When applicable, necessary special training or certification requirements for inspection and maintenance personnel such as confined space entry or hazardous waste management
- ☒ Include landscaping plan sheets showing vegetation requirements for vegetated structural BMP(s)
- ☒ All BMPs must be fully dimensioned on the plans
- ☒ When proprietary BMPs are used, site-specific cross section with outflow, inflow, and model number must be provided. Photocopies of general brochures are not acceptable.
- ☒ Include all source control and site design measures described in Steps 4 and 5 of the SWQMP. Can be included as a separate exhibit as necessary.

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