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AUDITOR, Pierce County, WASHINGTON

RANGE	TOWNSHIP	SECTION	QUARTER		
04E	19 N	04	03	06	173
DOCUMENT NUMBER				SERIAL NUMBER	PAGE NUMBER

After recording return to:

City of Puyallup
Attn: Mark Higginson, PE
333 South Meridian
Puyallup, WA 98372

AUDITOR'S NOTE
LEGIBILITY FOR RECORDING AND COPYING UNSATISFACTORY IN A PORTION OF THIS INSTRUMENT WHEN RECEIVED

STORMWATER MANAGEMENT/BMP FACILITIES AGREEMENT

THIS AGREEMENT, made and entered into this 19th day of February, 2019, by and between Puyallup School District, called the "Landowner", and City of Puyallup, WA hereinafter called the "City".

WHEREAS, the Landowner is the owner of certain real property described as Pierce County tax Numbers 0419043117, located at 1501 39th Avenue SW, Puyallup, Washington 98373, hereinafter called the "Property"; and

WHEREAS, the Landowner is proceeding to build on and develop the property; and

WHEREAS, the Site Plan known as Puyallup School District Logistic Service Center Site, hereinafter called the "Plan", which is expressly made a part hereof, as approved or to be approved by the City, provides for detention/retention and/or treatment of stormwater within the confines of the property; and

WHEREAS, the City and the Landowner, its successors and assigns, agree that the health, safety, and welfare of the residents of the City of Puyallup, WA, require that on-site stormwater management/BMP facilities ("Stormwater Facilities") be constructed and maintained on the Property; and

WHEREAS, the City requires that Stormwater Facilities as shown on the Plan be constructed and adequately maintained by the Landowner, its successors and assigns.

NOW, THEREFORE, in consideration of the foregoing premises, the mutual covenants contained herein, and the following terms and conditions, the parties hereto agree as follows:

1. The Stormwater Facilities shall be constructed by the Landowner, its agents, successors and assigns, in accordance with the plans and specifications identified in the Plan.

2. The Landowner, its agents, successors and assigns shall adequately maintain the Stormwater Facilities as described in the Maintenance and Operations Manual attached hereto as Exhibit A. This includes all pipes and channels built to convey stormwater to the facilities, as well as all structures, improvements, and vegetation provided to control the quantity and quality of the stormwater. Adequate maintenance is herein defined as good working condition so that these facilities are performing their design functions. The Annual Inspection Report, in a form

prescribed by the City, shall be used to establish what good working condition is acceptable to the City.

3. The Landowner, its agents, successors and assigns, shall regularly inspect the Stormwater Facilities and shall submit an inspection report not less than annually. The purpose of the inspection(s) is to assure safe and proper functioning of the Stormwater Facilities. The Annual Inspection Report form is attached hereto as Exhibit B. The inspection shall cover the entire Stormwater Facilities, including but not limited to berms, outlet structure, pond areas, access roads, etc. Deficiencies shall be noted by Landowner in the inspection report.

4. Upon advance notice to Landowner as described herein, the Landowner, its successors and assigns, hereby grants permission to the City, its authorized agents and employees, to enter upon the Property and to inspect the Stormwater Facilities whenever the City deems necessary. The purpose of a City-conducted inspection is to follow-up on reported deficiencies, to respond to citizen complaints, and/or to assure proper operation and function of Landowner's Stormwater Facilities. Except in case of emergency, the City shall provide Landowner with at least forty-eight (48) hours written notice prior to entering on to the Property. Landowner shall be entitled to have its representative accompany the City during such inspection. The City shall provide the Landowner, its successors and assigns, with copies of inspection findings and any directive to commence with the repairs if found to be necessary.

5. In the event the Landowner, its successors and assigns, fails to maintain the Stormwater Facilities in good working condition reasonably acceptable to the City consistent with the Plan, Annual Inspection Report, and accepted engineering standards, the City shall notify the Landowner in writing following identification of maintenance requirements or deficiencies. The City shall allow 60 days from date of written notification for Landowner to correct deficiencies and complete required maintenance or submit an acceptable deficiency correction and maintenance plan, at the Landowner's sole expense. In the event that the Landowner does not correct deficiencies and complete required maintenance or submit an acceptable deficiency correction and maintenance plan within the allotted time,, the City may enter upon the Property and take whatever steps the City deems necessary to correct deficiencies identified in the report and to charge the reasonable costs of such repairs to the Landowners. Provided, however, in the event of an emergency situation relating to the Stormwater Facilities, the City may enter upon the Property without notice and the City shall take whatever steps are reasonably necessary to correct such emergency situation subject to the right of reimbursement by the City from the Landowner and subject to the right of objection by the Landowner. An "emergency situation" shall be a condition or state of facts which if not immediately corrected would result in material damage to the City's Municipal Separate Storm Sewer System (MS4), an illicit discharge to the MS4, or in personal injury or property damage. The provisions herein shall not be construed to allow the City to erect any structure of permanent nature on the land of the Landowner outside of the easement for or area of the Stormwater Facilities. It is expressly understood and agreed that the City is under no obligation to routinely maintain or repair said Stormwater Facilities, and in no event shall this Agreement be construed to impose any such obligation on the City.

6. The Landowner, its successors and assigns, will perform the work necessary to keep these facilities in good working order as appropriate. In the event a maintenance schedule for the

Stormwater Facilities (including sediment removal) is outlined on the approved plans, the schedule will be followed.

7. In the event the City pursuant to this Agreement, performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like pursuant to this Agreement, the Landowner, its successors and assigns, shall reimburse the City upon demand, within thirty (30) days of receipt thereof for all actual costs incurred by the City.

8. Landowner agrees to hold the City harmless from liability arising from or related to the Landowner's design, construction, maintenance, repair or revisions to the Stormwater Facilities, its obligations under this Agreement, or any failure of the Stormwater Facilities to operate properly. However, the City shall be liable for any claims, actions, demands, injuries, or damages to person or property arising from or relating to any negligence of the City relating to or arising from its own actions, but nothing herein shall require the District to hold the City harmless for any liability attributable to the negligence of the City arising from its own actions.

9. This Agreement shall be recorded among the land records of Pierce County, WA, and shall constitute a covenant running with the land, and shall be binding on the Landowner, its executors, assigns, heirs and any other successors in interests.

WITNESS the following signatures and seals:

PUYALLUP SCHOOL DISTRICT

Signature

Gary J. Frentress, Exec. Dir. of Capital Projects
Print Name & Title

CITY OF PUYALLUP

Signature

Hans P. Hunger, City Engineer
Print Name & Title

RANGE	TOWNSHIP	SECTION	QUARTER		
04E-	19N-	04	03	016	4/34
DOCUMENT		NUMBER		SERIAL NUMBER	PAGE NUMBER

STATE OF WASHINGTON)
) ss
COUNTY OF Pierce)

On this day of Feb. 22, 2019, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared Gary J. Frentress to me, known to be the Exec. Dir. of Capital Proj of Puyallup School Dist. the municipal corporation that executed the foregoing instrument and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that he is authorized to execute the said instrument and that the seal affixed is the corporate seal of said municipal corporation.

Witness under my hand and official seal this day of Feb. 22 2019

Nancy J. Oliver
Signature

Nancy J. Oliver
Type or Print Notary Name
Notary Public in and for the State of Washington, residing at

Puyallup

My commission expires 8/1/26

NANCY J. OLIVER NOTARY PUBLIC STATE OF WASHINGTON My Comm. Expires August 1, 2026 No. 174115

Use this space for Notary Seal Stamp

RANGE	TOWNSHIP	SECTION	QUARTER		
04E	19N	04	03	016	534
DOCUMENT NUMBER				SERIAL NUMBER	PAGE NUMBER

STATE OF WASHINGTON)
) ss
COUNTY OF Pierce)

On this day of April 16, 2019, before me, the undersigned, a Notary Public in and for the State of Washington, duly commissioned and sworn, personally appeared Hans Hunger to me, known to be the City Engineer of Puyallup, the municipal corporation that executed the foregoing instrument and acknowledged the said instrument to be the free and voluntary act and deed of said corporation, for the uses and purposes therein mentioned, and on oath stated that he is authorized to execute the said instrument and that the seal affixed is the corporate seal of said municipal corporation.

Witness under my hand and official seal this day of April 16, 20 19.

Linda S. Lian
Signature

Linda S. Lian
Type or Print Notary Name

Notary Public in and for the State of Washington, residing at Puyallup

11·20·21
My commission expires

LINDA S LIAN NOTARY PUBLIC STATE OF WASHINGTON COMMISSION EXPIRES 11-20-21

Use this space for Notary Seal Stamp

RANGE	TOWNSHIP	SECTION	QUARTER		
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EXHIBIT A

(Operation & Maintenance Manual)

Auditor's notation to facilitate scanning process

Puyallup School District
Support Campus Site
Warehouse Addition

Operation & Maintenance Manual

Prepared for:

Puyallup School District
323 12th Street NW
Puyallup, WA 98371

Contact: Les Gerstmann, AIA
Phone: (253) 435-6673
Email: gerstlf@puyallup.k12.wa.us

Prepared by:

Sitts & Hill Engineers, Inc.
4815 Center Street
Tacoma, Washington 98409

Contact: Rick Hand, P.E.
Phone: (253) 474-9449
Email: rickh@sittshill.com

Date: November 2018

S&H Job Number 17,720

Puyallup School District Support Campus Site Warehouse Addition

Operation & Maintenance Manual

Prepared for:

Puyallup School District
323 12th Street NW
Puyallup, WA 98371

Contact: Les Gerstmann, AIA
Phone: (253) 435-6673
Email: gerstlf@puyallup.k12.wa.us

Prepared by:

Sitts & Hill Engineers, Inc.
4815 Center Street
Tacoma, Washington 98409

Contact: Rick Hand, P.E.
Phone: (253) 474-9449
Email: rickh@sittshill.com

Date: November 2018 **S&H Job Number 17,720**

I hereby state that this Operation and Maintenance Manual for the **Puyallup School District Support Campus Site Warehouse Addition** project has been prepared by me or under my supervision and meets the standard of care and expertise which is usual and customary in this community for professional engineers. I understand that the City of Puyallup does not and will not assume liability for the sufficiency, suitability, or performance of drainage facilities prepared by me.

RANGE	TOWNSHIP	SECTION	QUARTER		
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TABLE OF CONTENTS

1.0 – PURPOSE

The purpose of this Manual is to provide guidelines for maintaining the permanent on-site storm drainage system constructed as a part of the Puyallup School District Support Campus Site Warehouse Addition Project. These improvements are located at 1501 39th Avenue SW, Puyallup, WA 98373.

Storm utility improvements include:

- Type 1 and 2 Catch Basins
- Storm Drain Piping
- Roof Drain Piping
- Infiltration Trench
- Stormfilter®

Each portion of the system has to be maintained in good working condition for the system to function properly.

Operations and Maintenance will be the responsibility of the Owner, Puyallup School District. Mr. Philip Anderson is the maintenance contact person at Puyallup School District. His information is:

Mr. Philip Anderson
Director of Maintenance
323 12th Street NW
Puyallup, Washington 98371
Phone: (253) 651-1516

2.0 – PERMANENT FACILITIES DESCRIPTION

In the proposed condition, runoff from new and replaced surfaces will be conveyed via new catch basins and storm piping to a new Stormfilter® facility for treatment and to a new infiltration trench for disposal. Roof runoff will bypass the Stormfilter® and be conveyed directly to the infiltration trench.

3.0 – DISCUSSION OF MAINTENANCE

Any buildup of sediment, debris, vegetation, or trash that impedes the designed conveyance system may cause problems. As a result, care must be taken to keep drainage structures clean. A "vactor" truck, or other approved means, should be used to clean the on-site catch basins. Deposits on the paved surface should be swept or mechanically removed in order to prevent sediment or debris from entering the drainage system. Sediment removed must be disposed of at an approved site.

The applicable maintenance checklists and excerpts from the 2014 DOE Manual have been included with this manual for review during routine maintenance inspections.

The new Stormfilter® facility shall be maintained in accordance with the operation and maintenance directions of the manufacturer. These directions have been included with this manual following the applicable DOE checklists.

4.0 – MAINTENANCE FREQUENCY

Following construction of the project, all facilities shall be inspected and maintained according to their respective maintenance checklists included at the end of this manual. One form should be filled out for each facility on-site.

It is recommended that the maintenance checklists be kept in a log book or binder on-site for documentation and review purposes.

Facilities will be inspected monthly, annually, or after every significant storm event where the precipitation is greater than or equal to one inch in 24 hours.

When deficiencies are noted, the problems are to be corrected as soon as possible. Any spill of hazardous material (e.g. fuel, lubricant, herbicide, etc.) will be cleaned up immediately and will be reported to the Division of Emergency Management (1-800-258-5990). Contaminated material will be disposed of properly.

Any questions about the existence of a problem should be directed to a Professional Engineer.

5.0 – ANNUAL COST ESTIMATE

Annual maintenance costs for the storm system will include cleaning of the catch basins, conveyance elements, infiltration trench and Stormfilter®. Approximate annual costs for these tasks are tabulated in Table D-1. All maintenance activities will be the responsibility of Puyallup School District upon occupation of the facility.

Facility	Quantity	Unit Cost	Total Cost
Catch Basins	7	$250	$1,750
Infiltration Trench	155 LF	$10	$1,550
Stormfilter®	1	$500	$500
Total Cost			$3,800

See the following pages for plan sheets showing facilities to be maintained.

RANGE	TOWNSHIP	SECTION	QUARTER		
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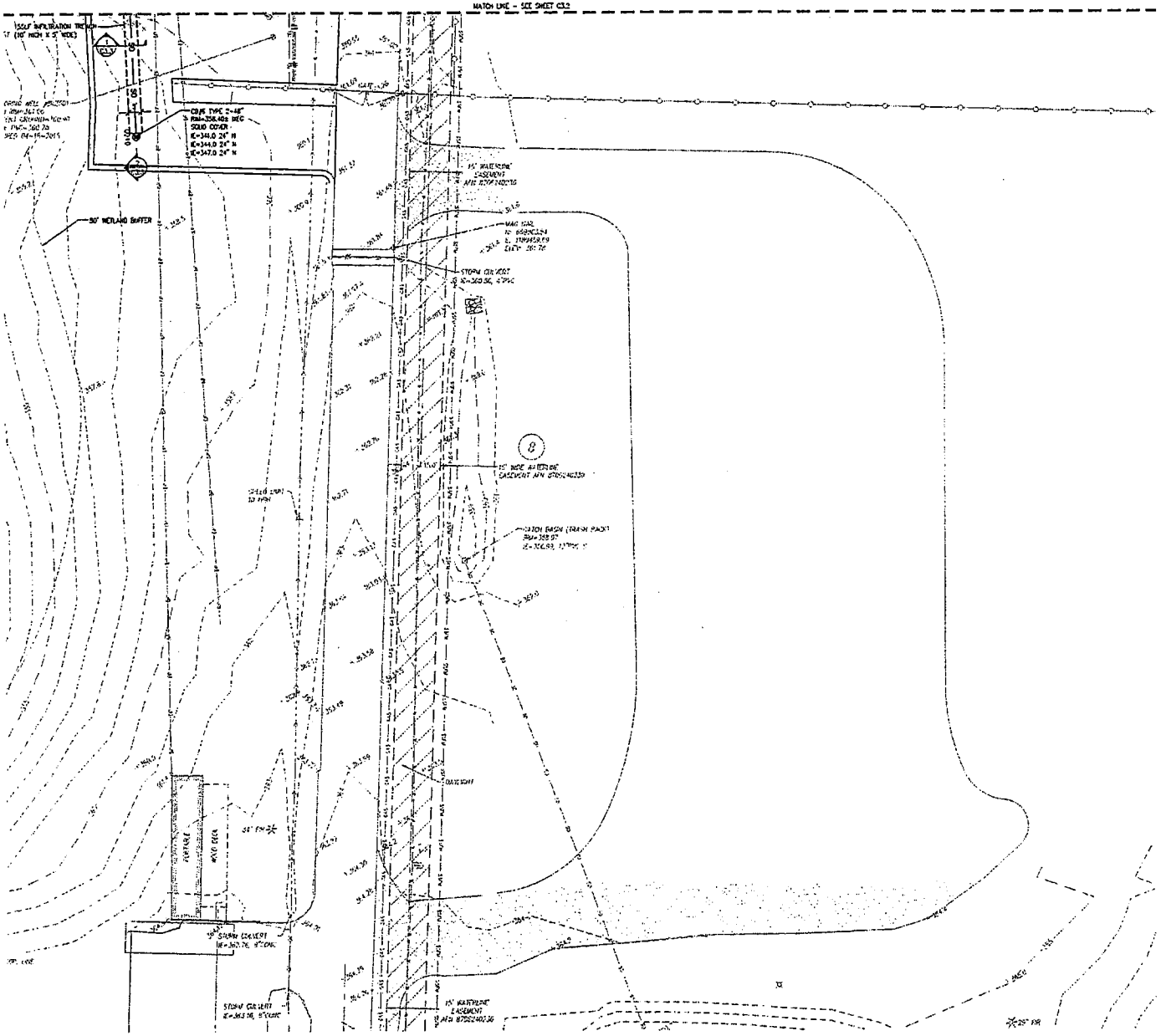
DOCUMENT NUMBER				SERIAL NUMBER	PAGE NUMBER



NORTH

HORIZONTAL SCALE: 1"=20'

20 0 20

LEGEND

PROPOSED FEATURES:

- SD — STORM DRAIN PIPE
- TYPE 1 CB
- TYPE 2 CB
- CLEANOUT

GENERAL NOTES

1. TYPE 1 CB'S SHALL CONFORM WITH CITY STANDARD REQUIREMENTS (SEE 1/C3.7).
2. TYPE 2 CB'S SHALL CONFORM WITH CITY STANDARD REQUIREMENTS (SEE 2/C3.7).
3. CB FRAMES AND COVERS SHALL COMPLY WITH OET STANDARD DETAIL 02.01.05), 4 & 5/C3.6.
4. SD CLEANOUTS SHALL COMPLY WITH DETAIL 1/C3.6
5. TYPICAL SD UTILITY TRENCH AND STRUCTURE EXCAV BACKFILL REQUIREMENTS SHALL COMPLY WITH DETAI UNLESS OTHERWISE DETAILED.

APPRO

BY _____ CITY OF PU ENGINEERING

DATE _____

NOTE: THIS APPROV AFTER 1 YEAR FROM DATE. THE CITY WILL NOT RESPONSIBLE FOR I OMISSIONS ON THIS FIELD CONDITIONS CHANGES TO THOSE DETERMINED BY TH ENGINEERING SERV

SITTS & HI
ENGINEERS,
CIVIL • STRUCTURAL •

Project No.: 17,857 | Project

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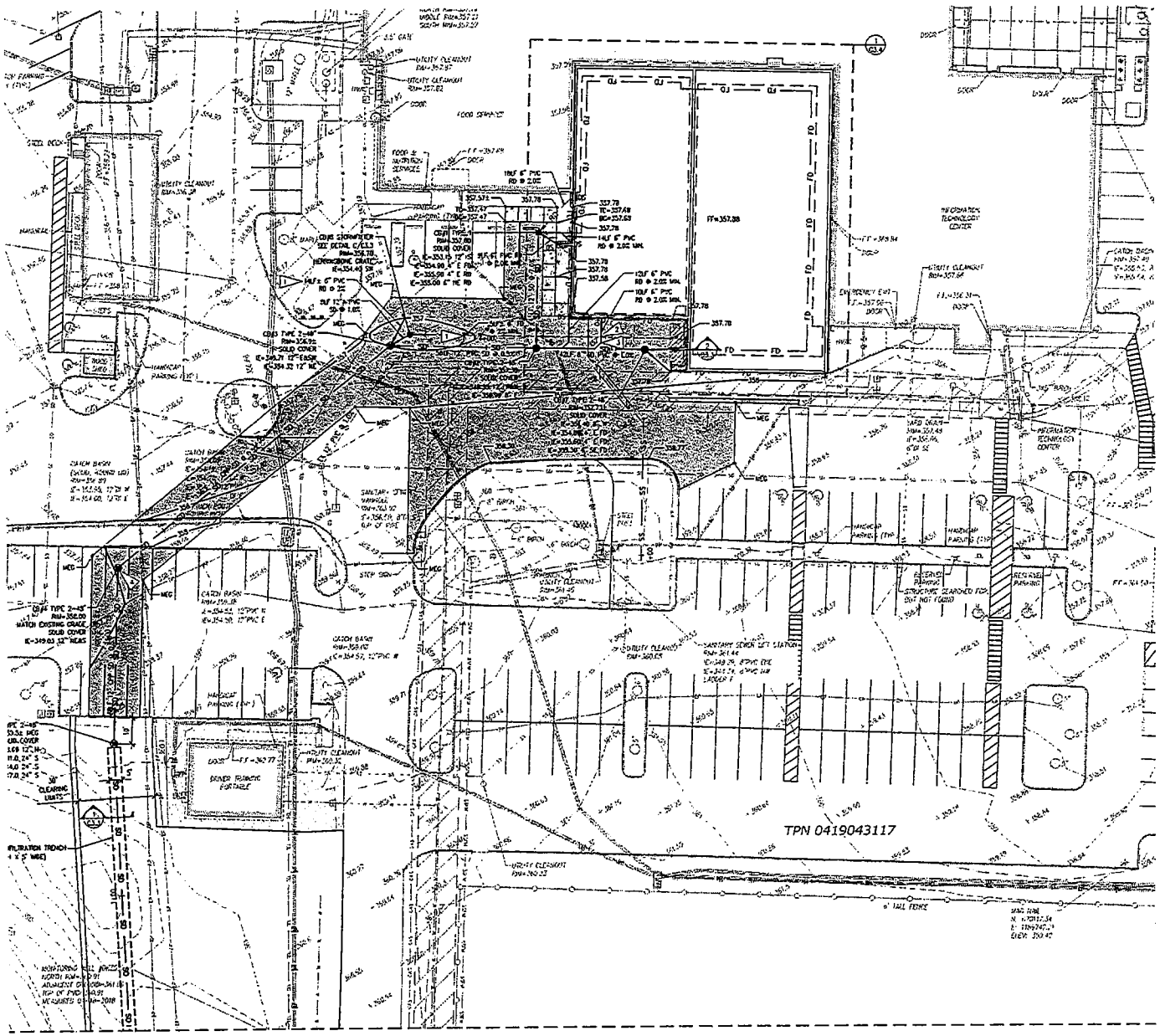

LEGEND

PROPOSED FEATURES:

- SD — STORM DRAIN PIPE
- TYPE 1 CB
- TYPE 2 CB
- CLEANOUT
- 358 — CONTOUR
- FD — FOOTING DRAIN
- RD — ROOF DRAIN

GENERAL NOTES

1. TYPE 1 CB'S SHALL CONFORM WITH CITY STANDARD REQUIREMENTS (SEE 1/C3.7).
2. TYPE 2 CB'S SHALL CONFORM WITH CITY STANDARD REQUIREMENTS (SEE 2/C3.7).
3. 3. CB FRAMES AND COVERS SHALL COMPLY WITH (CITY STANDARD DETAIL 02.01.05), 4 & 5/C3.6.
4. 2D CLEANOUTS SHALL COMPLY WITH DETAIL 1/C3.6
5. TYPICAL SD UTILITY TRENCH AND STRUCTURE EXCAVATION BACKFILL REQUIREMENTS SHALL COMPLY WITH DETAILS UNLESS OTHERWISE DETAILED.
6. BUILDING DOWNSPOUT CONNECTION SHALL COMPLY WITH REQUIREMENTS. COORDINATE WITH ARCHITECTURAL & PLANS FOR EXACT HORIZONTAL LOCATIONS.

KEY NOTES

1. PROVIDE 45° ELL AND ROMAC COUPLING
2. CONNECT TO 3" RAIN LEADER BY MECHANICAL PIPE COUPLING
3. PROVIDE 6"ø SCH 35 RD @ 2% SLOPE. PROVIDE TO SD MAIN
4. PROVIDE 12"ø TEE OR CB OUTLET PER CITY STANDARD 02.05.02 (SEE 4/C3.7)

APPROVED

BY _____ CITY OF PO ENGINEERING

DATE _____

NOTICE: THIS APPROVAL IS VALID FOR 1 YEAR FROM THE DATE. THE CITY WILL NOT BE RESPONSIBLE FOR ANY CHANGES OR TIME FIELD CONDITIONS CHANGES TO THESE DETERMINED BY TH ENGINEERING SURV

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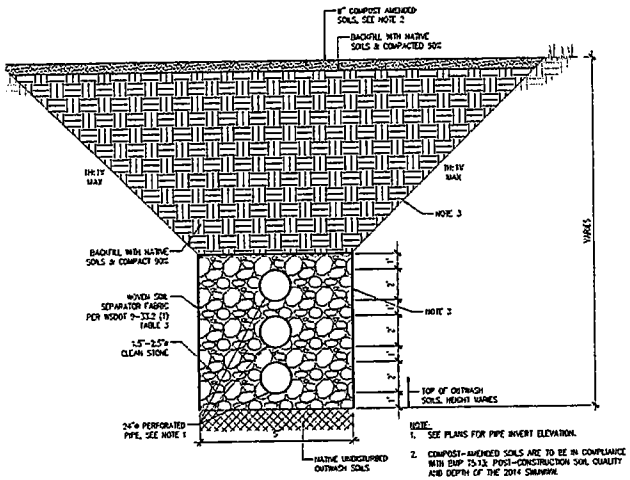
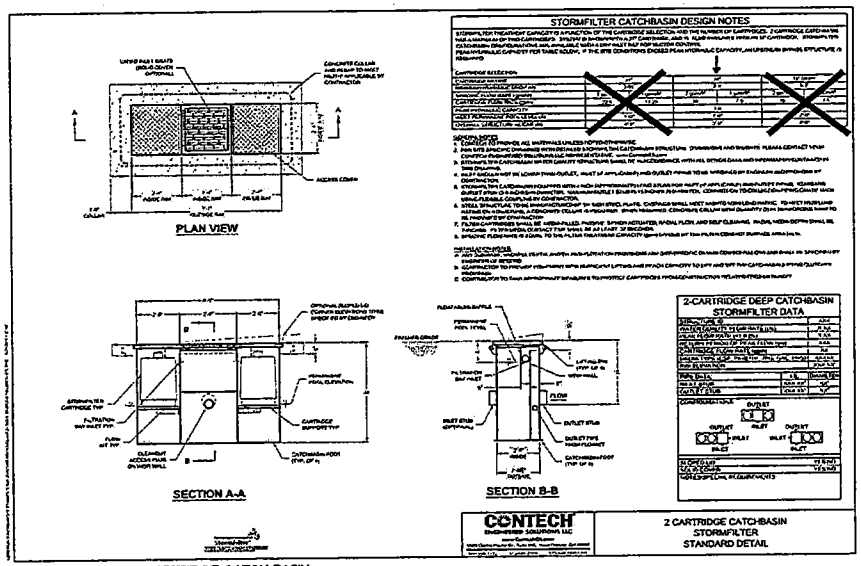
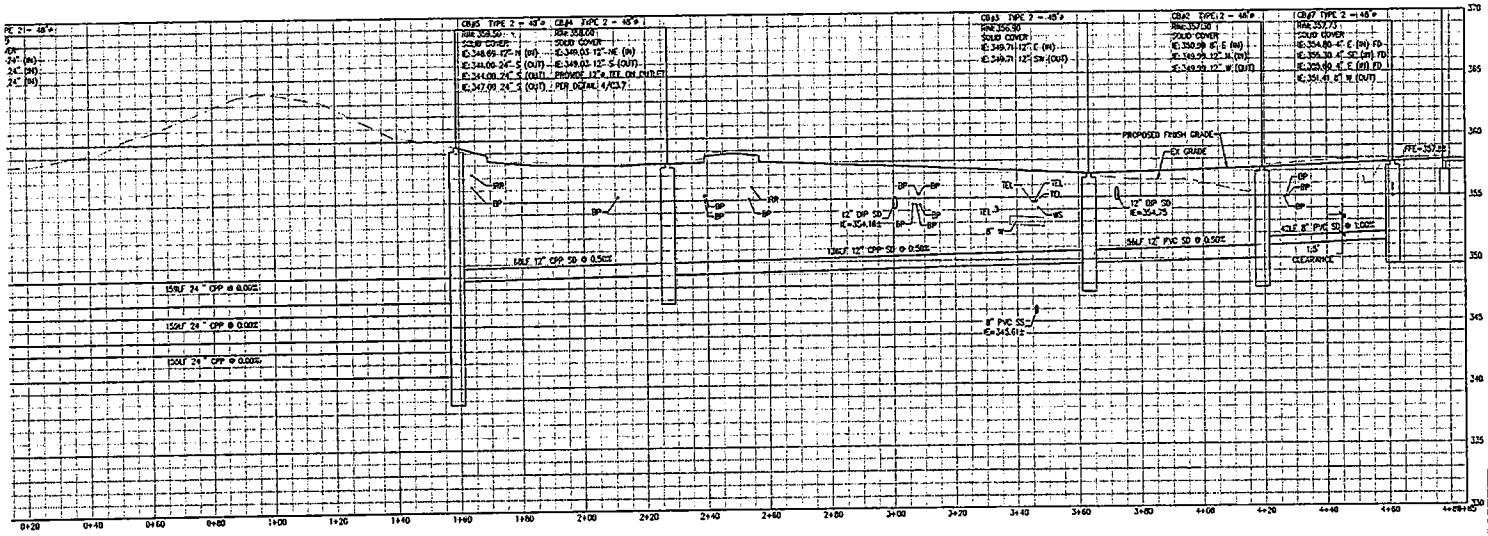
Project No.: 17,857 | Project



SPOUT INFILTRATION TRENCH



3 STORMFILTER - TWO CARTRIDGE CATCH BASIN
SCALE: N.T.S.



HRZ: 1"=2'

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CIVIL • STRUCTURAL •

Project No: 17.057 | Project

Cover Sheet for Inspection Forms

Name of Inspector:

_____

Date of Inspection:

_____

Number of Sheets Attached:

_____

Inspector's Signature:

_____

Maintenance Log

Action Taken	Name	Date	How Procedure Was Performed	Problems Encountered	Additional Actions Recommended

Table V-4.5.2(1) Maintenance Standards - Detention Ponds (continued)

Maintenance Component	Defect	Conditions When Maintenance Is Needed	Results Expected When Maintenance Is Performed
		potential for erosion to continue. (Recommend a Goeth-echnical engineer be called in to inspect and evaluate condition and recommend repair of condition.	
Emergency Over-flow/Spillway	Emergency Over-flow/Spillway	Only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil at the top of out flow path of spillway. (Rip-rap on inside slopes need not be replaced.)	Rocks and pad depth are restored to design standards.
	Erosion	See "Side Slopes of Pond"	

Table V-4.5.2(2) Maintenance Standards - Infiltration

Maintenance Component	Defect	Conditions When Maintenance Is Needed	Results Expected When Maintenance Is Performed
General	Trash & Debris	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Poisonous/Noxious Vegetation	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Contaminants and Pollution	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Rodent Holes	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1)
Storage Area	Sediment	Water ponding in infiltration pond after rainfall ceases and appropriate	Sediment is removed

Table V-4.5.2(2) Maintenance Standards - Infiltration (continued)

Maintenance Component	Defect	Conditions When Maintenance Is Needed	Results Expected When Maintenance Is Performed
		time allowed for infiltration. Treatment basins should infiltrate Water Quality Design Storm Volume within 48 hours, and empty within 24 hours after cessation of most rain events. (A percolation test pit or test of facility indicates facility is only working at 90% of its designed capabilities. Test every 2 to 5 years. If two inches or more sediment is present, remove).	and/or facility is cleaned so that infiltration system works according to design.
Filter Bags (if applicable)	Filled with Sediment and Debris	Sediment and debris fill bag more than 1/2 full.	Filter bag is replaced or system is redesigned.
Rock Filters	Sediment and Debris	By visual inspection, little or no water flows through filter during heavy rain storms.	Gravel in rock filter is replaced.
Side Slopes of Pond	Erosion	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
Emergency Overflow Spillway and Berms over 4 feet in height.	Tree Growth	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Piping	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
Emergency Overflow Spillway	Rock Missing	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
	Erosion	See "Detention Ponds" (No. 1).	See "Detention Ponds" (No. 1).
Pre-settling Ponds and Vaults	Facility or sump filled with Sediment and/or debris	6" or designed sediment trap depth of sediment.	Sediment is removed.

Table V-4.5.2(5) Maintenance Standards - Catch Basins

Maintenance Component	Defect	Conditions When Maintenance Is Needed	Results Expected When Maintenance is performed
General	Trash & Debris	Trash or debris which is located immediately in front of the catch basin opening or is blocking inletting capacity of the basin by more than 10%. Trash or debris (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of six inches clearance from the debris surface to the invert of the lowest pipe. Trash or debris in any inlet or outlet pipe blocking more than 1/3 of its height. Dead animals or vegetation that could generate odors that could cause complaints or dangerous gases (e.g., methane).	No Trash or debris located immediately in front of catch basin or on grate opening. No trash or debris in the catch basin. Inlet and outlet pipes free of trash or debris. No dead animals or vegetation present within the catch basin.
	Sediment	Sediment (in the basin) that exceeds 60 percent of the sump depth as measured from the bottom of basin to invert of the lowest pipe into or out of the basin, but in no case less than a minimum of 6 inches clearance from the sediment surface to the invert of the lowest pipe.	No sediment in the catch basin
	Structure Damage to Frame and/or Top Slab	Top slab has holes larger than 2 square inches or cracks wider than 1/4 inch. (Intent is to make sure no material is running into basin).	Top slab is free of holes and cracks. Frame is sit-

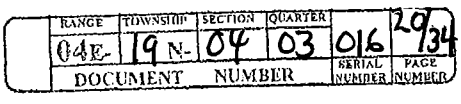


Table V-4.5.2(5) Maintenance Standards - Catch Basins (continued)

Maintenance Component	Defect	Conditions When Maintenance Is Needed	Results Expected When Maintenance is performed
		Frame not sitting flush on top slab, i.e., separation of more than 3/4 inch of the frame from the top slab. Frame not securely attached	ting flush on the riser rings or top slab and firmly attached.
	Fractures or Cracks in Basin Walls/ Bottom	Maintenance person judges that structure is unsound. Grout fillet has separated or cracked wider than 1/2 inch and longer than 1 foot at the joint of any inlet/outlet pipe or any evidence of soil particles entering catch basin through cracks.	Basin replaced or repaired to design standards. Pipe is regrouted and secure at basin wall.
	Settlement/ Misalignment	If failure of basin has created a safety, function, or design problem.	Basin replaced or repaired to design standards.
	Vegetation	Vegetation growing across and blocking more than 10% of the basin opening. Vegetation growing in inlet/outlet pipe joints that is more than six inches tall and less than six inches apart.	No vegetation blocking opening to basin. No vegetation or root growth present.
	Contamination and Pollution	See "Detention Ponds" (No. 1).	No pollution present.
Catch Basin Cover	Cover Not in Place	Cover is missing or only partially in place. Any open catch basin requires maintenance.	Catch basin cover is closed
	Locking Mechanism Not	Mechanism cannot be opened by one maintenance person with proper tools. Bolts into	Mechanism opens with

Table V-4.5.2(5) Maintenance Standards - Catch Basins (continued)

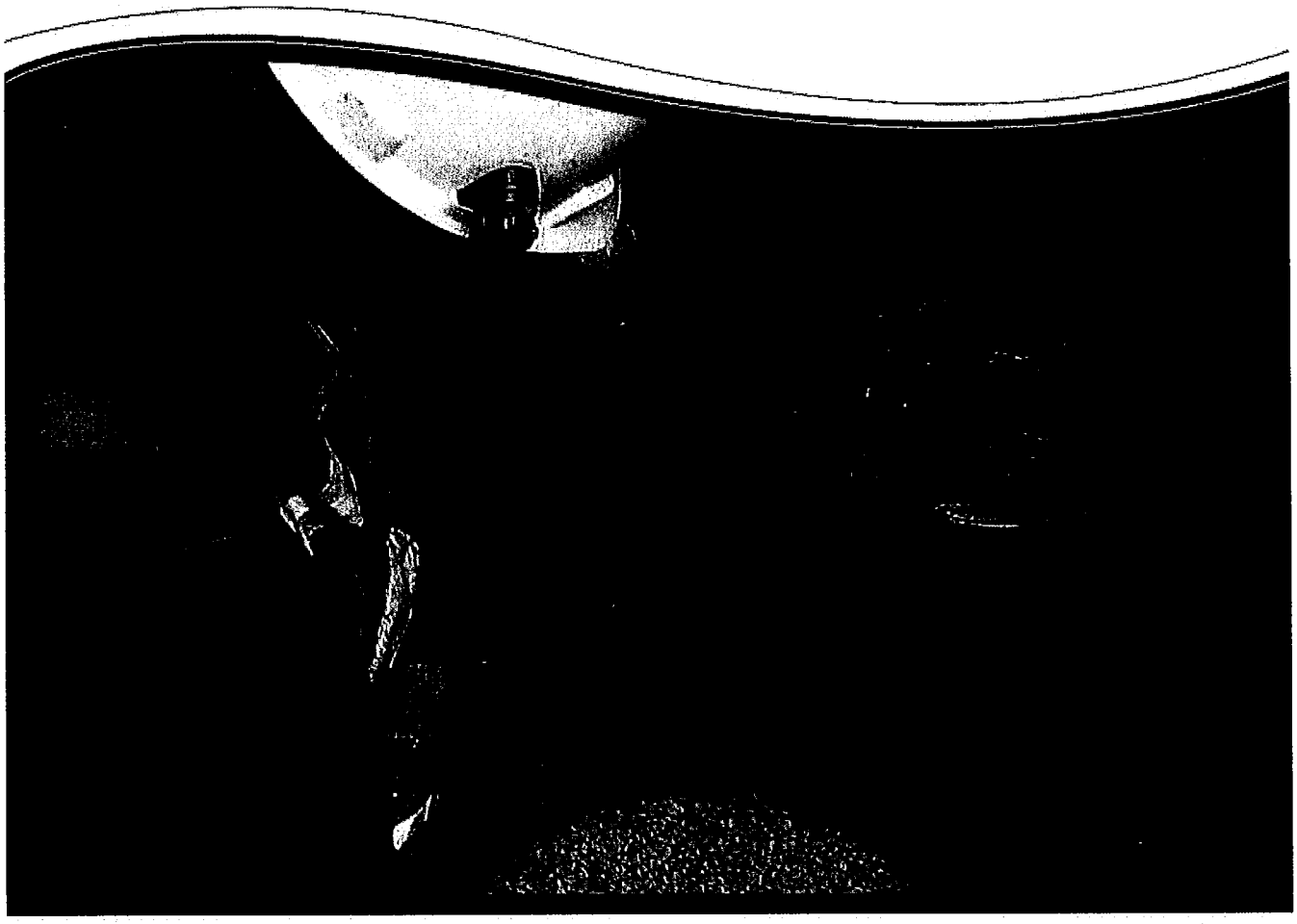
Maintenance Component	Defect	Conditions When Maintenance is Needed	Results Expected When Maintenance is performed
	Working	frame have less than 1/2 inch of thread.	proper tools.
	Cover Difficult to Remove	One maintenance person cannot remove lid after applying normal lifting pressure. (Intent is keep cover from sealing off access to maintenance.)	Cover can be removed by one maintenance person.
Ladder	Ladder Rungs Unsafe	Ladder is unsafe due to missing rungs, not securely attached to basin wall, misalignment, rust, cracks, or sharp edges.	Ladder meets design standards and allows maintenance person safe access.
Metal Grates (If Applicable)	Grate opening Unsafe	Grate with opening wider than 7/8 inch.	Grate opening meets design standards.
	Trash and Debris	Trash and debris that is blocking more than 20% of grate surface inletting capacity.	Grate free of trash and debris.
	Damaged or Missing.	Grate missing or broken member(s) of the grate.	Grate is in place and meets design standards.

Table V-4.5.2(6) Maintenance Standards - Debris Barriers (e.g., Trash Racks)

Maintenance Components	Defect	Condition When Maintenance is Needed	Results Expected When Maintenance is Performed
General	Trash and Debris	Trash or debris that is plugging more than 20% of the openings in the barrier.	Barrier cleared to design flow capacity.
Metal	Damaged/ Missing	Bars are bent out of shape more than 3 inches.	Bars in place with no bends more than 3/4

CONTECH
ENGINEERED SOLUTIONS

StormFilter Inspection and Maintenance Procedures



The Stormwater Management StormFilter

Maintenance Guidelines

The primary purpose of the Stormwater Management StormFilter® is to filter and prevent pollutants from entering our waterways. Like any effective filtration system, periodically these pollutants must be removed to restore the StormFilter to its full efficiency and effectiveness.

Maintenance requirements and frequency are dependent on the pollutant load characteristics of each site. Maintenance activities may be required in the event of a chemical spill or due to excessive sediment loading from site erosion or extreme storms. It is a good practice to inspect the system after major storm events.

Maintenance Procedures

Although there are many effective maintenance options, we believe the following procedure to be efficient, using common equipment and existing maintenance protocols. The following two-step procedure is recommended::

1. **Inspection**
   - Inspection of the vault interior to determine the need for maintenance.
2. **Maintenance**
   - Cartridge replacement
   - Sediment removal

Inspection and Maintenance Timing

At least one scheduled inspection should take place per year with maintenance following as warranted.

First, an inspection should be done before the winter season. During the inspection the need for maintenance should be determined and, if disposal during maintenance will be required, samples of the accumulated sediments and media should be obtained.

Second, if warranted, a maintenance (replacement of the filter cartridges and removal of accumulated sediments) should be performed during periods of dry weather.

In addition to these two activities, it is important to check the condition of the StormFilter unit after major storms for potential damage caused by high flows and for high sediment accumulation that may be caused by localized erosion in the drainage area. It may be necessary to adjust the inspection/ maintenance schedule depending on the actual operating conditions encountered by the system. In general, inspection activities can be conducted at any time, and maintenance should occur, if warranted, during dryer months in late summer to early fall.

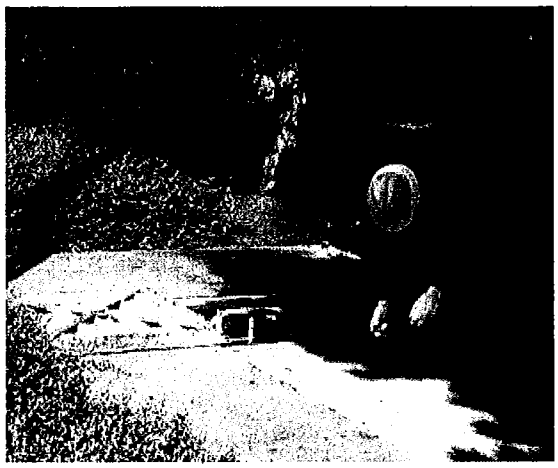
Maintenance Frequency

The primary factor for determining frequency of maintenance for the StormFilter is sediment loading.

A properly functioning system will remove solids from water by trapping particulates in the porous structure of the filter media inside the cartridges. The flow through the system will naturally decrease as more and more particulates are trapped. Eventually the flow through the cartridges will be low enough to require replacement. It may be possible to extend the usable span of the cartridges by removing sediment from upstream trapping devices on a routine as-needed basis, in order to prevent material from being re-suspended and discharged to the StormFilter treatment system.

The average maintenance lifecycle is approximately 1-5 years. Site conditions greatly influence maintenance requirements. StormFilter units located in areas with erosion or active construction may need to be inspected and maintained more often than those with fully stabilized surface conditions.

Regulatory requirements or a chemical spill can shift maintenance timing as well. The maintenance frequency may be adjusted as additional monitoring information becomes available during the inspection program. Areas that develop known problems should be inspected more frequently than areas that demonstrate no problems, particularly after major storms. Ultimately, inspection and maintenance activities should be scheduled based on the historic records and characteristics of an individual StormFilter system or site. It is recommended that the site owner develop a database to properly manage StormFilter inspection and maintenance programs..



Inspection Procedures

The primary goal of an inspection is to assess the condition of the cartridges relative to the level of visual sediment loading as it relates to decreased treatment capacity. It may be desirable to conduct this inspection during a storm to observe the relative flow through the filter cartridges. If the submerged cartridges are severely plugged, then typically large amounts of sediments will be present and very little flow will be discharged from the drainage pipes. If this is the case, then maintenance is warranted and the cartridges need to be replaced.

Warning: In the case of a spill, the worker should abort inspection activities until the proper guidance is obtained. Notify the local hazard control agency and Contech Engineered Solutions immediately.

To conduct an inspection:

Important: Inspection should be performed by a person who is familiar with the operation and configuration of the StormFilter treatment unit.

1. If applicable, set up safety equipment to protect and notify surrounding vehicle and pedestrian traffic.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the access portals to the vault and allow the system vent.
4. Without entering the vault, visually inspect the inside of the unit, and note accumulations of liquids and solids.
5. Be sure to record the level of sediment build-up on the floor of the vault, in the forebay, and on top of the cartridges. If flow is occurring, note the flow of water per drainage pipe. Record all observations. Digital pictures are valuable for historical documentation.
6. Close and fasten the access portals.
7. Remove safety equipment.
8. If appropriate, make notes about the local drainage area relative to ongoing construction, erosion problems, or high loading of other materials to the system.
9. Discuss conditions that suggest maintenance and make decision as to weather or not maintenance is needed.

Maintenance Decision Tree

The need for maintenance is typically based on results of the inspection. The following Maintenance Decision Tree should be used as a general guide. (Other factors, such as Regulatory Requirements, may need to be considered)

1. Sediment loading on the vault floor.
   a. If >4" of accumulated sediment, maintenance is required.
2. Sediment loading on top of the cartridge.
   a. If >1/4" of accumulation, maintenance is required.
3. Submerged cartridges.
   a. If >4" of static water above cartridge bottom for more than 24 hours after end of rain event, maintenance is required. (Catch basins have standing water in the cartridge bay.)
4. Plugged media.
   a. If pore space between media granules is absent, maintenance is required.
5. Bypass condition.
   a. If inspection is conducted during an average rain fall event and StormFilter remains in bypass condition (water over the internal outlet baffle wall or submerged cartridges), maintenance is required.
6. Hazardous material release.
   a. If hazardous material release (automotive fluids or other) is reported, maintenance is required.
7. Pronounced scum line.
   a. If pronounced scum line (say ≥ 1/4" thick) is present above top cap, maintenance is required.

Maintenance

Depending on the configuration of the particular system, maintenance personnel will be required to enter the vault to perform the maintenance.

Important: If vault entry is required, OSHA rules for confined space entry must be followed.

Filter cartridge replacement should occur during dry weather. It may be necessary to plug the filter inlet pipe if base flows is occurring.

Replacement cartridges can be delivered to the site or customers facility. Information concerning how to obtain the replacement cartridges is available from Contech Engineered Solutions.

Warning: In the case of a spill, the maintenance personnel should abort maintenance activities until the proper guidance is obtained. Notify the local hazard control agency and Contech Engineered Solutions immediately.

To conduct cartridge replacement and sediment removal maintenance:

1. If applicable, set up safety equipment to protect maintenance personnel and pedestrians from site hazards.
2. Visually inspect the external condition of the unit and take notes concerning defects/problems.
3. Open the doors (access portals) to the vault and allow the system to vent.
4. Without entering the vault, give the inside of the unit, including components, a general condition inspection.
5. Make notes about the external and internal condition of the vault. Give particular attention to recording the level of sediment build-up on the floor of the vault, in the forebay, and on top of the internal components.
6. Using appropriate equipment offload the replacement cartridges (up to 150 lbs. each) and set aside.
7. Remove used cartridges from the vault using one of the following methods:

Method 1:

A. This activity will require that maintenance personnel enter the vault to remove the cartridges from the under drain manifold and place them under the vault opening for lifting (removal). Disconnect each filter cartridge from the underdrain connector by rotating counterclockwise 1/4 of a turn. Roll the loose cartridge, on edge, to a convenient spot beneath the vault access.

Using appropriate hoisting equipment, attach a cable from the boom, crane, or tripod to the loose cartridge. Contact Contech Engineered Solutions for suggested attachment devices.

B. Remove the used cartridges (up to 250 lbs. each) from the vault.

Important: Care must be used to avoid damaging the cartridges during removal and installation. The cost of repairing components damaged during maintenance will be the responsibility of the owner.

C. Set the used cartridge aside or load onto the hauling truck.

D. Continue steps a through c until all cartridges have been removed.

Method 2:

A. This activity will require that maintenance personnel enter the vault to remove the cartridges from the under drain manifold and place them under the vault opening for lifting (removal). Disconnect each filter cartridge from the underdrain connector by rotating counterclockwise 1/4 of a turn. Roll the loose cartridge, on edge, to a convenient spot beneath the vault access.

B. Unscrew the cartridge cap.

C. Remove the cartridge hood and float.

D. At location under structure access, tip the cartridge on its side.

E. Empty the cartridge onto the vault floor. Reassemble the empty cartridge.

F. Set the empty, used cartridge aside or load onto the hauling truck.

G. Continue steps a through e until all cartridges have been removed.

8. Remove accumulated sediment from the floor of the vault and from the forebay. This can most effectively be accomplished by use of a vacuum truck.
9. Once the sediments are removed, assess the condition of the vault and the condition of the connectors.
10. Using the vacuum truck boom, crane, or tripod, lower and install the new cartridges. Once again, take care not to damage connections.
11. Close and fasten the door.
12. Remove safety equipment.
13. Finally, dispose of the accumulated materials in accordance with applicable regulations. Make arrangements to return the used **empty** cartridges to Contech Engineered Solutions.

Related Maintenance Activities - Performed on an as-needed basis

StormFilter units are often just one of many structures in a more comprehensive stormwater drainage and treatment system.

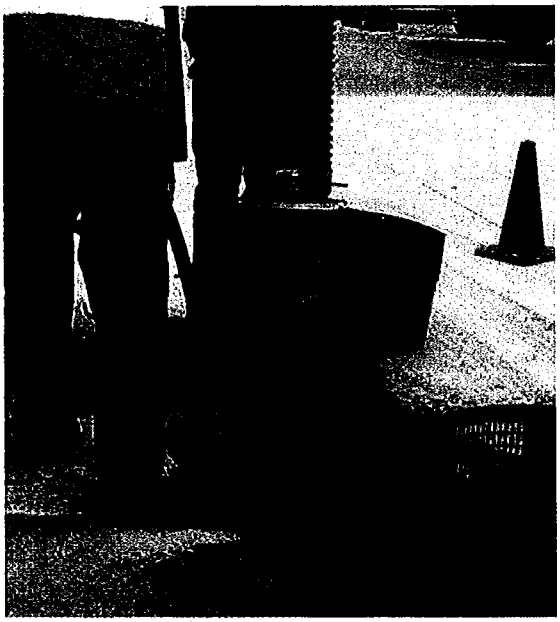
In order for maintenance of the StormFilter to be successful, it is imperative that all other components be properly maintained. The maintenance/repair of upstream facilities should be carried out prior to StormFilter maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads.

Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.



Inspection Report

Date: Personnel:

Location: System Size:

System Type: Vault ☐ Cast-In-Place ☐ Linear Catch Basin ☐ Manhole ☐ Other ☐

Sediment Thickness in Forebay: Date:

Sediment Depth on Vault Floor:

Structural Damage:

Estimated Flow from Drainage Pipes (if available):

Cartridges Submerged: Yes ☐ No ☐ Depth of Standing Water:

StormFilter Maintenance Activities (check off if done and give description)

☐ Trash and Debris Removal:

☐ Minor Structural Repairs:

☐ Drainage Area Report

Excessive Oil Loading: Yes ☐ No ☐ Source:

Sediment Accumulation on Pavement: Yes ☐ No ☐ Source:

Erosion of Landscaped Areas: Yes ☐ No ☐ Source:

Items Needing Further Work:

Owners should contact the local public works department and inquire about how the department disposes of their street waste residuals.

Other Comments:

Review the condition reports from the previous inspection visits.

StormFilter Maintenance Report

Date: _____ Personnel: _____

Location: _____ System Size: _____

System Type: Vault ☐ Cast-In-Place ☐ Linear Catch Basin ☐ Manhole ☐ Other ☐

List Safety Procedures and Equipment Used: _____

_____

_____

System Observations

Months in Service:

Oil in Forebay (if present): Yes ☐ No ☐

Sediment Depth in Forebay (if present): _____

Sediment Depth on Vault Floor: _____

Structural Damage: _____

Drainage Area Report

Excessive Oil Loading: Yes ☐ No ☐ Source: _____

Sediment Accumulation on Pavement: Yes ☐ No ☐ Source: _____

Erosion of Landscaped Areas: Yes ☐ No ☐ Source: _____

StormFilter Cartridge Replacement Maintenance Activities

Remove Trash and Debris: Yes ☐ No ☐ Details: _____

Replace Cartridges: Yes ☐ No ☐ Details: _____

Sediment Removed: Yes ☐ No ☐ Details: _____

Quantity of Sediment Removed (estimate?):

Minor Structural Repairs: Yes ☐ No ☐ Details: _____

Residuals (debris, sediment) Disposal Methods: _____

Notes:

_____

_____

_____

_____

_____

_____

_____

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Support

- **Drawings and specifications are available at www.conteches.com.**
- **Site-specific design support is available from our engineers.**

800.338.1122
www.conteches.com

EXHIBIT B

(Annual Inspection Report Form)

Auditor's notation to facilitate scanning process

RANGE	TOWNSHIP	SECTION	QUARTER		
04E	19N	04	03	016	31/34
DOCUMENT NUMBER				SERIAL NUMBER	PAGE NUMBER

Annual Inspection Report

City of Puyallup - Stormwater BMP Facilities Inspection and Maintenance Log

Facility Name _____

Address _____

Begin Date _____ End Date _____

Date	BMP ID#	BMP Facility Description	Inspected by:	Cause for Inspection	Exceptions Noted	Comments and Actions Taken

Instructions:

Record all inspections and maintenance for all treatment BMPs on this form. Use additional log sheets and/or attach extended comments or documentation as necessary. Submit a copy of the completed log with the Annual Independent Inspectors' Report to the City, and start a new log at that time.

BMP ID# — Always use ID# from the Operation and Maintenance Manual.
Inspected by — Note all inspections and maintenance on this form, including the required independent annual inspection.
Cause for inspection — Note if the inspection is routine, pre-rainy-season, post-storm, annual, or in response to a noted problem or complaint.
Exceptions noted — Note any condition that requires correction or indicates a need for maintenance.
Comments and actions taken — Describe any maintenance done and need for follow-up.

Return Form to: Stormwater Engineer/City of Puyallup
333 South Meridian
Puyallup, WA 98371

RANGE	TOWNSHIP	SECTION	QUARTER		
04E-	19 N-	04	03	016	32 7/34
DOCUMENT NUMBER				SERIAL NUMBER	PAGE NUMBER

Annual Inspection Report

City of Puyallup - Stormwater BMP Facilities Inspection and Maintenance Log

Facility Name _____

Date	BMP ID#	BMP Facility Description	Inspected by:	Cause for Inspection	Exceptions Noted	Comments and Actions Taken

RANGE	TOWNSHIP	SECTION	QUARTER		
04E.	19 N.	04	03	016	34/34
DOCUMENT NUMBER				SERIAL NUMBER	PAGE NUMBER

EXHIBIT C

(Legal Description of Property)

THE LAND IN THE COUNTY OF PIERCE, STATE OF WASHINGTON, DESCRIBED AS FOLLOWS:

THE WEST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER AND WEST HALF OF THE WEST HALF OF THE EAST HALF OF THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 4, TOWNSHIP 19 NORTH, RANGE 4 EAST OF THE WILLAMETTE MERIDIAN;

EXCEPT THE FOLLOWING DESCRIBED PROPERTY:
BEGINNING 30 FEET NORTH AND 15 FEET EAST OF THE SOUTHWEST CORNER OF SAID SECTION 4;
THENCE NORTH 553.14 FEET;
THENCE EAST 315 FEET;
THENCE SOUTH 553.14 FEET;
THENCE WEST 315 FEET TO THE POINT OF BEGINNING;

ALSO EXCEPT THE FOLLOWING DESCRIBED PROPERTY:
BEGINNING AT THE SOUTHWEST CORNER OF SAID SECTION 4;
THENCE NORTH 00°04'25"EAST ALONG THE WEST LINE OF SAID SECTION A DISTANCE OF 1148.90 FEET TO THE TRUE POINT OF BEGINNING;
THENCE NORTH 89°07'39"EAST A DISTANCE OF 162.00 FEET;
THENCE NORTH 00°04'25"EAST A DISTANCE OF 148.00 FEET;
THENCE SOUTH 89°07'39"WEST A DISTANCE OF 162.00 FEET TO THE WEST LINE OF SAID SECTION;
THENCE SOUTH 00°04'25"WEST 148.00 FEET ALONG THE WEST LINE OF SAID SECTION TO THE POINT OF BEGINNING;
EXCEPT 86TH AVENUE EAST RESERVED FOR COUNTY ROAD (ALSO KNOWN AS 17TH STREET S.W.);

ALSO EXCEPT THAT PORTION THEREOF CONVEYED TO THE STATE OF WASHINGTON BY INSTRUMENTS RECORDED UNDER RECORDING NUMBERS 2227151, 223840, 9407070774 AND 9407070775;

ALSO EXCEPT THE SOUTHERNLY 30 FEET THEREOF FOR 39TH AVENUE S.W. (ALSO KNOWN AS 112TH STREET EAST);
SITUATE IN THE CITY OF PUYALLUP, COUNTY OF PIERCE, STATE OF WASHINGTON.