After recording return to:

City Clerk
City of Puyallup
333 South Meridian
Puyallup, WA 98371

Document Title: Stormwater Outfall Management & BMP Facilities Agreement
Grantee: City of Puyallup
Grantor: Tac Build LLC
Legal Description: A portion of the SW 1/4 of the SE 1/4 of Section 27, Township 20 North, Range 4 East
Complete Legal Description on 7 **Page of this Document**
Assessor's Tax Parcel or Account Numbers: 7845001330
Reference Number of Related Document(s): _____

Stormwater Management & BMP Facilities Agreement

A. Parties. The parties to this agreement are Grantee City of Puyallup, a Washington State municipal corporation (City), and Grantor landowner Tac Build LLC (Landowner).

B. Property. Landowner is the owner of certain real property (Property), which is legally described in this document and is located at the following address: 1200 7th Ave SE Puyallup, WA 98374.

C. Development Plan & Stormwater Facilities. The site, subdivision or other development plan (Plan) for the Property, specifically known, entitled or described as 1200 7th Avenue Townhomes, provides for detention, retention, treatment or management of stormwater that is associated with the Property through the use of identified stormwater facilities or best management practices (collectively, Stormwater Facilities). Upon approval of the Plan by the City, the Plan shall be incorporated herein by this reference. In accordance with the Plan, Landowner shall adequately construct, operate, use, maintain and repair the Stormwater Facilities.

D. Agreement. On the terms and conditions set forth herein, the City and Landowner agree as follows:

1. The Stormwater Facilities shall be constructed, operated, used, maintained and repaired by Landowner in accordance with the requirements of the Plan, and any other applicable law or regulation.
2. Landowner (which expressly includes its agents, successors and assigns, including any homeowners association) shall adequately and properly operate, use, maintain and repair the Stormwater Facilities as described in the maintenance and operations manual, which is on file with the City, and may be attached and recorded herewith as Exhibit A___. This duty extends to all associated pipes and channels, as well as all structures, improvements, and vegetation that are provided to control the quantity and quality of the stormwater. Adequate maintenance shall mean maintenance that is sufficient to keep the Stormwater Facilities in good working order and operating so as to satisfy the design and performance standards of the Plan.
3. Landowner shall regularly inspect the Stormwater Facilities and shall submit an inspection report to the City at least once a year on a date prescribed by the City. The purpose of the inspection(s) is to ensure that the Stormwater Facilities are safe and functioning properly. The scope of the inspection shall include the entire Stormwater Facilities, including but not limited to, berms, outlet structures, pond areas, access roads, and so forth. Deficiencies and any performance or other related issues shall be noted by Landowner in the inspection report. The annual report shall be in a form and include content as prescribed from time to time by the City. An example copy of the report form may be attached hereto as Exhibit B___.
4. Landowner hereby grants permission to the City to enter upon the Property to inspect the 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 a representative accompany the City during such inspection. The City shall provide Landowner with copies of written inspection reports.
5. If Landowner fails to adequately and properly operate, use, maintain or repair the Stormwater Facilities, the City shall notify Landowner in writing and provide Landowner with a reasonable opportunity to cure. If Landowner fails to timely cure, then the City may enter upon the Property and remedy the issue(s) identified in the notice and those reasonably related thereto; Furthermore, if the City performs work of any nature, or expends any funds in performance of said work for labor, use of equipment, supplies, materials, and the like while remedying the identified issues, the City may charge the cost of the remedy to Landowner, and Landowner shall promptly pay the costs to the City. Notwithstanding the foregoing, the City shall be under no obligation to inspect, maintain or repair the Stormwater Facilities.
6. Landowner shall defend, indemnify and hold the City, its officers, officials, employees and volunteers harmless from any and all claims, injuries, damages, losses or suits including attorney fees, arising out of or in connection with activities or operations, performed by Landowner, or on Landowner's behalf, that relate to the Stormwater Facilities and the subject matter of this agreement, except for injuries and damages caused by the negligence of the City.

E. **Covenant.** The terms and provisions of this agreement constitute a covenant, which is subject to the following: This covenant is an equitable covenant. It touches and concerns the land that is described as the Property herein. The parties intend that this covenant shall bind the parties' successor and assigns. This covenant shall run with the land that is described as the Property herein, and shall bind whoever has possession of the land, in whole or in part, without regard to whether the possessor has title, or has succeeded to the same estate that granting parties have or had. Possessors shall include, but are not limited to, leasehold tenants, contract purchasers, subtenants, and adverse possessors. This covenant shall run with the land even in the absence of the transfer of some interest in land, other than the covenant itself, between Landowner and the City. This covenant shall not be governed by the mutuality rule. The burden of the covenant can run independently from the benefit of the covenant, and the benefit need not run. The benefit may be in gross or personal to Landowner or the City. Landowner waives its right to assert any defenses to the enforcement of this covenant, including, but not limited to, the change of neighborhood doctrine, laches, estoppel, balancing of hardships, and abandonment. If Landowner breaches any term of this covenant and agreement, then all remedies in equity and at law, including, but not limited to, injunctions, mandamus, declaratory judgments, and damages, shall be available to the City.

F. **Governing Law & Venue.** This agreement shall be governed by and construed in accordance with the laws of the State of Washington. The venue for any action that arises from or out of this instrument shall be the Pierce County Superior Court.

<signature page to follow>

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Exhibit A

OPERATIONS AND MAINTENACE MANUAL FOR DRAINAGE FACILITIES

for

1200 7th Ave SE Townhomes
Puyallup, Washington

Revised May 2022

March 2021

Prepared for:
Tac Build, LLC
729 N. Stadium Way
Tacoma, WA 98403

Prepared by:
Daniel Smith, P.E., Project Manger

Approved By:

Daniel Smith, P.E., Project Manager

C.E.S. NW, INC.
429 29TH STREET NE, SUITE D
PUYALLUP, WA 98372
(253) 848-4278

Project#19078

Section 1 – Project Description

Site Address:	1200 7th Ave SE Puyallup, WA 9837273
Developer Address:	PO Box 73310
	Puyallup, WA 98374
Tax Parcel Numbers:	7845001330
Ownership/Maintenance:	Property Owner

Legal description – (Per statutory warranty deed filed under recording number 201910110806). The west 33 feet of block 77, and the east 50 feet of block 78, Frank R. Spinning's first addition to the Town of Puyallup, according to the plat thereof recorded in Book 4 of Plats, page 86, in Pierce County, Washington.
Situate in the County of Pierce, State of Washington.

The 1200 7th Ave SE Townhome project proposes 6 townhomes on a 0.48-acre parcel (7845001330). The project site is accessed from 7th Ave SE with a new commercial driveway approach. The project site proposes approximately 4,690 sq.ft. of rooftops, 6,005 sq.ft. of pavement, patios and walkways, and 990 sq.ft. of frontage improvements. A detention tank is proposed in the northwestern portion of the site for flow control. The project proposes 4,805 sq.ft. of pollution generating impervious surfaces (PGIS); therefore, runoff treatment is not required. Perforated stub-outs are proposed to connect the rooftops to the tank. All disturbed areas which are not converted to impervious surface will have soil amended (BMP T5.13).
The average annual cost for maintenance is approximated to be $5,000.00.

Section 2 – Maintenance Importance and Intent

“The importance of maintenance for the proper functioning of stormwater control facilities cannot be over-emphasized. A substantial portion of failures (clogging of filters, resuspension of sediments, loss of storage capacity, etc.) are due to inadequate maintenance. Stormwater BMP maintenance is essential to ensure that BMPs function as intended throughout their full life cycle. The fundamental goals of maintenance activities are to ensure the entire flow regime and treatment train designed for this site continue to fully function. For this site these include:

- Maintain the ability of storm facility to attenuate flows.
- Maintain ability to safely convey design stormwater flows.
- Preserve soil and plant health, as well as stormwater flow contact with plant and soil systems.
- Clearly identify systems so they can be protected
- Keep maintenance costs low
- Prevent large-scale or expensive stormwater system failures
- Prevent water quality violations or damage to downstream properties.

Section 3 – Responsible Parties

Stormwater drainage facilities will be installed, constructed, and maintained with documentation of maintenance by the homeowner. This maintenance plan shall be kept onsite and must be made available for inspection by the City of Puyallup upon request.

Section 4 – Facilities Requiring Maintenance

The following stormwater facilities/Best Management Practices require maintenance:

- Detention Tank
- Closed conveyance system comprised of catch basins and PVC pipes
- Amended Soils

Section 5 – Maintenance Instructions

"The parties responsible for maintenance must review and apply the maintenance requirements contained herein. These maintenance instructions outline conditions for determining if maintenance actions are required, as identified through inspection. However, they are not intended to be measures of the facility's required condition at all times between inspections. Exceedance of these conditions at any time between inspections or maintenance activity does not automatically constitute a violation of these standards. However, based upon inspection observations, the inspection and maintenance presented in these checklists shall be adjusted to minimize the length of time that a facility is in a condition that requires a maintenance action.

For facilities not owned and maintained by the City, a log of maintenance activity that indicates what actions were taken must be kept on site and be available for inspection by the City."

The following pages contain maintenance needs for most of the components that are part of your drainage system, as well as for some components that you may not have. Let the City know if there are any components that are missing from these pages. Ignore the requirements that do not apply to your system. You should plan to complete a checklist for all system components on the following schedule:

1. Monthly from November through April.
2. Once in late summer (preferably in September).
3. After any major storm (use 1-inch in 24-hours as a guideline).

Using photocopies of the checklist pages check off the problems that you looked for each time you did an inspection. Add comments on problems found and actions taken. Keep these "checked" sheets in your files, as they will be used to write your annual report. Some items do not need to be looked at every time an inspection is done. Use the suggested frequency at the left of each item as a guideline for your inspection.

Section 6 – Vegetation Maintenance

Plant material affecting the storm water system consists of grass, leaves, and yard debris. Maintenance checklists on the following pages and instructions listed above address appropriate maintenance requirements.

REQUIRED ACTIONS: The following actions shall be taken to ensure that pollution generated on site shall be minimized:

1. Warning signs (e.g., "Dump No Waste-Drains to Stream") shall be painted or embossed on or adjacent to all storm drain inlets. They shall be repainted as needed.

2. Sediment removed from the catch basins and storm system shall be disposed of in a proper manner. Contact the City of Puyallup for instruction prior to completing this task.

ATTACHMENT "A"

MAINTAINANCE PROGRAM
COVER SHEET

Inspection Period: _____

Number of Sheets Attached: _____

Date Inspected: _____

Name of Inspector: _____

Inspector's Signature: _____

Closed Detention Systems (Tanks/Vaults) Checklist (Continued)

		Date						
Frequency	Drainage System Feature	✓	✓	✓	✓	Problem	Conditions to Check For	Conditions That Should Exist
A	Manhole					Cover Difficult to Remove	One maintenance person cannot remove lid after applying normal lifting pressure. Intent is to keep cover from sealing off access to maintenance.	Cover can be removed and reinstalled by one maintenance person.
A	Manhole					Ladder Rungs Unsafe	Ladder is unsafe due to missing rungs, misalignment, not securely attached to structure wall, rust, or cracks.	Ladder meets design standards. Allows maintenance person safe access.

If you are unsure whether a problem exists, please contact a Professional Engineer.

Comments:

Key:
(M) Monthly from November through April.
(A) Once in late summer (preferable September)
(S) After any major storm (use 1-inch in 24 hours as a guideline).

Closed Detention Systems (Tanks/Vaults) Checklist

		Date						
Frequency	Drainage System Feature	✓	✓	✓	✓	Problem	Conditions to Check For	Conditions That Should Exist
M	Storage Area					Plugged Air Vents	One-half of the cross section of a vent is blocked at any point or the vent is damaged.	Vents open and functioning.
M	Storage Area					Debris and Sediment	Accumulated sediment depth exceeds 10% of the diameter of the storage area for ½ length of storage vault or any point depth exceeds 15% of diameter. (Example: 72-inch storage tank would require cleaning when sediment reaches depth of 7 inches for more than 1/2 length of tank.)	All sediment and debris removed from storage area.
A	Storage Area					Joints Between Tank/Pipe Section	Any openings or voids allowing material to be transported into facility. (Will require engineering analysis to determine structural stability).	All joint between tank/pipe sections are sealed.
A	Storage Area					Tank Pipe Bent Out of Shape	Any part of tank/pipe is bent out of shape more than 10% of its design shape. (Review required by engineer to determine structural stability).	Tank/pipe repaired or replaced to design.
A	Storage Area					Vault Structure Includes Cracks in Wall, Bottom, Damage to Frame and/or Top Slab	Cracks wider than 1/2-inch and any evidence of soil particles entering the structure through the cracks, or maintenance/inspection personnel determines that the vault is not structurally sound.	Vault replaced or repaired to design specifications and is structurally sound.
A	Storage Area						Cracks wider than 1/2-inch at the joint of any inlet/outlet pipe or any evidence of soil particles entering the vault through the walls	No cracks more than 1/4-inch wide at the joint of the inlet/outlet pipe.
A	Manhole					Cover Not in Place	Cover is missing or only partially in place. Any open manhole requires maintenance.	Manhole is closed.
A	Manhole					Locking Mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread (may not apply to self-locking lids).	Mechanism opens with proper tools.

Control Structure/Flow Restrictor Checklist

Frequency	Drainage System Feature	Date ✓	✓	✓	✓	Problem	Conditions to Check For	Conditions That Should Exist
M	General					Trash and Debris (Includes Sediment)	Material exceeds 25% of sump depth or 1 foot below orifice plate.	Control structure orifice is not blocked. All trash and debris removed.
A	General					Structural Damage	Structure is not securely attached to manhole wall.	Structure securely attached to wall and outlet pipe.
A	General					Structural Damage	Structure is not in upright position (allow up to 10% from plumb).	Structure in correct position.
A	General					Structural Damage	Connections to outlet pipe are not watertight and show signs of rust.	Connections to outlet pipe are water tight; structure repaired or replaced and works as designed.
A	General					Structural Damage	Any holes--other than designed holes--in the structure.	Structure has no holes other than designed holes.
A	Cleanout Gate					Damaged or Missing	Cleanout gate is not watertight or is missing.	Gate is watertight and works as designed.
A	Cleanout Gate					Damaged or Missing	Gate cannot be moved up and down by one maintenance person.	Gate moves up and down easily and is watertight.
A	Cleanout Gate					Damaged or Missing	Chain/rod leading to gate is missing or damaged.	Chain is in place and works as designed.
A	Cleanout Gate					Damaged or Missing	Gate is rusted over 50% of its surface area.	Gate is repaired or replaced to meet design standards.
A	Orifice Plate					Damaged or Missing	Control device is not working properly due to missing, out of place, or bent orifice plate.	Plate is in place and works as designed.
M,S	Orifice Plate					Obstructions	Any trash, debris, sediment, or vegetation blocking the plate.	Plate is free of all obstructions and works as designed.
	Overflow Pipe					Obstructions	Any trash or debris blocking (or having the potential of blocking) the overflow pipe.	Pipe is free of all obstructions and works as designed.
A	Manhole					Cover Not in Place	Cover is missing or only partially in place. Any open manhole requires maintenance.	Manhole is closed.

Control Structure/Flow Restrictor Checklist (Continued)

		Date						
Frequency	Drainage System Feature	✓	✓	✓	✓	Problem	Conditions to Check For	Conditions That Should Exist
A	Manhole					Locking Mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread (may not apply to self-locking lids).	Mechanism opens with proper tools.
A	Manhole					Cover Difficult to Remove	One maintenance person cannot remove lid after applying normal lifting pressure. Intent is to keep cover from sealing off access to maintenance.	Cover can be removed and reinstalled by one maintenance person.
A	Manhole					Ladder Rungs Unsafe	Ladder is unsafe due to missing rungs, misalignment, not securely attached to structure wall, rust, or cracks.	Ladder meets design standards. Allows maintenance person safe access.

If you are unsure whether a problem exists, please contact a Professional Engineer.

Comments:

Key:

(M) Monthly from November through April.
(A) Once in late summer (preferable September)
(S) After any major storm (use 1-inch in 24 hours as a guideline).

Catch Basins Checklist

		Date						
Frequency	Drainage System Feature	✓	✓	✓	✓	Problem	Conditions to Check For	Conditions That Should Exist
A	General					"Dump no pollutants " Stencil or stamp not visible	Stencil or stamp should be visible and easily read	Warning signs (e.g., "Dump No Waste-Drains to Stream") shall be painted or embossed on or adjacent to all storm drain inlets.
M,S	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%.	No trash or debris located immediately in front of catch basin or on grate opening.
M	General					Trash & Debris	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.	No trash or debris in the catch basin.
M	General					Trash & Debris	Trash or debris in any inlet or outlet pipe blocking more than 1/3 of its height.	Inlet and outlet pipes free of trash or debris.
M	General					Trash & Debris	Dead animals or vegetation that could generate odors that could cause complaints or dangerous gases (e.g., methane).	No dead animals or vegetation present within the catch basin.
M	General					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
A	General					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.

Catch Basins Checklist (Continued)

Frequency	Drainage System Feature	Date ✓	✓	✓	✓	Problem	Conditions to Check For	Conditions That Should Exist
A	General					Structure Damage to Frame and/or Top Slab	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.	Frame is sitting flush on the riser rings or top slab and firmly attached.
A	General					Fractures or Cracks in Basin Walls/ Bottom	Maintenance person judges that structure is unsound.	Basin replaced or repaired to design standards.
A	General					Fractures or Cracks in Basin Walls/ Bottom	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.	Pipe is re-grouted and secure at basin wall.
A	General					Settlement / Misalignment	If failure of basin has created a safety, function, or design problem.	Basin replaced or repaired to design standards.
M	General					Vegetation	Vegetation growing across and blocking more than 10% of the basin opening.	No vegetation blocking opening to basin.
M	General					Vegetation	Vegetation growing in inlet/outlet pipe joints that is more than six inches tall and less than six inches apart.	No vegetation or root growth present.
M	General					Contamination and Pollution	Any evidence of oil, gasoline, contaminants, or other pollutants (Coordinate removal/cleanup with local water quality response agency).	No contaminants or pollutants present.
A	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
A	Catch Basin Cover					Locking Mechanism Not Working	Mechanism cannot be opened by one maintenance person with proper tools. Bolts into frame have less than 1/2 inch of thread.	Mechanism opens with proper tools.
A	Catch Basin Cover					Cover Difficult to Remove	One maintenance person cannot remove lid after applying normal lifting pressure. (Intent is to keep cover from sealing off access to maintenance.)	Cover can be removed by one maintenance person.

Catch Basins Checklist (Continued)

Frequency	Drainage System Feature	Date ✓	✓	✓	✓	Problem	Conditions to Check For	Conditions That Should Exist
A	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.
	Grates					Grate opening Unsafe	Grate with opening wider than 7/8 inch.	Grate opening meets design standards.
M,S	Grates					Trash and Debris	Trash and debris that is blocking more than 20% of grate surface inletting capacity.	Grate free of trash and debris.
A	Grates					Damaged or Missing.	Grate missing or broken member(s) of the grate.	Grate is in place and meets design standards.

If you are unsure whether a problem exists, please contact a Professional Engineer.

Comments:

Key:

(M) Monthly from November through April.
(A) Once in late summer (preferable September)
(S) After any major storm (use 1-inch in 24 hours as a guideline).

3.21 Grounds (Landscaping)

Landscaping is an essential component of stormwater management. Bare soil areas generate higher levels of stormwater runoff and sedimentation in stormwater facilities. The following check list gives some general guidance for landscape management.

Grounds (Landscaping) Checklist

		Date						
Frequency	Drainage System Feature	✓	✓	✓	✓	Problem	Conditions to Check For	Conditions That Should Exist
M	General					Weeds (nonpoisonous)	Weeds growing in more than 20% of the landscaped area (trees and shrubs only).	Weeds present in less than 5% of the landscaped area.
M	General					Insect hazard	Any presence of poison ivy or other poisonous vegetation or insect nests.	No poisonous vegetation or insect nests present in landscaped area.
M,S	General					Trash or litter	See Ponds Checklist.	See Ponds Checklist.
M,S	General					Erosion of Ground Surface	Noticeable rills are seen in landscaped areas.	Causes of erosion are identified and steps taken to slow down/spread out the water. Eroded areas are filled, contoured, and seeded.
A	Trees and shrubs					Damage	Limbs or parts of trees or shrubs that are split or broken which affect more than 25% of the total foliage of the tree or shrub.	Trim trees/shrubs to restore shape. Replace trees/shrubs with severe damage.
M	Trees and shrubs					Damage	Trees or shrubs that have been blown down or knocked over.	Replant tree, inspecting for injury to stem or roots. Replace if severely damaged.
A	Trees and shrubs					Damage	Trees or shrubs which are not adequately supported or are leaning over, causing exposure of the roots.	Place stakes and rubber-coated ties around young trees/shrubs for support.

If you are unsure whether a problem exists, please contact a Professional Engineer.

Comments:

Key:
(M) Monthly from November through April.
(A) Once in late summer (preferable September)
(S) After any major storm (use 1-inch in 24 hours as a guideline).

3.26 Inlet/Outlet Stormwater Pipe

The inlet and outlet stormwater pipes convey stormwater in, through, and out of stormwater facilities.

Storm sewer pipes convey stormwater. Pipes are built from many materials and are sometimes perforated to allow stormwater to infiltrate into the ground. Stormwater pipes are cleaned to remove sediment or blockages when problems are identified. Stormwater pipes must be clear of obstructions and breaks to prevent localized flooding. All stormwater pipes should be in proper working order and free of the possible defects listed below.

In addition, outlet stormwater pipes should be inspected to make sure stormwater exits the facility without causing any negative impacts to the drainage area, if applicable.

Inlet/Outlet Storm Pipe Checklist

		Date						
Frequency	Drainage System Feature	✓	✓	✓	✓	Problem	Conditions to Check For	Conditions That Should Exist
M	General					Obstructions including roots	Storm pipe- root enters or deforms pipe, reducing flow.	Use mechanical methods to remove root. Do not put root-dissolving chemicals in storm sewer pipes. If necessary, remove the vegetation over the line.
M	General					Pipe dented or broken	Inlet/outlet piping damaged or broken and in need of repair.	Pipe repaired and/or replaced.
M	General					Pipe rusted or deteriorated	Any part of the piping that is crushed or deformed more than 20% or any other failure to the piping.	Pipe repaired and/or replaced.
M	Erosion					Erosion	Eroded or scoured areas due to flow channelization, high flows, or vehicular damage.	For ruts or bare areas less than 12 inches wide, repair the damaged area by filling with crushed gravel. If bare areas are large, generally greater than 12 inches wide, the damaged area should be re-graded and re-seeded. For smaller bare areas, overseed.
M	Pipe outfall					Missing or removed rock	Only one layer of rock exists above native soil in area five square feet or larger, or any exposure of native soil.	Rock pad replaced to design standards.
M	Pipe outfall					Erosion	Soil erosion in or adjacent to rock pad.	Rock pad replaced to design standards.

Inlet/Outlet Storm Pipe Checklist (Continued)

		Date						
Frequency	Drainage System Feature	✓	✓	✓	✓	Problem	Conditions to Check For	Conditions That Should Exist
M	Pipe outfall					Erosion/Scouring	Eroded or scoured ditch or stream banks due to flow channelization, or higher flows.	For ruts or bare areas less than 12 inches wide, repair the damaged area by filling with crushed gravel. If bare areas are large, generally greater than 12 inches wide, damaged area should be re-graded and re-seeded. For smaller bare areas, overseed.
M	Pipe Outfall					Missing or Moved Rock	Only one layer of rock exists above native soil area in area five square feet or larger, or any exposure of native soil.	Rock pad replaced to design standards.
M	Pipe Outfall					Erosion	Soil erosion in or adjacent to rock pad.	Rock pad replaced to design standards.

If you are unsure whether a problem exists, please contact a Professional Engineer.

Comments:

Key:
(A) Annual (March or April preferred)
(M) Monthly (see schedule)
(S) After major storms (use 1-inch in 24 hours as a guideline)

BMP T5.13: Post-Construction Soil Quality and Depth

Purpose and Definition

Naturally occurring (undisturbed) soil and vegetation provide important stormwater functions including: water infiltration; nutrient, sediment, and pollutant adsorption; sediment and pollutant biofiltration; water interflow storage and transmission; and pollutant decomposition. These functions are largely lost when development strips away native soil and vegetation and replaces it with minimal topsoil and sod. Not only are these important stormwater functions lost, but such landscapes themselves become pollution generating pervious surfaces due to increased use of pesticides, fertilizers and other landscaping and household/industrial chemicals, the concentration of pet wastes, and pollutants that accompany roadside litter.

Establishing soil quality and depth regains greater stormwater functions in the post development landscape, provides increased treatment of pollutants and sediments that result from development and habitation, and minimizes the need for some landscaping chemicals, thus reducing pollution through prevention.

Applications and Limitations

Establishing a minimum soil quality and depth is not the same as preservation of naturally occurring soil and vegetation. However, establishing a minimum soil quality and depth will provide improved on-site management of stormwater flow and water quality.

Soil organic matter can be attained through numerous materials such as compost, composted woody material, biosolids, and forest product residuals. It is important that the materials used to meet the soil quality and depth BMP be appropriate and beneficial to the plant cover to be established. Likewise, it is important that imported topsoils improve soil conditions and do not have an excessive percent of clay fines.

This BMP can be considered infeasible on till soil slopes greater than 33 percent.

Design Guidelines

- Soil retention. Retain, in an undisturbed state, the duff layer and native topsoil to the maximum extent practicable. In any areas requiring grading remove and stockpile the duff layer and topsoil on site in a designated, controlled area, not adjacent to public resources and critical areas, to be reapplied to other portions of the site where feasible.
- Soil quality. All areas subject to clearing and grading that have not been covered by impervious surface, incorporated into a drainage facility or engineered as structural fill or slope shall, at project completion, demonstrate the following:
    1. A topsoil layer with a minimum organic matter content of 10% dry weight in planting beds, and 5% organic matter content in turf areas, and a pH from 6.0 to 8.0 or matching the pH of the undisturbed soil. The topsoil layer shall have a minimum depth of

eight inches except where tree roots limit the depth of incorporation of amendments needed to meet the criteria. Subsoils below the topsoil layer should be scarified at least 4 inches with some incorporation of the upper material to avoid stratified layers, where feasible.

2. Mulch planting beds with 2 inches of organic material
3. Use compost and other materials that meet these organic content requirements:

   a. The organic content for "pre-approved" amendment rates can be met only using compost meeting the compost specification for Bioretention (BMP T7.30), with the exception that the compost may have up to 35% biosolids or manure.

      The compost must also have an organic matter content of 40% to 65%, and a carbon to nitrogen ratio below 25:1.

      The carbon to nitrogen ratio may be as high as 35:1 for plantings composed entirely of plants native to the Puget Sound Lowlands region.

   b. Calculated amendment rates may be met through use of composted material meeting (a.) above; or other organic materials amended to meet the carbon to nitrogen ratio requirements, and not exceeding the contaminant limits identified in Table 220-B, Testing Parameters, in WAC 173-350-220.

The resulting soil should be conducive to the type of vegetation to be established.

- Implementation Options: The soil quality design guidelines listed above can be met by using one of the methods listed below:

  1. Leave undisturbed native vegetation and soil, and protect from compaction during construction.
  2. Amend existing site topsoil or subsoil either at default "pre-approved" rates, or at custom calculated rates based on tests of the soil and amendment.
  3. Stockpile existing topsoil during grading, and replace it prior to planting. Stockpiled topsoil must also be amended if needed to meet the organic matter or depth requirements, either at a default "pre-approved" rate or at a custom calculated rate.
  4. Import topsoil mix of sufficient organic content and depth to meet the requirements.

  More than one method may be used on different portions of the same site. Soil that already meets the depth and organic matter quality standards, and is not compacted, does not need to be amended.

Planning/Permitting/Inspection/Verification Guidelines & Procedures	• Local governments are encouraged to adopt guidelines and procedures similar to those recommended in *Guidelines and Resources For Implementing Soil Quality and Depth BMP T5.13 in WDOE Stormwater Management Manual for Western Washington*. This document is available at: http://www.soilsforsalmon.org/pdf/Soil_BMP_Manual.pdf
Maintenance	• Establish soil quality and depth toward the end of construction and once established, protect from compaction, such as from large machinery use, and from erosion. • Plant vegetation and mulch the amended soil area after installation. • Leave plant debris or its equivalent on the soil surface to replenish organic matter. • Reduce and adjust, where possible, the use of irrigation, fertilizers, herbicides and pesticides, rather than continuing to implement formerly established practices.
Runoff Model Representation	Areas meeting the design guidelines may be entered into approved runoff models as "Pasture" rather than "Lawn." Flow reduction credits can be taken in runoff modeling when BMP T5.13 is used as part of a dispersion design under the conditions described in: BMP T5.10B Downspout Dispersion BMP T5.11 Concentrated Flow Dispersion BMP T5.12 Sheet Flow Dispersion BMP T5.18 Reverse Slope Sidewalks BMP T5.30 Full Dispersion (for public road projects)

POLLUTION SOURCE CONTROL MANUAL FOR SINGLE-FAMILY RESIDENCES
for

1200 7th Ave SE Townhomes
Puyallup, Washington

March 2021

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Project#19078

Pollution Source Control Program for Single-Family Residences

The actions we take each day in and around our homes have a profound effect on stormwater quality in this region. Small amounts of pollution from many different sources can significantly affect our waterways. Yard maintenance, waste storage, car washing and maintenance, and pool cleaning are some of the activities that can adversely impact water quality. The best management practices (BMPs) discussed in this section are practical ways to keep stormwater from becoming polluted in the first place. It is recommended that all residences in the City of Puyallup use these BMPs. **Please note that some of these procedures are required by various state, federal, or county laws, and are noted as required BMPs.**

1.0 Automobile Washing

Most residents wash their vehicles in the driveway or on the street. Washwaters typically flow to a storm drain or ditch, which discharges stormwater directly to the nearest stream, lake or to the Puget Sound. Soaps and detergents, even the biodegradable ones, can have immediate and long-term effects on plants and animals living in water bodies. The pollutants washed off vehicles also contain a variety of pollutants that can harm fish and wildlife.

<u>Suggested BMPs</u>

- Wash your vehicle directly over your lawn or make sure the wash water drains to a vegetated area. This allows the water and soap to soak into the ground instead of running off into a local waterbody.

- Ideally, no soaps or detergents should be used, but if you do use one, select one without phosphates.

- Sweep driveways and street gutters **before** washing vehicle to clean up dirt, leaves, trash and other materials that may flow to the storm drain along with your wash water. This helps reduce storm drain maintenance costs as well as protect water quality.

- Commercial products are available that allow you to clean a vehicle without water. These were developed for areas where water is scarce, so a water saving benefit is realized as well as reduced pollution.

- Use a nozzle on your hose to save water.

- Do not wash your vehicle if rain is expected.

- Consider not washing your vehicle at home. Take it to a commercial car wash that has a recycle system and discharges wastewater to the sanitary sewer for treatment.

1.1 Automobile Maintenance

Many of us are "weekend mechanics." We enjoy the cost savings of changing our own oil and antifreeze, topping off the battery with water, and generally making our car performs its best. There is much potential for stormwater pollution associated with these activities; however, the following BMPs will help you minimize pollution while servicing your car.

Suggested BMPs

- Recycle all oils, antifreeze, solvents and batteries. Many local car parts dealers and gas stations accept used oil. The Household Hazardous Waste facility at the Tacoma Landfill accepts oil, oil filters, antifreeze and solvents from both City of Tacoma and non-city residents. Pierce County and Tacoma also hold Household Hazardous Waste Turn-In days, which will accept car wastes including old batteries. Old batteries can actually be worth money. Call shops listed under Batteries in the Yellow Pages of the phone book to find out if they are paying for used batteries.

- **Never** dump new or used automotive fluids or solvents on the ground, in a storm drain or street gutter, or in a waterbody. Eventually, it will make its way to local surface waters or groundwater, including the water we drink.

- Do not mix wastes. The chlorinated solvents in some carburetor cleaners can contaminate a huge tank of used oil, rendering it unsuitable for recycling. Always keep your wastes in separate containers that are properly labeled and store them out of the weather.

Suggested BMPs

- To dispose of oil filters, punch a hole in the top and let drain for 24 hours. This is where a large funnel in the top of your oil storage container will come in handy. After draining, wrap in 2 layers of plastic and dispose of in your regular garbage or recycle by taking it to the Tacoma Landfill Household Hazardous Waste facility even for non-city residences. Pending State law may make disposal in your home garbage illegal, so please call the Hazardous Waste line at 1-800-287-6429 for up-to-date information.

- Use care in draining and collecting antifreeze to prevent accidental spills. Spilled antifreeze can be deadly to cats and dogs that ingest it.

- Perform your service activities on concrete or asphalt or over a plastic tarp to make spill cleanup easier. Keep a bag of kitty litter on hand to absorb spills. Sprinkle a good layer on the spill, let it absorb for a little while and then sweep it up. Place the contaminated litter in a plastic bag, tie it up and dispose of it in your regular garbage. Take care not to leave kitty litter out in the rain; it will form sticky goo that is hard to clean up.

- If you are doing bodywork outside, be sure to use a tarp to catch material resulting from grinding, sanding and painting. Dispose of this waste by double bagging in plastic and placing in your garbage.

1.2 Storage of Solid Wastes and Food Wastes

Improper storage of food and solid waste at residences can lead not only to water pollution problems, but problems with neighborhood pets and vermin as well. Following the BMPs listed below can help keep your property a clean and healthy place to live.

Suggested BMPs

- All waste containers kept outside should have lids.

- Leaking waste containers should be replaced.

- Store waste containers under cover if possible, or on grassy areas.

- Inspect the storage area regularly to pick up loose scraps of material and dispose of them properly.

- Recycle as much as you can. The City of Puyallup offers curbside recycling, through LeMay Inc., to a majority of residents. Also, look under "Recycling" in the phone book for firms that take other recyclable materials.

- Purchase products that have the least amount of packaging materials.

- Compost biodegradable materials such as grass clippings and vegetable scraps instead of throwing them away. Your flowerbeds will love the finished compost, and we will not fill our landfills so quickly. Call LeMay Inc. at (253) 875-5053 for more information on composting.

- A fun alternative to traditional composting is worm composting. You can let worms do all the work for you by keeping a small vermiculture box just outside your kitchen. For more information on getting started with worms, call the numbers listed above.

1.3 Composting

Composting is an earth-friendly activity as long as some commonsense rules outlined below are followed. If you choose to compost, the following BMPs should be utilized.

Suggested BMPs

- Compost piles must be located on an unpaved area where runoff can soak into the ground or be filtered by grass and other vegetation. Compost piles should be located in an area of your yard not prone to water ponding during storms, and should be kept well away from wetlands, streams, lakes and other drainage paths.

- Avoid putting hazardous or non-decomposable waste in the pile.

- Cover the compost pile for two reasons:

- To keep stormwater from washing nutrients into waterways.

- To keep excess water from cooling down the pile, which will slow down the rate of decomposition.

- Build bins of wood, chicken wire or fencing material to contain compost so it cannot be washed away. Call LeMay Inc. at (253) 875-5053to get free composter designs and materials lists.

- Building a small earthen dike around your compost pile is an effective means of preventing nutrient-rich compost drainage from reaching stormwater paths.

1.4 Yard Maintenance and Gardening

This section deals with the normal yard maintenance activities we all perform at our homes. Overwatering, overfertilizing, improper herbicide application and improper disposal of trimmings and clippings can all contribute to serious water pollution problems. Following the BMPs listed below will help alleviate pollutant runoff.

Required BMPs

- Follow the manufacturer's directions exactly for mixing and applying herbicides, fungicides and insecticides, and use them sparingly. Never apply when it is windy or when rain is expected. Never apply over water, within 100 feet of a wellhead, or adjacent to streams or other waterbodies. Triple-rinse empty containers, using the rinsate for mixing your next batch of spray, and then double-bag and dispose of the empty container in your regular garbage.

- **Never** dispose of grass clippings or other vegetation in or near storm drains, streams, lakes or Puget Sound.

- Follow manufacturer's directions when applying fertilizers. More is not better, either for your lawn or for local waterbodies. Never apply fertilizers over water or adjacent to ditches, streams or other water bodies. Remember that organic fertilizers have a slow release of nitrogen, and less potential to pollute than synthetic fertilizers.

- Save water and prevent pollution problems by watering your lawn sensibly. Lawns and gardens typically need the equivalent of 1" of rainfall per week. You can check on how you are doing by putting a wide mouth jar out where you are sprinkling and measure the water with a small plastic ruler. Overwatering to the point of runoff can carry polluting nutrients to the nearest waterbody.

- Consider planting a vegetated buffer zone adjacent to streams or other water bodies on your property. Call the Pierce County Conservation District for advice and assistance in developing a planting plan. The Stream Team at the Conservation District may even be able to help you plant it!

- Make sure all fertilizers and pesticides are stored in a covered location. Rain can wash the labels off bottles and convert 50 lbs. of fertilizer into either a solid lump or a river of nutrients.

- Compost all yard clippings or use them as mulch to save water and keep down weeds in your garden.

- Practice organic gardening and virtually eliminate the need to use pesticides and fertilizers. Contact Pierce County Cooperative Extension at 798-7180 or the Ask-A-Master Gardener program at 798-7170 for information and classes on earth friendly gardening.

- Pull weeds instead of spraying and get some healthy exercise, too. If you must spray, use the least toxic formulations that will get the job done. The Master Gardener program listed above can help advise you on which spray to use.

- Work fertilizers into the soil instead of letting them lie on the ground surface exposed to the next rainstorm.

- Contact your local garbage hauler for curbside pickup and recycling of yard waste.

1.5 Swimming Pool and Spa Cleaning and Maintenance

Despite the fact that we immerse ourselves in it, the water from pools and spas is far from chemically clean. Nutrients, pH and chlorine can adversely affect fish and wildlife in

waterbodies. Following these BMPs will ensure the cleanliness of your pool and the environment.

Required BMPs

- Pool and spa water must be dechlorinated if it is to be emptied into a ditch, on the ground, or a lawn or to the storm drainage system. Contact your pool chemical supplier to obtain the neutralizing chemicals you will need. The rate of flow into the ditch or drainage system must be regulated so that it does not cause problems such as erosion, surcharging or flooding. Water discharged to the ground or a lawn must not cross property lines and must not produce runoff. If you live in a sewered area, you must discharge pool water to the sanitary sewer. Contact the pre-treatment unit at 798-3013 for permission prior to discharge.

- If pool and spa water cannot be dechlorinated, it must be discharged to the sanitary sewer. Prior to draining, your local wastewater treatment plant must be notified to ensure they are aware of the volume of discharge and the potential effects of chlorine levels. A pool service company can help you determine the frequency of cleaning and backwash of filters.

- Diatomaceous earth used in pool filters cannot be disposed of in surface waters, on the ground, into storm drainage systems or septic systems. Dry it out as much as possible; bag it in plastic and dispose of at the landfill.

Suggested BMPs

- Hire a professional pool service company to collect all pool water for proper disposal. Make sure to ask them where they will dispose of it and the kind of permits, they hold to do so.

1.6 Household Hazardous Material Use, Storage, and Disposal

Once we really start looking around our houses, the amount of hazardous materials we have on site is a real revelation. Oil-based paints and stains, paint thinner, gasoline, charcoal starter fluid, cleaners, waxes, pesticides, fingernail polish remover, and wood preservatives are just a few that most of us have around the house.

When products such as these are dumped on the ground or in a storm drain, they can be washed directly to receiving waters where they can harm fish and wildlife. They can also infiltrate into the ground and contaminate drinking water supplies. The same problem can occur if they are disposed of with your regular garbage; the containers can leak at the landfill and contaminate groundwater. The same type of contamination can occur if hazardous products are poured down a sink or toilet into a septic system. Do not pour them down the drain if you are on municipal sewers, either. Many compounds will "pass through" the wastewater treatment plant without treatment and contaminate receiving waters, or they can harm the biological process used at the treatment plant, reducing overall treatment efficiency.

With such a diversity of hazardous products present in all homes in City of Puyallup, a large potential for serious environmental harm exists if improper methods of storage, usage and disposal are employed. Using the following, BMPs will help keep these materials out of our soils, sediments and waters.

Required BMPs

- Dispose of hazardous materials and their containers properly. Never dump products labeled as *poisonous, corrosive, caustic, flammable, inflammable, volatile, explosive danger, warning, caution or dangerous* outdoors, in a storm drain, or into sinks, toilets or drains. Call LeMay Inc. at (253) 875-5053 or the Hazardous Waste Line at 1-800- 287-6429 for information on disposal methods, collection events, and alternative products. Household hazardous wastes from City of Tacoma residents and non- residents are accepted at the Tacoma Landfill.

Suggested BMPs

- Check containers containing hazardous materials frequently for signs of leakage. If a container is rusty and has the potential of leaking soon, place it in a secondary container before the leak occurs and prevent a clean-up problem.

- Store hazardous materials containers under cover and off the ground. Keep them out of the weather to avoid rusting, freezing, cracking, labels being washed off, etc.

- Hazardous materials should be stored out of the reach of children. Never transfer to or store these materials in food or beverage containers that could be misinterpreted by a child as something to eat or drink.

- Keep appropriate spill cleanup materials on hand. Kitty litter is good for many oil-based spills.

- Ground cloths and drip pans must be used under any work outdoors that involves hazardous materials such as oil-based paints, stains, rust removers, masonry cleaners and others bearing label warnings as outlined above.

- Latex paints are not a hazardous waste but are not accepted in liquid form at the landfill. To dispose, leave uncovered in a protected place until dry, then place in the garbage. If you wish to dry waste paint quickly, just pour kitty litter in the can to absorb the paint. Once paint is dry, leave the lid off when you place it in the garbage so your garbage collector can see that it is no longer liquid.

- Use fewer toxic products whenever possible. The Hazardous Waste Line at 1-800-287-6429 and the Washington Toxics Coalition at (206) 632-1545 have information detailing alternatives to toxic products.

- If an activity involving the use of a hazardous material can be moved indoors out of the weather, then do so. Make sure you can provide proper ventilation, however.

- Follow manufacturers' directions in the use of all materials. Over-application of yard chemicals, for instance, can result in the washing of these compounds into receiving waterbodies. Never apply pesticides when rain is expected.

- When hazardous materials are in use, place the container inside a tub or bucket to minimize spills.

Exhibit B

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

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