

Chapter 109

Division 011 - Operations and Maintenance of Stormwater Facilities

Appendix A to 109-011 – Private Stormwater Facilities Agreement

This Agreement is made and entered into this _____ day of _____, 20____, by and between the City of Salem (City) and NWC #5 _____ (Owner) whose address is P.O. Box 73399 Puyallup, WA 98373 _____.

RECITALS

A. Owner has developed or will develop property with the stormwater facilities listed below. (List the type of private stormwater facilities on site and the quantity of each type).

Facility type (list each)	Quantity
<u>Detention Pond</u>	<u>1</u>
<u>Storm Conveyance Pipe</u>	<u>2</u>
<u>Contech Stormfilter Catch Basin (Manufactured Media)</u>	<u>1</u>
<u> </u>	<u> </u>
<u> </u>	<u> </u>
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B. The Facilities enable development of property while mitigating the adverse impacts of stormwater runoff and pollutants associated with stormwater runoff prior to discharge from the property directly or indirectly to the public stormwater system, another private stormwater system, or to receiving waters.

C. The property benefited by the stormwater facilities and subject to the obligation of this Agreement is described below or in Exhibit A (Property) attached hereto and incorporated by reference, with the location of each stormwater facility as indicated.

See Exhibit A

D. The stormwater facilities are designed by a registered professional engineer in accordance with the requirements of Salem Revised Code Chapter 71 (Stormwater) and the *Public Works Design Standards*.

E. Failure to properly inspect and maintain the stormwater facilities can result in unacceptable impacts to the public stormwater system, receiving waters, the environment, and downstream properties.

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NOW, THEREFORE, it is agreed by and between the parties as follows:

1. MAINTENANCE

Owner agrees to maintain each stormwater facility in accordance with requirements provided by, or approved by, the City so that it is in proper working condition for effective pollutant removal, infiltration, and/or flow control.

2. INSPECTION

Owner agrees to inspect each stormwater facility in accordance with requirements provided by, or approved by, the City.

3. RECORDKEEPING

Owner agrees to maintain a record of the construction of, and all inspections, maintenance, and repair activities to, each stormwater facility and to make plans, records, procedures, and schedules of maintenance available to the Public Works Director during inspection of each stormwater facility, and at other reasonable times upon request of the Public Works Director.

4. REPAIR

Owner agrees to make any repairs as necessary to keep each stormwater facility in continuous working order. All deficiencies shall be corrected at Owner's expense within 30 days after the deficiency has been identified a deficiency, unless more than 30 days is reasonably needed to correct a deficiency. Owner shall have a reasonable period to correct the deficiency so long as the correction is commenced within the 30-day period and is diligently prosecuted to completion.

5. CITY CORRECTIONS

If correction of all Owner- or City-identified deficiencies is not completed within 30 days after Owner's inspection or City notice, City shall have the right to have any deficiencies corrected. In such instances, City:

- (i) Shall have access to the stormwater facilities for the purpose of correcting such deficiencies; and
- (ii) Shall bill Owner for all costs reasonably incurred by City for work performed to correct the deficiencies following Owner's failure to correct any deficiencies in the Facilities.

Owner shall pay the City within 30 days of the date of the invoice. Owner understands and agrees that upon non-payment, City may place a lien on the property for the amount plus interest and penalties.

6. ACCESS

Owner grants City the right to inspect the stormwater facilities. City will endeavor to give at least 10 days prior notice to Owner, except that no notice shall be required in case of an emergency. City shall determine whether deficiencies need to be corrected. Owner will be notified in writing of the deficiencies.

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7. CHANGE OF OWNERSHIP

If a change of ownership occurs, owner agrees to transfer all records of installation, repair, and maintenance of each stormwater facility to the new property owner. Owner will inform future purchasers and other successors and assignees of the existence of the stormwater facility and of the requirements for continued inspection and maintenance of the stormwater facility.

8. EMERGENCY MEASURES

If, at any time, City reasonably determines that a stormwater facility is creating an imminent threat to public health, safety, or welfare, City may immediately and without prior notice to Owner take measures reasonably designed to remedy the threat. City shall provide notice of the threat and the measures taken to Owner as soon as reasonably practicable. City may charge Owner for the cost of these corrective measures.

9. HOLD HARMLESS

Owner shall indemnify and hold City harmless from any and all claims for damages to persons or property arising from the construction, operation, inspection, maintenance, or use of each stormwater facility.

10. FORCE AND EFFECT

This Agreement has the same force and effect as any deed covenant running with the land and shall benefit and bind all owners of the property present and future, and their heirs, successors and assigns.

11. AMENDMENTS

The terms of this Agreement may be amended only by mutual agreement of the parties. Any amendments shall be in writing, shall refer specifically to this Agreement, and shall be valid only when executed by the owners of the property and the City and recorded in the Official Records of the county where the Property is located.

12. PREVAILING PARTY

In any action brought by either party to enforce the terms of this Agreement, the prevailing party shall be entitled to recover all costs, including reasonable attorney's fees as may be determined by the court having jurisdiction, including any appeal.

13. SEVERABILITY

The invalidity of any section, clause, sentence, or provision of this Agreement shall not affect the validity of any other part of this Agreement, which can be given effect without such invalid part or parts.

After recording, return to:
City of Salem Public Works Department
555 Liberty Street SE, Room 325
Salem OR 97301-3513

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IN WITNESS WHEREOF, the parties hereto have signed this Agreement as of the date below.

By: _____
Owner

Title

STATE OF OREGON)
) ss.
County of _____)

This instrument was acknowledged before me on _____, 20____, by
_____.

Notary Public—State of Oregon
My commission expires: _____

Approved:

By: _____
Public Works Director

City of Salem, Oregon

By: _____
City Manager

STATE OF OREGON)
) ss.
County of _____)

This instrument was acknowledged before me on _____, 20____, by
_____, as City Manager of the City of Salem, Oregon.

Notary Public—State of Oregon
My commission expires: _____

EXHIBIT "A"
(Land Description Map Tax and Account)

BEGINNING AT AN IRON ROD IN THE NORTH LINE OF MCGILCHRIST STREET, SAID IRON ROD BEING 60.72 FEET NORTH 89° 23' WEST AND 30.00 FEET NORTH 00° 35' WEST FROM THE NORTHEAST CORNER OF LOT 14, OF THE SUBDIVISION OF LOTS 5 TO 10, GARDEN HOME TRACTS AS SAID ADDITION IS PLATTED AND RECORDED IN VOLUME 9, PAGE 149, BOOK OF TOWN PLATS FOR MARION COUNTY, OREGON; AND RUNNING THENCE NORTH 00° 35' WEST 318.24 FEET TO AN IRON ROD; THENCE NORTH 89° 23' WEST 682.29 FEET TO AN IRON ROD IN THE EAST LINE OF 16TH STREET; THENCE SOUTH 00° 14' 25" WEST ALONG SAID EAST LINE, 318.17 FEET TO AN IRON ROD AT THE INTERSECTION OF THE AFORESAID NORTH LINE OF MCGILCHRIST STREET; THENCE SOUTH 89° 23' EAST ALONG SAID NORTH LINE, 686.86 FEET TO THE POINT OF BEGINNING.

NOTE: This Legal Description was created prior to January 01, 2008.

Map No.: 073W35CA00400
Tax Account No.: R27979

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Appendix B to 109-011 – Facility Maintenance Forms

This appendix contains Facility Maintenance Forms that provide minimum requirements for inspection, maintenance, and repair activities for the following types of stormwater facilities:

1. Detention Basins
2. Manufactured Treatment Technology
3. Conveyance: Piped

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5. Detention Basin

Detention basins are constructed ponds with temporary storage for the detention of large storm events. The stormwater is stored and released slowly over a matter of hours.

Inspections

All facility components and vegetation shall be inspected for proper operations and structural stability. *These inspections shall occur, at a minimum, quarterly for the first two years from the date of installation, and two times per year thereafter.* It is recommended that a visual inspection be made within 48 hours after each major storm event to ensure proper function. The facility owner must keep a log, recording all inspection dates, observations, and maintenance activities. The following items shall be inspected and maintained as stated:

Date: ____/____/____

Inspector's Name: _____

Inlet shall ensure unrestricted stormwater flow to the detention basin.

- ☐ Inlet pipe shall be kept clear at all times. Sources of sediment and debris shall be identified and corrected.
- ☐ Determine if pipe is in good condition:
- ☐ If more than 4 inches of settlement, add fill material and compact soils.
- ☐ If alignment is faulty, correct alignment.
- ☐ If cracks or openings exist indicated by evidence of erosion at leaks, repair or replace pipe as needed.

Inspection Comments: _____

Forebay traps coarse sediments, reduces incoming velocity, and distributes runoff evenly over the detention basin. A minimum 1-foot freeboard shall be maintained.

- ☐ Sediment exceeding 3 inches in depth, or so thick as to damage or kill vegetation, shall be removed.
- ☐ Sediment accumulation shall be hand-removed with minimum damage to vegetation using proper erosion control measures.

Inspection Comments: _____

Embankment, dikes, berms, and side slopes retain water in the detention basin.

- ☐ Slopes shall be stabilized using appropriate erosion control measures when soil is exposed or erosion channels are forming.
- ☐ Structural deficiencies shall be corrected upon discovery:
- ☐ If cracks exist, repair or replace structure.
- ☐ If erosion channels are forming, stabilize surface. Sources of erosion damage shall be identified and controlled.

Inspection Comments: _____

Control devices (e.g., weirs, baffles, etc.) shall direct and reduce flow velocity. Structural deficiencies shall be corrected upon discovery:

- ☐ If cracks exist, repair or replace structure.

Inspection Comments: _____

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5. Detention Basin (continued)

Overflow structure conveys flow exceeding detention basin capacity to an approved stormwater receiving system.

- ☐ Overflow structure shall be kept clear at all times.
- ☐ Sources of erosion damage shall be identified and controlled when soil is exposed at the top of overflow structure or erosion channels are forming.
- ☐ Rocks or other armoring shall be replaced when only one layer of rock exists.

Inspection Comments: _____

Sediment and debris management shall prevent loss of detention basin volume caused by sedimentation.

Detention basin shall be cleaned of sediment when 1 foot of sediment accumulates in the pond.

- ☐ Gauges located at the opposite ends of the detention basin shall be maintained to monitor sedimentation.
- ☐ Gauges shall be checked two times per year.
- ☐ Sources of restricted sediment or debris, such as discarded lawn clippings, shall be identified and prevented.
- ☐ Debris in quantities sufficient to inhibit operation shall be removed routinely, e.g., no less than quarterly or upon discovery.
- ☐ Litter shall be removed upon discovery.

Inspection Comments: _____

Vegetation shall be healthy and dense enough to provide filtering while protecting underlying soils from erosion. Proper horticultural practices, consistent with the maintenance of a stormwater quality facility, shall be employed to ensure that plants are vigorous and healthy.

- ☐ Mulch shall be replenished as needed, but not inhibiting water flow.
- ☐ Vegetation, large shrubs, or trees that limit access or interfere with planter operation shall be pruned or removed.
- ☐ Fallen leaves and debris from deciduous plant foliage shall be raked and removed.
- ☐ Nuisance or prohibited vegetation from the City of Salem Non-Native Invasive Plant list shall be removed when discovered. Invasive vegetation shall be removed immediately upon discovery.
- ☐ Dead vegetation shall be removed upon discovery.
- ☐ Vegetation shall be replaced within as soon as possible to maintain cover density and control erosion where soils are exposed.

Inspection Comments: _____

Spill prevention measures shall be exercised when handling substances that can contaminate stormwater.

- ☐ Releases of pollutants shall be corrected as soon as identified.

Inspection Comments: _____

Training and/or written guidance information for operating and maintaining ponds shall be provided to all property owners and tenants. This Facility Maintenance Form can be used to meet this requirement.

Inspection Comments: _____

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5. Detention Basin (continued)

Access to the detention basin shall be safe and efficient. Egress and ingress routes shall be maintained to design standards. Roadways shall be maintained to accommodate size and weight of vehicles, if applicable.

- ☐ Obstacles preventing maintenance personnel and/or equipment access to the detention basin shall be removed.
- ☐ Gravel or ground cover shall be added if erosion has occurred.

Inspection Comments: _____

Nuisance insects and rodents shall not be harbored in the detention basin. Pest control measures shall be taken when nuisance insects/rodents are found to be present.

- ☐ Holes in the ground located in and around the infiltration basin shall be filled.

Inspection Comments: _____

If used at this site, the following will be applicable:

Signage shall clearly convey information.

- ☐ Broken or defaced signs shall be replaced or repaired.

Fences shall be maintained to preserve their functionality and appearance.

- ☐ Collapsed fences shall be restored to an upright position.
- ☐ Jagged edges and damaged fences shall be repaired or replaced.

Inspection Comments: _____

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8. Manufactured Treatment Technology

Manufactured treatment technologies are proprietary facilities that can be used to meet the stormwater treatment requirements, provided the type of facility has been approved by the City. The *Public Works Design Standards* lists approved facilities. Because requirements vary among the different types of facilities, each facility is to be operated and maintained according to the specifications provided by the manufacturer

Date: ____/____/____ Inspector's Name: _____

- ☐ Manufactured treatment devices are being maintained according to manufacturer specifications as approved by the City.
- ☐ Records of operations/maintenance are being kept on file.

Inspection Comments: _____

Training and/or written guidance information for operating and maintaining manufactured treatment technology shall be provided to all property owners and tenants.

Inspection Comments: _____

CatchBasin StormFilter™

Important: These guidelines should be used as a part of your site stormwater plan.

Overview

The CatchBasin StormFilter™ (CBSF) consists of a multi-chamber steel, concrete, or plastic catch basin unit. The steel CBSF is offered both as a standard and as a deep unit for additional internal overflow and sediment capacity.

The CBSF is installed flush with the finished grade and is applicable for both constrained lot and retrofit applications. Steel and concrete units can accept surface and piped influent for roof leaders or similar applications.

The steel, concrete and plastic CBSF units have capacities of 4, 8 and 2 cartridges, respectively. Internal overflow capacity varies by system type from 0.5 cfs for the plastic, 1.3 cfs for the concrete and 1.0 or 1.8 cfs for the steel unit.

Design Operation

The CBSF is installed as the primary receiver of runoff, similar to a standard, grated catch basin. The steel and concrete CBSF units have an H-20 rated, traffic bearing lid that allows the filter to be installed in parking lots, and for all practical purposes, takes up no land area. Plastic units can be used in landscaped areas or other non-traffic-bearing applications.

The steel CBSF consists of a sumped inlet chamber and cartridge chamber(s). Runoff enters the sumped inlet chamber either by sheet flow from a paved surface or from an inlet pipe discharging directly to the unit vault. The inlet chamber is equipped with an internal baffle, which traps debris and floating oil and grease, and an overflow weir. While in the inlet chamber, heavier solids are allowed to settle into the deep sump, while lighter solids and soluble pollutants are directed into the cartridge chamber through a port between the baffle and the overflow weir.

The concrete and plastic units operate similarly minus the presence of the inlet chamber or deep sump.

Once in the cartridge chamber, polluted water ponds and percolates horizontally through the media in the filter cartridges. Treated water collects in the cartridge's center tube from where it is directed to the outlet chamber and discharged to the outlet pipe on the downstream side of the overflow weir.

When influent flows exceed the water quality design value, excess water spills over the overflow weir, bypassing the cartridge bay, and discharges to the outlet pipe.

Applications

The CBSF is particularly useful where small flows are being treated or for sites that have little available hydraulic head. The unit is ideal for applications in which standard catch basins are to be used. Both water quality and catchment issues can be resolved with the use of the CBSF.

Retro-Fit

The retrofit market has many possible applications for the CBSF. The CBSF can be installed by replacing an existing catch basin without having to "chase the grade," thus reducing the high cost of re piping the storm system.

CatchBasin StormFilter™

Maintenance Guidelines

Maintenance procedures for typical catch basins can be applied to the CatchBasin StormFilter (CBSF). The filter cartridges contained in the CBSF are easily removed and replaced during maintenance activities according to the following guidelines.

1. Establish a safe working area as per typical catch basin service activity.
2. Remove steel grate and diamond plate cover (weight 100 lbs. each) or plastic grating.
3. Turn cartridge(s) approximately ¼ turn counter-clockwise to disconnect from pipe manifold.
4. Remove cartridge(s) from catch basin by hand or with appropriate hoisting equipment.
5. Remove accumulated sediment via vactor truck from all interior chambers.
6. Rinse interior of both bays and vactor remaining water and sediment.
7. Install fresh cartridge(s), by rotating ¼ turn clockwise, taking care not to damage cartridge connectors.
8. Replace cover(s).
9. Dispose of accumulated debris and spent media in accordance with local regulations.
10. Return used, empty cartridges to Contech for refurbishing.

Media may be removed from the filter cartridges using the vactor truck before the cartridges are removed from the catch basin structure once the top cap and hood are removed. The vactor truck must be equipped with a hose capable of reaching areas of restricted clearance.

Empty cartridges can be easily removed from the catch basin structure by hand. Empty cartridges should be reassembled and returned to Contech as appropriate.

Refurbished cartridges are available from Contech on an exchange basis. Contact the maintenance department of Contech at 513-645-7770 for more information.

Onsite maintenance is estimated at 26 minutes once setup for a single cartridge unit. Add approximately 5 minutes for each additional cartridge.

Mosquito Abatement

In certain areas of the United States, mosquito abatement is desirable to reduce the incidence of vectors.

In BMPs with standing water, which could provide mosquito breeding habitat, certain abatement measures can be taken.

1. Periodic observation of the standing water to determine if the facility is harboring mosquito larvae.
2. Regular catch basin maintenance.
3. Use of larvicides containing *Bacillus thuringiensis israelensis* (BTI). BTI is a bacterium toxic to mosquito and black fly larvae.

In some cases, the presence of petroleum hydrocarbons may interrupt the mosquito growth cycle.

Using Larvicides in the CatchBasin StormFilter

Larvicides should be used according to manufacturer's recommendations.

Two widely available products are Mosquito Dunks and Summit B.t.i. Briquets. For more information, visit <https://www.amvac.com/products/summit-bti-briquets>.

The larvicide must be in contact with the permanent pool. The larvicide should also be fastened to the CatchBasin StormFilter to prevent displacement by high flows. A magnet can be used with a steel catch basin.

For more information on mosquito abatement in stormwater BMPs, refer to the following: <https://anrcatalog.ucanr.edu/pdf/8125.pdf>.

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13. Conveyance: Piped

Conveyance (pipes) system shall be routinely inspected and cleaned on a scheduled cycle.

Inspection should consist of cleaning main line followed by TV inspection. Manholes and catch basins should be visually inspected annually and cleaned when sediment has reached 12 inches in depth or 50 percent of capacity has been taken.

- ☐ Structural deficiencies shall be corrected upon discovery:
- ☐ If cracks exist, repair or replace structure.

Date: ____/____/____ Inspector's Name: _____

Access to the conveyance system shall be safe and efficient. Egress and ingress routes shall be maintained to design standards. Roadways shall be maintained to accommodate size and weight of vehicles, if applicable.

- ☐ Obstacles preventing maintenance personnel and/or equipment access to the conveyance system shall be removed.
- ☐ Gravel or ground cover shall be added if erosion has occurred.

Inspection Comments: _____

Spill prevention measures shall be exercised when handling substances that contaminate stormwater.

- ☐ Releases of pollutants shall be corrected as soon as identified.

Inspection Comments: _____

Debris and litter shall be removed to prevent clogging.

Inspection Comments: _____

Training and/or written guidance information for operating and maintaining closed channel conveyance systems shall be provided to all property owners and tenants. This Facility Maintenance Form can be used to meet this requirement.

Inspection Comments: _____