Stormwater Application

City of Battle Ground
Community Development
109 SW Street, Suite 127
Battle Ground, WA 98604
Phone: (360) 342-5046
Fax: (360) 342-5049

DEPARTMENT USE ONLY	
Date Received:	**Receipt #:**
Project File #:	**Fee:**

PROJECT SITE LOCATION	
Project Address:	
Tax Assessor Serial Number:	
APPLICANT INFORMATION	
Name:	Date:
Phone Number:	Email:

PROJECT IMPACTS

Fill in the following table to summarize the site disturbance and new or replaced hard surfaces planned for the site. Definitions on page four.

	Description/Surface Type	Area (sf)*
A	**Total Site Area (1acre = 43,560 sf)** *Total size of the lot/property* *For example, 1/2 acre: multiply 0.5 x 43,560 = 21,780*	
B	**New Hard Surface Area** *(Hard surface areas to be created with the project, see definition of hard surface)* • Roof / Building	
	• Driveways	
	• Other (patios, hard courts)	
	Total	
C	**Replaced Hard Surface Area** *(See definition of replaced hard surface)* • Driveway	
	• Other (patios, hard courts)	
	Total	
D	**Total new and replaced hard surface area** *(Add totals of lines B and C)*	
E	**Native vegetation converted to pasture**	
F	**Vegetation (including pasture) converted to lawn/landscape**	
G	**Total area of land disturbing activity** *(See definition of land disturbing activity)*	

Number of TDA's _____. If the site includes more than one Threshold Discharge Area (TDA), copy this sheet, fill out the table above for each TDA, and submit one sheet for each TDA. * TDA is defined on pg. 4.

Submittal requirements
All applications and required materials must be submitted to the City of Battle Ground's Building/ Planning Department.

☒ ***Indicate which requirements below apply to this project.***

☐ **For projects on parcels in a recorded subdivision or short plat approved on or after January 1, 1994:** The drainage details from the approved subdivision engineering plans for your specific lot are required. Submit two clean, readable sets. These plans may be available on Maps Online at gis.clark.wa.gov/mapsonline

Note: Any deviation from the approved engineering plans may require a separate review with Public Works - Engineering.

- ☐ Page 1, 2, and 3 of this application form
- ☐ Two (2) Stormwater site plans
- ☐ Two (2) Erosion Control site plans
- ☐ Soil Management Application

☐ **For minimum requirement #2 only:**

- ☐ Page 1 and 2 of this application form
- ☐ Erosion Control Plan
- ☐ Two (2) Erosion Control site plans

☐ **For minimum requirements #1-5:**

- ☐ Residential project
- ☐ Commercial project

- ☐ All pages of this application form
- ☐ Two (2) Stormwater site plans
- ☐ Applicable reports, as required
- ☐ Erosion Control Plan
- ☐ Two (2) Erosion Control site plans
- ☐ Soil Management Application

☐ **For all minimum requirements #1-9:** A Development Engineering Application is required. This project will need to be designed by an engineer licensed in the state of Washington.

Stormwater Site Plan Checklist
Show and label the following applicable details:

- ☐ North arrow
- ☐ Two (2) clean, readable site plans on 8.5 x 14 or 11 x 17. For properties one acre or less in size, site plan is required to be drawn to scale; for sites larger than one acre, a proportionate site plan is acceptable
- ☐ Contour lines at a minimum of 10' intervals for the entire parcel, include elevation at building and property corners (available through gis.clark.wa.gov/mapsonline)
- ☐ Existing, new, and replaced hard surfaces with dimensions, include all structures, driveways, and easements
- ☐ Proposed BMP locations and details (plan view and profile view, as applicable)
- ☐ Crawlspace Low Point Drain and Detail
- ☐ Drainage patterns, flow paths, and lengths for associated BMPs and natural runoff
- ☐ Dimensions of BMPs for infiltration/dispersion systems, rain gardens, and permeable Pavement
- ☐ Setback dimensions for all applicable BMPs from structures, property lines, easements, onsite septic systems, wells, slopes, and critical areas and associated buffers
- ☐ Limits of excavation and soil disturbance
- ☐ Boundaries of existing native landscape vs. new lawn and landscape/existing vegetation, fields, creeks, trees, etc.
- ☐ Show grades, dimensions, and direction of flow in all (existing and proposed) ditches, swales, culverts, and pipes

For all projects/permits that create ground disturbance, all sites shall have final stabilization of disturbed soils and a permanent vegetative cover established, or approved equivalent permanent stabilization measures, prior to final inspection approval.

Final stabilization for lawn areas shall include visible growth and full coverage of lawn areas.

Landscape areas and other hard surface areas shall be complete and fully cover all disturbed areas.

The undersigned hereby certifies that this application has been made with the consent of the lawful property owner(s) and that all information submitted with this application is complete and correct. False statements, errors, and/or omissions may be sufficient cause for denial or revocation of the permit.

Applicant Authorized Signature _____ Date_____

Definitions

Hard Surface – An impervious surface (see definition), a permeable pavement, or a vegetated roof.

Impervious Surface – A non-vegetated surface which either prevents or retards the entry of water into the soil below, causing water to run off the surface in greater quantities or at an increased rate compared to natural conditions prior to development. Common impervious surfaces include roofs, walkways, patios, driveways, parking lots, storage areas, gravel roads, and packed earthen materials.

Replaced Hard Surface – For structures, the removal and replacement of hard surfaces down to the foundation. For other hard surfaces, the removal down to bare soil or base course and replacement.

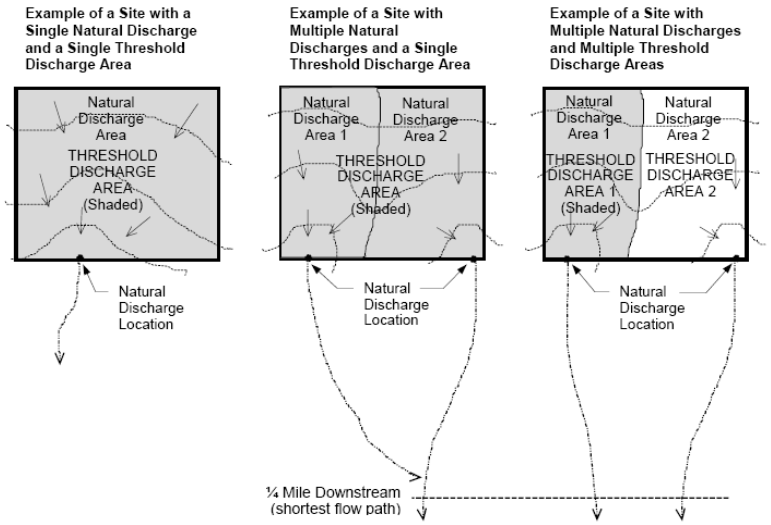
Pollution-generating Hard Surface (PGHS) – Hard surfaces that are significant source of pollutants in stormwater runoff, such as those subject to vehicular traffic and industrial activities. Surfaces include roads, driveways, parking areas, galvanized metal roofs, and areas that receive direct rainfall or run-on and which are used to store erodible stockpiles, wastes, or chemicals.

Converted Vegetation (areas) – Surfaces on a project site where native vegetation, pasture, scrub/shrub, or unmaintained non-native vegetation (e.g., Himalayan blackberry, scotch broom) are converted to lawn or landscaped areas, or where native vegetation is converted to pasture.

Land Disturbing Activity – Any activity that results in a change in the existing soil cover (both vegetated and non-vegetated) and/or the existing soil topography. Land disturbing activities include grading, filling, and excavation. Compaction associated with stabilization of structures and road construction shall also be considered a land disturbing activity. Landscape maintenance and gardening are not included.

Native Vegetation – Plants that are indigenous to the coastal Pacific Northwest and which naturally could have occurred on the site. Examples include Douglas Fir, Western Hemlock, Western Red Cedar, Alder, Big-leaf Maple, and Vine Maple; shrubs such as willow, elderberry, salmonberry and salal; and plants such as sword fern, foam flower, and fireweed.

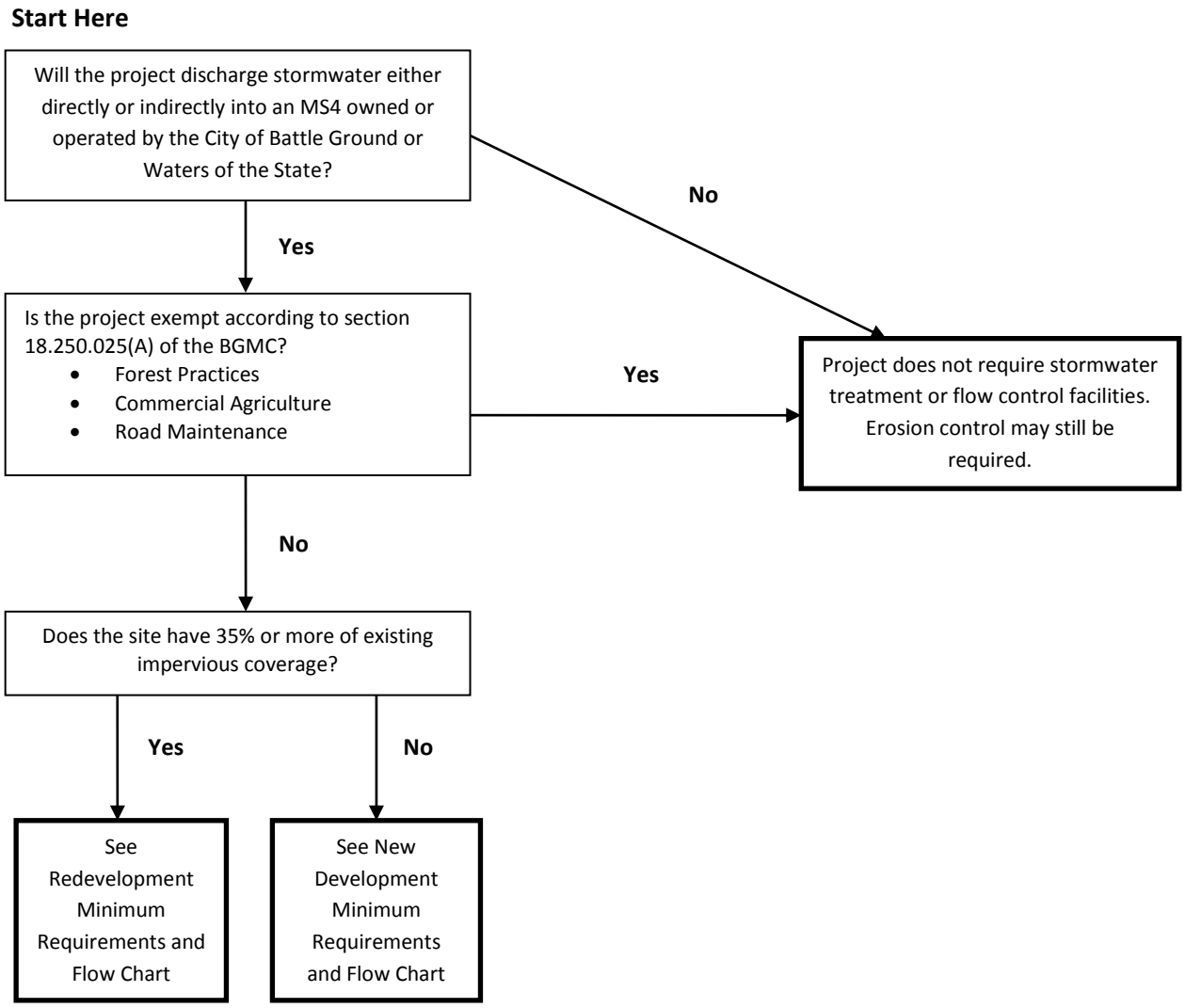
Threshold Discharge Area – An on-site area draining to a single natural discharge location or multiple natural discharge locations that combine within one-quarter mile downstream (as determined by the shortest flow path), as shown in the illustration.



City of Battle Ground

Stormwater Management Program

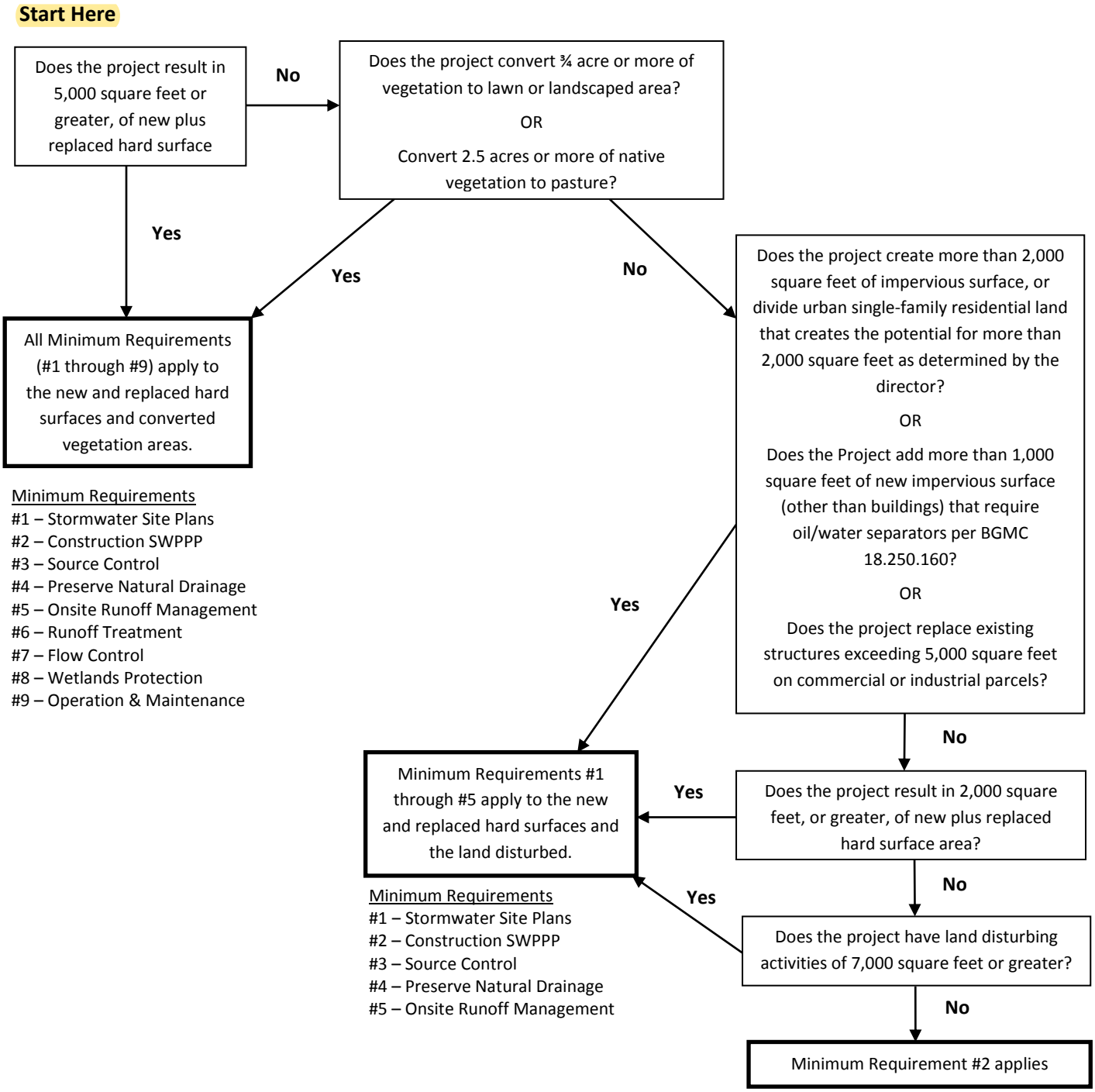
Stormwater Requirements Flow Chart



City of Battle Ground
Stormwater Management Program

New Development Flow Chart

Highlight the path used for determination



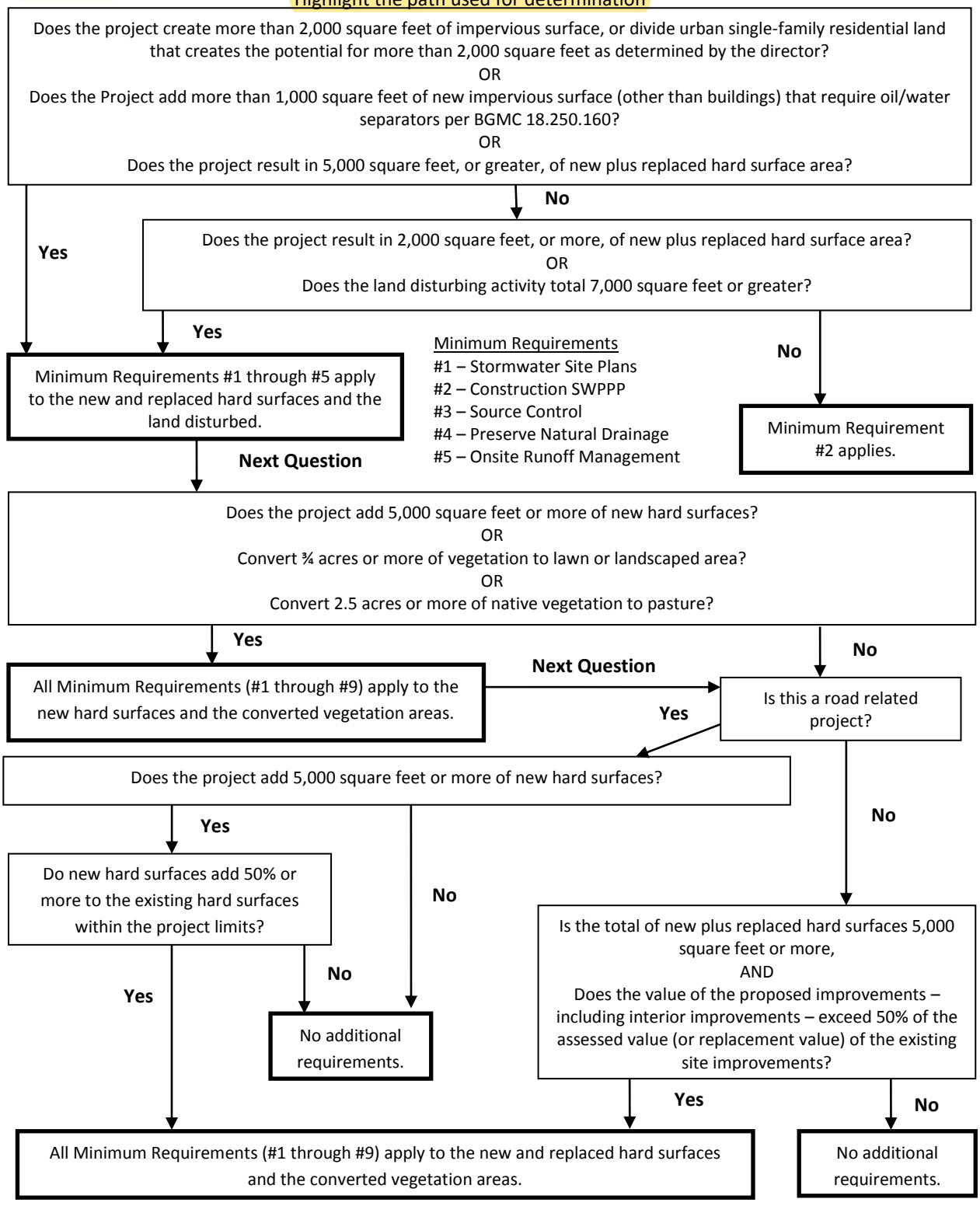
City of Battle Ground

Stormwater Management Program

Redevelopment Flow Chart

Start Here

Highlight the path used for determination



Other Minimum Requirements

#6 – Runoff Treatment

#7 – Flow Control

#8 – Wetlands Protection

#9 – Operation & Maintenance

Project Thresholds
Projects triggering only Minimum Requirements #1-5 shall either:

1. Use On-site Stormwater Management BMPs from List #1 (see page 12) for all surfaces within each type of surface in List #1; or

2. Demonstrate compliance with the LID Performance Standard. Projects selecting this option cannot use Rain Gardens. They may choose to use Bioretention BMPs as described in Ecology's 2019 Stormwater Management Manual for Western Washington. Projects selecting this option must implement BMP T5.13, Post-Construction Soil Quality and Depth.

Minimum Requirements Discussion and Narrative for Projects Meeting MRs 1-5
The applicant must demonstrate how five minimum requirements will be met. Minimum Requirements describe the minimum stormwater controls and technical specifications for the site.

Generally, small projects must:

- Demonstrate how the minimum requirements will be met using the Stormwater Site Plan and other required submittals (Minimum Requirement #1).
- Control erosion and sedimentation during construction (Minimum Requirement #2).
- Prevent stormwater from coming into contact with pollutants (Minimum Requirement #3).
- Preserve the natural drainage patterns on the site (Minimum Requirement #4).
- Capture and control runoff from the site's new and replaced hard surfaces using practices such as rain gardens, dispersion, or infiltration trenches and drywells (Minimum Requirement #5).

Minimum Requirements are discussed below.

Minimum Requirement #1 — Preparation of a Stormwater Site Plan
All projects shall prepare and submit a Stormwater Site Plan (site plan) for review. The site plan will demonstrate how the project will comply with Battle Ground Municipal Code 18.250 control of stormwater. The site plan will be reviewed for compliance and to ensure that stormwater best management practices (BMPs) are correct. A Stormwater Site Plan shall display site-appropriate development principles to retain native vegetation and minimize impervious surfaces to the extent feasible.

Minimum Requirement #2 - Erosion and Sediment Control during Construction
All construction projects are responsible for preventing discharge of sediment and other pollutants from the site during construction. Instructions for documenting and complying with erosion and sediment control requirements are given in the Erosion Control Plan.

Minimum Requirement #3 — Source Control of Pollution
Development and redevelopment projects must use source control BMPs to prevent contamination of stormwater. Source control BMPs must be selected and designed in accordance with the Ecology's 2019 Stormwater Management Manual for Western Washington.

Commercial Site Activities
Check any activity that will take place on the site after construction.

☐ Manufacturing
☐ Transportation and Communication Business
☐ Retail and Wholesale Business
☐ Service Business
☐ Public Agency

Documentation
Consult the 2019 Stormwater Management Manual for Western Washington and list all required BMPs to be installed to provide source control for activities checked above, or check ☐ N/A if no activities above are selected: _____
Show all required structural source control BMPs on the site plan.

Minimum Requirement #4 — Preserve Natural Drainage Systems and Outfalls
Maintain natural and existing drainage patterns through the site and onto adjacent property as much as possible.

Minimum Requirement #5 - On-site Stormwater Management
Projects must use On-site Stormwater Management BMPs to disperse, infiltrate, and retain stormwater runoff from the site's roofs, driveways, parking areas, patios, and landscaped areas to the extent feasible without causing flooding or erosion impacts.

Description
Stormwater generated from hard surfaces on the site must be infiltrated or dispersed into vegetation using BMPs such as rain gardens, infiltration trenches and drywells, and dispersion.

Existing Conditions Summary
Describe the existing site conditions. If there are multiple choices, check all that apply.

1. Describe the existing site conditions.

☐ Forest	☐ Prairie	☐ Pasture
☐ Pavement	☐ Landscaping	☐ Brush
☐ Trees	☐ Other _____	

2. Describe how surface water (stormwater) drainage flows across/from the site.

☐ Overland	☐ Gutter	☐ Catch Basin
☐ Ditch/Swale	☐ Storm Sewer Pipe	☐ Stream
☐ Other _____		

3. Describe, discuss and identify the following for the project site:

- Topography — is the site: ☐ Flat ☐ Rolling ☐ Steep
- Natural and man-made drainage patterns (which direction does stormwater flow and how):

  _____

- Are there any known historical drainage problems such as flooding, erosion, etc.)?

  _____

- Are sensitive and/or critical areas present on the site (check all that apply)?
  This information may be found on Clark County Maps Online at www.clark.wa.gov.

  ☐ Streams ☐ Lakes/Ponds ☐ Wetlands*
  ☐ Steep Slopes/Geohazard* ☐ Floodplain ☐ Springs
  ☐ Habitat* ☐ Critical Aquifer Recharge Area

*If a critical area exists on site, the city may require additional information, engineering, or other permits.

- Existing utilities
  ☐ Storm ☐ Water ☐ Sewer ☐ Other

- Are fuel tanks present on the site?
  ☐ Yes ☐ No

- Are groundwater wells present on the site and/or within 100 feet of the site?
  ☐ Yes ☐ No

- Are septic systems present on the site and/or within 100 feet of the site?
  ☐ Yes ☐ No

- Are there existing public and/or private easements on the project site?
  ☐ Yes ☐ No
  If *Yes*, provide Recording Number(s):

Adjacent Areas

Describe adjacent properties and roads. Attach a separate sheet, if necessary.

1. Check any adjacent areas that may be affected by site disturbance and describe below (check all that apply):

   ☐ Streams* ☐ Lakes ☐ Wetlands*
   ☐ Steep Slopes/Geohazards* ☐ Residential Areas ☐ Roads
   ☐ Ditches, pipes, culverts ☐ Other _____

* If the site is adjacent to a critical area, the City of Battle Ground may require additional information, engineering, or other permits

2. Describe how and where surface water enters the site from upstream properties:

_____

3. Describe how and where surface water exits the site and the downstream drainage, including flooding problems, if known:

_____

Soils Assessment

A soils assessment is needed to determine the site suitability for stormwater infiltration features required by state law. The soils report is used to meet on-site stormwater management requirements.

For all sites, the Soils Assessment must include a soils description, infiltration rate testing, and a groundwater assessment.

Obtain a Soils Assessment of the site performed by a qualified professional. Ask the qualified professional to fill out items 1 – 3, below, and attach a written report to this form.

Qualified professionals include a certified soil scientist, professional engineer, geologist, hydrogeologist or engineering geologist registered in the State of Washington or suitably trained persons working under the supervision of the above professionals. A licensed on-site sewage designer can also be used in some instances.

1. Soil Description

A soil description is required for all sites (available through gis.clark.wa.gov/mapsonline).

☐ Soils on the site are described by a qualified professional
☐ A Soils Report is attached

Describe the soils on the site:

_____

2. Infiltration Rate Testing

☐ Infiltration rate testing conducted by a qualified professional in accordance with accepted infiltration test methods - COBG Acceptable Infiltration Rate Test Methods
☐ Infiltration testing method, logs, results, and rates are attached or described in the Soils Report.

List the infiltration rate(s) found at each BMP location on the site:

_____

3. Groundwater Assessment

☐ Groundwater assessment conducted by a qualified professional
☐ Groundwater assessment attached or included with the Soils Report

Documentation

Go through the selection process described below. For each surface to be constructed as part of the project, fill in the first BMP that is feasible using the selection processes.

☐ Lawn and Landscape Area will be installed or re-graded.

☐ BMP T5.13 Post Construction Soil Quality and Depth will be used.

☐ Roofs will be constructed.

BMP Selected for Roofs: _____

☐ Other Hard Surfaces will be constructed (e.g. driveway, parking, patio, etc.).

BMP Selected for Other Hard Surfaces: _____

Selection

Project sites usually construct or create up to three types of surfaces that generate stormwater runoff – lawn and landscaped areas, roofs, and other hard surfaces (driveways, patios, parking, etc.).

For each surface constructed or created as part of the project, select a BMP from a prioritized list of required BMPs below. Select the first BMP in the list that is not infeasible. Only one BMP for each surface is required.

List #1 -

Lawn and Landscaped Areas

1. Post Construction Soil Quality and Depth BMP T5.13 is required for all lawn and landscaped areas created or re-graded as part of the project.

Roofs

Select the first BMP in the list that is not infeasible for each new roof on the site:

1. Full Dispersion BMP T5.30 or Downspout Full Infiltration BMP T5.10A and BMP T5.10B
2. Rain Garden in accordance with the "Rain Garden Handbook for Western Washington," or Bioretention in accordance with Chapter 7 of Volume V of the SWMMWW
3. Downspout Dispersion BMP T5.10B
4. Perforated Stub-out Connection BMP T5.10C

Other Hard Surfaces

Select the first BMP in the list that is not infeasible for each new or replaced hard surface on the site:

1. Full Dispersion BMP T5.30
2. Either Rain Garden or Permeable Pavement BMP T5.15
3. Either Sheet Flow Dispersion BMP T5.12 or Concentrated Flow Dispersion BMP T5.11

Flow charts on the following pages illustrate the selection process.

City of Battle Ground
List #1 - LID Infeasibility Checklist – Roofs

For each No answer, move on to the subsequent question within the BMP.
If a Yes answer is given, then the BMP is infeasible in the TDA and is not required in accordance with Minimum Requirement #5.

For each surface type, stop at the first BMP that is feasible. Answers to questions must consider site-specific information, and some may require professional written evaluation as justification.

#1 FULL DISPERSION *(BMP T5.30)*			
	Infeasibility Criteria	**YES**	**NO**
1.	Is the project unable to protect and maintain 65% or more of the site or a Threshold Discharge Area (on-site area draining to a single natural discharge location) of the site in a forested native condition?		
2.	Does a professional geotechnical evaluation recommend dispersion not be used due to concerns about erosion, slope failure, or flooding?		
3.	Is the only location available for the system outlet less than 100 feet up slope of a septic system?		
4.	Is the only area available for the required length of the dispersion system flow path (100 ft. reqd.) on a slope greater than 15% (7:1)?		
5.	Is the only area available for placement of the dispersion system flow path (100 ft. reqd.) above an erosion hazard or toward a landslide hazard area?		
6.	Is the only area available to place the dispersion device located in a critical area or critical area buffer (i.e. wetlands, critical habitat, geologic hazard areas, flood hazard areas, or critical aquifer recharge areas) as identified on Clark County GIS?		
7.	Is the only area available to place the dispersion device located on a slope greater than 20% (5:1) or within 50 feet of a slope or geologic hazard as identified on Clark County GIS?		
8.	Is the only area available to place the dispersion device or flow path less than 10 feet from any structure, property line, or sensitive area? Sensitive areas include, but are not limited to, water bodies, storm water facilities, bioswales, storm drains, and wetlands.		
9.	Are there Competing Needs (see Low Impact Development Stormwater Application Checklist)? If so, attach a narrative justifying the use of Competing Needs criteria.		
Determination: Is a Full Dispersion System infeasible?			

#1 Continued - ROOF DOWNSPOUT FULL INFILTRATION (*BMP T5.10A and COBG ST-12.00 - ST-12.02)*			
	Infeasibility Criteria	**YES**	**NO**
The following require professional technical evaluation.			
1.	Has the geotechnical investigation determined that soils in the infiltration zone at the location of the roof downspout infiltration system do not fall within USDA textural classes of coarse to medium sands, loam, or cobbles and gravels?		
2.	Is there less than 3 feet of permeable soil from the proposed finished ground elevation at the drywell or trench location to the seasonal high groundwater table?		
3.	Is there less than 1 foot of soil from the proposed bottom elevation of the roof downspout infiltration trench or drywell to the groundwater elevation?		
4.	Is the proposed location of the system on a slope of 25% (4:1) or greater and cannot be located elsewhere?		
5.	Will the system be located less than 100 feet from a closed or active landfill and cannot be located elsewhere?		
6.	Will the system be located less than 10 feet from a septic drain field, including reserve areas and grey water reuse systems, and cannot be located elsewhere?		

City of Battle Ground
List #1 - LID Infeasibility Checklist – Roofs

For each No answer, move on to the subsequent question within the BMP.
If a Yes answer is given, then the BMP is infeasible in the TDA and is not required in accordance with Minimum Requirement #5.

# 1 Continued - ROOF DOWNSPOUT FULL INFILTRATION *(Continued from above)*		
Infeasibility Criteria	**YES**	**NO**
7. Will the system be located less than 10 feet from an underground storage tank and its connecting pipes that is used to store petroleum products, chemicals, or liquid hazardous wastes in which 10% or more of the storage volume of the tank and connecting pipes is beneath the ground and cannot be located elsewhere?		
8. Is the proposed location of the system less than 100 feet up slope of a septic system unless topography clearly prohibits subsurface flows from intersecting the drain field and cannot be located elsewhere?		
9. Is the proposed location less than 10 feet from any structure, property line, or sensitive area and cannot be located elsewhere?		
10. Is the proposed location less than 50 feet from the top of any slope greater than 40% (2.5:1) and cannot be located elsewhere?		
11. Are there Competing Needs (see Low Impact Development Stormwater Application Checklist)? If so, attach a narrative justifying the use of Competing Needs criteria.		
Determination: Is a Downspout Infiltration System infeasible?		

#2 - RAIN GARDEN or BIORETENTION *(BMP T5.14A and T7.30; COBG ST-11.01 - ST-11.08 and ST-13.00 - ST-13.13)*		
Infeasibility Criteria	**YES**	**NO**
1. Does the professional geotechnical evaluation recommend infiltration not be used due to concerns about erosion, slope failure or flooding?		
2. Does the site have groundwater that drains into an erosion hazard or landslide hazard area?		
3. Does the only area available for locating the Rain Garden or Bioretention Facility threaten the safety or reliability of existing underground utilities, underground storage tanks, structures and basements, or roadway or parking lot surfaces or subgrades?		
4. Is the only area available for locating the Rain Garden or Bioretention Facility one that does not allow for a safe overflow pathway to the municipal separate storm sewer system or to a private storm sewer system?		
5. Is the site a redevelopment project that lacks usable space?		
6. Would infiltrating water threaten existing basements?		
7. Would infiltrating water threaten shoreline structures such as bulkheads?		
8. Will the Rain Garden or Bioretention Facility be located within setbacks from structures as established by the local jurisdiction?		
9. Has the Responsible Official determined that the facility is not compatible with surrounding drainage systems?		
10. Will the Rain Garden or Bioretention Facility be located in an area designated as an erosion hazard or landslide hazard by the geotechnical report or county critical areas mapping?		
11. Is the Rain Garden or Bio-retention facility unable to be located on slopes less than 8% (12:1)?		
12. Is the Rain Garden or Bio-retention facility less than 100 feet from a landfill (active or closed) and cannot be located elsewhere?		

City of Battle Ground
List #1 - LID Infeasibility Checklist – Roofs

For each No answer, move on to the subsequent question within the BMP.
If a Yes answer is given, then the BMP is infeasible in the TDA and is not required in accordance with Minimum Requirement #5.

# 2 Continued - **RAIN GARDEN or BIORETENTION** (Continued from above)		
Infeasibility Criteria	**YES**	**NO**
13. Will the Rain Garden or Bio-retention facility be located less than 50 feet from the top of slopes greater than 20% (5:1) and with more than 10 feet of elevation difference and cannot be located elsewhere?		
14. Is the Rain Garden or Bio-retention facility less than 100 feet from a well or spring used for drinking water and cannot be located elsewhere?		
15. Is the Rain Garden or Bio-retention facility less than 10 feet from any septic drain field, including reserve areas, and grey water reuse systems and cannot be located elsewhere? (For setbacks from "large on-site sewage disposal system," see WAC 246-272B).		
16. Is the Rain Garden or Bio-retention facility less than 10 feet from an underground storage tank and its connecting pipes that is used to store petroleum products, chemicals, or liquid hazardous wastes in which 10% or more of the storage volume of the tank and connecting pipes is underground and when the capacity of the tank and pipe system is less than 1100 gallons and cannot be located elsewhere?		
17. Is the Rain Garden or Bioretention Facility less than 100 feet from an underground storage tank and its connecting underground pipes when the capacity of the tank and pipe system is greater than 1100 gallons and cannot be located elsewhere?		
18. For bio-retention or rain gardens that serve a drainage area that is: • Less than 5,000 SF of pollution generating impervious surface, **and** • Less than 10,000 SF of impervious surface, **and** • Less than 3/4 acres of pervious surface; Is there less than **one foot** of vertical separation below the rain garden or bio-retention and the seasonal high water table, bedrock or other impervious layer?		
19. For bio-retention that serves a drainage area that is: • Equal to or more than 5,000 SF of pollution generating impervious surface, **or** • Equal to or more than 10,000 SF of impervious surface, **or** • Equal to or more than 3/4 acres of pervious surface, and cannot be broken into amounts smaller than the thresholds above; Is there less than **three feet** of vertical separation below the bio-retention and the seasonal high water table, bedrock or other impervious layer?		
20. Does field testing indicate that soils have a measured (a.k.a. initial) native soil coefficient of permeability less than 0.3 inches per hour?		
21. Are there Competing Needs (see Low Impact Development Stormwater Application Checklist)? If so, attach a narrative justifying the use of Competing Needs criteria.		
On properties with known soil or groundwater contamination (typically federal Superfund sites or state cleanup sites under the Model Toxics Control Act (MTCA)) and any of the following criteria:		
22. Is the proposed Rain Garden or Bioretention Facility within 100 feet of an area known to have deep soil contamination?		
23. Is the site in an area where groundwater modeling indicates infiltration will likely increase or change the direction of the migration of pollutants in groundwater?		
24. Is the proposed Rain Garden or Bioretention Facility located in an area where surface soils have been found to be contaminated, and contaminated soils are still in place within 10 horizontal feet of the infiltration area?		
25. Is the proposed Rain Garden or Bioretention Facility within any area where it would be prohibited by an approved cleanup plan under the state Model Toxics Control Act or Federal Superfund Law, or an environmental covenant under Chapter 64.70 RCW?		
Determination: Is a Rain Garden or Bioretention Facility infeasible?		

City of Battle Ground
List #1 - LID Infeasibility Checklist – Roofs

For each No answer, move on to the subsequent question within the BMP.
If a Yes answer is given, then the BMP is infeasible in the TDA and is not required in accordance with Minimum Requirement #5.

# 3 - **DOWNSPOUT SPLASH BLOCKS** *(BMP T5.10B, Vol III, Section 3.1.2 and COBG ST-12.05)*		
Infeasibility Criteria	**YES**	**NO**
1. Would the Downspout Splash Blocks discharge to a vegetated flow path less than 50 feet in length as measured from the downspout to the downstream property line, structure, slope over 15% (7:1), stream, wetland, or other impervious surface?		
2. Is the vegetated flow path less than 25 feet?		
3. Will the Downspout Splash Blocks discharge up slope of a septic system drain field?		
4. Are there Competing Needs (see Low Impact Development Stormwater Application Checklist)? If so, attach a narrative justifying the use of Competing Needs criteria.		
Determination: Are Downspout Splash Blocks infeasible?		

# 3 Continued - DISPERSION TRENCHES (*BMP T5.10B, Vol. III, Section 3.1.2 and COBG ST-12.03 – ST-12.04)*		
Infeasibility Criteria	**YES**	**NO**
1. Will a vegetated flow path be less than 25 feet in length between the outlet of the trench and any property line, structure, stream, wetland, or impervious system?		
2. Will the vegetated flow path be less than 50 feet to any slope steeper than 15% (7:1)?		
3. Will the dispersion trench system be serving more than 3500 square feet of roof area?		
4. Will the edge of the trench be closer than 5 feet from any structure or property line?		
5. Can erosion or flooding of downstream properties result with the implementation of this BMP?		
6. For purposes of maintaining adequate separation of flows discharged from adjacent dispersion devices, will the outer edge of the vegetated flow path segment for the dispersion trench overlap other flow path segments, other than those associated with sheet flow from a non-native pervious surface?		
7. Are there Competing Needs (see Low Impact Development Stormwater Application Checklist)? If so, attach a narrative justifying the use of Competing Needs criteria.		
Determination: Are Dispersion Trenches infeasible?		

City of Battle Ground
List #1 - LID Infeasibility Checklist – Roofs

For each No answer, move on to the subsequent question within the BMP.
If a Yes answer is given, then the BMP is infeasible in the TDA and is not required in accordance with Minimum Requirement #5.

#4 – PERFORATED STUB-OUT CONNECTIONS *(BMP T5.10C, Vol. III, Section 3.1.3 and COBG ST-12.06)*		
Infeasibility Criteria	**YES**	**NO**
1. Is there less than 1 foot of soil from the proposed bottom elevation of the perforated stub-out trench to the groundwater elevation?		
2. Is the only available location for the perforated pipe portion of the system under impervious or heavily compacted (e.g. driveway and parking areas) surfaces?		
3. Is the proposed location of the system on a slope of 20% (5:1) or greater and cannot be located elsewhere?		
4. Will the system be located less than 100 feet from a closed or active landfill and cannot be located elsewhere?		
5. Will the system be located less than 10 feet from a septic drain field, including reserve areas and grey water reuse systems, and cannot be located elsewhere?		
6. Will the system be located less than 10 feet from an underground storage tank and its connecting pipes that is used to store petroleum products, chemicals, or liquid hazardous wastes in which 10% or more of the storage volume of the tank and connecting pipes is beneath the ground and cannot be located elsewhere?		
7. Is the proposed location of the system less than 100 feet up slope of a septic system unless topography clearly prohibits subsurface flows from intersecting the drain field and cannot be located elsewhere?		
8. Is the proposed location less than 10 feet from any structure, property line, or sensitive area and cannot be located elsewhere?		
9. Is the proposed location less than 50 feet from the top of any slope greater than 40% (2.5:1) and cannot be located elsewhere?		
10. Does the professional geotechnical evaluation recommend infiltration not be used due to concerns about erosion, slope failure or flooding?		
11. Are there Competing Needs (see Low Impact Development Stormwater Application Checklist)? If so, attach a narrative justifying the use of Competing Needs criteria.		
Determination: Are Perforated Stub-out Connections infeasible?		

City of Battle Ground
List #1 - LID Infeasibility Checklist – Other Hard Surfaces

For each No answer, move on to the subsequent question within the BMP.
If a Yes answer is given, then the BMP is infeasible in the TDA and is not required in accordance with Minimum Requirement #5.

For each surface type, stop at the first BMP that is feasible. Answers to questions must consider site-specific information, and some may require professional written evaluation as justification.

# 1 - FULL DISPERSION *(BMP T5.30)*		
Infeasibility Criteria	**YES**	**NO**
1. Is the project unable to protect and maintain 65% or more of the site or a Threshold Discharge Area (on-site area draining to a single natural discharge location) of the site in a forested native condition?		
2. Does a professional geotechnical evaluation recommend dispersion not be used due to concerns about erosion, slope failure or flooding?		
3. Is the only location available for the system outlet less than 100 feet up gradient of a septic system?		
4. Is the only area available for the required length of the dispersion system flow path (100 ft. reqd.) on a slope greater than 15% (7:1)?		
5. Is the only area available for the required length of the dispersion system flow path (100 ft. reqd.) above an erosion hazard or toward a landslide hazard area?		
6. Is the only area available to place the dispersion device located in a critical area or critical area buffer (i.e. wetlands, critical habitat, geologic hazard areas, flood hazard areas, or critical aquifer recharge areas) as identified on Clark County GIS?		
7. Is the only area available to place the dispersion device located on a slope greater than 20% (5:1) or within 50 feet of a slope or geologic hazard as identified on Clark County GIS?		
8. Is the only area available to place the dispersion device or flow path less than 10 feet from any structure, property line, or sensitive area? Sensitive areas include, but are not limited to, water bodies, storm water facilities, bioswales, storm drains, and wetlands.		
9. Are there Competing Needs (see Low Impact Development Stormwater Application Checklist)? If so, attach a narrative justifying the use of Competing Needs criteria.		
Determination: Is a Full Dispersion System infeasible?		

# 2 - PERMEABLE PAVEMENT *(BMP T5.15 and COBG ST-10.05 – ST-10.08)*		
Infeasibility Criteria	**YES**	**NO**
The following require professional technical evaluation.		
1. Does a professional geotechnical evaluation recommend infiltration not be used due to concerns about erosion, slope failure or flooding?		
2. Does the site have groundwater that drains into an erosion hazard or landslide hazard area?		
3. Would infiltrating and ponded water below new permeable pavement compromise adjacent impervious pavement?		
4. Would infiltrating water threaten existing basements?		
5. Would infiltrating water threaten shoreline structures such as bulkheads?		

City of Battle Ground
List #1 - LID Infeasibility Checklist – Other Hard Surfaces

For each No answer, move on to the subsequent question within the BMP.
If a Yes answer is given, then the BMP is infeasible in the TDA and is not required in accordance with Minimum Requirement #5.

# **2 Continued - PERMEABLE PAVEMENT** *(BMP T5.15 and COBG ST-10.05 – ST-10.08)*		
Infeasibility Criteria	**YES**	**NO**
6. Is the area for permeable pavement downslope of steep, erosion prone areas that are likely to deliver sediment?		
7. Is the area for permeable pavement over any areas of known fill material that can become unstable when saturated?		
8. Is the area for permeable pavement on excessively steep slopes and would the water within the aggregate base layer or at the sub-grade surface be uncontrollable by detention structures and therefore may cause erosion and structural failure, or would surface runoff velocities preclude adequate infiltration at the pavement surface?		
9. Is the area for permeable pavement in an area needed to support heavy loads exceeding the strength of the permeable pavement (such as at a port)?		
10. Would installation of permeable pavement threaten the safety or reliability of existing underground utilities, underground storage tanks, structures, basements or road or parking lot surfaces or sub-grades?		
11. Is the area for permeable pavement designated as an erosion hazard or landslide hazard?		
12. Is the area for permeable pavement less than 50 feet from the top of a slope greater than 20% (5:1) with more than 10 feet of elevation difference?		
13. Is the area for permeable pavement less than 100 feet from an active or closed landfill?		
14. Is the area for permeable pavement less than 100 feet from a drinking water well or a spring used for drinking water?		
15. Is the area for permeable pavement less than 10 feet from on-site sewage drainage?		
16. Is the area for permeable pavement less than 10 feet from an underground storage tank and its connecting pipes that is used to store petroleum products, chemicals, or liquid hazardous wastes in which 10% or more of the storage volume of the tank and connecting pipes is beneath the ground?		
17. Is the area for permeable pavement a multi-level parking garage, a bridge, or roadway over a culvert?		
18. Is the area for permeable pavement likely to have long- term excessive sediment deposition after construction (e.g. construction and landscaping material yards)?		
19. Can the site not be designed to have a porous asphalt surface at less than 5% (20:1) slope, or a pervious concrete surface at less than 10% (10:1) slope, or a permeable interlocking concrete pavement surface (where appropriate) at less than 12% (8:1) slope, or a grid system at less than the manufacturer's recommended maximum slope limit (generally between 6% to 12%)?		

City of Battle Ground
List #1 - LID Infeasibility Checklist – Other Hard Surfaces

For each No answer, move on to the subsequent question within the BMP.
If a Yes answer is given, then the BMP is infeasible in the TDA and is not required in accordance with Minimum Requirement #5.

# **2 Continued - PERMEABLE PAVEMENT** *(BMP T5.15 and COBG ST-10.05 – ST-10.08)*		
Infeasibility Criteria	**YES**	**NO**
20. Do the native soils below a pollution-generating permeable pavement not meet the soil suitability requirement for providing treatment as follows (must meet all criteria to be feasible for treatment)? - One foot depth of soil with the following characteristics: - Cation exchange capacity (CEC) >5% - Organic content >1% - Measured coefficient of permeability (K_{SAT}) < 12 in./hr.		
21. Would seasonal high groundwater or an underlying impermeable/low permeability layer create saturated conditions within 1 foot of the bottom of the lowest gravel base course?		
22. Are underlying soils unsuitable for supporting traffic loads when saturated? (Soils meeting a California Bearing Ratio of 5% are considered suitable for residential access roads.)		
23. Is measured coefficient of permeability in the area for permeable pavement less than 0.3 inches per hour?		
24. Is the surface to be paved a roadway with a projected average daily traffic volume of more than 400 vehicles?		
25. Is the surface to be paved a roadway that will be subject to through truck traffic (not including such traffic as weekly garbage and recycling pick-up, daily school bus use, or frequent use by mail/parcel delivery trucks and maintenance vehicles)?		
26. Is the road type classified as arterial or collector? [Note: do not use this infeasibility criterion for sidewalks and other non-traffic bearing surfaces, even if associated with a collector or arterial road. Use "N/A" in the boxes to the right for sidewalks and other non-traffic bearing surfaces.]		
27. Is the project replacing existing impervious surface, unless the existing surface is a non-pollution generating surface over an outwash soil with a saturated hydraulic conductivity of four inches per hour or greater?		
28. Is the site defined as a high-use site in the SWMMWW, Volume I, Appendix G?		
29. Is the area for permeable pavement used for an "industrial activity" as identified in 40 CFR 122.26(b)(14)?		
30. Is there a risk of concentrated pollutant spills more likely such as at gas stations, truck stops, and industrial chemical storage sites?		
31. Are there Competing Needs (see Low Impact Development Stormwater Application Checklist)? If so, attach a narrative justifying the use of Competing Needs criteria.		
On properties with known soil or groundwater contamination (typically federal Superfund sites or state cleanup sites under the Model Toxics Control Act (MTCA)) and any of the following criteria:		
32. Is the proposed permeable pavement within 100 feet of an area known to have deep soil contamination?		

City of Battle Ground
List #1 - LID Infeasibility Checklist – Other Hard Surfaces

For each No answer, move on to the subsequent question within the BMP.
If a Yes answer is given, then the BMP is infeasible in the TDA and is not required in accordance with Minimum Requirement #5.

# **2 Continued - PERMEABLE PAVEMENT** *(BMP T5.15 and COBG ST-10.05 – ST-10.08)*		
Infeasibility Criteria	**YES**	**NO**
33. Is the site in an area where groundwater modeling indicates infiltration will likely increase or change the direction of the migration of pollutants in groundwater?		
34. Is the proposed permeable pavement located in an area where surface soils have been found to be contaminated, and contaminated soils are still in place within 10 horizontal feet of the infiltration area?		
35. Is the proposed permeable pavement within any area where it would be prohibited by an approved cleanup plan under the state Model Toxics Control Act or Federal Superfund Law, or an environmental covenant under Chapter 64.70 RCW?		
Determination: Is Permeable Pavement infeasible?		

# **2 - RAIN GARDEN** *(BMP T5.14A and COBG ST-13.00 – ST-13.13)* **or BIORETENTION** *(BMP T7.30 and COBG ST-11.01 – ST-11.08) in accordance with Ch. 7 of Vol. V of the SWMMWW*		
Infeasibility Criteria	**YES**	**NO**
The following require professional technical evaluation.		
1. Does a professional geotechnical evaluation recommend infiltration not be used due to concerns about erosion, slope failure or flooding?		
2. Does the site have groundwater that drains into an erosion hazard or landslide hazard area?		
3. Is the only area available for siting the Rain Garden or Bioretention Facility threaten the safety or reliability of existing underground utilities, underground storage tanks, structures and basements, or road or parking lot surfaces or sub-grades?		
4. Is the only area available for siting the Rain Garden or Bioretention Facility one that does not allow for a safe overflow pathway to the municipal separate storm sewer system or to a private storm sewer system?		
5. Is the site a redevelopment project that lacks usable space?		
6. Would infiltrating water threaten existing basements?		
7. Would infiltrating water threaten shoreline structures such as bulkheads?		
8. Will the Rain Garden or Bioretention Facility be located within setbacks from structures as established by the local jurisdiction?		
9. Has the Responsible Official determined that the Rain Garden or Bioretention Facility is not compatible with surrounding drainage systems?		
10. Is the land for the Rain Garden or Bioretention Facility within an area designated as an erosion hazard or landslide hazard by the geotechnical report or county critical areas mapping?		
11. Can the site not be designed to locate the Rain Garden or Bioretention Facility on slopes less than 8% (12:1)?		

City of Battle Ground
List #1 - LID Infeasibility Checklist – Other Hard Surfaces

For each No answer, move on to the subsequent question within the BMP.
If a Yes answer is given, then the BMP is infeasible in the TDA and is not required in accordance with Minimum Requirement #5.

# 2 Continued - **RAIN GARDEN** *(BMP T5.14A and COBG ST-13.00 – ST-13.13)* **or BIORETENTION** *(BMP T7.30 and COBG ST-11.01 – ST-11.08) in accordance with Ch. 7 of Vol. V of the SWMMWW*		
Infeasibility Criteria	**YES**	**NO**
12. Will the Rain Garden or Bioretention Facility be less than 50 feet from the top of slopes greater than 20% (5:1) and with more than 10 feet of elevation difference and cannot be located elsewhere?		
13. Is the proposed Rain Garden or Bioretention Facility less than 100 feet from a landfill (active or closed) and cannot be located elsewhere?		
14. Is the proposed Rain Garden or Bioretention Facility less than 100 feet from a well or a spring used for drinking water and cannot be located elsewhere?		
15. Is the proposed Rain Garden or Bioretention Facility less than 10 feet from any small on-site sewage disposal drain field, including reserve areas, and grey water reuse systems and cannot be located elsewhere? For setbacks from a "large on-site sewage disposal system," see Chapter 246-272B WAC.		
16. Is the proposed Rain Garden or Bioretention Facility less than 10 feet from an underground storage tank and its connecting pipes that is used to store petroleum products, chemicals, or liquid hazardous wastes in which 10% or more of the storage volume of the tank and connecting pipes is underground and when the capacity of the tank and pipe system is less than 1100 gallons and cannot be located elsewhere?		
17. Is the proposed Rain Garden or Bioretention Facility less than 100 feet from an underground storage tank and its connecting underground pipes when the capacity of the tank and pipe system is greater than 1100 gallons and cannot be located elsewhere?		
18. For Bioretention or Rain Gardens that serve a drainage area that is: • Less than 5,000 SF of pollution generating impervious surface, **and** • Less than 10,000 SF of impervious surface, **and** • Less than 3/4 acres of pervious surface; • Is there less than **one foot** of vertical separation below the Rain Garden or Bioretention and the seasonal high water table, bedrock or other impervious layer?		
19. For Bioretention that serves a drainage area that is: • Equal to or more than 5,000 SF of pollution generating impervious surface, **or** • Equal to or more than 10,000 SF of impervious surface, **or** • Equal to or more than 3/4 acres of pervious surface, • and cannot be broken into amounts smaller than the thresholds above; • Is there less than **three feet** of vertical separation below the bioretention and the seasonal high water table, bedrock or other impervious layer?		
20. Does field testing indicate that soils have a measured (a.k.a. initial) native soil coefficient of permeability less than 0.3 inches per hour?		
21. Are there Competing Needs (see Low Impact Development Stormwater Application Checklist)? If so, attach a narrative justifying the use of Competing Needs criteria.		
On properties with known soil or groundwater contamination (typically federal Superfund sites or state cleanup sites under the Model Toxics Control Act (MTCA)) and any of the following criteria:		
22. Is the proposed Rain Garden or Bioretention Facility within 100 feet of an area known to have deep soil contamination?		

City of Battle Ground
List #1 - LID Infeasibility Checklist – Other Hard Surfaces

For each No answer, move on to the subsequent question within the BMP.
If a Yes answer is given, then the BMP is infeasible in the TDA and is not required in accordance with Minimum Requirement #5.

# **2 Continued - RAIN GARDEN** *(BMP T5.14A and COBG ST-13.00 – ST-13.13)* **or BIORETENTION** *(BMP T7.30 and COBG ST-11.01 – ST-11.08) in accordance with Ch. 7 of Vol. V of the SWMMWW*		
Infeasibility Criteria	**YES**	**NO**
23. Is the site is in an area where groundwater modeling indicates infiltration will likely increase or change the direction of the migration of pollutants in groundwater?		
24. Is the proposed Rain Garden or Bioretention Facility located in an area where surface soils have been found to be contaminated, and contaminated soils are still in place within 10 horizontal feet of the infiltration area?		
25. Is the proposed Rain Garden or Bioretention Facility within any area where it would be prohibited by an approved cleanup plan under the state Model Toxics Control Act or Federal Superfund Law, or an environmental covenant under Chapter 64.70 RCW?		
Determination: Is a Rain Garden or Bioretention Facility infeasible?		

# **3 - SHEET FLOW DISPERSION** *(BMP T5.12 COBG ST-10.03 – ST-10.04)* **and CONCENTRATED FLOW DISPERSION** *(BMP T5.11 and COBG ST-10.01 – ST-10.02)*		
Infeasibility Criteria	**YES**	**NO**
1. Does a professional geotechnical evaluation recommend dispersion not be used due to concerns about erosion, slope failure or flooding?		
2. Is the only location available for the discharge location less than 100 feet up gradient of a septic system drain field on the site?		
3. Is the only area available for the required flow path of the sheet flow (20 ft.) or concentrated flow (25 ft. to 50 ft.) dispersion device on a slope greater than 20% (5:1)?		
4. Is the only area available for the required length of the dispersion device's flow path above an erosion hazard or toward a landslide hazard area?		
5. Is the only area available to place the dispersion device located in a critical area?		
6. Is the only area available to place the dispersion device located on a slope greater than 20% (5:1) or within 50 feet of a landslide or geologic hazard as defined by Clark County GIS?		
7. Is the only area available for the dispersion device less than 10 feet from any structure, property line, or sensitive area?		
8. Are there Competing Needs (see Low Impact Development Stormwater Application Checklist)? If so, attach a narrative justifying the use of Competing Needs criteria.		
Determination: Is Sheet Flow infeasible?		