Public Review Draft

VOLUME 1 —
PROJECT MINIMUM REQUIREMENTS

CITY OF SEATTLE
SEATTLE PUBLIC UTILITIES
DEPARTMENT OF CONSTRUCTION AND INSPECTION

July 2025 Review Draft

Note:

Some pages in this document have been purposely skipped or blank pages inserted so that this document will copy correctly when duplexed.

Table of Contents

Tables

Figures

ACKNOWLEDGEMENTS

~~The 2021 Seattle Stormwater Manual is dedicated to Liz Anderson. Liz contributed her knowledge and expertise to the City of Seattle for more than 30 years as a Professional Engineer. Her depth and breadth of knowledge of Seattle's drainage and wastewater system; her design experience; and her dedication, mentorship, and "whip-smart" can-do attitude has made Seattle a better place and the Stormwater Code and Manual more effective at managing the impacts of stormwater on people, property, and the environment. We miss Liz's expertise, friendship, and perseverance and wish her all the best in her well-deserved retirement.~~

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CHAPTER 1 – Introduction

1.1. Purpose of This Manual (Volumes 1 through 5 and Appendices)

In addition to meeting the specific stormwater needs of the City of Seattle (City), the Stormwater Code meets certain requirements that apply to the City from the ~~2019-~~2024~~-2029~~ Phase I National Pollutant Discharge Elimination System and State Waste Discharge General Permit for Discharges from Large and Medium Municipal Separate Storm Sewer Systems, effective August 1, ~~2019~~ 2024 (referred to as the Phase I NPDES Municipal Stormwater Permit). Coverage under the general permit is issued to the City by the Washington State Department of Ecology (Ecology) pursuant to the federal Clean Water Act and state law. One of the conditions of this permit requires the City to adopt and make effective a local program to prevent and control the impacts of stormwater runoff from new development, redevelopment and construction activities. This is accomplished, in large measure, through the Seattle Stormwater Code and its associated Directors' Rule (this Manual) which Ecology has determined to meet the requirements contained in the Phase I NPDES Municipal Stormwater Permit, with reference to the *Stormwater Management Manual for Western Washington* (SWMMWW) (Ecology ~~2019~~2024).

The City's Stormwater Code is contained in the Seattle Municipal Code (SMC), Chapters 22.800 through 22.808. The Stormwater Code contains regulatory requirements that provide for and promote the health, safety, and welfare of the general public.

Stormwater Code Language	References
See SMC, Section 22.800.020 – *Purpose*	•

To support implementation of the Stormwater Code, the Director of Seattle Public Utilities (SPU) and the Director of the Seattle Department of Construction and Inspection (SDCI) promulgate rules that provide specific technical requirements, criteria, guidelines, and additional information. This Directors' Rule consists of a five-volume City Stormwater Manual and eleven~~nine~~ appendices.

1.2. How to Use this Manual (Volumes 1 through 5 and Appendices)

The City's Stormwater Manual includes the following five volumes:

- *Volume 1: Project Minimum Requirements* provides information regarding how to apply the minimum requirements contained in the Stormwater Code. It also provides site assessment and planning steps and requirements for drainage control review submittals.

- *Volume 2: Construction Stormwater Control* contains temporary erosion and sediment control technical requirements, which are required to prevent contaminants from leaving the project site during construction.
- *Volume 3: Project Stormwater Control* presents approved methods, criteria, and details for analysis and design of on-site stormwater management, flow control, and water quality treatment best management practices (BMPs).
- *Volume 4: Source Control* provides information to individuals, businesses, and public agencies in Seattle to implement BMPs for controlling pollutants at their source and preventing contamination of stormwater runoff.
- *Volume 5: Enforcement* provides standards, guidelines, and requirements for enforcing the Stormwater Code.

The City's Stormwater Manual includes the following nine appendices:

- *Appendix A: Definitions* provides terminology from the Stormwater Code for all five volumes of the Stormwater Manual.
- *Appendix B: Additional Submittal Requirements* provides supplemental information for Volume 1 (Project Minimum Requirements) related to submittal requirements.
- *Appendix C: On-site Stormwater Management BMP Infeasibility Criteria* provides a list of criteria to be evaluated for on-site stormwater management.
- *Appendix D: Subsurface Investigation and Infiltration Testing for Infiltration BMPs* describes subsurface report requirements, geotechnical explorations, four infiltration testing methods (Simple Test, Small Pilot Infiltration Test (PIT), Large PIT, and Deep Infiltration Test), infiltration rate correction factors, groundwater monitoring, and groundwater mounding analysis.
- *Appendix E: Additional Stormwater Design Requirements ~~and Plant Lists~~* includes additional design requirements for flow control structures, flow splitters, flow spreaders, level spreaders, pipe slope drains, outlet protection, facility liners, and geotextiles.
- *Appendix F: Hydrologic Analysis and Design* includes descriptions of acceptable methods for estimating the quantity and hydrologic characteristics of stormwater runoff, and the assumptions and data requirements of these methods.
- *Appendix G: Stormwater Control Operations and Maintenance Requirements* contains maintenance requirements for typical stormwater BMPs and components.
- *Appendix H: Financial Feasibility Documentation for Vegetated Roofs and Rainwater Harvesting* provides additional guidance on the required documentation to prove financial infeasibility of vegetated roofs or rainwater harvesting.
- *Appendix I: Landscape Management Plans and Integrated Pest Management Plans* provides supplemental information for Volume 1 (Project Minimum Requirements) and Volume 4 (Source Control).
- *Appendix J: Contaminated Sites* provides resources for determining if your site is contaminated.
- *Appendix K: Plant and Tree Lists* provides a guide for appropriate plants and trees to be planted in bioretention (infiltrating and non-infiltrating), biofiltration swales, sand filters, and wet ponds.

1.3. Purpose of Volume 1

Volume 1 — Project Minimum Requirements describes and contains minimum requirements for all types of land development and redevelopment. It also provides site assessment and planning steps and drainage control review requirements.

1.4. How to Use this Volume

- *Chapter 1* outlines the purpose and content of the Stormwater Manual and this volume.
- *Chapter 2* outlines steps to determine a project's minimum requirements.
- *Chapter 3* describes the minimum requirements for all projects.
- *Chapter 4* describes the minimum requirements for specific project types.
- *Chapter 5* describes the minimum standards for on-site stormwater management, flow control, and water quality treatment.
- *Chapter 6* describes the options for alternative compliance.
- *Chapter 7* summarizes site assessment and planning steps and key project components.
- *Chapter 8* summarizes the preliminary, standard, and comprehensive drainage review minimum submittal requirements.

CHAPTER 2 – Determining Minimum Requirements

There are seven basic steps used to determine which minimum requirements for on-site stormwater management, flow control, and water quality treatment apply to a project:

- **Step 1** — Define the boundaries of the project site
- **Step 2** — Identify the type of project
- **Step 3** — Identify the receiving water and downstream conveyance
- **Step 4** — Perform site assessment and planning
- **Step 5** — Calculate new plus replaced hard surface and native vegetation conversion
- **Step 6** — Calculate new plus replaced pollution generating surface
- **Step 7** — Determine which minimum requirements apply

~~Note that these seven steps are focused on determining applicable minimum requirements for on-site stormwater management, flow control, and water quality treatment specifically.~~ These seven steps are described in further detail below.

In addition to determining the applicable minimum requirements, all projects shall also review and comply with all other Stormwater Code requirements, in particular the Minimum Requirements for All Discharges and All Real Property (SMC, Section 22.803) and the Minimum Requirements for All Projects (SMC, Section 22.805).

Excerpts from the Stormwater Code (in *italics*) are presented below in the first column in the code reference box in most sections. The second column in the code reference box provides applicable references.

2.1. Step 1 – Define the Boundaries of the Project Site

The boundaries of the project site shall include all development activities as defined by SMC, Section 22.801.050. The boundary of the public right-of-way typically forms the boundary between project types if more than one project type exists.

The project site may also include contiguous areas that are subject to the addition or replacement of hard surface or the undertaking of land-disturbing activity. In the case of a subdivision, ~~or~~ short plat, common plan of development, or closely related projects, the boundary of the project site is the full area included in the subdivision, ~~or~~ short plat, common plan of development, or closely related projects. See Appendix B for specific requirements for subdivisions and short plats.

All projects, even if implemented in incremental stages or phases, must consider the total combined development at full build-out when determining Stormwater Code requirements.

Stormwater Code Language	References
See SMC, Section 22.808.010.A – *Civil Violations* *g. Piecemeal of projects.*	

2.1.1. Definitions Related to Project Site

Stormwater Code Language	References
See SMC, Section 22.801.050 – *"Development"*	
See SMC, Section 22.801.090 – *"Hard surface"*	
See SMC, Section 22.801.170 – *"Project".*	
See SMC, Section 22.801.170 – *"Project site"*	

For other definitions, refer to SMC, Chapter 22.801 and Appendix A.

Defining project boundaries will help identify the project type(s) in Step 2.

2.1.2. Common Plan of Development

Stormwater Code Language	References
See SMC, Section 22.801.040.C - Common plan of development	

2.1.3. Closely Related Projects

Stormwater Code Language	References
See SMC, Section 22.805.010.B – *Closely related projects*	

Closely related projects may or may not be under a single plan. The Director shall determine whether two or more projects are closely related by applying the following criteria:

1. Two or more projects under review and/or under issued permits that have not yet had final construction approved ~~at the same time~~ are treated as a single project if any of the following are true:
   a. Any feature physically spans the property lines between lots, such as shared structures, shared driveways, shared pedestrian access (including easements to rights-of-way), shared drainage and utility designs, foundation footings, or retaining walls. Note: Abutting driveways or pedestrian accesses are not considered to span the property lines if the required driveway or pedestrian access width for each separate project meets development standards on its own.
   b. A shared driveway accesses a parking area(s) for more than one project, regardless of whether the parking is required
   c. Parking for a project, including maneuvering, aisle requirements, or other parking-related easements, whether the parking is required or not, is proposed to be provided (or partially provided) on the site of another project, even if the sites do not abut each other

d. Proposed structures are joined, or share a common wall

e. Proposed projects share required open space and/or amenity area

f. The design of two or more project sites are dependent on grading, construction of retaining walls, and/or foundation design across the lot lines

g. One site is required to permanently access, construct and maintain the structures and/or development features on an abutting or adjacent site

h. The projects are on the same lot or parcel (e.g., a detached accessory dwelling unit and a primary dwelling unit on the same lot or parcel), even if under separate permits

i. Other features that create interdependence between projects.

2. The following features are not to be taken into consideration in determining whether two or more projects are to be evaluated as a single project:

a. Physical connections to a common public right-of-way (such as a street, sidewalk, or alley) or to a public drain or public utility lines in the right-of-way

b. Common developer, property owner, or marketing/sales scheme for the development proposals

c. Exclusive easements for vehicular or pedestrian access (including easements to rights-of-way) ~~designed to restrict shared access between projects~~

d. Similar or identical design

e. Simultaneous construction on abutting lots, even by the same crew

f. A common architectural or landscaping design

g. Utility-only easements crossing one development site to serve abutting or adjacent lots

h. Shared temporary construction access

~~i. Other features that make projects independent of one another~~

3. If separate applications for development under review and/or under issued permits that have not yet had final construction approved ~~at the same time~~ are determined to be one project under this rule, then the total combined development proposed in the applications will be considered when determining Stormwater Code requirements. Projects that are submitted for review are considered "under review" once the initial "preliminary application" has been made until the applicable construction permits for the project are issued or the permit application is withdrawn by the applicant. Final construction approval means that all final inspections have been conducted and passed, all fees have been paid, and the permit status is "completed".

2.2. Step 2 – Identify the Type of Project

For the purpose~~s~~ of determining applicable minimum requirements, there are ~~eight~~ ten general classifications of projects:

1. Single-family residential (SFR) project
2. Sidewalk project
3. Trail project
4. Roadway project
5. Parcel-based project
6. Utility project
7. Pavement maintenance project
8. Remediation project
9. ~~Certain land-disturbing activities~~Retrofit project
10. Washington State Department of Transportation (WSDOT) project
11. ~~Special circumstances project~~

Each project type is described in the following subsections (*Section 2.2.1* through 2.2.~~8~~*10*).

In addition to the general classifications listed above, some projects are more complex than others (e.g., bridges, closed depressions, railroads, railroads, railroads, rail stations) and are difficult to determine the applicable minimum requirements. Refer to Section 2.7.1. Special Circumstances, for additional guidance on determining applicable minimum requirements.

2.2.1. Single-Family Residential Project

A single-family residential (SFR) project (Figure 2.1) is defined in SMC, Section 22.801.200.

Stormwater Code Language	References
See SMC, Section 22.801.200 – *"Single-family residential project"*	

Note: Projects with 5,000 square feet or more of new plus replaced hard surface are considered parcel-based projects.

Also, single-family residential projects shall comply with any associated master use permit requirements (e.g., requirements for subdivisions, short plats, unit lot subdivisions), as applicable. For example, if a subdivision required Flow Control Standards, all Single-family projects must meet the requirements of the same Flow Control Standard. Depending on the design in the approved preliminary drainage control plan, this may be achieved by a shared facility that may be constructed prior to the construction of the improvements for the Single-

family residential project or by individual facilities that may be required to be constructed with the Single-family residential project. All short plats and subdivisions are considered parcel-based projects (*Section 2.2.5*), regardless of the land use zoning.

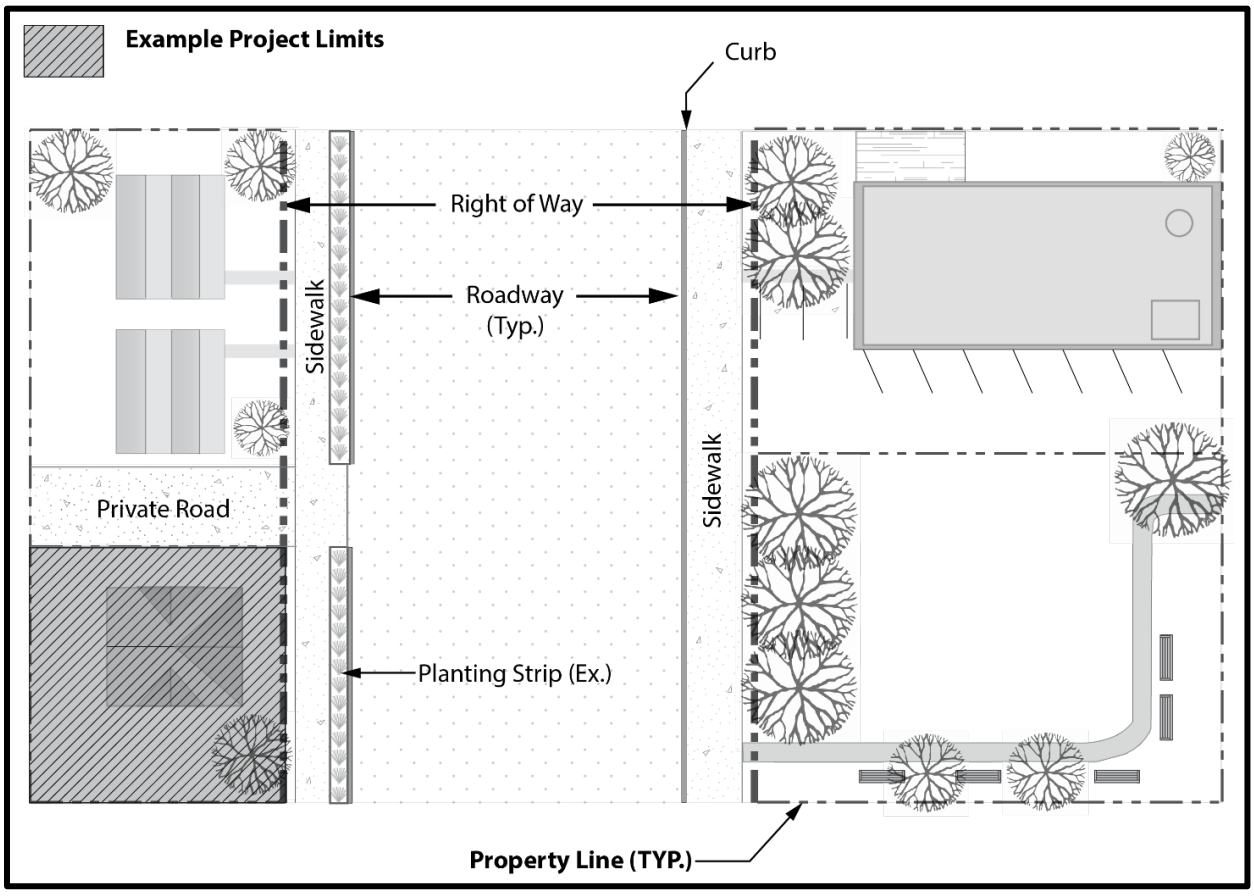

Figure 2.1. Single-Family Residential Project Site Definition.

2.2.2. Sidewalk Project

A sidewalk project (Figure 2.2) is defined in SMC, Section 22.801.200.

Stormwater Code Language	References
See SMC, Section 22.801.200 – *"Sidewalk project"*	

Projects that meet the definition of roadway project (SMC 22.801.190) are not considered sidewalk projects and must meet the requirements of Section 2.2.4 Roadway Project regardless of the amount of new or replaced hard surface in the roadway or alley.

Projects whose sole purpose is to upgrade existing hard surfaces for ADA compliance are considered a sidewalk project or trail project if not otherwise exempt. Note that this designation does not extend to additional work, such as extending or altering a sidewalk, stairwell, or parking spaces beyond what is necessary to meet ADA compliance of an existing hard surface.

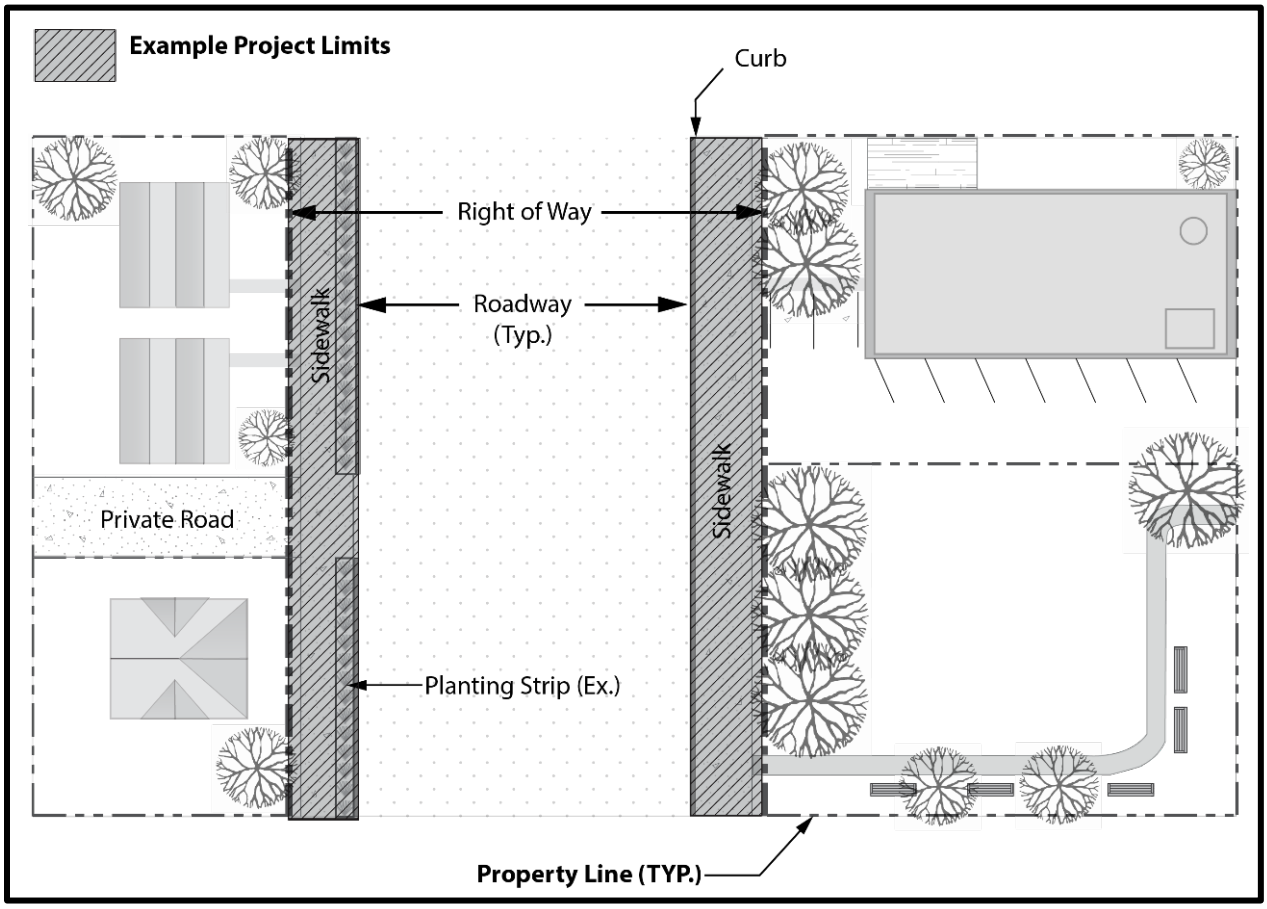

Figure 2.2. Sidewalk-Only Project Site Definition.

2.2.3. Trail Project

A **trail project** (Figure 2.3) is defined in SMC, Section 22.801.210.

Stormwater Code Language	References
See SMC, Section 22.801.210 – *"Trail project"*	

The following **trail** portions of a project site may follow the requirements of Volume 1, Section 4.2. Trail and Sidewalk Projects if the trail portion:

1. Is not integral to the portions of the parcel-based project (i.e., the trail can function without the parcel-based project improvements), and
2. Does not have a surface discharge from a natural or constructed conveyance system from the site.

Those trails, paths, or sidewalks that are integral and contiguous to a parcel-based project or roadway project shall meet the requirements of Volume 1, Section 4.4. Parcel-Based Projects or Volume 1, Section 4.4. Parcel-Based Projects, respectively.

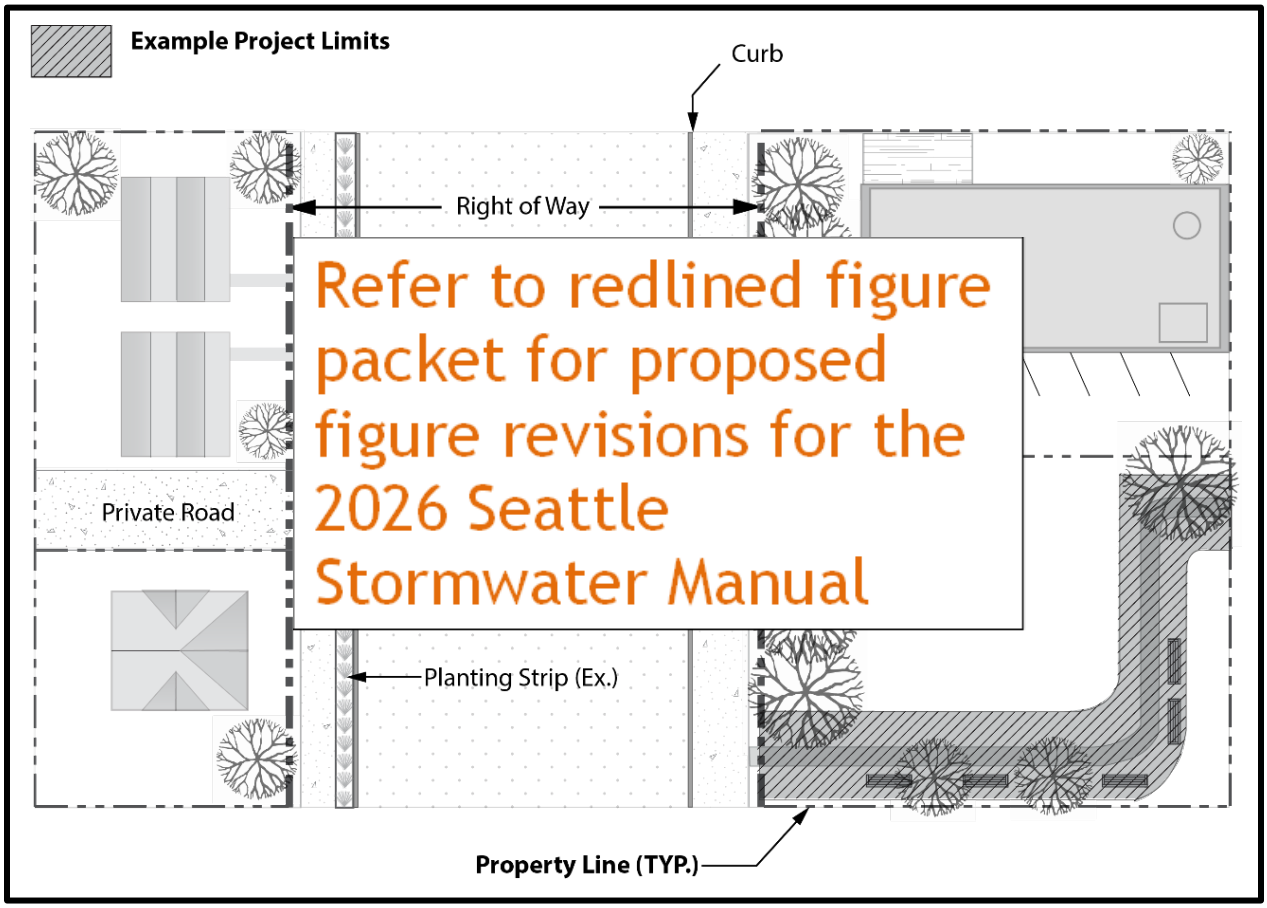

Figure 2.3. Trail Project Definition.

2.2.4. Roadway Project

A **roadway project** (Figure 2.4) is defined in SMC, Section 22.801.190.

Stormwater Code Language	References
See SMC, Section 22.801.190 – *"Roadway project"*	

Typically, the boundary of the public right-of-way forms the boundary between the parcel and roadway portions of a project, but special circumstances may exist (Refer to *Section ~~4.7~~2.7.1*).

Projects that do not meet the definition of a roadway project (i.e., projects that include any development in addition to the creation of a new or replacement of an existing roadway or alley), are parcel-based projects. As an example, portions of projects that include building development and associated hard surfaces (e.g., parking lot) located in the public right-of-way are considered parcel-based projects (refer to *Section 4.4* for requirements).

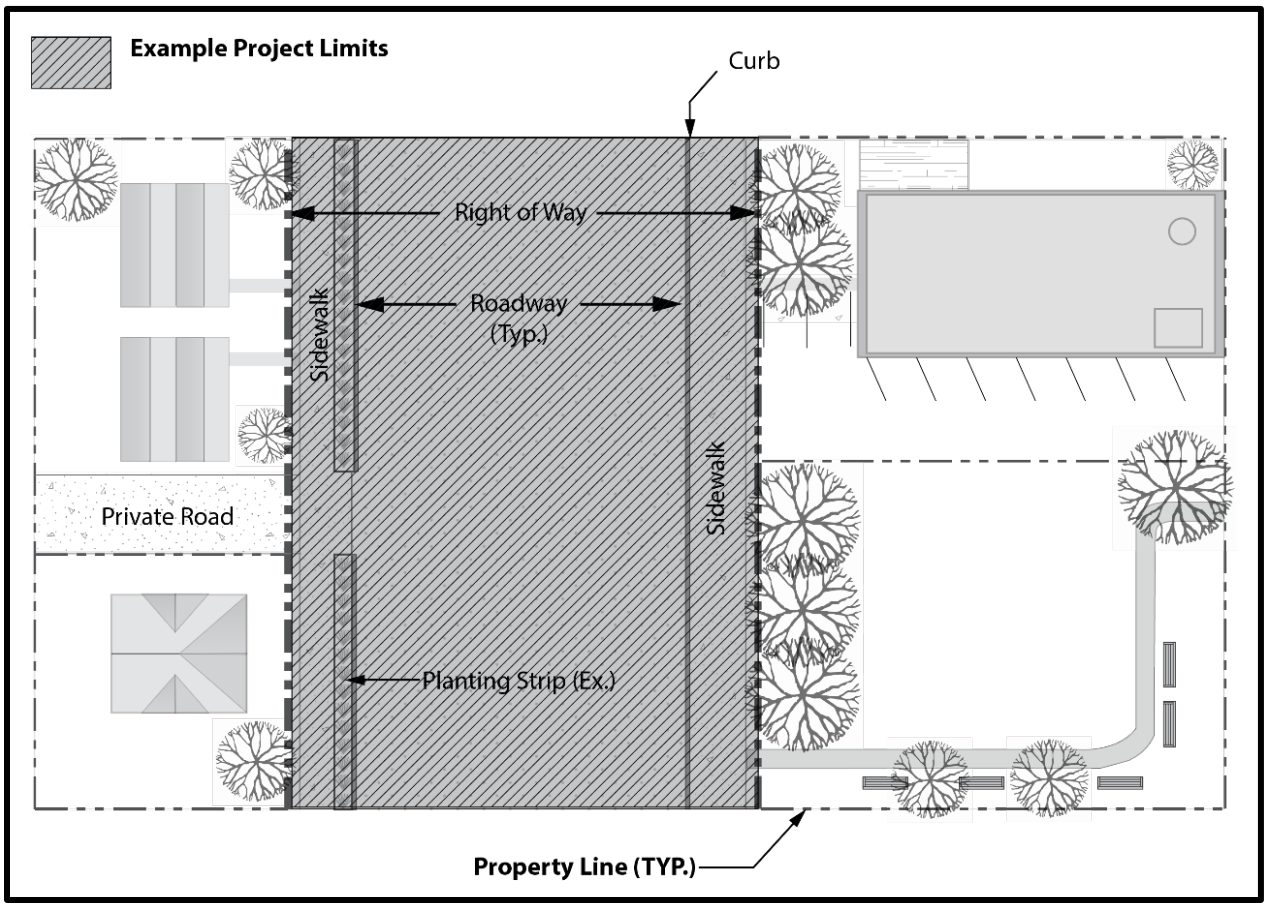

Figure 2.4. Roadway Project Site Definition.

2.2.5. Parcel-Based Project

A **parcel-based project** (Figure 2.5) is defined in SMC, Section 22.801.170.

Stormwater Code Language	References
See SMC, Section 22.801.170 – *"Parcel-based project"*	

Examples of parcel-based projects include, but are not limited to, commercial developments, multifamily developments, apartments, carriage houses, cottage housing development, rowhouse developments, townhouse development, institutions, industrial buildings and sites, parking lots, parks and playgrounds, commercial use development, public facilities, live-work units, manufacturing facilities, storage facilities, transportation facilities, utility use facilities, subdivisions, and short plats. Utility work on the parcel that is integral and contiguous to the project area is part of the parcel-based project.

In addition, the following specific pollution-generating activities or projects are considered parcel-based projects and require drainage review. Specifically, source control BMPs shall be implemented as specified in *Volume 4*, to the extent necessary to prevent prohibited discharges and to prevent contaminants from coming in contact with drainage water or being discharged to the drainage system, public combined sewer, or directly into receiving waters.

Stormwater Code Language	References
See SMC, Section 22.807.020.A.2.j	

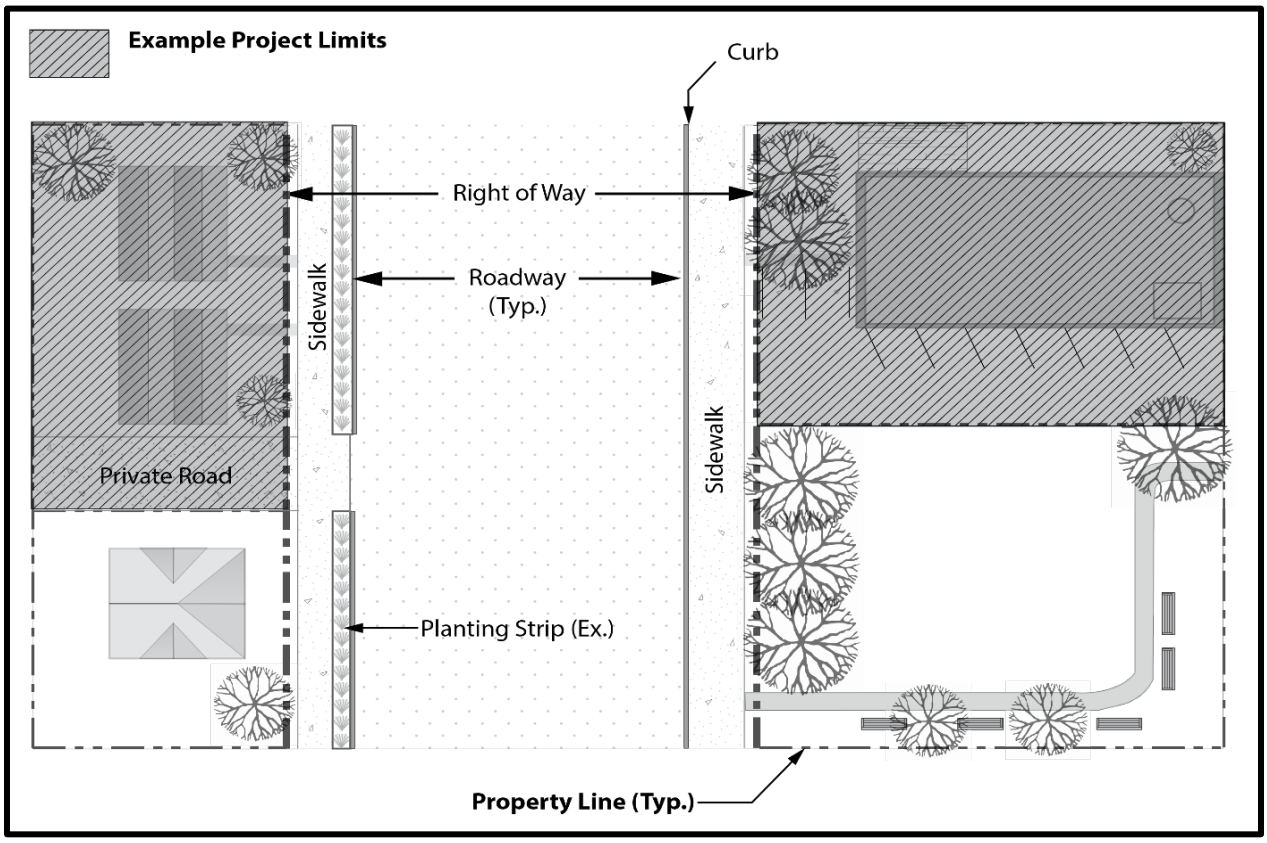

Figure 2.5. Parcel-Based Project Site Definition.

~~*2.2.6. Certain Land-Disturbing Activities*~~

~~*2.2.7. Certain land-disturbing activities are not required to comply with some of the minimum requirements. These activities are summarized below for utility projects (Section 4.5.1), pavement maintenance projects (Section 4.5.2), remediation projects (Section 4.5.3), and retrofit projects (Section 4.5.4)*~~

2.2.8. Utility Projects

Applicable utility projects are described in SMC, Section 22.800.040.A.2.a. Note that the installation of side sewers, service drains, and underdrains require a Side Sewer Permit per SMC, Section 21.16.070 (Permit And Fee Required For Connection And Repairs).

Installation of a new fuel tank is not considered a utility project. Projects that include fuel dispensing equipment, installation of underdrains for groundwater collection, parking or driveway areas for utility maintenance or operation, buildings for utility maintenance or operation, or pavement replacement or repair beyond the extent required for the utility maintenance, repair or installation are not considered a utility project.

Stormwater Code Language	References
SMC 22.800.040.A.2.a	

The limits of the utility project include only the area disturbed necessary for the utility work (including any over-excavation necessary) and required ADA updates per the federal Americans Disability Act.

2.2.9. Pavement Maintenance Projects

Applicable pavement maintenance projects are described in SMC, Section 22.800.040.A.2.b.

Stormwater Code Language	References
See SMC 22.800.040.A.2.b – *Pavement maintenance practices*	

The limits of the pavement maintenance project include only the area disturbed necessary for the pavement maintenance work and required ADA updates per the federal Americans Disability Act.

2.2.10. Remediation Projects

Applicable remediation projects are described in SMC, Section 22.800.040.A.2.c.

Stormwater Code Language	References
See SMC 22.800.040.A.2.c	

2.2.11. Retrofit Projects

Applicable retrofit projects are described in SMC, Section 22.800.040.A.2.d.

Stormwater Code Language	References
See SMC 22.800.040.A.2.d	

Examples of projects that meet the criteria for retrofit projects include projects whose ~~sole~~ purpose is to reduce runoff, improve water quality, reduce flooding, reduce sanitary sewer overflows (SSOs), or combined sewer overflows (CSOs) and are not otherwise installed as a requirement of meeting the requirements of SMC, Section 22.805.

Note that this exemption does not include land disturbing activities or hard surfaces that are not integral to or are otherwise in addition to the drainage control facilities described in this section. For example, community benefit amenities installed in addition to the retrofit drainage control facility (e.g., trails, playground areas) are required to meet the requirements of the applicable project (e.g., Trail and Sidewalk Projects, Parcel-based Projects).

All retrofit projects shall use on-site BMPs identified in Section 22.805.070.D or other infiltration BMPs per Volume 3 to the maximum extent feasible for those hard surfaces that are not otherwise mitigated by the retrofit project (e.g., drainage control facility maintenance access roads).

Qualifying project types that address stormwater runoff include:

1. Installation of flow control facilities (e.g., detention tanks, pump stations)
2. Installation of water quality treatment facilities (e.g., water quality treatment pond)
3. Installation of green stormwater infrastructure (e.g., natural drainage systems, bioretention cells)
4. Retrofit of existing drainage and wastewater infrastructure
5. Restoration of riparian buffer
6. Restoration of forest cover
7. Floodplain reconnection project
8. Removal of impervious or hard surfaces not associated with other development

Other actions to address stormwater runoff and water quality treatment

2.2.12. WSDOT Project

For the purposes of this Manual, a WSDOT project (which shall manage stormwater as stated in SMC, Section 22.800.040.A.6) includes WSDOT roadway projects within state rights-of-way under WSDOT control within the jurisdiction of the City.

In addition to the other provisions in Section 22.800.040.A.6, WSDOT projects shall comply with Stormwater Code requirements when discharging to a public drainage system or combined sewer system as prescribed in Section 22.800.040.A.6.c ~~(refer to *Section 4.6*)~~.

Applicable WSDOT projects are described in SMC, Section 22.800.040.A.6.

Stormwater Code Language	References
See SMC 22.800.040.A.6	

2.3. Step 3 – Identify the Receiving Water and Downstream Conveyance

For minimum requirement purposes, runoff leaving the project site is classified based on the type of receiving water and system into which the project site discharges. The project proponent shall identify the receiving water or point of discharge for the stormwater runoff from the project site (e.g., wetland, lake, creek, salt water, or combined sewer) for review and approval or disapproval by the Director. Refer to *Section 3.2* and *Section 3.12*.

The minimum requirements vary considerably by type of receiving water and downstream conveyance; therefore, it is very important to determine and specify the receiving water and type of downstream conveyance. Note: there may be multiple downstream receiving waters (e.g., a creek that flows into a small lake). In this case, the minimum requirements for all downstream receiving waters shall apply.

Portions of watersheds near the City limits discharge to adjacent jurisdictions. In these cases, the more stringent requirements between the Seattle Stormwater Code and Manual and the receiving jurisdiction's requirements will be applied for determining stormwater mitigation

requirements (e.g., discharges to nutrient-critical receiving waters). Refer to the Phase I and Phase II Municipal Stormwater Permits for enforceable documents that are functionally equivalent to Ecology's requirements.

Seattle has a complicated system due to historical annexations, major sewer and drainage projects, and other complexities. Therefore, prior to proceeding with project design, confirm your project discharge location through the City's Preliminary Application Report (PAR) process to determine your project requirements. To determine Stormwater Code project requirements for projects that are not required to go through the PAR process, contact the Drainage Review Team at:

1. ~~-~~SideSewerInfo@seattle.gov for projects conducted on private property ~~or~~,
2. ~~-~~SPU_PlanReview@s~~S~~eattle.gov for developer-related projects conducted in the right-of-way, or~~.~~
3. SPU_CIP_Review@seattle.gov for capital improvement projects.

The receiving waters and systems in Seattle include the following:

- **Wetlands**: Designated under SMC, Section 25.09.020. Discharges are to the wetland or the associated drainage basin.
- **Creek Basins**: Include stream basins throughout Seattle, generally referred to as "creek basins." Discharges are to the creek or the associated drainage basin whether or not a creek is formally typed. Creeks in piped systems are considered creeks.
- **Public Combined Sewer**: Discharges are to the public combined sewer or its associated basin.
- **Small Lake Basins**: Discharges are to the small lake or the associated drainage basin.
- **Designated Receiving Waters**: Discharges are to the designated receiving water or its associated drainage basin.
- **Capacity-Constrained System:** Capacity constraints in any downstream conveyance can modify the flow control requirements for discharges. This includes discharges directly to the capacity-constrained system or its associated upstream basin. All ditch and culvert systems are capacity constrained. In addition, at the time of publication, ~~the following areas have been determined by the Director~~the Director has determined the following areas to be capacity-constrained:
    - Densmore Basin
    - Portions of the Pike/Pine Corridor
    - South Park (including both separated storm and combined sewers)

Drainage basin and system figures (references in code reference box) are provided for reference only.

Stormwater Code Language	References
See SMC, Section 22.801.040 – *"Creek"* See SMC, Section 22.801.130 – *"Listed creeks"* See SMC, Section 22.801.150 – *"Non-listed creeks" means any creek not identified in the definition of "Listed creeks" in 22.801.130.*	
See SMC, Section 22.801.170 – *"Public combined sewer"*	
See SMC, Section 22.801.200 – *"Small lakes"*	
See SMC, Section 22.801.050 – *"Designated receiving waters"*	
See SMC, Section 22.801.040 – *"Capacity-constrained system"*	

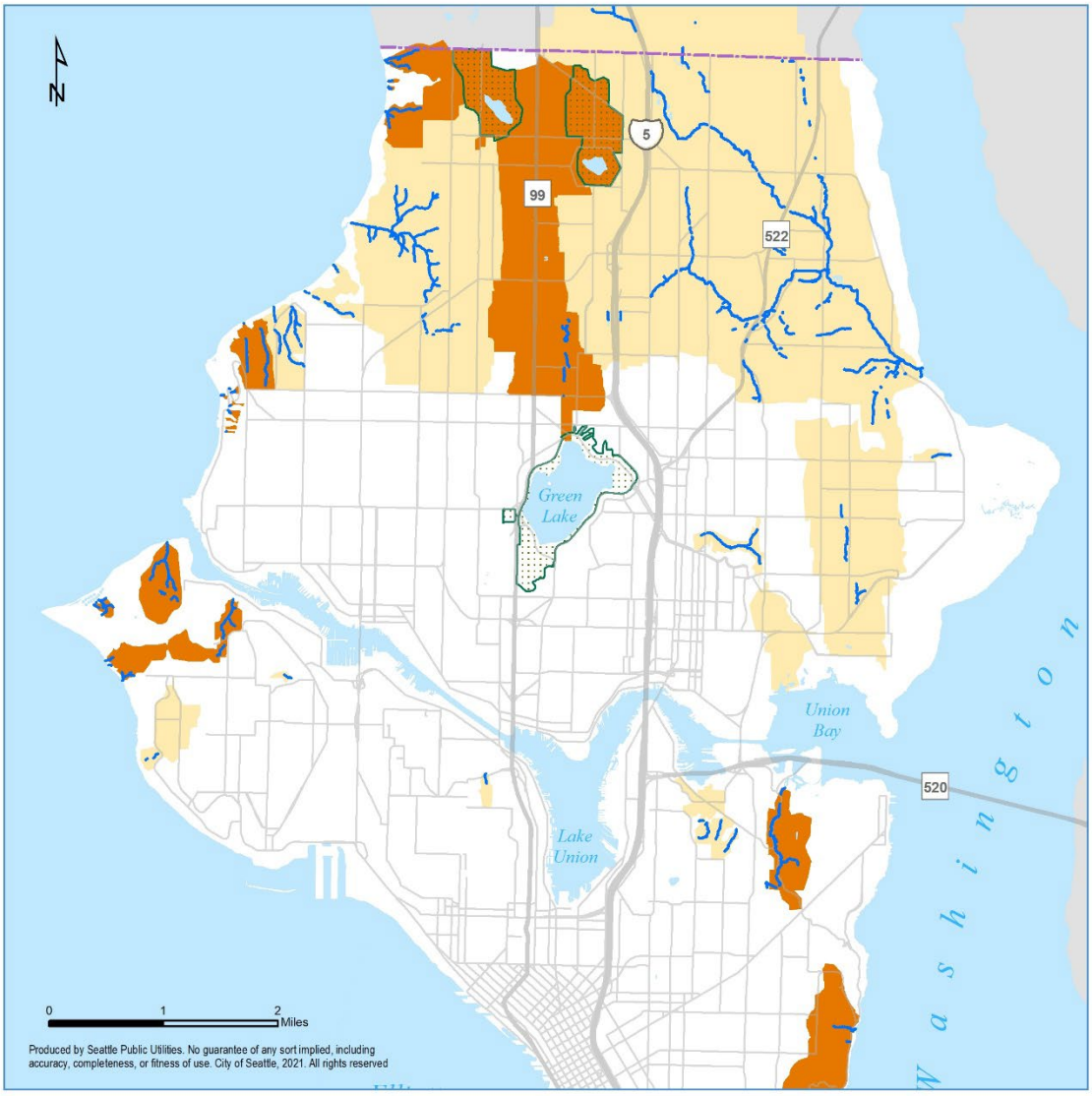

Figure 2.6. North End Creek Basins.

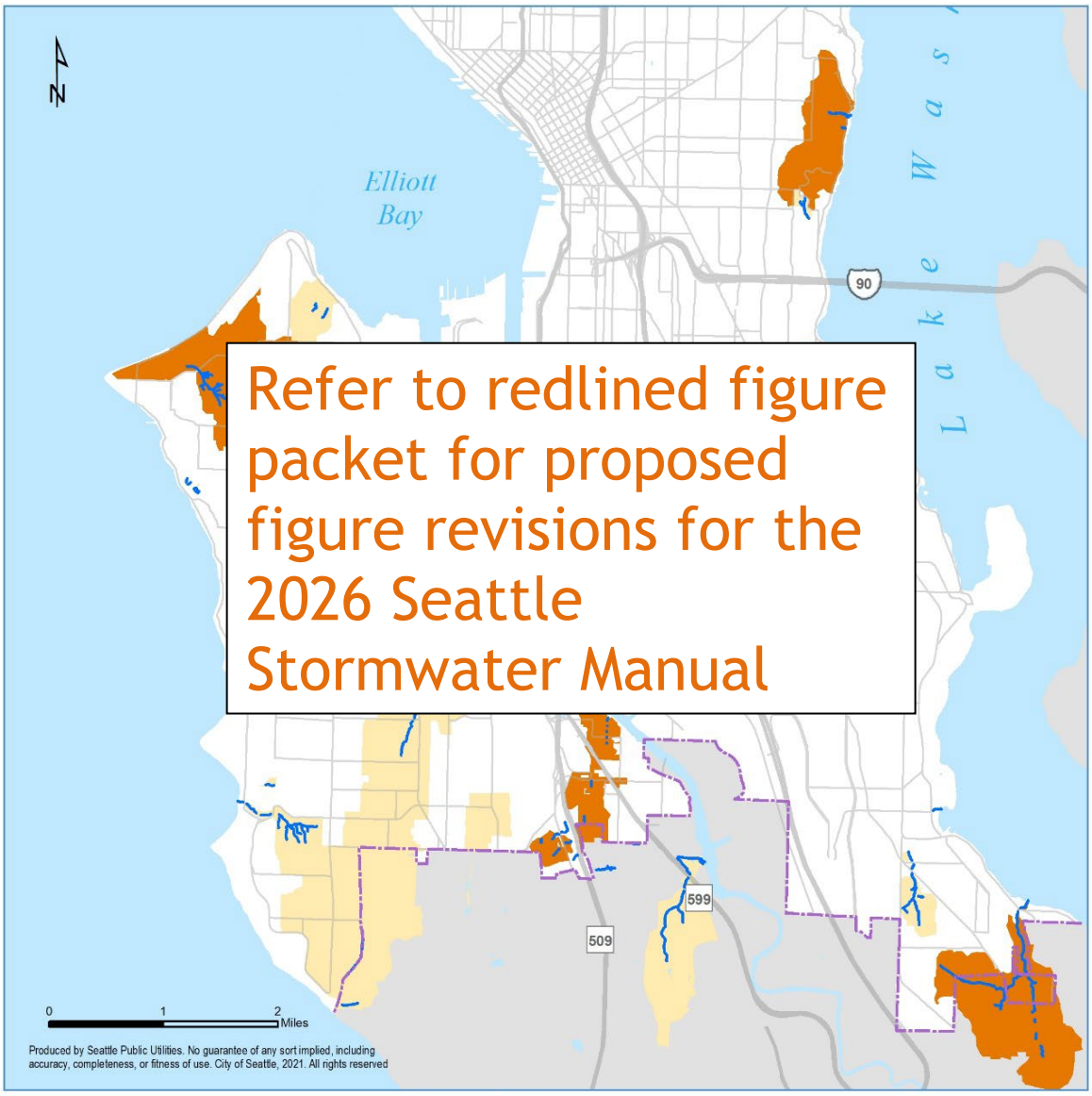

Figure 2.7. South End Creek Basins.

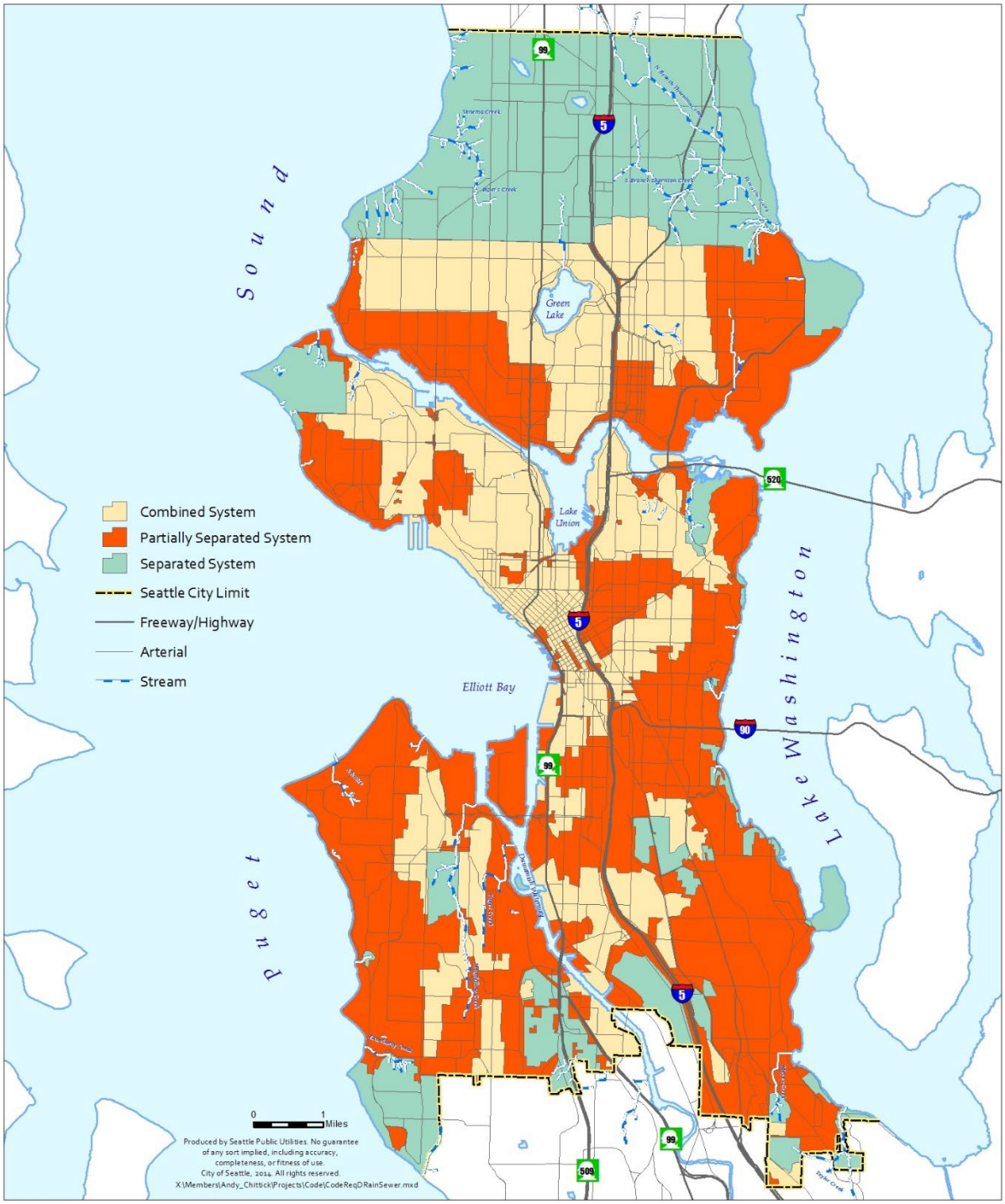

Figure 2.8. Public Combined Sewer Basins.

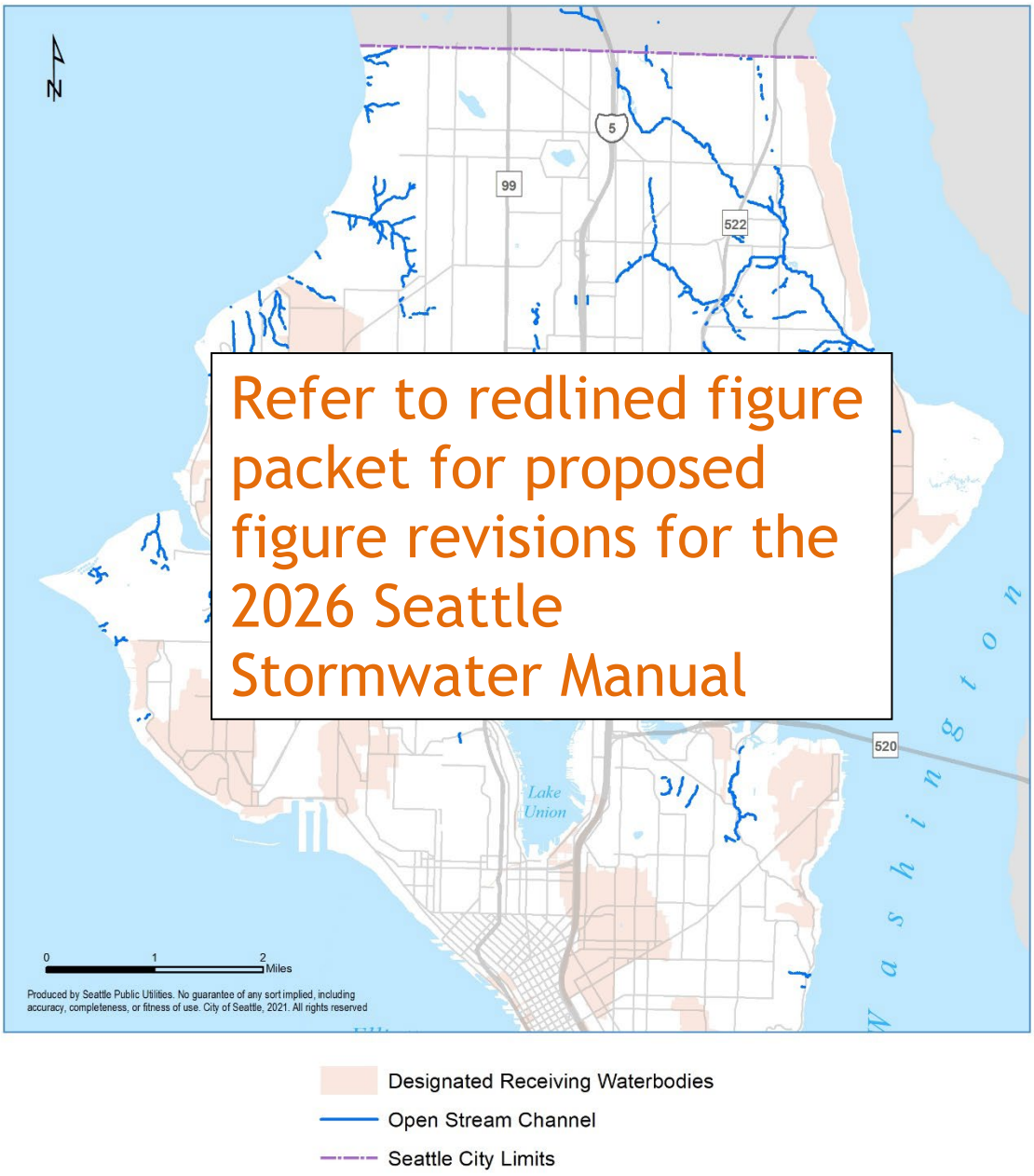

Figure 2.9. North End Designated Receiving Water Drainage Areas.

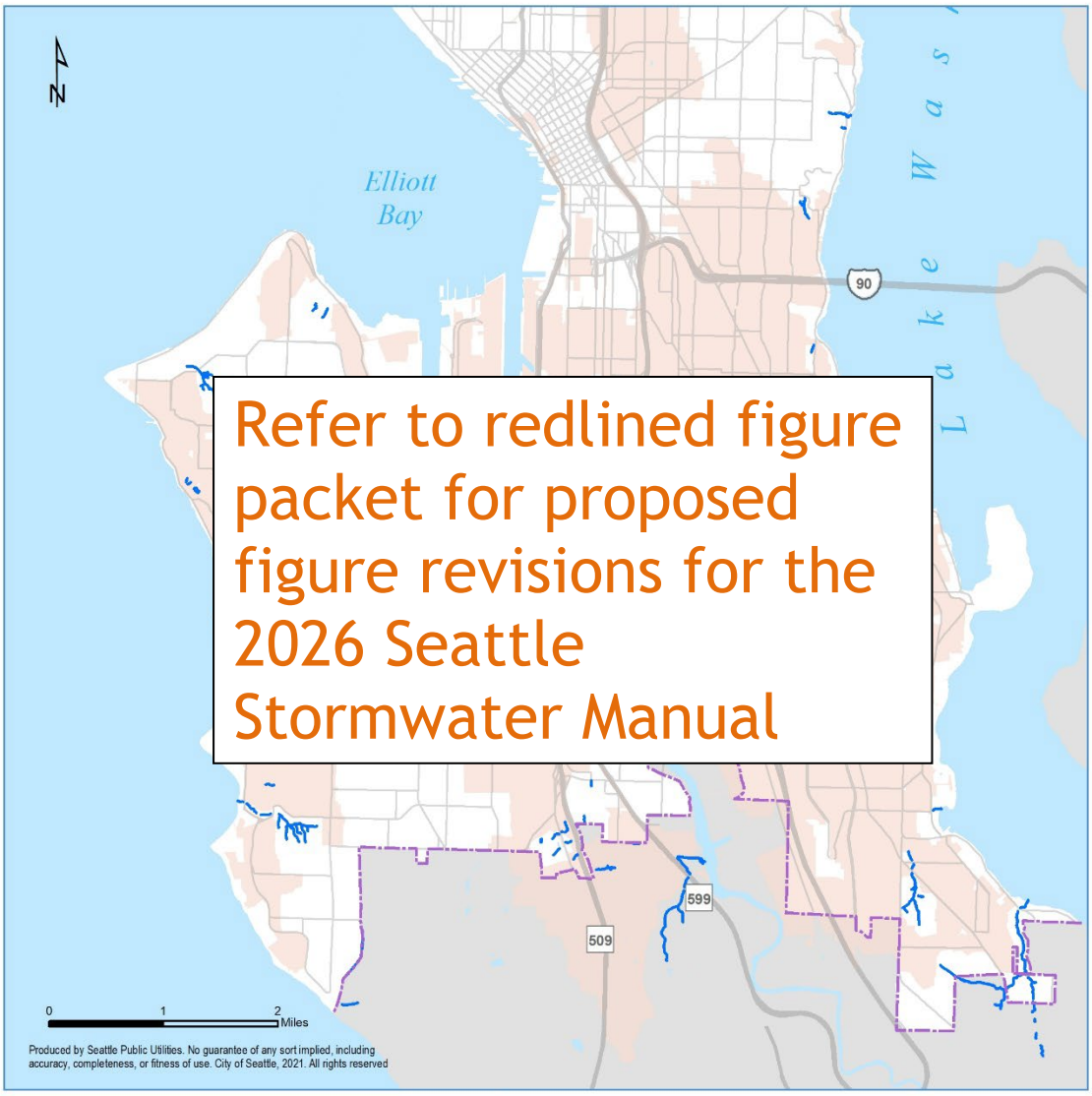

Figure 2.10. South End Designated Receiving Water Drainage Areas.

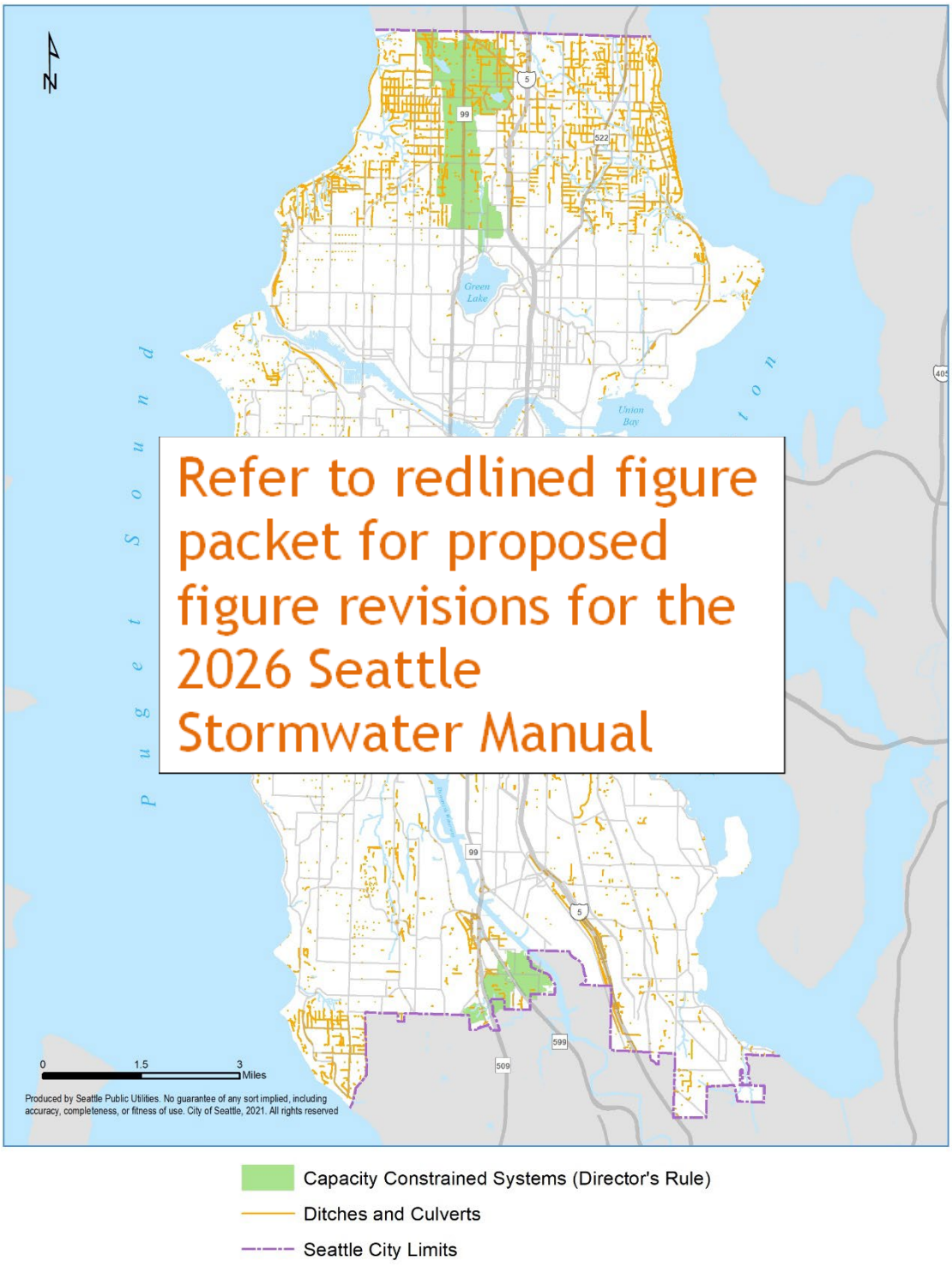

Figure 2.11. Capacity Constrained Systems.

2.4. Step 4 – Perform Site Assessment and Planning

After the applicable minimum requirements have been identified, each project shall evaluate project design considerations and perform a site assessment as outlined in *Chapter 7*. The goal of the site assessment and planning step is to identify any additional issues that shall be addressed in association with stormwater management requirements. This step shall be completed before selecting on-site stormwater management, flow control, and/or treatment BMPs.

Site-specific factors to consider may include, but are not limited to:

- Site boundaries and structures
- Site topography and dispersion feasibility (refer to *Volume 3, Section 3.1)*
- Soil conditions and infiltration capacity (refer to *Volume 3, Section 3.2)*
- Critical area issues (e.g., flood plains, landslide prone areas, and landfills or contaminated site ~~contaminations~~). See Appendix J for contaminated site requirements
- Contaminated soils or groundwater on or near the site (refer to Appendix J)
- Groundwater elevations for temporary or permanent dewatering (refer to Section 7.5)
- Special circumstances (e.g., discharge to multiple drainage basins with differing requirements) (refer to *Section 4.7*)

Project proponents need to evaluate all the applicable code requirements and conduct a full site assessment to characterize site opportunities and constraints before choosing and designing stormwater strategies (refer to *Chapter 7*).

2.5. Step 5 – Calculate Land-Disturbing Activity and New Plus Replaced Hard Surface

The thresholds triggering specific Minimum Requirements for Flow Control are based on the amount of the project's new plus replaced hard surface, converted native and nonnative vegetation, and land-disturbing activity. Hard surface means an impervious surface, a permeable pavement, or a vegetated roof.

Stormwater Code Language	References
See SMC, Section 22.801.090 - *"Hard surface"*	
See SMC, 22.801.100 - *"Impervious surface"*	
See SMC, 22.801.130 - *"Land disturbing activity"*	
See SMC, 22.801.150 - *"New hard surface"*	
See SMC, 22.801.150 - *"New impervious surface"*	
See SMC, 22.801.170 - *"Pervious surface" "*	
See SMC, 22.801.190 - *"Replaced hard surface"*	

~~Note that open, uncovered retention or detention facilities shall not be considered as hard surfaces for the purposes of determining whether the minimum requirement thresholds are exceeded. However, these facilities shall be considered impervious surfaces for the purposes of stormwater facility sizing.~~

Areas with underdrains designed to remove stormwater from the subgrade (e.g., playfields, playground areas, sports fields, athletic fields, rail yards) shall be considered as hard surfaces for the purposes of determining whether the minimum requirement thresholds are exceeded. Note: see Section 2.5.1 for a nuance for determining thresholds for sports fields.

All areas that are connected to the underdrains and surrounding underdrain aggregate with free-draining subbase material or drainage layer, such as a sand or gravel layer or a manufactured drainage mat, shall be counted as hard surface area, regardless of the distance of the surface from the underdrain or spacing of underdrains. Natural lawn or turf areas that do not have a free-draining sand or gravel layer or other type of drainage layer connected to the underdrain or underdrain aggregate are ~~considered to be~~ hard surface areas if there are multiple rows of underdrains that are spaced closer than 25 feet apart. Refer to SMC, Section 22.801 and *Appendix A* for detailed definitions of these key terms.

For the purposes of determining requirements of the stormwater code and manual, a deck with open grating or spacing between boards that allows rainwater to pass through the deck surface is not considered to be a hard surface only if the entire area below the deck is a pervious surface with amended soils that meet the requirements of Volume 3, Section 5.1 – Soil Amendment BMP. Note: this interpretation is only applicable to the stormwater code and manual and not necessarily to any other City codes, director's rules, or policies (e.g., Shoreline Master Program in the Land Use Code).

Overlaying existing asphalt or concrete or brick pavement with asphalt or concrete without expanding the area of coverage is not a new or replaced hard surface if the existing pavement remains and any grinding does not expose the top of the base course or subgrade.

The amount of native vegetation that is removed and replaced with lawn, landscaping, and pasture groundcover shall also be calculated.

New plus replaced hard surface areas and converted native vegetation shall be quantified separately for work within, and outside, the right-of-way.

2.5.1. Underdrained Sports Fields

Underdrained sports fields are considered a hard surface for most thresholds (e.g., On-site Stormwater Management, Flow Control, Drainage Review threshold, etc.) but also a pollution-generating pervious surface for Water Quality Treatment thresholds. See the definitions in Appendix A.

When determining if Water Quality Treatment is required, underdrained sports fields (natural or artificial turf) are evaluated as pollution-generating pervious surfaces. See Section 2.6.

When evaluating all other stormwater code thresholds, underdrained sports fields are evaluated as hard surfaces.

2.5.2. The Difference Between "New" and "Replaced" Hard Surfaces

While most thresholds for requirements in the Seattle Stormwater Code and associated Director's Rules are based on "new plus replaced hard surface", there are a few thresholds that are based on "new hard surface". One example is the Flow Control thresholds for Roadway or Parcel-Based Projects in Creek Basins. See Section 4.3 and 4.4.

The following are examples of when a hard surface is "new" or "replaced" based on the Stormwater Code definitions.

Structures

The following are examples of structures that are a "new hard surface":

1. An existing structure is removed, including removal of the foundation, and a new structure is constructed, even if the new structure is in the same footprint of the existing structure that was removed.
2. An existing structure is removed, and a structure is constructed in a new location.
3. A structure is expanded beyond the existing footing.
4. An existing hard surface is upgraded or changed to a structure.
5. An existing gravel surface is upgraded or changed to a structure.
6. A structure is built where there was previously a pervious surface.

The following is an example of a structure that is a "replaced hard surface":

1. The existing structure is removed down to the top of the foundation, but the foundation is not removed, **and** the "replaced" structure is constructed on the existing foundation.

The existing foundation must remain to be considered a "replaced" hard surface. Otherwise, it is a "New" hard surface.

Non-structure hard surfaces

The following are examples of "other" (non-structure) surfaces that are "new hard surface":

1. An existing hard surface is removed down to the subgrade and the subgrade is altered with grading activities such as excavating the subgrade or filling to change the grade and a hard surface is installed.
2. An existing hard surface is removed, and a new hard surface is constructed in a different location.
3. A surface is changed from a pervious surface to a hard surface (e.g., converting lawn to permeable pavement, resurfacing by upgrading from dirt to gravel, a bituminous surface treatment ("chip seal"), asphalt, concrete, or a hard surface structure); or

4. A surface is upgraded from gravel to chip seal, asphalt, concrete, or a hard surface structure.

The following is an example of an "other" (non-structure) hard surface that is a "replaced hard surface":

1. The existing hard surface is removed down to the subbase or subgrade and replaced, but the subgrade (i.e. soils below the subbase) is not graded (excavated or backfilled).

If there are grading activities for the subgrade such as excavating the subgrade of filling to change the grade, then the hard surface is "new".

2.5.3. Remodels and Reconstruction That Maintain Existing Foundations

The following is to clarify when a remodel of an existing building or construction on an existing foundation is defined as a "replaced hard surface". For the purposes of this definition, the "foundation" is the building footing, stem wall, and sill plate.

If the roof, walls, and any floor joists are removed down to expose the top of either the sill plate, stem wall, or footing, and the structure is re-built, then the area where the roof was removed is considered "replaced hard surface". This is the case even if there is an existing slab on grade or a basement that remains.

In some cases, the foundation may be replaced, but the structure above remains. In these cases, these areas are not considered to be new or replaced hard surface. The following are examples of this:

- Basement conversions where the basement is deepened by excavating and adding new foundation, but the structure above the basement level is retained.
- Remodels that crib the existing structure to raise it and add new structure below, and the roof, walls, or floor joists of the existing structure are retained.

The following exhibits (Figure 2.12, 2.13, 2.14, and 2.15) include some examples of remodels and reconstruction with the new and replaced hard surfaces identified.

Refer to redlined figure packet for proposed figure revisions for the 2026 Seattle Stormwater Manual

Figure 2.12. Example of Existing Hard Surface to Remain – Existing Floor Joists to Remain

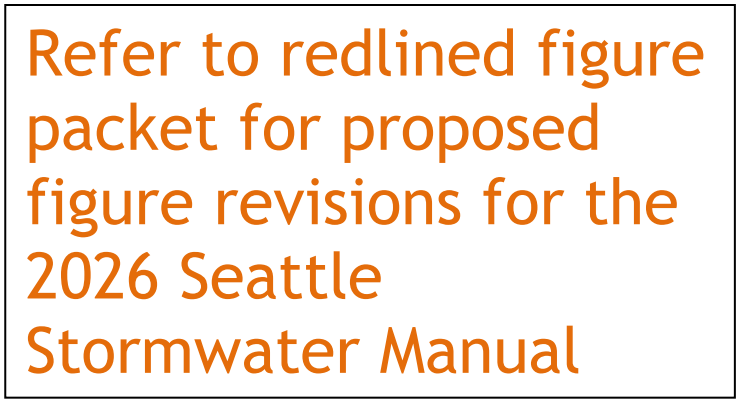

Figure 2.13. Example of Replaced Hard Surface – Floor Joists Removed or Replaced

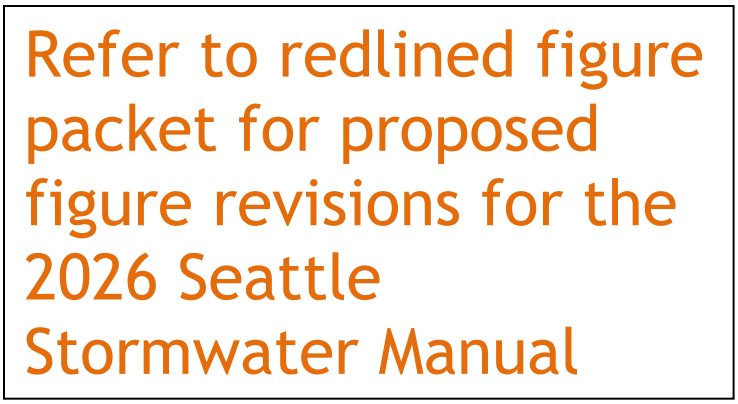

Figure 2.14. Example of Replaced Hard Surface – Structure Removed Down to Slab on Grade Footings

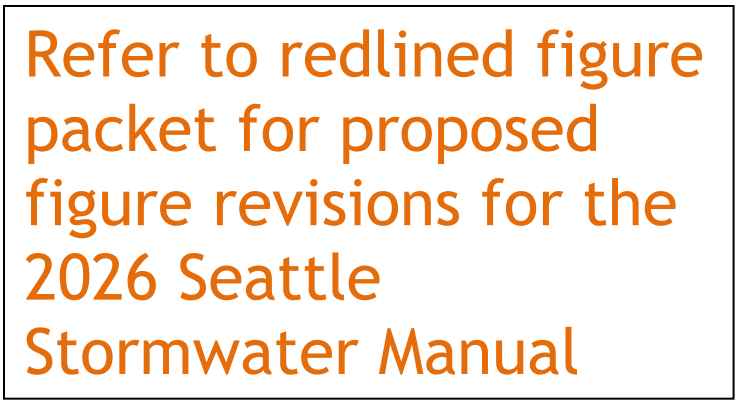

Figure 2.15. Example with New, Replaced and Existing Hard Surfaces

2.6. Step 6 – Calculate New Plus Replaced Pollution-Generating Surface

The thresholds triggering specific Minimum Requirements for Water Quality Treatment are based on the total amount of the project's new plus replaced pollution-generating hard surface (PGHS) and new plus replaced pollution-generating pervious surface (PGPS). PGHS and PGPS include areas that ~~are considered to be~~are a significant source of pollutants in stormwater runoff.

Stormwater Code Language	References
See SMC, 22.801.170 - *"Pollution-generating activity"*	
See SMC, 22.801.170 - *"Pollution-generating hard surface"*	
See SMC, 22.801.170 - *"Pollution-generating impervious surface"*	
See SMC, 22.801.170 - *"Pollution-generating pervious surface"*	

Examples of PGHS include areas subject to vehicular use (including permeable pavement); certain industrial activities; outdoor storage of erodible or leachable materials, wastes, or chemicals. Metal roofs are considered a PGHS unless coated with an inert, non-leachable material (e.g., baked-on enamel coating).

Examples of PGPS include lawns, landscaping areas, golf courses, parks, cemeteries, and sports fields (natural and artificial turf). Note: see Section 2.5.1 for a clarification about underdrained sports fields. ~~Metal roofs are considered a PGHS unless coated with an inert, non-leachable material (e.g., baked-on enamel coating).~~ Refer to SMC, Section 22.801 and *Appendix A* for detailed definitions of these key terms.

Typically, ~~New~~ new plus replaced PGHS and PGPS shall be quantified separately for work within and outside the right-of-way.

2.7. Step 7 – Determine Which Minimum Requirements Apply

An overview of the minimum requirements applicable to all project types is included in *Chapter 3*. In addition, an overview of the minimum requirements specific to each project type is included in *Chapter 4*.

Based on the information obtained from Step 1 through Step 6, the applicable minimum requirements for specific project types can be determined for:

- Soil amendment (*Section 5.1*)
- On-site stormwater management (*Section 5.2*)
- Flow control (*Section 5.3*)
- Water quality treatment (*Section 5.4*)

  Note: Other projects that do not trigger the minimum requirements for on-site stormwater management, flow control, and/or water quality treatment (e.g., retrofit projects) are encouraged but not required to follow the technical requirements in this manual as guidance on methods and standards that may help protect water resources.

In addition, certain locations in the City may be subject to additional or modified requirements based on other Director's Rules, Policies, and Tips, such as:

- SPU Director's Rule DWW-210 — Public Drainage System Requirements
- SPU Director's Rule DWW-430.1 — Flow Control Requirements for Projects in Identified Public Combined Sewer Basins (SODO/Downtown Waterfront)
- SPU Director's Rule DWW-420.1 — Yesler Terrace Community Director's Rule: Allowable Stormwater, Groundwater, and Sewer Release Rates to the Combined Sewer System and Infiltration Zones
- SDCI Tip 505 — High Point Impervious Surface Calculation
- SDCI Director's Rule ~~12~~14-2008 — Infiltration Facilities in Peat Settlement-Prone Areas
- SPU Design Standards and Guidelines – including GSI Manual

- Streets Illustrated (Seattle Right-of-Way Improvements Manual)
- Seattle Standard Plans and Specifications

Note: Under certain circumstances, the ECA code requires Water Quality Treatment and Flow Control in some locations where it is not required per this Manual (e.g., shoreline areas, riparian corridors).

~~Once the applicable minimum requirements have been identified, proceed to *Volume 3, Chapters 3, 4,* and *5* to begin the BMP selection and design process.~~

2.7.1. Special Circumstances

Some projects do not closely fit defined project types or have complicating elements. These projects require a case-by-case review (no review of special circumstances sets a precedent) to determine the applicable minimum requirements. These projects shall first go through a pre-permit review process to assist the proponent in identifying the specific minimum requirements to be applied. Project requirements will be based on requirements for roadway projects (refer to *Section 4.3*) or parcel-based projects (refer to *Section 4.4*) or a combination, in addition to minimum requirements for all projects (refer to *Chapter 3*).

The following list is not comprehensive, but gives the proponent an indication of the complexity of the special circumstances. Examples of special circumstances projects include:

- Bridges or tunnels
- Construction over water
- Closed-contour basins
- Draining into more than one basin with conflicting requirements
- Multiple blocks or a subdivision
- Railroads
- Rail stations in public right-of-way
- Work performed in more than one jurisdiction.

  Projects that propose to develop multiple blocks or a subdivision have the potential for greater impacts to the existing drainage system or public combined sewer. These projects may be required to conduct a more comprehensive downstream analysis examining a larger range of flow and discharge conditions to demonstrate that the project meets the requirement to ensure sufficient capacity (SMC, Section 22.805.020H) and will not cause a significant adverse impact to receiving waters or up-gradient or down-gradient properties (SMC, Section 22.805.020A).

Similarly, projects that discharge to closed-contour basins may be required to demonstrate the project will not cause a significant adverse impact to down-gradient properties (SMC, Section 22.805.020H) and increase either the frequency or severity of flooding, including for peak flows with a 1 percent annual probability.

Projects that discharge to multiple drainage basins will be analyzed separately by drainage basin. To determine which minimum requirements apply and which part of the drainage

system or public combined sewer will be analyzed to ensure sufficient capacity, the proponent shall prepare exhibits showing the land disturbing activity anticipated for each receiving water and drainage basin and downstream drainage system. Refer to *Section 2.3*.

The Director of SPU may determine that subbasins within the public combined sewer system or designated receiving waters are sufficiently distinct and separated to be analyzed independently and as separate areas. Discharges to each of the small lake basins will be analyzed independently and are considered separate areas.

Discharges to each creek basin will be analyzed independently and are considered separate areas. In addition, discharges to distinct branches of a creek, or where the two points discharge to a single creek branch are more than 1/4 mile apart, will be analyzed independently and are considered separate areas.

If a project requires compliance with more than one flow control standard (e.g., the Peak Control Standard and the Pre-Developed Pasture Standard), the facility shall be sized to meet all standards unless otherwise allowed using the Pre-sized Approach (refer to *Volume 3*, *Section 4.1.2*).

Once the applicable minimum requirements have been identified, proceed to *Volume 3, Chapters 3*, *4*, and *5* to begin the BMP selection and design process.

CHAPTER 3 – Minimum Requirements for All Projects

All projects are required to comply with the minimum requirements listed in SMC, Section 22.805, even when drainage control review is not required. The specifics of the minimum requirements applicable to all projects, as per SMC, Section 22.805.020 are summarized in the following subsections.

Excerpts from the Stormwater Code (in *italics*) are presented below in the first column in the code reference box in each section. The second column in the code reference box provides applicable references.

Note that this section summarizes but does not replace or alter Stormwater Code requirements.

3.1. Maintaining Natural Drainage Patterns

Stormwater Code Language	References
See SMC 22.805.020.A – *Minimum Requirements for Maintaining Natural Drainage Patterns.*	

Discharges from the project site must not cause a significant adverse impact to downstream receiving waters and down-gradient properties or systems. All concentrated discharge locations (i.e., discharges from pipe systems, culverts, and ditches) must address energy dissipation.

3.2. Discharge Point

3.2.1. Approved Point of Discharge

All projects shall convey stormwater flow to an approved point of discharge and include overflows for all stormwater BMPs.

Stormwater Code Language	References
See SMC 22.805.020. B – *Minimum Requirements for Discharge Point.*	

A project's approved point of discharge as determined by the Director, in order of priority, includes:

1. Receiving waters
2. Piped public drainage system (also known as Pipe Storm Drain [PSD])
3. Ditch and culvert system
4. Public combined sewer ~~pipes~~system
5. Infiltration on site

Extension of the **piped** public drainage system may be required even if a ditch and culvert system or a public combined sewer abuts a project (refer to *Section 3.12* and the Public Drainage System Requirements Director's Rule (SPU Director's Rule DWW-210).

Note: Stormwater and groundwater shall not be conveyed to or enter a sanitary sewer (SMC, Section 21.16.220) including those systems that were considered a formerly combined system.

Refer to SPU's Water & Sewer Map for "Permitted Use" in determining if a system is classified as a public sanitary sewer: https://gisrevprxy.seattle.gov/wab_ext/DSOResearch_Ext/

3.2.2. Conveyance Systems to Point of Discharge

The types of conveyance systems to the approved point of discharge, in order of priority, includes:

1. Direct pipe connections
2. Ditch and culvert system
3. Gutter or street flow line
4. Surface dispersal

3.3. Flood-Prone Areas

Stormwater Code Language	References
SMC 22.805.020.C – *Minimum Requirements for Flood-prone Areas.*	

3.4. Construction Site Stormwater Pollution Prevention Control

The Construction Stormwater Control and Soil Management Plan applies best management practices (BMPs) that fall within the 19 elements (refer to Volume 2, Ch. 2) of water quality, air quality, and downstream resource protection and are required by the Stormwater Code (SMC~~,~~ Chapter 22.805.020.D).

Stormwater Code Language	References
See SMC 22.805.020.D – *Minimum Requirements for Construction Stormwater Pollution Prevention Plan.*	

These 19 elements cover protection strategies, including:

- Limiting project site impacts
- Protecting the public drainage system, combined and sanitary sewers, and downstream receiving waters
- Preventing erosion and sedimentation

- Managing activities and sources

Project designers must review the applicable elements in Volume 2, Chapter 2 and ensure the specific requirements under each of the 19 elements are fully addressed by the project site stormwater pollution prevention controls.

Refer to Volume 1, Section 8.3 (Comprehensive Drainage Plan) to determine when shall a Construction Stormwater Control Plan shall be prepared by an engineer licensed in the State of Washington.

3.5. Protect Wetlands

Stormwater Code Language	References
See SMC 22.805.020.E – *Protect Wetlands.*	

All wetlands (Categories I, II, III and IV) must receive the following general protection:

1. Comply with regulations issued under federal and state laws that regulate the discharge of pollutants to surface waters, including the Construction Stormwater General NPDES Permit.
2. Comply with Seattle ECA Code SMC 25.09 – Regulations for Environmentally Critical Areas. See SMC 25.09.160.C for allowed and prohibited activities in wetland and wetland buffers. Development, including but not limited to grading, filling, draining, or any alteration to the functions and values of the wetland, including but not limited to negative impacts on trees and vegetation, habitat, flood control, and water quality, is prohibited, unless an ECA exception is granted or as provided in the ECA Code. Note: installation of drainage systems, or other utilities, is considered "development" which is prohibited in wetlands and wetland buffers.
3. Protect the wetland buffer as required by all local and/or state regulations.
4. If possible, retain areas of native vegetation connecting the wetland and its buffer with nearby wetlands and other contiguous areas of native vegetation.
5. Consider installing wetland protection related signage.
6. Any stormwater management practices, such as On-site Stormwater Management, Water Quality Treatment, and Flow Control BMP implementation or construction of stormwater conveyance facilities (e.g. piped, ditches, culverts, etc.), must be done outside of the wetland buffer boundary unless an ECA exception is granted or as provided in the ECA Code.
7. Discharge from a BMP or project site must be dispersed using a method to diffuse the flow before entering the wetland buffer.
8. Consider fences to restrict human access without interfering with wildlife movement.

In addition, Flow Control per Section 5.3.1 - Wetland Protection Standards is required for certain Roadway and Parcel-Based Projects as identified in Section 4.3.3.1 and 4.4.3.1.

3.6. Protect Streams and Creeks

Stormwater Code Language	References
See SMC 22.805.020.F – *Protect Streams and Creeks.*	

3.7. Protect Shorelines

Stormwater Code Language	References
See SMC 22.805.020.G – *Protect Shorelines.*	

3.8. Ensure Sufficient Capacity

Stormwater Code Language	References
See SMC 22.805.020.H – *Ensure Sufficient Capacity.*	

3.9. Install Source Control BMPs

Stormwater Code Language	References
See SMC 22.805.020.I – *Install Source Control BMPs.*	I

3.10. Do Not Obstruct Watercourses

Stormwater Code Language	References
See SMC 22.805.020.J – *Do not obstruct watercourses.*	

3.11. Comply with Side Sewer Code

A side sewer permit is required for any repair, replacement or alteration of the sewer or drainage system. Any change to the point of discharge must be approved. A change of use that introduces contaminants or process water to the drainage system, public combined sewer, or public sanitary sewer must also be approved and may require pretreatment. For

information on side sewer permits, contact the SDCI Drainage and Sewer Review Desk, at (206) 684-5362 or sidesewerinfo@seattle.gov. For information on King County discharge requirements, contact the Industrial Waste Program at (206) 477-5300 or Info.KCIW@kingcounty.gov.

Stormwater Code Language	References
See SMC 22.805.020.K – *Comply with Side Sewer Code*	

3.12. Extension of Public Drainage System

3.12.1. Projects Not Constructed in the Right-of-Way

Stormwater Code Language	References
See SMC 22.805.020.L – *Extension of the Public Drainage System for Projects Not Constructed in the Public Right-of-Way.*	

3.12.2. Projects Constructed in the Right-of-Way

Stormwater Code Language	References
See SMC 22.805.020.M – *Extension of the Public Drainage System for Projects Constructed in the Public Right-of-Way.*	

3.13. Public Drainage System Requirements

Stormwater Code Language	References
See SMC 22.805.020.N – *Public Drainage System Requirements.*	

3.14. Maintenance and Inspection

Projects that construct on-site stormwater management, flow control, and water quality treatment BMPs shall comply with the maintenance and inspection requirements specified in SMC, Section 22.807.090.

Stormwater Code Language	References
See SMC 22.807.090 – *A. Responsibility for Maintenance and Inspection.*	

CHAPTER 4 – Minimum Requirements Based on Project Type

In addition to the minimum requirements for all projects presented in *Chapter 3*, additional requirements apply based upon project type and are summarized in this chapter. Project types are defined in *Chapter 2*, *Step 2*.

Excerpts from the Stormwater Code (in *italics*) are presented in the first column in the code reference box in each section. The second column in the code reference box provides applicable references.

Flow charts are included in the roadway and parcel-based project sections (*Sections 4.3* and *4.4*) to summarize the key minimum requirements. ~~Utility and pavement maintenance project types are exempt from certain minimum requirements (refer to *Section 4.5* for additional information). This chapter also includes a short section on WSDOT projects (*Section 4.6*) and special circumstances (*Section 4.7*), applicable when a project does not fit into the other project type categories.~~

The key project type minimum requirements include the following:

- Soil Amendment
- On-site Stormwater Management
- Flow Control
  - Wetland Protection Standard
  - Pre-developed Forested Standard
  - Pre-developed Pasture Standard
  - Peak Control Standard
- Water Quality Treatment
  - Basic Treatment
  - Oil Treatment
  - Phosphorus Treatment
  - ~~Enhanced~~ Metals Treatment (previously known as Enhanced Treatment)

The standards are described in more detail in *Chapter 5*. For each project type, the minimum requirements are a function of the following factors (refer to *Chapter 2*):

- The receiving water and/or type of downstream conveyance
- The amount of new plus replaced hard surface (Note: permeable pavement, vegetated roof systems, and areas with underdrains count toward determining this threshold.)
- The amount of converted native vegetation
- The amount of new plus replaced pollution-generating hard surface (PGHS)
- The amount of new plus replaced pollution-generating pervious surface (PGPS)

In addition, certain locations in the City may be subject to additional or modified requirements based on additional Director's Rules, Policies, other Codes (e.g., ECA Code) or past agreements. For example, such areas include parts of the SODO and Downtown waterfront areas, the Yesler Terrace Development, the High Point Re-development, Peat Settlement Prone ECAs. Refer to Step 7 (*Section 2.7*) for more information.

4.1. Single-Family Residential Projects

The applicable code language and references for single-family residential projects are summarized below. Note that single-family residential projects are not required to install flow control or water quality treatment BMPs since the project type, by definition, does not trigger the minimum requirements for flow control or water quality treatment unless they are requirements of the master use permit associated with the single-family project as described in *Section 2.2.1*.

Stormwater Code Language	References
See SMC 22.805.030 – *Minimum requirements for single-family residential projects*	

4.2. Trail and Sidewalk Projects

The applicable code language and references for trail and sidewalk projects are summarized below. Note that trail and sidewalk projects are not required to install flow control or water quality treatment BMPs if the project meets the definition of a trail or sidewalk project.

Stormwater Code Language	References
See SMC 22.805.040 – *Minimum requirements for trail and sidewalk projects* *A. Soil Amendment.* *B. On-site Stormwater Management:*	

4.3. Roadway Projects

Roadway projects shall meet the minimum requirements for soil amendment (SMC, Section 22.805.060.A), on-site stormwater management (SMC, Section 22.805.020.F), flow control (SMC, Section 22.805.080) and water quality treatment (SMC, Section 22.805.090) when applicable. Key minimum requirements for roadway projects are summarized in Figures 4.1a through 4.1c. In addition to meeting a forested, pasture, or wetland protection standard, roadway projects discharging to a capacity-constrained system (SMC, Section 22.801.040) ~~will~~ may also be required to meet the ~~peak control~~existing condition standard (SMC, Section 22.805.080.B.4) - refer to Section 4.3.3.5 Roadway Projects Discharging to a Capacity-Constrained System – Flow Control.

4.3.1. Soil Amendment

Stormwater Code Language	References
See SMC 22.805.060.- *Minimum requirements for roadway projects* *A. Soil Amendment..*	

4.3.2. On-site Stormwater Management

Stormwater Code Language	References
See SMC 22.805.060.- *Minimum requirements for roadway projects.* *B. On-site Stormwater Management.*	

4.3.3. Flow Control

4.3.3.1. Roadway Projects Discharging to Wetlands – Flow Control

Stormwater Code Language	References
See SMC 22.805.060- *Minimum requirements for roadway projects* *C. Flow Control.* 1 – *Discharges to Wetlands.*	

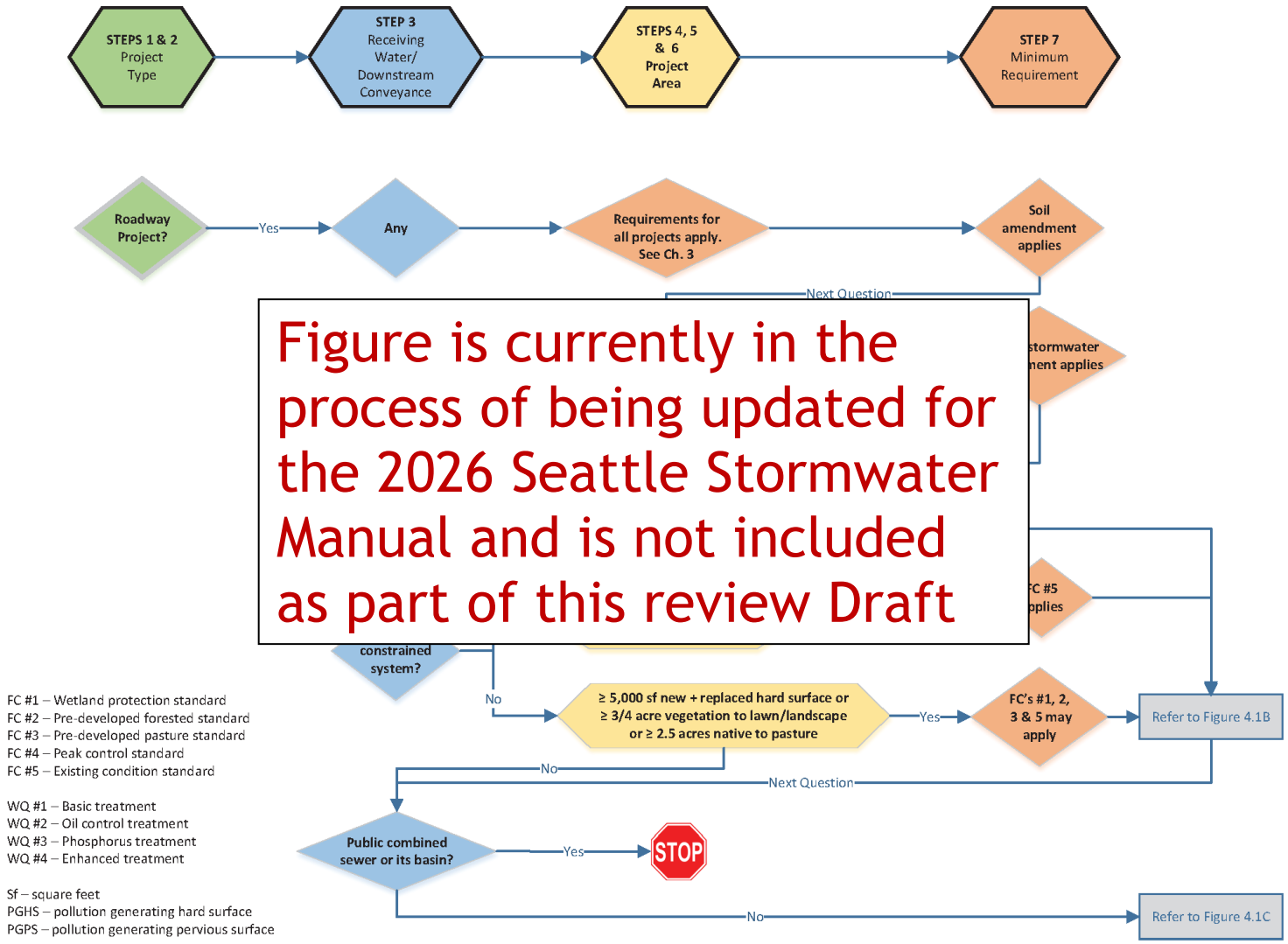

Figure 4.1A. Project Minimum Requirements for Roadway Projects.

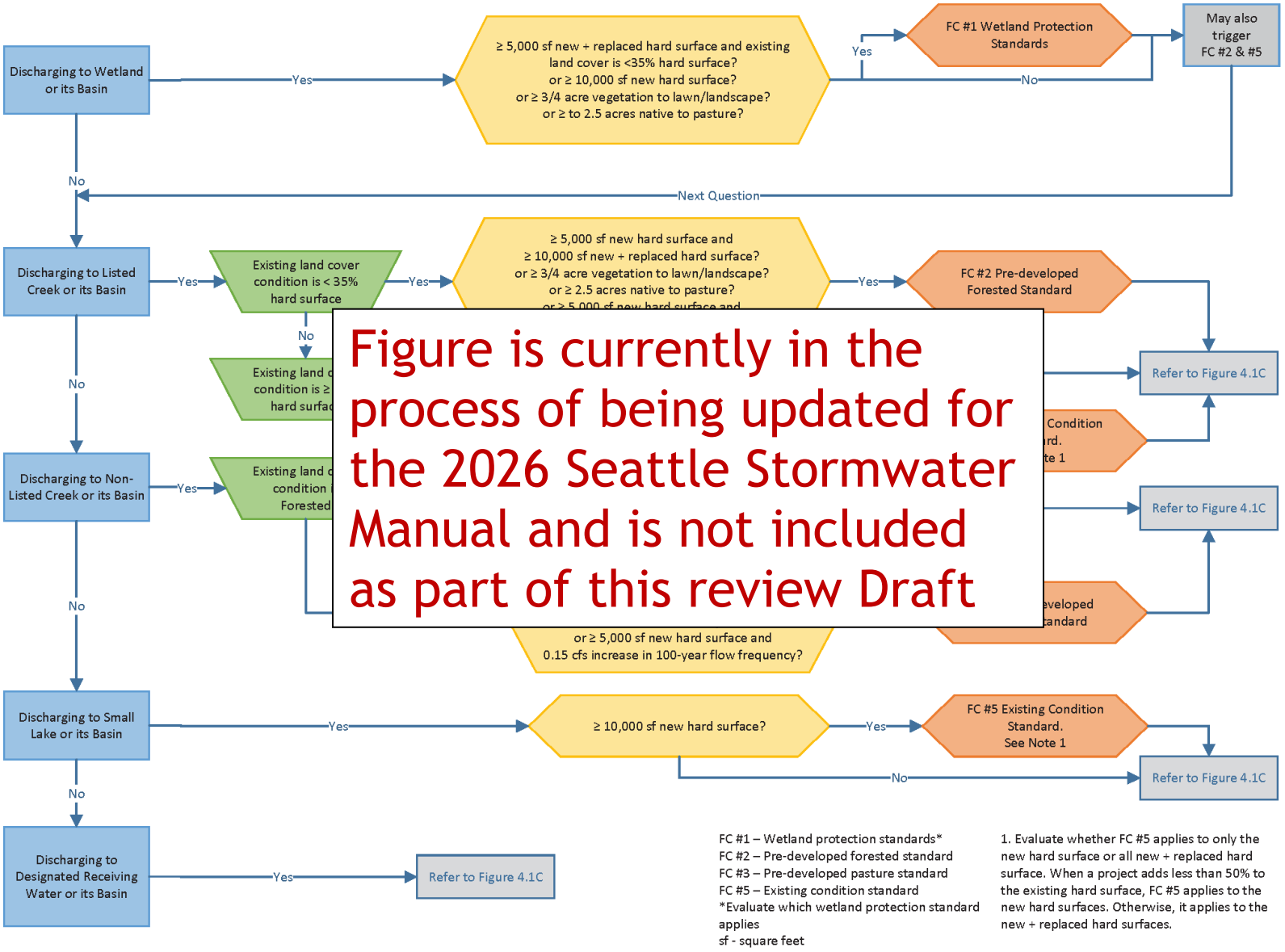

Figure is currently in the process of being updated for the 2026 Seattle Stormwater Manual and is not included as part of this review Draft

Figure 4.1B. Project Minimum Requirements for Roadway Projects (continued).

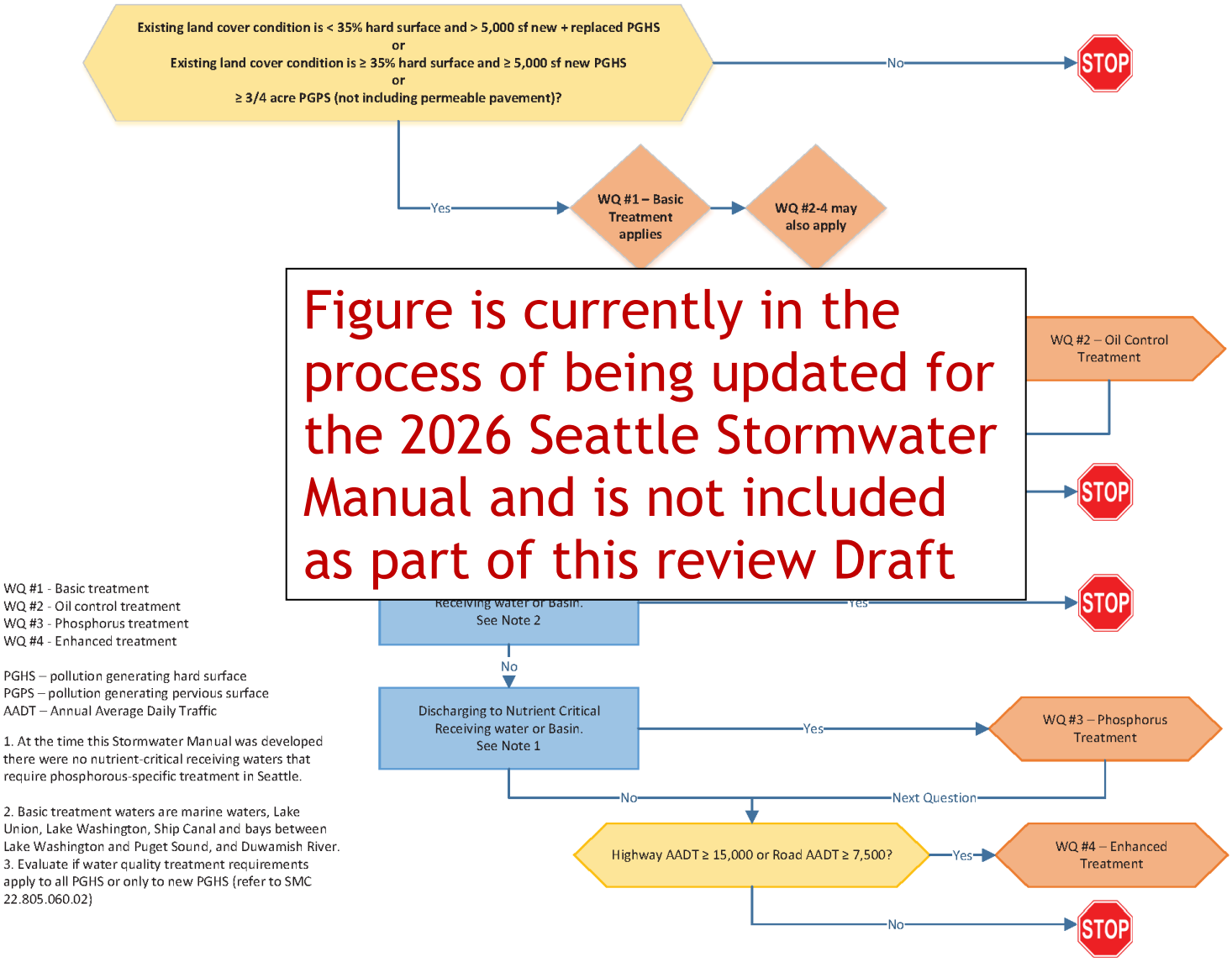

Figure 4.1C. Project Minimum Requirements for Roadway Projects (continued).

4.3.3.2. Roadway Projects Discharging to Listed Creek Basins – Flow Control

Stormwater Code Language	References
See SMC 22.805.060- *Minimum requirements for roadway projects* *C. Flow Control.* *2 – Discharges to listed creek basins.*	

4.3.3.3. Roadway Projects Discharging to Non-listed Creek Basins – Flow Control

Stormwater Code Language	References
See SMC 22.805.060- *Minimum requirements for roadway projects* *C. Flow Control.* *3 – Discharges to non-listed creek basins.*	

4.3.3.4. Roadway Projects Discharging to Small Lake Basins – Flow Control

Stormwater Code Language	References
See SMC 22.805.060- *Minimum requirements for roadway projects* *C. Flow Control.* *4 – Discharges to small lake basins.*	

4.3.3.5. Roadway Projects Discharging to a Capacity-constrained System – Flow Control

Stormwater Code Language	References
SMC 22.805.060- *Minimum requirements for roadway projects* *C. Flow Control.* *5 – Discharges to a capacity-constrained system.*	

4.3.4. Water Quality Treatment

Stormwater Code Language	References
See SMC 22.805.060- *Minimum requirements for roadway projects* *C. Flow Control.* *D – Treatment.*	

4.4. Parcel-Based Projects

Parcel-based projects shall meet the minimum requirements for soil amendment (SMC, Section 22.805.050.A), on-site stormwater management (SMC, Section 22.805.070), flow control (SMC, Section 22.805.080) and water quality treatment (SMC, Section 22.805.090), when applicable. Key minimum requirements for parcel-based projects are summarized in Figures 4.2a through 4.2c. In addition to meeting a forested, pasture, or wetland protection standard, parcel projects discharging to a capacity-constrained system (SMC, Section 22.801.040) ~~will~~ may also be required to meet the peak control standard (SMC, Section 22.805.080.B.5) - refer to Section 4.4.3.5 Parcel-Based Projects Discharging to a Capacity-Constrained System – Flow Control.

4.4.1. Soil Amendment

Stormwater Code Language	References
See SMC 22.805.050 - *Minimum requirements for parcel-based projects A – Soil Amendment.*	

4.4.2. On-site Stormwater Management

Stormwater Code Language	References
SMC 22.805.050 – *Minimum requirements for parcel-based projects* *B. On-site Stormwater Management.*	

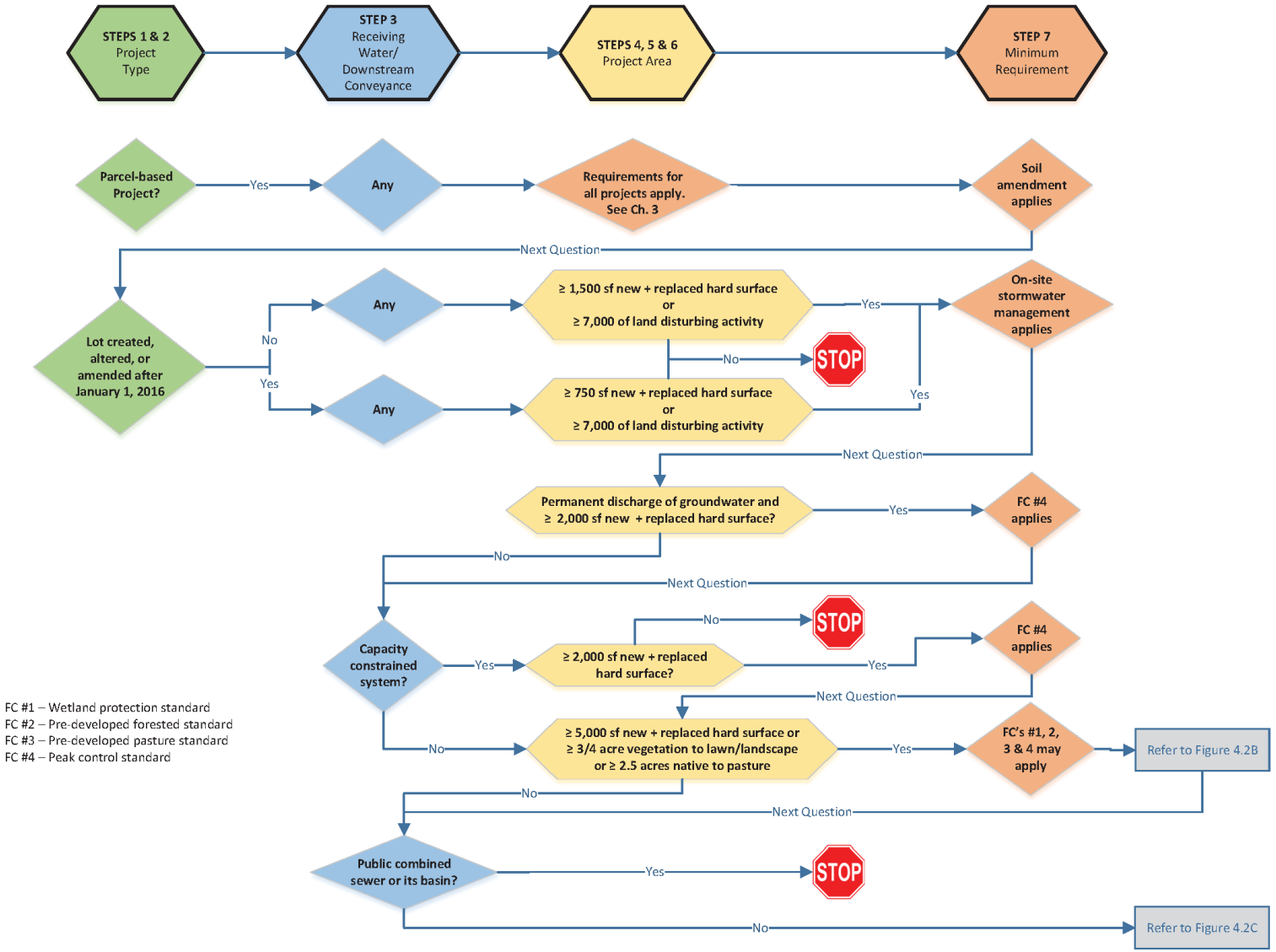

Figure 4.2A. Project Minimum Requirements for Parcel-Based Projects.

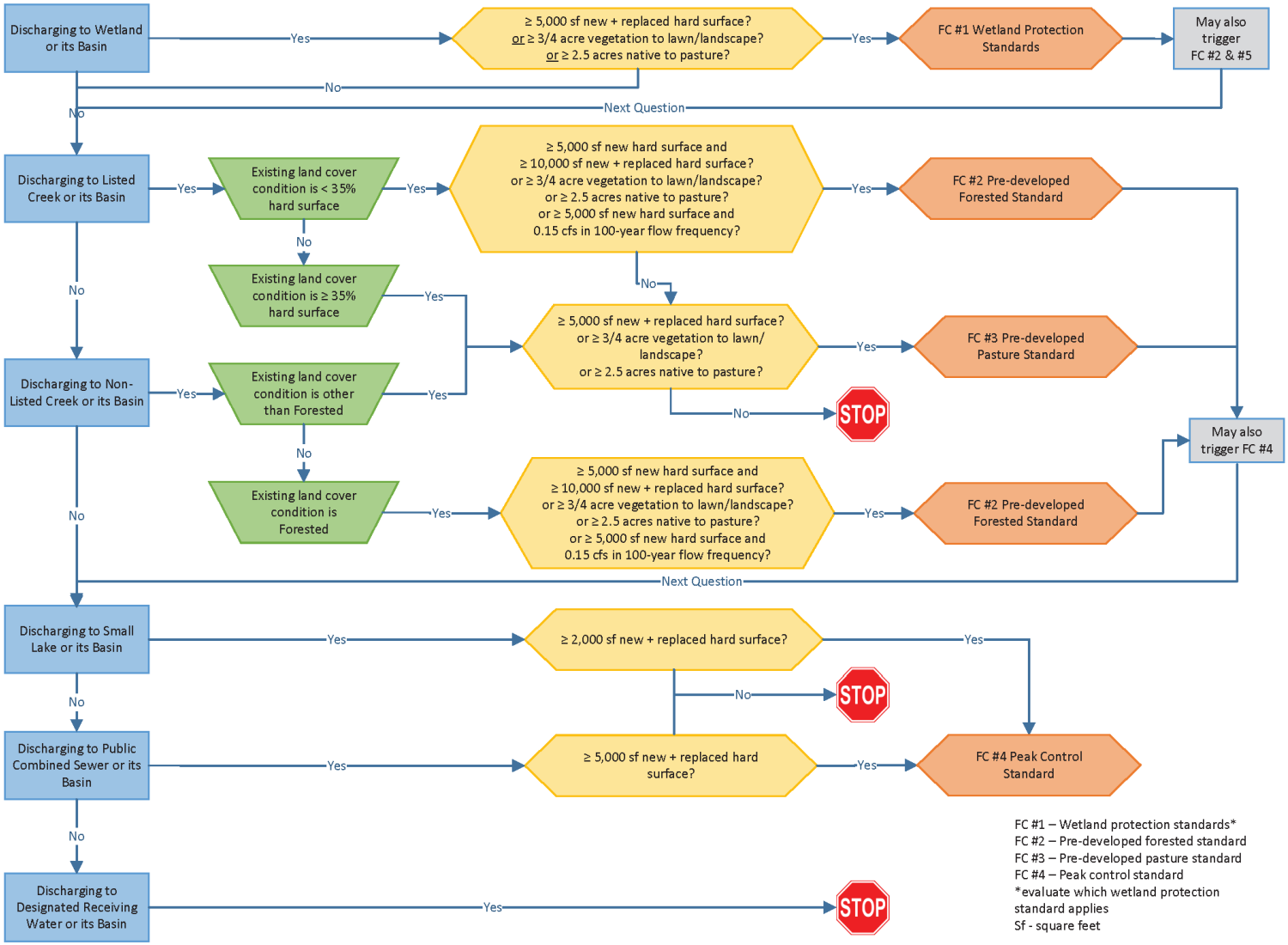

Figure 4.2B. Project Minimum Requirements for Parcel-Based Projects (continued).

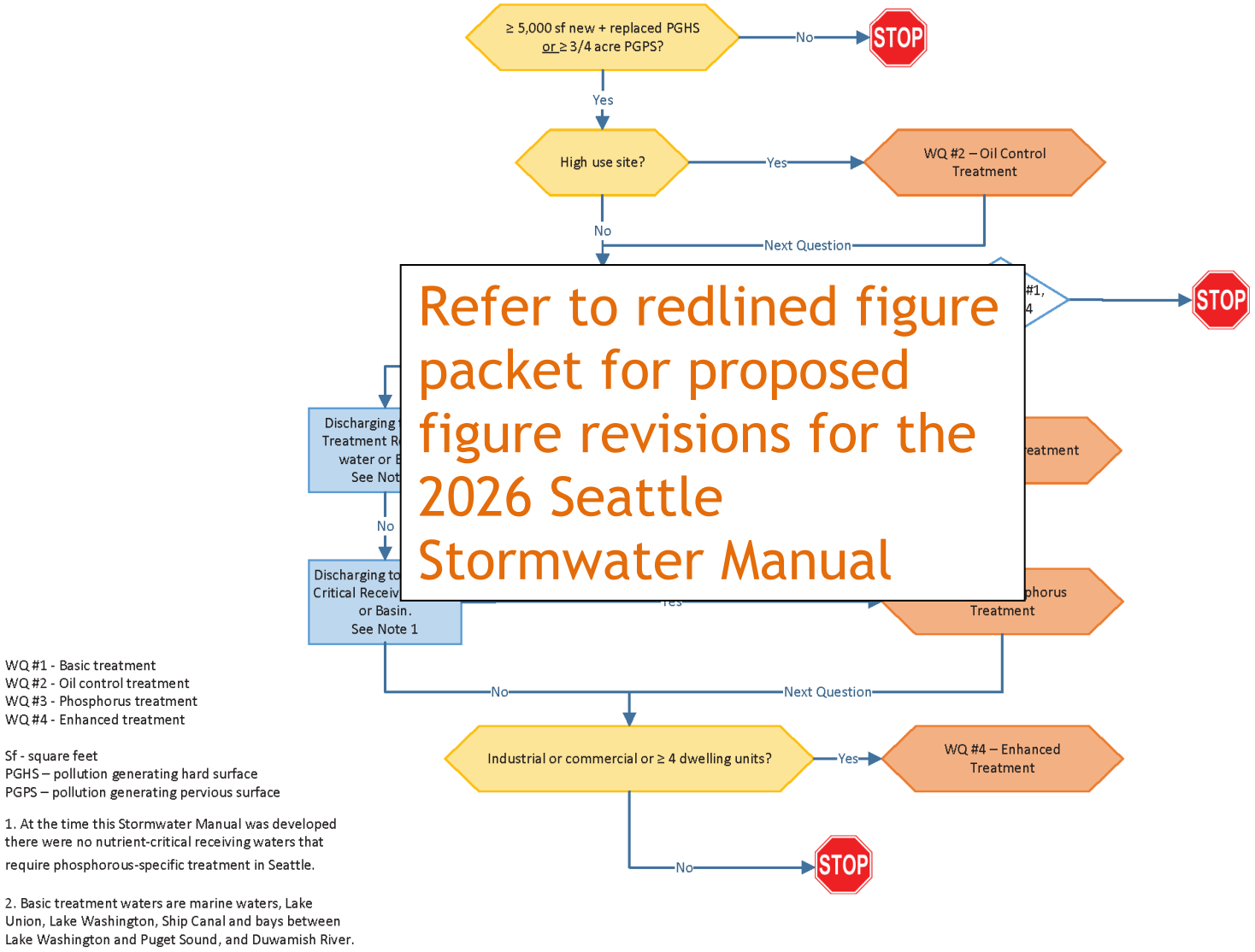

Figure 4.2C. Project Minimum Requirements for Parcel-Based Projects (continued).

4.4.3. Flow Control

4.4.3.1. Parcel-Based Projects Discharging to Wetlands – Flow Control

Stormwater Code Language	References
See SMC 22.805.050 - *Minimum requirements for parcel-based projects* *C. Flow Control* *1 – Discharges to wetlands*.	

4.4.3.2. Parcel-Based Projects Discharging to Listed Creek Basins – Flow Control

Stormwater Code Language	References
See SMC 22.805.050 - *Minimum requirements for parcel-based projects* *C. Flow Control* *2 – Discharges to listed creek basins.*	

Note: The 0.15 cfs increase is a comparison of the post project runoff to the existing condition runoff. The post project runoff calculations may account for proposed BMPs.

4.4.3.3. Parcel-Based Projects Discharging to Non-listed Creek Basins – Flow Control

Stormwater Code Language	References
See SMC 22.805.050 - *Minimum requirements for parcel-based projects* *C. Flow Control* *3 – Discharges to non-listed creek basins.* .	•

Note: The 0.15 cfs increase is a comparison of the post project runoff the existing condition runoff. The post project runoff calculations may account for proposed BMPs.

4.4.3.4. Parcel-Based Projects Discharging to Small Lake Basins – Flow Control

Stormwater Code Language	References
See SMC 22.805.050 - *Minimum requirements for parcel-based projects* *C. Flow Control* *4 – Discharges to small lake basins.*	

4.4.3.5. Parcel-Based Projects Discharging to Public Combined Sewer – Flow Control

At the time this Manual was developed, there was one public combined sewer basin that was determined to have sufficient capacity to carry existing and anticipated loads. Parcel-based projects are not required to provide peak flow control in this basin. Refer to the SDCI website to determine which basins are included in this category (www.seattle.gov/sdci/codes/codes-we-enforce-(a-z)/stormwater-code).

Stormwater Code Language	References
See SMC 22.805.050 - *Minimum requirements for parcel-based projects* *C. Flow Control* *5 – Discharges to public combined sewer.*	

4.4.3.6. Parcel-Based Projects Discharging to a Capacity-constrained System – Flow Control

Stormwater Code Language	References
See SMC 22.805.050 - *Minimum requirements for parcel-based projects* *C. Flow Control* .6 – *Discharges to a Capacity-constrained System.*	

4.4.3.7. Parcel-Based Projects Discharging Groundwater – Flow Control

See Stormwater Code Language	References
See SMC 22.805.050 - *Minimum requirements for parcel-based projects* *C. Flow Control* .	
SMC 22.801.080 "G" - *"Groundwater"*	

Note: If the subsurface drainage for a project (e.g., footing drains, wall drains) extends into a zone containing groundwater, perched or otherwise, evaluation of groundwater discharge is required.

If the total estimated groundwater discharge rate from the project site during the wet season is less than 5 gallons per minute for sites less than 1 acre or less than 5 gallons per minute per acre for sites 1 acre or greater, then the groundwater discharge ~~is considered to be~~is de minimis and will not trigger Peak Control Standard. However, if the flow control is triggered by another condition, the estimated groundwater discharge rate must be considered in the sizing of the flow control BMPs. Estimates of groundwater discharge must be made by a licensed geotechnical engineer or hydrogeologist.

4.4.4. Water Quality Treatment

Stormwater Code Language	References
See SMC 22.805.050 - *Minimum requirements for parcel-based projects D – Treatment.*	

CHAPTER 5 – Minimum Requirement Standards

This chapter summarizes the standards related to the following minimum requirements:

- Soil amendment (*Section 5.1*)
- On-site stormwater management (*Section 5.2*)
- Flow control (*Section 5.3*)
- Water quality treatment (*Section 5.4*)

Excerpts from the Stormwater Code (in *italics*) are presented below in the first column in the code reference box in each section. The second column in the code reference box provides applicable references.

5.1. Soil Amendment

Projects triggering this minimum requirement shall retain and protect undisturbed soil in areas not being developed and, prior to completion of the project, amend all new, replaced, and disturbed topsoil with organic matter. ~~This requirement applies to the four primary project types (single-family residential, trail and sidewalk, parcel-based, and roadway projects).~~ General soil amendment requirements included in SMC~~, Section 22.805.030, Section 22.805.040, Section 22.805.050, and Section 22.805.060~~ are summarized below.

Stormwater Code Language	References
See SMC, Section 22.805.030.A; SMC, Section 22.805.040.A; SMC, Section 22.805.050.A; SMC, Section 22.805.060.A – *Soil amendment.*	

5.2. On-site Stormwater Management

Projects triggering this minimum requirement shall evaluate on-site stormwater management to meet the applicable design requirements for the specific project type and discharge location. On-site stormwater management includes BMPs that can be used to meet flow control and water quality treatment requirements. General on-site stormwater management requirements included in SMC, Section 22.805.070 are summarized below. Refer to *Section 5.2.1* and *5.2.2* for the On-site Performance Standard and the On-site List Approach.

Stormwater Code Language	References
See SMC, Section 22.805.070 – *Minimum requirements for on-site stormwater management*	

Projects triggering this minimum requirement shall evaluate on-site stormwater management to meet the applicable design requirements for the given project type, size, and discharge location as summarized in *Chapter 2*. Two approaches that can be used for evaluating Minimum Requirements for On-site Stormwater Management include the following:

- On-site Performance Standard per *Section 5.2.1*, or
- On-site Lists per *Section 5.2.2*.

5.2.1. On-site Performance Standard

Stormwater Code Language	References
See SMC 22.805.070 *Minimum requirements for on-site stormwater management* *C – On-site performance standard:*	

See Volume 3, Section 3.3.2 and Appendix F, Section F-4, subsection "On-site performance Standard BMP Design" for guidance to apply the performance standard.

5.2.2. On-site Lists

Stormwater Code Language	References
See SMC 22.805.070 *Minimum requirements for on-site stormwater management* *.D – On-site lists*	

Stormwater Code Language	References

5.2.2.1. Single-Family Residential Projects

Table A for 22.805.070. On-site List for Single-Family Residential Projects.
Refer to Stormwater Code for code language

5.2.2.2. Trail and Sidewalk Projects

Table B for 22.805.070. On-site List for Trail and Sidewalk Projects.
Refer to Stormwater Code for code language

5.2.2.3. Parcel-Based Projects

Table C for 22.805.070. On-site List for Parcel-Based Projects.

Refer to Stormwater Code for code language

5.2.2.4. Roadway Projects

Table D for 22.805.070. On-site List for Roadway Projects.

Refer to Stormwater Code for code language

5.3. Flow Control

Projects triggering this minimum requirement shall install flow control BMPs meeting the applicable design requirements for the given project type, size, and discharge location as summarized in *Chapter 2*. General flow control requirements included in SMC, Section 22.805.080 are summarized below. Refer to *Section 5.3.1* through *5.3.5* for specific flow control standards for wetland protection, pre-developed forested, pre-developed pasture, existing condition, and peak control.

Stormwater Code Language	References
See SMC, Section 22.805.080 – *Minimum requirements for flow control*	

Note:

- If a project requires compliance with the Peak Control Standard and either the Pre-developed Forested or Pre-developed Pasture Standard apply, the BMP shall be sized to meet both standards unless otherwise allowed using the Pre-sized Approach (refer to *Volume 3, Section 4.1.2*).
- Projects with 35 percent or greater existing hard surface may manage a smaller portion of the project's new and replaced hard surface area to meet flow control requirements if only On-site BMPs are employed.
    - Specifically, if flow control is required and only On-site BMPs are used, the hard surface area requiring management may be reduced by up to 2,000 square feet if On-site BMPs are utilized to the maximum extent feasible.
- When off-site flows cannot feasibly bypass proposed flow control BMPs, the flow control BMPs shall be modeled and sized to handle the combined total flow (refer to *Volume 3, Section 4.2.2*).
- Flow control BMPs are not required if the site fully infiltrates all flows, as determined by a licensed civil engineer using an approved continuous runoff model for the 158-year simulation period (refer to *Appendix F*).

- The Flow Control Standards are applied to the full project site. Stormwater modeling must account for runoff from all hard surfaces and pervious surfaces within the project site. See Volume 3, Section 4.2.3 for guidance concerning runoff from the site that bypasses the flow control BMP.
- Note: for detention BMPs the minimum bottom orifice diameter (i.e. 0.5 inches for underground detention BMPs) will be too large to meet standard release rates in some scenarios, even with minimal head. See Volume 3, Section 4.1.3.2 for sizing guidance when this occurs.

5.3.1. Wetland Protection Standards

Stormwater Code Language	References
See SMC 22.805.080.B.1 – *Wetland Protection Standards.*	

Note:

- In some cases, other flow control standards may also apply when the Wetland Protection Standard applies. To ensure that the functions and values of the wetland are protected~~,~~ in these cases, the designer must attempt to meet the requirements for all applicable flow control standards.~~–~~ If the designer is unable to meet all standards, then the requirement to maintain the hydroperiod of the wetland becomes the overriding concern and the designer must show compliance with this Wetland Protection Standard. If this is the case, the designer must also provide documentation detailing why they are unable to meet the requirements of the other flow control standards.
- See the Summer Months Allowable Exception for Method 2 in Ecology's SWMMWW (Ecology 2024) for an alternative option if the project cannot meet the monthly basis criteria during July, August, and September.
- If a project cannot meet the daily basis criteria for Method 2 during the summer months (July, August, and September) because the model for the pre-project condition shows zero volume for one or more summer days, the following may be used to demonstrate compliance. Divide the pre-project monthly volume by the number of days in the month to calculate an average daily value for the month. Compare the average daily value to the developed condition daily volume calculated by the stormwater model for each summer day with a pre-project condition volume of zero, as calculated by ~~in~~ the stormwater model. If the developed condition daily volume~~s~~ calculated by the stormwater model is 20 percent higher or lower than the pre-project condition average daily volume for all summer days with a pre-project condition volume of zero, then the project is in compliance with Method 2.

5.3.2. Pre-Developed Forested Standard

Stormwater Code Language	References
See SMC 22.805.080.B.2 – *Pre-developed forested standard.*	

5.3.3. Pre-Developed Pasture Standard

Stormwater Code Language	References
See SMC 22.805.080.B.3 – *Pre-developed pasture standard.*	

5.3.4. Existing Condition Standard

Stormwater Code Language	References
See SMC 22.805.080.B.4 - *Existing condition standard*	

Existing land cover condition~~s~~ means the ~~conditions of~~ existing grade, drainage systems, vegetation, and ~~impervious~~ hard surface, land cover, and soils that exist at a site prior to any changes associated with achieving the proposed development conditions. ~~cover at the time of analysis.~~ Approved permits and engineering plans may be required. Existing land cover conditions may be verified using aerial photography or other records.

5.3.5. Peak Control Standard

Stormwater Code Language	References
See SMC 22.805.080.B.5 - *Peak control standard.*	

Note: the post-development release rates for the Peak Control Standard are based on the full project site. Calculate the allowable release rates using the full project site and include the

full project site in the continuous runoff model, including both the pervious and the hard surfaces.

5.4. Water Quality Treatment

Projects triggering this minimum requirement based on the amount of pollution generating surface shall install water quality treatment BMPs, which typically remove pollutants through a combination of gravity settling, filtration, biological uptake, and soil adsorption. General water quality treatment requirements included in SMC, Section 22.805.090 are summarized below.

Note:

- Projects with 35 percent or greater existing hard surface may manage a smaller portion of the project's new and replaced hard surface area to meet water quality treatment requirements if only On-site BMPs are employed. Specifically, if water quality treatment is required and only On-site BMPs are used, the hard surface area requiring management may be reduced by up to 2,000 square feet if On-site BMPs are utilized to the maximum extent feasible.
- An approved landscape management plan (LMP) can be used as an alternative to the requirement to formally treat (with a water quality treatment BMP) the runoff from pollution generating pervious surfaces subject to water quality treatment. A LMP is a City approved plan for defining the layout and long-term maintenance of landscaping features to minimize the use of pesticides and fertilizers, and reduce the discharge of suspended solids and other pollutants. Runoff from an ~~impervious~~ hard surface area that is routed to a pervious area is not included in a LMP and must be addressed separately through applying Minimum Requirements #5, #6, and/or #7. LMPs do not apply to artificial turf fields. LMPs are required to be updated if the layout of landscaping features will be substantially modified or if specific maintenance approaches will be altered from the approved LMP. Refer to *Appendix I* for LMP submittal requirements.
- Refer to *Volume 3, Section 4.4* for applicable presettling and pretreatment requirements.

Stormwater Code Language	References
See SMC, Section 22.805.090~~ – 22.805.090~~ *Minimum requirements for treatment*	•

Water quality treatment BMPs shall be designed based on the stormwater runoff volume from the contributing area or a peak flow rate as outlined in the following subsections.

5.4.1. General Water Quality Treatment Requirements

5.4.1.1. Runoff Treatment Volume

The water quality design treatment volume is determined as follows:

Stormwater Code Language	References
See SMC, Section 22.805.090.B - *Minimum requirements for treatment*	•

5.4.1.2. Runoff Treatment Rates

Stormwater Code Language	References
See SMC, Section 22.805.090.B.1.b	•

5.4.1.3. Infiltration Treatment Requirements

Stormwater Code Language	References
See SMC, Section 22.805.090.B.1.c	•

Note that the "91st percentile, 24-hour volume" referenced above represents the upper limit of the range of daily volumes that accounts for 91 percent of the entire runoff volume over a multi-decade period of record.

5.4.2. Water Quality Treatment Standards

Projects triggering this minimum requirement shall install water quality treatment BMPs for the given project type, size, and discharge location as summarized in *Chapter 2*. Refer to *Section 5.4.2.1* through *5.4.2.4* for oil, phosphorus, ~~enhanced~~metals, and basic water quality treatment standards.

When triggered, water quality treatment BMPs shall be installed to treat flows from the pollution-generating hard surface (PGHS) and pollution-generating pervious surface (PGPS) on the site being developed. When stormwater flows from other areas, including non-PGHS (e.g., roofs), dewatering activities, and flows that cannot be separated or bypassed, water quality treatment BMPs shall be sized for the combined total flow.

Stormwater Code Language	References
See SMC, Section 22.805.090.B.6 – *Discharges to Groundwater.*	

5.4.2.1. Oil Control Treatment

Oil control treatment applies to projects that include "high-use sites" or have NPDES permits that require application of oil control. Oil control treatment is in addition to other water quality treatment requirements (i.e., phosphorus, ~~enhanced~~metals, or basic). The petroleum storage and transfer criterion is intended to address regular transfer operations such as gasoline service stations.

The project proponent shall develop an Average Daily Traffic (ADT) estimate for approval by the City (http://data-seattlecitygis.opendata.arcgis.com/search?tags=transportation). In addition to the typical sites outlined in the definition for high-use site, the City may also require oil control treatment to be used on other sites that have the potential to generate high concentrations of oil or with oil handling activity.

Stormwater Code Language	References
See SMC, Section 22.805.090.B.3 – *Oil control treatment*. *SMC, Section 22.801.090 – "High-use sites"*	

5.4.2.2. Phosphorus Treatment

The requirement to provide phosphorus treatment is determined by the discharge location of the project. Phosphorus treatment is required for projects discharging stormwater to or infiltrating within 1/4 mile of a nutrient-critical receiving water or a tributary to that water. If the soil suitability criteria for infiltrating BMPs are met (refer to *Volume 3, Section 4.5.2*) and pre-settling is provided (refer to *Volume 3, Section 4.4*), then it is assumed that the phosphorus treatment performance goal is met.

At the time this Manual was developed, there were no nutrient-critical receiving water segments determined to be impaired due to phosphorus contributed by stormwater. In the future, the City may designate a waterbody as a nutrient-critical receiving water as defined by the SMC, Section 22.801.150. Refer to the SDCI website to determine if any nutrient-critical receiving waters have been designated (www.seattle.gov/sdci/codes/codes-we-enforce-(a-z)/stormwater-code).

Stormwater Code Language	References
See SMC, Section 22.805.090.B.4 – *Phosphorus treatment.*	

Project sites subject to the phosphorus treatment requirement could also be subject to the oil treatment and ~~enhanced~~ metals treatment requirements (*Section 5.4.2.1* and *Section 5.4.2.3*).

5.4.2.3. ~~Enhanced~~ Metals Treatment

The requirement to provide ~~enhanced~~ metals treatment (previously known as enhanced treatment) is determined by the discharge location of the project and activities occurring on the project site. If the soil suitability criteria for infiltrating BMPs are met (refer to *Volume 3, Section 4.5.2*) and pre-settling is provided (refer to *Volume 3, Section 4.4*), then it is assumed that the ~~enhanced~~ metals treatment performance goal is met.

Stormwater Code Language	References
See SMC, Section 22.805.090.B.5 — ~~*Enhanced*~~ *Metals Treatment.*	

Note: Sites not considered residential, industrial, or road-related are considered commercial for the purposes of applying ~~enhanced~~ metals treatment requirements. Examples include fueling stations, transit facilities, parks, ~~and~~ churches, schools, and light rail guideways and tracks (both elevated and non-elevated) and other rail lines and railways.

Any portion of a project site that is identified as subject to basic treatment requirements only (*Section 5.4.2.4*) are not subject to ~~enhanced~~ metals treatment requirements.

Project sites subject to the ~~enhanced~~ metals treatment requirement could also be subject to the oil control treatment requirement (*Section 5.4.2.1*) and phosphorus treatment requirement (*Section 5.4.2.2*).

5.4.2.4. Basic Treatment

Projects triggering water quality treatment shall install, at a minimum, a BMP that meets the basic treatment requirements. The requirements for oil control treatment (which may also be required if the project includes "high-use sites," refer to *Section 5.4.2.1*), phosphorus treatment, and ~~enhanced~~ metals treatment are in addition to the basic treatment requirement. If the soil suitability criteria for infiltrating BMPs are met (refer to *Volume 3, Section 4.5.2*) and pre-settling is provided (refer to *Volume 3, Section 4.4*), then it is assumed that the basic treatment performance goal is met.

Project sites subject to the basic treatment requirement could also be subject to the oil control treatment requirement (*Section 5.4.2.1*). Areas that must provide phosphorus

treatment or ~~enhanced~~ metals treatment do NOT have to provide additional basic treatment BMPs to meet the basic treatment performance goal.

Basic treatment is required in the following circumstances:

- Project sites that discharge stormwater to the ground (i.e., via infiltration) UNLESS:
  - The soil suitability criteria for infiltration treatment are met (refer to *Volume 3*, *Section 4.5.2*) and pre-settling is provided (refer to *Volume 3*, *Section 4.4*), or
  - The project site uses infiltration strictly for flow control — not treatment, or
  - The project site is required to provide ~~enhanced~~ metals treatment (refer to *Section 5.4.2.3*).
- Single-family residential projects not otherwise required to provide phosphorus control (*Section 5.4.2.2*) as designated by EPA, Ecology, or the City.
- Project sites discharging directly (or indirectly through a drainage system) to the following Basic Treatment Receiving Waters:
  - All marine waters, including Puget Sound
  - Lake Union
  - Lake Washington
  - Ship Canal and bays between Lake Washington and Puget Sound
  - Duwamish River
- Project sites that drain to fresh waters, or to waters tributary to fresh waters, that are not designated for aquatic life use and that do not have an existing aquatic life use. As provided in Chapter 173-201A WAC, all surface waters of the state, including but not limited to wetlands, in or near the City are to be protected for designated aquatic life use. For the purposes of the Stormwater Code and this Manual, the City of Seattle interprets “fresh waters designated for aquatic life use” to include at minimum fresh water wetlands as well as small lakes, creeks, and freshwater designated receiving waters.
- Landscaped areas of industrial, commercial, and multifamily project sites.

Stormwater Code Language	References
See SMC, Section 22.805.090.B.2 – *Basic treatment*..	

CHAPTER 6 – Alternative Compliance

Alternative compliance in creek basins applies only within the city of Seattle. An excerpt from the Stormwater Code (in *italics*) is presented below.

Stormwater Code Language	References
See SMC, Section 22.800.080 – *Authority (E–G).*	

When the consequences of the proposed development are from new hard surfaces, the mitigation should be provided at the same time as completion of the new surfaces. When the consequences of the proposed development are from replaced hard surfaces, there should be a construction plan and schedule that ensure the stormwater control BMP(s) mitigating the impacts are constructed within 5 years of the original development, which may be required by state law.

CHAPTER 7 – Site Assessment and Planning

To help evaluate minimum requirements and start the process for selecting on-site stormwater management, flow control, and water quality treatment best management practices (BMPs), each project shall assess and evaluate existing and post-development site conditions. This chapter describes typical site information and design considerations to be identified early in the project development process. The goal of site assessment and planning is to identify any additional stormwater management issues that shall be addressed before selecting on-site stormwater management, flow control, and/or water quality treatment BMPs. Additional information on drainage control reviews and required plan submittals is included in *Chapter 8*.

7.1. Identifying Key Project Components

Chapter 3 presents steps for determining the applicable on-site stormwater management, flow control, and water quality treatment requirements. The following sections provide additional guidance on key project components that can significantly influence the project design and approach, and should be considered as part of the site assessment and planning step.

7.2. Project Boundaries and Structures

Project boundaries, nearby structures, and other related issues can directly affect designs for stormwater management. The following shall be addressed before selecting a stormwater BMP:

- Project Boundaries: The project boundaries typically define the limits of disturbance and can affect the thresholds and applicable minimum requirements. Project boundaries generally coincide with the right-of-way and/or property line, but may include multiple properties. Refer to *Section 2.1*.
- Setbacks: Property lines, existing and proposed structures, and adjacent right-of-way boundaries shall be identified and considered to evaluate project impacts on adjacent properties.
- Location of Buildings: All existing and proposed buildings shall be identified, including all existing and proposed temporary and permanent structures (e.g., retaining walls) and hard surfaces (e.g., driveways and patios). Structures on neighboring properties can also affect stormwater BMP selection.
- Foundations and Footing Drains: The type of proposed foundations and footing drains, including location and extent, shall be determined, to include the following:
    - Conventional spread footings
    - Pile shaft
    - Basement
    - Footing drains and their associated point of discharge, where applicable (refer to *Section 3.2.1*)
    - Water-tight foundation without footing drains
    - Elevation of groundwater table in relation to the footings and basement

7.3. Soil Condition Assessment

The soil type and land cover types on the project site shall be evaluated to assess the infiltration capacity of the site and the applicability of various stormwater BMPs. General requirements for determining infiltration feasibility, site characterization, and infiltration rate are presented in *Volume 3*, *Sections 3.2 and 4.5.2* and *Appendix D*.

7.4. Environmentally Critical Areas (ECAs)

Additional regulatory requirements are placed upon projects that are within or near ECAs, pursuant to SMC, Chapter 25.09. Depending upon the type of ECA, additional requirements or limitations regarding stormwater management may apply.

The following information is needed to assess the impacts on and risks posed to wetlands and to determine the necessary protection level:

- Size, boundary, and characteristics of the proposed project site, wetland contributing drainage area, and the wetland and its buffer
- Wetland type, category, and habitat score (based on the Wetland Protection Guidelines in the ~~*Stormwater Management Manual for Western Washington*~~ ~~(~~SWMMWW~~)~~ Volume I, Appendix I-C [Ecology ~~2019~~2024])
- Presence of rare, endangered, threatened, or sensitive species
- Presence of breeding populations of native amphibian species
- Legal access to the wetland

7.5. Temporary and Permanent Groundwater Dewatering

It is important to have early estimations of the groundwater discharge from the project site during construction and once the project is complete. The site's proximity to receiving waters, or its location in areas where there may be perched, static, tidally influenced, or hydraulically connected groundwater can have significant impacts on how the project is designed and which other minimum requirements apply. Refer to the Minimum Requirements for Flow Control (*Section 5.3*) and the Minimum Requirements to Ensure Sufficient Capacity (*Section 3.8*).

If temporary dewatering will occur, a Side Sewer Permit for Temporary Dewatering (SSPTD) ~~and a Discharge Authorization Letter from King County Industrial Waste~~ may be required prior to commencing dewatering at the site. The SSPTD may require compliance with a separate Temporary Dewatering Plan, water quality treatment, flow control requirements, and compliance monitoring. In addition, if the discharge is to a combined sewer system, then and a Discharge Authorization Letter from King County Industrial Waste will also be required and the discharge must be metered and billed through the SPU Sewer Submeter Program.

7.6. Topography

Because topography will influence how and where stormwater BMPs are incorporated onto the site, the existing and proposed topography shall be considered. Important features to assess include the following:

- Key terrain features, such as closed depressions and grade breaks

- Natural drainage courses, such as swales, ditches, rills, and gullies
- Flow entering and exiting the property
- Roadway grades and elevations

7.7. Site Assessment

The following information shall be evaluated as part of the site assessment:

- **Topography:** Topography within 500 feet of the site (geographic information system [GIS]) topographic data may be used
- **Steep Slope or Landslide-Prone Areas:** Location of steep slope areas or landslide-prone areas within 500 feet of the site
- **Septic Systems and Drain Fields**: Location of septic systems and drain fields in the vicinity of the site
- **Underground Storage Tanks, Aboveground Storage Tanks, Residential Heating Oil Tanks**: Location of underground storage tanks, aboveground storage tanks, or residential heating oil tanks in the vicinity of the site
- **Contaminated Sites and Landfills**: Location of contaminated sites and abandoned landfills within 100 feet of the site (refer to *Volume 3, Section 3.2* and *Appendix J* for contaminated site requirements and resources)

For roadway projects or parcel-based projects with runoff from 5,000 square feet or more of impervious area to infiltrate, the following information shall also be evaluated:

- **Site Geology**: Local site geology, including soil or rock units likely to be encountered, the groundwater regime, and geologic history of the site
- **Water Supply Wells**: Location of water supply wells within 500 feet of the site
- **Contaminated Sites and Landfills**: Location of contaminated sites and abandoned landfills within 500 feet of the site (refer to *Volume 3, Section 3.2* and *Appendix J* for contaminated site requirements and resources)
- **Groundwater Protection Areas**: Location of groundwater protection areas and/or 1-, 5-, and 10-year time of travel zones for municipal well protection areas
- **Anticipated Site Use**: Street/highway, residential, commercial, high-use site that may affect the water quality of stormwater runoff

For projects proposing to use deep infiltration BMPs, the following information shall also be reviewed and mapped:

- Regional geologic mapping
- Publicly available geotechnical exploration data
- Steep slope and landslide-prone areas within a quarter mile of proposed location of the deep infiltration BMP

Sources of data to evaluate site suitability include, but are not limited to, City of Seattle Department of Construction and Inspections (SDCI) Critical Area maps, Environmental Protection Agency (EPA), Department of Ecology (Ecology), Washington Department of Natural Resources (DNR) Subsurface GIS, Flood Hazard maps, and other mapping information available from the City of Seattle (including Seattle Public Utilities [SPU] and the Seattle Department

of Transportation [SDOT]), King County, and consultant reports for other public agencies. Any of the above information identified as part of the review shall be shown on a map relative to the proposed infiltration location(s).

If contaminated soils or groundwater are anticipated at or near site, plan for measures to treat contaminated construction stormwater or temporary and permanent groundwater to remove the contaminants before discharging from the site. In addition to city approvals, approvals from Ecology and King County may be required if treating contaminated construction stormwater or groundwater. See Appendix J for requirements for managing drainage from contaminated sites.

Using the site assessment information, evaluate the site for infiltration suitability based on the limitations and setbacks provided in *Volume 3*, *Section 3.2* and *Appendix D*, *Section D-2.2.4*. Based on this evaluation, identify all portions of the site where infiltration may be feasible. Additionally, for underground injection control (UIC) wells, setback and site restrictions shall be in accordance with the UIC requirements in Volume I of the SWMMWW (Ecology ~~2019~~2024). UIC wells are regulated by the Washington State Department of Ecology (Ecology) under federal and state laws and must comply with all federal and state requirements.

7.8. Landscaping Principles

Before designing the site and stormwater infrastructure, consider the following:

- Maintain and use natural drainage patterns
- Preserve and use natural features and resources, including trees
- Preserve native vegetation (refer to BMP T5.40, Preserving Native Vegetation, in Volume V of the SWMMWW [Ecology ~~2019~~2024])
- Create a multifunctional landscape using the natural site hydrology as a framework for site design
- Confine and phase construction activities to minimize disturbed areas and impacts on ECAs and their associated buffers
- Plant new trees in proximity to ground-level impervious surfaces for on-site stormwater management and/or flow control credit
- Minimize or prevent compaction and protect soils

Soil type, slope, exposure, depth to groundwater, and the suite of plants chosen for the site will all influence the proposed landscape management approach. However, there are five basic principles that must be considered for all sites to be successful in controlling the export of soil or organic matter, fertilizers, and pesticides in stormwater runoff:

- Minimize bare soil areas
- Reduce water demand
- Reduce extent of turf area and manage remaining turf to reduce pollutant impact
- Select plants with sustainability in mind

- Reduce or eliminate fertilizers, pesticides, herbicides, and fungicides and, where required, manage application wisely

Each of the five basic principles is expanded upon in the following subsections. The recommendations discussed for each principle are intended as a framework for a variety of site situations, from individual homes to large parks and golf courses. The specific application of each of these principles will vary from site to site depending on the type of landscaping (e.g., grass lawn, planter bed) that is being managed.

7.8.1. Principle 1: Minimize Bare Soil Areas

Bare soil areas are one source of solids that can be mobilized and carried downstream by rainfall. Minimizing bare soil areas makes it less likely that solid particles will be dislodged by rainfall. Landscapes can be managed to minimize bare soil using one or more of the following:

- Establish dense plantings of pest-resistant groundcover to shade out weeds. Some easy-care recommendations are rock rose (*Cistus sp.*), snowberry (*Symphoricarpus alba*), salal (*Gaultheria shallon*) and kinnickinick (*Arctostaphylos uva-ursi*).
- If bare soil areas are required, as in planting beds or ball diamonds, surround the bare area with an area of grass or groundcover to filter out solids that may be picked up by stormwater runoff.
    - The denser the grass or groundcover, the more effective it will be in capturing solids in runoff.
    - The filtering area should be as level as possible, minimizing low spots, where runoff can concentrate and create channels.
    - In general, filtering areas should be about one-fourth as long (along the flowpath) as the area contributing flow, assuming that the slopes are gentle (less than 10 percent). For flat, level areas without dips, this length can be reduced.
- Promptly repair bare patches in lawns or groundcovers that could contribute solids to stormwater runoff.
- Do not place bark or loose mulch on slopes where it can be carried to storm drains or receiving waters.

7.8.2. Principle 2: Reduce Water Demand

Reducing the need for irrigation reduces the potential movement of pollutants, conserves water, and saves money.

- Use drought-tolerant or native vegetation.
- Install underground irrigation systems timed to water at night or drip irrigation systems. Systems with automatic leak detection capability will reduce inadvertent runoff due to a break in the system.
- Increase the organic content of soils to improve its water-retention capability.
- Terrace sloped areas to improve water retention.

7.8.3. Principle 3: Reduce Turf Area and Manage Remaining Turf to Reduce Pollutant Impact

Turf requires care to look attractive. In addition to mowing, turf areas typically require water, fertilizer, and weed and disease control. However, some practices can reduce or minimize the amount of chemical controls needed.

- Amend soil with organic matter per *Volume 3, Section 5.1*.
- Decide whether all lawn area needs the same level of upkeep: let some areas have a less formal look, if possible, and reduce or eliminate fertilizer and pesticide use in those areas. Apply fertilizer only if the need is indicated by soil testing, and apply it at rates recommended by a soil testing laboratory for current conditions.
- Rely on irrigation and lawn aeration as the primary tools for maintaining healthy turf.
- Remove thatch each year to increase water penetration to grass roots and reduce runoff.
- In shady areas, plant groundcovers rather than grass. Turf grasses usually need at least partial sun to remain vigorous.

7.8.4. Principle 4: Select Plants with Sustainability in Mind

Plants differ in their ability to cope with different soils, rainfall conditions, pests, diseases, and microclimates. Techniques that can be used to create landscapes requiring less intervention include the use of resilient plant species, the selection of plants with adaptations for particular environments, and the creation of optimal microenvironments. Less watering and a reduced need for pesticide and fertilizer application means less potential for pollutants to leave the site.

- Select disease-resistant plants.
- Select drought-resistant groundcovers, shrubs, and trees in areas with poor soil or little shading.
- Group plants in clusters with tree, shrub, and groundcover layers to create a better micro-environment and to supply organic matter back to the soil.
- Include plants in the landscape that are important for beneficial insects such as parasitic wasps. If beneficial insects have nothing to sustain them, they will not stick around to control pests when you need them.
- Use dense plantings or close spacing to shade out weeds rather than herbicides.
- On steep slopes or erosion-prone areas, use plants with fibrous roots including, but not limited to, the following:
    - Ornamental grasses and lawn grasses
    - Dwarf rose (*Rosa gymnocarpa*) — native
    - Nootka rose (*Rosa nutkana*) — native
    - Rock rose (*Cistus* sp.)
    - Rugosa rose (*Rosa rugosa*)
    - Evergreen huckleberry — native

  - Salal (*Gaultheria shallon*) — native
  - Salmonberry (*Rubus spectabilis*) — native
  - Snowberry (*Symphoricarpus alba* or *Symphoricarpos mollis*) — native
  - Sword fern (*Polystichum munitum*) — native
- Use wetland plants in areas with seeps or a high groundwater table.
- Attend to installation details. Write enforceable planting specifications that include details such as soil preparation, plant spacing, plant condition and size, planting depth, transplant handling and irrigation. During installation, inspect the planting to prevent the use of shortcuts such as blowing the soil mixture around root balls rather than digging the roots into amended native soils. Where possible, specify and install bare-root plants for improved adaptation to native soils.

7.8.5. Principle 5: Reduce or Eliminate Fertilizer, Pesticide, Herbicide, and Fungicide Use and Where, Required, Manage Application Wisely

Use of fertilizers, pesticides, and herbicides should be reduced or eliminated to the maximum extent feasible. However, if the landscape plants and turf simply will not survive without fertilization and some amount of pest management, an Integrated Pest Management plan or landscape management plan (refer to *Appendix I*) must address when and how these actions will be taken so that the impact on water quality will be reduced.

- Keep plants healthy by building healthy soil using composted organic material. Healthy plants can better resist diseases and insect pests.
- Tailor fertilizer formulation to lawn needs. Apply fertilizer only if the need is indicated by soil testing, and apply it at rates recommended by a soil testing laboratory for current conditions. Adjust the fertilizer application rate and timing of applications to avoid carry-off in stormwater runoff.
- Reduce the phosphorus (P) concentration in fertilizers when possible by using a low phosphorus formulation or formulations containing only nitrogen or potassium.
- Use an Integrated Pest Management approach to control pests (see *Appendix I*). Include non-chemical control options as a first-defense against pests.
- Encourage a diverse insect community in your landscape: Beneficial insects can help control pests, especially pests of trees and shrubs.
- Target pesticide application to the specific pest of concern. Avoid pesticide “mixes” targeting generic problems (such as weed and feed) unless you ~~actually~~ need each of the formulations for a current problem.
- Apply pesticides only during the life-stage when the pest is vulnerable.
- Use fungicides very sparingly; they disrupt the base of aquatic food webs. If you need to use fungicides, spray formulations with faster break-down times.
- Tolerate some weeds.

7.9. Site Design Considerations

To manage stormwater effectively and efficiently, site design for both the construction phase and the post-development condition should coincide with the design and layout of the stormwater infrastructure. Efforts should be made, as required and encouraged by local development codes, to conserve natural areas, retain native vegetation, reduce impervious surfaces, and integrate stormwater controls into the existing site layout to the maximum extent feasible. With careful planning, these efforts will not only help achieve the minimum requirements contained in the Stormwater Code, but can also reduce impacts from development projects and the costs of water quality treatment and flow control.

Before designing the site and stormwater infrastructure, consider the following:

- Stormwater:
  - Identify the approved point of discharge and conveyance system flowpath, both pipe and topographically
  - Manage stormwater runoff (quantity and quality) as close to the point of origin as possible
  - Minimize the required quantity of stormwater collection and conveyance systems
  - Use simple, nonstructural methods for stormwater management
  - Use dispersion, infiltration, rainwater harvesting, and alternative surface BMPs where feasible
- Impervious and Pervious Surfaces:
  - Fit development to the terrain to minimize land disturbance
  - For sites with varied soil types, locate impervious areas over less permeable soil (e.g., till). Minimize development over more porous soils. Use areas of porous soils for bioretention and permeable pavement.
  - Cluster buildings together
  - Minimize impervious surfaces (e.g., buildings and sidewalks)
  - Minimize pollution-generating hard surfaces (PGHS) (e.g., areas subject to vehicular use such as driveways and parking strips)
  - Minimize pollution-generating pervious surfaces (PGPS)

CHAPTER 8 – Drainage Control Review and Application Requirements

Most construction and land use projects in Seattle require a permit from SDCI and/or SDOT. Drainage Control Review types include: Preliminary Drainage Review, Standard Drainage Review, and Comprehensive Drainage Review. The type of Drainage Control Review is based on the project type and the proposed total amount of new plus replaced hard surface and the total amount of land-disturbing activity.

Forms and submittal documents for projects not conducted in the right-of-way (typically on private property) can be found on the SDCI website (www.seattle.gov/sdci/codes/codes-we-enforce-(a-z)/stormwater-code).

Forms and submittal documents for projects conducted in the right-of-way can be found on SDOT's website (www.seattle.gov/transportation/permits-and-services/permits/street-improvement-permits).

The City also has resources available ~~at~~ on the SDCI ~~website (www.seattle.gov/sdci), Applicant Services Center~~, including ~~SDCI staff available to answer questions, and~~ relevant "Tips" with detailed information for construction projects as well as SDCI forms. In addition, SDCI staff may be contacted using the chat or help ticket options available on the SDCI Virtual Applicant Services Center website (https://www.seattle.gov/sdci/about-us/who-we-are/applicant-services-center) ~~Visit the SDCI Applicant Services Center, or the website (www.seattle.gov/sdci).~~

Refer to *Section ~~4.7~~2.7.1* for additional information regarding complex projects.

Excerpts from the Stormwater Code (in *italics*) are presented below in the first column in the code reference box in most sections. The second column in the code reference box provides applicable references.

8.1. Preliminary Drainage Review

Preliminary Drainage Review is required for Master Use Permits (MUPs) summarized below.

Stormwater Code Language	References
See SMC 22.807.020.A – *Thresholds for Drainage Control Review.:* *1. Preliminary drainage review and approval*	

The submittals required for Preliminary Drainage Review shall include the following, at a minimum. Refer to *Appendix B* for additional requirements for specific types of MUPs:

- Preliminary Drainage Control Plan*. The required elements for a Preliminary Drainage Control Plan are the same as for a Drainage Control Plan for Standard or Comprehensive Review with the following differences:
    - On-site Stormwater Management BMPs for proposed lots/parcels where the future development is unknown shall show conceptual BMPs.
    - Tables for estimated new and replaced hard surface area for each proposed lot, parcel, tract, etc.
- Preliminary Site Plan (elements can be incorporated within Drainage Control Plan).* The required elements for a Preliminary Site Plan are the same as for a Site Plan for Standard or Comprehensive Review with the following differences:
    - Details
- Preliminary On-site stormwater management documentation*
- Preliminary Drainage Report or Flow Control and Water Quality Documentation*
    - Tables for estimated hard surface coverage, etc.*All submittals for Preliminary Drainage Review shall be identified as “Preliminary.” Preliminary Drainage Review approval does not permit construction. Standard or Comprehensive Drainage Review approval will be required for all associated construction permits.

Note: Refer to *Appendix B* for instances when some of the listed items may be deferred to the construction permits rather than being submitted with the MUP application.

8.2. Standard Drainage Review

Standard Drainage Review generally applies to projects that involve:

- 750 square feet or more, but ~~less than 1 acre, of land-disturbing activity, and~~ less than 5,000 square feet of new plus replaced hard surface or existing structure removal, even if the slab or foundation remains;
- less than 10,000 square feet of land disturbing activity.

For a project with no offsite discharge point as determined by the Director (refer to *Volume 3, Section 4.3.2*) or that includes ~~development conducted in or near a receiving water requiring a Hydraulic Project Approval (WAC 220-660)~~installation of a new receiving water outfall, the drainage control plan shall be prepared by a licensed engineer (SMC 22.807.020.B.2.b).

Stormwater Code Language	References
See SMC 22.807.020.A – *Thresholds for Drainage Control Review* *2. Standard drainage review and approval*	

See Section 2.5 - Step 5 for definition of "land disturbing activity", which includes removal of a structure with a footprint of 5,000 sf or more, even if underlying hard surface (e.g. slab or foundation) remains.

The submittals required for Standard Drainage Review shall include the following, at a minimum:

- Construction Stormwater Control and Soil Management Plan (refer to *Volume 2 Volume 3, Section 5.1*) including a dewatering plan if trench or groundwater dewatering will occur. ~~and *Volume 3, Section 5.1*)~~
- Standard Drainage Control Plan
  - Site and drainage control summary
  - Existing drainage infrastructure
  - Location of drainage discharge from the site
  - Drainage collection and conveyance measures (e.g., inlets, catch basins, maintenance holes, downspouts, drain lines, subgrade drainage, pumps, etc.)
  - Identification of uphill run-on areas (i.e., areas that may contribute stormwater runoff onto the project site)
  - On-site Stormwater Management BMPs and hard surface identification (refer to On-site Stormwater Management documentation below)
  - Flow Control BMPs
  - Water Quality Treatment BMPs
  - Source Control BMPs
  - Identification of which of the following standards are met with each BMP using the following abbreviations:
    - On-site Stormwater Management (OSM)
    - Flow Control (FC)
    - Water Quality (WQ)
    - Source Control (SC)
  - Maintenance instructions
- Site Plan (elements can be incorporated within Drainage Control Plan)
  - Address of project and permit number
  - Limits of disturbance including all clearing, grading, and other land disturbing activity.
  - Creeks, streams, shorelines and any other Environmentally Critical Areas (ECAs) or their buffers
  - Areas to be protected
  - Names, widths, and improvement types of adjacent streets and alleys
  - Type, location, and dimension of curbs, sidewalks, and street trees

  - All other trees at least 6 inches in diameter or larger measured 4.5 feet above the ground
  - Location of all existing and proposed driveways, parking areas, and other paved areas and hard surfaces
  - Size and shape of current and proposed buildings (including overhangs) and all other structures (retaining walls, etc.)
  - Entrances
  - Building identifiers (for sites with more than one building)
  - Existing grades/ground elevations including contours, flow lines and/or slope arrows, tops and bottoms of slopes, and retaining walls, etc.
  - Proposed grades/ground elevations including contours, spot elevations, flow lines and/or slope arrows, tops and bottoms of slopes, and retaining walls, etc., with enough information to identify drainage patterns.
  - Existing and proposed retaining walls
  - Existing and proposed below grade and above grade utilities and infrastructure
  - Property line dimensions
  - Existing and proposed easements
  - Setbacks
- On-site stormwater management documentation:
  - Hard surface identification (e.g., roofs, driveways, sidewalks, patios)
  - On-site Stormwater Management BMP selection and sizing (refer to *Volume 3*, *Section 3.3*, and *Chapter 5*)
  - Documentation of On-site Stormwater Management BMPs determined to be infeasible (refer to *Appendix C*)
  - Where dispersion is not feasible, documentation demonstrating infeasibility (refer to *Volume 3*, *Section 3.1*)
  - Where infiltration is not feasible, documentation demonstrating infeasibility (refer to *Volume 3*, *Section 3.2*)
  - Subsurface investigation, infiltration test results, or groundwater analysis, as required per *Volume 3*, *Sections 3.2* and *5.4.1*, and *Appendix D*
- Flow control documentation, if triggered. Required documentation may include:
  - Flow control BMP selection and sizing (refer to *Volume 3*, *Section 3.4*, and *Chapter 5*)
  - Details of any flow control device assembly, including orifice and weir sizing and elevations, if used
  - Modeling documentation (refer to *Appendix F*)
  - Subsurface investigation, infiltration test results, or groundwater analysis as required per *Volume 3*, *Sections 3.2* and *5.4.1*, and *Appendix D*

- Memorandum of Drainage Control for projects not located in the right-of-way including, at a minimum (SMC, Section 22.807.020.B.1.d):
  - The legal description of the site
  - A summary of the terms and limitations of the drainage control plan
  - Identify all stormwater BMPs specific to the project (e.g., catch basins, permeable pavement surfaces, detention pipes, biofiltration swales, wash pads)
  - An agreement to inform future purchasers/successors/assignees of the existence, limitations, and inspection and maintenance requirements of the stormwater BMPs
  - Landscape management plan (if applicable)
  - The side sewer permit number, date, and name
  - Permission for the City to enter the property for inspection, monitoring, correction, and abatement purposes
  - Acknowledgment by the owner(s) that the City is not responsible for the adequacy or performance of the drainage control plan, and a waiver of any and all claims against the City for any harm, loss, or damage related to the plan, or to drainage or erosion on the property, except for claims arising from the City's sole negligence
  - The owner(s)' signatures acknowledged by a notary public
- Operations and maintenance (O&M) plan for stormwater BMPs or include reference to the O&M requirements in *Appendix G* on the Drainage Control Plan

8.3. Comprehensive Drainage Review

Stormwater Code Language	References
See SMC 22.807.020.A – *Thresholds for Drainage Control Review* *3. Comprehensive drainage review and approval*	• None provided

Comprehensive Drainage Plan shall be prepared by ~~a licensed engineer~~an engineer licensed in the State of Washington.

In addition to the requirements of the Standard Drainage Review, the following information is required for the Comprehensive Drainage Review:

- Comprehensive Drainage Control Plan including, consisting of:
  - Comprehensive Drainage Control Construction Drawing including all elements of a Standard Drainage Control Plan.
  - A Comprehensive Construction Stormwater Control and Soil Management Plan narrative, supporting calculations, and supporting documents including the Checklist to Select Large Project Construction BMPs (refer to Table 1b in *Volume 2, Chapter 3*. This may be prepared by a qualified professional other than an engineer, but when the plan includes engineering calculations, it must be stamped and signed by an engineer licensed in the State of Washington.
  - A Comprehensive Drainage Control Report including, but not limited to (see *Appendix B* for other required elements and recommended format):
    - A narrative detailing the proposed project, summary of minimum requirements, and proposed stormwater management
    - Narrative of existing conditions including drainage basins, existing surface types, soil conditions, groundwater conditions, Environmentally Critical Areas (ECAs), and known contamination
    - Dispersion feasibility analysis and documentation (refer to *Volume 3, Section 3.1*)
    - Infiltration feasibility analysis and documentation (refer to *Volume 3, Section 3.2*)
    - On-site stormwater management documentation and supporting calculations (if triggered). Refer to *Section 8.2*.
    - Flow control documentation and supporting calculations (if triggered). Refer to *Section 8.2*.
    - Water quality documentation and supporting calculations (if triggered)
    - Landscape management plan (if applicable). Refer to *Appendix I*.

- Source control documentation and calculations (if required)
- Drainage basin maps
- Inspection and O&M requirements and schedule for stormwater BMPs and for any applicable landscape management plans

See Volume 3, Section 4.3.2 for specific requirements for projects with no off-site point of discharge. In some cases, projects with less than 1,500 square feet of new plus replaced hard surface will not require preparation by a licensed engineer.

8.4. Additional Documentation

Additional information may be required by the Director based on project specifics (e.g., infeasibility evaluation, existing conditions) to allow adequate evaluation of a project for compliance with the requirements and purpose of the Stormwater Code and other laws and regulations.

Such information includes, but is not limited to:

- Soils analysis
- Geotechnical report
- Survey of existing native vegetation cover (SMC, Section 25.11.050)
- Topographic/boundary survey (SMC, Section 25.09.330)
- Environmental assessment for potentially contaminated sites (see Appendix J)
- Downstream analysis
- Upstream analysis
- Basin analysis
- Landscape management plan (See *Appendix I* for submittal requirements)
- Closed contour analysis
- Upstream analysis
- Basin analysis
- Landscape management plan (See *Appendix I* for submittal requirements)
- Closed contour analysis