



Preparing a Stormwater Utility Plan

This guide provides information to help you (or your surveyor or engineer) prepare a utility plan for your project. It includes:

- Why a Utility Plan is Required
- City Review and Inspection Process
- Contacts for Utility Services
- Stormwater Systems and Safety Considerations
- Resources for Preparing a Utility Plan
- Sample Utility Plan.

Why a Utility Plan is Required

Anytime you construct a new building or addition, or make changes to or create new property lines, you need to know the location of your utilities to determine if your project will have an effect on your water, sewer, or stormwater systems.

Property boundaries, soils, topography, nearby buildings, trees, and the proximity to public services can affect the placement of utilities, and the layout of your entire project. For successful project planning, design, and installation, it is essential to provide details about utility locations for your property.

If you are proposing new development, you need to confirm that utility services are available and feasible for your project, and show all proposed utility locations on your plans.

For example, if you are building a new house, garage, or accessory dwelling unit, you must show where gutters and downspouts will be located and where stormwater from the structure will be disposed. The stormwater must be disposed on the site by infiltration into the ground, where feasible, or be piped offsite to an approved disposal point.

If your property is already developed, you need to locate all existing utilities, provide a plan to show any proposed changes, and ensure your project will not create conflicts or compromise the use of the existing facilities.

For instance, if you are constructing an addition, the location of the roof drains may need to be modified to ensure proper drainage for the structure. Or, if you are changing the location of a property boundary, existing sewer or water lines may need to be rerouted to fit on the new lot. Or you may need to decommission a drywell serving the existing building and install a new drywell on the newly configured lot.

Which utilities need to be shown on the utility plan? A utility plan must show the location of underground utilities, including water, sanitary, and stormwater facilities, as well as fuel tanks and wells.

A property may be served by other utilities, including gas, electrical, phone, cable and others. Contact each agency for their specific installation requirements. Show these utilities if they will be affected by the proposed project.

Contacts for Utility Services

Water: To find out if your property has water service, the location and size of water mains, and available water pressure, contact your water provider.

The Portland Water Bureau provides water service to most sites in Portland and can provide contact information for other water providers: 503-823-7368, www.portlandonline.com/water/

You may need to extend or upsize a water main, or adjust, relocate, or abandon an existing service for your project.

Sanitary: Most properties in Portland are connected to the public sanitary sewer system; however, public services are not available in all areas. Some sites share a sewer connection (party sewer) with an adjoining lot or have old systems (such as cesspools, or septic tanks and drainfields). Each property is required to have an independent sanitary service for the development on that lot.

Contact your sanitary sewer service provider for the location of public sanitary, storm, and combination sewer systems in your area.

The Bureau of Environmental Services (BES) serves most properties in Portland and can provide contact information for other sanitary service providers: 503-823-7761, www.portlandonline.com/bes/

You may be required to install new services, document the condition of the existing system, decommission a septic system, or separate a party sewer connection.

Stormwater: Managing stormwater helps to protect your property and neighboring land and structures. You will need to determine where stormwater from your property is directed and if your project will affect where the stormwater runoff from your site can be disposed. A method of stormwater disposal must be identified for development of any size.

Portland's Stormwater Management Manual (SWMM) outlines the design options (Simplified, Presumptive, or Performance) and disposal hierarchy for stormwater facilities. The SWMM hierarchy requires that stormwater must be disposed on the site by infiltration into the ground, where feasible, or be piped offsite to an approved location if soils, steep slopes, or other constraints limit onsite disposal options.

An infiltration test may be required to determine if your site is suitable for onsite infiltration. The type of infiltration test will vary depending on the scale of your project. See Chapter 2 and Appendix F.2 of the SWMM for infiltration testing requirements.

Where soils are suitable for onsite infiltration, stormwater from residential roofs may be routed directly to subsurface infiltration facilities, such as drywells or soakage trenches. Stormwater from parking areas, driveways and other impervious surfaces must be managed in vegetated surface facilities such as swales, planters, and basins. Flow control and pollution reduction measures are required for all non-rooftop runoff, and all runoff that is not infiltrated on site.

Your utility plan must show where stormwater is currently directed, and any changes or new improvements you will be making to the stormwater system and disposal points.

Contact BDS Site Development Section for information about onsite stormwater management facilities and infiltration testing requirements: 503-823-6892, www.portlandonline.com/bds/

Consult with the Bureau of Environmental Services (BES) for information about public stormwater services and offsite disposal requirements: 503-823-7761, www.portlandonline.com/bes/

Resources

Online Maps and Aerial Photos: PortlandMaps.com contains site information you can use to prepare your utility plan, including the following:

- Property maps and aerial photos
- Public utility lines (approximate locations)
- Historic permits/plumbing records
- Landslide Hazard Areas
- Drainageways/Floodplain/Floodway
- Depth to Groundwater
- Wellhead Protection Areas

Stormwater Management Manual (SWMM):

- The SWMM describes stormwater facility designs, Infiltration testing requirements, and the stormwater disposal hierarchy. View it online: www.portlandonline.com/bes/2008swmm.

Development Services Center (DSC): Technical assistance and permit records are available in the DSC.

- 503-823-7300, 1900 SW Fourth Avenue, Portland

Technical assistance:

- Public Water Services: Portland Water Bureau 503-823-7368
- Public Sanitary and Stormwater Services: Bureau of Environmental Services (BES):503-823-7761
- Onsite Stormwater Management and Infiltration Testing: BDS Site Development: 503-823-6892

Permit Records: Resource/Records 503-823-7660, maintains information about: Building, Electrical and Plumbing permits, Structural plans, Sanitation records, and Sewer information.

Utility Locates: If the location of existing subsurface systems (pipes, drywells, etc) is unknown, you will need to hire a utility locate company. The locate service will video the utility lines and install markers on the surface to show where the utilities are located. Submit the utility locate report and a copy of the scoping video with your utility plan.

If utility work is required in the public right-of-way, contact Portland Transportation for permits to work in public streets: www.portlandonline.com/transportation.

Call before you dig: Make sure you don't damage underground utilities by digging a trench. Call 1-800-332-2344 to locate all underground utilities. The service is free. www.digsafelyoregon.com

City Review and Inspection

A complete utility plan will help expedite city review of your project and avoid delays.

How will I know if the utilities need to be changed?

Your utility plan will provide city staff with specific details about the location and size of the existing utilities, and any changes or new services you are proposing.

City staff will review your utility plan and determine if additional information or changes will be required.

If new facilities or upgrades to existing systems are needed, city staff will contact you about the permit, fee, and inspection requirements for those changes. The type of permits and inspections vary depending on the nature and extent of the alterations.

How do I prepare for inspection?

If an inspection is required, city staff will need to examine the site utilities. To help make the site accessible, please do the following:

- Move vegetation and stored items away from downspouts, rain drain pipes, and stormwater outfalls.
- Ensure surface locate markers are intact and match the utility plan.
- Contact city staff if arrangements must be made to keep dogs inside, notify tenants, gain entry to locked gates, etc.
- Have your surveyor flag any proposed property lines.

Stormwater Systems

There are many types of stormwater facilities. Several of the most common systems are described below. Refer to Chapter 2 of the Stormwater Management Manual (SWMM) for a complete list of stormwater options. Permits and inspections are required for alterations to or the installation of stormwater systems.

Onsite disposal systems require approval from the Bureau of Development Services: Site Development Section. The Bureau of Environmental Services must approve any offsite discharge to a ditch, drainageway, or public sewer facility.

Safety Considerations

Stormwater facilities must be positioned to ensure water drains away from structures and adjacent lots. These factors must be considered if you will be changing (retrofitting) or adding new stormwater utilities on your site.

Drainage: Soils must have an infiltration rate of at least two inches per hour for onsite stormwater systems. The results of infiltration testing may be required to confirm the infiltration rate for your site. If soils do not drain at this minimum rate, BES may require partial infiltration, and/or you may need to reduce the amount of impervious area on your site.

Slope: Most onsite stormwater disposal systems are not feasible on lots with slopes over 10 percent. On flatter sites, you may need to make minor alterations to the grade to ensure that the slope of the ground allows water to flow away from structures, and adjacent lots.

Setbacks for onsite systems: Onsite stormwater facilities must meet specific setback requirements to protect your property, neighboring properties, and streets, as outlined in Chapter 2 of the SWMM. You may need more room if your yard slopes towards neighboring lots or rights-of-way.

Other Hazards: Do not direct stormwater over a septic system, drain field, or an underground oil tank unless those features have been decommissioned.

Onsite Stormwater Facilities

If your property has soils that drain well and sufficient drainage area, you may be able to direct stormwater from your roof to an onsite stormwater facility. The type of facility that is suitable for your project is dependent on many factors including the size of your site and the size of the existing and proposed development.

Splashblocks and Downspout Extensions:

Splashblocks are positioned at the end of your gutter downspouts, and direct water to flow away from your house. You may need to relocate downspouts or add extensions to your downspouts to route stormwater to a safe drainage location.



If you are authorized to disconnect your downspouts from subsurface pipes, you must install extensions so that water discharges at least:

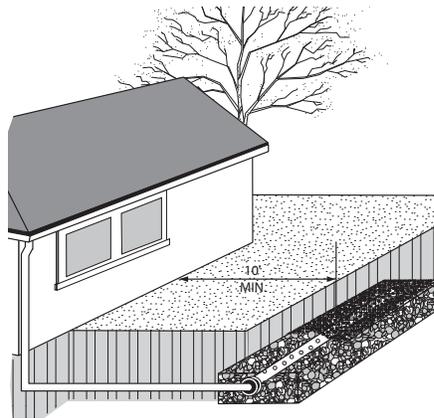
- 5 feet from property lines;
- 6 feet from a structure's basement;
- 2 feet from a structure's crawl space or slab foundation; and
- 10 feet from structures on neighboring properties.

Subsurface Infiltration Facilities: These facilities include soakage trenches and drywells, and achieve infiltration below the ground surface. The use of infiltration facilities is highly dependent on soil type and depth of the groundwater table.

Subsurface infiltration facilities must be located at least:

- 10 feet from buildings;
- 5 feet from all property lines; and
- 5 feet from all utility lines.

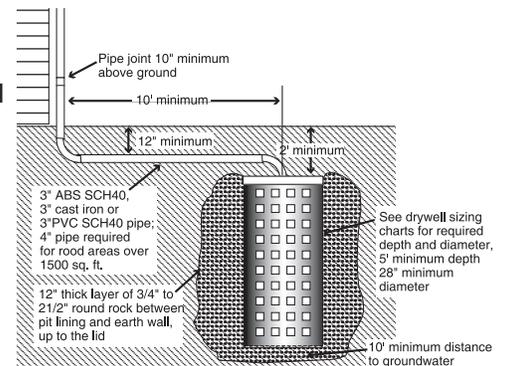
Infiltration facilities are prohibited where the bottom of the stormwater facility is within 5 feet of permanent or seasonal groundwater for most residential projects, or within 10 feet for multi-dwelling, commercial, and industrial projects. Contact Oregon Department of Environmental Quality (www.oregon.gov/DEQ) for state requirements for infiltration facilities.



Soakage Trench:

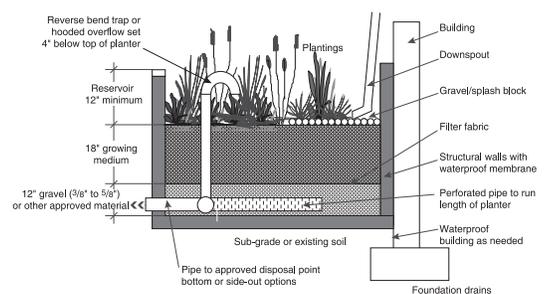
A soakage (infiltration) trench is a shallow, linear channel lined with gravel around a perforated pipe.

Drywell: A drywell is an underground perforated cylinder surrounded with gravel that collects stormwater runoff and infiltrates it into the ground.



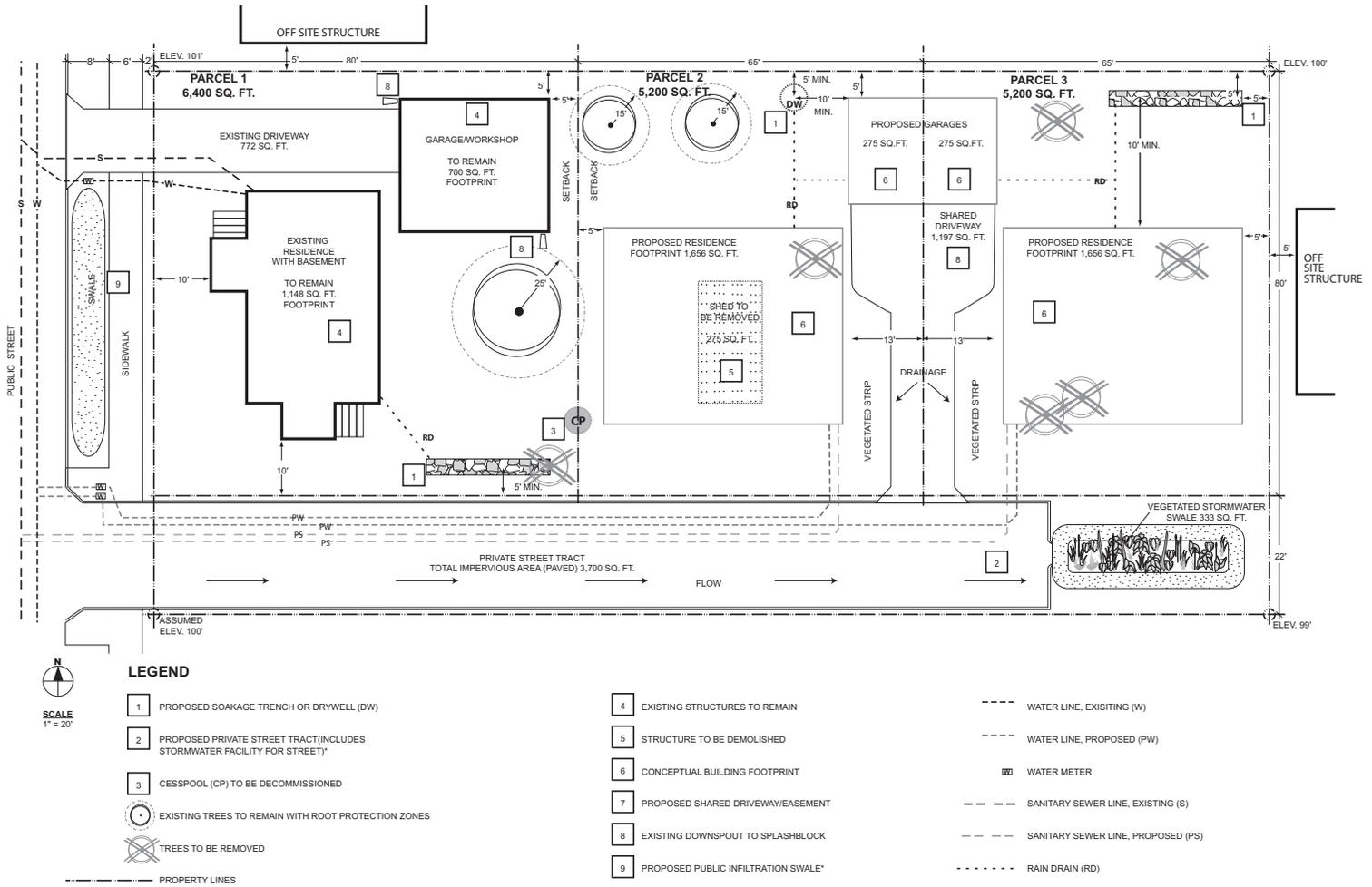
Flow-through planter: Flow-through planters temporarily store stormwater and filter sediment and pollutants as water infiltrates through the planter. They can be placed in or above the ground level. An overflow to an approved disposal point is required. Where soils do not drain well, an offsite disposal point must be provided. Plantings must be selected from the SWMM.

Flow through planter box



Drawing not to scale
Water reservoir depth may be reduced if planter surface area is increased
For plantings see BES recommended plant list

Sample Site Utility Plan



* PROFESSIONALLY ENGINEERED PLANS, STORMWATER CALCULATIONS AND INFILTRATION TEST RESULTS REQUIRED, PER STORMWATER MANAGEMENT MANUAL

07/21/09

The amount of information and detail required on a plan depends on the complexity of your project and site.

If your project is simple, you or your surveyor can collect this information during the site survey. A simple project will generally involve 1 to 3 lots, allow for onsite infiltration, and have access to public utilities.

If your project is complex, you may need to hire an engineer to analyze soils, construction methods, and stormwater options. A project may be complex if it has an offsite disposal point, steep topography, public or private street improvements, or other special circumstances.

This sample utility plan includes information needed for a simple project:

- A) North arrow and scale of drawing (use a standard engineering scale, such as 1-inch equals 20-feet)
- B) Boundary lines with dimensions and total site area
- C) Proposed lot layout and right-of-way dedications with dimensions
- D) Topography/ground elevations: property corners and 5-foot contours (include a grading plan and erosion control measures, as warranted)

- E) Surface drainage, seeps/springs, wetlands, waterbodies: show centerline, ordinary high water line, top of bank, floodhazard areas and floodplain boundaries
- F) Building and paved areas: footprints and eavelines of all structures and the perimeter of all paved areas, including the square footage of all impervious surfaces
- G) Driveways, curbcuts, and sidewalks on and abutting the site
- H) Adjacent structures within 10 feet of your property lines
- I) Landscape areas: include trees and required landscaping (show planting areas used for stormwater facilities) and required root protection zones
- J) Utility piping locations: existing and proposed water, sewer, and stormwater connections; include pipe material, diameter, and pipe depths
- K) Stormwater facilities: existing and proposed stormwater facilities and disposal point(s), include cross-sections of proposed facilities
- L) Easements/covenants: required if utilities are permitted to cross neighboring lot

All information is subject to change.

Visit our Web site
www.portlandonline.com/bds