



# CITY OF PORTLAND ENVIRONMENTAL SERVICES



1120 SW Fifth Avenue, Room 1000, Portland, Oregon 97204 ■ Ted Wheeler, Mayor ■ Michael Jordan, Director

## BES Development Engineering - General Requirements for Public Works Plans

This checklist is provided as a general guide to applicants identifying common items and additional requirements that apply to the three plan approval stages: Concept Review (30%), Design Review (60%), and Final Review (90%).

This checklist does **not** need to be submitted to Public Works Permitting (PWP) and is intended to be used only as a reference guide. Completion of this checklist does not guarantee plan approval.

Concept	Design	Final	Title Block
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Job number (EP###); LU # under description (if known)
	<input type="checkbox"/>	<input type="checkbox"/>	Standard title block on all sheets that have BES-related work and details
	<input type="checkbox"/>	<input type="checkbox"/>	Valid professional engineering stamp and logo on all sheets
		<input type="checkbox"/>	Wet signature with date on all sheets (on printed vellums)

Concept	Design	Final	Cover Sheet
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Vicinity Map includes two major cross streets, north arrow, and site location
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Elevations based on City of Portland Datum and NAD 1983-91
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Environmental zones, drainage basins, properties, tax lots, and other applicable systems shown on site map
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Utility locates based on physical location (indicate utility ticket number)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Legend showing line types and all facilities shown on plans; distinguish between proposed and existing facilities
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	For plan sets >3 design sheets: Legend indicating contents of each sheet
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	For plan sets >3 design sheets: Key map(s) with sheet to sheet referencing and pipe run designations
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Public and private stormwater narratives: Describe method for treatment, retention/detention, and discharge point; show location(s) of conveyance systems; applicable UIC information; "1% for Green" narrative (if applicable)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Stormwater facility area (sq ft), impervious area treated (sq ft), and description of drainage basin (i.e. combination sewer, storm only, or surface water)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	One Call Notice (811)
	<input type="checkbox"/>	<input type="checkbox"/>	Utilize current BES notes for construction notes and general notes
	<input type="checkbox"/>	<input type="checkbox"/>	Reimbursement note added, first floor elevation added to plans (if applicable)

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To request a translation, accommodation or additional information, please call 503-823-7740, or use City TTY 503-823-6868, or Oregon Relay Service: 711.

Concept	Design	Final	Plan View
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Verify all existing system information matches with as-built information and available plat data
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Confirm skin-to-skin horizontal clearances between utilities and structures
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Identify existing sewer mains and laterals (size, material, & length)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Identify existing maintenance holes (MH's) and/or cleanouts with BES Hansen ID node numbers
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Identify existing inlets/catch basins and inlet leads with BES Hansen ID node numbers
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Identify existing underground and overhead utilities (type, size, material if known) incorporated from locates and survey data
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Base map surface features shown (curbs, sidewalks, buildings, topo, fences, etc.)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Ordinary high water and/or wetland boundaries
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Environmental and Exclusion Zone boundaries (EC, EP)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Street names/tax lots, right-of-way (ROW) boundaries, property lines and street addresses
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proposed sewer main and laterals (size, type, length)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proposed stormwater facilities
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	North Arrow (not pointing left or down)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Bar Scale under the North Arrow
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Existing and proposed sanitary and storm services for all parcels shown within the development area (Include UB# if known)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Plan view shown below profile view on sheet
	<input type="checkbox"/>	<input type="checkbox"/>	Horizontal Scale: 1" = 10' to 1" = 20'
	<input type="checkbox"/>	<input type="checkbox"/>	Construction Notes with references to standard/site-specific details
	<input type="checkbox"/>	<input type="checkbox"/>	Callouts for confirmation of location & elevation of existing utilities prior to construction (may be required during design process for tight clearances)

Concept	Design	Final	Profile View
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Verify all existing system information matches with as-built information and available plat data
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Show existing underground utility mainline crossings (type and size); confirm vertical clearances
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Existing MH's w/ BES Hansen ID node numbers, rim elevations and invert elevations (IE's); include bottom elevations for sumps and sedimentation (sed) MH's (if applicable)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Existing sewer mains (size and material)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proposed sewer main (size, slope, material and length)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proposed MH's w/ numbering, rim elevations and IE's

<input type="checkbox"/>	<input type="checkbox"/>	Street names/tax lots
<input type="checkbox"/>	<input type="checkbox"/>	Horizontal Scale: 1"= 10' to 1"= 20'
<input type="checkbox"/>	<input type="checkbox"/>	Vertical Scale: 1"= 5' or 1"= 10'
<input type="checkbox"/>	<input type="checkbox"/>	Show stormwater facility top of topsoil in profile
<input type="checkbox"/>	<input type="checkbox"/>	Profile view shown above plan view
<input type="checkbox"/>	<input type="checkbox"/>	Existing and proposed/finished grade lines

Concept	Design	Final	Mainline Information
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Account for all rim elevations, sump and sedimentation MH bottom elevations, and IE's to MH's and mainline in profile view
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	IE's have 0.1' drop for every 30° at angled MH mainline intersections
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Verify slopes are correct (minimum of 1%) and slope direction matches overall system
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Verify ground cover maximums and minimums in profile views*: a) 3' cover min. over pipe in unpaved areas b) 6' cover min. over pipe in paved areas c) 18' max. depth to invert <i>* If deviations from standards are necessary, provide supporting documents such as approved design exceptions or calculations</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Specify mainline and other structures to be abandoned, plugged and/or removed and cite City of Portland Specifications
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Proposed pipe classification, bedding/backfill type and construction method with ASTM & SDR referencing (see pages 4-3 and 4-4 of SDFDM)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Verify that sewer stationing agrees with pipe lengths in plan and profile, and the low end begins at 0+00 in the profile; check profile grid for stationing clarity
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Provide stationing and label/number for maintenance holes in plan and profile views; label "Tamperproof" if not in ROW and "Watertight" near waterways
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Inlet leads to MH's have 4.6' minimum vertical clearance from the rim (standard requirement)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Provide bold and thick linetype for proposed facilities and 50% faded line type for background information
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	"Native Backfill" if in unpaved areas
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	"Import Granular Trench Backfill per COP STD SCS 004405.14 and 00405.46" if in paved areas
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	"Class B Bedding" if using CSP, RCSP or DIP (check Chart 2 & 3 in the Sewer Design Manual)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	"Flexible Pipe Bedding per COP STD SCS 00405.12 and 00405.45" if using PVC or HDPE
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Check for the Engineered Fill note in profile views that show a substantial fill area ("Engineered fill to be in place and accepted prior to pipe installation")
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Indicate angles of leads, laterals and mainline at MH's; indicate angles at all bends and their location by sewer stationing

<input type="checkbox"/>	<input type="checkbox"/>	Outfall treatments such as riprap, quarry spalls, and ditch profiles (storm only, if applicable)
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Concept	Design	Final	Lateral Information
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Specify laterals and/or inlet/inlet leads to be abandoned, plugged and/or removed
	<input type="checkbox"/>	<input type="checkbox"/>	Provide station, size, type, length, slope (minimum of 2%) and IE(s) and depth of lateral (a lateral schedule may be used in place of putting the information on the plan view)
	<input type="checkbox"/>	<input type="checkbox"/>	Provide 5' lateral separation from property line; provide minimum lateral separation from other utilities (as specified in Sewer Design Manual or utility franchise)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	When laterals are not built as part of the public works improvements, specify whether sewer laterals will be constructed under separate permit: a) Within ROW: "Built under separate BES right-of-way connection permit" after substantial completion of the public sewer main
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	b) Within private property: Built under separate BDS plumbing trades connection permit" after substantial completion of the public sewer main
	<input type="checkbox"/>	<input type="checkbox"/>	Outfall treatments such as riprap, quarry spalls, and ditch profiles (storm only, if applicable)

Concept	Design	Final	UIC System Information
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sed MH's at 10' minimum depth w/4' dead zone
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sump MH's at 30' standard depth
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Design aligns with stormwater/geotechnical report, rational method calculations, and site-specific details
	<input type="checkbox"/>	<input type="checkbox"/>	Inline backup sump shown on profile and plan view; half-weighted
	<input type="checkbox"/>	<input type="checkbox"/>	Inlet leads are not in sed MH dead zone (See Standard Drawing P-161)
	<input type="checkbox"/>	<input type="checkbox"/>	Sump Data & Testing Table (on cover sheet)
		<input type="checkbox"/>	Final BES Reimbursement Letter routed to applicant and engineer-of-record
		<input type="checkbox"/>	DEQ UIC Registration ID numbers

Concept	Design	Final	Vegetated Stormwater Facility Information
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Confirm discharge point, water quality and detention for private & public stormwater
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Design aligns with stormwater/geotechnical report, PAC results, and site-specific details
	<input type="checkbox"/>	<input type="checkbox"/>	Stormwater facility start and end stationing
	<input type="checkbox"/>	<input type="checkbox"/>	Inlet/curb cut stationing and elevations at top of concrete (gutter - 2") and normal gutter
	<input type="checkbox"/>	<input type="checkbox"/>	Planter wall elevations at corners and side walk notches
	<input type="checkbox"/>	<input type="checkbox"/>	Check dam elevations and stationing
	<input type="checkbox"/>	<input type="checkbox"/>	Perf pipe/underdrain length, elevations, and stationing for (street and R/L from Ctr line)

<input type="checkbox"/>	<input type="checkbox"/>	Proposed horizontal stormwater facility layout and information (size, type and flow direction)
<input type="checkbox"/>	<input type="checkbox"/>	Proposed final surface (spot elevations)
<input type="checkbox"/>	<input type="checkbox"/>	Proposed stormwater facility horizontal and vertical information
<input type="checkbox"/>	<input type="checkbox"/>	Proposed inlets and inlet leads
	<input type="checkbox"/>	Stormwater facility table included in plan set

Concept	Design	Final	Detail Sheets
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Include all applicable BES, PBOT, and/or ODOT standard details with applicable title blocks
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Erosion control plan & details with post and pre-development contour lines shown
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Site-specific details for vegetated stormwater facilities (SWMM typical details are for reference only and need to be altered by the design engineer)
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Site-specific detail for sump MH converted to sedimentation MH

Concept	Design	Final	Sewer Easements
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Existing public sewer easements labeled, boundaries clearly marked, widths of sewer easements provided, and sewer line offsets indicated
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Existing private sewer easements shown, labeled, and dimensioned
	<input type="checkbox"/>	<input type="checkbox"/>	Proposed sewer easements labeled, boundaries clearly marked, widths of sewer easements provided, and sewer line offsets indicated

## References

- PWP Plans Preparation Guide: <https://www.portlandoregon.gov/article/335980>
- Stormwater Management Manual (SWMM) Webpage: <https://www.portlandoregon.gov/bes/64040>
- Sewer and Drainage Facilities Design Manual (SDFDM): <https://www.portlandoregon.gov/bes/article/360710>