



Civil Plan Review

City of Puyallup

Engineering Department

Address: 333 S Meridian

Tel: (253) 864-4165 Fax: (253) 840-6678

Civil Permit Design Checklist (Phase 3)

Rev 7/18

The Design Checklist will verify that the plan submittal meets the City's Design Standards.

- Complete Submittal Formatting Checklist: Plans are accepted and submitted to the Design Review.
- Incomplete Submittal Formatting Checklist: Plans are not accepted and may be returned to the applicant unexamined. A copy of this incomplete checklist will be provided for the applicant to aid in future application.
- **All checklist items must be completed.**

To be completed by the applicant: Please mark yes when a box has been provided to indicate that the item listed below has been provided or provide the sheet number in the blank line or for the location of the items listed below, to indicate that the applicable City Standard was met. If the City Standard is non-applicable, please mark the 'N/A' box.

<u>APPLICANT</u>			<u>CITY VERIFICATION</u>	
YES	N/A		YES	N/A
Grading, Temporary Erosion & Sediment Control				
		Clearing Limits: delineate, dimension, field stake, and flag limits of clearing, wetland buffers, and other sensitive areas		
Construction Entrance				
		Stabilized all construction access points with a quarry rock pad <ul style="list-style-type: none"> - 4-to-8 inch (in) quarry spalls, 15-feet (ft) minimum (min.) width 100-ft min. length 		
		City Standard Detail as applicable: 05.01.01-2		
Temporary Drainage				
		Drainage plan designed to limit the tributary drainage to areas to be cleared and graded		
		Projects larger than one acre: include a temporary detention facility with storage volume equal to a 100-year (yr)/24-hour (hr) storm event <ul style="list-style-type: none"> - Temporary flow control structure designed to limit the discharge flow rate to a 5-yr/24-hr storm event - Overflow spillway provided Projects larger than one (1) acre or projects which drain to a critical area (e.g. rivers, streams, ponds, wetland, natural drainage ways, etc.) which would potentially be impacted by the clearing, filling or grading activities as determined by the Public Works Director, the design shall include the King County Surface Water Design Manual, Chapter 21.14 Clearing, Filling and Grading of the Puyallup Municipal Code		
Sedimentation Control				

Design Checklist

APPLICANT			CITY VERIFICATION	
YES	N/A		YES	N/A
		Design: settlement of sediment prior to discharge		
		City Standard Detail as applicable: 02.03.02-06		
		Soil Stabilization and Revegetation		
		<p>Exposed areas and soil stockpiles must be stabilized according to the following schedule:</p> <ol style="list-style-type: none"> 1. From April 1 to October 31 all disturbed areas at final grade & all exposed areas that are scheduled to remain unworked for 30+ days shall be stabilized within 10 days. 2. From November 1 to March 31 all exposed soils at final grade shall be stabilized immediately using permanent or temporary measures. Exposed soils with an area +5,000 sqft that are scheduled to remain unworked for more than 24 hrs and exposed areas of less than 5,000 sqft that will remain unworked for more than 7 days shall be stabilized immediately. All disturbed areas which are not planned to be constructed on within 90 days from time of clearing & grading shall be revegetated with the native vegetation 		
		Construction Sequence		
		<p>Outlines the proper sequence and maintenance requirements for ESC in conjunction with the construction of the project. Includes the following, as applicable:</p> <ul style="list-style-type: none"> - Hold a preconstruction meeting with the City and obtain required permits - Establish clearing and grading limits - Construct temporary construction entrance - Construct perimeter ditches, silt fences, and other devices - Construct protection devices for critical areas and significant trees proposed for retention - Schedule an erosion control inspection with the City - Construct storm drainage retention/detention facilities. Provide emergency overflow as applicable - All ditches and swale direct all surface water to the retention/detention and sedimentation pond as clearing and grading progresses. No uncontrolled surface water shall be allowed to leave the site - Clearly state at what point grading activities can begin - Identify erosion control measures which require regular maintenance 		
		Grading Design Requirements		
		<p>Cross sections of fill/grading through all properties and at least 30 ft beyond the property lines</p> <ul style="list-style-type: none"> - Cross sections shown at 200-ft min. intervals width/length of the property Plan and profile views per Section 2.2 - Scale: consistency between plan scale and profile scale - Profile: Horizontal to vertical scale ratio of 1:10 		

Design Checklist

<u>APPLICANT</u>			<u>CITY VERIFICATION</u>	
YES	N/A		YES	N/A
		Side slopes: stabilized with approved erosion control treatment		
		No fill or cut side slopes shall be steeper than 2H:1V unless a geotechnical report dictates otherwise		
		A min. setback of 5 ft provided between the top of any fill placement and the top of the bank of any defined drainage channel or critical area or associated buffer boundary		
		The quantity of both the fill and the cut noted on the plans		
		No clearing, filling, grading or other alteration occurs within any critical areas or associated buffer unless specifically authorized pursuant to Chapter 21.06 Environmentally Critical Areas Management of the Puyallup Municipal Code		
		Control of dewatering discharges may require one or more of the following measures: <ul style="list-style-type: none"> - Discharge to settling ponds or tanks - Discharge to Sanitary Sewer (SS) system when approved by the City - Discharge to tanker trucks for offsite disposal - Discharge to City storm drain (SD) system (clean water only) - Discharge to ground surface 		
		Limits of fill and/or excavation work shown		
		Perimeter ditches: control water flow, location shown, size and detail(s) provided		
		Construction Bypass Operations		
		Provided: diversion and return locations, design flows, pump size and type, pipeline location and material, environmental protection measures, and contingency plan.		
		Design criteria for sizing bypass systems, min: <ul style="list-style-type: none"> - SS Bypass Systems: sized according to anticipated sewage flows as determined by City Treatment Plant or Collections Division Staff - SD Bypass Systems: sized to pass the 25-yr, 24-hr rainfall event flow - Stream Bypass Systems: sized to pass the 50-yr, 24-hr rainfall event flow and State of Washington (WA) JARPA application 		
Roadway Design				
		Widening of an existing road: approval from the Engineering Services Staff <ul style="list-style-type: none"> - Transverse slope of the new portion of roadway may vary from 2% to 5%. - If the transverse slope cannot be maintained within the 2 to 5% limits, the existing roadway shall be removed and replaced to Standard or overlaid with a min. of 1½-in HMA 		

Design Checklist

APPLICANT			CITY VERIFICATION	
YES	N/A		YES	N/A
		Taper of length (L), provided at the transition point where the direction of traffic goes from the wider roadway to the narrower roadway		
		Channelization and signage shall be provided in accordance with the MUTCD as applicable. L = SW for speeds of 45 mph or more L = WS ² /60 for speeds of 40 mph or less Where: L = Min. length of taper S = Posted speed limit in mph W = Width of offset		
		City Standard Detail(s) as applicable: 01.01.18		
		Half Street Improvements		
		City Standard Detail(s) as applicable: 01.01.19		
		Street Patch		
		City Standard Detail(s) as applicable: 01.01.20		
		Cul-De-Sacs		
		Length: 500 ft maximum (max), measured from the centerline of the intersecting roadway to the fillet of the cul-de-sac		
		Radius to face of curb: 37' min.		
		Radius of the right-of way: 48' min.		
		Residential cul-de-sac: mountable curb & gutter may replace the construction of standard curb, gutter & driveway approaches with the Engineering Services Manager approval		
		City Standard Detail(s) as applicable: 01.01.15-16		
		Alleys		
		Width: 20 ft min.		
		City Standard Detail(s) as applicable: 01.01.09-10		
		Concrete Sidewalks		
		Location: - Within public right-of-way (ROW) contiguous to property line - Installed on both sides of streets Width: - Single family residential: 5 ft - Commercial use located in residential area: 8 ft - Multi-family residential: 8 ft - Industrial areas: 8 ft - Commercial areas: 8 ft		
		City Standard Detail(s) as applicable: 01.02.01 or 01.02.02		
		Proposed sidewalk ends abruptly mid-block		
		Temporary pedestrian transition from the end of new sidewalk to the shoulder		

Design Checklist

<u>APPLICANT</u>			<u>CITY VERIFICATION</u>	
YES	N/A		YES	N/A
		- ADA requirements: transition required to comply if the receiving shoulder ROW is ADA compliant (detectable warning not required)		
		City Standard Detail as applicable: 01.02.20		
		Curb Ramps		
		Sidewalk ramp at a Commercial Approach: <ul style="list-style-type: none"> - City Standard Detail 01.02.16 and 01.02.19 - ADA requirements - Length: 15ft max. 		
		Sidewalk ramp at Residential Driveway Alternate: <ul style="list-style-type: none"> - City Standard 01.02.13 - ADA requirements - Length: 15ft max 		
		Curb and Gutter		
		Curb radii at intersections: <ul style="list-style-type: none"> - Residential streets: 25 ft min. - Collectors and arterial streets: 35 ft min. - Intersection of a street and alley: 5 ft min. *Increase min. values for larger design vehicles, as applicable		
		City Standard Detail(s) as applicable: 01.02.09-11		
		Driveway Approaches		
		Width: 30 ft max		
		Slope: the driveway approach within public ROW shall slope toward the street		
		Culvert pipes for driveways: See Section 204.2.6		
		City Standard Detail(s) as applicable, residential: 01.02.12-15, commercial: 01.02.16, industrial: 01.02.17, public: 01.02.17		
		Monuments		
		Location: intersection of streets, PC's, PT's, center points of cul-de-sac heads <ul style="list-style-type: none"> - Streets are not centered within the ROW: Noted that the engineering as-built plans shall clearly show offset distance to the nearest .01 ft 		
		City Standard Detail as applicable: 01.01.17		
		Dead End Streets		
		Signage: "Dead End" sign at the entrance to the street		
		One point of ingress/egress: "No Outlet" sign at the entrance		
		Planned to be extended in the future: <ul style="list-style-type: none"> - Type III barricade: installed across the entire width of the roadway at the end of the driving surface - Signage: "THIS ROAD IS PLANNED TO BE EXTENDED IN THE FUTURE" at the center of the barricade in, City Standard 		

Design Checklist

APPLICANT			CITY VERIFICATION	
YES	N/A		YES	N/A
		Detail 01.01.21 and stenciled on the road in 6-in letters using white traffic paint		
		Channelization and Signage		
		See Manual on Uniform Traffic Control Devices (MUTCD), and/or WSDOT Standard Specifications		
		City Standard Detail(s) as applicable: 01.03.07-08, 01.04.01,5		
		Stop Bar		
		City Standard Detail as applicable: 01.03.11		
		Stop Signs		
		City Standard Detail as applicable: 01.04.02		
Street Lighting Design				
		Stamped and signed by a WA State licensed PE		
		City Standard Detail 01.05.01-2 and as applicable 01.05.03-10, 01.06.01-07		
		Luminaires and Lamps		
		One (1) of the following General Electric flat lens cobra heads <ul style="list-style-type: none"> - M2AC10S3M2GMC32 = 100 Watt, 240V (Residential) - M2AC15S3M2GMC32 = 150 Watt, 240V (Signals) - M2AC20S3M2GMC32 = 200 Watt, 240V (Arterials) 		
		Design: <ul style="list-style-type: none"> - Mounting height of 30'-0" +/- 6" - 8ft mast arm residential, 12ft commercial - For light taller than 4 ft, mast arm has at-least 3 ft overhang onto the driving surface 		
		Photo cells/shorting caps <ul style="list-style-type: none"> - Luminaire installed with one (1) photo cell and one (1) shorting cap, at the direction of the City of Puyallup Signal Technician - Photo cell shall be Fisher Pierce PE Cell model # 7790B. 		
		Safe Wiring Labels: required by Labor and Industries (electrical inspection sticker)		
Signalization Plan Requirements				
		Traffic Signal Design Manual, Appendix D		
Stormwater Design				
		Conveyance System Design Flows		
		Sizing: approved calibrated continuous simulation hydrologic model, i.e., HSPF, Western Washington Hydrology Model (WWHM), MGS Flood, or KCRTS <ul style="list-style-type: none"> - Capacity: Sept 17, 1969 25-yr storm flow event. Exception: For project sites in the City with tributary areas less than 10-acres, and a developed time of concentration less than 60-minutes, either the Rational Method or Santa Barbara Urban Hydrograph Method (SBUH) may be used to determine conveyance design flows. The 25-yr, 24-hr 		

Design Checklist

<u>APPLICANT</u>			<u>CITY VERIFICATION</u>	
YES	N/A		YES	N/A
		storm event total precipitation used for analysis shall be 3.5-ins		
		Water quality or flow control BMP's: hydrologic design method described in the SW manual chosen in Sect 201		
		Culverts: see Section 204.5		
		Conveyance System General Requirements		
		Discharge directly to the Puyallup River: <ul style="list-style-type: none"> - Site located within one of the direct discharge basins; 2012 Comprehensive Stormwater Drainage Plan - The discharge is consistent with federal, state, and city regulations governing water quality and flow control - The discharge is solely through a stable, man-made conveyance system from the mean high water - Conveyance system has adequate hydraulic capacity - The discharge will not cause, or aggravate, downstream flooding problems - The discharge does not reduce natural flows to other streams or wetlands capacity, based on the 25-yr storm flow event; City of Puyallup Comprehensive Storm Drainage Plan, Appendix C, Table C-9 		
		Overflow onsite: <ul style="list-style-type: none"> - up to and including the 100-yr event must discharge at the natural location for the project site Residential: <ul style="list-style-type: none"> - overflow contained within an onsite drainage easement, tract, covenant, or public ROW 		
		Off-site conveyance systems are permitted only if the downstream property owner(s) grant easements for construction, Operation and maintenance (O&M) of the system. If easements are not provided, runoff management shall conform to drainage law and include provisions for detention, water quality, and/or dispersion prior to leaving the development		
		New stormwater (SW) mains extend along the entire frontage		
		Pipe System Design Criteria		
		Basic conveyance system design using the Uniform Flow Analysis Method (Manning's Equation) <ul style="list-style-type: none"> - Sized and sloped: barrel capacity at normal full flow is equal to, or greater than, the conveyance capacity - Pipes should not be designed to surcharge 		
		Backwater Analysis for the conveyance system: (At city reviewer's discretion) <ul style="list-style-type: none"> - 25-yr and 100-yr peak flows - If overtopping occurs, the additional flow over the ground surface shall be analyzed using the methods for open channel flow. Any additional surface flow shall not exceed 		

Design Checklist

APPLICANT			CITY VERIFICATION	
YES	N/A		YES	N/A
		4-in depth at its deepest point, and shall not extend beyond half the lane width of the outside lane of the traveled way		
		Are pipe systems designed to accommodate the developed condition 25-yr storm flow event with 0-ft of freeboard without overtopping catch basins (CB) and manholes?		
		Public stormwater pipe size: min. 12-in diameter		
		Private stormwater pipe size: min. 12-in dia. for mains, and min. 8-in dia. for laterals		
		Design velocity min. at full flow should be 3-ft/s.		
		Slope of pipe: min. 0.5%		
		All pipe reaches summarized in a Conveyance Table containing the following min. info and included in the TIR: <ul style="list-style-type: none"> o Pipe Reach Name o Structure Tributary Area o Pipe Dia. (in) o Pipe Length (ft) o Pipe Slope (%) o Manning's Coefficient (n) o Design Flow (cfs) o Pipe-Full Flow (cfs) o Water Depth at D flow o Critical Depth (in) o Velocity at Design Flow o Velocity at Pipe-Full Flow o Percent full at D Flow o HGL for each Pipe Reach 		
		Closed System Requirements		
		Publicly maintained stormwater pipe shall be only PVC, concrete, ductile iron, or dual walled Polypropylene pipe: <ul style="list-style-type: none"> - PVC: ASTM D3034, SDR 35 size 15-in & smaller and F679 for pipe size 18- to 27-in. Min. cover 3ft. - Concrete: AASHTO M 86, Class 2 only, for unreinforced pipe and AASHTO M 170, Classes II through V, for reinforced concrete pipe. Min. cover 3-ft. - Ductile iron: Class 50, AWWA C151. Min. cover 1-ft. - Polypropylene Pipe (PP): dual walled, smooth interior, exterior corrugations, WSDOT 9-05.24(1). 12-in through 30-in pipe (ASTM F2736 and AASHTO M330, Type S, or Type D). 36-in through 60-in pipe (ASTM F2881 and AASHTO M330, Type S, or Type D). Testing per ASTM F1417. Min. cover 3-ft. - Solid wall, fusion-welded high density polyethylene pipe (HDPE), used upon approval of the Engineering Services Manager or Public Works Director. Consideration of the material's thermal expansion/contraction properties for the design of connections and anchorages. Min. cover 3-ft. <ul style="list-style-type: none"> o Type III C5P34, ASTM D1248 o PPI recommended designation of PE3408; ASTM D3350 cell classification of 345534C 		

Design Checklist

<u>APPLICANT</u>			<u>CITY VERIFICATION</u>	
YES	N/A		YES	N/A
		<ul style="list-style-type: none"> ○ Hydrostatic design stress rating of 800-psi based on a material with a 1600psi design basis, ASTM D2837-69 ○ Design working pressure of 50-psi at 73.4°F and SDR value of 32.5 		
		Privately maintained stormwater pipe: PVC, concrete, or ductile iron meeting the same criteria as specified above. <ul style="list-style-type: none"> - Exception: corrugated polyethylene pipe (CPEP), WSDOT Section 9-05.20. Min. cover 3-ft. 		
		Steep slope areas (over 30%): <ul style="list-style-type: none"> - All drainage to be piped from the top to the bottom in fusion-welded HDPE pipe 		
		Slopes exceeding 40% <ul style="list-style-type: none"> - Installed on the surface of the slope with min. disturbance & engineered anchorages 		
		Roof drains or other stormwater pipe, within 2-ft of a building: material approved by the Uniform Plumbing Code (UPC)		
		Crossing: over SS, a min. of 12-in of vertical clearance; below the SS, a min. of 18-in of vertical separation <ul style="list-style-type: none"> - Pipe sleeve: single section of PVC pipe (no joints) placed around the SW pipe with the annular space between the sleeve and the SW pipe filled with grout, min. length of 10-ft to each side of the pipe crossing 		
		Location: min. of 10-ft separation from building structures to closed system, or 10-ft from utility easement line for public system		
		Trees: shall not be located within 10-ft horizontally of stormwater pipes unless root barriers are provided <ul style="list-style-type: none"> - Root barriers: trees may be no closer than 3-ft to pipes 		
		City Standard Detail as applicable: 02.05.02-03		
		Culvert Design Requirements		
		Conveyance Design: <ul style="list-style-type: none"> - Natural channels: 100-yr storm event, dev conditions. - Culverts/bridges: 25-yr peak flow, dev conditions 		
		Streams with salmonids: Bridges are first choice for crossing <ul style="list-style-type: none"> - Provide fish passage, City's critical areas regulations and WA State Department of Fish & Wildlife (WDFW) - A WDFW Hydraulic Permit Authorization (HPA) or exemption will be required prior to permit approval 		
		Flow capacity: <ul style="list-style-type: none"> - Determined by analyzing inlet and outlet control for headwater depth. All calcs/nomographs: included in the SW report 		
		Headwater depth max design: <ul style="list-style-type: none"> - 1.5 times the dia. of the culvert with no saturation of roadbeds 		

Design Checklist

APPLICANT			CITY VERIFICATION	
YES	N/A		YES	N/A
		<ul style="list-style-type: none"> - Culverts crossing under public roadways – 18-in min - Roadside culverts/driveway culverts – 15-in min - Culverts on private property – 8-in min 		
		Inlets and outlets: <ul style="list-style-type: none"> - Protected from erosion by rock lining, riprap, or bio-stabilization 		
		Culvert velocity: 2-ft/s min and 15-ft/s max <ul style="list-style-type: none"> - For ductile iron, polypropylene or HDPE pipe, no max velocity established, but an engineered outlet protection designed and included in the SW report 		
		Driveway culverts: min. of 20-ft in length <ul style="list-style-type: none"> - Driveway approaches 24-ft and wider: concrete headwalls at each end of the culvert. Culverts have beveled end sections to match the side slope 		
		All corrugated metal pipe (CMP) culverts: uniformly coated with a protective coating of asphalt, WSDOT Section 9-05.4(3) Treatment I criteria		
		Open Systems Design Requirements		
		Sized: design rate of flow without damage (slow flowing, wide and shallow, and natural appearance and functioning)		
		Side slopes no steeper than 3H:1V Back slopes no steeper than 2H:1V with adequate slope stabilization and a min. freeboard of 1-ft		
		Shape: trapezoidal or 'V'-shaped ditches		
		For design 2 to 5-ft/s: <ul style="list-style-type: none"> - Hydro-seeded with City approved grass Grades designed 5 to 15 ft/s: <ul style="list-style-type: none"> - Require check dams, rock spalls, rip rap, or other approved energy dissipation 		
		Location: 20-ft min. from a building structure		
		Ditch cross sections: <ul style="list-style-type: none"> - Min. of every 50-ft and extend 25-ft beyond the top of bank on either side of the ditch - Water surface elev; 2-yr, 10-yr, 25-yr and 100-yr storm 		
		City Standard Detail(s) as applicable: 02.02.01-02		
		Pump System Requirements		
		Privately owned system: <ul style="list-style-type: none"> - Location: within the limits of the project site - Gravity discharge to the downstream public conveyance system - Backup pump incorporated into the system - An alternative power source provided with an auto-transfer switch that disconnects the alternate power source from the public grid 		

Design Checklist

APPLICANT			CITY VERIFICATION									
YES	N/A		YES	N/A								
		<ul style="list-style-type: none"> - External High water / Pump Failure alarm system - The gravity-flow components designed so that pump failure does not result in flooding of a building, an emergency access route, an adjacent property, or cause overflow to a location other than the natural discharge point for the project site <p>Note: Publicly maintained system is not an acceptable alternative</p>										
		Catch Basin and Manhole Requirements										
		Approved cast-in-place SW structures building permit number referenced on the engineering record drawings										
		CBs and manholes shall be easily accessible to maintenance vehicles, equipment, and personnel										
		Pipe inverts shall be matched at manholes and CBs										
		Max surface run (gutter flow) for storm drains on paved roadway surfaces: <table style="margin-left: 40px; border: none;"> <tr> <td style="padding-right: 20px;">Pavement Slope</td> <td>Max Surface Run</td> </tr> <tr> <td>Less than 1%</td> <td>200 ft</td> </tr> <tr> <td>1% to 6%</td> <td>300 ft</td> </tr> <tr> <td>6% to 12%</td> <td>200 ft</td> </tr> </table>	Pavement Slope	Max Surface Run	Less than 1%	200 ft	1% to 6%	300 ft	6% to 12%	200 ft		
Pavement Slope	Max Surface Run											
Less than 1%	200 ft											
1% to 6%	300 ft											
6% to 12%	200 ft											
		The max depth for CBs/manholes: <ul style="list-style-type: none"> - Type I CB: 5-ft, pipe invert to finished surface (FS) - Type II CB: 20-ft, bottom of structure to the FS - Depths greater than 20-ft, stormwater structures designed by a licensed PE registered in the State of WA 										
		Catch Basins and manholes within the limits of the project and located in the ROW, but not in the flow line are: <ul style="list-style-type: none"> - Removed, or if not feasible; - removed and replaced with Type II CB, and, unless used as an inlet, provided with a round manhole ring and cover 										
		City Standard Detail(s) as applicable: 02.01.01-08, 02.05.01										
		Oil Control/Spill Containment										
		Commercial, industrial, and multi-family properties require at a min, a spill control device in one of the end-of-the-line (lowest) manholes or CBs in the onsite conveyance system <p>Location:</p> <ul style="list-style-type: none"> - The spill control device installed upstream of any onsite water quality or flow control facility or upstream from the final discharge point 										
		Spill control device: T-section, removable for maintenance <ul style="list-style-type: none"> - Location: on the outlet pipe leaving a Type 1L or 2 CB 										
		Grates										
		Material: cast iron or ductile iron castings										

Design Checklist

APPLICANT			CITY VERIFICATION	
YES	N/A		YES	N/A
		Public and private systems: vaned grates required		
		City Standard Detail(s) as applicable: 02.01.05		
		Stormwater Vault		
		City Standard Detail(s) as applicable: 02.04.01		
		Storm Drain Stenciling and Marking		
		All SDs signed as follows: <ul style="list-style-type: none"> - Publicly maintained stormwater CBs: signed using glued-down markers supplied by the City and installed by the project proponent - Privately maintained stormwater CBs: signed with pre-cut 90ml torch down heavy-duty, intersection-grade preformed thermoplastic pavement marking material. It shall read either "Only Rain Down the Drain" or "No Dumping, Drains to Stream" 		
		Outfalls		
		Trash Rack: required on inlet and outlet ends of all exposed storm lines, 12-in dia. and larger <ul style="list-style-type: none"> - Exception: required on inlet and outlet ends of all culverts greater than 18in dia. - Culverts greater than 36in dia. within stream corridors (trash rack is not required) 		
		All concentrated discharges from stormwater conveyance systems provided with energy dissipation/erosion protection measures		
		City Standard Detail(s) as applicable: 02.02.01-3		
		Stormwater Facilities Maintenance		
		Publicly maintained: located within a tract, easement, or ROW		
		Accessible to maintenance vehicles & personnel <ul style="list-style-type: none"> - all structures within 8-ft of access way (from front of vehicle) or within 20-ft of access way (from side of vehicle) 		
		Letter certifying the proper installation of permanent stormwater controls and compliance with the approved SSP		
		Maintenance Access Road		
		Materials: <ul style="list-style-type: none"> - Asphalt surfaces: 01.01.07 - Concrete surfaces: 01.02.17 - Cement-treated base (CTB), or asphalt treated base (ATB): min. of 10-in thick - Crushed surfacing base course: min. of 10-in thick - Structurally stabilized vegetated surfaces: only used on grades less than 8% 		
		-48'-6" outside radius on curves, max slope of 12%, and a min. width of 15-ft.		

Design Checklist

APPLICANT			CITY VERIFICATION	
YES	N/A		YES	N/A
		- If slope steeper than 8%, must be paved using either asphalt concrete, cement concrete, cement-treated base (CTB), or asphalt treated base (ATB)		
		Ponds with bottom widths of 15-ft or more: <ul style="list-style-type: none"> - Access road extends to the pond bottom to min. 25-ft long level pad to facilitate cleaning Ponds less than 15-ft in width: <ul style="list-style-type: none"> - Access road must extend along at least one (1) side of the pond 		
		Access pad: <ul style="list-style-type: none"> - Designed in accordance with 205.2(1) 		
		Access roads connect to paved public roadways: <ul style="list-style-type: none"> - A paved apron with removable bollards and/or fencing provided 		
		Private Maintenance Agreements		
		Non-residential storm drainage facilities: covered by a "Stormwater Management/BMP Facilities Agreement"		
		Operation and Maintenance Manual		
		Prepared for all stormwater facilities		
		At a min, the O&M manual shall include: <ul style="list-style-type: none"> - A description, dimensions, and purpose of the facility - The party (parties) responsible for maintenance of the facility, with phone numbers and addresses - List of any proprietary components and info from the vendor describing maintenance schedule/costs - Maintenance activities with proposed schedule - Care and maintenance of any powered devices - Inspection procedures and steps that follow - See Volume V Section 4.6, of the Ecology Manual 		
Sanitary Sewer Design				
		Sanitary Sewer Lines		
		Public SS lines: min. 8-in dia.		
		Material: PVC, Polypropylene, or Ductile Iron. <ul style="list-style-type: none"> - PVC sewer pipe: <ul style="list-style-type: none"> o Size: 15-in and smaller ASTM D-3034, SDR35 o Size: 18- to 27-in ASTM F679 - Ductile Iron: Class 51 or greater - Polypropylene Pipe (PP) <ul style="list-style-type: none"> o Size: 12-in through 30"-in dual walled, smooth interior and exterior corrugations, WSDOT 9-05.24(2). Meet or exceed ASTM F2736. o Size: 36-in through 60-in PP pipe, triple walled and meet WSDOT 9-05.24(2). Meet or exceed ASTM F2764. Pipe stiffness of 46 pii min. ASTM D2412. Testing per ASTM F1417 		

Design Checklist

APPLICANT			CITY VERIFICATION	
YES	N/A		YES	N/A
		Slope: Sewer size (ins) Min. slope (%)		
		8 0.40		
		10 0.28		
		12 0.22		
		14 0.17		
		15 0.15		
		16 0.14		
		18 0.12		
		21 0.10		
		24 0.08		
		27 0.07		
		30 0.06		
		36 0.05		
		Commercial developments: grease interceptor installed downstream from source of grease/oils to the City's SS system		
		Side sewers: installed from the City sewer main to 15 ft beyond the property line at all building sites <ul style="list-style-type: none"> - Size: 6 in dia, min. - Slope: 0.02 ft/ft, min. - Depth at the property line: 5 ft, min. - Cleanout installed at the property/easement line 		
		Design velocity: 2 ft/s min flowing full		
		Manholes: Sewer lines have a 0.1 ft drop through manholes from inlet to outlet invert		
		Easements: 40-ft wide min, no building structures within		
		Sanitary Sewer Pump		
		Residential SS Pump and Pressure line systems: <ul style="list-style-type: none"> - "Environment One" Packaged Grinder Lift Station Model #2010 or approved equal - A gravity sewer line with clean out installed for each building site, with the pressure line installed, 04.05.01 - Each building site shall have its own Grinder Pump Station and discharge to its own gravity side sewer - Grinder Pump Stations installed within 15ft of the building and not within low areas that may pond. - Accessible for maintenance and repair. - Finished grade slopes away from the pump station. - The property owner shall retain ownership and maintenance of the Grinder Pump Station and associated lines that discharge to a City SS structure 		

Design Checklist

<u>APPLICANT</u>			<u>CITY VERIFICATION</u>	
YES	N/A		YES	N/A
		- 04.05.5-6, as applicable		
		Discharge of objectionable materials		
		Discharge of objectionable materials of any sort is prohibited. <ul style="list-style-type: none"> - "Objectionable material" includes rubbish, dead animals, brush, concentrations of grease and oils, anything over 100°F in temperature, stormwater, septic tank pumping, and other matter not normally and customarily discharged into the SS system 		
		Commercial/industrial discharge into the City's SS system: <ul style="list-style-type: none"> - Washington State Water Pollution Control Act (RCW 90.48), application for State Waste Discharge Permit (WAC 173216) and Submission of Plans and Reports for Construction of Wastewater Facilities (WA C240) - City of Puyallup building permits may be issued only upon proof of submittals to the WA State Department of Ecology (DOE) 		
		Industries which discharge domestic wastewater or wastewater similar to domestic wastewater which does not have the potential to adversely affect performance of the treatment system require a permit from the City		
		Effluent Requirements		
		Discharged to the City's SS system: 100 mg/l oil/grease max. <ul style="list-style-type: none"> - If effluent is expected to exceed the max, grease interceptors and/or oil/water separators are required 		
		Oil/Water Separators		
		Specifications and plans: The plans bear the stamp of a Washington State licensed professional engineer (PE) <ul style="list-style-type: none"> - Illustrate property boundaries, piping, and drainage details, and connections to the sanitary/ storm sewer 		
		Detail and elevation drawings provided and supplemented with design calculations to show capacity, detention time, and removal efficiencies		
		Effluent: not exceed 100 mg/l oil/grease if discharged to the SS <ul style="list-style-type: none"> - Discharge to the storm sewer: no visible oil sheen allowed and average less than 10 mg/l daily and at no time shall exceed 15 mg/l 		
		Compliance with the requirements of the WA State Water Pollution Control Act (RCW 90.48), application for State Waste Discharge Permit (WAC 173-216) and Submission of Plans and Reports for Construction of Wastewater Facilities (WAC-240) <ul style="list-style-type: none"> - A City of Puyallup building permit may be issued upon proof of submittals to the Washington State DOE 		
		Separators installed in paved areas: HS-20 loading standards		
		Location: easily accessible for inspection, cleaning, and removal at all times		

Design Checklist

APPLICANT			CITY VERIFICATION	
YES	N/A		YES	N/A
		Manhole covers: gas tight and a min. opening of 24 in dia.		
		Plumbing/piping: “parallel flow” (90° to the tank baffle) through the separator <ul style="list-style-type: none"> - No radius, bend, or elbow in the inlet pipe for a min. of 10 ft or 20 pipe dia. upstream of the separator, whichever is greater 		
		Valve: located in the discharge piping, a max of 10 ft from the separator <ul style="list-style-type: none"> - Closed when cleaning or servicing the device - All separators shall be filled with clean water before use 		
		‘Tee’ connection: <ul style="list-style-type: none"> - Installed in the discharge piping to provide for sample collection 		
		O&M: The property owner shall be responsible and shall retain ownership of the separator and side sewer lines. <ul style="list-style-type: none"> - Service/maintenance record kept on the premises at all times and shall be immediately available to the Engineering Services Staff upon request 		
		Grease Interceptors		
		Design: Uniform Plumbing Code (UPC)		
		Plans and specifications: <ul style="list-style-type: none"> - Stamp of a Washington State licensed PE - Illustrate property boundaries, piping/drainage details, and connections to the sanitary sewer 		
		Detail and elevation drawings: include sizing calculations in accordance with the UPC		
		Venting: UPC		
		Effluent: not exceed 100 mg/l fat/oil/ grease discharged to SS		
		Location: <ul style="list-style-type: none"> - Installed in paved areas, HS-20 loading standards - Easily accessible for inspection, cleaning, and removal at all times 		
		Manhole covers: gas tight and a min. opening of 24 in dia.		
		Plumbing/piping: “parallel flow” (90° to the tank baffle) through the grease interceptor <ul style="list-style-type: none"> - No radius, bend, or elbow in the inlet pipe upstream of the interceptor for a min. of 10-ft, or 20-pipe dia, whichever is greater 		
		‘Tee’ connection: installed in the discharge piping to provide for sample collection		
		O&M: The property owner is responsible and shall retain ownership of grease interceptor and side sewer lines		

Design Checklist

APPLICANT			CITY VERIFICATION	
YES	N/A		YES	N/A
		<ul style="list-style-type: none"> - Service/maintenance record shall be kept on the premises at all times and shall be immediately available to the City upon request 		
		City Standard Detail as applicable: 04.06.01-2		
Water System Design				
		Water Mains		
		Water pipe size: min. 8-in dia. <ul style="list-style-type: none"> - Exception is a dead-end line and beyond the last fire hydrant, 4-in dia. 		
		Material: ductile iron <ul style="list-style-type: none"> - Thickness Special Class 52 or greater - Joints: Tyton or approved equal - Cement lined: A.S.A Specification A21.4-1964 		
		Connections to existing water mains: wet taps through a tapping tee and tapping valve (typically) <ul style="list-style-type: none"> - Tapping sleeve: Romac SST all stainless steel tapping sleeve or approved equal. - Tap is smaller than the water main: two-piece epoxy coated or ductile iron tapping sleeve may be used on ductile iron pipe 		
		Extension: water lines shall be extended along the entire frontage of the property <ul style="list-style-type: none"> - Looped connections may be required to maintain continuity in the system 		
		Cover: <ul style="list-style-type: none"> - Min. of 36 in from paved final grade in improved ROW and improved easements - 48 in min. of cover in unimproved ROW and unimproved easements 		
		Min. distance between sewer and water lines shall be 10 ft horizontally and 18 in vertically		
		Air relief valves: required at high points in water lines, City Standard Detail 03.07.01		
		Easements: min. of 40 ft in width for water lines. <ul style="list-style-type: none"> - No structures or woody landscape plants shall be allowed within easements. The easement may be fenced, as long as it has a min. 10 ft wide access gate with a key provided to the City 		
		Location: min. 10 ft from building foundations and roof lines		
		Note: <ul style="list-style-type: none"> - No woody landscape plants shall be planted within 10 ft of valves, air reliefs, or blow-off assemblies - All water mains and appurtenances shall be hydrostatically tested at 200 psi 		
		City Standard Detail(s) as applicable: 03.01.01-02, 03.01.03-1,2		

Design Checklist

<u>APPLICANT</u>			<u>CITY VERIFICATION</u>	
YES	N/A		YES	N/A
		Fire Hydrants		
		Fire hydrant feed lines installed at right angles to supply main		
		Fire hydrant leads over 50 ft in length from the water main to the hydrant are no less than 8 in dia.		
		Easements: min. 5ft each side of fire hydrant, when required		
		Note: No woody landscape plants shall be planted within 10 ft of any fire hydrant		
		City Standard Detail(s) as applicable: 03.05.01		
		Water Service Connections		
		Single family residential: the contractor shall furnish and install all materials for the service connection		
		For commercial and multi-family construction: the meter and the automated meter reading transmitter shall be furnished and installed by the contractor		
		Where possible, adjacent lots may use dual water services		
		Note: No woody landscape plants shall be planted within 10 ft of any water meter		
		City Standard Detail(s) as applicable: 03.03.01-4		
		Irrigation Systems		
		City Standard Detail(s) as applicable: 03.04.01		
		Commercial and Industrial Uses		
		City Standard Detail(s) as applicable: 03.03.01-4		
		Fire Service Connections		
		Location: inside the building or in a vault at or near the property line		
		City Standard Detail(s) as applicable: 03.10.01-1 and 03.10.0,2		
Stormwater Site Plan Requirements				
		Determined min. requirements: I-2.4.1-2 SWMMWW 2014		
		Min. Requirement #1: Stormwater Site Plan (SSP), I-2.5.1		
		Min. Requirement #2: Stormwater Pollution Prevention Plan (SWPPP), I-2.5.2		
		Min. Requirement #3: Source Control Pollution, I-2.5.3 <ul style="list-style-type: none"> - Prevent stormwater from coming in contact with pollutants. Should be a first consideration - See table on II-4.1.1, p. 262 		
		Min. Requirement #4: Preservation of Natural Drainage Systems and Outfalls, I-2.5.4 <ul style="list-style-type: none"> - Preserve and utilize natural drainage systems and prevent erosion at downstream end of the discharge - Where no conveyance system exists at the adjacent downgradient property line and the discharge was previously unconcentrated flow or significantly lower 		

Design Checklist

<u>APPLICANT</u>			<u>CITY VERIFICATION</u>	
YES	N/A		YES	N/A
		<p>concentrated flow, then measures must be taken to prevent downgradient impacts</p> <ul style="list-style-type: none"> - Where no conveyance system exists at the abutting downstream property line and the natural (existing) discharge is unconcentrated, any runoff concentrated by the proposed project must be discharged: <ul style="list-style-type: none"> a. 100-yr peak discharge is less than or equal to 0.2 cfs under existing conditions and will remain less than or equal to 0.2 cfs under developed conditions, then the concentrated runoff may be discharged onto a rock pad or to any other system that serves to disperse runoff. b. 100-yr peak discharge is less than or equal to 0.5 cfs under existing conditions and will remain less than or equal to 0.5 cfs under developed conditions, then the concentrated runoff may be discharged through a dispersal trench or dispersal system, demonstrate no significant adverse impact to downhill properties or drainage systems c. 100-yr peak discharge is greater than 0.5 cfs for either existing or developed conditions, or if a significant adverse impact to downgradient properties or drainage systems is likely, then a conveyance system must be provided 		
		<p>Min. Requirement #5: Onsite Stormwater Management, I-2.5.5</p> <ul style="list-style-type: none"> - Projects qualifying as flow control (Min. Requirement #7) do not have to achieve the LID performance standard, nor consider bioretention, rain gardens, permeable pavement, and full dispersion. Those projects must implement BMP T5.13: Post-Construction Soil Quality and Depth; BMP T5.10A: Downspout Full Infiltration or BMP T5.10B: Downspout Dispersion Systems or BMP T5.10C: Perforated Stub-out Connections; and BMP T5.11: Concentrated Flow Dispersion or BMP T5.12: Sheet Flow Dispersion, if feasible - Projects triggering only Min. Requirements #1-5: <ul style="list-style-type: none"> a. Use On-site Stormwater Management BMPs from List #1; or b. Demonstrate compliance with the LID Performance Standard (cannot use Rain Gardens) may use Bioretention BMPs, Chapter V-7 - Infiltration and Bioretention Treatment Facilities (p. 957) - Projects triggering Min. Requirements #1 through #9, must meet the requirements in Table I-2.5.1 		
		<p>Min. Requirement #6: Runoff Treatment, I-2.5.6</p> <ul style="list-style-type: none"> - Require stormwater treatment facilities if: <ul style="list-style-type: none"> a. Total pollution-generating hard surface (PGHS) is 5,000 square ft or more in a threshold discharge, or 		

Design Checklist

<u>APPLICANT</u>			<u>CITY VERIFICATION</u>	
YES	N/A		YES	N/A
		<ul style="list-style-type: none"> b. Total pollution-generating pervious surfaces (PGPS)– not including permeable pavements – is 3/4 of an acre or more in a threshold discharge area, and from which there will be a surface discharge in a natural or man-made conveyance system from the site 		
		<p>Min. Requirement #7: Flow Control, I-2.5.7</p> <ul style="list-style-type: none"> - Flow control to reduce the impacts of stormwater runoff from hard surfaces and land cover conversions. - Discharge stormwater directly, or indirectly through a conveyance system, into a fresh waterbody - Appx I-E: Flow Control-Exempt Surface Waters p.133 - Required: <ul style="list-style-type: none"> a. Total of effective impervious surfaces is 10,000 sq ft or more in a threshold discharge area b. ¾ acres or more of vegetation to lawn or landscape converted, or convert 2.5 acres or more of native vegetation to pasture in a threshold discharge area, and from which surface discharge in a natural or manmade conveyance system c. Effective hard surfaces and converted vegetation areas cause a 0.10 cfs increase in the 100-yr flow frequency from a threshold discharge area 		
		<p>Min. Requirement #8: Wetlands Protection, I-2.5.8</p> <ul style="list-style-type: none"> - Stormwater discharges into a wetland, either directly or indirectly through a conveyance system. 		
		<p>Min. Requirement #9: Operation and Maintenance, I-2.5.9</p> <ul style="list-style-type: none"> - O&M manual for proposed stormwater facilities/BMPs - Include party (or parties) responsible for O&M. - Private facilities: a copy of the O&M manual shall be retained on-site and shall be transferred with the property to the new owner - Public facilities: a copy of the O&M manual shall be retained in the appropriate department. - Log of maintenance activity indicating actions taken 		
		<p>Project Overview, I-3.1.7, p. 90</p> <ul style="list-style-type: none"> - General description of the project, predeveloped and developed conditions of the site, site area and size of the improvements, and the pre- and post-developed stormwater runoff conditions. - Summarize difficult site parameters, the natural drainage system, and drainage to and from adjacent properties, including bypass flows. - A vicinity map should clearly locate the property, identify all roads bordering the site, show the route of stormwater off-site to the local natural receiving water, and show 		

Design Checklist

APPLICANT			CITY VERIFICATION	
YES	N/A		YES	N/A
		<p>significant geographic features and sensitive/critical areas (streams, wetlands, lakes, steep slopes, etc.).</p> <ul style="list-style-type: none"> - A site map, topographic base, should display: <ul style="list-style-type: none"> a. Acreage and outlines of all drainage basins b. Existing stormwater drainage to and from the site c. Routes of existing, construction, and future flows at all discharge points d. The length of travel from the farthest upstream end of a proposed storm drainage system to any proposed flow control and treatment facility. - Soils map: show the soils within the project site as verified by field testing. 		
		<p>Existing Conditions Summary, I-3.1.1, p. 78</p> <ul style="list-style-type: none"> - Site Analysis to describe: Low impact development site design complements the predevelopment conditions on the site, as applicable and establishes context for development info - Site map; Survey prepared by a registered land surveyor, flow path of runoff on the site - Survey of existing native vegetation cover, as applicable - Soils report: Infiltration test date 		
		<p>Off-site Analysis Report, I-3.1.3, p. 83</p> <ul style="list-style-type: none"> - Required: 5,000 square ft or more of new hard surface, or that convert ¾ acres of vegetation to lawn or landscaped areas, or convert 2.5 acres of forested area to pasture 		
		<p>Permanent Stormwater Control Plan, I-3.1.5, p. 84</p> <ul style="list-style-type: none"> - Select on-site stormwater control BMPs (all projects), and treatment and flow control facilities (projects subject to minimum requirements #1 through #9) <ul style="list-style-type: none"> o Summary Section o Performance Standards and Goals o Low Impact Development Features o Flow Control System o Water Quality System o Conveyance System Analysis and Design 		
		Special Reports and Studies		
		Other Permits		
		Operation and Maintenance Manual		
		Declaration of Covenant for Privately Maintained Flow Control and Treatment Facilities		
		Declaration of Covenant for Privately Maintained On-site Stormwater Management BMPs		
		Bond Quantities Worksheet		
Stormwater Pollution Prevention Plan				

Design Checklist

<u>APPLICANT</u>			<u>CITY VERIFICATION</u>	
YES	N/A		YES	N/A
		Narrative and drawings: <ul style="list-style-type: none"> - Reference all BMPs and provide documentation to explain/ justify the pollution prevention 		
		Element 1: Preserve Vegetation/Mark Clearing Limits <ul style="list-style-type: none"> - Methods to protect areas that should not be disturbed (permeable pavement area, infiltration trench areas) - Natural features and vegetation are left in an undisturbed stated to max degree practical 		
		Element 2: Establish Construction Access <ul style="list-style-type: none"> - Limit construction vehicle access to one route - Minimize tracking of sediment onto public roads - Locate wheel wash or tire baths on site (if the stabilized construction entrance is not effective) - If sediment is tracked off site, clean the affected roadway thoroughly at the end of each - Control street wash wastewater by pumping back on-site, or otherwise prevent it from discharging into systems tributary to waters of the State 		
		Element 3: Control Flow Rates <ul style="list-style-type: none"> - Protect properties and waterways downstream - To comply with the bullet above, construct stormwater retention or detention facilities as one of the first steps in grading, as necessary - If permanent infiltration ponds are used for flow control during construction, protect these facilities from siltation during the construction phase 		
		Element 4: Install Sediment Controls <ul style="list-style-type: none"> - Design, install, and maintain effective erosion & sediment controls to minimize discharge of pollutant - Construct sediment control BMPs (sediment ponds, traps, filters, etc.) as one of the first steps in grading - Direct stormwater runoff from disturbed areas through appropriate sediment removal BMP. Runoff from fully stabilized areas may be discharged without a sediment removal BMP, but must meet the flow control performance standard 		
		Element 5: Stabilize Soils <ul style="list-style-type: none"> - Stabilize exposed and unworked soils by BMPs that prevent erosion; temporary and permanent seeding, sodding, mulching, plastic covering, erosion control fabrics and matting, soil application of polyacrylamide (PAM), the early application of gravel base early on areas to be paved, and dust control - Control stormwater volume, velocity and discharges 		

Design Checklist

<u>APPLICANT</u>			<u>CITY VERIFICATION</u>	
YES	N/A		YES	N/A
		<ul style="list-style-type: none"> - Stabilize soil stockpiles from erosion, protected with sediment trapping measures, located away from SD inlets, waterways and drainage channels 		
		<p>Element 6: Protect Slopes</p> <ul style="list-style-type: none"> - Cut-and-fill slopes designed to minimize erosion; reduced length of slope with terracing/diversions, reduced slope steepness, & roughening slope surfaces - Divert off-site stormwater (run-on) or ground water away from slopes - Check dams at regular intervals within constructed channels that are cut down a slope 		
		<p>Element 7: Protect Drain Inlets</p> <ul style="list-style-type: none"> - Protect all SD inlets; stormwater runoff does not enter the conveyance system without being filtered or treated to remove sediment - Clean or remove and replace inlet protection devices 		
		<p>Element 8: Stabilize Channels and Outlets</p> <ul style="list-style-type: none"> - Stabilize all on-site conveyance channels to prevent erosion from expected peak flows - Provide stabilization, including armoring material, adequate to prevent erosion of outlets, adjacent stream banks, slopes and downstream reaches at the outlets of all conveyance systems 		
		<p>Element 9: Control Pollutants</p> <ul style="list-style-type: none"> - Effective pollution prevention - Handle and dispose of all pollutants - Provide cover, containment, and protection from vandalism for all chemicals, liquid products, petroleum products, and other materials that have the potential to pose a threat to human health or the environment. - Discharge wheel wash or tire bath wastewater to a separate on-site treatment system - Prevent contamination of stormwater runoff by pH modifying sources; bulk cement, cement kiln dust, fly ash, new concrete washing and curing waters, waste streams generated from concrete grinding and sawing, exposed aggregate processes, dewatering concrete vaults, concrete pumping and mixer washout waters. - Adjust the pH of stormwater if necessary 		
		<p>Element 10: Control De-Watering</p> <ul style="list-style-type: none"> - Discharge foundation, vault, and trench de-watering water, into a controlled conveyance system before discharge to a sediment trap or sediment pond. - Discharge clean, non-turbid de-watering water, to systems tributary to, or directly into surface waters of the State, as 		

Design Checklist

<u>APPLICANT</u>			<u>CITY VERIFICATION</u>	
YES	N/A		YES	N/A
		<p>specified in Element #8. Do not route clean dewatering water through stormwater sediment ponds. Handle highly turbid or contaminated dewatering water separately.</p> <ul style="list-style-type: none"> - Other treatment or disposal options may include: <ul style="list-style-type: none"> o Infiltration o Transport off-site in a vehicle, for legal disposal in a manner that does not pollute state waters. o Ecology-approved on-site chemical treatment or other suitable treatment technologies o Sanitary or combined sewer discharge with local sewer district approval, if there is no other option o Sedimentation bag that discharges to a ditch or swale for small volumes of localized dewatering 		
		<p>Element 11: Maintain BMPs</p> <ul style="list-style-type: none"> - Maintain & repair all temporary and permanent erosion and sediment control BMPs as needed - Remove temporary erosion and sediment control BMPs within 30 days after achieving final site stabilization or after BMPs are no longer needed 		
		<p>Element 12: Manage the Project</p> <ul style="list-style-type: none"> - Phase development projects to the max degree practicable (seasonal work limitations) - Inspect, maintain and repair all BMPs as needed to assure continued performance - Maintain an updated construction SWPPP - Projects that disturb one or more acres must have site inspections conducted by a Certified Erosion and Sediment Control Lead (CESCL) - Project sites disturbing less than one acre may have a CESCL or a person without CESCL certification conduct inspections - Identify the CESCL or inspector, who must be present on-site or on-call at all times - The CESCL or inspector (project sites less than one acre) must have the skills to assess the: <ul style="list-style-type: none"> o Site conditions and construction activities that could impact the quality of stormwater o Effectiveness of erosion and sediment control measures used to control the quality of stormwater discharges 		
Soils Engineering Report				
		Prepared by a professional soil scientist certified by the Soil Science Society of America (or equivalent), or by other suitably trained persons working under the supervision of a professional		

Design Checklist

APPLICANT			CITY VERIFICATION	
YES	N/A		YES	N/A
		engineer, geologist, hydrogeologist, or engineering geologist registered in the State of WA		
		Test boring data regarding the nature, distribution, strength, and erodibility of existing soils and a map showing the location of the test pits or borings		
		Soil stratigraphy should be assessed for low permeability layers, highly permeable sand/gravel layers, depth to ground water, and other soil structure variability necessary to assess subsurface flow patterns. Soil characterization for each soil unit should include: grain size distribution, textural class, percent clay content, cation exchange capacity, color, mottling, variations and nature of stratification		
		Saturated hydraulic conductivity (Ksat) testing to assess infiltration capability and feasibility of bioretention, and permeable pavement		
		Testing for hydraulic restriction layer (ground water, soil layer with less than 0.3 in/hr Ksat, bedrock) under proposed bioretention, or permeable pavement, during wet season <ul style="list-style-type: none"> - Seasonal high ground water or hydraulic restricting layer: greater than 3 ft below the bottom of the bioretention, or greater than 1 ft below the bottom of the base course of permeable pavement - Monitoring wells or excavated pits required if depths from bullet above are not met 		
		Conclusions and recommendations for grading procedures		
		Conclusions and recommended designs for temporary and permanent soil stabilization devices and measures identified in the construction storm water pollution prevention plan		
		Conclusions and recommendations for storm water infiltration capacity and feasibility, as applicable		
		Design criteria for corrective measures when necessary		
		Opinions and recommendations covering adequacy of sites to be developed by the proposed grading		
Engineering Geology Report				
		An adequate description of the geology of the site		
		Conclusions and recommendations regarding the effect of geologic conditions on the proposed development		
		Conclusions and recommendations for storm water infiltration capacity and feasibility if storm water infiltration is required or proposed for the site		
		Opinions and recommendations covering the adequacy of sites to be developed by the proposed grading		
Critical Areas Report				
		A detailed description of the critical areas and buffers on or adjacent to the project site, including the size, type/classification, condition, disturbance history, and functions and values		

Design Checklist

<u>APPLICANT</u>			<u>CITY VERIFICATION</u>	
YES	N/A		YES	N/A
		Site plan showing the proposed development footprint and clearing limits, and all critical areas and buffers		
		Description of the proposed stormwater management plan & consideration of impacts to drainage alterations		

Certification: I certify that I have read this application and declare that the info contained herein is correct and complete.

Signature of Applicant: _____

Print Name: _____ Date: _____

SECTION IV : To be completed by the City	City Project # : _____
Reviewed by: _____	Date: _____ Accepted: YES NO