

GENERAL PLAN REVIEW CHECKLIST
ENGINEERING DEPARTMENT



Project/Development Name: _____

City Project Number: _____

Reviewer's Initials and Date: _____

Please mark completed items in the space provided. Mark N/A if not applicable. Items left blank are incomplete.

COVER SHEET AND GENERAL REVIEW

- ___ Project Name (Title) (Past Project Names if applicable)
- ___ Owner's / Developers Name, Address, & Phone Number
- ___ Engineer's Name, Address and Phone Number
- ___ Architect's Name, Address and Phone Number
- ___ City of Camas Approval Block (Locate in lower right hand corner of cover sheet)
- ___ Vicinity Map
- ___ Legend
- ___ General Notes
 - ___ Reference to Standard Specifications
 - ___ City of Camas
 - ___ WSDOT/APWA
- ___ North Arrow and Scale
- ___ Preliminary State of Washington Engineer's Stamp (Signed at final review)
- ___ Memo Stating the Total Linear Feet of Improvements
 - ___ Street
 - ___ Water
 - ___ Storm
 - ___ Sanitary
- ___ Sheet Index
- ___ Benchmark, Datum Elevations
- ___ Complies with Request for Utility Services (R.U.S.)
- ___ Complies with Council's Decision (Staff to Review Notice of Final Decision)
- ___ Submitted Four Full-Sized & One Half-Size Set of Plans (1st review only)

Comments: _____

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GRADING & EROSION CONTROL

- ___ Preliminary State of Washington Engineer's Stamp
- ___ North Arrow and Scale
- ___ Standard City of Camas Erosion Prevention & Sediment Control and Grading Detail Sheets
 - ___ Construction Entrance ___ Silt Fence ___ Cut-off Ditches
 - ___ Inlet Protection ___ Slope Stability ___ Temp. Sediment Ponds
 - ___ Temp. Stockpile Area(s) Shown w/ Protection
- ___ Special Details Required
- ___ Easement(s) Required, Shown, Called Out
- ___ Property Lines / Adjoining Tax Lots Shown
- ___ Street Names (Names to be Assigned by Building Official)
- ___ Proposed Right of Way
- ___ Identify All Sensitive Areas (Wetlands and Buffers, Floodplains, Tree Resource Area, Streams, Creeks, Springs, etc.)
- ___ Existing and Finished Contours
- ___ Existing Area of Potential Slope Instability and Structures
- ___ Location of 100 Year Flood Plain & Shoreline Management Area Limits on the Site
- ___ Proposed Impervious Surfaces Other than Streets and Sidewalks
- ___ Drainage Flow Routes and Existing Discharge Points to and from Site
- ___ Edge of Pavement
- ___ Existing Trees, Trees to be Removed (w/ Diameter), Utility Poles, Wells, Septic Tanks, Drainage Structures, Fire Hydrants, Street Lights, Etc.)
- ___ Site Acreage
- ___ Area of Cut/Fill
- ___ Quantity of Cut/Fill
- ___ Wetland Area and Buffers – Cannot be Used for Treatment or Detention
- ___ Location of Buildable Lot Area
- ___ Testing Requirements / Frequency Matrix

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SANITARY SEWER

- ___ Preliminary State of Washington Engineer's Stamp
- ___ North Arrow and Scale
- ___ Sewer: ___ STEP; ___ STEF; ___ Gravity; ___ Combo
- ___ Standard City of Camas Sewer Detail Sheets
- ___ Special Details Required
- ___ Easement(s) Required, Shown, Called Out
- ___ Property Lines / Adjoining Tax Lots Shown
- ___ Street Names and Widths
- ___ Pipe size, Lengths, & Material meet City standards and are shown
- ___ Stationing
- ___ Existing and Proposed Utilities Shown
- ___ Existing and Possible Conflicts Shown (Structures, Trees, etc.)
- ___ Lateral Table
- ___ ___ Lateral Size ___ Length ___ Depth ___ Pipe Material
- ___ Dimensioning (Lateral ends 8' from curb and cleanout at property line)
- ___ Manhole Spacing (max. 400' for gravity system)
- ___ Cleanout Spacing (max. 200' or every 90° of Bend for STEF system)
- ___ All manholes with Coated Lining Called Out (STEP/STEF/Gravity)
- ___ Special Manhole Frame or Cover Required
- ___ Separation from Water Utility (10' horizontal, 18" vertical)
- ___ Invert Elevations
- ___ Rim Elevations
- ___ Check Slopes
- ___ Minimum Design Slopes (0.004 for gravity and STEF mains)
- ___ Minimum Depth and Cover (6' for gravity and STEF, 5' for STEP mains)
- ___ Concrete Pipe Anchors for Main Lines (Slopes greater than 20%)
- ___ Service to Each Lot
- ___ Shown on Profile

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STORMWATER

Plans

- ___ Preliminary State of Washington Engineer's Stamp
- ___ North Arrow and Scale
- ___ Standard City of Camas Stormwater Detail Sheets
- ___ Special Details Required
- ___ Property Lines / Adjoining Tax Lots Shown
- ___ Street Names and Widths
- ___ Pipe size, Lengths, & Material meet City standards and are shown. Mains 12" minimum and Laterals 10" minimum per CSDS*
- ___ Stationing
- ___ Existing and Proposed Utilities Shown
- ___ Existing and Possible Conflicts Shown (Structures, Trees, etc.)
- ___ Location and dimensions of proposed stormwater facilities, including typical cross sections of proposed facilities)
- ___ Stormwater Profile for all Systems in R.O.W.
- ___ Drainage Flow Routes and Existing Discharge Points to and from site
- ___ Check All Pipe Slopes and Invert Elevations. Mains 0.25% minimum and Laterals 0.3% minimum per CSDS*
- ___ All changes in pipe size, material, direction, or grade require a catch basin or manhole per CSDS*
- ___ Connections to Pipe Systems at Catch Basin or MH Only, min. slope 1%
- ___ If pipe cover is less than what is required in the on Details G2 & G3, provide minimum pipe cover for vehicular loads per manufacturer's specifications
- ___ Catch basins at low points, not to be located at base of ADA ramps
- ___ Catch basin spacing 400' max., located all intersections, reduced spacing on roads in excess of 10%
- ___ Manhole spacing 400' maximum
- ___ Concrete pipe anchors for main lines with slopes greater than 15%

*CSDS – Camas Stormwater Design Standards

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STORMWATER Continued

WQ Treatment Facility

- Detail of any flow control structures
- Provide overflow structure in fine grained soils or if low percolation
- Check if Oil/water Separator is required
- Show sufficient dimensions on all stormwater facility(s) for construction
- Provide typ. Swale Cross section
 - 4:1 slopes preferred for mowing (Max. 3:1) Min. width 2'
 - 1'Freeboard on Ponds & Swales 0.5%-4% slope
- Minimum 6" topsoil mix for the swale grass if in permeable soils
- Permeable soils require impermeable liner or 1 ft. clay liner under 6" topsoil layer in swale to be less than 2.4 in/hr to be field verified by design engineer prior to sodding or seeding.
- List swale seeding specifications
- Finish elevations on all outfall inverts, top of level spreader, top of grates
- Energy Dissipater at end of outfall piping
- If rip rap used, detail length, width, depth, and size
- Debris barrier/grate for all pipes entering a closed pipe system
- Retaining Walls – specify top and bottom of wall elevations, dimensions, type of material, backfill material, installation, wall section, footing drainage, etc.
- Maintenance access to swale or pond from street (min.15' wide, less than 18% slope, min. 15' easement, access 12% or greater required to be paved, & around pond as needed)
- Barrier or fencing around the stormwater facility, if safety is a concern, (fence type, height (max. 6'), gate opening (10' min), top rail on fence
- Stenciling / medallions at all catch basins
- Label Stormwater facility as tract of land, where applicable
- Stormwater facilities in subdivisions and short plats are shown in separate tract/s, with access.
- Stormwater facilities on commercial / industrial sites are accessible and a note is on the plans that states 'Facility is owned and maintained by the property owner and right-of-entry shall be granted to the City for inspection purposes.'
- Types & Number of plantings around pond perimeter to be reviewed by Planning
- Operating and Maintenance Manual for Storm Facilities (Ref. TIR)
- Wetlands & Buffers (Sensitive areas labeled and shown)

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STORMWATER Continued

- Roof Downspout Connection:
 - To approved drainage structure; Include sizing on plans
 - To curb weep holes on crown streets or low side of shed streets

Infiltration Facility

- Cross section of infiltration system
 - Drywells
 - Building roof drain
 - Perforated pipe trench
 - Infiltration pond
- Check landscaping plan against stormwater facility (no trees in treatment area, etc.)
- Design Infiltration Rate & Contractors design table for length of perf. pipe required per 1000 sq. feet of roof area
- Pre-sedimentation manhole required for all drywells without water quality treatment
- Verify that no wells or other facilities are adjacent to infiltration pond.
- Provisions for roof drains for all lots.

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Transportation Plan

- ___ Plan is consistent with traffic study recommendations and decision
- ___ Signing and striping Plan
- ___ Sight Distance Triangles and Calculations
- ___ Sight Distance Triangle Easements on all corner lots (label and Dimension)
- ___ Road Modifications
- ___ Pavement Design
- ___ Preliminary State of Washington Engineer's Stamp
- ___ North Arrow and Scale
- ___ Legend
- ___ Easement(s) Required, Shown, Called Out
- ___ Property Lines / Adjoining Tax Lots Shown
- ___ Street Names
- ___ Existing and proposed Right of Way
- ___ Stationing
- ___ Tangent Bearings
- ___ Statement of ownership, maintenance, and repair of all utilities at private streets
- ___ Curve Data (per CMC 17.19.040.B.12.c): Centerline Radius 300' minimum on Primary Arterials, and 200' minimum on Secondary Arterials)
- ___ Curb
 - ___ Radii (35' minimum on Arterials and Collectors, 25' minimum on others)
 - ___ Elevation at Radius Returns ($\frac{1}{2}$'s' $\frac{1}{4}$'s)
 - ___ Elevations at Lot Lines
- ___ Dimensions
 - ___ Streets ___ Hammerheads, per Detail ST36
 - ___ Driveways ___ Temporary Turnarounds, per Detail ST36
 - ___ Cul-de-sacs & Dead Ends, per Detail ST36 (Over 300' require approval)
- ___ Grades (per CMC 17.19.040.B.12.b): Arterials 6% max.; Collectors 10% max.; Others 12% max.)
- ___ Driveway locations shown on all corner lots – Access control issue
- ___ Sidewalks
 - ___ Pedestrian Ramps (check alignment)
 - ___ Connectivity
- ___ Turning lanes
- ___ Traffic Signals
- ___ Vertical Curves per AASHTO (see "Policy on Geometric Design of Highway & Streets", Exhibit 3-76, page 274)

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Transportation Plan Continued

- Intersection alignments and curb return minimums
- K value Shown
- Superelevation
- Design Speed _____ mph; Posted speed _____ mph
- Typical Street Section
 - Street Classification _____
- ½ street improvement _____ ½ street inlay _____ resurfacing of ex.
 - Soil Classification _____
 - Crown Street 2% Min., 4% Max. Cross Slope
 - Shed Street 2% Min., 6% Max. Cross Slope
 - Controlled Density Fill (CDF)
 - Center Line
 - Width of Right of Way
 - Width of Street
 - Public Utility Easement (P.U.E.)
 - Subgrade and pavement including depth and type
 - Curb Type
- Sidewalk location, width, depth, compacted subgrade
- Misc. Typical Sections
 - Standard Concrete Driveway
 - Concrete Vertical Curb
 - Concrete Curb and Gutter
 - ADA Curb Ramps
 - Ramp detectable warning detail
 - Barricade (Type III)
 - Sidewalk Cross Section
 - Mailbox Location
- Letter for Road Modification from Engineer
- Sign and Striping locations in accordance with MUTCD
- Signs and Mailboxes located in planter strip (5' horizontal clearance; min. 7' vertical clearance).
- Street configuration and lot numbering conforms to preliminary plat.
- Bike lanes required
- Traffic signal plan or loop & conduit installation for future.
- Neighborhood Traffic Management Compliant

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Water Plan

- ___ Preliminary State of Washington Engineer's Stamp
- ___ North Arrow and Scale
- ___ Standard City of Camas Water Detail Sheets
- ___ Special Details Required
- ___ Easement(s) Required, Shown, Called Out
- ___ Property Lines / Adjoining Tax Lots Shown
- ___ Street Names & Widths
- ___ Pipe Size, Lengths, & Material per Standards
 - ___ 8" Minimum
- ___ Stationing
- ___ Existing and Proposed Utilities Shown/Conflicts
- ___ Existing and Possible Conflicts Shown (Structures, Trees, etc.)
- ___ Dimensioning (6' from North/East Curb)
- ___ Fire Hydrant w/ Fire Marshal's Approval
 - ___ 400' Between Hydrants
 - ___ 600' from Property Lines
 - ___ No Fire Hydrant on Dead End 6"
- ___ Valves: 3 on a Tee, 4 on a Cross, and Valves Every 600' (minimums)
- ___ Fittings / Blocks, Shown & Called Out
- ___ Pipe Deflection Checked for Pipe Sections
- ___ Blow-off (Standard or Construction)
- ___ Separation from Sanitary (10' Horizontal, 18" Vertical)
 - ___ Encased in Concrete
 - ___ Ductile Iron Sleeve, 10' Each Side of Crossing.
- ___ Water Depths and Crossings Shown on Profile
- ___ Water Meter Locations and Size
- ___ Irrigation Meter Locations, Size, and Backflow Prevention Device
- ___ G.P.M. Available
- ___ Cross-Connection Control for irrigation and business services
- ___ Service to Each Lot

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Water Plan Continued

- Verify Correct Locations, Size, & Type of Existing Water Facilities (Booster Stations, Reservoirs, etc.)
- Engineered Vacuum Relief Locations for Large Water Mains
- Air / Vacuum Relief Location Shown - High Point Typical
- PRV Location / Settings

Comments:
