CITY OF GRESHAM

Public Facilities Plan Review Checklist

Project Name:	Date:
Project #:	DE/Tech:
Location:	Engineer:

Code sections refer to Public Works Standards (PWS) except as noted otherwise.
GCDC = Gresham Community Development Code / SWMM = Stormwater Management Manual

STANDARD	Code	Complete	Needs Revision	Missing	N/A
SUPPORTING DOCUMENT SUBMITTALS					
Developer's Information Form submitted *(DE provide to Program Tech)* .	Link				
Authority to sign submitted if owner is not an individual *(example: operating agreement or letter of authority)*					
Engineer's Estimate Template submitted.	Link				
Impervious and Pervious Surface Site Drawing submitted.	Link				
Final stormwater report submitted that includes the infiltration test, graphically shows expected impervious area of each lot (should be at least 2,500 square feet per lot).					
Stormwater Facility Tracking Form submitted and includes the required attachment.	Link				
Water Meter Sizing Chart submitted.	Link				
Any necessary design modifications submitted on correct form with supporting documents included.	Link				
If right-of-way by separate instrument is required (including long chord at intersection per 6.02.05), a site plan and a legal description of dedication submitted.					
Right-of-way permit submitted. *Proof of insurance and traffic control plan may be deferred until just before Notice to Proceed.*	Link				
Grading Permit Submitted	Link				
Plumbing Permit Submitted	Link				
If proprietary devices are proposed, manufacturers recommended maintenance procedure provided. Note: This will be attached to the stormwater maintenance agreement that is required when proprietary devices are used.					
If an encroachment license is needed, a site plan showing type, location of encroachment, and height, width and depth of encroachment. A legal description of the site (not encroachment) is also needed.					
If a reimbursement district is requested, all required submittal items were submitted as outlined on the application form.					
If site is located along a bus line, documentation from TriMet submitted with needed transit related frontage improvements or that none are needed.					

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All other required plan review submittal documents are supplied.					
GENERAL					
Conditions of Approval related to public facilities construction met.					
Construction plans include Engineer of Record stamp and signature.	CAD Manual				
Standard City of Gresham layers and layer naming convention are used within CAD.	CAD Manual				
Vicinity map on cover sheet. Must be at a scale and clarity that is useful. (Recommended scale 1"=1000')	CAD Manual 2.02.05				
Site map on cover sheet. (Recommended scale 1"=100')	CAD Manual				
All sheets include a 2" x 2" blank square in the upper right-hand corner for City use.	CAD Manual				
Index of sheets.	CAD Manual 2.02.05				
Complete legend of symbols, line types and abbreviations used.	CAD Manual 2.02.04(c)				
General and construction notes pertinent to project. Check for standard notes.	Link				
Project Number (07 number) in Title Block.					
Title block includes development name and location by section, township and range.					
Title block includes date of drawing, sheet title, sheet number and total number of sheets.					
At least two temporary and/or permanent benchmarks used, along with descriptions, coordinates, elevations of benchmarks and datum. National Geodetic Vertical Datum of 1929, 1947 adjustment.	CAD Manual 2.02.05				
Must reference a City of Gresham Benchmark, and be verified by the City Surveyor or via Gresham Control Points Map on City Website.	Link				
Engineer's name, address, phone number and seal.	CAD Manual 2.02.04(h)&(J)				
Developer's/owner's name, address and phone number.	CAD Manual 2.02.04(i)				
Provide contact phone number for all affected utility companies, including City Operations.	Link				
Cover sheet includes a statement referencing City of Gresham Public Works Standards.	CAD Manual				
Show tax lot numbers and address provided by Addressing Technician. Use existing address for land divisions.	CAD Manual 2.02.05				
22" x 34" Standard sheet size with City frames.	CAD Manual 2.02.02 &2.02.04				
Plat sheet included and consistent with plat under review, preliminary land use plans and, if applicable, prior subdivision phases, such as lot and parcel numbers, easement types, easement ownership, and rights-of-way dedications.					

STANDARD	Code	Complete	Needs Revision	Missing	N/A
Where profiles are drawn on the same sheet as the plan view, the profile shall be immediately below the plan view (aligned) with the same horizontal scale as the plan sheet.	CAD Manual 2.01.06				
Sheets to have match line for adjoining sheets.	CAD Manual 2.02.04(k)				
Correct City street name shown and classification.					
North arrow, bar scale, and narrative scale on each sheet.					
Public Utility Easements, shall be 20’ minimum (depending on depth and size of utility). Backyard public storm drainage easements may be a minimum of 15' wide. Utilities greater than 8' 8" in depth and/or 8" in diameter may need wider easements.	2.07				
On composite utility plan, show all existing and proposed easements and identify easements as public or private.	CAD Manual 2.02.04(k)				
Easements that will be needed on middle housing plat shown on the composite utilty plan.					
Site composite utility plan of entire project with street right-of-way and/or subdivision layout is at a scale that is easy to read.	CAD Manual 2.02.03 (f)				
Location of all underground utilities within 100 feet of project (if they are affected by the project), existing utility poles and guy anchors, valves, manholes, catch basins, fire hydrants, meter boxes and vaults, signs, etc.	CAD Manual 2.02.04 (l)				
Show all licensed utility crossings at intersections. Conduit to be provided, if actual utility not installed prior to paving.					
Show all licensed utility crossings at intersections. Conduit to be provided, if actual utility not installed prior to paving.	Detail 601				
Street Trees: a. Residential Subdivisions: One street tree per 30 feet of frontage with at least 20 feet of separation and shown on the composite utility plan.	6.02.18				
b. Verify that street trees are not within 15 feet of streetlights and catch basins, within 5 feet of driveway cuts or underground public utilities or 12 feet of nearside of a crosswalk or vehicular approach side of an intersection.	Table 6.02.18 Notes 1 and 2				
c. Verify that street trees are a minimum of 1.75" caliper.	6.02.18				
d. Review plans for any trees that qualify as a Major Tree and possible design modifications that could be approved to protect/retain them.	Internal Hyperlink				
e. For a single detached dwellings and middle housing development, the plans must include a note that the street trees and sidewalks are to be installed with home construction.					
f. Verify street tree type is on the approved list and appropriate for the planter strip width.	Link to Street Tree List				
g. Trees in rain gardens must be on the approved street tree list as well as the Stormwater Plant List.	Link to SWMM				

STANDARD	Code	Complete	Needs Revision	Missing	N/A
h. If street trees shown on a separate landscape plan created by a landscape architect, the landscape plan includes a note: Tree locations in this plan are approximate; see composite utility plan for approved locations.					
Verify tree protection/fencing is shown on plans.					
Verify environmental overlay zones are shown on plans.					
Grading plan with back lot drainage swales and private storm lines shown on plans.					
Erosion control plan shown.	CAD Manual 2.02.08				
Erosion Control Plan notes included.	Link				
Erosion Control Plan details Included from Stormwater Management Manual.	EPSC-2 - EPSC-21				
Applicable sheets include the following note: *"Contractor is required to provide a copy of the traffic control plan and project schedule to all impacted emergency service providers, school bus services, the US Postal Service, garbage haulers and TriMet (if lane closure is on a bus route) a minimum of 5-days prior to scheduled construction."*					
If project includes a new collector or arterial section, include a call out on appropriate sheet(s): "Centerline monumentation boxes required at all points of geometry. See Detail 634." *Where a collector or arterial meet a local street, a monumentation box is not required.*					
Retaining walls a. Retaining walls are labelled public or private.					
b. Public retaining walls located in public right-of-way have been approved by Transportation Manager					
c. Private retaining walls are not located in the public right of way.					
d. Building Permit acquired, if applicable.					
e. Section details and structural calculations provided.					
f. Manager approval needed for wall supports (e.g. tiebacks, anchors, geogrid).					
g. For public walls, City has full access to wall features including the 'zone of influence'(the horizontal distance measured from the end of the deepest wall support feature up to final grade at 1:1)					
h. Wall features provide minimum 5' horizontal clearance from adjacent buildings.					
i. If wall supports extend into a public easement or public right of way, the support features need to be topped with steel mesh and have minimum 4' cover.					
GENERAL STANDARD DETAILS	Detail #				
Will centerline monument box be required as part of this project? Only include this detail for new street or adjusted centerline on collector or arterial. Note: 5/8" iron rod required for local streets.	634				

STANDARD	Code	Complete	Needs Revision	Missing	N/A
Does the project include placement of utilities in the public right-of-way?	601				
TRANSPORTATION					
Street, sidewalk, and right-of-way width to City standards (see staff report).	6.02.02 6.04.01				
Long chord dedication at intersection, to be dedicated by separate document or plat, is shown.	6.02.05				
Pavement width illustrated (curb to curb) on each plan view sheet.					
Each roadway shall indicate its functional classification on the plan sheet associated with its construction.					
Verify no encroachments in rights-of-way unless approved by Senior Transportation Engineer. This includes building overhangs and appurtenances for 'zero lot line' buildings. Any approved encroachments must be shown on the construction plans and as-builted. *See Right-of-way Encroachment Permit Review Type document for guidance.*	Internal Link				
For residential subdivisions, show driveway location and width.					
~Driveway approach for single homes are a minimum of 9 feet.	6.03				
~If shared driveways are utilized, a minimum of 7-feet of driveway width shall be on each property frontage (exception possible, but easement for full width required). Combined minimum width is 15-feet per GCDC.	6.03 & GCDC 9.0870(F)(3)				
Show Clear Vision Areas on the site and/or utility plan. - 20-foot leg triangles for alley/street intersections. - 45-foot leg triangles for street intersections with a multi-use path. - 40-foot leg triangles for street intersections without a multi-use path. - 25-foot leg triangles for multifamily, commercial, industrial, and institutional site driveway intersections with public streets. - 20-foot leg triangles for detached and middle housing site driveway intersections with public streets.	6.04				
Include note on the plan set, "No fence, wall, landscaping, sign, structure or parked vehicle that would impede visibility between a height of 3 feet and 10 feet above the center line grades of intersecting streets or railroads shall be located in the Clear Vision Area." [There are exceptions to this in PWS 6.04 (A-G)]	6.04				
To reduce damage by parking cars, no above ground infrastructure, trees and signs should be proposed within 5 feet of curb where cars back toward bump outs.					
Sidewalks fronting greenways and other public owned areas to be installed by developer.					
Sidewalks shall have unobstructed passage width of 5 feet. 48” minimum clear sidewalk width with manager's approval.	6.05.01				
Include handrails or fences where there is a vertical drop of 30” or greater at back of sidewalk.	6.05.01				

STANDARD	Code	Complete	Needs Revision	Missing	N/A
Check for ADA sidewalk ramps and conflicts with catch basins and rain gardens.					
Show spot elevations at all four corners of ADA curb ramp and landing for a total of 6.					
Two ADA ramps required for each corner of intersection.	6.05.02				
If there is a sidewalk and no existing ramp at corners opposite the development site, an ADA ramp is required.	6.05.02				
Show curb profile in cul-de-sacs.					
Curb return data shall be on the same sheet the return is shown.					
Show gutter elevations at ¼ points around curb returns if no ADA ramps are provided.					
Check minimum curb return radius is 30' for standard and major arterials, 25' for minor arterials and collectors, 20' for local streets except for minor access and alley which are 15'.	Table 6.02.14				
Profile both tops of curbs when street is warped.					
For new streets and street realignments, verify design speed and horizontal curve radii.	6.02.08 & 6.02.09				
Street Barricades (#630) or End of Road Markers (#628) at all dead-end streets. Use End of Road markers except where a drop off hazard exists (slopes steeper than 3:1 for at least 18").	Detail 628 & 630				
If an existing street is being extended, add note: Contractor is to call the City for barricade removal.					
Profile with existing ground or street shown.	CAD Manual				
Vertical curves: Specify beginning, end, points of intersection, low points, high points, and length. Profile of existing centerline grade shall extend at least 250 feet beyond end of the improvement.	CAD Manual				
Street grades shown. Minimum 0.5%. Maximum 6% for major and standard arterials, 8% for minor arterials, 10% for collectors, 12% for local street classifications unless approved by manager using criteria in PWS.	6.02.11				
Grade tie-in to existing streets and future extension of streets accurate.					
No saw cuts in the wheel paths are proposed.					
Streetlights:	6.02.17				
a. Check streetlight proposal for water meter and other conflicts.					
b. Shows all existing poles and lighting on both sides of street(s).					
c. For the following standards, proposal complies with Table 6.02.17 of the PWS:	Table 6.02.17				
*Frontage Spacing					
*Staggering					
*Height					
*Luminaire Style					

STANDARD	Code	Complete	Needs Revision	Missing	N/A
d. Verify location from curb & trees.					
e. Transformer locations shown.					
f. Streetlight conduit shown. Required along entire site's frontage.					
g. Proposed detail provided for streetlights in rain garden. *Note: no streetlights permitted in rain gardens unless there is no alternative.*					
Streetlight plans with 4 or more streetlights include a table with circuit number, number of lights per circuit, total load per circuit (in Watts), and total circuit length (in feet).					
Streetlight plan shows location of CUP-4111 (for streetlight plans with 4 or more streetlights) or 17x30 junction box (for streetlight plans with fewer than 4 streetlights) as point of disconnect between City and PGE lighting system.	6.02.17				
Where striping is required on a collector or arterial street, the following note is included on the the sign/striping plan: *"All striping in public right-of-way shall be laid out and verified by City of Gresham Transportation Operations staff 48 hours in advance of final placement by contractor. Contact 503.618.2626"*					
The sign/striping plan does not include underground utilities. Applicable only if the site/striping plan is separate.					
If project includes 190th from SE 30th to Cheldelin, Transportation Engineering has reviewed and approved the elevations.					
Transportation Engineering Review:					
Existing signal conduits and detector loops are shown.					
Proposed new signal interconnect conduit and junction boxes are shown.					
Determine if installation of underground signal interconnect conduit is appropriate for frontage(s).					
Striping plan submitted and meets criteria.	6.02.20 & Cad Manual 2.02.03				
Signage plan submitted and meets criteria. Include street lights on the signage plan.	6.02.19 & Cad Manual 2.02.03				
For streetlight plans with 4 or more streetlights, verify that voltage drop is not more than 3% by multiplying the total load per circuit by the total circuit length. The total should be less than 1,105,750.					
If bus stop along frontage, check for conflicts and determine if concrete pads are needed across planter strip for front and back door bus access.					
Review median design.					
Verify median detail included.	Detail 636				
TRANSPORTATION STANDARD DETAILS	Detail #				

STANDARD	Code	Complete	Needs Revision	Missing	N/A
Does the project include the construction of public street?	603-613				
Rain drain connections not made to a curb core follow this preferred hierarchy: 1. Rain garden or planter wall connection 2. Connection to the back of a catch basin 3. Connection to the main line at a manhole 4. Connection to the main line with a blind tee 5. Connection to a beehive					
Does the project include a rain garden in the public right-of-way?	GS-101 - GS-111				
Does the project include the need to trench through concrete?	640				
Does the project include grind and inlay of pavement?	637				
Does the project include installation of curb?	620-622				
Does the new street section include a cul-de-sac?	615				
Does the new street section include a branch turnaround?	616				
Does the development include a dead end street?	628 or 630				
Will the project include new driveway approaches?	618A or B or 619				
Will the project include construction of sidewalk?	623				
Will the project include the installation of sidewalk ramps?	624				
Will an end of sidewalk marker be required?	629				
Will the project require any street signage?	631				
Does the project include the installation of speed bumps?	635				
Does the project include a public facility access road?	602A or B				
Does the project include a public pedestrian or bicycle accessway?	626 & 627				
Does the project include the construction of a multi-use path (including on street paths)?	626 & 627				
Does the project include the planting of street trees?	641 or 642				
Does the proposal include the installation of a fiberglass pole for streetlighting?	643				
Does the proposal include the installation of an aluminum pole for streetlighting?	644				
Does the proposal include the installation of a decorative acorn streetlight?	645				
Does the proposal include the installation of a decorative pendant streetlight?	646				
Does the proposal include the installation of a streetlight on a wood pole mast arm?	647				
Verify junction box detail included when needed. Verify that the proposal complies with detail.	648				
Verify signal communications conduit detail included when needed.	651				

STANDARD	Code	Complete	Needs Revision	Missing	N/A
Verify streetlight disconnect detail (649) included when new public streetlights installed and Streetlight Electrical Service Pedestal Detail (650) if CUP-4111 installed. If 17x30 junction box installed instead of CUP-4111, the installation is in a junction box per PGE's specs.	649 & 650				
STORMWATER					
Is stormwater addressed for every lot?					
Are backyard storm drains needed to protect lots from adjacent drainage? Private storm drains shall meet UPC.	4.13 & 4.14				
Is the public backyard storm drain pipe centered in a minimum 15 foot wide public stormwater easement and is that easement located on just one property within that 15 foot width?					
The public backyard storm drain pipe is at least 8" in diameter and otherwise meets the Public Works Standards.					
Note on plans that laterals and appurtenances connecting from the public backyard storm drain pipe, including any portion in the public easement, are private, privately maintained, and shall meet plumbing code.					
All public storm pipes and structures must be within 400 feet (uninterrupted by change in grade or alignment) of a truck accessible manhole structure.					
Explicitly note all water quality facilities outside of the public right-of-way as "public" or "private" as applicable.					
Arrows showing direction of flow in street if profile not provided.	CAD Manual 2.02.07				
Standard Corridor location 5 feet south or east of right-of-way centerline. When roadway width is less than 30-ft, 3 feet minimum from centerline permitted.	4.03.01				
Check composite sheet for horizontal and vertical alignment conflicts. All vertical separation of less than 1-foot must be specifically dimensioned on plans.					
Public storm pipe shall be reinforced concrete, HDPE solid wall, 3034 PVC, or polypropylene smooth interior corrugated exterior pipe. Specific pipe material must be called out on plans.	401.02 or 4.04				
Pipe cover minimum 30” in paved areas, 36” in unpaved areas.	4.03.02				
Max pipe bury 20' for ASTM D3034 SDR-35 PVC. Max pipe bury 20' for Polypropylene (dual-wall). See 2.08 for all other pipe types.	2.08				
For pipe size changes at a manhole, match crowns instead of inverts.	4.05.02				
No negative slopes, including transitions between public and private.					
Note included for new connections to existing manholes to rotate manhole cone/flat top and realign steps.					
Manhole spacing 500' maximum and at all changes in slope, alignment, size, and type, and at grade breaks and intersections.	4.05.02				
Flat top manholes shall be used when rim to crown is less than 60".	Detail 203				

STANDARD	Code	Complete	Needs Revision	Missing	N/A
Blind 'T"s only permitted for 4-inch and 6-inch stormwater laterals for detached dwellings and middle housing. All others, connection at a manhole, not a cleanout.	4.04 (D)				
All stormwater mains terminate in a manhole. The main may be permitted to terminate in a temporary cleanout if the main is expected to be extended with future development. The Engineer shows that the proposed main is the proper grade for extension and the pipe upstream from the last manhole is not proposed to convey runoff until it is extended.					
Access structures (manholes, cleanouts) located within an easement are within 12 feet of edge of vehicular access, measured from center of structure lid, when designed to be accessed perpendicularly by the maintenance vehicle and within 6 feet when designed to be accessed from the front of the maintenance vehicle. Structures may be farther from the edge of the roadway if a gravel public access road is provided that extends all the way to the structure, or at a minimum allows for maintenance trucks to get within the appropriate distances specified above.	4.05.01 SWMM 3.2.5				
Inlet manhole required if two or more pipes discharge to structure or pipe is larger than 6” or design peak flow from onsite system exceeds 0.5 cfs.	4.05.03B				
150-foot max manhole spacing for detention pipes when off-line from stormwater line.	Detail 406				
72-inch manhole normally required for detention structures. Manhole shall be shown on detention pipe profile.					
Minimum 4.5-foot vertical inside clearance between cartridge and top of water quality manhole or vault.					
Water quality manhole: 48" min for 1- and 2-cartridge; 60” min for 3-cartidge. More than 3 cartridges requires a vault.					
Maximum detention pipe size of 36 inches.	4.04				
Catch basin maximum spacing 400-feet.	4.05.03				
Catch basin leads: minimum 12-inch diameter.	4.04				
Catch basin required on upstream side of intersection.	4.05.03				
Catch basin required at end of dead end street with descending grade.	4.05.03				
Catch basin required at upstream or downstream end of street improvement abutting unimproved roads or property.	4.05.03				
Double catch basins required at low point (sag) of vertical curves.	4.05.03A Detail 401D				
Stationing included for all services and structures.					
Upstream drainage inlet provided.					
Outfall protection noted and adequate (rip-rap, energy dissipater, flared ends, etc.).	4.05.04				
Rip-rap dimensions comply with Public Works Standards.	4.05.04				

STANDARD	Code	Complete	Needs Revision	Missing	N/A
Downstream property or pipe not adversely affected by concentration, point of discharge, volume or pollutants.	4.08				
Stormwater not to be discharged onto other property without easement.	4.01				
Solid waste storage areas for multifamily and food, oil & grease waste generating businesses, including automotive, meet source control standards:	SWMM 5.5 & GCDC 7.0212				
~Covered so that rainwater will not come into contact with waste containers.					
~The area beneath the cover paved with concrete.					
~The paved area beneath the cover hydraulically isolated from the area outside of the cover.					
~Oil and grease waste storage shall be located in a space separate from all other waste.					
For the following uses, meets pollutant source control measures: fuel dispensing facilities, above ground storage of liquid materials, exterior storage of bulk materials, material transfer and loading dock areas, equipment and/or vehicle washing.	SWMM 5.3 - 5.10				
A paved area shall be placed underneath and around any area where hazardous material loading and unloading will be conducted. *To be verified by Wellfield staff; Development Engineering to alert.*	Wellfield Reference Manuals: 3.4.2				
If drainage from a loading or unloading area can enter a stormwater conveyance system, drain covers, absorbent booms, diking material sufficient to isolate spilled material, or a quick-closing valve and proper signage shall be provided. *To be verified by Wellfield staff; Development Engineering to alert.*	Wellfield Reference Manuals: 3.4.2				
If a proprietary vault is being used for public water quality treatment, verify with City staff the make and model are on the approved list.					
City maintained stormwater ponds meet fencing requirements of Stormwater Management Manual.	SWMM 3.2				
If a stormwater pond's overflow and access are combined, the access must be traversable by vehicles as well as workers on foot.					
Edge of stormwater pond(s) are at least 5-feet from property lines or an easement was provided by adjacent property owner to ensure the full five feet of width.	SWMM 3.2.5				
Preapproval received for stormwater pond(s) with walls or slopes steeper than 3:1. Note: no more than 1/3 of the perimeter is permitted to exceed 3:1.	SWMM 3.2.5				
Stormwater pond's surrounding slopes do not exceed 10 percent or a geotechnical report is submitted and approved by City.	SWMM 3.2.5				
Stormwater pond(s) are at least 200 feet from slopes greater than 15% or a geotechnical report is submitted and approved by City.	SWMM 3.2.5				

STANDARD	Code	Complete	Needs Revision	Missing	N/A
Stormwater pond(s) have at least 1 foot of freeboard to top of berm.	SWMM 3.2.5				
Design modification required for direct private lot connections to stormwater pond.					
Permanent pool depth of wet stormwater pond(s) are no more than 2.5 feet and will not exceed 8 feet during 25-year event.	SWMM 3.2.5				
STORMWATER STANDARD DETAILS	Detail #				
Does the project include the installation of stormwater manholes? *Manhole - 27" diameter or less: Standard: 201, Shallow: 203 / 30" or greater diameter: Standard 202, Cast in place: 204* *Frame - Standard: 205A or B; Suburban: 206A or B; Water/tamper proof: 206C or 207A or B; Hinge: 208; Pin: 209* *Cover - Standard: 410, Tamperproof: 411; Hinge: 412; Pin: 413* *Step - 210 or Hanging Ladder: 409*	Multiple				
Does the project include installation of new public stormwater pipe? *Pipe Bedding and Backfill - 214* *AC Pavement Restoration - 639; PCC Pavement Restoration - 640* *Joints (only for large diameter pipes) - 310-312*	Multiple				
Does the project include installation of catch basins? *Standard - 401A-C, Double - 401C-D, Non-grated - 402*	Multiple				
Does the project include the installation of a ditch inlet? *Ditch Inlet - 403A-C* *Inlet Manhole - Standard: 404A&B, Alt Top: 404C, Non-grated: 404D*	Multiple				
Does the project include detention pipe?	406				
Is a flow control manhole required? Are the invert, orifice, and overflow elevations shown?	405A-B				
Does the project include a storm sump (drywell) system? *Standard - 407, Retrofit - 408*	407 & 408				
Does the project require that the height of a manhole be adjusted following changes to the adjacent pavement height?	638				
WASTEWATER					
Standard corridor location 5 feet north or west of street centerline.	3.03.01				
Future line extension provided. Show topography for at least 100 feet beyond site boundary.	CAD Manual 2.02.07 & 2.02.08				
Pipe depth shall be minimum to provide for future extension.	3.01				
Max pipe bury 20' for ASTM D3034 SDR-35 PVC. See 2.08 for all other pipe types.	2.08				
Check composite sheet for horizontal and vertical alignment conflicts. All vertical separation of less than 1-foot must be specifically dimensioned on plans.					
Minimum clear distance from water mains 5-foot horizontal, 18-inch vertical (wastewater beneath water main).	Detail 510 & 5.02.04				

STANDARD	Code	Complete	Needs Revision	Missing	N/A
DI pipe required where vertical separation is less than 18-inches, or horizontal separation is less than 5-foot, or when cover is less than 3-feet from subgrade.	Detail 510				
If waterline crosses under the wastewater line, center standard length of wastewater pipe at crossing.	Detail 510				
No curved wastewater pipe allowed.	3.03				
4-inch maximum hole for 8-inch Main taps unless otherwise approved by Wastewater Senior Engineer.	Detail 308				
Is a wastewater lateral provided for every buildable lot?					
Stationing included for all laterals and structures.					
Minimum pipe diameter 4-inch for laterals.	3.06				
Laterals shall be placed at 90 degrees to the main.	3.06				
Keep laterals 10' min from P/L to avoid water meters and utility vaults.	3.06				
Existing houses and vacant lots, which are a part of the development, shall be provided with laterals.	GCDC A5.102				
Minimum pipe diameter 8-inch for mains.	3.04				
Drop Elevation:	3.05.02				
a. Min 0.2-foot drop through MH for horizontal deflection over 45 degrees; 0.1-foot drop for 0 - 45 degrees. If wastewater in and out are equal size *and* pass straight through manhole, no added elevation change is required.					
b. Shallow inside drop MH required for drop less than 2' to provide smooth flow lines unless the drop is less than 0.1 foot or 0.2 foot as specified in last checklist requirement.	Detail 302				
c. Drop connection required when vertical distance between flow lines exceeds 2' at MH.	Detail 301				
MH finish grade minimum of 1' above existing ground in unimproved area; at grade in existing street; and at future grade in proposed street. In unpaved vehicular accessways, a 5’ x 5’ x 4” AC pad shall be placed to finished grade centered around frame.	302.03.06				
Shallow MH with slab top shall be used in lieu of cone top when less than 4' between MH shelf and top of lid.	3.05.02 & Detail 203				
Manhole spacing 500' maximum and at all changes in slope, alignment, size, type, and at grade breaks and intersections.	3.05.02				
Insert note for all new connections to existing manholes to rotate manhole cone/flat top and realign steps to meet requirements of MH details.	Details 201, 203, & 204				
The following note is included on all plan sheets that show wastewater service laterals: "All lots can be served by gravity wastewater without pumps unless otherwise noted on this sheet."					
Cleanouts are permitted at the end of non-extendable wastewater mains which do not exceed 250' in length or serve more than 8 lots.	3.05.03				

STANDARD	Code	Complete	Needs Revision	Missing	N/A
Access structures (manholes, cleanouts) located within an easement are within 12 feet of edge of vehicular access, measured from center of structure lid, when designed to be accessed perpendicularly by the maintenance vehicle and within 6 feet when designed to be accessed from the front of the maintenance vehicle. Structures may be farther from the edge of the roadway if a gravel public access road is provided that allows for maintenance trucks to get within the appropriate distances specified above.	3.05.01				
WASTEWATER STANDARD DETAILS	Detail #				
Does the project include the installation of wastewater manholes? *Manhole - 27" diameter or less: Standard: 201, Shallow: 203 / 30" or greater diameter: Standard 202, Inside Drop: 301, Cast in place: 204* *Frame - Standard: 205A or B, Suburban: 206A or B, Water/tamper proof: 206C or 207A or B, Hinge: 208, Pin: 209* *Cover - Standard: 303, Tamperproof: 304, Hinge: 305; Pin: 306* *Step - 210*	Multiple				
Does the project include the installation of new public wastewater pipe? *Pipe Bedding and Backfill - 214* *AC Pavement Restoration - 639; PCC Pavement Restoration - 640* *Joint - 310-312*	Multiple				
Is a cleanout required?	211				
Are anchor walls required (pipes with slopes 20% or greater)?	212				
Is concrete encasement required (pipe in waterway that cannot meet coverage requirements of 3.03.06)?	213				
Does the project include the installation of laterals? *Lateral - 307, Tap in Existing Main - 308, Cleanout - 211; Siamese not permitted.*	Multiple				
Does the project require that the height of a manhole be adjusted following changes to the adjacent pavement height?	638				
WATER					
Located in typical corridor: 12 feet south or east of centerline.	5.02.01				
Service level pressure zone identified.					
Are internal mains looped?	5.01 & 5.03				

STANDARD	Code	Complete	Needs Revision	Missing	N/A
Pipe size requirements: - 4-inch pipe shall be used in residential zones, on dead end streets, only when approved by the Engineer. The maximum length may not exceed 250 feet. Not more than 12 services may be connected. - 6-inch pipe shall be the minimum standard size of distribution mains and shall only be used on looped systems larger than 6-inches. No hydrants are permitted on 6-inch lines. - 8-inch pipe shall be used for mains supplying hydrants requiring a flow rate of 1,000 GPM. - 10-inch or larger pipe shall be required as specified in the Master Plan and as required by the Engineer to meet Commercial and Industrial usage or fire flow demands exceeding 1,000 GPM.	5.03				
One water sampling station required for every 20 lots in subdivisions (none required if less than 20 lots).	5.08 Detail 504				
3' minimum horizontal clearance between water mains/services and other utility lines, including licensed utilities (see Wastewater section for wastewater clearances).	5.02.05				
All water infrastructure located at least 12" above all other utility lines, including licensed utilities (see Wastewater section for wastewater clearances). *Less than 12" permitted to accommodate for future side connections of water infrastructure and to avoid conflicts with parallel utilities but absolute minimum clearance for water services is 6".*	5.02.05				
All vertical separation of less than 1-foot must be specifically dimensioned on plans.					
Minimum cover 36" from existing or future street grade; 48" minimum in unpaved areas.	5.02.02				
Temporary and permanent dead-end mains shall terminate with a properly sized blow-off assembly.	5.03 Details 506 A & B				
Minimum water tap spacing of 18 inches along main.	501.03.04				
Water service provided for every lot.					
Proper pipe class noted.	501.02.02				
Stationing included for all services and structures.					
Fire hydrant spacing 300' max in commercial & industrials areas; 400' max in residential areas.	5.04.03				
Where no sidewalk exists around hydrant, place 6' x 6' x 6" concrete pad around hydrant. Place adjacent sidewalk panel(s) at time hydrant pad is poured.	502.03.01 Detail 501C				
Storz adapters required on existing hydrants along frontage.	5.04.03 502.02.01 Detail 501A				

STANDARD	Code	Complete	Needs Revision	Missing	N/A
Blue markers required in street to mark all hydrant locations.	5.04.03 502.02.01 Detail 501B				
Air release valve required at main highpoints without hydrants.	5.04.04				
Valves located at intersections.	5.04.01				
Butterfly valves required on 12" and larger main.	501.02.13				
Intersection detail for valves and fittings required when scale is smaller than 1"=20'.	CAD Manual				
Fittings identified (MJ x MJ, FLJ x MJ, etc.)	CAD Manual				
Install only minimum number of valves necessary to effect a shutdown of no more than one block out of service. 2 valves at "T" intersection and 3 valves at cross.	5.04.01				
Maximum length of shutdown 500' in commercial/industrial areas, and 800' in other areas.	5.04.01				
Backflow prevention required all new commercial construction, irrigation and fire sprinklers systems.	5.05				
Permanent irrigation systems for public stormwater facilities have a stand-alone water meter and backflow device.	SWMM 3.2.5				
Rockwood, Portland, Lusted, Butler Creek waterlines shown on plans. (DE to send copy of plans to affected City/District).					
WATER STANDARD DETAILS	Detail #				
Does the project include the installation of a fire hydrant?	501A- C				
Does the project include installation of new public water pipe?	214				
Does the project require the installation of an air valve unit?	505A & B				
Does the project require the installation of a blow-off?	506A & B				
Is thrust blocking required to deal with abrupt changes in horizontal (#507) or vertical (#508) alignment?	507 & 508				
Does the project require the installation of a straddle block?	509				
Will the water pipe be installed in proximity to gravity wastewater pipe?	510				
Is a valve box required (4-6" blow off - 512; everything else - 511)?	511 or 512				
Does the project include the installation of water services and meters? *1" Service (w/ 3/4" - 1" Meter Box) - 502 & 515A, 2" Domestic (w/ 1.5"-2" Meter Box) - 503 & 515B, Larger than 2" - per plan (tap to main w/ stub out to site typically performed by City at developer's expense),* *3" and Larger Meter Vault - 513A-D*	Multiple				
Is a backflow prevention assembly (of appropriate size based on the meter or service installation) required to be installed? *3" or Larger DCVA or DDCVA Installation - 514A-B (& 514 C if DDCVA for a dedicated fire service line)* *3/4" - 2" DCVA installation - 514D*	Multiple				

STANDARD	Code	Complete	Needs Revision	Missing	N/A
Is a reduced pressure principal backflow assembly required to be installed? (Typically industrial/manufacturing development or on domestic or irrigation services for properties with existing wells in use for irrigation.) *3" or larger RPBA - 514G, 2.5" or smaller RPBA - 514F*	514F, 514G				
Does the project include the installation of a sampling station?	504				