



Water & Wastewater Construction Plan Checklist

Complete the following checklist for all water and wastewater mains and submit with initial construction plan submittal.

- A. General Requirements
- B. Water Plan
- C. Wastewater Plan
- D. Profile

PROJECT INFORMATION	
Date:	
Project Name:	

NOTE: Additional design requirements not included in the following checklist can be found in Appendix C & D of Eagle River Water & Sanitation Rules & Regulations (ERWSD).

Check (☑) if completed; or (N/A) if not applicable

A. GENERAL REQUIREMENTS	
<input type="checkbox"/>	1) Use 24" X 36" format
<input type="checkbox"/>	2) Show North arrow and scale. Conform to a scale of 1"=20'
<input type="checkbox"/>	3) Include site map
<input type="checkbox"/>	4) Include vicinity map
<input type="checkbox"/>	5) Include title of project
<input type="checkbox"/>	6) Provide addresses and lot numbers for all lots/buildings
<input type="checkbox"/>	7) If multi-family, label as townhomes, apartments, duplexes or condominiums
<input type="checkbox"/>	8) Show typical street cross section(s) showing all existing and proposed utilities with required separations.
<input type="checkbox"/>	9) Add Owner/ Developer signature block to cover sheet only
<input type="checkbox"/>	10) Include stamped signature block on each sheet signed by professional engineer registered in the State of Colorado
<input type="checkbox"/>	11) If plan includes fire hydrants or fire service lines, add Fire Department signature block to cover sheet only
<input type="checkbox"/>	12) Add standard Water Plan Notes, including Water Project Specific Notes
<input type="checkbox"/>	13) Add standard Wastewater Plan Notes, including Wastewater Project Specific Notes.
<input type="checkbox"/>	14) Include Fire Flow information if applicable (Building data and Fire Flow calculations)
<input type="checkbox"/>	15) Show and label all existing utilities including gas, communications, electric, and storm sewer. Include diameter and material for water, wastewater, and storm sewer. Indicate as Public or Private.
<input type="checkbox"/>	16) Label existing and proposed Rights of Way and/or easements with reception numbers and widths
<input type="checkbox"/>	17) Label street names (note if private)
<input type="checkbox"/>	18) Label subdivision boundaries and adjacent filings

<input type="checkbox"/>	19) Label phase lines if the project is split into multiple phases
<input type="checkbox"/>	20) Label match lines with stations and corresponding sheet numbers
<input type="checkbox"/>	21) Label all existing and proposed pavement, curb and gutter, sidewalks and medians
<input type="checkbox"/>	22) Label all existing or proposed surface improvements, including but not limited to buildings, signs, retaining walls, fences, water quality features, etc.
<input type="checkbox"/>	23) Label all existing valves and fire hydrants Include District numbering.
<input type="checkbox"/>	24) Geotechnical Report determining Corrosivity of native Soils submitted (Reference 9.2.2)
<input type="checkbox"/>	25) Geotechnical Report determining ground water levels submitted (Reference 9.2.3)
<input type="checkbox"/>	26) Verify that proposed water or wastewater mains are located in roadways, in drive aisles of any parking lots, or in an accessible backlot maintenance road.
<input type="checkbox"/>	27) Include all applicable ERWSD details
<input type="checkbox"/>	28) Verify that the water or wastewater main is located a minimum of 10 feet away from any structure

B. WATER PLAN

<input type="checkbox"/>	1) Label all proposed water lines as Public or Private
<input type="checkbox"/>	2) Label all horizontal and vertical bend and size
<input type="checkbox"/>	3) If corrosive soils mitigation is required, show anode size, test station, and location.
<input type="checkbox"/>	4) Label the size of all reducers
<input type="checkbox"/>	5) Show stations for all service lines, valves, fittings, fire hydrants, thrust blocks, elbows, bends and deflections with degree of angle, stream crossings etc.
<input type="checkbox"/>	6) Provide thrust restraint calculation at all fittings (if required)
<input type="checkbox"/>	7) Water service connections shown and labeled with size and material. Curb stops shown and labeled
<input type="checkbox"/>	8) Line valves must be installed a minimum of one every 1,000'. Refer to Appendix C-2.6.3
<input type="checkbox"/>	9) As determined by ERWSD, permanent and temporary dead end mains require a water quality device.
<input type="checkbox"/>	10) Ensure easements are adequate per Appendix C-Detail C-15
<input type="checkbox"/>	11) 18" minimum spacer pipe between fittings.
<input type="checkbox"/>	12) For joint deflection criteria see Appendix C-2.6.9
<input type="checkbox"/>	13) Combination Air Vacuum Valves are shown on all high points on water mains per Appendix C-2.6.13

Abandonment:

<input type="checkbox"/>	14) Label pipe as Abandoned in-place or as removed. Include label denoting length.
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Stub-Outs:

<input type="checkbox"/>	15) Stub-Outs must be designed per Appendix C-4.16.3
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Separations:

<input type="checkbox"/>	16) Label horizontal distance from proposed water line to other utilities and verify that it meets required separation.
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<input type="checkbox"/>	17) If horizontal separation is not met, use secondary containment options detailed in Appendix D-2.6.3
<input type="checkbox"/>	18) Label all utility vertical crossings. Indicate pipe elevations at crossings and maintain separations.
<input type="checkbox"/>	19) If vertical separation is not met, use secondary containment options detailed in Appendix D-2.6.3
<input type="checkbox"/>	20) Insulation required where minimum cover is not met and at storm sewer crossings per Appendix C-2.6.12
Restraints:	
<input type="checkbox"/>	21) For D.I.P. pipe sloped at $\geq 20\%$, Anchor Blocks/Joint restraints/Cutoff Collars must be installed. See Standard Detail C-10 in Appendix C
Casing Pipes:	
<input type="checkbox"/>	22) Ensure no taps or fittings are proposed at casing pipe locations.
Air Vacuum valve stations:	
<input type="checkbox"/>	23) Show detail for all Air Vacuum valve stations and vent locations. See Standard Details C-01 & C-02 in Appendix C
<input type="checkbox"/>	24) Profile all Air & Vacuum valve stations. Show vents on plan view, Refer to Standard Details C-01 & C-02 in Appendix C
Fire Hydrants:	
<input type="checkbox"/>	25) Fire Hydrant design notes shall include: station and offset, flange elevation, and depth of bury. Verify flange elevation is above final grade. No Fire Hydrant over 5 years old may be reused.
<input type="checkbox"/>	26) No horizontal or vertical bends allowed on hydrant laterals.
<input type="checkbox"/>	27) No taps allowed on hydrant laterals between guard valve and hydrant
<input type="checkbox"/>	28) Show bollards if required
<input type="checkbox"/>	29) All hydrant laterals will be restrained
<input type="checkbox"/>	30) Fire hydrant laterals are less than 50' in length.
C. WASTEWATER PLAN	
<input type="checkbox"/>	1) Label all proposed wastewater lines as main lines or service lines.
<input type="checkbox"/>	2) Show stations and elevations for all services, fittings, elbows, bends, deflections with degree or angle, stream crossings, manholes etc.
<input type="checkbox"/>	3) Wastewater mains shown with sizes (minimum 8"), material, class and slopes meeting requirements of Appendix D
<input type="checkbox"/>	4) Label all Manhole drop connections
<input type="checkbox"/>	5) Wastewater service line connections shown and labeled with size and material.
<input type="checkbox"/>	6) Cleanouts shown and labeled
<input type="checkbox"/>	7) Label all existing manholes (include District numbering to be obtained from District) and provide invert and rim elevations on both plan and profile view.
<input type="checkbox"/>	8) Label abandoned pipe as Abandoned in-place or as removed. Include label denoting length. Also label abandoned manholes as Abandoned in-place or as removed.

D. PROFILE

(Note: The following items are to be used in conjunction with the above Water Plan and Wastewater Plan checklist when designing Plan and Profiles.

- 1) For Water and Wastewater, show all utility crossings including storm water and dimension clearances from water and wastewater mains.
- 2) Show profile grid stations and elevations
- 3) Stations on profile and plan view must match
- 4) Label existing and proposed finish grades to top of pipe for water and invert for wastewater.
- 5) Label length, diameter, material, and slope of all pipe segments
- 6) Dimension depth of main lines, and identify any areas with insufficient cover or excessive depth per Appendix C-2.6.6 and Appendix D-2.4.3

Add any project related comments below:

SIGNATURES OF ENGINEERING FIRM:

Plan drawn by signature: _____

Plan drawn by (print name): _____

Plan reviewed by signature: _____

Plan reviewed by (print name): _____

ERWSD Standard Plan Notes

1. All materials, workmanship, and construction shall meet or exceed the standards and specifications set forth in the Eagle River Water and Sanitation District Rules and Regulations. Where there is conflict between these plans and the Rules and Regulations or any applicable standards, the more stringent standard shall apply. All work shall be inspected and approved by the ERWSD Inspector.
2. The contractor shall schedule a mandatory pre-construction meeting at the construction site a minimum of three (3) business days after the plans have been submitted. Participants shall include but are not limited to the Applicant, contractor, excavator, engineer, and the district representative. Construction may begin once the meeting has concluded, and the ERWSD Inspector has signed off.
3. The contractor shall have one (1) signed copy of the approved plans, one (1) copy of the appropriate criteria and specifications, and a copy of any permits and extension agreements needed for the job onsite at all times.
4. The contractor shall provide a complete bill of materials for all proposed water and wastewater infrastructure.
5. The contractor shall be responsible for all aspects of safety including, but not limited to, excavation, trenching, shoring, traffic control, and security.
6. If during the construction process conditions are encountered which could indicate a situation that is not identified in the plans or specifications, the contractor shall contact the ERWSD Inspector immediately.
7. The contractor shall submit traffic control plans as approved by the appropriate governing agency.
8. The contractor is responsible for providing all labor and materials necessary for the completion of the intended improvements shown on the drawings or as designated to be provided, installed, or constructed unless specifically noted otherwise.
9. The contractor shall be responsible for recording as-built information on a set of record drawings kept on the construction site and available to the ERWSD Inspector at all times. All as-built information shall be field surveyed under the direct care and supervision of a licensed Professional Land Surveyor.
10. The contractor shall obtain locates prior to any excavation.
11. The contractor is responsible for any damage to any utility facilities as a result of their actions. The contractor shall make the required repairs immediately to the satisfaction of the affected utility.
12. Eagle River Water and Sanitation District does not guarantee the accuracy of the locations of existing pipelines, manholes, hydrants, valves and service lines. If field conditions are found to be different than shown on the plans, the contractor shall notify the inspector and design engineer immediately.
13. All trenching and backfill shall be in accordance with Appendix E of the ERWSD Rules and Regulations.

ERWSD Water Main Plan Notes

1. All water main construction is subject to the most recently adopted ERWSD Rules and Regulations.
2. Water mains shall be a minimum of 8 inches in diameter, with the exception of fire hydrant laterals.
3. Water mains shall be installed with a minimum of 7 feet of cover and a maximum of 9.5 feet of cover to the top of pipe.
4. Pipe deflections shall not exceed pipe manufacturers maximum allowable deflection or values in ERWSD Rules and Regulations Appendix C- 2.6.9 Table C-1.
5. Ductile iron pipe water mains shall be encased in PE Wrap per ERWSD Rules and regulations Article C-3.2.9
6. Water mains shall have tracer wire installed meeting ERWSD requirements per ERWSD Rules and Regulations Appendix E-1.12
7. Water mains shall have water specific marking tape installed 24 inches above the water main.
8. Water mains shall be bedded per ERWSD Rules and Regulations Appendix E, Detail E-01.
9. Water mains parallel to non-potable water shall be installed a minimum of 10 feet away horizontally.
10. Water mains shall be tested in accordance with ERWSD Rules and Regulations Article 9.3.3.

ERWSD Water Service Line Plan Notes

1. All water service line construction is subject to the most recently adopted ERWSD Rules and Regulations.
2. Each individually metered unit shall have its own independent water service line.
3. Residential water service lines should be 1 inch, 1.5 inches, or 2 inches, designed not to exceed a velocity of 10 ft/sec, and approved by the District Plan Review Engineer.
4. Water service lines shall be constructed along the shortest and straightest route possible.
5. Water service line taps shall be a minimum of 18 inches apart.
6. Prior to a new tap, any and all existing water service line stub outs shall be abandoned per ERWSD Rules and Regulations Appendix B-2.11.
7. Water service lines that are 1 inch through 2 inch shall be copper or polyethylene and all water service lines 4 inches or greater shall be ductile iron. All materials must meet the requirements in ERWSD Rules and Regulations Appendix -B 2.1
8. Water service line curb stops shall be located within 1 foot of the property line, edge of ROW or edge of easement (whichever is closest to the water main).
9. Water service lines shall be installed with a minimum cover of 7 feet and a maximum cover of 9.5 feet to the top of the pipe.
10. Water service lines must be installed with tracer wire per ERWSD Rules and Regulations Appendix E-1.12.
11. Water service lines parallel to non-potable water shall be installed a minimum of 10 feet away horizontally.
12. Refer to ERWSD Rules and Regulations Appendix B section 2.3 for requirements at all crossings with non-potable water.

ERWSD Wastewater Main Plan Notes

1. All wastewater main construction is subject to the most recently adopted ERWSD Rules and Regulations.
2. Wastewater mains shall be a minimum of 8 inches in diameter.
3. Wastewater mains shall be installed with a minimum cover of 4.5 feet and a maximum cover of 14 feet to the top of the pipe.
4. Wastewater mains shall have tracer wire installed per ERWSD Rules and Regulations Appendix E1.12.
5. Wastewater mains shall be bedded per ERWSD Rules and Regulations Appendix E, Detail E-01.
6. Wastewater mains shall be installed a minimum of 10 feet horizontally away from potable water.
7. Wastewater mains must be tested in accordance with ERWSD Rules and Regulations Article 9.3.3.

ERWSD Wastewater Service Line Plan Notes

1. All wastewater service line construction is subject to the most recently adopted ERWSD Rules and Regulations.
2. Each individually metered unit shall have its own independent wastewater service line.
3. Wastewater service lines shall be constructed along the shortest and straightest route possible.
4. Wastewater service lines shall have a clean out within 3 feet of the structure, every 100 feet, and at every change of direction greater than 45 degrees. Clean outs shall be placed outside the ROW whenever possible.
5. Wastewater service line connections shall be a minimum of 18 inches apart, shall be no closer than 10 feet outside of a manhole and shall be made with a wye.
6. Wastewater service lines shall be PVC and meet the requirements in ERWSD Rules and Regulations Appendix B 3.1.
7. Wastewater service lines shall be installed with a minimum cover of 4.5 feet and a maximum cover of 13 feet to the top of the pipe.
8. Wastewater service lines shall be installed with tracer wire per ERWSD Rules and Regulations Appendix E 1.12.
9. Wastewater service lines parallel to potable water shall be installed a minimum of 10 feet away horizontally.
10. Refer to ERWSD Rules and Regulations Appendix B section 2.3 for requirements at crossings with potable water.

As-Built Requirements

See ERWSD Rules and Regulations Section 9.4

Name of person submitting:

Date on submitted drawings:

Overall

Right of Ways

All right of ways shown (including adjacent right of ways)
Labeled with Eagle County recording information

Easements

Labeled with Eagle County recording information

Property Boundaries

Labeled with Eagle County recording information

Abandoned Water and/or Wastewater System Infrastructure

Greyed out

Labeled as “abandoned in place” or “abandoned and removed”

Date of abandonment

Pipe material

Details shall be included where abandoned mains or services are within a 20-foot radius of any water system valves

Different Drawings (Water, Sewer, Easements)

Water

Sewer

Easements

Water Infrastructure

Water Mains

- Diameter
- Length
- Material
- Insulation (if applicable)
- Private or Public

Water Services

- Tap location (X,Y,Z state planes coordinates)
- Diameter
- Length
- Material
- Insulation (if applicable)

Fittings

- Type
- Diameter
- Material
- XYZ state planes coordinate

Thrust Blocks

- Size

Fire Hydrants

- Type
- Flange elevation
- Lateral invert elevation
- Extensions (if applicable)
- Ownership status (private or public)
- X,Y state planes coordinate

Valves (including curb stops)

- Size
- Type
- X,Y,Z state planes coordinate

Water Infrastructure Cont.

Vaults and Other Appurtenances

Vault information

Type

Lid X,Y,Z state planes coordinate

Extent of below-grade structure

Existing Water Mains and Existing Water Services

Shown and labeled as “existing”

Crossings

Storm crossings

Other utility crossings

Details (include all appurtenant details)

Wastewater Infrastructure

Sewer Mains

- Diameter
- Length
- Material
- Slope
- Secondary containment (if applicable)
- Insulation (if applicable)
- Ownership status (private or public)

Sewer Services

- Tap location (X,Y,Z state planes coordinate)
- Diameter
- Material
- Length
- Insulation (if applicable)
- Stub out at distal end (X,Y,Z state planes coordinate)
- Cleanouts X,Y state planes coordinate

Manholes

- Diameter
- Type
- Rim elevation
- Invert elevations
- Lid location (X,Y state planes coordinate)

Crossings

- Storm crossings (location)
- Other utility crossings (location)
- Details (include appurtenant details)

FOG Infrastructure

Grease Interceptor

Size

X,Y state planes coordinates

Inspection Pit

X,Y state planes coordinates

Rim elevation

Invert elevations

Service Line

Diameter

Length

Material

Cleanouts