
**PLAN REVIEW CHECKLIST
FOR
WATER MAINS AND
SANITARY SEWERS**

CITY OF ANDERSON / ELECTRIC CITY UTILITIES



Project Name: _____

Date Plans Received: _____

Date Plans Reviewed: _____

Date Plans Returned: _____

Returned To: _____

Reviewed By: _____

Comments: _____

****RESPONSES TO COMMENTS MUST BE RETURNED WITH REVISED PLANS FOR FINAL PLAN APPROVAL.****

✓ – Approved as submitted X – Needs attention N/A – Non-Applicable

GENERAL

1. _____ If project is within City of Anderson municipal limits the appropriate number of plans is to be submitted to Building and Codes (electronic copies okay). If within County, submit directly to City of Anderson/Electric City Utilities for approval.
2. _____ If project is outside City of Anderson municipal limits, 2 sets of preliminary drawings (24 x 36); to scale furnished for initial review. Acceptable scales – 1 inch = 10, 20, 30, 40, 50, or 60 feet.
3. _____ Developer must install all proposed water and/or sewer taps on all new utility construction.
4. _____ Plans must be stamped and signed by Professional Engineer.

5. _____ Project location map provided.
6. _____ Site visit performed.
7. _____ A clearly marked North arrow on site plans.
8. _____ Elevation data referenced to mean sea level (MSL) and survey horizontal data shall be referenced to state-plane coordinate system including all proposed manholes.
9. _____ Drawings requiring public water, public sanitary sewer, or private fire main construction shall bear the following notes:
- “The City of Anderson/Electric City Utilities shall be notified at least 72 hours prior to construction. Call Water office at (864) 231-5230 and/or sewer office at (864) 231-2250 to provide notification.”
- “All water main and sanitary sewer material and workmanship shall be in accordance with the City of Anderson/Electric City Utilities Standard Specifications. The City of Anderson/Electric City Utilities standard specifications for Water construction and Sewer construction of Gravity and Force Main sanitary sewerage systems can be found by visiting our website at www.cityofandersonsc.com/utilities/wastewater-and-water/sewer-specifications.pdf.”
- “The Contractor shall be responsible for maintaining a marked-up set of design drawings showing “as-built” conditions. These “record drawings” shall be made available to the designer and/or the City Inspector upon request. The mark-ups shall be at the site at all times and shall be utilized to develop final record drawings. A hard copy and a computer-aided design copy of the as-built drawings (as a .dwg file) will be required upon project completion. The CAD version must be on CD media. These plans must be submitted to Electric City Utilities prior to the issuance of final acceptance letter.”
10. _____ Plan cover sheet should have the following contact information listed:
- | | |
|---|--|
| <p><u>Water:</u>
Electric City Utilities
Mark Fowler
314 Tribble Street
Anderson, SC 29625
(864) 231-5230</p> | <p><u>Sewer:</u>
City of Anderson
John West
309 Kirkwood Drive
Anderson, SC 29624
(864) 231-2250</p> |
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11. _____ Minimum 10 feet horizontal distance between water and sewer lines.
12. _____ Minimum 18 inch vertical distance between water and sewer lines.
13. _____ Where water and sanitary sewer lines cross, the water main shall be 18 inches above the sewer. If the sewer must be above the water main the sewer shall be at least 18 inches above and encased in concrete a minimum of 10 feet on each side of the water main. Joints shall be spaced to provide maximum distance from crossing.

- 14. _____ Water and sewer lines shall be a minimum of 4 feet deep unless prior approval has been granted.
- 15. _____ Projects requiring D.O.T. permit for installation of water and/or sewer mains within D.O.T. right-of-way shall provide paper and electronic copy of an 8 ½" x 11" exhibit for City submittal to D.O.T.
- 16. _____ Developments proposing to connect to City of Anderson water and/or sanitary sewer system shall be annexed into the City of Anderson or sign agreement to annex once property becomes contiguous. Annexation or execution of agreement must be fully executed prior to plan approval.
- 17. _____ The following fees are applicable to this project:

<u>WATER</u>		<u>SEWER</u>	
Tap	_____	Tap	_____
Capacity	_____	Capacity	_____

WATER

- 18. _____ A 10 feet permanent easement shall be required on all water mains crossing private property. The main shall be on the centerline of the easement and no buildings or other structures shall be built within easements. Easements shall be shown on all plans including landscape plan and an additional 11" x 17" easement exhibit "A" shall be provided to be included with easement document prepared by City Staff. All water main easements shall be fully executed prior to plan approval.
- 19. _____ Existing water supply facilities shall have adequate capacity to meet future potable water demands of proposed development.
- 20. _____ No fire hydrants shall be placed on water mains which are smaller than 6" diameter. Note: The Fire Marshall of Jurisdiction should be contacted to see if stricter requirements are in order for specific project types.
- 21. _____ In multifamily, commercial, and industrial areas, fire hydrants shall be placed such that the maximum hose lay length (as a truck travels) shall be no greater than 250 feet, unless the Fire Department requires closer spacing for specific reasons.
- 22. _____ At a minimum, fire hydrants shall be placed such that the maximum hose lay length (as a truck travels) shall be no greater than 500 feet in single family residential areas. Note: The Fire Marshall of jurisdiction should be contacted to see is stricter requirements are in order for specific project types.
- 23. _____ Blow-off assemblies shall be placed at the terminus of all dead end lines.
- 24. _____ Water mains 6 inches and larger shall be ductile iron pipe, including fire protection water mains.

25. _____ Fire protection water mains shall enter buildings at fire riser location and cannot be installed horizontally under building slabs.
26. _____ PVC pipe for smaller than 1 ½ inch diameter water mains shall be Schedule 40.
27. _____ PVC pipe for 1 ½ inch to 3 inch diameter water mains shall be SDR 21 Class 200.
28. _____ PVC pipe for 4" diameter water mains shall be C900.
29. _____ Tapping sleeve and valves shall be shown on plan when connecting to an existing water main. A back tap shall be shown when applicable.
30. _____ In-line gate valves are required at least every 2000 feet.
31. _____ Where water mains cross storm drains, minimum 36 inch vertical separation shall be maintained. At less than 36 inch separation, at least on section of ductile iron pipe centered on the utility must be shown.
32. _____ Private cutoff valve shall be installed immediately downstream of each meter.
33. _____ Each tax parcel shall be served by separate water meters. Master meters to serve more than one tax parcel will not be allowed.
34. _____ Commercial multi-unit buildings containing units to be leased and used as restaurants or other business types requiring installation of a sanitary sewer pre-treatment device, shall be required to install a separate water meter.
35. _____ Deduct meters are not allowed.

SEWER

36. _____ A 25 feet permanent easement shall be required on all sanitary sewers outside of the public right-of-way. The sewer shall be on the centerline of the easement and no buildings or other structures shall be built within easements. Easements shall be shown on all plans including landscape plan and an additional 11" x 17" easement exhibit "A" shall be provided to be included with easement document prepared by City Staff. All sanitary sewer easements shall be fully executed prior to plan approval.
37. _____ Proposed average and peak sanitary sewer flows shall be submitted prior to plan approval to determine if all downstream wastewater facilities including wastewater treatment plant, gravity sanitary sewer lines, and wastewater pumping stations have adequate capacity for future wastewater flows from proposed development.
38. _____ Minimum slope for 8 inch and larger gravity sanitary sewer pipe shall be 0.40%; the maximum slope shall be 15.0%.
39. _____ Service lateral pipe material shall be Schedule 40 PVC or Ductile Iron sewer pipe as required.

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40. _____ Bedding for sanitary sewers shall be Class B or greater.
41. _____ Cleanouts shall be placed on all building service laterals at the point at which City maintenance terminates. This point shall be the curb line, the property line, the right-of-way line, or the easement line as applicable. Cleanouts shall not be placed in pavement areas if at all possible. If required, use traffic-grade cleanouts when located within pavement areas.
42. _____ All 4 inch service lines shall be connected to gravity sewer pipe if at all possible. All 6 inch and larger service lines must connect to a manhole.
43. _____ Buildings proposing to connect to sanitary sewer shall be connected by a separate sanitary tap.
44. _____ The minimum diameter of sanitary sewer main shall be 8 inches.
45. _____ Where sanitary sewer mains cross storm drains, minimum 36 inch vertical separation shall be maintained. At less than 36 inch separation, at least on section of ductile iron pipe centered on the utility must be shown. Provide mechanical couplings at transition of materials or terminate in a manhole. City's standard is Hymax coupling.
46. _____ Manholes shall be placed at all changes in direction and grade of sanitary sewers. Manholes shall be spaced such that the distance between manholes does not exceed 400 feet. The minimum angle between lines entering and exiting a manhole is 90°.
47. _____ Outside drop connections shall be constructed at manholes on all influent sewers where the invert elevation is greater than 2 feet over the invert elevation of the effluent sewer. Outside drops shall not exceed 10 vertical feet. Slope of incoming pipe into outside drop manhole may not exceed 10%.
48. _____ Sewage pumping stations will not be permitted unless the developer can demonstrate extreme hardship would result if the station were denied. Pumping stations will be discouraged and therefore, only permitted on a case by case basis. All pumping stations shall be located above the 100 year flood plain and out of storm drainage flow paths.
49. _____ All sewage pumping stations shall have an auxiliary power source. Additionally, they shall be provided with a remote telemetry system compatible with the City's existing system and a potable water service including a yard hydrant for wash down purposes with a reduced pressure zone (RPZ) backflow preventer.
50. _____ Pumping stations shall be assigned an official name and number by Electric City Utilities as well as be assigned a 911 address by Anderson County prior to plan approval.
51. _____ Plans and profiles showing all utility and pipeline crossings as well as existing and proposed grades shall be provided for all sanitary sewers.

52. _____ Sewer maintenance access shall be maintained on all existing and proposed sanitary sewer easements. Maintenance access is defined as grades, soil compaction and cross slopes which will allow a sewer jet truck (weighing approximately 50,000 lbs.) to navigate easily. Maximum slope shall not exceed 20% and easement contour lines shall be shown on grading plans. Minimum of 2 feet contour intervals shall be used. Access to existing sanitary sewer easements located within proposed construction areas shall be maintained during all phases of construction.

BACKFLOW PREVENTION AND PRETREATMENT

53. _____ Projects requiring backflow prevention installation shall bear the following notes:
"Prior to backflow preventer installation, contact (864) 231-5230."
54. _____ As a minimum, commercial, industrial, institutional establishments and multi-family housing shall install and maintain double check valve assemblies immediately downstream from the City meter in a separate meter box or vault as applicable.
55. _____ All water service lines installed for landscaping and/or irrigation purposes shall have a double check valve assembly installed in them immediately downstream from the City's meter.
56. _____ Establishments determined to present a high hazard backflow potential according to the City's Cross Connection Manual (www.cityofandersonsc.com/utilities/cross-connection-control-policy.pdf), shall install and maintain reduced pressure zone (RPZ) backflow preventers in above ground, non-freezing enclosures.
57. _____ Double detector check valves shall be installed on all unmetered fire system mains. Valves shall be housed in a vault as close to the City main as is possible. A water meter that reads in cubic feet equipped with a touch read/radio read device compatible with the City's water meter and billing system shall be required.
58. _____ Projects requiring pretreatment shall bear the following note:
"Prior to pretreatment device installation, contact (864) 231-2250."
59. _____ Sand traps and oil separators with sample station manholes shall be installed in all sanitary service lines from service stations, garages, car washes, and similar operations.
60. _____ Grease traps and sample station manholes shall be installed in process waste lines of all sanitary service sewers for commercial, industrial, and institutional establishments with food preparation areas.
61. _____ Lint traps and sample station manholes shall be installed in all sanitary sewer service lines from laundry mats.
62. _____ Domestic sewage shall not pass through pretreatment devices or sample stations.

- 63. _____ If dumpster pad drains are to be tied onto the sanitary sewer, a grease trap and sample station manhole shall be placed between the pad and the City sewer. Domestic wastewater shall be excluded from the trap. Food process waste streams may utilize the same trap if sized appropriately.
- 64. _____ Rainwater shall be prevented from entering the sanitary sewer at all dumpster pad locations. Method must be detailed on drawings.
- 65. _____ Grease trap and oil separator details shall appear on the project drawings and shall be approved prior to installation.
- 66. _____ Oil separators shall be sized to handle two (2) times the expected flow rate.
- 67. _____ Grease traps shall be sized in accordance with the City of Anderson's Fats, Oil, and Grease program.

INTERNAL USE ONLY

	Yes	No	N/A
Revisions Received	_____	_____	_____
Executed Annexation sent to Planning	_____	_____	_____
Pretreatment Questionnaire Received	_____	_____	_____
Capacity Fees Received	_____	_____	_____
Availability Letter Issued	_____	_____	_____
Plans Approved	_____	_____	_____
FSE Classification	_____		