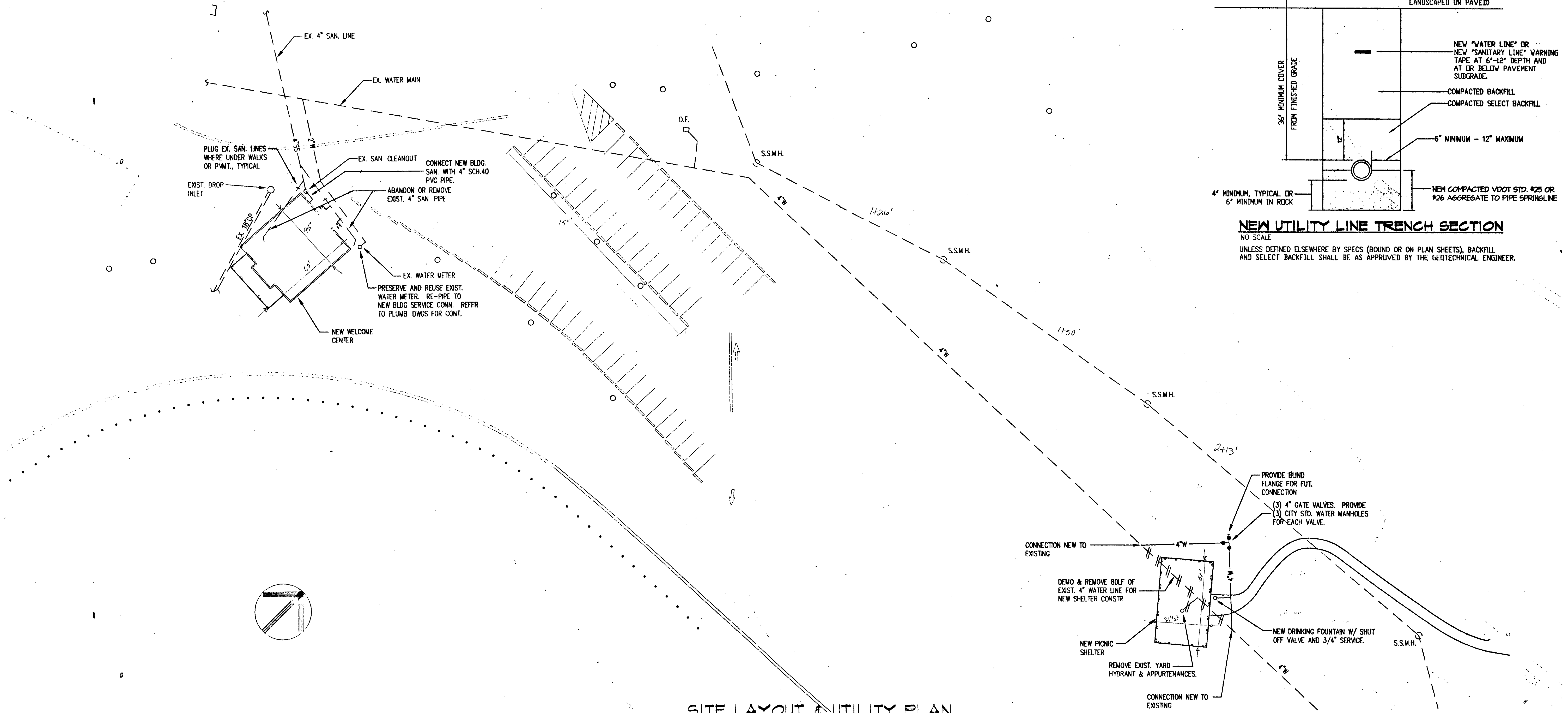


NEW UTILITY LINE TRENCH SECTION

NO SCALE  
UNLESS DEFINED ELSEWHERE BY SPECS (BOUND OR ON PLAN SHEETS), BACKFILL AND SELECT BACKFILL SHALL BE AS APPROVED BY THE GEOTECHNICAL ENGINEER.



SITE LAYOUT & UTILITY PLAN  
1" = 30'

WATER NOTES

**STANDARDS:** Construction of all water lines, structures, and pavement replacement shall conform to the requirements of the Virginia Department of Transportation (VDOT) "Road and Bridge Standards and Specifications" and the Commonwealth of Virginia/State Board of Health (VDH) "Water Works Regulations" latest editions, as minimum standards, as well as those of the City of Roanoke. See details this sheet and those available at the City of Roanoke for all City Standards noted below.

**SURFACE & COVER:** In areas of water line construction, grades shall be within six (6) inches of finished subgrade prior to the commencement of this work. Minimum clear cover over all water pipe shall be three (3) feet.

**TAPS/CONNECTIONS:** All connections to existing water mains and meter boxes shall be done by the City of Roanoke Water Department. Contact and Coordinate with Ed Trent, City Utility Line Services, at 853-2513.

**SEPARATION:** The Contractor shall comply with the State Water Works Regulations pertaining to separation of water and sanitary sewer.

**SERVICE (2" and smaller):** Water service pipe shall be Type K, hard drawn, copper tubing. All connections shall use Compression fittings. Fittings for service lines shall meet AWWA spec. C-800.

**WATER MAIN (4" and larger):** Water main piping shall be Ductile Iron (buried application), Class 51, AWWA C151/ANSI 21.51, with a

minimum working pressure of 250 psi. Fittings shall be Ductile or Grey iron, AWWA C110/ANSI 21.10 or AWWA C153/ANSI 21.53. Joints shall be mechanical type per AWWA C111.

**GATE VALVES (4" and larger):** Valves shall be UL/FM Rated, iron or ductile iron body, bronze trim, non-rising stem with square nut, single wedge, rubber encapsulated resilient seat, mechanical joint ends, control rod and installed in City of Roanoke Standard Pre-Cast Water Manholes. Provide Standard Frame and Cover with the word "WATER" stamped in the lid.

**FINISH GRADE:** The Contractor shall locate and uncover all meter boxes after all grading or pavement/surface treatment of roads and adjust the tops to final grades, if necessary.

**TESTING:** Perform all field tests, and provide all labor, equipment, and incidentals required for testing and disinfection. The Contractor shall produce evidence, when required, that any item of work has been constructed in accordance with contract requirements. Allow concrete to cure a minimum of 5 days before testing any section of piping where concrete thrust blocks have been provided.

Contractor shall test and certify water main installation in accordance with the "Contractor's Material and Test Certificate for Underground Piping". This form is found printed in the Project Manual Specifications and shall be completed and copied to the Owner and A/E upon completion.

An existing yard hydrant proposed to be demolished shall be used for flushing purposes prior to its demolition. Contractor shall be responsible for coordinating all disinfection and

flushing requirements.

**DISINFECTION:** Disinfect in accordance with City of Roanoke Standards.

**Disinfecting Agent:** The disinfection agent shall be liquid chlorine ANSI/AWWA B301, or sodium hypochlorite solution ANSI/AWWA B303. Dry hypochlorite ANSI/AWWA B300, similar and equal to "HTH" may also be used as the disinfecting agent.

All water lines shall be disinfected prior to being placed in operation. At a constant rate of potable water introduced, the chlorine dose shall result in a concentration of 100 mg/l for a "slug" of the water. Chlorine shall be added long enough to ensure that all portions of the pipe are exposed to the 100 mg/l solution for at least 3 hours. Operate all valves and appurtenances to ensure adequate contact is made. Flush system when complete. At the Owner's direction, two series of bacteriological samples shall be taken 24 hours apart. System shall be considered safe when two consecutive samples show no contamination. Repeat disinfection process until this occurs.

SEWER NOTES

**STANDARDS:** Construction of all sanitary sewer lines, structures, and pavement replacement shall conform to the requirements of the Virginia Department of Transportation (VDOT) "Road and Bridge Standards and Specifications" and the Commonwealth of Virginia/State Board of Health (VDH) "Sewage Handling and Disposal Regulations" latest editions, as minimum standards, as

well as those of the City of Roanoke. See details.

**SURFACE & COVER:** In areas of sewer construction, grades shall be three (3) feet over the crown of the pipe to be laid or within six (6) inches of finished subgrade prior to the commencement of this work. Minimum clear cover over proposed lines shall be three (3) feet.

**SEPARATION:** The Contractor shall comply with the State Water Works Regulations pertaining to separation of water and sanitary sewer. When the sewer cannot maintain ten (10) feet horizontal separation measured edge to edge or eighteen (18) inches vertical separation edge to edge (below waterline), the sewer shall be constructed of AWWA approved mechanical joint water pipe and pressure tested in place to fifty (50) psi without leakage prior to backfilling.

**MATERIAL & BEDDING:** Pipe and fittings shall be Polyvinyl Chloride (PVC) SDR-35 and shall conform to ASTM D-3034. Bedding shall be per VDOT Standard and Spec. (Class B min.). All trenches shall be compacted according to VDOT Standards.

**TAPS:** All connections to existing sanitary sewer mains shall be made by the City Utility Department. Lateral connections shall be made by the Contractor in accordance with City of Roanoke Standards.

**LIGHT COMMERCIAL:** If an existing service connection no longer exists or is unusable, one shall be made with a four (4) inch pipe through a wye or tee-wye branch fitting installed on a

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