

## UTILITY ADJUSTMENT QUANTITIES &amp; NOTES

DESIGN FEATURES RELATING TO CONSTRUCTION  
OR TO REGULATION AND CONTROL OF TRAFFIC  
MAY BE SUBJECT TO CHANGE AS DEEMED  
NECESSARY BY THE DEPARTMENT

REVISED	FHWA REGION	STATE	FEDERAL AID PROJECT	ROUTE	STATE PROJECT	SHEET NO.
	3	VA.		117	0117-128-F01,RW-201 0117-128-101, C-502	20(29)

SUMMARY OF WATER FACILITIES

SHEET NO.	3/4" WATER SERVICE LINE	1" WATER SERVICE LINE	1 1/2" WATER SERVICE LINE	2" WATER SERVICE LINE	6" DI WATER MAIN	8" DI WATER MAIN	12" DI WATER MAIN	6" GATE VALVE & BOX	8" GATE VALVE & BOX	FIRE HYDRANT	INSTALL 3/4" WATER METER	INSTALL 1 1/2" WATER METER ASSEMBLY	INSTALL 2" WATER METER ASSEMBLY	5/8" METER BOX & YOKE	1 1/2" METER BOX	2" METER BOX	1" AIR RELEASE VALVE & BOX
	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.	EA.
30		39			27	510		1	2	1							1
31	93		7	72	15	841	150	1	2	1	3	1	1	3	1	1	
32						181	155										
33																	
TOTAL	93	39	7	72	42	1532	305	2	4	2	3	1	1	3	1	1	1

## SANITARY SEWER FACILITIES COST RESPONSIBILITY

49.4% PROJECT COST

50.6% CITY OF ROANOKE COST

## WATER FACILITIES COST RESPONSIBILITY

46.5% PROJECT COST

53.5% CITY OF ROANOKE COST

## SUGGESTED SEQUENCE OF CONSTRUCTION

THE RELOCATION AND ADJUSTMENT OF UTILITIES, AND THE  
INSTALLATION OF PROPOSED UTILITIES SHALL BE PERFORMED  
PRIOR TO, OR CONCURRENT WITH THE ROADWAY CONSTRUCTION.  
SEE GENERAL NOTES FOR RESTRICTIONS.

SUMMARY OF SANITARY SEWER FACILITIES

SHEET NO.	8" DI SANITARY SEWER PIPE	36" SAN. SEWER PIPE	48" SAN. SEWER PIPE	SANITARY SEWER MANHOLE	MANHOLE FRAME & COVER F&C-1	MANHOLE FRAME & COVER WF&C-1
	L.F.	L.F.	L.F.	L.F.	EA.	EA.
30						
31	617			59	5	
32						
33	113	254	303	78		4
TOTAL	730	254	303	137	5	4

## MATERIAL NOTES

## WATER ITEMS

3/4" & 1" WATER SERVICE LINES SHALL BE TYPE "K" COPPER. TAPPING SADDLES SHALL BE USED FOR ALL SERVICE CONNECTIONS.

WATER MAIN FITTINGS SHALL BE DUCTILE IRON COMPACT FITTINGS IN ACCORDANCE WITH AWWA C153 WITH A MINIMUM PRESSURE RATING OF 350 PSI. WATER MAIN TEST PRESSURE SHALL BE 150 PSI. ALL SIZES OF DUCTILE IRON WATER MAIN SHALL BE PRESSURE CLASS 350 IN ACCORDANCE WITH AWWA C151. PIPE SHALL BE CEMENT-MORTAR LINED, SEAL COATED, AND MECHANICAL JOINT OR PUSH-ON JOINT. BEDDING SHALL BE VDOT STANDARD UB-1, TYPE 1. ALL BENDS, VALVES, SLEEVES, REDUCERS, TEES, PIPE, AND FITTINGS SHALL BE ANCHORED WITH REACTION BACKING IN ACCORDANCE WITH VDOT STANDARD RB-1 OR SHALL BE FULLY RESTRAINED WITH A MECHANICAL JOINT RESTRAINING MECHANISM WHICH, WHEN ACTUATED, IMPARTS MULTIPLE WEDGING ACTION AGAINST THE PIPE. MECHANICAL JOINT RESTRAINING MECHANISMS SHALL BE USED AT THE TIE-INS TO THE EXISTING WATER MAINS WHERE POSSIBLE TO PROVIDE A MINIMUM AMOUNT OF DOWNTIME FOR THE WATER MAIN. MECHANICAL JOINT PIPE SHALL BE USED WITH MECHANICAL JOINT RESTRAINING MECHANISMS. SEE SHEET 20(38) FOR LENGTHS OF PIPE (EXISTING AND PROPOSED) TO BE RESTRAINED. FOR CONNECTIONS TO EXISTING MAINS WHERE MECHANICAL JOINT RESTRAINING MECHANISMS CANNOT BE USED, SEE WATER MAIN CONNECTION DETAIL ON SHEET 20(38). TAPPING SADDLE SHALL BE USED FOR ALL SERVICE CONNECTIONS.

GATE VALVES 4" AND LARGER SHALL BE RESILIENT SEAT WITH MECHANICAL JOINT ENDS AND SHALL OPEN LEFT (COUNTER CLOCKWISE) WITH A 2" OPERATING NUT AND SHALL HAVE A NONRISHING STEM AND A DOUBLE O-RING SEAL AND SHALL BE IN ACCORDANCE WITH AWWA C509. GATE VALVES SHALL HAVE A WORKING PRESSURE OF AT LEAST 200 PSI. VALVE BOXES SHALL BE IN ACCORDANCE WITH VALVE VAULT DETAIL ON SHEET 20(38). GATE VALVES SMALLER THAN 4" SHALL BE INSIDE SCREW, SOLID BRONZE, TAPERED SEAT, DOUBLE-DISC CONSTRUCTION AWWA C500, RATED FOR 200 P.S.I. WORKING PRESSURE WITH SCREWED ENDS OR TO MATCH PIPE, (SLIP-ON JOINTS NOT ACCEPTABLE). BOXES FOR GATE VALVES SMALLER THAN 4" SHALL BE WATER METER BOXES IN ACCORDANCE WITH VDOT STANDARD WM-1. GATE VALVES SHALL BE MANUFACTURED BY MUELLER OR AMERICAN DARLING.

FIRE HYDRANT SHALL HAVE FULL 360 DEGREE REVOLVING HEAD AND BE OF THE SAFETY FLANGE, BREAKAWAY TOP TYPE, AND BE IN ACCORDANCE WITH AWWA C502. FIRE HYDRANT SHALL HAVE A BARREL DIAMETER NO SMALLER THAN 6", A HYDRANT VALVE DIAMETER NO SMALLER THAN 4 1/2", AND SHALL BE EQUIPPED WITH TWO 2 1/2" HOSE NOZZLES, AND ONE 1 1/2" PUMPER NOZZLE. THREADS SHALL BE NATIONAL STANDARD THREADS. THE DIRECTION OF OPENING SHALL BE CAST ON THE HEAD OF THE HYDRANT AND SHALL BE COUNTER-CLOCKWISE. HYDRANT SHALL BE PAINTED WITH ONE COAT OF PRIMER AND TWO COATS OF RED PAINT. HYDRANT SHALL BE MUELLER OR AMERICAN DARLING WITH A MINIMUM BURY DEPTH OF 3 1/2 FEET. FIRE HYDRANT SHALL BE IN ACCORDANCE WITH VDOT STANDARD FH-1, TYPE 1. FIRE HYDRANTS REMOVED FROM SYSTEM SHALL BE RETURNED TO THE CITY OF ROANOKE. THE CONTRACTOR SHALL CONTACT ED TRENT (TELE. 540-981-2513) SO THE CITY CAN ARRANGE FOR THE PICKUP OF THE HYDRANT.

INSTALL 3/4" WATER METER SHALL BE IN ACCORDANCE WITH VDOT STANDARD WM-1. INSTALL 1 1/2" AND 2" WATER METER ASSEMBLY SHALL BE IN ACCORDANCE WITH DETAIL ON SHEET 20(38). INSTALL WATER METER AND INSTALL WATER METER ASSEMBLY, WILL BE MEASURED IN UNITS OF EACH, COMPLETE-IN-PLACE, AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH. THIS PRICE SHALL INCLUDE EXCAVATION, BACKFILLING, RESTORING OF PROPERTY, AND ANY INCIDENTAL ITEMS NECESSARY TO COMPLETE THE WORK. ALL METERS SHALL BE SUPPLIED BY THE CITY OF ROANOKE.

METER BOX & YOKE SHALL BE IN ACCORDANCE WITH DETAIL ON SHEET 20(38).

1" AIR RELEASE VALVE & BOX SHALL BE IN ACCORDANCE WITH VDOT STANDARD ARV-1 (TYPE A).

## SANITARY SEWER ITEMS

DUCTILE IRON SANITARY SEWER PIPE SHALL BE PRESSURE CLASS 350 IN ACCORDANCE WITH AWWA C151. PIPE SHALL BE PUSH-ON JOINT WITH SINGLE THICKNESS CEMENT MORTAR LINING AND SINGLE THICKNESS ASPHALTIC COATING. BEDDING SHALL BE VDOT STANDARD UB-1, TYPE 2.

36"-48" SANITARY SEWER PIPE SHALL BE REINFORCED CONCRETE IN ACCORDANCE WITH AASHTO M170 (CLASS V). PIPE BEDDING SHALL BE IN ACCORDANCE WITH VDOT STANDARD PB-1 (METHOD B1). 45° BEND ON 48" SEWER SHALL BE INCLUDED IN THE BID PRICE PER L.F. OF 48" SAN. SEWER PIPE. SEE GENERAL NOTE 12.

SANITARY SEWER MANHOLE SHALL BE IN ACCORDANCE WITH VDOT STANDARD SMH-1. MANHOLES WITH HEIGHT GREATER THAN 15" SHALL HAVE SAFETY SLAB(S) IN ACCORDANCE WITH DETAIL ON SHEET 20(38). PAYMENT FOR SAFETY SLAB SHALL BE INCLUDED IN BID PRICE OF MANHOLE.

MANHOLE FRAME & COVER F&C-1 SHALL BE IN ACCORDANCE WITH VDOT STANDARD F&C-1. MANHOLE FRAME & COVER WF&C-1 SHALL BE IN ACCORDANCE WITH VDOT STANDARD WF&C-1.

## GENERAL NOTES

- THE CONTRACTOR SHALL MAINTAIN THE INTEGRITY OF THE EXISTING WATER AND SANITARY SEWER FACILITIES WITHIN THE PROJECT UNTIL THE PROPOSED WATER AND SANITARY SEWER FACILITIES ARE INSTALLED AND PLACED INTO OPERATION, AND EXISTING WATER AND SANITARY SEWER FACILITIES ARE ABANDONED. ANY VARIANCE MUST BE APPROVED BY THE ENGINEER. TEMPORARY WATER CONNECTIONS AND LINES MAY BE NECESSARY DEPENDING ON THE CONTRACTOR'S SEQUENCE OF CONSTRUCTION. ANY COST FOR THESE ITEMS SHALL BE INCLUDED IN THE BID PRICE FOR WATER MAIN. PUMPING AND ANY OTHER TEMPORARY MEASURES MAY BE REQUIRED DURING CONSTRUCTION OF SANITARY SEWER FACILITIES. COST FOR THESE ITEMS SHALL BE INCLUDED IN THE BID PRICE FOR SANITARY SEWER PIPE.
- CONNECTIONS TO EXISTING WATER LINES SHALL BE MADE ONLY AFTER THE PROPOSED LINES ARE COMPLETED AND APPROVED BY THE ENGINEER. THE CONTRACTOR SHALL COORDINATE THE CHANGEOVER OF WATER FACILITIES WITH ED TRENT, SUPERINTENDENT FOR THE WATER AND SEWER SERVICES, CITY OF ROANOKE, AND SHALL NOTIFY HIM (TELE. 540-981-2513) FIVE DAYS PRIOR TO ANTICIPATED DATE OF CHANGEOVER. A REPRESENTATIVE OF THE CITY OF ROANOKE SHALL BE PRESENT DURING THE OPERATION OF ALL VALVES IN CONNECTION WITH CHANGEOVER OF WATER FACILITIES. SHUT DOWN TIMES FOR WATER MAINS SHALL BE LIMITED TO 3 HOURS PER DAY.
- THE CONTRACTOR SHALL INFORM THE LOCAL FIRE DEPARTMENT PRIOR TO ANY WORK ON FIRE HYDRANTS WITHIN THE PROJECT. THE CONTRACTOR SHALL NOTIFY THE CITY OF ROANOKE FIRE DISPATCHER'S OFFICE, (TELE. 540-981-2829), WITH THE LOCATION OF HYDRANTS BEING WORKED ON AND A DOWNTIME SCHEDULE FOR EACH HYDRANT.
- STANDARD FH-1 MAY BE MODIFIED TO ELIMINATE THE RODS WHEN THE DISTANCE BETWEEN THE VALVE AND HYDRANT IS GREATER THAN 10 FEET. IN SUCH CASES, VDOT STD. RB-1 SHALL BE USED BEHIND THE HYDRANT AND BEHIND THE TEE.
- THE CONTRACTOR SHALL SCHEDULE HIS HYDRANT INSTALLATION SO THAT NO TWO HYDRANTS IN LINE WILL BE OUT OF SERVICE AT THE SAME TIME. THE CONTRACTOR SHALL ALSO SEQUENCE EACH HYDRANT SET-UP FOR A MINIMAL AMOUNT OF DOWNTIME. ALL POSSIBLE TRENCHING AND ASSEMBLY REQUIRED FOR THE NEW HYDRANT SHALL BE DONE PRIOR TO TAKING THE OLD HYDRANT OFF LINE.
- WATER MAINS AND SANITARY SEWER LINES ARE OWNED BY THE CITY OF ROANOKE.
- THE LOCATIONS AND ELEVATIONS OF EXISTING WATER MAINS, WATER SERVICE LINES, SANITARY SEWER LINES AND LATERALS, AND UNDERGROUND TELEPHONE, POWER, GAS, AND CABLE TELEVISION LINES ARE APPROXIMATE ONLY AND SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO EXCAVATION. THE CONTRACTOR SHALL ADJUST ALL SANITARY SEWER SERVICE LATERALS AND WATER SERVICE LINES FOUND TO BE IN CONFLICT WITH PROPOSED CONSTRUCTION. QUANTITIES OF LATERAL MATERIALS AND SERVICE LINE MATERIALS SHOWN ON THE PLANS ARE ESTIMATED. ACTUAL MATERIAL NEEDED MAY VARY DEPENDING ON FIELD CONDITIONS.
- THE SHEET REFERENCES MADE WITHIN THESE PLANS USING PARENTHESIS REFER TO THE CORRESPONDING SHEET OF THE UTILITY ADJUSTMENT PLANS. EXAMPLE: SHEET (33) - REFERS TO SHEET 20(33).
- ALL VALVES NOT USED IN THE COMPLETED SYSTEM SHALL HAVE THEIR VALVE BOXES REMOVED COMPLETELY OR REMOVED TO A POINT ONE FOOT BELOW FINISHED GRADE OR NORMAL GROUND LINE AND FILLED WITH CLASS A3 CONCRETE.
- ITEMS DESIGNATED AS "TBA" AND/OR / - / - / - ARE TO BE ABANDONED.
- CONSTRUCTION COORDINATION BETWEEN THE CONTRACTOR FOR THIS PROJECT, THE DEPARTMENT, AND THE CONTRACTOR FOR PROJECT 0011-128-F02, C-501, RW-201 MAY BE NECESSARY IN THE VICINITY OF ROUTE 117 CONSR. 8 STA 18+00 TO STA 21+00 TO INSURE ACCEPTABLE CONSTRUCTION RESULTS. CONTRACTOR FOR THIS PROJECT SHALL NOTIFY THE DEPARTMENT AT SUCH TIME THAT CONSTRUCTION IN THIS VICINITY IS IMMINENT, AND PROPER COORDINATION BETWEEN THE CONTRACTOR, THE DEPARTMENT, AND THE CONTRACTOR FOR PROJECT 0011-128-F02, C-501, RW-201 SHALL BE ACHIEVED PRIOR TO COMMENCEMENT OF WORK IN THIS VICINITY.
- INVERTS FOR THE 48" ROANOKE INTERCEPTOR SEWER SHALL BE VERIFIED PRIOR TO THE INSTALLATION OF THE 48" SEWER. CONTRACTOR SHALL CONTACT PHIL SCHIRMER, CITY OF ROANOKE (540)981-2731, PRIOR TO ORDERING MANHOLES TO VERIFY INVERTS. CONTRACTOR SHALL ASSUME THAT THE INVERTS MAY INCREASE OR DECREASE AS MUCH AS 2', AND SHALL BASE UNIT PRICE ON THIS ASSUMPTION. NO ADJUSTMENT IN THE BID PRICE WILL BE MADE FOR THIS INCREASE OR DECREASE IN THE DEPTH OF BURY.

Water Dept. Plan # 98-13

See also plan # 522 1/99