

SUPERVISED BY G. T. ROGERSON, JR. (VDOT)
DESIGNED BY MATTERN & CRAIG - (MICHAEL S. AGEI)
DATE
BY
PLAN
NO.
SUBMITTED
PLOTTED
ALIGNMENT CHECKED
BY J. M. GREGG

FOR UTILITY ADJUSTMENT ONLY

SEQUENCE OF CONSTRUCTION

WATER & SANITARY SEWER FACILITIES COST RESPONSIBILTY

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		STATE		SHEET NO.
			PROJECT		ROUTE	PROJECT	
8-7-95	3	VA				U000-128-116, RW-201 C-501	14 (1)

100% PROJECT COST * 0.0% PROJECT COST
0.0% CITY OF ROANOKE COST 100% CITY OF ROANOKE COST

THE RELOCATION AND ADJUSTMENT OF EXISTING UTILITIES, AND THE INSTALLATION OF PROPOSED UTILITIES SHALL BE PERFORMED PRIOR TO, OR CONCURRENT WITH ROADWAY CONSTRUCTION.

WATER SUMMARY

SHEET NO.	DUCTILE IRON WATER MAIN										BLOW-OFF VALVE AND BOX	WATER METER VAULT	INSERTING VALVE AND BOX		GATE VALVE AND BOX		TAPPING SLEEVE VALVE AND BOX				AIR RELEASE VALVE AND BOX	PAVEMENT REPAIR	RECONSTRUCT EXISTING WATER MANHOLE	ADJUST EXISTING WATER METER BOX	FIRE HYDRANT	WATER SERVICE LINE			ADJUST EXISTING WATER MANHOLE FRAME AND COVER	RELOCATE EXISTING WATER METER AND BOX	REMOVE EXIST. FIRE HYDRANT	CONC. ENCASEMENT STD. UB-1	WATER METER AND BOX	PLUG OR CAP																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
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SANITARY SEWER SUMMARY

SHEET NO.	SANITARY SEWER DUCTILE IRON PIPE						MANHOLE FRAME AND COVER F&C-1	SANITARY SEWER MANHOLE	SANITARY SERVICE LATERAL CONNECTION						SEWER CLEANOUT		CONCRETE ENCASEMENT STD. UB-1	ADJUST EXISTING FRAME AND COVER	SANITARY DROP CONNECTION		RECONSTRUCT EXISTING SANITARY MANHOLE	PLUG OR CAP
	6"	8"	12"	14"	16"	24"			4"	6"	8"	10"	4"	6"	8"	10"						
	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	EA.	L.F.	L.F.	L.F.	L.F.	L.F.	L.F.	EA.	EA.	C.Y.	EA.	L.F.	L.F.	L.F.	EA.	
14 (3)	—	—	—	—	—	125	4	22	—	—	—	—	—	—	—	—	13	—	—	—	1	
14 (4)	—	481	—	—	—	—	2	15	65	—	—	—	—	2	—	—	1	—	3	—	—	
14 (5)	—	48	—	—	—	—	1	6	—	—	—	—	—	—	—	—	1	—	—	—	—	
14 (6)	—	—	289	—	438	—	4	38	—	—	—	36	—	—	—	—	—	—	—	—	—	
14 (7)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
14 (8)	—	—	—	—	—	—	1	4	—	15 *	36	—	—	2	1 *	—	—	3	—	—	—	
14 (9)	—	—	—	—	—	—	—	—	—	234 *	116	—	28	10	13 *	2	—	3	—	—	—	
14 (10)	—	—	—	120	—	—	2	18	—	—	—	—	—	—	—	10	—	—	—	—	—	
14 (11)	—	226	313	—	—	—	3	33	—	—	—	—	—	—	—	—	2	—	—	3	—	
14 (12)	48	—	—	—	—	—	1	9	—	—	—	—	—	—	—	—	8	6	—	5	—	
14 (13)	—	101	—	—	—	—	2	9	—	—	—	—	—	—	—	—	—	—	—	—	—	
14 (14)	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	3	—	—	—	—	
TOTAL	48	856	602	120	438	125	20	154	65	249 *	152	36	28	14	14 *	2	10	34	6	3	8	1

GENERAL NOTES:

- BEFORE THE WORK IS STARTED, THE CONTRACTOR SHALL NOTIFY ALL COMPANIES, CORPORATIONS, MUNICIPALITIES AND INDIVIDUALS WHO OWN UTILITIES ON THE CONSTRUCTION SITE, IN THE RIGHT OF WAY OR IMMEDIATELY ADJACENT TO THE CONSTRUCTION AREA OF THE WORK TO BE PERFORMED. THE CONTRACTOR SHALL ARRANGE TO HAVE THE VARIOUS UTILITIES LOCATED AND TO HAVE THEM REMOVED OR RELOCATED AS REQUIRED, OR TO DETERMINE THE METHOD OF PROTECTION ACCEPTABLE TO THE RESPECTIVE OWNER. WATER AND SANITARY SEWER LINES ARE OWNED BY THE CITY OF ROANOKE.
- THE LOCATION OF EXISTING UTILITIES SHOWN ON THE DRAWINGS WAS TAKEN IN PART FROM EXISTING RECORDS AND IN PART FROM FIELD SURVEYS, AND MAY NOT REPRESENT EXACT LOCATION. THE CONTRACTOR SHALL EXCAVATE TO LOCATE BURIED UTILITIES FAR ENOUGH IN ADVANCE OF PIPELINE LAYING TO ALLOW FOR ADJUSTMENTS IN PIPELAYING BOTH HORIZONTALLY AND VERTICALLY.
- ALL WATER AND SEWER FACILITY WORK SHALL BE IN ACCORDANCE WITH SECTION 510 AND 520 OF THE VIRGINIA DEPARTMENT OF TRANSPORTATION ROAD AND BRIDGE SPECIFICATIONS, DATED JANUARY 1994, UNLESS OTHERWISE SHOWN ON PLANS.
- THE CONTRACTOR SHALL COORDINATE THE CHANGEOVER OF WATER & SEWER FACILITIES WITH THE CITY OF ROANOKE UTILITY LINE SERVICES, AND SHALL NOTIFY ED TRENT, SUPERINTENDENT FOR THE WATER AND SEWER SERVICES (TELE. 703-981-2513) FIVE DAYS PRIOR TO ANTICIPATED DATE OF CHANGEOVER. A REPRESENTATIVE OF THE CITY OF ROANOKE UTILITY LINE SERVICES SHALL BE PRESENT DURING THE OPERATION OF ALL VALVES IN CONNECTION WITH CHANGEOVER OF WATER FACILITIES.
- THE CONTRACTOR SHALL SCHEDULE HIS FIRE HYDRANT INSTALLATION 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. THE CONTRACTOR SHALL INFORM THE LOCAL FIRE DEPARTMENT PRIOR TO ANY WORK ON THE FIRE HYDRANTS WITHIN THE PROJECT. THE CONTRACTOR SHALL NOTIFY CITY OF ROANOKE, FIRE DISPATCHERS OFFICE (TELE. 703-981-2829), WITH THE LOCATION OF HYDRANTS BEING WORKED ON AND A DOWNTIME SCHEDULE FOR EACH HYDRANT, TWO DAYS PRIOR TO WORKING ON FIRE HYDRANT. EXISTING FIRE HYDRANTS REMOVED FROM THE SYSTEM SHALL REMAIN THE PROPERTY OF THE CITY OF ROANOKE AND SHALL BE STORED, BY THE CONTRACTOR, FOR PICKUP BY THE CITY. CONTRACTOR SHALL NOTIFY THE CITY WHEN HYDRANTS MAY BE PICKUP.
- WATER MAINS SHALL NOT BE OUT OF SERVICE FOR MORE THAN THREE HOURS PER DAY. ALL SHUT DOWNS ARE TO BE IN CONJUNCTION WITH WATER LINE CHANGEOVER AND SHALL BE COORDINATED WITH THE CITY OF ROANOKE UTILITY LINE SERVICES. (SEE GENERAL NOTE 4.)
- ALL WATER MAINS SHALL HAVE A MINIMUM OF 36 INCH COVER UNLESS SHOWN ON THE DRAWINGS OR DIRECTED.

WATER SUMMARY NOTES:

- WATER MAIN FITTINGS SHALL BE DUCTILE IRON FITTINGS IN ACCORDANCE WITH AWWA C151 WITH A MINIMUM PRESSURE RATING OF 200 PSI. WATER MAIN TEST PRESSURE SHALL BE 150 PSI. BEDDING SHALL BE VDOT STANDARD UB-1, TYPE 2, AND ALL SIZES OF DUCTILE IRON WATER MAIN SHALL BE PRESSURE CLASS 350. PIPE SHALL BE CEMENT-MORTAR LINED, SEAL COATED, AND MECHANICAL JOINT OR PUSH-ON JOINT. 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 TIE-INS TO THE EXISTING WATER MAINS TO PROVIDE A MINIMAL AMOUNT OF DOWNTIME FOR THE WATER MAIN. MECHANICAL JOINT PIPE SHALL BE USED WITH MECHANICAL JOINT RESTRAINING MECHANISMS. SEE SHEET 14(2) FOR LENGTH OF PIPE (EXISTING AND PROPOSED) TO BE RESTRAINED.
- GATE VALVES SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS AWWA C509. GATE VALVES SHALL BE RESILIENT SEAT WITH MECHANICAL JOINT ENDS AND SHALL OPEN RIGHT (CLOCKWISE) WITH A 2" OPERATING NUT AND SHALL HAVE A NONRISING STEM, DOUBLE O-RING SEAL AND A WORKING PRESSURE OF AT LEAST 200 PSI. VALVE BOXES SHALL BE IN ACCORDANCE WITH DETAIL ON SHEET 14(2). GATE VALVES SHALL BE MANUFACTURED BY MUELLER OR AMERICAN DARLING.
- TAPPING SLEEVES SHALL BE MANUFACTURED FROM GRAY IRON, MEETING OR EXCEEDING ASTM A126 GRADE B, OR DUCTILE IRON, MEETING ASTM A536 GRADE 65-45-12. TAPPING SLEEVES SHALL HAVE MECHANICAL JOINT ENDS AND FLANGED OUTLETS CONFORMING TO CLASS 125, ANSI B16.1. OUTSIDE COATING SHALL BE ASPHALTIC COATING. TAPPING VALVES SHALL MEET THE REQUIREMENTS OF ANSI/AWWA C500. TAPPING SLEEVES SHALL BE MUELLER, DRESSER OR AMERICAN DARLING. TAPPING VALVES SHALL BE MUELLER, DRESSER 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 OF 4 1/2", AND SHALL BE EQUIPPED WITH TWO 2 1/2" HOSE NOZZLES, AND ONE 4 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, AMERICAN DARLING OR KENNEDY, A MINIMUM THREE FEET BURY DEPTH. FIRE HYDRANT SHALL BE IN ACCORDANCE WITH VDOT STANDARD FH-1, TYPE 1.
- ALL WATER SERVICE LINES SHALL BE COPPER TUBING AND COMPLY WITH THE LATEST STANDARD SPECIFICATIONS FOR SEAMLESS COPPER WATER TUBE, ASTM DESIGNATION 8-88, SOFT TEMPER, TYPE K WITH COMPRESSION TYPE JOINTS, UNLESS OTHERWISE NOTED.

- "REMOVE EXISTING FIRE HYDRANT" WILL BE MEASURED IN UNITS OF EACH AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH. THIS PRICE SHALL INCLUDE REMOVAL, WITH ALL DUE CARE AND STORAGE THE HYDRANTS UNTIL THE CITY HAS BEEN NOTIFIED TO PICK THEM UP AS STATED IN NOTE 5 OF THE GENERAL NOTES ON THIS SHEET.
- "ADJUST EXISTING WATER MANHOLE FRAME AND COVER" SHALL INCLUDE REPLACEMENT OF EXISTING FRAMES & COVERS WITH NEW FRAMES & COVERS. MANHOLE FRAME & COVER SHALL BE IN ACCORDANCE WITH VDOT STANDARD F&C-1.
- "RELOCATE EXISTING WATER METER AND BOX" SHALL BE IN ACCORDANCE WITH VDOT STANDARD WM-1.
- "AIR RELEASE VALVE" SHALL BE IN ACCORDANCE WITH VDOT STANDARD ARV-1, TYPE B.
- "BLOW-OFF VALVE AND BOX" SHALL BE IN ACCORDANCE WITH STANDARD BOV-1, TYPE A.
- PAVEMENT REPAIR WILL BE MEASURED IN SQUARE YARDS, COMPLETE IN-PLACE, AND SHALL BE PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD. THIS PRICE SHALL INCLUDE FURNISHING AND PLACING ALL MATERIALS IN ACCORDANCE WITH THE PLAN DETAIL ON SHEET 14(2) AND VDOT'S SPECIAL PROVISION FOR RESTORING EXISTING PAVEMENT; OR AS DIRECTED BY THE ENGINEER, AND ALL LABOR, TOOLS, EQUIPMENT AND INCIDENTALS NECESSARY TO COMPLETE THE WORK.
- "RECONSTRUCTION EXISTING WATER MANHOLE" SHALL BE IN ACCORDANCE WITH SECTION 510 OF THE 1994 EDITION OF THE VDOT ROAD AND SPECIFICATIONS. ALL RECONSTRUCT EXIST. WATER MANHOLE SHALL INCLUDE REPLACEMENT OF THE EXISTING FRAMES & COVERS WITH NEW FRAMES & COVERS. MANHOLE FRAME & COVER SHALL BE IN ACCORDANCE WITH VDOT STANDARD F&C-1.
- "ADJUST EXISTING WATER METER BOX" SHALL BE IN ACCORDANCE WITH VDOT STANDARD WM-1.
- "PLUG OR CAP" SHALL BE IN ACCORDANCE WITH STANDARD RB-1 PLUGS.
- "CONC. ENCASEMENT STD. UB-1" SHALL BE IN ACCORDANCE WITH VDOT STANDARD UB-1 CONCRETE CRADLE.
- "WATER METER AND BOX" SHALL BE IN ACCORDANCE WITH VDOT STANDARD WM-1.
- "WATER METER VAULT" SHALL BE IN ACCORDANCE WITH PLAN DETAIL SHOWN ON SHEET 14(20). WATER METER VAULT WILL BE MEASURED IN UNITS OF EACH AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH. THIS PRICE SHALL INCLUDE ALL MATERIALS, EXCAVATION AND LABOR FOR INSTALLATION, EXCEPT FOR METER ASSEMBLY WHICH THE CITY OF ROANOKE WILL FURNISH AND CONTRACTOR WILL INSTALL.

WATER SUMMARY NOTES (CONT.):

- INSERTING VALVE SHALL BE INSTALLED UNDER WATER PRESSURE WITHOUT INTERRUPTION OF WATER SERVICE AND SHALL PROVIDE AN UNOBSTRUCTED FULL FLOW WATERWAY AFTER INSTALLATION. THE STEM AND NUT ASSEMBLY SHALL BE IN ACCORDANCE WITH AWWA C-500-80, SECTION 3.12.

SANITARY SEWER SUMMARY NOTES:

- 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.
- "SANITARY DROP CONNECTION" SHALL BE IN ACCORDANCE WITH VDOT STANDARD SMH-1.
- "SANITARY SEWER MANHOLE" SHALL BE IN ACCORDANCE WITH VDOT STANDARD SMH-1.
- "MANHOLE FRAME & COVER F&C-1" SHALL BE IN ACCORDANCE WITH VDOT STANDARD F&C-1.
- "RECONSTRUCTION EXISTING SANITARY MANHOLE" SHALL BE IN ACCORDANCE WITH SECTION 510 OF THE 1994 EDITION OF THE VDOT ROAD AND BRIDGE SPECIFICATIONS. ALL RECONSTRUCT EXIST. SANITARY MANHOLE SHALL INCLUDE REPLACEMENT OF THE EXISTING FRAMES & COVERS WITH NEW FRAMES & COVERS. MANHOLE FRAME & COVER SHALL BE IN ACCORDANCE WITH VDOT STANDARD F&C-1.
- SANITARY SERVICE LATERAL CONNECTION PIPE AND FITTINGS SHALL BE POLYVINYL CHLORIDE (PVC) SDR 35 AND SHALL CONFORM WITH ASTM D 3034 OR DUCTILE IRON PIPE (WHERE NOTED ON PLANS) 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. SERVICE CONNECTION WYES TO BE PER DETAIL ON SHEET 14(2).
- "ADJUST EXISTING FRAME AND COVER" SHALL INCLUDE REPLACEMENT OF EXISTING FRAMES & COVERS WITH NEW FRAMES & COVERS. MANHOLE FRAME & COVER SHALL BE IN ACCORDANCE WITH VDOT STANDARD F&C-1.
- "SEWER CLEANOUT" SHALL BE IN ACCORDANCE WITH VDOT STANDARD SCO-1.
- "CONCRETE ENCASEMENT STD. UB-1" SHALL BE IN ACCORDANCE WITH VDOT STANDARD UB-1 CONCRETE CRADLE.
- "PLUG OR CAP" WILL BE MEASURED IN UNITS OF EACH AND WILL BE PAID FOR AT THE CONTRACT UNIT PRICE PER EACH. THIS PRICE SHALL INCLUDE ALL MATERIALS, EXCAVATION AND LABOR FOR INSTALLATION OF PLUG OR CAP. "PLUG OR CAP" SHALL BE IN ACCORDANCE WITH VDOT STANDARD RB-1 PLUGS.
- THE CONTRACTOR SHALL CONVEY EXIST. SEWAGE FLOW DURING THE ADJUSTMENT, REPLACEMENT OR CONNECTION TO EXISTING SEWER IN ACCORDANCE WITH SECTION 520.03 OF THE 1994 EDITION OF VDOT ROAD AND BRIDGE SPECIFICATION.