

SECTION 1209 – SANITARY SEWER AND WATER SERVICE CONNECTIONS

1209-1 DESCRIPTION

This item shall consist of furnishing and installing sanitary sewer and water service connections from the main lines located in public easements or rights-of-way, such as streets and alleys, to the right-of-way property line. The materials, equipment, and construction methods shall be in full compliance with the ordinances of the City of Mandan, the North Dakota State Plumbing Code, regulations set forth by the North Dakota State Health Department, and in accordance with these specifications and standard details.

1209-2 MATERIALS

1209-2.1 POLYVINYL CHLORIDE SEWER PIPE. PVC Sewer Pipe and fittings shall conform to the requirements of ASTM D3034 for type PSM, PVC sewer pipe and fittings and shall have an SDR of 35 which shall be stamped on the pipe. Gasketed type joints on PVC pipe and fittings are preferred. Use of PVC sewer pipe joint cement must be approved by the ENGINEER prior to construction. The polyvinyl chloride sewer pipe joint cement shall consist of a viscous brushable solution of polyvinyl chloride in suitable active solvents. The cement shall be purchased from the pipe manufacturer and used in accordance with the manufacturer's instructions. It shall produce a joint of sufficient strength to permit normal installation handling within five (5) minutes after jointing when exercising reasonable care.

1209-2.2 JOINT MATERIALS. Joint Materials for sewer pipe shall conform to Subsections 801-2.4 thru 801-2.7.

1209-2.3 COPPER WATER PIPE. Copper Water Pipe shall conform to ASTM B88, Type K. All new copper water service pipe shall be connected using a flared connection. New copper water service pipe being connected to existing copper water service pipe may be connected using a compression type connection if approved by the ENGINEER.

1209-2.4 POLYETHYLENE WATER PIPE. Polyethylene water service line of iron pipe size (IPS) shall be manufactured from ultra-high molecular weight polyethylene (average molecular weight of 1,750,000) of virgin materials and shall meet the requirements of Type III Class "C" Category 5-P34 polyethylene as defined in ASTM D1248. The pipe shall be designated UHMWPE 3408, with a design stress of 630 pounds per square inch (630 psi) and a working pressure of 150 pounds per square inch (150 psi) for water at 73.4°F. The pipe shall conform to ASTM D2239 with a standard dimension ratio (SDR) of seven (7). The pipe shall be permanently imprinted with the manufacturer's brand name, pipe size, identification of the National Sanitation Foundation (NSF) approval, ASTM specification, recommended working pressure, and production date code. Connection fittings shall be compression fittings (gasket type), stab fitting with O-ring seal (Mueller Insta-Tite or an approved equal), or an insert type

fitting (Ford Pack Joint Coupling Series 66 or an approved equal for 1½-inch and 2-inch polyethylene only).

1209-2.5 CORPORATION STOP. Corporation stops shall be Mueller No. H-15000 or McDonald No. 4701 or Ford F600 or FB600 for copper water pipe or approved equal.

1209-2.6 CURB STOP. Curb Stops shall be the Mueller No. B-25154, Mueller No. H-15154, McDonald No. 6104, or a FORD B22, without drain, having a Minneapolis Pattern, or an approved equal. Curb stops shall be installed using the proper tools as recommended by the manufacturer.

1209-2.7 CURB BOX. Curb boxes shall be McDonald No. 5614 or Mueller No. H-10300 (1¼-inch diameter upper section) with 75-inch stationary rod installed with a stainless steel or brass pin to the curb stop, Mueller No. H-88703 or McDonald No. 5660, for 1¼-inch or smaller curb stops. Curb boxes shall be Mueller No. H-10304 or McDonald No. 5615 (2-inch diameter upper section) for 1½-inch or larger curb stops, or an approved equal. Stationary rods will not be required on curb stops 1½ inches or larger. The length of the curb box extended shall be 8 feet. Curb stops shall be installed on a ½ square foot by 4-inch thick concrete or brick pad.

1209-2.8 CONCRETE. Concrete for pipe cradles and saddles shall conform to the requirements of Section 501.

1209-2.9 TAPPING SLEEVE WITH TAPPING VALVE. For pipe sizes of 6 inches to 24 inches, the tapping sleeve shall be stainless steel with a stainless steel flange and bolts and shall conform to the "Smith Blair" Type 663 or "Romac" Type SST or an approved equal. For pipe sizes of 24 inches or larger, the tapping sleeve shall be epoxy lined and coated with stainless steel bolts and shall conform to the "Smith Blair" Type 622 Split Sleeve with O-Ring Seal. The tapping valve shall conform to City of Mandan **Standard Specification 901-2.8** for Gate Valves.

The City of Mandan Utility Department will tap the watermain at a charge to the CONTRACTOR. The CONTRACTOR shall be responsible for all other work connected with installation of the tapping sleeve and valve including the necessary space around the watermain required for the tapping machine and assisting the Public Works Department in positioning the tapping machine.

All corporation taps made into all sizes and classes of asbestos cement, PVC, sandcast iron, cast iron, and ductile iron, and prestressed concrete watermains shall be reinforced with a tapping saddle. Tapping saddles used on PVC watermain shall provide full support around the circumference of the pipe and provide a bearing area of sufficient width along the axis of the pipe 2 inches minimum, ensuring that the pipe will not be distorted when a saddle is tightened. Tapping saddles for PVC, ductile iron, cast iron, and sand cast iron watermain up to 12 inches in diameter shall be one of the following: Romac Style 306, PowerSeal Model 3412, Smith Blair Series 370, or an approved equal. Tapping saddle for PVC, ductile iron, cast iron, and sand cast iron watermain over 12 inches in diameter shall be a Romac Style 305 or an approved

equal. Tapping saddles for asbestos cement watermain shall be a double strap bronze with an O-ring gasket cemented in body groove as manufactured by the Mueller Company or an approved equal. Tapping saddles for prestressed concrete watermain shall be approved by the ENGINEER.

1209-3 CONSTRUCTION REQUIREMENTS

Construction requirements shall conform to Subsection 801-3 for sewer service connections and Subsection 901-3 for water service connections. All pipe and fittings shall be installed in accordance with the manufacturer's recommendations unless otherwise specified herein. All copper water service lines shall be constructed "snaked" within the trench.

For each sewer stubout a 2-inch by 2-inch wood marker shall be placed a minimum of 1 foot from the end of the sewer stubout, shall extend vertically and plumb to not less than 2 feet above the existing surrounding ground, and be painted green. No sewer service shall be hooked or located within a manhole.

For each water stubout a 2-inch by 2-inch wood marker shall be placed a maximum of 1 foot from the curb stop box and extending vertically from a minimum of 3 feet below the top of the curb box to a minimum of 2 feet above the existing surrounding ground and be painted blue.

The CONTRACTOR shall be responsible for maintaining the markers until the project has been accepted by the ENGINEER. The cost of the stubout markers shall be considered incidental to other bid items.

Bedding Material in accordance with Section 801-2.9 shall be placed in the trench, prior to laying any type of sewer pipe, 2 inches below bottom of pipe up to 6 inches or smaller, 4 inches when pipe used is 8 inches or larger. Bedding Material shall be installed to the centerline of the pipe and the full width of the excavating trench.

1209-4 MEASUREMENT AND PAYMENT

1209-4.1 thru 4.5 (SIZE) INCH SEWER SERVICE PIPE. Sewer Service Pipe shall conform to the specifications found in Section 1209-2.1. The sewer service pipe shall be measured by the linear foot (LF) from centerline of sewermain to plugged end of service connection and shall be paid for at the unit price bid for "(Size) Inch Sewer Service Pipe" complete in place and accepted by the ENGINEER.

1209-4.6 thru 1209-4.10 (SIZE) INCH SEWER PIPE BEND. The angle of the bend shall be compatible with the type of sewer service pipe and wye branch selected to provide a 90 degree angle between the sewer mainline and sewer service line. The sewer pipe bend shall be measured on an individual unit basis (EA) and paid for at the unit price bid for "(Size) Inch Sewer Pipe Bend" complete in place and accepted by the ENGINEER.

1209-4.11 thru 1209-4.20 (SIZE) INCH WATER SERVICE LINE. Water service lines shall conform to the specifications found in Section 1209-2.3 and Section 1209-2.4. The water service pipe shall be measured on a one-line basis by the linear foot (LF) from the centerline of the watermain at the water service connection to the end of the water service pipe and shall be paid for at the unit price bid for "(Size) Inch Water Service Line" complete in place and accepted by the ENGINEER.

1209-4.40 Thru 4.49 (SIZE) INCH WATER SERVICE CONNECTION. This connection shall include one tapping sleeve, one tap to the watermain, and one corporation stop. The connection shall be measured as a combined unit on an individual unit basis (EA) and paid for at the unit price bid for "(Size) Inch Water Service Connection" complete in place and accepted by the ENGINEER.

1209-4.50 thru 4.54 (SIZE) INCH CURB STOP AND (SIZE) INCH CURB BOX. The curb stop and curb box shall be measured as a combined unit on an individual unit basis (EA) and paid for at the unit price bid for "(Size) Inch Curb Stop and (Size) Inch Curb Box" complete in place and accepted by the ENGINEER.

1209-4.55 DISCONNECT WATER SERVICE LINE. Disconnecting a water service line shall consist of turning off the corporation stop at the main and disconnecting the pipe after the corporation stop. Disconnect Water Service Line shall be measured on an individual unit basis (EA) and paid for at the unit price bid for "Disconnect Water Service Line" complete in place, backfilled, and accepted by the ENGINEER.