

Brookings Municipal Utilities (BMU)
Measurement and Payment
For
Water Main Construction
(City of Brookings)

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PART 4.0 - METHOD OF MEASUREMENT AND BASIS OF PAYMENT

4.1 TRENCH STABILIZATION MATERIAL

- A. Trench stabilization material furnished, transported, placed and compacted into place shall be measured as tons to the nearest 0.1 ton for the trench stabilization material.
- B. Payment for trench stabilization material shall be paid at the contract unit price per ton for trench stabilization material. Payment for trench stabilization material will be full compensation for furnishing, transporting, placing, compacting, labor, equipment, and incidentals necessary to complete the work.

4.2 PIPE BEDDING MATERIAL

- A. Pipe bedding material furnished, transported, placed and compacted into place shall be measured as tons to the nearest 0.1 ton for the pipe bedding material.
- B. Payment for pipe bedding material shall be paid at the contract unit price per ton for pipe bedding material. Payment for pipe bedding material will be full compensation for furnishing, transporting, placing, compacting, labor, equipment, and incidentals necessary to complete the work.

OR

- C. No measurement or individual Bid Item payment will be made for pipe bedding material. Pipe bedding material shall be considered incidental to the installation of the water main, water services and appurtenances.

4.3 IMPORTED ENGINEERED FILL MATERIAL

- A. Imported engineered fill material furnished, transported, placed and compacted into place shall be measured as tons to the nearest 0.1 ton for the engineered fill material.
- B. Payment for engineered fill material shall be paid at the contract unit price per ton for engineered fill material. Payment for engineered fill material will be full compensation for furnishing, transporting, placing, compacting, labor, equipment, and incidentals necessary to complete the work.

OR

- A. No measurement or individual Bid Item payment will be made for imported engineered fill material. Imported engineering fill material shall be considered incidental to the installation of the water main, water services or any other appurtenances.

4.4 IMPORTED CLAY MATERIAL

- A. Imported clay material furnished, transported, placed and compacted into place shall be measured as tons to the nearest 0.1 ton for the imported clay material.
- B. Payment is for loading, hauling and placing acceptable clay materials from an acceptable source or the Brookings Regional Landfill. Payment for imported clay

material will be full compensation for furnishing, transporting, placing, compacting, labor, equipment, and incidentals necessary to complete the work. Quantity will be determined by documenting the trench width, length and depth to determine the volume of imported clay material install on the project.

4.5 AGGREGATE BASE MATERIAL

- A. Aggregate base material furnished, transported, placed and compacted into place shall be measured as tons to the nearest 0.1 ton for the aggregate base material.
- B. Payment for aggregate base material shall be paid at the contract unit price per ton for aggregate base material. Payment for aggregate base material will be full compensation for furnishing, transporting, placing, compacting, labor, equipment, and incidentals necessary to complete the work.

4.6 GRAVEL SURFACING MATERIAL

- A. Gravel surfacing material furnished, transported, placed and compacted into place shall be measured as tons to the nearest 0.1 ton for the gravel surfacing material.
- B. Payment for gravel surfacing material shall be paid at the contract unit price per ton for gravel surfacing material. Payment for gravel surfacing material will be full compensation for furnishing, transporting, placing, compacting, labor, equipment, and incidentals necessary to complete the work.

4.7 X" PVC WATER MAIN PIPE

- A. Water main shall be measured to the nearest lineal foot for each size of PVC water main pipe furnished and installed. Measurement shall be from center of fitting to center of fittings or to the end of pipe. The measured length shall be rounded up to the nearest 1-foot increment.
- B. Payment will be at the contract unit price per lineal foot of PVC water main. Payment will be full compensation for all materials, excavation, backfilling, hydrostatic testing, bacteriological testing, concrete blocking, tracer wire system with ground rods, materials, labor, equipment, and incidentals necessary to complete the work.
- C. No measurement or individual Bid Item payment will be made for extra depth water main unless otherwise noted on the Bid Form.

4.8 X" RJ PVC WATER MAIN PIPE

- A. Restrained joint PVC water main shall be measured to the nearest lineal foot for each size of restrained joint PVC water main pipe furnished and installed. Measurement shall be from center of fitting to center of fittings or to the end of pipe. The measured length shall be rounded up to the nearest 1-foot increment.
- B. Payment will be at the contract unit price per lineal foot of restrained joint PVC water main. Payment will be full compensation for all materials, excavation, backfilling, hydrostatic testing, bacteriological testing, concrete blocking, tracer wire system with ground rods, materials, labor, equipment, and incidentals necessary to complete the work.

- C. No measurement or individual Bid Item payment will be made for extra depth water main unless otherwise noted on the Bid Form.

4.9 X" DI WATER MAIN PIPE

- A. Water main shall be measured to the nearest lineal foot for each size of ductile iron water main pipe furnished and installed. Measurement shall be from center of fitting to center of fittings or to the end of pipe. The measured length shall be rounded up to the nearest 1-foot increment.
- B. Payment will be at the contract unit price per lineal foot of ductile iron water main. Payment will be full compensation for all materials, excavation, backfilling, hydrostatic testing, bacteriological testing, concrete blocking, tracer wire system with ground rods, materials, labor, equipment, and incidentals necessary to complete the work.
- C. No measurement or individual Bid Item payment will be made for extra depth water main unless otherwise noted on the Bid Form.

4.10 X" RJ DI WATER MAIN PIPE

- A. Restrained joint ductile iron water main shall be measured to the nearest lineal foot for each size of restrained joint ductile iron water main pipe furnished and installed. Measurement shall be from center of fitting to center of fittings or to the end of pipe. The measured length shall be rounded up to the nearest 1-foot increment.
- B. Payment will be at the contract unit price per lineal foot of restrained joint ductile iron water main. Payment will be full compensation for all materials, excavation, backfilling, hydrostatic testing, bacteriological testing, concrete blocking, tracer wire system with ground rods, materials, labor, equipment, and incidentals necessary to complete the work.
- C. No measurement or individual Bid Item payment will be made for extra depth water main unless otherwise noted on the Bid Form.

4.11 TRACER WIRE FOR WATER MAINS

- A. No measurement or individual bid Item payment will be made for tracer wire. Tracer wire and all appurtenances shall be considered incidental to the installation of the PVC water main and/or water services.

OR

- B. Tracer wire, for water main and water services, shall be measured to the nearest lineal foot where tracer wire is deemed necessary.
- C. Payment will be at the contract unit price per foot for tracer wire furnished and installed. Payment shall be full compensation for tracer wire, grounding rods, splices, connectors, labor, equipment, and incidentals necessary to complete the work.

4.12 X" WATER MAIN FITTINGS

- A. Fittings shall be measured per each type and size of fitting furnished and installed. Payment will be at the contract unit price per each type and size of fitting. Payment for fittings shall full compensation for fitting, restrainer devices, bolts, nuts, gaskets, blocking, materials, labor, equipment, and incidentals necessary to complete the work.
 - B. Mechanical joint restrainer devices shall be considered incidental to the furnished and installed fitting which requires restraint.
- 4.13 X" FOSTER ADAPTER
- A. Payment for coupling adapters shall be at the contract unit price per each size of foster adapter. Payment shall be full compensation for all materials, labor, equipment, and incidentals necessary to complete the work, included but not limited to foster adaptor, integral glands, restraints, bolts, gaskets and incidentals necessary to complete the work.
- 4.14 X" x X" ANCHOR COUPLING ADAPTOR
- A. Payment for anchor coupling adaptor shall be at the contract unit price per each size and length of anchor coupling adaptor. Payment shall be full compensation for all materials, labor, equipment, and incidentals necessary to complete the work, included but not limited to anchor coupling adaptor, integral glands, restraints, bolts, gaskets and incidentals necessary to complete the work.
- 4.15 BOLTS, NUTS, GASKETS AND OTHER HARDWARE
- A. No measurement or individual bid Item payment will be made for bolts, nuts, gaskets or other associated hardware used to install mechanical joint fittings and/or valves. Bolts, nuts, gaskets or other associated hardware and labor shall be considered incidental to the installation of the valve, hydrant, and/or fittings.
- 4.16 X" COUPLING ADAPTOR
- A. Payment for coupling adapters shall be at the contract unit price per each type and size of coupling adaptor. Payment shall be full compensation for all materials, labor, equipment, and incidentals necessary to complete the work, included but not limited to coupling/long body sleeve, restraints, bolts, and gaskets.
- 4.17 MECHANICAL JOINT RESTRAINER DEVICES
- A. No measurement or individual bid Item payment will be made for mechanical joint restrainer device (glands) for fittings and/or valves. Restrainer gland, bolts, nuts, gaskets or other associated hardware and labor shall be considered incidental to the installation of the valve, hydrant, and/or fittings.
- 4.18 BELL RESTRAINER DEVICES
- A. No measurement or individual bid Item payment will be made for bell restrainer devices for restraining PVC bell and spigot joints. Bell restrainer devices, bolts, nuts, gaskets or other associated hardware and labor shall be considered incidental to the installation of the PVC water main and/or RJ PVC water main.

4.19 X" DISMANTLING JOINT

- A. Payment for dismantling joints shall be at the contract unit price per each type and size of dismantling joints. Payment shall be full compensation for all materials, labor, equipment, and incidentals necessary to complete the work, included but not limited to dismantling joints, restraints, bolts, and gaskets.

4.20 X" GATE VALVE

- A. Payment for valves with boxes shall be at the contract unit price per each type and size of valve with valve box. Payment shall be full compensation for all materials, labor, equipment, and incidentals necessary to complete the work, included but not limited to valve, joint restraints, valve box, valve box extensions, adapter, lid and concrete blocking.
- B. No measurement or individual Bid Item payment will be made for the valve box or valve box extensions. These items are considered incidental to the installation of the valve and valve box installation.

OR

X" GATE VALVE -BMU FURNISHED

- A. Payment for valves with boxes shall be at the contract unit price per each type and size of valve with valve box. BMU will furnish **ONLY** the valve/s to the Contractor for installation. Payment shall be full compensation for all other materials, labor, equipment, and incidentals necessary to complete the work, included but not limited to taxes (excise, sales, use, etc.), joint restraints, valve box, valve box extensions, adapter, lid and concrete blocking.
- B. Contractor shall be responsible prior to Bid to determine the cost of the valves being provided by BMU. Contractor shall contact pipe/valve supplier to determine value of each size, type and quantity of valve being provided by BMU and include approximate taxes in Bid price.

4.21 VALVE BOX AND COVER

- A. No measurement or individual bid Item payment will be made for valve box and cover. Labor, equipment and materials, including but not limited to valve box, extensions, lid or other associated hardware shall be considered incidental to the installation of the valve.

4.22 VALVE BOX ADAPTOR

- A. No measurement or individual bid Item payment will be made for valve box adaptor. Labor, equipment and materials, including but not limited to valve box adaptor or other associated hardware shall be considered incidental to the installation of the valve.

4.23 FIRE HYDRANTS (X'X" DEPTH)

- A. Permanent and temporary fire hydrants shall be measured per each unit furnished and installed. Payment shall be full compensation for all materials, labor,

equipment, and incidentals necessary to complete the work, included but not limited to hydrant, grounding rods, joint restraints, tracer wire, hydrant marker, crushed stone, tar paper/ heavy plastic, and concrete blocking.

- B. No measurement and payment will be made for extensions needed to bring the fire hydrant up to the required grade. This item is considered incidental to the installation of the fire hydrant.

OR

C. FIRE HYDRANTS (X'X" DEPTH) - BMU FURNISHED

- A. Permanent and temporary fire hydrants shall be measured per each unit furnished and installed. BMU will furnish **ONLY** the identified bury depth fire hydrant/s, gasket/s and bolts to the Contractor for installation. Payment shall be full compensation for all other materials, labor, equipment, and incidentals necessary to complete the work, included but not limited to taxes (excise, sales, use, etc.), joint restraints, grounding rods, tracer wire, hydrant marker, crushed stone, tar paper/ heavy plastic, and concrete blocking.
- B. Contractor shall be responsible prior to Bid to determine the cost of the fire hydrants being provided by BMU. Contractor shall contact pipe/hydrant supplier to determine value of each size, type and quantity of fire hydrant being provided by BMU and include approximate taxes in Bid price.

4.24 FIRE HYDRANT MARKER

- A. No measurement or individual bid Item payment will be made for the fire hydrant marker. Labor, equipment and materials, including but not limited to fire hydrant marker, nuts, bolts or other associated hardware shall be considered incidental to the installation of the fire hydrant.

4.25 X" WATER SERVICE

- A. Water service pipe shall be measured to the nearest lineal foot for each size of water service pipe furnished and installed. Payment will be at the contract unit price per foot for each size of water service pipe. Payment shall be full compensation for water service pipe, materials, labor, equipment, and incidentals necessary to complete the work.

OR

- A. Water service pipe shall be measured to the nearest lineal foot for each size of water service pipe furnished and installed. Measurement will normally be from the water main to the curb stop and shall include any applicable tapping fee. Refer to BMU annually published "SERVICE CHARGES – WATER/SEWER" rate sheet for water service tapping fee costs, corporation info and curb stop info.
- B. Payment will be at the contract unit price per foot for water service pipe. Payment shall be full compensation for tapping fee, tapping saddle, corporation stop, water service pipe, curb stop, curb stop box, stub marker, materials, labor, equipment, and incidentals necessary to complete the work.

4.26 X" CURB STOP

- A. Payment for curb stops shall be at the contract unit price per each size of curb stop indicated on Bid Form. Payment shall be full compensation for all materials, labor, equipment, and incidentals necessary to complete the work, included but not limited to curb stop valve, stub marker and incidentals necessary to complete the work.

OR

- A. Payment for curb stops shall be at the contract unit price per each size of curb stop indicated on Bid Form. Payment shall be full compensation for all materials, labor, equipment, and incidentals necessary to complete the work, included but not limited to curb stop valve, curb stop box, stationary rod, pvc sleeve, and incidentals necessary to complete the work.

OR

- A. No measurement or individual bid Item payment will be made for each curb stop. Labor, equipment and materials, including but not limited to curb stop, curb stop box, stationary rod, pvc sleeve or other associated hardware shall be considered incidental to the installation of the water service.

4.27 X" CURB STOP BOX

- A. Payment for curb stop box shall be at the contract unit price per each size of curb stop box indicated on Bid Form. Payment shall be full compensation for all materials, labor, equipment, and incidentals necessary to complete the work, included but not limited to curb stop box, stub marker, stationary rod, pvc sleeve, and incidentals necessary to complete the work.

OR

- B. No measurement or individual bid Item payment will be made for curb stop box. Labor, equipment and materials, including but not limited to curb stop box, stub marker, stationary rod, pvc sleeve, or other associated hardware shall be considered incidental to the installation of the water service and/or curb stop.

4.28 X" DOUBLE CHECK VALVE BACKFLOW ASSEMBLY

- A. Payment for the double check valve backflow assembly shall be at the contract unit price per each size of valve assembly indicated on Bid Form. Payment shall be full compensation for all materials, labor, equipment, and incidentals necessary to complete the work, included but not limited to double check valve backflow valve, bolts, nuts, gaskets, isolation valves, and incidentals necessary to complete the work.

4.29 PIPE INSULATION

- A. No measurement or individual bid Item payment will be made for water pipe insulation. Labor, equipment and materials, including but not limited to insulation, or other associated hardware shall be considered incidental to the installation of the water main.

4.30 X" RJ PVC CASING PIPE VIA BORING

- A. Casing pipe shall be measured by the lineal foot for casing pipe with carrier pipe supported by casing spacers and capped with end seals, all furnished and installed. The measured length of casing pipe shall be rounded up to the nearest 1-foot increment.
- B. Payment will be at the contract unit price per lineal foot for the type and size of casing pipe. Payment for casing pipe shall be full compensation for excavating and backfilling of bore pits, bore pit dewatering, casing pipe by directional boring or jacking, welding, carrier pipe supported by casing spacers, end seals, materials, labor, equipment, and incidentals necessary to complete the work.

4.31 X" STEEL CASING PIPE VIA BORING

- A. Casing pipe shall be measured by the lineal foot for casing pipe with carrier pipe supported by casing spacers and capped with end seals, all furnished and installed. The measured length of casing pipe shall be rounded up to the nearest 1-foot increment.
- B. Payment will be at the contract unit price per lineal foot for the type and size of casing pipe. Payment for casing pipe shall be full compensation for excavating and backfilling of bore pits, bore pit dewatering, casing pipe by directional boring or jacking, welding, carrier pipe supported by casing spacers, end seals, materials, labor, equipment, and incidentals necessary to complete the work.

4.32 CASING SPACERS

- A. No measurement or individual bid item payment will be made for casing spacers. Labor, equipment and materials, including but not limited to casing spacers, nuts, bolts, gaskets, banding, or other associated hardware shall be considered incidental to the installation of the (RJ or Steel) Casing Pipe or Restrained Joint PVC Water Main.

4.33 CASING END SEALS

- A. No measurement or individual bid item payment will be made for end seals. Labor, equipment and materials, including but not limited to end seals, nuts, bolts, gaskets, banding, or other associated hardware shall be considered incidental to the installation of the (RJ or Steel) Casing Pipe or Restrained Joint PVC Water Main.

4.34 TEMPORARY WATER MAIN BYPASS PIPE

- A. Temporary water main bypass system shall include furnishing and installing a complete temporary water main bypass piping system with temporary service connections with all apparatus.
- B. Payment will be at the contract lump sum price for a temporary water main bypass system. Payment shall be full compensation for furnishing and installing the bypass tie-ins, bypass piping, pressure testing, bacteria testing, temporary water service connections, removing and repairing the bypass tie-in locations, material, labor, equipment, and incidentals necessary to complete the work.

4.35 GALVANIC ANODES

- A. No measurement or individual bid Item payment will be made for galvanic anodes. Labor, equipment and materials, including but not limited to anode bag, cad welding, wires, splices, caps, connections, or other associated hardware shall be considered incidental to the installation of the curb stop box, valve, hydrant and/or fittings.

4.36 X" x X" TAPPING SADDLE

- A. Tapping saddle shall be measured for per each type and size of tapping saddle furnished and installed. Payment shall be full compensation for BMU tapping fee, tapping saddle, corporation stop, materials, labor, equipment, and incidentals necessary to complete the work.
- B. Refer to BMU annually published "SERVICE CHARGES – WATER/SEWER" rate sheet for water service tapping fee costs, corporation info and curb stop info.

OR

- A. Tapping saddle shall be measured for per each type and size of tapping saddle furnished and installed. Payment shall be full compensation for tapping saddle, corporation stop, materials, labor, equipment, and incidentals necessary to complete the work.

OR

- A. No measurement or individual bid Item payment will be made for each type and size of tapping saddle. BMU Tapping fee, Labor, equipment and materials, including but not limited to tapping saddle, corporation stop or other associated hardware shall be considered incidental to the installation of the water service.

4.37 X" x X" TAPPING SLEEVE WITH VALVE (WET TAP)

- A. Tapping sleeve with valve shall be measured for per each type and size of tapping sleeve with valve furnished and installed. Payment shall be full compensation for tapping sleeve, tapping valve, bolts, nuts, gaskets, other hardware, materials, labor, equipment, and incidentals necessary to complete the work.

4.38 X" CORPORATION STOP

- A. No measurement or individual bid Item payment will be made for each type and size of corporation stop. Labor, equipment and materials, including but not limited to corporation stop or other associated hardware shall be considered incidental to the installation of the water service and/or tapping saddle.

4.39 X" x X" PACK JOINT COUPLING

- A. No measurement or individual bid Item payment will be made for each type and size of pack joint coupling. Labor, equipment and materials, including but not limited to pack joint or other associated hardware shall be considered incidental to the installation of the water service and/or water service reconnect.

4.40 X" BLOW-OFF ASSEMBLY

- A. Blow-off assembly shall be measured for per each type and size of blow-off assembly furnished and installed. Payment shall be full compensation for restrained cap, pipe, fittings, isolation valves, curbstop, nipples, materials, labor, equipment, and incidentals necessary to complete the work.

4.41 X" PRESSURE REGULATOR

- A. Pressure regulators shall be measured for per each type and size of pressure regulator furnished and installed. Payment shall be full compensation for pressure regulator, labor, equipment, and incidentals necessary to complete the work.

4.42 X" x X" INSIDE METER SETTER

- A. Inside meter setters shall be measured for per each size of meter setter furnished and installed. Payment shall be full compensation for meter setter, labor, equipment, and incidentals necessary to complete the work.

4.43 X" WATER METER

- A. Water meters shall be measured for per each type and size of water meter furnished and installed. Payment shall be full compensation for water meter, gaskets, miscellaneous fittings, materials, labor, equipment, and incidentals necessary to complete the work.

4.44 X" MAGNETIC WATER METER

- A. Water meters shall be measured for per each type and size of magnetic water meter furnished and installed. Payment shall be full compensation for magnetic water meter, gaskets, miscellaneous fittings, materials, labor, equipment, and incidentals necessary to complete the work.

4.45 DEWATERING

- A. No measurement or individual bid item payment will be made for dewatering. Dewatering shall be considered incidental to the installation of the water main, water services and appurtenances.

OR

- A. Dewatering, for water main and water services, shall be measured lump sum where trench dewatering is deemed necessary as an individual Bid Item on the Bid Form.
- B. Payment will be at the contract lump sum price for dewatering methods furnished and installed. Payment shall be full compensation for discharge permits, pumps, dewatering wells, electrical source fees, power costs, materials, labor, equipment, and incidentals necessary to complete the work.

OR

- A. Dewatering, for water main and water services, shall be measured to the nearest lineal foot where trench dewatering is deemed necessary as an individual Bid Item on the Bid Form. Dewatering on a lineal foot basis shall be payable when

dewatering wells are deemed necessary and utilized, not for utilizing smaller pumps in the trench.

- B. Payment will be at the contract unit price per foot for dewatering methods furnished and installed. Payment shall be full compensation for discharge permits, pumps, dewatering wells, electrical source fees, power costs, materials, labor, equipment, and incidentals necessary to complete the work.

4.46 WATER SERVICE RECONNECT

- A. Payment for water service reconnect shall be for at the contract unit price per each location indicated. Payment shall be full compensation for disconnecting the existing water service and reconnecting the existing water service to the new water main. Labor, equipment and materials, including but not limited to compression coupling or other associated hardware to complete the work.

4.47 WATER SERVICE DISCONNECT

- A. Water service disconnects at the water main location shall be measured per each trench excavated and backfilled. Measurement will be made only once if more than one disconnect can be performed in one common trench.
- B. Payment for water service disconnect will be at the contract unit price per each water service disconnect trench. Payment shall be full compensation for trench, backfill, road topping, labor, equipment, and incidentals necessary to complete the work.

4.48 REMOVE WATER MAIN

- A. The removal of water pipe shall be measured as lineal foot of water pipe removed, unless otherwise noted. The removal footage shall be rounded up to the nearest 1-foot increment. No measurement will be made for the removal of short sections of abandoned water main if it must be removed to facilitate the installation of new water main, sanitary sewer main or other utilities.
- B. Payment for removal of water main shall be paid at the contract unit price for each foot of water main removed. Payment for removal of water main shall be full compensation for all disposal costs, labor, equipment, and incidentals necessary to complete the work.

OR

- C. Where indicated on the plans or where deemed necessary to install the new pipe, the removal of water pipe shall be considered incidental to the installation of the new water main. No measurement will be made for the removal of short sections of abandoned water main if it must be removed to facilitate the installation of new water main, sanitary sewer main or other utilities.

4.49 REMOVE WATER MANHOLE

- A. Removal of water manholes shall be measured as a unit for each water manhole removed. The frame and lid shall be salvaged and delivered to BMU at 525

Western Avenue by the Contractor, delivery of the frame and lid shall be incidental to the water manhole removal.

- B. Payment for removal of water manhole shall be paid at the contract unit price for each water manhole removed. Payment for removal of water manhole shall be full compensation for frame & lid delivery to BMU, disposal costs, labor, equipment, and incidentals necessary to complete the work.

4.50 REMOVE FIRE HYDRANT/REMOVE VALVE & BOX

- A. No measurement or individual bid item payment will be made for the removal of fire hydrants or valves. Removed valves and fire hydrants shall be incidental to the water main installation. The Contractor shall be responsible for all removal costs.

OR

- A. Payment for valve and hydrant removals shall be paid at the contract unit price for each salvaged item removed and delivered. Payment for salvaged removals shall be full compensation for valve and/or hydrant delivery to BMU, labor, equipment, and incidentals necessary to complete the work.
- B. Removed valves and fire hydrants shall be measured per each valve or fire hydrant salvaged. Removed valves and fire hydrants shall be delivered to Brookings Municipal Utilities at 525 Western Avenue.