

SECTION 01150 MEASUREMENT AND PAYMENT

PART 1 GENERAL

1.01 SCOPE

- A. The scope of this section of the Contract Documents is to further define the items included in each Bid Item in the Bid Form section of the Contract Documents. Payment will be made based on the specified items included in the description in this section for each bid item.
- B. All contract prices included in the Bid Form section will be full compensation for all shop drawings, working drawings, labor, materials, tools, equipment and incidentals necessary to complete the construction as shown on the Drawings and/or as specified in the Contract Documents to be performed under this Contract. Actual quantities of each item bid on a unit price basis will be determined upon completion of the construction in the manner set up for each item in this section of the Specifications. Payment for all items listed in the Bid Form will constitute full compensation for all work shown and/or specified to be performed under this Contract.

1.02 ESTIMATED QUANTITIES

The quantities shown are approximate and are given only as a basis of calculation upon which the award of the Contract is to be made. The County does not assume any responsibility for the final quantities, nor shall the Contractor claim misunderstanding because of such estimate of quantities. Final payment will be made only for satisfactorily completed quantity of each item.

1.03 WORK OUTSIDE AUTHORIZED LIMITS

No payment will be made for work constructed outside the authorized limits of work.

1.04 MEASUREMENT STANDARDS

Unless otherwise specified for the particular items involved, all measurements of distance shall be taken horizontally or vertically.

1.05 AREA MEASUREMENTS

In the measurement of items to be paid for on the basis of area of finished work, the lengths and/or widths to be used in the calculations shall be the final dimensions measured along the surface of the completed work within the neat lines shown or designated.

1.06 LUMP SUM ITEMS

Where payment for items is shown to be paid for on a lump sum basis, no separate payment will be made for any item of work required to complete the lump sum items. Lump sum contracts shall be complete, tested and fully operable prior to request for final payment. Contractor may be required to provide a break-down of the lump sum totals.

1.07

UNIT PRICE ITEM

Separate payment will be made for the items of work described herein and listed on the Bid Form. Any related work not specifically listed, but required for satisfactory completion of the work shall be considered to be included in the scope of the appropriate listed work items.

No separate payment will be made for the following items and the cost of such work shall be included in the applicable pay items of work. Final payments shall not be requested by the Contractor or made by the County until as-built (record) drawings have been submitted and approved by the County.

1. Shop Drawings, Working Drawings.
2. Clearing, grubbing and grading except as hereinafter specified.
3. Trench excavation, including necessary pavement removal and rock removal, except as otherwise specified.
4. Dewatering and disposal of surplus water.
5. Structural fill, backfill, and grading.
6. Replacement of unpaved roadways, and shrubbery plots.
7. Cleanup and miscellaneous work.
8. Foundation and borrow materials, except as hereinafter specified.
9. Testing and placing system in operation.
10. Any material and equipment required to be installed and utilized for the tests.
11. Pipe, structures, pavement replacement, asphalt and shell driveways and/or appurtenances included within the limits of lump sum work, unless otherwise shown.
12. Maintaining the existing quality of service during construction.
13. Maintaining or detouring of traffic.
14. Appurtenant work as required for a complete and operable system.
15. Seeding and hydromulching.
16. As-built Record Drawings.

BID ITEM NO. 1 - MOBILIZATION

Measurement and payment for this Bid Item shall include full compensation for the required 100 percent (100%) Performance Bond, 100 Percent (100%) Payment Bond, all required insurance for the project and the Contractor's mobilization and demobilization costs as shown in the Bid Form. Mobilization includes, but it not limited to: preparation and movement of personnel, equipment, supplies and incidentals such as safety and sanitary supplies/ facilities

Payment for mobilization shall not exceed 10 percent (10%) of the total Contract cost unless the Contractor can prove to the County that his actual mobilization cost exceeds 10 percent (10%).

Partial payments for this Bid Item will be made in accordance with the following schedule:

Percent of Original Contract Amount:	Percent Allowable Payment of Mobilization/Demobilization Bid Item Price:
5	25
10	35
25	45
50	50
75	75
100	100

These payments will be subject to the standard retainage provided in the Contract. Payment of the retainage will be made after completion of the work and demobilization.

BID ITEM NO. 2 - MAINTENANCE OF TRAFFIC

Description: The work specified in this Item consists of maintaining traffic within the limits of the project for the duration of the construction period including any temporary suspensions of the work. It shall include the Contractor's submittal of a signed and sealed MOT plan to the County for approval; submittal of the retiming design of the signal at Whitfield Avenue and Lockwood Ridge Road for County approval; construction and maintenance of any necessary detour facilities; the providing of necessary facilities for access to residences, businesses, etc. along the project; retiming of the signal at Whitfield Avenue and Lockwood Ridge Road during construction; the furnishing, installing and maintaining of traffic control and safety devices during construction, the control of dust, and any other special requirements for safe and expeditious movement of traffic as may be called for on the plans. The term, Maintenance of Traffic, as used herein, shall include all of such facilities, devices and operations as are required for the safety and convenience of the public as well as for minimizing public nuisance, all as specified in this Section.

Measurement: The quantity of Maintenance of Traffic to be paid for under this Item shall be measured as one lump sum quantity. Partial payments will be pro-rated throughout the duration of construction of this Project.

Payment: The quantities, as determined above, shall be paid for at the contract lump sum price set out in the Proposal, which price and payment constitutes full compensation for all the work described herein.

BID ITEM NO. 3 - FURNISH AND INSTALL 16-INCH FLEX-RING DUCTILE IRON PIPE AND FITTINGS BY OPEN CUT

Description: This bid item describes measurement and payment for furnishing and installing cement mortar lined Flex-Ring joint ductile iron pipe and fittings in open cut trenches.

Measurement: Measurement will be horizontally above the centerline of the pipe and includes the length of any valves or fittings.

Payment: The pay quantity for the work specified under this section shall be the number of linear feet of Thickness Class 51, 16-inch diameter, cement mortar lined, Flex-Ring joint ductile iron pipe and fittings actually installed by open cut and accepted. The unit bid price includes furnishing and installing pipe by open cut and materials above or below ground along the pipeline alignment; jointing materials, Flex-Ring fittings, poly wrap, adapters, pavement and sidewalk removal, making pipe connections, clearing; sheeting, shoring and bracing; dewatering, excavation; identification tape, marker poles and/or locating valve boxes, bedding and backfill; compaction and testing; constructing the specified protection and adjusting of existing above ground and underground utilities and service connections; disposal of soil; hydrostatic testing; flushing, pigging, disinfection and testing, issuance of boil water notices; bacteriological sampling fees, cleaning, erosion control; protection of culverts and drainage facilities and utilities, erosion and sedimentation control, surface restoration, and all other related and necessary materials, work and equipment required to construct a complete and operable pipeline.

BID ITEM NO. 4 - FURNISH AND INSTALL 16-INCH FLEX-RING JOINT DUCTILE IRON PIPE BY HORIZONTAL DIRECTIONAL DRILLING (HDD)

Description: This bid item describes measurement and payment for furnishing and installing cement mortar lined Flex-Ring joint ductile iron pipe installed by HDD.

Measurement: Measurement shall be horizontally above the centerline of the pipe and shall include the length of valves and fittings.

Payment: The pay quantity for the work specified under this section shall be the number of linear feet of Thickness Class 51, 16-inch diameter, cement mortar lined, Flex-Ring joint ductile iron pipe actually constructed by HDD and accepted. The bid price includes furnishing all materials, including pipe, restrained joints, poly wrap, tracer wires, grout, plus all the work, tools, equipment, tracking system, materials, and incidentals required to construct the pipe by HDD, as shown on the plans, and as described in the Special Provisions and Specifications, complete, in place, and accepted. The work includes, but is not limited to assembling, supporting, stringing, pulling, contact grouting, hydrostatic testing, flushing, pigging, cleaning, disinfection and testing, making pipe connections, entry/exit pits, clearing; sheeting, shoring and bracing; dewatering, excavation; bedding and backfill; compaction and testing; protection and adjusting of existing above ground and underground utilities and service connections; disposal of spoil; protection of structures, culverts, drainage facilities and utilities, erosion and sedimentation control, surface restoration, and all other related and necessary materials, work and equipment required to construct a complete and operable pipeline.

BID ITEM NO. 5 - FURNISH AND INSTALL 16-INCH GATE VALVE ASSEMBLY

Description: This bid item describes measurement and payment for furnishing and installing resilient seated gate valves with boxes complete and acceptably installed to final grade as shown on the Contract Drawings.

Measurement: Measurement will be on an individual basis for each size valve and box assembly acceptably installed.

Payment: Payment will be according to the size or type of gate valve assembly as set forth in the Proposal. The unit bid price includes all materials and installation, furnishing and installing valve, valve box, concrete pad, polywrap, piping, restraints, excavation, backfill, dewatering, sheeting, shoring, erosion and sedimentation control, testing, surface restoration, and all incidentals required for a complete valve assembly.

BID ITEM NO. 6 - FURNISH AND INSTALL VALVE VAULT

Description: This bid item describes measurement and payment for furnishing and installing concrete valve vaults complete and acceptably installed to final grade as shown on the Contract Drawings.

Measurement: Measurement will be on an individual basis for each valve vault acceptably installed.

Payment: Payment will be per each valve vault as set forth in the Proposal. The unit bid price includes all materials and installation, furnishing and installing concrete valve vault, excavation, backfill, dewatering, sheeting, shoring, erosion and sedimentation control, testing, surface restoration, and all incidentals required for a complete valve vault.

BID ITEM NO. 7 - FURNISH AND INSTALL DUCTILE IRON MECHANICAL JOINT FITTINGS AND RESTRAINTS

Description: This bid item describes measurement and payment for cement mortar lined ductile iron restrained mechanical joint fittings.

Measurement: The quantity to be paid for under this item shall be the weight in tons of restrained ductile iron mechanical joint fittings acceptably installed as shown on the drawings or where directed by the Project Representative. This bid item includes, but is not limited to, wyes, tees, bends, crosses, sleeves, plugs and caps, and reducers.

Payment: Payment will be according to the weight of each restrained mechanical joint fitting as denoted in the manufacturers' catalogs. The unit bid price includes furnishing and installing all fittings and materials above or below ground along the pipeline alignment; joints, and jointing materials; restraints; interior lining; shoring and sheeting; bracing; dewatering, clearing, grubbing, and stripping; trenching, bedding and backfill; adjusting of existing above ground and underground utilities and service connections; disposal of spoil; poly wrap; hydrostatic testing; erosion control, maintenance of flow, by-pass pumping (as required), surface restoration, maintenance of traffic and temporary pavement replacement as required outside of roadway phasing plans, and all other related and necessary materials, work and equipment required to construct a complete and operable pipeline fitting.

BID ITEM NO. 8 - FURNISH AND INSTALL AIR RELEASE ASSEMBLY

Description: This bid item describes measurement and payment for furnishing and installing manual air release valve assemblies complete and acceptably installed below ground.

Measurement: Measurement will be on an individual basis for each air release valve assembly installed as shown on the drawings or where directed by the Project Representative.

Payment: Payment will be according to the size or type of air release valve assembly, and the operation to be performed, as set forth on the Proposal. The unit bid price includes furnishing and installing the tap, isolation valve, reducers, air release valve, restraining devices, tracer wire, piping, vault, concrete pads, fittings, testing, clearing, sheeting, shoring and bracing, dewatering, excavation, backfill and compaction, sod, erosion and sedimentation control, protection of existing above ground and underground utilities and service connections, surface restoration, maintenance of traffic and temporary pavement replacement, and incidental items required to install a complete manual air release assembly.

BID ITEM NO. 9 - FURNISH AND INSTALL FIRE HYDRANT ASSEMBLY

Description: this bid item includes measurement and payment for furnishing and installing fire hydrant assemblies complete.

Measurement: Payment for furnishing and installing fire hydrants shall be on a per each basis, on the actual number of fire hydrants installed.

Payment: The unit price shall cover the cost for furnishing and installing all materials including hydrant lead piping, valves, valve boxes, concrete pad, tees, fittings, restraints, polyethylene encasement, coatings, equipment, trenching, disinfection, bacteriological sampling fees, testing, backfilling, backfill material, disposal of unsuitable backfill materials, tamping, densities, utility crossings, dewatering, trench stabilization, clean-up, restoration,

maintenance of traffic and temporary pavement replacement, and all work and materials necessary to install the fire hydrant assemblies as indicated in the drawings.

BID ITEM NO. 10 - CONNECT TO EXISTING 16-INCH WATER MAIN

Description: This bid item describes measurement and payment for connecting the 16-inch water main into the existing potable water system.

Measurement: Measurement will be on an individual basis for each connection installed as shown on the drawings.

Payment: The pay quantities for the work specified under this Item shall be the lump sum price set out in the Proposal to install the connections. The unit bid price includes jointing materials, adapters, sleeves, restraints, pavement removal, making pipe connections, clearing; sheeting, shoring and bracing; dewatering, excavation; identification tape, marker poles and/or locating valve boxes, bedding and backfill; compaction and testing; constructing the specified protection and adjusting of existing above ground and underground utilities and service connections; disposal of soil; poly wrap; hydrostatic testing; flushing, pigging, disinfection and testing, issuance of boil water notices; bacteriological sampling fees, cleaning, erosion control; protection of culverts and drainage facilities and utilities, erosion and sedimentation control, surface restoration, maintenance of traffic and temporary pavement replacement, and all other related and necessary materials, work and equipment required to construct a complete and operable pipeline connection.

BID ITEM NO. 11 - FURNISH AND INSTALL CONCRETE SIDEWALK

Description: This bid item includes construction of concrete sidewalk replacement having a minimum thickness of 4-inches as required during construction.

Measurement: The quantity to be paid for under this item shall be the area, in square yards, acceptably furnished and installed to the limits and dimensions shown on the Drawings, or where directed by the Project Representative.

Payment: Payment will be according to square yards of concrete sidewalk furnished and installed. Payment for this bid item includes all labor and materials including formwork, concrete, expansion joints, saw cutting joints, reinforcing, and finishing. No payment will be made for the installation of concrete sidewalk where existing sidewalk is disturbed by the Contractor away from the alignment of the new pipeline.

BID ITEM NO. 12 - FURNISH AND INSTALL MILLING OF EXISTING PAVEMENT (1-INCH AVERAGE THICKNESS)

Description: The work specified in this Item consists of materials, labor and equipment associated with milling of existing asphalt at an average depth of 1-inch.

Measurement: Measurement for asphalt milling shall be per square yard and shall only include areas milled to the required depth and cross section.

Payment: Payment for asphalt milling at the contract unit price shall be full compensation for the work, complete in place, including asphalt milling, milling around structures, removal and disposal of milled materials, and sweeping.

BID ITEM NO. 13 - FURNISH AND INSTALL SUPERPAVE ASPHALTIC CONCRETE, TRAFFIC C, SP-9.5

Description: The work specified in this Item consists of furnishing and installing 1½-inch thick superpave asphaltic concrete where shown on the Drawings or where directed by the Project representative.

Measurement: The quantity to be paid for under this item is the tons of superpave asphaltic concrete pavement acceptably furnished and installed as evidenced by plant delivery tickets.

Payment: Asphalt will be paid for at the contract unit price bid per ton for the type of asphalt specified. This price shall be full compensation for superpave asphalt concrete pavement, complete in place, including all materials, labor, tools, equipment, pavement markings, testing and all other incidentals necessary. Payment will not be made for installation of asphalt paving where existing asphalt is disturbed by the Contractor outside of the paving limits shown on the Drawings.

BID ITEM NO. 14 - FURNISH AND INSTALL SETTLEMENT INSTRUMENTATION AND MONITORING

Description: This bid item describes measurement and payment for furnishing and installing settlement instrumentation to monitor surface movements around and above the HDD installation.

Measurement: The quantity to be paid for under this item is lump sum.

Payment: The unit bid price includes, but is not limited to, furnishing all labor, equipment and materials for installing surface monitoring points, monitoring equipment and recording observations before, during and after HDD operations. Ten (10) surface monitoring points shall be installed for the drilled crossing.

BID ITEM NO. 15 - UNSUITABLE MATERIAL REMOVAL

Description: The Contractor shall make any additional earth excavation which may be ordered by the Engineer in writing to remove unsuitable material. The work includes all clearing, pavement, sidewalk, curb and gutter removal, care of structures and adjacent property, placing, maintenance, and removal of shoring, sheeting, and bracing, removal of water, backfilling, disposal of surplus excavated material, temporary restoration of street surfaces and other appurtenant work as specified and directed.

Measurement: The quantity of unsuitable material removal, in cubic yards, to be measured for payment under this Item will be the total excavation, as ordered and approved by the Engineer, beyond and outside the established lines and grades which would have controlled and been maintained had not the additional excavation been ordered. Additional earth excavation for placement of selected fill material other than that for pipe bedding or to permit construction of other types of pipeline foundations will be included for payment under this Item. Unauthorized additional earth excavation will not be measured or paid for.

Payment: Payment for Unsuitable Material Removal ordered in writing by the Engineer will be made at the unit price per cubic yard for this Item.

BID ITEM NO. 16 - ADDITIONAL SELECT FILL MATERIAL

Description: This bid item describes select fill materials from sources other than excavations made in this Contract and not specifically included under other Items at locations indicated and ordered by the Engineer in writing. The work includes all labor and equipment for furnishing, transporting, installing, compacting the select fill, and disposing of surplus excavated material. Excavation for placement of select fill will be paid for under other Bid Items. The work does not include transporting, placing and compacting approved surplus fill from excavations made in this Contract. The Contractor shall use all such approved surplus fill available from excavations made in this Contract prior to supplying select fill from other sources.

Measurement: The quantities of Additional Select Fill Material, obtained from sources other than excavations in this Contract, in cubic yards, to be measured for payment under this Item will be the actual compacted volume of select fill placed within the payment limits shown on the Plans or established by the Engineer. Select fill used to fill voids resulting from unauthorized excavation, or where required for dewatering, will not be measured for payment even though their use is ordered by the Engineer. Select fill used for pipe bedding will not be measured for payment under this Item. Such select fill is included in the various unit price Items for pipelines.

Payment: Payment for Additional Select Fill Material ordered by the Engineer in writing, will be made at the unit price per cubic yard for this Item. No payment will be made under this Item for approved surplus fill obtained from excavations made in this Contract.

BID ITEM NO. 17 - MISCELLANEOUS CONCRETE

Description: The Contractor shall furnish and place any miscellaneous concrete ordered by the Engineer in writing and not specifically included under other Items. Included in this item are standard non-reinforced pipe cradles, encasements, and like work not shown on the Plans or specified. The work includes all materials, mixing, placing, forming, and curing of the concrete, and work incidental thereto. Excavation for the placement of Miscellaneous Concrete will be paid for under other Bid Items.

Measurement: The quantity of Miscellaneous Concrete, in cubic yards, to be measured for payment under this Item will be the actual volume of concrete placed in the work, measured in place, within the lines and grades as ordered. All concrete placed outside these lines and grades to fill unauthorized excavation, and all concrete for replacing defective work, shall be at the expense of the Contractor. Concrete specifically included under other Items will not be measured, or paid for, under this Item.

Payment: Payment for Miscellaneous Concrete will be made at the unit price per cubic yard for this Item.

BID ITEM NO. 18 - OWNER'S CONTINGENCY

Payment for all work under this Bid Item shall be made only at the County's discretion. This Bid Item shall not exceed 10% of the Bidders Total Base Bid. The Bidder shall calculate and enter a dollar amount for this Bid Item.

PART 2 PRODUCTS (NOT USED)

PART 3 EXECUTION (NOT USED)

END OF SECTION