



# Illinois Department of Transportation

2300 South Dirksen Parkway / Springfield, Illinois / 62764

February 27, 2020

SUBJECT: FAU Route 2692 (Wolf Road)  
Project STP-RKBP (847)  
Section 3941-R  
Cook County  
Contract No. 60T05  
Item No. 137, March 6, 2020 Letting  
Addendum A

## NOTICE TO PROSPECTIVE BIDDERS:

Attached is an addendum to the plans or proposal. This addendum involves revised and/or added material.

1. Revised the Schedule of Prices
2. Revised the Recurring Special Provision Check Sheet
3. Revised pages i & iv of the Table of Contents to the Special Provisions
4. Revised pages 47 & 48 of the Special Provisions
5. Added pages 230-252 to the Special Provisions
6. Revised sheets 1, 10, 15, 16, 20, 74, 78-82, 84, 85, 87, 89, 90 & 142-159 of the Plans
7. Added sheets 22A & 22B to the Plans

Prime contractors must utilize the enclosed material when preparing their bid and must include any changes to the Schedule of Prices in their bid.

Very truly yours,

A handwritten signature in black ink, appearing to read 'Jack A. Elston'.

Jack A. Elston, P.E.  
Bureau Chief, Design and Environment

MTS

RECURRING SPECIAL PROVISIONS

The following RECURRING SPECIAL PROVISIONS indicated by an "X" are applicable to this contract and are included by reference:

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Add the following to Article 1030.04 (d) of Standard Specification to read:

- (3) I-FIT Flexibility Index (FI) Criteria. I-FIT testing will be according to Illinois Modified AASHTO TP 124 and the results will be for informational purposes only.

Add the following to Article 1030.06 (a) of the Standard Specifications to read:

An I-FIT shall be conducted on all HMA mixtures from a sample taken within the first 500 tons (450 metric tons) on the first day of production or during start up with an 80 lb (36 kg) split reserved for the Department. The mix sample shall be tested according to the Illinois Modified AASHTO TP 124 Determining the Fracture Potential of Asphalt Mixtures Using the Illinois Flexibility Index Test (I-FIT). Within two working days after sampling, the Contractor shall deliver prepared samples to the District laboratory for verification testing. The required number and size of prepared samples submitted for the I-FIT testing shall be according to the "High ESAL - Required Samples for Verification Testing" table in Article 1030.04(d) above.

Mixture sampled during production for I-FIT will be tested by the Department.

Add the following to the end of Article 1030.06(b) of the Standard Specifications:

"I-FIT testing will be performed for Low ESAL mixtures (excluding Class D patches, pavement patching and incidental HMA) during mixture production. Within two working day after sampling, the Contractor shall deliver prepared samples to the District laboratory for verification testing. The required number and size of prepared samples submitted for the I-FIT testing shall be according to the "Low ESAL - Required Samples for Verification Testing" table in Article 1030.04(d) above."

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**SANITARY MANHOLES TO BE RECONSTRUCTED:**

Description. This work shall be completed in accordance with the latest edition of the “Standard Specifications for Water and Sewer Main Construction in Illinois” and shall consist of the reconstruction of sanitary sewer manholes, including excavation; backfilling with and compaction of trench backfill materials; removal and replacement of any risers, cones or adjusting rings required; joint sealer; installing a new chimney seal; installing a exterior waterproof bituminous coating; installing a new bolted and gasketed watertight frame and cover; final adjustment of frame to final grade; vacuum testing; and all other work necessary to complete sanitary manhole reconstruction.

Care shall be taken to prevent material from falling to the bottom of the manhole that may obstruct sewer inverts. Manholes shall be inspected and a removal depth agreed upon with the Engineer prior to ordering. The frame and lid shall be located outside of the proposed curb.

Basis of Payment. This work will be paid for at the contract unit price per each for SANITARY MANHOLES TO BE RECONSTRUCTED, which price shall include all of the above.

Trench backfill shall be used where the sanitary sewer manhole is within 2 feet of existing or proposed sidewalks, driveways, or pavements, and shall be including in this item.

**TRENCHING, BACKFILLING AND COMPACTING FOR SANITARY SEWER AND WATER MAIN**

SUMMARY: Trench, backfill, and compact shown on the plans, as specified herein and as needed for installation of water main and sanitary sewer in accordance with the “Standard Specification for Water and Sewer Main Construction in Illinois”.

QUALITY ASSURANCE: Use adequate numbers of skilled workmen who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section.

Use equipment adequate in size, capacity, and numbers to accomplish the work in a timely manner.

Comply with requirements of governmental agencies having jurisdiction.

Added 2/27/2020

GRANULAR PIPE BEDDING AND COVERING MATERIALS: Provide well graded, washed, mixture of gravel or crushed stone aggregate free of clay, loam, dirt, calcareous or other foreign matter conforming to the IDOT "Standard Specifications" gradation No. CA 7, or the Standard Specifications for Water and Sewer Construction in Illinois, with the following gradation:

<u>Sieve Size</u>	<u>Percent Passing</u>
1 1/2-inch	100%
1-inch	90 -100%
1/2-inch	30 - 60%
No. 4	0 -10%

1. For flexible thermoplastic pipes including sewer pipes, sewage force mains, and water mains: Comply with ASTM D2321, Class I or II as modified below.
  - a. Exclude sharp angular granular materials.
  - b. Limit maximum particle size to 1/2-inch (IDOT CA 15 or CA 16).
  - c. Do not use Class II materials in wet conditions.
2. For rigid pipes comply with ASTM C12, Bedding Class B.

EXCAVATED BACKFILL MATERIALS IN NON-PAVED AREAS: Provide soil materials free from organic matter, rubble, or frozen material, containing no rocks or lumps over 6 inches, and with not more than 15 percent of the rocks or lumps larger than 2 inches.

GRANULAR BACKFILL MATERIALS: Provide either sand, pit run gravel, granular material, or excavated granular materials.

Granular Material: Use 100% crushed stone or gravel complying with Section 1004 in the IDOT Standard Specifications for gradation No. CA-6.

TEMPORARY AGGREGATE PAVEMENT MATERIAL: Provide well graded, 100 percent crushed gravel or crushed stone aggregate free of clay, loam, dirt, calcareous or other foreign matter conforming to the IDOT "Standard Specifications" gradation No. CA-6.

GEOTECHNICAL FABRIC: Provide geotechnical fabric for separation of granular material and native soil in areas where trench is over excavated to remove unsuitable materials.

1. Acceptable manufacturers:
  - a. Mirafi: 160N.
  - b. Synthetic Industries: 601.
  - c. Amaco: 4551.

Added 2/27/2020



WATER MAIN REPAIR:

1. Repair water main or water services damaged during construction utilizing products of type and manufacturers as approved by the Owner.
2. Pipe couplings for joining of sections of cut water main where a section of new pipe is used to replace a broken pipe.
  - a. Acceptable manufacturers:
    - (1) Dresser Style 38.
    - (2) Smith-Blair CC-441.
    - (3) Or equal.
3. Repair clamps for broken or cracked pipe and sealing of existing corporation stop opening.
  - a. Use full-circle single band all stainless steel clamps.
  - b. Acceptable manufacturers:
    - (1) Dresser Style 360.
    - (2) Smith-Blair 200 Series.
    - (3) Or equal.
  - c. Replace damaged service corporation stops by installation of full-circle single band all stainless steel clamps, with service outlet, matching manufacturer's and styles used for repair of a cracked pipe.

GENERAL CONSTRUCTION REQUIREMENTS:

1. Protection of existing facilities:
  - a. Unless shown to be removed, protect existing structures, conduits, active utility lines and all other facilities shown on the Plans or otherwise made known to the Contractor. If damaged, repair, replace, or restore to a condition equal to or better than the original condition at no additional cost to the Contract.
  - b. Notify all persons, firms, corporations, or agencies owning or using any existing structures, conduits, or utilities which may be affected by the Work prior to the start of construction.
  - c. Make arrangements to locate, maintain, protect, and/or relocate facilities in order to complete the Work.
  - d. Make such exploration as is necessary to determine the exact location of underground utilities.
  - e. Exercise care during the progress of work in the area to prevent damage to the utilities.
  - f. Whenever it becomes necessary to relocate underground gas mains, telephone conduit, or electrical lines or support or relocate utility poles, the utility company involved will make such relocation or provide pole support. Notify the utility company promptly.
  - g. Whenever it becomes necessary to relocate water or other pipes or conduits in direct conflict with the proposed pipe (exclusive of culverts) which are not shown on the Plans, obtain the direction from the Engineer for the relocation. Compensation will be allowed only for such quantities as determined by the Engineer.
  - h. Do not obstruct accessibility of fire hydrants.
  - g. Maintain access to driveways at all times except when actual trench construction is crossing a driveway.

Added 2/27/2020

TRENCHING:

1. Do not advance trench excavation more than 50 feet ahead of completed pipe installation except as approved by the Engineer.
2. Provide and maintain sheeting, shoring, and bracing necessary for protection of the Work, adjacent property, and for the safety of personnel.
  - a. Remove temporary sheeting and bracing after backfilling to an elevation which will prohibit caving of exposed sidebanks.
  - b. Fill voids left by the withdrawal of sheeting with compacted sand.
  - c. The Engineer may direct that supports in trenches be cut off at any specific elevation to protect adjacent facilities or property. Compensation for support left in place will be negotiated.
  - d. No extra payment will be made for the supports left in place without the direction of the Engineer.
  - e. Do not leave supports within 4 feet of the ground or pavement surface in place without the permission of the Engineer.
3. Provide pumping, bailing, wellpointing, and construct ditches and dikes required to dewater and drain ground water, sewage, or stormwater to keep the excavation and site dry for the completion of the Work.
4. Excavation:
  - a. Excavate by open cut unless otherwise indicated on the Plans.
  - b. Excavate trenches to the depths and grades necessary for the pipelines with allowances for bedding material.
  - c. Over excavate organic, soft, spongy, or otherwise unsuitable soils found at or below the bottom of the trench to meet firm subsoil or as determined by the Engineer.
  - d. Comply with the following maximum trench widths at the top of pipelines:

Nominal Pipe Sizes (inches)	Trench Widths (inches)
12 or smaller	30
14 - 18	36
20 - 24	42
27 - 30	48
33 and larger	1-1/3 times pipe OD

EXCAVATION FOR APPURTENANCES:

1. Excavate for manholes and similar structures to the depths as shown on the Plans and to a distance sufficient to leave at least 12 inches clear between outer surfaces and the embankment or shoring that may be used to hold and protect the banks.
2. Over depth excavation beyond depths indicated on the Plans that has not been directed will be considered unauthorized. Fill with sand, gravel, or lean concrete as determined by the Engineer, and at no additional cost to the Contract.

Added 2/27/2020

**BEDDING AND COVERING OF PIPE:** Bedding is defined as the shaped and tamped material which supports the pipes. Covering is defined as the compacted material which protects and covers the pipes. Provide continuous bedding and covering for underground pipelines, except where concrete encasement, concrete cradles, boring or jacking are indicated.

**Pipe bedding:**

1. Provide compacted granular pipe bedding and covering material with a minimum thickness of 4 inches under pipe barrels and 2 inches under bells.
2. Wherever the trench is over-excavated due to removal of unsuitable material, refill the trench bottom to the bottom of the pipe bedding with granular material conforming to the IDOT "Standard Specifications" gradation No. CA 1 as determined by the Engineer.
  - a. Unless otherwise specified to be paid for, removal and replacement of material, or unsuitable material, to a depth of one foot below pipe barrel outside diameter is considered incidental to installation of the pipe.
3. Wherever the trench is over excavated to remove unsuitable material, install geotechnical fabric between native soil and granular material:
  - a. Install fabric to cover bottom and sides of trench to heights as follows:
    - (1) For all flexible pipe and rigid pipe 24-inch and smaller: to envelop entire bedding and covering material and overlap 1-foot at the top.
    - (2) For rigid pipe 27-inch and larger: to cover bedding material and from sides of trench to edge of pipe.
    - (3) Where undercut is of a depth that requires more than one piece of fabric to provide envelope, provide sewn seams between sections of fabric.
4. Wherever two or more pipes or conduits are placed in the same trench or excavated area, backfill the trench with granular pipe bedding and covering material to support the uppermost pipe or conduit.

**Pipe covering:**

1. Following placement of pipe and inspection of joints, provide compacted granular pipe bedding and covering material for the full width of the trench to the following levels unless otherwise shown on the Plans:
  - a. For pipes sizes 24-inch and smaller, except flexible thermoplastic pipe: To 4 inches above the top of the pipe.
  - b. For pipes sizes 27-inch and larger, except flexible thermoplastic pipe: To the horizontal centerline of the pipe.
  - c. For flexible thermoplastic pipes, including ABS and PVC composite pipe, PVC plastic pipe, and other flexible type pipe: To 12 inches above the top of the pipe.
  - d. If compacted excavated materials are used for backfilling under the pavement as indicated on the Plans: To 12 inches above the top of the pipe for all pipe sizes.
2. Place granular pipe bedding and covering material in uniform loose layers not exceeding 8 inches thick.

Added 2/27/2020

- a. Compact each layer firmly by ramming or tamping with tools approved by the Engineer in such a manner as not to disturb or injure the pipe to yield a minimum density of 95 percent of maximum dry density as determined according to ASTM D1557 or AASHTO-T180.
3. Where trench is widened by installation of structures or jacking pits, extend bedding and covering materials to total width of excavations.

**TRENCH BACKFILLING AND COMPACTING:** Backfill trench from the top of pipe cover to topsoil, paving subgrade, or foundation level.

**For trench in lawns, parkways, and other improved areas not subject to vehicular traffic:**

1. Backfill with excavated materials in uniform loose layer not exceeding 12 inches thick.
2. Compact each layer of trench backfill materials to yield a minimum of 85 percent of maximum dry density as determined according to ASTM D1557 or AASHTO-T180.

**For trench in streets, parking areas, driveways, sidewalks, curb and gutter, or within 2 feet of any proposed curb and gutter, sidewalk, or other paved areas:**

1. Backfilling with granular backfill materials:
  - a. Place in uniform loose layer not exceeding 12 inches thick and compact with vibrating roller or equivalent.
  - b. Water jetting may NOT be used in lieu of vibratory compaction.
  - c. Fill the top of trenches with temporary aggregate pavement material to the depth(s) required to provide aggregate base and pavement base, binder and surface courses of the depths shown on the Plans.
2. Compacting requirements:
  - a. Compact each layer of trench backfill materials to yield a minimum density of 90 percent of maximum dry density as determined according to ASTM D1557 or AASHTO T-180.
  - b. Determine the density of compacted backfill at intervals of not more than 500 feet at locations selected by the Engineer.
  - c. Provide the services of an independent testing laboratory for the density tests.
3. Maintain temporary pavement level with adjoining pavement surfaces until the permanent pavement is placed.

**BACKFILL AND BEDDING FOR APPURTENANCES:**

1. Provide 3 inches of sand or granular bedding material unless otherwise shown on the Plans.
2. Do not backfill until new concrete has properly cured, and any required tests have been accepted.
3. Backfill in lawns and landscaped areas with excavated materials.
4. Backfill in pavement around manholes, catch basins, inlets, valve vaults, and other structures as determined by the Engineer with special granular backfill materials.

Added 2/27/2020

FINISH GRADING:

1. Provide finish grading and filling to achieve the lines and grades.
2. Slope grades to drain away from structures.
3. Replace culverts damaged during the construction with new culverts. Temporary culverts may be provided if drainage improvements are part of the Contract.
4. Except where mounding over trenches is specified, grade smooth areas of the Work including previously grassed areas that have been disturbed, and adjacent transition areas.
5. Fill and compact depressions from settlement and round tops of embankments and breaks in grade.
6. Protect newly graded areas from traffic and erosion. Repair settlement or washing away that may occur prior to surface restoration and re-establish grades to the required elevations at no additional cost to the Contract.
7. Remove unsuitable and surplus excavated materials not used for backfilling from the project site.
8. Do not deposit on public or private property without written permission from property owner or authorized representative of appropriate public agency.

WATER MAIN REPAIR:

1. Whenever existing water mains and water service pipes are damaged during construction, stop the pipe installation work and immediately repair the damaged portion of the existing piping.
2. Contact the Engineer and Owner immediately to report the location and extent of the damage.
3. Repair the water main with methods complying with the "Standards for Water and Sewer Main Construction In Illinois", and any additional requirements required by the Owner.
4. Utilize only materials of repair as noted in the products section of this specification or as dictated by the Owner.
5. Where water services have been stripped or pulled from the water main, replace the corporation stop as instructed by the Engineer, and replace the water service pipe to a point as determined by the Engineer.
6. Comply with disinfection requirements as dictated by the Owner.
7. Do not cover the repair until work is inspected and approved by Engineer.

PIPE INSULATION:

1. Place rigid pipe insulation board above the pipe cover material to the width of the trench.
2. Place rigid insulation board to the required thickness and in the locations shown on the Plans or as determined by the Engineer.

Added 2/27/2020

## **TRENCH BACKFILL – WATERMAIN**

Description. Trench backfill for water main shall be placed in all trenches crossing driveways, sidewalks, and all proposed and existing roadways, from the top of bedding and covering material to the top of the existing surface. Installation of the trench backfill shall be in accordance with Special Provision for “TRENCHING BACKFILLING AND COMPACTING FOR SANITARY SEWER AND WATER MAIN” and the detail shown on the Plans. The material for the top 12 inches shall be CA-6, 100% crushed gravel or crushed stone.

Method of Measurement. Trench backfill for water main will be measured in lineal feet along the centerline of the pipe from the point of installation to end of installation, regardless of depth of the pipe or width of the trench.

Basis of Payment. This work will be paid for at the contract unit price per lineal foot for TRENCH BACKFILL – WATERMAIN.

## **WATER DISTRIBUTION SYSTEM**

SUMMARY: Provide the water distribution system as shown on the Plans, specified herein, and needed for a complete and proper installation, and in accordance with the latest edition of the “Standard Specifications for Water and Sewer Main Construction in Illinois”, except as revised herein.

Provide labor, materials, tools, chemicals and equipment necessary to perform the pressure and leakage tests and disinfection.

SUBMITTALS: Furnish two (2) copies of bacteriological test reports.

Submit the following at the preconstruction meeting for review and approval by the Engineer:

1. Company name and contact information of the insertion valve installer (subcontractor).
2. Certification by insertion valve manufacturer of the training received by the insertion valve installer, or other written proof/references of at least 3 years experience and/or at least 30 successful insertion valve installations by the insertion valve installer.

IRON AND STEEL MATERIALS: All iron and steel materials used on this project shall be domestically manufactured or produced and fabricated in accordance with Article 106.01 of the Standard Specifications.

BRASS AND BRONZE ALLOYS: All brass and bronze alloys supplied with the products shall contain less than 15 percent zinc, unless otherwise specified.

1. Brass that will come in contact with potable water shall contain no more than 0.25% lead.
  - a. Brass fittings shall be marked with industry standard marking to indicate the amount of lead (no lead, low lead, etc.) in the brass.
  - b. Brass for service saddles may contain more than 0.25% lead to improve ductility of the saddles.

Added 2/27/2020

PIPE AND FITTINGS: Provide ductile iron pipe materials in size 4-inch through 24-inch unless otherwise indicated on the Plans.

**Ductile Iron Pipe:**

Provide ductile iron pipe complying with ANSI A21.51, special thickness Class 52, with joints complying with ANSI A21.11. Use cement lining complying with ANSI/AWWA, C104/A21.4 standard thickness.

1. Exterior Coating:
  - a. The exterior of ductile iron pipe shall be coated with a layer of arc-sprayed zinc per ISO 8179.
  - b. The mass of the zinc applied shall be 200 grams per square meter of pipe surface area.
  - c. A finishing layer of asphaltic coating shall be applied over the zinc coating.
    - i. The mean dry film thickness of the finishing coat shall not be less than 3 mils, with a local minimum not less than 2 mils.
  - d. The coating system shall conform in every respect to ISO 8179-1 "Ductile Iron Pipes – External zinc-based coating – Part 1: Metallic zinc with finishing layer. Second edition 2004-06-01."
2. Provide restrained joint pipe system, where indicated on the Plans, that utilizes one of the following methods:
  - a. Lock rings welded into place around pipe barrel.
  - b. Bolted rings installed around pipe barrels that fit inside pipe bells.
  - c. Gaskets which include stainless steel locking segments vulcanized into the gasket.
  - d. Mechanical joint retainer gland systems that provide locking segments shaped to pipe barrel that do not create stress points on pipe barrel.
    - (1) Do not use setpoint type retainer glands.
  - e. Acceptable products:
    - (1) Meg-A-Lug System.
      - i. Series 1100 Megalug for MJ to pipe.
      - ii. Series Series 1700 Megalug Harness for push on joint.
      - iii. As recommended by manufacturer for connection to existing pipes
    - (2) American Fastite, Flex-ring, Lok-ring, and MJ coupled joint.
    - (3) McWane Ductile Tyton Joint – Type A or Type B, and Sure Stop gaskets.
    - (4) U.S. Pipe TR-Flex Gripper
    - (5) Griffin Bolt Lok or Snap Lok
    - (6) Field Lok or Fast Grip Gasket Systems.
    - (7) Acceptable Manufactures of joint restraint for PVC fittings:
      - i. EBAA Iron Sales
      - ii. Ford Meter Box Company, Series 1500
      - iii. Tyler Union – TUFGRip

Added 2/27/2020

Fittings:

1. Use ductile iron fittings with mechanical joint complying with ANSI A21.10 or A21.53.
2. Use cement lining complying with ANSI A-21.4, standard thickness.
3. Bolts and nuts:
  - a. Use Corten bolts and nuts, or
  - b. Use Cor-blue bolts and nuts, or
- c. Use A-304 stainless steel bolts with nuts and washers of series 300 stainless steel per ASTM A194.
4. Provide restrained joint type fittings compatible with pipe system utilized, as specified by the pipe manufacturer.
  - a. Mechanical joint retainer gland systems that provide locking segments shaped to pipe barrel that do not create stress points on pipe barrel.
  - b. Acceptable products:  
Meg-A-Lug System.
    - i. Series 2000PV Megalug for MJ to Pipe (C-900).
    - ii. Series 1500 Megalug Harness for push on joint (C-900).
    - iii. Series 1900 Megalug for MJ to Pipe (C-909).
    - iv. Series 1900 Harness for push on joint (C-909).
- v. As recommended by the manufacturer for connection to existing pipes

Polyethylene sheet: Comply with ANSI/AWWA C105/A 21.5-99:

1. Thickness: linear low-density polyethylene film (minimum 8 mils) or high-density cross laminated polyethylene film (minimum 4 mils).
2. Markings: The following information will be clearly marked on the sheet at minimum increments of 2-feet along its length:
  - a. Manufacturers name or trademark.
  - b. Year of Manufacture.
  - c. Minimum- film thickness and material type (LLDPE or HDCLPE).
  - d. Applicable range of nominal pipe diameter size(s).
  - e. Warning – Corrosion Protection – Repair any damage.

Conductivity appurtenances:

1. Provide wedges of serrated silicon bronze or #10-copper cable and tapping devices specifically designed for this purpose.
2. Use devices provided by the pipe manufacturer.
3. Standard mechanical, Field-Lok, or Meg-a-lug joints do not provide conductivity.

VALVES: Provide valves with clockwise closing direction.

Gate valves:

1. Valves 4-inch to 24-inch size:
  - a. Design in accordance with AWWA C509 (cast iron body), or AWWA C515 (ductile iron body) bronze fitted, resilient wedge and seat type with non-rising stem and O-ring packing.
  - b. Provide gear operator for valves 14-inch and larger.

Added 2/27/2020



2. Provide ANSI Class 125 flange ends or mechanical joint ends for valves installed in vaults as indicated on the Plans.
  - a. Provide restrained type joints for all mechanical joint end valves.
- b. Provide and install nuts and bolts matching the nuts and bolts used for fittings.
3. Valves shall have stainless steel bolts at the packing gland and bonnet.
4. Valve bodies shall be ductile iron with the name or make of manufacturer, size and working pressure plainly cast in raised letters.
5. Valves shall be manufactured in United States
6. Valves shall be equipped with 2-inch square operating nut that shall open to the left (counterclockwise) with the word "open" in ½-inch letters or larger and arrow (minimum 2-inches long) cast on the nut to indicate direction of opening.
7. Install in vertical position, supported on solid concrete block.
8. Acceptable valve manufacturers:
  - a. Clow F-6100;
  - b. Mueller No. A-2370-20;
  - c. American Flow Control series 2500;
  - d. or approved equal.

#### VALVE BOXES:

##### Precast:

1. Provide precast reinforced concrete manhole sections, bottoms, and flat top slabs complying with ASTM C478 unless otherwise indicated on the Plans.
2. Provide eccentric cone section unless otherwise indicated on the Plans.
3. Provide precast reinforced concrete monolithic or separate base.
4. Design flat slab tops for AASHTO HS20-44 wheel loading.

Concrete: Provide 4,000 psi concrete using Type I Portland Cement complying with ASTM C150.

Mortar: Mix one part Portland Cement to three parts fine aggregate.

##### Joints for precast sections:

1. Provide joints of either flexible watertight rubber gaskets or preformed bituminous plastic gaskets consisting of a homogeneous blend of refined hydrocarbon resins and plasticizing compound reinforced with inert mineral filler.
  - a. Acceptable preformed gasket products:
    - (1) K.T. Snyder Co., RAM-NEK.
    - (2) Concrete Sealants, Type CS-208.
    - (3) Or approved equal.

##### Steps:

1. Provide steps with a minimum width of 12 inches and a minimum projection of 5 inches.
2. Use steps consisting of copolymer polypropylene plastic with continuous one-half inch steel reinforcement as manufactured by M.A. Industries, Inc. or cast iron steps, Neenah R-1980-I, or approved equal.

Added 2/27/2020

Frames and covers: Provide cast iron frames and covers with heavy duty, indented top with solid self-sealing lids and machined bearing surfaces, stamped with the words "VILLAGE OF WHEELING" and "WATER".

1. Acceptable products:
  - a. Neenah R-1713;
  - b. East Jordan 1050 EXHD;
  - c. or approved equal.

Flexible pipe connectors: Provide flexible rubber gasket collar for connecting pipe to the manhole.

1. Comply with ASTM C-923
2. For pipe 24 inches and smaller, use PSX gasket system by Press-Seal Gasket Corporation, or approved equal.

#### FIRE HYDRANTS:

1. Comply with AWWA C502.
2. Paint fire hydrants in red as approved by the Municipality.
3. Match the fire hydrants generally installed in the Municipality's water system.
- a. Acceptable manufacturers:
  - (1) Alberico
  - (2) American;
  - (3) Or approved equal.

#### Materials:

1. Provide compression type with a 5-1/4-inch and minimum size main valve assembly, O-ring seals, two 2-1/2-inch hose nozzles, and a 4-1/2-inch pumper nozzle with National Standard threads, a National Standard operating nut, and an above-ground break flange.
2. Provide a 6-inch auxiliary resilient seat type gate valve with restrained type joints or bituminous coated metal tie rods between the valves and the tee fittings.
  - a. Provide and install nuts, bolts, and tie rods matching the nuts and bolts used for fittings.
3. Provide valve boxes with cover marked with the word "WATER".
  - a. Bituminous coated carbon steel valve extension stems and 2-inch square operating nuts 2 inches below cover.
4. Provide valve box stabilizers on all fire hydrant auxiliary valves.
  - a. Acceptable manufacturers:
    - (1) Alberico
    - (2) American
    - (3) Adaptor, Inc.
    - (4) Or approved equal.
5. Hydrants shall open counterclockwise and shall be furnished with a mechanical joint inlet.
6. All materials to be manufactured in the United States

Added 2/27/2020

WATER SERVICES:

1. Provide service saddles, corporation stops, curb stops, service boxes, and water service tubing. Comply with the most recent edition of AWWA C800 (or NSF/ANSI 372) for service lines and service line appurtenances.
2. Copper water service pipe shall be installed a minim of 6'-0" deep, and shall connect between the new corporation stop and the new curb stop as shown on the Drawings.
3. Curb boxes shall be installed near the locations of existing curb stops and service boxes. The Contractor shall record the location of the new curb boxes from the nearest newly installed fire hydrant. Curb boxes shall be held in a truly vertical position and staked into place to ensure permanent vertical alignment of the curb box.
4. Materials:
  - a. Service lines: Type K soft temper seamless copper water tubing complying with ASTM B-88.
  - b. Service saddles: Provide service saddles on all water mains.
    - (1) Stainless steel saddle with O-ring and grade 30 rubber grid map; Cascade styles CSC1, CSC2, CS22; or equal.
    - (2) Ductile iron, epoxy coated bodies with stainless steel straps and double bolts (4 bolts total) as manufactured by the specified corporation stop and curb stop manufacturer.
  - c. Corporation stops: A.Y. McDonald No. 4701, Mueller No. H15000, or equal.
  - d. Curb stops: A.Y. McDonald No. 6104, Mueller No. H15154, or equal.
  - e. Service boxes: Extension type with stationary rods, A.Y. McDonald No. 5610, Mueller No. H10300, or equal.

RESTRAINED FLANGE ADAPTOR:

1. Provide a ductile iron flange adaptor dual ring system with bolt circles compatible with 125#/Class 150 bolt pattern.
  - a. Provide adaptor with individual actuated gripping wedges that utilize torque limiting screws to insure proper initial set.
  - b. Set screw "only" restraining adaptors are not acceptable.
  - c. Provide system that allows joint deflection of up to 5°.
  - d. Provide a fluoropolymer coating to the wedge and wedge assembly and powder coating to the restraint body.
2. Acceptable Manufacturers:
  - a. Series 2100 Magaflange by Ebaa Iron;
  - b. Or approved equal.

Added 2/27/2020

## CONSTRUCTION REQUIREMENTS

PIPE INSPECTION, HANDLING, STORAGE, AND INSTALLATION: Install in accordance with pipe manufacturer's recommendations.

Ductile iron water mains and appurtenances:

1. Comply with AWWA C-600.
2. Protect pipe and fittings by loose wrapping or tubing with polyethylene sheet.
  - a. Place polyethylene sheet around the entire circumference of the pipe, tie or tape sheet securely to prevent displacement during backfilling.
  - b. Comply with ANSI/AWWA A21.5-99/C105 regarding installation of polyethylene protection.
3. Install conductivity through joints by use of conductivity wedges or copper cable and taps.
  - a. Use two (2) wedges per joint for pipes 12 inches or smaller, and four (4) wedges per joint for pipe sizes larger than 12 inches.
  - b. Use number of copper cable connectors per joint as recommended by the pipe manufacturer.

OPERATION OF APPURTENANCES: Village of Wheeling Public Works Department employees only shall operate any existing water distribution appurtenances (i.e. water valves, hydrants, etc.).

WATER DISRUPTIONS: A minimum forty-eight (48) hours advance notice to the Owner's Public Works Department is required for any water disruptions.

DEPTH OF PIPE COVER: Lay water mains and water service lines with a minimum depth of cover of six feet below finished grade ground level unless otherwise indicated on the Plans.

1. Where new mains cross existing mains, install new main below existing main unless otherwise indicated on the Plans.

### CONNECTIONS TO EXISTING WATER MAINS:

1. Make connections to existing water mains.
2. Use non-pressure connections, except where pressure connections are shown on the Plans or required by conditions at the time of construction.
3. Make one connection at a time except as approved by the Engineer.

### PIPE RESTRAINING SYSTEMS:

General:

1. Provide protection from movement of water main piping, plugs, caps, tees, valves, hydrants, and bends of 11-1/4 degrees or greater.
2. Provide concrete thrust blocks at all locations unless restrained joint type fittings are utilized.
3. Where restrained joint type fittings are called for on the Plans, but cannot be utilized, provide concrete thrust blocks.

Added 2/27/2020

Concrete thrust blocks:

1. Provide precast or cast-in-place concrete thrust blocking with a compressive strength of 3000 psi in 28 days.
2. Locate thrust blocking between solid ground and the fitting to be anchored.
3. Unless otherwise shown or directed by the Engineer, place the base and thrust bearing sides of thrust blocking directly against undisturbed earth.
  4. Sides of thrust blocking not subject to thrust may be placed against forms.
  5. Place thrust blocking so the fitting joints will be accessible for repair.
  6. When conditions prevent the use of concrete thrust blocks, use restrained joints of an approved type.

Restrained type pipe, fittings, and valves:

1. Provide restrained joint pipe to distance indicated on the Plans, or not less than a minimum of two pipe lengths on each side of the valve or fitting to be restrained.
  - a. Utilization of restrained joint pipe as a substitute to concrete thrust blocking is done at the Contractor's option at no additional cost to the Owner.
  - b. Only restrained joint pipe indicated on the Plans will be paid for as a separate Pay Item.
  - c. Restraining gaskets or locking systems utilized on straight runs of push pipe are not considered as fittings, and are paid for as part of the Pay Item for restrained joint type pipe.

**SEWER CROSSING:** Separate water mains and water service lines from sanitary sewer, storm sewers, combined sewers, house sewer service connections, and drains in accordance with the "Standard Specifications for Water and Sewer Main Construction in Illinois".

Water mains:

1. Wherever water mains cross storm sewers, sanitary sewers, or sewer service connections:
  - a. Lay the water main so that its invert is at least 18 inches above the top of the sewer.
  - b. Maintain this vertical separation for that portion of the water main located within 10 feet horizontally of any sewer or drain crossed.
  - c. Center a length of water main pipe over the sewer to be crossed with joints equidistant from the sewer or drain.
2. When it is impossible to obtain the minimum 18 inches vertical separation, or when it is necessary for the water main to pass under a sewer or drain:
  - a. Construct the sewer or drain of pressure pipe, conforming to the specification for water main materials.
  - b. Extend the sewer construction on each side of the crossing until the normal distance from the water main to the sewer or drain is at least 10 feet.
  - c. As an alternate, install either the water main or sewer inside a casing or carrier pipe for a distance of 10 feet measured perpendicular to the sewer on each side of the crossing.
3. Where a water main must cross under a sewer:
  - a. Maintain a vertical separation of 18 inches between the invert of the sewer and the crown of the water main.
  - b. Support the sewer or drain line to prevent settling and breaking the water main.

Water service lines: Comply with the requirement of water main separation.

Sewer manholes: Do not install water line through sewer manhole.

Added 2/27/2020

FIRE HYDRANT INSTALLATION:

1. Install fire hydrants plumb with the lowest hose connection at least 18 inches but not more than 26 inches above the finished grade ground level. Set fire hydrant bases and auxiliary valves on a precast concrete blocks to provide firm support for the base.
2. Brace the bases with solid concrete blocking between the base and undisturbed trench wall to counteract the reaction thrust of water pressure at the base. Provide mechanical joint anchoring fittings or approved restrained joints.
3. Brace the fire hydrant barrels during backfilling. Do not block the drain hole in fire hydrant.
4. Place a minimum of 1/2 cubic yards of washed coarse stone at and around the base for proper drainage. Cover stone with plastic before backfilling.
5. Place and compact backfill materials in 6-inch layers around the fire hydrant and auxiliary gate valve.
6. Cover new fire hydrant with black plastic bag until new system is in service.

WATER SERVICE CONNECTION:

1. Make service connections at locations shown on the Plans or determined by the Engineer at the time of construction.
2. Install water service pipe, corporation stop, curb stop, and service box as shown on the water service installation detail in the Plans.
3. Set curb stop on a precast concrete block.
4. Do not splice the water service pipe.
5. See TESTING AND INSPECTION for sequence of service line construction.

Service boxes:

1. Install service box over curb stop in a truly vertical position.
2. Set the top of box flush with the surrounding finished grade.

Direct tapping of polyethylene-encased D.I.P.:

1. Wrap two or three layers of polyethylene adhesive tape completely around the pipe to cover the tapping machine and chain mounting area.
2. Make the tap and install the corporation stop directly through the tap and polyethylene.
3. After making the direct service connection, inspect the entire circumferential area for damage and make any necessary repairs.
4. Wrap the corporation stop and a minimum distance of 3 feet of the copper service pipe with polyethylene.

POLYETHYLENE WRAPPING OF DUCTILE IRON PIPE AND APPURTENANCES:

1. Comply with requirements of ANSI/AWWA C105/A21.5-99.
  - a. Place polyethylene sheet around the entire circumference of the pipe, tie or tape sheet securely to prevent displacement during backfilling.
  - b. Wrap all water mains, fittings, valves, fire hydrant leaders, fire hydrants, and service lines.
    - (1) Wrap copper service lines to a point 3 feet from center of water main.
    - (2) Do not block fire hydrant weep hole.

Added 2/27/2020

TESTING AND INSPECTING:

Sequence of installation: Install new water main but do not install corporation stops, services lines, curb stops, or service boxes until after: conducting pressure test, leakage test, disinfection of new water main, flush main, and acceptance for putting new main into service. Finish by installing corporation stops, service lines, curb stops and service boxes, and test and disinfect prior to connection to existing service lines.

Hydrostatic tests:

1. Devise a method for disposal of waste water from hydrostatic tests, and for disinfection, as approved in advance by the Engineer.
2. Where any section of water main is provided with concrete thrust blocking for fittings, do not make hydrostatic tests until at least 5 days after installation of concrete thrust blocking, unless otherwise approved by the Engineer.

Pressure tests:

1. Subject the new water mains and service lines, including valves and fire hydrants, to a hydrostatic pressure of 125 psi.
2. Hold the test pressure for a duration of one hour without pressure loss or further pressure application.
3. Carefully examine exposed pipe, joints, fittings, and valves.
4. Replace or remake joints showing visible leakage.
5. Remove cracked pipe, defective pipe, and cracked or defective joints, fittings and valves. Replace with sound material and repeat the test until results are satisfactory.
6. Make repair and replacement without additional cost to the Contract.
7. Use only solid stainless full-body repair clamps as approved by the Engineer.

Leakage test:

1. Conduct a metered leakage test after the pressure test has been satisfactorily completed.
2. Duration of each leakage test: At least 24 hours.
3. During the test, subject water lines to a normal water pressure of the Municipality's water system.
4. Install water meter approved by the Engineer. Provide double check valve assembly between water meter and existing water main.
5. Maximum allowable leakage: As recorded by a meter approved by the Engineer, with leakage to not exceed the number of gallons per hour (gph) as determined by the following formula:

$$\text{gph} = LD (P^{1/2})/133,200$$

in which: L = Length of pipe tested, in feet  
D = Diameter of water main, in inches

P = Average pressure, in pounds per square inch (gage)

6. Should any test of pipe disclose leakage greater than the maximum allowable amount, locate and repair the defective joint or joints and then repeat the 24-hour metered leakage test until the leakage is within the specified allowance, and at no additional cost to the Contract.

Added 2/27/2020

Time for making test:

1. Except for joint material setting and curing time for thrust blocks, pipelines jointed with rubber gaskets, mechanical, or push-on joints, or couplings may be subjected to hydrostatic pressure, inspected, and tested for leakage any time after partial completion of backfill.
2. Perform the pressure and leakage tests satisfactorily prior to requesting the Engineer to witness the official tests.
3. Notify the Engineer at least 48 hours prior to the time of the requested official tests.
4. Depending on traffic conditions, public hazard, or other reasons, the Engineer may direct when to conduct the tests, and may order the tests to be made in relatively short sections of water mains.

PRELIMINARY FLUSHING:

1. Prior to disinfection, flush main as thoroughly as possible.
  - a. Flush main until water runs clear.
  - b. Provide a minimum flushing velocity of 2.5 feet per second in the water main.
  - c. Provide temporary valve(s), multiple fire hydrants, pipe and erosion control measures to allow adequate flushing of the water transmission system and to prevent disturbance or damage to areas at and downstream of the flushing water discharge location.
2. Coordinate time of flushing with Owner and Engineer, at least 72 hours in advance of flushing.
  - a. Do not initiate flush without Owner's permission.

DISINFECTION: After the water main work has been satisfactorily completed and tested, disinfect the work in accordance with AWWA C651, and "Standard Specifications for Water and Sewer Main Construction in Illinois" as modified by these specifications.

Forms of applied chlorine:

1. Apply chlorine by gas feed or solution feed chlorinator, as approved by the Owner.
  - a. Provide effective diffusion of the gas or solution into the water within the water main.
  - b. Provide means for preventing the backflow of water into the feeder.
2. Chlorine solution.
  - a. Apply solution of sodium hypochlorite into one end of the section of main to be disinfected while filling the main with water.

Requirement of chlorine:

1. Initial chlorine solution in pipe: At least 50 mg/l, but not more than 100 mg/l.
2. Retain the disinfecting solutions in the work for at least 24 hours
3. Chlorine residual after the retention period: At least 25 mg/l.

Flushing and testing:

1. Following chlorination, flush treated water thoroughly from the water mains until the chlorine concentration in the water flowing from the main is no higher than generally prevailing in the Municipality's system, or less than 1 mg/l.
2. After flushing, collect two water samples on successive days at least 24 hours apart in sterile bottles treated with sodium thiosulfate. Notify the Engineer and the Owner to witness sample collection.

Added 2/27/2020



3. Deliver the samples to a State approved laboratory for bacteriological analysis.
4. Should the initial disinfection result in an unsatisfactory bacterial test, repeat the chlorination procedure until satisfactory results are obtained.
5. The Owner will provide the water for initial flushing and testing only. Compensate the Owner for water used in subsequent flushing and testing.

Swabbing:

1. Flush and swab the piping, valves, and fittings that must be placed in service immediately and cannot be disinfected by the above specified methods, with 5 percent solution of calcium hypochlorite prior to assembly.
- a. Secure the Engineer's approval before applying this method of disinfection.

DECHLORINATION

1. Comply with AWWA C651-05 requirements to neutralize the residual chlorine in new water mains.
2. After new water mains have passed disinfection requirements, utilize portable diffusing dechlorinators that utilize sulfur dioxide or other chemicals listed in Appendix C of AWWA C651 to lower chlorine residuals prior to discharge to the drainage system. Lower concentration to 1 mg/l or less.

ABANDONMENT OF EXISTING WATER MAINS AND APPURTENANCES:

1. Abandon water mains indicated on the Drawings as "to be abandoned" only after all requirements for testing and disinfection have been satisfied and all existing services have been connected to new water mains.
2. Provide concrete plugs in all water main pipes to be abandoned at the limits of the trench excavations, or at other locations if so indicated by the Plans.
3. Provide ductile iron plugs, caps, or other necessary fittings, and thrust blocking, on ends of portions of existing water mains that are to remain in service.
4. Close existing water valves only with the permission of the Engineer.
5. Remove valves, and valve boxes at the top of the existing valve, and fill excavation with compacted special granular material.
6. Remove valves, and valve vaults to top of lowest pipe, and backfill with compacted special granular backfill material.
7. Remove fire hydrants in total, including auxiliary box, and backfill excavation with compacted special granular backfill material.
8. Deliver valves, valve boxes, fire hydrants, and frames and grates to the Municipality's Public Works Department.
9. Removal of existing water mains that are being replaced by new water mains in the same location is considered incidental to the installation of the new water main and no additional compensation will be allowed.

Added 2/27/2020

## **DUCTILE IRON WATER MAIN**

Description: This work shall be done in accordance with the Special Provision for “WATER DISTRIBUTION SYSTEM”, and “TRENCHING BACKFILLING AND COMPACTING FOR SANITARY SEWERS AND WATER MAIN”, and shall consist of water main pipe complete in place, including excavation; removal and disposal of waste excavated materials; protection, replacement, or repair of utilities; trench dewatering, including erosion and siltation control methods and devices to provide protection to environment from all pumping operations; installation of pipe; polyethylene wrapping of all pipe; bracing; bedding and covering of pipe; trench backfilling with and compaction of excavated materials; testing; disinfection, finish grading; but not including backfilling with trench backfill material.

This pay item includes the pipe within tree tunnels, and within casing installed by open cut.

Installing new mains in excess of 6 feet of cover in order to cross existing mains, provide for future improvements or cross below sewer lines is included in the cost of installation of the water main, and no addition to the contract will be allowed.

Method of Measurement. This work will be measured in lineal feet along the centerline of the pipe, and the measurement shall extend through fittings and valves.

Basis of Payment. This work will be paid for at the contract unit price per lineal foot for DUCTILE IRON WATER MAIN, of the pipe sizes, joint type and material specified, regardless of depth.

Trench backfill with special granular materials shall be paid for separately as TRENCH BACKFILL – WATERMAIN.

## **DUCTILE IRON WATER MAIN FITTINGS**

Description. This work shall be done in accordance with the Special Provision for the “WATER DISTRIBUTION SYSTEM” and shall consist of furnishing and installing restrained water main fittings complete in place to the new water main, at locations indicated on the plans.

Basis of Payment. This work will be paid for at the contract unit price each for DUCTILE IRON WATER MAIN REDUCER; DUCTILE IRON WATER MAIN TEE; DUCTILE IRON WATER MAIN BEND; and DUCTILE IRON SLEEVE; of the type and size specified.

Added 2/27/2020

## **NON-PRESSURE CONNECTION TO EXISTING WATER MAIN**

Description. This work shall be done in accordance with the Special Provisions for “WATER DISTRIBUTION SYSTEM” and “TRENCHING, BACKFILLING, AND COMPACTING FOR SANITARY SEWER AND WATER MAIN” and shall consist of non-pressure connections to existing water mains complete in place, including sawcutting, and removal and disposal of existing pavements; excavation; removal and disposal of waste excavated materials; trench dewatering, including erosion and siltation control for discharge resulting from all pumping operations; protection, replacement, or repair of utilities; removal of existing plugs or caps; cutting and removal of the pipe if necessary; bracing; polyethylene wrapping of pipe and valves; bedding and covering of pipe; testing; disinfection; finish grading; including backfilling and compacting excavated material or trench backfill material, but not including the valve vault or fittings.

The maximum time allowable per each connection for water pressure shut off is two (2) hours. Each connection must be made within two (2) hours. Public works staff shall be notified a minimum 48 hours prior to the planned water disruption.

Basis of Payment. This work will be paid for at the contract unit price each for NON-PRESSURE CONNECTION TO EXISTING WATER MAIN of the pipe or valve size shown.

## **FIRE HYDRANTS**

The work of this pay item shall be in accordance with the Special Provision for “WATER DISTRIBUTION SYSTEM” and “TRENCHING, BACKFILLING, AND COMPACTING FOR SANITARY SEWER AND WATER MAIN” and shall consist of furnishing and installing fire hydrants with five-feet of 6-inch ductile iron leader pipe, auxiliary valve and valve box and cover, extension stem, and restrained joint fittings, complete in place at the locations shown on the drawings, including sawcutting, removal and disposal of existing pavements; excavation; removal and disposal of waste excavated materials; trench dewatering; thrust blocking; hydrant barrel drain washed stone pocket; support; testing; disinfection; and backfilling with and compacting of trench backfill material. This work includes polyethylene wrapping of connecting pipe, auxiliary valve, and hydrant.

Method of measurement. This work will be measured for payment for each fire hydrant installed, which shall include five (5) feet of 6-inch leader pipe, measured from the center of the main to the center of the hydrant.

Basis of Payment. This work will be paid for at the contract unit price each for FIRE HYDRANTS.

Additional hydrant leader pipe shall be paid for as DUCTILE IRON WATER MAIN, OPEN CUT – 6” (ADDITIONAL HYDRANT LEADER).

Added 2/27/2020

## **GATE VALVE WITH VAULT**

Description. This work shall be done in accordance with the Special Provision for “WATER DISTRIBUTION SYSTEM” and shall consist of the installation of a gate valve and valve vaults, complete in place, installed as a part of the water main installation, at locations indicated on the Plans and including steps as shown in the detail on the Plans. The valve shall be of cast iron body, bronze fitted, modified wedge disc, resilient seat type with non-rising stem and O-ring packing and conform to the latest revised requirements of AWWA Specification C509. This work shall include excavation; removal and disposal of waste excavated materials; excavation in excess of that required for standard pipeline trench construction or for tapping sleeve installation; bracing, sheeting, and shoring; protection, repair, or replacement of utilities; trench dewatering; erosion and siltation control methods and devices to protect the environment; vault bedding; monolithic type vault base with watertight flexible pipe connectors where pipes enter vault walls for water main valves or vault to be installed over existing water main for pressure or non-pressure connections; vault riser sections as required; concentric or eccentric cones; frame and cover and adjusting rings; the removal and disposal of the existing valve vault (if the new vault is being placed in the same location as the existing); backfilling with and compacting trench backfill material around the new vault; and finish grading.

The valve shall be furnished by a manufacturer considered standard by the Village.

Basis of Payment. This work will be paid for at the Contract Unit Price each for GATE VALVE WITH VAULT of the size and frame indicated.

## **WATER SERVICE LINE**

Description. This work shall be done in accordance with the Special Provision for “WATER DISTRIBUTION SYSTEM” and shall consist of water service pipe complete in place by open cut methods, including excavation, shoring, bracing; protection repair, or replacement of utilities; installation of service pipe; bedding and covering of pipe; and backfilling with and compacting of trench backfill material.

Water service pipe may be installed by the directional drilling method, at Contractors option, at no additional cost to the contract.

Method of Measurement. This work will be measured in lineal feet along the centerline of the pipe, from the centerline of the water main to the termination of the service pipe at the b-box.

Basis of Payment. This work will be paid for at the contract unit price per lineal foot for WATER SERVICE LINE of the size and type indicated.

Added 2/27/2020

## **WATER SERVICE CONNECTION**

This work shall be done in accordance with the Special Provision for “WATER DISTRIBUTION SYSTEM” and shall consist of connecting water service lines to the new main complete in place, including service saddles, corporation stops; curb stops, and service boxes. This work also includes all required fittings or adaptors necessary to connect to existing service lines, and backfilling with and compacting of trench backfill material.

Basis of Payment. This work will be paid for at the contract unit price each for WATER SERVICE CONNECTION of the size indicated.

## **WATER MAIN LINE STOP**

Description: The work of this Pay Item shall be in accordance with manufacturer’s recommendations and consists of the installation of line stops in existing water mains complete, including locating existing mains; sawcutting, and removal and disposal of existing pavements; excavation; removal and disposal of waste excavated materials; protection, repair, or replacement of existing utilities; dewatering, including erosion and siltation control methods and devices to provide protection to the environment from all pumping operations; sheeting; shoring; tapping of pipes to install line stop plugs; installation of line stops; backfilling with granular trench backfill material, and temporary fencing, barricades, and other items needed to provide traffic control and protection and protection to the public.

The work of this Pay Item includes removal of the line stop plug for temporary line stops or leaving the plug permanently in place, capping of the tapping sleeve; and backfilling of the excavation with compacted excavated or granular backfill.

Basis of Payment: The work will be paid for at the Contract Unit Price for each of the WATER MAIN LINE STOP of the size indicated.

## **WATER MAIN ABANDONMENT**

Description. This work shall be in accordance with the Special Provision for “WATER DISTRIBUTION SYSTEM”, and “TRENCHING, BACKFILLING AND COMPACTING FOR SANITARY SEWER AND WATER MAIN” and shall consist of the abandonment and partial removal of existing valve vaults, water mains, water valves and fire hydrants. This work shall include saw-cutting, pavement removal and disposal; excavation; removal and disposal of waste excavated materials, temporary line stops, removing existing vault frames and covers, capping or plugging abandoned water mains, removing valve vaults, concrete thrust blocks, water valves and fire hydrants; filling excavations and structures; and backfilling with and compacting of granular trench backfill material.

Basis of Payment. This work will be paid for at the lump sum unit price each for WATER MAIN ABANDONMENT.

Added 2/27/2020