CITY OF ONEIDA

WATER DEPARTMENT

STANDARD SPECIFICATIONS DETAILS

City of Oneida Water Department
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Oneida NY 13421

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PART 1 - GENERAL

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1.01 General

A. The City of Oneida Water Department or Contractor shall furnish all labor, materials, equipment and services necessary for, and incidental to, the installation of the potable water main extension and water services as shown on the plans and specified herein.

1.02 Submittals

a. Manufacturer's Catalog Data shall be submitted to the City for approval on all items under the water main installation. Detailed Specifications, available performance test data, shop drawings, weights, dimensions, and instructions for installation and maintenance shall be included.
b. Two copies of all submittals shall be supplied to the City of Oneida Water Department. Submittals should include the manufacturer, supplier and supplier's address.
c. Submittals containing more than one item, size or model shall clearly indicate the item, model or size intended for the project.
d. If the submittals for items covered in the water main work, do not conform to the specifications as determined by the City, new submittals shall be prepared and resubmitted.
e. All materials of like type shall be the products of one manufacturer, unless specified otherwise or specifically permitted by the City.

1.03 Work Schedules

a. A work schedule for approval shall be submitted to the City of Oneida Water Department three weeks prior to commencement of proposed work. The schedule shall show the proposed relative order and sequence of all relevant portions of the work, including delivery and installation of materials, and give estimated dates of commencement and completion of various portions of the work.

1.04 Materials and workmanship

a. All workmanship, materials, equipment and appliances shall comply in all respects with the applicable specifications.
b. All materials furnished or incorporated in the work shall be new, unused and of the quality and characteristic specified. No used materials shall be incorporated in the work.
c. Materials delivered to site not conforming to the specifications, damaged or defective shall be removed from the work site within two working days of notice from the City.
d. All workmanship in manufacture and construction not specifically covered in the specifications shall be of the first class order and equal to that customarily used in first class work of similar nature and character.

1.05 Operation of Valves

a. The City of Oneida Water Department shall be responsible for the operation of all active water distribution valves.

1.06 On site

a. The plans, progress As-built drawings, specifications, reference documents, shop drawings, and instructions for installation of items covered in the water main work shall be available on site as the water main work progresses. These items shall be made available as requested for use by the City.

1.07 As Built drawings

a. Drawings shall be maintained during the project showing locations of all facilities installed. This record shall include, but not limited to locations of all valves, hydrants, cast iron fittings, flexible couplings, corporation stops and curb stops. Locations of these items shall be referenced and measured to three permanent structures or objects.
b. The measurements to permanent structures shall be to a minimum accuracy of 0.5 feet.
c. A copy of the As-Built drawing shall be submitted to the City prior to final inspection.

1.08 Inspection

a. No backfilling or covering operations of any underground portions of the work shall take place until inspection and approval by the City.

1.09 Final inspection

a. The City of Oneida Water Department office shall be contacted for a final inspection after the office has the As-Build Drawings.
b. Those items found to be defective in material or installation shall be removed, replaced or repaired prior to final acceptance by the City.
c. The City shall be the sole judge of compliance with material and installation specifications for final acceptance.
d. If any portion of the water main work is damaged in any way, or defects or faults develop before completion of other type or phases of construction on the project site, such damage or defect shall be corrected to the satisfaction of the City, even though final acceptance of the water work has taken place.

1.10 Certification

a. A New York State Licensed Professional Engineer shall certify that the water main facilities were installed in complete conformance with the plans previously approved by the Health Department with minor changes noted on the As-Built drawings.

PART 2 - MATERIALS

2.01 General Provision No-Lead Brass
2.02 Pipe
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2.06 Butter Fly Valves
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2.01 General Provision No-Lead Brass

a. This provision shall apply to any materials containing brass that are provided.

b.i Any brass part in contact with potable water shall be made of a "No-Lead Brass", defined for this specification as UNS Copper Alloy C89833 or C89520 in accordance with the chemical and mechanical requirements of ASTM B584. This "No-Lead Brass" alloy shall contain not more than one fourth of one percent (0.25% or less) total lead content by weight. Lead content shall be certified by an ANSI accredited agency.

b.ii Any brass part not in contact with potable water may be made of 85-5- 5-5 brass as defined for this specification as UNS Copper Alloy C83600 per ASTM B62, ASTM B584 and AWWA C-800.

c. All brass fittings and valves shall be certified by an ANSI accredited test lab per ANSI/NSF Standard 61, Drinking Water Components – Health Effects,

d. Brass fittings and valves shall comply with the Safe Drinking Water Act, and the U.S Environmental Protection Agency.

e. All brass fittings and valves shall have the manufacturers name or trademark integrally stamped or cast on it. Another marking identifying the "no-lead" brass alloy, e.g., 'NL', shall be cast or stamped on the fitting or valve.

2.02 Pipe

The Ductile Iron Pipe furnished shall be a minimum class 52 or of that class as specified on the plans meeting the following specifications:

Ductile Iron Pipe:	AWWA C151, AWWA H3
Push-on Joints for Pipe:	AWWA C111
Mechanical Joints:	AWWA C111
Flanged Joints:	AWWA C115
Cement Mortar Lining:	AWWA C104

The pipe shall be supplied with a minimum of two (2) brass wedges per length of pipe, one (1) gasket per length of pipe and a sufficient quantity of gasket lubricant.

2.03 Pipe Fittings

Pipe fittings shall conform to the following specifications:

Fittings:	AWWA C153
Mechanical Joints:	AWWA C111
Cement Mortar Lining:	AWWA C104

All fittings shall be delivered complete with accessories including: gaskets, glands, nuts and bolts. Fittings shall be cement lined with seal coat inside and out.

2.04 Gate Valves size 3” to 12” or alternate 16”

Valves shall be furnished with mechanical joints. Valves shall be of the resilient wedge type conforming to AWWA C515. Valves shall have non-rising stems with two (2) inch square nut and be right to open with arrow cast in metal indicating direction of open. Valve shall be rated 200 psi working pressure and 400 psi test pressure. Epoxy coating meet or exceed all applicable requirements of ANSI/AWWA C550 Standard and is certified to ANSI/NSF 61. 16” valves shall be supplied with 2:1 bevel gear designed for buried service. Valves shall be delivered complete with all accessories.

2.05 16” & 20” Gate Valves with bypass

General: Valve shall be manufactured in accordance with AWWA standard C500. Valve shall be designed for 150 psi working pressure. Valve shall have mechanical joints and shall have clear waterway equal to the full nominal diameter of the valve. Valve shall be double disc parallel seat type with non-rising stem, opening by turning right and provided with 2” square nut with arrow cast in metal to indicate direction of opening. Valve shall have rollers, tracks, and scrapers for mounting in the horizontal position. Valve shall have 4” valved by-pass. Valve shall have maker’s name, pressure rating and year in which manufactured cast on body. Prior to shipment from the factory, the valve shall be tested by hydrostatic pressure equal to 300 psi. Valve shall be Clow AWWA valve as manufactured by the Valve Division of the Clow Corporation or approved equal.

Stuffing Boxes: Stuffing boxes shall be “O” ring seal type with two rings located in stem above thrust collar.

Bolts and Nuts: Body and cover bolts and nuts shall meet Specification ASTM A307 rust proofed.

Wedging: Valves will be bottom-wedging type with two part floating wedge contact. The wedge and hook shall be separate castings and not a one-piece casting.

Stems: Stems shall be in full conformance with AWWA Specs with cast integral stem collar.

Stem Nuts: Stem nuts shall be made of solid bronze independent of hooks, gates and wedges.

Gates and Gate Rings: Gates shall be high strength cast iron, sturdy proportioned without pockets on backs. Cam surfaces shall open to the bottom. Gate rings shall be rolled into dovetailed grooves under pressure to make one inseparable unit. The gate ring face shall be machined to a smooth finish.

Case Rings: Bronze case rings shall be screwed into place and the contact face machined to a smooth finish.

Style of Ends: Furnish with mechanical joints meeting AWWA C111, complete with accessories including: gaskets, glands, nuts and bolts.

By-pass: Valve shall be supplied with a 4-inch By-pass with valve. Valve shall be right to open; mounted directly to valve body with cast iron flanged connections side opposite main stem.

Rollers, Tracks and Scrappers: Valve shall be equipped with bronze rollers, tracks and scrapers for mounting in a horizontal line in horizontal position.

Gearing: Enclosed bevel gearing with extended type gear case will be provided. Side cover plates will be provided to enclose stem and stuffing box.

Direction of Opening: Right to Open.

Operating Nut: Valves shall be supplied with 2-inch square operating nut.

2.06 Butter Fly Valves

Butterfly valves shall be of the size as shown on the drawings, for above ground or pit installation only. All butter fly valves shall be manufactured by Henry Pratt Company, 401 South Highland Ave, Aurora Illinois 60507.

Valve shall be supplied with manual gear operator.

2.07 Tapping Sleeve & valve

Tapping sleeve shall be JCM 432, or Smith-Blair 663, or Ford FTSS style all stainless tapping sleeve with ¾" NPT test plug. Sleeve shall be supplied with stainless steel bolts and nuts. Tapping valve shall be compatible with Smith tapping machine. Valve shall be furnished with mechanical joints and right to open.

2.08 Automatic and Hydraulic Valves

Automatic and hydraulic valves shall be manufactured by Ross Valve Mfg. Co. Inc., 6 Oakwood Ave, PO Box 595, Troy NY 12181.

2.09 Valve Box Complete

Shall be 5 ¼" three (3) piece screw-type valve box, complete with valve box cap with word "WATER" cast in metal. Valve box shall be Bibby-Laperle V619 CC or Bingham & Taylor with a No. 6 round base for valves 8" and smaller; a #160 for 16" valves or smaller. Bibby Laperle, PO Box 579, Ste-Croix Quebec, Canada GOS 2HO sales office @ 1-800-785-2611.

2.10 Curb Boxes

For ¾" and 1" curb stops:

Shall be Mueller H10314 curb box complete with rod or equal. Curb Box shall be five (5) foot with 33" stationary rod.

Curb box shall have 1 piece 2-hole cap with "WATER" cast in metal.

For 1 ½" and 2" curb stops:

Shall be Mueller 5 ft. H10386 curb box complete with 36" 580563 rod or equal. Curb box shall have lid with plug with "WATER" cast in metal.

2.11 Copper

This material shall be supplied in conformance with AWWA specification C800 for "TYPE K" copper.

2.12 Corporation Stops

Shall be Mueller H-15008N corporation stop for ¾", 1", 1 ½" and 2".

2.13 Curb Stops

Shall be Mueller B-25209N curb valve for ¾" and 1"; or H-15209N for 1 ½" and 2".

2.14 Curb Box Sleeve

This cast iron curb box sleeve shall be designed for a 1" upper section and one piece 2-hole cap for use in hard paved areas. Shall be Mueller H10342 or approved equal.

2.15 Brass Fittings

Brass items shall be Mueller or Ford. Size as specified on drawings.

Ford:

Meter Couplings C38-11-2.375 5/8" meters (Mueller H-10896 5/8"x 1/2")
Meter Couplings C38-23-2.5 ¾" meters (Mueller H-10896 5/8"x 3/4", 3/4")
Meter Couplings C38-44-2.625 1" meters (Mueller H-10896 - 1")
Lead Pak Q24-13
Lead Pak Q34-13
Mueller: Straight three part union H-15403
Brass plug H-10033 CC thread

2.16 Flexible Couplings

Couplings shall be Smith-Blair Couplings or approved equal. Size and type shall be as specified on drawings.

Approved Product Numbers:

441 Cast straight & transition coupling
482 Cast end cap coupling
317 or Ford FS303331 Repair Service Saddle for 1 ½" & 2" taps CC
274 Bell joint leak clamp
261 All stainless full circle clamp coupling
264 All stainless steel tapped full circle clamp coupling CC
912 Cast iron flanged coupling adapter

2.17 Restraining Rods and clamps

Restraining rods and clamps shall be asphalt coated carbon steel, 36 ksi minimum yield stress, of size shown on drawings.

2.18 Misc. Connectors Steel

A) Duc Lugs - Cast in Ductile iron with Tensile strength of 60,000 psi and Yield strength of 45,000 psi for 4" to 16" MJ pipe and fittings.
B) Threaded Rod - Continuous threaded rod for cutting to desired length plain meeting ASTM A242
C) Tie Couplings - For use in extending continuous threaded rods with a center stop to aid in installation, plain.
D) Tieclamp Joint Restrainer - Also commonly known as "retainer clamps" or "friction clamps" For use on push-on pipe in front of bell - plain. Shall be manufactured of ½" x 2" stock, 5/8"x 3" bolts with two retainer washers. All socket clamps include two steel half clamps, two bolts and nuts and two cast iron washers.
E) 3/4" Tie Bolt – Used in place of T-head Bolt. ¾" threaded rod passes through eye and is retained with heavy hex nut. Made of low carbon steel.
F) Cor-Blue T-Bolts and Nuts shall be manufactured from Corrosion Resistant, High-Strength, Low-Alloy Steel in accordance with ANSI/AWWA C111/A21.11 (Current Revision). Have a ceramic-filled and baked on fluorocarbon resin developed to handle the needs of highly corrosive conditions.
G) Anti-Rotation Bolts Also known as lugged T-bolts. For use on slotted opening in MJ bells of hydrants and valves. Square neck on shank of bolts locks in slot to prevent potation when nut is tightened. Provided with heavy hex nut.

2.19 Mechanical Joint Retainer Glands

Mechanical joint retainer glands shall be cast from ductile iron no less than grade 70-50-5 and shall comply with all applicable provisions of AWWA/ANSI C110/A21.10 and C111/ A21.11. Set screws shall be 5/8" NC thread with torque-set head, or 5/8" square head bolts, with knurled cup-point, made of 4140 steel and shall be hardened to Rockwell "C" scale 4547. Size as specified in drawings.

2.20 Split Gland for MJ DIP

Restraint mechanism shall be of split design for use on new or existing mechanical joints. Applicable dimensions shall conform to ANSI/AWWA C111/A21.11 and shall be incorporated into the mechanical joint restraint so that the device facilitates use with standard mechanical joint bells. Shall be Tyler Union TUFGRIP Series 1000S – MJ TLD Split for DIP; SIGMA - ONE-LOK Series SSLD Split Gland for DIP; or Star Pipe Products Split Stargrip series 3000S or an approved equal.

2.21 Hydrants

Hydrants shall be Mueller Super Centurion 250 A423. Hydrants shall have a 5 1/4" reversible main valve, two 2 1/2" NST hose nozzles with one 5" storz pumper connection. The storz connection shall thread directly into the barrel and be field replaceable. The operating nut shall be 1 1/2" pentagon in size and shape and shall open LEFT. Hydrants shall have a NON-DRAINING bronze seat ring. (NO drain holes). Hydrants shall be factory painted red with a yellow bonnet. Hydrants shall have a 6" MJ shoe with MJ accessories-bury length as specified on the Proposal. The City has standardized on the Mueller Centurion Hydrant and reserves the right to accept only those materials which are in full compliance with these specifications.

2.22 Hydrant Parts

Hydrant parts shall be for a Mueller Centurion, with 5 ¼” barrel and manufactured by Mueller. The part shall be as specified on the Proposal. This is the only hydrant parts manufacturer that will be acceptable.

2.23 Yard Hydrant

Yard hydrant shall be self-draining and backflow protected. It shall be supplied with a 1” inlet and 1” standard hose outlet. The operation shall be limited by a permanent-locking device to protect from unauthorized use.

2.24 Meters

Meters shall be manufactured by Sensus Technologies, Inc., Bailey & Gallatin Avenues, Uniontown PA, 15401. Meter shall be supplied with an ECR head or ECR-wp head for pit installations. Meter shall register in 100 CUFT. / 1000 CUFT. and supplied with a touch pad outside reader. District Supply meters shall be FM approved. 5/8” to 1” SRII meters shall have 4-wheel High Significance odometer Resolution. 1 ½” and 2” SR; 1 ½” to 3” turbo; 2” and 3” Compound shall have 4-wheel High-Resolution odometer Resolution in 100 cu ft. 4” to 16” Turbo and 4” and 6” Compound shall have 4-wheel High-Resolution odometer Resolution in 1000 cu ft.

2.25 Meter Pit Hatch Cover

Raised cover:

Aluminum access door, 3'0"x 2'6" (915 mm x 762 mm) Type "S", with 11 Ga. (2.3mm) cover and curb and 18 Ga. (1mm) Cover liner, Aluminum as manufactured by Bilco Company, New Haven, CT 06505, or approved equal.

Flush Cover:

¼" Aluminum diamond plate cover, with reinforcing ribs that support a live load of 300 lbs per sq. ft., ¼" channel frame designed to catch rain water and dirt, and carry it to the 1 ½" threaded drain coupler. Drain Coupler shall be routed to outside pit to drain pocket. Each hatch shall have heavy-duty brass hinges with 3/8" stainless steel pin and fastened with stainless steel bolts. Each door will have a locking arm that locks automatically when the door is opened 90 degrees. A red vinyl grip handle releases the locking arm to close the hatch. Minimum inside dimensions shall be 30 " x 36". Syracuse Castings Sales Corporation, PO Box 1821, South Bay Road, Cicero NY 13039 model CH-3AL.

2.26 Meter Pit Cast

Reinforced precast concrete two piece rectangular vault of the dimensions shown on the contract Drawings designed for AASHTO H-20 wheel loading with 30% impact load and 130 pcf soil pressure. The top section shall be cast with access opening and round vent openings of the dimensions and location shown. The bottom section shall be cast with round openings in the side walls for pipe access as shown and sump of size shown on drawings.

2.27 Plastic Pit Setter

Shall be manufactured by Ford Meter Box Company for Cold Climates for 5/8" and ¾" meters.

5/8" Meter #PDVHH188-20-60
¾" Meter #PDVHH388-20-60
1" Meter #PDBB-488-20-60 (Internal Backflow provided)

Shall be supplied with a Ford Wabash Double Lid Cover with locking iron lid and optional plastic 2" recessed inner lid W3-D or Extra Heavy Cover W3H-D.

Shall be manufactured by Ford Meter Box Company or Muller for 1 ½"" and 2" meters.

With Dual Check Outlet 1 ½" Meter Mueller 500-VB-24-54-L-B-B w/
or With Angled Key Valve Outlet 1½" Meter Mueller 500-VB-24-54-L-L-B w/
24" Insulating pad #790164
Lid Frame 700098
Flat Lid 282925

With Dual Check Outlet 2" Meter Mueller 550-VB-27-54-L-B-B w/
or With Angled Key Valve Outlet 2" Meter Mueller 550-VB-27-54-L-L-B w/
27" Insulating pad #790058

Lid Frame 700098
Flat Lid 282925

With Dual Check Outlet
1 1/2" Ford PMVHH-688-36HB-60 w/ Ford Monitor Cover MC-36-MB
2" Ford PMVHH-788-36HB-60 w/ Ford Monitor Cover MC-36-MB

With Angled Key Valve Outlet
1 1/2" Ford PMVV-688-36HB-60 w/ Ford Monitor Cover MC-36-MB
2" Ford PMVV-788-36HB-60 w/ Ford Monitor Cover MC-36-MB

2.28 Thrust Blocks

Thrust blocks shall be constructed utilizing 3000 psi @ 28 day concrete.

2.29 Restrained push-on gaskets

Same basic shape of regular gaskets, contain high-strength stainless steel elements spaced around the gasket that develop a dependable gripping action and are compatible with the ductile iron pipe bid.

2.30 Polyethylene Encasement Tubing

Polyethylene Encasement Tubing shall be 8-mil thick for the encasement of ductile and conform to ANSI A21.5 (AWWA C- 105). The tubing shall be perforated at 20 foot intervals; randomly printed with the following information: Name of manufacturer, ANSI/AWWA C105-A21.5, 8 MIL LLDPE, Applicable range of nominal pipe diameter, Warning-Corrosion Protection-Repair Any Damage.

Tube or sheet width sizes shall be per AWWA C105 as shown on the following chart: **Polywrap Flat Tube Width (Inches)**

Nominal Pipe Diameter (inches	**Cast Iron or Ductile Iron With Push-on Joints**	**Cast Iron or Ductile Iron With Mechanical Joints**
4	14	16
6	17	20
8	21	24
10	25	27
12	29	30
14	33	34
16	37	37
18	41	41
20	45	45
24	53	53

Polyethylene adhesive tape 1-1/2" wide shall be used to seal joints.

PART 3 - INSTALLATION

3.01 Installation of Ductile-Iron Mains and their appurtenances
3.02 Underground Service Line valves and fittings.
3.03 Disinfecting Water Mains
3.04 Piping within Structures
3.05 Tapping Sleeve & Valve Installation
3.06 Valve Box Installation
3.07 Setting of Curb boxes
3.08 Flexible Coupling Installation
3.09 Mechanical Joint Retainer Gland Installation
3.10 Hydrant Installation
3.11 Meter Installation
3.12 Meter Pit Hatch Cover Installation
3.13 Plastic Pit Setter Installation
3.14 Thrust Block Installation

3.01 Installation of Ductile-Iron Mains and their appurtenances

a. Unless otherwise specified, Ductile-Iron Mains and their appurtenances shall be installed in accordance with AWWA C600, latest standard.

The following are additions and deletions from AWWA C600 and are incorporated in the specifications:
4.2.1 Alignment and grade

add:"b. Where no depths. lines or grades are shown, specified or directed, the nominal depth to top of pipe shall be 4 ½ feet below finished grade. Otherwise pipe shall be laid to the lines and grades shown on the plans, specified or directed."

Sec. 4.2.1.3 Clearance

add: "*Water mains crossing sewers shall be laid to provide a minimum vertical clearance of 18 inches between the outside of the water main and the outside of the sewer. This shall be the case where the water main is either above or below the sewer. At crossing, one full length of water pipe shall be located so both joints will be as far from the sewer as possible. Provide special structural support for the water and sewer pipes as required*."

Sec. 4.2.2 Trench construction

add: "4.2.2.12 *The trench bottom shall be inspected and all stones greater than 4" diameter shall be removed to a depth of at least 6" below the bottom of the pipe*."

Sec. 4.2.3 Installing pipe

add: "4.2.3.11 *No pipe shall be laid upon a foundation in which frost exists, nor at any time when the City of Oneida shall deem that there is a danger of the formation of ice, or the penetration of frost at the bottom of the excavation."*

Sec. 4.2.4 Joint assembly

delete from section 4.2.4.4.2*", or oxyacetylene torch if recommended by the pipe manufacturer*"

add: "4.2.4.5 *Two brass wedges shall be inserted securely between bell and spigot ends of pipes, maintaining the full water tightness of the joint*."

4.2.8.5 Restrained joints

add: "Tie rods and clamps, or other components shall receive two coats of asphalt-based coating."

Sec. 4.2.9 Flushing

add: "*The new main and all stubs shall be thoroughly flushed prior to pressure testing. The City of Oneida Water Department will perform all flushing of the main. The flushing rate shall be at least 2.5 ft/sec*."

Section 4.3 Disinfection

add: "*The City of Oneida Water Department shall disinfect newly installed mains in accordance with AWWA C651*."

Section 4.6 Service Taps

add: "*Service taps shall be installed by the City of Oneida Water Department. Services greater than 1" shall be installed with an approved service saddle*."

Sec. 5.2.1 Pressure Test

add: "*Pressure and Leakage tests shall be performed by the City of Oneida Water Department*."

5.2.1.1 delete: "*Test pressure shall not be less than 1.25 times the working pressure at the highest point along the test section*."

5.2.1.1 insert: "*Test pressure shall not be less than 1.5 times the maximum pressure at the highest point along the test section and a minimum of 150 psi*."

5.2.1.3 Air removal

delete: "At the conclusion of the pressure test, the corporation cocks shall be removed and the pipe plugged or left in place as required by the specifications."

add: "*Corporation Cocks shall be removed and plugged unless specified by the Oneida City Water Department. Corporation cocks left in place shall be clearly indicated on the As-Built drawings*."

3.02 Underground Service Line Valves and fittings.

a. Service lines shall be installed by the City of Oneida Water Department in accordance with manufacturer's instructions and City of Oneida standard service detail.
b. Service size shall be specified by the Water Superintendent in accordance with AWWA Manual M22.
c. Service line fittings shall be placed under normal working pressure and visually checked for leaks prior to backfilling.

3.03 Disinfecting Water Mains

a. Unless otherwise specified, Disinfecting Water Mains shall be in accordance with AWWA C651, latest standard and NYS Health Department by the City of Oneida Water Department.
b. New water mains shall be disinfected by the Continuous Feed Method utilizing liquid Sodium Hypochlorite 15% solution.
c. The main shall not be placed in service until Completed Works Approval is issued in accordance with Part 5 of the New York state Sanitary Code.

3.04 Piping within Structures

a. Fittings and pipe within structures shall be placed to the line and grade and properly supported before joints are made. All necessary pipe supports, including stirrups, rods, clamps, hanger, pipe columns and piers, necessary to sustain the pipe and fittings in a firm and substantial manner to the lines and grades given.
b. All exposed piping shall be thoroughly cleaned and painted with an approved paint.

3.05 Tapping Sleeve & Valve Installation

a. Pipe to be tapped shall be excavated and thoroughly cleaned at location to be tapped. Cleaning shall progress at minimum of 12 inches on each side of the sleeve.
b. The pipe, sleeve and valve shall be disinfected in accordance with AWWA C651.
c. The tapping sleeve and valve shall be installed in accordance with the manufacture's instructions, and bolts tightened to the proper bolt torque.

d. Smith tap shall be made by the City of Oneida Water Department after sleeve and valve have been pressure tested to insure proper installation. If sleeve or valve fails pressure test, defective installation shall be disassembled and reinstalled.

3.06 Valve Box Installation

a. Valve boxes shall be firmly supported and shall be kept centered and plumb over the operating nut of the valve.
b. All valve box covers shall be approximately one inch below the surrounding surface, or as directed by the City of Oneida.
c. Care shall be taken in backfilling around valve boxes to prevent displacement of box.

3.07 Setting of Curb boxes

a. Curb boxes shall be placed between the curb and the sidewalk. Where a curb or sidewalk do not exist, the curb box shall be placed as shown on the plans or directed by the City of Oneida.

3.08 Flexible Coupling Installation

a. Flexible couplings shall be installed in accordance with manufacture's specifications.
b. All flexible couplings shall be provided with polyethylene encasement in accordance with AWWA C105. The poly film shall be 8 mil, class C tubes or sheets as required.
c. Couplings shall not be used to support the weight of adjoining pipe or fittings.

3.09 Mechanical Joint Retainer Gland Installation

a. Mechanical Joint Retainer Glands shall be installed in accordance with the manufacture's instructions.

3.10 Hydrant Installation

a. Where the hydrant assembly is to be located between an existing drainage swale and right-of -way boundary, a 20-foot section of minimum 12-inch corrugated metal pipe with end sections in the existing swale and back fill with approved materials. Where an upstream culvert exists and is larger than 12-inches in diameter, a culvert with diameter equal to upstream shall be installed.

3.11 Meter Installation

a. Meters shall be installed in accordance with plans, specifications and the manufactures instructions.
b. Pipes shall be thoroughly flushed prior to installation of water meters.
c. After installation, meters shall be visually inspected to insure proper working order.
d. Those meters equipped with a strainer shall have the drain plug removed and a ball valve of the appropriate size installed to allow flushing of strainer.

3.12 Meter Pit Hatch Cover Installation

a. Meters Pit hatch covers shall be installed in accordance with plans, specifications and the manufactures instructions.
b. Four sets of keys or removable handles shall be provided to the City.

3.13 Plastic Pit Setter Installation

a. Plastic Pit Setter shall be installed in accordance with plans, specifications and the manufactures instructions.
b. The ground surface surrounding the pit setter shall be sloped away for drainage.

3.14 Thrust Block Installation

a. Thrust blocks shall be installed, as shown on the plans or as directed by the City, where abrupt changes in direction, steep slopes and dead ends occur.
b. Care shall be exercised in the placement of concrete to allow disassembly of mechanical joints.