

VILLAGE OF OSWEGO

PENN COURT LIFT STATION REHABILITATION



SPECIAL PROVISIONS

PENN COURT LIFT STATION REHABILITATION
VILLAGE OF OSWEGO

ILLINOIS

AUGUST 2024

I hereby state that these Contract Documents were prepared under my direct supervision and that I am a duly Registered Professional Engineer under the laws of the State of Illinois.



K. S. Archana

(Expiration Date: November 30th, 2025)

Professional Design Firm Registration 184.000813-0002 (Expiration Date: April 30th, 2025)

SPECIAL PROVISIONS

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PROJECT SPECIAL PROVISIONS

FOR

PENN COURT LIFT STATION REHABILITATION

STANDARDS

Construction provisions shall follow the "Standard Specifications for Road and Bridge Construction", adopted January 1, 2022 (referred to hereinafter as the Standard Specifications); the "Supplemental Specifications and Recurring Special Provisions", adopted January 1, 2024; the latest edition of the "Manual on Uniform Traffic Control Devices For Streets and Highways" (MUTCD); the Illinois Supplemental to MUTCD, adopted November 2021 ; the "Standard Specifications for Water and Sewer Construction in Illinois", 8th Edition, 2020 (referred to hereinafter as the Water and Sewer Specifications), latest edition.

DEFINITIONS

Contractor. The individual, firm, partnership, joint venture, or corporation contracting with the Village of Oswego for performance of the prescribed work.

Department, Owner, or Village. The Village of Oswego, Kendall County, Illinois.

Engineer. The authorized representative of the Village of Oswego in immediate charge of the engineering details of a construction project.

LOCATION AND DESCRIPTION OF PROJECT

The project consists of the rehabilitation of the Penn Court Lift Station steel wet well and valve vault located at 24 Penn Court, Oswego. Scope includes internal structural lining of the wet well and valve vault, replacement of the existing piping and valves in the valve vault, restoration, and other related and incidental work.

GENERAL SPECIAL PROVISIONS

PROJECT TIMING

Construction is scheduled to begin upon receipt of the "Notice of Award" and the proper execution of the contract documents, which includes the submission of insurance and bonds. The substantial completion for the project shall be on or before **November 30, 2024**. The final completion for all other ancillary work, including landscaping restoration or plantings, not including, any additional work, shall be completed and ready for final acceptance and payment on or before **December 30, 2024**. Failure to comply with the deadlines for the substantial completion and final completion shall result in the enforcement of liquidated damages.

CONSTRUCTION SCHEDULE

At the project pre-construction meeting, the Contractor shall submit for review and approval by the Engineer a detailed construction schedule that shall clearly indicate the sequential procedure of work proposed to be followed to complete the work as required by the contract documents. In preparing the construction schedule, the Contractor shall follow the required completion date, calendar days, or additional Special Provisions as specified relating to the construction schedule.

The construction schedule shall depict all work components and essential activities, the time required for the completion of each of the activities, and the sequence and interdependence of each of the activities in a project timetable which will translate each project day into an ordinary calendar day. The Contractor shall maintain the construction schedule and shall submit an updated schedule to the Engineer on a weekly, biweekly, or monthly basis as determined by the Engineer. No separate payment will be made to the Contractor for the creation and maintenance of the construction schedule.

The Contractor shall provide construction-related information in a format consisting of an E-mail, letter, or fax acceptable to the Engineer. The Contractor shall assume that this information shall be provided on a weekly basis during construction and may change to a shorter time frame based on construction activity changes or a longer time frame based on construction inactivity. The Engineer shall determine the time frame and format to be provided by the Contractor.

SEQUENCE OF CONSTRUCTION

The Owner and Engineer will work closely with the Contractor to coordinate efforts with other Village projects. The Contractor shall schedule work to cause as little inconvenience to the public as possible. Prior to final clean up and restoration, the Contractor shall ensure that all testing has been completed and accepted by the Engineer. The Contractor shall submit to the Engineer each week the next weeks proposed activities. The Contractor will be responsible for conducting the work in a sequence and on a schedule that is conducive to timely completion of the Contractor's work.

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The recommended sequence of construction for the Penn Court Lift Station rehabilitation is as follows and described in the construction plan set:

1. **The Contractor** shall complete site clearing and install temporary construction fencing, within the limits of construction.
2. **The Contractor** shall provide a vacator truck and set-up a temporary bypass on the existing incoming sewer lines to the vacator truck for construction operations. Bypass shall be tested and approved by the Village and the Engineer before proceeding to the following steps.
3. **The Contractor** shall perform demolition of the existing mechanical piping and valves in the valve vault, as indicated on the plans.
4. **The Contractor** shall install the new mechanical piping, valves and quick connect in the valve vault.
5. **The Contractor** shall set-up a temporary bypass on the existing incoming sewer lines to the new quick connect in the valve vault for construction operations.
6. **The Contractor** shall complete the wet well and valve vault rehabilitation.
7. **The Contractor** shall remove the temporary bypass system along the incoming sewers.
8. **The Contractor** shall initiate the startup of the lift station.
9. Upon approval of all rehabilitation work, mechanical piping, and lift station startup, the work of **the Contractor** shall be considered substantially complete.
10. **The Contractor** shall complete restoration as indicated on the Plans.

TERMS OF CONTRACT

Upon award, the term of this Contract shall be in full force to the right of the Village of Oswego (hereafter Owner) to cancel and terminate the same at any time by giving a 30-day notice in writing to the Contractor. In the event of such cancellation, the Contractor shall be entitled to receive payment for services and work performed, and materials, supplies, and equipment furnished under the terms of the Contract prior to the effective date of such cancellation but will not be entitled to receive any damages on account of such or any further payment whatsoever.

CHANGES IN SCOPE OF WORK

The Village reserves the right to make, in writing, at any time during work, changes in quantities, alterations in work, and the performance of extra work to satisfactorily complete the project. Such changes in quantities, alterations, and extra work shall not invalidate the contract nor release the surety, and the Contractor agrees to perform the work as altered.

If the alterations or changes in quantities significantly change the character of the work under the contract, whether changed by any such different quantities or alterations, an adjustment, excluding loss of anticipated profits, will be made to the contract. The basis for the adjustment shall be agreed upon prior to the performance of the work. If a basis cannot be agreed upon, then an adjustment will be made either for or against the Contractor in such amount as the Engineer may determine to be fair and equitable.

The term "significant change" shall be construed to apply only when the character of the work as altered differs materially in kind or nature from that involved or included in the original proposed construction or when a major item, defined as an item whose total original contract cost plus any additions exceeds ten percent of the total original contract amount, is increased in excess of 125 percent, or decreased below 75 percent of the original contract quantity.

Refer to Article 104.02 of the Standard Specifications.

LIQUIDATED DAMAGES

Should the Contractor fail to complete the work, including cleaning up, to the point of final acceptance of the work by the Engineer within the time specified in the Contract Documents for the Date of Completion and/or Date(s) of Substantial Completion, and agreed upon by the Contractor by accepting the Contract, or within such extra time as may be allowed in accordance with the Contract Documents, there shall be deducted from any monies due the Contractor, or that may become due the Contractor, the sum(s) of \$750.00 per day for each and every calendar day, including Sundays and holidays, that the work remains uncompleted.

This sum shall be considered and treated not as a penalty but as fixed, agreed, and liquidated damages due the Owner from the Contractor by reason of inconvenience to the public, added cost of supervision, and other items which may have caused an expenditure of funds resulting from his failure to complete the work within the time specified.

The Owner shall charge the Contractor and may deduct from partial and final payments for the project, for all Engineering and Inspection expenses incurred by the Owner in connection with any work accomplished after the Date of Completion specified in the Contract Documents.

Permitting the Contractor to continue and finish the work, or any part of it after the time fixed for its completion, or after the date to which the time of completion may have been extended, shall in no way operate as a waiver on the part of the Owner of any of its rights under the Contract.

UTILITY LOCATION

The Contractor must exercise extreme caution while working around existing utilities. The Contractor shall notify JULIE (1-800-892-0123), a minimum of 48 hours before commencing construction for utility locations within the scope of the project. It is recommended that the Contractor conduct a joint utility meet. It is the responsibility of the Contractor to contact all agencies who may or may not be part of the JULIE system to verify the location of their facilities.

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The Owner does not guarantee the accuracy or completeness of this information. The Contractor shall make its own investigation to determine the existence, nature, and location of all utility lines and appurtenances within the limits of the improvement. The Contractor shall locate all utilities far enough in advance to avoid all conflicts in grade separation between existing utilities and the proposed improvements. If the Contractor encounters a conflict between the proposed improvements and existing utility that was not located in advance by the Contractor, then the Contractor shall, at no cost to the Owner, relocate the proposed improvements and/or the utility to avoid the conflict.

The Contractor will be required to cooperate with all utility companies involved in connection with the removal, temporary relocation, reconstruction, or abandonment by these companies of any and all services or facilities owned or operated by them within the limits of this improvement.

Before doing any work which will damage, disturb, or leave unsupported or unprotected any utility lines, or appurtenances encountered, the Contractor shall notify the respective Owner thereof, who will make all arrangements for relocating, adjusting, or otherwise maintaining or abandoning service on lines that fall within the limits of the proposed construction without cost to the Contractor, including the removal of all cables, manhole covers, and other appurtenances which the Owner desires to salvage. After such arrangements have been made, the Contractor will proceed with the work as directed by the Engineer. All utility lines and appurtenances which are abandoned by the Owner shall be removed and disposed of by the Contractor.

Contractor is responsible for maintaining a current JULIE locate ticket during construction. Any damaged, hit, broken, uncovered utilities must be called into JULIE immediately.

No extra compensation will be allowed to the Contractor for any expense incurred by complying with these requirements or because of delays, inconvenience, or interruptions in his work resulting from the failure of any utility company to remove, relocate, reconstruct, or abandon their services. The Contractor shall be responsible for prompt and timely removal, relocation, reconstruction, or abandonment of their facilities by all utility companies involved, and the coordination of his own work with that of these companies to end that work on this improvement is not delayed because of necessary changes in the existing utilities, public or private.

CONSTRUCTION OPERATIONS

In order to minimize the effect of construction noise on the area surrounding the improvement, the Contractor and its subcontractors shall comply with the following requirements. Any changes to this schedule will not be accepted unless approved by the Engineer.

- All engines and engine driven equipment used for hauling or construction shall be equipped with an adequate muffler in constant operation and properly maintained to prevent excessive or unusual noises. Any machine or device or part thereof which is regulated by or becomes regulated by Federal or State of Illinois noise standard shall conform to those standards.
- Construction operations shall be confined to the daylight hours between 6:00 AM and 8:00 PM Monday through Friday, between 7:00 AM and 6:00 PM on Saturday, and

between 9:00 AM and 5:00 PM on Sunday. No work of any kind shall be done on Sundays in residential areas unless previously approved by the Engineer. These time restrictions shall not apply to maintenance or operation of safety and traffic control devices such as barricades, signs, and lighting, or to construction of an emergency nature. If the Contractor requires additional time to complete a portion of the work on any given day or if he foresees the need to work extended hours for a number of days to comply with the construction schedule, he must receive the approval of the Engineer.

- The Contractor shall take all precautions necessary to protect the general public and his employees from hazardous locations that might occur within the limits of the improvements. **Neither the Owner nor the Engineer is responsible for site safety. The Bidder is solely and exclusively responsible for construction means, methods, technologies, and site safety.**
- It shall be the Contractor's responsibility to protect open cut trenches as may be required by OSHA, Illinois Department of Labor, State, or Federal Law. Trenches in pavements or in close proximity to the improved streets or roadways shall be sheeted or braced in a substantial and effective manner. Sheeting may be removed after backfilling has been completed to such an elevation as to permit its safe removal. Sheeting and bracing left in place must be removed for a distance of 3 feet below the established street grade. The cost of furnishing, placing, and removing sheeting and/or bracing shall be incidental to construction and included in the contract unit price for the work being done.
- The Contractor shall schedule and conduct its operations so that the closure time of existing driveways along the route of the improvement is kept to a minimum. All homeowners shall be given a minimum 24 hours written notice prior to initial removal of their driveway apron. The Contractor shall make every effort to keep driveways open including temporary grading and placement of gravel.
- Beginning on the date that the Contractor begins work on this project, the Contractor shall assume responsibility for normal maintenance of all existing roadways within the limits of the improvement. This normal maintenance shall include all repair work deemed necessary by the Engineer. Traffic control and protection for this work will be provided by the Contractor as required by the Engineer. The work involved in maintaining the existing pavement and shoulders will not be paid for separately at the contract unit prices for the various items of work involved, unless otherwise specified elsewhere in these Special Provision.
- If items of work have not been provided for in the Contract, or are not otherwise specified for payment, such items will be paid for in accordance with Article 109.04 of the Standard Specifications.

EASEMENT AND ACCESS AGREEMENTS

Working easements shall be staked by the Owner prior to commencement of construction. **Extreme caution shall be exercised to protect the existing trees, signs, light posts, etc.** within or near the limits of all work. This shall be considered incidental to the Contract.

MOBILIZATION

Mobilization shall be according to Section 671 of the Standard Specifications except as modified herein.

Revise Article 671.02, Basis of Payment, to read:

"671.02 Basis of Payment. Mobilization will not be paid for separately but shall be included in the unit bid prices of the items for which this work applies."

INSPECTION

All phases of the improvements will be subject to inspection by representatives of the Owner's Public Works Department, or Owner's authorized Consulting Engineer. Projects will not be accepted by the Owner without the final approval of the Owner's Public Works Department.

The Contractor shall be bound by these specifications and by all Village ordinances and codes.

TRAFFIC CONTROL AND PROTECTION

The traffic control and protection for this project shall be performed in accordance with the included traffic control plans and Sections 701 Traffic Control and 702 Traffic Control Devices of the Illinois Department of Transportation "Standard Specifications for Road and Bridge Construction," latest edition and the requirements stated herein. The number, type, color, size and placement of all traffic control devices shall be according to the Illinois Department of Transportation's "Manual on the Uniform Traffic Control Devices for Streets and Highways" and the Illinois Department of Transportation's "Quality Standard for Work Zone Traffic Control Devices." The Contractor shall provide all coordination with the Village for this item.

Special attention is called to Articles 107.09 and 107.14 of the Standard Specifications, Section 701 of the Standard Specifications, and the following Highway Standards:

- 701201: Lane Closure, 2L, 2W, Day Only
- 701801: Sidewalk, Corner or Crosswalk Closure
- 701901: Traffic Control Devices
- 704001: Temporary Concrete Barrier
- B.L.R. 21-9: Typical Application of Traffic Control Devices on Rural Local Highways

Forty-eight (48) hours prior to closing of a traffic lane, the Contractor shall notify responsible municipal and county authorities and obtain all permits (if required) and then comply with all regulations for erecting barricades and warning signs and maintain them during the execution of the work.

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Traffic control and safety shall be as specified under Section 648 of the Illinois Department of Transportation "Standard Specifications for Road and Bridge Construction in Illinois," latest edition.

Contractor shall provide a Traffic Control Plan for approval by the Village as part of the submittals.

Construction Requirements. The Contractor shall provide names and phone numbers of the individuals who can be contacted on a twenty-four (24) hour basis to handle barricading or other problems relating to the construction activity. These emergency response person shall be capable of responding within 1 hour after notification by the Owner. If there has been no response within 1 hour after notification, the Village will respond at a cost of \$100.00 per hour (minimum charge of two hours plus materials). This charge will be deducted from payments to the Contractor.

At all times during which men/women are working where two-way traffic is to be maintained over one lane of pavement, the Contractor shall furnish certified flagmen to protect his workmen and to warn and direct traffic. Two flagmen will be required for each separate operation. Barricades used for channelization or delineation and warning signs shall be sequentially placed in the direction of the traffic flow and removed in reverse order. Lane closure signs and flagmen signs shall be erected prior to barricades and/or cones. The signs shall remain erected until such time as all traffic control devices have been removed from the pavement.

Vehicular access to all private driveways and all local streets shall be maintained throughout the Contract. All homeowners shall have access to their driveways each evening, except during concrete driveway paving and concrete sidewalk construction across a driveway. Contractor is to be aware of residents with special needs and provide accommodation accordingly.

If Contractor's work is anticipated to obstruct access to a facility, Contractor is responsible for notifying the affected property 48 hours in advance.

This work shall be considered incidental to the Contract and shall not be compensated for separately.

HOLIDAYS

Revise the list of legal holidays in Article 107.09 of the Standard Specifications to read:

New Year's Day

Easter

Memorial Day

Independence Day

Labor Day

Veterans Day

Thanksgiving Day

Thanksgiving Friday

Christmas Eve

Christmas Day

New Year's Eve

PUBLIC CONVENIENCE AND SAFETY (D-1)

Effective: May 1, 2016
Revised: July 15, 2016

Add the following to the end of the fourth paragraph of Article 107.09:

“If the holiday is on a Saturday or Sunday, and is legally observed on a Friday or Monday, the length of Holiday Period for Monday or Friday shall apply.”

Add the following sentence after the Holiday Period table in the fourth paragraph of Article 107.09:

“The Length of Holiday Period for Thanksgiving shall be from 5:00 AM the Wednesday prior to 11:59 PM the Sunday After”

MAINTENANCE GUARANTEE

The Contractor shall execute and deliver to the Owner, before final payment will be issued, a written warranty, in a form satisfactory to the Owner, which guarantees that the work is in accordance with the Contract Documents and will not be defective. This warranty shall guarantee this work for a period of one year from the date of acceptance of the work and final payment by the Owner.

The Contractor shall furnish a warranty bond in an amount equal to ten percent (10%) of the contract amount by a surety satisfactory to the Owner to guarantee Contractor’s warranty to repair defective work.

If within the guarantee period, any work is found to be defective, as determined by the Owner, the Contractor shall promptly and without cost to the Owner, correct or repair such defective work, or remove and replace the defective work in accordance with the Special Provisions for the items in question.

CONSTRUCTION SAFETY AND HEALTH STANDARDS

It is a condition of this contract and shall be made a condition of each subcontract entered pursuant to this contract that the Contractor and any Subcontractor shall not require any laborer or mechanic employed in performance of that contract to work in surroundings or under working conditions which are unsanitary, hazardous or dangerous to their health or safety, as determined under Federal Occupational Safety and Health Standards for Construction.

RESPONSIBILITY FOR VANDALISM

The contractor shall be responsible for the defacement of any concrete pours before they have been set up. Concrete pavement, sidewalk, driveway, or curbing that has been defaced, in the opinion of the Engineer, shall be removed and replaced by the Contractor at Contractor’s own expense.

SHOP DRAWINGS AND SUBMITTALS

Prior to fabrication of materials, the Contractor shall submit shop drawings of the materials to the Engineer for review. Shop drawings shall consist of complete descriptive literature on the materials including all pertinent dimensions, material specifications, and data. Prior to submitting shop drawings to the Engineer, the Contractor shall first review the shop drawings and make corrections or revisions which are appropriate. The Contractor shall always be required to maintain a complete set of shop drawings on the job site while work is in progress and shall make them available to the Engineer upon request.

Provide complete copies of required submittals and deliver to the Engineer as follows:

1. Construction progress schedule: (1) electronic copy
 - a. Initial work schedule
 - b. Revisions to work schedule
2. Traffic control plan: (1) electronic copy
3. Pre-construction surface televising: (1) electronic copy
4. Bypass Pumping Plan
 - a. See Sheet 5 in Plans for Proposed Bypass Plan
5. Steel Wet Well and Valve Vault Internal Coatings Material Data Sheets:
 - a. Structural Lining. The following are approved for structural lining: Polyurea based coating by OBIC or Spectra Shield or approved equal.
6. Piping System:
 - a. Ductile Iron, Class 53
 - b. Restrained joints and Ductile Iron couplings.
7. Valves: Plug Valves, Check Valves, and Quick Connect
 - a. Descriptive literature, catalog cuts, and dimensional prints clearly indicating all dimensions and materials of construction, shall be submitted on all items specified herein to the Engineer for review before ordering.
 - b. At the time of submission, the Contractor shall, in writing, call Engineers attention to any deviations that the submittals may have from the requirements of the Engineer's Contract Drawings and Specifications.
8. One set of "red-line" field changes on construction plans.
9. Other required submittals: (1) electronic copy if required for review or record.

This is a non-exhaustive list. The Contractor shall provide all shop drawings that are required in the specifications.

CLEAN UP

The cost of cleanup operations shall be spread evenly through the bid items on the proposal. Clean up shall consist of removing all debris from the job site, and removal of all excess dirt, pipe pieces, lumber scraps, paper cups, etc., left by the Contractor's forces. Clean up shall be performed as the work progresses, and a final clean up shall be done after all operations are completed. Clean up shall include roadways, driveways etc.

CONSTRUCTION DEBRIS

All spoil and waste materials must be removed from site and properly disposed. Disposal of all waste and spoil shall be considered incidental to the contract. For bidding purposes, it shall be assumed that all spoils are residential and can be disposed of at a CCDD landfill. Village will sign LPC-662 form to be prepared by Contractor. The contractor shall provide a representative soil sample to the Village, for pH testing at a third-party lab. Removal of landscaping materials, and protection of the homeowners' property is considered a part of this contract and will be incidental to the contract pay items.

WATER USAGE

The Village ordinance states the following regarding water usage. Each user of water from Village fire hydrants, there shall be charges assessed as follows:

1. Deposit: One thousand two hundred dollars (\$1200.00) for the use of a three-inch (3") Village hydrant meter.
2. Water Usage Charge: The charge for water usage shall be twice the amount of the normal Village of Oswego water rate per one thousand (1000) gallons that is charged to regular water customers.

The Owner intends to waive the water usage charge for this project. A meter deposit will be required.

It is the responsibility of the Contractor to find out from the Owner any project specific information regarding the water meter rental, reporting, billing, and expense information. Before the issuance of a meter, the Contractor may be required to have their water vehicle inspected and tested by the Owner. The Contractor's vehicle must have a fixed air gap, or one fabricated, in order to pass inspection. The Owner must be contacted in order to schedule this inspection. Only hydrant wrenches approved by the Owner shall be used when securing water from hydrants.

The location of approved hydrants to be accessed for water usage will be determined by the Owner. The Contractor must contact the Owner to determine the closest approved hydrant to the project site. Under no circumstance shall water be obtained from an unapproved hydrant or facility without the Owner's consent. Determination of available hydrants is encouraged before bidding. The cost to comply with these restrictions shall be at no additional expense to the Owner or contract.

The Contractor shall be held responsible for all damage to the water system and appurtenances during its use including and not limited to water pipes, valves, hydrants, water meters, public and private property. The Owner will return a meter deposit upon the return of the water meter in satisfactory condition. The Owner will not make final payment until the water meter has been returned in satisfactory condition.

DATE OF MANUFACTURE

All manufactured materials furnished under this contract, including, but not limited to, pipe, drainage and utility structures, castings, fire hydrants, valves, stops, and fittings, shall have been manufactured no earlier than one (1) year before the date of installation.

PROTECTION OF EXISTING DRAINAGE FACILITIES DURING CONSTRUCTION

Unless otherwise noted in the contract plans, the existing drainage facilities shall remain in use during the period of construction.

Locations of existing drainage structures and sewers, if shown on the contract plans, are approximate. Prior to commencement of work, the Contractor, at his/her own expense, shall determine the exact location of existing structures which are within the proposed construction site.

All drainage structures are to be kept free from any debris resulting from construction operations. All work and materials necessary to prevent accumulation of debris in the drainage structure resulting from construction operations shall be removed at the Contractor's own expense, and no extra compensation will be allowed.

Unless reconstruction or adjustment of an existing manhole, catch basin, or inlet is called for in the contract plans or ordered by the Engineer, the proposed work shall meet the existing elevations of these structures. Should reconstruction or adjustment of a drainage structure be required by the Engineer in the field, the necessary work and payment shall be done in accordance with Section 602 and Article 104.02 respectively, of the Standard Specifications.

Existing frames and grates are to remain unless otherwise noted in the contract plans or as directed by the Engineer. Frames and grates that are missing or damaged prior to construction shall be replaced. The type of replacements frame or grate shall be determined by the Engineer, and replacement and payment for same shall be in accordance with Section 604 and Article 104.02 respectively, of the Standard Specifications unless otherwise noted on the Plans or special provisions.

RESTORATION - GENERAL

All damage to lawns shall be restored with topsoil and seed/blanket as shown on the Plans. All lawn restoration shall be considered incidental. To minimize damage to lawns, Contractor shall utilize Duramats or other means (protective pads) to buffer equipment traveling across private property.

All work required to move or protect overhead wires and utility poles shall be considered incidental to the contract.

Any claims for additional work must be presented to the Engineer immediately. Failure of the contractor to notify the Engineer will be reason to deny any claims for extra work.

All work covered under this contract is subject to inspection by the Village of Oswego and the Engineer.

TOPSOIL FURNISH AND PLACE, 4"

Description. This work shall be according to Article 211 of the Standard Specifications and the following:

The Contractor shall take precautions so as not to unnecessarily damage lawns. In areas that are designated to be restored with seed and blanket, the existing soil shall be shaped and graded. The area to be restored with seed and blanket shall then have a layer of good quality, pulverized topsoil which has been approved by the Engineer prior to placement, spread and fine raked in such a manner as to result in a top dressing of the parkway having an average thickness of four inches (4") of topsoil.

Any excavation and grading of the parkway which is required to give a uniform slope from the limit of seed and blanket restoration to the top of the curb shall be included in this item. The Contractor shall be responsible for removing any weeds prior to the placement of the seed and blanked. The method of weed removal must be approved by the Engineer.

The topsoil and subgrade shall be thoroughly compacted along newly installed concrete or asphalt by a compaction method approved by the Engineer. If proper compaction is not achieved, the Engineer may direct the Contractor to remove any soil backfill that the Contractor has placed and replace it with a granular stone backfill.

Basis of Payment. This work shall be considered incidental to the Contract and shall not be compensated for separately.

SEED & BLANKET

Description. The purpose of this work is to restore the areas disturbed by construction and/or to provide proper drainage in the parkways. This work shall include restoring disturbed areas within the construction limits, removing excess backfill material, furnishing and placing topsoil in accordance with Section 211, compacting via jetting and grading to maintain positive slope, and adding seed and erosion control blanket to the areas in accordance with Section 250. Care should be taken to ensure proper compaction as the Contractor will be responsible for repair of any areas where settlement occurs.

Topsoil shall be a loamy mixture of black dirt having at least 90 percent passing a No. 10 sieve, and shall be free of large roots, brush, sticks, weeds, stones larger than 1 /2-inch in diameter and any other litter. Topsoil, pH shall not be lower than 4.5 nor higher than 8.5 as determined in accordance with ASTM procedures for soil testing.

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Fertilizer nutrients shall be applied in accordance with Section 252.03 of the Standard Specifications and shall be included. Fertilizer shall consist of the following nutrient composition: Nitrogen – 50%, Phosphorus – 30%, Potassium – 20%. Immediately prior to seed bed preparation, fertilizer nutrients shall be uniformly spread at the rate of 200 pounds per acre (0.0413 pounds per square yard). Apply fertilizer after smooth raking of topsoil and prior to installation of seeding. Apply fertilizer no more than 48 hours before laying seeding. Lightly water soil to aid dissipation of fertilizer.

Seed shall be salt resistant seed mix Type 1A and applied in accordance with IDOT Standard Specifications Sections 250 and 251. Fertilizer nutrients and seed are to be applied in two separate operations. No seed shall be sown until the seed bed has been approved by the Engineer/Village. Seed shall be applied at a rate of 180 lbs/acre. Areas in which the seed does not take shall be re-seeded at no additional cost to the Village.

Erosion control blanket shall be applied in accordance with IDOT Standard Specifications Section 251.04. Within 24 hours of seed placement, a netless blanket shall be placed on all areas to be restored with seed. Blanket shall be Futerra F4 Netless, or approved equal.

During periods exceeding 80 degrees Fahrenheit or subnormal rainfall, supplemental watering may be required when directed by the Village or Engineer, at no additional cost.

Basis of Payment. This work shall be considered incidental to the Contract and shall not be compensated for separately. Work shall include all necessary labor, material, and equipment for furnishing and placing seed, fertilizer, and erosion control blanket.

TECHNICAL PROVISIONS FOR CONTRACT ITEMS

This shall be a unit price contract and shall include all work mentioned in the Project's Plans and Specifications and any other work, not specifically mentioned, that is necessary for constructing the improvement in a skilled and professional manner. Any conflicts or omissions on the Plans or Specifications shall be brought to the attention of the Engineer. The Engineer's decision in resolving such matters shall be final. The Contractor shall in no manner take advantage of conflicts or omissions should they occur, and it shall be the Contractor's responsibility to bring such components of the Contract to the attention of the Engineer so that they can be properly resolved.

The quantities bid upon in the Proposal are estimated quantities, except where an item is noted to be supplied "complete." The Contractor shall be paid for actual quantities, in place, as measured and agreed upon by the Engineer and Contractor. The Contractor shall be paid in full for items to be supplied "complete" when said item is finished, or at a percentage of the bid amount agreed upon by the Owner, Engineer, and Contractor if the item is not complete.

ITEM #1: PRE-CONSTRUCTION SURFACE TELEVISIONING

Description. This work consists of performing color video and audio recording of the project area and other areas which may be impacted by construction, specifically excavation or any work that requires backyard access.

Preconstruction video recordings will include coverage of the project area and all other areas which may be impacted by construction, including construction easements. Video recordings will provide a visual record of all physical features within those areas, including, but not limited to, roadways, pavements, curbs, gutters, driveways, driveway aprons, sidewalks, carriage walks, parkways, trees, landscaping, shrubbery, plantings, landscaping walls, retaining walls, signs, sign posts, fences, utility poles, light poles, utilities, equipment, manholes, b-boxes, cleanouts, valves, pipelines, buildings, mailboxes, and any other features located within the project area.

Video recordings will begin with an audio narrative which provides the current date and time, the name of Owner and name of project, and a description of both the starting location and the location or locations to be recorded, including street name or names, street addresses, and any additional information which may be necessary to describe the location and subject of viewing.

Video recordings will maintain viewer orientation by means of an audio commentary in the audio track of each video recording which provides an explanation of what is being viewed; and by videotaping landmarks and readily identifiable objects (property addresses, street signs, etc.) at appropriate intervals.

Preconstruction surface televising will be recorded at a rate of travel not exceeding 48 feet per minute and zooming and panning rates will be controlled to provide clarity of features during playback. The finished product will be provided with bright, clear pictures and accurate colors free from distortion, tearing, rolls, or other forms of picture imperfection. The audio will have proper volume and clarity. All recordings will be performed at times of satisfactory

visibility, and when no more than ten percent of ground is obscured by snow, leaves, or other cover.

If any element within or portion of the project area is not adequately documented by the preconstruction surface televising so as to definitively demonstrate its condition prior to the start of construction, Contractor will assume responsibility for the repair, restoration or replacement of that element or portion of the project area. Such repairs, restoration or replacement will be to equal or better condition than previously existing, and will further comply with all standards and provisions which govern the work in question.

Schedule. Pre-construction surface televising will be performed according to the following schedule:

- a. Pre-construction surface televising will take place after a Notice to Proceed has been issued.
- b. Pre-construction surface televising will take place after the Joint Utility Locating Information for Excavators (JULIE) request for the project area has cleared.
- c. Pre-construction surface televising will take place before any equipment, materials, or other items are delivered to the site.
- d. Pre-construction surface televising will take place no more than fourteen (14) chargeable days prior to the start of construction.
- e. The required pre-construction surface televising deliverables will be submitted to the Engineer, and the Engineer will review, and issue written approval of the video before any activity other than utility locating will be permitted to start. Such activity will include, but not be limited to, delivery of materials and equipment, installation of traffic control and erosion control, and completion of construction layout and tree protection. No days will be charged against the contract time while the video is under review by the Engineer, including the day the deliverables are submitted and the day a response is provided. If the video or any portions thereof are rejected, the contract time will commence to run until revisions are submitted.
- f. The televising will be submitted to Engineer for review prior to commencement of any construction and receive acceptance of recordings prior to commencement of construction. Any areas found not acceptable to the Owner will be re-filmed at no additional cost to the contract.

Deliverables.

Video will be high-definition, with a minimum resolution of 1280 x 720 pixels per frame. Video will be filmed in a landscape aspect ratio. Video filmed in a portrait aspect ratio will be considered unacceptable and will be rejected.

Pre-construction surface televising will be provided as electronic files of .avi, .mp4, .m4v, .mkv, .wmv, or .mpg file format, or of such other file format as may be approved by Engineer. Preconstruction video recordings will be provided as independent digital container format files, which container files will include all video, audio, and other electronic information necessary to view the preconstruction surface televising as intended.

Pre-construction surface televising electronic files will be provided on a portable electronic media device or devices of one of the following types: USB flash drive, SD flash memory card, CF flash memory card, data DVD, external hard drive, or such other portable electronic media device as may be approved by Engineer. Pre-construction surface televising electronic files may also be provided via online file sharing, cloud storage, File Transfer Protocol (FTP), or other online or network file transfer methods if approved by Engineer.

Video DVD will be considered an unacceptable format for providing pre-construction surface televising and will be rejected.

Pre-construction surface televising electronic files will be accompanied by corresponding logs which document the dates, times, and locations covered by each preconstruction video recording electronic file. Contractor shall maintain copies of all items submitted to Engineer for Contractor's own use and record.

Basis of Payment. This item shall be paid at the Contract Unit Price per Lump Sum for PRE-CONSTRUCTION SURFACE TELEVISIONING.

ITEM #2: BYPASS PUMPING

Description. This work shall include control of sanitary sewer flow during construction activities. The Contractor shall be fully responsible for maintaining sewer service during these operations and shall not be allowed to backup or flood any sewer system user, building or property. The Contractor shall be solely liable for property damages that result from the work being performed.

During wet well rehabilitation and pumps and valve vault installation, no flows will be allowed. A vac truck can be used as necessary for the period of bypass during valve vault piping removal and replacement.

Since complete stoppage or bypassing of flow will be required during construction, the Contractor will be required to submit drawings and complete design data showing methods and equipment to be utilized in bypass and dewatering operations. The bypass plan shall include the following information:

1. Location of temporary sewer plugs and bypass discharge lines indicated on Plans
2. Capacities of pumps, prime movers, and standby equipment
3. Type of standby power source
4. Traffic control plan

Bypass pumps shall be designed to handle the current flow provided by the existing pumps. Contractor is responsible for sizing the bypass system.

When pumping and bypassing is required, the Contractor shall furnish all temporary pumps, conduits, and other equipment to divert the flow of sewage around the sewer section in which work is to be performed. The bypass system shall have sufficient capacity to handle existing flow plus additional flow that may occur during peak flow periods or from precipitation. The Contractor shall construct bypass system of material to prevent leakage during pumping operation.

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The Contractor shall equip all engines with mufflers and/or enclose to keep noise level less than 50 decibels, or 10 decibels above ambient noise levels when measured at building closest to noise source, using a decibel meter.

The Contractor shall maintain sufficient labor, equipment and materials on site to ensure continuous and successful operation of bypass and dewatering systems including the following:

1. Keep standby pumps fueled and operational at all times
2. Maintain on site sufficient number of valves, tees, elbows, connections, tools, sewer plugs, piping, and other parts or system hardware to ensure immediate repair or modification of any part of system as necessary.
3. Provide piping, joints and accessories designed to withstand at least twice the maximum system pressure or 50 psi (345 kPa), whichever is greater.
4. In areas where flows are bypassed, all discharge flow shall be returned to the sanitary sewer. No bypassing to ground surface, receiving waters, storm drains, or bypassing which results in groundwater contamination or potential health hazards shall be permitted.
5. Bypass system must have a high-water alarm system that simultaneously notifies the Contractor and Village personnel.
6. Fail safe alarms and contractor shall be on-call 24 hours per day, 7 days per week, for emergency situations.

In the event sewage is released into a storm drainage system or street, the Contractor shall immediately stop the release, notify IEPA, and take all necessary actions to clean up and disinfect spillage to satisfaction of the Engineer.

During plugging or bypass pumping operations the Contractor shall utilize sewer plugs specifically designed so that all or any portion of sewage can be released. During sewer flow control operations, reduce flow to comply with requirements as describe above. After cleaning, inspection, installation, or rehabilitation work has been completed, restore the flow to normal.

Personnel must be available 24/7 to address any malfunction of the pumps/bypass system. Redundancy shall be built into the bypass system, and the ability to relieve the bypass in the event of a pump malfunction must be available. No work shall be completed with precipitation in the forecast or up to 48 hours after a rain event without prior approval from the Village.

Basis of Payment. The contractor shall provide the necessary tools and equipment to complete all work as described above. This item shall be paid at the Contract Unit Price per Lump Sum for BYPASS PUMPING per the following schedule:

1. Once the bypass is established, 50% of the pay item will be paid.
2. When removal of the bypass is complete, the remaining 50% of the pay item will be paid.

ITEM #3: TEMPORARY CONSTRUCTION FENCE

Description. This work shall consist of the furnishing, installation, maintenance, and removal of temporary construction chain-link fence designed to enclose and secure the project site, while providing screening from construction activities. Fencing shall be installed prior to the start of construction.

Fence shall be 6' (+/-) above grade. It is to be constructed of knitted polyethylene barrier fencing in green. The following materials are not acceptable as fencing material: chicken wire, barbed wire, razor, single strand wire, snow fencing or welded fabric. For site access control, openings in the fence can be secured with a gate(s) and chain with a series of padlocks. Fencing shall be supported by sandbagged stands. Sandbags must be maintained intact without tears or holes and positioned on the interior side of construction fence.

Basis of Payment. The contractor shall provide the necessary tools and equipment to complete all work as described above. This item shall be paid at the Contract Unit Price per Linear Foot for TEMPORARY CONSTRUCTION FENCE.

ITEM #4: DEMOLITION OF EXISTING EQUIPMENT WITHIN VALVE VAULT

Description. This item shall consist of the removal of the existing mechanical equipment, as indicated on the plans.

Labor and materials necessary to complete this work will consist of the following:

1. Remove existing valves and part of discharge piping as needed to make connection to existing force main.

Basis of Payment. The contractor shall provide the necessary tools and equipment to complete all work as described above. This item shall be paid at the Contract Unit Price per Lump Sum for DEMOLITION OF EXISTING EQUIPMENT WITHIN VALVE VAULT.

ITEM #5 AND #6: STRUCTURAL LINING, 5' DIA. - 20' DEEP WET WELL AND 5' DIA. - 7' DEEP VALVE VAULT

Description. Wet well and Valve vault lining shall consist of all necessary measures to internally seal the wet well and valve vault using a polyurea based coating and shall establish structural integrity for the wet well and eliminate future corrosion issues.

Surface Preparation. Conduct surface preparation program to include monitoring of atmosphere for hydrogen sulfide, methane, low oxygen or other gases, approved flow control equipment, and surface preparation equipment.

Surface preparation methods may include high pressure water cleaning, hydro blasting, grinding, detergent water cleaning and shall be suited to provide a surface compatible for installation of the liner system.

Surface preparation method shall produce a cleaned, abraded and sound surface with no evidence of laitance, loose concrete, brick or mortar, contaminants or debris, and shall display a surface profile suitable for application of liner system.

After the defects in the structure are identified, repair all leaks with a chemical or hydraulic sealant designed for use in field sealing of ground water. Severe cracks shall be "repaired with a urethane-based chemical" sealant. Product to be utilized shall be as approved by owner/engineer prior to installation. Repairs to exposed rebar, defective pipe penetrations or inverts, etc. shall be repaired utilizing non-shrink grout or approved alternative method.

Repair Materials.

1. Repair materials shall be used to fill voids, structurally reinforce and/or rebuild surfaces. Repair materials shall be compatible with the polyurea coating and shall be applied in accordance with the manufacturer's recommendations.
2. Subject to compliance with the polyurea coating manufacturer's requirements, the following products shall be acceptable as compatible repair base coat materials for polyurea top coating:
 - a. A hydraulic cement and/or plug shall be used to stop active infiltration. The hydraulic cement and plug shall be suitable for the polyurea top coating, and shall be approved by the polyurea coating manufacturer.
 - b. Hydrophobic and/or Hydrophilic polyurethane chemical grouts used to stop active infiltration. The chemical grouts shall be suitable for the polyurea top coating, and shall be approved by the polyurea coating manufacturer.

Material Installation.

Application procedures shall conform to recommendations of the manufacturer, including materials handling, mixing, environmental controls during application, safety and spray equipment.

Spray equipment shall be specifically designed to accurately ratio and apply the liner system.

Application of multi-layer/component liner system shall be in strict accordance with manufacturer's recommendation. Final installation shall be a minimum of 1/2" (500 mils).

Material.

The protective lining system shall be a multi-layer/component protective lining system, including:

1. Polyurea Adhesion Coating
2. Polymer Surfacer Layer
3. Final Polyurea Armor Layer

List of Approved Materials: OBIC, Spectrashield or approved equal.

Liner System Armor Layer. 100% solids, no volatile organic compound (VOC), moisture tolerant, elastomeric polyurea coating to provide infiltration and corrosion protection. Material shall be capable of curing properly given the project site conditions and temperatures conforming to the following minimum physical requirements:

<u>Property</u>	<u>Value</u>
Hardness, D-2240	D 48
Tensile strength, D-412	3315 psi
100% Modulus, D-412	1668 psi
200% Modulus, D-412	1960 psi
300% Modulus, D-412	2650 psi
Tear resistance/DIE-C, D-624	417 pli
Ultimate elongation, D-412	395 %
Taber Abrasion, mg loss CS17	15 mg loss
Flexibility, 1/8" mandrel	Pass
ASTM G210-13 SWAT	Pass

Liner System Surface Layer. 100% solids, no volatile organic compound (VOC), moisture tolerant, elastomeric polyurethane coating to provide infiltration and corrosion protection. Material shall be capable of curing properly given the project site conditions and temperatures conforming to the following minimum physical requirements:

<u>Product Type</u>	<u>Value</u>
Density (ASTM D – 1622)	6-8 pcf
Compressive Strength 1"	130-180 psi
Closed Cell Content	> 94%
Water Absorption	< 0.03 lbs/sqft
Maximum Service Temp	180 deg
Viscosity (A side) @ 72 deg F	675 cps
Viscosity (B side) @ 72 deg F	200 cps
S.W.A.T (ASTM G210-13)	Pass

Job Conditions.

Environmental Requirements:

1. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the Manufacturer. Do not apply the products of this Section to frozen surfaces.
2. Do not apply coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the Manufacturer.

Protection:

1. Public Safety: If public safety is endangered during the progress of the rehabilitation work, provide adequate protective measures to protect public pedestrian and vehicular traffic on streets and walkways. Signs, signals and barricades used shall conform to requirements of Federal, State and Local laws, rules, regulations, precautions, orders, and decrees.

2. Existing Facilities Protection: Protect existing structures from damage due to operations associated with work of this Section.
3. Personnel Protection: It is the responsibility of the Contractor to provide appropriate protective measures to ensure that chemicals are under the control of the Contractor at all times and are not available to unauthorized personnel or animals.

Quality Assurance

1. Coating material shall be produced in an ISO 9001 certified facility.
2. Furnish materials of quality required by ASTM standards or other approved standards and specification.
3. Coating products shall be capable of being installed and curing properly within the specified environments. Coating products shall be resistant to all forms of chemical or bacteriological attack found in municipal sanitary sewer systems and capable of adhering to the substrates and repair products.
4. Coating products must have been tested by and passed ASTM G210-13 Severe Wastewater Analysis Testing (SWAT).
5. Repair product(s) shall be fully compatible with coating product(s) including ability to bond effectively to the host substrate and coating product(s) forming a composite system.
6. Contractor shall utilize equipment for the spray application of the coating product(s) which has been approved by the coating product manufacturer; and, Contractor shall have received training on the operation and maintenance of said equipment from the coating product manufacturer.
7. Contractor shall be trained by, or have their training approved and certified by, the coating product manufacturer for the handling, mixing, application and inspection of the coating product(s) to be used as specified herein.
8. Contractor shall be trained in the use of testing or inspection instrumentation and knowledgeable of the proper use, preparation and installation of the coating products to be used as specified herein.
9. Provide guarantee against defective materials and workmanship in accordance with the requirements of these specifications.

Inspection

1. Final liner system shall be completely free of pinholes or voids. Liner thickness shall be the minimum value as described herein (500 mils).
2. Due to the fast gel and set time of the material, thickness of the application can be verified by awl point depth checks into the surfacer component and physical removal of a small area of the polyurea material. Repair of the test areas to be done immediately after the test.
3. High Voltage Holiday Detection may be used to inspect for pinholes or breaches in the liner system installation.
4. Visual inspection shall be made by the Owner/Engineer. Any deficiencies in the finished liner system shall be marked and repaired according to the procedures set forth by Manufacturer.

5. The wet well may be returned to full operational service after the final inspection has taken place.

Warranty. Manufacturer and Applicator warrant the liner system against failure for a period of 10 years. "Failure" will be deemed to have occurred if the protective lining fails to prevent the internal deterioration or corrosion of the structure or prevent groundwater infiltration. If any such failure occurs within 10 years of initial completion of work on a structure, the damage will be repaired at no cost to the Owner. "Failure" does not include damage resulting from mechanical or chemical abuse or act of God. Mechanical or chemical abuse means exposing the lined surfaces of the structure to any mechanical force or chemical substance not customarily present.

Basis of Payment. This item shall be paid at the Contract Unit Price per Lump Sum for STRUCTURAL LINING, of the diameter specified (wet well and valve vault) and shall include all labor and materials to rehabilitate the wet well and valve vault as described in the above provisions.

ITEM #7: MECHANICAL PIPING, VALVES AND QUICK CONNECT

Description. This item shall consist of all supply and installation of all piping and fittings within the existing valve vault, as shown in the Plans. The new force main shall connect to the existing force main, within the valve vault.

Materials and Installation. All piping and fittings within the valve vault shall be AWWA C 115 Class 53 ductile iron flanged pipe, unless otherwise shown in the plans. Fittings shall be AWWA C 110 ductile iron flanged joints. Provide with standard cement linings in conformance with AWWA C104. Pipe and fitting Flanges shall be class 125 B 16.1. All bolts shall be stainless steel.

Provide support system for each non-buried mechanical piping system. Provide anchors, restraints, and concrete blocks as requested to resist hydraulic thrust and forces due to thermal expansion. Piping system, including support and anchorage system, shall allow for thermal expansion and contraction due to differences in operating temperatures and temperatures piping is exposed to during construction. Provide piping system products to allow for and control movement of piping due to thermal expansion and contraction.

No attempt has been made to show pipe supports, hangers, anchors, expansion joints, and other piping products required for piping support, thermal expansion, and anchorage. Absence of these products on Drawings does not relieve Contractor of his responsibility for providing them in accordance with these Specifications. Provide joints, couplings, and expansion joints as shown on Drawings and as required for piping flexibility and vibration isolation. No attempt has been made to show all joints, couplings, expansion joints, and other piping products required for piping flexibility and vibration isolation.

Coat exterior surfaces of non-insulated piping products with coating system number specified in accordance with ASTM D 16.

Use implements, tools, and facilities for handling and protection of piping products to avoid damage prior to installation. Inspect piping products before installation. Patch damaged interior linings and exterior coatings or replace damaged product with new product. Patching

is subject to ENGINEER'S approval. Clean ends of piping product clean until work has been accepted.

Install piping parallel to structure lines unless shown otherwise on drawings. Do not install piping through beams, columns, or other structural members unless shown on drawings. Locate valves in piping system in accordance with manufacturer's instructions.

Install piping without springing or forcing in manner which would cause stress in piping, valves, or connected equipment. Set pipe flanges level, plumb, and aligned. Set flanged fittings so flange is true and perpendicular to pipe axis. Set flanges so bolt holes straddle vertical centerline of pipes. For flanged connections, match bolt holes and obtain uniform contact over entire flange area prior to installation of flange bolts. Tighten bolts to uniformly compress gaskets and minimize flange stress. Tighten bolts to torque recommended by gasket manufacturer. Coat nuts and bolts with anti-seize thread compound. Machine off raised-face of steel flange when mating with flat-faced flange.

Align pipe, equipment, and pumps so stresses are not transmitted to connections. Support piping independently from pumps and equipment. Do not support piping from equipment and pumps. Anchor piping to prevent transmission of hydraulic thrust load to pumps and equipment. Install couplings, adapters, expansion joints, flanges, and unions so pumps, equipment, valves, and in-line instruments can be removed from service without disruption to other portions of piping system. Install couplings, expansion joints and other vibration isolation components to isolate piping from pump and equipment vibration. For welded nozzle connections, allow for shrinkage during welding to prevent excessive stresses on pumps and equipment.

Install insulating flange, insulating coupling or dielectric union at each connection between ferrous and non-ferrous metal piping.

Inspect installed piping products for dents, kinks, abrupt changes or curvature, damage to lining, and other damage. Repair or recondition damaged products as approved by ENGINEER or replace damaged products with new products. Inspect installed, unlined piping products for corrosion and scale on interior surfaces. Clean products to remove corrosion and scale or replace with new products.

After installation and before testing, remove dirt, rocks, debris and other foreign matter from interior of each piping system. Water flush each hydrostatically tested piping system unless specified otherwise. Minimum flushing velocities shall be maintained until accumulated debris has been removed. Insert cone strainers at equipment connections prior to flushing. Remove cone strainers after flushing is complete. Remove accumulated debris through drains not less than two (2) inches in diameter or by temporarily removing pipe spools, fittings, or valves.

If mechanical piping shown on drawings is not listed in schedule, Contractor shall provide piping. Provide type of pipe used in similar services on project. Provide piping suitable for pressure, temperature and other service conditions. Submit type of pipe proposed for review by Engineer.

Basis of Payment. All work associated with the installation of ductile iron piping, valves, force main and fittings including all materials, and labor shall be included under the lump sum pay item MECHANICAL PIPING, VALVES AND QUICK CONNECT.