

REQUEST FOR BIDS

MEMORY ISLE PARK SANITARY SEWER REPLACEMENT



Department of Public Services

1015 S Lincoln Avenue

Three Rivers, MI 49093

(269) 273-1845

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Bidding Information

Performance Bids

The City of Three Rivers is committed to the concept of performance bids. All vendors are encouraged to submit bids which conform to the stated specifications, as well as, suggest deviations from the specifications, which in the vendor's opinion would be beneficial to the City in terms of price and performance. The City reserves the right to accept or reject any bid under these terms.

I. Instructions

- A. Bids must be typewritten or clearly printed in ink and signed by a duly-authorized representative of the firm submitting the quote.
- B. Bids must be submitted in sealed envelopes, clearly marked on the outside, "**Bids for Memory Isle Park Sanitary Sewer Replacement**".
- C. Bids will be received by the Office of the City Clerk, City Hall, 333 West Michigan Avenue, Three Rivers, Michigan, 49093, until **11:00 a.m. local time, Tuesday, March 10, 2015**. All bids will be date stamped and time marked when received.
- D. Faxed or emailed bids shall not be accepted.
- E. If you received this document from our website, please fax your contact information to 269-273-1042 so we can place you on the bidders list for addenda.

II. Conditions Applicable to Bids

- A. Applicable Laws: The Ordinances and Charter of the City and laws of the State of Michigan concerning competitive bidding, contracts and purchases will be employed. The City has a local preference policy, which is available upon request.
- B. Taxes: The City of Three Rivers is generally exempt from Federal Excise and Michigan State Sales Tax. Prices should not include tax.
- C. If the bidder elects to deviate from the specifications stated, all exceptions or other changes must be clearly noted.
- D. The City reserves the right to reject any and all bids, waive informalities or defects in bids, or accept such bids as it shall deem to be in the best interest of the City of Three Rivers.
- E. The City does not discriminate on the basis of race, color, national origin, sex, religion, age or disability in employment or the provision of services.
- F. The Contractor shall provide proof of Liability and Workman's Compensation Insurance and a completed W-9 form with this bid.
- G. The successful bidder shall provide the City with a copy of this liability insurance policy in the amount of \$2,000,000 (Two million Dollars) which names the City of Three Rivers as second insured.
- H. Substantial completion shall be no later than **April 30, 2015**. Final completion of this project shall be no later than **May 15, 2015**.

III. General

References

All materials, equipment and traffic control measures shall conform to the current Michigan Department of Transportation (MDOT) “Standard Specifications for Construction” and MDOT “Manual of Uniform Traffic Control Devices” as well as the latest edition of the “American Society of Testing Materials” (ASTM).

Scope

The project includes the removal of 190’ of 10” clay sanitary sewer and installation of 190’ of 10” SDR 35 PVC sanitary sewer main. Inclusive in the project is the removal and replacement of surface improvements including the 10’ asphalt walking trail, and the asphalt parking lot, including concrete curb and gutter.

The project is expected to include continuous dewatering due to the proximity to the river.

Measurement and Payment

The measurements which shall be used for payment are listed on the included bid form.

An overall aerial photo showing the sanitary sewer line and surface improvements is included in the appendix for reference.

Traffic Control

It is the responsibility of the contractor to maintain adequate vehicle and pedestrian traffic control during the duration of the project.

The contractor shall work closely with the City to coordinate all work in the park and parking lot.

Timeline

City Commission Award	March 17, 2015
Notice to proceed	March 20, 2015
Commence Construction	March 30, 2015
Substantial Completion	April 30, 2015
Final Completion	May 15, 2015

Specifications for Concrete and Asphalt Pavement

PART 1 GENERAL

1.01 SCOPE

- A. This Section includes preparation of the base and subgrade construction of pavements and base courses, adjustment of manhole castings, and valve boxes to conform to new pavement courses, and other work and materials incidental to the construction of pavements.
- B. This Section includes restoration of permanent pavement markings as they exist at the time of bidding unless otherwise specified or directed.

PART 2 PRODUCTS

2.01 AGGREGATE BASE

- A. The aggregate shall meet the requirements of MDOT Table 902-1, 22A.

2.02 ASPHALT EMULSIONS

- A. The bond coat material shall be SS-1h or CSS-1h, and shall meet the requirements of MDOT Table 904-3 and 904-4.
- B. The prime coat material, if required, shall be MS-Op and shall meet the requirements of MDOT Table 903-3.

2.03 BITUMINOUS AGGREGATE BASE AND ASPHALT CONCRETE

- A. Bituminous Material - The asphalt cement shall be PG 58-28 performance grade (Design Temperature) and shall meet the requirements of MDOT Table 904-1.
- B. Design Mix - Refer to MDOT Special Provision 03SP501(H) for Mixture Numbers.
 - 1. The base course shall meet the requirements of MDOT Division 5, Mixture No. 13A and be placed at a thickness of 2".
 - 2. The wearing course shall meet the requirements of MDOT Division 5, Mixture No. 36A and be placed at a thickness of 2".

2.04 CONCRETE (CAST-IN-PLACE)

- A. All concrete used shall be Class "A" as specified below

Class A

28-Day Compressive Strength (psi)	4000
Maximum Water/Cementitious Ratio:	0.45
Minimum Cementitious Content (Lbs/CY)	500
Maximum Cementitious Content (Lbs/CY)	800
Slump (Inches)	2-4

- B. Other materials required for placing concrete shall be as follows:
 - 1. Preformed Elastic Joint Sealer - MDOT Section 914.04C.

2. Preformed Fiber Joint Filler - MDOT Section 914.03.
3. Curing Materials:
 - a. Burlap Cloth - AASHTO M182, Class 2.
 - b. Sheet Materials - ASTM C-171.
 - c. White Membrane Curing Compound - MDOT Section 903.05A.
 - d. Transparent Membrane Curing Compound - MDOT Section 903.05B.

PART 3 EXECUTION

3.01 COORDINATION

- A. Backfill placed under areas receiving concrete slabs, mats, footings, or within the interior of buildings shall be compacted to not less than 100 percent of maximum dry density per ASTM D-698. (Standard Proctor)
- B. Backfill placed around structures where other structures, pipelines, or slabs are to be constructed shall be compacted to not less than 100 percent of maximum dry density per ASTM D-698.
- C. All other backfill, including backfill around and over pipelines, and backfill around structures not covered in Paragraphs A. and B. above, shall be compacted to not less than 95 percent of maximum dry density per ASTM D-698.
- D. The bottom of excavations upon which concrete slabs or structures are to be placed shall be compacted so as to obtain 100 percent maximum dry density per ASTM D-698 in the top 12-inch.
- E. All soil subgrade which will provide bearing support for pavements or curbs, shall be compacted to a width of 6-inch beyond the back of curb and to a depth of 12-inch below the subgrade surface to a density of not less than 100 percent of maximum dry density per ASTM D-698. All fill below the subgrade shall be compacted to not less than 98 percent of maximum dry density.
- F. Subgrade under structures shall be compacted to a depth of 12-inch below subgrade surface to a density of not less than 100 percent of the maximum dry density determined by ASTM D-698.

3.02 PAVEMENT INSTALLATION

- A. All construction shall be in conformance with applicable portions of MDOT Specifications, except as otherwise specified or called for herein.
- B. Unless otherwise directed by the City all aggregate bases which are to receive bituminous courses shall be primed at a minimum rate of 0.30 gallons per square yard.
- C. A bond or coat at a rate of 0.05 to 0.15 gallon per square yard shall be applied to all existing pavements which are to be overlaid, and between subsequent courses when directed by the City.

3.03 MILLED ASPHALT BASE

- A. Where applicable, existing asphalt concrete pavement shall be milled or pulverized, then spread, graded, and compacted as the base for a new paved surface. All such work shall be performed in accordance with MDOT Item 305-HMA Base Crushing and Shaping.

3.04 INSPECTION

- A. Laboratory services shall be as detailed below:
1. A compaction test shall be performed for every 300 square yards of material placed.
 2. The laboratory shall provide a satisfactory certificate furnished by the manufacturer stating that the bituminous materials conform to MDOT Specification, Table 904-1, 904-3, or 904-4 as required.
 3. Asphalt Concrete:
 - a. Plant Certification - The laboratory shall certify or furnish recent certification (within one year) from MDOT that the plant meets State requirements.
 - b. Plant Inspection - For the first day of production and for every day when more than 100 cubic yard of material is being delivered to the project, the laboratory shall provide a representative at the plant who will inspect the plant, make mix design adjustments, check the temperature, and take the required samples.
 - c. Quality Control Testing - A sample of the mix shall be taken for each 200 cubic yard of bituminous material or fraction thereof delivered to the project. An extraction test AASHTO T164-70 and a mechanical analysis AASHTO T30-70 shall be performed on the mix samples.
 - d. Bituminous Material - Provide a satisfactory certificate furnished by the manufacturer stating that the materials conform to MDOT Specifications, Table 904-1, 904-2, or 904-3 as required.
 - e. Aggregate - A sieve analysis (ASTM C-136) shall be performed on each aggregate to be used in the plant mix design.
 - f. Mix Designs - The laboratory shall design the plant mixes in accordance with the Marshall Method of Mix Design (ASTM D-1559) and shall make all mix design adjustments.
 4. Cast-in-Place Concrete:
 - a. Concrete shall be tested as listed below in the section titled "testing".

3.05 TESTING

- A. Concrete materials and operations shall be tested as the work progresses.
- B. Duties of testing laboratory shall be as follows:
 - 1. Review, check, and test proposed materials for compliance with Specifications before the start of the work.
 - 2. Secure production samples at the plant or stockpiles during the course of work at least once a month, and test for compliance with the specifications.
 - 3. Review and test proposed mixture design when required by Engineer.
 - 4. Randomly sample concrete during construction in accordance with ASTM C172 and perform scheduled tests.
 - 5. Measure and report surface profile of slabs in accordance with ASTM E1155. Surface profile shall be determined for first trowel finish slab and first float finish slab on project and other slabs specified.
- C. Test Schedule:
 - 1. Strength:
 - a. One strength test shall be made for each 50 cubic yards, or fraction thereof, of each class of concrete placed on any one day. Frequency of testing shall not provide less than 5 strength tests for each class of concrete.
 - b. Concrete strength test shall consist of three specimens from each sample molded and cured in accordance with the section of ASTM C31, "Curing Specimens for Checking the Adequacy of Mixture Proportions for Strength or as the Basis for Acceptance or Quality Control".
 - c. Specimens shall be tested in accordance with ASTM C39. Two specimens shall be tested at 28 days for acceptance and one shall be tested at 7 days for information. Strength test result shall be average of strengths of 28 day specimens. If one specimen shows evidence of improper molding, handling, or testing, it shall be discarded and remaining specimen shall be considered as strength test result. Should both specimens in a test show any of the above defects, the entire test shall be discarded.
 - 2. Cold Weather Concreting and Form Removal:
 - a. When cold weather concreting procedures apply or when form removal provisions of Section 03100 apply, field cured specimens shall be made to determine when protection procedures may be terminated or when forms may be removed. These field cured specimens shall be in addition to strength tests and shall be made at same time as strength specimens.
 - b. Specimens shall be molded and cured in accordance with the section of ASTM C31, "Curing for Determining Form Removal Time or When a Structure May be Put into Service". Contractor shall determine number of specimens required, but number of specimens shall not be less than three.
 - c. Specimens shall be tested in accordance with ASTM C39. Age-at-test of specimens shall be selected by Contractor.

3. Slump shall be measured for first batch of each concrete class delivered in morning and afternoon, for each strength test, and whenever consistency of concrete appears to vary. Slump shall be measured in accordance with ASTM C143. In the event that a batch fails to comply with specified requirements, the slump shall be measured on each successive batch until three batches meet the specified requirements.
4. Air content shall be determined for first batch of each concrete class delivered in morning and afternoon, for each strength test, and as required by field representative. Air content shall be measured in accordance with ASTM C231, ASTM C173, or ASTM C138. When concrete is placed by pumping, air content and slump shall be measured before pump and also at pump discharge. In the event that a batch fails to comply with specified requirements, the air content shall be measured on each successive batch until three batches meet the specified requirements.
5. Temperature of concrete sample shall be measured for each strength test.
6. If the measured slump or air content falls outside the specified limits, make additional tests immediately. Test all succeeding trucks for both slump and air until three in succession pass the slump and air tests.

3.06 PROTECTION

- A. No heavy construction vehicle shall operate on any pavement after it has been installed.
- B. Traffic shall be prohibited on newly installed pavement until it has cooled sufficiently to avoid marking.
- C. Asphalt Pavements:
 1. Bituminous mixtures shall be transported and placed in accordance with MDOT Section 502.03.

Specifications for Pollution Control

PART 1 GENERAL

1.1 SCOPE

- A. This Section includes the requirements for pollution control.

PART 2 PRODUCTS

2.1 GENERAL

- A. Dust palliatives shall conform to MDOT Item 922.08.

PART 3 EXECUTION

3.1 MICHIGAN GENERAL REQUIREMENTS

- A. The Contractor is responsible for following an erosion control plan in accordance with permits required under Act 451, Part 91, as amended (Soil Erosion and Sedimentation Control), Part 303 (Wetland Protection, formerly Act 203), Part 301 (Inland Lakes and Streams, formerly Act 346), Part 31, (Water Resources Protection, Floodplain Regulatory Authority, formerly Act 245 as amended by Act 167), and Part 31 (Water Resources Protection), National Pollutant Discharge Elimination System (NPDES). Secure Federal Section 404, Clean Water Act of 1972, permits, if required. Provide temporary and permanent erosion and sedimentation controls according to the permits.
- B. It shall be the responsibility of the Contractor to prevent or limit pollution of air and water resulting from his operations.
- C. The Contractor shall perform work required to prevent soil from eroding or otherwise entering onto all paved areas and into natural watercourses, ditches, and public sewer systems, and to prevent dust attributable to his operations from entering the atmosphere.
- D. Water containing suspended material from any part of the Contractor's operations shall be clarified before discharging to drains or streams.
- E. No fill, topsoil, or heavy equipment shall be stored within 200-feet of a stream bank or within the dripline of a treed area.
- F. Excess soil that is stockpiled shall be removed or regraded within 15 days of the completion of construction.

3.2 STREETS, SIDEWALKS, AND DRIVEWAYS

- A. Streets, haul roads, and detours and bypass roads shall be swept by automatic self-contained sweepers.
- B. Excessive dirt on pavements shall be removed by means of hand shoveling or appropriate mechanical equipment and the area swept as directed above.
- C. Sidewalks and driveways shall be cleaned by means of shovels and hand brooms or appropriate mechanical equipment.
- D. Dust on unsurfaced streets or parking areas and any remaining dust on surfaced streets shall be controlled with calcium chloride dust palliative.

- E. The Contractor shall comply with the above requirements on a daily basis. If the Contractor fails to perform the above work in a satisfactory manner, all work, except cleanup operations, shall be stopped until the Contractor has complied with the above requirement.

3.3 EROSION AND SEDIMENT CONTROL

- A. The Contractor shall initiate appropriate vegetative practices on all disturbed areas to remain dormant (undisturbed) for more than 45 days within seven days.
 - 1. Such practices may include: temporary seeding, permanent seeding, mulching, matting sod stabilization, vegetative buffer strips, phasing and protection of trees.
- B. Permanent or temporary soil stabilization shall be applied to disturbed areas within seven (7) days after final grade is reached on any portion of the site.
- C. When seasonal conditions prohibit the application of temporary or permanent seeding, non-vegetative soil stabilization practices, such as mulching and matting, shall be used.
- D. A stabilization construction entrance shall be provided to reduce vehicle tracking of sediment. The paved street adjacent to the site entrance shall be swept a minimum of daily, or as needed, to remove any excess mud, dirt, or rock being tracked from the site.
 - 1. Dust and sediment along any street due to construction on this site is to be swept a minimum of once at the end of the day or as necessary to prevent a build-up of dust and soil on the pavement surface.
- E. Dump trucks hauling from the construction site shall be covered with a tarpaulin.
- F. No more than 200-feet of trench shall be open at any given time. Trench opening, laying of pipe, and backfilling should occur so as to minimize the amount of disturbed area.
- G. The Contractor shall minimize the width of his work area.
- H. Existing trees, shrubs, and other ground cover vegetation shall be preserved where possible. Tree removal will be limited to that necessary for construction and will be limited further to the permanent easement wherever possible. No tree removal will be permitted outside the temporary easement.
- I. Storm water runoff and natural stream flow shall be intercepted or diverted when originating upgrate away from the construction site so as to minimize the amount of flow over the construction site.
- J. All dewatering flows are to be settled in siltation basins or directed through filters before discharge to stabilized sites, such as stream or storm sewers, and not onto exposed soils, stream banks, or any other sites where the flow could cause erosion.
- K. When construction occurs near storm sewer inlets, erosion control measures such as inlet filters or hay bales shall be used to prevent silt from entering the storm sewers.
- L. The clean-up and disposal of excess excavated material shall be done as soon as practical after laying of the pipe. However, clean-up work shall not fall behind the pipe laying more than 500-feet. Should the Contractor not keep his clean-up within the

aforementioned distance, work shall stop until the clean-up work is accomplished.

3.4 SEDIMENT CONTROL

- A. Contractor shall control erosion and trap sediment from all sites remaining disturbed for more than 14 days. Such practices shall include among others, sediment traps, sediment basins, silt fences, and storm drain inlet protection. Silt Fence Fabric shall be in accordance with MDOT Item 910.04 Silt Fence Geotextile.
- B. Timing - Sediment control structures shall be functional throughout earth-disturbing activity. Sediment ponds and perimeter sediment barriers shall be implemented as the first step of grading and within seven days from the start of grubbing. They shall continue to function until the upslope development area is restabilized.
- C. Sediment Barriers - Sheet flow from runoff from denuded area shall be intercepted by sediment barriers. Sediment barriers, such as sediment fences or diversions directing runoff to settling facilities, shall protect adjacent properties and water resources from sediment transported by sheet flow.
- D. Other erosion and sediment control practices shall prevent sediment-laden water from entering drain systems. Unless the storm drain system drains to a settling pond. These practices shall divert runoff from distributed areas and steep slopes where practicable and stabilize channels and outfalls from erosive flows.

Specifications for Excavation and Backfill

PART 1 GENERAL

1.1 SCOPE

- A. This Section includes all excavations and related work for the construction of the designated structures, pipelines, and other incidental work.
- B. Excavation includes the work of making all necessary excavations for the construction of all Contract Work; of furnishing, placing, and use of sheeting, shoring, and sheet piling necessary in excavating for and protecting the work and workers; of doing all pumping and fluming necessary to keep the excavation free from water; of providing for uninterrupted flow of existing streams, treatment plant processes, drains and sewers; of damming and cofferdamming where necessary; of supporting and protecting all structures, pipes, conduits, culverts, railroad tracks, posts, poles, wires, fences, buildings, and other public and private property adjacent to the work; of removing and replacing existing sewers, culverts, pipelines, and bulkheads where necessary; of removing after completion of the work all sheeting and shoring not necessary to support the sides of excavations; of removing and disposing of all surplus excavated material or material under structures that does not meet the soil design bearing capacities; of doing all backfilling, of compacting backfill to limits specified or ordered by the Owner; and restoring all property damaged as a result of the work involved in this Contract.
- C. The Work includes obtaining and transporting suitable fill material from off-site when on-site material is not available.
- D. The Work includes transporting surplus excavated material not needed for backfill at the location where the excavation is made, to other parts of the work where filling is required, or disposal of all surplus on other sites selected by the Owner.

PART 2 PRODUCTS

2.1 TOPSOIL

- A. Topsoil obtained from off-site shall consist of loose, friable, loamy topsoil without admixture of subsoil or refuse. It shall be reasonably free from peat, muck, roots, hard clay, coarse gravel, stones, weeds, tall grass, brush, sticks, or other litter. Each load of topsoil shall be subject to the approval of the Owner.
- B. The fraction of topsoil, passing a No. 10 sieve, shall contain not more than 40 percent clay. Topsoil shall contain not less than 5 percent nor more than 20 percent organic matter as determined by loss on ignition of oven-dried samples to constant weight at 212 degrees F.

2.2 SELECTED BACKFILL

- A. Selected backfill shall be excavated material approved by the Owner for use as backfill in designated locations.

2.3 SPECIAL BACKFILL MATERIAL

- A. MDOT 902.08 and shall meet the grading requirements Table 902-3, Class II.

2.4 GRANULAR PIPE BEDDING MATERIAL

- A. Granular pipe bedding material shall be well-graded durable crushed gravel, crushed stone, or crushed slag meeting the grading requirements of MDOT Table 902-1, Class 17A or an equivalent material as approved by the Owner. Bedding material containing a greater percentage of larger sized aggregate shall be furnished if ordered by the Owner.

PART 3 EXECUTION

3.1 COORDINATION

A. Construction Through Highways:

1. Permits - The Owner will obtain permits required for open cut construction through highways.
2. Notification - The Contractor shall give written notice to appropriate officials of the affected Department of Transportation, City, or County at least five days, not including weekends and holidays, before starting construction under highways and as required under other roadways.

B. Test Pits:

1. The Contractor shall dig such exploratory test pits as may be necessary in advance of excavation to determine the exact location and elevation of subsurface structures, pipelines, and conduits which are likely to be encountered and shall make acceptable provision for their protection, support, and maintenance in operation.

3.2 REMOVING AND REPLACING TOPSOIL

- A. The Contractor shall remove, stockpile, and replace a minimum of 12-inch of the existing topsoil from all areas of construction including, but not limited to, excavation and embankment areas, stockpile sites, construction yard, storage areas, etc.
- B. The work shall be in accordance with applicable portions of MDOT Sections 205.03A.1 and 816.03A.
- C. Should an insufficient amount of material be obtained, additional material shall be furnished in accordance with C-02200, 2.01 A.

3.3 TRENCHING

- A. Excavation for trenches in which pipelines and sewers are to be installed shall provide adequate space for workers to place and joint the pipe properly, but the trench shall be kept to a minimum width. The width of trench at the top of the pipe shall not exceed the limits specified or shown on the Drawings.
- B. Excavation shall be to the depth necessary for placing granular bedding material under the pipe as shown on the Drawings. If over excavation occurs, the trench bottom shall be filled to grade with compacted granular bedding material.
- C. The amount of trench open at any one time in advance of completed work shall be limited to the minimum necessary for conducting pipe laying operations.
- D. In general, backfilling shall begin as soon as the conduit is in approved condition to receive it and shall be carried to completion as rapidly as possible. New trenching shall not be started when earlier trenches need backfilling or the surfaces of streets or other areas need to be restored to a safe and proper condition.
- E. Sheeting, Shoring, and Bracing:
 1. The Contractor shall furnish and install adequate sheeting, shoring, and bracing to maintain safe working conditions, and to protect newly built work and all adjacent and neighboring structures from damage by settlement.
 2. Bracing shall be arranged so as not to place a strain on portions of completed work until the construction has proceeded far enough to provide ample strength. Sheeting and bracing may be withdrawn and removed at the time of backfilling, but the Contractor shall be responsible for all damage to newly built work and adjacent and neighboring structures.
- F. Bracing shall be removed or cut-off at the time of backfilling to avoid problems with finish grade or

future excavation.

3.4 Removal of Water:

- A. The Contractor shall at all times during construction provide and maintain ample means and devices with which to remove promptly and dispose of properly all water entering the excavations or other parts of the work and shall keep said excavations dry until the structures to be built or pipelines to be placed therein are completed. No water shall be allowed to rise over or come in contact with masonry until the concrete and mortar has attained a satisfactory set. In waterbearing sand, well points and/or sheeting shall be supplied, together with pumps and other appurtenances of ample capacity to keep the excavation free of water and in compliance with government regulations.
- B. The Contractor shall dispose of water from the Work in a suitable manner without damage to adjacent property or structures and in compliance with all regulations.

3.5 GENERAL EXCAVATION

- A. All necessary excavation shall be performed to accommodate the completion of all Contract Work.
- B. The Drawings show the horizontal and the lower limits of structures. The methods and equipment used by the Contractor when approaching the bottom limits of excavation and when trimming the bottom of the excavation to a smooth surface shall be selected to prevent disturbing the soil below the bottom limits of excavation.
- C. Excavation which is carried below the bottom limits of structures shall be classified as Unauthorized Excavation, unless said excavation has been authorized by the Engineer prior to each occurrence.
- D. Unauthorized Excavation shall be filled with Class B concrete to the bottom limits of structures. Under circumstances where structural integrity is not a factor, the Owner may allow the filling of Unauthorized Excavation with pipe bedding material or special backfill material compacted to 100 percent density, as specified under compaction requirements.

3.6 EXCAVATION OF UNSUITABLE MATERIAL

- A. Unsuitable materials existing below the Contract bottom limits for excavation shall be removed as required by the Owner. Such excavation shall be conducted at a time when the Owner is present and shall not exceed the vertical and lateral limits prescribed by the Owner.
- B. The voids left by removal of unsuitable material shall be filled with special backfill, pipe bedding material, or Class B concrete as ordered by the Owner. Special backfill or pipe bedding shall be compacted to 100 percent density as specified under compaction requirements.

3.7 DISPOSAL OF UNSUITABLE AND SURPLUS MATERIAL

- A. All excavated materials which are unsuitable for use in backfilling trenches or around structures, and materials excavated that are in excess of that required for backfilling and for constructing fills and embankments as shown on the Drawings, shall be disposed of by the Contractor at his expense and at sites provided by him as may be required, except that the Owner reserves the right to require the Contractor to deposit such surplus at locations designated by the Owner within a two-mile radius of the Work.
- B. No surplus excavated material of any class shall be deposited in any stream or watercourse or be dumped on public property without the consent of the Owner. All spoil areas shall be left smooth, level, with drainage to a watercourse.

3.8 BACKFILL AND COMPACTION

- A. Conduit Bedding - Unless otherwise directed, conduits shall be installed in specified granular bedding material as shown on the Drawings and as specified.

- B. Backfilling Under Existing Conduits - Where it is necessary to undercut or replace existing utility conduits and/or service lines, the excavation beneath such lines shall be backfilled the entire length with granular bedding material tamped in place in 6-inch layers to the required density. The granular bedding shall extend outward from the spring line of the conduit a distance of 2-feet on either side, and thence downward at its natural slope.
- C. Backfilling With Excavated Material - Unless otherwise specified or directed, material excavated in connection with the work shall be used for backfilling and other filling purposes, if it meets all requirements given elsewhere in this specification. No material shall be used for backfilling that contains stones, rock, or pieces of masonry greater than 12-inch, frozen earth, debris, earth with an exceptionally high void content, organic material, or marl. No large pieces of rock or masonry shall be deposited closer than 24- inch from the completed outside surface of any structure or pipe.
- D. Backfill Immediately - All trenches and excavations shall be backfilled immediately after pipe is laid therein, unless otherwise directed by the Owner. Under no circumstances shall water be permitted to rise in unbackfilled trenches after pipe has been placed.
- E. Backfilling around and over structures and pipes shall be carefully done by hand and tamped with suitable tools of approved weight to a point 1-foot above the top of same. Selected material or, where specified or ordered by the Owner, special backfill material shall be used in this area. The material shall be placed in uniform layers not exceeding 6- inch in depth up each side. Each layer shall be placed, then carefully and uniformly tamped to the specified density so as to eliminate the possibility of lateral displacement of pipe or structure.
- F. Backfilling by Machinery - After the backfill has been placed and compacted around the structures and conduits to a height of 1-foot above the top. The remainder of the trench may be backfilled by machine. The backfill material shall be deposited in horizontal layers and each layer shall be thoroughly compacted to the specified density by approved methods before a succeeding layer is placed. In no case will backfill material from a bucket be allowed to fall directly on a structure or pipe and in all cases the bucket must be lowered so that the shock of the falling material will not cause damage.
- G. Backfilling Under Pavement and Walks - Where any pavement, driveway, parking lot, curb and gutter, or walk covers the trench, special backfill material shall be used to backfill the entire trench from the bedding to surface. The material shall be placed and compacted to the required density in accordance with one of the following methods:
 - 1. The backfill material shall be deposited in 6-inch horizontal layers and each layer shall be thoroughly compacted to the proper density by approved compaction equipment before a succeeding layer is placed.
 - 2. If approved by the Owner, the backfill may be compacted with water if satisfactory drainage is provided, if the backfill material consists of granular material, if the temperature of the air is above freezing and the results of such compaction method provides the specified density. If this method is permitted by the Owner, the backfill may be flooded, sluiced, or jetted into place with water, or deposited in water as the work progresses.
 - a. If flooded, the material shall be deposited in layers not exceeding 2-feet in thickness.
 - b. If sluiced, the material shall be deposited by means of water under pressure equal to that of the public water mains and shall be completely saturated throughout the mass.
 - c. Where sluicing methods are used, compaction tests will be made at various depths after completion of the sluicing operation. Compaction will continue until specified density is obtained.

3. No method of compaction which alters the gradation of the special backfill material or prevents compaction testing by standard testing methods shall be used.

3.9 COMPACTION REQUIREMENTS

- A. In areas to be filled, the top 12-inch of stripped original subgrade shall be compacted to not less than 100 percent of maximum dry density per ASTM D-698 prior to placing of fill.
- B. Backfill placed under areas receiving concrete slabs, mats, footings, or within the interior of buildings shall be compacted to not less than 100 percent of maximum dry density per ASTM D-698. (Standard Proctor)
- C. Backfill placed around structures where other structures, pipelines, or slabs are to be constructed shall be compacted to not less than 100 percent of maximum dry density per ASTM D-698.
- D. The material used to construct embankments and fills in locations other than under pavements, walks, structures, or slabs and around and over pipelines, shall be compacted to not less than 95 percent of maximum dry density per ASTM D-698.
- E. All other backfill, including backfill around and over pipelines, and backfill around structures not covered in Paragraphs B. and C. above, shall be compacted to not less than 95 percent of maximum dry density per ASTM D-698.
- F. The bottom of excavations upon which concrete slabs or structures are to be placed shall be compacted so as to obtain 100 percent maximum dry density per ASTM D-698 in the top 12-inch.
- G. All soil subgrade which will provide bearing support for pavements or curbs, shall be compacted to a width of 6-inch beyond the back of curb and to a depth of 12-inch below the subgrade surface to a density of not less than 100 percent of maximum dry density per ASTM D-698. All fill below the subgrade shall be compacted to not less than 98 percent of maximum dry density.
- H. Subgrade under the driveways and walks shall be compacted to a depth of 6-inch below the subgrade surface to density of not less than 100 percent of the maximum dry density determined by ASTM D-698.
- I. Subgrade under structures shall be compacted to a depth of 12-inch below subgrade surface to a density of not less than 100 percent of the maximum dry density determined by ASTM D-698.

3.10 COMPACTION TESTS

- A. Trenches and excavation around structures shall be backfilled and consolidated in layers, as specified, to the existing ground surface. Compaction tests shall be performed on each layer immediately after compaction.
- B. Initial test series for each type of backfill material shall be continued until the method of consolidation employed has proven to attain the required compaction. Any change in the proven method of consolidations will require additional testing and field verification of compaction.
- C. Subgrade below pavements, curbs, sidewalks, and structures shall be consolidated as specified. Compaction tests shall be performed to verify specified consolidation.
- D. Subsequent tests or series of tests shall be in locations and at depths ordered by the Owner.

PART 4 SPECIAL PROVISIONS

4.1 FIELD TESTING (MINIMUM REQUIREMENTS)

- A. The laboratory shall perform the following field tests:
 1. Trench Backfill - One test for every 200 cubic yards of backfill material.
 2. Subgrade Compaction - One test for every 300 square yards of subgrade.

3. If directed by the Owner, additional tests shall be performed for any of the above.

4.2 AGGREGATE MATERIAL REUSE

- A. The native material excavated during the installation of the new water main may be reused as base, pipe, bedding, etc. at the discretion of the Owner.
- B. It is anticipated that at least a portion of the existing base material and the pavement milling may be reusable for road base material.
- C. The Contractor is to store all materials for reuse in the construction of the project in the City's Department of Public Services yard, located at 1015 South Lincoln Avenue.
- D. The City will provide as much room as is feasible at their yard for the Contractor to store, mix, or otherwise deal with any recycled or native (existing) materials. Should the space available be deemed inadequate for the Contractor's operations additional space will not be provided by the City and the Contractor will be responsible for finding adequate space elsewhere.
- E. The Owner will allow for the mixing of base, road millings, etc. to meet the required gradation.
- F. All products meeting the required gradation specifications will be permitted for use on the project(s) at the discretion of the Owner.
- G. The Contractor must prove that any recycled or native (existing) material to be reused meets the specifications by the appropriate testing to be completed by a third party testing agency as specified under Section 01410.

Specification for Storm and Sanitary Sewers

PART 1 GENERAL

1.1 SCOPE

- A. This Section includes furnishing and installing sanitary and storm sewer systems.
- B. Reconstruction of existing sewers, house connections, and catch basin leads shall be in conformance with requirements of this Section.
- C. This Section shall include furnishing and installing all required pipe, bends or beveled pipe, tees, wyes, tee manhole base pipes, bulkheads and stoppers, jointing material, granular material for pipe bedding, concrete used for encasement or bedding, making watertight connections to existing and new sewers and existing manholes, catch basins and inlets, cleaning and testing sewers, removing temporary bulkheads, and other work incidental to the sewer installation unless specifically included under other Items.

PART 2 PRODUCTS

2.1 SOLID WALLED PIPES

- A. Polyvinyl Chloride (PVC) Sewer Pipe Specifications:
 - 1. For pipe 15-inch diameter and smaller: Pipe, fittings, and jointing systems shall conform to ASTM D-3034, except that the standard dimension ratio of the outside diameter of the pipe to wall thickness shall not exceed 35.
 - 2. For pipe 18-inch thru 24-inch diameter: Pipe, fittings, and jointing systems shall conform to ASTM F-679 with a T-1 wall thickness.
 - 3. Joint systems shall be elastomeric seal (gasket) type. Seals shall conform to ASTM F-477 requirements. Joint materials and testing shall conform to ASTM D-3212 requirements.
 - 4. All service connections shall be made using a wye and a bend. Tees shall be used only as directed by the Owner. Tees and wyes shall be die cast or factory fabricated. All service pipe shall be SDR 35.

2.2 ACCESSORIES

- A. Nonshrinking Mortar Material:
 - 1. Material for nonshrinking mortar used in pointing joints shall be Sauereisen F-100 Grout as manufactured by Sauereisen Cements Co., Pittsburgh, Pennsylvania; Five-Star Grout as manufactured by U.S. Grout Corp., Old Greenwich, Connecticut; or equal.
- B. Flexible Pipe Repair Couplings:
 - 1. Flexible repair couplings shall be made of elastomeric polyvinyl chloride boot with series 300 stainless steel shield and clamps. Couplings shall be Strong Back RC series as manufactured by Fernco Joint Sealer Co., Ferndale, Michigan; Logan Clay Pipe Co., Logan, Ohio; Mission Clay Products Corp., or equal.
- C. Flexible Watertight Joints:
 - 1. Flexible watertight joints used in connecting to existing sewers shall be a "boot" type sealed to the pipe wall with an internal expanding band and around the connecting pipe with an external adjustable band. Other types of applicable flexible joints may be submitted for approval.
- D. Granular Pipe Bedding Material:

1. Granular pipe bedding material shall be as specified in Section 02200.

2.3 REPLACEMENT DRAINS, SEWERS, AND APPURTENANCES

A. Vitrified clay pipe sanitary sewers removed shall be replaced using pipe and joints as specified in this section. Connections to existing sewers shall be as specified in this section.

2.4 SOURCE QUALITY CONTROL

A. Pipe Manufacturer's Certification:

1. The pipe manufacturer's certificate shall state that the materials have been sampled and tested in accordance with the provision for and meet the requirements of the designated specification and shall be signed by an authorized agent of the seller or the manufacturer.

2. A test results report shall accompany that manufacturer's certificate. The report shall compare test results to Specification requirements. Test specimens shall be selected in conformance with the designated specification, except that no less than two tests shall be made for each production run of each size, type, and class of pipe furnished, and further, that in case tests are unsatisfactory, additional tests shall be made to the maximum number in the referenced ASTM Specification.

PART 3 EXECUTION

3.1 RESERVED

3.2 PREPARATION OF TRENCH

A. Trench excavation shall conform to requirements of Section 02200, Trenching.

3.3 EXISTING CONNECTION POINTS

A. The Contractor shall verify critical elevation points of the existing utilities prior to commencing installation of work. Critical points shall include all points where new work connects to existing utilities and existing utilities that could be conflicts with work. All data shall be provided to the Owner before commencing work.

3.4 PIPE IN OPEN CUT

A. The Contractor shall utilize a laser beam for establishing line and grade when installing pipeline in open-cut construction. In order to maintain control during pipeline installation and to obtain the required field data for the record documents (G.C. 6.19) the Contractor shall establish construction and layout stakes. These stakes shall be based on the contract documents and the survey control data as provided by the Owner.

B. The construction staking shall be placed along the pipeline route at 50-foot intervals or less, and at location of new manholes, valves, deflections both vertical and horizontal and as specified, shown on the Drawings or as directed. All construction layout stakes shall be offset at a minimum of 10-foot and at a right angle to the pipe line route. Layout shall be referenced to the downstream manhole or valve, in addition it may reference survey of baseline stationing.

C. Contractor shall provide to the Owner, no later than five working days prior to the installation of the pipeline, all information of the completed construction layout staking. This information shall include but not be limited to stationing, elevations, control points, project coordinates, offset direction and distance for all deflections both horizontal and vertical, manholes and all other points as specified, shown on the Drawings and directed by the Owner.

D. The grade of pipe in open-cut, whether placed by laser beam or other approved methods, shall be checked using surveying equipment. The Contractor shall have a surveyor's level and level rod on the site at all times when pipeline and appurtenances are being installed. The level rod shall be equipped with an attached "shoe" extension on the bottom for placing on the pipe invert. The

pipe invert elevation shall be checked at a maximum of 50-foot intervals or more often as directed by the Owner. Checks will be performed by the Contractor and results, including but not limited to layout station shall be recorded in contractor's field log.

- E. The Contractor shall furnish all equipment and labor and check his alignment from the offset stakes at a maximum of 50-foot intervals. Contractor shall record all information in the log.
- F. Any inspection or checking of the Contractor's layout by the Owner shall not relieve the Contractor of his responsibility to secure the proper dimensions, grades, and elevations of the work.
- G. Unless otherwise indicated minimum trench widths for flexible pipes shall meet the requirements of ASTM D-2321.
- H. Unless otherwise indicated all sewer trenches shall be excavated below the proposed pipe invert as required to accommodate the depths of pipe bedding material.

3.5 FLEXIBLE PIPE INSTALLATION

- A. Flexible pipe shall be installed in accordance with ASTM D-2321. Bedding, backfill, and compaction shall meet the requirements of this Section and Section 02200.
- B. Concrete bedding and encasement in lieu of bedding material shall be installed as shown on the Drawings or specified.
- C. The laying of pipe in finished trenches shall be commenced at the lowest point, with the bell end or groove end laid up grade. All pipe shall be laid with ends abutting and true to line and grade. They shall be carefully centered to form a sewer with a uniform invert of line and grade shown on the Drawings.
- D. All pipe shall be laid to lines and grades and checked in conformance with the sections above. Pipes installed more than 0.04-feet above or below specified elevation shall be removed and reinstalled to grade.

3.6 PIPE JOINTS

- A. O-Ring and Chemically Welded Joints - Pipe jointing surfaces shall be clean and dry when preparing surfaces for joining. Lubricants, primers, adhesives, etc., shall be used as recommended by the pipe or joint manufacturer's specifications. The jointing materials or factory fabricated joints shall then be placed, fitted, joined, and adjusted in such a manner as to obtain a watertight joint. Trenches shall be kept water-free and as dry as possible during bedding, laying, and jointing. As soon as possible after the joint is made, sufficient backfill material shall be placed along each side of the pipe to prevent movement of the pipe from any cause.
- B. Flexible Plastic Gasket Joints - Materials used for gaskets shall be as specified in this Section. Cross section size of gaskets and method of installation shall conform to the manufacturer's recommendations.

3.7 CONNECTIONS TO EXISTING SEWERS

- A. Unless indicated otherwise connections to existing sewers shall be made as follows:
 - 1. Vitrified clay pipe, plain concrete pipe, and asbestos cement pipe, 15-inch diameter and smaller, and larger diameter at the option of the Contractor, shall be connected by removing a section of the existing sewer and inserting connecting fittings using specified flexible repair couplings.
- B. Connections shall be made in conformance with the jointing materials manufacturer's recommendations.

3.8 FIELD QUALITY CONTROL

A. The Owner may select one sample of pipe on the job site of each production run of each size and type of pipe to be tested by the Contractor's laboratory. The Contractor shall furnish the first test piece or pipe core and any additional samples required because of failures. The Contractor shall pay for tests on the first sample. Should the sample fail to meet specifications, retests shall be conducted by the Contractor's laboratory in conformance with the specifications and shall be at no additional expense to Owner.

1.

B. Field Inspection:

1. Individual sections of pipe may be rejected at any time because of defective joints, dimension variations, fractures, cracks, chips, or blisters exceeding the permissible tolerances.

2. Rejected pipe shall be so marked with a lumber crayon or paint and shall be removed from the job site before the end of the following work day.

Bid Form

The undersigned having familiarized (himself/themselves) with the local conditions affecting the cost of the work and the Contract Documents hereby proposes to perform everything required to be performed and to provide and furnish all labor, materials, necessary tools, equipment, utility and transportation services necessary to perform and complete in a workmanlike manner all work required for paving in accordance with the specifications as prepared by the Department of Public Services, City of Three Rivers, Michigan, for, including Addenda No. _____ issued thereto, the following unit prices:

COMPANY _____

ADDRESS _____

CITY _____ STATE _____ ZIP CODE _____

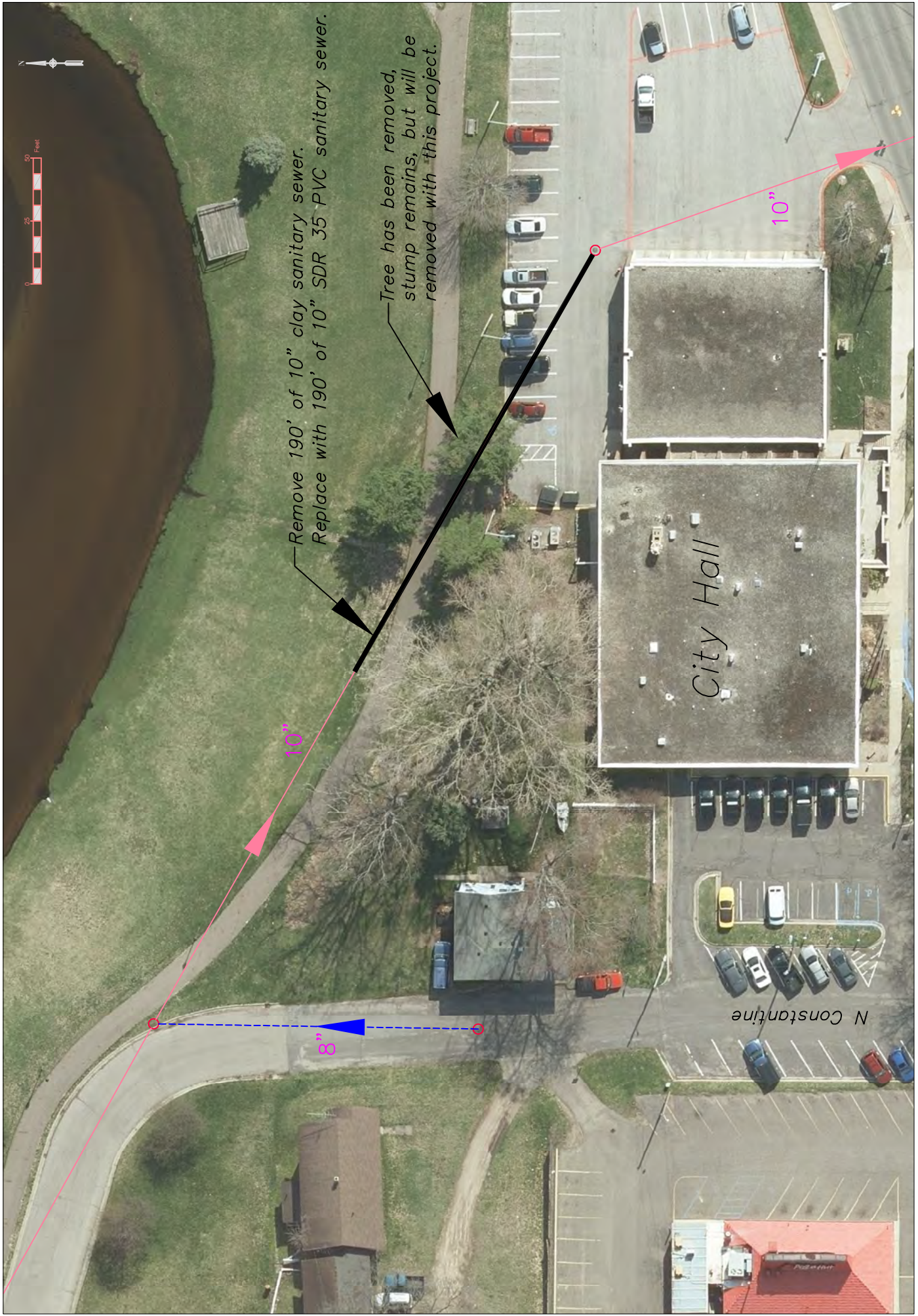
SIGNATURE _____ TITLE _____

TELEPHONE _____ DATE _____

Memory Isle Park Sanitary Sewer Bid

Item No.	Item Description	Quantity	Unit	Unit Price	Total Price
1	Mobilization	1	LS		
2	Traffic Control	1	LS		
3	Erosion Control	1	LS		
4	Dewatering	1	LS		
5	Curb removal and replacement	35	LF		
6	Parking lot removal and replacement	1230	SF		
7	Trail removal and replacement	400	SF		
8	10" Sewer main removal and replacement	190	LF		
9	Topsoil	1180	SF		
10	Seed and Mulch	1180	SF		
Bid Total					

Project Drawing



Remove 190' of 10" clay sanitary sewer.
 Replace with 190' of 10" SDR 35 PVC sanitary sewer.

Tree has been removed,
 stump remains, but will be
 removed with this project.

City Hall

N Constantine

10"

8"

10"



CITY OF THREE RIVERS, MICHIGAN
 MEMORY ISLE PARK
 SANITARY SEWER REPLACEMENT

Department of Public Services
 200-273-1845 • www.threeriversmi.org
 File #: 2019-273-1042

NO.	DATE	DESCRIPTION	BY	FOR
1		ISSUED FOR BIDDING		
2		ISSUED FOR BIDDING		
3		ISSUED FOR BIDDING		
4		ISSUED FOR BIDDING		

DATE PLOTTED: 03-20-19
 SHEET NO. 1 OF 1

THIS LINE SCALES 1" WHEN PLOTTED TO NOTED SCALE

190' OF 10" SANITARY SEWER REMOVAL AND REPLACEMENT