

ITB# 6012
SANITARY SEWER SONAR SERVICES
CITY OF JOHNSON CITY, TN

I. INFORMATION FOR BIDDERS

1. Background

The City of Johnson City is located in the Appalachian Mountains of East Tennessee with elevations ranging from 1,300 feet to 2,100 feet above sea level. The sanitary sewer collection system maintained by the City of Johnson City serves the corporate limits of the city as well as surrounding areas in the northeastern portion of Washington County. The collection system is divided into three major sanitary sewer drainage basins: 1) Brush Creek, 2) Knob Creek and 3) Regional. The flow from each major drainage basin is treated by a wastewater treatment plant that is owned and operated by the City of Johnson City.

2. General

The purpose of this bid is to obtain competitive unit prices per linear foot for all labor, material, and equipment necessary to inspect via closed-circuit television (CCTV) and sonar inspection of existing sanitary sewers ranging in size from 12 to 36 inches in diameter. All project locations will be within the Johnson City Water & Sewer Department (City of Johnson City) service area.

The work may include one or all of the following:

- A. Sewers to be televised by CCTV only
- B. Sewers to be sonar inspected only
- C. Sewers to be televised by CCTV and sonar inspection using a float or other approved system.

The recorded video and/or scan must include the entire circumference of the sewer. The contractor must also consider weather conditions to obtain the best video and sonar image of the sewer. This may require the contractor to delay any video work after major rain events until the system can return to lower dry weather flow. The contractor shall submit the electronic video reports, logs, etc. for the City of Johnson City's review. **PACP certification of all CCTV operators and software is required. In addition, detailed reports must be provided to the City of Johnson City outlining all inspection information.**

The intent of this specification is to televise sewers with lower flows and use a combination of CCTV and/or sonar equipment for larger sewers with higher dry weather flows as further specified. The contractor will not be allowed to substitute sonar inspection where CCTV is specified by the contract or by the City of Johnson City. However, the contractor may opt to dry up sewers in order to televise those that are specified with sonar inspection as long as these actions do not result in a spill or overflow, or cause sewage to back up into private residences or businesses. Any bypass pumping plans must be approved by the City of Johnson City prior to execution.

The successful bidder will be responsible to coordinate and gain access to any sewer sections and will be responsible for any restoration. This includes modifications to City of Johnson City manholes or structures due to size or configuration of CCTV and/or Sonar equipment.

The contractor will be held fully liable for any damages incurred caused by their negligence.

The specifications contained herein describe the minimum requirements of the City and any omission shall not relieve the vendor of furnishing quality service in a timely manner. Any variances to these specifications must be clearly identified by Proposer.

3. Contract Period

This contract shall be for a one (1) year period from the date of the purchase order and may be renewed for another one (1) year period, if all terms, conditions and prices remain unchanged and both parties are in agreement. Prices contained herein are to be firm for the term of the contract. The City reserves the right to re-submit at the end of the one year period.

4. Project Time Line

The City anticipates a contract award, if made, around March 11th with work to commence the beginning of April 2016. The proposal will address a project time line illustrating the interaction of each major task, showing deliverables and milestones. The project time line should also indicate the level of effort anticipated to be required by City staff for each major task.

5. State Contractors License

All Bidders must be licensed contractors in the State of Tennessee, as required by the Contractor's Licensing Act of 1994, State of Tennessee. The bidder's license number, expiration date and that part of classification applying to the bid must appear on the envelope containing the bid, otherwise the bid shall not be considered. If two envelopes are used, this information **must appear on the outer envelope. Attach the enclosed Contractor's Bid Envelope to the outside of the envelope. Include a copy of the contractor's license with the bid.**

6. Insurance

The attached Insurance Checklist (including a section for both the Insurance Agent and Contractor to fill out) and General Contract Form must be completed and **returned with the proposal package**. Successful vendor shall provide insurance certificate, as specified, prior to contract award. Insurance must be kept in force during the length of the contract.

7. Licenses, Fees, Permits

The Contractor is responsible for furnishing the proper licenses, fees, and permits required by law to do business in the City of Johnson City in completion of the requirements stated herein, except where otherwise specified. These include but are not limited to permits with TDOT, Washington County, TN and Johnson City for any Right-of-Way access.

8. TOSHA/OSHA Standards

The Contractor is responsible for maintaining compliance to all necessary TOSHA/OSHA standards for the following project. This includes, but is not limited to, any confined space entry requirements for manhole access as specified in OSHA Section 29 CFR 1926 Subpart AA.

9. Incurring Costs

The City is not liable for any costs incurred by the contractor prior to issuance of a contract.

10. Contract award

Award of the contract will be determined through an evaluation of bids and made in light of the best interest of the City. The unit bid prices shall be based on the work outlined in the project. The contract award will be based on the **total price specified on the bid sheet**.

11. Contractor Performance

These specifications are not intended to be complete in every detail. Therefore, the Contractor is expected to perform all work in a professional workmanlike manner in accordance with all applicable City, State and Federal codes and regulations.

12. Past Performance

Vendor's past performance will be an award consideration. If unknown, the City may ask for user references which shall be supplied upon request.

13. ITB Addenda

Any change to the ITB herein will be brought forward in the form of a written Addendum from the Purchasing Department and will be provided to all known interested parties, and posted on the City's website. (Sealed Solicitations para 2 attached).

14. Drug Free Workplace

All bidders with five (5) or more employees must execute the enclosed Drug Free Workplace Affidavit to verify compliance with TCA 50-9-113 and return same with bid response. If exempt due to less than (5) employees – provide documentation with return bid.

II. PROJECT SPECIFICATIONS

1. Scope of Work

All work is to be provided by the successful company and shall include all personnel, equipment and data processing. The City of Johnson City will provide personnel to assist in locating the beginning and ending points of the various line segments as well as necessary line data and maps. Access to information in the city's GIS system will be made available as required.

Major tasks shall include but are not limited to the following:

A. Requirements and Extent of Survey/Inspection

- a) The successful contractor shall survey and/or inspect pipelines with color pan and tilt CCTV imagery and sonar and or combined color pan and tilt CCTV/Sonar (TISCIT) as specified so as to record all relevant features and to confirm their structural and service condition. Surveys/Inspections of pipelines shall be carried out in accordance with the reporting format determined by the City and contractor.
- b) The contractor must have an onsite field supervisor with a minimum two years' experience specializing in the televising and sonar inspection of sewers. A foreman for each crew performing televising and sonar inspection with a minimum of two years' experience specializing in that type of work may be substituted for the onsite field supervisor requirement. The contractor shall provide the names, titles, phone numbers and addresses of a minimum of two (2) references that can be used to verify this experience. The references must be contract managers or persons of authority over televising and sonar inspection work performed by the contractor. The contractor must have foreman or supervisors meeting all pre-qualifications for the duration of the contract. Contractor must also be an approved/bonded contractor with City of Johnson City.
- c) Current PACP certification of all CCTV operators will be required for all CCTV work. Database shall be an unmodified NASSCO-PACP, V6.0.1 or higher, Certified Access Database. CCTV Software shall be NASSCO-PACP V6.0.1 or higher certified. CCTV inspections will be conducted entirely in digital format. The entire inspection survey shall be recorded in MPEG format written to CD-ROM and submitted with digital links to the survey.
- d) Following award of the contract and before starting any work the contractor, job superintendent/project manager, and crew leader shall meet with the City of Johnson City. The contractor will be notified of the date, time, and place of the meeting.
- e) The contractor must complete all work such that no homeowner is without sewer service, unless otherwise directed by the City of Johnson City. Local noise ordinances or agencies having control over roadway closures may control starting or stopping operations. Prior to starting operations, the contractor shall advise the City of Johnson City of the restrictions imposed by the local agencies. No work will be allowed on weekends or holidays except at the discretion of the City of Johnson City.
- f) The successful contractor shall complete a daily written record detailing the work carried out and any small items of work which were incidental to the contract.
- g) Progress Meetings: Project closeout will be completed in phases by project. The City of Johnson City has the right to hold weekly progress meetings, or as determined necessary. Items covered in the meetings are detailed below.
 1. Punch List: This list will detail all items requiring correction, repair, or improvements in order to be accepted. The contractor will address these items within 7 calendar days or as specified by the City of Johnson City. Failure to

complete punch list items will result a delay of payment until completed to the satisfaction of the City of Johnson City.

2. Reports and Submittals: Final reports and other submittals previously described will be finalized and submitted.
- h) The contractor shall provide a telephone number to the City of Johnson City. This number is intended for use in contacting the evening/weekend/holiday emergency work crew. This crew shall be responsible for contacting the City of Johnson City within one hour after the first summons on the telephone. If the contractor's crew has not responded to the site of the emergency within one hour of the first summons on the telephone, City of Johnson City will make all necessary repairs and bill the contractor for all work performed. Costs related to the emergency response will be incidental to the contract and not measured for payment.

2. Bid Submittals

A. General Submission Information

- a) All submittals will consider the information submitted in the ITB. Where in the contractor's professional judgment, additional tasks or work elements are necessary to accomplish the purpose, they may be offered as an option. Similarly, where the professional judgment of the contractor, one or more elements of the work are deemed unnecessary, the contractor may also indicate.
- b) After the bids are opened, the City at its sole discretion may require a pre-award presentation. Such presentation will be mandatory if held.
- c) The City may wish to make reasonable investigations (as deemed proper at its sole discretion) to determine the ability of the contractor to perform the work outlined. The contractor shall agree to furnish the City all information and data for this purpose as requested. The City specifically reserves the right to reject any proposals if the evidence submitted by, or the investigation of, the contractor fails to satisfy the City that the contractor is qualified to perform any or all requirements of the proposal.
- d) Contractors selected to do business with the City of Johnson City will be required to execute a professional service agreement acceptable to the City. (sample copy to be attached for the City's consideration)
- e) The bidders shall complete, execute, and submit the following documents, which are attached to these Contract Documents in Appendix A:
 1. The Bid cover sheet
 2. Johnson City – Acknowledgement of Requirement for Bids, Requests for Proposals and Contract Between the City of Johnson City and Other Parties
 3. Johnson City – Contractor License Envelope Form (**on the outside of the Bid Envelope**)

4. Johnson City –Insurance General Contract Form
 5. Johnson City – Insurance Checklist
 6. Johnson City – Drug Free Workplace Affidavit
- f) Additional Submittals Required with Bid Documents
1. List of two (2) references outlining experience with CCTV and Sonar Inspection.
 2. Documentation of Certification of PACP Software
- g) Submittals required of the Successful Bidder 7 (seven) days prior to beginning work.
1. Name of the project supervisor and competent person(s) and resumes.
 2. Documentation of PACP certification for all CCTV operators, database and software
- h) Final Submittals Prior to Payment
1. Corrections to punch list items as required by the City of Johnson City to fulfill the requirements of this specification.

3. General Provisions

A. Maintenance of Traffic

- a) The contractor shall be responsible for maintaining "local" traffic at all times and for notifying the proper authorities regarding the closing of the roads. The contractor will be responsible for obtaining all permits required for traffic purposes.
- b) The contractor shall not begin work until standard barricades and warning signs are in acceptable position and the markers and signs conform to the "Manual of Uniform Traffic Control Devices for Streets and Highways", hereinafter called the Manual. The cost of all traffic control devices shall be included in the various sewer items. The contractor assumes all responsibilities and liabilities regarding strict adherence to applicable sections for the maintenance of traffic and public safety as set forth in the Manual. All traffic control devices must be in place prior to starting work.
- c) The contractor shall maintain local traffic at all times during all phases of this project in a manner causing the least amount of inconvenience to the abutting property owners. Temporary driveways, temporary roadways, or run around as may be necessary to provide vehicular access to and from the abutting properties shall be constructed, maintained, and subsequently removed by the contractor as directed by the City of Johnson City.
- d) The portion of the pavement not affected by the work shall be kept clear of all material and equipment.

- e) In the event that excavation is necessary to repair a damaged pipe, all pavement excavations within the public right-of-way must conform to the current edition of all state standards.
- f) The contractor shall hold harmless the City of Johnson City and all its representation from all suits, actions, of claims of any character brought on account of any injuries or damages sustained by any person or persons or property in the performance of this contract.
- g) If at any time traffic has to be blocked (emergencies only), the contractor shall notify the nearest fire, police departments and service departments.
- h) The cost of maintenance of traffic shall be incidental to the contract and not measured for payment.

B. Existing Utilities

- a) The contractor must take the necessary precautions for the protection of any utility encountered on the project or the restoration of any utility damaged during the work.
- b) If an excavation is required, the contractor shall notify, at least 48 hours before breaking ground, all public or private service corporations having wire, poles, pipes, conduit, manholes, or other structures that may be affected by this operation, including all structures which are affected and not shown on these plans.
- c) All maintenance, repair, and replacement of existing utilities shall be in accordance with the rules and regulations of the various utility companies having jurisdiction.
- d) All existing storm sewers, driveway drains, and other surface drain pipes, removed or damaged during construction shall be repaired and reconnected by the contractor as directed by the City of Johnson City at no additional cost to the City.

C. Construction Procedure

- a) It shall be the contractor's responsibility to work equipment around poles, trees, or other obstructions and to do so at his own expense.

D. Request for Supplementary Information

- a) It shall be the responsibility of the contractor to make timely requests of City of Johnson City supplemental information, which should be furnished by City of Johnson City under the terms of this contract, and as required in the planning and execution of the work. Such requests may be submitted from time to time as the need approaches, but each shall be filed in ample time to permit appropriate action to be taken by all parties involved to avoid delay. Each request shall be in writing, and list the various items and the latest day by which each will be required by the contractor. The contractor shall, if required, furnish promptly any assistance and information the City of Johnson City may require in responding to these requests of the contractor. The contractor shall be fully responsible for all delays arising from failure to comply with this section.

E. Use of Premises

- a) If the contractor finds it necessary to obtain additional working area, it shall inform the City of Johnson City for acquisition.
- b) The contractor shall, at no additional expense, restore such property to the full satisfaction of the owner.
 - 1. All items within the street right-of-way or sewer easement shall be removed, or removed and replaced, or restored as directed by the City of Johnson City.
 - 2. The contractor shall ensure all employees have a badge or visible identification during any time that they on the project site or within private property. This identification must be worn so that it is readily recognized and readable to the public.

F. Fencing

- a) Any fences that need to be removed to facilitate the work shall be replaced, in kind or with repairs satisfactory to the owner, at the contractor's expense. Replacement of fences shall be considered incidental to the contract and not measured for payment.

G. Restoration

- a) All roadway berms and drainage ditches disturbed by the work shall be restored, reshaped, and graded to drain.
- b) Pavement restoration, if necessary, shall conform to: City of Johnson City Specifications. Trench backfill and compaction also shall be in conformance with the City's Specifications.
- c) The contractor shall restore unpaved areas by seeding and mulching in accordance with City of Johnson City Specifications. No direct payment will be made for seeding and mulching.
- d) Driveways shall be restored in accordance with City of Johnson City Specifications.
- e) All disturbed areas shall be restored as nearly as possible to their original condition.
- f) All restoration shall be completed in strict accordance with the appropriate items of the specifications as directed by the City of Johnson City. The cost of all restoration of streets, drives, walks; sod, etc. shall be incidental to the contract and not measured for payment.
- g) The restoration of sod areas and driveways shall be kept current with the project work. Failure to keep restoration of these items completed reasonably close shall result in a stop work notice and delay of payment until such restoration is completed to the satisfaction of the City of Johnson City.

H. Cleanup

- a) The contractor shall keep the work area in an uncluttered condition by the frequent removal of debris. The contractor shall remove all debris and unused material and leave the area in a condition similar to the condition of the area before any work was performed.

I. Property Damage

- a) The contractor will be required to make repairs and/or clean the property immediately if he causes any damage to private or public property. Specifically, the contractor shall immediately investigate any and all reports of sewage backing up into fixtures served by the sewer section that is being televised and/or inspected.

J. Access to Municipal Water Supply

- a) All costs for water usage will be included in the various contract items. Water services to residents or other users of the municipal water works system will not be shut off if possible.

III. CCTV AND SONAR SPECIFICATIONS

1. General Specifications

- A. The contractor shall furnish and maintain, in good condition, equipment necessary for proper execution of the work.
- B. Maintaining Flow: It will be the responsibility of the contractor, throughout the tenure of this contract, to provide and maintain sufficient flow at all times and prevent any backwater flooding due to obstruction caused by his equipment.
- C. Retrieval of Materials and Equipment: It shall be the contractor's responsibility to remove materials and equipment that has been lodged in the sewer from the work.
- D. The schedule shall outline the sequence in which the contractor proposes to conduct his operations and shall be approved by the City of Johnson City before work is started. The level of detail of activities shall provide clear, concise communication of the plan of work.
- E. Original and updated schedules must be provided on appropriately sized single sheets. A color print will be required in order to distinguish different types of activities from one another.
- F. The City of Johnson City may require additional updates to the schedule as changes occur. The contractor shall submit these additional updates to the City of Johnson City within 24 hours of the request. Changes to the schedule are subject to approval of the City of Johnson City.
- G. The contractor shall use a color pan and tilt, rotating head camera specifically designed and constructed for sewer inspection. Each sewer to be televised shall be suitably isolated to eliminate or control flow during video inspection to allow for the entire circumference of the pipe to be viewed. Lighting for the camera shall provide a clear

picture of the entire periphery of the existing sewer. The camera shall pause, pan, and visually inspect all service connections, pipe ends, and maintenance or structural defects.

Specifically, both manholes of each section shall also be panned, on each CCTV report, to document their condition from the casting to the invert.

- H. Provide monitoring and video recording of the televised sewer inspection, locating each sewer service connection entering the sewer. If a blockage cannot be removed and hampers the televising of the sewer in one direction then the contractor shall attempt to complete the section by televising from the other manhole to complete the section, this reversal must immediately follow the initial direction on separate reports. The contractor must immediately report the obstruction to the City of Johnson City. Perform all CCTV inspections in accordance with NASSCO's Pipeline Assessment Certification Program (PACP).
- I. CCTV inspections will be conducted entirely in digital format. The entire inspection survey shall be recorded in MPEG format written to CD-ROM.
- J. The Sonar Equipment consists of the following basic elements: the Sonar Surface Equipment, and the in sewer Sonar Scanner. The equipment must be specifically engineered to meet the challenges of extended operations in the harsh environment encountered inside sewer pipes, while always providing images of the highest definition. Also, it must be capable of inspecting pipelines whose sizes range from 12 inches to 36 inches in diameter with a track record in excess of 2 years or 100,000 feet in the field.

2. Survey/Inspection Vehicle

- A. The Contractor shall provide sufficient survey/inspection units and all relevant ancillary equipment, including standby units in the event of breakdown, in order to complete all sewer and manhole surveys/inspections as specified.
- B. The survey/inspection vehicle shall comprise of two totally separate areas. One of these, designated as the viewing area, shall be insulated against noise and extremes in temperature, including the provision for air conditioning, and shall be provided with means of controlling external and internal sources of light in a manner capable of ensuring that the monitor screen display is in accordance with the specification. Seating accommodation shall be provided by the Contractor to enable two people, in addition to the operator, to view clearly the on-site monitor, which shall display the survey/inspection as it proceeds.
- C. The working area shall be reserved for equipment, both operational and stored, and no equipment utilized within the sewer shall be allowed to be stored in the viewing area.
- D. Any other vehicles deemed necessary by the successful contractor shall be provided at no additional cost. Example would be an additional vehicle to assist with visual reconnaissance surveys and/or inspections. This vehicle should be suitable for carrying the survey team and laborers and shall be equipped with the following:
 - a) Equipment for easing and lifting manhole covers.

- b) Sewer safety equipment.
- c) Road safety equipment
- d) Protective clothing for the survey/inspection teams comprising of coveralls, boots gloves, hard hat etc.

3. CCTV/SONAR Survey/Inspection and Operational Equipment Requirements

- A. The surveying/inspecting equipment shall be capable of surveying/inspecting a length of sewer up to at least 1,500 ft. when entry into the sewer may be obtained at each end and up to 750 ft. where a self-propelled unit is used, where entry is possible at one end only. The contractor shall maintain the equipment in full working order and shall satisfy the City at the commencement of each working shift that all items of equipment have been provided and are in full working order.
- B. Each survey/inspection unit shall contain a means of transporting the CCTV camera and/or sonar equipment in a stable condition through the sewer under survey and /or inspection. Such equipment shall ensure the maintained location of the CCTV camera or sonar equipment when used independently on or to the central axis of a circular shaped sewer when required in the prime position.
- C. Where the CCTV camera and/or Sonar head are towed by winch and bond through the sewer, all winches shall be stable with either lockable or ratcheted drums. All bonds shall be steel or of an equally non-elastic material to ensure the smooth and steady progress of the CCTV camera and/or Sonar equipment. All winches shall be inherently stable under loaded conditions.
- D. Each unit shall carry sufficient numbers of guides and rollers such that, when surveying or inspecting, all bonds are supported away from pipe and manhole structures and all CCTV/Sonar and/or lines used to measure the CCTV camera's/sonar head location within the sewer are maintained in a taut manner and set a right angles where possible, to run through or over the measuring equipment.

4. Application of Inspection Type

- A. The following guidelines concerning the use of CCTV and sonar shall be followed, subject to the review and approval by the City.
 - a) Generally CCTV alone shall be used for internal condition assessment where the depth of flow of sewage is less than 25% of overall sewer diameter at the start of the survey. The Contractor will make an informed decision to continue should the depth of flow increase beyond the 25% level but no greater than 40% of overall sewer diameter at any time throughout the length.
 - b) Generally CCTV combined with sonar shall be used for internal condition assessment where the depth of flow of sewage varies from 25% to 75% of overall sewer diameter. The City shall instruct the Contractor to either: (a) continue using CCTV (where depth of flow is only marginally greater than 25% of overall diameter)

or (b) use sonar (by damming or plugging the sewer so that depth of flow exceeds 75% of overall diameter).

- c) Generally sonar alone shall be used where depth of flow in the sewer exceeds 75% of overall diameter and the level of the flow will be artificially increased, without the risk of flooding, to ensure that the pipe is completely surcharged.

5. CCTV/SONAR - General

A. CCTV Camera/Sonar Head Prime Position:

The CCTV camera/sonar head shall be positioned to reduce the risk of picture distortion. In circular sewers the CCTV camera lens and/or sonar head shall be positioned centrally (i.e. in prime position) within the sewer. In all instances the camera lens/sonar head shall be positioned looking along axis of the sewer when in prime position. A positioning tolerance of 10% of the vertical sewer dimension shall be allowed when the camera is in prime position.

B. CCTV Camera/Sonar Head Speed:

The speed of travel shall be slow enough to inspect each pipe joint, tee connection, structural deterioration, infiltration and inflow sources, and deposits, but should not, at any time, be faster than 30 feet per minute.

C. CCTV Color Camera:

The Contractor shall provide a color pan and tilt camera(s) to facilitate the survey and inspection of all laterals, included defects such as hydrogen sulfide corrosion in the soffit of sewers and benching or walls of manholes over and above the standard defects that require reporting, where required by the designated Engineer. These will be carried out as part of the normal CCTV assessment as the survey or inspection proceeds when instructed by the designated Engineer. A 360° rotational scan indicating general condition must be implemented at every 50 feet interval (min) along sewers, and at manholes and any salient, specified, defect features. The tilt must not be less than 225°.

6. CCTV, Man Entry and SONAR Survey Data Specification

A. Survey Reporting:

- a) No later than fourteen days following the completion of a pipeline survey/inspection, the contractors shall submit to the City, two (2) hard copies of all details, report including summary statistical breakdown of all defects encountered and two (2) CD-ROM 's containing the data transfer files and all reports. The supplied data and information shall remain the property of the City.
- b) The report shall be computer validated using a PACP database software, or equivalent approved by the City, and presented on two (2) CD-ROMs to provide a summary listing of the number and type of features including defects found for each section of pipeline.

- c) When requested, the Contractor shall provide hard copy output or manually completed site-coding sheets at the time of the survey and shall forward copies of these sheets to the City, preferably each day, but at least every other day, together with a daily report on progress.

B. Site Coding Sheets:

Each sewer length, i.e. the length of the sewer between two consecutive manholes, shall be entered on a separate coding sheet or entered separately electronically. Thus where a Contractor elects to "pull through" a manhole during CCTV and/or Sonar Survey or "walk through" during Man Entry survey a new coding sheet shall be started at the manhole "pulled or walked through" and the footage re-set to zero on the coding sheet where a length of sewer between two consecutive manholes cannot be surveyed or attempted for practical reasons (complete header) coded sheet shall be made out defining the reason for abandonment. At uncharted manholes a new coding sheet must be started and the footage re-set to zero.

C. Sonar Survey Requirements:

a) Rates shall allow for:

1. Complete structural and service assessment to the equivalent standard as that obtained through conventional CCTV imagery.
2. The means of attending flow, where necessary, to facilitate appraisal of the full sewer cross section.
3. Measurement of flow depth and silt depth.

b) Rates shall allow for continuous output on conventional annotated CD-ROM format of all sewer surveyed, supported by complete defect code sheets. Additionally, silt levels shall be assessed as a percentage of sewers at 25 foot intervals for each pipeline surveyed. To facilitate this requirement and in addition, to assist in diametrical measurement particularly where a sewer is deformed and/or where a sewer has suffered hydrogen sulfide corrosion: screen graphic facilities shall be made available to enable measurements to be taken in any position across the diametrical profile of the sewer as the sonar survey proceeds and where specifically directed by the designed Engineer.

c) Where combined CCTV and sonar imagery is required the output shall display combined CCTV and sonar images of the sewer being surveyed. The sonar image shall be superimposed on the real CCTV image as a combined operation.

d) Rates shall allow for a comprehensive final report on the findings concerning major defects, including fractures, displaced joints, deformation, corrosion and lateral intrusions, as well as dominant surface, features, including encrustation and silt depths.

e) The monitor display resolution shall be a minimum of 512 x 512 pixels. The color palette shall have a minimum of 16 colors with text.

- f) The picture update speed shall not compromise compliance or result in unsatisfactory picture resolution.
- g) The range of resolution shall be = 1/10 inch.
- h) The maximum beam width of sonar energy pulse shall be no greater than 2 degrees from the center of the transducer.
- i) The transducer shall be of the continuous scanning type.

D. Contractors Data Quality Control Procedure

- a) The Contractor shall operate a quality control system, to be approved by the City, which will effectively gauge the accuracy of all survey reports produced by the operator.
- b) The system shall be such that the accuracy of reporting is a function particularly of:
 - 1. The number of faults not recorded (omissions)
 - 2. The correctness of the coding and classification of each fault recorded.
- c) The minimum levels of accuracy to be attained under the various survey headings are as follows:
 - 1. Header Accuracy 95%
 - 2. Detail Accuracy 85%

7. SONAR Inspection Software

- A. Software must be able to display live data from the sonar scanning head and display the information as an image using 256 colors to designate signal amplitude.
- B. Software must be able to capture screen images and save the image as a JPG or Bitmap file. These images shall be readable in all major software programs used for word processing and report generation.
- C. A report shall be able to be produced and printed with user defined titling and showing the desired captured still image in full color. Included on this report shall be the distance count from the footage encoder on the cable drum and pitch and roll data from the underwater scanning unit.
- D. The software must have real time measurement capabilities. This shall include point-to-point measurement (or grid), diameter measurement using a circle overlay, and area calculations to acquire volume data of sediment and debris. Measurements must be able to be printed on reports and saved with the image.
- E. Software shall display both graphically and numerically the pitch and roll data from the underwater scanning unit.

F. Software shall numerically display distance, from the encoder on the cable drum.

8. CCTV/SONAR Compliance and Acceptance

- A. Compliance with this contract shall be complete when all conditions set forth in these specifications have been met. The following defines each work item and the level of effort and quality of work that will be necessary to meet the intent of this specification:
- B. Sewer sections and manholes shall be inspected by means of remote CCTV and in some locations sonar inspection will also be required. If a blockage hampers the inspection of the sewer in one direction then the contractor shall attempt to complete the section by televising and/or sonar inspection from the other manhole to complete the section. The contractor must immediately report the obstruction to the City of Johnson City. All CCTV work shall conform to NASSCO, PACP v. 6.0.1 standards.
- C. CCTV inspections will be conducted entirely in digital format. The entire inspection survey shall be recorded in MPEG format written to CD-ROM. The documentation of the work shall consist of PACP CCTV Reports, Unmodified PACP database, logs, electronic reports, etc. noting important features encountered during the inspection. The speed of travel shall be slow enough to inspect each pipe joint, tee connection, structural deterioration, infiltration and inflow sources, and deposits, but should not, at any time, be faster than 30 feet per minute. The camera must be centered in the pipe to provide accurate distance measurements to provide exact locations of important features in the sewer and these footage measurements shall be displayed and documented on the video. The completed CD-ROM will become the property of the City. Every section of sewer (manhole to manhole) shall be identified by audio and alphanumeric on the video display and shall include: project name, street name, GIS manhole numbers, inspector's name, sewer diameter and length, and date of inspection. Important features shall be identified by audio and on PACP log to include all manholes, active and inactive service connections, structural defects, maintenance problems, grease, roots, infiltration, obvious inflow sources, etc. All video must be continuously metered from manhole to manhole. In addition to televising and sonar inspection of the sewer, all manholes shall be panned with the video camera and visually inspected. The contractor shall document the condition of each manhole during this phase electronically.
- D. All images saved by the Sonar Equipment must be able to be imported, either into a viewer program for post processing and measuring, and also be able to be exported as bitmap images for inclusion in reports or presentations. Images must be able to be printed directly from the system along with text annotations highlighting specific points in the image and the current control settings.
- E. The transducer and drive motor contained within the sewer sonar scanner must be totally enclosed in an oil-filled housing which is hermetically sealed from the electronics pod resulting in no exposed moving parts. The sewer sonar scanner must be streamlined in shape to minimize the collection of rags and debris inside the sewer. Sonar unit must have a minimum of 2.4-degree angular resolution with at least 150 sectors per revolution. Full revolution scans will be recorded with a density of 2 complete sonar scans per every inspection foot.

- F. The sonar equipment must have a selectable full scale and must support a return range of at least 8 inches to 20 feet. The digitally generated graphics display must use a minimum of 256 shades to represent the signal amplitude for each of these cells making at least 100,000 cells per image. If the sonar system produces analog data then a half size ISA Interface card must be fitted into the PC and must have a flash *A/D* converter clocked by a programmable sample rate up to a maximum of 5 MHz ensuring that the finest detail can be captured. An on board FIFO buffer must be fitted to insure that the data remains in perfect synchronization with the transmit pulse to produce continuous smooth images. If the sonar system produces digital data then the digital data must be recorded in a manner that allows for the data to be related to pipe position during post processing.
- G. The sonar equipment must have at least a 600 kHz operating frequency and an acoustic beam width of less than 2.4 degrees in order to produce accurate clear cross sections of the pipe being scanned. Analog sonar equipment must have a variable velocity of sound calibration allowing the system to be calibrated such that the measurements taken with the on-screen cursors are accurate to the pixel spacing, which must be at least 0.5mm on the shortest range. The sonar surface equipment to support analog sonar must be able to provide a continuous NTSC composite video output so that the entire survey will be recorded on CD-ROM and remote video monitors can be connected.
- H. When using an analog sonar system the distance moved through the pipe must be able to be displayed on the monitor screen and be logged along with the saved images for accurate determination of where flaws exist in the pipe relative to the deployment manhole.
- I. The Sonar Scanner must have pitch and roll tilt sensors with 0.3-degree resolution showing the attitude of the scanner on the screen both pictorially and numerically. The tilt sensors must be able to be set-up so that an alarm is generated if a preset tilt angle is exceeded. The Sonar Scanner when operated with the CCTV equipment must be capable of remote operation up to 2,000 feet from the surface equipment.
- J. If the Sonar Scanner is operated independently then it must reach distances of up to 2,000 linear feet. The contractor may use a video camera crawler driven at a uniform speed along the pipe bottom or a float may be tethered to allow travel downstream at a controlled speed. The contractor shall use the method that will obtain the best image and will negotiate anticipated obstructions. This may require attempting various setups for each sewer section. The sonar unit should make 2 complete scans per foot of travel.
- K. From the sonar scans and other measuring devices as deemed necessary by the contractor, he shall complete a spreadsheet summary indicating the approximate amount of debris and/or corrosion that has occurred along the length of pipe.

9. CCTV/SONAR Inspection Reports for Each Sewer Segment

- A. Reports shall contain a narrative describing the test, its methods, and listing any notable findings from the inspection.
- B. Reports shall contain volume calculations including debris volume and water volume and/or height calculations.

- C. Reports shall include the average and maximum levels of debris and the distance of the maximum level noted.
- D. From the sonar scans and other measuring devices as deemed necessary by the contractor, the contractor shall complete a spreadsheet summary indicating the approximate amount of debris and/or corrosion that has occurred along the length of pipe.
- E. CCTV Reports, logs, electronic reports, and worksheets must include the following information and conform to the applicable guidelines:
 - a) CCTV Reports, PACP Database, and electronic worksheets must accompany all inspection work.
 - b) Drawing: A drawing showing the sewer, manholes, streets, buildings, addresses, etc. will be provided to the contractor; however, the contractor is responsible to draw any changes that are encountered on the form provided by City of Johnson City.
 - c) Sonar profiling spreadsheet depth of debris and/or pipe corrosion for completed sections of sewer.

APPENDICES

APPENDIX A

Bid Documents

REQUIREMENTS FOR BIDS, REQUESTS FOR PROPOSALS, AND CONTRACTS
BETWEEN THE CITY OF JOHNSON CITY
AND OTHER PARTIES

The City of Johnson City has established the following requirements for use in all bids and contracts between the City and any other person or entity. The following list is mandatory and modifies any bid, contract, or request for proposal, or conditions applicable to, signed by, or let by the City, notwithstanding anything contained in any particular conditions, contract, request for proposal, or bid to the contrary.

In general, the following provisions apply to all such contracts, bids, requests for proposals, contracts requiring bids, and bids containing contracts:

1. The City of Johnson City shall not answer to any contracting party for the furnishing of public records to a person requesting such in accordance with Tennessee law.
2. The City, while it may designate in writing a representative on a particular project, shall only be bound by a majority vote of the Board of Commissioners or by the limited authority delegated to the City Manager pursuant to City Ordinance. No personal representative of the City assigned to a particular project may bind it in excess of the dollar amounts granted to the City Manager by Ordinance, and no personal representative assigned to a particular project may bind the City for an amount equal to or less than the dollar amounts granted to the City Manager by Ordinance without the City Manager's approval.
3. The City shall not in any event waive or limit any claims for damages including but not limited to consequential damages in any contract for any reason or purpose.
4. No decision of an architect, engineer, or personal representative of the City shall be final and binding on the City, unless the City so agrees in any dispute with any

party including but not limited to an architect, a contractor, a subcontractor, an engineer, etc. If the City agrees to be bound pertaining to a dispute, then the monetary limits contained in the City's ordinances regarding the authority of the City Manager shall prevail, and any amounts exceeding the authority of the City Manager shall be referred to the Board of Commissioners for their consideration.

5. The City shall not participate in any mediation or arbitration regarding any agreement to which it is a party, and all matters left unresolved between the City and any other party, person, or entity shall be resolved in a court of competent jurisdiction in either Washington County, Tennessee, or in Federal District Court in Greeneville, Tennessee.

6. No party or other entity shall file a lien of any nature whatsoever against City property, real, personal, or mixed, no matter where that property is located. Should a party or entity contracting with the City or acting as a subcontractor or subsubcontractor file a lien against any property, real, personal, or mixed, owned by the City, then that party or entity shall take immediate steps at its own cost and expense to remove said lien, or the City shall take such steps as it deems necessary and hold the other party or entity liable for any costs and attorneys' fees associated with the lifting of said lien.

7. The City shall exercise its sole discretion before agreeing to any assignments of any contracts or subcontracts regarding any project in which the City is involved. No contract with the City shall be assignable without the City's sole, discretionary, absolute consent.

8. The City shall not be required to supply any information regarding its title to any property in which it has an interest for any purposes regarding the filing of liens.

9. The City shall not waive any claims it has in the making of final payment in any project in which it is involved. The City shall have the right to terminate any agreement to which this document is attached at any time in its sole discretion without

cause. In the event the City terminates without cause any agreement to which this document is attached, then in such event the City shall be liable only for the actual work and costs that have accrued at or before the date of the City's termination. In no event shall the City be liable for lost profits, consequential damages or incidental damages in the event it terminates a contract without cause.

10. Except to the extent allowed by law, the City shall not indemnify and hold harmless any other party, entity, person, their agents, employees, or anyone else in the world for any reason whatsoever.

11. The City shall not waive the rights of subrogation of its insurers or itself for any purpose whatsoever, and the City shall not cause any such endorsements to be placed on any policies to which it is a party.

12. Unless the City elects otherwise, the City shall not provide any "builders' risk" or an "all-risk" or equivalent policy for any reason whatsoever for any project in which the City has an interest, and the contractor or other such party shall assume this responsibility. That builder's risk policy provided by the contractor or other such interested party shall name the City as an additional insured. The City shall not provide boiler and machinery insurance, but shall require such insurance as applicable, depending on the parameters of whatever project is involved. The cost of boiler and machinery insurance shall be borne by the appropriate contractor, subcontractor, or other interested party. The City shall not insure the interests of any other person or entity, nor shall the City add any other person or entity as an additional insured to any of its policies.

13. The City shall not waive any rights regarding the loss of use of the City's property.

14. As to acts or failures to act or any causes of action by any party to a contract, whether that party be the architect, owner, contractor, City, etc., a cause of action shall accrue according to Tennessee law. No contract provision shall shorten the

statutes of limitations, statutes of repose, or the accrual of any causes of action which the City might have against another party or entity. No contract provision shall waive any warranties, express or implied, nor shall any contract limit the standard of care for any particular service or undertaking to that of the locality where those services or undertakings are performed.

15. Any interest to be paid by the City of Johnson City for late payments shall be at the rate of interest at which the City pays on its most recently issued bonds.

16. The City reserves to itself the right to approve the use of any tests, including but not limited to any borings, test pits, geotechnical work, environmental tests, and the like in its own sole discretion. All design professionals, consultants, subcontractors, or the like shall be duly licensed in the State of Tennessee, if licensure in the State of Tennessee is required for the work to be performed by such design professional, consultants, or subcontractors.

17. Notwithstanding any applicable choice of law or conflict of law provisions or decisions, the law of the State of Tennessee shall govern all contracts to which this document is attached.

18. The City of Johnson City shall not provide any legal advice, legal services, surveys, or procure the same for any other party.

19. Upon payment for services as rendered, all design documents and all instruments of service created by design professionals, including but not limited to architects, landscape architects, engineers, etc., shall become the property of the City of Johnson City, Tennessee. The City of Johnson City shall be allowed to use all design documents and instruments of service, including but not limited to bid drawings, shop drawings, reports, specifications, cost estimates, schematic designs, construction designs, and the like for future additions or alterations to the current project or for use in other projects. Any use of the aforementioned designs and construction documents shall be at

the City's sole risk and without liability to the design professional. The design professional's name and seal will be removed from all such design documents prior to the City's use thereof.

20. No person or entity shall respond to a request for bid or request for proposal with any terms or conditions that might change, alter, amend, or differ with the specifications, terms, or conditions originally provided by the City in its initial request for bids or proposals.

21. The City, as the owner of real property that is the subject of or in any way connected to any bid, request for proposal, or contract, hereby grants to the successful bidder/proposer/contractor the general management of the real property during the time that work is being performed, and the City agrees to transfer information specified in OSHA regulations at 29 CFR §1926.1203(h)(1), so that TOSHA/OSHA shall treat the successful bidder/proposer/contractor as the host employer when working in confined spaces. This paragraph applies only to those areas where the successful bidder/proposer/contractor has access to and performs work within confined spaces as defined in federal OSHA regulations. The successful bidder shall comply with all federal OSHA and state TOSHA regulations, including those regarding confined spaces.

January 6, 2016



**ACKNOWLEDGEMENT OF
REQUIREMENTS FOR BIDS, REQUESTS FOR PROPOSALS, AND
CONTRACTS BETWEEN THE CITY OF JOHNSON CITY
AND OTHER PARTIES**

Name of Project: _____

Bid Number: _____

Name of Bidder: _____

The Undersigned hereby acknowledges that the Bidder has carefully reviewed the Requirements For Bids, Requests for Proposals, and Contracts between the City of Johnson City and Other Parties, and understands that this document is considered part of the Contract Documents and all Bids shall be conditioned by the document.

**Name of & Title of Signer
(Print or Type):** _____

Signature: _____

Date: _____

COMPLETE AND RETURN WITH BID PACKAGE



STATE CONTRACTORS LICENSING INFORMATION
 BID ENVELOPE FORM

**THIS FORM MUST BE FIRMLY ATTACHED TO THE OUTSIDE OF THE ENVELOPE
 CONTAINING THE BID. NO BID WILL BE CONSIDERED IF THIS FORM IS INCOMPLETE OR
 NOT ATTACHED TO THE OUTSIDE OF THE BID ENVELOPE IF BID IS \$25,000+**

PART 1

ALL BIDDERS MUST COMPLETE

TO:	City of Johnson City, Tennessee Sanitary Sewer Sonar Services ITB# 6012
DUE DATE & TIME:	February 18, 2016 at 2:00 PM
LOCATION:	OFFICE OF PURCHASING DIRECTOR, 209 WATER STREET JOHNSON CITY, TN 37601
NAME OF BIDDER:	
ADDRESS OF BIDDER:	
FEDERAL ID # OF BIDDER:	
LICENSE NO.:	#
LICENSE CLASSIFICATION OF BIDDER:	
EXPIRATION DATE:	
MONETARY LIMITS:	

PART 2

BIDDER MUST COMPLETE THIS SECTION IF BID INVOLVES: \$25,000+ (1) ELECTRICAL WORK, (2) PLUMBING WORK, (3) HEATING, VENTILATION, AIR CONDITIONING, (4) GEOTHERMAL WORK OR \$100,000+ (5) MASONRY.

IF NOT, ENTER NONE IN THE SPACES FOR ITEM (A) BELOW.

(1) ELECTRICAL	(2) PLUMBING	(3) HVAC	(4) GEOTHERMAL	(5) MASONRY
A) Name of licensed Electrical contractor:	A) Name of licensed Plumbing contractor:	A) Name of licensed HVAC contractor:	A) Name of licensed Geothermal contractor:	A) Name of licensed Masonry contractor:
B) License #:	B) License #:	B) License #:	B) License #:	B) License #:
C) License Classification and Limits:	C) License Classification and Limits:	C) License Classification and Limits:	C) License Classification and Limits:	C) License Classification and Limits:
D) License expiration date:	D) License expiration date:	D) License expiration date:	D) License expiration date:	D) License expiration date:

GENERAL CONTRACT FORM

The General Contract Form is included in every solicitation requiring insurance. The general requirements of the contract form are supplemented by items checked on the **Insurance Checklist that identify specific requirements for the bid or project.**

INSURANCE

Review this section carefully with your insurance agent or broker prior to submitting a bid or proposal. See Insurance Checklist (part of the Bid Forms) for specific coverage applicable to this contract. The term "Contract" as used in this section shall mean the Agreement covering the work that is entered into between the City of Johnson City, Tennessee and the Contractor.

1. **General Insurance Requirements:**

1.1 The Contractor shall not start work under this contract until the Contractor has obtained at its own expense all of the insurance called for hereunder and such insurance has been approved by the City; nor shall the Contractor allow any subcontractor to start work on any subcontract until all insurance required of the subcontractor has been so obtained and approved by the Contractor. Approval of insurance required of the Contractor will be granted only after submission to the Director of Purchasing of original, signed Certificate(s) of Insurance, General Contract Form, and Insurance Checklist or, alternately, at the City's request, certified copies of the required insurance policies.

1.2 No acceptance and/or approval of any insurance by the City shall be construed as relieving or excusing the Contractor, or the surety, or its bond, from any liability or obligation imposed upon either or both of them by the provisions of the Contract Documents.

1.3 The City of Johnson City (including its elected and appointed officials, agents, and employees) is to be named as an additional insured under all coverage except Worker's Compensation, Automobile Liability, and Professional Liability and the Certificate of Insurance or the certified policy, if requested, must so state. Coverage afforded under this paragraph shall be primary as respects the City, its elected and appointed officials, agents and employees. The following definition of the term "City" applies to all policies issued under the contract:

"The City of Johnson City, Tennessee together with all of its various departments, bureaus, and agencies, as well as any affiliated or subsidiary board, committee, or authority, including but not limited to the Johnson City Public School System."

1.4 The contractor shall provide insurance as specified in the Insurance Checklist contained in this document.

1.5 The Contractor covenants to save, defend, hold harmless and indemnify the City of Johnson City, Tennessee together with its various departments, elected or appointed officials, employees, officers, counsel, agents, and any and all other persons or entities acting on behalf of the same (collectively the City) from and against any and all claims of any sort based upon any theory of liability whatsoever, for any and all harm, loss, damage, injury, cost (including court cost and attorney fees) charges, or other liability of any nature whatsoever, however caused, resulting from or arising out of or in any way connected with the contractors performance or non-performance of the terms of the contract documents or its obligations under the contract based upon any theory of liability whatsoever, including claims brought by third persons, and further covenants to discharge all of the aforesaid persons and entities and forever hold them harmless from the same. The foregoing obligation to indemnify and defend shall continue in full force and effect after the aforesaid contractor completes all of the work required under the contract, until such time as the applicable statutes of limitation or repose have expired.

1.6 The Contractor shall be responsible for the work performed under the Contract Documents and every part thereof, and for all materials, tools, equipment, appliances, and property of any description used in connection with the work. The Contractor assumes all risks for direct and indirect damage or injury to the property or persons used or employed on or in connection with the work contracted for, and of all damage or injury to any person or property wherever located, resulting from any action, omission, commission or operation under the Contract, or in connection in any way whatsoever with the contracted work, until final acceptance of the work by the City.

1.7 Insurance coverage required in these specifications shall be in force throughout the Contract Term. If the Contractor fails to provide acceptable evidence of current insurance within ten days of written notice at any time during the Contract Term, the City shall have absolute right to terminate the Contract without any further obligation to the Contractor and the Contractor shall be liable to the City for the entire additional cost of procuring performance by another vendor and the cost of performing the incomplete portion of the Contract at time of termination. **Contractor** is required to provide the City with notice of cancellation, non-renewal, or material change in coverage at least thirty (30) days prior to cancellation, non-renewal, or material change in coverage.”

1.8 Contractual and other liability insurance provided under this Contract shall not contain a supervision, inspection or engineering services exclusion that would preclude the City from supervising or inspecting the project as to the end result. The Contractor shall assume all on-the-job responsibilities as to the control of persons directly employed by it and of the subcontractors and any persons employed by the subcontractor.

1.9 Nothing contained in the specifications shall be construed as creating any contractual relationship between any subcontractor and the City. The Contractor shall be as fully responsible to the City for acts and omissions of the subcontractors and of persons employed by them as it is for acts and omissions of persons directly employed by the Contractor.

1.10 Precaution shall be exercised by the Contractor at all times for the protection of persons (including employees) and property. All existing structures, utilities, roads, services, trees and shrubbery shall be protected against damage or interruption of service at all times by the Contractor and its subcontractors during the term of the Contract, and the

Contractor shall be held responsible for any damage to property occurring by reason of its operation on the property.

1.11 If a Contractor can not meet the insurance requirements contained in a bid, proposal, or project description, alternate insurance coverage may be considered. Written requests for consideration of alternate coverage must be received by the Director of Purchasing at least ten working days prior to the date set for receipt of bids or proposals. If the City denies the request for alternate coverage, the specified coverage will be required to be submitted. If the City permits alternate coverage, an amendment to the Insurance Requirement will be prepared and distributed prior to the time and date set for receipt of bids or proposals.

1.12 All required insurance coverage must be acquired from insurers authorized to do business in the State of Tennessee, and acceptable to the City. The insurers must also have policyholders' rating of "B++" or better, and a financial size of "Class V" or better in the latest edition of Best's Insurance Reports, unless the City grants specific approval for an exception in the same manner as described in 1.11 above.

1.13 The City may consider deductible amounts as part of its review of financial stability. The Contractor shall assume all deductibles.

2. Contractor's Insurance – Occurrence Basis:

2.1 The Contractor shall purchase the following insurance coverage, including the terms, provisions and limits shown in the Checklist:

- **Commercial General Liability** – The Commercial General Liability policy shall include any or all of the following as indicated on the Checklist:
 - i. General aggregate limit is to apply per project;
 - ii. Premises/Operations;
 - iii. Action of Independent Contractors;
 - iv. Contractual Liability including protection for the Contractor from claims arising out of liability assumed under this contract;
 - v. Personal Injury Liability including coverage for offenses related to employment;
 - vi. Explosion, Collapse, or Underground (XCU) hazards.
- **Business Automobile Liability** including coverage for any owned, hired, or non-owned motor vehicles, Uninsured Motorists insurance, and Automobile Contractual Liability.
- **Worker's Compensation** – statutory benefits as required by the State of Tennessee, or other laws as required by labor union agreements, including standard Other States coverage; Employers' Liability coverage.

3. Commercial General or other Liability Insurance – Claims-made Basis:

If Commercial General or other liability insurance purchased by the Contractor has been issued on a claims-made basis, the Contractor must comply with the following additional conditions. The limits of liability and the extensions to be included as described in the Checklist remain the same. The Contractor must either:

- i. Agree to provide certificates of insurance evidencing the above coverage for a period of three years for Professional Liability; two years for CGL and other Liability, after final payment for the contract. Such certificates shall evidence a retroactive date, no later than the beginning of the Contractors or subcontractors' work under this contract, or
- ii. Purchase an extended (minimum three years for Professional Liability; two years for CGL and other Liability) reporting period endorsement for the policy or policies in force during the term of this contract and evidence the purchase of this extended reporting period endorsement by means of a certificate of insurance or a copy of the endorsement itself.

4. Alternative Coverage (Self Insurance)

Notwithstanding any of the above, the Contractor may satisfy its obligations under this section by means of self-insurance for all or any part of the insurance required, provided that the alternative coverage is acceptable to the City.

5. Limits of Liability Coverage

Specific limits of liability coverage on the Insurance Checklist may be adjusted according to project risk if the adjustment is deemed appropriate and the amended amount is approved by the City Manager.

6. Verification of Compliance

I have read this General Contract Form and agree to all the terms and conditions contained therein.

Contractor's Name: _____

EIN or SSN: _____

Signed by: _____

Title: _____

Date: _____

This form and the Insurance Checklist must be completed and returned with Certificate of Insurance, as specified, prior to contract award.

INSURANCE CHECKLIST

(W/S Sanitary Sewer Sonar Services)

REQUIRED COVERAGE (marked by "x")

MINIMUM LIMITS

1. Worker's Compensation (proprietor/partners/executive officers exclusion not allowed) Statutory limits of Tennessee and Employer's Liability \$100,000/accident, \$100,000/disease, \$500,000/disease policy limit
2. Commercial General Liability (including Premises/Operations) \$1,000,000 CSL BI/PD each occurrence, \$1 Million annual aggregate
3. Automobile Liability & Owned/Hired/Non-Owned Vehicles \$500,000 BI/PD each accident, Uninsured Motorist
4. Independent Contractors \$1,000,000 CSL BI/PD each occurrence, \$1 Million annual aggregate
5. Products/Completed Operations \$1,000,000 CSL BI/PD each occurrence, \$1 Million annual aggregate
6. Contractual Liability \$1,000,000 CSL BI/PD each occurrence, \$1 Million annual aggregate
7. Personal and Advertising Injury Liability \$1,000,000 each offense, \$1 Million annual aggregate
8. Umbrella Liability \$1 Million Bodily Injury, Property Damage and Personal Injury
9. Per Project Aggregate
10. Professional Liability \$1 Million per occurrence/claim
- a. Architects and Engineers \$1 Million per occurrence/claim
- b. Asbestos Removal Liability \$2 Million per occurrence/claim
- c. Medical Malpractice \$1 Million per occurrence/claim
- d. Medical Professional Liability \$1 Million per occurrence/claim
11. Miscellaneous E & O \$1 Million per occurrence/claim
12. Motor Carrier Act End. (MCS-90) \$1 Million BI/PD each accident, Uninsured Motorist
13. Motor Cargo Insurance
14. Garage Liability \$1 Million Bodily Injury, Property Damage per occurrence
15. Garagekeepers Liability \$500,000 Comprehensive, \$500,000 Collision
16. Inland Marine-Bailee's Insurance \$ _____
17. Moving and Rigging Floater Endorsement to CGL
18. Dishonesty Bond \$ _____
19. Builder's Risk/Installation Floater Provide coverage in the full amount of contract
20. XCU Coverage Endorsement to CGL
21. Carrier Rating shall be Best's Rating of B++V or better or its equivalent
22. Notice of cancellation, non-renewal or material change in coverage shall be provided to City at least **30 days** prior to action. Worker's Compensation and/or non-payment of premium - notification may be **10 days** prior to action.
23. The City of Johnson City shall be named as Additional Insured on all policies except Worker's Compensation, Auto and Professional Liability. **Per Acord 25 (2009/01), policies must be endorsed; please submit copy of endorsement.** (Cert. Holder: City of Johnson City, Attn: Purchasing, P.O. Box 2150, Johnson City, TN 37605. Email: purchasing@johnsoncitytn.org.)
24. Certificate of Insurance shall show project number or other contract identifier used by the City.
25. OTHER INSURANCE REQUIRED: _____

INSURANCE AGENT'S STATEMENT:

I have reviewed the above requirements with the bidder named below. The bidder has coverage with this agency for all of the areas marked with the exception of the following numbers:

Comments: _____

- Is Professional Liability excluded under General Liability? Yes _____ No _____
- Is Contractual Liability excluded under Comm. General Liability? Yes _____ No _____
- Is Independent Contractors excluded under Comm. General Liability? Yes _____ No _____

Carrier ratings: Insurer A _____; Insurer B _____; Insurer C _____; Insurer D _____

AGENCY NAME: _____ AUTHORIZED SIGNATURE: _____

Date: _____

CONTRACTOR'S STATEMENT:

I have reviewed the above requirements with my insurance agent(s) and, if awarded a contract, will provide all coverage marked.

CONTRACTOR'S NAME: _____ AUTHORIZED SIGNATURE: _____

Date: _____

Bid Number: **#6012**

Bid or Project Name: **Sanitary Sewer Sonar Services Contract**

This form and the General Contract Form shall be signed and returned with the bid package. The Certificate of Insurance must be provided to Purchasing prior to contract award.

DRUG FREE WORKPLACE

All vendors with five (5) or more employees must execute the attached Drug Free Workplace Affidavit to verify compliance with TCA 50-9-113 and return same with response. Failure to comply with this requirement will declare that submittal non-responsive.

City Of Johnson City, Tennessee - Policy No. HR-131

SECTION I – PURPOSE OF THE DRUG & ALCOHOL TESTING PROGRAM

The City of Johnson City recognizes its responsibility to provide safe and efficient operations for our employees, our citizens and the general public. Our commitment to provide safe and efficient operations is shown by the implementation of programs and procedures which ensure compliance with appropriate safety measures, as well as the letter and intent of all applicable laws and regulations. There is sufficient evidence to conclude that the use of illegal drug/alcohol; drug/alcohol dependence and drug/alcohol abuse seriously impairs an employee's performance and general physical and mental health. The illegal possession and use of drugs, alcohol and/or narcotics by employees of the City is a crime in this jurisdiction and is clearly unacceptable. Therefore, the City of Johnson City has adopted this written policy to ensure an employee's fitness for duty as a condition of employment; to ensure the drug tests and alcohol tests are conducted on safety-sensitive positions in the categories of: pre-employment, random testing, suspicion testing, and return-to-duty testing.

To comply with TCA Title 50 Chapter 9 Part 1, all bidders and/or proposers of service to the City must have a testing program of the same or better than the requirements of the City of Johnson City.

DRUG-FREE WORKPLACE AFFIDAVIT

State of _____

County of _____

I, _____, being duly sworn, depose, and say that:

- 1) I am a principal officer of _____, the firm that has submitted the attached or enclosed bid or proposal, my title being _____ of the firm; and
- 2) I have personal knowledge of the policies of the above-named firm with respect to the maintenance of a drug-free workplace; and
- 3) I certify that all provisions and requirements of the Tennessee Drug-Free Workplace Program, as established by Tennessee Code Annotated §§ 50-9-113 have been met and implemented.

(Signed) _____

(Title) _____

Subscribed and sworn to before me this _____ day of _____, _____.

Title

My Commission expires _____

Complete and return with response package

APPENDIX B

Sewer Line Segment Spreadsheet Information

Brush Creek Basin

Line_ID	UpStrmMH_ID	DwnStrmMH_ID	Sub-Basin	Year_Installed	Line Material	LineSize	Length	X_COORD	Y_COORD
185	9931	12045	B3A	1991	PVC Plastic Pipe	18	198	3056172.89	731827.0382
4659	9979	9974	B3A	1991	PVC Plastic Pipe	18	138	3055932.849	731334.4757
4660	9982	9979	B3A	1991	PVC Plastic Pipe	18	168	3056054.706	731270.3472
4661	9992	9982	B3A	1991	PVC Plastic Pipe	18	81	3056222.188	731267.4826
4662	10034	9992	B3A	1991	PVC Plastic Pipe	18	164	3056302.858	731261.6878
5206	8590	8578	B3A	1991	PVC Plastic Pipe	18	157	3059582.868	737073.6102
5207	8578	11402	B3A	1991	PVC Plastic Pipe	18	104	3059678.808	737114.5979
5208	11402	11403	B3A	1991	PVC Plastic Pipe	18	88	3059697.666	737200.1858
5209	11403	8544	B3A	1991	PVC Plastic Pipe	18	77	3059774.607	737205.0181
5210	8544	8546	B3A	1991	PVC Plastic Pipe	18	98	3059872.749	737210.284
5211	8546	8525	B3A	1991	PVC Plastic Pipe	18	73	3059913.829	737270.082
5212	8525	8537	B3A	1991	PVC Plastic Pipe	18	56	3059963.356	737243.4672
5213	8537	11404	B3A	1991	PVC Plastic Pipe	18	181	3060036.588	737408.5519
6079	9502	9422	B3A	1991	PVC Plastic Pipe	18	333	3057520.203	733410.1642
6080	9523	9502	B3A	1991	PVC Plastic Pipe	18	84	3057327.695	733138.0301
6081	9554	9523	B3A	1991	PVC Plastic Pipe	18	109	3057248.358	733109.3181
6082	9615	9554	B3A	1991	PVC Plastic Pipe	18	305	3057165.077	733038.338
6083	9670	9615	B3A	1991	PVC Plastic Pipe	18	143	3056965.37	732807.169
6804	9850	9835	B3A	1991	PVC Plastic Pipe	18	133	3056795.689	732191.6411
6805	9848	9850	B3A	1991	PVC Plastic Pipe	18	135	3056701.628	732097.8718
6806	9852	9848	B3A	1991	PVC Plastic Pipe	18	108	3056566.784	732095.5581
6807	9880	9852	B3A	1991	PVC Plastic Pipe	18	175	3056473.042	732042.3239
6808	12045	9880	B3A	1991	PVC Plastic Pipe	18	199	3056315.198	731966.4788
6809	9963	9931	B3A	1991	PVC Plastic Pipe	18	208	3056036.953	731682.773
6810	9974	9963	B3A	1991	PVC Plastic Pipe	18	165	3055939.751	731499.16
6951	9719	9670	B3A	1991	PVC Plastic Pipe	18	132	3056978.083	732664.341
8349	8717	8628	B3A	1991	PVC Plastic Pipe	18	339	3059446.362	736807.2888
8350	8628	8590	B3A	1991	PVC Plastic Pipe	18	152	3059478.57	736956.2189
8437	9803	9719	B3A	1991	PVC Plastic Pipe	18	271	3056978.98	732532.6331
8438	9835	9803	B3A	1991	PVC Plastic Pipe	18	117	3056852.825	732293.3458
9339	11404	11405	B3A	1991	PVC Plastic Pipe	18	240	3060235.434	737542.3211
9340	11405	8491	B3A	1991	PVC Plastic Pipe	18	94	3060164.362	737603.9531
9862	8799	8717	B3A	1991	PVC Plastic Pipe	18	364	3059317.33	736494.168
9863	8828	8799	B3A	1991	PVC Plastic Pipe	18	224	3059272.41	736133.3499
9864	8843	8828	B3A	1991	PVC Plastic Pipe	18	77	3059154.77	735943.3088
9865	8898	8843	B3A	1991	PVC Plastic Pipe	18	270	3059124.316	735872.728
9866	8944	8898	B3A	1991	PVC Plastic Pipe	18	209	3059050.388	735612.7442
9867	8982	8944	B3A	1991	PVC Plastic Pipe	18	163	3059109.565	735412.0919
9868	9017	8982	B3A	1991	PVC Plastic Pipe	18	270	3059104.739	735249.4192
9869	9054	9017	B3A	1991	PVC Plastic Pipe	18	189	3058950.5	735028.1876
9870	9081	9054	B3A	1991	PVC Plastic Pipe	18	92	3058863.843	734859.7688
9871	9111	9081	B3A	1991	PVC Plastic Pipe	18	175	3058845.933	734769.366
9872	9124	9111	B3A	1991	PVC Plastic Pipe	18	139	3058734.073	734634.4489
9873	9125	9124	B3A	1991	PVC Plastic Pipe	18	138	3058612.68	734565.8388
9874	9154	9125	B3A	1991	PVC Plastic Pipe	18	129	3058476.067	734585.3588
9875	9173	9154	B3A	1991	PVC Plastic Pipe	18	131	3058404.557	734477.4712
9876	9197	9173	B3A	1991	PVC Plastic Pipe	18	132	3058337.056	734364.9331
9877	9219	9197	B3A	1991	PVC Plastic Pipe	18	172	3058260.828	734256.5821
9878	9236	9219	B3A	1991	PVC Plastic Pipe	18	119	3058147.164	734126.8592
9879	9253	9236	B3A	1991	PVC Plastic Pipe	18	161	3058056.163	734049.6409
9880	9297	9253	B3A	1991	PVC Plastic Pipe	18	229	3057911.233	733979.2481
9881	9314	9297	B3A	1991	PVC Plastic Pipe	18	89	3057748.806	733817.7838
9882	9422	9314	B3A	1991	PVC Plastic Pipe	18	380	3057720.187	733733.8501
174	5850	12037	B2A	1991	PVC Plastic Pipe	15	147	3056644.5	746651.5138
175	12037	12038	B2A	1991	PVC Plastic Pipe	15	65	3056702.991	746679.618
4888	6216	6139	B2A	1991	PVC Plastic Pipe	15	323	3056979.173	745320.6088
4889	6139	6124	B2A	1991	PVC Plastic Pipe	15	101	3056892.951	745373.951
4890	6124	6091	B2A	1991	PVC Plastic Pipe	15	127	3056858.199	745495.9068
5191	6005	5971	B2A	1991	PVC Plastic Pipe	15	152	3056983.739	745995.0889
5192	6061	6005	B2A	1991	PVC Plastic Pipe	15	279	3057062.481	745865.5918
5193	6452	6367	B2A	1991	PVC Plastic Pipe	15	327	3056891.751	744381.8148
5194	6367	6302	B2A	1991	PVC Plastic Pipe	15	325	3057056.844	744661.6361
5195	6290	6216	B2A	1991	PVC Plastic Pipe	15	294	3057011.625	744999.6528
5787	6670	6600	B2A	1991	PVC Plastic Pipe	15	213	3056398.055	743556.5348
5788	6729	6699	B2A	1991	PVC Plastic Pipe	15	67	3056211.336	743271.9012

5789	6784	6729	B2A	1991	PVC Plastic Pipe	15	194	3056232.701	743208.127
5790	6830	6784	B2A	1991	PVC Plastic Pipe	15	137	3056360.461	743062.6411
5791	6699	6670	B2A	1991	PVC Plastic Pipe	15	127	3056282.316	743377.5959
5792	6921	6830	B2A	1991	PVC Plastic Pipe	15	375	3056301.323	742939.3823
5793	7035	6921	B2A	1991	PVC Plastic Pipe	15	295	3056527.984	742640.2099
6977	7297	7275	B2A	1991	PVC Plastic Pipe	15	61	3056610.54	741684.9101
7147	7216	7100	B2A	1991	PVC Plastic Pipe	15	314	3056507.272	742150.4072
7493	7100	7035	B2A	1991	PVC Plastic Pipe	15	205	3056467.901	742351.4562
7494	7275	7216	B2A	1991	PVC Plastic Pipe	15	170	3056613.16	741854.7999
8570	6091	6061	B2A	1991	PVC Plastic Pipe	15	149	3056901.915	745637.974
8571	6302	6290	B2A	1991	PVC Plastic Pipe	15	47	3057051.683	744708.6981
8572	6525	6452	B2A	1991	PVC Plastic Pipe	15	312	3056729.654	744097.8749
8573	6600	6525	B2A	1991	PVC Plastic Pipe	15	323	3056575.759	743826.5559
8961	5668	5652	B2A	1991	PVC Plastic Pipe	15	60	3056915.318	747397.9889
8962	5652	5624	B2A	1991	PVC Plastic Pipe	15	105	3056933.949	747501.3832
10231	5925	5910	B2A	1991	PVC Plastic Pipe	15	109	3056677.247	746287.8018
10232	5943	5925	B2A	1991	PVC Plastic Pipe	15	60	3056740.75	746198.9376
10233	5971	5943	B2A	1991	PVC Plastic Pipe	15	278	3056746	746139.2502
10799	5685	5668	B2A	1991	PVC Plastic Pipe	15	111	3056934.038	747340.6909
10800	5711	5685	B2A	1991	PVC Plastic Pipe	15	139	3056892.502	747237.5439
10801	5738	5711	B2A	1991	PVC Plastic Pipe	15	126	3056848.234	747105.7331
10802	5802	5738	B2A	1991	PVC Plastic Pipe	15	281	3056809.459	746985.6041
10803	12038	5802	B2A	1991	PVC Plastic Pipe	15	50	3056696.195	746728.959
10804	5863	5850	B2A	1991	PVC Plastic Pipe	15	44	3056643.405	746504.0502
10806	5910	5902	B2A	1991	PVC Plastic Pipe	15	52	3056676.611	746339.9762

15,422 ft

Knob Creek Basin

Line_ID	UpStrmMH_ID	DwnStrmMH_ID	Sub-Basin	Line_Type	Year_Installed	Line Material	LineSize	Length	X_COORD	Y_COORD
4895	2843	2837	K1A	Gravity Interceptor	1991	Not Available	24	48	3034253.768	759689.727
4896	2867	2843	K1A	Gravity Interceptor	1991	Unknown	24	221	3034268.714	759643.6439
4897	2923	2867	K1A	Gravity Interceptor	1991	Unknown	24	391	3034104.241	759496.1091
4898	2955	2923	K1A	Gravity Interceptor	1991	Unknown	24	284	3033886.27	759171.7801
4899	13467	2955	K1A	Gravity Interceptor	1991	Unknown	24	227	3033726.818	758936.2319
452	2208	2202	K1A	Gravity Interceptor	1970	Concrete Pipe	18	359	3040094.57	763927.7302
453	2215	2208	K1A	Gravity Interceptor	1970	Concrete Pipe	18	438	3039750.837	763824.15
686	2564	2616	K1A	Gravity Interceptor	1970	Concrete Pipe	18	383	3036498.449	760985.1919
687	2607	2564	K1A	Gravity Interceptor	1970	Concrete Pipe	18	434	3036174.618	761189.8409
688	2641	2607	K1A	Gravity Interceptor	1970	Concrete Pipe	18	390	3035785.847	761383.191
689	3042	3003	K1A	Gravity Interceptor	1970	Concrete Pipe	18	406	3033877.539	758465.1709
981	3003	2991	K1A	Gravity Interceptor	1970	Concrete Pipe	18	98	3033808.707	758535.5581
1403	2630	2605	K1A	Gravity Interceptor	1970	Concrete Pipe	18	256	3037193.435	761750.3698
1404	2646	2630	K1A	Gravity Interceptor	1970	Concrete Pipe	18	313	3037272.157	761506.6378
2134	2327	2295	K1A	Gravity Interceptor	1970	Concrete Pipe	18	123	3038480.107	763335.7604
2135	2354	2327	K1A	Gravity Interceptor	1970	Concrete Pipe	18	197	3038357.066	763329.5242
2136	2399	2354	K1A	Gravity Interceptor	1970	Concrete Pipe	18	200	3038267.261	763153.8714
2137	2605	2561	K1A	Gravity Interceptor	1970	Concrete Pipe	18	233	3037371.809	761899.967
2668	2656	2646	K1A	Gravity Interceptor	1970	Concrete Pipe	18	328	3037088.118	761253.3161
2669	2616	2656	K1A	Gravity Interceptor	1970	Concrete Pipe	18	320	3036789.568	761116.9398
5395	2220	2215	K1A	Gravity Interceptor	1970	Concrete Pipe	18	364	3039315.272	763780.3776
5832	2751	2716	K1A	Gravity Interceptor	1970	Concrete Pipe	18	123	3035161.722	760787.0904
6514	2203	2202	K1A	Gravity Interceptor	1970	Concrete Pipe	24	49	3040094.57	763927.7302
7414	2430	2399	K1A	Gravity Interceptor	1970	Concrete Pipe	18	334	3038268.407	762953.9835
7798	2991	13467	K1A	Gravity Interceptor	1970	Concrete Pipe	18	298	3033600.145	758747.8712
8649	2265	2220	K1A	Gravity Interceptor	1970	Concrete Pipe	18	250	3038953.38	763744.2524
8650	2295	2265	K1A	Gravity Interceptor	1970	Concrete Pipe	18	386	3038731.961	763628.3167
8651	2561	2510	K1A	Gravity Interceptor	1970	Concrete Pipe	18	309	3037611.121	762096.0988
8652	2510	2471	K1A	Gravity Interceptor	1970	Concrete Pipe	18	413	3037897.994	762393.6271
8653	2471	2445	K1A	Gravity Interceptor	1970	Concrete Pipe	18	227	3038090.257	762513.3911
8654	2445	2430	K1A	Gravity Interceptor	1970	Concrete Pipe	18	259	3038323.774	762625.024
9057	2837	2792	K1A	Gravity Interceptor	1970	Concrete Pipe	18	390	3034502.259	759989.8701
9058	2771	2751	K1A	Gravity Interceptor	1991	Not Available	24	501	3035086	760690.5001
9059	2794	2771	K1A	Gravity Interceptor	1991	Not Available	24	494	3035000.143	760197.3187
9060	2792	2794	K1A	Gravity Interceptor	1991	Not Available	24	83	3034573.837	759947.7391
10797	2678	2641	K1A	Gravity Interceptor	1970	Concrete Pipe	18	243	3035463.103	761164.6141
10798	2716	2678	K1A	Gravity Interceptor	1970	Concrete Pipe	18	243	3035291.04	760993.1551
11529	4707	4701	K2C	Gravity Interceptor	1969	Unknown	18	325	3036575.447	750982.6488
8818	4724	4707	K2C	Gravity Interceptor	1969	Unknown	18	156	3036251.471	750956.2778
11528	4713	4724	K2C	Gravity Interceptor	1969	Unknown	18	325	3036096.24	750946.7648
4043	3630	3577	K2B	Gravity Interceptor	1970	Concrete Pipe	24	343	3039734.463	754716.6367
740	4348	4255	K2B	Gravity Interceptor	1970	Concrete Pipe	21	308	3038588.302	752381.5808
742	4255	4134	K2B	Gravity Interceptor	1970	Concrete Pipe	21	359	3038641.228	752736.4178
1507	4134	4113	K2B	Gravity Interceptor	1970	Concrete Pipe	21	168	3038756.846	752858.1222
1508	4113	4022	K2B	Gravity Interceptor	1970	Concrete Pipe	21	178	3038881.222	752986.0004
1509	3978	3181	K2B	Gravity Interceptor	1970	Concrete Pipe	21	266	3039189.63	753025.5421
1510	4207	3767	K2B	Gravity Interceptor	1970	Concrete Pipe	21	235	3039446.31	753702.6299
1837	4643	4654	K2B	Gravity Interceptor	1969	Unknown	18	381	3038034.415	751153.3619
1838	4654	4614	K2B	Gravity Interceptor	1969	Unknown	18	226	3038245.451	751233.0358
2881	4589	4539	K2B	Gravity Interceptor	1970	Concrete Pipe	21	292	3038543.045	751538.8759
2882	4539	4482	K2B	Gravity Interceptor	1970	Concrete Pipe	21	166	3038590.615	751698.369
3243	4638	4657	K2B	Gravity Interceptor	1969	Unknown	18	243	3037292.756	751071.2269
4038	3767	3682	K2B	Gravity Interceptor	1970	Concrete Pipe	21	348	3039635.894	753994.7592
4039	3682	3586	K2B	Gravity Interceptor	1970	Concrete Pipe	21	118	3039700.184	754093.824
4040	3586	3434	K2B	Gravity Interceptor	1970	Concrete Pipe	21	317	3039873.02	754359.7338
4144	3181	3888	K2B	Gravity Interceptor	1970	Concrete Pipe	21	355	3039292.078	753365.4379
4764	4482	4348	K2B	Gravity Interceptor	1970	Concrete Pipe	21	420	3038713.104	752100.2982
11113	3434	3630	K2B	Gravity Interceptor	1970	Concrete Pipe	21	77	3039915.131	754424.7818
11114	3888	4207	K2B	Gravity Interceptor	1970	Concrete Pipe	21	136	3039352.782	753487.1403
11477	4022	3978	K2B	Gravity Interceptor	1970	Concrete Pipe	21	63	3038923.641	753032.8678
11530	4701	4712	K2B	Gravity Interceptor	1969	Unknown	18	206	3036779.549	751009.7469
11531	4687	4638	K2B	Gravity Interceptor	1969	Unknown	18	267	3037086.959	750942.2802
11532	4657	4639	K2B	Gravity Interceptor	1969	Unknown	18	251	3037534.53	751137.4408
11533	4639	4643	K2B	Gravity Interceptor	1969	Unknown	18	121	3037654.661	751126.0785
12280	4712	4687	K2B	Gravity Interceptor	1969	Unknown	18	61	3036821.439	750965.1128

17.325 ft

APPENDIX C

Sewer Line GIS Reference Drawings



	Waste Water Treatment Plant
	Lift Station
	E1 Pump
	Sewer Manholes
	Interceptor TV Gaps
	Gravity Sewer
	Force Main
	Railroad
	Roads
	Parcels
	Sewer Sub-Basins

1 inch = 250 feet

0 187.5 375 750 Feet

B2C

B2A

B3A



■ Waste Water Treatment Plant
■ Lift Station
● E1 Pump
● Sewer Manholes
— Interceptor TV Gaps
— Gravity Sewer
— Force Main
— Railroad
— Roads
 Parcels
 Sewer Sub-Basins


 1 inch = 250 feet
 0 187.5 375 750 Feet



	Wastewater Treatment Plant
	Lift Station
	E1 Pump
	Sewer Manholes
	Interceptor TV Gaps
	Gravity Sewer
	Force Main
	Railroad
	Roads
	Parcels
	Sewer Sub-Basins

1 inch = 300 feet

0 225 450 900

 Feet

