



**City of Arcadia  
SOUTHEAST LOOPING PROJECT  
Invitation for Bid – Bid No. 2018-01**

**ADDENDUM TO BID**

**ADDENDUM NO.   3**

**ISSUED: 01/19/2018**

**City of Arcadia Way Building  
23 North Polk Avenue  
Arcadia, FL 34265**

**Bid Date: 1:00pm, 01/24/2018**

**NOTICE:** Receipt of this addenda must be confirmed on the first page of the Bid Form where indicated and submitted as part of the bidder’s sealed bid proposal.

**TO BIDDER:** This Addendum is an integral part of the bid package under consideration by you as a Bidder in connection with the referenced bid project noted above. The City of Arcadia deems all sealed bids to have been proffered in recognition and consideration of the entire bid package – including all issued addenda. The information, responses to questions, changes, and modifications included in this addendum is hereby incorporated into the bid documents previously issued for this project and supersedes any conflicting requirements of previously issued documents. Bidder’s shall incorporate the following clarifications and information as noted below into their bid proposal.

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**CLARIFICATION OF BID DOCUMENTS INCLUDED IN THIS ADDENDUM:**

1. See drawing revisions for sheet nos. C-02, C-06, C-08 and C-09 for watermain centerline elevations and crossing information under existing storm sewers. Minimum separation requirements per the Florida Department of Environmental Protection shall be maintained. See drawing revision for sheet no. C-10 to add a typical DeSoto County road cross-section. The watermain will typically be constructed under the shoulder of the roadway with a minimum of 3-ft of cover. PDFs of the drawings are available at <https://hazenandsawyer.filetransfers.net/downloadPublic/i0nv8djxjx9pa0>
2. In addition to the fire hydrant detail on sheet no. C-11, additional pipe and fittings may be required to maintain adequate cover for each individual installation. It is the Contractor’s responsibility to maintain adequate cover (2.5 ft) underneath the swale.

3. Add the following paragraph to Specification Section 01530, Part 1.3.A:  
“B. The CONTRACTOR shall utilize proper machinery to minimize damage or scaring to the existing asphalt roadway. The use of rubber tired or rubber pad tracks may reduce the damage to the existing roadway. Asphalt damaged during construction shall be restored to DeSoto County requirements and under supervision of the County.”
4. Add the following to Specification Section 02222, Part 3.7.B:  
“Density testing shall be performed at all open cut street crossings.”
5. Refer to Specification Section 15006, Ductile Iron Pipe, Part 2.01.E., which requires the use of C110 full body fittings. In addition to the C110 full body fittings, C153 compact fittings can also be provided given they meet the other requirements of the documents.

**CITY OF ARCADIA**

**SOUTHEAST LOOPING PROJECT –IFB #2018-01**

**SECTION 01530 - PROTECTION OF EXISTING FACILITIES**

**PART 1 – GENERAL**

**1.1 THE REQUIREMENT**

- A. The CONTRACTOR shall protect all existing utilities and improvements not designated for removal and shall restore damaged or temporarily relocated utilities and improvements to a condition equal to or better than they were prior to such damage or temporary relocation, all in accordance with requirements of the Contract Documents.
- B. The CONTRACTOR shall verify the exact locations and depths of all utilities shown, and the CONTRACTOR shall make exploratory excavations of all utilities that may interfere with the Work. All such exploratory excavations shall be performed as soon as practicable after award of Contract and, in any event, a sufficient time in advance of construction to avoid possible delays to the CONTRACTOR's Work. When such exploratory excavations show the utility location as shown to be in error, the CONTRACTOR shall so notify the OWNER.
- C. The number of exploratory excavations required shall be that number which is sufficient to determine the alignment and grade of the utility.

**1.2 RIGHTS-OF-WAY**

- A. The CONTRACTOR shall not do any Work that would affect any oil, gas, sewer, or water pipeline; any telephone, telegraph, or electric transmission line; any fence; or any other structure, nor shall the CONTRACTOR enter upon any rights-of-way involved until notified that the OWNER has secured authority therefore from the proper party. After authority has been obtained, the CONTRACTOR shall give said party due notice of its intention to begin Work, and shall give said party convenient access and every opportunity for removing, shoring, supporting, or otherwise protecting such pipeline, transmission line, ditch, fence, or structure, and for replacing same. When two or more contracts are being executed at one time on the same or adjacent land in such manner that Work on one contract may interfere with that on another, the OWNER shall determine the sequence and order of the Work. When the territory of one contract is the necessary or convenient means of access for the execution of another contract, such privilege of access or any other reasonable privilege may be granted by the OWNER to the CONTRACTOR so desiring, to the extent, amount, in the manner, and at the times permitted. No such decision as to the method or time of conducting the Work or the use of territory shall be made the basis of any claim for delay or damage.

**1.3 PROTECTION OF STREET OR ROADWAY MARKERS**

- A. The CONTRACTOR shall not destroy, remove, or otherwise disturb any existing survey markers or other existing street or roadway markers without proper authorization. No pavement breaking or excavation shall be started until all survey or other permanent marker points that will be disturbed by the construction operations have been properly referenced for easy and accurate restoration. It shall be the CONTRACTOR's responsibility to notify the proper representatives of the OWNER of the time and location that Work will be done. Such notification shall be sufficiently

in advance of construction so that there will be no delay due to waiting for survey points to be satisfactorily referenced for restoration. All survey markers or points disturbed by the CONTRACTOR, without proper authorization by the OWNER, will be accurately restored by the OWNER at the CONTRACTOR's expense after all street or roadway resurfacing has been completed.

- B. The CONTRACTOR shall utilize proper machinery to minimize damage or scaring to the existing asphalt roadway. The use of rubber tired or rubber pad tracks may reduce the damage to the existing roadway. Asphalt damaged during construction shall be restored to DeSoto County requirements and under supervision of the County.**

#### 1.4 RESTORATION OF FACILITIES

- A. General: All paved areas including asphaltic concrete berms cut or damaged during construction shall be replaced with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific resurfacing requirements have been called for in the Contract Documents or in the requirements of the agency issuing the permit. All temporary and permanent pavement shall conform to the requirements of the affected pavement owner. All pavements which are subject to partial removal shall be neatly saw-cut in straight lines. Within five working days of the pipe installation, temporary restoration shall be completed. All paved areas including asphaltic concrete berms cut or damaged during construction shall be replaced with similar materials and of equal thickness to match the existing adjacent undisturbed areas, except where specific restoration requirements have been called for in the Contract Documents or in the requirements of the agency issuing the permit.
- B. Temporary Restoration: Temporary restoration includes repair to all driveways, sidewalks and roadways. They shall be swept clean and be maintained free of dirt and dust. All areas disturbed by the construction activities shall be restored to proper grade, cleaned up, including the removal of debris, trash, and deleterious materials. All construction materials, supplies, or equipment, including piles of debris shall be removed from the area. All temporarily restored areas shall be maintained by the CONTRACTOR. These areas shall be kept clean and neat, free of dust and dirt, until final restoration operations are completed. The CONTRACTOR is responsible to utilize dust abatement operations in the temporarily restored areas as required, to the satisfaction of the OWNER.
- C. Temporary Resurfacing: Wherever required by the public authorities having jurisdiction, the CONTRACTOR shall place temporary surfacing promptly after backfilling and shall maintain such surfacing for the period of time fixed by said authorities before proceeding with the final restoration of improvements.
- D. Permanent Resurfacing: In order to obtain a satisfactory junction with adjacent surfaces, the CONTRACTOR shall saw cut back and trim the edge so as to provide a clean, sound, vertical joint before permanent replacement of an excavated or damaged portion of pavement. Damaged edges of pavement along excavations and elsewhere shall be trimmed back by saw cutting in straight lines. All pavement restoration and other facilities restoration shall be constructed to finish grades compatible with adjacent undisturbed pavement, unless otherwise directed by the OWNER.
- E. Temporary Restoration of Sidewalks or Private Driveways: Wherever sidewalks or private driveways have been removed for purposes of construction, the CONTRACTOR shall place suitable temporary sidewalks or driveways promptly after backfilling and shall maintain them in satisfactory condition for the period of time fixed by the authorities having jurisdiction over the affected portions

before proceeding with the final restoration or, if no such period of times is so fixed, the CONTRACTOR shall maintain said temporary sidewalks or driveways until the final restoration thereof has been made.

- F. Final Restoration: Final restoration shall include the completion of all required pavement replacement of roadways, driveways, curbs, gutters, sidewalks and other existing improvements disturbed by the construction: final grading, placement of sod, installation or replacement of any trees or shrubs, repair of irrigation systems, pavement marking, etc., all complete and finished, acceptable to the OWNER.

## 1.5 EXISTING UTILITIES AND IMPROVEMENTS

- A. General: The CONTRACTOR shall protect all underground utilities and other improvements which may be impaired during construction operations. It shall be the CONTRACTOR's responsibility to ascertain the actual location of all existing utilities and other improvements that will be encountered in its construction operations, and to see that such utilities or other improvements are adequately protected from damage due to such operations. The CONTRACTOR shall take all possible precautions for the protection of unforeseen utility lines to provide for uninterrupted service and to provide such special protection as may be necessary.
- B. Utilities to be Moved: In case it shall be necessary to move the property of any public utility or franchise holder, such utility company or franchise holder will, upon request of the CONTRACTOR, be notified by the OWNER to move such property within a specified reasonable time. When utility lines that are to be removed are encountered within the area of operations, the CONTRACTOR shall notify the OWNER a sufficient time in advance for the necessary measures to be taken to prevent interruption of service.
- C. Where the proper completion of the Work requires the temporary or permanent removal and/or relocation of an existing utility or other improvement which is shown, the CONTRACTOR shall remove and temporarily replace or relocate such utility or improvement in a manner satisfactory to the OWNER and the OWNER of the facility. In all cases of such temporary removal or relocation, restoration to former location shall be accomplished by the CONTRACTOR in a manner that will restore or replace the utility or improvement as nearly as possible to its former locations and to as good or better condition than found prior to removal.
- D. OWNER's Right of Access: The right is reserved to the OWNER and to the owners of public utilities and franchises to enter at any time upon any public street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the Work of this Contract.
- E. Underground Utilities Shown or Indicated: Existing utility lines that are shown or the locations of which are made known to the CONTRACTOR prior to excavation and that are to be retained, and all utility lines that are constructed during excavation operations shall be protected from damage during excavation and backfilling and, if damaged, shall be immediately repaired by the CONTRACTOR.
- F. Underground Utilities Not Shown or Indicated: In the event that the CONTRACTOR damages any existing utility lines that are not shown or the locations of which are not made known to the CONTRACTOR prior to excavation, a written report thereof shall be made immediately to the OWNER. If directed by the OWNER, repairs shall be made by the CONTRACTOR under the provisions for changes and extra Work contained in the General Conditions.
- G. All costs of locating, repairing damage not due to failure of the CONTRACTOR to exercise

reasonable care, and removing or relocating such utility facilities not shown in the Contract Documents with reasonable accuracy, and for equipment on the project which was actually working on that portion of the Work which was interrupted or idled by removal or relocation of such utility facilities, and which was necessarily idled during such Work will be paid for as extra Work in accordance with the provisions of the General Conditions. Compensation shall not include CONTRACTOR's costs for the coordination of his activities with the utility company affected. CONTRACTOR shall schedule his work in such a manner that he is not delayed by the utilities companies relocating or supporting their facilities. No compensation will be paid the CONTRACTOR for any loss of time or delay.

- H. Approval of Repairs: All repairs to a damaged improvement are subject to inspection and approval by an authorized representative of the improvement owner before being concealed by backfill or other Work.
- I. Maintaining in Service: All oil and gasoline pipelines, power, and telephone or other communication cable ducts, gas and water mains, irrigation lines, sewer lines, storm drain lines, poles, and overhead power and communication wires and cables encountered along the line of the Work shall remain continuously in service during all the operations under the Contract, unless other arrangements satisfactory to the OWNER are made with the owner of said pipelines, duct, main, irrigation line, sewer, storm drain, pole, or wire or cable. The CONTRACTOR shall be responsible for and shall repair all damage due to its operations, and the provisions of this Section shall not be abated even in the event such damage occurs after backfilling or is not discovered until after completion of the backfilling.
- J. The CONTRACTOR shall be solely and directly responsible to the OWNER and operators of such properties for any damage, injury, expense, loss, inconvenience, delay, suits, actions or claims of any character brought because of any injuries or damage which may result from the construction operations under this Contract.
- K. Neither the OWNER nor its officers or agents shall be responsible to the CONTRACTOR for damages as a result of the CONTRACTOR's failure to protect utilities encountered in the work.
- L. In the event of interruption to domestic water, sewer, storm drain or other utility services as a result of accidental breakage due to construction operations, promptly notify the proper authority. Cooperate with said authority in restoration of service as promptly as possible and bear all costs of repair. In no case shall interruption of any water or utility service be allowed to exist outside working hours unless prior approval is granted.

#### 1.6 TREES WITHIN STREET RIGHTS-OF-WAY AND PROJECT LIMITS

- A. General: The CONTRACTOR shall exercise all necessary precautions so as not to damage or destroy any trees or shrubs, including those lying within street rights-of-way and project limits, and shall not trim, relocate or remove any trees unless such trees have been approved for trimming or removal by the jurisdictional agency or OWNER. All existing trees and shrubs which are damaged during construction shall be trimmed or replaced by the CONTRACTOR or a certified tree company under permit from the jurisdictional agency or OWNER and to the satisfaction of said agency and/or the OWNER. Tree trimming and replacement shall be accomplished in accordance with the following paragraphs.
- B. Trimming: Symmetry of the tree shall be preserved; no stubs or splits or torn branches left; clean cuts shall be made close to trunk or large branch. Spikes shall not be used for climbing live trees. All cuts over 1-1/2 inches in diameter shall be coated with an asphaltic emulsion material.
- C. Replacement: The CONTRACTOR shall immediately notify the jurisdictional agency and/or the

OWNER if any tree is damaged by the CONTRACTOR's operations. If, in the opinion of said agency or the OWNER, the damage is such that replacement is necessary, the CONTRACTOR shall replace the tree at his own expense. The tree shall be of a like size and variety as the tree damaged, or, if of a smaller size, the CONTRACTOR shall pay to the OWNER of said tree compensatory payment acceptable to the tree owner, subject to the approval of the jurisdictional agency or OWNER.

1.7 NOTIFICATION BY THE CONTRACTOR

- A. Prior to any excavation in the vicinity of any existing underground facilities, including all water, sewer, storm drain, gas, petroleum products, or other pipelines; all buried electric power, communications, or television cables; all traffic signal and street lighting facilities; and all roadway and state highway rights-of-way the CONTRACTOR shall notify the respective authorities representing the owners or agencies responsible for such facilities not less than three (3) days nor more than seven (7) days prior to excavation, so that a representative of said owners or agencies can be present during such Work if they so desire. The CONTRACTOR shall also notify Sunshine State One-Call of Florida, Inc. at 1-800-432-4770 at least two (2) days, but no more than fourteen (14) days prior to such excavation.
  
- B. The CONTRACTOR shall prepare a written notice to property owners adjacent to the project work site notifying them of the schedule of work affecting them and anticipated inconveniences they may expect. The notice shall meet the approval of the OWNER and be delivered to property owners at least 72 hours prior to construction adjacent to their property.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

– END OF SECTION –

**CITY OF ARCADIA**

**SOUTHEAST LOOPING PROJECT –IFB #2018-01**

**SECTION 02222 - EXCAVATION AND BACKFILL FOR UTILITIES**

PART 1 -- GENERAL

1.1 THE REQUIREMENT

- A. Excavate, grade and backfill as required for the site underground piping systems, as directed or as shown on the Drawings and specified herein.

1.2 RELATED WORK SPECIFIED ELSEWHERE

- A. Piping

1.3 SUBMITTALS

- A. General: Submit information and samples to the OWNER for review as specified herein in accordance with the Section 01300 entitled "Submittals".
- B. Dewatering: The CONTRACTOR shall submit to the OWNER its proposed methods of handling trench water and the locations at which the water will be disposed of. Methods shall be acceptable to the OWNER before starting the excavation.
- C. Bedding and Backfill Materials: The CONTRACTOR shall notify the OWNER of the off- site sources of bedding and backfill materials, and submit to the OWNER a representative sample weighing approximately 25 lbs.
- D. Sheeting System: Drawings of any proposed sheeting system and design computations shall be submitted to the OWNER; however, the review of these Drawings shall in no way relieve the CONTRACTOR of the responsibility to provide a safe and satisfactory sheeting and shoring system. Sheeting and shoring shall be designed by the CONTRACTOR, and the proposed design shall be sealed by a Professional Engineer registered in the State of Florida. If the OWNER is of the opinion that at any point sufficient or proper supports have not been provided, it may direct the CONTRACTOR to install additional supports at the CONTRACTOR's expense.

1.4 JOB CONDITIONS

- A. The OWNER will not assume responsibility for variations of sub-soil quality or conditions. The CONTRACTOR shall examine the site or undertake its own subsurface investigations to identify all conditions that may affect its work.

1.5 QUALITY CONTROL

- A. An independent testing laboratory may be retained by the OWNER to do appropriate testing as described in Section 01400 entitled "Quality Control". In this event, the CONTRACTOR shall schedule its Work so as to permit a reasonable time for testing before placing succeeding lifts and shall keep the laboratory informed of its progress.



## 1.6 GROUNDWATER

- A. The CONTRACTOR shall be responsible for anticipating groundwater conditions and shall provide positive control measures as required. Such measures shall ensure stability of excavations, groundwater pressure control, prevention of tanks, pipes, and other structures from being lifted by hydrostatic pressures, and avoiding the disturbance of subgrade bearing materials.

## 1.7 TRENCH SAFETY ACT COMPLIANCE

- A. The CONTRACTOR by signing and executing the contract is, in writing, assuring that it will perform any trench excavation in accordance with the Florida Trench Safety Act, Section 553.60 et. seq.. The CONTRACTOR further identified the separate item(s) of cost of compliance with the applicable trench safety standards as well as the method of compliance as noted in the "Bid Forms" Section of the Contract front-end documents.
- B. The CONTRACTOR acknowledges that this cost is included in the applicable items of the Proposal and Contract and in the Grand Total Bid and Contract Price.
- C. The CONTRACTOR is, and the OWNER is not, responsible to review or assess the CONTRACTOR's safety precautions, programs or costs, or the means, methods, techniques or technique adequacy, reasonableness of cost, sequences or procedures of any safety precaution, program or cost, including but not limited to, compliance with any and all requirements of Florida Statute Section 553.60 et. seq. cited as the "Trench Safety Act". The CONTRACTOR is, and the OWNER is not, responsible to determine if any safety or safety related standards apply to the project, including but not limited to, the "Trench Safety Act".

## 1.8 PROTECTION OF PROPERTY AND STRUCTURES

- A. The CONTRACTOR shall, at its own expense, sustain in place and protect from direct or indirect injury, all pipes, poles, conduits, walls, buildings, and all other structures, utilities, and property in the vicinity of its Work. Such sustaining shall be done by the CONTRACTOR. The CONTRACTOR shall take all risks attending the presence or proximity of pipes, poles, conduits, walls, buildings, and all other structures, utilities, and its Work. It shall be responsible for all damage, and assume all expenses, for direct or indirect injury and damage, caused by its Work, to any such pipe, structures, etc., or to any person or property, by reason of injury to them, whether or not such structures, etc., are identified in advance by the OWNER.
- B. Barriers shall be placed at each end of all excavations and at such places as may be necessary along excavations to warn all pedestrian and vehicular traffic of such excavations. Barricades with flashing lights shall also be placed along excavation from sunset each day to sunrise of the next day until such excavation is entirely refilled, compacted, and paved. All excavations shall be barricaded where required to meet OSHA, local and Federal Code requirements, in such a manner to prevent persons from falling or walking into any excavation within the site fenced property limits.

## PART 2 -- PRODUCTS

### 2.1 MATERIALS

- A. General: Materials shall be furnished as required from on-site excavations or from acceptable off-site sources as required. The CONTRACTOR shall notify the OWNER of the sources of each material at least ten (10) calendar days prior to the anticipated use of the materials.

2.2 BEDDING

- A. Pipe Bedding: In general, clean sandy excavated materials, that are free from organics, clay and construction debris, can be used as pipe bedding when construction is in a dry condition and when the bedding is not sided by muck. Pipe bedding material shall be able to pass through a 3/4-inch sieve. Separation of suitable material for pipe bedding from other material shall be made during the excavation.
- B. Sand shall be used for all copper and other service lines.
- C. In the case of a "dry" installation, sand shall be used for PVC and ductile iron pipe where the bottom of the trench is located in the limestone zone.
- D. In the case of a "wet" installation, pearock shall be used for PVC and ductile iron pipe where the bottom of the trench is located in the limestone zone.
- E. Precast concrete items shall use crushed stone.

2.3 PEAROCK

- A. Pearock shall consist of hard, durable particles of proper size and gradation, and shall be free from organic material, wood, trash, sand, loam, clay, excess fines, and other deleterious materials. Pearock shall conform to the requirements of ASTM C 33, Size Number 8, graded within the following limits:

<u>Sieve Size</u>	<u>Percent Finer by Weight</u>
1/2 inch	100
3/8 inch	85 to 100
No. 4	10 to 30
No. 8	0 to 10
No. 16	0 to 5

2.4 CRUSHED STONE (3/4-INCH ROCK)

- A. Crushed stone shall consist of hard, durable, sub angular particles of proper size and gradation, and shall be free from organic material, wood, trash, sand, loam, clay, excess fines, and other deleterious materials. Crushed stone shall conform to the requirements of ASTM C 33, Size Number 57, graded within the following limits:

<u>Sieve Size</u>	<u>Percent Finer by Weight</u>
1 1/2 inch	100
1 inch	95 to 100
1/2 inch	25 to 60
No. 4	0 to 10

PART 3 -- EXECUTION

## 3.1 EXCAVATION

- A. The CONTRACTOR shall perform all excavation of every description and of whatever substance encountered, to the dimensions, grades and depths shown on the Drawings, or as directed. All excavations shall be made by open cut and in accordance with the Trench Safety Act. All existing utilities such as pipes, poles and structures shall be carefully located, supported and protected from injury; in case of damage, they shall be restored at the CONTRACTOR's expense.
- B. Pipe trenches for piping shall be excavated to a width within the limits of the top of the pipe and the trench bottom so as to provide a clearance on each side of the pipe barrel, measured to the face of the excavation, or sheeting if used, of 8 inches to 12 inches. Where the pipe size exceeds 12 inches, the clearance shall be from 12 inches to 18 inches. All pipe trenches shall be excavated to a level where suitable material is reached, a minimum of 8 inches below the excavated depth that will allow for a minimum of 36 inches of covering unless otherwise indicated by the OWNER. Excavation depths in other types of materials and conditions shall be made as hereinafter specified.
- C. In areas where trench widths are not limited by right-of-way and/or easement widths, property line restrictions, existing adjacent improvements, including pavements, structures and other utilities, and maintenance of traffic, the trench sides may be sloped to a stable angle of repose of the excavated material but only from a point one foot above the crown of the pipe. A substantially and safely constructed movable shield, "box" or "mule" may be used in place of sheeting when the trench is opened immediately ahead of the shield and closed immediately behind the shield as pipe laying proceeds inside the shield.
- D. Ladders or steps shall be provided for and used by workmen to enter and leave trenches, in accordance with OSHA requirements.
- E. Excavation for appurtenances shall be sufficient to provide a clearance between their outer surfaces and the face of the excavation or sheeting, if used, of not less than 12 inches. Manhole excavations shall be carried to sufficient depth to permit their construction on the undisturbed bottom of the excavation.
- F. Excavated unsuitable material shall be removed from the site and disposed of by the CONTRACTOR. Materials removed from the trenches shall be stored and in such a manner that will not interfere unduly with any on-site operations, traffic on public roadways and sidewalks and shall not be placed on private property. In congested areas, such materials as cannot be stored adjacent to the trench or used immediately as backfill shall be removed to other convenient places of storage acceptable to the OWNER at the CONTRACTOR's expense.
- G. Excavated material that is suitable for use as backfill shall be used in areas where sufficient material is not available from the excavation. Suitable material in excess of backfill requirements shall be either used on the site as directed by the OWNER or disposed of by the CONTRACTOR.
- H. Barriers shall be placed at excavations in accordance with OSHA requirements.
- I. Exploratory Excavation: Exploratory excavation shall mean obtaining the horizontal and vertical

position of a subsurface facility using approved methods.

1. The CONTRACTOR shall provide these services as requested in writing by the OWNER to aid in (1) the design of projects, and (2) to facilitate orderly construction of municipal utilities, etc.
2. The CONTRACTOR shall provide all equipment, personnel, and supplies required to perform its locating services. The CONTRACTOR shall determine which equipment, personnel, and supplies are required to perform its locating services.
3. When available, the CONTRACTOR shall secure all plans, plates, maps, or other records of subsurface facilities from their OWNERS.
4. The CONTRACTOR shall obtain all necessary permits from City, County, or other municipal jurisdictions to allow the CONTRACTOR to work in existing streets, roads, and rights of way for the purpose of marking, measuring, excavating, and recording the location of existing underground utilities. The CONTRACTOR shall not be responsible, however, to obtain permits for boring, digging, or other excavating work that is not to be performed by the CONTRACTOR pursuant to this Contract.
5. The CONTRACTOR shall comply with applicable underground utility damage prevention laws.
6. The CONTRACTOR shall coordinate with utility company inspectors as required.
7. The CONTRACTOR shall excavate test holes to expose the utility to be measured in such a manner to ensure the safety of the excavation and the integrity of the utility to be measured. The maximum size opening within the roadway shall not exceed one (1) square foot.
8. Primary Locating Information: Horizontal location referenced to physical structures using a minimum of three swing ties. Depth from paving to top of utility measured in inches. Appropriate data to be shown on test-hole sketch. Outside diameter of pipe or width of duct banks and configuration of non-encased multi-conduit systems. Utility structure material composition, when reasonably ascertainable. Paving thickness and type, and where applicable, the general soil type, site conditions, and depths of any notable horizon changes.

### 3.2 SHEETING AND BRACING

- A. The CONTRACTOR shall furnish, place and maintain sheeting and bracing to support sides of the excavation as necessary to provide safe Working conditions in accordance with OSHA requirements, and to protect pipes, structures and other Work from possible damage. Where wood sheeting or certain designs of steel sheeting are used, the sheeting shall be cut off at a level of two (2) feet above the top of the installed pipe and that portion below the level shall be left in place. If interlocking steel sheeting is used, it may be removed providing removal can be accomplished without disturbing the bedding, pipe or alignment of the pipe. Any damage to the pipe bedding, pipe or alignment of the constructed utility caused by the removal of sheeting shall be cause for rejection of the affected portion of the Work. The OWNER may permit sheeting to be left in place at the request and expense of the CONTRACTOR.

- B. If the OWNER is of the opinion that at any point sufficient or proper supports, have not be provided, it may order additional supports put in at the CONTRACTOR's expense. The CONTRACTOR shall be responsible for the adequacy of all sheeting used and for all damage resulting from sheeting and bracing failure or from placing, maintaining and removing it.

### 3.3 REMOVAL OF WATER

- A. General: It is a basic requirement of these Specifications that excavations shall be free from water before pipe or structures are installed.
- B. The CONTRACTOR shall provide pumps, and other appurtenant equipment necessary to remove and maintain water at such a level as to permit construction in a dry condition. The CONTRACTOR shall continue dewatering operations until backfilling has progressed to a sufficient depth over the pipe to prevent flotation or movement of the pipe in the trench or so that it is above the water table. If at any point during the dewatering operation it is determined that fine material is being removed from the excavation sidewalls, the dewatering operation shall be stopped if acceptable to the OWNER. If any of the sub grade or underlying material is disturbed by movement of groundwater, surface water, or any other reason, it shall be replaced at the CONTRACTOR's expense with crushed stone or gravel.
- C. The CONTRACTOR shall use dewatering systems that include automatic starting devices, and standby pumps that will ensure continuous dewatering in the event of an outage of one or more pumps.
- D. Disposal: Water from the trenches and excavation shall be disposed of in such a manner as will not cause injury to public health, to public or private property, to the Work completed or in progress, to the surface of the streets, cause any interference with the use of the same by the public, or cause pollution of any waterway or stream. The CONTRACTOR shall submit its proposed methods of handling trench water and locations at which the water will be disposed of to the OWNER for review and shall receive acceptance before starting the excavation. Disposal to any surface water body will require silt screens to prevent any degradation in the water body. The CONTRACTOR shall have responsibility for acquiring all necessary permits for disposal.

### 3.4 TRENCH STABILIZATION

- A. No claim for extras or additional payment will be considered for cost incurred in the stabilization of trench bottoms that are rendered soft or unstable as a result of construction methods, such as improper or inadequate sheeting, dewatering or other causes. In no event shall pipe be installed when such conditions exist and the CONTRACTOR shall correct such conditions so as to provide proper bedding or foundations for the proposed installation at no additional cost to the OWNER before placing the pipe or structures.

### 3.5 PIPE BEDDING

- A. Pipe trenches shall be excavated as described in Article 3.01. The resulting excavation shall be backfilled with acceptable pipe bedding material, up to the level of the centerline of the proposed pipe barrel. This backfill shall be tamped and compacted to provide a proper bedding for the pipe and shall then be shaped to receive the pipe. Bedding shall be provided under the branch of all fittings to furnish adequate support and bearing under the fitting.

- B. Any excavation below the levels required for installation of the pipe bedding shall be backfilled with acceptable bedding material, tamped, compacted and shaped to provide proper support for the proposed pipe, at the CONTRACTOR's expense.

### 3.6 BACKFILL

- A. Pipeline trenches shall be backfilled to a level minimum twelve (12) inches above the top of the pipe with select backfill (selected backfill) obtained from the excavation. Such material shall be placed in 6-inch layers, each compacted to the densities specified in Article 3.07. Only hand operated mechanical compacting equipment shall be used within six (6) inches of the installed pipe, or if acceptable to the OWNER, by using excess water and passing a concrete vibrator between the pipe and the side of the trench.
- B. After the initial portion of backfill has been placed as specified above, and after all excess water has completely drained from the trench, backfilling of the remainder of the trench may proceed. The remainder of the backfill shall be selected material obtained from the excavation and shall be placed in horizontal layers, the depth of which shall not exceed the ability of the compaction equipment employed, and in no event shall exceed a depth of nine (9) inches. Each layer shall be moistened, tamped, puddled, rolled or compacted to the densities specified in Article 3.07.
- C. Manholes and Vaults: Any excavation below the levels required for the proper construction of manholes or vaults shall be filled with crushed rock or limestone.

### 3.7 COMPACTION AND DENSITIES

- A. Compaction of backfill shall be 98 percent of the maximum density where the trench is located under structures or paved areas, and 95 percent of the maximum density elsewhere. More thorough compaction may be required when Work is performed in other regulatory agencies jurisdictions, such as the FDOT. Methods of control and testing of backfill construction are:
  - 1. Maximum density of the material in trenches shall be determined by ASTM D 1557.
  - 2. Field density of the backfill material in place shall be determined by ASTM D 1556 or D 2922.
- B. Testing: Laboratory and field density tests, which in the opinion of the OWNER are necessary to establish compliance with the compaction requirements of these Specifications, shall be ordered by the OWNER. The CONTRACTOR shall coordinate and cooperate with the testing laboratory. The testing program will be implemented by the OWNER establishing depths and locations of tests. Modifications to the program will be made as job conditions change. **Density testing shall be performed at all open cut street crossings.**
- C. Trench backfill which does not comply with the specified densities, as indicated by such tests, shall be reworked and recompacted until the required compaction is secured, at no additional cost to the OWNER. The costs for retesting such Work shall be paid for by the CONTRACTOR.

### 3.8 ADDITIONAL EXCAVATION AND BACKFILL

- A. Where organic material, such as roots, muck, or other vegetable matter, or other material which,

in the opinion of the OWNER, will result in unsatisfactory foundation conditions, is encountered below the level of the proposed pipe bedding material, it shall be removed to a depth of two feet below the outside bottom of the pipe or to a greater depths as directed by the OWNER and removed from the site. Sheeting shall be installed if necessary to maintain pipe trenches within the limits identified by the OWNER. The resulting excavation shall be backfilled with suitable backfill material, placed in 12-inch layers, tamped and compacted up to the level of the bottom of the proposed pipe bedding material. Sufficient compaction of this material shall be performed to protect the proposed pipe against settlement. Construction shall then proceed in accordance with the provisions of Article 3.05 "Pipe Bedding".

- B. Additional excavation (more than two feet below the pipe) as indicated on the trench detail shall be performed only when ordered by the OWNER. Where organic or other material is encountered in the excavation, the CONTRACTOR shall bring the condition to the attention of the OWNER and obtain his determination as to whether or not the material will require removal, prior to preparing the pipe bedding. The excavation of material up to a depth of two (2) feet below the outside pipe bottom shall be considered as incidental items of construction, and the Work shall be done at the CONTRACTOR's expense. Where ordered by the OWNER, the additional excavation, backfill and additional sheeting, if required, shall be paid in accordance with the OWNER's Change Order procedure.

### 3.9 FINE GRADING

- A. After piping trenches backfilled, the disturbed areas of the site shall be fine graded. Any lumber, undesirable materials and rocks larger than the 3-inch size shall be removed from the surface. The completed surface shall be to the preconstruction elevation unless otherwise directed by the OWNER. Minor adjustments to line and grade may be required as the work progresses in order to satisfy field conditions.

### 3.10 ALTERNATE METHOD OF CONSTRUCTION

- A. Use of This Method: A combination of conditions in the substrate, water table, or method of disposal may be encountered during the course of the work which makes dewatering impossible, or only possible through the use of unusual methods, the cost of which is excessive. When such conditions are encountered, but only after all reasonable means (pumps, well points, etc.) to dewater the excavation have been employed without success, the CONTRACTOR may request to employ the following Alternate Method of Construction. The concurrence of the OWNER shall be obtained in writing and shall limit the use of the alternate method of construction to such specific portions of the Work as the OWNER shall determine.
- B. The requirements set forth in other sections of these Specifications shall establish the required standards of construction quality for this work. Use of the alternate method of construction described hereinafter shall in no way be construed as relieving the CONTRACTOR of the work. No additional payment will be made to the CONTRACTOR for excavation, backfill, sheeting or any cost incurred for Work or materials, or any other costs incurred as a result of the use of this alternate method of construction. The prices established in the Proposal shall be for full payment for the various items of Work.
- C. Subject to all the requirements stated herein, including written acceptance of the OWNER, construction will be permitted in accordance with the following specifications. All requirements of these Specifications shall apply to this construction unless otherwise specifically modified herein.

- D. Removal of Water: The installation of pipe and appurtenances under water will be permitted and the requirements of Article 3.03 will be waived.
- E. Excavation shall be performed in accordance with Article 3.01.
- F. Pipe Bedding: Pipe bedding shall be placed from six (6) inches below the outside bottom of the proposed pipe barrel up to the centerline of the pipe barrel. The bedding material shall be pearock as specified in Article 2.03 "Pearock". Limerock screenings, sand or other fine organic material shall not be used.
- G. The bedding material shall be placed and then be shaped to receive the pipe at the intended elevation. Bedding shall be provided under the branch of all fittings to furnish adequate support and bearing under the fitting.
- H. Backfill: After the pipe is installed, backfilling shall proceed in accordance with the provisions of Article 3.06 "Backfill" and 3.07 "Compaction and Densities". Select backfill material shall be used to backfill around the pipe and to a level one (1) foot above the crown of the pipe. Under no circumstances will material other than select backfill or specified pipe bedding material be considered satisfactory for this purpose.
- I. If the Alternate Method of Construction is used, all backfill material, including specified pipe bedding material, shall be carefully lifted into the trench and not released to fall freely therein until the bucket or container is at or just above water level. Under no circumstances will backfill material be dumped or pushed into the trenches containing water. Below existing water level, the backfill material shall be carefully rammed into place in uniform layers, of equal depth on each side of the pipe, up to the water level. Above the water level, backfill material shall be placed and compacted for normal backfill as previously specified.

- END OF SECTION -