

059-20 Appendix A - Technical Specifications

Construction Services for the Beverly Hills Offsite Force Main

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3.1 DETAILED SCOPE OF WORK

This project includes three primary components: installation of a new dry-line force main (Part II of bid form), replacement of existing water mains (Part I), and the associated extensive surface restoration for each (Parts III & IV).

The new force main (FM) includes 568’ of 8” PVC open cut pipe, 5,636’ of 12” PVC open cut pipe, 529’ of 14” HDPE horizontal direction drill (HDD) pipe under Edgewood Avenue (FDOT ROW), and 740’ of 14” HDPE HDD pipe under Lem Turner Road (FDOT ROW). The upstream end of the FM includes two stubouts for future connections (one for Beverly Hills West STPO and the other for Beverly Hills East STPO). The completion of this force main project is anticipated to be the critical path for providing service to the Beverly Hills West STPO project, therefore time is of the essence.

The new water mains include replacement of existing 2” galvanized water mains with 315’ of 2” HDPE, 347’ of 4” PVC, 148’ of 6” PVC, & 4,636’ of 8” PVC, all open cut, associated service replacements, new services and additional fire hydrants.

The surface restoration includes the typical items required for open cut pipeline construction such as pavement repair, removal and replacement of driveways, sidewalks, curb-and-gutter, drainage pipes, fencing, and sodding.

3.2 BID DRAWINGS

Titled “Construction Drawings for Beverly Hills Septic Tank Phase Out Offsite Force Main” prepared by England-Thims & Miller, Inc. are included as part of the Bid Documents.

3.3 GEOTECHNICAL REPORT

Titled “Report of Geotechnical Exploration for JEA Beverly Hills Septic Tank Phase Out Proposed Sanitary Sewer Force Main” MAE Project No. 0006-0033 prepared by Meskel & Associates Engineering is included as part of the Bid Documents.

3.4 GROUNDWATER SAMPLING REPORT

Titled “Report of Groundwater Sampling & Analysis for JEA Beverly Hills Septic Tank Phase Out” MAE Project No. 0006-0033 prepared by Meskel & Associates Engineering is included as part of the Bid Documents.

3.5 SUE TEST HOLE REPORTS

Approximately 56 Subsurface Utility Engineering (SUE) test holes were performed by ETM Surveying & Mapping, Inc. and are shown in the Bid Drawings referenced in item 3.2 above.

3.6 RESPONSIBLE BIDDERS LIST (RBL) GC-11 LOCATE LINE VERIFICATION

The Contractor shall identify which subcontractor on JEA's RBL GC-11 Locate Line Services Verification listing will be utilized for the installation of locate wire on piping installed as part of this project. The Contractor may obtain a list of prequalified persons and/or companies by contacting the JEA Procurement Bid Section, 21 W. Church Street, Suite 103, Jacksonville, FL 32202, (904) 665-6740, or by fax (904) 665-7294, or online at JEA.com.

3.7 PERMITS AND PLANS APPROVALS

JEA has obtained the following permits for the project:

- COJ Plan Approval
- JEA Permit for a Domestic Wastewater Collection / Transmission System
- FDOT Permit for HDD crossing of Edgewood Ave on Oriole St.
- FDOT Permit for HDD crossing of Lem Turner Rd. on Ida St.

The Contractor must obtain a SJRWMD Notice of Intent to Use Noticed General Permit for Short Term Construction Dewatering (Form 40C-22-0590-1) prior to the commencement of any dewatering. As part of the permit, a Notice to District of Dewatering Activity (Form RDS-50) must be submitted to the SJRWMD ten days before commencement of dewatering.

Per the Groundwater Report it is recommended that the Contractor acquire the FDEP dewatering permit as part of the Construction General Permit.

The Contractor is responsible for obtaining City of Jacksonville (COJ) Right-of-Way (ROW) Permit and permits for removal or relocation of protected trees prior to construction. The COJ plan approval letter along with a set of the approved plans will be made available to the Contractor to obtain the ROW and Tree Removal Permits (if necessary).

The Contractor is responsible for coordinating and notifying FDOT of planned work within the Lem Turner and Edgewood corridors prior to placing TTC signs or barriers within the FDOT ROW along Edgewood Avenue and Lem Turner Road.

3.8 PERMIT COORDINATION MEETINGS

Contractor shall be responsible for being thoroughly familiar with all permit requirements prior to mobilizing and starting work associated with a particular permit. If a permit requires a notification or meeting with the issuing agency prior to starting work, Contractor shall be responsible for arranging said meeting and informing the JEA Representative. These meetings shall be attended by, but not limited to, the Contractor's Project

Manager, Contractor's Site Superintendent, Permitting Agency Representative, JEA Project Manager and JEA Inspector.

3.9 CONNECTIONS TO EXISTING WATER MAINS AND FORCE MAINS

Contractor shall verify size and type of pipe at each connection prior to ordering materials for connections. For 2" water mains, the cost for connections shall be included in the cost for the 2" water main pipe. For water mains larger than 2", and for all force mains, the cost for connections shall be included in the unit price for the associated connection fitting.

3.10 BYPASS PUMPING

The Contractor shall provide all necessary labor, materials and equipment to maintain the uninterrupted sewer service of laterals, mains, trunks, force mains and pump stations at all times if impacted by this project's Work. The manner in which this is accomplished shall be left to the discretion of the contractor, subject to the requirements of the Contract and the prior approval of JEA. The JEA approval in no way relieves the contractor of any liabilities resulting from the bypass method chosen.

The Contractor shall not allow any sewage, at any time, to be pumped into any drainage structure or to spill, puddle, or run upon any street, construction trench, public or private property.

The responsibility for coordinating the need, length of time, method, and suction and discharge locations for bypass pumping shall be the responsibility of the Contractor subject to approval by the JEA.

3.11 GRASSING/SODDING

The Contractor shall replace all sod in-kind. St. Augustine type grass/sod will not be allowed in City of Jacksonville maintained Right-of-Ways.

3.12 CLEARING AND GRUBBING

Payment for clearing and grubbing shall not be paid for separately, but shall be included in the cost of the associated item of work. Payment will be compensation in full for all clearing and grubbing required for the roadway right-of-way and for any other clearing and grubbing indicated or required for the construction of the entire project area including area of excavated trenches and where trenchless operations are required, including all necessary hauling, furnishing equipment, equipment operation, furnishing any areas required for disposal of debris, leveling of terrain and the landscaping work of trimming, etc. as required.

3.13 DITCH AND SWALE REGRADING

To the extent possible, the Contractor shall constrain its operations to perform all work without encroaching into or otherwise impacting existing ditches or swales.

Where this is not possible, the Contractor shall re-grade the impacted existing ditches or swales as necessary to restore the swales and ditches to their original (or better) condition. The profile of the regraded ditch/swale bottoms shall be linear between upstream and downstream culverts, unless there are constraints necessitating the inclusion of intermediate vertical changes in grade.

No separate payment shall be made for re-grading of drainage ditches as required for restoration, but shall be included in the item on the Bid Form to which it is associated. Payment for sodding of swales and ditches will be separate.

3.14 DUST CONTROL

The Contractor shall utilize a water spray truck to mitigate dusty conditions when roadways are unpaved and construction areas are not sodded. No separate payment shall be made for dust control, all costs shall be merged with the associated item of work shown in the Bid Form.

3.15 EARTHWORK

Measurement and payment for earthwork shall be in accordance with Section 801.IV.

The Contractor shall be responsible for evaluating the geotechnical findings and recommendations along with the construction drawings during the bidding process to determine the estimated quantity of soil to be managed or removed/disposed and replaced in order to meet the requirements of the Contract Documents, and shall be responsible for notifying JEA during the bidding process if it's estimated quantity for imported AASHTO Class A-3 Soil exceeds the quantity shown on the bid form by more than 20%.

3.16 TURBIDITY BARRIERS

The Contractor shall take steps and make suitable provisions to minimize siltation and erosion of waterways that may result from its operation during the course of construction.

The Contractor shall make suitable arrangements, which may require temporary construction of flumes, boxes, or some other device(s), at the Work Location for the drainage and disposal of water. The Contractor shall be responsible for protecting adjacent property to the Work Location from damage by water resulting from its operation. The Work Location shall be returned to its original condition to the satisfaction of JEA.

The Contractor is cautioned that execution or maintenance that creates turbidity and that directly or indirectly affects the water quality of any waterway into which storm water is discharged in such a manner as to exceed the limitations prescribed in the Florida Administrative Code, is a violation of the water quality standards of the State of Florida.

Turbidity levels within the project area (including within 100 ft of the construction activity) shall not exceed background conditions.

The cost for turbidity barriers and other provisions for erosion control shall be included in the unit or lump sum price set forth in the contract for the items to which the turbidity barriers and erosion control provisions are incidental and appurtenant.

3.17 SURVEYING

The Contractor shall be responsible for staking the project stationing, easements and/or right-of-way boundaries. The survey datum used for this project is NAVD 1988.

3.19 FORCE MAIN PROFILE ELEVATIONS

The force main profile shown on the contract drawings indicate the station and elevation for the air release valves (ARV). The ARV must be located at a high point. To ensure this requirement is met, the Contractor shall take station and elevation readings of top of force main pipe at 100-foot intervals. The data collected shall be taken during the progression of the pipeline installation. The Contractor shall submit the station and elevation data to the JEA Representative prior to installing the ARV. JEA will review the elevations to determine if the station (location) for the ARV needs to be adjusted from that shown on the force main (FM) profile. If the Contractor installs the pipeline such that additional high points are created on the pipeline profile beyond that shown on the contract drawings, the Contractor shall be solely responsible for relocating ARV's or furnishing and installing additional ARV/manholes at each of these high points. Elevations should be referenced to the survey benchmark.

3.20 EXISTING UTILITIES

Known surface and subsurface utilities are shown or noted on the drawings as accurately as available information will permit. JEA does not guarantee the information shown or noted or that utilities other than those indicated (on the drawings) do not exist. It is the responsibility of the Contractor to notify each of the utilities at least (15) fifteen working days prior to construction and request that the location of their respective utility or material be located and staked in the field. Should the Contractor encounter an unidentified utility, work in the immediate area shall promptly cease and the JEA representative shall be advised. The JEA representative shall investigate the condition and propose remedial action. The Contractor is reminded of the laws of Florida requiring notification of Gas Companies, at least four (4) working days in advance of any digging operation. The Contractor shall call the Sunshine State One Call of Florida (811) to request location of all facilities owned by utilities that participate in the locate program. Failure by the Contractor to contact Sunshine One Call of Florida prior to digging shall obligate the Contractor for damages to participating utility Contractor and associated repair cost.

In order to reduce the disruption and cost of utility damages occurring in the COJ ROW and Easements, the Contractor shall prevent damages to existing utilities caused by its work through field verification of the location of existing utilities. In the case of open excavation, verification may be performed during the Contractor's work (by hand digging if necessary).

Contractor shall verify the location of existing utilities as needed to avoid contact. Existing utilities shall be exposed using detection equipment or other acceptable means. Such methods may include but shall not be limited to "soft dig" equipment and ground penetrating radar (GPR). The excavator shall be held liable for damages caused to the city's infrastructure and the existing facilities of other utility companies.

3.21 UTILITY POLE HOLDING / SUSPENDING

Holding or suspending of utility poles including power poles and telephone poles shall be performed as needed, and when trenching or excavating is within a horizontal distance from the pole that is less than the depth of the trenching or excavation. Work shall include, but not limited to, furnishing of all material, labor, supervision, tools, and equipment as required to hold/suspend utility poles. Contractor shall review the project and notify the JEA Project Manager of all anticipated holds/suspends within ten (10) days following the notice to proceed. JEA will be responsible for the coordination and provision of utility pole holds/suspends. Notice, giving the exact date and time, for each hold/suspend, shall be provided by the Contractor in writing to the JEA Project

Manager at least two weeks in advance of each hold/suspend. No separate pay item will be made to the Contractor separately, but shall be included in the cost of the associated items in the Bid.

3.22 POLYMER CONCRETE MANHOLE

At locations where new manholes are to be installed, such as at air release valve assemblies, the use of Polymer Concrete Manholes complying with the 2019 JEA Standard Section 427 are an acceptable alternative to concrete manholes with polyurethane specialty liners.

3.23 VALVE AND LOCATE WIRE BOX IDENTIFICATION MARKERS

The Contractor shall furnish and install fiberglass identification markers at all gate valve and locate wire box locations as directed by the JEA Representative. All costs associated with this work shall be included in the associated line item in the Bid Document.

3.24 WORK RESTRICTIONS

The contractor shall confine the active work area to no more than approximately one block at a time. This does not preclude the contractor from working at multiple locations provided separate crews or functions are being performed (i.e. open cut work on Grant and HDD installation on Ida under Lem Turner). City of Jacksonville Traffic Engineering and The Jacksonville Fire and Rescue Communications Center (FRCC) shall be notified of Road Closures / Detours. Provide dates and times of planned closures to trafficing@coj.net at minimum 72-hours ahead of closure / detour.

3.25 PHASING

Any COJ standard pavement repair (excluding final asphalt) shall be completed within 10 calendar days or when approximately 500 LF of roadway is disturbed after completion of the utility installation. All mobilization/demobilization required for rework/regrading of lime rock base, dust control, including asphalt paving shall not be paid for separately but shall be included in the cost of the associated items in the Bid Form.

3.26 COJ PAVEMENT MARKING REQUIREMENTS

Only incidental repair or replacement of pavement markings is anticipated for this project, however the following applies to such incidental occurrences:

- Pavement markings should be placed as shown on the plans and detail sheets. If no specific striping comments are noted on the drawings, the Contractor shall replace damaged/removed striping due to construction activities with like striping and/or reflectors.
- Any required temporary markings must be in place before opening lanes of traffic. The cost for temporary pavement markings shall be included in the cost of the asphalt surface course.
- The removal of existing pavement markings will be considered an incidental item with no additional compensation provided.

- All permanent pavement markings shall be extruded thermoplastic and meet current City of Jacksonville specifications and FDOT standard specifications, latest edition.
- Thermoplastic pavement markings are to be placed no sooner than 30 calendar days after the completion of the final pavement layer.
- A bituminous reflective pavement marker (RPM) adhesive meeting current City of Jacksonville and/or FDOT specifications shall be used on asphalt roadways.
- The Contractor shall use 4" x4" CLASS –B reflective pavement markers (RPMs) installed to meet current City of Jacksonville specifications and/or FDOT standard specifications. Acceptable examples are: Ennis Paint co., Model 911; Ray-O-Lite, Model AA-ARCII-FH; Apex, 921AR.
- Reflective pavement markers that do not conflict with permanent (thermoplastic) markings shall be placed on all final asphaltic concrete surfaces immediately after the temporary permanent striping is in place.

The Contractor SHALL contact the Pavement Marking Inspector (904-387-8861) 48 hours PRIOR to installing any pavement markings on any City of Jacksonville roadway or streets.

3.27SIDEWALK REMOVAL AND REPLACEMENT

The measurement and payment for this item shall be in accordance with JEA’s Water and Sewer Standard as specified in Section 801.X.1 and 801.X.4. In addition to these requirements, the following conditions apply:

- Payment of the sidewalk removal shall also include removal of all existing retaining walls, steps, handrails, etc. that are not itemized separately on the bid form. These existing improvements shall be removed as part of this work due to their proximity and/or connection to the existing sidewalk.
- Payment of the sidewalk replacement shall also include construction of all pre-existing items that were removed such as but not limited to: retaining walls, steps, handrails, etc. that are not itemized separately on the bid form. All existing improvements that were removed during construction shall be reconstructed in their existing location to their existing configurations utilizing the existing materials to provide an improvement that is equal to or exceeds the pre-existing condition.

3.28TEMPORARY WATER MAIN

On Lake Park Drive, the location of the proposed water main is in such close proximity to the parallel existing water main that it is anticipated that a Temporary Water Main will be required to maintain water service during construction, and this temporary main is shown on the plans.

It is anticipated that the temporary main will be at-grade and require ramping or other special measures to maintain vehicular access at driveway crossings.

Payment for the temporary main shall be made at the contract unit price for “Temporary Water Main (Lake Park Dr.)” on the bid form, and shall include the cost of temporary services, ramping, and all other costs associated with the temporary main.

At all other locations within the project, the location of the proposed water main is anticipated to be a sufficient distance from the existing water main to allow the existing main to remain in service during construction,

therefore the contractor shall be responsible for protecting those existing mains during construction, and the costs of all such protection shall be included in the cost for the proposed water main.

3.29 REMOVAL & REPLACEMENT OF CURB & GUTTER (CONTINGENCY)

On Lake Park Drive, the location of the proposed water main is in such close proximity to the parallel existing curb-and-gutter that it is anticipated that removal and replacement of the curb-and-gutter may be necessary for installation of the proposed water main, therefore the limits of such is shown on the plans as a contingency, and itemized on the bid form as “Remove & Replace Curb And Gutter (Contingency - Lake Park Dr.)”.

If the Contractor believes that it can install the proposed water main without damage to the existing curb-and-gutter, then it shall be optional to leave it in-place, and all costs for protection of the existing curb-and-gutter shall be included in the cost of the proposed water main.

If the Contractor does remove and replace the existing curb-and-gutter, then it shall be done with the utmost care to protect the existing adjacent roadway surface course, base, and subgrade from damage, and the costs of all such protection and repair of damage shall be included in the cost for the removal and replacement of the curb-and-gutter.

3.30 PAVEMENT REMOVAL

Saw cuts must be used on all asphalt and concrete removal.

3.31 TEMPORARY PAVEMENT

Unit costs for pipes shall include all temporary pavements as necessary to restore the roadway after each working day, until final permanent pavement repair is made.

3.32 PAVEMENT REPAIR

Two types of pavement repair are included in this project: Cross-Cuts and Parallel, as discussed individually below.

- **CROSS-CUTS REPAIR**

For proposed pipes that cross existing roadways perpendicularly or diagonally, pavement repair shall be constructed in accordance with the revised Case X Permanent Pavement Repair detail on Drawing No. PD-1 in the plans.

The basis for this detail is the City of Jacksonville Plate P-409, with the exception of the following revised items which are noted below that detail:

- ❖ The limerock bearing ratio (LBR) was revised to 100.
- ❖ Temporary Type II repair was deleted and not allowable on this project.
- ❖ The required asphalt thickness was revised to “Match Existing Pavement Thickness with No Less than 1 1/4” Minimum”.

- **PARALLEL REPAIR**

For proposed pipes that are oriented parallel to the existing roadways, pavement repair shall be constructed in accordance with the details shown on Drawings No. PD-2 & PD-3 in the plans.

On Oriole and Grant Streets (Dwg. No. PD-2), a significant portion of the existing pavement width is to remain and be protected during pipeline installation, with the existing surface course then being milled and overlaid upon completion.

For Ida Street (Dwg. No. PD-3), the proposed water main and proposed force main locations result in the entire roadway width being impacted. As shown in the details there are two options for the pavement repair on Ida Street:

- ❖ The “Basis-of-Bid” repair option essentially consists of two adjacent modified Permanent Case X repairs, with horizontal limits of limerock base repair expanded to encompass the entire roadway width, and with sequencing of the asphalt layers resulting in at least the top layer being applied uniformly and continuously across the entire roadway width. Final section consists of 4”± of asphalt and variable thickness limerock base of 6”-12”.
- ❖ The “Alternate” repair option essentially consists of two separate Temporary Case X repairs, followed by complete rebuild of the roadway with final section consisting of 1.5” asphalt, 8” limerock base, and 12” stabilized subgrade. It shall be the Contractor’s option regarding which of these two approaches is constructed, however no additional payment above the “Basis-of-Bid” cost will be made if the Contractor selects the “Alternate” option.
- ❖ The variable cross-slopes and profile along the existing Ida Street do not appear conducive to replacement using a constant cross-slope template and continuous profile without extensive regrading of the adjacent right-of-way areas. Therefore, as noted in the details, the proposed pavement elevations shall match the existing pavement elevations as defined by the survey spot elevations shown on the plans and summarized in the table on the detail sheet. The Contractor shall provide as-built elevations for each entry shown in the table.
- ❖ The Contractor shall notify JEA prior to commencement of construction which of these two pavement repair options will be implemented, and that option shall be utilized throughout the entire length of roadway repair.

The horizontal limits of pavement repair are shown on the plans, and almost all fall within the area of proposed 1.5” Mill-and-Resurface shown on the plans.

The details specify that the top 1.5” of asphalt within the pavement repair areas shall be placed concurrently with the 1.5” of Mill and Resurface on the adjacent pavement section, in order to provide a smooth and continuous final surface.

Therefore, payment for all elements of the permanent pavement repair except for the top 1.5” of asphalt shall be made at the contract unit price for “Case X Pavement Repair Permanent” on the bid form.

Payment for the top 1.5” of asphalt in the pavement repair areas shall be made at the contract unit price for “1.5” Mill & Resurface” on the bid form, even though no actual milling will likely occur in the repair areas.

3.33 REMOVE & REPLACE EXISTING RETAINING WALL

On Palmdale Street, there is an existing retaining wall that is anticipated to require removal during installation of the proposed force main, which shall be paid for at the contract unit price for “Removal of 6” Concrete

Retaining Wall” on the bid form, which shall include the costs for relocation of the existing survey benchmark on that wall (Nail & Disk set in top of retaining wall labelled “Benchmark” LB 3624 ELV=7.52 NAVD 88) as specified on the plans.

The basis-of-bid shall be for replacement of this wall, and shall be paid for at the contract unit price for “6” Concrete Retaining Wall” on the bid form, which shall include the costs for providing shop drawings of the proposed replacement wall signed and sealed by a structural engineer licensed in Florida as specified on the plans.

However, it appears that there may be sufficient distance from this wall to the right-of-way line to regrade the area between the right-of-way line and back-of-sidewalk at no steeper than a 4:1 slope as shown on the “Bid Alternate” detail “Regrade Existing Right-of-Way Instead of Replacing Retaining Wall” on Dwg PD-2 of the plans.

At time of bid, the option of providing such regrading is pending the approval of both the property owner and the City of Jacksonville, therefore the basis-of-bid shall be for replacement of the wall.

3.34 DRIVEWAY REPLACEMENT

All existing driveways that will be impacted by the project will be replaced to match their existing geometry as shown on the plans. All replacement driveways will be concrete, regardless of the existing driveway material. The maximum limits of driveway replacement shall be from the roadway edge-of-pavement to the right-of-way line as shown on the plans.

At almost all driveway replacements, it is anticipated that the physical condition of the underlying driveway culvert will be sufficient to remain, and the Contractor shall protect the culvert from damage during driveway removal and replacement. For several driveways, the field survey identified crushed driveway culverts, and these culverts are to be removed and replaced as shown on the plans. Payment for removal shall be made at the contract unit price for “Remove Storm Piping (All types/sizes)” on the bid form, and payment for replacement shall be made at the contract unit price shown on the bid form for the size and type of culvert.

3.35 WATER SERVICES

Two types of water services are included in this project: new services to currently unserved lots, and removal and replacement of existing services.

New meter boxes for the new services shall be placed at the right-of-way line as shown on the plans.

For the Existing meter boxes, some are to remain in place and others are to be relocated to the right-of-way line as shown on the plans.

In general, existing meter boxes located between the proposed water main and the right-of-way line are to remain in place unless JEA deems that they are in an undesirable location, such as within driveways, ditches, etc., in which case they shall be relocated to the right-of-way line.

Existing meter boxes that are not located between the proposed water main and the right-of-way line shall be relocated to the right-of-way line.

Payment for new services shall be made at the contract unit price for “Furnish & Install New Water Service” by size and type as shown on the bid form.

Payment for removal and replacement of existing services shall be made at the contract unit price for “Remove & Replace Existing Water Service” by size and type as shown on the bid form, and shall include all existing services regardless of whether the meter box remains in-place or is relocated. No separate payment will be made for meter box relocations.

3.36 HORIZONTAL DIRECTIONAL DRILLS

Two horizontal directional drills (HDD) for the proposed force main are included in this project: one under Edgewood Avenue, and the other under Lem Turner Road, both of which are FDOT right-of-ways.

The proposed HDD profiles shown on the plans are preliminary, are based on results from the Plastic-Pipe-Institute (PPI) “BoreAid” calculator, and are shown for informational purposes only.

The Contractor shall be responsible for designing the final HDD profile, which shall be submitted to JEA for review and approval prior to construction.

The Contractor shall maintain vehicular access to all driveways at all times, with the only exception being when pipe pullback operations are actively in progress, when the access may only be blocked for the absolute minimum amount of time necessary. The Contractor shall be responsible for coordinating and scheduling any access blockages with JEA Outreach at least two weeks in advance of any blockage, with JEA Outreach being responsible for notifying all affected residents.

The Contractor shall recognize that the stringency of the maintenance of access requirements above will necessitate extensive special measures, including but not limited to providing means to temporarily elevate and/or move pipe sections, and/or assembling the pipe string off-site, and then moving it to the pullback location immediately prior to pullback operations. The Contractor shall be responsible for obtaining such off-site location(s), and shall provide to JEA prior to construction evidence of property owner permission to use such location(s), along with a plan and schedule for pipe-string assembly and installation. The cost for all special measures shall be included in the contract unit price for the HDD shown on the bid form.

3.37 REINFORCED CONCRETE CAP OVER WATER MAIN OR FORCE MAIN

For locations where proposed water mains or force mains cross under existing ditches, where physically possible 30 inches of cover shall be provided between the bottom of the existing ditch and the top of the proposed pipe.

If providing 30 inches of cover is not physically possible due to conflicting pipes, structures, conduit, or dimensional constraints, then if approved by JEA the proposed pipe may be installed at reduced cover and protected by a concrete cap in the bottom of the ditch as shown on the “Reinforced Concrete Cap Over Water Main or Force Main” detail in the plans. In such cases, it is preferable if possible to provide at least 12 inches of cover between the bottom of the concrete cap and the top of the proposed pipe, with 6 inches being the absolute minimum.

3.38 PIPE BEDDING & TRENCH DETAILS

In City of Jacksonville right-of-ways, both water main and force main bedding and trenches shall be as shown on Plate W-42 in the plans.

In FDOT right-of-ways, both water main and force main bedding and trenches shall be as shown on Plate W-42A in the plans.

For other locations, both water main and force main bedding and trenches shall be as shown on the Type A and Type B Bedding and Trench Details on Dwg PD-4 in the plans.

3.39 ABANDONMENT of EXISTING WATER MAINS

The existing water mains that are to be replaced by this project shall be abandoned as delineated on the plans, utilizing the plugging method described in Section 801.III.2.2, with the exception that the costs for all fittings and other work required for the abandonment shall be included in the cost of the proposed water main.