

APPENDIX A – TECHNICAL SPECIFICATIONS

063-20 Construction Services for Boulevard Street Force Main and Water Main Replacement

Table of Contents

901	SCOPE OF WORK.....	3
902	GENERAL CONDITIONS.....	3
903	QUALITY CONTROL AND QUALITY ASSURANCE	4
904	BID DRAWINGS.....	4
905	GEOTECHNICAL REPORT	4
906	SUE TEST HOLE REPORTS.....	4
907	ROW PERMIT	4
908	RESPONSIBLE BIDDERS LIST (RBL) GC-11 LOCATE LINE VERIFICATION.....	4
909	UPDATED SURVEYING	4
910	MAINTENANCE OF TRAFFIC	5
911	DRIVEWAY ACCESS TO BUSINESSES	5
912	PIPE UNIT COST.....	5
913	DRAINAGE ALONG RIGHT OF WAY AND UTILITY EASEMENT	5
914	PREVENTION, CONTROL AND ABATEMENT OF EROSION AND SILTATION	5
915	PHASING.....	6
916	TEMPORARY MAILBOX REMOVAL/RELOCATION.....	6
917	PERMITS AND PLAN APPROVALS	6
918	PERMIT COORDINATION MEETINGS.....	6
919	PROJECT OUTREACH MEETINGS	7
920	COMPANY’S STAGING, STORAGE AND STOCKPILE AREA	7
921	TRAFFIC SIGNAGE.....	7
922	TEMPORARY ROADWAYS.....	7
923	CONNECTIONS TO EXISTING WATER AND SEWER UTILITIES.....	8
924	DEWATERING	8
925	CSI GEO MONITORING ALLOWANCE	8
926	FRAC TANK ALLOWANCE.....	8

927	TIE-IN CONNECTIONS SEQUENCING CONSTRAINTS.....	8
928	LANDSCAPING.....	9
929	RESTORATION	9
930	GRASSING/SODDING.....	9
931	SEEDING	10
932	CLEARING AND GRUBBING.....	10
933	SWALE AND DITCH CONSTRUCTION / REGRADING.....	10
934	DUST CONTROL	10
935	EARTHWORK.....	10
936	TRENCH EXCAVATION	11
937	TURBIDITY BARRIERS	11
938	SEWAGE SPILLS	12
939	PLANNED OUTAGE FOR SEWER FORCE MAIN-SEWAGE DISPOSAL ALLOWANCE	12
940	FORCE MAIN PROFILE ELEVATIONS	13
941	ABOVE GRADE ARV ASSEMBLY	13
942	UPDATED AS-BUILTS.....	13
943	EXISTING UTILITIES.....	14
944	UTILITY POLE HOLDING / SUSPENDING.....	14
945	VALVE AND LOCATE WIRE BOX IDENTIFICATION MARKERS.....	15
946	FDOT PAVEMENT MARKING REQUIREMENTS	15
947	FDOT UTILITY PERMIT.....	15
948	COJ PAVEMENT MARKERING REQUIREMENTS.....	15
949	NPDES PERMIT CONFORMANCE	16
950	AS-BUILTS.....	17
951	SPECIAL CONDITION NO. 1: JACK AND BORE.....	18
952	SPECIAL CONDITION NO. 2: CONNECT TO EXISTING FM AT 16 TH	22
953	SPECIAL CONDITION NO. 3: CONNECT TO EXISTING FM AT 12 TH	23

901 SCOPE OF WORK

This request is to solicit bids for construction services to install 447 LF of 12-inch, 1,596 LF of 8-inch, 108 LF of 6-inch CLDI Water Main, 3,479 LF of 16-inch, 20 LF of 14-inch DR-25 PVC Force Main, and abandon approximately 3,463 LF of 14-inch, 428 LF of 12-inch, 785 LF of 10-inch, 1,010 LF of 8-inch, and 70 LF of 6-inch CI pipe along Boulevard St.

The Company shall strictly follow JEA's Water and Wastewater Standards Manual, issued January, 2020, during the construction of the improvements. Contractor shall use a Request for Information in the event of a discrepancy.

The following is a link to the JEA Water and Wastewater Standards: https://www.jea.com/Engineering_and_Construction/Water_and_Wastewater_Standards/

The Company shall follow and comply with COJ Land Development Code and JEA Water and Wastewater Standards.

902 GENERAL CONDITIONS

The line item shown on the Bid Form titled "General/Special Conditions Lump Sum Price" shall be used for general and special expenses which do not appear as separate line items on the Bid Form, including, but not limited to, costs and expenses related to the following:

- The execution and recording of the Payment and Performance Bonds
- Safety requirements
- Quality Control
- Preparation of daily reports
- Maintenance of traffic
- Attendance of meetings, project scheduling
- Testing (if not included elsewhere)

Except as provided below for expenses related to Bonds and Surveying, JEA's payment for the General/Special Conditions line item shall be based upon the percentage of Work completed.

Bonds - Company will be permitted to invoice JEA, in its first payment application, for the costs associated with the execution and recording of the Payment and Performance Bonds. The amount paid by JEA for the Payment and Performance Bonds will be deducted from the General/Special Conditions line item total.

Surveying – Prior to construction, the Company will be permitted to invoice JEA for costs associated with the survey of the existing roadway horizontal alignment. The amount paid by JEA for these costs will be deducted from the General/Special Conditions line item total.

SWA - In the event that JEA authorizes changes to the Work under a Supplemental Work Authorization (SWA), the amount of the Bid Form line item for SWA Allowance will not be increased unless the total value of all SWA Work exceeds the original SWA Allowance provided on the Bid Form.

903 QUALITY CONTROL AND QUALITY ASSURANCE

The Company shall provide Quality Control to ensure the Work is performed in accordance with the Contract. Quality Control shall be appropriate for the nature of the Work, and shall be conducted in a manner consistent with sound quality management and industrial engineering principles. The Company shall have only personnel trained in Quality Control techniques and experienced with the nature of the Work perform the Quality Control function.

JEA may perform Quality Assurance activities. Such activities whether performed or not, do not in any way limit or reduce the Company's requirements. JEA may become aware of quality related problems during its performance of Quality Assurance, but has no obligation to notify the Company of its findings. The Company shall provide access to all areas of Work, including the Company's facilities, for JEA Quality Assurance personnel and JEA Representatives. JEA will conduct Quality Assurance personnel request specific actions of the Company, the Company shall comply with the request and agrees that such compliance is included as part of its Contract Price.

904 BID DRAWINGS

Titled "Construction Drawings for Boulevard Street Force Main and Water Main Replacement" prepared by Jones Edmunds are attached.

905 GEOTECHNICAL REPORT

Titled "Geotechnical Exploration and Evaluation Report - Boulevard St FM and WM" prepared by CSI Geo, Inc. is attached.

906 SUE TEST HOLE REPORTS

Test hole reports 1 through 81 Titled "2984 WO31 Test Holes Reports" prepared by Fraleman & Associates, Inc. are attached.

907 ROW PERMIT

The Company shall obtain a ROW permit from COJ before starting construction activities.

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

Upon request by JEA, Company 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 PVC piping. The Company 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.

909 UPDATED SURVEYING

In addition to the Surveying requirements set forth in Section 2.14.20 of this solicitation, the Company 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. Staking shall be maintained throughout construction, including resurveying and restaking if the stakes are damaged or removed.

The Company shall perform survey of existing roadway horizontal alignment and vertical grade of the existing limits of construction prior starting the work. No separate payment shall be made,

but all costs shall be included in the lump sum cost of the General Conditions line items. If the intent is to remove and replace impacted roadway, curb & gutter, and sidewalk portions to existing alignment, width, and grade to match existing elevations after open cut construction is performed.

All surveying shall be performed by a Professional Surveyor and Mapper (PSM) licensed in the State of Florida.

910 MAINTENANCE OF TRAFFIC

Payment for maintenance of traffic shall be included in the General Conditions lump sum price set forth in the Bid Form Workbook and shall include, but not be limited to, mobilization, excavation, embankment, pavement overbuild, sod, pavement marking removal, pavement marking removable tape, thermoplastic pavement marking, thermoplastic preformed pavement marking, permanent tape for concrete bridges, permanent tape for concrete surfaces, temporary reflective pavement markers, permanent reflective pavement markers, work zone signs, temporary barrier wall, temporary crash cushion, channelizing devices, milling existing asphalt pavement, superpave asphaltic concrete, grounding rumble strips and portable changeable message sign, removal of all MOT components, restoration of the FDOT Right-of-Way to existing conditions, cleaning up the site; furnishing all material, labor, tools, and equipment and all incidental and related work required to complete the work of the item. The Company shall adhere to the maintenance of traffic plans, including construction zone signing, pavement marking, barricades, barriers, etc. as shown on the project drawings. The Company shall provide written approval from Duval County of any proposed alternate MOT plan to JEA prior to starting work in area of alternate MOT plan.

Payment shall be made for the MOT mobilization and installation as two-thirds of the lump sum price. Payment shall be made for the MOT demobilization and removal as one-third of the lump sum price.

911 DRIVEWAY ACCESS TO BUSINESSES

Contractor to maintain at least one driveway access to all businesses and parking lots at all times.

912 PIPE UNIT COST

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

913 DRAINAGE ALONG RIGHT OF WAY AND UTILITY EASEMENT

The Company shall so conduct its operations and maintain the Work in such condition that adequate drainage shall be in effect at all times. The Company shall not obstruct existing gutters, ditches and other runoff facilities.

914 PREVENTION, CONTROL AND ABATEMENT OF EROSION AND SILTATION

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

The Company 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 shall not exceed 29 NTU's, above background level within 100' of the construction activity. Costs incurred by the Company for compliance to the restrictions outlined above shall be included in the cost of the items for which the turbidity control is required, unless a separate line item is included in the Bid Document for turbidity control. Silt barriers shall be used at all waterway crossings or at any time during construction that siltation or erosion may occur. The Company shall submit to the JEA Engineer, for written approval prior to construction, the method to be used to control the turbidity. The JEA Engineer's approval of the method to be used in no way relieves the Company of the liability in case of a citation against JEA.

915 PHASING

Any COJ standard pavement repair shall be completed within 10 calendar days or when 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.

916 TEMPORARY MAILBOX REMOVAL/RELOCATION

Contractor shall remove and temporarily relocate any mailboxes that are in conflict with construction for that working day. All mailboxes removed/relocated shall be reinstalled by the end of that workday. It is the contractor's responsibility to protect all mailboxes from damage during construction. Damage to any mailboxes during construction will be replaced at the Contractor's expense. All costs associated with temporary relocating mailboxes shall not be paid for separately but shall be incorporated in the associated line item work.

917 PERMITS AND PLAN APPROVALS

JEA has obtained the following permits for the project:

- COJ Plan Approval – CDN 4161.296
- FDEP Permit Exemption Letter
- Norfolk Southern Pipe Occupation ROW Permit

918 PERMIT COORDINATION MEETINGS

Company 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, Company shall be responsible for arranging said meeting and informing the JEA Representative. The following

shall be attended by, but not limited to, the Company's Project Manager, Company's Site Superintendent, Permitting Agency Representative, JEA Project Manager and JEA Inspector.

919 PROJECT OUTREACH MEETINGS

The Company's project manager, superintendent and customer satisfaction representative for this Work shall be required to attend JEA project outreach meetings including potential "Town Meetings" scheduled through JEA Project Outreach or Duval County.

920 COMPANY'S STAGING, STORAGE AND STOCKPILE AREA

No additional staging, storage, and stockpile will be made available by JEA along the project site. The Company is not allowed to store any equipment or materials outside the right-of-way and JEA's designated easement limits without written agreement with land owner. The location will be agreed to upon and/or otherwise discussed at the pre-construction meeting.

921 TRAFFIC SIGNAGE

Costs incurred by the Company to provide new signage and pavement markers, or remove and replace existing signage as necessary to accomplish the work shall not be paid for separately but shall be merged with the cost of the associated item of work. Damaged signage shall be replaced with new signage. All signage and pavement markers shall be in accordance with the drawings and FDOT requirements.

922 TEMPORARY ROADWAYS

If the Company's operations render any street or private way potentially unsafe, the Company shall make such repairs or provide such temporary ways and guards necessary for the protection and safety of persons on the Work Site and the public, and for the orderly maintenance of traffic.

The Company shall always provide and maintain a hard-surfaced roadway for traffic. Where temporary detours of lanes are required, they shall be asphalt-paved by the Company. The Company may construct paving section(s) appropriate to support traffic, provided the surface is smooth and the profile reasonable, and as a minimum, consists of 1 inch of bituminous structural course over a 6-inch lime rock base that was inspected and approved by the JEA Engineer. Should any temporary pavement fail, the Company shall be responsible for repairing it, at its own cost, before close of Work on the day notification is given. Should the Company be unable to make such repair by close of Work, the Company shall notify the JEA Engineer and provide an estimated time when repairs can be made. No repair timeframes shall exceed 48 hours. Any damages, either direct or indirect, resulting from such temporary pavement failures shall be the sole liability of the Company.

All lime rock base material used for temporary pavement and constructed in proposed grassed areas shall be completely removed and disposed of by the Company prior to final restorative grassing operations. The area shall be backfilled with material stockpiled on the Work Location that is conducive to growth of the plant material. All costs associated with this work shall be included in the associated line item in the Bid Form Workbook.

923 CONNECTIONS TO EXISTING WATER AND SEWER UTILITIES

Company shall verify size and type of pipe at each connection prior to ordering materials for connections.

924 DEWATERING

If the Company encounters groundwater, the Company shall be responsible for utilizing a dewatering system(s) to remove water from the excavations. Prior to beginning any dewatering activities, the Company shall comply with all requirements listed in Florida Department of Environmental Protection (FDEP) Dewatering Regulations.

Additionally, prior to any dewatering, the Company shall apply for a St. Johns River Water Management District (SJRWMD) Generic Permit for Short Term Dewatering, and comply with all SJRWMD requirements.

If the above requirements are not followed, the Company shall be held liable for any fines and/or violations incurred by JEA.

925 CSI GEO MONITORING ALLOWANCE

The pipeline route associated with this project passes by several known contamination sites according to the Florida Department of Environmental Protection's Contamination Locator Map.

The Dewatering Plan prepared for this project was developed by CSI Geo, Inc. They have critical background knowledge of the circumstances and have been involved in correspondence with FDEP on the matter. Their involvement during construction is beneficial in meeting requirements detailed by FDEP.

As a result, the Company shall be required to retain CSI Geo, Inc. for the purpose of continuous monitoring of the contamination levels of groundwater discharged by dewatering activities.

Payment for monitoring services will be a direct pass-through to JEA. Any services rendered will be billed to JEA at cost, with no markup, and paid by the CSI Geo Monitoring line item in the Bid Workbook. The invoice substantiating the billed cost to JEA must accompany each associated Pay Application.

926 FRAC TANK ALLOWANCE

927 TIE-IN CONNECTIONS SEQUENCING CONSTRAINTS

The following tie-in connections sequencing constraints are to emphasize critical tasks related to connections to existing systems for the work in this Contract. It is not a complete list of all work to be completed.

The Company shall give a minimum of 5 working days advance written notice to JEA of each component proposed for shutdown, tie-in, or disruption, all of which shall be subject to JEA's approval and limitation. The request shall include, but not be limited to, points of connection, fittings to be used, method of flushing, and estimated construction time for connection. All connections and ties to the existing system and transfer of services shall be performed by the Company under the JEA's direction. The Company shall not operate any valves in the existing system.

JEA reserves the right to postpone connections to existing utilities due to operational and/or weather related concerns.

Connection to the existing system may depend on the closure of certain valves. The existing valves may not be operable or may not seal properly. The Company shall coordinate with JEA in advance of connections to determine condition of existing valves.

928 LANDSCAPING

Except for trees designated for removal and/or replacement and areas within the designated limits of clearing on the contract drawings, the Company shall be responsible for protection and preservation of all trees, palms, shrubs, irrigation systems, landscaping, signs, and etc. along the route of the proposed work including hand digging, removal and storage of such and subsequent replacement to the fullest extent possible of the pre-existing condition. All costs associated with such shall not be paid for separately and shall be included in the unit prices of the associated items listed on the Bid Form Workbook.

929 RESTORATION

The drawings show limits for all restoration items based on the existing design location of the proposed main and are provided for the Contractor's convenience. If the Contractor is forced to move the main into pavement or sidewalk due to a direct conflict with a utility or tree, the JEA Representative must be notified immediately and authorize such work.

Damage to asphalt, sidewalks, or curb and gutter (not indicated for removal and replacement) will be replaced at the Contractor's expense unless otherwise authorized by JEA.

930 GRASSING/SODDING

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

Disturbed areas within the FDOT and COJ Right-of-Ways must be restored to original or better conditions using sod which complies with the applicable FDOT or COJ requirements and specifications. All disturbed areas shall be restored by resodding (if grass was established pre-construction) or seeding and mulching in accordance with Section 441 of the JEA Water and Wastewater Standards Manual, titled, Grassing.

JEA will only pay for sod within a span of ten (10) feet across the centerline of installed pipe along the approximate nine hundred ninety-five (995) LF of COJ ROW expected to be disturbed during construction. This includes approximately forty (40) LF at STA 12+22.4 where the pipe leaves the Pump Station and approximately nine hundred fifty-five (955) LF from STA 32+58.9 to STA 42+13.8. Beyond these bounds, the Company will be responsible for supplying and

installing additional sod as required to restore disturbed areas to the satisfaction of JEA, at no cost to JEA.

All material and labor required to complete this work shall be included in the Bid Form Workbook line item for sodding.

931 SEEDING

All disturbed areas outside of designated sodding area shall be restored by seeding and mulching in accordance with Section 441 of the JEA Water and Wastewater Standards Manual, titled, Grassing.

As there are no anticipated seeding areas, any proposed seeding will need to be approved prior to application. This includes price and proposed bounds for application.

932 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.

933 SWALE AND DITCH CONSTRUCTION / REGRADING

The Company shall re-grade all existing swales and ditches as necessary to restore the swales and ditches to their original (or better) condition. No separate payment shall be made for re-grading or construction of new drainage ditches as required for restoration, but shall be included in the Bid Form Workbook line item for pipe installation. Payment for sodding of swales and ditches will be separate.

934 DUST CONTROL

The Company shall utilize a water spray truck to mitigate dusty conditions when roadways are unpaved and construction areas are not sodded.

935 EARTHWORK

It shall be the sole responsibility of the Company to evaluate the geotechnical findings and recommendations along with the construction drawings to determine the quantity of soil to be managed or removed/disposed and replaced in order to meet the requirements of the Contract Documents. No separate payment shall be made for stockpiling, managing, mixing, and/or removal, disposal, importation and placement of A-3 sand required for backfill and/or over-excavation (bedding) material for the pipeline(s) and structures, but all costs shall be merged with the associated item of work shown in the Bid Form Workbook. Excess and/or unsuitable material shall become the property of the Company and shall be disposed of outside of the right-of-way.

936 TRENCH EXCAVATION

Topsoil shall be stripped from the top of the trench and placed to the side for reuse during the final layer of backfill to facilitate productive growth of lawns, crops, and other vegetation, minimizing sod damage in all areas. Trenches shall be of sufficient width to provide free working space on each side of the pipe and to permit proper backfilling around the pipe, but unless specifically authorized by the ENGINEER, trenches shall in no case be excavated or permitted to become wider (as measured at the top of the pipe) than 2 feet plus the nominal diameter of the pipe. The desired width shall be the nominal diameter of the pipe plus 16 inches. The minimum allowable trench width shall be the nominal diameter of the pipe plus 6 inches. Trenching equipment that cannot maintain these minimum widths will not be allowed for use on the project.

Trench excavation shall proceed far enough ahead of pipe laying to reveal any obstructions that might necessitate changing the line or grade of the pipeline. The trench shall be reasonably straight and uniform in grade. Trenches shall be kept free of water during the construction of the pipeline and removal of water shall be at the Contractor's expense. Trench excavation shall proceed in a continuous manner from the beginning of the pipeline to the end.

Unless specifically authorized by the ENGINEER, no skipping by obstacles such as rock, road crossings, existing utilities, etc. shall be permitted. If skips are authorized by the ENGINEER and the CONTRACTOR does not close the resulting gaps in the pipeline in a timely manner, the ENGINEER may require the CONTRACTOR to discontinue all other operations until the gaps are closed.

Unless specifically directed otherwise by the ENGINEER, not more than 500 feet of trench shall be opened ahead of the pipe laying, and not more than 500 feet of open ditch shall be left behind the pipe laying. All barricades, lanterns, watchmen, and other such signs and signals as may be necessary to warn the public of the dangers in connection with open trenches, excavations, and other obstructions, shall be provided by and at the expense of the CONTRACTOR.

At the close of each working day all trenches that have been excavated shall be refilled unless exceptions are granted by the ENGINEER. All public or private drives shall be promptly backfilled or bridged at the direction of the ENGINEER.

All excavation shall be "unclassified" and therefore the cost of all excavation should be merged into the construction of the pipeline.

937 TURBIDITY BARRIERS

The Company 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 Company 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 Company 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 Company 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 with 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 is 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.

938 SEWAGE SPILLS

The Company shall minimize the amount of sewage released into excavations by notifying affected parties of the service interruption, pre-draining affected lines, insuring pump station (non-)operating status, etc. The Company shall notify JEA immediately verbally, with written notification to follow.

The Company shall take precautions to prevent sewage from contacting the ground. If sewage contacts the ground, the Company shall take appropriate measures to disinfect the area of the sewage release. If pooling sewage is observed, the Company shall vacuum remove the sewage, or remove the sewage by other means acceptable to the JEA Representative, and dispose of the sewage in accordance with environmental and public health regulations. The Company shall clear any sanitary systems found plugged due to this type of pumping activity at its own expense.

939 PLANNED OUTAGE FOR SEWER FORCE MAIN-SEWAGE DISPOSAL ALLOWANCE

The Company is to notify the JEA Project Manager a minimum of three (3) weeks prior to the planned outage request for final tie-in to the existing 14" Force Main on Boulevard Street. The outage shall be scheduled to occur during low flow conditions as designated by JEA O&M Personnel. Valves are to be operated by JEA personnel and affected JEA pumping stations shall be operated by JEA O&M Personnel. Contractor shall provide pump trucks for private lift stations. Contractor shall coordinate with private lift station operation and maintenance contractor. JEA Representatives shall be present during interruption of service.

The tie-in shall be made by the Company. Pump truck discharge will be to a gravity manhole within a five (5) mile radius of the work area. The gravity manhole for the pump truck discharge shall be designated by JEA O&M Personnel. In addition, the Company shall provide crushed rock, lined with visqueen, as needed for the tie-in excavation with the intent to capture the pipeline wastewater for dewatering purposes.

Where sewage disposal is needed to tie into the Boulevard Street Pump Station, payment will be handled by the Sewage Removal Allowance line item as a pass-through cost to JEA, with no markup.

Payment for sewage disposal related to tying into the existing 14" Boulevard Street force main will be covered by the prevailing Special Condition line item in the Bid Form, either No. 2 or No. 3 - detailed in sections 952 and 953, respectively, of this Technical Specification.

The Company shall submit with the corresponding pay application, verification of the hourly charge and the total number of hours of pump trucks utilized for justification of pass-through cost payment shown on the Bid Form. All other costs associated with the planned outage shall not be paid for separately; but, shall be included in the cost of the associated items in the Bid Form.

940 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 Company 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. Once the stations and elevations are collected, submit to the JEA Representative prior to installing the ARV. The JEA Engineer 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 Company installs the pipeline such that additional high points are created on the pipeline profile beyond that shown on the contract drawings, the Company shall be solely responsible for furnishing and installing additional ARV/manholes at each of these high points. Elevations should be referenced to the survey benchmark.

941 ABOVE GRADE ARV ASSEMBLY

The above grade ARV assembly(ies), including all associated material and labor required to comply with Detail S-29 of the Construction Documents, shall be paid at the lump sum unit price set forth in the Bid Form Workbook.

942 UPDATED AS-BUILTS

Upon submission of each payment application, Company shall furnish to the JEA Project Manager a photocopy "redline" set of drawings identifying those field changes made to the Work to date, along with a photocopy set of the associated field notes. Revisions and recording of information on the photocopy set of drawings shall be done in scale in red ink clearly and accurately identifying those changes in the Work by a competent drafter. All "As-Built" information shall be recorded and kept current during the progress of the Work. The JEA Project Manager may review and comment on the drawings which shall be incorporated into the next month's as-built submittal. Failure to incorporate changes the following month may result in denial of pay application request. These requirements only supplement the requirements of the General Conditions.

When the payment of application submitted includes associated items of final restoration for a project, or a portion of the project thereof, then the associated final as-builts shall be submitted as a "redline" marked photocopy set of drawings for that pay period. The Project Manager may

review and comment on the drawings with the view toward final as-built submittal. The subsequent month submittal made with the payment application shall incorporate a photocopy set of CADD drawing final as-builts. The JEA Project Manager shall review and comment on the photocopy set of CADD drawings which shall be incorporated into the final as-built submittal. These requirements only supplement the requirements of the General Conditions.

943 EXISTING UTILITIES

Known surface and subsurface utilities are shown or noted on the drawings as accurately 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 Company 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 company encounter unidentified utility, work in the immediate area shall promptly cease and the JEA representative shall be advised. JEA shall investigate the condition and propose remedial action. The Company is reminded of the laws of Florida requiring notification of Gas Company, at least four (4) working days in advanced of any digging operation. The Company 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 company to contact Sunshine One Call of Florida prior to digging shall obligate the Company for damages to participating utility company and associated repair cost.

In order to reduce the disruption and cost of utility damages occurring in the COJ ROW and Easements, the Company 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 Company's work.

Company 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.

944 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. Company 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 Company 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 Company separately, but shall be included in the cost of the associated items in the Bid.

945 VALVE AND LOCATE WIRE BOX IDENTIFICATION MARKERS

The Company 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.

946 FDOT PAVEMENT MARKING REQUIREMENTS

- Pavement markings should be placed as shown on the plans and detail sheets. If no specific striping comments are noted on the drawings, the Company shall replace damaged/removed striping due to construction activities with like striping and/or reflectors all in accordance with FDOT requirements.
- Any required temporary markings must be in place before opening lanes of traffic. Pay items for temporary pavement markings are not paid for separately but included in the associated item of paving.
- 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 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 FDOT specifications shall be used on asphalt roadways.
- 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.

947 FDOT UTILITY PERMIT

Where interacting with FDOT roadways, The Company shall comply with all requirements and instructions in the latest edition of FDOT's Standard Specifications for Road and Bridge Construction including, but not limited to, the following:

- Lane closure restrictions, Monday through Friday, -No lane closures allowed from 7:00AM to 9:00AM and from 4:00PM to 6:00PM.
- Abandoned utilities must be grout filled or removed completely.
- Signed and sealed dewatering plan prior to commencing work.
- Signed and sealed shoring plan prior to commencing work.

948 COJ PAVEMENT MARKERING REQUIREMENTS

- Pavement markings should be placed as shown on the plans and detail sheets. If no specific striping comments are noted on the drawings, the Company 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. Pay items for temporary pavement markings are to be included in the tabulation of quantities.
- 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 Company 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 Company SHALL contact the Pavement Marking Inspector (904-387-8861) 48 hours PRIOR to installing any pavement markings of any City of Jacksonville roadway or streets.

949 NPDES PERMIT CONFORMANCE

The Company shall comply with the State of Florida Department of Environmental Protection (FDEP) Document No. 62-621-300(4) (a). A copy may be downloaded via internet at http://www.dep.state.fl.us/water/stormwater/npdes/permits_forms.htm and is attached to this section.

The NPDES permit program requires that if the construction activities disturb an acre or greater of land, then the Company must submit the Notice of Intent (NOI) to use the Generic Permit for Stormwater Discharge from Large and Small Construction Activities, FDEP Form No. 62-621.300(4)(b). By applying for the Generic Permit, the Company is certifying that it will develop and implement a Stormwater Pollution Prevention Plan (SWPPP) specifically designed for each construction site. Also involved are certain certifications, notifications, inspections and record keeping activities. The SWPPP and the weekly inspection reports are required to be kept at the project site and available for review upon request.

The SWPPP must be prepared and certified by the Company prior to commencement of construction. The NOI will be initiated by the Company (DEP Document No. 62-621.300(4)(b)) and forwarded to the FDEP and related fee with courtesy copy to JEA (attention: Environmental Services, 21 W. Church Street, Tower 8).

The Company shall also comply with the City of Jacksonville Ordinance 98-994-E. A SWPPP plan that meets the minimum erosion and sedimentation control measures required by the City of Jacksonville may be included in the Construction Drawings. However, the Company is responsible for providing a SWPPP that will adhere to the requirements delineated in DEP Document No. 62-621.300(4)(a). This may require amendment or provision of additional information and controls to the SWPPP included in the Drawings. No separate payment shall be made for a SWPPP and its implementation, but all associated costs shall be included in the associated item of work in the Bid Form.

The Company shall obtain all other applicable local, state, and federal permits. It is unlawful to have any discharges that are not composed entirely of Stormwater (except discharges pursuant to a NPDES permit) to the Municipal Separate Stormwater System (MS4). Only non-contaminated water/non-turbid water shall be transported through the MS4. Groundwater discharge (approved by the Florida Department of Environmental Protection pursuant to 62-621.300(2)) from dewatering activities may be routed into the Stormwater system, drainage ditch, creek, river or wetland providing that erosion, and transportation of suspended solids to the system is prevented. If unanticipated contaminated soil or contaminated groundwater is encountered, the dewatering activity shall cease immediately, and the Company shall contact the JEA Engineer and FDEP at (904) 807-3300.

The Company must complete Notice of Termination (NOT) (DEP Doc. No. 62-621.300(6), F.A.C.) within one (1) week of final site stabilization with courtesy copy to JEA (attention: Environmental Services, 21 W. Church Street, Tower 8). The Company shall also provide copies of NOT to JEA Engineer with final payment and construction closeout documents.

JEA will reject any and all invoices and Application for Payments unless JEA receives a copy of the Company's NOI and NOT that were forwarded to the FDEP. In addition, if the above requirements are not followed, the Company shall be held liable for any fines and/or violations incurred by JEA.

950 AS-BUILTS

Upon submission of each payment application, Company shall furnish to the JEA Engineer a photocopy "redline" set of drawings identifying those field changes made to the Work to date, along with a photocopy set of the associated field notes. Revisions and recording of information on the photocopy set of drawings shall be done in scale in red ink clearly and accurately identifying those changes in the Work by a competent drafter. All "As-Built" information shall be recorded and kept current during the progress of the Work. The JEA Engineer may review and comment on the drawings which shall be incorporated into the next month's As-Built submittal. Failure to incorporate changes the following month may result in denial of pay application request. These requirements only supplement the requirements of the General Conditions.

When the payment of application submitted includes associated items of final restoration for a project, or a portion of the project thereof, then the associated final as-builts shall be submitted as a "redline" marked photocopy set of drawings for that pay period. The Project Engineer may review and comment on the drawings with the view toward final As-Built submittal. The subsequent month submittal made with the payment application shall incorporate a photocopy set of CADD drawing final as-builts. The JEA Engineer shall review and comment on the photocopy set of CADD drawings which shall be incorporated into the final As-Built submittal. These requirements only supplement the requirements of the General Conditions.

As-Builts shall be provided to Duval County and JEA once construction substantially completed. Completion of the project will only be accepted once As-Builts have been accepted by and JEA GIS requirements.

Limits of flowable fill should be indicated in final as-builts.

951 SPECIAL CONDITION NO. 1: JACK AND BORE

This special condition is for the installation of the 30-inch steel casing via Jack and Bore. This item shall include but not be limited to furnishing and installing the materials noted in this special condition and the items shown in the Construction Drawings and providing the following services:

Part 1 GENERAL

1.01 SCOPE OF WORK

The Contractor shall furnish all labor equipment, materials, and incidentals required and install pipe and casing by auger boring at the locations shown on the Drawings. The work shall be done in strict accordance with the requirements of the JEA Water and Wastewater Standards Manual, JEA Water, Wastewater & Reclaimed Water Design guidelines (current editions), as shown in the Construction documents and as specified in this Section.

Before installing the casing, the Contractor shall retain at his own expense the services of a competent civil and/or geotechnical engineer with 5 years demonstrated experience in designing and installing boring pits, casings, pipes and appurtenances, grouting and dewatering. As required under Article 1.02 below, this engineer shall approve and affix his/her stamp to the Contractor's drawings and design concept for the jacking before these are submitted. The drawings and design concept shall include but not be limited to the dewatering, soil stabilization, boring pits, reaction blocks, and installation schedule. The Contractor's engineer shall avail himself or herself of all the available information contained on the contract drawings and in this Section and shall be responsible for making whatever additional investigations of the site and the conditions that he/she may deem necessary.

The Contractor shall continuously keep the augering pits' subgrade free from ground and surface waters during the operation and dewater using well points along the length of each jacking alignment. Observed water levels before construction are to be below the invert elevation of the augering pits and casing. Groundwater control along and at the face of the casing shall include chemical grout stabilization as required.

The Contractor shall be fully responsible for inspecting the location where the pipes are to be installed and shall familiarize himself with the conditions under which the work will be performed and with all necessary details as to the orderly prosecution of the work. The omission of any details for the satisfactory installation of the work in its entirety that may not appear in this Section shall not relieve the Contractor of full responsibility.

The Contractor shall prepare to work at night and on Saturday and Sunday if required to complete the work and be approved by the Owner. After the operation has begun, the Contractor shall work continuously (24 hours a day) until installing the complete length of pipe.

If any movement or settlement occurs which damages or might damage to existing structure over, along, or adjacent to the work, the Contractor shall immediately stop all work except that

which helps make the work secure and prevents further movement, settlement, or damage. The Contractor shall resume auger boring only after all necessary precautions have been taken to prevent further movement, settlement, or damage and shall repair the damage at the Contractor's own cost and to the satisfaction of the Owner.

1.02 SUBMITTALS

The Contractor shall submit shop drawings in accordance with these contract documents.

At least 8 weeks before the scheduled start of any work associated with the construction of augering pits or augering operations, as evidence of compliance with the requirements of this Section:

Stamped drawings and calculations as specified in Article 1.01 above.

Shop Drawings showing size, location, and design calculations for reaction blocks and augering pits, including carrier pipes, pumps, and temporary bulkheads.

The number and capacities of jacks.

The size, arrangement, and installation of chemical grout soil stabilization and dewatering equipment.

A detailed description of the equipment, materials, sequences, and procedures for auger jacking steel casing and installation and grouting of the sewer pipe within the steel casing, including provisions for standby and backup equipment.

Revisions to shop drawings as necessary to accommodate field conditions and/or comply with the requirements specified in this Section.

The Owner's acceptance of the submitted material does not indicate acceptance of responsibility for the means and methods of construction. The Contractor shall be totally responsible for the entire auger jacking operation.

1.03 REFERENCE STANDARDS

Reference standards and recommended practices referred to in this Section shall be the latest revision of any such document in effect at the bid time. The following documents are a part of this Section. Where this Section differs from these documents, the requirements of this Section shall apply.

American Society for Testing and Materials (ASTM)

ASTM A53/A53M—Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless.

ASTM C32—Standard Specification for Sewer and Manhole Brick (Made From Clay or Shale).
ASTM C144—Standard Specification for Aggregate for Masonry Mortar.
ASTM C150/C150M—Standard Specification for Portland Cement.
ASTM C207—Standard Specification for Hydrated Lime for Masonry Purposes.

American Water Works Association (AWWA)

AWWA C200—Steel Water Pipe 6-inch (150 mm) and Larger.
AWWA C203—Coal-Tar Protective Coatings and Linings for Steel Water Pipe.
AWWA C206—Field Welding of Steel Water Pipe.

American Welding Society (AWS)

AWS D7.0—Tentative Standard Specifications for Field Welding of Steel Water Pipe Joints.

Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

Part 2 PRODUCTS

2.01 MATERIALS

Ensure that 30-inch casing pipe meets JEA Water and Wastewater Standards Manual, JEA Water and Wastewater & Reclaimed Water Design guidelines (current editions).

Cement grout shall consist of a mixture of about 1 part cement to 2 parts sand, which shall be subject to increase or decrease in the amount of cement necessary or as permitted to provide good flowing characteristics.

Brick bulkheads shall be of sound, uniformly burned brick conforming to ASTM C32, Grade stainless steel.

Sand fill shall be of such sizes that, when dry, 100% by weight shall pass a No. 20 sieve and not over 5% by weight shall pass a No. 100 sieve.

Mortar shall consist of 1 part cement, 1/4 part lime, and 2 parts sand. Sand shall comply with ASTM C150/C150M lime shall comply with ASTM C207, Type 5; cement shall comply with ASTM C150/C150M. Type II.

Part 3 EXECUTION

3.01 AUGERING PITS

The pits shall be shaped with steel sheet piling or other materials that shall be of adequate strength. Braced steel sheeting shall be used to support the sides of the excavation for the pits.

The Contractor shall furnish, install, and remove, to the extent required, thrust blocks or whatever provisions may be required in driving the casings and pipes forward.

The Contractor shall use steel rails or beams embedded in the concrete in the pit for placement and alignment of each piece of steel casing or ductile-iron pipe during installation.

The Contractor shall be fully responsible for removing the pits, including breaking up, removing, and disposing of concrete, if so required, or cutting off sheeting and furnishing and placing screened gravel fill to the normal subgrade as may be required following installation.

3.02 DEWATERING

The Contractor shall do the following:

Provide sumps, wells, or well points around or within the augering pit to maintain the groundwater at least 2 feet below the bottom of the pit.

Provide well points along the alignment of the jacked casing to maintain the groundwater at least 2 feet below the bottom of the jacked casing.

Provide each dewatering system with adequate protection against pumping fines from the subgrade soils. If soil particles are observed in the discharge water, modify dewatering operations.

Maintain dewatering operations throughout auger and jacking operations.

3.03 AUGERING OPERATIONS

The Contractor shall be fully responsible for preventing the occurrence of voids outside the jacking casing and, if they occur, for filling them with cement grout. To minimize the number of voids produced during excavation in the forward end of the casing, the Contractor shall provide

a positive stop at the end of the casing, which prevents the auger from extending beyond the end of the casing.

Proper alignment and elevation of the casings or pipes shall be consistently maintained throughout the jacking operation. The maximum lateral deviation of the casing from the design alignment is 2 percent. The maximum vertical deviation of the casing from the design alignment is 1 percent.

The Contractor shall use a steel or concrete jacking ring that allows the jacking pressure to be distributed evenly around the wall of the jacking pipe.

A jacking frame shall be required. It shall be fabricated from structural steel members and shall be designed to distribute the stresses from the jacks evenly to the jacking ring.

Steel casing sections shall have beveled ends with a single v-groove and shall be full-penetration butt-welded on the outside of the casing in accordance with the applicable portions of AWWA C206 and AWS D7.0 for the field-welded water pipe joints. All joints of the steel casing shall be butt-welded before being subject to the jacking operation. The welded joints shall be wire brushed and painted with bitumastic enamel coating in accordance with AWWA C203.

After the casing has been completely installed, the Contractor shall thoroughly clean the interior. The Contractor shall place the pipe within the casing in accordance with JEA Water and Wastewater Standards Manual and JEA Water and Wastewater & Reclaimed Water Design guidelines (current editions).

After the carrier pipe is installed, the Contractor shall conduct a leakage test on the pipe as designated by the Owner. Any leaks that are discovered during the testing phase shall be repaired to the satisfaction of the Owner.

Part 4 PAYMENT

Payment for this item will be on a LUMP-SUM basis and shall include furnishing all material, labor, tools, equipment, and all incidental and related work to provide the item complete and in service.

952 SPECIAL CONDITION NO. 2: CONNECT TO EXISTING FM AT 16TH

This special condition is to connect to the existing 14-inch PVC force main pipe at Boulevard Street and 16th Street. This item shall include but not be limited to furnishing and installing the materials noted in this special condition, items shown in the construction documents and providing the following services:

- A. Coordinate with JEA to locate the existing 14-inch PVC force main at Boulevard and 16th Street for the new 16-inch force main tie-in connection and installation.

- B. Provide the following items including but not limited to locating the existing 14-inch PVC force main pipe, temporary by-pass pumping systems, pump trucks, raw sewage hauling and disposal, utility locates and coordination, pavement removal, dewatering, excavation, trench protection, sheeting and shoring, erosion control, cutting of existing force main, force main pipe, pipe fittings, pipe restraints, pipe trench backfill, compaction, testing, pavement repair and all other requirements for a complete and operable system.

Requirements for the planned outage for tie-in and sewage disposal are outlined in Section 939 of this Technical Specification.

Payment for this item will be on a LUMP-SUM basis and shall include furnishing all material, labor, tools, equipment, and all incidental and related work to provide the item complete and in service.

953 SPECIAL CONDITION NO. 3: CONNECT TO EXISTING FM AT 12TH

This special condition is to connect the proposed 16-inch force main to the existing 14-inch force main at the intersection of Boulevard Street and 12th Street. This item will be award if JEA does not award the 12th to 16th Force Main construction. This item shall include but not be limited to furnishing and installing the materials noted in this special condition, items shown in the construction documents and providing the following services:

- A. Coordinate with JEA to locate the existing 14-inch force main at Boulevard Street and 12th Street for the new 16-inch force main tie-in connection and installation.
- B. Provide the following items including but not limited to locating the existing 14-inch force main pipe, temporary by-pass pumping systems, pump trucks, raw sewage hauling and disposal, utility locates and coordination, pavement removal, dewatering, excavation, trench protection, sheeting and shoring, erosion control, cutting of existing force main, force main pipe, pipe fittings, pipe restraints, pipe trench backfill, compaction, testing, pavement repair and all other requirements for a complete and operable system.

Requirements for the planned outage for tie-in and sewage disposal are outlined in Section 939 of this Technical Specification.

Payment for this item will be on a LUMP-SUM basis and shall include furnishing all material, labor, tools, equipment, and all incidental and related work to provide the item complete and in service.

END OF SECTION 9 5 3

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