



# **90% Design Specifications**

**for**

# **5TH STREET WEST 20-INCH FORCE MAIN EXTENSION**

**JEA Project No. 8004781  
MM Project No. 502402368**

**May 2020**

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**M**  
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**MOTT  
MACDONALD**



# 5TH STREET WEST – 20-INCH FORCE MAIN EXTENSION

## 90% DESIGN SPECIFICATIONS

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## SUPPLEMENT TO SECTIONS 407.III.2 AND 427.III

### REMOVE AND REPLACE JUNCTION MANHOLE

#### PART 1 – GENERAL

##### 1.01 SUBMITTALS

- A. The CONTRACTOR shall submit detailed shop drawings for each individual manhole shown on the Drawings. Each manhole submittal shall show invert elevations, connecting pipe material, pipe outside dimensions, pre-cast pipe opening dimensions and orientation, JEA approved pipe to manhole connectors, joint gaskets, joint outside seal material and similar details for approval before placing the order for the specified wastewater manholes. Shop drawings shall be signed and sealed by a Florida Licensed Professional Engineer.

#### PART 2 – PRODUCTS (NO MODIFICATIONS)

#### PART 3 – EXECUTION

- A. At JEA's discretion, JEA or JEA's Representatives shall be permitted by the precast MANUFACTURER's to enter its plant fabricating the JEA specified manholes and structures to observe their fabrication and plant QA/QC protocols throughout the fabrication process, handling, loading and securing for site delivery. As an alternative, JEA may require the MANUFACTURER to provide digital, color, high pixel and clarity video of its specified manholes and structures throughout the aforementioned process through delivery preparation. Videos shall be submitted to JEA for its review and comment prior to the products being shipped to the work.
- B. Each precast structure shall not be offloaded from the delivery vehicle, on or offsite, by the MANUFACTURER or CONTRACTOR until JEA, or JEA's Representative has inspected all components for approved submittal compliance, visible conditions and dimensions
- C. The CONTRACTOR shall field verify all dimensions and inverts before cutting the existing gravity sewer for the new manhole connection
- D. When requested by JEA, the MANUFACTURER shall provide a representative to the work to inspect the quality and dimensions of the manhole or structure for submittal compliance, offloading, storage, handling, and installation of its product. The MANUFACTURER's representative shall have a demonstrated knowledge and experience in all phases of the product's fabrication, QA/QC, handling, inspection, installation and responding to CONTRACTOR and JEA staff questions.

END OF SECTION



## SECTION 02065

### TEMPORARY SANITARY SEWER SERVICE AND BYPASS PUMPING SYSTEM

#### PART 1 – GENERAL

##### 1.01 SCOPE OF WORK

- A. It shall be the CONTRACTOR's responsibility to ensure sanitary sewer service is active to each JEA customer throughout the duration of construction. While the gravity and /or pressure sanitary sewer system is being constructed, inspected, and cleaned the Contractor shall provide a mechanism for continued sanitary sewer service to each JEA customer.
- B. Payment of this item is inclusive of the JEA Water and Sewer Standards requirements as well as those requirements listed herein. No additional payment will be provided for the temporary or interim sanitary sewer services. All work associated with maintaining sanitary sewer service to each JEA customer shall be incorporated into the pay item for temporary sanitary sewer service and bypass pumping system.
- C. Design, furnish, install, operate, maintain, and remove all temporary bypass pumping and piping system(s) necessary for the construction of structures and piping as shown on the Drawings. A temporary, duplex (lead and back-up) bypass pumping system will be required to temporarily pump sewage flow from the existing gravity and/or pressure sanitary sewer systems during installation of the proposed new collection lines and/or pressure piping and manholes to be performed by this work.
- D. During work associated with the disconnection and removal of the existing collection sewer lines, and/or pressure pipe, and manholes delineated on the Drawings and their replacement with the new collection system, manholes, and required piping reconnections, the CONTRACTOR shall have operationally ready an online temporary bypass pumping and piping system. The specified areas in which bypass pumping and piping systems will be allowed are shown on the Drawings.
- E. The CONTRACTOR shall be responsible for any and all violation notices, fines and remediation measures as a result of wastewater spillage or discharge associated with bypass pumping and piping activities and/or modifications and removal of existing structures and piping. The CONTRACTOR shall be responsible for all jobsite, motor vehicle and pedestrian traffic, and general public safety and protection during all work.
- F. The CONTRACTOR shall provide all trained and experienced labor and supervision for operating and maintaining the pumping and piping systems during the entire bypass pumping operation.
- G. The actual duration of bypass pumping and piping times depends on the CONTRACTOR's time required to perform the necessary pipe and structure removals, replacements, testing and connections. The actual bypass times may vary depending on the CONTRACTOR'S plan of work. The CONTRACTOR will not be granted additional monies for bypasses which extend beyond their approved plan of work schedule. The ENGINEER makes no estimations of the time required or need to bypass pump and provide temporary bypass piping.

## SECTION 02065

### TEMPORARY SANITARY SEWER SERVICE AND BYPASS PUMPING SYSTEM

- H. It is the intent for the bypass pumping system to operate and be controlled by a series of wastewater floats to automatically start and stop all pumps, depending on water levels in the manhole(s). The system shall include an autodialer to alert and alarm the CONTRACTOR's and JEA's designated staff by cell phone communication of potential failures and prior to any high-water alarms. The CONTRACTOR shall be responsible to respond to all alert communications and for ensuring proper operation and maintenance of the bypass pumping system.
- I. Any required vehicle and/or pedestrian Maintenance of Traffic (MOT)/Temporary Traffic Control (TTC) Plan(s) to conduct the bypass pumping and piping work shall be approved by the City of Jacksonville (COJ) and installed and maintained by the CONTRACTOR. All plans must be approved prior to starting the work.
- J. The location and security of the bypass pumps and piping shall be provided by the CONTRACTOR. Secured fencing, at a minimum, shall be provided around the pumping system.
- K. Should the existing manhole frame and cover, or top riser sections of the suction and/or discharge sanitary sewer manholes need modification to install said pumping system and piping, the CONTRACTOR shall include this work in its bid. All restoration and repairs after the work is complete shall be performed in accordance with JEA's latest standards.

#### 1.02 RELATED WORK

- A. Related work for the pumping and bypass piping systems shall be as in the Drawings, documents, JEA Water and Wastewater Standards Manual of January 2020, as amended, regulatory permit conditions, and direction by JEA.

#### 1.03 SUBMITTALS

- A. The Contractor shall submit a complete plan of work to JEA for approval. The plan shall include the entire approach for maintaining sanitary sewer service and include: cut sheets of products or equipment to be utilized, narrative of temporary sanitary sewer service approach (i.e. location of watertight collection/ pump-out pits/chambers and capacity, pump-out frequency, pump-out equipment, volume of pump-out pits/chambers, etc.), and any other information necessary to address continuity of service.
- B. Submit to JEA, detailed plans and descriptions outlining all provisions and precautions to be taken by the CONTRACTOR to establish compliance with this Section. The bypass pumping and piping systems shall be designed by a Florida licensed Professional Engineer with signed and sealed drawings, calculations, and equipment selections shall be submitted for review.
- C. The plans shall include, but is not limited to, details of the following for any bypass pumping operation:
  - 1. Staging areas for pumps.
  - 2. Sanitary sewer pipe plugging method and types of plugs.
  - 3. Number, size, material, location, and method of installation of suction piping.

## SECTION 02065

### TEMPORARY SANITARY SEWER SERVICE AND BYPASS PUMPING SYSTEM

4. Number, size, material, method, of installation and location of installation of discharge piping.
5. Bypass pump sizes, capacity, number of each size to be on site, power requirements, and fuel consumption and onsite storage requirements under full load.
6. Hydraulic calculations of static lift, friction losses, and flow velocity (pump curves showing each pump's operation range shall be submitted).
7. Downstream discharge piping, valve, and fittings plan.
8. Method of protecting discharge structures from erosion and damage.
9. Thrust and restraint block sizes, mechanical joint restraints and locations.
10. Sections showing suction and discharge pipe depth, embedment, select fill and special backfill.
11. Verification that the pumps and all stationary fossil fueled equipment meet and have been permitted under the City of Jacksonville Ordinance Code for Noise Control, Chapter 368 and are "residential silenced" equipped.
12. Any temporary pipe supports, anchoring, and protective barriers required.
13. Design plans and computation for access to bypass pumping locations indicated on the drawings.
14. Calculations for selection of bypass pumping pipe size(s).
15. Schedule for installation of and maintenance of bypass pumping pipes, valves, and fittings.
16. Plan indicating selected location of bypass pumping pipes.
17. Details on pump controls and instruments to safely operate and alarm of conditions. Provide sequence of CONTRACTOR's emergency response contacts for the autodialers.
18. An emergency response plan, which must also be reviewed and approved by the CONTRACTOR and submitted to JEA for comment.
19. Plans for the bypass piping system shall include, but not be limited to the following:
  - a. Verification of all bypass piping sizes.
  - b. Location of bypass pumping system.
  - c. Narrative on any vehicle and/or pedestrian MOT/TTC requirements.
  - d. Methods for protecting and securing the piping.

#### 1.04 QUALITY ASSURANCE

- A. The design, installation, operation, and maintenance of the temporary pumping and piping systems shall be the CONTRACTOR's responsibility. The CONTRACTOR shall employ the services of a vendor who can demonstrate to JEA that it specializes in the design and operation of temporary raw sewage bypass pumping and piping systems. The vendor shall provide at least five (5) references of projects of a similar size and complexity as this project performed by this firm within the past three (3) years.
- B. The proposed bypass systems shall meet the requirements of all codes and regulatory agencies having jurisdiction.
- C. The bypass pumping and piping specialty vendor shall have been in business for a minimum of 15 years. They shall have a major service center within 150 miles of the

## SECTION 02065

### TEMPORARY SANITARY SEWER SERVICE AND BYPASS PUMPING SYSTEM

project site, with on-call maintenance and service staff available to respond onsite within 2 hours of notification.

- D. The approved bypass pumping specialty contractors are:
1. Sunbelt Rentals, Inc.
  2. United Rentals
  3. Or Engineer Approved Equal

#### 1.05 SYSTEM DESCRIPTION

- A. The bypass pumping and bypass piping systems shall have sufficient capacity as described in this specification. The CONTRACTOR shall provide all pipeline plugs, pipe supports, line stops, pumps of adequate size to handle minimum and peak flows, and suction and discharge piping to ensure that the total flow can be safely diverted around proposed new work.
- B. Bypass pumping systems shall be capable of bypassing the flow around the work area and discharge into the identified existing JEA discharge manhole.
- C. The bypass operation shall include all necessary controls and instruments to monitor and operate the system in automatic mode, adjust the number of pumps and provide alarms.
- D. Bypass pumping system friction and minor losses and the appropriate size and number of pumps shall be determined by the bypass pumping contractor's Florida licensed Professional Engineer in order to achieve the required flows.
- E. The bypass pumping vendor shall provide spill and leak contained onsite diesel fuel storage tank(s) for the pumps. The CONTRACTOR shall provide all fuel required to operate the system. The onsite fuel storage tank(s) shall be sized to store enough fuel for running the entire system (all pumps) for a minimum of 3 days continuously, under full load.
- F. It is essential to the operation of the existing sewer system that there will be no interruption in the flow of sewage throughout the duration of the project. The CONTRACTOR shall provide, maintain, and operate all temporary facilities such as dams, plugs, pumping equipment, conduits, all necessary power, and all other labor and equipment necessary to intercept the sewage flow before it reaches the point where it would interfere with the work, carry it past the work and return it to the existing sewer downstream of the work without causing a spill or discharge of the sewage to the environment.
- G. The CONTRACTOR shall provide all necessary means to safely convey the sewage past the work area. The CONTRACTOR will not be permitted to stop or impede the sewage flows under any circumstances.
- H. The CONTRACTOR shall maintain sewer flow around the work area in a manner that will not cause surcharging of sewers, damage to sewers and that will protect public and private property from damage and flooding.

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### TEMPORARY SANITARY SEWER SERVICE AND BYPASS PUMPING SYSTEM

- I. The CONTRACTOR shall protect water resources, wetlands, and other natural resources.
- J. The design of the bypass pumping system for the local, gravity collection system shall handle the following flows. Refer to Exhibit A and Exhibit B.
  1. Existing 30-inch Gravity Sewer N-S of Melson Avenue Flowing South Bypass 30-inch Gravity Sewer to Manhole at the intersection of 6th Street West and Melson Avenue  
Typical average daily flow conditions of 227 gpm and peak hour flow of 775 gpm. The bypass pumping system shall have a firm capacity of 227 gpm, minimum. At least one stand-by pump shall be provided.
  2. Existing 30-inch Gravity Sewer N-S of Melson Avenue Flowing North Bypass 30-inch Gravity Sewer to Manhole at the intersection of 3rd Street Circle North and Melson Avenue  
Typical average daily flow conditions of 155 gpm and peak hour flow of 559 gpm. The bypass pumping system shall have a firm capacity of 155 gpm, minimum. At least one stand-by pump shall be provided.
  3. Existing 27-inch Gravity Sewer on 5th Street West Flowing East Bypass 27-inch Gravity Sewer to downstream Manhole within 5th Street West  
Typical average daily flow conditions of 72 gpm and peak hour flow of 270 gpm. The bypass pumping system shall have a firm capacity of 72 gpm, minimum. At least one stand-by pump shall be provided.

## PART 2 – PRODUCTS

### 2.01 PUMP SYSTEM

- A. All pumps used shall be fully automatic self-priming units that do not require the use of foot-valves or vacuum pumps in the priming system. The pumps shall be diesel powered. No equipment including pumps shall exceed the noise limit of the City of Jacksonville Ordinance Code for Noise Control, Chapter 368 and shall be “residential silenced” equipped. If necessary, to achieve this sound limitation, sound enclosures shall be provided. Work is within residential streets.
- B. Pump shall be capable of handling raw, unscreened, sanitary sewage containing solids and fibrous materials. Pumps shall be non-clog and shall be capable of passing 3-inch solids.
- C. All pumps used must be constructed to allow dry running for long periods of time to accommodate the cyclical nature of influent flows.
- D. Spare parts for the pumps and piping shall be kept on site as required. Adequate hoisting equipment for each pump and accessories shall be maintained on site.
- E. The vendor shall provide the necessary stop/start controls and alarms for each pump. Autodialers shall be used to alert of problems, if a header system is used to manifold the pumps, each pump shall include an autodialer.

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### TEMPORARY SANITARY SEWER SERVICE AND BYPASS PUMPING SYSTEM

- F. The total bypass pumping capability shall be a minimum as described above. All units shall be fully operational. Any unit which fails to operate at its rated capacity shall be repaired or replaced immediately. The CONTRACTOR is advised that the JEA has no control over the maximum flows that will occur in its sanitary sewer.

#### 2.02 PUMP DISCHARGE AND TEMPORARY BYPASS PIPING

- A. The pump discharge and temporary bypass piping may be of new or used materials and shall not leak during operation. Under no circumstances will aluminum "irrigation" type piping or solvent cemented PVC pipe be allowed.
- B. High density polyethylene (HDPE) pipe used for the pump discharge and temporary bypass piping shall comply with JEA Standard Specification Sections 755 I.6 and II.1.1. Used pipe shall have the nominal pipe diameter, pipe size (iron pipe size-IPS or ductile iron pipe size-DIPS), and dimension ratio (DR) readily visible on each pipe segment, or otherwise readily identifiable. The pipe used for the bypass shall have a DR equivalent or greater pressure rating than the specified test pressure. All pipe used for the bypass piping shall be free of gouges, cuts, scrapes or other physical deformities on the inside and outside barrel of the pipe equivalent to, or greater than, 10 percent in depth of a new pipe segment DR wall thickness.
- C. Only flanged joint or HDPE electro or thermal fused joint connections shall be allowed. Mechanically restrained adaptors are PROHIBITED on the discharge side of pumps, discharge header, inline fittings or the force main. Shop-fabricated flexible hose less than 8 feet in length with flanged ends may be used to connect pumps to discharge manifold. If used, flexible hose shall have a minimum pressure rating of 100 psi.
- D. Couplings and fittings shall have the same pressure rating as the pipe unless otherwise specified on the plans. Approved manufacturers are Friatec, Central Plastics and Plasson.
- E. All bypass piping shall be pressure tested for 4 hours at 100 psi prior to beginning the work.

#### 2.03 SEWER PLUGS

- A. Any sewer plugs required for bypass pumping shall be of the compressed air type and shall be capable of and suitably anchored for water heads to final grade.
- B. All sewer plugs shall have zero leakage after inflation and throughout their use.
- C. The CONTRACTOR shall supply plugs with sufficient supply hose to extend above grade and include an inline pressure gauge to be monitored daily (minimum) to ensure no leakage in each plug. Each plug shall be securely tethered to prevent a dislodged plug from flowing uncontrolled downstream in any pipe.

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### TEMPORARY SANITARY SEWER SERVICE AND BYPASS PUMPING SYSTEM

#### 2.04 EMERGENCY RESPONSE PLAN

- A. The CONTRACTOR's emergency response plan shall have the following minimum components:
  - 1. 24-hour a day electronic monitoring of the pumping system
  - 2. A call path or sequence for an emergency an on-call staff response
  - 3. Requirements of on-site tools and parts
  - 4. Record keeping requirements
- B. The CONTRACTOR shall provide technician(s) capable of maintaining and troubleshooting the bypass system on-call in case of an emergency on a 24-hour basis to maintain or re-establish pump sets and level of the water. The Technician shall submit incident reports and turn them into JEA within 24 hours of any incident. The technician shall respond and be onsite to an emergency call within 2 hours of notification.
- C. The CONTRACTOR, JEA, and JEA Sewer System O&M Staff shall be linked by cell phone 24-hours a day during the course of bypass operations. Any alarms shall initiate a call to the CONTRACTOR and JEA. JEA and CONTRACTOR shall each have a minimum of three (3) individuals listed within the 'calling tree'. If the first contact does not confirm receipt of the alarm call, then the next contact shall be called until the alarm is either confirmed and/or all three (3) contacts are called. JEA's link into the alarm status is only for informational purposes. The CONTRACTOR shall be responsible for all bypass alarm conditions and shall be required to resolve the condition that is causing the alarm to occur.

#### PART 3 – INSTALLATION

##### 3.01 DESIGN

- A. The CONTRACTOR shall employ the services of a Florida licensed Professional Engineer to design the temporary piping, pumping and control systems. The design shall be submitted for approval. The temporary piping, pumping and control system plan and layout shall be approved by JEA before bypassing may begin.
- B. Approval of the design shall not relieve the CONTRACTOR from full responsibility for performance of the system.
- C. The temporary pumping plan shall include design information on the proposed pumps including operating conditions.

##### 3.02 INSTALLATION

- A. System layout shall provide for ready removal and replacement of every pumping unit without affecting the others.
- B. No debris of any type shall be allowed in the piping system. Protective barriers and covers shall be installed in this regard. Any debris inadvertently allowed into the system shall be immediately removed.

## SECTION 02065

### TEMPORARY SANITARY SEWER SERVICE AND BYPASS PUMPING SYSTEM

- C. When pumping/bypassing is required, the CONTRACTOR shall supply the necessary pumps, conduits, and other equipment to divert the flow of wastewater around the work to be performed.
- D. The CONTRACTOR shall make connections to the existing gravity sewer and or pressure pipe and construct temporary bypass pumping structures only as described in the specifications or as approved by JEA.
- E. When working inside manholes, the CONTRACTOR shall exercise caution and comply with OSHA and JEA requirements when working in the presence of sewer gases, combustible oxygen-deficient atmospheres, raw sewage, and confined spaces.
- F. The CONTRACTOR shall be responsible for furnishing the necessary material, equipment, labor and supervision to set up and operate the pumping and bypass piping systems. The bypass piping and pumping systems shall be fully inspected at least three times a day to ensure that the system is working correctly.
- G. The CONTRACTOR shall pressure test the piping for leaks prior to use.
- H. All bypass operations shall be properly secured, protected and fenced. The CONTRACTOR shall install temporary barricade around all bypass equipment to restrict access to unauthorized persons. A minimum of new, 4-foot-high, orange safety fence with T-stakes every 10 feet shall be installed and maintained during the entire bypass.
- I. Provide all necessary vehicle and pedestrian MOT/TTC plans in accordance with the COJ.
- J. Unless otherwise shown on the project documents and approved by JEA, the bypass pumping system and piping shall not obstruct access to any properties at existing driveways. The CONTRACTOR shall lay the piping around, under, use hose ramps, or watertight, fabricated pipe ramp boxes at driveways.

#### 3.03 FLOW CONTROL MEASURES

- A. The CONTRACTOR shall be responsible and liable for any wastewater spills and overflows resulting from improper installation, operation, maintenance, protection or inadequacy of the bypass system, including reporting to regulatory agencies and paying the resulting fines and penalties.

#### 3.04 REMOVAL AND RESTORATION

- A. The CONTRACTOR shall remove all pumping and temporary bypass systems components and restore any modifications to the existing manholes or structures as directed by JEA. Any soil containing grease, oil, or fuel from the pump engines shall be removed from the site and replaced with topsoil and sodded. All pavement grassed and landscaped areas shall be restored to at least pre-construction condition.

SECTION 02065

TEMPORARY SANITARY SEWER SERVICE AND BYPASS PUMPING SYSTEM

- B. The sewer plugs and all appurtenances shall be removed and any damaged to the sewers or other pipes repaired.

END OF SECTION 02065



## SECTION 02999

### MISCELLANEOUS WORK

#### PART 1 – GENERAL

##### 1.01 SCOPE OF WORK

- A. This Section includes subsurface investigative underground utility operations by the CONTRACTOR to perform. The CONTRACTOR shall furnish all labor, materials, equipment and incidentals to complete the work under this Section.
- B. The work to be performed by the CONTRACTOR under this Section includes the subsurface field locating of the existing dual 12-inch force mains in the vicinity of the proposed new sanitary sewer piped connection point west of the intersection of 5th Street West and Melson Avenue, as shown on the Drawings.
- C. The ENGINEER's surveyor located a single, existing 12-inch force main discharging into the 5th Street West-Melson Avenue manhole but was unable to locate the second 12-inch force main discharging to said manhole as shown on available JEA furnished documents. The ENGINEER's surveyor conducted GPR scans from the south edge of the 5th Street West pavement to south of the 48-inch RCP, performed vacuum pothole excavations, and manually probed below the sidewalk in an attempt to locate the second force main. Based on limited testing completed by JEA, it appears that both 12-inch force mains discharge to the existing junction manhole at 5th Street West-Melson Avenue. Refer to Exhibit C for the surveyor's test hole and exploration hole reports. Refer to Exhibit D for JEA's as-builts of the force main utility. This pay item is for the CONTRACTOR to perform the necessary field investigations to locate both force mains and confirm the construction can proceed as shown on the Drawings.
- D. All work associated with field verifying the location of the existing dual 12-inch force mains will be incorporated into the pay item for 12-inch force main field verification allowance.

#### PART 2 – PRODUCTS (NOT USED)

#### PART 3 – EXECUTION

##### 3.01 FIELD VERIFICATION OF EXISTING DUAL 12-INCH FORCE MAINS LOCATION

- A. The CONTRACTOR shall begin field efforts to locate the dual force mains within 30 days from the receiving the JEA NTP. The CONTRACTOR shall provide written notice to JEA and the ENGINEER prior to beginning the process of the force mains' field verification. The CONTRACTOR shall provide a summary with anticipated level of effort required to perform the work prior to beginning for review by JEA.
- B. The actual duration of time to locate the force mains may vary depending on the CONTRACTOR's plan of work. The CONTRACTOR will bill towards the pay item for the 12-inch force main field verification allowance as set in the bid form on a time and materials basis.

SECTION 02999

MISCELLANEOUS WORK

- C. JEA will not entertain schedule delay claims related to performing the specified work in the vicinity of this intersection due to locating the existing force mains. The ENGINEER makes no estimations of the time required or needed to locate the existing force mains.
- D. The CONTRACTOR shall provide the field verified top of pipe elevations and contract document stationing locations of the existing dual 12-inch force mains to the OWNER and ENGINEER a minimum of 90 days before construction within 500 feet of the intersection is scheduled to occur.
- E. The CONTRACTOR shall be responsible for any and all jobsite, motor vehicle traffic, pedestrian, and general public safety and protection during all work. The CONTRACTOR is advised that the proposed work is immediately adjacent to the Duval County Public Schools' James Weldon Johnson College Preparatory Middle School Campus.
- F. All mobilization, investigative demolition, protected and dewatered excavation, restoration and repairs after the work is completed shall be performed by the CONTRACTOR in accordance with JEA's latest standards, COJ permit requirements, conditions and standards, and regulatory agency requirements.
- G. Any required vehicle and/or pedestrian Maintenance of Traffic (MOT)/Temporary Traffic Control (TTC) Plan(s) to conduct the bypass pumping and piping work shall be approved by the City of Jacksonville (COJ) and installed and maintained by the CONTRACTOR. All plans must be approved prior to starting the work.

END OF SECTION 02999

# **Exhibit A**

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## **Flow System**



# Exhibit A





# **Exhibit B**

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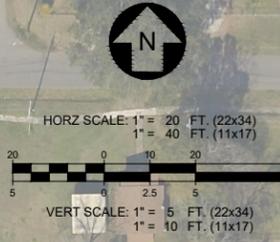
## **JEA 5th Street West 20-inch Force Main Extension Key Sheet**





90% SUBMITTAL

MOTT MACDONALD  
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 10246 Centurian Parkway North  
 Suite 320  
 Jacksonville, Florida 32256  
 Telephone: (904) 205-1090  
 Architects AA - C0000035  
 Engineers PE - C0000035  
 Surveyors LS - 0000035



NO. SHEETS	PROJ. NO. 502402368	DESIGNER:	B. NEU	NO.	BY	DATE	REVISIONS
78		DESIGN BY:	F. INGLYEN	6			
SHEET NO.	DATE: MAY 2020	DATE:	MAY 2020	4			
6	SCALE: HORIZ: 1" = 20'	CHECKED BY:	P. MCLIRT	3			
DRAWING NO.	VERT: 1" = 5'	DATE:	MAY 2020	2			
G-6				1			
		DESIGN ENGINEER	BRUCE A. NEU				
		FLORIDA REGISTRATION NO.	51672				
		<b>JEA</b> Building Community					
		5TH STREET WEST 20" FORCE MAIN EXTENSION					
		SHEET KEY PLAN					



# **Exhibit C**

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**JEA As-Builts of Existing Dual 12-inch Force  
Main at Melson Avenue-5th Street West  
Intersection**



Dyer, Riddle, Mills & Precourt, Inc.



CAMERA 2

MAST ARM EXPLORATORY DETAIL

PROJECT: W 5TH ST

DATE: 11/26/19

CREW: HEITMAN DUNHAM  
BREIDEN FERRINGTON

CITY/COUNTY: DUVAL

SUNSHINE ONE-CALL #:

F.P.N.#

HOLE# E110

UTILITY FOUND (x1) FM 12" PVC \*UNABLE TO LOCATE 2ND FM

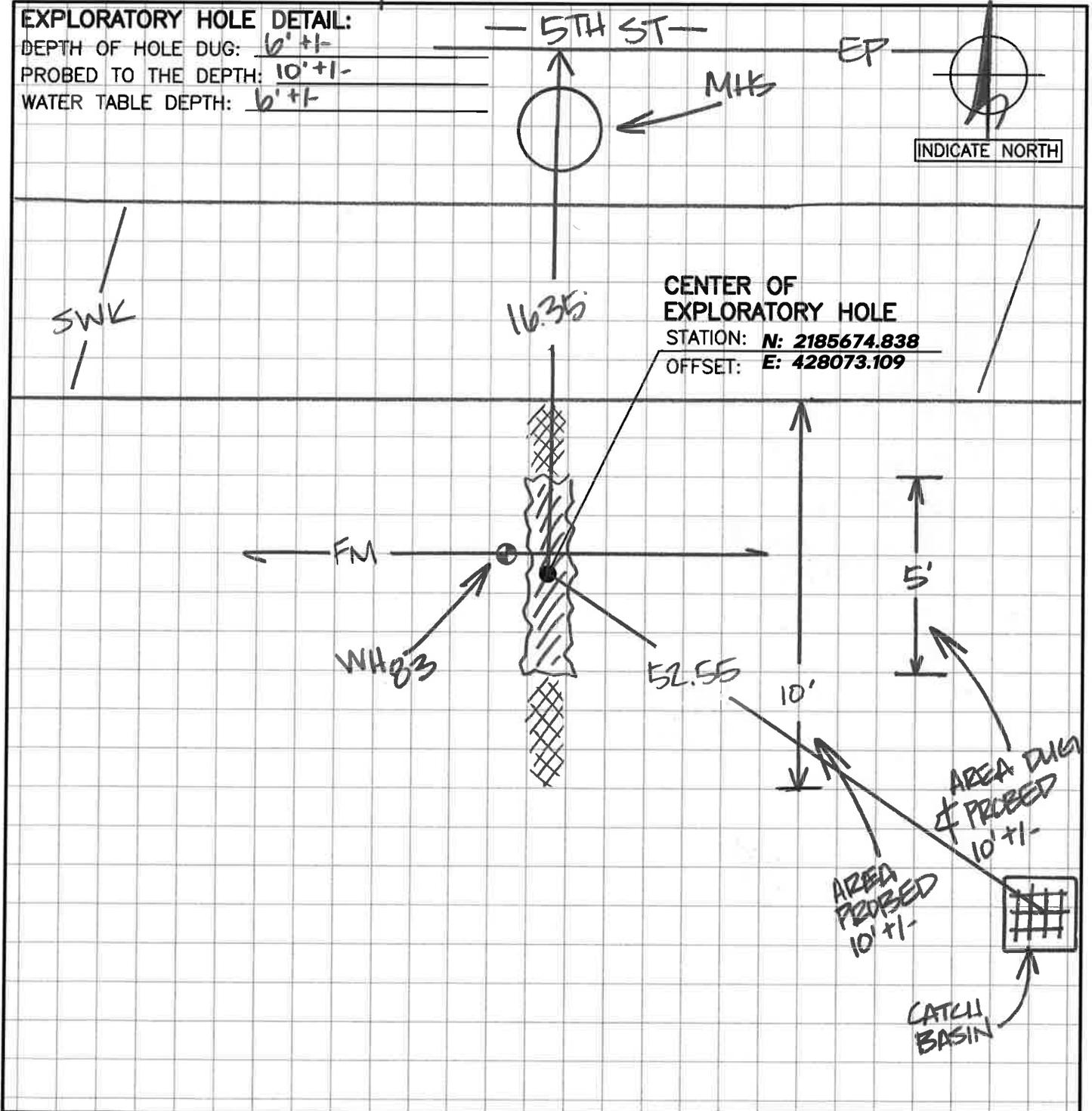
INTERSECTION NAME: 5TH ST / NORMAN E THAGARD @ MELSON AVE

EXPLORATORY HOLE DETAIL:

DEPTH OF HOLE DUG: 6' +/-

PROBED TO THE DEPTH: 10' +/-

WATER TABLE DEPTH: 6' +/-



West 5<sup>th</sup> Street – Jacksonville Electric Authority  
DRMP #18-0276.003

EH #6



EH #6



EH #6



## MAST ARM EXPLORATORY DETAIL

PROJECT: W 5TH ST

DATE: 12/3/19

CREW: HEITMAN DUNHAM  
JASMIN

CITY/COUNTY: DUNAL

SUNSHINE ONE-CALL #:

F.P.N.#

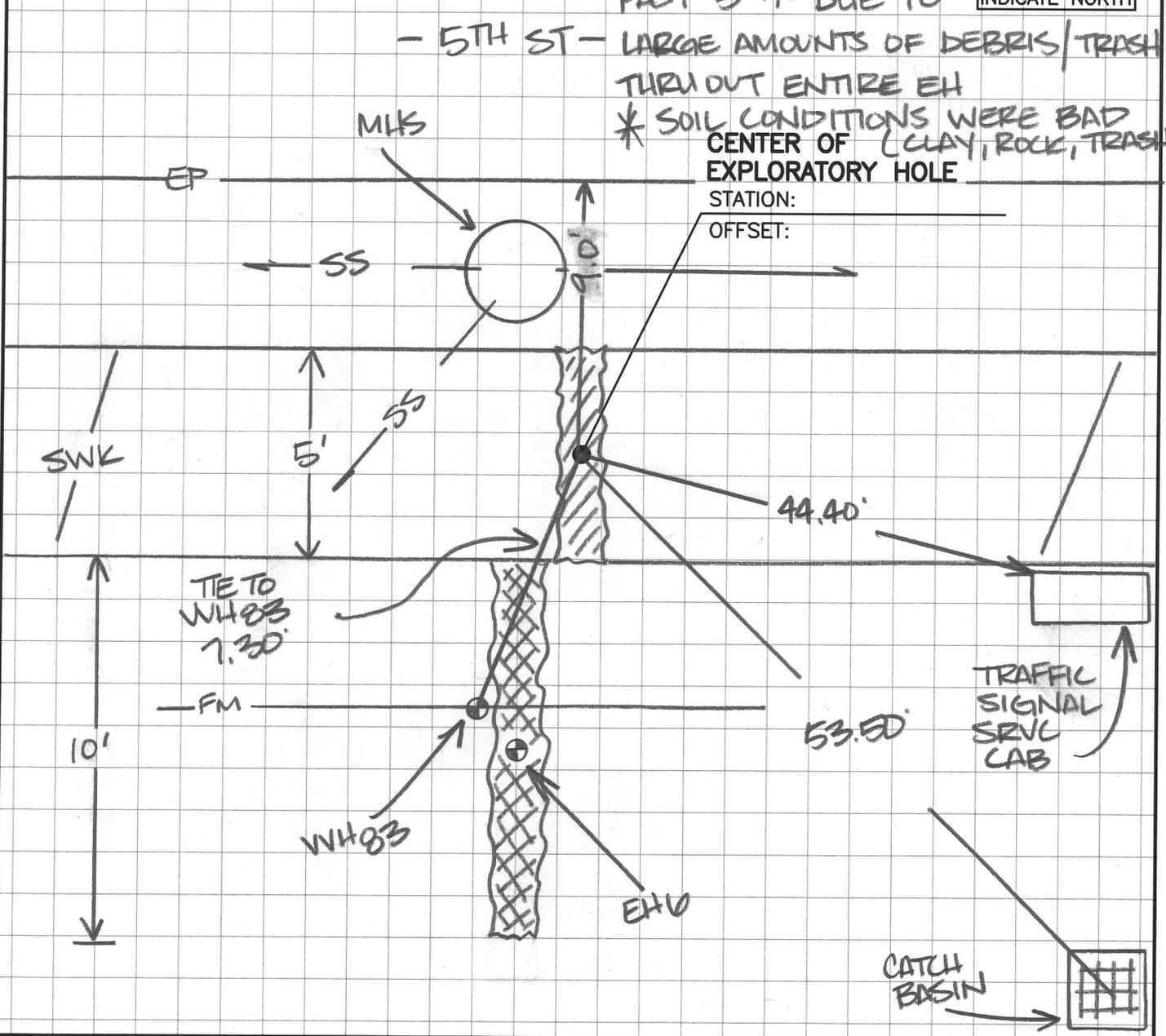
HOLE# EH7

UTILITY FOUND: UNABLE TO LOCATE 2ND FM

INTERSECTION NAME: 5TH ST / NORMAN E THAGARD BLVD @ MELSON AVE

EXPLORATORY HOLE DETAIL:  
DEPTH OF HOLE DUG: 4.5' +/-  
PROBED TO THE DEPTH: 5' +/-  
WATER TABLE DEPTH: -

\* GPR SCANS FROM EP TO SOUTH OF 48" RCP  
\* UNABLE TO PROBE PAST 5' +/- DUE TO  
INDICATE NORTH  
- 5TH ST - LARGE AMOUNTS OF DEBRIS/TRASH THRU OUT ENTIRE EH  
\* SOIL CONDITIONS WERE BAD CENTER OF (CLAY, ROCK, TRASH) EXPLORATORY HOLE





630-CITY  
or vis  
www.better

CAUTION CAUTION CAUTION CAUTION

Handwritten pink graffiti on the sidewalk.

LHS





CAMERA 2

## VACUUM EXCAVATION RECORD

PROJECT: W 5TH ST

DATE: 11/26/19

CREW: HEITMAN DUNHAM  
BREIDEN PERRINGTON

CITY/COUNTY: DUNAL

SUNSHINE ONE-CALL #:

F.P.N.#

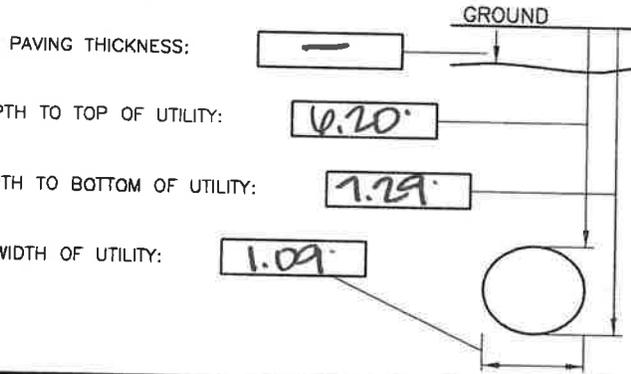
HOLE# VVH 83

UTILITY FOUND: FM 12" PVL (JEA)

GROUND: ASPHALT CONCRETE DIRT OTHER

SOIL CONDITION: HARD SOFT WET DRY SAND DIRT CLAY ROCKY

### VERTICAL INFORMATION:



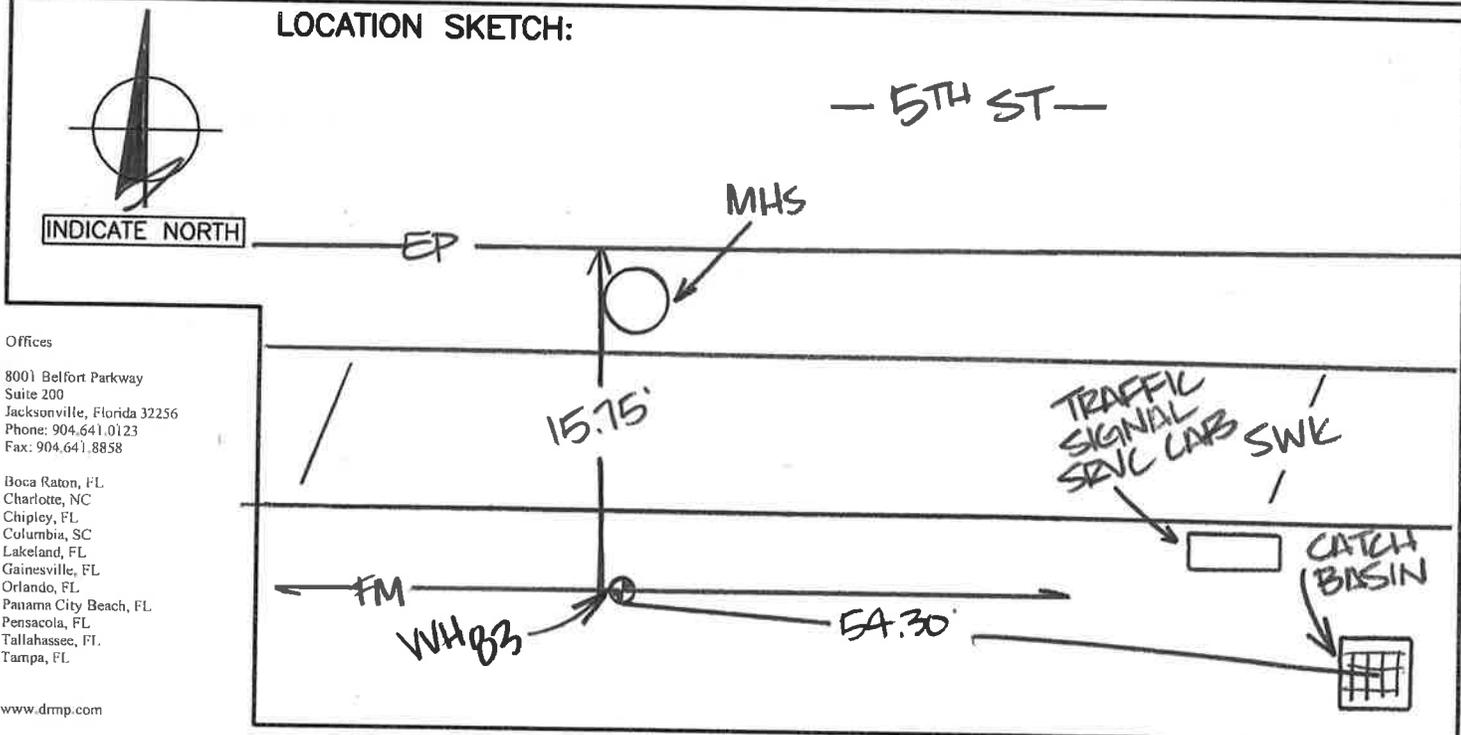
Type of Utility	Material
E - Electrical	1 - Steel
G - Gas	2 - PVC (Polyvinyl Chloride)
BT - Buried Telephone	3 - DIP (Ductile Iron Pipe)
FOC - Fiber Optic Cable	4 - VCP (Vitrified Clay Pipe)
W - Water	5 - PE (Polyethylene Pipe)
SAN - Sanitary Sewer	6 - AC (Transite)
STM - Storm Sewer	7 - CI (Cast Iron)
CATV - Cable Television	8 - DBC (Direct Buried Cable)
<u>FM</u> - Force Main	9 - Concrete Pipe
RW - Reclaimed Water	10 - Carrugated Metal Pipe
Other _____	11 - Duct
	Other _____

ELEV. AT GRADE: <b>22.25'</b>	ELEV. AT TOP: <b>16.05'</b>	ELEV. AT BOTTOM: <b>14.96'</b>
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Approximate Station	Approx. Offset Distance	Approx. Offset Distance	Utility Direction
<b>N: 2185675.445</b> <b>E: 428071.610</b>	L	R	

Identified By	Distance Pulled From
20 - Sleeve	30 - Edge of Pavement
21 - Hub/Lath	31 - Baseline
22 - Nail/Disk*	32 - Right-of-Way
23 - "X" in Concrete	33 - Centerline
24 - Swing Ties	34 - Back of Curb
25 - SIRC 5/8"***	35 - Survey Hub
Other _____	36 - "X" in Concrete
*Note: 22-Set Nail and Disk Stamped "DRMP REF. PT."	Other <u>CATCH BASIN</u>
**Note: 25-Set Iron R&CAP Stamped "DRMP REF. PT."	This job is: <u>ENGLISH</u> or METRIC

### LOCATION SKETCH:



Offices  
8001 Belfort Parkway  
Suite 200  
Jacksonville, Florida 32256  
Phone: 904.641.0123  
Fax: 904.641.8858

Boca Raton, FL  
Charlotte, NC  
Chipley, FL  
Columbia, SC  
Lakeland, FL  
Gainesville, FL  
Orlando, FL  
Panama City Beach, FL  
Pensacola, FL  
Tallahassee, FL  
Tampa, FL

West 5<sup>th</sup> Street – Jacksonville Electric Authority  
DRMP #18-0276.003

VVH #83



VVH #83



VVH #83

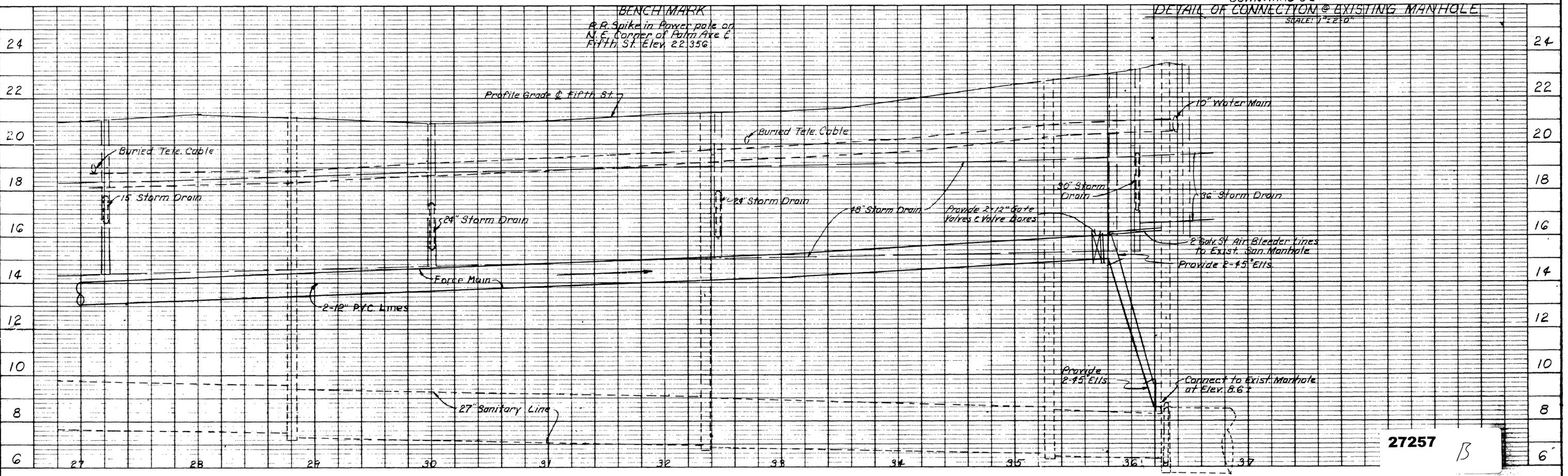
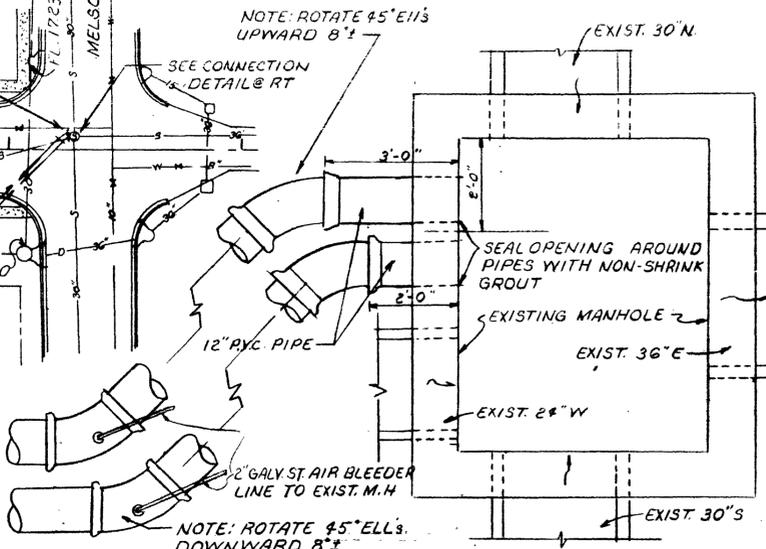
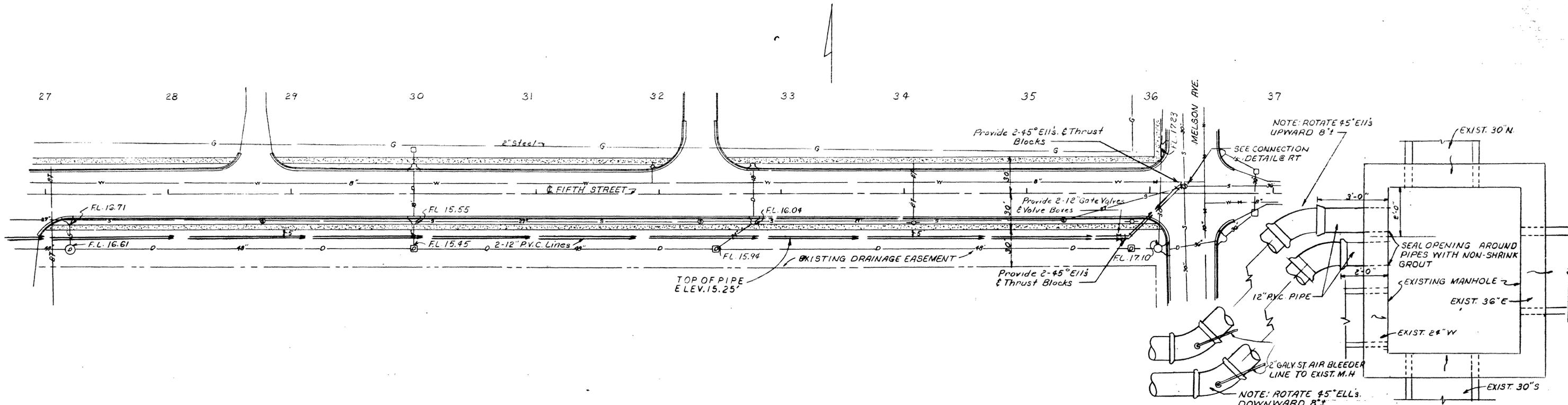


# **Exhibit D**

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## **JEA As-Builts of 5<sup>th</sup> Street Force Main Extension**





BENCHMARK  
 R.R. Spike in Power pole on  
 N.E. Corner of Palm Ave &  
 Fifth St. Elev. 22.356

DETAIL OF CONNECTION @ EXISTING MANHOLE  
 SCALE: 1" = 2'-0"

27257 B

NO.	DESCRIPTION	BY	FIRM	DATE	DATE	DATE
Δ	As Built	AJC	CE	7/29/77		
	REVISIONS					

SUBMITTED BY:	DATE
REG. ENGR. NO. CUMMINGS ENGINEERS	
APPROVAL RECOMMENDED BY:	DATE
REG. ENGR. NO.	DATE

APPROVED BY:	DATE
REG. ENGR. NO.	
AUTHORIZED BY:	DATE
REG. ENGR. NO.	DATE

**WESTLAKE-SOUTHERN**  
 SANITARY SEWERAGE FACILITIES  
 SEWAGE FORCE MAIN PHASE TWO

CUMMINGS ENGINEERS INC.  
 218 WEST CHURCH STREET  
 JACKSONVILLE, FLORIDA  
 DETAILED BY: A.J.T.  
 CHECKED BY: R.W.B.  
 SCALE: 1" = 40'H, 1" = 2' V  
 DATE: SEPT., 1976

**FORCE MAIN EXTENSION ON FIFTH ST.**  
 SEE SH 23 OF 24 - 5TH & PALM  
 CONTR. NO. \_\_\_\_\_  
 PROJ. NO. 7416-1B  
 SHEET NO. 2 OF 2