

Sabine River Authority State of Louisiana

Water Resources Commission

**Southwest Louisiana Entrepreneurial and Economic
Development (SEED) Center**

Jim Pratt, Executive Director
December 18, 2014

Federal Energy Regulatory Commission (FERC)

Because Toledo Bend is located on navigable waters of the United States it requires an operating license from FERC. In 1963, FERC's predecessor agency, the Federal Power Commission, issued the Authorities a 50-year license to construct, operate, and maintain Toledo Bend. The previous license expired in 2013 and the new license, with a 50-year term, was issued on August 29, 2014.

FERC Relicensing Challenges

- In the early 1960's, the Clean Water Act, the National Environmental Protection Act, and the National Historic Properties Act had not been enacted.
- Before FERC will issue a new license for Toledo Bend, all those Acts must be complied with.
- It is the responsibility of the licensee's (SRA-TX and SRA-LA) to prove the project is in compliance.



Office of
Energy
Projects

December 2013

FERC/EIS-F-0245

Final Environmental Impact Statement For Hydropower License



Toledo Bend Hydroelectric Project
Project No. 2305-036 – Texas and Louisiana

Federal Energy Regulatory Commission
Office of Energy Projects
Division of Hydropower Licensing
888 First Street, NE
Washington, DC 20426

FERC Re-Hearing

- ACT 295 of 2003
 - Limits Hydropower Production to elevation 168 msl.
- **Exceptions:**
- The Federal Energy Regulatory Commission or its successor orders or requires a reduction in the water level of the reservoir for purposes of inspecting or repairing the dam.
- Failure to do so will result in an insufficient supply of electric power in relation to the demand for such power by its firm or non-interruptible power users.
- Nonuse of the waters of the reservoir for the generation of hydroelectric power will result in the failure to satisfy minimum down river flow requirements necessary to meet water sales from the diversion canals of the Sabine River Channel and Diversion System and deter saltwater encroachment.
- Nonuse of the waters of the reservoir for the generation of hydroelectric power will result in saltwater encroachment in the Sabine River Estuaries.

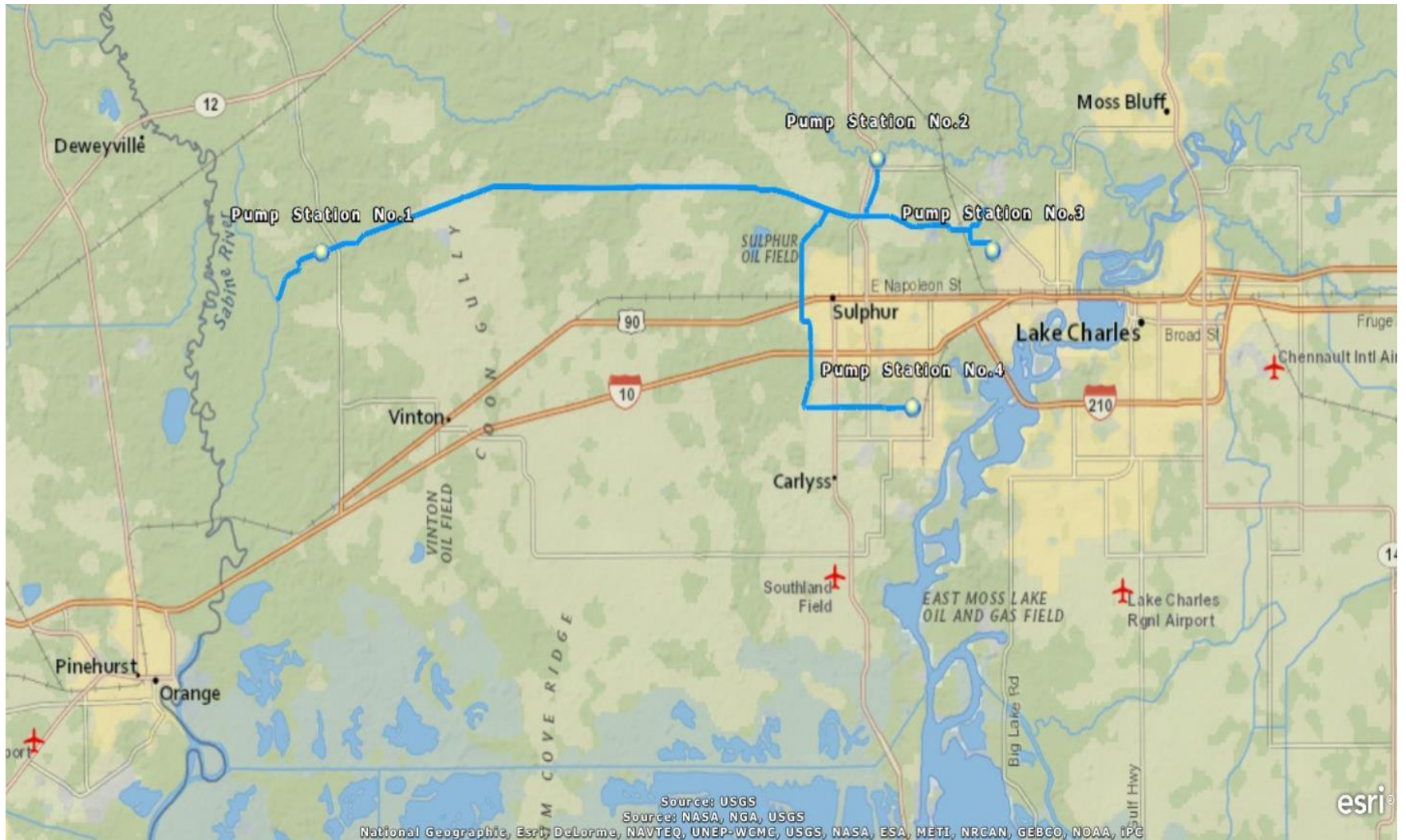
FERC Re-Hearing

- FERC License Order Article 406 – Reservoir Levels
- “The Licensees **shall** maintain the project reservoir surface elevation between 168 and 172 feet above mean sea level (msl)”.
- **Exceptions:**
 - Due to storm or high water events;
 - Due to reservoir drawdown necessary for inspection of public works, maintenance, or other reasons as required by FERC;
 - For releases needed to meet continuous release requirements under Article 402;
 - For releases needed to satisfy the licensees’ **current water supply or other downstream obligations**; or
 - To avoid an insufficient supply of firm or non-interruptible power to the licensees’ wholesale customers in accordance with the terms of the current power sales agreement.

Sabine River Diversion System

- The SRD System is a water conveyance system consisting of more than 35 miles of unlined, open channel canals, nearly 4½ miles of underground pipelines, four (4) pumping stations, and five (5) automatic control gates.
- The purpose of the SRD System is to divert surface water from the Sabine River to supply Agricultural, Municipal, and Industrial water needs in Southwest Louisiana, and reduce SWLAs dependence on ground water.

SRD canal layout



The Intake Canal

Sabine River Water enters the Intake Canal from the Old Sabine River approx. 2½ miles north of Niblett's Bluff, and flows via gravity flow approx. 2 miles to Pump Station No. 1.



Pump Station No. 1

Pump Station No. 1 contains three (3) 50,000 gpm vertical lift, single stage pumps that operate on 600 hp, 3-phase, 2,400 volt electrical feeds.



Pump Station No. 1 Discharge

Pump Station No. 1 lifts the water from the Intake at an approx. elevation of +2 MSL, and discharges it into Canal 2 at +27 MSL. An Automatic Sensor monitors the water level and controls the operation of the pumps.



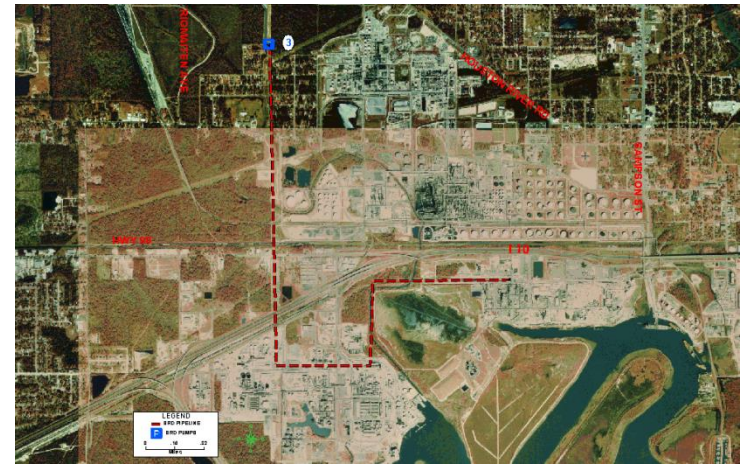
Automatic Control Gate

The Control Gates are automatic downstream level control gates, which open and close automatically to maintain a prescribed downstream water level.



Pump Station No. 3

Pump Station No. 3, located in Mossville, is equipped with two (2) 20,700 gpm, variable speed single stage pumps. These pumps continuously provide water under 10 psi of pressure to Air Liquide, Eagle US 2, Lyondell, Phillips 66 and Air Products.



Pump Station No. 4

- Pump Station No. 4, located north of the Citgo Wax Plant (formerly Cit-Con), is equipped with two (2) 19,500 gpm variable speed single stage pumps. These pumps continuously provide water under 10 psi of pressure to CITGO, Equistar, and Louisiana Pigment.



Typical SRD Canal “Crossing”

- Thirty seven (37) inverted culverts, or “siphons,” allow the water to cross beneath significant surface features, such as roadways, railroad tracks, and large drainage ditches.
- These Crossings typically consist of 2 to 3 reinforced concrete pipes (RCPs) 42 to 84 inches in diameter. A concrete headwall is typically located on either side of the RCPs at the levee “wrap-arounds.”

Irrigation Flood Gates

There are 109 Irrigation Flood Gates along the Canal for Agricultural use. These gates are opened and closed as needed using a hand valve. A corrugated metal pipe conducts water through the levee under gravity flow to irrigation ditches for the farmer's use.



Agriculture customers

- When the canal system went into operation in the 1980's we had (12) agriculture customers, both rice and crawfish, along the entire length of the system.
- For the past several years we have had (4) agriculture customers, both rice and crawfish located on Canal #2 within (7) miles of Pump Station #1.

SRD INDUSTRIAL CUSTOMERS

Contract Quantities

- Air Liquide 129,600 gallons/day
- Air Products 1,728,000 gallons/day
- CITGO 20,160,000 gallons/day
- Phillips 66 3,600,000 gallons/day
- Eagle US 2 20,160,000 gallons/day
- Entergy 21,600,000 gallons/day
- Equistar 734,400 gallons/day
- LC Co-Gen 14,400,000 gallons/day
- LA Pigment 3,038,400 gallons/day
- Lyondell 720,000 gallons/day
- Matheson Tri-Gas 175,680 gallons/day
- Westlake 8,640,000 gallons/day
- SASOL 46,080,000 gallons/day
- Total Contracted 141,166,080 gallons/day
- Capacity 216,000,000 gallons/day

	PHASE 1	COST
1	INSTALLATION OF DIESEL BYPASS PUMP SYSTEM FOR PUMP STATION NO. 3	654,000
2	SWITCHGEAR AND CONTROLS UPDGRADES FOR PUMP STATION NO. 3	1,440,000
3	INSTALLATION OF DIESEL BYPASS PUMP SYSTEM FOR PUMP STATION NO. 4	654,000
4	SWITCHGEAR AND CONTROLS UPDGRADES FOR PUMP STATION NO. 4	1,362,000
5	SWITCHGEAR AND MCC UPGRADES FOR PUMP STATON NO. 1	900,000
6	CANAL NO. 1 IMPROVEMENTS – DREDGING, SLOPE EROSION CONTROL, AN BRIDGE CROSSING	1,100,000
7	NEW SCADA MONITORING SYSTEM	390,000
8	REPAIR AND REPAINTING OF CANAL LEVEL CONTROL GATES	120,000
9	REHABILITATION OF SIPHON CROSSING CANAL 5 – CROSSING C- 23 (HIGHWAY 90)	594,000
10	NEW GALVANIZED GRATING FOR PUMP STATION INTAKES	198,000
TOTAL CAPITAL IMPROVEMENTS		7,412,000
Includes Associated Capital Costs for program contingency, administrative costs, legal costs, preliminary services, engineering services, miscellaneous costs, etc.		

	PHASE 2	COST
1	REHABILITATION OF SIPHON CROSSING CANAL 6 – CROSSING C – 32 (ARIZONA ST.)	2,100,00
2	REPLACEMENT OF TIMBER BRIDGE CROSSINGS - CANAL AND DRAIN DITCHES	1,590,000
3	SURFACE PREPARATION, REPAIR, AND REPAINTING OF PUMP STATIONS AND DISCHARGE PIPING	582,000
4	INTERIOR LEVEE SLOPE REPAIR AND EROSION PROTECTION	2,040,000
5	RETROFIT INSTALLATION OF PUMP UNIT NO. 3 FOR PUMP STATIONS NO. 3 AND NO. 4	1,752,000
TOTAL ADDITIONAL CAPITAL IMPROVEMENTS		8,064,000
Includes Associated Capital Costs for program contingency, administrative costs, legal costs, preliminary services, engineering services, miscellaneous costs, etc.		

Pump Station #1



Control Building



Switchgear Cabinets

Pump Station #3



Control Building and
Generator



Switchgear
Cabinets

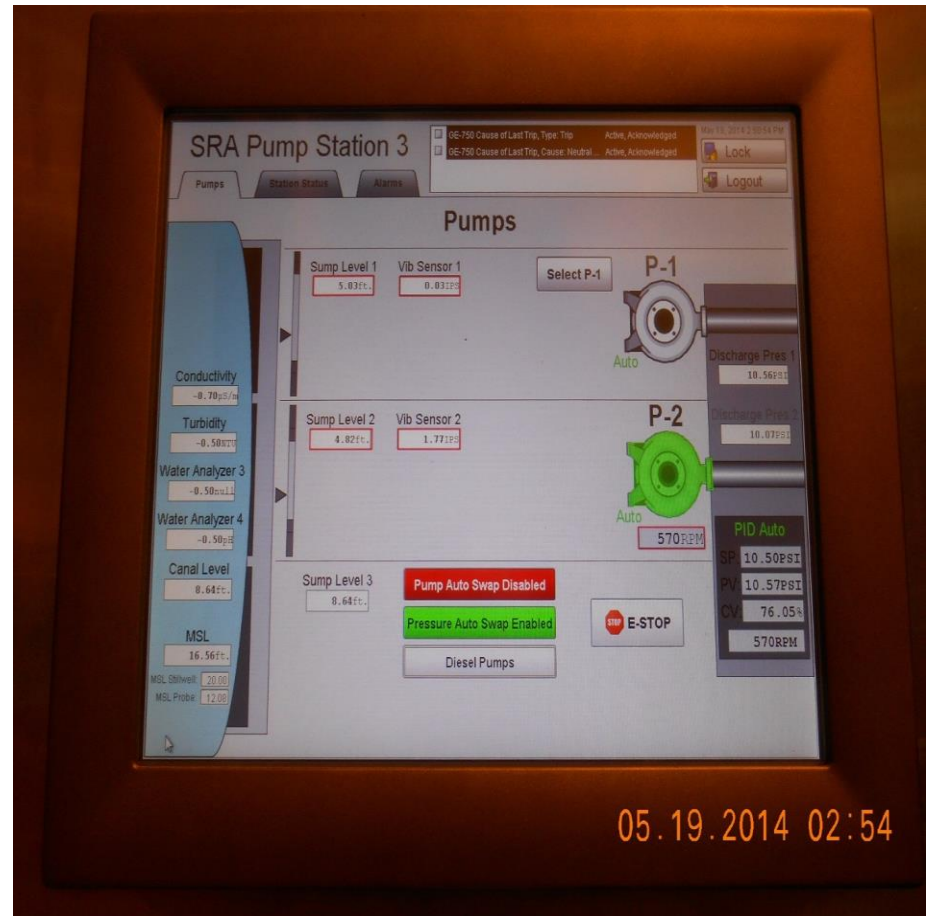
Pump Station #3

This is the Remote Operator Station. It is located in the Pump Station building and allows the staff to start and stop the pumps without being in front of the switchgear so that they can see and hear the pumps/motors start.



Pump Station #3

This is the Remote Operator Station screen. From this touch screen the operator can access and see various data on the pump station. It is also used to start and stop pumps as well set how the clutch responds to changes in customer usage and monitor the diesel bypass pumps.



Pump Station No.3 – Diesel Bypass Pumps



Pump Station #4



Control Building
& Generator



Switchgear
Cabinets

Project 3 – diesel bypass at ps #4



Siphon C-23 Highway #90



The dewatered site and a liner being installed

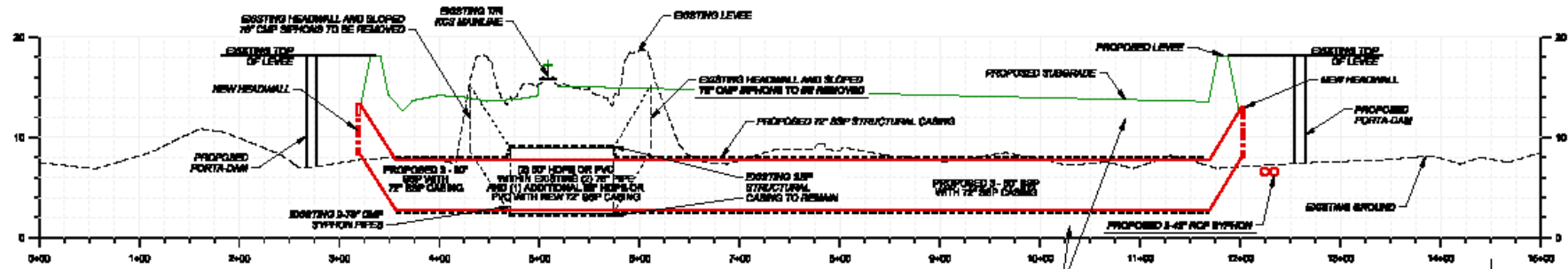
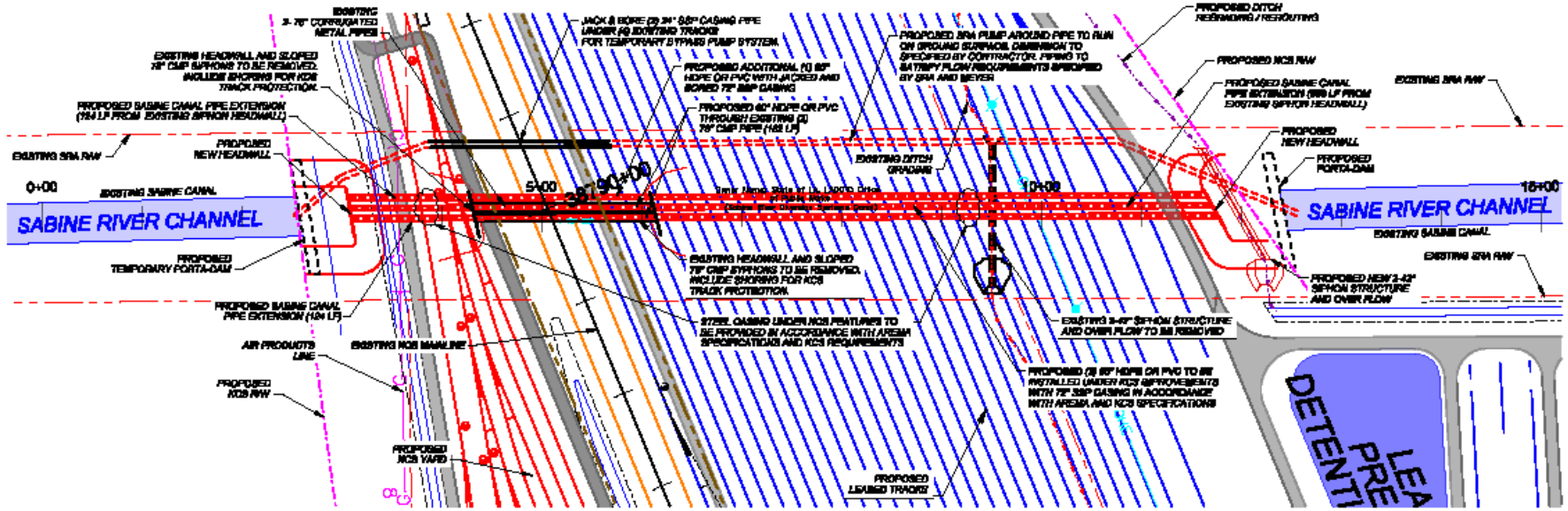


The dewatered site and a liner exiting the siphon

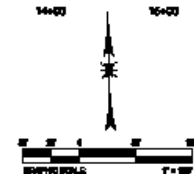


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NOTE:
 1. THE CONTRACTOR IS RESPONSIBLE FOR ALL EXISTING AND REMAINING CURBS CONSTRUCTION.
 2. THE CONTRACTOR MUST MAINTAIN ALL CFS DRAINAGE THROUGH THE CANAL AT ALL TIMES.
 3. TEMPORARILY STAYED PUMP SYSTEM AND/OR PORTA-DAM MUST MAINTAIN CFS.
 4. RELOCATION OF 3-42\"/>



PRELIMINARY



TIME BY TIME
 285 WEST 10TH ST. #100
 FORT WORTH, TEXAS 76104
 (817) 874-6271



PROJECT NO.	DATE	PROJECT	SECTION
154876	11/24/14	111416	1-1
DESIGNED BY	SCALE	FILE	PROJECT NO.

IN CONSULTATION WITH THE
 CITY OF FORT WORTH
 PUBLIC WORKS DEPARTMENT
 1000 MAIN STREET, FORT WORTH, TEXAS 76102
 APPROVED FOR 2-27 SYSTEM REBUILD & RELOCATION OF 3-42\"/>