

LOUISIANA UNIFORM PUBLIC WORK BID FORM (ADDENDUM 02)

TO: City of Mandeville
Attn.: Purchasing Department
3101 East Causeway Blvd.
Mandeville, La 70448

BID FOR: Lift Station 21 Relocation
Mandeville, LA

The undersigned bidder hereby declares and represents that she/he; a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: Principal Engineering Inc. and dated: July 2014.

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following **ADDENDA**: (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging) #1, 08/08/14; #2, 08/28/14

TOTAL BASE BID: For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid"

* but not alternates) the sum of: One million, two hundred fifty-four thousand, eight hundred nine
_____ Dollars (\$1,254,809.00 Dollars and No Cents

NAME OF BIDDER: Wallace C. Drennan, Inc.

ADDRESS OF BIDDER: Post Office Box 15438
New Orleans, LA 70175-5438

LOUISIANA CONTRACTOR'S LICENSE NUMBER: 1033

NAME OF AUTHORIZED SIGNATORY OF BIDDER: Wallace C. Drennan, III

TITLE OF AUTHORIZED SIGNATORY OF BIDDER: President

SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER **: 

DATE: 9/3/14

* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

** If someone other than a corporate officer signs for the Bidder/Contractor, a copy of a corporate resolution or other signature authorization shall be required for submission of bid. Failure to include a copy of the appropriate signature authorization, if required, may result in the rejection of the bid unless bidder has complied with La. R.S. 38:2212(A)(1)(c) or RS 38:2212(O) .

BID SECURITY in the form of a bid bond, certified check or cashier's check as prescribed by LA RS 38:2218.A is attached to and made a part of this bid.

**LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM (ADDENDUM 02)**

TO: City of Mandeville
Attn.: Purchasing Department
3101 East Causeway Blvd.
Mandeville, La 70448

BID FOR: Lift Station 21 Relocation
Mandeville, LA

UNIT PRICES: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION: Removal of Structures & Obstructions				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
202-01-1	1	Lump Sum	\$ 29,000.00	\$ 29,000.00

DESCRIPTION: Removal of Asphaltic Concrete Pavement (Full Depth)				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
202-02-1	870	Square Yard	\$ 45.00	\$ 39,150.00

DESCRIPTION: Removal of Concrete Drive				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
202-02-2	13	Square Yard	\$ 5.00	\$ 65.00

DESCRIPTION: Class II Base Course (12" Thick)				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
302-01-1	870	Square Yard	\$ 45.00	\$ 39,150.00

DESCRIPTION: Aggregate Surface Course Pavement (8" Thick)				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
401-01-1	167	Square Yard	\$ 45.00	\$ 7,515.00

DESCRIPTION: Aggregate Surface Course Driveway (6" Thick)				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
401-01-2	13	Square Yard	\$ 10.00	\$ 130.00

DESCRIPTION: Asphaltic Concrete (Type III Wearing Course) (2" Thick)				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
501-01-1	184	TON	\$ 120.00	\$ 22,080.00

DESCRIPTION: Asphaltic Concrete (Type III Binder Course) (6" Thick)				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
501-01-2	301	TON	\$ 120.00	\$ 36,120.00

DESCRIPTION: Cold Plane Asphaltic Pavement (2")				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
509-01	1591	Square yard	\$ 2.00	\$ 3,182.00

DESCRIPTION: Storm Drain Pipe Arch (30" eqv. RCPA)				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
701-04-1	100	Linear Feet	\$ 233.00	\$ 23,300.00

DESCRIPTION: Corrugated Metal Pipe Extension (30")				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
701-12-1	15	Linear Feet	\$ 244.00	\$ 3,660.00

DESCRIPTION: Precast Sanitary Manholes				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
702-01a	6	Each	\$ 7,000.00	\$ 42,000.00

DESCRIPTION: Saddle Manholes				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
702-01b	2	Each	\$ 12,000.00	\$ 24,000.00

DESCRIPTION: Concrete Drive (6" Thick)				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
706-02	13	Square Yard	\$ 100.00	\$ 1,300.00

DESCRIPTION: Temporary Signs & Barricades				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
713-01-1	1	Lump Sum	\$ 1,000.00	\$ 1,000.00

DESCRIPTION: Mobilization				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
727-01-1	1	Lump Sum	\$ 111,000.00	\$ 111,000.00

DESCRIPTION: 16" Bituminous Coated A53 Steel Casing				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
741-01	24	Linear Feet	\$ 150.00	\$ 3,600.00

DESCRIPTION: Sanitary Sewer Force Main (4" D.I.)				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
742-01-1a	15	Linear Feet	\$ 333.00	\$ 4,995.00

DESCRIPTION: Sanitary Sewer Force Main (8" C-900)				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
742-01-1b	12	Linear Feet	\$ 500.00	\$ 6,000.00

DESCRIPTION: Sanitary Sewer Force Main (12" C-900)				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
742-01-1c	671	Linear Feet	\$ 140.00	\$ 93,940.00

DESCRIPTION: SDR-26 PVC Sewer Gravity Line (8")				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
742-01-2a	327	Linear Feet	\$ 133.00	\$ 43,491.00

DESCRIPTION: SDR-26 PVC Sewer Gravity Line (10")				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
742-01-2b	614	Linear Feet	\$ 233.00	\$ 143,062.00

DESCRIPTION: SDR-26 PVC Sewer Gravity Line (12")				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
742-01-2c	41	Linear Feet	\$ 366.00	\$ 15,006.00

DESCRIPTION: SDR-26 PVC Sewer Gravity Line (16")				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
742-01-2d	16	Linear Feet	\$ 777.00	\$ 12,432.00

DESCRIPTION: Reinstate Sanitary Sewer House Connections				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
742-02	13	Each	\$ 500.00	\$ 6,500.00

DESCRIPTION: Coring, Coating & Plugging Manhole				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-01	1	Lump Sum	\$ 33,000.00	\$ 33,000.00

DESCRIPTION: Submersible Station Structure				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-02	1	Lump Sum	\$ 200,000.00	\$ 200,000.00

DESCRIPTION: Pumps & Accessories				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-03	1	Lump Sum	\$ 44,000.00	\$ 44,000.00

DESCRIPTION: Station Piping/Valves				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-04	1	Lump Sum	\$ 11,000.00	\$ 11,000.00

DESCRIPTION: Ductile Iron Fittings				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-05	7431	Pounds	\$ 1.00	\$ 7,431.00

DESCRIPTION: Pump Control Panel				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-06	1	Lump Sum	\$ 66,000.00	\$ 66,000.00

DESCRIPTION: Diesel Generator				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-07	1	Each	\$ 44,000.00	\$ 44,000.00

DESCRIPTION: Electrical Work				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-08	1	Lump Sum	\$ 66,000.00	\$ 66,000.00

DESCRIPTION: Bypass Pumping				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-09	1	Lump Sum	\$ 7,700.00	\$ 7,700.00

DESCRIPTION: Removal of Unforeseen Structures & Obstructions				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-10	1	Lump Sum	\$30,000	\$ 30,000.00

DESCRIPTION: Video Survey				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-11	1	Lump Sum	\$ 1,000.00	\$ 1,000.00

DESCRIPTION: Miscellaneous Site Work				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-12	1	Lump Sum	\$ 33,000.00	\$ 33,000.00

SECTION 00410

BID BOND FORM
FOR

LIFT STATION NO. 21 RELOCATION

Date: September 3, 2014

KNOW ALL MEN BY THESE PRESENTS:

That Wallace C. Drennan, Inc. of P.O. Box 15438, New Orleans, LA 70175, as Principal, and The Hanover Insurance Company, as Surety, are held and firmly bound unto the City of Mandeville (Obligee), in the full and just sum of 5% of the price bid, lawful money of the United States, for payment of which sum, well and truly be made, we bind ourselves, our heirs, executors, administrators, successors and assigns, jointly and severally firmly by these presents.

Surety represents that it is listed on the current U. S. Department of the Treasury Financial Management Service list of approved bonding companies as approved for an amount equal to or greater than the amount for which it obligates itself in this instrument or that it is a Louisiana domiciled insurance company with at least an A - rating in the latest printing of the A. M. Best's Key Rating Guide. If surety qualifies by virtue of its Best's listing, the Bond amount may not exceed ten percent of policyholders' surplus as shown in the latest A. M. Best's Key Rating Guide.

Surety further represents that it is licensed to do business in the State of Louisiana and that this Bond is signed by surety's agent or attorney-in-fact. This Bid Bond is accompanied by appropriate power of attorney.

THE CONDITION OF THIS OBLIGATION IS SUCH that, whereas said Principal is herewith submitting its proposal to the Obligee on a Contract for:

LIFT STATION NO. 21 RELOCATION

NOW, THEREFORE, if the said Contract be awarded to the Principal and the Principal shall, within such time as may be specified, enter into the Contract in writing and give a good and sufficient bond to secure the performance of the terms and conditions of the Contract with surety acceptable to the Obligee, then this obligation shall be void; otherwise this obligation shall become due and payable.

Wallace C. Drennan, Inc.
PRINCIPAL (BIDDER)

BY: Wallace C. Drennan, III
AUTHORIZED OFFICER-OWNER-PARTNER
Wallace C. Drennan, III
President

The Hanover Insurance Company
440 Lincoln Street, Worcester, MA 01653
SURETY

BY: Pamela K. Tucker
AGENT OR ATTORNEY-IN-FACT (SEAL)
Pamela K. Tucker, Attorney-in-Fact
Countersigned:
Louisiana Resident Agent:
By: Pamela K. Tucker
Pamela K. Tucker, Metairie, LA

END OF SECTION

THE HANOVER INSURANCE COMPANY
MASSACHUSETTS BAY INSURANCE COMPANY
CITIZENS INSURANCE COMPANY OF AMERICA

POWERS OF ATTORNEY
CERTIFIED COPY

KNOW ALL MEN BY THESE PRESENTS: That THE HANOVER INSURANCE COMPANY and MASSACHUSETTS BAY INSURANCE COMPANY, both being corporations organized and existing under the laws of the State of New Hampshire, and CITIZENS INSURANCE COMPANY OF AMERICA, a corporation organized and existing under the laws of the State of Michigan, do hereby constitute and appoint

Stephen L. Cory, Pamela K. Tucker, Jill K. Tucker and/or Melanie Stern

of **Metairie, LA** and each is a true and lawful Attorney(s)-in-fact to sign, execute, seal, acknowledge and deliver for, and on its behalf, and as its act and deed any place within the United States, or, if the following line be filled in, only within the area therein designated any and all bonds, recognizances, undertakings, contracts of indemnity or other writings obligatory in the nature thereof, as follows:

Any such obligations in the United States, not to exceed Forty Million and No/100 (\$40,000,000) in any single instance

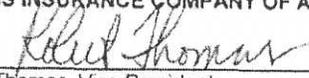
and said companies hereby ratify and confirm all and whatsoever said Attorney(s)-in-fact may lawfully do in the premises by virtue of these presents. These appointments are made under and by authority of the following Resolution passed by the Board of Directors of said Companies which resolutions are still in effect:

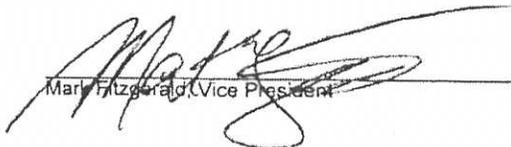
"RESOLVED, That the President or any Vice President, in conjunction with any Vice President, be and they are hereby authorized and empowered to appoint Attorneys-in-fact of the Company, in its name and as its acts, to execute and acknowledge for and on its behalf as Surety any and all bonds, recognizances, contracts of indemnity, waivers of citation and all other writings obligatory in the nature thereof, with power to attach thereto the seal of the Company. Any such writings so executed by such Attorneys-in-fact shall be as binding upon the Company as if they had been duly executed and acknowledged by the regularly elected officers of the Company in their own proper persons." (Adopted October 7, 1981 - The Hanover Insurance Company; Adopted April 14, 1982 - Massachusetts Bay Insurance Company; Adopted September 7, 2001 - Citizens Insurance Company of America)

IN WITNESS WHEREOF, THE HANOVER INSURANCE COMPANY, MASSACHUSETTS BAY INSURANCE COMPANY and CITIZENS INSURANCE COMPANY OF AMERICA have caused these presents to be sealed with their respective corporate seals, duly attested by two Vice Presidents, this 4th day of November 2011.



THE HANOVER INSURANCE COMPANY
MASSACHUSETTS BAY INSURANCE COMPANY
CITIZENS INSURANCE COMPANY OF AMERICA


Robert Thomas, Vice President


Mary Fitzgerald, Vice President

THE COMMONWEALTH OF MASSACHUSETTS)
COUNTY OF WORCESTER) ss.

On this 4th day of November 2011 before me came the above named Vice Presidents of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, to me personally known to be the individuals and officers described herein, and acknowledged that the seals affixed to the preceding instrument are the corporate seals of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, respectively, and that the said corporate seals and their signatures as officers were duly affixed and subscribed to said instrument by the authority and direction of said Corporations.

 BARBARA A. GARLICK
Notary Public
Commonwealth of Massachusetts
My Commission Expires Sept. 21, 2018


Barbara A. Garlick, Notary Public
My Commission Expires September 21, 2018

I, the undersigned Vice President of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America, hereby certify that the above and foregoing is a full, true and correct copy of the Original Power of Attorney issued by said Companies, and do hereby further certify that the said Powers of Attorney are still in force and effect.

This Certificate may be signed by facsimile under and by authority of the following resolution of the Board of Directors of The Hanover Insurance Company, Massachusetts Bay Insurance Company and Citizens Insurance Company of America.

"RESOLVED, That any and all Powers of Attorney and Certified Copies of such Powers of Attorney and certification in respect thereto, granted and executed by the President or any Vice President in conjunction with any Vice President of the Company, shall be binding on the Company to the same extent as if all signatures therein were manually affixed, even though one or more of any such signatures thereon may be facsimile." (Adopted October 7, 1981 - The Hanover Insurance Company; Adopted April 14, 1982 - Massachusetts Bay Insurance Company; Adopted September 7, 2001 - Citizens Insurance Company of America)

GIVEN under my hand and the seals of said Companies, at Worcester, Massachusetts, this 3rd day of September, 20 14

THE HANOVER INSURANCE COMPANY
MASSACHUSETTS BAY INSURANCE COMPANY
CITIZENS INSURANCE COMPANY OF AMERICA


Glenn Margosian, Vice President

CERTIFIED COPY OF
EXCERPT OF MINUTES OF A SPECIAL MEETING
OF THE BOARD OF DIRECTORS OF
WALLACE C. DRENNAN, INC.

Held on October 12, 2006
1500 Nine Mile Point Road
Westwego, LA

I, Becky Speyrer, Assistant Secretary of Wallace C. Drennan, Inc., do hereby certify the following to be a true and correct excerpt of the minutes of the meeting of the Directors of the Corporation held on October 12, 2006; and that the following RESOLUTIONS passed at that meeting are still in full force and effect:

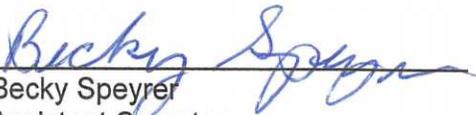
* * *

"...it was further RESOLVED that the President, Wallace C. Drennan, III, be authorized to act for Wallace C. Drennan, Inc., in all phases of the operations of its business, to sign all contracts, bid applications and bids, to manage the business of the corporation, to make loans, execute banking resolutions, sign checks, deposit and withdraw funds, execute payment and performance bonds, make purchase of vehicles, equipment, materials and supplies for the corporation; to sell vehicles, equipment materials and supplies of the corporation; or lease or purchase movable or immovable property and improvements on behalf of the corporation; to hire and fire employees; to manage and oversee construction jobs; to estimate and submit bids; to procure advertising packets, bid packages and other documents necessary to formulate bids for construction work; to manage and oversee the maintenance, scheduling and uses of equipment within the corporation; to direct, manage and supervise labor and construction work; generally, without limitation, to sign all documents and perform all acts necessary for the conducting of the operation and business of Wallace C. Drennan, Inc., as its President; and also the President should have general and specific powers on behalf of the corporation to carry out and work with the Assistant Secretary of the corporation in carrying out the banking business of the corporation; to deposit and withdraw funds; to make loans, to sign checks in accordance with the banking resolution contained hereinbelow; to execute mortgages or chattel mortgages, or documents pursuant to the Uniform Commercial Code as necessary to purchase equipment,

materials or property; to execute all necessary banking documents, banking resolutions, loan documents, drafts, continuing guaranties, or other banking documents; and generally to perform any act and execute any document necessary to carry out the banking and financial business of Wallace C. Drennan, Inc., in cooperation with the duties and responsibilities of the Assistant Secretary of the corporation.”

* * *

Westwego, Louisiana


Becky Speyner
Assistant Secretary

CERTIFICATE

I, the undersigned President of Wallace C. Drennan, Inc., do certify that the above and foregoing resolution was unanimously adopted at a meeting of the Board of Directors of the Said Corporation held on October 12, 2006, and that the same is in full force and effect this date.

IN TESTIMONY WHEREOF, I have hereunto set my hand and the seal of said corporation this 31st day of September, 2014.


Wallace C. Drennan, III
President

SECTION 00480
AFFIDAVITS

NON-COLLUSION AFFIDAVIT

STATE OF LOUISIANA
PARISH OF ORLEANS

BEFORE ME, THE UNDERSIGNED AUTHORITY, PERSONALLY CAME AND APPEARED
Eddy E. Mitchell, WHO AFTER BEING BY ME DULY
SWORN, DEPOSED AND SAID THAT HE IS THE FULLY AUTHORIZED Vice-President of Contracts
OF Wallace C. Drennan, inc. (HEREIN AFTER REFERRED TO AS BIDDER) THE
PARTY WHO SUBMITTED A BID FOR Lift Station No. 21 Relocation,
BID NO. A/E Project No. 1213
AND SAID AFFIANT FURTHER SAID:

1) That bidder employed no person, corporation, firm, association or other organization, either directly or indirectly, to secure the public contract under which he received payment, other than persons regularly employed by the bidder whose services in connection with the construction of the public building or project or in securing the public contract were in the regular course of their duties for bidder; and

2) That no part of the contract price received by bidder was paid or will be paid to any person, corporation, firm, association, or other organization for soliciting the contract, other than the payment of their normal compensation to persons regularly employed by the bidder whose services in connection with the construction of the public building or project were in the regular course of their duties for bidder.

3) Said bid is genuine and the bidder has not colluded, conspired or agreed directly or indirectly with any other bidder to offer a sham or collusive bid.

4) Said bidder has not in any manner, directly or indirectly, agreed with any other person to fix the bid price of affiant or any other bidder, or to fix any overhead, profit or cost element of said bid price, or that of any other bidder, or to induce any other person to refrain from bidding.

5) Said bidder is not intended to secure an unfair advantage of benefit from the City of Mandeville or in favor of any person interested in the proposed contract.

Eddy E. Mitchell
AUTHORIZED SIGNATURE

SWORN TO AND SUBSCRIBED
BEFORE ME THIS 14
DAY OF August, 20 14

[Signature]

NOTARY PUBLIC



NON-CONVICTION AFFIDAVIT

STATE OF LOUISIANA
PARISH OF ORLEANS

BEFORE ME, THE UNDERSIGNED AUTHORITY, PERSONALLY CAME AND APPEARED Eddy E. Mitchell, WHO AFTER BEING BY ME DULY SWORN, DEPOSED AND SAID THAT HE IS THE FULLY AUTHORIZED V.P. of Contracts OF Wallace C. Drennan, Inc. (HEREIN AFTER REFERRED TO AS BIDDER) THE PARTY WHO SUBMITTED A BID FOR Lift Station No. 21 Relocation, BID NO. A/E Project No. 1213 AND SAID AFFIANT FURTHER SAID:

He/she personally has not been convicted of, nor has he/she entered a plea of guilty or nolo contendere to any of the crimes or equivalent federal crimes listed below. No individual partner, incorporator, director, manager, officer, organizer, or member, who has a minimum of a ten percent ownership in the bidding entity, has been convicted of, or has entered a plea of guilty or nolo contendere to any of the crimes or equivalent federal crimes listed below.

A conviction of or plea of guilty or nolo contendere to the following state crimes or equivalent federal crimes shall permanently bar any person or the bidding entity from bidding on public projects:

- (a) Public bribery (R.S. 14:118).
- (b) Corrupt influencing (R.S. 14:120).
- (c) Extortion (R.S. 14:66).
- (d) Money laundering (R.S. 14:230).

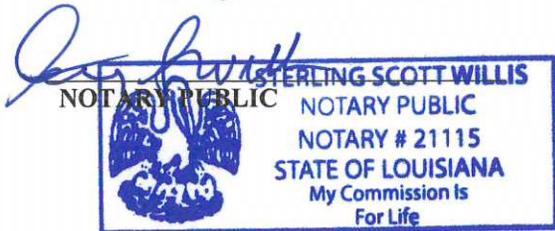
A conviction of or plea of guilty or nolo contendere to the following state crimes or equivalent federal crimes shall bar any person or the bidding entity from bidding on public projects for a period of five years from the date of conviction or from the date of the entrance of the plea of guilty or nolo contendere:

- (a) Theft (R.S. 14:67).
- (b) Identity Theft (R.S. 14:67.16).
- (c) Theft of a business record (R.S. 14:67.20).
- (d) False accounting (R.S. 14:70).
- (e) Issuing worthless checks (R.S. 14:71).
- (f) Bank fraud (R.S. 14:71.1).
- (g) Forgery (R.S. 14:72).
- (h) Contractors; misapplication of payments (R.S. 14:202).
- (i) Malfeasance in office (R.S. 14:134).

The five-year prohibition provided for in this section shall apply only if the crime was committed during the solicitation or execution of a contract or bid awarded pursuant to these provisions. If evidence is submitted substantiating that a false attestation has been made and the project must be readvertised or the contract cancelled, the awarded entity making the false attestation shall be responsible to the public entity for the costs of rebidding, additional costs due to increased costs of bids and any and all delay costs due to the rebid or cancellation of this project.

Eddy E. Mitchell
AUTHORIZED SIGNATURE

SWORN TO AND SUBSCRIBED
BEFORE ME THIS 14
DAY OF August, 20 14



STATE OF LOUISIANA
PARISH OF ORLEANS

BEFORE ME, the undersigned authority, duly commissioned and qualified and sworn in and for the State and Parish aforesaid, personally came and appeared Eddy E. Mitchell, Vice-President of Contracts who after being duly sworn, did depose and say as follows:

LA. R.S. 38:2212.10(C) VERIFICATION OF EMPLOYEES INVOLVED IN CONTRACTS FOR PUBLIC WORKS

- A. At the time of bidding, bidder is registered and participates in a status verification system to verify that all new hires in the state of Louisiana are legal citizens of the United States or are legal aliens.
- B. If awarded the contract, bidder shall continue, during the term of the contract, to utilize a status verification system to verify the legal status of all new employees in the state of Louisiana.
- C. If awarded the contract, bidder shall require all subcontractors to submit to it a sworn affidavit verifying compliance with Paragraphs (A) and (B) of this Subsection.

LA. R.S. 38:2224 NON-COLLUSION AND NON-SOLICITATION

- A. The bidder employed no person, corporation, firm, association, or other organization, either directly or indirectly, to secure the public contract under which he received payment, other than persons regularly employed by the bidder whose services in connection with the construction of the public building or project or in securing the public contract were in the regular course of their duties for bidder.
- B. That no part of the contract price received by bidder was paid or will be paid to any persons, corporation, firm, association, or other organization for soliciting the contract, other than the payment of their normal compensation to persons regularly employed by the bidder whose services in connection with construction of the public building or project were in the regular course of their duties for bidder.
- C. Said bid is genuine and the bidder has not colluded, conspired, or agreed, directly or indirectly, with any other bidder to offer a sham or collusive bid.
- D. Said bidder has not in any manner, directly or indirectly, agreed with any other person to fix the bid price of affiant or any other bidder, or to fix any overhead profit or cost element of said bid price, or that of any other bidder, or to induce any other person to refrain from bidding.
- E. Said bidder s not intended to secure an unfair advantage of benefit from the Owner or in favor of any person interested in the proposed contract.
- F. All statements contained in said bid are true and correct.
- G. Neither affiant nor any member of his company has divulged information regarding said bid or any data relative thereto to any other person, firm, or corporation.

LA. R.S. 38:2227 PAST CRIMINAL CONVICTIONS OF BIDDERS

- A. No sole proprietor or individual partner, incorporator, director, manager, officer, organizer, or member who has a minimum of a ten percent (10%) ownership in the bidding entity named below has been convicted of, or has entered a plea of guilty or nolo contendere to any of the following state crimes or equivalent federal crimes as listed below:
 - (a) Public bribery (R.S. 14:118)
 - (b) Corrupt influencing (R.S. 14:120)
 - (c) Extortion (R.S. 14:66)
 - (d) Money laundering (R.S. 14:23)
- B. Within the past five years from the project bid date, no sole proprietor or individual partner, incorporator, director, manager, officer, organizer, or member who has a minimum of a ten percent (10%) ownership in the bidding entity named below has been convicted of, or has entered a plea of guilty or nolo contendere to any of the following state crimes or equivalent federal crimes, during the solicitation or execution of a contract or bid awarded pursuant to the provisions of Chapter 10 of Title 38 of the Louisiana Revised Statutes:
 - (a) Theft (R.S. 14:67)
 - (b) Identity Theft (R.S. 14:67.16)
 - (c) Theft of a business record (R.S.14:67.20)
 - (d) False accounting (R.S. 14:70)
 - (e) Issuing worthless checks (R.S. 14:71)
 - (f) Bank fraud (R.S. 14:71.1)
 - (g) Forgery (R.S. 14:72)
 - (h) Contractors; misapplication of payments (R.S. 14:202)
 - (i) Malfeasance in office (R.S. 14:134)

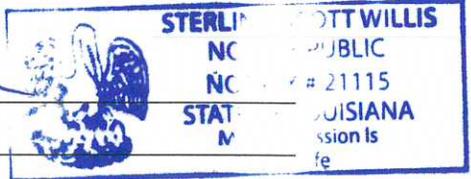
I hereby certify that the information herein is true and correct to the best of my knowledge, information, and belief.

Witnesses: [Signature]
[Signature]

Signature: Eddy E Mitchell
 Printed Name: Eddy E. Mitchell
 Title: Vice-President of Contracts
 Entity Name: Wallace C. Drennan, Inc.

Sworn to and subscribed before me on 14 day of August, 2014.

Notary Public: [Signature]
 Commission expires: _____



CERTIFIED COPY OF
EXCERPT OF MINUTES OF A SPECIAL MEETING
OF THE BOARD OF DIRECTORS OF
WALLACE C. DRENNAN, INC.

Held on May 7, 2014
1500 Nine Mile Point Road
Westwego, LA

I, Becky Speyrer, Assistant Secretary of Wallace C. Drennan, Inc., do hereby certify the following to be a true and correct excerpt of the minutes of the meeting of the Directors of the Corporation held on May 7, 2014; and that the following RESOLUTIONS passed at that meeting are still in full force and effect:

* * *

"...it was further RESOLVED that the Vice President of Contracts, Eddy E. Mitchell, has limited authority to act for Wallace C. Drennan, Inc., to execute and deliver, for and on behalf of the Corporation, public bid documents, including affidavits, public works contracts, private works contracts, and requests for payments on an AIA form or otherwise, provided that Mitchell's authority shall be limited to documents of Wallace C. Drennan, Inc., that require notarization. in cooperation with the duties and responsibilities of the Assistant Secretary of the corporation."

* * *

Westwego, Louisiana


Becky Speyrer
Assistant Secretary

CERTIFICATE

I, the undersigned President of Wallace C. Drennan, Inc., do certify that the above and foregoing resolution was unanimously adopted at a meeting of the Board of Directors of the Said Corporation held on May 7, 2014, and that the same is in full force and effect this date.

IN TESTIMONY WHEREOF, I have hereunto set my hand and the seal of said corporation this 3rd day of September, 2014.


Wallace C. Drennan, III
President

ADDENDUM 01

August 08, 2014

Lift Station No. 21 Relocation

City of Mandeville

W. Lee
This Addendum forms a part of the Contract Documents and modifies the original contract documents as noted below.

Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification. Bidder is responsible to disseminate this Addendum to all subcontractors and material suppliers concerned. This Addendum does not change the original bid date and time.

Specifications:

1. Delete Section 11310 in its entirety, and replace with the attached Section 11310.
2. Delete Section 16500 in its entirety, and replace with the attached Section 16500.

END ADDENDUM 01

SECTION 11310 (ADDENDUM 01)

SUBMERSIBLE WASTEWATER PUMPS (ADDENDUM 01)

PART 1: GENERAL

1.01 SCOPE OF WORK

- A. Furnish all labor, materials, equipment and incidentals required and install submersible sewage pumping units equipped complete, as shown on the drawings and as specified herein.
- B. All necessary and desirable accessory equipment and auxiliaries whether specifically mentioned in this specification or not shall be furnished and installed as required for an installation incorporating the highest standards for this type of service. Also included shall be supervisory services during installation and field testing of each unit and instructing the regular operating personnel in the proper care, operation and maintenance of the equipment.

1.02 RELATED WORK

- A. Electrical work except as hereinafter specified is included in Division 16.
- B. Valves, mechanical piping, piping appurtenances are included in Division 15.

1.03 SUBMITTALS

- A. Copies of all materials required to establish compliance with the specification shall be submitted in accordance with the provisions of Section 01340. Submittals shall include the following:
 - 1. Certified shop and erection drawings showing all important details of construction, dimensions and anchor bolt locations.
 - 2. Descriptive literature bulletins and/or catalogs of the equipment.
 - 3. Data on the characteristics and performance of the pumps. Data shall include guaranteed performance curves, based on actual shop tests of duplicate units, which show that they meet the specified requirements for head, capacity, efficiency, allowable NPSHR, allowable suction lift and horsepower. Curves shall be submitted on 8-1/2 in by 11 in sheets.
 - 4. Literature and drawings describing the equipment in sufficient detail, including parts list and materials of construction, to indicate full conformance with the detail specifications.
 - 5. Total weight of pumping unit including the weight of the single largest part.
 - 6. A list of the manufacture's recommended spare parts with the manufacture's current Price for each item. Include gaskets, packing etc, on the list. List bearings by the bearing manufacture's number only.
 - 7. A statement indicating bearing life.
 - 8. Complete description of the surface preparation and shop prime painting.
- B. Design Data

1. Manufacturer's certified rating curves, to satisfy the specified design conditions, showing pump characteristics of discharge, head, brake horsepower, efficiency and guaranteed net positive suction head required (NPSHR). Curves shall show the full-recommended range of performance and include shut-off head. This information shall be prepared specifically for the pump proposed. Catalog sheets showing a family of curves will not be acceptable.

C. Test Reports

1. Certified motor test data.
2. Tabulated data for the drive motors including rated HP, full load RPM, power factor and efficiency curves at 1/2, 3/4 and full load, service factor and KW input, including when the pump is at its design point. Submit a certified statement from the motor manufacturer that the motors are capable of continuous operation on the power supply to be furnished without affecting their design life for bearings or windings.
3. Description of pump factory test procedures and equipment and a copy of final report when available.

D. Operation and Maintenance Data

1. Complete operating and maintenance instructions shall be furnished for all equipment included under these specifications. The maintenance instructions shall include trouble shooting data and full preventative maintenance schedules and complete spare parts lists with ordering information.

1.04 REFERENCE STANDARDS

A. Design, manufacturing and assembly of elements of the equipment herein specified shall be in accordance with, but not limited to, published standards of the following, as applicable:

1. American Gear Manufacturers Association (AGMA)
2. American Institute of Steel Construction (AISC)
3. American Iron and Steel Institute (AISI)
4. American Society of Mechanical Engineers (ASME)
5. American National Standards Institute (ANSI)
6. American Society for Testing and Materials (ASTM)
7. American Welding Society (AWS)
8. Anti-Friction Bearing Manufacturers Association (AFBMA)
9. Hydraulic Institute Standards (current edition)
10. Institute of Electrical and Electronics Engineers (IEEE)
11. National Electrical Code (NEC)

12. National Electrical Manufacturers Association (NEMA)
 13. Occupational Safety and Health Administration (OSHA)
 14. Steel Structures Painting Council (SSPC)
 15. Underwriters Laboratories, Inc. (UL)
- B. Where reference is made to one of the above standards, the revision in effect at the time of bid opening shall apply.

1.05 QUALITY ASSURANCE

- A. The Contractor and manufacturer shall assume responsibility for the satisfactory installation and operation of the entire pumping system including pumps as specified.
- B. The equipment covered by these specifications is intended to be standard pumping equipment of proven ability as manufactured by concerns having extensive experience in the production of such equipment. Units specified herein shall be furnished by a single manufacturer. The equipment furnished shall be designed, constructed and installed to operate satisfactorily when installed as shown on the drawings.
- B. Pumps shall be manufactured in accordance with the Hydraulic Institute Standards, except where otherwise specified herein.
- C. The pumps shall be Hydromatic S4L/S4LX model or approved equal.
- D. The rated horsepower of the drive unit shall be such that the unit will not be overloaded nor the service factor reduced when the pump is operated at any point on the pump's capacity curve. If, due to the slope of the pump's performance, a drive unit of greater horsepower than specified is required to meet this condition, the pump will be considered for approval only if any and all changes in the electrical work etc., required by such a change will be provided at no additional cost to the Owner and be to the satisfaction of the Engineer.
- E. The pumps and motors shall be designed and built for 24 hour continuous service at any and all points within the required range of operation, without overheating, without cavitation, and without excessive vibration or strain. All parts shall be so designed and proportioned as to have liberal strength, stability and stiffness and to be especially constructed to meet the specified requirements. Ample room and facilities shall be provided for inspection, repairs and adjustments.

1.06 SYSTEM DESCRIPTION

- A. All of the equipment included herein is intended to be standard for submersible, 24-hour continuous operation use in wastewater treatment., for new Lift Station – 21.

Number of Units: 3

Configuration: Submersible

Primary Design Capacity and Head: 860 gpm at 54 feet TDH

Min. Efficiency at Design capacity: 60 %

Min Run out Capacity: 1075 gpm at no greater than 37.5 feet TDH

Max. NPSHR at Run out: N/A

Drive: Constant

Maximum Pump Speed at Design Capacity: 1750 rpm

Minimum Sphere Size: 3.25 inches

Impeller Type: Solids Handling

Minimum Shut-Off Head: 95 feet

Minimum Motor Hp: 20 HP

Motor Type: Submersible

Pump Discharge Flange Size: 4 inch

1.07 MAINTENANCE

- A. Furnish all special tools and test equipment required for the proper servicing of all equipment. All such tools and test equipment shall be furnished in a suitable steel tool chest complete with lock and duplicate keys.
- B. All spare parts shall be properly protected for long periods of storage and packed in containers that are clearly identified with indelible markings as to contents.

1.08 DELIVERY, STORAGE AND HANDLING

- A. All parts shall be properly protected so that no damage or deterioration will occur during a prolonged delay from the time of shipment until installation is completed and the unit and equipment are ready for operation.
- B. All equipment and parts must be properly protected against any damage during shipment. Store equipment in accordance with the manufacturer's instruction.
- C. Factory assembled parts and components shall not be dismantled for shipment unless permission is received in writing from the Engineer.
- D. The finished surfaces of all exposed flanges shall be protected by wooden or equivalent blank flanges, strongly built and securely bolted thereto.
- E. Finished iron or steel surfaces not painted shall be properly protected to prevent rust and corrosion.
- F. No shipment shall be made until approved by the Engineer in writing.

1.09 PATENTS AND LICENSES

- A. The Contractor shall be responsible for all patents or licenses that exist on the Equipment that may be provided.

- B. The Contractor and the equipment manufacture shall assume all cost of patent fees or licenses for the equipment or process; and shall safeguard and save harmless the City/Engineer from all damages, judgements, claims and expenses arising from license fees, or claimed infringement of any letter, patents, or patent rights, or fees for the use of equipment or process, structural feature or arrangement of any component parts of the installation; and the bid price shall be deemed to include payment of as such patent fees, licenses or other cost pertaining thereto.

1.10. WARRANTY

- A. The equipment shall be warranted for a period of 5 years, pro-rated as shown below. Labor is included for the defect occurred during first 18 months period.

Months After Shipment	Operating Hours	Sell Price Factor
0-18	0-3000	No Charge
19-39	3001-6500	.50
40-60	6501-10,000	.75

PART 2: PRODUCTS

2.01 GENERAL

- A. The pumping units shall all be supplied by one manufacturer and shall be complete including pumps, motors, and appurtenances such as, but not limited to, couplings, guards and gauges.
- B. The pumps, motors, and drives shall be designed and built for 24-hour continuous service at any and all points within the required range of operation, without overheating, without cavitation, and without excessive vibration or strain. All parts shall be so designed and proportioned as to have liberal strength, stability and stiffness and to be especially constructed to meet the Specifications. Ample room and facilities shall be provided for inspection, repairs and adjustment.
- C. All necessary foundation bolts, nuts and washers shall be furnished by the contractor and shall be Type 316 stainless steel.
- D. Each major piece of equipment shall be furnished with a stainless steel nameplate (with embossed data) securely mounted to the body of the equipment. As a minimum, the nameplate for the pumps shall include the manufacturer's name and model number, serial number, rated flow capacity, head, speed and all other pertinent data. As a minimum, nameplates for motors shall include the manufacturer's name and model number, serial number, horsepower, speed, input voltage, amps, number of cycles and power and service factors.
- E. All electrical materials and equipment shall be Underwriters Laboratories Inc. listed, and NEMA rated and shall otherwise be equal to that supplied under section 16, where applicable.

2.02 CONDITIONS OF OPERATION

- A. The pumps shall be a submersible pump. The pumps within each service type shall be identical in every respect with all parts interchangeable.
- B. Each pump shall be designed for the conditions of service in Paragraph 1.06.

Where total head (TH) is referred to in conjunction with the specified discharge requirements, it shall be understood to consist of the sum of the pressure head plus the velocity head, in feet, at

the discharge nozzle of the pump minus the pressure head and the velocity head at the suction nozzle of the pump. The efficiency of the pump shall be understood to be based upon total head as just defined.

The pumps shall operate throughout the entire operating range, within the vibration limits specified in Paragraph 1.05 E.

2.03 PUMP CONSTRUCTION

A. Impeller

The impeller shall be balanced non-clogging type made of close-grained cast iron conforming to ASTM A48 Class 30. The enclosed impeller shall be of one piece; single suction, enclosed two blades radial flow design with well-rounded leading vanes and then tapered toward the trailing edge for a circular flow pattern. The waterways through the impeller will have extremely smooth contours, devoid of sharp corners so as to prevent rags or stringy, fibrous material from catching or clogging. The impeller is to be balanced and secured to the shaft by means of a bolt, washer, and key. The arrangement shall be such that the impeller cannot be loosened from torque in either forward or reverse rotation. Wiper vanes on the back impeller shroud are not allowed.

B. Volute

The volute shall be matched to the impeller and made of close-grained cast iron conforming to ASTM A48 Class 30. The volute is to be of one-piece circular constant flow, equalizing pressure design with smooth fluid passages large enough to pass any size solid that can pass through the impeller. The volute shall be centerline flanged discharge. The casing shall be designed to permit the removal of the rotating assembly without disturbing the suction or discharge piping. The casing shall be hydrostatically tested to 1.5 times the design head or 1.25 times the shutoff head, whichever is greater.

C. Backhead

A separately cast close-grained cast iron back head conforming to ASTM A48 Class 30 shall be provided.

D. Pump Shaft

The pump shaft shall be 416 Stainless Steel of sufficient diameter to carry the maximum loads imposed and to prevent vibration and fatigue. The shaft shall be accurately machined along its entire length and precision ground at bearing locations. Radial bearings and thrust bearing shall be grease lubricated designed to carry the hydraulic radial loads encountered in the service conditions. Bearing shall be designed for a nominal L10 life of 100,000 hrs. per AFBMA at best efficiency point.

E. Base

A rigid discharge base elbow which supports the total weight of the pumping unit shall be provided. The base is to be bolted directly to the floor with the 90-degree elbow having a 125 lb. ANSI flange discharging vertically. The pump shall be supplied with a slide bracket designed to lower the pump along 3" S.S. sch 40 guide rails. Pump shall be supplied with a 316 stainless steel lifting cable of sufficient length to safely remove the pump from the wet well.

F. Fits and Hardware

The volute casing, back head, and frame shall be manufactured with concentric shoulder fits to assure accurate alignment. All machine bolts, nuts, and cap screws shall be stainless steel.

- E. Pump shall be provided with axial style impeller and volute axial type wear rings. Impeller wear ring shall be 300-350 BHN 400 series stainless; the volute shall have wear rings of 410-484 BHN stainless steel. Radial wear rings are not acceptable.

2.04 PUMP DRIVE SYSTEM

- A. Each submersible solids handling pump shall be driven by a completely sealed, electric submersible squirrel cage induction motor. The motor nameplate horsepower rating shall not be exceeded by the brake horsepower requirements of the specified head and capacity requirements.
- B. The submersible motor shall be U.L. Listed for class 1, Division 1, Group C & D explosion proof location as defined by the National Electric Code. All electrical components shall be housed in an air-filled, cast iron, watertight enclosure that is sealed by the use of O-rings and shall have rabbet joints with an extra overlap.
- C. The stator winding and lead shall be insulated for continuous duty in 40 C rise liquids. The motor shall be designed for continuous duty capable of minimum of ten (10) starts per hour. The motor shaft shall be 416 stainless steel; the rotor to be dynamically balanced to meet NEMA vibration limits; all hardware to be stainless steel. Cable leads are to allow the connection of a cable to the motor, to be accomplished in the field without soldering cable. All leads are to be sealed and designed to prevent cable wicking to conduit box located on top of the motor. Individual wires shall have the insulation removed and epoxy potted to prevent wicking into the motor area. Grommets or similar systems are not allowed.
- D. Each pump shall be provided with a tandem mechanical rotation shaft seal system. The upper seal shall be hydraulically balanced incorporating a non clogging polymeric body acting as a spring mechanism with high grade carbon vs. 99.5 % ceramic faces lapped to within 3 helium light bands. The seal shall be installed using a snap ring on the polymeric body and a positive locator machined in the ID of the polymeric body. All O-rings shall be high temperature FKM O-rings. The lower seal shall be of similar construction with the faces materials being silicon carbide vs. tungsten carbide lapped within 3 helium light bands.
- E. Each pump shall be equipped with auto-resetting over temperature thermal sensors in the motor stator windings, and also with leak detection sensors to sense moisture in the stator housing. These sensors shall be factory wired to cables potted into the motor terminal housing, for cabling into the appropriate Pump Control Panel control equipment to deactivate the pump controls should either condition occur, and to activate the appropriate alarm. Sensors shall match the receiving equipment in the Pump Control Panel.

2.05 SHOP TESTS

- A. Each pump shall have a non-witnessed factory test prior to their shipment from place of manufacture.
 - 1. A complete test report for each pump, including certified characteristic curves of the pump, consisting of at least all information required in Paragraph 1.06, except for NPSH testing, and certified copies of the hydrostatic test report, shall be submitted and approved by the Engineer before the pumps are shipped.
- B. Each pump being furnished under these specifications shall be factory tested in accordance with the latest edition of the Hydraulic Institute Standards. Certified copies of the

Hydrostatic Test Report shall be supplied prior to conducting a pump performance test. Notification of such test and a list of test equipment and procedures shall be furnished to the Engineer at least ten working days before the schedule test date.

1. Each pump shall be tested and data recorded at its operating conditions of service as listed in Paragraph 1.06. And, the pumps shall be tested and data recorded at shut-off head. Sufficient test point readings shall be made to establish complete head flow capacity, efficiency and brake horsepower curves for each pump.
 2. All gauges and other test instruments shall be calibrated within 30 days of the scheduled test and certified calibration data shall be provided. All Venturi flow meters shall be calibrated within two years of the scheduled test and certified calibration data shall be provided.
- C. Pump motor tests shall be submitted for approval by Engineer prior to shipping.

3.01 PREPARATION

- A. Coordinate with other trades, equipment and systems to the fullest extent possible.
- B. Take all necessary measurements in the field to determine the exact dimensions for all work and the required sizes of all equipment under this contract. All pertinent data and dimensions shall be verified.

3.02 INSTALLATION

- A. Installation shall be in strict accordance with the manufacturer's instructions and recommendations in the locations shown on the Drawings. Anchor bolts shall be set in accordance with the manufacturer's recommendations and setting plans.
- B. Qualified supervisory services, including manufacturers' engineering representatives, shall be provided for a minimum of 2 man-days to insure that the work is done in a manner fully approved by the respective equipment manufacturer. The pump manufacturer's representatives shall specifically supervise the installation and alignment of the pump with the driver, the grouting, and the alignment of the connection piping and the installation of the field-installed mechanical seal. If there are difficulties in the start-up or operation of the equipment due to the manufacturer's design or fabrication, additional service shall be provided at no cost to the Owner. Services of the manufacturer's representatives and training shall be provided when the first pump is started, with follow-up visits upon start-up of each subsequent pump.
- C. Connection of piping to pumps shall be done in presence of the Engineer. All piping connections to the pump shall be done without bending and/or twisting the piping to mate with the pump flange connections.
- D. A certificate from each equipment manufacturer shall be submitted stating that the installation of his/her equipment is satisfactory, that the equipment is ready for operation and that the operating personnel have been suitably instructed in the operation, lubrication and care of each unit.

3.03 FIELD TESTS

- A. In the presence of the Engineer, such tests as necessary to indicate that the pumps, motors, and variable speed drives generally conform to the efficiencies and operating conditions specified shall be performed. A ten-day operating period of the pumps will be required before acceptance. If a pump performance does not meet the Specifications, corrective measures shall be taken or the pump shall be removed and replaced with a pump which satisfies the conditions specified. All

test procedures shall be in accordance with Hydraulic Institute Standards certified results of tests shall be submitted. Provide, calibrate and install all temporary gauges and meters, shall make necessary tapped holes in the pipes, and install all temporary piping and wiring required for the field acceptance tests. Written test procedures shall be submitted to the Engineer for approval 30 days prior to testing.

END OF SECTION

**PUMP CONTROL PANEL (ADDENDUM 01)
SECTION 16500 (ADDENDUM 01)**

PART 1 -- GENERAL

1.01 THE REQUIREMENT

- A. General: The CONTRACTOR shall furnish, install, and place into service pump controller(s), motor starters, service disconnect breakers, instrumentation and appurtenances for control of the lift station pumps. The CONTRACTOR shall also furnish and install a new data radio and antenna, or relocate the radio and antenna at sites where one exists, for communications with the Parish's Supervisory Control and Data Acquisition (SCADA) System.
- B. System Supplier: Due to the critical nature of the system, the complete pump control panel shall be furnished by a single supplier.

One Responsible Supplier (System Supplier): The system described herein, including PLCs, supporting hardware, software, communication enclosures, UPS, process instruments, and other ancillaries, etc. shall be furnished by a single supplier designated as the System Supplier. The System Supplier shall be regularly engaged in the business of system integration for municipal pump stations, and be familiar with all aspects of fully automated process control systems. The responsibility for performance to the specification in its entirety shall not be split up amongst individual suppliers of components comprising the system, but must be assumed solely by the supplier of the system. The System Supplier shall furnish the Owner with program implementation and customization. In addition, the System Supplier shall furnish schematics, wiring diagrams for the system components, interconnection schematics, loop drawings, and field point to point wiring diagrams showing all connections to each individual piece of equipment within the system. The PLC/Operator Interface software manufacturer and hardware component manufacturer shall have printed literature and brochures describing the standard series specified (not one of a kind fabrication).

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Electrical work specified hereunder shall conform to the requirements of this Section and the applicable requirements of all Electrical Sections.

1.03 REFERENCE SPECIFICATION, CODES, AND STANDARDS

- A. Without limiting the generality of other requirements of these Specifications, all work specified herein shall conform to or exceed the applicable requirements of the referenced documents to the extent that the requirements therein are not in conflict with the provisions of this Section; provided, that where such documents have been adopted as a code or ordinance by the public agency having jurisdiction, such code or ordinance shall take precedence.

1.04 CONTRACTOR SUBMITTALS

- A. General: All submittals shall be made in accordance with the applicable general requirements of the Specification Section entitled "Submittals."
- B. Shop Drawings: The CONTRACTOR shall submit to the ENGINEER shop drawings of all equipment before fabrication in accordance with provisions of the Contract Documents. Should an error be found in a shop drawing during installation or start up of equipment, the correction, including any field changes found necessary, shall be noted on the drawing and submitted finally as part of the "Record Drawings" prior to acceptance of the WORK. All shop drawings shall be checked by the CONTRACTOR before submittal for review by the ENGINEER. These drawings and data shall be submitted as a complete package at one time (except allowed early submittals on major equipment and long lead delivery items) and shall include:
 - 1. Complete systems diagrams: Drawings shall shown definitive wiring interconnections diagrams for each site. These diagrams shall show and identify each component of each system and shall show which components require a nominal 117-volt, 60-Hertz power source. These diagrams shall be prepared in accordance with ANSI/ISA S5.4.
 - 2. Data sheets shall be included for each component together with a technical product brochure or bulletin. These data sheets shall show the following: The component name as used on project drawings and in these Specifications, manufacturer's model number or other identifying product designation, the project tag number, the project system of which it is a part, the project site to which it applies, input and output characteristics, functional and operational descriptions sufficient to show conformance to the specification requirements, requirements for electric power, specifications for ambient operating conditions, and details on materials of

construction.

3. The arrangement of construction drawings for the control panel enclosures shall show dimensions, identification of all components, preparation and finish data, name plates, and the like.
4. Installation, mounting, and anchoring details shall be shown for all components and assemblies to be field mounted, including access requirements, conduit connections, or entry details.

1.05 QUALITY ASSURANCE

- A. Installation Supervision: The pump control panel System Supplier shall furnish services and technical information as necessary to ensure that the equipment furnished by him is installed in a proper and satisfactory manner. These services shall include, but not be limited to, providing the installing contractor with information and direction prior to the commencement of the installation work, answering of all questions regarding the installation and hookup, and a complete check of the completed installation to ensure that it is in conformance with the requirements of the equipment and the Contract Documents.
- B. Calibration: The pump control panel System Supplier shall furnish the services of a trained technician to perform a complete system calibration. Those components having adjustable features shall be set for the specific conditions and applications, and within the specified limits of accuracy. Defective elements which cannot achieve proper calibration or accuracy, either individually or within the system or subsystem, shall be replaced. A complete record of the calibration checks and adjustments shall be made and delivered to the ENGINEER & Owner upon completion of the system calibration.
- C. Testing: Systems shall be exercised through operational test in the presence of the ENGINEER in order to demonstrate achievement for the specified performance. Attention is directed to all applicable equipment testing and system startup sections for additional requirements relating to testing.

1.06 INTERFACE TO EXISTING SCADA SYSTEM

- A. General: The pump controller shall be designed for direct communications with the existing Parish SCADA System. Any SCADA connections will be made under separate contract.
- B. Radios: not used in this project.

PART 2 -- PRODUCTS

2.01 GENERAL

- A. Miscellaneous Items: Miscellaneous items such as cables, connectors, etc. are not necessarily shown or specified. All such items needed to provide a complete and operable system shall be furnished under the requirements of the Contract.

2.02 PUMP CONTROLLERS (PC)

- A. General: The pump controllers to be furnished under this contract shall be TESCO LIQ 5.
- B. The pump controller to be installed at each lift station shall be a microprocessor based unit with the capability to: accept digital and analog inputs, produce digital and analog outputs, perform local control and data manipulation function, transmit measured and calculated values, status and alarm signals to the existing Jefferson Parish SCADA central computer system, receive command signals and configuration data from the central computer, and perform all other functions required to meet the specified performance and functional requirements of the integrated system. Each controller shall be furnished with all necessary power supplies, processors, memory, process I/O cards, serial communication ports, modems, etc. to meet its specified functions, requirements and environmental conditions. All pump controllers shall meet or exceed the detailed specification requirements listed herein. Any proposed pump controller alternates or substitutions shall require prior approval. Prior approval shall consist of a technical proposal package along with sufficient detailed information specific to this project, for the owner's evaluation prior to bid. Owner reserves the right to reject any or all proposals that are not in the owner's best interest. Owner's decision is final.
- C. CPU: The CPU for each controller shall be a 32 bit CMOS microprocessor with a minimum 33 MHz operating speed.

- D. ROM: ROM memory shall be furnished with each controller as necessary and shall contain the OS and routines for diagnostics, process I/O, communications, control functions, etc. It is required that all functions and routines that may be used in the configured system be held in ROM to be called as necessary.
- E. RAM: A minimum of two times the RAM memory necessary for the initial program requirements shall be provided. RAM memory shall hold the specific configuration for each site, measuring and control constraints and setpoints, real time I/O data, etc. RAM memory shall have a battery backup to maintain memory for at least 30 days with all power disconnected.
- F. Communication Ports and Modems: Each controller shall be furnished with minimum three serial full handshake communication ports. Each connected port, shall be furnished with line protection units. Each port shall support selectable baud rates of 1200, 2400, 4800, 9600, and 19.2K, and shall be set to run at the rate specified or shown. Port connections to the digital radio systems, Operator Interface and a spare port for system programming/troubleshooting via laptop shall be supported and provided as specified.
- G. Operator Interface: The key pad and display requirements described below are in integral part of the TESCO LIQ 5 pump controller. Any controller submitted for consideration as equal must meet the intent of these requirements, although exact duplication is not required.
1. Key Pad: Each Controller shall be furnished with a keypad to examine values and change setpoints, constants, etc. The keypad construction shall be a sealed membrane type, and shall be impervious to atmospheres containing hydrogen sulfide and chlorine gases. Keyboard shall provide a menu-based operator interface, allowing the operator to perform at least these functions, without process interruption:
 - a. Examine and change setpoints
 - b. Examine analog input and output registers
 - c. Examine and change timers and counters
 - d. Examine and change analog input filter constants
 - e. Calibrate analog inputs and outputs
 - f. Force digital outputs on and off
 - g. Override analog inputs and outputs
 - h. Examine control program
 - i. Communication and configuration parameters

2. LED Character Display: Each Controller shall be furnished an 8 character, alphanumeric LED display. Each character shall be 15 segment, 1/2" high. The character display shall be used for showing the values and data described above.
 3. Bar Graph Displays: Each Controller shall be furnished with two LED bar graph displays. One display shall show wet well level and shall have at least 80 LED segments. The other display shall show calculated inflow and shall have at least 60 LED segments.
 4. Output and Alarm LED: Each Controller shall be furnished with a column of at least 40 LED's to display the status of the controller outputs and station alarms.
- H. I/O System: Each Controller shall be furnished with process I/O cards, etc. as necessary to interface to the process equipment and instrumentation. The exact I/O to be furnished with each Controller shall be as specified in item 2.03 and in Table 1 in the EXECUTION portion of this specification section. All inputs and outputs shall be optically isolated to 600V minimum. Analog inputs shall have a common mode rejection of 75db and a normal mode rejection of 50db at 60Hz. A/D and D/A converters shall be 12 bit minimum (including sign). The Controller shall be capable of powering the analog transmitters and the dry contact digital inputs. 115 VAC digital output shall be rated at least 5 amp AC continuously with 10amp interposing relays for motor control and furnished as necessary where higher amperage is required. Surge protection shall be furnished on all analog input signal lines.
- I. PID Function: The Controller shall provide built-in PID (Proportional/Integral/Derivative) control without requiring any procedural programming or subroutine writing. The Programmable Controller shall support the ability to simultaneously execute at least 16 independent PID control loops.
- J. Power Supply: The Controller shall be designed to operate on 115 VAC 60 Hz power. The power supply shall be suitably sized for the quantity of I/O furnished. The power supply shall include an uninterruptible power supply (UPS) for backup. The UPS shall be minimum 500VA/325 watts with built-in voltage regulation or sized at minimum of 200% of load requirement. The UPS shall also include sinewave 4 LED indicators, site wiring fault indicator, test button and

self diagnostic test at power on. The UPS shall be capable of powering the Controller, radio, and I/O system for a minimum of 8 hours.

- K. Quality Assurance - Pump Controller Manufacturer: The controller shall be furnished by a manufacturer that has at least 5 years experience manufacturing its own PC's and control systems designed specifically for the water and waste water industry. The Pump Controller itself and support for the Pump Controller, Operator Interface shall be available directly from the manufacturer.
- L. Warranty: The Pump Controller manufacturer shall provide a 10 year warranty with the unit. This warranty shall be available in writing directly from the manufacturer before bid acceptance. The warranty shall provide for direct on-site replacement of the entire PC, complete with the original program and configuration, and the Operator Interface, The replacement controller shall be available without requiring that the original unit first be removed and returned to the factory.
- M. Telephone Support: The Pump Controller manufacturer shall provide telephone support for questions related to any aspect of the controller, including general use, application-specific issues, programming, and use of the programming software. This support shall be available directly from the manufacturer at no extra charge with the purchase of a controller.
- N. Operating Conditions: The Pump Controller shall operate correctly under an ambient temperature range of -40 to +200 degrees F without requiring forced air or other special cooling measures. At minimum, each Pump Controller shall be subjected by the manufacturer to a 5 day burn-in procedure at 165 degrees F. Coatings on connectors, component leads, and other materials used in the construction of the Pump Controller shall be substantially resistant to atmospheres containing significant amounts of Hydrogen Sulfide gas and Chlorine gas. Each component shall have passed testing and be certified in writing by the manufacturer to be acceptable for use in water treatment and wastewater treatment environments.
- O. Engineering Unit Representation: The Controller shall have the capability to represent all analog input and analog output values directly in engineering units. Engineering units are defined to be "real world" IEEE 754 standard floating point numbers

corresponding to physical measurements, such as level, pressure, depth and flow. Telemetry communications shall use engineering unit representation in all messages.

- P. Calibration and Multipoint Calibration: A simple menu-driven procedure shall be provided that allows the operator to calibrate an analog input or output to an engineering unit measurement scale. This procedure shall be usable from both the full and minimal keyboards. The calibration information shall be uploadable and downloadable via a communication port.
- Q. Watchdog Timer: The Controller shall contain a hardware watchdog timer circuit that will reset the microcontroller within 1 second of detecting a firmware failure.
- R. Security: The Controller shall be capable of being configured to require password entry before access to functions that would change the control characteristics or basic operating mode (run/standby) of the Programmable Controller. Multiple passwords shall be supported, with at least 10 allowed. If the operator does not operate the keyboard within a selectable time period, the Programmable Controller shall log him out automatically. The Programmable Controller shall also support uploading and downloading of password configuration information via the communications ports.
- S. Data Archiving: The Controller shall provide a means of archiving I/O and register values into storage arrays. The Pump Controller shall also provide direct read access through any communications port to the contents of each data archive. Each sample shall consist of a date and time stamp and the register value. The Programmable Controller shall also provide functions available through the communications port that allow an external SCADA or other system to reset specific archives and obtain other necessary information about the data archives in use.
- T. Real Time Clock: The CPU shall employ a real time clock for event time and date stamping. The time and date stamp shall indicate year/month/day/hour/minute/seconds accurate to 1/100 second of the event trigger. The real time clock shall be capable of remote synchronization via the specified communications network.
- U. Programming Software: A free copy of all the necessary programming software shall be provided with each Programmable Controller purchased. The software shall be produced, provided and

supported directly by the Programmable Controller manufacturer. No third party tools are acceptable.

- V. QuickLoad Software: A fast and easy to use software program shall be available free of charge to Upload and Download from a laptop computer to the controller all calibration points, setpoints and control programming. A complete user's manual shall be provided which describes the use of all programming software.

- W. Field Wiring Terminal Blocks: The terminal blocks shall support the following listed characteristics:
 1. Pull-apart two piece wiring blocks for fast and easy wiring/re-wiring
 2. Separate wiring blocks for each I/O type and each wire point fully labeled
 3. Versatile internal or external analog power source
 4. Digital outputs have LED "ON" indicators and socketed 10A relays
 5. Entire terminal block shall snap on/off standard track mount
 6. Onboard passive circuit protection to protect pump controller shall be available with a built-in isolated current loop power supply, powered from the 12V DC main power. The current loop power supply shall be capable of producing at least 24V DC and 161 mA.
 7. Three levels of lightning/surge protection

2.03 PUMP CONTROLLER I/O CONFIGURATION

- A. Analog Inputs: Inputs shall be provided for wet well level, station discharge pressure and motor current for each pump. As a minimum, a total of 4 analog inputs shall be provided. All inputs are 4-20 mADC. Provide surge suppression on all analog input signals that extend outside the Pump Controller enclosure.

- B. Digital Inputs: Inputs shall be provided for primary station power (three phase) failure, wet well back up Reactive Air system or bubbler system, alarm acknowledge, and monitoring signals for each pump. As a minimum, a total of 24 digital inputs shall be provided.

- C. Digital Outputs: 115 VAC outputs shall be provided for the common alarm lamp, Reactive Air purge compressors or bubbler compressors, purge solenoid valve, level transducer fail, communications fail, pump fail and pump call (each pump). As a minimum, 16 physical outputs, 16 LED driver outputs shall be furnished.

- D. Analog Outputs: Provide where called for in the drawings. If analog

outputs are not required, the Pump Controller shall have the capability to provide this functionality either by built in analog outputs or adding an analog output card to the pump controller. Provide surge suppression on all analog output signals that extend outside the enclosure. Where called for, provide a minimum of 4 analog outputs.

2.04 PUMP CONTROLLER FUNCTIONS

- A. Pump Level Control and Alarms: Start and stop of the lift station pumps shall be controlled by the level in the wet well. There shall be an individually adjustable start and stop setpoint for each pump. The pump start sequence shall be automatically alternated, with alternation on pump stop. If a pump fails to start, the next pump in sequence is started. High and low wet well alarms, transducer out of range alarms, and pump high and low motor current alarms shall also be furnished. The setpoints for all controllers purchased under this contract shall utilize the standard Jefferson Parish numbering system. This numbering system shall be furnished to the Contractor upon award of the contract.
- B. Pump Run and Fail: When a pump is called to run, either through the local hand switch or automatic pump control, and a pump run signal is not sensed within a set time period, a pump fail alarm shall be generated.
- C. Station Flow: The Controller shall have an algorithm to automatically calculate station inflow based on the rate of rise in the wet well. The algorithm shall also compare inflow to effluent based upon pump status and compare original pump capacity to calculated pump effluent flow.
- D. Wet Well Level Measurement - Reactive Air Purge, or Bubbler Air Purge: The Controller shall automatically purge the reactive bell, or bubbler system, at a set interval.
- E. Common Alarm: The Controller shall activate the common alarm beacon occurrence of any of the above alarms.
- F. SCADA Interface: The controller shall be "telemetry ready" to interface directly with the existing Jefferson Parish SCADA System with no other external or peripheral devices. Communications shall be through 9600 Baud radio system.
- G. I/O Listing: See Table 1 in the Execution section of this specification

for pump station I/O listing.

2.05 ENCLOSURES AND ELECTRICAL COMPONENTS

- A. General: All control equipment (including pump controllers, motor starters, circuit breakers, radios, instruments, and miscellaneous devices) shall be housed in a single low profile, U/L 508 listed type 316 stainless steel enclosure. The enclosure shall be low profile design, typically 36" high, such that it does not impede traffic vision when the enclosure is placed at the side of the roadway. The enclosure shall be suitably sized for the components. All bussing and wire shall be copper. All wire shall be stranded with locking spade pressure connectors and labeled with clip-on permanent plastic wire markers. All circuit breakers and dead front mounted devices (lights and switches) shall be equipped with stainless steel mounted engraved phenolic nameplates. Thermostatically controlled heating and cooling systems shall be provided to maintain suitable climate conditions within the control panel.
- B. Construction: The control cabinet shall be free standing, low profile, NEMA 3RX with drip shield as shown on the drawings. Outer enclosure shall be constructed of 12 gauge, 316 stainless steel. Enclosure shall be furnished with continuous hinged dead front interior and exterior doors. Doors shall be equipped with 316 stainless steel polished handles with 3-point roller bearing latches and hasps for owner padlocks. All interior mounting hardware shall be stainless steel. The enclosure shall be compartmentalized such that the programmable pump controller; power and telemetry sections are isolated from each other. The compartments containing the programmable pump controller, power sections and telemetry shall be separated by barriers behind the interior dead front door. Seal all openings to prevent entrance of insects and rodents. If required, space shall be available in the pump control panel for the mounting of existing or new telemetry components (radio, battery and charger).
- C. Enclosure Finish: Finish shall be polyester dry powder, electrostatically applied and baked on at 380 degrees Fahrenheit. Interior color including front and back of all swing out doors, separation barriers and mounting backpans shall be white. The enclosure exterior shall not be painted and shall be 316ss finish. The painting process shall include five stages of metal preparation using dip tanks as follows: 1) Alkaline cleaner, 2) Clear water rinse, 3) Zinc phosphate application, 4) Clear water rinse, and 5) Inhibitive rinse to

seal phosphated surfaces. All bussing and wire shall be copper. Schematic wiring diagrams shall be provided within the enclosure.

- D. Main Breakers: Each control panel shall have a main circuit breaker and a generator breaker with mechanical interlock, and one set of surge protection equipment and lightning arrestor. The main breaker shall be 200 amp, 25,000 AIC, heavy duty molded case type conforming to federal specification W-C-375B and shall be UL listed. The generator receptacle shall be 200 amps, 600V, 4 pole, 3 wire, Crouse Hinds 20425-522-S4, with spring door, and angle adapter. The generator receptacle shall be "reversed type". The main circuit breaker, generator circuit breaker, and all wiring shall be located behind an interior dead front door. Interlocks and circuit breaker operation shall be possible without opening the dead front door. The lightning arrestor shall be manufactured by GE, Square D, or equal.
- E. Motor Starters: Circuit breaker type combination FVNR motor starters shall be furnished for each pump motor and installed in the control panel. Motor starters shall be NEMA rated. Submersible motor overloads shall be CLASS 10 "quick trip" sized to the motors installed. Each starter shall be sized for the motor horsepower and voltage in accordance with NEC requirements. A physical lockout device shall be supplied on each motor breaker.
- F. Selection Switches: A HAND-OFF-AUTO selector switch shall be furnished for each pump motor. Switches shall be oil-tight, heavy duty, as manufactured by Allen-Bradley 800H, G.E., Square D, Siemens, or equal.
- G. Indicating Lamps: A motor run indicating lamp shall be furnished for each pump motor. A motor high temperature trip indicating light shall be furnished for all submersible pumps. Lamps shall be oil-tight, LED, heavy duty, press-to-test type as manufactured by Allen-Bradley, G.E., Square D, or Siemens, or equal.
- H. Elapsed Time Meters: An elapsed run time meter shall be furnished for each pump motor. Meters shall be six digits, non-resettable, recording in hours and tenths.
- I. Duplex Outlet: A GFCI service outlet shall be furnished with each control panel. The outlet shall be rated 20 amp at 120 VAC. The outlet shall be fed thru a 20 amp circuit breaker. A separate 20 amp circuit breaker shall provide power to the pump control circuit.

- J. Utility Metering: Where called for on the drawings, the electric service meter compartment shall be furnished as an integral part of the pump control panel and shall meet with all requirements of CLECO, be pre-approved by CLECO and be U/L 508 service entrance labeled. The electric service motor compartment shall be constructed of 12 gauge 316 stainless steel, Nema 3RX with drip shield. The pull section and utility compartments shall be accessible only by the utility company. Finish shall be polyester dry powder, electrostatically applied and baked on at 380 degrees Fahrenheit. Color shall be white interior doors, exterior shall not be painted and shall be 316ss finish, similar to pump control panel. The painting process shall include five stages of metal preparation using dip tanks as follows: 1) Alkaline cleaner, 2) Clear water rinse, 3) Zinc phosphate application, 4) Clear water rinse, and 5) Inhibitive rinse to seal phosphated surfaces. All bussing and wire shall be copper.
- K. Terminal and Distribution Blocks: Distribution blocks shall be furnished and installed as required for "fan-out" of power and other 120V sources within the enclosure. Power distribution blocks shall be insulated type, tin plated copper, 600V, ampere rated equivalent to 75 degree C copper wire, per 2011 NEC conductor table 310.15.(B).(16)
Terminal blocks shall be rated 600V at a minimum of 30 amperes and sized for the conductors served. They shall be screw terminal type capable of terminating 10 to 26 gauge wire. Terminal bridge bars shall be provided when it is necessary to bridge multiple like terminals together. Terminals and accessories shall be Phoenix Contact "Cipline" or equal by Allen Bradley or Weidemueller.
- L. Circuit Breakers: All 120 volt breakers shall be rated 10,000 minimum amperes interrupting capacity. Where required, provide breakers with AIC rating to match panel AIC rating such that system is fully AIC rated. Circuit breakers shall be of the indicating type, providing ON, OFF and TRIPPED positions of the operating handle. Circuit breakers shall be quick-make, quick-break, with a thermal-magnetic action. Circuit breakers shall be the bolted on type. The use of tandem or dual provide breakers in a normal single- pole space to provide the number of poles or spaces specified is not acceptable. All multiple-pole circuit breakers shall be designed so that an overload on one pole automatically causes all poles to open. Circuit breakers shall meet the requirements of UL and NEMA AB I. All circuit breakers shall be heavy duty molded case circuit breakers conforming to Federal specification W-C-375B and shall be UL listed.

- M. Control Power Transformer: Transformer shall be furnished where required, with primary and secondary fusing. Transformer shall be encapsulated with electrical grade epoxy and silica sand to completely seal the core and coils from moisture and contaminants. Transformer shall be designed for quiet operation, 180 deg. C insulation system standard with 115 deg. C temperature rise. Transformer shall be made in U.S.A. and meet or exceed all applicable NEMA, ANSI, OSHA, UL and CSA requirements.
- N. Relays, Control : Control relays shall be rated, 10 amp contacts, 300V, 1 million operations, minimum two form-C contacts, octal plug in base, neon energized lamp, Relays shall be Idec RR, P&B or equal.
- Time delay relays shall be solid state relays with a timer adjustable over the range 1 to 60 seconds unless other ranges are indicated or required. Provide 10 amp contacts, LED energized indicator lamp, plug-in base. Time delay relays shall be Idec RTE, P&B or equal.
- O. Panel Light Fixtures: Provide florescent light with door activated switch in each panel section.
- P. Relays, Pump Moisture Sensing, Pump High Temperature
1. Pump intrinsically safe moisture sensing relays shall be provided for submersible pumps. The units shall be specifically designed for monitoring conductive circuits and shall be suitable for the pumps supplied on the project. The unit shall utilize low current (120 micro amps maximum) and low voltage (12 volts d-c maximum). Unit sensitivity shall allow pick-up on circuit closures of 100 K ohms or less.
 2. Pump intrinsically safe high temperature relays shall be provided for submersible pumps. Relays shall be rated 10Amp, 120VAC, plug in base, 2 form C contacts, with LED relay energized indicator lamp. Hardwire 1 contact as permissive in the motor control circuit. Wire 1 contact into the PLC input circuit. Provide a control panel indicating light showing motor high temperature trip.
- Q. Foundation: The panel shall be furnished with minimum 8" tall support legs (sized for flooding conditions) on each end of the cabinet. A fabricated 316ss stainless steel skirt shall be supplied, to

completely enclose the panel and bolted to the panel with eight (8) stainless steel socket head screws. The skirt shall be painted to match the Control Panel. The panel shall be placed on a minimum six (6) inch thick concrete slab. The panel concrete slab elevation shall be 2" above Base Flood Elevation (BFE) or 2 inches above highest adjacent grade, whichever is greater. The panel concrete slab shall extend minimum four (4) inches wider than the panel in all directions.

2.06 REACTIVE AIR LEVEL MEASUREMENT SYSTEM

- A. General: A reactive air level measurement system shall be furnished to monitor the liquid level in the wet well. The system shall consist of a reactive bell mounted near the bottom of the wet well with tubing back to the control panel for connection to the level transmitter, and an air compressor and solenoid valve for periodic purging of the bell. The level signal shall be used for monitoring and control of the lift station as described in the execution portion of this specification section. Alternative systems for monitoring will be considered if submitted prior to bid.
- B. Reactive Bell: The reactive bell shall be constructed of 6 inch PVC pipe, 12 inches long and capped at one end. The tubing shall be 1/4 inch polyflo. The mounting brackets and hardware shall be 316 SS. A quick disconnect shall be installed in each airline in the control panel to allow the air tubes to be cleaned.
- C. Air Compressor: Two air compressors shall be furnished with each system. The compressors shall operate in an alternating sequence. Each compressor shall be oil-less, rotary type. A backflow preventing check valve shall be furnished on each compressor.
- D. Solenoid Valve: A three-way solenoid valve shall be furnished to allow high pressure purging while protecting low pressure components. The solenoid valve shall have a brass body with 1/4 inch tube connections, as manufactured by ASCO or equal. A manual purge button on the dead front panel shall also be provided.
- E. Back up Level Control system: Provide level control system back up Reactive Air Bell with stainless steel mounting hardware. Reactive Air Bell shall be schedule 40 PVC, 4' long, 6 " in diameter. 1/4" parflex tubing shall be installed continuously from the top of the bell to the pump control panel. The bottom of the bell shall be furnished with a "pointed cone" wire stainless steel mesh to prevent entry of

grease or debris into the bell. A pressure switch mounted in the pump control panel shall operate both lift station pumps on high level and stop the pumps on low level (below the bottom of the bell). The pressure switch shall have an appropriate operational range for the application and shall have a diaphragm suitable for exposure to sewer H₂S gas. Back up control system shall operate if the programmable controller or primary level control systems are inoperable. Back up control system shall be hard wired on a separate dedicated circuit.

2.07 RADIOS and SCADA

- A. Radios and SCADA system: Not used in this project

2.08 INSTRUMENTATION

- A. Level (Pressure) Transmitters – Reactive Air Level Measurement System: Level transmitters shall be two wire pressure transmitters with the following features: continuously adjustable zero and span adjustments, solid state electronics, 4-20 maDC signal output. Power required shall be 12-40 VDC. Input shall be 0-300 inches of water. Accuracy shall be $\pm 0.15\%$ of span. Process connection shall be 1/4" NPT. Level Transmitter shall be TESCO 72-501, or pre-approved equal. The transmitter sensor shall be connected to the reactive air system or bubbler level system.
- B. Motor Current Transmitters: Current transmitters shall be two-wire donut type devices with the following features: isolated 4-20 maDC output, current overload protection, supply reversal protection. Accuracy shall be $\pm 1\%$ of full scale. Current transmitters shall be TESCO 72-630, or pre-approved equal. Transmitter range shall be at least 150 percent of motor FLA, but not more than 250 percent.
- C. Voltage Monitors (Power Fail Relay): Three-phase voltage monitor shall be a solid state device capable of sensing phase loss, phase reversal, and phase unbalanced in a three-phase electrical circuit. Upon any of these three conditions it shall drop out a relay to show that a phase failure has occurred. The device shall also have the following features: adjustable setting for low voltage, adjustable delay for automatic reset, adjustable time delay to prevent nuisance alarms, ABSS plastic case, DPDT 10 amp output contacts. Repeat accuracy shall be $\pm 0.5\%$ of setpoint.
- D. Intrusion/Unauthorized Entry Alarms: Door/Window Entry Switches

shall be magnetic type suitable for use on steel doors, UL rated for Central Station direct wire circuits, SPDT 50 ma minimum contact rating at 130 v. Switch shall be epoxy sealed in the switch housing. Sentrol 1078 series or approved equal.

2.09 SPARE PARTS

The pump control panel manufacturer shall furnish a complete set of recommended spare parts necessary for the first five (5) years of operation, which shall include at least the following:

- 1 - relay for each type required, mounted in the pump control panel
- 1 - spare set of N.O. contacts on each motor Starter
- 1 - spare 20A circuit breaker mounted in the pump control panel
- 1 - contactor coil and one set of power contacts for each size used.
- 1 - programmable pump controller (per project). Spare controller shall be programmed with the project final accepted program.

Loose spare parts shall be properly bound and labeled for easy identifications without opening the packaging and suitability protected for long storage.

2.10 WARRANTY

Pump control panel components shall carry a one (1) year replacement warranty. Programmable pump controller shall carry a ten (10) year replacement warranty.

PART 3 -- EXECUTION

3.01 INSTALLATION

- A. General: The CONTRACTOR shall employ installers who are skilled and experienced in the installation and connection of all control elements, instruments, accessories and assemblies furnished. Mechanical and electrical work shall be performed as specified in the applicable sections of Divisions 15 and 16, respectively.
- B. Wire Marking: Each signal and control circuit conductor connected to a give electrical point shall be designated by a single unique number which shall be shown on all shop drawings. These numbers shall be marked on all conductors at every terminal using white numbered wire markers which shall be plastic-coated cloth, or permanently marked heatshrink plastic.
- C. Mounting and Connection: The CONTRACTOR shall install and

connect all field mounted components and assemblies under the criteria imposed by the equipment manufacturer and the System Supplier. The installation personnel shall be provided with a final reviewed copy of the shop drawings and data.

- D. Technical Assistance: The CONTRACTOR shall provide a trained technical field representative to instruct installation personnel on any and all equipment installation requirements. Thereafter, the technical field representative shall be readily available to answer questions and supply clarification when needed by the installation personnel.
- E. Final Checks: After all installation and connection work has been completed, the technical field representative shall check it all for correctness, verifying polarity of electric power and signal connections, making sure all process connections are free of leaks, and all other similar details. The technical field representative shall certify in writing to the ENGINEER that each loop and system has been checked out and that all discrepancies have been corrected by the installation personnel.

3.02 RADIO SYSTEM INSTALLATION

- A. Not used in this project

3.03 ENCLOSURE SIGNAL AND CONTROL CIRCUIT WIRING

- A. Wiring Installation: All wires shall be run in plastic wireways except (1) field wiring, (2) wiring run between mating blocks in adjacent section, (3) wiring run from components on a swing-out panel to components on a part of the fixed structure, and (4) wiring run to panel-mounted components. Wiring run from components on a swing-out or front panel to other components on a fixed panel shall be made up in tied bundles. These bundles shall be tied with nylon ties, and shall be secured to panels at both sides of the "hinge loop" so that conductors are not strained at the terminals. All wires shall be marked as provided for above.

3.04 CALIBRATION, TESTING, AND STARTUP

- A. Calibration: All instruments and systems provided shall be calibrated after installation, in conformance with the component manufacturer's instructions. This shall provide that those components having adjustable features are set carefully for the specific conditions and applications of this installation, and ensure that the components

and/or systems are within the specified limits of accuracy. Defective elements which cannot achieve proper calibration or accuracy, either individually or within a system shall be replaced. This calibration of work shall be accomplished by appropriately experienced technical field representatives. The CONTRACTOR shall certify in writing to the ENGINEER that, for each loop and system, all calibrations have been made and that all instruments are ready to operate. The CONTRACTOR shall provide a complete record of all calibrations, adjustments, and settings.

- B. Proof of Conformance: The burden of proof of conformance to specified accuracy and performance is on the CONTRACTOR. The CONTRACTOR shall supply necessary test equipment and technical personnel if called upon to prove accuracy and/or performance, at no separate additional cost to the OWNER, wherever reasonable doubt or evidence of malfunction or poor performance may appear.
- C. Testing: All systems shall be exercised through complete operational tests in the presence of the ENGINEER in order to demonstrate achievement of the specified performance. Operational tests depend upon completion of work specified elsewhere in these Contract Documents. The scheduling of tests shall be coordinated by the CONTRACTOR among all parties involved so that the tests may proceed without delays or disruption by uncompleted work.
- D. Startup: When all equipment and systems have been assessed by the CONTRACTOR to have been successfully carried through complete operational tests with not less than a minimum of simulation, and the ENGINEER concurs in this assessment, system startup can follow.

3.05 RADIO SYSTEM TESTING

- A. Not used in this project.

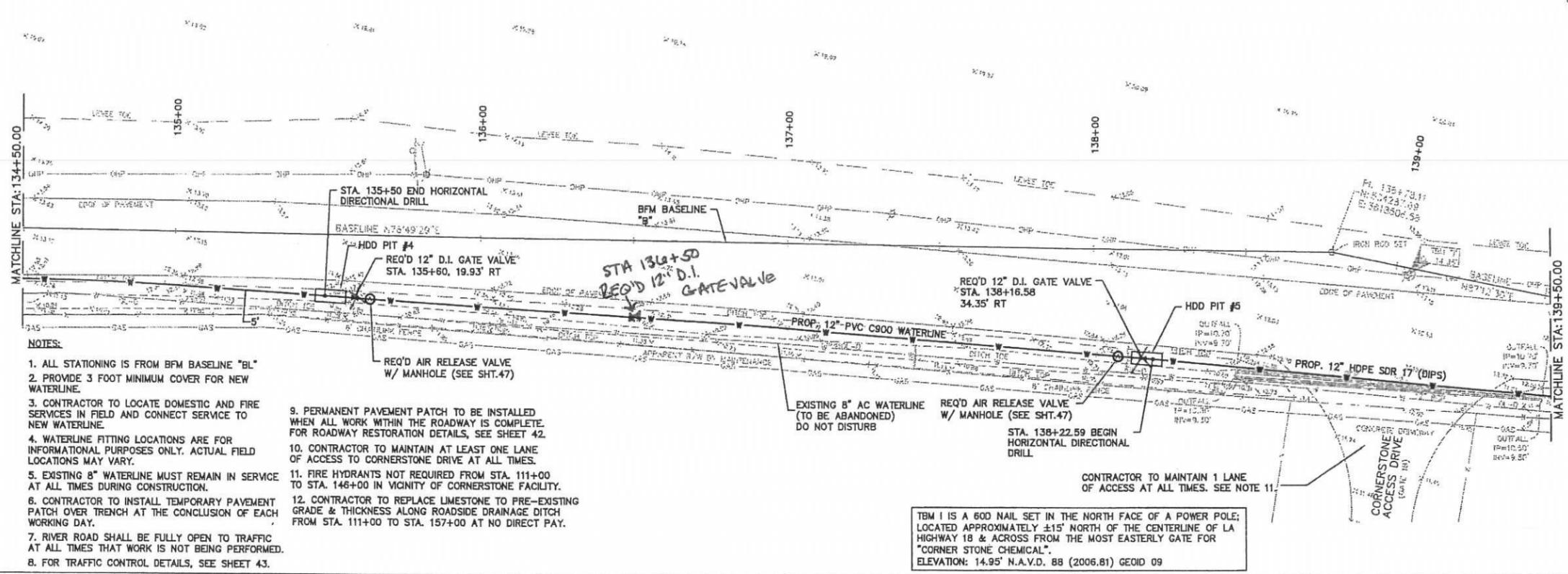
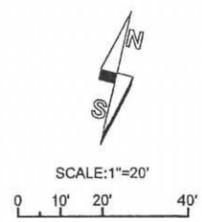
TABLE 1: I/O Configuration – Triplex Pump Station:**

Item	Description	AI	AO	DI	DO
1	Pump 1 motor current	1			
2	Pump 2 motor current	1			
3	Pump 3 motor current	1			
4	Wet Well Level	1			
5	Discharge Pressure (If called for on drawings) *	1			
6	Pump 1 Run			1	
7	Pump 2 Run			1	
8	Pump 3 Run			1	
9	Pump 1 H/O/A in Auto			1	
10	Pump 2 H/O/A in Auto			1	
11	Pump 3 H/O/A in Auto			1	
12	Pump 1 Seal Failure			1	
13	Pump 2 Seal Failure			1	
14	Pump 3 Seal Failure			1	
15	Pump 1 High Temperature			1	
16	Pump 2 High Temperature			1	
17	Pump 3 High Temperature			1	
18	Reactive Air – Manual Purge			1	
19	Station Entry - Intrusion			1	
20	Wet Well High High Level – back up alarm			1	
21	DC power failure			1	
22	AC power failure			1	
23	PLC – alarm acknowledge			1	
24	Back Up Controls activated – inhibit main controller			1	
25	Pump 1 call				1
26	Pump 2 call				1
27	Pump 3 call				1
28	Compressor 1 call				1
29	Compressor 2 call				1
30	Air Solenoid Valve call				1
31	Level Transducer Fail				1
32	Common Alarm				1
33	Communications Fail				1
34	Pump 1 VFD speed signal (If called for on dwgs) *		1		
35	Pump 2 VFD speed signal (if called for on dwgs) *		1		
36	Pump 3 VFD speed signal (If called for on dwgs) *		1		
	Sub Total (Not including items marked * -- add these items if required)	4	--	19	9
	Spares	-	--	5	7
	Station Total (Not including items marked *)	4	--	24	16
	Sub Total (Including items marked *)	5	3	19	9
	Spares	3	3	5	7
	Station Total (Including items marked *)	8	6	24	16

* Supply only if called for on the drawings.

** Additional I/O may be required depending on station component design. Supply I/O as required including spares.

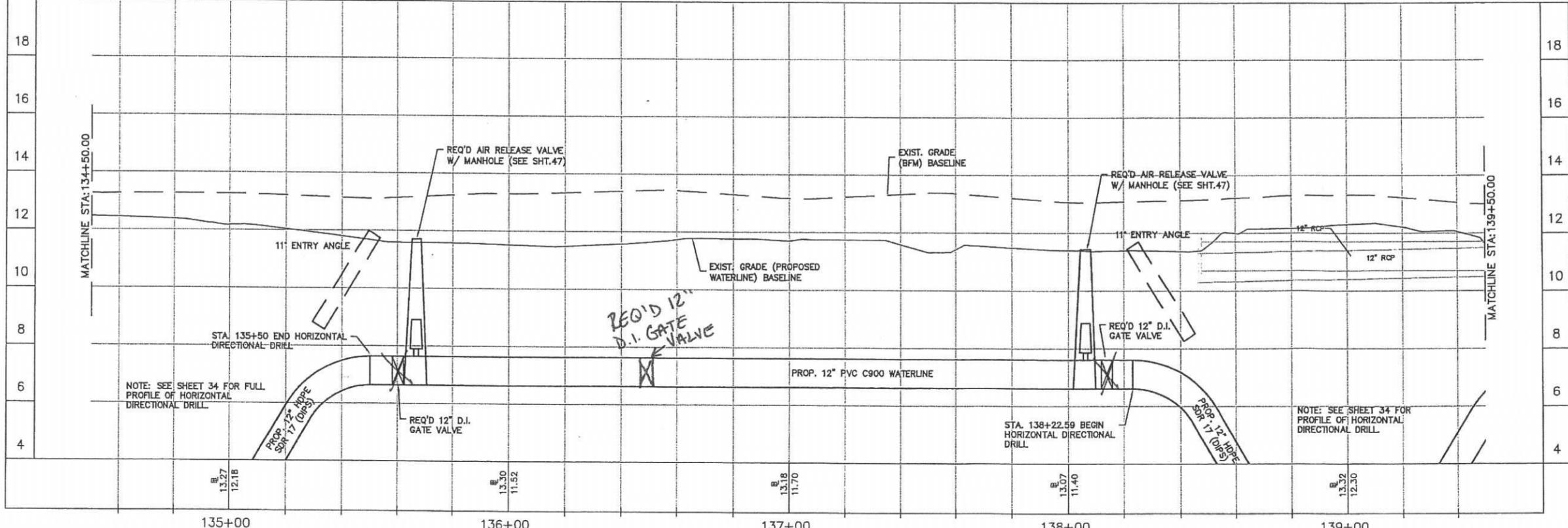
END OF SECTION - 16500



NOTES:

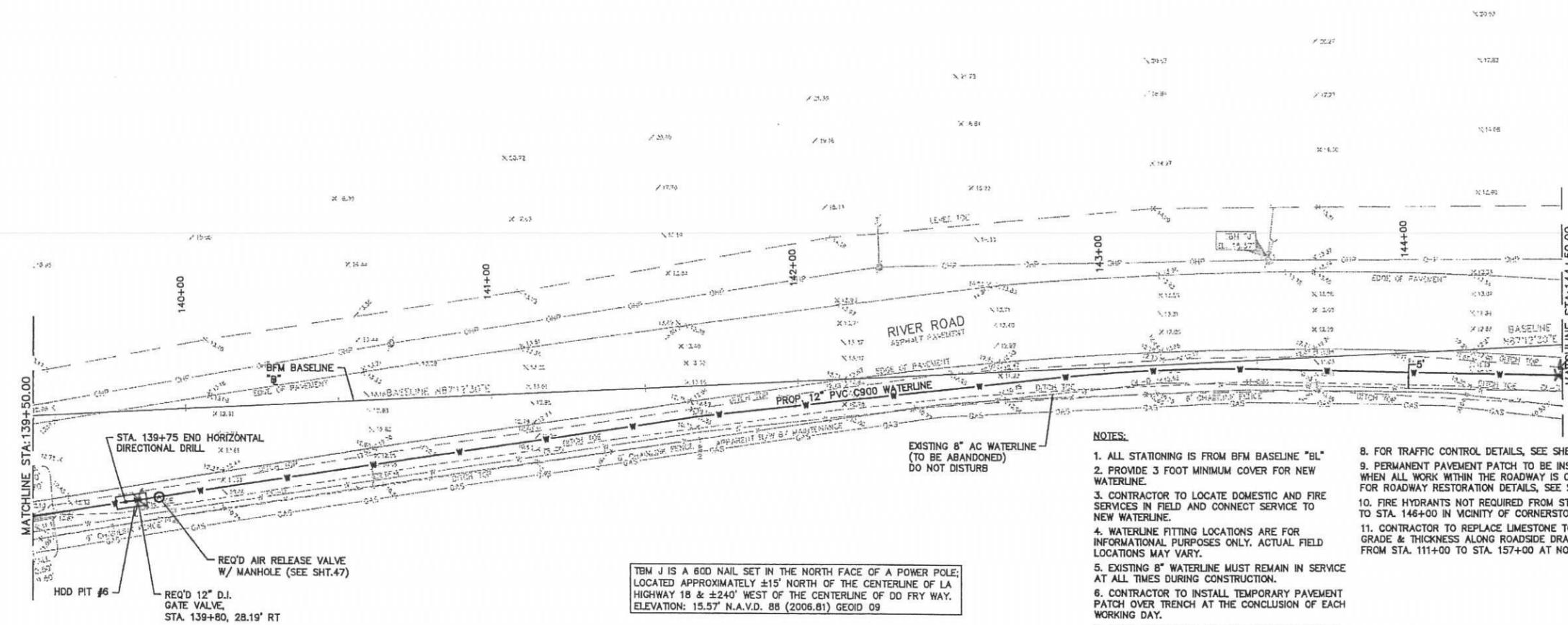
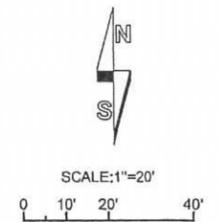
1. ALL STATIONING IS FROM BFM BASELINE "BL"
2. PROVIDE 3 FOOT MINIMUM COVER FOR NEW WATERLINE.
3. CONTRACTOR TO LOCATE DOMESTIC AND FIRE SERVICES IN FIELD AND CONNECT SERVICE TO NEW WATERLINE.
4. WATERLINE FITTING LOCATIONS ARE FOR INFORMATIONAL PURPOSES ONLY. ACTUAL FIELD LOCATIONS MAY VARY.
5. EXISTING 8" WATERLINE MUST REMAIN IN SERVICE AT ALL TIMES DURING CONSTRUCTION.
6. CONTRACTOR TO INSTALL TEMPORARY PAVEMENT PATCH OVER TRENCH AT THE CONCLUSION OF EACH WORKING DAY.
7. RIVER ROAD SHALL BE FULLY OPEN TO TRAFFIC AT ALL TIMES THAT WORK IS NOT BEING PERFORMED.
8. FOR TRAFFIC CONTROL DETAILS, SEE SHEET 43.
9. PERMANENT PAVEMENT PATCH TO BE INSTALLED WHEN ALL WORK WITHIN THE ROADWAY IS COMPLETE. FOR ROADWAY RESTORATION DETAILS, SEE SHEET 42.
10. CONTRACTOR TO MAINTAIN AT LEAST ONE LANE OF ACCESS TO CORNERSTONE DRIVE AT ALL TIMES.
11. FIRE HYDRANTS NOT REQUIRED FROM STA. 111+00 TO STA. 146+00 IN VICINITY OF CORNERSTONE FACILITY.
12. CONTRACTOR TO REPLACE LIMESTONE TO PRE-EXISTING GRADE & THICKNESS ALONG ROADSIDE DRAINAGE DITCH FROM STA. 111+00 TO STA. 157+00 AT NO DIRECT PAY.

TBM 1 IS A 600 NAIL SET IN THE NORTH FACE OF A POWER POLE; LOCATED APPROXIMATELY ±15' NORTH OF THE CENTERLINE OF LA HIGHWAY 18 & ACROSS FROM THE MOST EASTERLY GATE FOR "CORNERSTONE CHEMICAL". ELEVATION: 14.95' N.A.V.D. 88 (2006.81) GEOID 09



PLOT DATE: Friday, April 04, 2014 @ 11:25am
 PLOT NAME: _10_Plan&Profile
 PLOT PATH: Z:\S14\Jefferson Parish\1514-01 (River Road waterline)\DWG\MKES FINAL MAY 2014.dwg (River Road waterline)\DWG\MKES FINAL MAY 2014.dwg

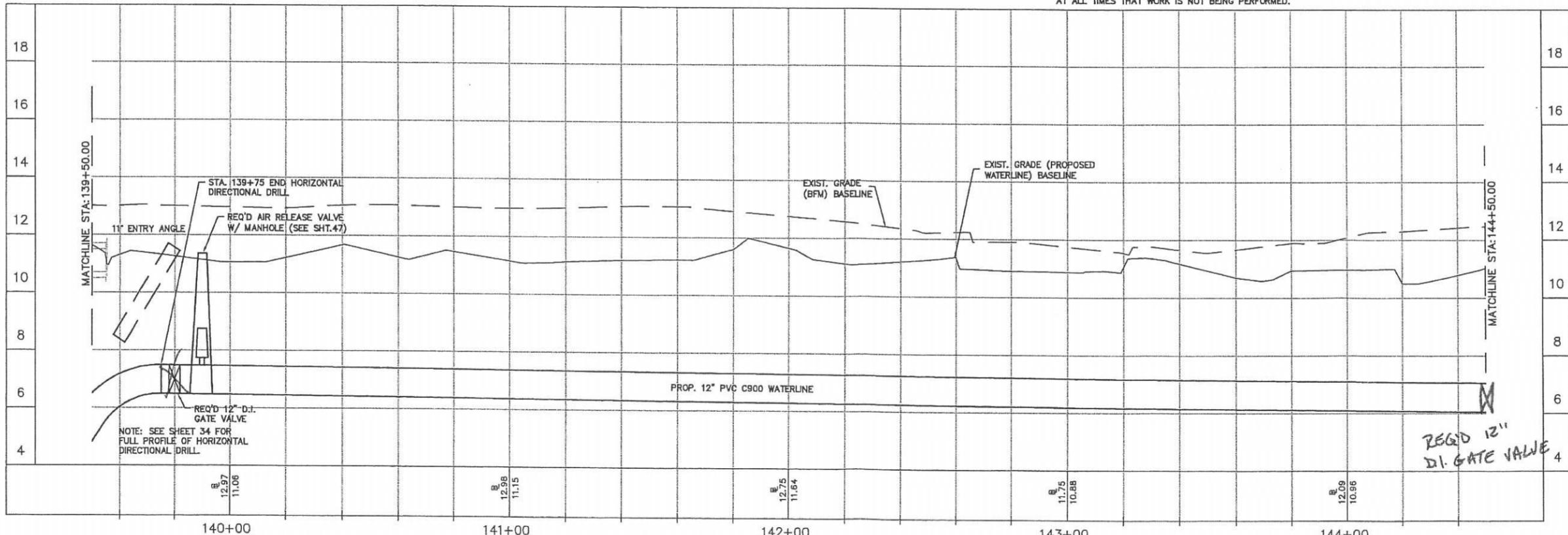
<p>527 W. ESPLANADE AVE., STE. 200 - KENNER, LA 70005 - PH. (504) 488-0129</p>	<p>PROJECT MGR: AW APPROVED BY: RD</p>
<p>LA. DEPARTMENT OF HEALTH & HOSPITALS RIVER ROAD WATER LINE REPLACEMENT RIVET BOULEVARD TO PARISH LINE</p>	<p>DESIGNED BY: AW CHECKED BY: RD</p>
<p>PLAN & PROFILE SHEET STA. 134+50 TO STA. 139+50</p>	
<p>PROJECT NO. 514-91</p>	
<p>DATE APRIL, 2014</p>	
<p>SCALE V=1"=2' H=1"=20'</p>	
<p>SHEET NO. 13</p>	



REQ'D 12" D.I. GATE VALVE STA 144+50

TBM J IS A 60D NAIL SET IN THE NORTH FACE OF A POWER POLE, LOCATED APPROXIMATELY ±15' NORTH OF THE CENTERLINE OF LA HIGHWAY 18 & ±240' WEST OF THE CENTERLINE OF DO FRY WAY. ELEVATION: 15.57' N.A.V.D. 88 (2006.81) GEOD 09

- NOTES:**
1. ALL STATIONING IS FROM BFM BASELINE "BL"
 2. PROVIDE 3 FOOT MINIMUM COVER FOR NEW WATERLINE.
 3. CONTRACTOR TO LOCATE DOMESTIC AND FIRE SERVICES IN FIELD AND CONNECT SERVICE TO NEW WATERLINE.
 4. WATERLINE FITTING LOCATIONS ARE FOR INFORMATIONAL PURPOSES ONLY. ACTUAL FIELD LOCATIONS MAY VARY.
 5. EXISTING 8" WATERLINE MUST REMAIN IN SERVICE AT ALL TIMES DURING CONSTRUCTION.
 6. CONTRACTOR TO INSTALL TEMPORARY PAVEMENT PATCH OVER TRENCH AT THE CONCLUSION OF EACH WORKING DAY.
 7. RIVER ROAD SHALL BE FULLY OPEN TO TRAFFIC AT ALL TIMES THAT WORK IS NOT BEING PERFORMED.
 8. FOR TRAFFIC CONTROL DETAILS, SEE SHEET 43.
 9. PERMANENT PAVEMENT PATCH TO BE INSTALLED WHEN ALL WORK WITHIN THE ROADWAY IS COMPLETE. FOR ROADWAY RESTORATION DETAILS, SEE SHEET 42.
 10. FIRE HYDRANTS NOT REQUIRED FROM STA. 111+00 TO STA. 146+00 IN VICINITY OF CORNERSTONE FACILITY.
 11. CONTRACTOR TO REPLACE LIMESTONE TO PRE-EXISTING GRADE & THICKNESS ALONG ROADSIDE DRAINAGE DITCH FROM STA. 111+00 TO STA. 157+00 AT NO DIRECT PAY.



REQ'D 12" D.I. GATE VALVE

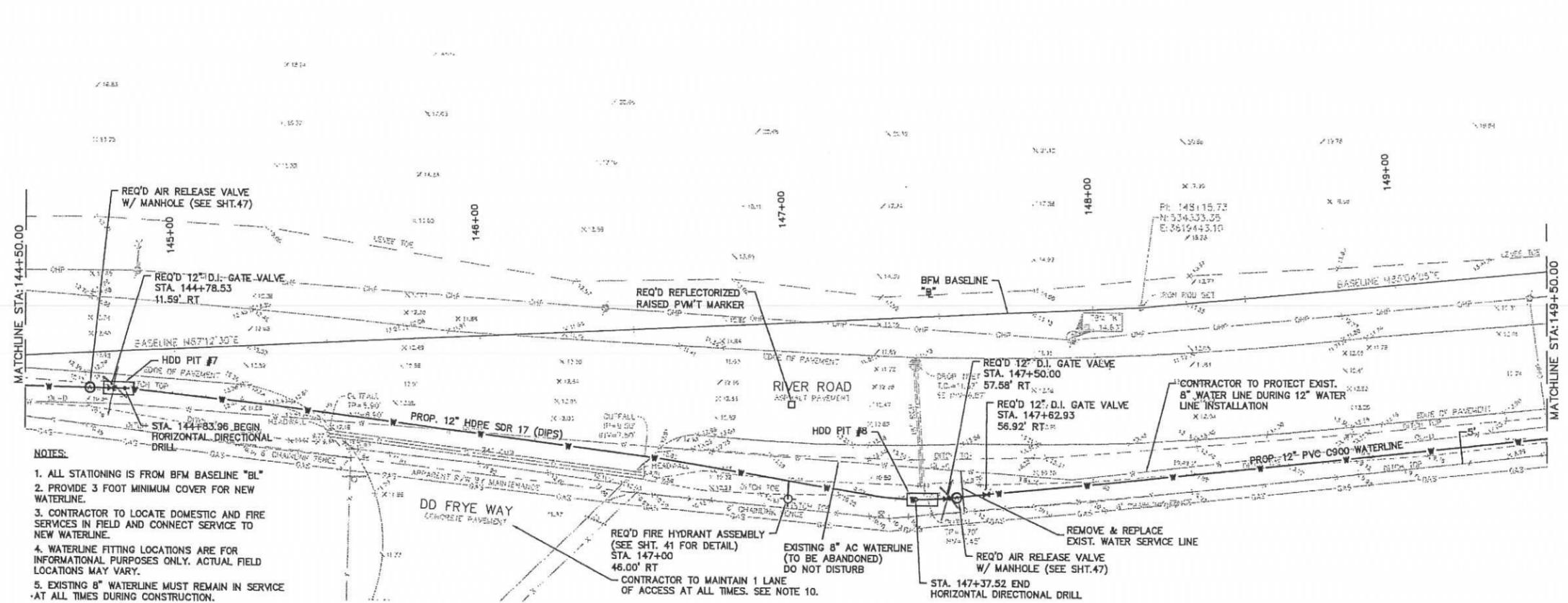


digital engineering
 527 W. ESPLANADE AVE., STE. 200 - KENNER, LA 70065 - PH. (504) 468-6129
 DRAWN BY: MP
 CHECKED BY: AW

PROJECT NO.	514-91
DATE	APRIL, 2014
SCALE	V=1"=2' H=1"=20'
SHEET NO.	14
PROJECT DESCRIPTION	LA. DEPARTMENT OF HEALTH & HOSPITALS RIVER ROAD WATER LINE REPLACEMENT RIVET BOULEVARD TO PARISH LINE
PLAN & PROFILE SHEET STA.	139+50 TO STA. 144+50

PLOT DATE: Friday, April 04, 2014 @ 11:26am
 LAYOUT TAB: 14
 PROJECT: Z:\B14\Jefferson Parish\514-91 (River Road waterline)\DWG5\WORKSHEETS FINALS MAY 30\514-91 (River Road waterline)\DWG5\

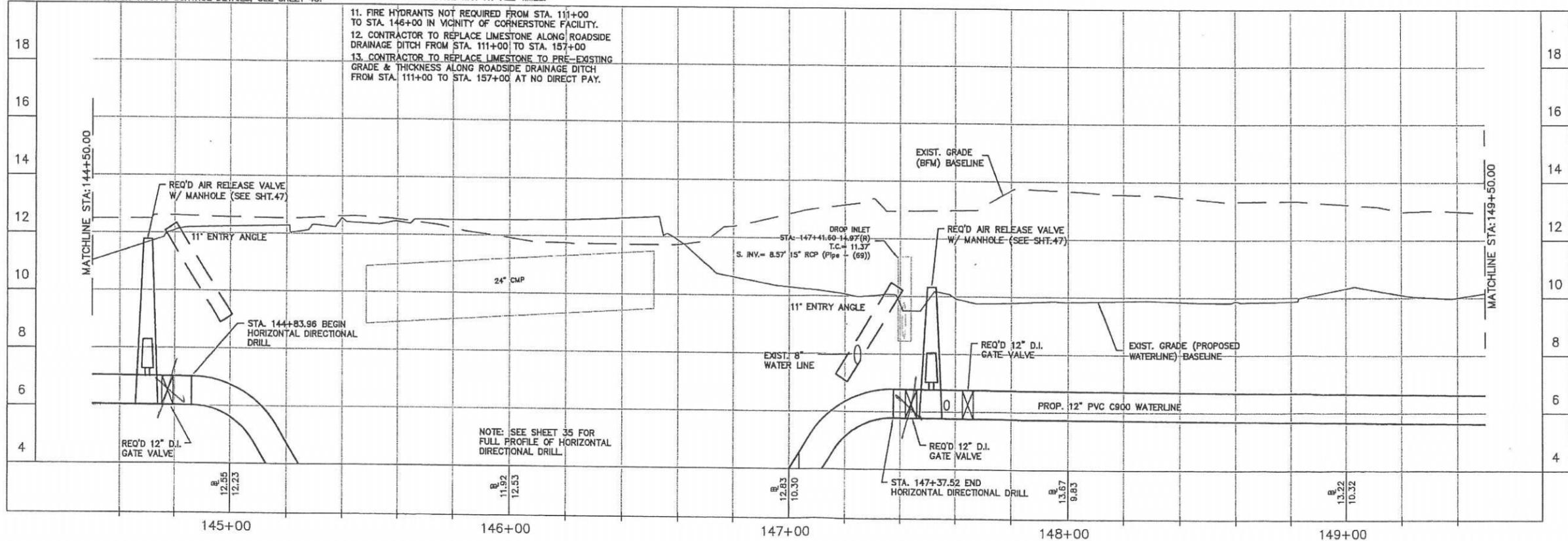
DWG PATH: Z:\314\Jefferson Parish\314-91 (River Road waterline)\DWGS\MKES FINALS MAY 30\314-91 (River Road waterline)\DWGS\ LAYOUT TAB: 15
 Dwg Name: 30_ProfileProfile
 PLOT DATE: Friday, April 04, 2014 @ 11:26am



NOTES:

1. ALL STATIONING IS FROM BFM BASELINE "BL"
2. PROVIDE 3 FOOT MINIMUM COVER FOR NEW WATERLINE.
3. CONTRACTOR TO LOCATE DOMESTIC AND FIRE SERVICES IN FIELD AND CONNECT SERVICE TO NEW WATERLINE.
4. WATERLINE FITTING LOCATIONS ARE FOR INFORMATIONAL PURPOSES ONLY. ACTUAL FIELD LOCATIONS MAY VARY.
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10. CONTRACTOR TO MAINTAIN AT LEAST ONE LANE OF ACCESS TO DD FRYE WAY AT ALL TIMES.
11. FIRE HYDRANTS NOT REQUIRED FROM STA. 111+00 TO STA. 146+00 IN VICINITY OF CORNERSTONE FACILITY.
12. CONTRACTOR TO REPLACE LIMESTONE ALONG ROADSIDE DRAINAGE DITCH FROM STA. 111+00 TO STA. 157+00
13. CONTRACTOR TO REPLACE LIMESTONE TO PRE-EXISTING GRADE & THICKNESS ALONG ROADSIDE DRAINAGE DITCH FROM STA. 111+00 TO STA. 157+00 AT NO DIRECT PAY.

TBM K IS A 60D NAIL SET IN THE NORTH FACE OF A POWER POLE, LOCATED APPROXIMATELY ±20' NORTH OF THE CENTERLINE OF LA HIGHWAY 18 & ±175' EAST OF THE CENTERLINE OF DD FRYE WAY. ELEVATION: 14.63' N.A.V.D. 88 (2006.81) GEOID 09



NOTE: SEE SHEET 35 FOR FULL PROFILE OF HORIZONTAL DIRECTIONAL DRILL.

PROJECT NO.	514-91
DATE	APRIL, 2014
SCALE	H=1"=20' V=1"=20'
SHEET NO.	

DESIGNED BY: AW
 CHECKED BY: RD
 DRAWN BY: MP
 CHECKED BY: AW

PROJECT MGR.: AW
 APPROVED BY: RD

STATE OF LOUISIANA
 PROFESSIONAL ENGINEER
 CIVIL ENGINEERING
 47774

digital engineering
 827 W. ESPLANADE AVE., STE. 200 - KENNER, LA 70005 - PH. (504) 466-8129

L.A. DEPARTMENT OF HEALTH & HOSPITALS
 RIVER ROAD WATER LINE REPLACEMENT
 RIVET BOULEVARD TO PARISH LINE

PLAN & PROFILE SHEET STA. 144+50 TO STA. 149+50

ADDENDUM 02

August 28, 2014

Lift Station No. 21 Relocation

City of Mandeville

This Addendum forms a part of the Contract Documents and modifies the original contract documents as noted below.

Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject the Bidder to disqualification. Bidder is responsible to disseminate this Addendum to all subcontractors and material suppliers concerned. This Addendum does not change the original bid date and time.

Section 1- General:

- Public Bid Law, updated on August 01, 2014, regarding front end documents, shall govern on this project.
- A copy of the attendance sheet from the pre-bid meeting (August 20, 2014) has been supplied.
- A new bid form has been supplied.

Section 2- Plans:

- Wallace e n*
- Delete Sheet 3 and replace with the attached Sheet 3.
 - Delete Sheets 6 and 7 and replace with the attached Sheets 6 and 7.
 - Sheet 9 of 25, "Project Details" on Trench and Bedding Notes, Change last sentence of Note 1 reading "Timber Sheeting when used, shall be cut off to a minimum of 3' below grade and left in place" to read "**Sheeting (Steel or Timber) is not required to be left in place.**"
 - Sheet 25 of 25, Air bell details shown on this sheet is out of section and is symbolic representation only. The location of the guide pipe for the air bell shall be as shown on Sheet 11 of 25 and shall be securely clamped to discharge piping utilizing 316 S.S. straps as specified in the detail.

Section 3- Specifications:

- Delete Section 00300, and use attached Bid Form, Section 00300.
- Section 01025, Measurement and Payment, on 1.03 Pay Items, after the first sentence of Subsection U.1., Add "**The pay item shall also include payment for required coupling and accessories to extend existing 8" PVC sewer gravity main, from existing manhole at south-**

west corner of Dorado and Venus intersection to new saddle manhole 7.”

- Delete Section 16500 in its entirety, and replace with the attached Section 16500.
- Section 16550, Standby Power Systems, Diesel Generator Set, Delete Sub-section “4.07 Warranty” and replace with the attached Sub-section “4.07 Warranty”.
- Section 16551, Automatic Transfer Switch, Delete Sub-section “1.5 Quality Assurance” and replace with the attached Sub-section “1.5 Quality Assurance”.

Section 4- Questions received prior to, during and after Pre-bid meeting:

1. Is the site in the school area? Will the construction be affected by the school activities? **No school in the immediate vicinity of the project. No.**
2. Does the project require coating on any structure? **Yes, on the underside of the wet well concrete top slab; and inside of the existing manhole that is cored to receive new sanitary sewer gravity mains.**
3. Is by-pass pumping req'd? **Yes.**
4. Plans call “Demolition of existing LS 20 at least 12’ below prevailing ground.” Will it be acceptable to demolish the station 12’ below prevailing ground only as required to install new 8” PVC gravity mains and demolishing remaining part of the station 4’ below the prevailing ground? **No. Uniform demolition depth of 12’ is required.**
5. What is the shape of the existing stations? **LS# 20 is circular, and LS # 21 is rectangular.**
6. Where is existing 4” SFM from Heavens Dr., in current and in proposed condition, connects to?
Existing: To the u/s manhole near LS 20
Proposed: Extends to a new manhole (Sewer Manhole 3)
7. Existing gas line is in conflict with new sewer gravity mains, will the gas line/sewer main be relocated? **Gas line company (Atmos) has been instructed with the required relocation. The line will, most likely, be relocated prior to beginning of construction.**
8. Where is the existing sewer gravity main, west of u/s manhole at south of Dorado, connects to? Since the gravity main is discontinuous, how is the sewer service for the houses to the east of Venus & Dorado intersection connected? **The gravity main is connected to the manhole located at south-west corner of Venus and Dorado intersection. Refer to the sheet 6 provided by this addendum. Sewer service for the houses is most likely connected to the same gravity main.**
9. Will “Brick Saddle Manhole” be accepted in lieu of “Precast Concrete Saddle Manhole”? **No.**
10. In case of any damage to existing waterline during construction, who is responsible for the repair? **Contractor, at no cost to the owner. Refer to general note 2 on Sheet 2 of 25.**

11. Who is responsible for Sheeting/ Shoring design? Does it have to be sealed by a professional engineer? Is the sheeting required to be left in place? **Contractor is responsible for sheeting/shoring. The contract doesn't explicitly require the excavation to be sealed by a professional engineer unless required by OSHA regulations and the governing law; however, Contractor will be responsible for all costs and damages resulting from the failure of his designed sheeting/shoring. No, the sheeting is not required to be left in place.**
12. Do you foresee any reason that could affect "Notice to proceed"? **No.**
13. Plans call for excavation to be performed in accordance with OSHA regulation and utilizing sheeting/bracing, while OSHA doesn't require Sheeting/Shoring? **Any method of trenching is accepted as long as it meets the OSHA safety regulations, and otherwise complies with the contract.**
14. Will traffic maintenance aggregate be required along the whole length of the roadway patch? **No. However, it shall be used appropriately to maintain a travel lane and to provide driveway access to local residents (no direct pay).**
15. How will the limit of asphalt patching/milling/overlay be defined? Will the contractor be paid for the limits they utilize? **No, according to Section 01025, G,H, & I, bid quantity will only be adjusted in response to scope change ordered by engineer. Also, refer to General Notes 6 on Sheet 2 of 25 regarding site restoration.**
16. Is pumped river sand backfill required in a non-roadway trench? **No.**
17. Will a site lab be required? **No.**

END ADDENDUM 02



PREBID MEETING

LIFT STATION NO. 21 RELOCATION
 CITY OF MANDEVILLE
 AUGUST 20, 2014 (10:00 a:m)

NAME	ORGANIZATION	PHONE	EMAIL
1. William Hammond	Hemphill Const.	601-932-2060	LCampbell@hemphillconstruct.com
2. BRIAN BAUDIER	COMMAND CONST. LLC	504 887-8795	STACIE@COMMANDINDUSTRIES.COM
3. ROBERT FOSTER	ROBERT FOSTER CONSTRUCT	985-249-6978	FOSTERCONST@MSN.COM
4. Mark Ashier	Battle Reef Contracting	504 382 6937	battlereefcontracting@gmail.com
5. BRIAN ANDRE	Industrial & Mechanical Const.	985-373-3128	brian@ima.nocontract.com
6. Lee Bourgeois	Volote, Inc.	(985)876-6187	lee@CoastalVolote.com
7. Sean Weick	Cycle Construction	504-467-1444	seanw@cycleconstruction.com
8. Jeremy Angle	BETTER PUMPS & SOLUTIONS (BPS)	504-281-7376	jangle@betterpumps.com
9. STEVE HOOKS	KEVIN CLARK ELECT. SVCS.	(985)727-0559	ESTIMATING@KICES.COM
10. GRANT LOVETRO	D&G ELECTRIC, INC	504-202-2500	DRG@electric@the
11. Thomas Bohan	BLD SERVICES	504 466 1344	thomasb@bldllc.net
12. Tim MORGAN	WALTER CORLENNAN	504-828-8000	ESTIMATING@WALTERCORLENNAN.COM
13. HOWELL WILLIAMS	FLEMING CONST.	504-464-4000	ESTIMATING@flemco.net
14. JEFF LEEDY	FLUID PROCESS PUMPS	504-733-1330	JLE@FLUIDPROCESS.NET
15. Larry Cazaux	D & G	985-966-7227	SCCAZAU@Gmail.com

over

- 16 Mark Boudreau A.Q. Construction 985-893-3472 mark@aq
construction.net
17. Kenneth Kroebigke Magnolia Const. 225-355-7787 Kroebigke@magnolia.com
18. Matthew Dorris Mitchell Contracting 985-778-9018 mattd@mitchellcontractinginc.
com
19. Brandon Bishop Cross Env. Services 504-676-3393 bbishop@crossenv.com
& Demo
20. Sumita Kadeniya Principal Engineering Inc 985-624-5001
Sumita@pi-aec.com

LOUISIANA UNIFORM PUBLIC WORK BID FORM (ADDENDUM 02)

TO: City of Mandeville
Attn.: Purchasing Department
3101 East Causeway Blvd.
Mandeville, La 70448

BID FOR: Lift Station 21 Relocation
Mandeville, LA

The undersigned bidder hereby declares and represents that she/he; a) has carefully examined and understands the Bidding Documents, b) has not received, relied on, or based his bid on any verbal instructions contrary to the Bidding Documents or any addenda, c) has personally inspected and is familiar with the project site, and hereby proposes to provide all labor, materials, tools, appliances and facilities as required to perform, in a workmanlike manner, all work and services for the construction and completion of the referenced project, all in strict accordance with the Bidding Documents prepared by: Principal Engineering Inc. and dated: July 2014.

Bidders must acknowledge all addenda. The Bidder acknowledges receipt of the following **ADDENDA:** (Enter the number the Designer has assigned to each of the addenda that the Bidder is acknowledging) _____

TOTAL BASE BID: For all work required by the Bidding Documents (including any and all unit prices designated "Base Bid"

* but not alternates) the sum of: _____

_____ Dollars (\$ _____)

NAME OF BIDDER: _____

ADDRESS OF BIDDER: _____

LOUISIANA CONTRACTOR'S LICENSE NUMBER: _____

NAME OF AUTHORIZED SIGNATORY OF BIDDER: _____

TITLE OF AUTHORIZED SIGNATORY OF BIDDER: _____

SIGNATURE OF AUTHORIZED SIGNATORY OF BIDDER **: _____

DATE: _____

* The Unit Price Form shall be used if the contract includes unit prices. Otherwise it is not required and need not be included with the form. The number of unit prices that may be included is not limited and additional sheets may be included if needed.

** If someone other than a corporate officer signs for the Bidder/Contractor, a copy of a corporate resolution or other signature authorization shall be required for submission of bid. Failure to include a copy of the appropriate signature authorization, if required, may result in the rejection of the bid unless bidder has complied with La. R.S. 38:2212(A)(1)(c) or RS 38:2212(O) .

BID SECURITY in the form of a bid bond, certified check or cashier's check as prescribed by LA RS 38:2218.A is attached to and made a part of this bid.

LOUISIANA UNIFORM PUBLIC WORK BID FORM
UNIT PRICE FORM (ADDENDUM 02)

TO: City of Mandeville
 Attn.: Purchasing Department
 3101 East Causeway Blvd.
 Mandeville, La 70448

BID FOR: Lift Station 21 Relocation
 Mandeville, LA

UNIT PRICES: This form shall be used for any and all work required by the Bidding Documents and described as unit prices. Amounts shall be stated in figures and only in figures.

DESCRIPTION: Removal of Structures & Obstructions				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
202-01-1	1	Lump Sum		

DESCRIPTION: Removal of Asphaltic Concrete Pavement (Full Depth)				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
202-02-1	870	Square Yard		

DESCRIPTION: Removal of Concrete Drive				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
202-02-2	13	Square Yard		

DESCRIPTION: Class II Base Course (12" Thick)				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
302-01-1	870	Square Yard		

DESCRIPTION: Aggregate Surface Course Pavement (8" Thick)				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
401-01-1	167	Square Yard		

DESCRIPTION: Aggregate Surface Course Driveway (6" Thick)				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
401-01-2	13	Square Yard		

DESCRIPTION: Asphaltic Concrete (Type III Wearing Course) (2" Thick)				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
501-01-1	184	TON		

DESCRIPTION: Asphaltic Concrete (Type III Binder Course) (6" Thick)				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
501-01-2	301	TON		

DESCRIPTION: Cold Plane Asphaltic Pavement (2")				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
509-01	1591	Square yard		

DESCRIPTION:		Storm Drain Pipe Arch (30" eqv. RCPA)		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
701-04-1	100	Linear Feet		

DESCRIPTION:		Corrugated Metal Pipe Extension (30")		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
701-12-1	15	Linear Feet		

DESCRIPTION:		Precast Sanitary Manholes		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
702-01a	6	Each		

DESCRIPTION:		Saddle Manholes		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
702-01b	2	Each		

DESCRIPTION:		Concrete Drive (6" Thick)		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
706-02	13	Square Yard		

DESCRIPTION:		Temporary Signs & Barricades		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
713-01-1	1	Lump Sum		

DESCRIPTION:		Mobilization		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
727-01-1	1	Lump Sum		

DESCRIPTION:		16" Bituminous Coated A53 Steel Casing		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
741-01	24	Linear Feet		

DESCRIPTION:		Sanitary Sewer Force Main (4" D.I.)		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
742-01-1a	15	Linear Feet		

DESCRIPTION:		Sanitary Sewer Force Main (8" C-900)		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
742-01-1b	12	Linear Feet		

DESCRIPTION:		Sanitary Sewer Force Main (12" C-900)		
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
742-01-1c	671	Linear Feet		

DESCRIPTION: SDR-26 PVC Sewer Gravity Line (8")				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
742-01-2a	327	Linear Feet		

DESCRIPTION: SDR-26 PVC Sewer Gravity Line (10")				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
742-01-2b	614	Linear Feet		

DESCRIPTION: SDR-26 PVC Sewer Gravity Line (12")				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
742-01-2c	41	Linear Feet		

DESCRIPTION: SDR-26 PVC Sewer Gravity Line (16")				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
742-01-2d	16	Linear Feet		

DESCRIPTION: Reinstate Sanitary Sewer House Connections				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
742-02	13	Each		

DESCRIPTION: Coring, Coating & Plugging Manhole				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-01	1	Lump Sum		

DESCRIPTION: Submersible Station Structure				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-02	1	Lump Sum		

DESCRIPTION: Pumps & Accessories				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-03	1	Lump Sum		

DESCRIPTION: Station Piping/Valves				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-04	1	Lump Sum		

DESCRIPTION: Ductile Iron Fittings				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-05	7431	Pounds		

DESCRIPTION: Pump Control Panel				
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-06	1	Lump Sum		

DESCRIPTION:	Diesel Generator			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-07	1	Each		

DESCRIPTION:	Electrical Work			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-08	1	Lump Sum		

DESCRIPTION:	Bypass Pumping			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-09	1	Lump Sum		

DESCRIPTION:	Removal of Unforeseen Structures & Obstructions			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-10	1	Lump Sum	\$30,000	

DESCRIPTION:	Video Survey			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-11	1	Lump Sum		

DESCRIPTION:	Miscellaneous Site Work			
REF. NO.	QUANTITY:	UNIT OF MEASURE:	UNIT PRICE	UNIT PRICE EXTENSION (<i>Quantity times Unit Price</i>)
S-12	1	Lump Sum		

PUMP CONTROL PANEL (ADDENDUM 02)
SECTION 16500 (ADDENDUM 02)

PART 1 -- GENERAL

1.01 THE REQUIREMENT

- A. General: The CONTRACTOR shall furnish, install, and place into service pump controller(s), motor starters, service disconnect breakers, instrumentation and appurtenances for control of the lift station pumps. The CONTRACTOR shall also furnish and install a new data radio and antenna, or relocate the radio and antenna at sites where one exists, for communications with the Parish's Supervisory Control and Data Acquisition (SCADA) System.
- B. System Supplier: Due to the critical nature of the system, the complete pump control panel shall be furnished by a single supplier.

One Responsible Supplier (System Supplier): The system described herein, including PLCs, supporting hardware, software, communication enclosures, UPS, process instruments, and other ancillaries, etc. shall be furnished by a single supplier designated as the System Supplier. The System Supplier shall be regularly engaged in the business of system integration for municipal pump stations, and be familiar with all aspects of fully automated process control systems. The responsibility for performance to the specification in its entirety shall not be split up amongst individual suppliers of components comprising the system, but must be assumed solely by the supplier of the system. The System Supplier shall furnish the Owner with program implementation and customization. In addition, the System Supplier shall furnish schematics, wiring diagrams for the system components, interconnection schematics, loop drawings, and field point to point wiring diagrams showing all connections to each individual piece of equipment within the system. The PLC/Operator Interface software manufacturer and hardware component manufacturer shall have printed literature and brochures describing the standard series specified (not one of a kind fabrication).

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Electrical work specified hereunder shall conform to the requirements of this Section and the applicable requirements of all Electrical Sections.

1.03 REFERENCE SPECIFICATION, CODES, AND STANDARDS

- A. Without limiting the generality of other requirements of these Specifications, all work specified herein shall conform to or exceed the applicable requirements of the referenced documents to the extent that the requirements therein are not in conflict with the provisions of this Section; provided, that where such documents have been adopted as a code or ordinance by the public agency having jurisdiction, such code or ordinance shall take precedence.

1.04 CONTRACTOR SUBMITTALS

- A. General: All submittals shall be made in accordance with the applicable general requirements of the Specification Section entitled "Submittals."
- B. Shop Drawings: The CONTRACTOR shall submit to the ENGINEER shop drawings of all equipment before fabrication in accordance with provisions of the Contract Documents. Should an error be found in a shop drawing during installation or start up of equipment, the correction, including any field changes found necessary, shall be noted on the drawing and submitted finally as part of the "Record Drawings" prior to acceptance of the WORK. All shop drawings shall be checked by the CONTRACTOR before submittal for review by the ENGINEER. These drawings and data shall be submitted as a complete package at one time (except allowed early submittals on major equipment and long lead delivery items) and shall include:
 - 1. Complete systems diagrams: Drawings shall shown definitive wiring interconnections diagrams for each site. These diagrams shall show and identify each component of each system and shall show which components require a nominal 117-volt, 60-Hertz power source. These diagrams shall be prepared in accordance with ANSI/ISA S5.4.
 - 2. Data sheets shall be included for each component together with a technical product brochure or bulletin. These data sheets shall show the following: The component name as used on project drawings and in these Specifications, manufacturer's model number or other identifying product designation, the project tag number, the project system of which it is a part, the project site to which it applies, input and output characteristics, functional and operational descriptions sufficient to show conformance to the specification requirements, requirements for electric power, specifications for ambient operating conditions, and details on materials of

construction.

3. The arrangement of construction drawings for the control panel enclosures shall show dimensions, identification of all components, preparation and finish data, name plates, and the like.
4. Installation, mounting, and anchoring details shall be shown for all components and assemblies to be field mounted, including access requirements, conduit connections, or entry details.

1.05 QUALITY ASSURANCE

- A. Installation Supervision: The pump control panel System Supplier shall furnish services and technical information as necessary to ensure that the equipment furnished by him is installed in a proper and satisfactory manner. These services shall include, but not be limited to, providing the installing contractor with information and direction prior to the commencement of the installation work, answering of all questions regarding the installation and hookup, and a complete check of the completed installation to ensure that it is in conformance with the requirements of the equipment and the Contract Documents.
- B. Calibration: The pump control panel System Supplier shall furnish the services of a trained technician to perform a complete system calibration. Those components having adjustable features shall be set for the specific conditions and applications, and within the specified limits of accuracy. Defective elements which cannot achieve proper calibration or accuracy, either individually or within the system or subsystem, shall be replaced. A complete record of the calibration checks and adjustments shall be made and delivered to the ENGINEER & Owner upon completion of the system calibration.
- C. Testing: Systems shall be exercised through operational test in the presence of the ENGINEER in order to demonstrate achievement for the specified performance. Attention is directed to all applicable equipment testing and system startup sections for additional requirements relating to testing.

1.06 INTERFACE TO EXISTING SCADA SYSTEM

- A. General: The pump controller shall be designed for direct communications with the existing Parish SCADA System. Any SCADA connections will be made under separate contract.
- B. Radios: not used in this project.

PART 2 -- PRODUCTS

2.01 GENERAL

- A. Miscellaneous Items: Miscellaneous items such as cables, connectors, etc. are not necessarily shown or specified. All such items needed to provide a complete and operable system shall be furnished under the requirements of the Contract.

2.02 PUMP CONTROLLERS (PC)

- A. General: The pump controllers to be furnished under this contract shall be TESCO LIQ 5.
- B. The pump controller to be installed at each lift station shall be a microprocessor based unit with the capability to: accept digital and analog inputs, produce digital and analog outputs, perform local control and data manipulation function, ~~transmit measured and calculated values, status and alarm signals to the existing Jefferson Parish SCADA central computer system, receive command signals and configuration data from the central computer,~~ and perform all other functions required to meet the specified performance and functional requirements of the integrated system. Each controller shall be furnished with all necessary power supplies, processors, memory, process I/O cards, serial communication ports, modems, etc. to meet its specified functions, requirements and environmental conditions. All pump controllers shall meet or exceed the detailed specification requirements listed herein. Any proposed pump controller alternates or substitutions shall require prior approval. Prior approval shall consist of a technical proposal package along with sufficient detailed information specific to this project, for the owner's evaluation prior to bid. Owner reserves the right to reject any or all proposals that are not in the owner's best interest. Owner's decision is final.
- C. CPU: The CPU for each controller shall be a 32 bit CMOS microprocessor with a minimum 33 MHz operating speed.

- D. ROM: ROM memory shall be furnished with each controller as necessary and shall contain the OS and routines for diagnostics, process I/O, communications, control functions, etc. It is required that all functions and routines that may be used in the configured system be held in ROM to be called as necessary.
- E. RAM: A minimum of two times the RAM memory necessary for the initial program requirements shall be provided. RAM memory shall hold the specific configuration for each site, measuring and control constraints and setpoints, real time I/O data, etc. RAM memory shall have a battery backup to maintain memory for at least 30 days with all power disconnected.
- F. Communication Ports and Modems: Each controller shall be furnished with minimum three serial full handshake communication ports. Each connected port, shall be furnished with line protection units. Each port shall support selectable baud rates of 1200, 2400, 4800, 9600, and 19.2K, and shall be set to run at the rate specified or shown. Port connections to the digital radio systems, Operator Interface and a spare port for system programming/troubleshooting via laptop shall be supported and provided as specified.
- G. Operator Interface: The key pad and display requirements described below are in integral part of the TESCO LIQ 5 pump controller. Any controller submitted for consideration as equal must meet the intent of these requirements, although exact duplication is not required.
1. Key Pad: Each Controller shall be furnished with a keypad to examine values and change setpoints, constants, etc. The keypad construction shall be a sealed membrane type, and shall be impervious to atmospheres containing hydrogen sulfide and chlorine gases. Keyboard shall provide a menu-based operator interface, allowing the operator to perform at least these functions, without process interruption:
 - a. Examine and change setpoints
 - b. Examine analog input and output registers
 - c. Examine and change timers and counters
 - d. Examine and change analog input filter constants
 - e. Calibrate analog inputs and outputs
 - f. Force digital outputs on and off
 - g. Override analog inputs and outputs
 - h. Examine control program
 - i. Communication and configuration parameters

2. LED Character Display: Each Controller shall be furnished an 8 character, alphanumeric LED display. Each character shall be 15 segment, ½" high. The character display shall be used for showing the values and data described above.
 3. Bar Graph Displays: Each Controller shall be furnished with two LED bar graph displays. One display shall show wet well level and shall have at least 80 LED segments. The other display shall show calculated inflow and shall have at least 60 LED segments.
 4. Output and Alarm LED: Each Controller shall be furnished with a column of at least 40 LED's to display the status of the controller outputs and station alarms.
- H. I/O System: Each Controller shall be furnished with process I/O cards, etc. as necessary to interface to the process equipment and instrumentation. The exact I/O to be furnished with each Controller shall be as specified in item 2.03 and in Table 1 in the EXECUTION portion of this specification section. All inputs and outputs shall be optically isolated to 600V minimum. Analog inputs shall have a common mode rejection of 75db and a normal mode rejection of 50db at 60Hz. A/D and D/A converters shall be 12 bit minimum (including sign). The Controller shall be capable of powering the analog transmitters and the dry contact digital inputs. 115 VAC digital output shall be rated at least 5 amp AC continuously with 10amp interposing relays for motor control and furnished as necessary where higher amperage is required. Surge protection shall be furnished on all analog input signal lines.
- I. PID Function: The Controller shall provide built-in PID (Proportional/Integral/Derivative) control without requiring any procedural programming or subroutine writing. The Programmable Controller shall support the ability to simultaneously execute at least 16 independent PID control loops.
- J. Power Supply: The Controller shall be designed to operate on 115 VAC 60 Hz power. The power supply shall be suitably sized for the quantity of I/O furnished. The power supply shall include an uninterrupted power supply (UPS) for backup. The UPS shall be minimum 500VA/325 watts with built-in voltage regulation or sized at minimum of 200% of load requirement. The UPS shall also include sinewave 4 LED indicators, site wiring fault indicator, test button and

self diagnostic test at power on. The UPS shall be capable of powering the Controller, radio, and I/O system for a minimum of 8 hours.

- K. Quality Assurance - Pump Controller Manufacturer: The controller shall be furnished by a manufacturer that has at least 5 years experience manufacturing its own PC's and control systems designed specifically for the water and waste water industry. The Pump Controller itself and support for the Pump Controller, Operator Interface shall be available directly from the manufacturer.
- L. Warranty: The Pump Controller manufacturer shall provide a 10 year warranty with the unit. This warranty shall be available in writing directly from the manufacturer before bid acceptance. The warranty shall provide for direct on-site replacement of the entire PC, complete with the original program and configuration, and the Operator Interface, The replacement controller shall be available without requiring that the original unit first be removed and returned to the factory.
- M. Telephone Support: The Pump Controller manufacturer shall provide telephone support for questions related to any aspect of the controller, including general use, application-specific issues, programming, and use of the programming software. This support shall be available directly from the manufacturer at no extra charge with the purchase of a controller.
- N. Operating Conditions: The Pump Controller shall operate correctly under an ambient temperature range of -40 to +200 degrees F without requiring forced air or other special cooling measures. At minimum, each Pump Controller shall be subjected by the manufacturer to a 5 day burn-in procedure at 165 degrees F. Coatings on connectors, component leads, and other materials used in the construction of the Pump Controller shall be substantially resistant to atmospheres containing significant amounts of Hydrogen Sulfide gas and Chlorine gas. Each component shall have passed testing and be certified in writing by the manufacturer to be acceptable for use in water treatment and wastewater treatment environments.
- O. Engineering Unit Representation: The Controller shall have the capability to represent all analog input and analog output values directly in engineering units. Engineering units are defined to be "real world" IEEE 754 standard floating point numbers

corresponding to physical measurements, such as level, pressure, depth and flow. Telemetry communications shall use engineering unit representation in all messages.

- P. Calibration and Multipoint Calibration: A simple menu-driven procedure shall be provided that allows the operator to calibrate an analog input or output to an engineering unit measurement scale. This procedure shall be usable from both the full and minimal keyboards. The calibration information shall be uploadable and downloadable via a communication port.
- Q. Watchdog Timer: The Controller shall contain a hardware watchdog timer circuit that will reset the microcontroller within 1 second of detecting a firmware failure.
- R. Security: The Controller shall be capable of being configured to require password entry before access to functions that would change the control characteristics or basic operating mode (run/standby) of the Programmable Controller. Multiple passwords shall be supported, with at least 10 allowed. If the operator does not operate the keyboard within a selectable time period, the Programmable Controller shall log him out automatically. The Programmable Controller shall also support uploading and downloading of password configuration information via the communications ports.
- S. Data Archiving: The Controller shall provide a means of archiving I/O and register values into storage arrays. The Pump Controller shall also provide direct read access through any communications port to the contents of each data archive. Each sample shall consist of a date and time stamp and the register value. The Programmable Controller shall also provide functions available through the communications port that allow an external SCADA or other system to reset specific archives and obtain other necessary information about the data archives in use.
- T. Real Time Clock: The CPU shall employ a real time clock for event time and date stamping. The time and date stamp shall indicate year/month/day/hour/minute/seconds accurate to 1/100 second of the event trigger. The real time clock shall be capable of remote synchronization via the specified communications network.
- U. Programming Software: A free copy of all the necessary programming software shall be provided with each Programmable Controller purchased. The software shall be produced, provided and

supported directly by the Programmable Controller manufacturer. No third party tools are acceptable.

- V. QuickLoad Software: A fast and easy to use software program shall be available free of charge to Upload and Download from a laptop computer to the controller all calibration points, setpoints and control programming. A complete user's manual shall be provided which describes the use of all programming software.

- W. Field Wiring Terminal Blocks: The terminal blocks shall support the following listed characteristics:
 1. Pull-apart two piece wiring blocks for fast and easy wiring/re-wiring
 2. Separate wiring blocks for each I/O type and each wire point fully labeled
 3. Versatile internal or external analog power source
 4. Digital outputs have LED "ON" indicators and socketed 10A relays
 5. Entire terminal block shall snap on/off standard track mount
 6. Onboard passive circuit protection to protect pump controller shall be available with a built-in isolated current loop power supply, powered from the 12V DC main power. The current loop power supply shall be capable of producing at least 24V DC and 161 mA.
 7. Three levels of lightning/surge protection

2.03 PUMP CONTROLLER I/O CONFIGURATION

- A. Analog Inputs: Inputs shall be provided for wet well level, station discharge pressure and motor current for each pump. As a minimum, a total of 4 analog inputs shall be provided. All inputs are 4-20 mA DC. Provide surge suppression on all analog input signals that extend outside the Pump Controller enclosure.

- B. Digital Inputs: Inputs shall be provided for primary station power (three phase) failure, wet well back up Reactive Air system or bubbler system, alarm acknowledge, and monitoring signals for each pump. As a minimum, a total of 24 digital inputs shall be provided.

- C. Digital Outputs: 115 VAC outputs shall be provided for the common alarm lamp, Reactive Air purge compressors or bubbler compressors, purge solenoid valve, level transducer fail, communications fail, pump fail and pump call (each pump). As a minimum, 16 physical outputs, 16 LED driver outputs shall be furnished.

- D. Analog Outputs: Provide where called for in the drawings. If analog

outputs are not required, the Pump Controller shall have the capability to provide this functionality either by built in analog outputs or adding an analog output card to the pump controller. Provide surge suppression on all analog output signals that extend outside the enclosure. Where called for, provide a minimum of 4 analog outputs.

2.04 PUMP CONTROLLER FUNCTIONS

- A. Pump Level Control and Alarms: Start and stop of the lift station pumps shall be controlled by the level in the wet well. There shall be an individually adjustable start and stop setpoint for each pump. The pump start sequence shall be automatically alternated, with alternation on pump stop. If a pump fails to start, the next pump in sequence is started. High and low wet well alarms, transducer out of range alarms, and pump high and low motor current alarms shall also be furnished. ~~The setpoints for all controllers purchased under this contract shall utilize the standard Jefferson Parish numbering system. This numbering system shall be furnished to the Contractor upon award of the contract.~~
- B. Pump Run and Fail: When a pump is called to run, either through the local hand switch or automatic pump control, and a pump run signal is not sensed within a set time period, a pump fail alarm shall be generated.
- C. Station Flow: The Controller shall have an algorithm to automatically calculate station inflow based on the rate of rise in the wet well. The algorithm shall also compare inflow to effluent based upon pump status and compare original pump capacity to calculated pump effluent flow.
- D. Wet Well Level Measurement - Reactive Air Purge, or Bubbler Air Purge: The Controller shall automatically purge the reactive bell, or bubbler system, at a set interval.
- E. Common Alarm: The Controller shall activate the common alarm beacon occurrence of any of the above alarms.
- F. SCADA Interface: ~~The controller shall be "telemetry ready" to interface directly with the existing Jefferson Parish SCADA System with no other external or peripheral devices. Communications shall be through 9600 Baud radio system.~~
- G. I/O Listing: See Table 1 in the Execution section of this specification

for pump station I/O listing.

2.05 ENCLOSURES AND ELECTRICAL COMPONENTS

- A. General: All control equipment (including pump controllers, motor starters, circuit breakers, radios, instruments, and miscellaneous devices) shall be housed in a single low profile, U/L 508 listed type 316 stainless steel enclosure. The enclosure shall be low profile design, typically 36" high, such that it does not impede traffic vision when the enclosure is placed at the side of the roadway. The enclosure shall be suitably sized for the components. All bussing and wire shall be copper. All wire shall be stranded with locking spade pressure connectors and labeled with clip-on permanent plastic wire markers. All circuit breakers and dead front mounted devices (lights and switches) shall be equipped with stainless steel mounted engraved phenolic nameplates. Thermostatically controlled heating and cooling systems shall be provided to maintain suitable climate conditions within the control panel.
- B. Construction: The control cabinet shall be free standing, low profile, NEMA 3RX with drip shield as shown on the drawings. Outer enclosure shall be constructed of 12 gauge, 316 stainless steel. Enclosure shall be furnished with continuous hinged dead front interior and exterior doors. Doors shall be equipped with 316 stainless steel polished handles with 3-point roller bearing latches and hasps for owner padlocks. All interior mounting hardware shall be stainless steel. The enclosure shall be compartmentalized such that the programmable pump controller; power and telemetry sections are isolated from each other. The compartments containing the programmable pump controller, power sections and telemetry shall be separated by barriers behind the interior dead front door. Seal all openings to prevent entrance of insects and rodents. If required, space shall be available in the pump control panel for the mounting of existing or new telemetry components (radio, battery and charger).
- C. Enclosure Finish: Finish shall be polyester dry powder, electrostatically applied and baked on at 380 degrees Fahrenheit. Interior color including front and back of all swing out doors, separation barriers and mounting backpans shall be white. The enclosure exterior shall not be painted and shall be 316ss finish. The painting process shall include five stages of metal preparation using dip tanks as follows: 1) Alkaline cleaner, 2) Clear water rinse, 3) Zinc phosphate application, 4) Clear water rinse, and 5) Inhibitive rinse to

seal phosphated surfaces. All bussing and wire shall be copper. Schematic wiring diagrams shall be provided within the enclosure.

- D. Main Breakers: Each control panel shall have a main circuit breaker and a generator breaker with mechanical interlock, and one set of surge protection equipment and lightning arrestor. The main breaker shall be 200 amp, 25,000 AIC, heavy duty molded case type conforming to federal specification W-C-375B and shall be UL listed. The generator receptacle shall be 200 amps, 600V, 4 pole, 3 wire, Crouse Hinds 20425-522-S4, with spring door, and angle adapter. The generator receptacle shall be "reversed type". The main circuit breaker, generator circuit breaker, and all wiring shall be located behind an interior dead front door. Interlocks and circuit breaker operation shall be possible without opening the dead front door. The lightning arrestor shall be manufactured by GE, Square D, or equal.
- E. Motor Starters: Circuit breaker type combination FVNR motor starters shall be furnished for each pump motor and installed in the control panel. Motor starters shall be NEMA rated. Submersible motor overloads shall be CLASS 10 "quick trip" sized to the motors installed. Each starter shall be sized for the motor horsepower and voltage in accordance with NEC requirements. A physical lockout device shall be supplied on each motor breaker.
- F. Selection Switches: A HAND-OFF-AUTO selector switch shall be furnished for each pump motor. Switches shall be oil-tight, heavy duty, as manufactured by Allen-Bradley 800H, G.E., Square D, Siemens, or equal.
- G. Indicating Lamps: A motor run indicating lamp shall be furnished for each pump motor. A motor high temperature trip indicating light shall be furnished for all submersible pumps. Lamps shall be oil-tight, LED, heavy duty, press-to-test type as manufactured by Allen-Bradley, G.E., Square D, or Siemens, or equal.
- H. Elapsed Time Meters: An elapsed run time meter shall be furnished for each pump motor. Meters shall be six digits, non-resettable, recording in hours and tenths.
- I. Duplex Outlet: A GFCI service outlet shall be furnished with each control panel. The outlet shall be rated 20 amp at 120 VAC. The outlet shall be fed thru a 20 amp circuit breaker. A separate 20 amp circuit breaker shall provide power to the pump control circuit.

- J. Utility Metering: Where called for on the drawings, the electric service meter compartment shall be furnished as an integral part of the pump control panel and shall meet with all requirements of CLECO, be pre-approved by CLECO and be U/L 508 service entrance labeled. The electric service motor compartment shall be constructed of 12 gauge 316 stainless steel, Nema 3RX with drip shield. The pull section and utility compartments shall be accessible only by the utility company. Finish shall be polyester dry powder, electrostatically applied and baked on at 380 degrees Fahrenheit. Color shall be white interior doors, exterior shall not be painted and shall be 316ss finish, similar to pump control panel. The painting process shall include five stages of metal preparation using dip tanks as follows: 1) Alkaline cleaner, 2) Clear water rinse, 3) Zinc phosphate application, 4) Clear water rinse, and 5) Inhibitive rinse to seal phosphated surfaces. All bussing and wire shall be copper.
- K. Terminal and Distribution Blocks: Distribution blocks shall be furnished and installed as required for "fan-out" of power and other 120V sources within the enclosure. Power distribution blocks shall be insulated type, tin plated copper, 600V, ampere rated equivalent to 75 degree C copper wire, per 2011 NEC conductor table 310.15.(B).(16)
Terminal blocks shall be rated 600V at a minimum of 30 amperes and sized for the conductors served. They shall be screw terminal type capable of terminating 10 to 26 gauge wire. Terminal bridge bars shall be provided when it is necessary to bridge multiple like terminals together. Terminals and accessories shall be Phoenix Contact "Cipline" or equal by Allen Bradley or Weidemueller.
- L. Circuit Breakers: All 120 volt breakers shall be rated 10,000 minimum amperes interrupting capacity. Where required, provide breakers with AIC rating to match panel AIC rating such that system is fully AIC rated. Circuit breakers shall be of the indicating type, providing ON, OFF and TRIPPED positions of the operating handle. Circuit breakers shall be quick-make, quick-break, with a thermal-magnetic action. Circuit breakers shall be the bolted on type. The use of tandem or dual provide breakers in a normal single- pole space to provide the number of poles or spaces specified is not acceptable. All multiple-pole circuit breakers shall be designed so that an overload on one pole automatically causes all poles to open. Circuit breakers shall meet the requirements of UL and NEMA AB I. All circuit breakers shall be heavy duty molded case circuit breakers conforming to Federal specification W-C-375B and shall be UL listed.

M. Control Power Transformer: Transformer shall be furnished where required, with primary and secondary fusing. Transformer shall be encapsulated with electrical grade epoxy and silica sand to completely seal the core and coils from moisture and contaminants. Transformer shall be designed for quiet operation, 180 deg. C insulation system standard with 115 deg. C temperature rise. Transformer shall be made in U.S.A. and meet or exceed all applicable NEMA, ANSI, OSHA, UL and CSA requirements.

N. Relays, Control : Control relays shall be rated, 10 amp contacts, 300V, 1 million operations, minimum two form-C contacts, octal plug in base, neon energized lamp, Relays shall be Idec RR, P&B or equal.

Time delay relays shall be solid state relays with a timer adjustable over the range 1 to 60 seconds unless other ranges are indicated or required. Provide 10 amp contacts, LED energized indicator lamp, plug-in base. Time delay relays shall be Idec RTE, P&B or equal.

O. Panel Light Fixtures: Provide florescent light with door activated switch in each panel section.

P. Relays, Pump Moisture Sensing, Pump High Temperature

1. Pump intrinsically safe moisture sensing relays shall be provided for submersible pumps. The units shall be specifically designed for monitoring conductive circuits and shall be suitable for the pumps supplied on the project. The unit shall utilize low current (120 micro amps maximum) and low voltage (12 volts d-c maximum). Unit sensitivity shall allow pick-up on circuit closures of 100 K ohms or less.

2. Pump intrinsically safe high temperature relays shall be provided for submersible pumps. Relays shall be rated 10Amp, 120VAC, plug in base, 2 form C contacts, with LED relay energized indicator lamp. Hardwire 1 contact as permissive in the motor control circuit. Wire 1 contact into the PLC input circuit. Provide a control panel indicating light showing motor high temperature trip.

Q. Foundation: The panel shall be furnished with minimum 8" tall support legs (sized for flooding conditions) on each end of the cabinet. A fabricated 316ss stainless steel skirt shall be supplied, to

completely enclose the panel and bolted to the panel with eight (8) stainless steel socket head screws. The skirt shall be painted to match the Control Panel. The panel shall be placed on a minimum six (6) inch thick concrete slab. The panel concrete slab elevation shall be 2" above Base Flood Elevation (BFE) or 2 inches above highest adjacent grade, whichever is greater. The panel concrete slab shall extend minimum four (4) inches wider than the panel in all directions.

2.06 REACTIVE AIR LEVEL MEASUREMENT SYSTEM

- A. General: A reactive air level measurement system shall be furnished to monitor the liquid level in the wet well. The system shall consist of a reactive bell mounted near the bottom of the wet well with tubing back to the control panel for connection to the level transmitter, and an air compressor and solenoid valve for periodic purging of the bell. The level signal shall be used for monitoring and control of the lift station as described in the execution portion of this specification section. Alternative systems for monitoring will be considered if submitted prior to bid.
- B. Reactive Bell: The reactive bell shall be constructed of 6 inch PVC pipe, 12 inches long and capped at one end. The tubing shall be 1/4 inch polyflo. The mounting brackets and hardware shall be 316 SS. A quick disconnect shall be installed in each airline in the control panel to allow the air tubes to be cleaned.
- C. Air Compressor: Two air compressors shall be furnished with each system. The compressors shall operate in an alternating sequence. Each compressor shall be oil-less, rotary type. A backflow preventing check valve shall be furnished on each compressor.
- D. Solenoid Valve: A three-way solenoid valve shall be furnished to allow high pressure purging while protecting low pressure components. The solenoid valve shall have a brass body with 1/4 inch tube connections, as manufactured by ASCO or equal. A manual purge button on the dead front panel shall also be provided.
- E. Back up Level Control system: Provide level control system back up Reactive Air Bell with stainless steel mounting hardware. Reactive Air Bell shall be schedule 40 PVC, 4' long, 6 " in diameter. 1/4" parflex tubing shall be installed continuously from the top of the bell to the pump control panel. The bottom of the bell shall be furnished with a "pointed cone" wire stainless steel mesh to prevent entry of

grease or debris into the bell. A pressure switch mounted in the pump control panel shall operate both lift station pumps on high level and stop the pumps on low level (below the bottom of the bell). The pressure switch shall have an appropriate operational range for the application and shall have a diaphragm suitable for exposure to sewer H₂S gas. Back up control system shall operate if the programmable controller or primary level control systems are inoperable. Back up control system shall be hard wired on a separate dedicated circuit.

2.07 RADIOS and SCADA

- A. Radios and SCADA system: Not used in this project

2.08 INSTRUMENTATION

- A. Level (Pressure) Transmitters – Reactive Air Level Measurement System: Level transmitters shall be two wire pressure transmitters with the following features: continuously adjustable zero and span adjustments, solid state electronics, 4-20 maDC signal output. Power required shall be 12-40 VDC. Input shall be 0-300 inches of water. Accuracy shall be $\pm 0.15\%$ of span. Process connection shall be 1/4" NPT. Level Transmitter shall be TESCO 72-501, or pre-approved equal. The transmitter sensor shall be connected to the reactive air system or bubbler level system.
- B. Motor Current Transmitters: Current transmitters shall be two-wire donut type devices with the following features: isolated 4-20 maDC output, current overload protection, supply reversal protection. Accuracy shall be $\pm 1\%$ of full scale. Current transmitters shall be TESCO 72-630, or pre-approved equal. Transmitter range shall be at least 150 percent of motor FLA, but not more than 250 percent.
- C. Voltage Monitors (Power Fail Relay): Three-phase voltage monitor shall be a solid state device capable of sensing phase loss, phase reversal, and phase unbalanced in a three-phase electrical circuit. Upon any of these three conditions it shall drop out a relay to show that a phase failure has occurred. The device shall also have the following features: adjustable setting for low voltage, adjustable delay for automatic reset, adjustable time delay to prevent nuisance alarms, ABSS plastic case, DPDT 10 amp output contacts. Repeat accuracy shall be $\pm 0.5\%$ of setpoint.
- D. Intrusion/Unauthorized Entry Alarms: Door/Window Entry Switches

shall be magnetic type suitable for use on steel doors, UL rated for Central Station direct wire circuits, SPDT 50 ma minimum contact rating at 130 v. Switch shall be epoxy sealed in the switch housing. Sentrol 1078 series or approved equal.

2.09 SPARE PARTS

The pump control panel manufacturer shall furnish a complete set of recommended spare parts necessary for the first five (5) years of operation, which shall include at least the following:

- 1 - relay for each type required, mounted in the pump control panel
- 1 - spare set of N.O. contacts on each motor Starter
- 1 - spare 20A circuit breaker mounted in the pump control panel
- 1 - contactor coil and one set of power contacts for each size used.
- 1 - programmable pump controller (per project). Spare controller shall be programmed with the project final accepted program.

Loose spare parts shall be properly bound and labeled for easy identifications without opening the packaging and suitability protected for long storage.

2.10 WARRANTY

Pump control panel components shall carry a one (1) year replacement warranty. Programmable pump controller shall carry a ten (10) year replacement warranty.

PART 3 -- EXECUTION

3.01 INSTALLATION

- A. General: The CONTRACTOR shall employ installers who are skilled and experienced in the installation and connection of all control elements, instruments, accessories and assemblies furnished. Mechanical and electrical work shall be performed as specified in the applicable sections of Divisions 15 and 16, respectively.
- B. Wire Marking: Each signal and control circuit conductor connected to a give electrical point shall be designated by a single unique number which shall be shown on all shop drawings. These numbers shall be marked on all conductors at every terminal using white numbered wire markers which shall be plastic-coated cloth, or permanently marked heatshrink plastic.
- C. Mounting and Connection: The CONTRACTOR shall install and

connect all field mounted components and assemblies under the criteria imposed by the equipment manufacturer and the System Supplier. The installation personnel shall be provided with a final reviewed copy of the shop drawings and data.

- D. Technical Assistance: The CONTRACTOR shall provide a trained technical field representative to instruct installation personnel on any and all equipment installation requirements. Thereafter, the technical field representative shall be readily available to answer questions and supply clarification when needed by the installation personnel.
- E. Final Checks: After all installation and connection work has been completed, the technical field representative shall check it all for correctness, verifying polarity of electric power and signal connections, making sure all process connections are free of leaks, and all other similar details. The technical field representative shall certify in writing to the ENGINEER that each loop and system has been checked out and that all discrepancies have been corrected by the installation personnel.

3.02 RADIO SYSTEM INSTALLATION

- A. Not used in this project

3.03 ENCLOSURE SIGNAL AND CONTROL CIRCUIT WIRING

- A. Wiring Installation: All wires shall be run in plastic wireways except (1) field wiring, (2) wiring run between mating blocks in adjacent section, (3) wiring run from components on a swing-out panel to components on a part of the fixed structure, and (4) wiring run to panel-mounted components. Wiring run from components on a swing-out or front panel to other components on a fixed panel shall be made up in tied bundles. These bundles shall be tied with nylon ties, and shall be secured to panels at both sides of the "hinge loop" so that conductors are not strained at the terminals. All wires shall be marked as provided for above.

3.04 CALIBRATION, TESTING, AND STARTUP

- A. Calibration: All instruments and systems provided shall be calibrated after installation, in conformance with the component manufacturer's instructions. This shall provide that those components having adjustable features are set carefully for the specific conditions and applications of this installation, and ensure that the components

and/or systems are within the specified limits of accuracy. Defective elements which cannot achieve proper calibration or accuracy, either individually or within a system shall be replaced. This calibration of work shall be accomplished by appropriately experienced technical field representatives. The CONTRACTOR shall certify in writing to the ENGINEER that, for each loop and system, all calibrations have been made and that all instruments are ready to operate. The CONTRACTOR shall provide a complete record of all calibrations, adjustments, and settings.

- B. Proof of Conformance: The burden of proof of conformance to specified accuracy and performance is on the CONTRACTOR. The CONTRACTOR shall supply necessary test equipment and technical personnel if called upon to prove accuracy and/or performance, at no separate additional cost to the OWNER, wherever reasonable doubt or evidence of malfunction or poor performance may appear.
- C. Testing: All systems shall be exercised through complete operational tests in the presence of the ENGINEER in order to demonstrate achievement of the specified performance. Operational tests depend upon completion of work specified elsewhere in these Contract Documents. The scheduling of tests shall be coordinated by the CONTRACTOR among all parties involved so that the tests may proceed without delays or disruption by uncompleted work.
- D. Startup: When all equipment and systems have been assessed by the CONTRACTOR to have been successfully carried through complete operational tests with not less than a minimum of simulation, and the ENGINEER concurs in this assessment, system startup can follow.

3.05 RADIO SYSTEM TESTING

- A. Not used in this project.

TABLE 1: I/O Configuration – Triplex Pump Station:**

Item	Description	AI	AO	DI	DO
1	Pump 1 motor current	1			
2	Pump 2 motor current	1			
3	Pump 3 motor current	1			
4	Wet Well Level	1			
5	Discharge Pressure (If called for on drawings) *	1			
6	Pump 1 Run			1	
7	Pump 2 Run			1	
8	Pump 3 Run			1	
9	Pump 1 H/O/A in Auto			1	
10	Pump 2 H/O/A in Auto			1	
11	Pump 3 H/O/A in Auto			1	
12	Pump 1 Seal Failure			1	
13	Pump 2 Seal Failure			1	
14	Pump 3 Seal Failure			1	
15	Pump 1 High Temperature			1	
16	Pump 2 High Temperature			1	
17	Pump 3 High Temperature			1	
18	Reactive Air – Manual Purge			1	
19	Station Entry - Intrusion			1	
20	Wet Well High High Level – back up alarm			1	
21	DC power failure			1	
22	AC power failure			1	
23	PLC – alarm acknowledge			1	
24	Back Up Controls activated – inhibit main controller			1	
25	Pump 1 call				1
26	Pump 2 call				1
27	Pump 3 call				1
28	Compressor 1 call				1
29	Compressor 2 call				1
30	Air Solenoid Valve call				1
31	Level Transducer Fail				1
32	Common Alarm				1
33	Communications Fail				1
34	Pump 1 VFD speed signal (If called for on dwgs) *		1		
35	Pump 2 VFD speed signal (if called for on dwgs) *		1		
36	Pump 3 VFD speed signal (If called for on dwgs) *		1		
	Sub Total (Not including items marked * -- add these items if required)	4	--	19	9
	Spares	-	--	5	7
	Station Total (Not including items marked *)	4	--	24	16
	Sub Total (Including items marked *)	5	3	19	9
	Spares	3	3	5	7
	Station Total (Including items marked *)	8	6	24	16

* Supply only if called for on the drawings.

** Additional I/O may be required depending on station component design. Supply I/O as required including spares.

END OF SECTION - 16500

16500-21

STANDBY DIESEL GENERATOR SET - Specification Section 16550

Remove the entire existing paragraph titled "4.07 Warranty", and **REPLACE** with the new Paragraph below titled "4.07 Warranty".

4.07 Warranty

- A. **The generator set and associated equipment shall be warranted for a period of not less than 5 (five) years** from the **date of commissioning for the Owner** (not the date of sale, nor the date of installation) against defects in materials and workmanship. Early startup and testing by any entity does not constitute "commissioning". The Warranty shall be provided and guaranteed by the Generator Set MANUFACTURER, not by a sales force, nor by a Vendor. If the Generator Set MANUFACTURER is an Assembler of the engine and the alternator as a unit, than that Assembler is the MANUFACTURER of the Generator Set.
- B. The warranty shall be comprehensive. No deductibles or additional compensation shall be allowed for travel time, service hours, repair parts cost, etc. The warranty does not include vibrating sheet metal, replaceable items such as belts, hoses and fluids (unless requiring replacement as a result of other warranty work), but does include ALL other items, **including water jacket heaters.**
- C. Maintenance Items are not included. Maintenance includes periodic oil and oil filter changes, air and fuel filter changes, all as specified by the Generator Set manufacturer, for either maximum time periods or running hours. Maintenance includes changing of belts, hoses and fluids as needed, or as required by time intervals or running hours. Maintenance includes tightening of bolts and screws to remedy loose sheet metal, unless such nuisances are present at startup or commissioning, in which case these are a Punchlist item to be corrected before project Acceptance. Maintenance includes periodic touchup painting, as required, for scratches and the like. A Maintenance Contract can be entered into directly between the Owner and the Generator Set Supplier (Vendor), if desired by the Owner.
- D. Warranty Response Time. The Generator Set Manufacturer, or a trained designated representative thereof, shall have personnel onsite within **24 hours**, 365 days per year, of notification by telephone or written means by the Owner that warranty or repair work is needed.
- E. Warranty - Major Items Repair Time. "Major" items include replacement of the engine, alternator, or the ATS (since the ATS is a part of the Generator Set "Package"). Any such needed replacement of the above Major components shall be completed within fifteen (15) calendar days of the original notification that repair work is needed. "Long lead procurement time" shall NOT be an excuse for extending the 15 day repair time. The needed parts shall be available from the component Manufacturer as needed to meet this timeframe. **IF THIS REQUIREMENT CANNOT BE MET, DO NOT BID THIS JOB.**
- F. Warranty - Minor Items Repair Time. "Minor" items are everything not listed above as "Major". This would include, for example, replacement or repairs to the starter motor, engine battery charging alternator, fuel pump, water pump, radiator, or water jacket heaters. This also includes any equipment adjustments not considered as Maintenance.

Any such needed replacement of the above Minor components shall be completed within eight (8) calendar days of the original notification that repair work is needed.

END OF SECTION 16550

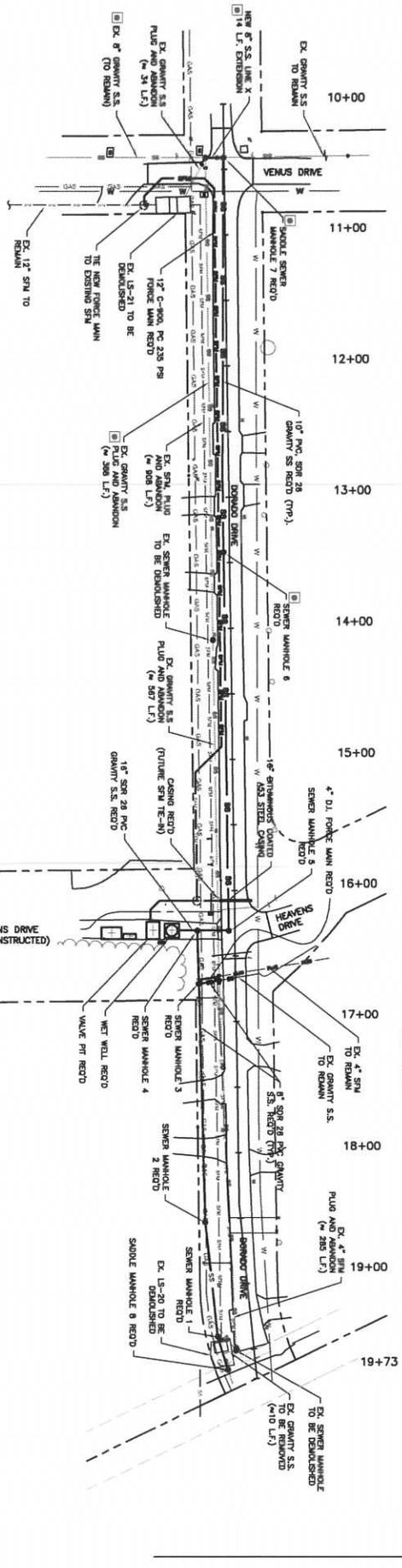
AUTOMATIC TRANSFER SWITCH - Specification Section 16551

Remove the entire existing paragraph titled "1.5 Quality Assurance", and **REPLACE** with the new Paragraph below titled "1.5 Quality Assurance".

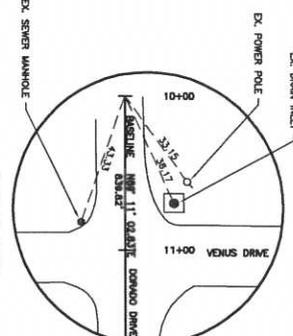
1.5 QUALITY ASSURANCE

- A. Only approved bidders shall supply equipment provided under this contract.
- B. **Manufacturer Qualifications:** The equipment supplier shall maintain a service center capable of providing training, parts, maintenance and emergency repairs to equipment, including transfer switch, generator sets and remote monitoring equipment (if applicable) at the site within a response period of less than eight hours from time of notification.
 - 1. The transfer switch shall be serviced by technicians employed by, and specially trained and certified by, the generator set supplier and the supplier shall have a service organization that is factory-certified in both generator set and transfer switch service. The supplier shall maintain an inventory of critical replacement parts at the local service organization, and in service vehicles. The service organization shall be on call 24 hours per day, 365 days per year.
 - 2. Submit names, experience level, training certifications, and locations for technicians that will be responsible for servicing equipment at this site.
 - 3. The manufacturer shall maintain model and serial number records of each transfer switch provided for at least 20 years.
- C. **Source Limitations: The transfer switch shall be obtained through one source from a single manufacturer. The generator set manufacturer shall warrant the transfer switch to provide a single source of responsibility for products provided.**
- D. **Electrical Components, Devices, and Accessories:** Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked as suitable for use in emergency, legally required or optional standby use as appropriate for the connected load.
- E. **NOTE that as stated elsewhere within this Specification, Transfer Switches utilizing any Circuit Breakers or any parts thereof, or any Molded Case Switches or any parts thereof, are NOT acceptable on this project.**
- F. The automatic transfer switch installation and application shall conform to the requirements of the following codes and standards:
 - 1. Transfer switches and enclosures shall be UL 1008 listed and labeled as suitable for use in emergency, legally required, and optional standby applications.

2. CSA 282, Emergency Electrical Power Supply for Buildings, and CSA C22.2, No. 14-M91 Industrial Control Equipment
 3. NFPA 70, National Electrical Code. Equipment shall be suitable for use in systems in compliance with Articles 700, 701 and 702.
 4. Comply with NEMA ICS 10-1993 AC Automatic Transfer Switches
 5. IBC 2006 – The transfer switch shall be prototype-tested and third-party certified to comply with the requirements of IBC group III or IV, Category D/F. The equipment shall be shipped with the installation instructions necessary to attain installation compliance
 6. IEEE 446 – Recommended Practice for Emergency and Standby Power Systems for Commercial and Industrial Applications
 7. EN55011, Class B Radiated Emissions and Class B Conducted Emissions
 8. IEC 1000-4-5 (EN 61000-4-5); AC Surge Immunity
 9. IEC 1000-4-4 (EN 61000-4-4) Fast Transients Immunity
 10. IEC 1000-4-2 (EN 61000-4-2) Electrostatic Discharge Immunity
 11. IEC 1000-4-3 (EN 61000-4-3) Radiated Field Immunity
 12. IEC 1000-4-6 Conducted Field Immunity
 13. IEC 1000-4-11 Voltage Dip Immunity
 14. IEEE 62.41, AC Voltage Surge Immunity
 15. IEEE 62.45, AC Voltage Surge Testing
- G. Comply with NFPA 110 – Emergency and Standby Power Systems. The transfer switch shall meet all requirements for Level 1 systems, regardless of the actual circuit level.
- H. The Transfer Switch Manufacturer shall warrant the material and workmanship of the transfer switch equipment for a minimum of five (5) years from registered commissioning and start-up. This warranty shall be a part of the Generator Set Warranty, and shall have the same timeframe requirements for repairs as listed in the Generator Set Warranty.**
- I. The warranty shall be comprehensive. No deductibles shall be allowed for travel time, service hours, repair parts cost, and etc. during the minimum noted warranty period described above.



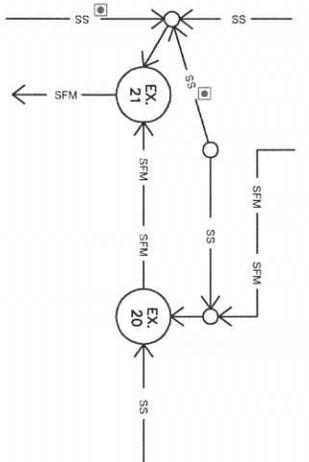
- SUGGESTED SEQUENCE OF CONSTRUCTION:**
1. DEMONISH NEW PUMP STATION, CONSTRUCT NEW FORCE MAIN TO THE IN POINT AT WEST EXTENT OF PROPOSED FORCE MAIN.
 2. CONSTRUCT SEWER MANHOLES, SPOOLE MANHOLE 7, AND SEWER GRANTY MAINS.
 3. OPEN THE EXISTING MANHOLES & CONNECT NEW GRANTY MAIN, FLOW THE FLOW AT NEW LINES SO THE EXISTING SEWER SYSTEM CONTINUES TO BE FUNCTIONAL.
 4. THE IN POINT FORCE MAIN TO EXISTING FORCE MAIN.
 5. CONDUCT COMMISSIONING AND START UP OF THE NEW STATION.
 6. CONNECT EX. 4\"/>



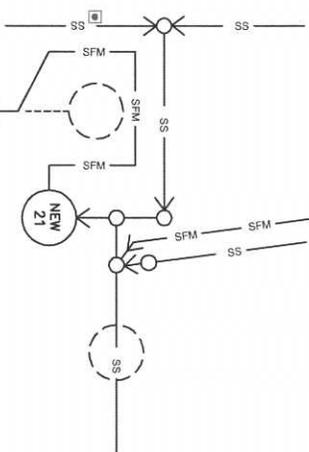
RECD SANITARY MANHOLE LOCATION SUMMARY

MANHOLE	STATION	OFFSET	T.O.C.	INVERT
1	19+37.71	28.88'	11.65'	0.21'
2	19+50.98	29.90'	09.85'	0.27'
3	19+70.91	28.70'	08.75'	-0.04'
4	19+30.00	29.18'	10.68'	-4.30'
5	19+30.09	04.98'	11.01'	-4.08'
6	12+80.56	04.61'	10.80'	-3.64'
7	10+40.85	0.89'	08.75'	-1.17'
8	19+43.73	21.53'	11.30'	-0.10'

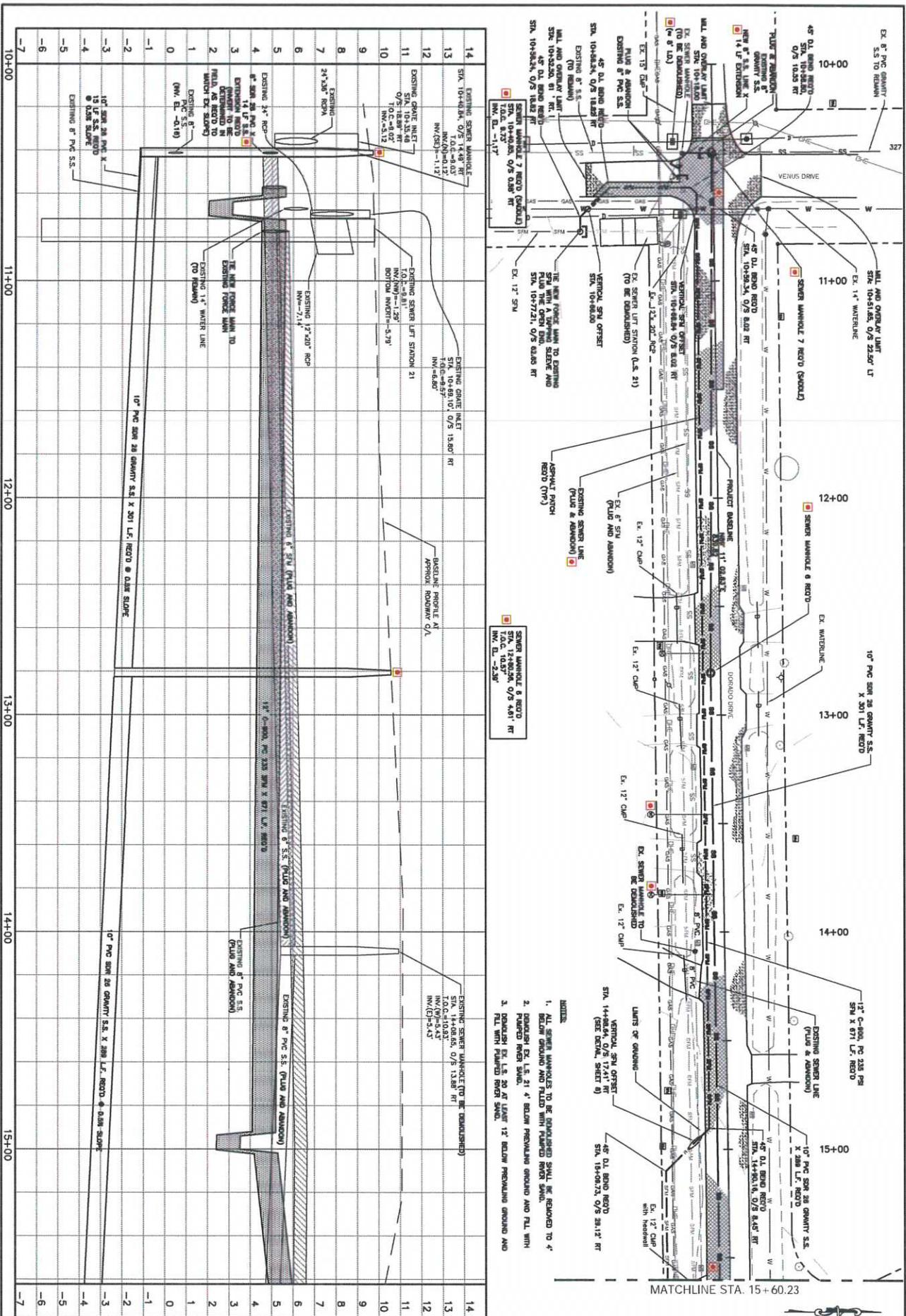
EXISTING SANITARY FLOW SCHEMATIC
M.T.S.

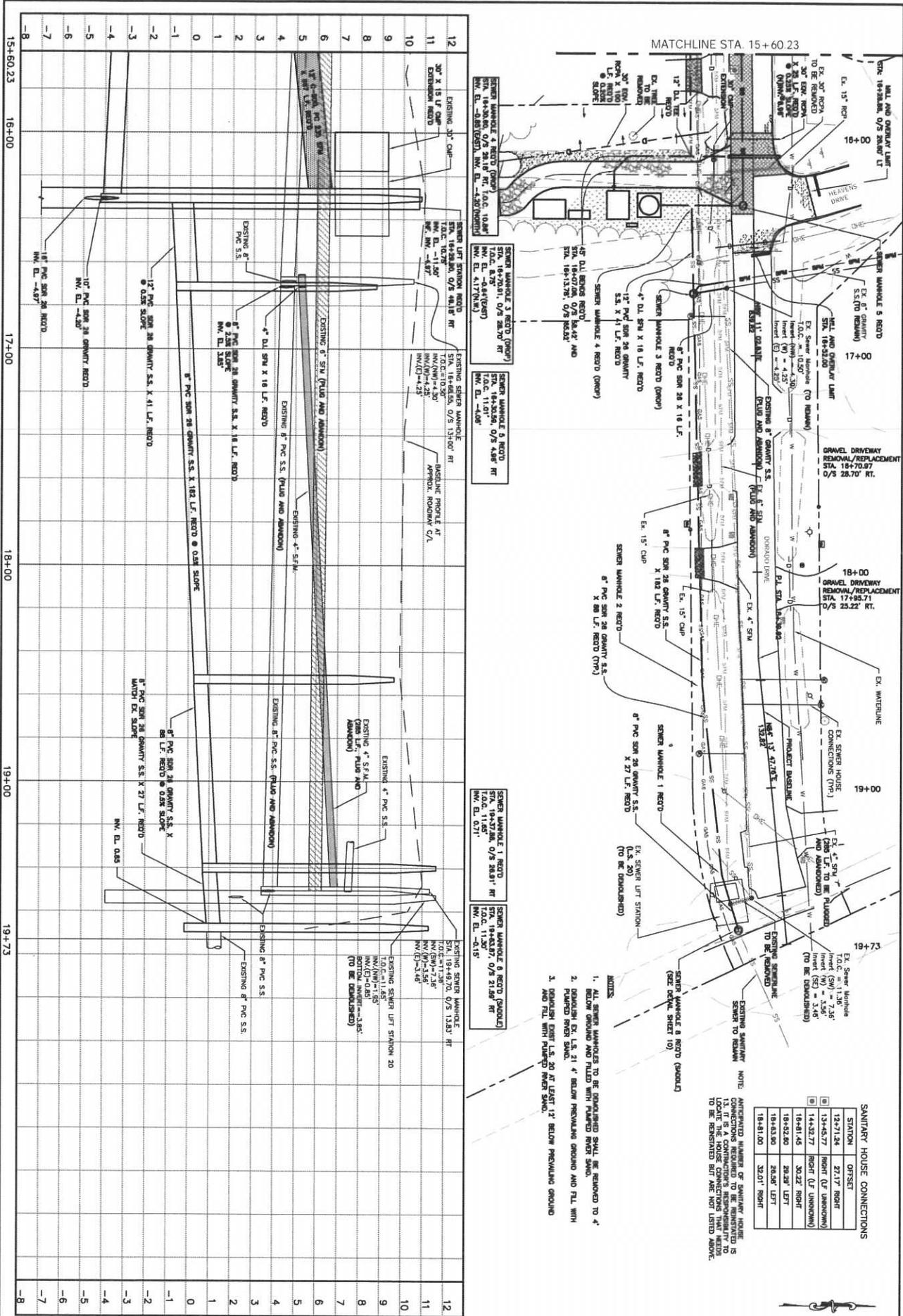


FINISHED SANITARY FLOW SCHEMATIC
M.T.S.



<p>LIFT STATION No. 21 RELOCATION</p> <p>CITY OF MANDEVILLE ST. TAMMANY PAROSH, LOUISIANA</p> <p>PROJECT LAYOUT (ADDENDUM 2)</p>	<p>SCALE: (24x36) 1" = 40'-0"</p> <p>SCALE: (11x17) 1" = 80'-0"</p> <p>DATE: JULY 2014</p>	<p>DESIGNED BY: SK</p> <p>DRAWN BY: SK</p> <p>CHECKED BY: ACM</p> <p>JOB NO.: 1213</p>	<p>PRINCIPAL Engineering, Inc. 191 N. CALIFORNIA BLVD., SUITE 19 MONROE, LA 70401</p> <p>PH: (985) 624-3001 800-775-2622 www.principaleng.com</p>	<p>DATE: 8/27/17</p> <p>REVISIONS: 6 ADDENDUM 2 REVISIONS</p>	<p>APP'D</p>
<p>SHEET NO. 3</p> <p>OF 25</p>					





SANITARY HOUSE CONNECTIONS

STATION	OFFSET
13+71.26	27.17' RIGHT
13+45.77	RIGHT (LIFT UNKNOWN)
14+32.77	RIGHT (LIFT UNKNOWN)
16+81.45	30.22' RIGHT
18+52.50	28.28' LEFT
18+43.30	28.58' LEFT
18+81.00	32.01' RIGHT

NOTE: ANTICIPATED NUMBER OF SANITARY HOUSE CONNECTIONS REQUIRED TO BE REINSTATED IS LOCATED IN THE HOUSE CONNECTIONS THAT NEED TO BE REINSTATED BUT ARE NOT LISTED ABOVE.

- NOTES:**
1. ALL SANITARY MANHOLES TO BE DEMOLISHED SHALL BE REMOVED TO 4' BELOW GROUND AND FILLED WITH FILLER RIVER SAND.
 2. DEMOLISH EX. L.S. 21' 4" BELOW REMAINING GROUND AND FILL WITH FILLER RIVER SAND.
 3. DEMOLISH EXIST' L.S. 20' AT LEAST 12" BELOW REMAINING GROUND AND FILL WITH FILLER RIVER SAND.

LIFT STATION No. 21 RELOCATION

CITY OF MANDEVILLE
ST. TAMMANY PARISH, LOUISIANA

PLAN AND PROFILE (ADDENDUM 2)

DESIGNED BY: SK
DRAWN BY: DRC
CHECKED BY: ACM

DATE: JULY 2014

JOB NO.: 1213

SCALE (PLAN): 1"=20'
SCALE (PROFILE): 1"=40'
SCALE (VERTICAL): 1"=4'

PROJECT NO.: 7

PRINCIPAL Engineering Inc.
601 N. CANTONWAY BLVD., SUITE 19
MANDEVILLE, LA 70471

DATE: 8/27/14

REVISIONS: (1) ADDENDUM 2 REVISIONS

FROM:

Wallace C. Drennan, Inc.
Post Office Box 15438
New Orleans, LA 70175-5438

LOUISIANA CONTRACTOR'S LICENSE NO.: 1033

SEALED BID TO:

City of Mandeville
Purchasing Agent, City Hall
3101 East Causeway Approach
Mandeville, LA 70448

SEALED BID FOR:

Lift Station No. 21 Relocation
A/E Project No.: 1213

BID DUE DATE and TIME: Wednesday, September 3, 2014 at 11:00 AM