

**TECHNICAL SPECIFICATIONS**  
**CHAMPIONS DRIVE (MODIFICATIONS)**  
**SEWAGE LIFT STATION**

- 1.0 GENERAL
- 1.1 Description : Furnish and install 9' diameter RCP precast box manhole, submersible non-clog wastewater pumps, controls, associated piping, valves and all other appurtenances necessary for a complete installation, as shown and specified on the drawings.
- 1.02 Quality assurance :
- A. Comply with all codes and standards of the city of Rockwall.
- B. Install piping and equipment in accordance with manufacturers recommendations.
- C. Pump Warranty : The pump manufacturer shall warrant the units being supplied to the owner against defects in workmanship and material for a period of two and one-half (2.5) years under the non-clog pump warranty for normal use, operation, and service.
- 1.03 Job Conditions :
- A. The pump manufacturer/supplier shall be responsible for conditioning and/or furnishing all controls, hardware and appurtenances necessary for the complete installation of an operating system. Materials or components not furnished by the manufacturer/supplier which are a part of the pump station installation (exclusive of manhole structure) shall be clearly specified and illustrated on layout and installation drawings furnished by supplier.
- 1.04 Submittals :
- A. The manufacturer shall supply four (4) sets of standard Submittal drawings, Operating and maintenance Instruction Manuals and Parts lists.  
 Standard submittals will consist of :  
 a) Pump Outline Drawing  
 b) Control Data  
 c) Access Frame  
 d) Typical Installation Guide  
 e) Technical Manuals  
 f) Parts Lists
- B. Submit shop drawings of proposed equipment to the engineer for approval prior to furnishing equipment.
- 2.0 PRODUCTS
- 2.01 Submersible Non-Clog Wastewater Pumps
- A. Furnish two (2) submersible non-clog wastewater pumps : Each pump shall be equiped with a 47 hp, submersible electric motor connected for operation on 460 volts, three phase, 60 hertz service, with type SPC cable suitable for submersible pump application. The power cable shall be sized according to NEC and ICEA standards, and have P-MSHA Approval.  
 The pumps shall be capable of delivering 750 GPM at 110 feet TDH.  
 Pumps shall have tandem mechanical seal in oil bath w/ moisture probe.  
 Pumps shall be non-clog pumps, FLYGT 8" CP-3201 submersible with 452 impeller, constructed and tested in accordance with the manufacturer's current published specifications.  
 CP pumps with guide bars shall be provided.
- B. The pumps shall be capable of handling domestic wastewater. An 8" discharge connection elbow shall be permanently installed in the wet well or basin along with the discharge piping. The pumps shall be automatically connected to the discharge connection elbow when lowered into place, and shall be easily removed for inspection or service by means of a grab bar for hoisting. There shall be no need for personnel to enter pump well. Sealing of the pumping unit to the discharge connection elbow shall be accomplished by a simple linear downward motion of the pump. A sliding guide bracket shall be an integral part of the pump unit. The entire weight of the pumping unit shall be guided by no less than two guide bars and pressed tightly against the discharge connection elbow with metal-to metal contact. Sealing of the discharge interface by means of a diaphragm, O-ring, or other devices will not be acceptable. No portion of the pump shall bear directly on the floor of the sump. The pump, with its appurtenances and electrical cable, shall be capable of continuous submergence underwater without loss of watertight integrity to a depth of 65 feet.
- 2.02 Access Frame and Cover :
- A. Furnish one (1) Aluminum Access Frame, & Double Door (48" X 70"), in aluminum material, rated 150 lb./sq. ft., complete with hinged and flush locking mechanism, upper guide bar holder and cable holder. Frame shall be securely placed, mounted above the pumps. Frame shall be provided with sliding nut rails to attach the accessories required. Lower guide bar holders shall be integral with the pump discharge connection. Guide bars shall be of at least standard weight galvanized steel pipe of the size indicated on drawings. The guide bars shall not support any portion of the weight of the pump. Doors shall be skid proof.
- 2.03 Controls :
- A. Utilize existing (1) ITT FLYGT automatic pump control center for 230 volts, three phase, 60 hertz power supply. For each pump motor, there shall be included : a combination circuit breaker/overload unit providing overload protection, short-circuit protection, reset and disconnect for all phases : across-the-line magnetic contactor; hand/off/automatic pump operations selector switch; 120 volt control panel pilot circuitry. A 24 volt control circuit transformer with disconnect circuit breaker and overload protection, shall be included with an automatic electric alternator for providing alternating operation of pumps under normal condition, or in cases of high level, allowing both pumps to operate simultaneously. The following shall be provided with the panel :
- |                                      |                             |
|--------------------------------------|-----------------------------|
| NEMA 4 watertight lockable enclosure | Elapsed Time Meter          |
| High Level Alarm Light               | Seal Failure Warning Lights |
| Condensation Heater                  | Duplex Receptacle           |
- B. The station shall be equipped with an automatic telephone dialing system, Sensaphone 1100, or approved equal. The auto-Dialer shall have the ability to store a min. of 8 programmable telephone numbers to provide automatic notification of an alarm condition. Alarm conditions are as specified above.
- 2.04 Liquid Level Sensors :
- A. Furnish four (4) Barnes Control No. 073612 liquid level sensors with sufficient electrical cable for the levels indicated on the drawings and continuous run to control panel. Level sensors shall be rated for operation at milliwatt levels. Floats or restrained floats shall not be considered as equal.
- 2.05 Check Valves :
- A. Furnish two (2) Mueller Check Valves, 8-inch size, iron body and cover, natural rubber faced clapper, with class 125 flanged ends.
- 2.06 Gate Valves :
- A. Furnish two (2) gate valves, 8-inch size, iron body, bolted bonnet, with modified wedge disc and resilient seated, NRS with handwheel, flanged ends. Furnish three (3) gate valves, 8-inch size, iron body, bolted bonnet, with modified wedge disc and resilient seated, NRS: with 2-inch square operating nut and mechanical joint ends.
- 2.07 Valves as shown shall be located in a separate vault from the wet-well. The valve vault shall have a solid floor w/a drain line connecting the vault to the wet-well. Access doors and door frames must be fabricated from aluminum with a recessed lifting handle, locking lever to hold door in the open position, and a method of placing a No. 5 Master padlock on the door for safety and security.
- 2.08 Polysonic HYDRA SX40 Dedicated Digital Doppler Flow meter or approved equal to be provided with the capability to connect to SCADA.

- 3.0 EXECUTION
- 3.01 Install pumps, equipment and piping in accordance with manufacturers recommendations.
- 3.02 Pumps shall be treated at start-up. Voltage, current, and other significant parameters shall be recorded. The manufacturer shall provide a format test procedure and forms for recording data.
- 3.03 For buried bends and fittings, restrain joints or provide blocking in accordance with standard details provided.
- 3.04 All nuts, bolts, and related hardware shall be stainless steel.
- 3.05 All above grade exposed steel or ductile iron pipe, fittings or appurtenances, shall be painted with a rust inhibitive primer (factory applied optional) and a finish coat of epoxy type paint.
- 3.06 All bends shall be mechanical joints or glue fittings.
- 3.07 All concrete shall have a minimum compressive strength of 3600 p.s.i. at 28 days unless noted otherwise.
- 3.08 All reinforcing steel shall conform to ASTM A615, Grade 60.
- 3.09 All grout shall be non-shrink, having a minimum compressive strength of 5000 p.s.i. at 28 days complying with Corps. of Engineers CRD-C-621.
- 3.10 All piping as shown shall be either class 150 cast iron per AWWA C106/C107 or ductile iron, class 50 per AWWA C150/C151. Flanges shall be 125 lb., ANSI B-16. Bolts and nuts shall conform to ASTM A307. Gaskets shall be Grade 1 rubber, ring type.
- 3.11 Stainless steel shall be type 304 or type 316 unless specified otherwise.
- 3.12 Contractor shall provide cement stabilized sand under valve vault and sump base slab as shown. The base material shall be compacted and graded level. Back fill shall be per specifications.
- 3.13 Provide pipe supports in pump station per drawings.
- 3.14 Contractor shall install mercury float switches for pump control and alarm signal activation.
- 3.15 Contractor shall coordinate the correct placement and installation of lifting eyes on wet well lid and valve vault lid with the manufacturer.

**ELECTRIC SERVICE NOTES**

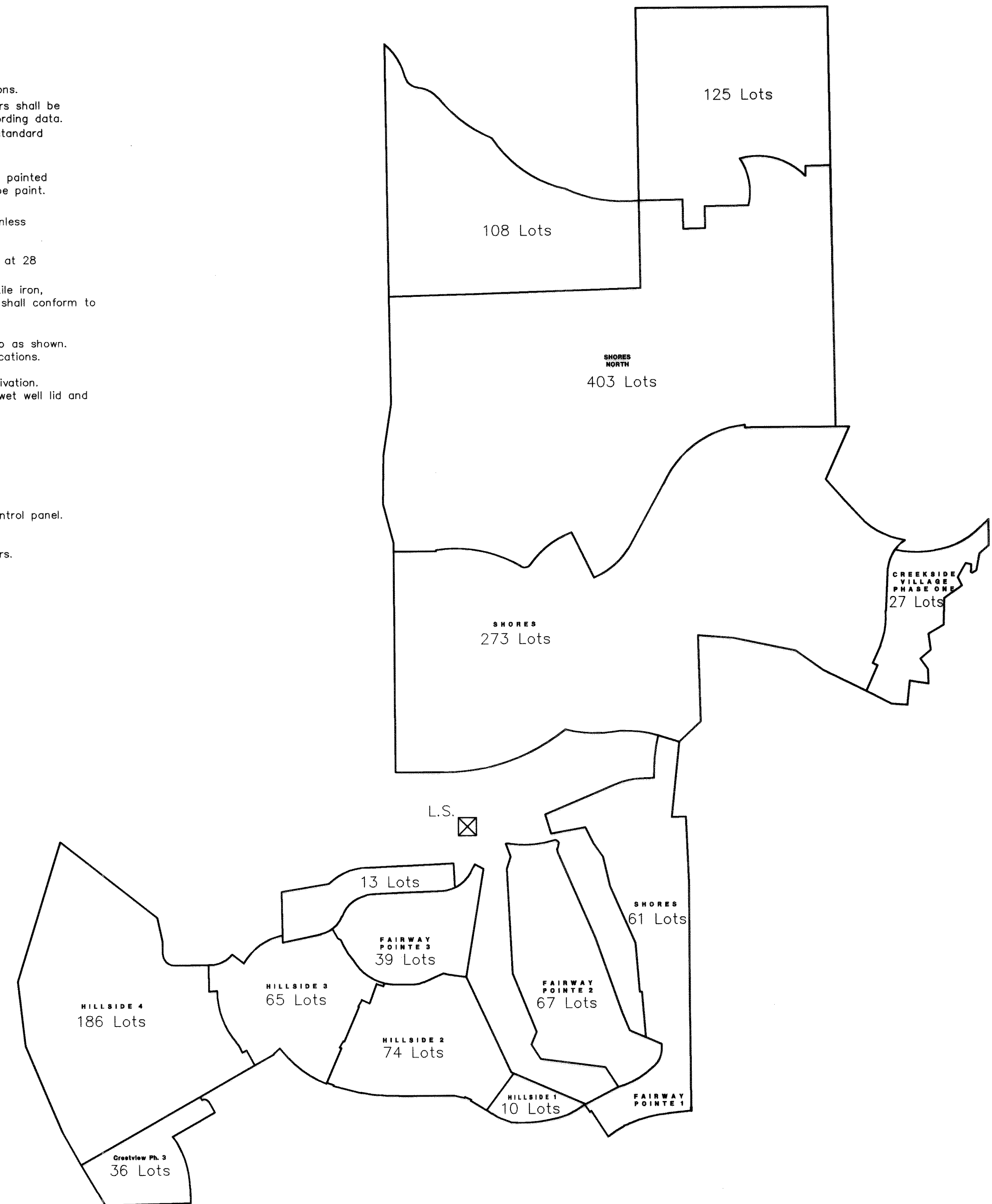
- Coordinate requirements of utility service w/ local utility company.
- Load: 460 volt, 3 phase, 60 Hz. 2-47 HP motors, 50 KW controls
- Existing meter base ( as required by local utility).
- Provide main disconnect (NEMA 4X).
- Provide copper wiring with ground in 2" RGS from meter to service disconnect to control panel. Coordinate routing in field.
- All electrical work shall conform with NEC, National, State, and Local codes.
- Verify electric utility service voltage and phase prior to placing order for pump motors.

**GENERATOR SPECIFICATIONS**

Type	Four-pole, revolving field
Rotor Insulation	Class H
Starter Insulation	Class H
Total Harmonic Distortion	< 3%
Telephone Interference Factor	< 50
Alternator	Self ventilated and drip-proof
Bearing (Pre-lubed & Sealed)	1
Coupling	Direct, flexible Disc
Load Capacity (Standby)	100%
Load Capacity (Prime)	110%
Permanent Magnet Exciter	Eighteen pole Exciter
Regulation	Solid-state ±1% regulation

**ENGINE SPECIFICATIONS**

Make	GENERAL
Model	7.5 DT
Cylinders	6 in-line
Displacement	7.5 Liter
Bore	112 mm
Stroke	127 mm
Compression Ratio	17.9 :1
Intake Air	Turbocharged
Number of Main Bearings	7
Connecting Rods	6-Carbon Steel
Cylinder Head	Cast Iron Overhead Valve
Pistons	6-Heat Resistant Aluminum Alloy
Crankshaft	Case hardened, Die Forged, Carbon Steel



CHAMPION ROAD-LIFT STATION 05-23-02  
 RECORD DRAWINGS  
 NOTE: THE INTENT OF THE OWNER AND ENGINEER WAS TO CONSTRUCT THE IMPROVEMENTS ACCORDING TO THESE PLANS AS APPROVED BY THE CITY OF ROCKWALL. THE LINES AND GRADES WERE SET ON THE GROUND FOR CONSTRUCTION ACCORDING TO SAID PLANS. WE ARE NOT AWARE OF ANY CHANGES OR REVISIONS TO THESE PLANS DURING CONSTRUCTION EXCEPT AS NOTED ON THE PLANS.

**TECHNICAL SPECIFICATIONS**

**LIFT STATION DETAILS**  
**CHAMPIONS DRIVE LIFT STATION**

CITY OF ROCKWALL

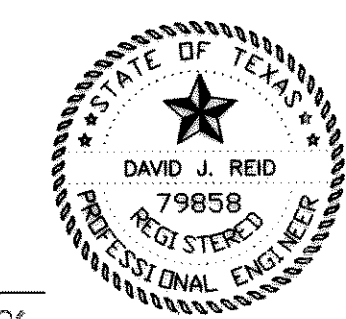
ROCKWALL COUNTY, TEXAS

**DOWDEY, ANDERSON & ASSOCIATES, INC.**

5225 VILLAGE CREEK DR., STE. 200 (972) 931-0694 PLANO, TEXAS

DESIGN	DRAWN	CHECKED	DATE	SCALE	JOB	SHEET
DJR	SWK	DJR	12-2000	-	99015	1

These construction plans were prepared under the responsible supervision of David J. Reid, Registered Professional Engineer, No. 79858



NO.	DATE	BY	REVISION