

ELECTRICAL NO SCALE NOTE: COORDINATE EXACT LOCATION OF SERVICE ENTRANCE WITH UTILITY COMPANY, AND OWNER.

ONE-LINE

DIAGRAM

GENERAL NOTES

3. ALL EXPOSED ENCLOSURES SHALL BE NEMA 4X 316 SS LUGGAGE LATCHES. 2. ALL ABOVE GRADE CONDUIT SHALL BE RIGID ALUMINUM OR PVC COATED ALUMINUM AS APPLICABLE. 1. ALL WORK SHALL COMPLY WITH NFPA 820 REGARDING HAZARDOUS CLASSIFICATION, GROUP AND DIVISION. QUICK-RELEASE

- 7. FLEXIBLE CONDUIT MAY BE USED ONLY FOR FINAL CONNECTION TO EQUIPMENT. (MAXIMUM LENGTH 6). ALL CIRCUIT HOME—RUNS SHALL BE MINIMUM OP SHALL COMPLY WITH NEC. CONTRACTOR IS RESPONSIBLE FOR NEC REQUIREMENT CLEARANCE ABOVE OF ALL ELECTRICAL EQUIP. (NEC 110.26) METALLIC ENCLOSURES SHALL ONLY BE USED ON INDOOR LOCATIONS. 2-#12, #12G., 3/4°C. VOLTAGE
- INSTALLATION OF WORK SHALL COMPLY WITH ALL AUTHORITIES HAVING JURISDICTION. MINIMUM 2-#12, 1-#12 GROUND, CONTRACTOR SHALL PROVIDE LAMPS FOR ALL LUMINARIES 3/4"
- 12. CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS NECESSARY TO INSURE A COMPLETE WORKING SYSTEM. AND EQUIPMENT
- 14. THESE PLANS ARE SCHEMATIC, VERIFY EQUIPMENT LOCATION AND CONDUIT ROUTING, ETC. PRIOR TO BID. 13. 15. CONTRACTOR SHALL PROVIDE PROPER CONDUIT SEAL AS APPLICABLE FOR TERMINATION. COORDINATE LOCATION OF ALL PANELS WITH OWNER.

12.

THE CONTRACTOR SHALL FURNISH AND PROVIDE TWO EXTRA FUSES OF EVERY SIZE AND TYPE USED, SHALL BE STORED AT THE LOCATION WHERE NEEDED.

ELECTRICAL NOTES

- THE CONTRACTOR SHALL COORDINATE UTILITY SERVICE WITH ELECTRIC COMPANY.
- THE CONTRACTOR SHALL FURNISH AND PROVIDE EXPLOSION PROOF, PHASE, 60 HZ. EACH 20 HP MOTORS (MAXIMUM).
- THE CONTRACTOR SHALL PROVIDE METER BASE (AS REQUIRED BY LOCAL UTILITY).
- THE CONTRACTOR SHALL COORDINATE ROUTING IN THE FIELD. ALL ELECTRICAL WORK SHALL CONFORM WITH NEC, NATIONAL, STATE, AND LOCAL CODES. THE CONTRACTOR SHALL CONDUIT FROM METER TO THE CONTRACTOR SHALL PROVIDE MAIN DISCONNECT (NEMA 4X SS-PROVIDE COPPER WIRING WITH GROUND IN SERVICE DISCONNECT TO CONTROL PANEL. 304).

6.

THE CONTRACTOR SHALL VERIFY VOLTAGE PRIOR TO PLACING ORDER PUMP MOTORS. FOR

7.

- THE CONTRACTOR SHALL FURNISH AND PROVIDE RUN TIME METER AND RUNLIGHT FOR EACH PUMP. THE CONTRACTOR SHALL FURNISH AND PROVIDE LIGHTNING ARRESTOR.
- THE CONTRACTOR SHALL FURNISH AND PROVIDE SEAL FAIL RELAYS PILOT LIGHT, MAIN CIRCUIT BREAKER, AND EMERGENCY RECEPTACLE. THE CONTRACTOR SHALL FURNISH AND PROVIDE CONTROL PANEL AND MAIN DISCONNECT SHALL BE SIZED ACCORDING TO NEC. 110 V RECEPTACLE INSIDE CONTROL PANEL. WTH

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ABRIDGED T.C.E.Q. NOTES

\$217.60. LIFT STATION, WET WELL, AND DRY WELL DESIGNS (A) PUMP CONTROLS.

LO;(6) ELECTRICAL EQUIPMENT AND ELECTRICAL CONNECTIONS IN A WET WELL OR A DRY WELL MUST MEET NATIONAL FIRE PREVENTION ASSOCIATION 70 NATIONAL ELECTRIC CODE EXPLOSION PREVENTION REQUIREMENTS, UNLESS CONTINUOUS VENTILATION IS PROVIDED.

- 3-PHASE, NEW UTILITY METER BY SYMBOL
- PROVIDE 10 FT GROUND ROD AND GROUND WIRE. 1/0 CONDUCTORS, FROM METER TO MAIN PANEL AT LIFT STATION SITE IN CONDUIT.
- SERVICE ENTRANCE RATED NEMA 4R DISCONNECT (3-PHASE).
- SERVIC WITH N COMPL CE ENTRANCE RATED MAIN PANEL, COPPER BUSSING, 3—PHASE, MINIMUM OF 2—3POLE UNUSED SPACES IN PANEL AT LETION OF CONSTRUCTION.
- SERVICE ENTRANCE RATED AUTOMATIC TRANSFER SWITCH, NEMASS, 3-PHASE. PROVIDE BONDING FROM METER TO MAIN PANEL.
- EMERGENCY GENERATOR.
- LIFT STATION PUMP CONTROL PANEL.
- MINI POWER ZONE (15KW)
- CONDUCTORS TO MINI POWER ZONE (IF REQUIRED) CONDUCTORS TO LIFT STATION PUMP CONTROL PANEL IN CONDUIT.

L13.5;(1) A LIFT STATION PUMP MUST OPERATE AUTOMATICALLY, BASED ON THE WATER LEVEL IN A WET WELL.

(2) THE LOCATION OF A WET WELL LEVEL MECHANISM MUST ENSURE THAT THE MECHANISM IS UNAFFECTED BY CURRENTS, RAGS, GREASE, OR OTHER FLOATING MATERIALS.

(3) A LEVEL MECHANISM MUST BE ACCESSIBLE WITHOUT ENTERING THE WET WELL.

(4) WET WELL CONTROLS WITH A BUBBLER SYSTEM REQUIRE DUAL AIR SUPPLY AND DUAL CONTROLS.

(5) MOTOR CONTROL CENTERS MUST BE MOUNTED AT LEAST 4.0 INCHES ABOVE GRADE TO PREVENT WATER INTRUSION AND CORROSION FROM STANDING WATER IN THE ENCLOSURE.

PROVIDED BY CITY ABRIDGED SPECIFICATIONS FOR SEWER STA TION CONTROL PANEL

CITY OF ROCKWALL, TEXAS SPECIFICATIONS FOR LIFT STATION CONTROL PANEL

GENERAL:

THE CONTROL SYSTEM SHALL BE DESIGNED TO OPERATE THE REQUIRED NUM
THE CONTROL FUNCTION SHALL PROVIDE FOR THE OPERATION OF THE PUMP
THE CONTROL SHALL FUNCTION AS DESCRIBED BELOW. THE EQUIPMENT LIST
REQUIRED. MBER OF PUMPS SPECIFIED ON THE DRAWING AT THE POWER CHARACTERISTICS SHOWN ON THE PLANS. IS IN HAND (MANUAL) AND AUTO (CONTROLLED BY PLC). SEE 124VAC REGULATOR SYSTEM? FOR FURTHER INFORMATION TO BELOW IS A GUIDE AND DOES NOT RELIEVE THE SUPPLIER FROM PROVIDING A SYSTEM THAT WILL FUNCTION AS

ENCLOSURE: THE ENCLOSURE SHALL BE A NEMA 4X RATED STAINLESS STEEL. THE ENCLOSURE SHALL BE A WALL MOUNT TYPE WITH A MINIMUM DEPTH OF 8? SIZED TO ADEQUATELY HOUSE ALL THE COMPONENTS. THE DOOR GASKET SHALL BE RUBBER COMPOSITION WITH A RETAINER TO ASSURE A POSITIVE WEATHERPROOF SEAL. THE DOOR SHALL OPERATE WITH A SINGLE ACTION HANDLE THATACCEPTS A 3/8? SHAFT PADLOCK AND OPENS A MINIMUM OF 180 DEGREES.

INNER DEAD FRONT DOOR:
A POLISHED ALUMINUM DEAD FRONT SHALL BE MOUNTED ON A CONTINUOUS AIRCRAFT TYPE HINGINTERNAL WIRING. CUTOUTS FOR BREAKER HANDLES SHALL BE PROVIDED TO ALLOW OPERATION CALLOWED FOR BREAKER OPERATION. ALL CONTROL SWITCHES, INDICATOR PILOT LIGHTS, ONE GENEFOR EXTERNAL SURFACE OF THE DEAD FRONT. THE DEAD FRONT SHALL OPEN A MINIMUM OF 150 AROUND THE PERIMETER OF THE DEAD FRONT TO PROVIDE RIGIDITY.

FINISHED PRIMER COAT AND TWO (2) COATS 유 BAKED WHITE ENAMEL.

BACK PLATE: THE BACK PLATE SHALL BE MANUFACTURED OF 12—GAUGE SHEET STEEL AND PERMANENTLY IDENTIFIED. POWER DISTRIBUTION: THE PANEL POWER DISTRIBUTION SHALL INCLUDE ALL NECESSARY COMPONENTS AND BE WITH STRANDED PER CONDUCTORS RATED AT MINIMUM 유 90 DEGREES

NO DOOR MOUNTED OPERATING MECHANISMS ALLOWED FOR BREAKER OPERA SYSTEM SHALL BE EQUIPPED WITH AN EMERGENCY GENERATOR WITH AN AUTINDICATE GENERATOR RUNNING, GENERATOR ALARM, AND GENERATOR LOW FLOR A STAND ALONE MANUAL DOUBLE THROW SAFETY SWITCH TO ALLOW HARD V N NOIL OMATIC TRANSFER о Т

SWITCHCAPABLE

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PROGRAMMABLE TEST DATES

AND

TIMES. INPUTS

SHALL BE

TO PLC

CIRCUIT BREAKERS:

ALL CIRCUIT BREAKERS SHALL BE HEAVY—DUTY THERMAL MAGNETIC OR MOTOR CIRCUIT PROTE
SIZED TO MEET THE PUMP MOTOR OPERATING CHARACTERISTICS AND SHALL HAVE A MINIMUM
CIRCUIT AND THE DUPLEX RECEPTACLES SHALL BE INDIVIDUALLY CONTROLLED BY HEAVY—DUT
CIRCUIT BREAKERS SHALL BE INDICATING TYPE, PROVIDING 30N—OFF—TRIP? POSITIONS OF THE
MIDDLE POSITION INDICATING 9TRIP?
THERMAL MAGNETIC BREAKERS SHALL BE QUICK—MADE AND QUICK—BREAK ON BOTH MANUAL
BIMETALLIC TRIPPING ELEMENTS SUPPLEMENTED BY A MAGNETIC TRIP. AND AUTOMATIC OPERATION AND HAVE INVERSE SQUARE D CAPACITY TIME CHARACTERISTICS AUTOMATICALLY, SECURED THE USE 읶

MOTOR STARTERS:

MOTOR STARTERS SHALL BE OPEN FRAME, ACROSS THE LINE; NEMA RATED THE FRONT OF THE STARTER WITHOUT BEING REMOVED FROM ITS MOUNTED ADJUSTMENT FOR TRIP CURRENT, PHASE LOSS AND UNBALANCE PROTECTION REMOTE RESET. OVERLOADS SHALL BE SIZED FOR THE FULL LOAD AMPERA CONTACTORS OR RELAYS SHALL NOT BE ACCEPTABLE. BREAKERS SHALL BE DESIGNED SO THAT AN OVERLOAD ON ONE POLE AUTO MATICALLY TRIPS AND OPENS FIELD

LIGHTNING-TRANSIENT PROTECTION: A LIGHTNING-TRANSIENT PROTECTOR WITH TELL-TALE WARNING LIGHTS ON E SOLID STATE WITH A RESPONSE TIME OF LESS THAN 5 NANOSECONDS WITHS CURRENTS. TRANSFORMERS: CONTROL TRANSFORMERS SHALL PROVIDE THE 120 VAC AND/OR 24 VAC FOR SHALL BE GROUNDED.

ACH PHASE TO INDICATE LOSS OF PROTECTION TANDING SURGE CAPACITY OF 6500 AMPERES.

ON THE INDIVIDUAL PHASES SHALL BE PROVIDED. THE DEVICE SHALL BE UNIT SHALL BE INSTANT RECOVERY, LONG LIFE AND HAVE NO HOLDOVER

PHASE MONITOR: A LINE VOLTAGE RATED, ADJUSTABLE PHASE MONITOR SHALL BE INSTALLED DE—ENERGIZE UPON SENSING ANY OF THE FAULTS AND SHALL AUTOMATICAL ALARM SYSTEM: THE ALARM LIGHT SHALL BE A WEATHERPROOF, SHATTERPROOF, RED LIGHT ALARM LEVEL. 근김 500 TO INDICATE OWER, REVERSED PHASING TO NORMAL POWER. ALARM AND 읶 SHALL CIRCUIT

THE ALARM LIGHT SHALL BE MOUNTED ON THE EXTERIOR OF THE CABINET. THE SHALL BE MOUNTED ON THE EXTERIOR OF THE CABINET AND DEACTIVATE THE AL SHALL BE PROVIDED TO PLC TO INDICATE HIGH WET WELL CONDITION. 24 VAC REGULATOR SYSTEM: THAN 90 DB AT 10 FEET. AN THE ALARM CONDITION CEASES ALARM SILENCE SWITCH TO EXIST.AN INPUT

SCADA: EQUIPMENT FOR SCADA SHALL BE KIMARK PART # TR-Y160-C50-P-ICC CONTROL CABINET COMPONENTS SHALL BE INSTALLED WHEN THE PANEL IS

PROGRAMMING SHALL BE INCLUDED IN PURCHASE PRICE OF THE ABOVE PARNEEDED INPUTS AND OUTPUTS FOR PLC PROGRAMING. CONTACT PHONE NUMBER FOR KIMARK IS 817— 416— 8881 SAUL SANCHEZ. EMAIL: SAUL@KIMARK.COM CONTACT THEM FOR PRICING AND EQUIPMENT SPECIFICATIONS FOR INSTALLA: В 품 CONTROL AND 9

WET WELL LEVELS SHALL BE SENSED BY A PRESSURE TRANSDUCER. FLOAT IN THE READ? READ? AND HIGH? LEVELS AS GIVEN ON THE PLANS. AS THE LEVET TO THE ROFF? POSITION. IN THE EVENT THE INCOMING FLOW EXCEED. THE WET WELL LEVEL CONTINUES TO RISE, HIGH WELL ALARM FUNCTIONS SH THE CONTROL SYSTEM SHALL PROVIDE FOR BOTH AUTOMATIC AND MANUAL 70 MAINTAIN A PUMPED DOWN CONDITION HIGH AND LOW LEVELS ONLY. THE TRANSDUCER SHALL SENSE DETERMINED BY THE ALTERNATOR, SHALL START AND PUMP 1 SHALL START AND BOTH PUMPS SHALL RUN TO THE OFF LEWHEN THE OFF LEVEL IS REACHED. 유 품 WET WELI

ANCILLARY EQUIPMENT: ALL INPUTS AND OUTPUTS SHALL BE WIRED TO A TERMINAL STRIP AT BOTTOM

RUN INDICATORS: RUNNING. HOA SWITCHES: ELAPSED TIME: ELAPSE TIME METER SHALL BE MOUNTED ON THE DEAD A THREE POSITION HOA SWITCH SHALL BE PROVIDED ON THE A RUN PILOT INDICATOR SHALL BE PROVIDED ON THE INT INNER DEAD SHALL PROVIDED PLC TO

UPS BACK UP SYSTEM: WILL PROVIDED120 VOLT POWER TO SCADA COMMUNICATION EQUIPMENT SHALL BE APC 650VA 120 VOLTOR EQUIVALENT. RECEPTACLES: ONE DUPLEX RECEPTACLE LOCATED ON INNER DEAD FRONT BY A 20 AMP BREAKER. A SECOND SINGLE RECEPTACLE SHALL BE LOCATED PROTECTED BY A SEPARATE 20 AMP BREAKER. CABINET TEMPERATURE CONTROL: THE CABINET SHALL BE EQUIPPED WITH A PANE DOOR FOR GENERAL PURPON THE BACK PANEL TO LOW VOLTAGE 킾S INSTALLED 20VOLI, BE 120 茾

MOTOR PROTECTION: A CONTROL AND STATUS MODULE SHALL SENSE EITHE ALARM.INPUTS SHALL BE PROVIDED TO PLC TO INDICATE PUMP FAIL, SEAL F THE SYSTEM MUST BE ABLE TO TRANSMIT ALL ALARMS AND WET WELL LEVE ALL AND TEMP FAIL INDIVIDUALLY WHEN ON BACKUP SEAL LEAKAGE, FOR EACH PUMP AND

PANEL RACKS: POSTS SUPPORTING RACKS SHALL BE 3? MINIMUM RIGID CONDUIT CAPPED AN MISCELLANEOUS:

PANELS SHALL HAVE ARAIN SHIELDSTRUCTUREUSING ¼? MINIMUM ALUMINUM PROVIDE LIGHTING MOUNTED ON STRUCTUREWITH SWITCH MOUNTED ON EXTER CONTACT CITY OF ROCKWALL AT 972-771-7730 FOR LOCATION OF EXIS BACKPLATE BEHIND PANEL AREA.

EACH PUMP MUST HAVE ITS OWN CONDUIT FOR POWER CORD AND A SE FOR ALL FLOAT WIRES

WET WELLS: WET WELL SHALL HAVE METAL SAFETY GRATES.

(1)

BACKFILL SAND

 \bigcirc

6" MIN.

TRANSITION UNDER CONCRETE

SLAB

TRANSITION

UNDER

EARTH

COVER

9

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6" MN.

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RIGID ALUMINUM CONDUIT SIZE AND TYPE AS REQUIRED EXTEND THIS CONDUIT A MINIMUM OF 6" INTO CONCRETE

CONDUIT TERMINATING IN AN ENCLOSURE CONTAINING A GROUND BUS SHALL HAVE A GROUNDING BUSHING WITH A GROUND WIRE TO THE GROUND BUS.

PVC COATED RIGID S.S. CONDUIT BENDS FOR PVC CONDUITS 2 INCH AND LARGER.

ADAPTOR FROM NON-METALLIC CONDUIT AS REQUIRED

6. 7.

PROTECT EXPOSED CONDUIT ENDS DURING CONSTRUCTION WITH PIPE PLUG OR CAPS. FUTURE AND SPARE CONDUIT ENDS SHALL HAVE PIPE PLUGS OR CAPS.

5

UNDERGROUND CONCRETE.

SPACERS SHALL BE JOHNS MANVILLE PLASTIC SPACERS OR EQUIVALENT. SPACED $5'\!-\!0''$ O.C.

COVER SHALL BE 2'-0" MINIMUM BELOW SOIL SURFACE AND 1'-0" MINIMUM BELOW CONCRETE SLABS, OR AS SHOWN ON PLANS.

UNDERGROUND CONDUIT SHALL BE ENCASED IN AN ENVELOPE OF

SEE DESIGN DRAWINGS FOR NUMBER AND SIZE OF CONDUITS. ALL UNDERGROUND CONDUITS SHALL BE PVC SCHEDULE 40 UNLESS OTHERWISE INDICATED ON THE PLANS.

CLASS 'C' CONCRETE.

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UNDERGROUND CONDUIT INSTALLATION DETAIL NO SCALE

ALL HATCHES SHALL HAVE ACCOMMODATIONS FOR LOCKING ABOVE GRA

CHECK VALVES SHALL BE OF THE SPRING TYPE.

LEVEL CONTROL SYSTEM SHALL USE A PRESSURE TRANSDUCER WITH BUILT DRAWINGS: CONTROL PANEL SCHEMATIC DRAWINGS SHALL BE SUBMITTED FOR FINAL CONTROL PANEL WIRE SCHEMATIC DRAWINGSINCLUDING A LIST OF ALL INSIDE OF THE FRONT DOOR OF THE CONTROL CABINET. A SECOND SET SHA MARKINGS: ALL COMPONENT PARTS IN THE CONTROL PANEL SHALL ADJACENT TO THE COMPONENT. ALL CONTROL CONDUCTORS SHALL I SURGE PROTECTION PLANS.

ROCKWALL WASTEWATER DEPARTMENT. OPERATIONWITH 욲 AND ICATED ON THE LEVEL **FLOATS**

PANEL WIRING: GUARANTEE: ALL EQUIPMENT SHALL BE GUARANTEED FOR A PERIOD OF THAND/OR DEFECTIVE COMPONENTS. THE WARRANTY IS LIMITED TO REPLACEM TESTING: ALL PANELS SHALL BE TESTED TO THE POWER REQUIREMENTS AS ACTIVATED TO CHECK FOR PROPER OPERATION AND INDICATION. ALL WIRING IN PANEL SHALL MAINTAIN A MINIMUM OF 11/2? FROM DATE OF ACCEPTANCE.

OF THE DEFECTIVE EQUIPMENT GUARANTEE IS **EFFECTIVE**

> REVIEW 2014-12-10 T.D.T. M.L.H. CITY OF ROCKWALL, ROCKWALL COUNTY, TEXAS

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