

**GENERAL**

- ALL CONSTRUCTION AND MATERIALS SHALL COMPLY WITH THE CITY OF MARGATE "MINIMUM DESIGN AND CONSTRUCTION STANDARDS" AND APPLICABLE LOCAL AND NATIONAL CODES.
- MINIMUM REQUIREMENTS FOR PRODUCTS USED IN THE CITY OF MARGATE DISTRIBUTION AND COLLECTION SYSTEMS ARE DEFINED IN "PRODUCT SPECIFICATION SHEETS".
- FOR ALL WATER & WASTEWATER "MINIMUM DESIGN AND CONSTRUCTION STANDARDS" AND "PRODUCT SPECIFICATION SHEETS" REFER TO THE CITY DETAILS.
- EVERY MATERIAL, ARTICLE OR PIECE OF EQUIPMENT IS IDENTIFIED IN THE PROJECT MANUAL INCLUDING DRAWINGS (PLANS) AND SPECIFICATIONS BY REFERENCE TO MANUFACTURER'S OR VENDOR'S NAME, TRADE NAMES, CATALOG NUMBERS, OR OTHERWISE, IT IS INTENDED MERELY TO ESTABLISH A STANDARD, AND UNLESS IT IS FOLLOWED BY WORDS INDICATING THAT NO SUBSTITUTION IS PERMITTED, ANY MATERIAL, ARTICLE, OR EQUIPMENT OF OTHER MANUFACTURERS AND VENDORS WHICH WILL PERFORM OR SERVE THE REQUIREMENTS OF THE GENERAL DESIGN WILL BE CONSIDERED EQUALY ACCEPTABLE, PROVIDED THE MATERIAL, ARTICLE OR EQUIPMENT SO PROPOSED IS, IN THE OPINION OF THE THE CITY, EQUAL IN SUBSTANCE, QUALITY, AND FUNCTION.
- THE CONTRACTOR SHALL OBTAIN ALL NECESSARY PERMITS TO COMPLETE THE WORK AS SPECIFIED.
- IF APPLICABLE THE CONTRACTOR SHALL SUPPLY ALL LABOR AND EQUIPMENT NECESSARY TO BY-PASS THE LIFT STATION DURING CONSTRUCTION AND MAINTAIN SAID BYPASS FOR THE DURATION OF ITS USE.
- COMPLIANCE TO "TRENCH SAFETY ACT" IS REQUIRED FOR ALL EXCAVATIONS IN EXCESS OF 5 FEET DEEP. CONTRACTOR SHALL COMPLY WITH THE U.S. DEPARTMENT OF LABOR OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATIONS STANDARDS OSHA 29 CFR 1910.146, 'PERMIT-REQUIRED CONFINED SPACES' AND OSHA 29 CFR 1926, 'SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION.'
- PRIOR TO CONSTRUCTION THE CONTRACTOR SHALL NOTIFY: SUNSHINE STATE 1 CALL ..... 811 CITY OF MARGATE DEES ..... (954)-972-0828
- THE CONTRACTOR SHALL ATTACH PUMP GUIDE RAILS AS PER MANUFACTURER'S RECOMMENDATIONS.
- ALL VALVES ARE TO BE TAGGED, STATING TYPE OF VALVE AND NUMBER OF TURNS TO OPERATE. IF THE VALVE IS BURIED, A BRASS PLATE WILL BE CAST IN THE CONCRETE APRON AROUND THE VALVE COVER. IF THE VALVE IS LOCATED IN A PIT, THE TAG SHALL BE HUNG FROM THE VALVE WITH A PLASTIC STRAP.
- ALL VALVE BOXES SHALL HAVE LOCKING LIDS.
- HDPE, PVC, AND DUCTILE IRON PIPE AND FITTINGS SHALL CONFORM TO THE CITY PRODUCT SPECIFICATION SHEETS.
- ALL JOINTS SHALL BE RESTRAINED IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS AND IN COMPLIANCE WITH AWWA STANDARDS.
- COMPLETE "AS-BUILT" INFORMATION RELATIVE TO VALVES, FITTINGS, LENGTH OF PIPE AND THE LIKE, SHALL BE ACCURATELY RECORDED BY THE CONTRACTOR AND SUBMITTED TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE OF THE WORK. ALL ELEVATIONS SHALL BE TAKEN BY AN INDEPENDENT REGISTERED LAND SURVEYOR OR PROFESSIONAL SURVEYOR AND MAPPER AND INCLUDED IN THE "AS-BUILT" INFORMATION FURNISHED BY THE CONTRACTOR. FINAL APPROVAL OF THE PROJECT IS SUBJECT TO THE FINAL REVIEW AND APPROVAL OF THE "AS-BUILT" INFORMATION FURNISHED TO THE REGULATORY AGENCIES AND THE CITY.
- ALL ELEVATIONS SHOWN ON THE CONSTRUCTION DRAWINGS ARE BASED ON THE NORTH AMERICAN VERTICAL DATUM OF 1988, (N.A.V.D. 88), HORIZONTAL DATUM NAD83 (HARN) FLORIDA EAST (0901) - US FOOT, UNLESS OTHERWISE NOTED.
- CONTRACTOR SHALL PROVIDE AN IDENTIFICATION SIGN AS SHOWN. SIGN SHALL BE PERMANENTLY ATTACHED TO THE FENCE, IF AVAILABLE, OR CONTROL PANEL WHERE VISIBLE FROM THE STREET. LIFT STATION IDENTIFICATION NUMBER TO BE UPDATED BASED ON THE PROJECT.

**LIFT STATION**

1

In case of emergency call 954-972-0828

\*LIFT STATION TO BE NUMBERED 1-56 (EXCLUDE 16)

**SIGN DETAIL**

NTS

- ENGINEER SHALL PROVIDE FLOATATION CALCULATIONS FOR EACH STRUCTURE TO BE CONSTRUCTED.

**PUMPS AND CONTROL PANEL**

- PUMPS AND ALL APPURTENANCES REQUIRED TO MAKE A COMPLETE AND OPERATING SYSTEM SHALL BE FURNISHED AND INSTALLED BY THE CONTRACTOR. PUMPS WILL TO BE SUPPLIED WITH 60 FT CABLES, REFER TO THE CITY "LIFT STATION STANDARD PUMPS".
- CONTROL PANEL, CONNECTION PANEL AND TRANSFER SWITCH WITH LOUVERED ENCLOSURE ARE TO BE PROVIDED BY THE CONTRACTOR AND MANUFACTURED BY CHAMPION CONTROLS INC. TO THE CITY SPECIFICATIONS (NO SUBSTITUTION).

CITY OF MARGATE, FLORIDA  
DEPARTMENT OF ENVIRONMENTAL  
AND ENGINEERING SERVICES

DATE: 08/24

DRAWN: KHA

**PUMP STATION NOTES**

M-9

**CAST-IN-PLACE CONCRETE**

- ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH FLORIDA BUILDING CODE (FBC), AMERICAN CONCRETE INSTITUTE (ACI) 318 AND THE CONTRACT SPECIFICATIONS.
- COMPLETE ENGINEERING AND PRODUCT DATA SHALL BE SUBMITTED TO THE ENGINEER ON ALL ADMIXTURES, CURING COMPOUNDS, HARDENERS, SEALERS, REINFORCING STEEL AND WATER STOPS IN ACCORDANCE WITH THE SPECIFICATIONS.
- REINFORCEMENT STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-615.
- CONCRETE COVER FOR STEEL REINFORCEMENT SHALL BE AS SPECIFIED ON ACI 318.
- PIPES, INSERTS, AND OTHER METAL OBJECTS SHOWN SHALL BE BUILT INTO, SET IN, OR ATTACHED TO THE CONCRETE. ALL REQUIRED HOLES SHALL BE CAST AT TIME OF CONSTRUCTION.
- ALL CAST-IN-PLACE CONCRETE SHALL BE ACCURATELY FORMED AND PROPERLY PLACED AND FINISHED AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN.
- CONCRETE SHALL BE EITHER CLASS A OR CLASS B, AS INDICATED ON THE DRAWINGS OR SPECIFIED IN THESE SPECIFICATIONS. IN GENERAL CLASS A CONCRETE SHALL BE USED FOR REINFORCED CONCRETE CAST-IN-PLACE IN FORMS FOR SLABS, FOOTINGS, FOUNDATIONS, MAINTENANCE ACCESS STRUCTURES AND SIMILAR REINFORCED CONCRETE STRUCTURES COMING UNDER THE SCOPE OF ACI 318. CLASS B CONCRETE SHALL BE PLAIN CONCRETE AND SHALL BE USED FOR PIPE CRADLES, PIPE AND CONDUIT ENCASEMENT, BEDDING, GRADE CORRECTION, ANCHORS, COLLARS, THRUST BLOCKS, MASSIVE SECTIONS AND OTHER NON-REINFORCED CONCRETE.
- CONCRETE INGREDIENTS SHALL BE SELECTED, PROPORTIONED, AND MIXED IN SUCH A MANNER AS WILL PRODUCE A WATERTIGHT DURABLE CONCRETE THAT WILL DEVELOP THE FOLLOWING MINIMUM COMPRESSIVE STRENGTHS AT AN AGE OF 28 DAYS WHEN SAMPLED, CURED AND TESTED IN ACCORDANCE WITH THE PROCEDURES SPECIFIED IN ASTM C 31 AND C 39:

CLASS OF CONCRETE	AGE	AVERAGE OF THREE CONSECUTIVE SPECIMENS	MINIMUM ANY ONE SPECIMEN
A	28 DAYS	4,000 PSI	3,500 PSI
B	28 DAYS	3,000 PSI	2,500 PSI

**FINISHING UNFORMED SURFACES**

- NO SURFACE TREATMENT WILL BE REQUIRED FOR BURIED CONCRETE NOT FORMING AN INTEGRAL PART OF STRUCTURE EXCEPT THAT REQUIRED TO OBTAIN THE SURFACE ELEVATIONS OR CONTOURS AND SURFACES FREE OF LAITANCE. THE UNFORMED SURFACES OF ALL OTHER CONCRETE SHALL BE SCREEDED AND GIVEN AN INITIAL FLOAT FINISH FOLLOWED BY ADDITIONAL FLOATING FOLLOWED BY TROWELING WHERE REQUIRED. CARE SHALL BE TAKEN THAT NO EXCESS WATER IS PRESENT WHEN THE FINISH IS MADE. NO SPECIAL CONCRETE OR CEMENT MORTAR TOPPING COURSE SHALL BE USED UNLESS SO SHOWN ON THE DRAWING.
- SCREEDING: SCREEDING SHALL PROVIDE A CONCRETE SURFACE CONFORMING TO THE PROPER ELEVATION AND CONTOUR WITH ALL AGGREGATES COMPLETELY EMBEDDED IN MORTAR. ALL SCREED SURFACES SHALL BE FREE OF SURFACE IRRREGULARITIES WITH A HEIGHT OR DEPTH IN EXCESS OF 1/4 INCH AS MEASURED FROM A 10-FOOT STRAIGHT EDGE.
- FLOATING: SCREEDED SURFACES SHALL BE GIVEN AN INITIAL FLOAT FINISH AS SOON AS THE CONCRETE HAS STIFFENED SUFFICIENTLY FOR PROPER WORKING. INITIAL FLOATING SHALL BE FOLLOWED BY A SECOND FLOATING AT THE TIME OF INITIAL SET. THE SECOND FLOATING SHALL PRODUCE A FINISH OF UNIFORM TEXTURE AND COLOR. UNLESS ADDITIONAL FINISHING IS SPECIFICALLY REQUIRED, THE COMPLETED FINISH FOR UNFORMED SURFACES SHALL BE THE FLOAT FINISH PRODUCED BY THE SECOND FLOATING.
- BROOMING: SURFACES OF EQUIPMENT BASES AND SLABS ON GRADE SHALL BE GIVEN A LIGHT BROOM FINISH PROVIDING A NONSLIP SURFACE. BROOMING SHALL BE DONE AFTER THE SECOND FLOATING AND FOR TRAFFIC AREAS SHALL BE AT RIGHT ANGLES TO THE NORMAL TRAFFIC DIRECTION.
- EDGING: ALL PERMANENTLY EXPOSED EDGES OF UNFORMED SURFACES SHALL BE CHAMFERED WITH A 3/4 INCH APPROVED EDGING TOOL UNLESS OTHER EDGE TREATMENT IS INDICATED ON THE DRAWINGS.
- CURING: ALL CONCRETE SHALL BE PROTECTED FROM LOSS OF MOISTURE BY CURING FOR AT LEAST 14 DAYS FOLLOWING PLACEMENT. CURING OPERATIONS SHALL TAKE PLACE IMMEDIATELY AFTER CONCRETE FINISHING IS COMPLETE OR FORMS ARE REMOVED. BREAKING OF FORM TIES OR OTHERWISE BREAKING THE SEAL BETWEEN THE CONCRETE SURFACE AND THE FORM SHALL BE CONSIDERED FORM REMOVAL.

**PRE-CAST CONCRETE**

- WALL AND SLAB THICKNESSES SHOWN ON THESE STANDARDS ARE MINIMUMS. MANUFACTURER IS SOLELY RESPONSIBLE FOR STRUCTURAL DESIGN.
- PRE-CAST UNITS SHALL CONFORM TO THE REQUIREMENTS OF ASTM C-478
- LIFTING HOLES THROUGH THE STRUCTURE ARE NOT PERMITTED
- THE BOTTOM SLAB SHALL BE CAST MONOLITHICALLY WITH THE LOWER WALL SECTION
- ALL STRUCTURES SHALL BE DESIGNED TO SUPPORT AN H-20 WHEEL LOADING
- COMPLETE ENGINEERING AND PRODUCT DATA, SHALL BE SUBMITTED TO THE ENGINEER.

**ACCESS HATCH**

- EACH HATCH SHALL BE DESIGNED ACCORDING TO THE OPENINGS SHOWN ON THE DRAWINGS. THE ALUMINUM ACCESS FRAMES SHALL BE MANUFACTURED FROM 1/4-INCH THICK, EXTRUDED 6063-T5 ALUMINUM.
- THE FRAME SHALL BE DRAINABLE WITH A 1 1/2-INCH THREADED DRAIN COUPLING LOCATED ON CORNER FRAME.
- THE DOOR PANELS SHALL CLOSE FLUSH AND SHALL BE 1/4-INCH THICK 5086-H34 ALUMINUM DIAMOND (CHECKER) PLATE REINFORCED FOR AASHTO H-20-44 WHEEL LOADS.
- REMOVABLE ALUMINUM CROSS-BEAMS SHALL BE PROVIDED BY THE HATCH SUPPLIER AS REQUIRED TO ACCOMPLISH THE STATED LOADING.
- THE DOORS SHALL HAVE HEAVY DUTY STAINLESS STEEL BUTT HINGES WITH TAMPER-PROOF FASTENERS.
- ALL HARDWARE SHALL BE MADE OF TYPE 316 STAINLESS STEEL.
- EACH DOOR SHALL HAVE SPRING OPERATORS, SUCH THAT THE MAXIMUM LIFTING EFFORT IS LESS THAN 25 POUNDS.
- THE HATCH SUPPLIER SHALL PROVIDE THE NUMBER OF SPRING OPERATORS AS REQUIRED TO ACCOMPLISH THE MAXIMUM LIFTING REQUIREMENT.
- EACH DOOR SHALL OPEN TO 90 DEGREE AND LOCK AUTOMATICALLY WITH A STAINLESS STEEL, POSITIVE LOCKING ARM AND A STAINLESS STEEL RELEASE HANDLE.

- EACH DOOR SHALL HAVE A RECESSED STAINLESS STEEL LIFTING HANDLE AND RECESSED OVERSIZED PADLOCK BOX.
- THE HATCH SHALL BE PROVIDED WITH A TYPE 316 STAINLESS STEEL SLAM-LOCK WITH A REMOVABLE HANDLE.

- ALL ACCESS DOORS SHALL BE DESIGNED WITH A NEOPRENE GASKET ON THE INSIDE UP OF THE FRAME PERIMETER, TO FORM AN ESSENTIALLY AIR-TIGHT SEAL.
- ALL ACCESS DOORS SHALL BE EQUIPPED WITH A MINIMUM OF FOUR (4) STAINLESS STEEL CARRIAGE BOLTS WITH WELDED NUTS TO SECURE THE DOORS IN THE DOWN POSITION. BOLTS SHALL BE PER THE MANUFACTURER'S RECOMMENDATION.

**WETWELL REHABILITATION**

- SURFACE PREPARATION
  - ANY LOOSE, UNSOUND, OR CRACKED BRICK OR CONCRETE SHALL BE CHISELED OR HAMMERED OUT.
  - ALL SURFACES TO RECEIVE EITHER THE ONE COMPONENT REINFORCED MORTAR OR EPOXY LINING SHALL BE STRUCTURALLY SOUND AND SHALL BE CLEANED TO REMOVE LAITANCE, GREASE, LOOSE MORTAR, PAINT OR OTHER SURFACE CONTAMINANTS USING SAND BLASTING, HYDRO-GRIT BLASTING AT 3,500 PSI MINIMUM OR OTHER MECHANICAL SCARIFICATION TECHNIQUES APPROVED BY THE ENGINEER.
  - SURFACE SHALL BE TESTED BY THE CONTRACTOR, IN THE PRESENCE OF THE ENGINEER, USING A SURFACE pH TESTER EQUAL TO INSTA-CHECK SURFACE pH PENCIL AS MANUFACTURED BY PHDRION. SURFACE SHALL INDICATE A pH=7.0 OR GREATER.
  - ALL ACTIVE LEAKS IN THE STRUCTURE SHALL BE STOPPED USING CHEMICAL GROUTING AND HYDRAULIC CEMENT.
  - ALL CRACKS, VOIDS AND REMOVED STEP HOLES SHALL BE FILLED USING A WATER RESISTANT FAST-SETTING CEMENT PATCH.
- REBUILDING CONCRETE SURFACES
  - THE CONCRETE SHALL BE RETURNED TO ITS ORIGINAL WALL THICKNESS USING A ONE COMPONENT MORTAR, MINIMUM INSTALLED THICKNESS SHALL BE 1/2".
  - ONE COMPONENT REINFORCED WET MORTAR: THE ONE COMPONENT MORTAR SHALL BE MICROSLICA ENHANCED, FIBER REINFORCED AND BE DESIGNED FOR CORROSIVE ENVIRONMENTS WITH A pH=2.0 OR HIGHER. REINFORCED MORTAR SHALL HAVE THE FOLLOWING MINIMUM PHYSICAL PROPERTIES:
    - FLEXURAL STRENGTH 1000 PSI @ 28 DAYS ASTM C78-84
    - COMPRESSIVE STRENGTH 9000 PSI @ 28 DAYS ASTM C109-92
    - DENSITY (WET): 130 LB/CU. FT. ASTM C138-92
    - SPLITTING TENSILE STRENGTH: 700 PSI @ 28 DAYS ASTM C496-90
    - SLANT SHEAR BOND STRENGTH: 2250PSI @ 28 DAYS ASTM C882-91
    - SULFATE RESISTANCE WEIGHTLOSS PH 1.0 <97% ASTM C-267 84 DAY IMMERSION PH 2.0 <30% PH 3.0 <18%

**COLOR CODING:**

- SINGLE PHASE 120/240V-BLACK, WHITE, AND RED.
- THREE PHASE 120/240V 4 WIRE-HI LEG CENTER AND ORANGE, WHENEVER NEUTRAL IS PRESENT, IN THE ABSENCE OF NEUTRAL, THEY WILL BE MARKED BLACK, RED, AND BLUE AND/OR A-B-C. WILL CONSTITUTE CLOCKWISE ROTATION OF ALL 3-PHASE MOTORS.
- 120/208V, 4 WIRE, THREE PHASE SHALL BE BLACK, WHITE, RED, AND BLUE WHERE THE NEUTRAL IS PRESENT. IF THE NEUTRAL IS ABSENT, BLACK, RED, AND BLUE AND/OR A-B-C WILL CONSTITUTE CLOCKWISE ROTATION OF ALL THREE PHASE MOTORS, THIS IS TO ASSURE PHASE RELATION THROUGHOUT THE SYSTEM.
- 277/480V, 4-WIRE-BROWN, ORANGE, YELLOW AND WHITE WHEN THE NEUTRAL IS PRESENT. IF THE NEUTRAL IS ABSENT, A-B-C WILL CONSTITUTE CLOCKWISE ROTATION OF ALL THREE PHASE MOTORS. THIS IS TO ASSURE PHASE RELATION THROUGHOUT THE SYSTEM.
- FABRICATE ANTENNA MAST FROM A 21 FOOT LENGTH OF 24" DIAMETER SCHEDULE 40 ALUMINUM PIPE. PAINT LOWER THREE (3) FEET WITH ASPHALTUM PAINT, CAP THE TOP OF PIPE.
- RUN 3/4 INCH RIGID ALUMINUM CONDUIT UP THE MAST FOR THE ANTENNA CABLE TO WITHIN 16 INCHES OF THE TOP. RUN SECOND 3/4 INCH CONDUIT UP THE MAST FOR ALARM AND FLOOD LIGHTS AS SHOWN. USE STAINLESS STEEL UNISTRUT AND CLAMPS TO HOLD CONDUITS TO THE MAST.
- MOUNT FLOOD LIGHT AND FLASHING RED LIGHT ON THE ANTENNA MAST AT TEN (10) FEET AND EIGHT (8) FEET ABOVE GRADE.

- TEST PUMPS AS FOLLOWS:
  - A. TECHNICIAN MUST BE PRESENT TO CONDUCT TESTS.
  - B. MEGGER MOTORS, MOTORS SHALL BE 20 MEGOHMS OR MORE TO GROUND, DO NOT MEGGER LOW VOLTAGE CONTROLS.
  - C. CHECK VOLTAGE, CHECK PUMP ROTATION, RECORD VOLTAGE AND AMPS UNDER LOAD.
  - D. DEMONSTRATE PROPER OPERATION OF ALL CONTROLS.
  - E. CONDUCT DRAWDOWN TESTS AS REQUIRED.
  - F. CHECK OPERATION WITH OWNER'S PORTABLE GENERATOR AND CHANGE WIRE CONNECTIONS IN THE PANEL TO GIVE CORRECT ROTATION.

WHERE CONFLICTS EXIST BETWEEN THESE NOTES AND THE CITY "MINIMUM DESIGN AND CONSTRUCTION STANDARDS", THE MINIMUM STANDARDS WILL GOVERN.

- ALL CONTROL CIRCUIT WIRES SHALL BE TERMINATED WITH FORK TYPE CRIMP-ON CONNECTORS AND SHALL HAVE AN ADJACENT HEAT SHRINK NUMBER, CORRESPONDING EACH CONNECTOR WITH NUMBERS AS INDICATED ON THE SCHEMATIC. NO CONCEALED WIRING SHALL BE PERMITTED BEHIND THE SUB PANEL.
- EVERY DEVICE IN THE CONTROL CIRCUIT SHALL BE IDENTIFIED WITH THE PROPER CONTROL CIRCUIT ABBREVIATION AS SHOWN IN THE TABLE AND ON THE SCHEMATIC.
- FROM THE REAR SIDE OF THE DEAD FRONT HINGED PANEL, ALL WIRES SHALL BE NEATLY LACED TOGETHER INTO A HARNESS AND TERMINATED INTO A TERMINAL STRIP.
- DRIVEN GROUND ROD WHICH DOES NOT HAVE A RESISTANCE TO GROUND OF 10 OHMS OR LESS SHALL BE AUGMENTED UNTIL THE RESISTANCE TO GROUND IS 10 OHMS OR LESS. LIGHTENING ARRESTER LEADS TO BE ATTACHED TO THE MCB AS PER MOST RECENT NEC ARTICLE # 280.
- ALL BRANCH CIRCUITS SHALL HAVE PROPER SIZE WIRING.
- WHEN CONNECTIONS ARE COMPLETE IN THE CONNECTION BOX, COAT THE TERMINAL BLOCKS AND WIRE ENDS WITH PROTECTIVE COMPOUND, NO-OXIDE OR EQUAL, TO PREVENT CORROSION.
- SCHEMATIC DRAWINGS SHALL BE PLACED IN STATION ARE TO BE ENCASED BETWEEN TWO PIECES OF 3/16" PLEXIGLASS.
- ELECTRICAL SERVICE SHALL BE A MINIMUM OF 100 AMPS OF # 1 THWN STRANDED COPPER WIRE IN RIGID ALUMINUM CONDUIT-MINIMUM SIZE = 1 1/2". INTERMEDIATE METAL CONDUIT UNACCEPTABLE.
- UNDERGROUND SERVICE PULL BOXES ARE TO BE INSTALLED AT EACH 250 FEET OF SERVICE PULL VOLTAGE DROP TO BE LIMITED TO A MAXIMUM OF 3 PERCENT DROP.
- BUBBLER TUBING SHALL BE CLEAR, 1/4" TYGON (OR APPROVED EQUAL).
- TUBING FITTINGS SHALL BE SWAGELOK BRASS FITTINGS (OR APPROVED EQUAL).

- COLOR CODING:
  - SINGLE PHASE 120/240V-BLACK, WHITE, AND RED.
  - THREE PHASE 120/240V 4 WIRE-HI LEG CENTER AND ORANGE, WHENEVER NEUTRAL IS PRESENT, IN THE ABSENCE OF NEUTRAL, THEY WILL BE MARKED BLACK, RED, AND BLUE AND/OR A-B-C. WILL CONSTITUTE CLOCKWISE ROTATION OF ALL 3-PHASE MOTORS.
  - 120/208V, 4 WIRE, THREE PHASE SHALL BE BLACK, WHITE, RED, AND BLUE WHERE THE NEUTRAL IS PRESENT. IF THE NEUTRAL IS ABSENT, BLACK, RED, AND BLUE AND/OR A-B-C WILL CONSTITUTE CLOCKWISE ROTATION OF ALL THREE PHASE MOTORS, THIS IS TO ASSURE PHASE RELATION THROUGHOUT THE SYSTEM.
  - 277/480V, 4-WIRE-BROWN, ORANGE, YELLOW AND WHITE WHEN THE NEUTRAL IS PRESENT. IF THE NEUTRAL IS ABSENT, A-B-C WILL CONSTITUTE CLOCKWISE ROTATION OF ALL THREE PHASE MOTORS. THIS IS TO ASSURE PHASE RELATION THROUGHOUT THE SYSTEM.
  - FABRICATE ANTENNA MAST FROM A 21 FOOT LENGTH OF 24" DIAMETER SCHEDULE 40 ALUMINUM PIPE. PAINT LOWER THREE (3) FEET WITH ASPHALTUM PAINT, CAP THE TOP OF PIPE.
  - RUN 3/4 INCH RIGID ALUMINUM CONDUIT UP THE MAST FOR THE ANTENNA CABLE TO WITHIN 16 INCHES OF THE TOP. RUN SECOND 3/4 INCH CONDUIT UP THE MAST FOR ALARM AND FLOOD LIGHTS AS SHOWN. USE STAINLESS STEEL UNISTRUT AND CLAMPS TO HOLD CONDUITS TO THE MAST.
  - MOUNT FLOOD LIGHT AND FLASHING RED LIGHT ON THE ANTENNA MAST AT TEN (10) FEET AND EIGHT (8) FEET ABOVE GRADE.

- TEST PUMPS AS FOLLOWS:
  - A. TECHNICIAN MUST BE PRESENT TO CONDUCT TESTS.
  - B. MEGGER MOTORS, MOTORS SHALL BE 20 MEGOHMS OR MORE TO GROUND, DO NOT MEGGER LOW VOLTAGE CONTROLS.
  - C. CHECK VOLTAGE, CHECK PUMP ROTATION, RECORD VOLTAGE AND AMPS UNDER LOAD.
  - D. DEMONSTRATE PROPER OPERATION OF ALL CONTROLS.
  - E. CONDUCT DRAWDOWN TESTS AS REQUIRED.
  - F. CHECK OPERATION WITH OWNER'S PORTABLE GENERATOR AND CHANGE WIRE CONNECTIONS IN THE PANEL TO GIVE CORRECT ROTATION.

- ELECTRICAL NOTES:
  - CONTROL PANEL: ELECTRICAL SYSTEM SHALL BE COMPLETELY AND EFFECTIVELY GROUNDED AS REQUIRED BY NEC.
  - ALL ELECTRICAL INSTALLATIONS SHALL BE IN ACCORDANCE WITH THE NEC AND SHALL COMPLY WITH ALL NATIONAL AND LOCAL RULES, ORDINANCES, AND CODES AT TIME OF INSTALLATION.
  - ALL SERVICE CONDUCTORS SHALL BE STRANDED COPPER TYPE THWN.
  - ALL ENCLOSURES SHALL BE 316 STAINLESS STEEL WATERTIGHT NEMA 3R RIGHT SIDE OPENING. ALL MOUNTING HARDWARE MUST BE 316 SST.
  - USE T & B CORROSION RESISTANT-LIQUIDTIGHT-STRAIN RELIEF THERMO-PLASTIC FLEXIBLE CORD & CABLE CONNECTOR ON THE INSIDE OF THE TOP CONNECTION PANEL TO FIT APPROPRIATE CABLE SIZE. TRANSFER SWITCH MAY BE MOUNTED ON EITHER END BUT GENERATOR RECEPTACLE MUST BE ON OUTSIDE. (STATE LEFT OR RIGHT SIDE GEN. RECEPT. WHEN ORDERING.)
  - ALL PUMP MOTORS SHALL BE 3 PHASE. WHEN THE LOCAL POWER COMPANY CANNOT PROVIDE 3 PHASE POWER TO THE STATION, A "ROTOPHASE" PHASE CONVERTER SHALL BE SUPPLIED TO PROVIDE 3 PHASE POWER TO THE STATION.