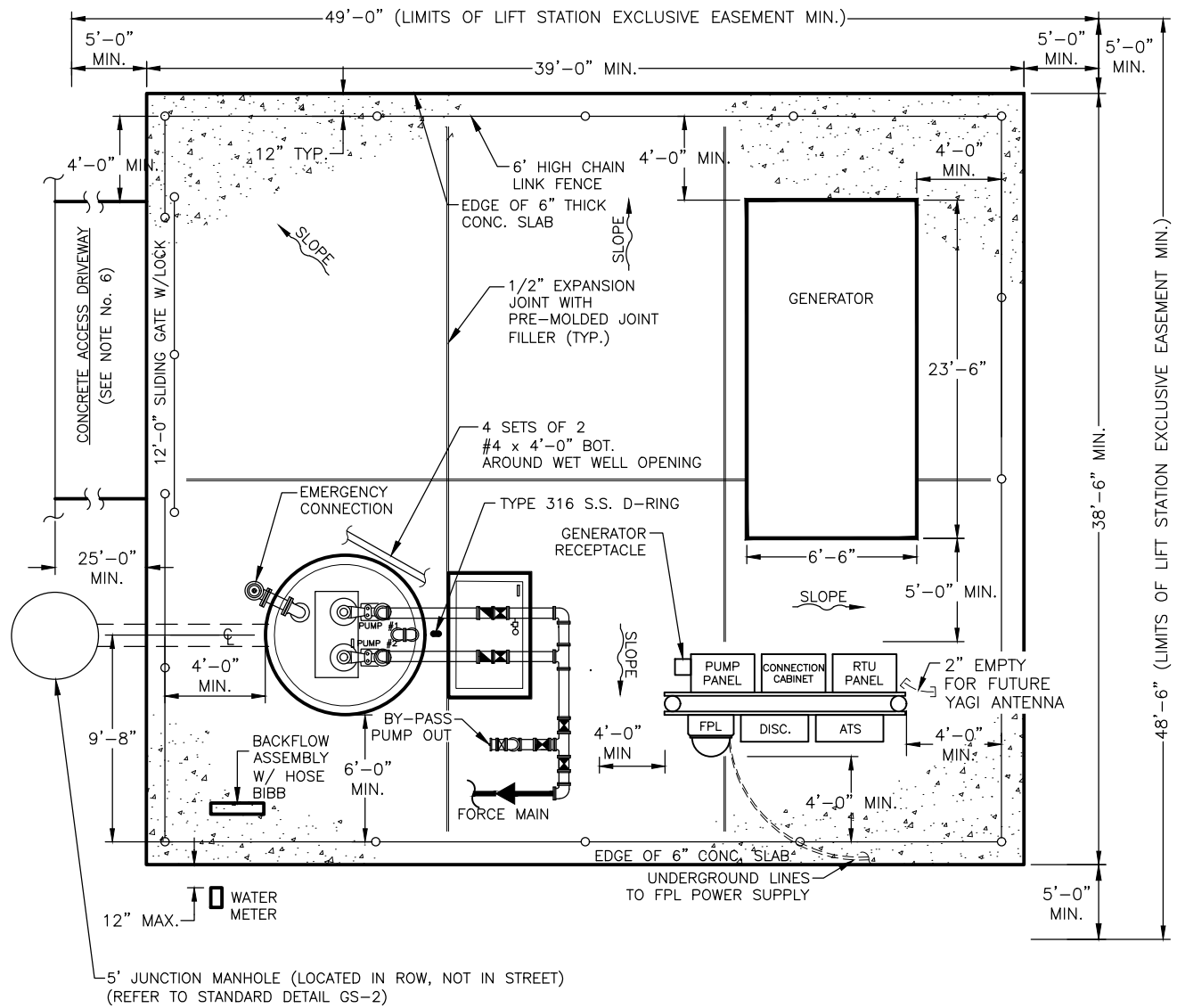


1. CHAIN LINK FENCE W/ ALL PARTS, INCLUDING POSTS & HARDWARE TO BE THERMALLY FUSED VINYL COATING OVER GALVANIZED STEEL. POSTS TO BE CORED AND GROUTED INTO CONCRETE. FABRIC TO BE KNUCKLED TOP & BOTTOM.
2. INDICATED LIMITS OF LIFT STATION EASEMENT AND SITE DIMENSIONS ARE MINIMUM, SUBJECT TO ACTUAL WET WELL, PIPE SIZES & EQUIPMENT. EXCEPTIONS MAY BE GRANTED BY THE CITY ON A CASE BY CASE BASIS.
3. ACCESS DOORS TO WET WELL TO BE CHECKERED PLATE ALUMINUM, WITH RECESSED HANDLES AND 316 STAINLESS STEEL HARDWARE AS SPECIFIED ON APPROVED MATERIALS LIST.
4. SLAB AND WET WELL CONCRETE SHALL BE MIN. TYPE II REINFORCED, 4,000 PSI.
5. STEEL FOR CONCRETE SLAB #4 @ 12" O.C.E.W. & 4 SETS OF (2)#4 @ 4'-0" AROUND WET WELL.
6. DRIVEWAY APPROACH SHALL BE 25' LENGTH MINIMUM TO ALLOW A CITY SERVICE TRUCK TO PARK COMPLETELY OUT OF THE TRAFFIC LANES PRIOR TO OPENING THE GATE & TO ENTER THE STATION PROPERLY.
7. PUMP CONTROL PANEL SHOULD FACE NORTH (NOT SOUTH) WHERE FEASIBLE. PROVIDE SUN SHIELDS ON TOP, FRONT, REAR AND SIDES OF THE CONTROL PANEL ENCLOSURE.
8. TOP OF WET WELL AND ALL ELECTRICAL COMPONENTS, PANELS AND JUNCTION BOXES SHALL BE ABOVE THE 100 YR. FLOOD ELEVATION.
9. GRADE AWAY FROM WET WELL TOP SLAB AT A MINIMUM 0.50% SLOPE.
10. CITY MAY REQUIRE THE INSTALLATION OF AN ODOR CONTROL SYSTEM. (NOT SHOWN ON SITE PLAN)
11. COORDINATE RACK MOUNTED GENERATOR RECEPTACLE LOCATION WITH CITY.
12. FLOW METER IS REQUIRED FOR LIFT STATIONS EQUALING OR EXCEEDING 350 GPM.

TYPICAL LIFT STATION SITE PLAN
SCALE: N.T.S.

LATEST REVISION: NOV. 2023	SUBMERSIBLE LIFT STATION - TYPICAL LIFT STATION SITE PLAN CITY OF WEST PALM BEACH	STANDARD DETAIL SLS-1
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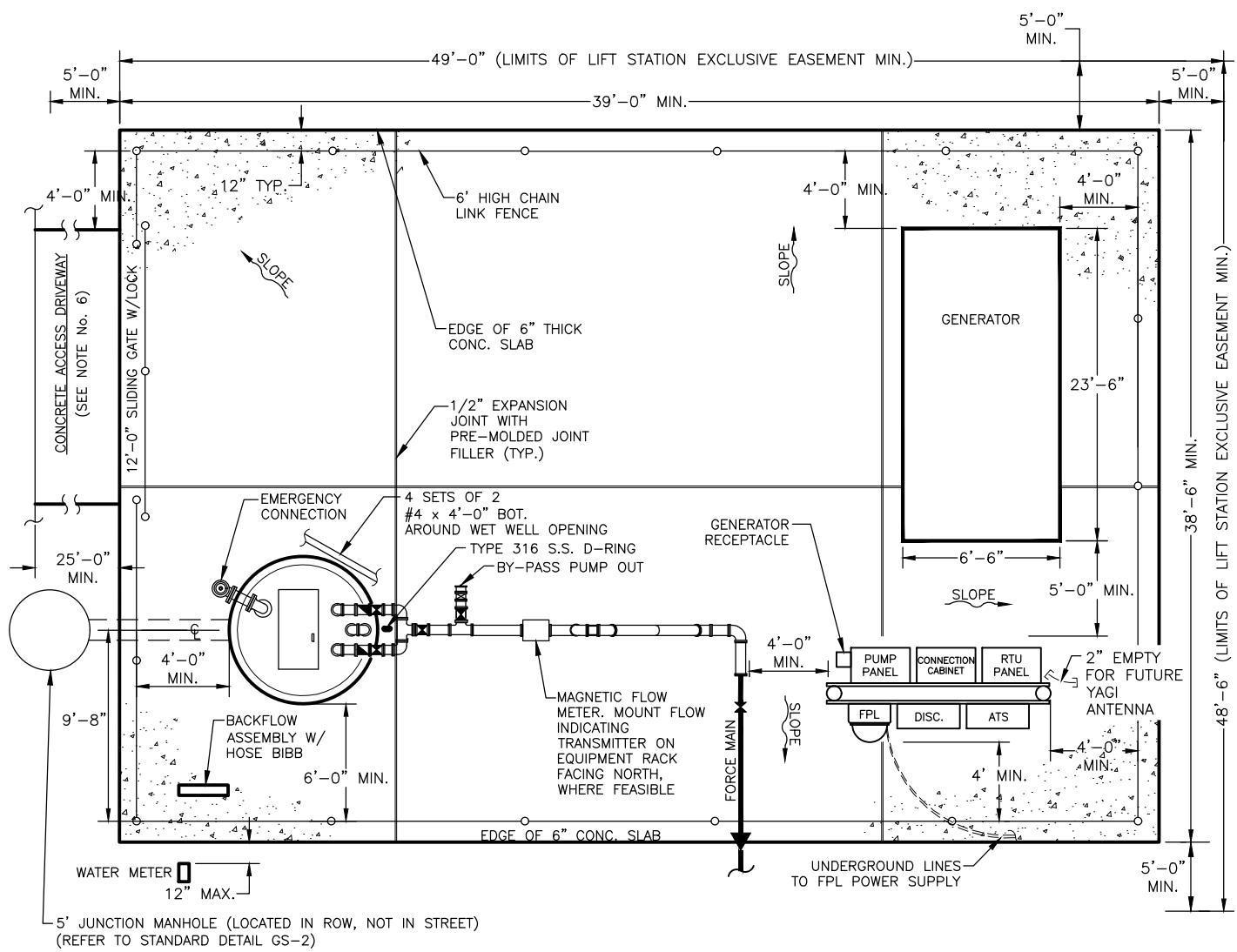


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9. GRADE AWAY FROM WET WELL TOP SLAB AT A MINIMUM 0.50% SLOPE.
10. CITY MAY REQUIRE THE INSTALLATION OF AN ODOR CONTROL SYSTEM. (NOT SHOWN ON SITE PLAN)
11. COORDINATE RACK MOUNTED GENERATOR RECEPTACLE LOCATION WITH CITY.
12. DISCHARGE PIPING BETWEEN WET WELL AND VALVE VAULT SHALL BE SLEEVED AND ANNULAR SPACE FILLED.

SUBMERSIBLE LIFT STATION SITE PLAN W/ VALVE VAULT

SCALE: N.T.S.

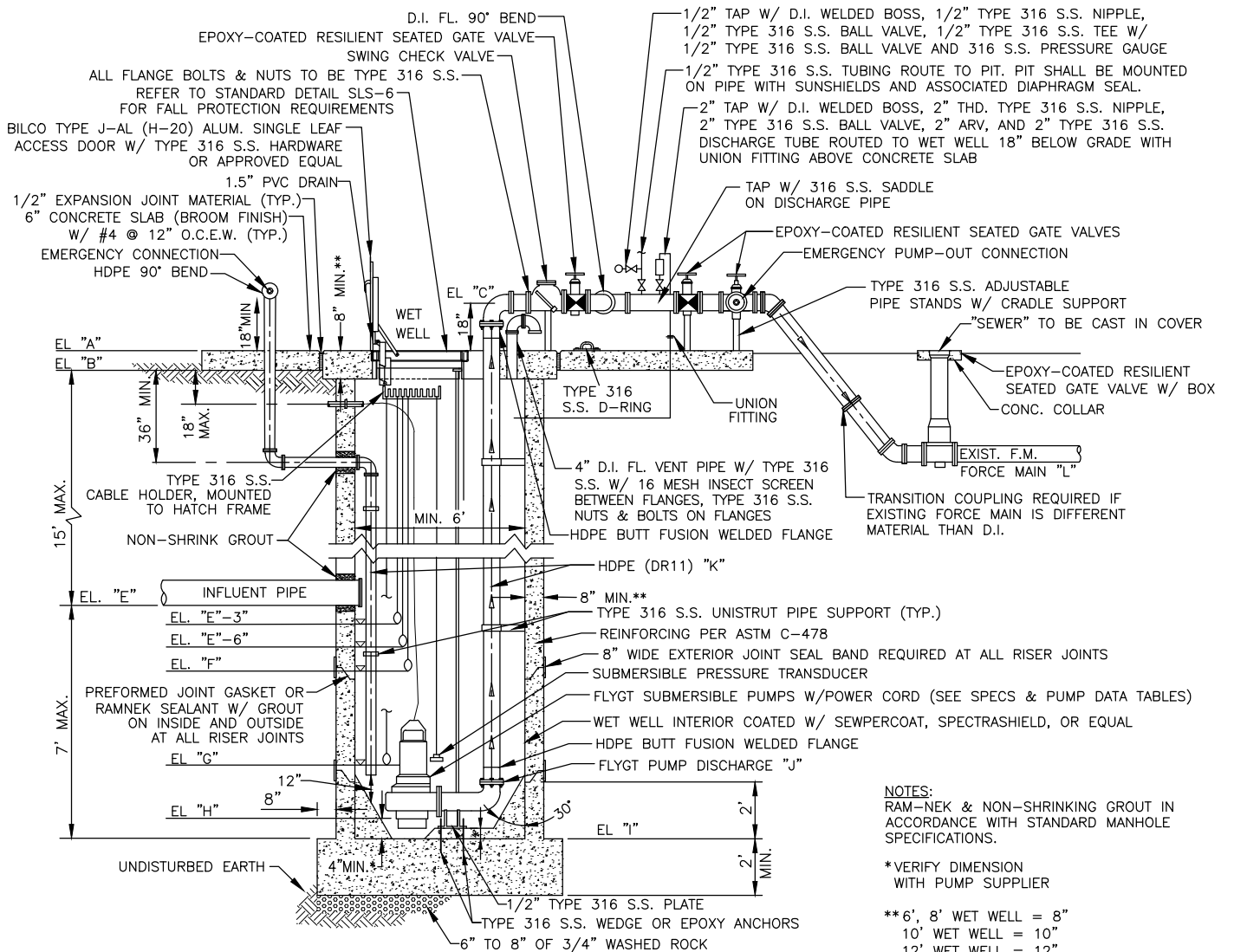
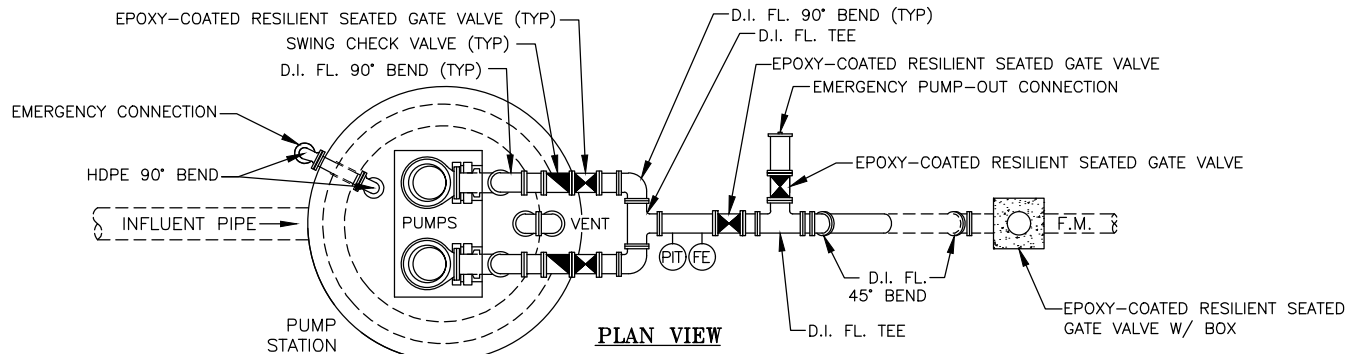
LATEST REVISION: NOV. 2023	SUBMERSIBLE LIFT STATION SITE PLAN W/ VALVE VAULT	STANDARD DETAIL
	CITY OF WEST PALM BEACH	SLS-1.1



1. CHAIN LINK FENCE W/ALL PARTS, INCLUDING POSTS & HARDWARE TO BE THERMALLY FUSED VINYL COATING OVER GALVANIZED STEEL. POSTS TO BE CORED AND GROUTED INTO CONCRETE. FABRIC TO BE KNUCKLED TOP & BOTTOM.
2. INDICATED LIMITS OF LIFT STATION EASEMENT AND SITE DIMENSIONS ARE MINIMUM, SUBJECT TO ACTUAL WET WELL, PIPE SIZES & EQUIPMENT. EXCEPTIONS MAY BE GRANTED BY THE CITY ON A CASE BY CASE BASIS.
3. ACCESS DOORS TO WET WELL TO BE CHECKERED PLATE ALUMINUM, WITH RECESSED HANDLES AND 316 STAINLESS STEEL HARDWARE AS SPECIFIED ON APPROVED MATERIALS LIST.
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7. PUMP CONTROL PANEL SHOULD FACE NORTH (NOT SOUTH) WHERE FEASIBLE. PROVIDE SUN SHIELDS ON TOP, FRONT, REAR AND SIDES OF THE CONTROL PANEL ENCLOSURE.
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9. GRADE AWAY FROM WET WELL TOP SLAB AT A MINIMUM 0.50% SLOPE.
10. CITY MAY REQUIRE THE INSTALLATION OF AN ODOR CONTROL SYSTEM. (NOT SHOWN ON SITE PLAN)
11. COORDINATE RACK MOUNTED GENERATOR RECEPTACLE LOCATION WITH CITY.
12. FLOW METER IS REQUIRED FOR LIFT STATIONS EQUALING OR EXCEEDING 350 GPM.

TYPICAL LIFT STATION SITE PLAN W/ FLOW METER
SCALE: N.T.S.

LATEST REVISION: NOV. 2023	SUBMERSIBLE LIFT STATION - TYPICAL LIFT STATION SITE PLAN W/ FLOW METER	STANDARD DETAIL
	CITY OF WEST PALM BEACH	
		SLS-1.2



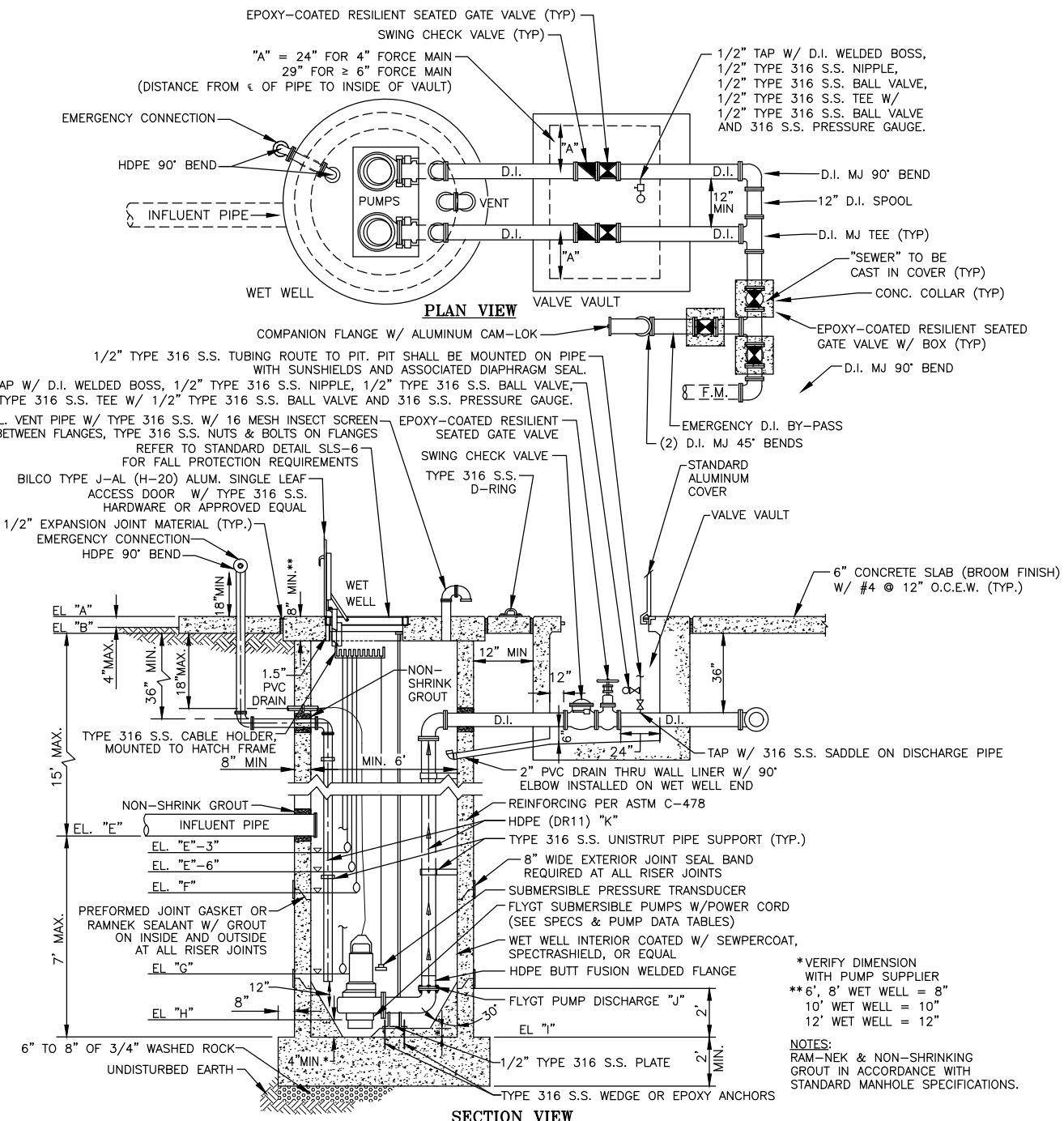
NOTES:
 RAM-NEK & NON-SHRINKING GROUT IN ACCORDANCE WITH STANDARD MANHOLE SPECIFICATIONS.
 *VERIFY DIMENSION WITH PUMP SUPPLIER
 **6' 8\"/>

- NOTES:**
1. SLAB AND WET WELL CONCRETE SHALL BE MINIMUM TYPE II REINFORCED, 4,000 PSI WITH XYPEX CRYSTALLINE WATERPROOF ADDITIVE.
 2. MINIMUM PUMP DISCHARGE PIPE SIZE SHALL BE 4\"/>

SUBMERSIBLE LIFT STATION - WET WELL

SCALE: N.T.S.

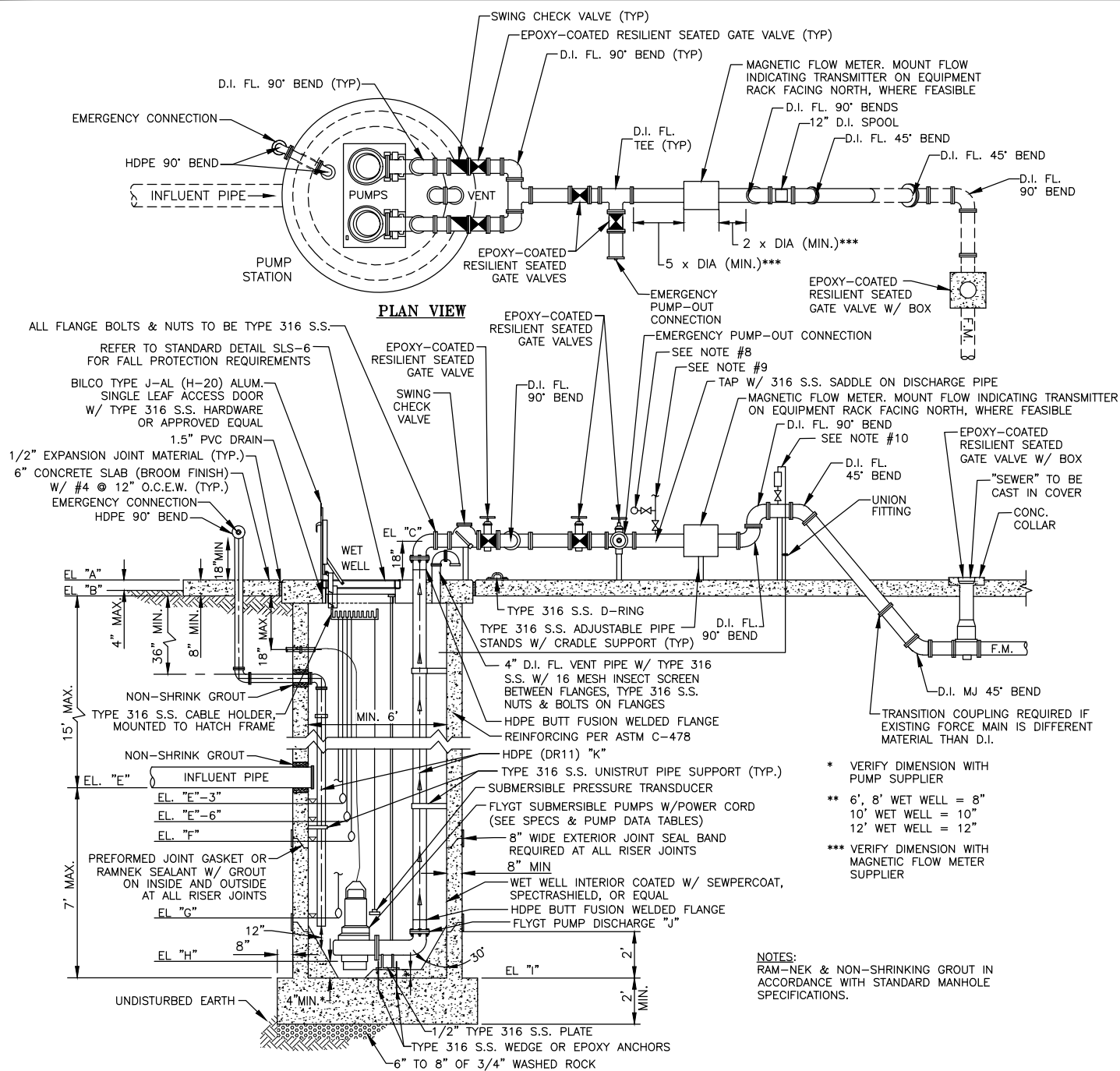
LATEST REVISION: NOV. 2023	SUBMERSIBLE LIFT STATION - WET WELL SECTION VIEW	STANDARD DETAIL
	CITY OF WEST PALM BEACH	SLS-2



- NOTES:**
1. SLAB AND WET WELL CONCRETE SHALL BE MINIMUM TYPE II REINFORCED, 4,000 PSI WITH XYPEX CRYSTALLINE WATERPROOF ADDITIVE.
 2. MINIMUM PUMP DISCHARGE PIPE SIZE SHALL BE 4".
 3. ALL HARDWARE, BRACKETS AND GUIDE RAILS SHALL BE TYPE 316 STAINLESS STEEL (S.S.).
 4. ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL HAVE A BITUMASTIC COATING (2 COAT, 9 MILS EA. COAT D.F.T.)
 5. WET WELL SHALL BE CONSTRUCTED OF 6'-0" VERTICAL MAXIMUM LONG SECTIONS OF REINFORCED POURED IN PLACED OR PRECAST CONCRETE, IN ACCORDANCE WITH THE SPECIFICATIONS. WHENEVER POSSIBLE, NO OPENING SHALL BE WITHIN 12" OF THE END OF ANY SECTION.
 6. ALL PIPING AND FITTINGS WITHIN THE VALVE VAULT SHALL BE DUCTILE IRON (D.I.) UNLESS OTHERWISE DIRECTED TO BE ANOTHER MATERIAL BY THE CITY.
 7. ALL DUCTILE IRON WELDING MUST BE PERFORMED BY PIPE MANUFACTURER. FIELD WELDING OF DUCTILE IRON WILL NOT BE ACCEPTABLE. WELDED BOSSES SHALL HAVE A CHARPY NOTCH IMPACT VALUE OF MINIMUM 10 FT-LBS UNDER CONDITIONS DEFINED IN AWWA C151. TEST COMPLETED WELDS BY THE LIQUID PENETRANT METHOD PER ASTM E 165.
 8. VALVE VAULT CONCRETE SHALL BE MINIMUM TYPE II REINFORCED, 4,000 PSI PRECAST OR POURED IN PLACE (MIN. WALL THICKNESS 5") WITH XYPEX CRYSTALLINE WATER PROOF ADDITIVE.
 9. EMERGENCY PUMP-OUT CONNECTION SHALL BE MINIMUM 18" ABOVE CONCRETE SLAB GRADE.

SUBMERSIBLE LIFT STATION - WET WELL W/ VALVE VAULT
SCALE: N.T.S.

LATEST REVISION: NOV. 2023	SUBMERSIBLE LIFT STATION - WET WELL W/ VALVE VAULT SECTION VIEW	STANDARD DETAIL
	CITY OF WEST PALM BEACH	SLS-2.1



SUBMERSIBLE LIFT STATION - WET WELL W/ FLOW METER

SCALE: N.T.S.

LATEST REVISION:	SUBMERSIBLE LIFT STATION - WET WELL W/ FLOW METER SECTION VIEW	STANDARD DETAIL
NOV. 2023	CITY OF WEST PALM BEACH	SLS-2.2

WET WELL DATA

STATION NUMBER	
DIAMETER	
100-YR. FLOOD ELEV.	
TOP SLAB (ABOVE 100-YR. FLOOD) – EL "A" *SEE NOTE	
FINISH GRADE – EL "B" (MAX. 4" BELOW "A")	
CL DISCHARGE PIPE – EL "C"	
LOWEST INFLUENT LINE (INVERT/HIGH WATER ALARM) – EL "E"	
BACK UP FLOAT LAG PUMP ON – "E" – 3"	
BACK UP FLOAT LEAD PUMP ON – "E" – 6"	
LAG PUMP ON (MAIN CONTROLLER) – "E" – 6"	
LEAD PUMP ON (MAIN CONTROLLER) – EL "F" ("E" – 12")	
BACK UP FLOAT LOW OFF – EL "F" ("E" – 12")	
BOTH PUMPS OFF – EL "G" ("E" – 60")	
PUMP SUCTION – EL "H" (4" MIN. ABOVE "I")	
WETWELL BASE SLAB – EL "I" (84" BELOW EL "E")	
PUMP DISCHARGE – DIA. "J"	
DISCHARGE PIPE – DIA. "K"	
COMMON FORCE MAIN – DIA. "L"	

*NOTE: REFER TO CODE OF ORDINANCES OF
CITY OF WPB #4729-17 5.9-14-2017

PUMP/ELECTRICAL DATA

PUMP NUMBER	
MAX./MIN. GPM	
MIN./MAX. TDH	
MANUFACTURER	
MODEL	
IMPELLER NUMBER	
RPM	
HP	
PHASE	
CYCLE	
VOLTS	
FULL LOAD AMPS (FLA)	
DISTANCE TO FP&L SERVICE	
WIRE SIZE	
D.S.	
MCB & ECB	
MB1 & MB2	
MOTOR STARTERS	

NOTE: PUMP OPERATING LEVELS TO BE CONFIRMED BY DESIGN ENGINEER TO MEET
REQUIRED MIN./MAX. CYCLE TIMES.

LATEST REVISION: NOV. 2023	SUBMERSIBLE LIFT STATION - REQUIRED DATA	STANDARD DETAIL
	CITY OF WEST PALM BEACH	SLS-3

PUMP TEST / START-UP FORM

(TO BE COMPLETED BY CONTRACTOR / PUMP MANUFACTURER)

PROJECT NAME: _____

PROJECT NO: _____ LIFT STATION NO. / NAME: _____

LIFT STATION LOCATION: _____

IN ATTENDANCE: _____

GENERAL INFORMATION

PUMP TYPE: _____

MANUFACTURER: _____

MODEL NO: _____ IMPELLER NO: _____ HP: _____

DESIGN POINT: _____ GPM: _____ FT. TDH: _____

MAIN BREAKER: _____ AMPS

MOTOR BREAKER #1: _____ AMPS STARTER #1 SIZE: _____

MOTOR BREAKER #2: _____ AMPS STARTER #2 SIZE: _____

MOTOR BREAKER #3: _____ AMPS STARTER #3 SIZE: _____

SERVICE WIRE No. AND SIZE: _____ , SERVICE WIRE CONDUIT SIZE: _____

LENGTH OF SERVICE RUN: _____

DESCRIPTION OF SERVICE RUN: _____

TRANSFORMER LOCATION: _____

WET WELL DIAMETER: _____ DISCHARGE PIPE SIZE: _____

WET WELL DIAMETER:	VOLUME PER FOOT:
6 - FOOT	211 GALLONS PER FOOT
8 - FOOT	376 GALLONS PER FOOT
10 - FOOT	587 GALLONS PER FOOT

LATEST
REVISION:

NOV. 2023

SUBMERSIBLE LIFT STATION - PUMP TEST / START-UP FORM

CITY OF WEST PALM BEACH

STANDARD
DETAIL

SLS-4

C:\Users\lmeeks\Electrical Design Associates\ACTIVE-LW - Documents\2_Active Projects\Baxter Woodman\WPBLS 127\Standard Details Update\Standards\Final Resubmittal\Dwgs\SLS-4 PUMP TEST.dwg, SLS-4, 11/2/2023 9:36:53 AM, RMeeks

GENERAL INFORMATION

PUMP No.: _____ DATE: _____ TIME: _____

FORCE MAIN PRESSURE (STATIC) NO PUMP RUNNING: _____ (PSI)

FORCE MAIN PRESSURE (STATIC) NO PUMP RUNNING: _____ (PSI)

FORCE MAIN PRESSURE #: _____ & _____ PUMP RUNNING: _____ (PSI)

FORCE MAIN PRESSURE #: _____ , _____ & _____ PUMP RUNNING: _____ (PSI)

1) INFLOW DETERMINATION:

$\Delta H =$ (BEGIN LEVEL, _____ FT.) - (END LEVEL, _____ FT.) = _____ FT.

TEST TIME = _____ MINUTES

INFLOW = $\Delta H =$, _____ FT/ _____ MIN. VOLUME _____ = _____ GPM

2) PUMP FLOW:

$\Delta H =$ (END LEVEL, _____ FT.) - (BEGIN LEVEL, _____ FT.) = _____ FT.

TEST TIME = _____ MINUTES

PUMP FLOW = $\Delta H =$, _____ FT/ _____ MIN. x VOL., _____ + INFLOW _____ = _____ GPM

VOLTAGES: A - B = _____ VOLTS AMPS: A = _____ AMPS
 A - C = _____ VOLTS AMPS: B = _____ AMPS
 B - C = _____ VOLTS AMPS: C = _____ AMPS

VOLTAGES: _____

LATEST REVISION: NOV. 2023	SUBMERSIBLE LIFT STATION - PUMP TEST / START-UP FORM: GENERAL INFORMATION	STANDARD DETAIL
	CITY OF WEST PALM BEACH	SLS-4.1

C:\Users\lmeeks\Electrical Design Associates\ACTIVE-LW - Documents\2_Active Projects\Baxter Woodman\WPBLS 127\Standard Details Update\Standards\Final Resubmittal\Dwgs\SLS-4.1 PUMP TEST GENERAL INFO.dwg, SLS 4.1, 11/2/2023 9:30:33

POLARIZATION INDEX (P.I.) TEST FORM

(TO BE COMPLETED BY CONTRACTOR / PUMP MANUFACTURER)

PERFORM MOTOR WINDING INSULATION RESISTANCE TESTING
AS FOLLOWS:

- A) PERFORM TEST PRIOR TO START-UP OF LIFT STATION WITH THE CONSTRUCTION COORDINATOR AND LIFT STATION PERSONNEL PRESENT.
- B) USE A MOTORIZED OR BATTERY OPERATED METER, SET AT A TEST VOLTAGE AS CLOSE AS POSSIBLE TO THE NORMAL OPERATING VOLTAGE OF THE MOTOR.
- C) LOG THE READINGS AT THE ONE MINUTE AND TEN MINUTE INTERVAL ON THE TABLE BELOW.
- D) COMPLETE THE WINDING INSULATION POLARIZATION INDEX (P.I.)

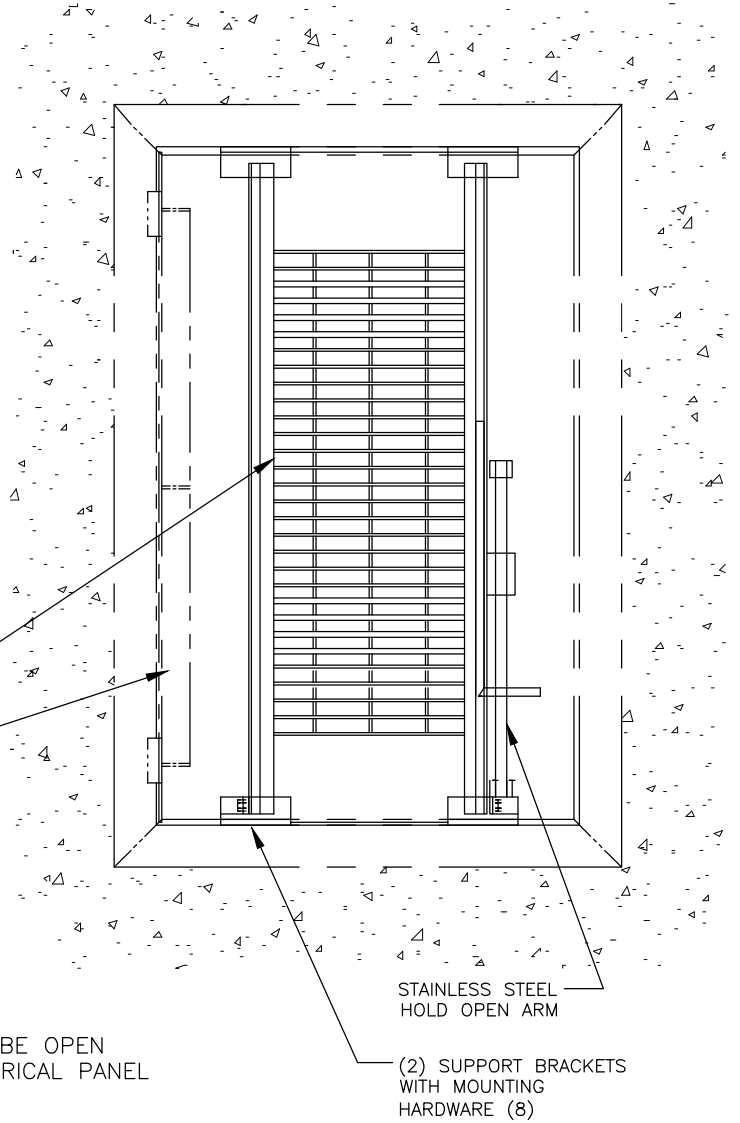
P.I. TEST STARTED AT 500 VOLTS				
MOTOR NO.	TEST VOLTAGE	1 MIN. READING	10 MIN. READING	POLARIZATION INDEX
1				
2				
3				
4				

COMMENTS: _____

LATEST REVISION: NOV. 2023	SUBMERSIBLE LIFT STATION - P.I. TEST FORM CITY OF WEST PALM BEACH	STANDARD DETAIL SLS-5
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STANDARD FEATURES:

- ALUMINUM "1" BAR CONSTRUCTION
- TYPE 316 STAINLESS STEEL HARDWARE
- SPRING LOADED LIFTING HANDLE
- LOCKABLE WITH OWNER SUPPLIED PADLOCK
- 300 LBS. PER SQ. FT. LOAD RATING
- HINGED WITH AUTOMATIC HOLD OPEN ARM TO MAINTAIN UPRIGHT POSITION
- VIEWING AREA FOR OBSERVATION AND LIMITED MAINTENANCE
- TYPE 316 STAINLESS STEEL MOUNTING HARDWARE
- SAFETY ORANGE POWDER COATING FINISH
- CAN BE INSTALLED BY MOUNTING THE SUPPORT BRACKETS TO EITHER THE EXISTING FRAMEWORK OR TO THE CONCRETE SLAB BELOW THE FRAMEWORK
- MODEL SERIES X RETRO-GRATE BY HALLIDAY PRODUCTS OR APPROVED EQUAL.



ALUMINUM GRATING PANEL WITH SUPPORT BEAM

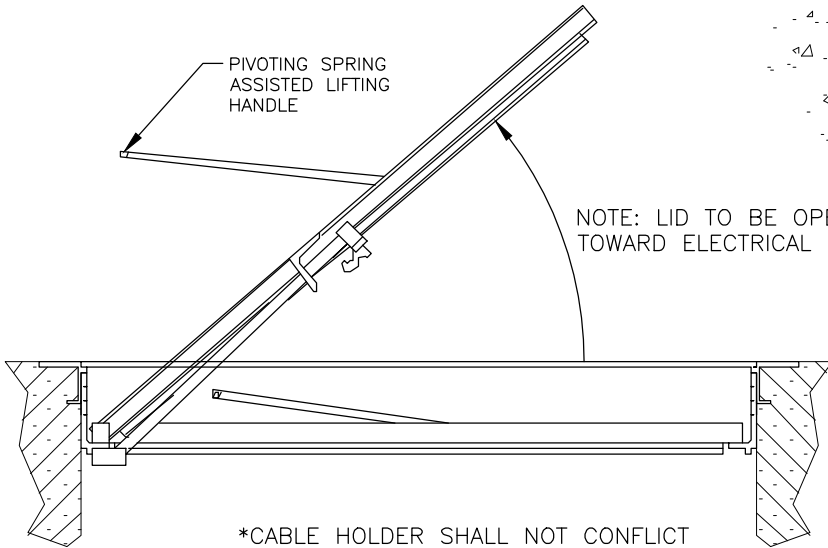
EXISTING COVER (SHOWN IN OPEN POSITION)

PIVOTING SPRING ASSISTED LIFTING HANDLE

NOTE: LID TO BE OPEN TOWARD ELECTRICAL PANEL

STAINLESS STEEL HOLD OPEN ARM

(2) SUPPORT BRACKETS WITH MOUNTING HARDWARE (8)



*CABLE HOLDER SHALL NOT CONFLICT WITH FALL PROTECTION GRATE, HINGE, OR LIFTING HANDLE FOR ACCESS.

LATEST REVISION:

NOV. 2023

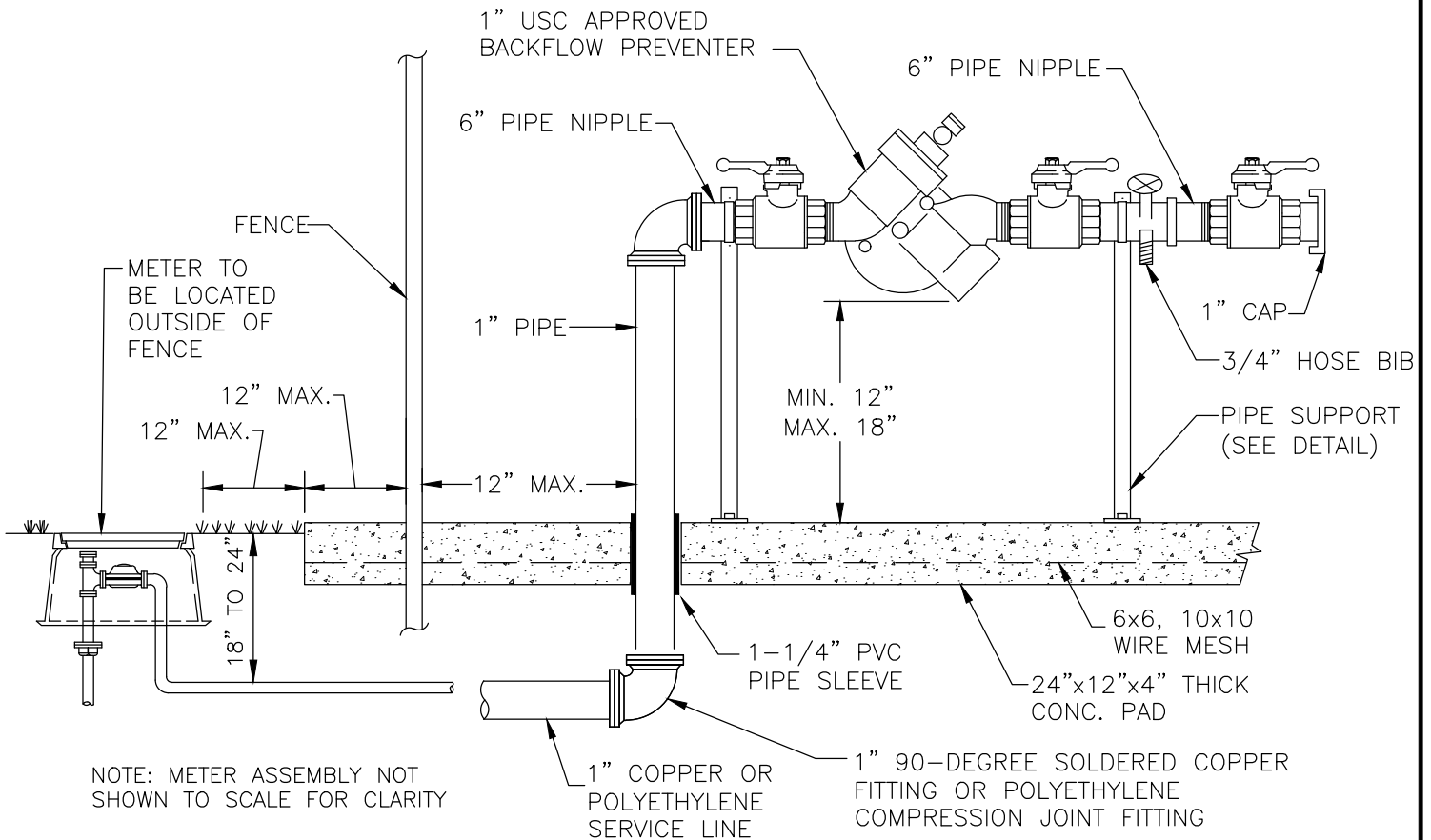
SUBMERSIBLE LIFT STATION - FALL PROTECTION GRATE

CITY OF WEST PALM BEACH

STANDARD DETAIL

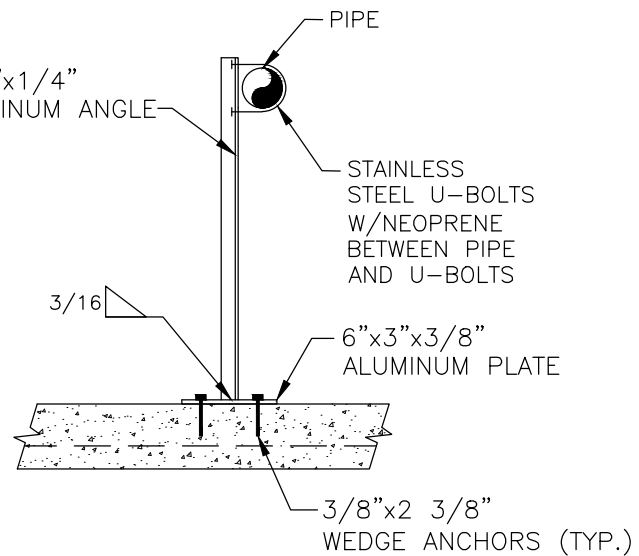
SLS-6

C:\Users\lmeeks\Electrical Design Associates\ACTIVE-LW - Documents\2_Active Projects\Baxter Woodman\WPB\LS 127\Standard Details Update\Standards\Final Resubmittal\Dwg\SLS-7 BACKFLOW WATER SERVICE.dwg, SLS-7, 11/2/2023 9:36:36



NOTE: METER ASSEMBLY NOT SHOWN TO SCALE FOR CLARITY

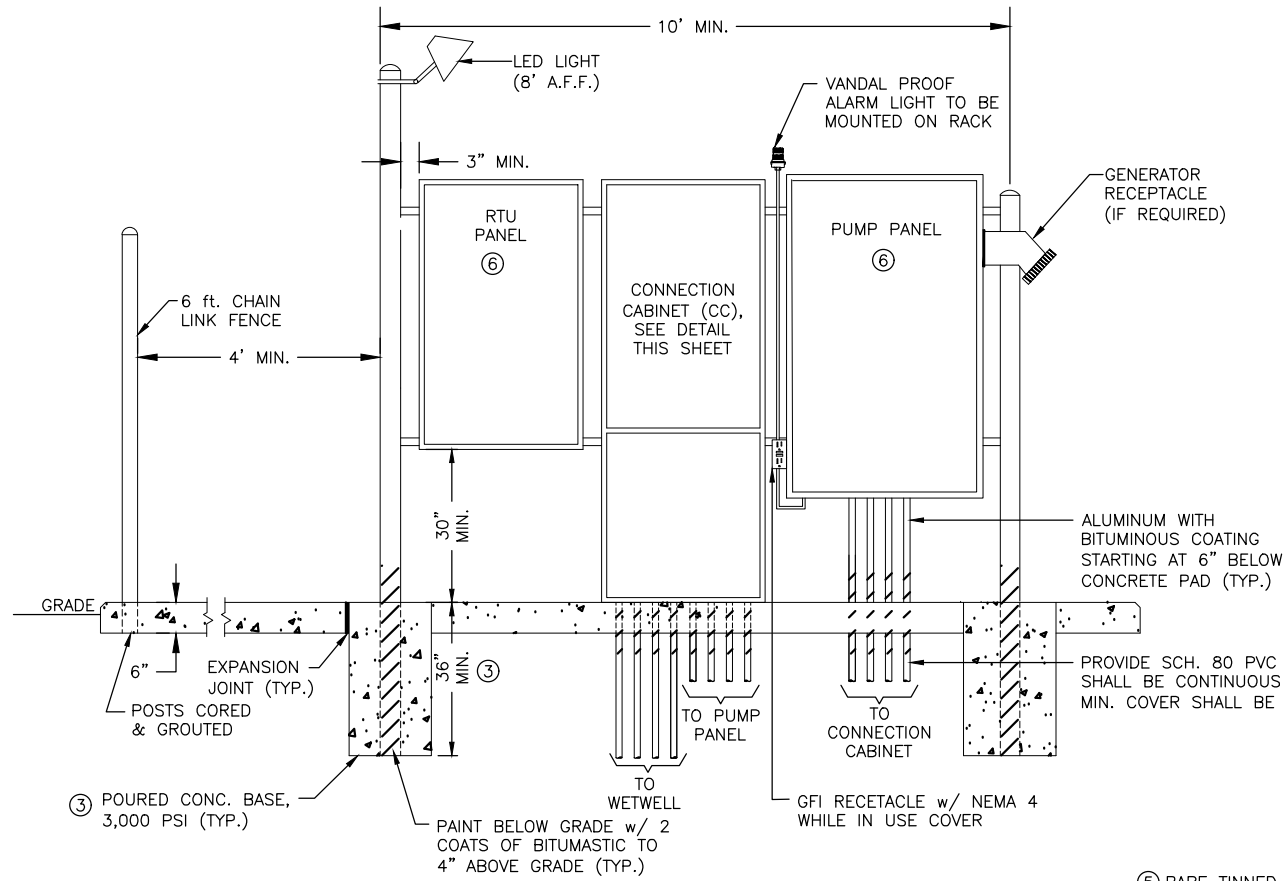
1. ALL PIPING BELOW GRADE SHALL BE TYPE "K" COPPER OR POLYETHYLENE TUBING.
2. ALL PIPING ABOVE GRADE SHALL BE TYPE "K" COPPER TO THE 90-DEGREE BEND BELOW GRADE.
2. ALL COPPER JOINTS SHALL BE MADE WITH 95% SOLDER.
3. USE 1" RPZ BACKFLOW PREVENTER AS LISTED IN THE APPROVED PRODUCT LIST.
4. ALL BACKFLOW PREVENTION ASSEMBLIES MUST BE APPROVED BY THE FOUNDATION FOR CROSS CONNECTION CONTROL AND HYDRAULIC RESEARCH, UNIVERSITY OF SOUTHERN CALIFORNIA.
5. ALL BRASS OR COPPER IN CONTACT WITH POTABLE WATER SHALL BE "LEAD FREE".
6. ALL ALUMINUM SURFACES IN CONTACT WITH CONCRETE SHALL HAVE A BITUMASTIC COATING (2 COAT, 9 MILS EA. COAT D.F.T.)



PIPE SUPPORT DETAIL

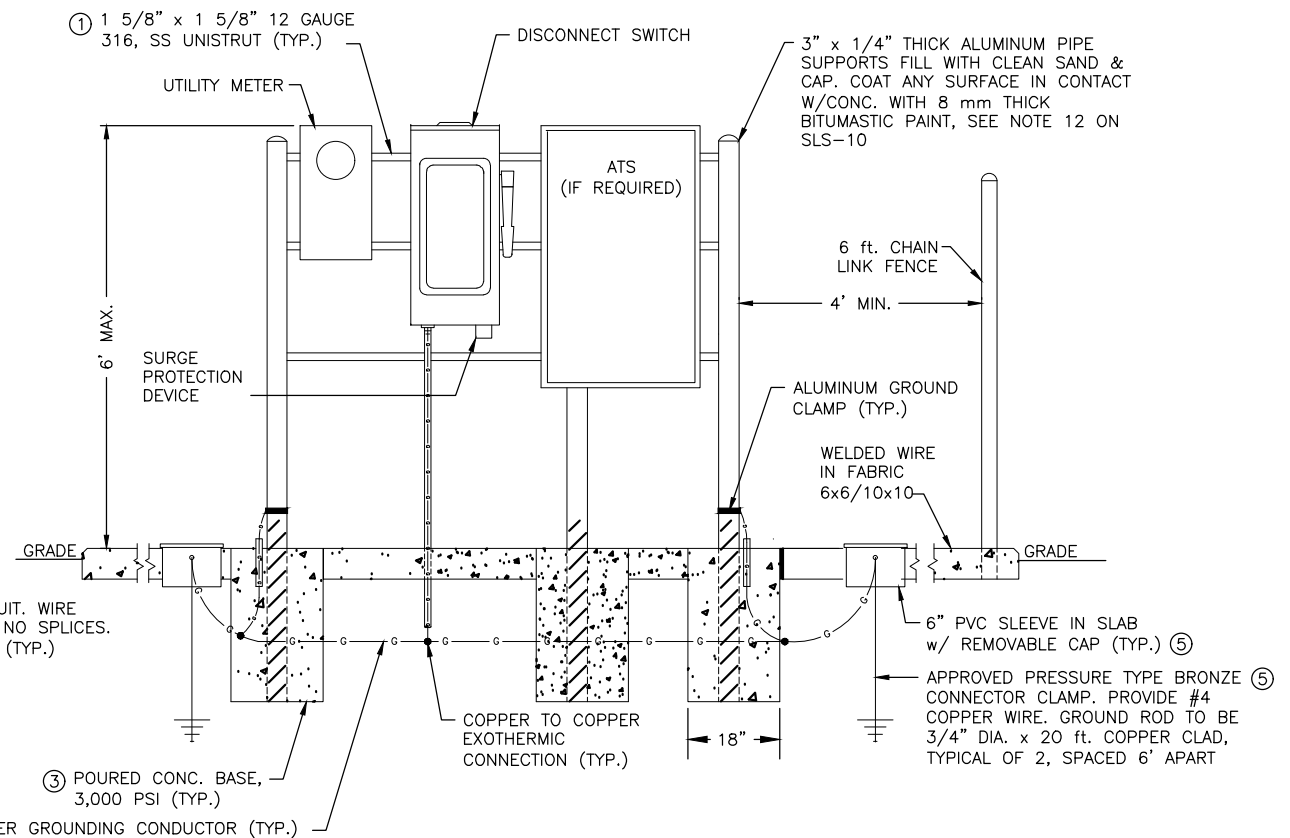
SCALE: N.T.S.

LATEST REVISION: NOV. 2023	SUBMERSIBLE LIFT STATION - BACKFLOW FOR L.S. WATER SERVICE	STANDARD DETAIL
	CITY OF WEST PALM BEACH	SLS-7



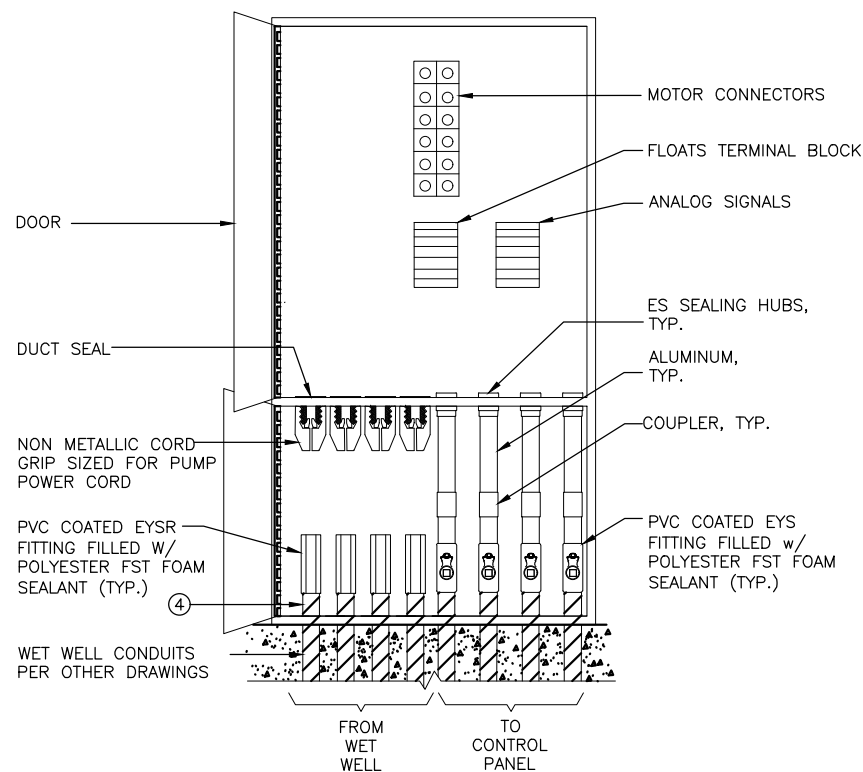
ELECTRICAL PANELS - FRONT ELEVATION

SCALE: N.T.S.



ELECTRICAL PANELS - REAR ELEVATION

SCALE: N.T.S.



CONNECTION CABINET DETAIL - FRONT ELEVATION

SCALE: N.T.S.

GENERAL NOTES:

- ① UNISTRUT HEIGHT SHALL BE CONSISTENT WITH ALL LOCAL AGENCY REGULATIONS & FPL REQUIREMENTS.
- ② NO HOLE ON TOP AND SIDE OF PANEL EXCEPT FOR GENERATOR RECEPTACLE.
- ③ DEPTH AS REQUIRED TO MEET THE LATEST EDITION OF THE FLORIDA BUILDING CODE WIND LOAD REQUIREMENTS. CONTRACTOR SHALL SUBMIT SIGNED AND SEALED WIND LOAD CALCULATIONS FROM A STRUCTURAL ENGINEER LICENSED IN THE STATE OF FLORIDA.
- ④ ALL PORTIONS OF ALUMINUM CONDUIT BELOW GRADE SHALL BE INSTALLED WITH BITUMASTIC PAINT TO 4" ABOVE GRADE.
- ⑤ REFER TO TYPICAL LIFT STATION GROUNDING PLAN ON SLS-19 FOR ADDITIONAL GROUNDING REQUIREMENTS.
- ⑥ PROVIDE SUNSHIELDS ON FRONT, TOP, REAR AND SIDES OF THE ENCLOSURE.

**LIFT STATION TYPE 1 WITHOUT GENERATOR
(2 OR 3 PUMPS ≤ 5 HP - 240V-3φ AND 480V-3φ)**

**LIFT STATION TYPE 1A WITH GENERATOR
(2 OR 3 PUMPS > 5 HP TO ≤ 15 HP - 240V-3φ AND 480V-3φ)**

STANDARD
DETAIL

SLS-8

SUBMERSIBLE LIFT STATION - TYPE 1 / 1A - EQUIPMENT RACK ELEVATIONS

CITY OF WEST PALM BEACH

LATEST
REVISION

NOV. 2023

STANDARD
DETAIL

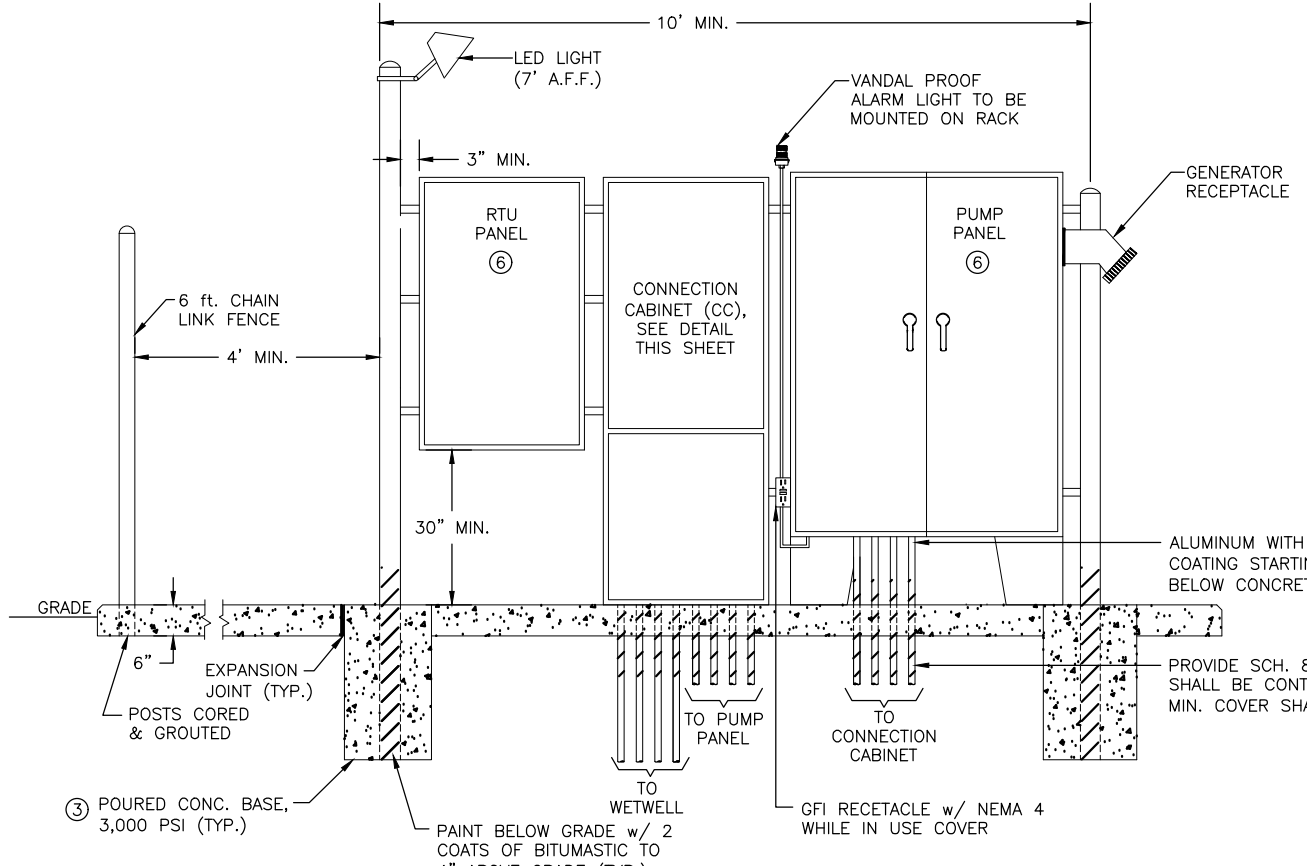
SUBMERSIBLE LIFT STATION - TYPE 2, 3 & 4 - EQUIPMENT RACK ELEVATIONS

SLS-8.1

CITY OF WEST PALM BEACH

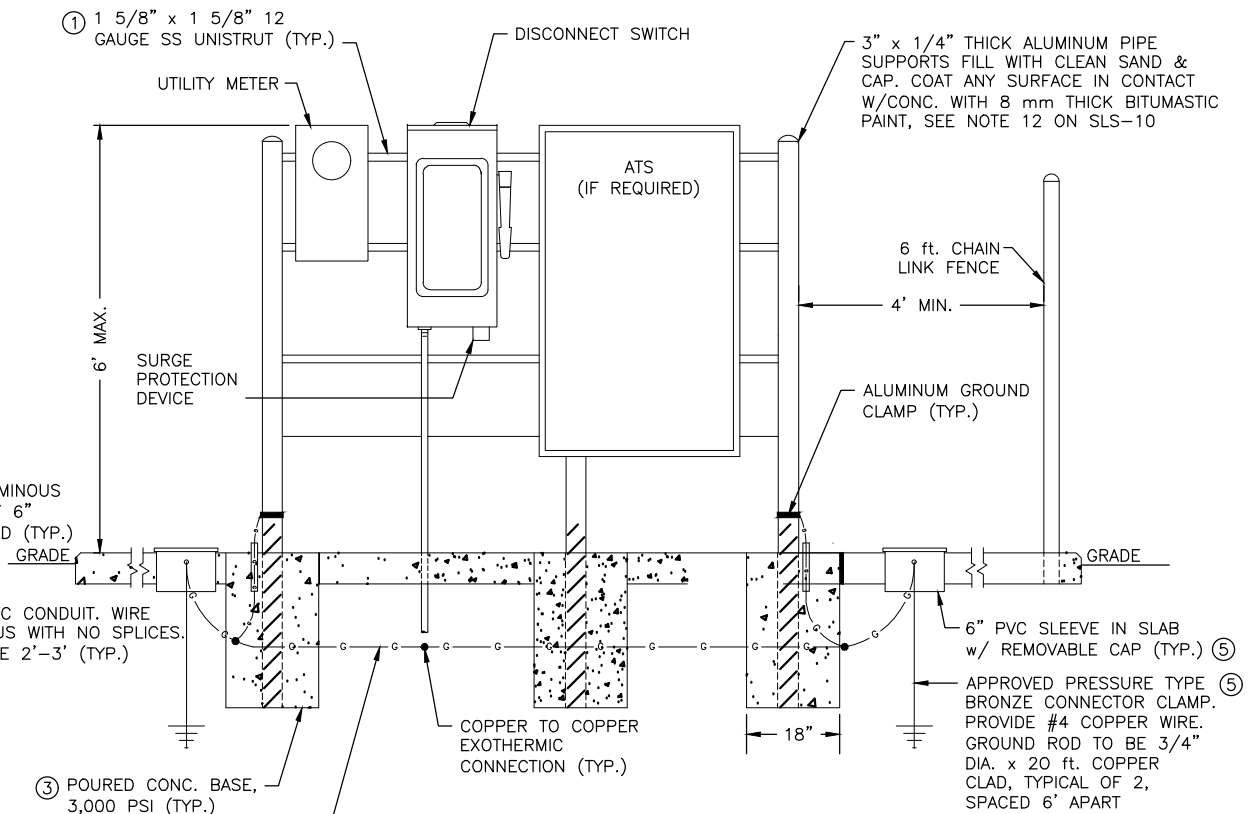
LATEST
REVISION

NOV. 2023



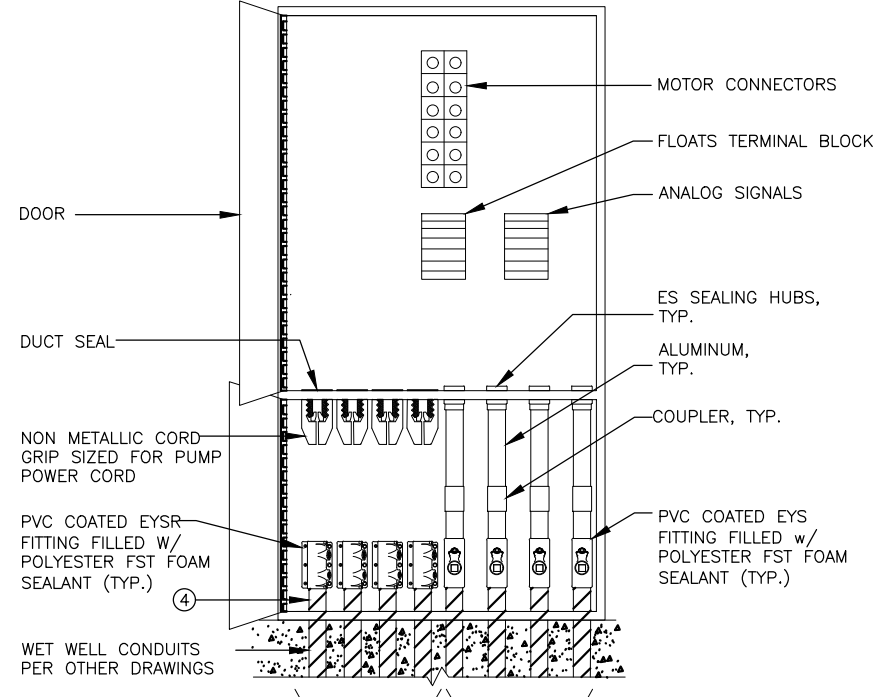
ELECTRICAL PANELS - FRONT ELEVATION

SCALE: N.T.S.



ELECTRICAL PANELS - REAR ELEVATION

SCALE: N.T.S.



CONNECTION CABINET DETAIL - FRONT ELEVATION

SCALE: N.T.S.

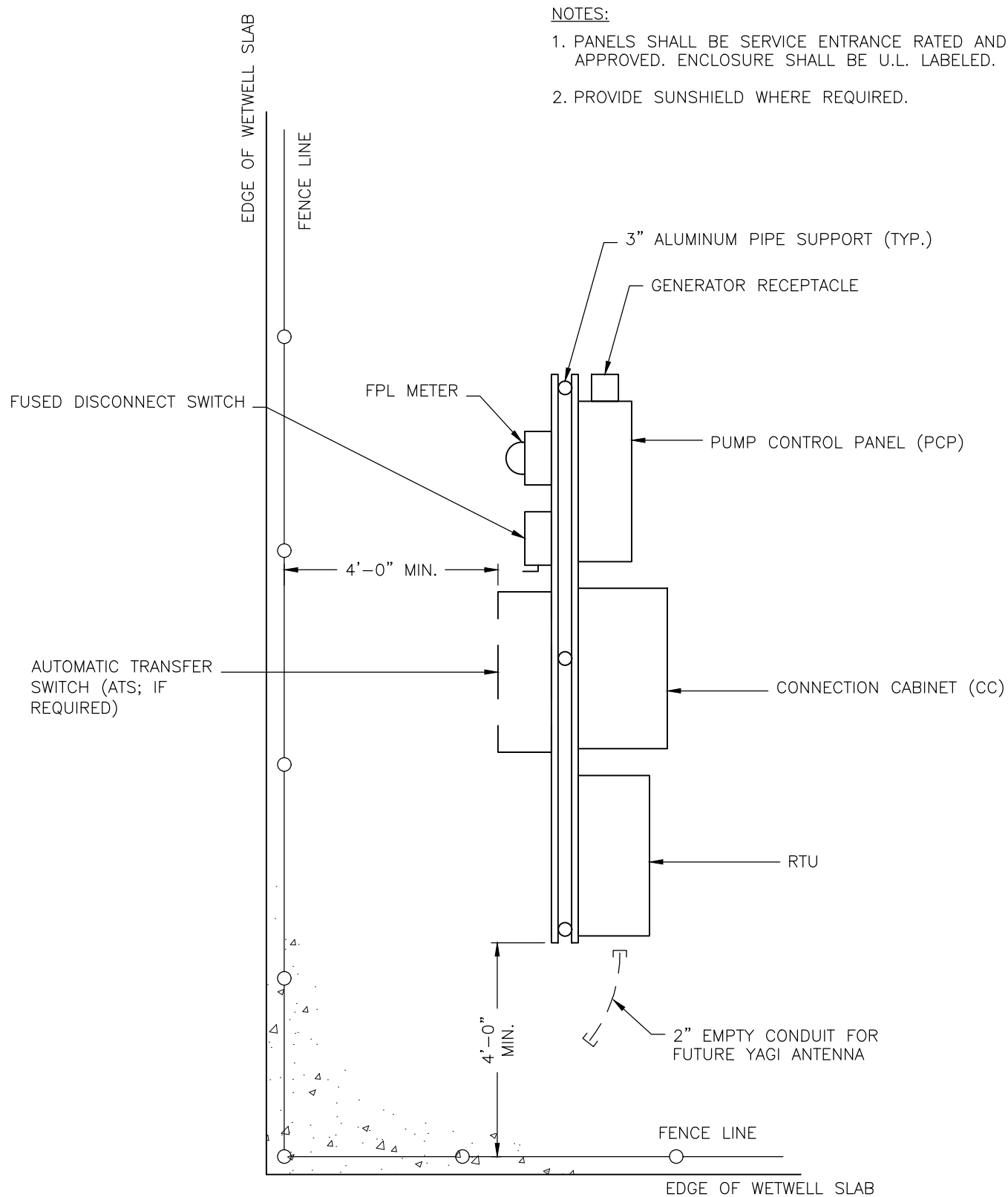
GENERAL NOTES:

- ① UNISTRUT HEIGHT SHALL BE CONSISTENT WITH ALL LOCAL AGENCY REGULATIONS & FPL REQUIREMENTS.
- ② NO HOLE ON TOP AND SIDE OF PANEL EXCEPT FOR GENERATOR RECEPTACLE.
- ③ DEPTH AS REQUIRED TO MEET THE LATEST EDITION OF THE FLORIDA BUILDING CODE WIND LOAD REQUIREMENTS. CONTRACTOR SHALL SUBMIT SIGNED AND SEALED WIND LOAD CALCULATIONS FROM A STRUCTURAL ENGINEER LICENSED IN THE STATE OF FLORIDA.
- ④ ALL PORTIONS OF ALUMINUM CONDUIT BELOW GRADE SHALL BE INSTALLED WITH BITUMASTIC PAINT TO 4" ABOVE GRADE.
- ⑤ REFER TO TYPICAL LIFT STATION GROUNDING PLAN ON SLS-19 FOR ADDITIONAL GROUNDING REQUIREMENTS.
- ⑥ PROVIDE SUNSHIELDS ON FRONT, TOP, REAR AND SIDES OF THE ENCLOSURE.

LIFT STATION TYPE 2
(2 OR 3 PUMPS > 15 HP TO < 30 HP w/ SOFT STARTS - 480V-3φ)

LIFT STATION TYPE 3
(2 OR 3 PUMPS > 15 HP TO < 40 HP w/ VFD - 480V-3φ)
(2 OR 3 PUMPS > 15 HP TO > 20 HP w/ VFD 240-3φ)

LIFT STATION TYPE 4
(2 OR 3 PUMPS > 40 HP TO > 50 HP w/ VFD - 480V-3φ)



NOTES:

1. PANELS SHALL BE SERVICE ENTRANCE RATED AND U.L. APPROVED. ENCLOSURE SHALL BE U.L. LABELED.
2. PROVIDE SUNSHIELD WHERE REQUIRED.

LATEST REVISION	SUBMERSIBLE LIFT STATION - ELECTRICAL PANELS, PLAN VIEW	STANDARD DETAIL
NOV. 2023		SLS-9
CITY OF WEST PALM BEACH		

1. CELLULAR ANTENNA AND RELATED R.T.U. EQUIPMENT SHALL BE INSTALLED BY THE CONTRACTOR.
2. ALL CONDUIT SIZES INCLUDING TO FP&L SHALL BE SIZED FOR TWICE THE INSTALLED HORSEPOWER CAPACITY.
3. ALL WIRES SHALL BE XHHW.
4. BOND WIRE SIZED PER NEC TABLE 250.66 SHALL BE INSTALLED FROM THE GROUND BUS IN THE CONTROL PANEL TO EACH MOTOR CASING. IF EXTERNAL BONDING CONDUCTOR TO MOTOR CASING IS REQUIRED, EQUIPMENT GROUNDING CONDUCTOR SIZED IN ACCORDANCE WITH NEC TABLE 250.122.
5. CONNECT PUMP AND FLOAT CABLES IN CONNECTION CABINET WITH TERMINAL STRIP CONNECTORS. NO SPLICED WIRES ALLOWED. ALL PIPE/CONDUIT CONNECTIONS FROM WETWELL MUST RUN VIA CONNECTION CABINET.
6. WETWELL ACCESS DOOR SHALL BE ORIENTED SO AS TO PROVIDE A BARRIER BETWEEN THE ELECTRICAL SWITCH GEAR ASSEMBLY AND THE OPEN WETWELL.
7. CONTRACTOR SHALL COORDINATE ALL SERVICE INSTALLATIONS OF 3 PHASE POWER WITH FP&L. FP&L FEES TO BE CONTRACTOR'S RESPONSIBILITY. AFTER ACCEPTANCE OF STATION, CONTRACTOR SHALL MAKE ARRANGEMENTS AND COORDINATE TRANSFER OF FP&L SERVICE TO CITY'S ACCOUNT.
8. PROVIDE 5 FEET OF EXCESS WIRE EXPOSED AT SERVICE WEATHER HEAD OR HANDHOLE FOR CONNECTION BY FP&L. FP&L SHALL MAKE ALL TERMINATIONS TO FP&L EQUIPMENT.
9. IF APPLICABLE, THE L2 (PHASE B) CONDUCTOR SHALL BE THE HIGHER VOLTAGE TO GROUND AND BE DURABLY AND PERMANENTLY MARKED BY AN OUTER FINISH THAT IS ORANGE IN COLOR, CLOCKWISE ROTATION.
10. CONNECTION CABINET SHALL BE NEMA 4X, 316 SS PAINTED WHITE ENCLOSURE.
11. ALL PANELS, DISCONNECT SWITCHES AND ELECTRICAL BOXES SHALL BE NEMA 4X 316 STAINLESS STEEL, UNLESS OTHERWISE NOTED.
12. PANELS SHALL BE MOUNTED TO TWO 3" DIAMETER ALUMINUM POST SUPPORTS. PANEL SHALL BE BUILT BY A UL APPROVED SHOP AND ADHERE TO UL STANDARDS. PANEL SHALL HAVE A UL 508 LABEL ON THE INTERIOR OF THE ENCLOSURE DOOR. LENGTH OF THE POST SUPPORTS SHALL BE SIZED SO AS TO PROVIDE FOR 36" OF BURIAL (IN 3,000 PSI CONCRETE) AND EXTEND TO 3 INCHES ABOVE THE TOP OF THE SUPPORTS. THE PANEL SHALL BE MOUNTED TO THE POST SUPPORTS WITH 1 5/8" X 1 5/8" 12 GAUGE STAINLESS STEEL UNISTRUT AT A HEIGHT CONSISTENT WITH FP&L'S REQUIREMENT FOR MOUNTING THEIR METER. ALL HARDWARE SHALL BE 316 STAINLESS STEEL. SUBMIT SIGNED AND SEALED WIND LOAD CALCULATIONS FROM A STRUCTURAL ENGINEER LICENSED IN THE STATE OF FLORIDA.
13. MOUNT AN EMERGENCY GENERATOR RECEPTACLE ON THE DRIVEWAY SIDE OF THE AUTOMATIC TRANSFER SWITCH, APPROXIMATELY FIVE (5) FEET ABOVE FINISH GRADE. TERMINATIONS SHALL BE PIN 1-L1, PIN 2-L2, PIN 3-L3, PIN 4-GROUNDED CONDUCTOR.
14. FOR TYPE 1 STATIONS, PROVIDE A TRAILER MOUNTED STAND-BY GENERATOR WITH CRITICAL GRADE SILENCER 25 dbs @ 50 FEET. UNIT SHALL CONTAIN A FUEL TANK SIZED TO PROVIDE 48 HOURS OF CONTINUOUS OPERATION. CONNECT GENERATOR TO THE CONTROL PANEL VIA THE SIDE MOUNTED GENERATOR RECEPTACLE.
15. PERFORM START-UP AS INSTRUCTED IN THE SPECIFICATIONS.
16. ALL APPLICABLE ELECTRICAL CODES (LATEST EDITION) MUST BE ADHERED TO INCLUDING WPB, NEC AND FP&L COMPANY REQUIREMENTS.
17. SEE STANDARD DETAILS PARTS LIST.
18. PANEL INSPECTION REPORT (VISUAL, WIRING & INSULATION) AND TEST REPORTS (GROUND RESISTANCE, CABLE MEGGER, INFRARED) NEEDS TO BE SUBMITTED TO CITY'S ENGINEER PRIOR TO INSTALLATION.
19. WITNESS INSPECTION BY CITY OR CITY'S REPRESENTATIVE IS REQUIRED FOR ALL CONTROL PANELS PRIOR TO DELIVERY.
20. WIRING INSPECTION BY CITY OR CITY'S REPRESENTATIVE IS REQUIRED ON SITE.

LATEST REVISION	SUBMERSIBLE LIFT STATION - ELECTRICAL PANEL NOTES	STANDARD DETAIL
NOV. 2023	CITY OF WEST PALM BEACH	SLS-10

PUMP PANEL REQUIREMENTS:

PUMP STATION PUMP PANEL SHALL BE PROVIDED WITH THE FOLLOWING FEATURES:

1. MAIN BREAKER, EMERGENCY BREAKER AND MOTOR BREAKERS SHALL BE 600 VOLT FRAME MINIMUM AND BE ABLE TO INTERRUPT THE AVAILABLE SHORT CIRCUIT CURRENT.
2. ALL WETWELL CONTROL CIRCUITRY SHALL BE 24 VOLT MAXIMUM.
3. PUMP MOTOR SELECTOR (HOA) SWITCHES REQUIRED; TOGGLE SWITCHES SHALL NOT BE ACCEPTABLE. PROVIDE ADDITIONAL STACK SWITCH ON "AUTO".
4. ALL MOTORS, STARTERS AND BREAKERS SHALL BE MANUFACTURED BY SQUARE D OR APPROVED EQUAL. MINIMUM MOTOR STARTERS SHALL BE NEMA-1, 600 V RATED. INNER PANEL COMPONENT LAYOUT AND BACK MOUNTING PANEL DRAWINGS SHALL BE PART OF THE SUBMITTAL. FIFTEEN PERCENT OF PANEL SPACE SHALL BE RESERVED FOR FUTURE USE. ALLOCATED SPACE FOR STARTERS AND BREAKERS SHALL BE SUCH THAT THE NEXT HIGHER NEMA SIZE STARTER AND CORRESPONDING BREAKERS, INCLUDING MAIN AND EMERGENCY, SHALL PROPERLY FIT IN THE FUTURE (IF REQUIRED).
5. PANEL SHALL BE SURFACE WIRED WITH NUMBERED TERMINALS. TERMINAL STRIP SHALL BE LOCATED AT LEAST FOUR (4) INCHES FROM THE BOTTOM OF THE ENCLOSURE FOR ACCESSIBILITY.
6. RELAY CONTACTS SHALL BE RATED AT 10 AMP AND 120 VAC.
7. AN 11" X 17" LAMINATED PLASTIC SCHEMATIC & PUMP DATA SHEET SHALL BE PERMANENTLY AFFIXED TO THE INTERIOR OF THE ENCLOSURE DOOR.
8. THE RTU PANEL SHALL ENCLOSE THE CELLULAR TELEMETRY SYSTEM CONSISTING OF A PUMP CONTROLLER, CELLULAR MODEM & CELLULAR ANTENNA. THE RTU SHALL BE FACTORY ASSEMBLED. ACCEPTABLE MANUFACTURERS SHALL BE:

CC CONTROLS
 5760 CORPORATE WAY
 WEST PALM BEACH, FL 33407
 (561) 293-3975

DCR ENGINEERING SERVICES, INC.
 502 COUNTY RD.
 640 E, MULBERRY, FL 33860
 (863) 428-8080

REVERE CONTROL SYSTEMS, INC.
 4245 S. PIPKIN RD.
 LAKELAND, FL 33811
 (863) 646-5781

9. PROVIDE A LAMINATED 11" X 17" PLASTIC COPY OF THE ELECTRICAL SCHEMATIC DRAWINGS ATTACHED TO THE INTERIOR SURFACE OF THE ENCLOSURE OUTER DOOR. PROVIDE 6 COPIES FOR OFFICE USE.
10. 1-15 HP PUMP REQUIRES STARTER. 20 HP AND HIGHER PUMP REQUIRES SOFT STARTER. VFDs ARE ONLY REQUIRED PER CITY'S REQUEST.

LATEST REVISION	SUBMERSIBLE LIFT STATION - PUMP PANEL REQUIREMENTS	STANDARD DETAIL
NOV. 2023	CITY OF WEST PALM BEACH	SLS-11

PUMP PANEL: NAME PLATE SCHEDULE

NO.	SIZE	DESCRIPTION
1.	1 x 3"	DUPLEX PUMP PANEL
2.	1 x 3"	MAIN CIRCUIT BREAKER (MCB)
3.	1 x 3"	EMERGENCY CIRCUIT BREAKER (ECB)
4,6.	1 x 3"	PUMP NO. 1
5,7.	1 x 3"	PUMP NO. 2
8.	1/2 x 2"	CONTROLS
9.	1/2 x 2"	GFI
10.	1/2 x 2"	RTU
11.	1/2 x 2"	CONTROL POWER
12.	1-1/2 x 3"	CAUTION: TO AVOID RISK OF FIRE, REPLACE ONLY WITH SAME FUSE TYPE & FUSE RATING.
13.	1 x 3"	USE 75°C RATED COPPER WIRE
14.	1 x 3"	BACK-UP CONTROLLER
PL 1,2		ON
PL 3		ALARM LIGHT (HIGH)
PL 4		LOW LEVEL
PL 5		POWER ON
SS 1,2		HAND-OFF-AUTO

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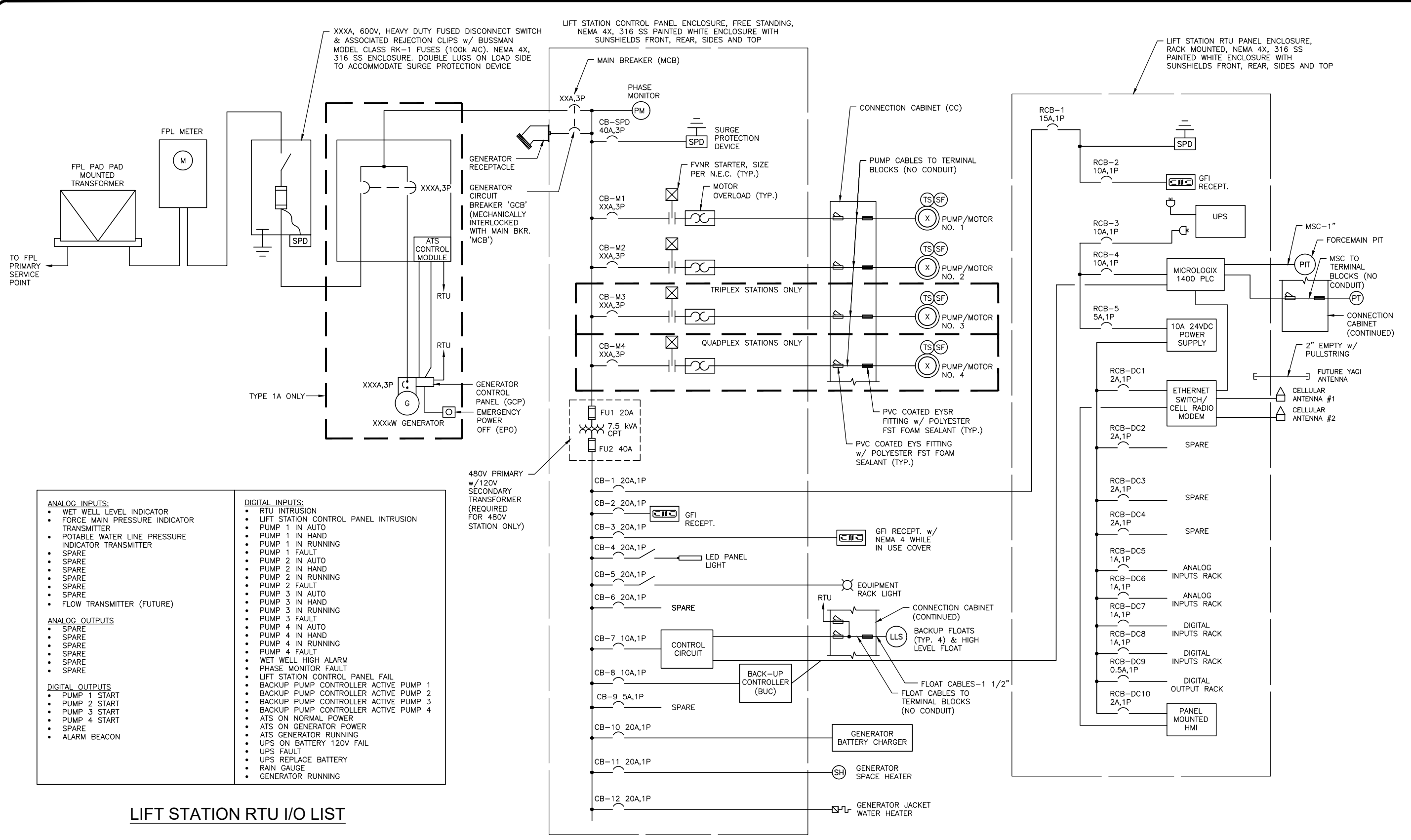
SUBMERSIBLE LIFT STATION - PUMP PANEL:
NAME PLATE SCHEDULE

CITY OF WEST PALM BEACH

STANDARD
DETAIL

SLS-12

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ANALOG INPUTS:	DIGITAL INPUTS:
<ul style="list-style-type: none"> WET WELL LEVEL INDICATOR FORCE MAIN PRESSURE INDICATOR TRANSMITTER POTABLE WATER LINE PRESSURE INDICATOR TRANSMITTER SPARE SPARE SPARE SPARE SPARE SPARE FLOW TRANSMITTER (FUTURE) 	<ul style="list-style-type: none"> RTU INTRUSION LIFT STATION CONTROL PANEL INTRUSION PUMP 1 IN AUTO PUMP 1 IN HAND PUMP 1 IN RUNNING PUMP 1 FAULT PUMP 2 IN AUTO PUMP 2 IN HAND PUMP 2 IN RUNNING PUMP 2 FAULT PUMP 3 IN AUTO PUMP 3 IN HAND PUMP 3 IN RUNNING PUMP 3 FAULT PUMP 4 IN AUTO PUMP 4 IN HAND PUMP 4 IN RUNNING PUMP 4 FAULT WET WELL HIGH ALARM PHASE MONITOR FAULT LIFT STATION CONTROL PANEL FAIL BACKUP PUMP CONTROLLER ACTIVE PUMP 1 BACKUP PUMP CONTROLLER ACTIVE PUMP 2 BACKUP PUMP CONTROLLER ACTIVE PUMP 3 BACKUP PUMP CONTROLLER ACTIVE PUMP 4 ATS ON NORMAL POWER ATS ON GENERATOR POWER ATS GENERATOR RUNNING UPS ON BATTERY 120V FAIL UPS FAULT UPS REPLACE BATTERY RAIN GAUGE GENERATOR RUNNING
ANALOG OUTPUTS	DIGITAL OUTPUTS
<ul style="list-style-type: none"> SPARE SPARE SPARE SPARE SPARE SPARE 	<ul style="list-style-type: none"> PUMP 1 START PUMP 2 START PUMP 3 START PUMP 4 START SPARE ALARM BEACON

LIFT STATION RTU I/O LIST

LIFT STATION TYPE 1 WITHOUT GENERATOR
(2 OR 3 PUMPS ≤ 5 HP - 240V-3φ AND 480V-3φ)

LIFT STATION TYPE 1A WITH GENERATOR
(2 OR 3 PUMPS > 5 HP TO ≤ 15 HP - 240V-3φ AND 480V-3φ)

STANDARD
DETAIL

SLS-13.1

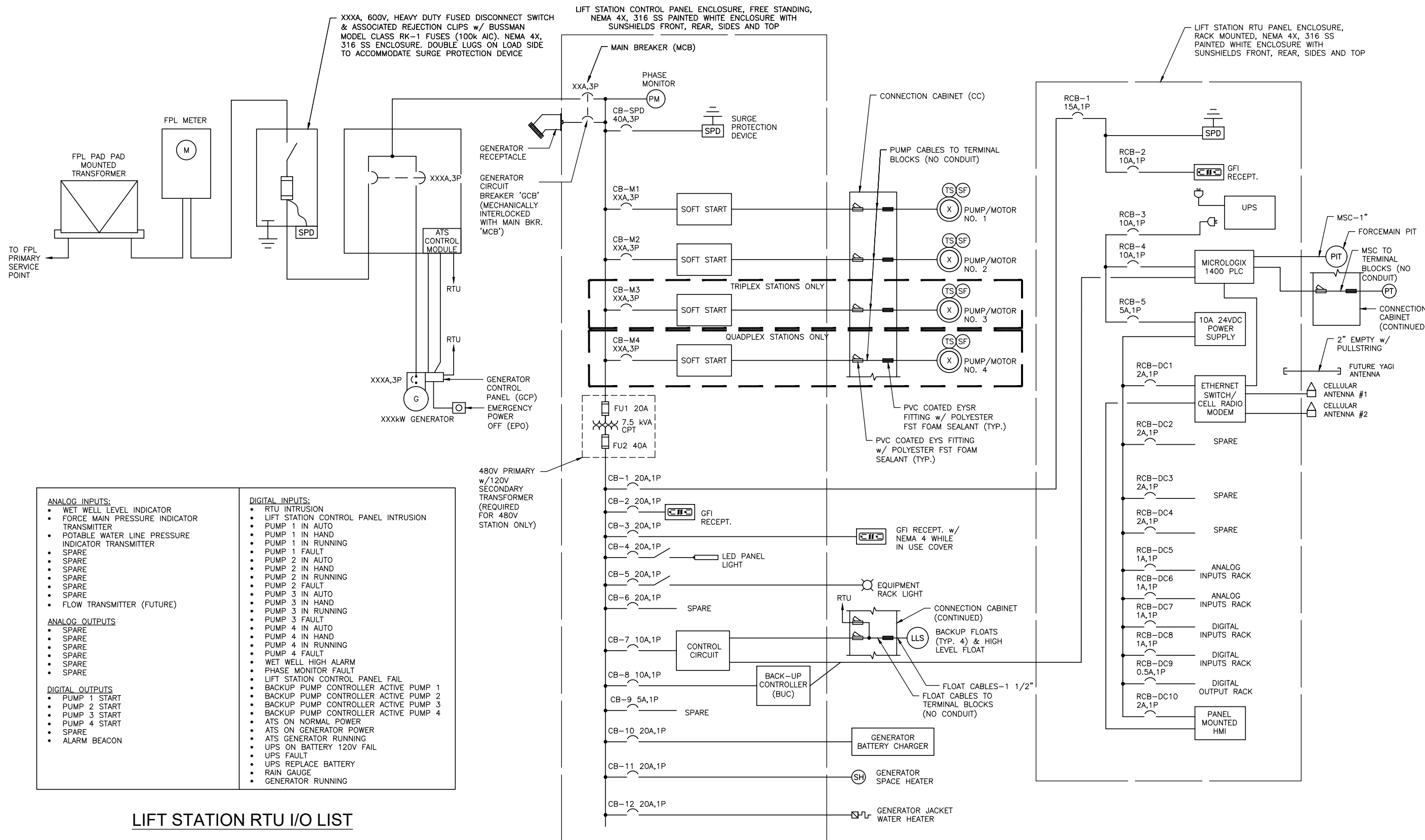
SUBMERSIBLE LIFT STATION - TYPE 1 / 1A - SINGLE LINE DIAGRAM

CITY OF WEST PALM BEACH

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REVISION

NOV. 2023

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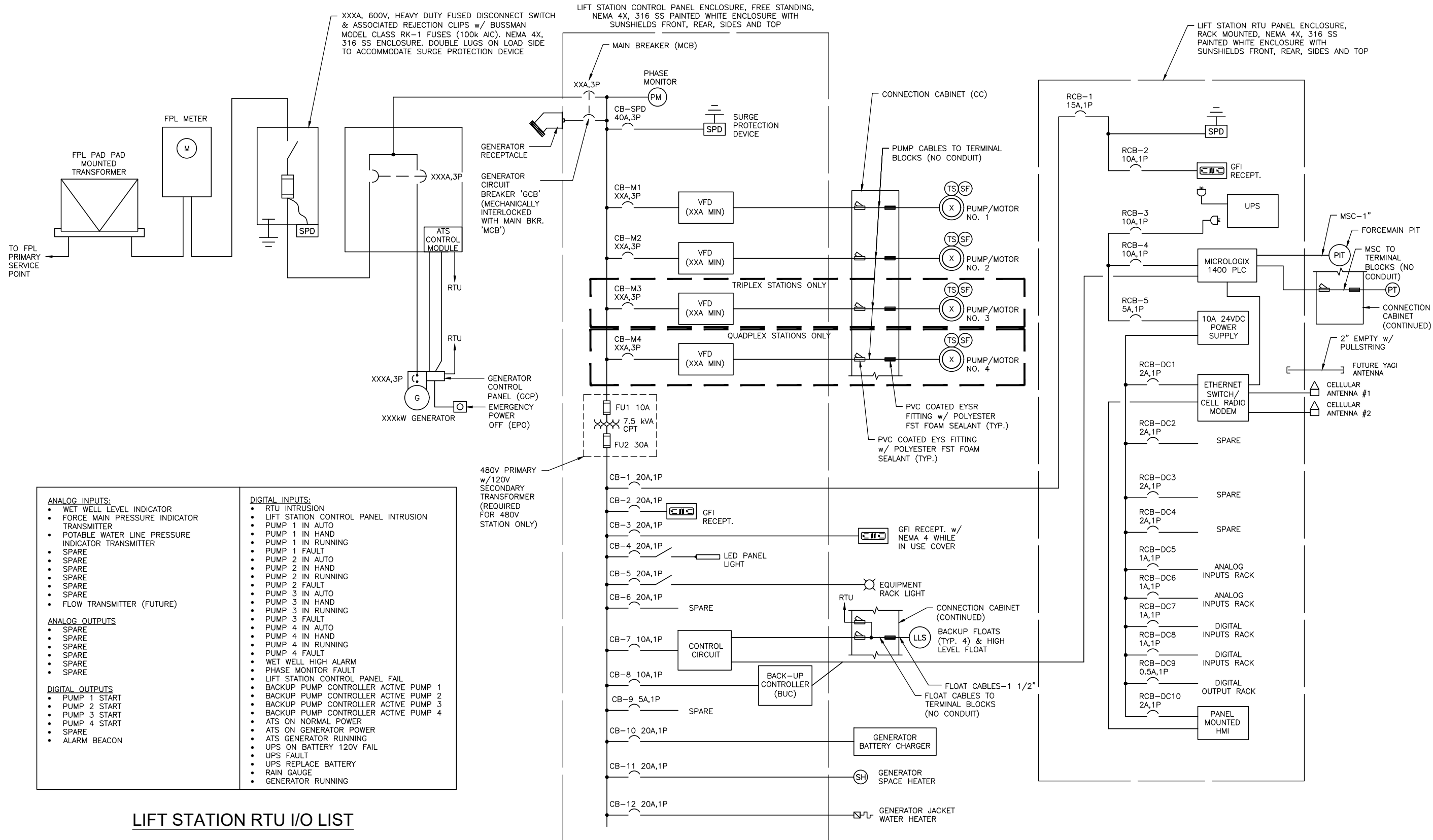


ANALOG INPUTS:	DIGITAL INPUTS:
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ANALOG OUTPUTS	DIGITAL OUTPUTS
<ul style="list-style-type: none"> SPARE SPARE SPARE SPARE SPARE SPARE 	<ul style="list-style-type: none"> PUMP 1 START PUMP 2 START PUMP 3 START PUMP 4 START SPARE ALARM BEACON
DIGITAL OUTPUTS	
<ul style="list-style-type: none"> PUMP 1 START PUMP 2 START PUMP 3 START PUMP 4 START SPARE ALARM BEACON 	

LIFT STATION RTU I/O LIST

LIFT STATION TYPE 2
(2 OR 3 PUMPS > 15 HP TO ≤ 30 HP w/ SOFT STARTS - 480V-3φ)

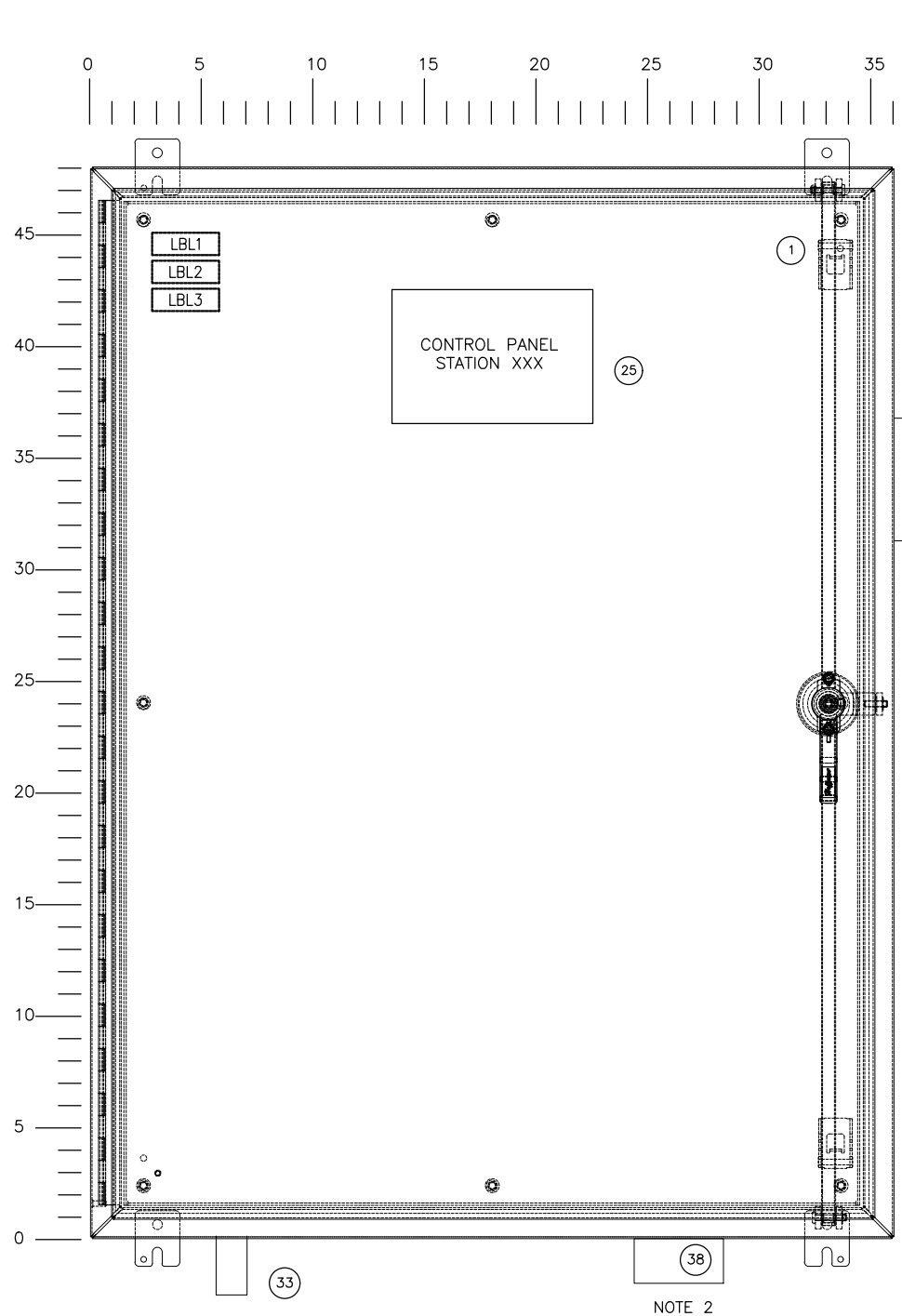
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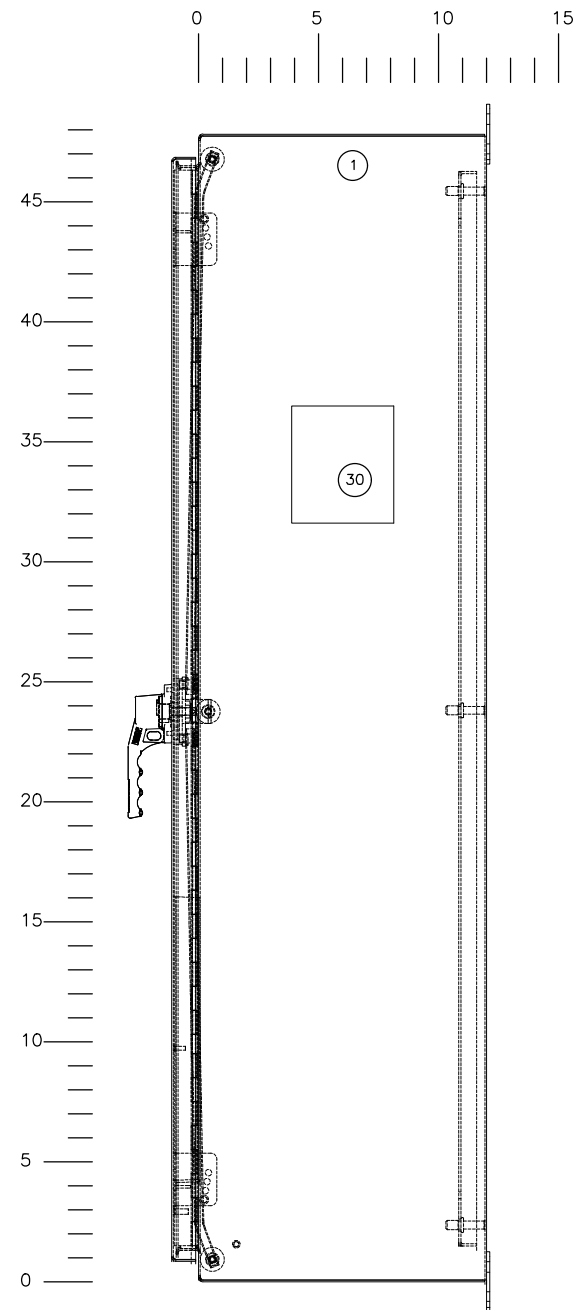
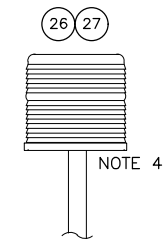
LIFT STATION RTU I/O LIST

LIFT STATION TYPE 3
 (2 OR 3 PUMPS > 15 HP TO ≤ 40 HP w/ VFD - 480V-3φ)
 (2 OR 3 PUMPS > 15 HP TO ≤ 20 HP w/ VFD - 240V-3φ)
 AND
LIFT STATION TYPE 4
 (2 OR 3 PUMPS > 40 HP TO 50 HP w/ VFD - 480V-3φ)

LIFT STATION CONTROL PANEL ENCLOSURE DETAILS (TYPE 1 / 1A)
"2 OR 3 PUMPS" "1 HP TO 15 HP" "240 VOLTS 3 ϕ and 480 VOLTS 3 ϕ "



LIFT STATION PANEL (TYPE 1)
EXTERNAL FRONT LAYOUT

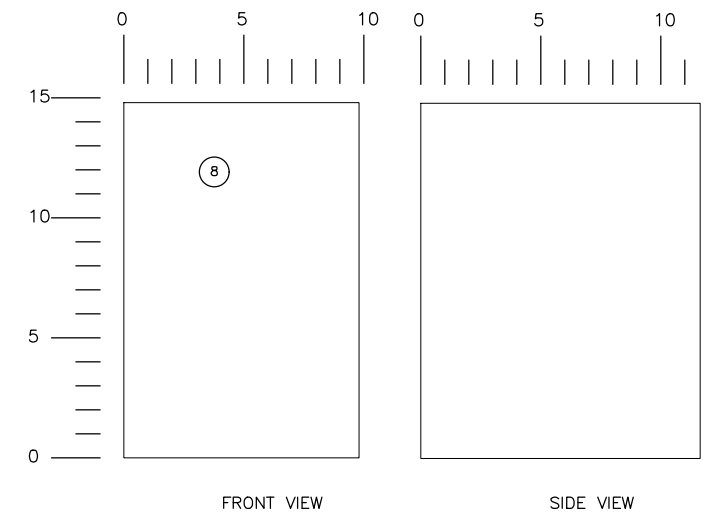


LIFT STATION PANEL (TYPE 1)
RIGHT SIDE LAYOUT

- GENERAL NOTES:
1. SEE APPROPRIATE BOM FOR ACTUAL PART NUMBERS AND QUANTITIES REQUIREMENTS.
 2. RECEPTACLE TO BE SHIPPED UNASSEMBLED AND FIELD INSTALLED BY ELECTRICAL CONTRACTOR.
 3. REQUIRED FOR 480V ONLY: TRANSFORMER IS TO BE SHIPPED UNASSEMBLED, AND INSTALLED AND WIRED IN THE FIELD BY ELECTRICAL CONTRACTOR.
 4. ALARM LIGHT TO BE SHIPPED UNASSEMBLED, AND MOUNTED ON 3/4" RIGID ALUMINUM CONDUIT SEPARATE FROM THE CONTROL PANEL. SEE EQUIPMENT RACK ELEVATION.

- ALL TERMINALS MUST BE LABELED WITH NUMBER FROM THE CITY'S STANDARD DETAIL.
- ALL WIRE COLORS MUST MATCH WITH THE CITY'S STANDARD DETAIL.
- ALL WIRE NUMBERS MUST MATCH WITH THE CITY'S STANDARD DETAIL.

- LABELS:
1. UL 508A LABEL
 2. TO MAINTAIN ENCLOSURE RATING, USE HUBS OR FITTINGS WITH THE SAME ENVIRONMENTAL RATING AS THE ENCLOSURE:
 - O-Z/GEDNEY CHM SERIES HUBS
 - APPLETON HUB SERIES HUBS
 - CROUSE HINDS ST SERIES HUBS
 3. SHORT CIRCUIT CURRENT: 10kA RMS SYMMETRICAL, 480V MAXIMUM



CONTROL TRANSFORMER

NOTE 3

STANDARD
DETAIL

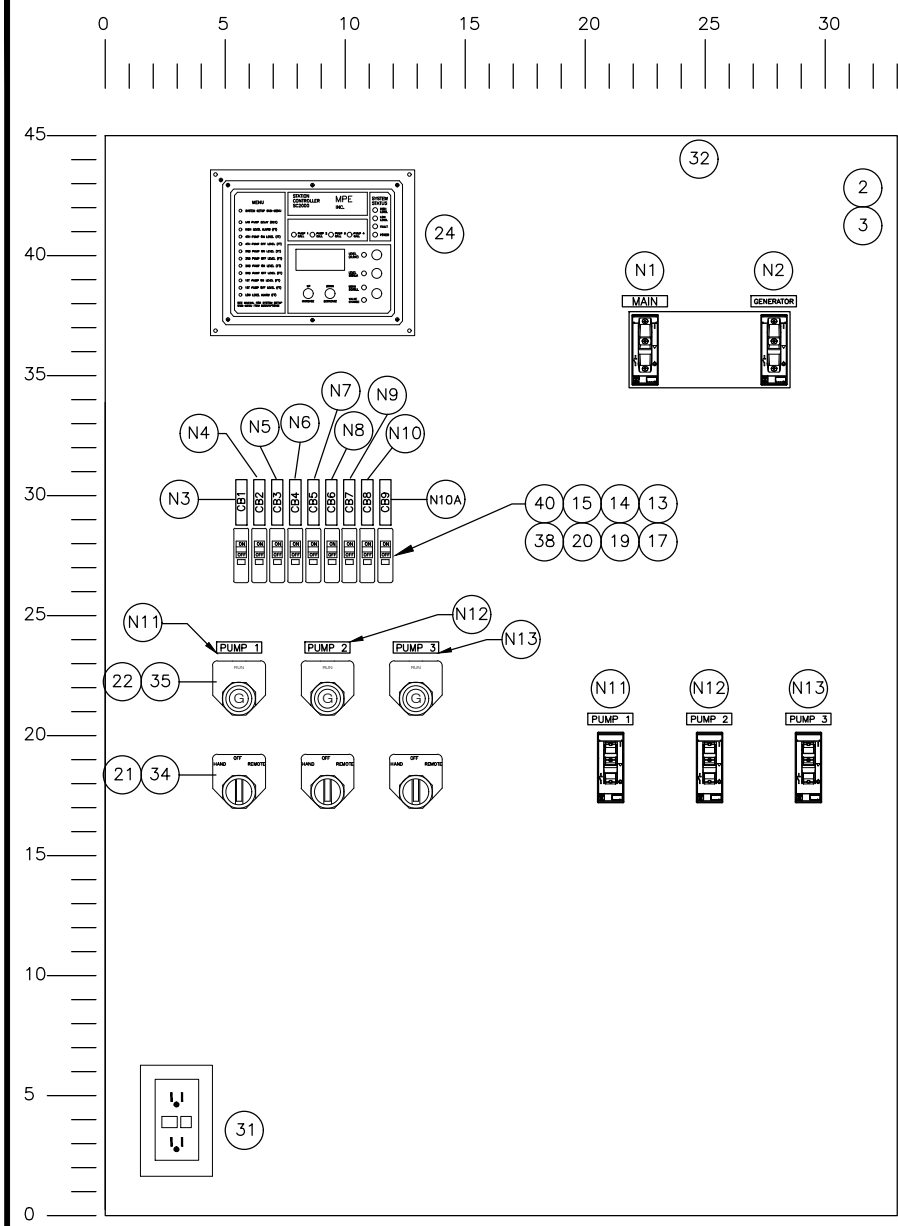
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SUBMERSIBLE LIFT STATION - TYPE 1 / 1A ENCLOSURE LAYOUT

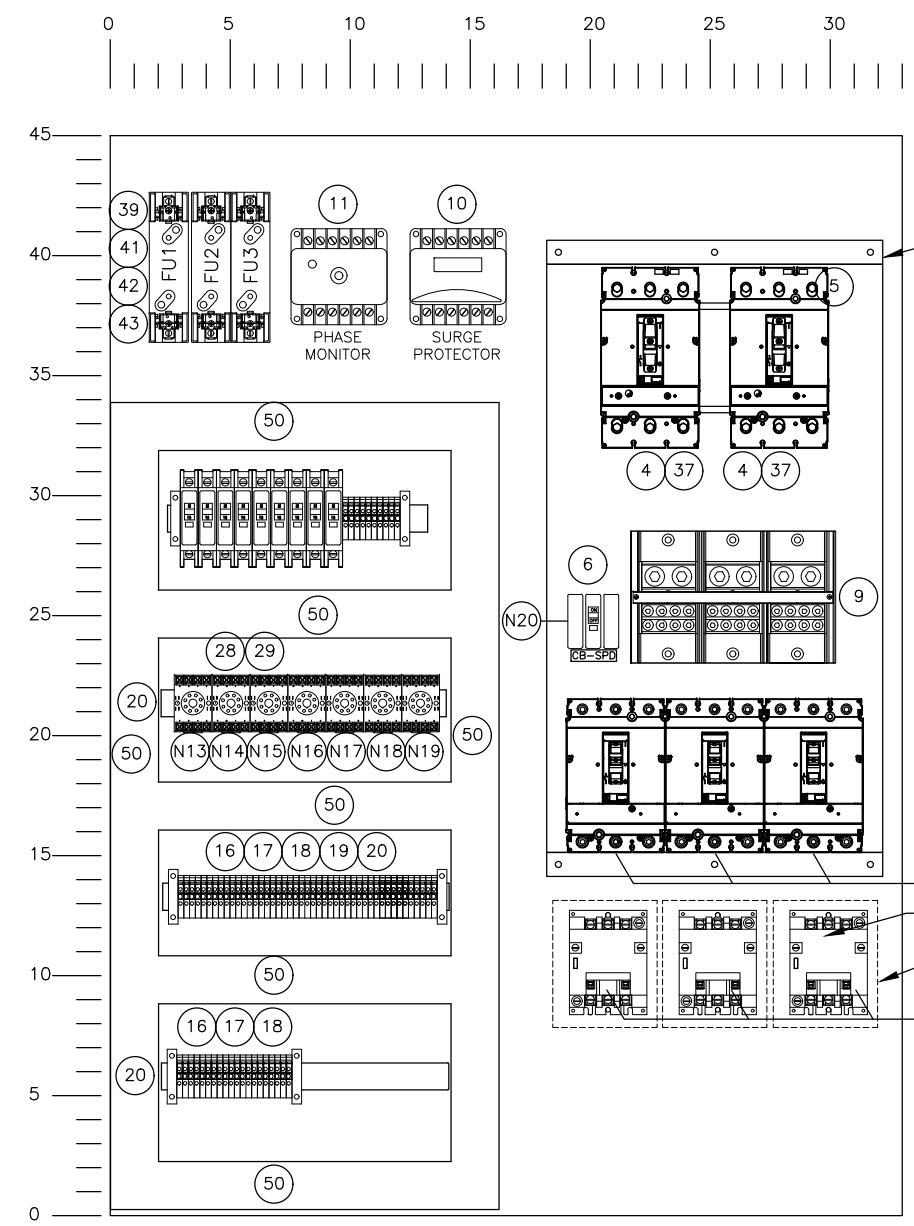
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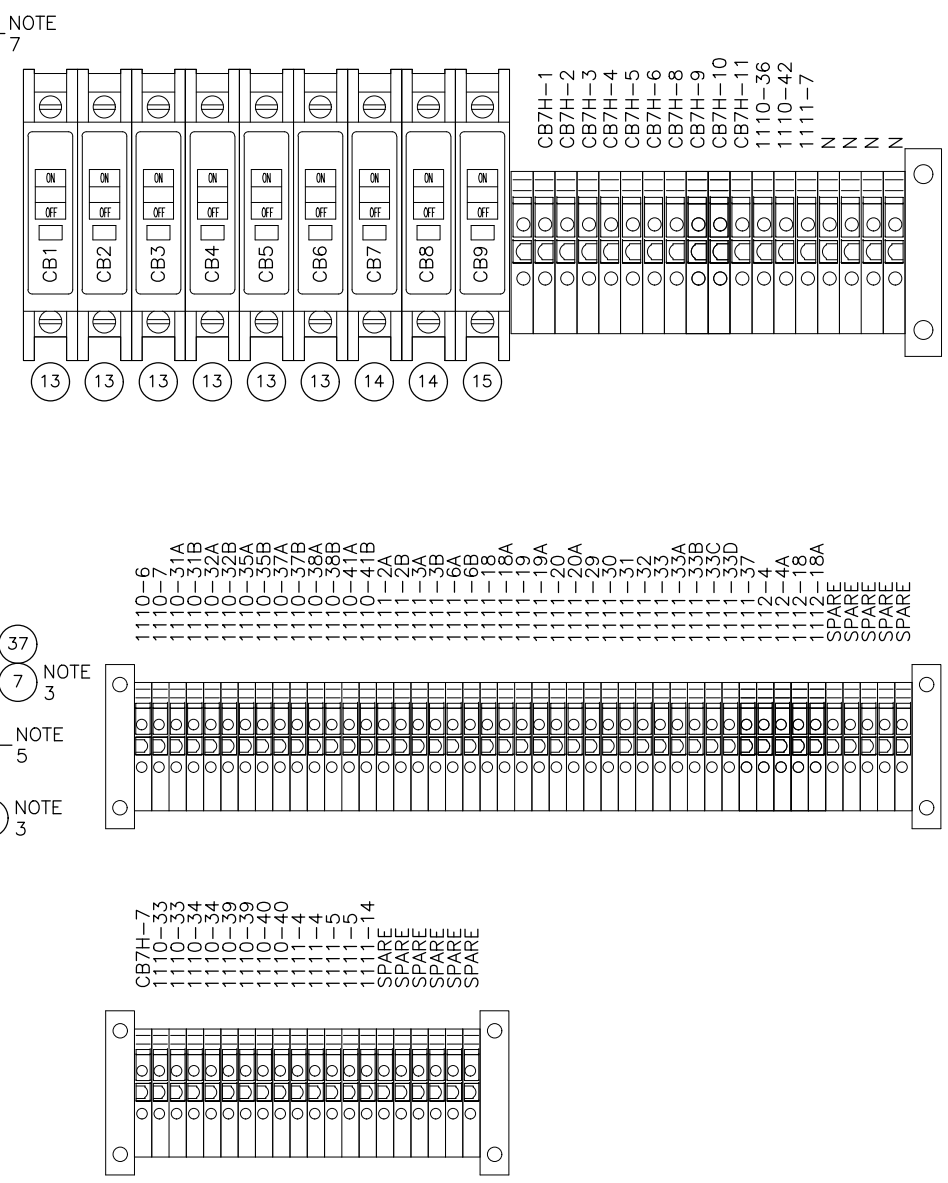


INNER PANEL DETAILS
MAIN FRONT DOOR NOT SHOWN



BACK PANEL DETAILS

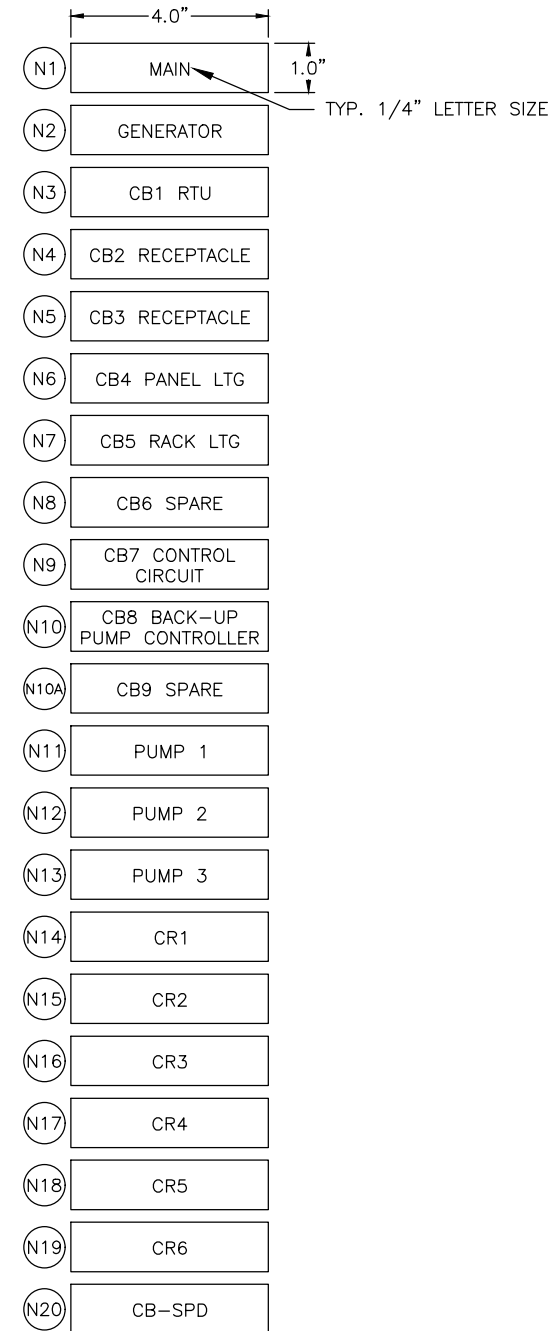
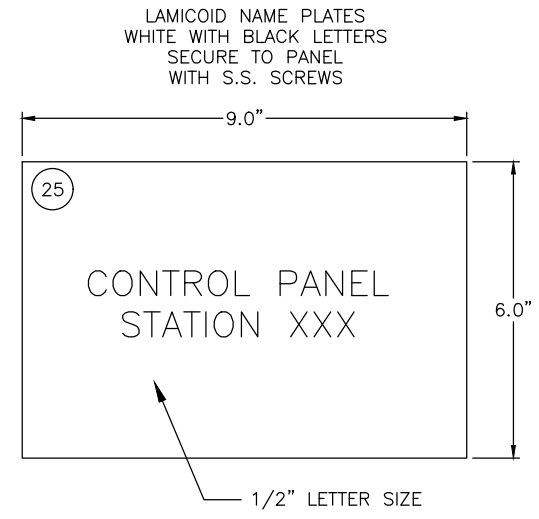
- GENERAL NOTES:
1. SEE APPROPRIATE BOM FOR ACTUAL PART NUMBERS QUANTITIES REQUIREMENTS.
 2. SEE APPROPRIATE WIRING SCHEMATIC.
 3. DRAWING SHOWN FOR A THREE MOTORS LAYOUT ONLY TWO WILL BE REQUIRED FOR A TWO PUMP STATION.
 4. STARTER SIZE 1 (MOTORS 1 THRU 10 HP)
 5. OUTLINE OF STARTER SIZE 2 (MOTORS 10 THRU 15 HP)
 6. THIS PANEL IS DESIGNED FOR MANUAL GENERATOR TRANSFER.
 7. CUSTOM HAT BRACKET.



STANDARD DETAIL	SUBMERSIBLE LIFT STATION - TYPE 1 / 1A PANEL LAYOUT	LATEST REVISION
SLS-14.2	CITY OF WEST PALM BEACH	NOV. 2023

BILL OF MATERIALS					
ITEM	DESCRIPTION	MANUFACTURER	PART NUMBER	2 PUMP QTY.	3 PUMP QTY.
1	NEMA 4X 316SS POWDER COATED WHITE ENCLOSURE 48"x36"x12"	HOFFMAN	A48H3612SS6LP3PTW	1	1
2	BACK PANEL	HOFFMAN	A48P36	2	2
3	SWING OUT PANEL KIT	HOFFMAN	ANADFK	1	1
4	MAIN BREAKERS	SQUARE D	SEE SLS-14.4	2	2
5	MECHANICAL INTERLOCK FOR H AND J-FRAME BREAKERS	SQUARE D	S29354	1	1
6	CB-SPD, 3 POLE 40 AMP BREAKER	SQUARE D	HDL36040	1	1
7	MOTOR BREAKERS 3 POLE	SQUARE D	SEE SLS-14.4	2	3
8	REQUIRED FOR 480V ONLY: 7.5 KVA 480 - 120V TRANSFORMER SS ENCLOSURE	SQUARE D	7S1FSS	1	1
9	POWER DISTRIBUTION BLOCK	SQUARE D	LBA36206	1	1
10	3 PHASE SURGE PROTECTION	SQUARE D	SDSA3650	1	1
11	PHASE MONITOR	ATC DIVERSIFIED	SLA-440-ALE	1	1
12	NEMA CONTACTOR WITH AUXILIARY CONTACT	SQUARE D	SEE SLS-14.4	2	3
13	1 POLE 20 AMP BREAKER	SQUARE D	QOU120	9	9
14	1 POLE 10 AMP BREAKER	SQUARE D	QOU110	2	2
15	1 POLE 5 AMP BREAKER	SQUARE D	GCB50	1	1
16	TERMINALS (#28 - #12 AWG)	ALLEN-BRADLEY	1492-J3	A/R	A/R
17	TERMINAL END ANCHORS	ALLEN-BRADLEY	1492-EAHJ35	A/R	A/R
18	TERMINAL END BARRIERS	ALLEN-BRADLEY	1492-EBJ3	A/R	A/R
19	TERMINAL CENTER JUMPERS	ALLEN-BRADLEY	1492-CJ6-10	A/R	A/R
20	DIN RAIL	ALLEN-BRADLEY	1492-DR1	A/R	A/R
21	3 POSITION SELECTOR SWITCH	SQUARE D	9001SKS43BH2	2	3
22	GREEN PUSH TO TEST PILOT LIGHT	SQUARE D	9001SKT38LGG31	2	3
23					
24	4 PUMP BACK UP CONTROLLER	MOTOR PROTECTION ELECTRONICS	SC2000-11S	1	1
25	9" X 6" WHITE NAME PLATE W/BLACK LETTERING AS SHOWN	-	-	1	1
26	ALARM BEACON	FEDERAL SIGNAL	191XL-S120-240R	1	1
27	ALARM BEACON GUARD	FEDERAL SIGNAL	K8449090B	1	1
28	3PDT RELAY 120V COIL	SQUARE D	8501 KP13P14V20	4	6
29	RELAY BASE	SQUARE D	8501 NR61	4	6
30	GENERATOR RECEPTACLE WITH ANGLE ADAPTOR	APPLETON	*SEE NOTE	1	1
31	20A GFCI RECEPTACLE IN BOX	-	-	1	1
32	DOOR ACTIVATED SWITCH	HOFFMAN	ALFSWD	1	1
33	H20MIT VENT DRAIN	HOFFMAN	AVDR4SS4	1	1
34	HAND OFF AUTO LEGEND	ALLEN-BRADLEY	800T-X511	2	3
35	RUN LEGEND	ALLEN-BRADLEY	800T-X540	2	3
36	4" X 1" WHITE NAME PLATE W/BLACK LETTERING AS SHOWN	-	-	A/R	A/R
37	BREAKER HANDLE PADLOCK ATTACHMENT	SQUARE D	S37422	2	3
38	20A,1P GFCI RECEPTACLE w/NEMA 4 WHILE IN USE COVER	-	-	1	1
39	CLASS R FUSE HOLDER	SQUARE D	9080 FB1611R	3	3
40	TERMINALS (#18 - #6 AWG)	ALLEN-BRADLEY	1492-J10	A/R	A/R
41	40 AMP CLASS R FUSE	BUSSMANN	FRN-R-40	2	2
42	20 AMP CLASS R FUSE	BUSSMANN	FRN-R-20	2	2
43	60 AMP CLASS R FUSE	BUSSMANN	FRN-R-60	1	1
44					
45					
46					
47					
48					
49					
50	2"W X 3"H WIREWAY WITH COVER	-	-	A/R	A/R
51					
52					
53					
54					

*NOTE: AR20044-RS (240V SERVICE) OR AR2004-P4-RS (480V SERVICE) WITH TYPE AJA ANGLE ADAPTER



NOTES:
1. ITEM SHALL SHIP LOOSE; FIELD INSTALL

STANDARD
DETAIL

SLS-14.3

SUBMERSIBLE LIFT STATION - TYPE 1 / 1A BILL OF MATERIALS - 1

CITY OF WEST PALM BEACH

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BOM ITEMS SELECTION CHART (2 PUMPS, 480 VOLTS 3Φ)													
MOTOR 3Φ		MAIN BREAKERS WIRE SIZE	ITEM 11 PHASE MONITOR	ITEM 4 (MAIN BREAKERS) 18kAIC		ITEM 4 (MAIN BREAKERS) 25kAIC		MOTOR FEEDER SIZE	ITEM 7 (MOTOR BREAKER)		ITEM 12 (CONTACTOR)		ITEM 46 (OVERLOAD)
HP	FLA			AMPS	CATALOG #	AMPS	CATALOG #		AMPS	CATALOG #	SIZE	CATALOG #	
1	2.1	10	SLA-440-ALE	30	HDL36030	30	HGL36030	12	15	HDL36015	1	8502 SC02V02X01	9065SFB20
2	3.4	8	SLA-440-ALE	30	HDL36030	30	HGL36030	12	15	HDL36015	1	8502 SC02V02X01	9065SFB20
3	4.8	8	SLA-440-ALE	30	HDL36030	30	HGL36030	12	15	HDL36015	1	8502 SC02V02X01	9065SFC20
5	7.6	6	SLA-440-ALE	40	HDL36040	40	HGL36040	12	15	HDL36015	1	8502 SC02V02X01	9065SFC20
7.5	11	6	SLA-440-ALE	50	HDL36050	50	HGL36050	12	20	HDL36020	1	8502 SC02V02X01	9065SF020
10	14	4	SLA-440-ALE	60	HDL36060	60	HGL36060	12	30	HDL36030	1	8502 SC02V02X01	9065SF020
15	21	2	SLA-440-ALE	70	HDL36070	70	HGL36070	10	40	HDL36040	2	8502 SD02V02X01	9065SF120

BOM ITEMS SELECTION CHART (3 PUMPS, 480 VOLTS 3Φ)													
MOTOR 3Φ		MAIN BREAKERS WIRE SIZE	ITEM 11 PHASE MONITOR	ITEM 4 (MAIN BREAKERS) 18kAIC		ITEM 4 (MAIN BREAKERS) 25kAIC		MOTOR FEEDER SIZE	ITEM 7 (MOTOR BREAKER)		ITEM 12 (CONTACTOR)		ITEM 46 (OVERLOAD)
HP	FLA			AMPS	CATALOG #	AMPS	CATALOG #		AMPS	CATALOG #	SIZE	CATALOG #	
1	2.1	10	SLA-440-ALE	30	HDL36030	30	HGL36030	12	15	HDL36015	1	8502 SC02V02X01	9065SFB20
2	3.4	8	SLA-440-ALE	40	HDL36040	40	HGL36040	12	15	HDL36015	1	8502 SC02V02X01	9065SFB20
3	4.8	8	SLA-440-ALE	40	HDL36040	40	HGL36040	12	15	HDL36015	1	8502 SC02V02X01	9065SFC20
5	7.6	6	SLA-440-ALE	50	HDL36050	50	HGL36050	12	15	HDL36015	1	8502 SC02V02X01	9065SFC20
7.5	11	6	SLA-440-ALE	60	HDL36060	60	HGL36060	12	20	HDL36020	1	8502 SC02V02X01	9065SF020
10	14	4	SLA-440-ALE	70	HDL36070	70	HGL36070	10	30	HDL36030	1	8502 SC02V02X01	9065SF020
15	21	2	SLA-440-ALE	100	HDL36100	100	HGL36100	10	40	HDL36040	2	8502 SD02V02X01	9065SF120

BOM ITEMS SELECTION CHART (2 PUMPS, 240 VOLTS 3Φ)													
MOTOR 3Φ		MAIN BREAKERS WIRE SIZE	ITEM 11 PHASE MONITOR	ITEM 4 (MAIN BREAKERS) 25kAIC		ITEM 4 (MAIN BREAKERS) 65kAIC		MOTOR FEEDER SIZE	ITEM 7 (MOTOR BREAKER)		ITEM 12 (CONTACTOR)		ITEM 46 (OVERLOAD)
HP	FLA			AMPS	CATALOG #	AMPS	CATALOG #		AMPS	CATALOG #	SIZE	CATALOG #	
1	4.2	6	SLA-230-ALE	50	HDL36050	50	HGL36050	12	15	HDL36015	1	8502 SC02V02X01	9065SFC20
2	6.8	6	SLA-230-ALE	50	HDL36050	50	HGL36050	12	15	HDL36015	1	8502 SC02V02X01	9065SFC20
3	9.6	6	SLA-230-ALE	60	HDL36060	60	HGL36060	12	20	HDL36020	1	8502 SC02V02X01	9065SF020
5	15.2	4	SLA-230-ALE	80	HDL36080	80	HGL36080	10	30	HDL36030	1	8502 SC02V02X01	9065SF020
7.5	22	2	SLA-230-ALE	100	HDL36100	100	HGL36100	10	45	HDL36045	1	8502 SC02V02X01	9065SF120
10	28	1/0	SLA-230-ALE	150	HDL36150	150	HGL36150	10	60	HDL36060	2	8502 SD02V02X01	9065ST220
15	42	2/0	SLA-230-ALE	150	HDL36150	150	HGL36150	6	70	HDL36070	2	8502 SD02V02X01	9065ST220

BOM ITEMS SELECTION CHART (3 PUMPS, 240 VOLTS 3Φ)													
MOTOR 3Φ		MAIN BREAKERS WIRE SIZE	ITEM 11 PHASE MONITOR	ITEM 4 (MAIN BREAKERS) 25kAIC		ITEM 4 (MAIN BREAKERS) 65kAIC		MOTOR FEEDER SIZE	ITEM 7 (MOTOR BREAKER)		ITEM 12 (CONTACTOR)		ITEM 46 (OVERLOAD)
HP	FLA			AMPS	CATALOG #	AMPS	CATALOG #		AMPS	CATALOG #	SIZE	CATALOG #	
1	4.2	6	SLA-230-ALE	50	HDL36050	50	HGL36050	12	15	HDL36015	1	8502 SC02V02X01	9065SFC20
2	6.8	6	SLA-230-ALE	50	HDL36050	50	HGL36050	12	15	HDL36015	1	8502 SC02V02X01	9065SFC20
3	9.6	4	SLA-230-ALE	60	HDL36060	60	HGL36060	12	20	HDL36020	1	8502 SC02V02X01	9065SF020
5	15.2	2	SLA-230-ALE	80	HDL36080	80	HGL36080	10	30	HDL36030	1	8502 SC02V02X01	9065SF020
7.5	22	1	SLA-230-ALE	125	HDL36125	125	HGL36125	10	45	HDL36045	1	8502 SC02V02X01	9065SF120
10	28	1/0	SLA-230-ALE	150	HDL36150	150	HGL36150	10	60	HDL36060	2	8502 SD02V02X01	9065ST220
15	42	3/0	SLA-230-ALE	200	JDL36200	200	JGL36200	6	70	HDL36070	2	8502 SD02V02X01	9065ST220

LATEST REVISION

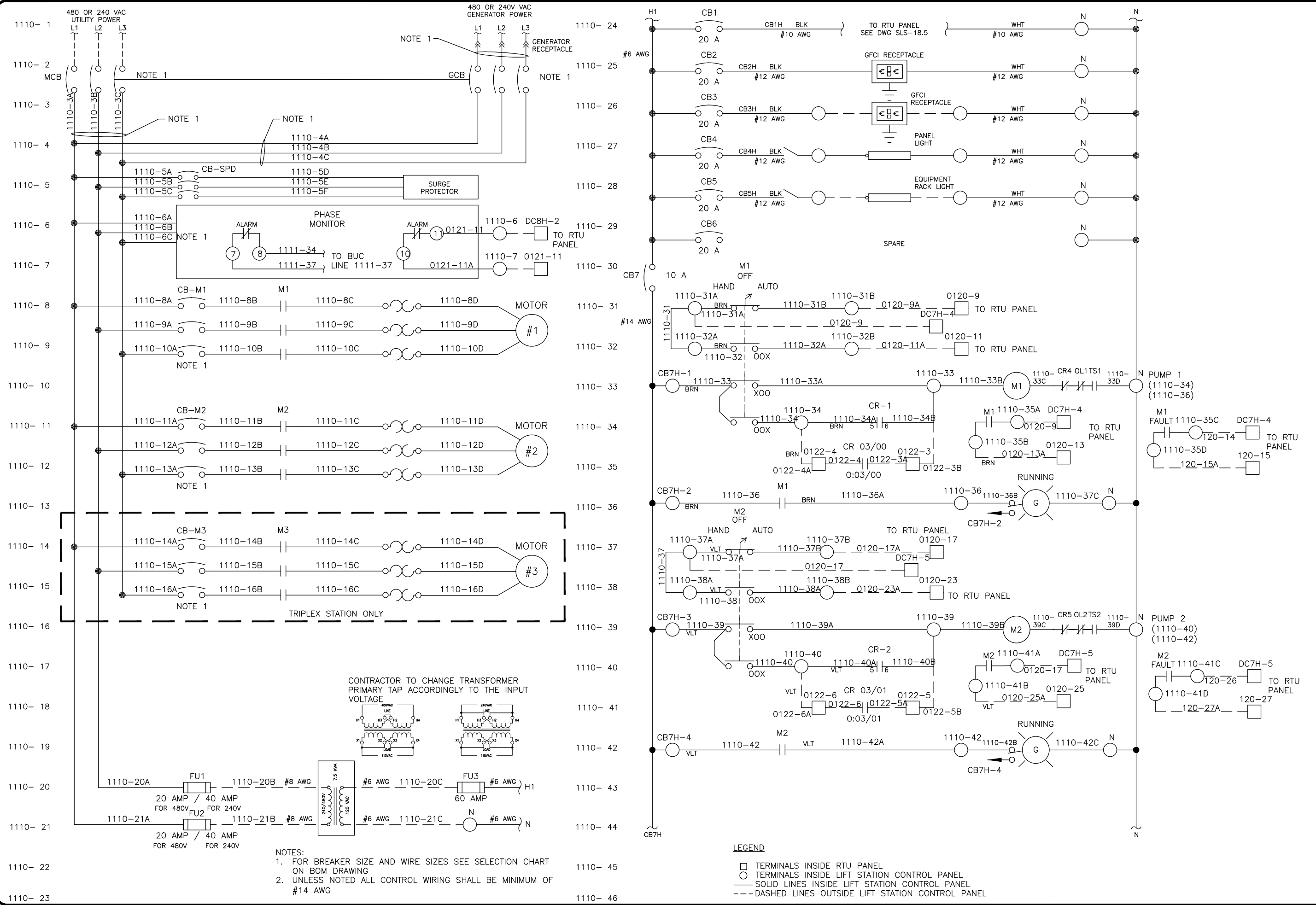
NOV. 2023

SUBMERSIBLE LIFT STATION - TYPE 1 / 1A BILL OF MATERIALS - 2

CITY OF WEST PALM BEACH

STANDARD DETAIL

SLS-14.4



STANDARD
DETAIL

SUBMERSIBLE LIFT STATION - TYPE 1 / 1A 120V POWER SCHEMATIC - 1

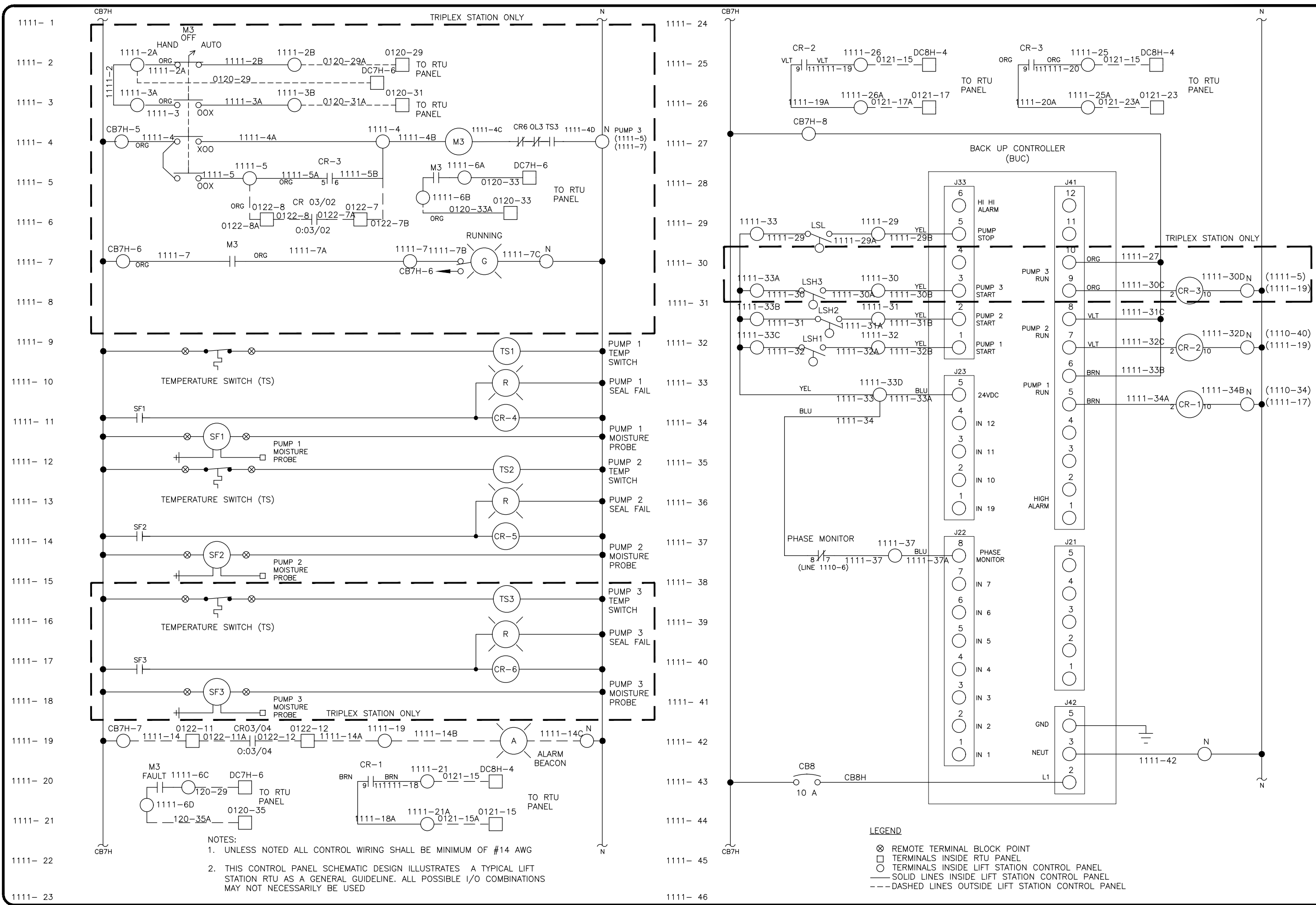
LATEST
REVISION

CITY OF WEST PALM BEACH

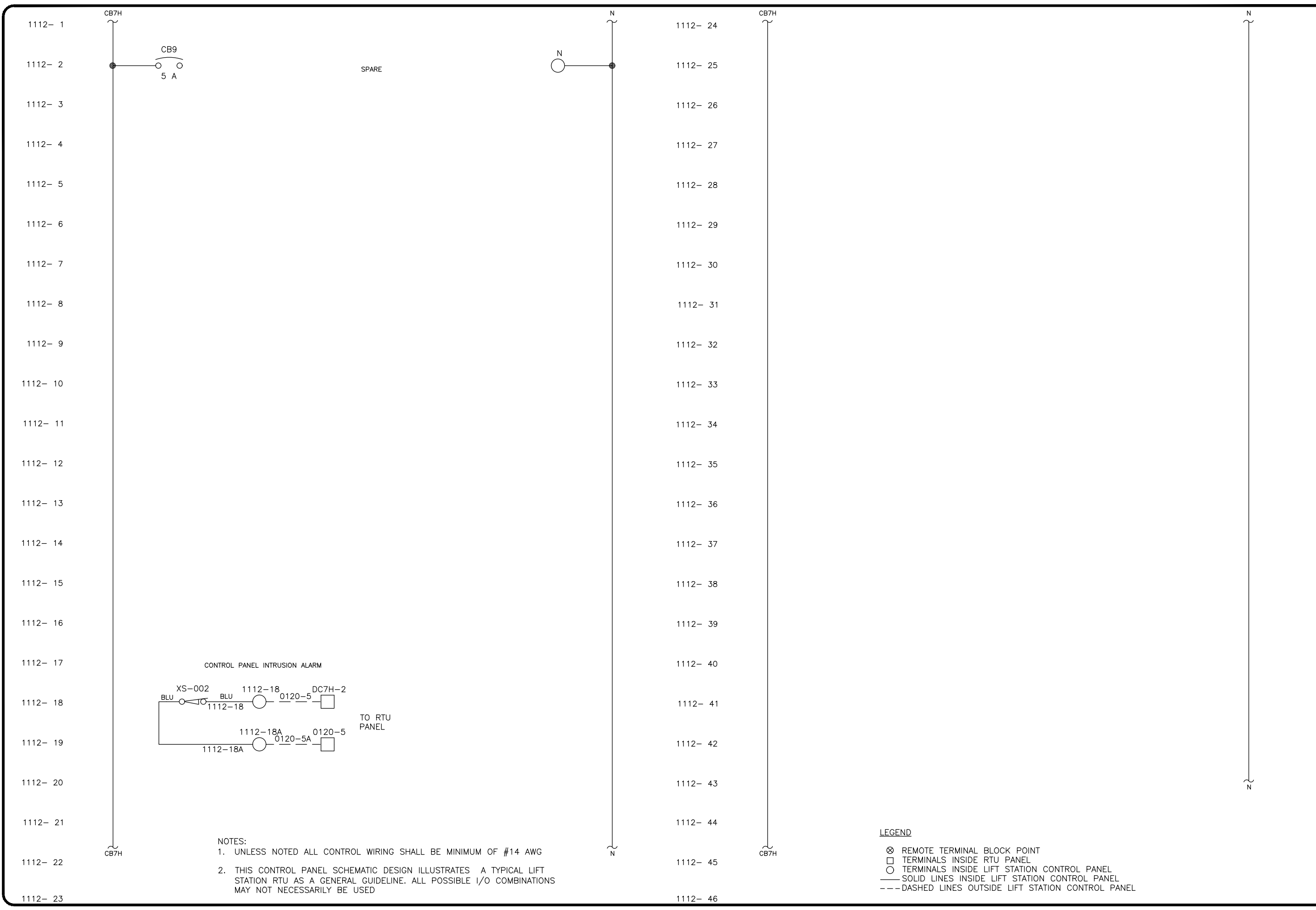
NOV. 2023

SLS-14.5

LEGEND
 □ TERMINALS INSIDE RTU PANEL
 ○ TERMINALS INSIDE LIFT STATION CONTROL PANEL
 — SOLID LINES INSIDE LIFT STATION CONTROL PANEL
 - - - DASHED LINES OUTSIDE LIFT STATION CONTROL PANEL



STANDARD DETAIL	SLS-14.6
SUBMERSIBLE LIFT STATION - TYPE 1 / 1A 120V POWER SCHEMATIC - 2	
CITY OF WEST PALM BEACH	
LATEST REVISION	NOV. 2023

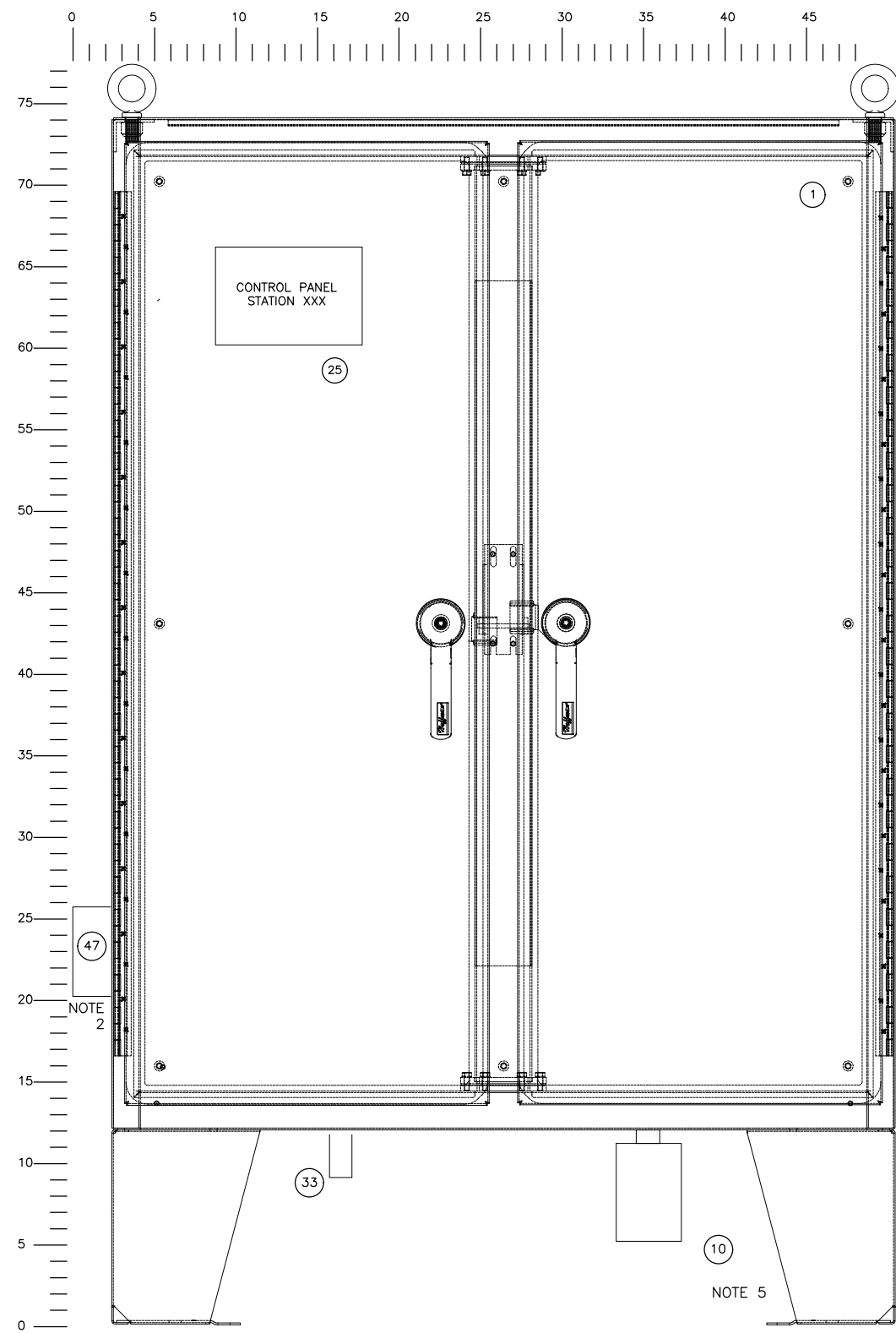


NOTES:
 1. UNLESS NOTED ALL CONTROL WIRING SHALL BE MINIMUM OF #14 AWG
 2. THIS CONTROL PANEL SCHEMATIC DESIGN ILLUSTRATES A TYPICAL LIFT STATION RTU AS A GENERAL GUIDELINE. ALL POSSIBLE I/O COMBINATIONS MAY NOT NECESSARILY BE USED

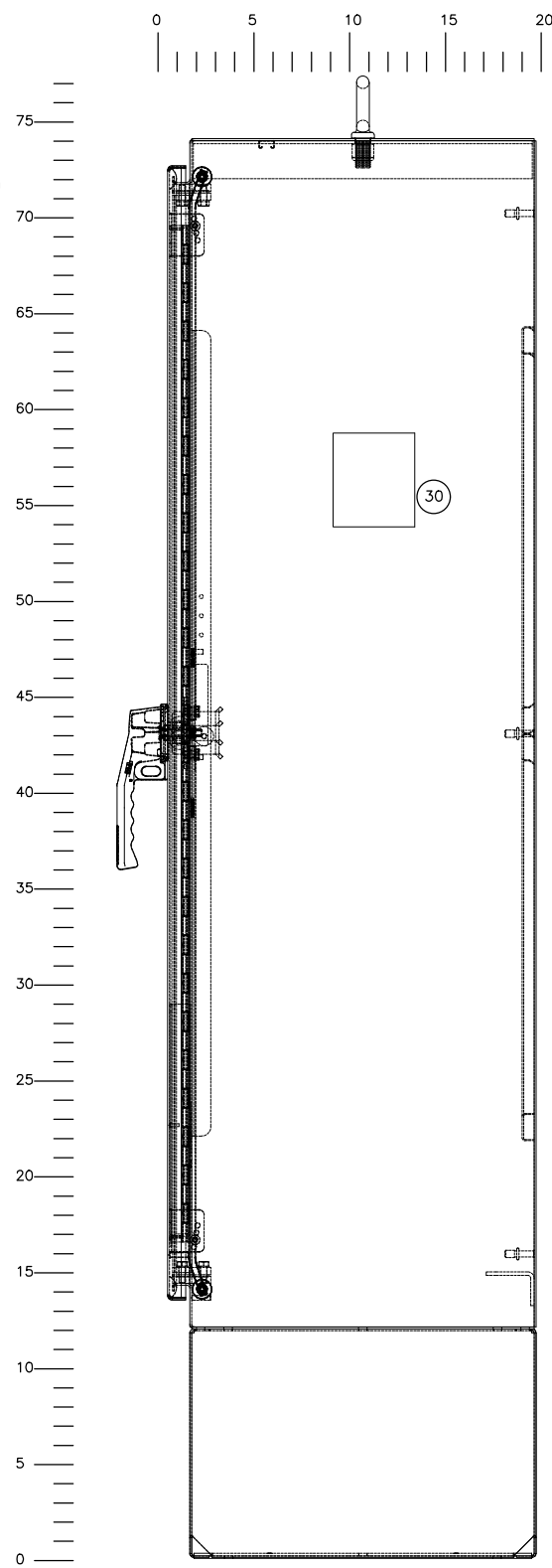
LEGEND
 ⊗ REMOTE TERMINAL BLOCK POINT
 □ TERMINALS INSIDE RTU PANEL
 ○ TERMINALS INSIDE LIFT STATION CONTROL PANEL
 — SOLID LINES INSIDE LIFT STATION CONTROL PANEL
 --- DASHED LINES OUTSIDE LIFT STATION CONTROL PANEL

LATEST REVISION	SUBMERSIBLE LIFT STATION - TYPE 1 / 1A 120V POWER SCHEMATIC - 3	STANDARD DETAIL
NOV. 2023	CITY OF WEST PALM BEACH	SLS-14.7

LIFT STATION SOFT START CONTROL PANEL ENCLOSURE DETAILS (TYPE 2)
 "2 OR 3 PUMPS" "20 HP to 30HP" "240 VOLTS 3 φ or 480 VOLTS 3 φ"

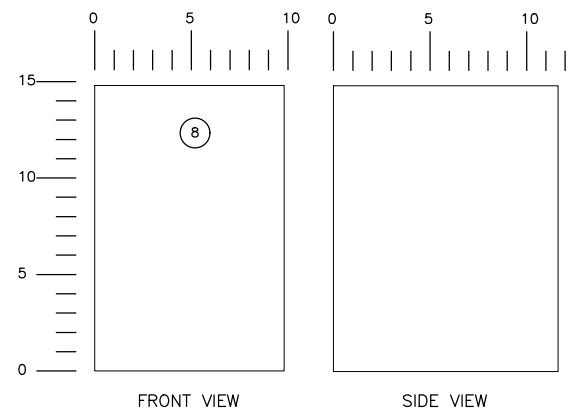


LIFT STATION PANEL (TYPE 2)
 EXTERNAL FRONT LAYOUT



LIFT STATION PANEL (TYPE 2)
 RIGHT SIDE LAYOUT

- 1-15HP: STARTER 20HP AND HIGHER SOFT STARTER.
 VFDs ARE ONLY REQUIRED PER CITY'S REQUEST.
- GENERAL NOTES:
1. SEE APPROPRIATE BOM FOR ACTUAL PART NUMBERS AND QUANTITIES REQUIREMENTS.
 2. RECEPTACLE TO BE SHIPPED UNASSEMBLED AND FIELD INSTALLED BY ELECTRICAL CONTRACTOR.
 3. FOR 480V ONLY: TRANSFORMER IS TO BE SHIPPED UNASSEMBLED, AND INSTALLED AND WIRED IN THE FIELD BY ELECTRICAL CONTRACTOR.
 4. ALARM LIGHT TO BE SHIPPED UNASSEMBLED, AND MOUNTED ON 3/4" RIGID ALUMINUM CONDUIT SEPARATE FROM THE CONTROL PANEL.
 5. 240/480V SURGE PROTECTION TO BE SHIPPED UNASSEMBLED AND FIELD INSTALLED BY ELECTRICAL CONTRACTOR.
 6. ALL TERMINALS MUST BE LABELED WITH NUMBER FROM STANDARD DETAIL.
 7. ALL WIRE COLORS MUST MATCH W/ THE CITY'S STANDARD DETAIL.
 8. ALL WIRE NUMBERS MUST MATCH W/ THE CITY'S STANDARD DETAIL.



CONTROL TRANSFORMER

NOTE 3

STANDARD
 DETAIL

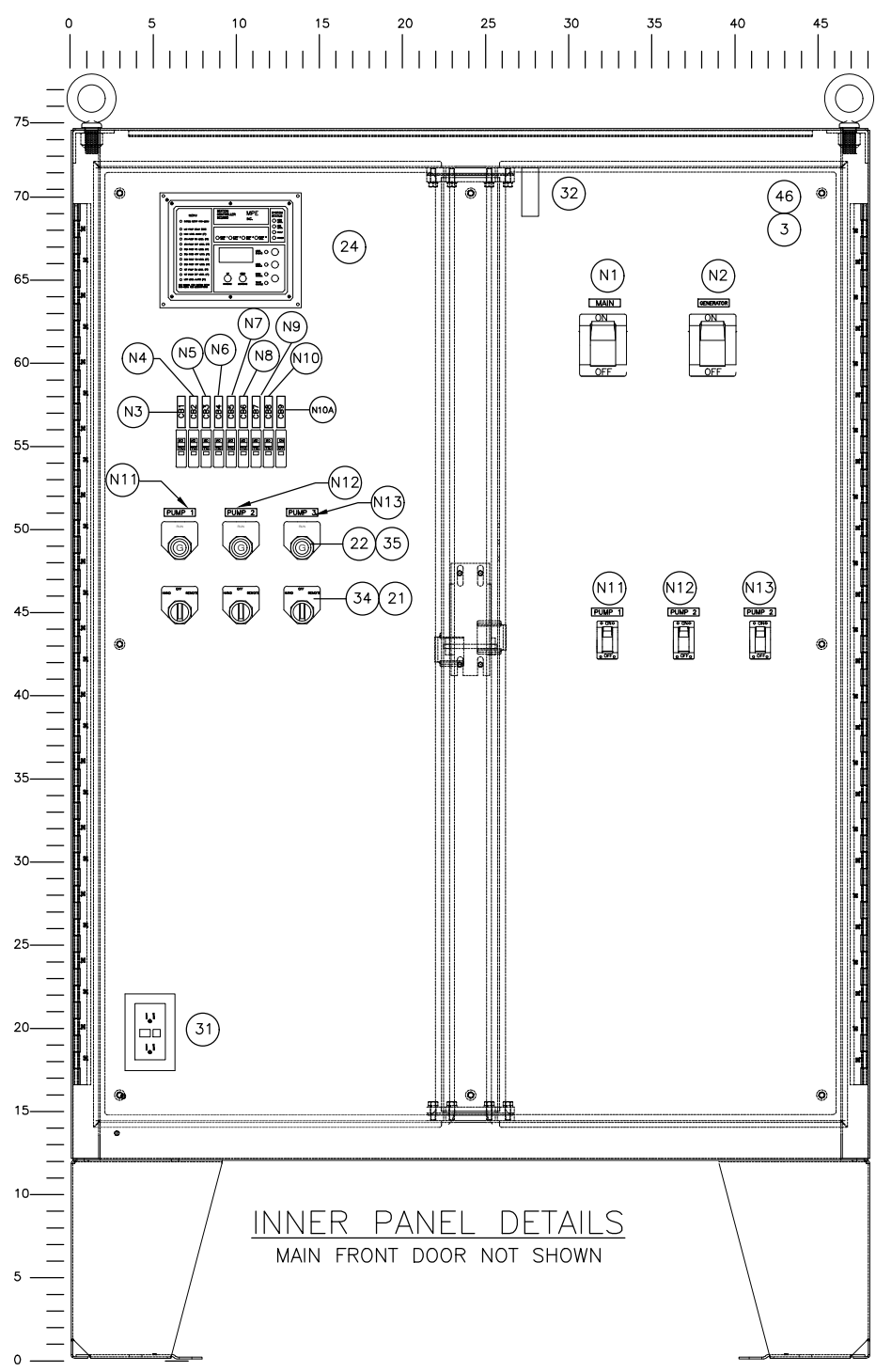
SL-S-15.1

SUBMERSIBLE LIFT STATION - TYPE 2 ENCLOSURE LAYOUT

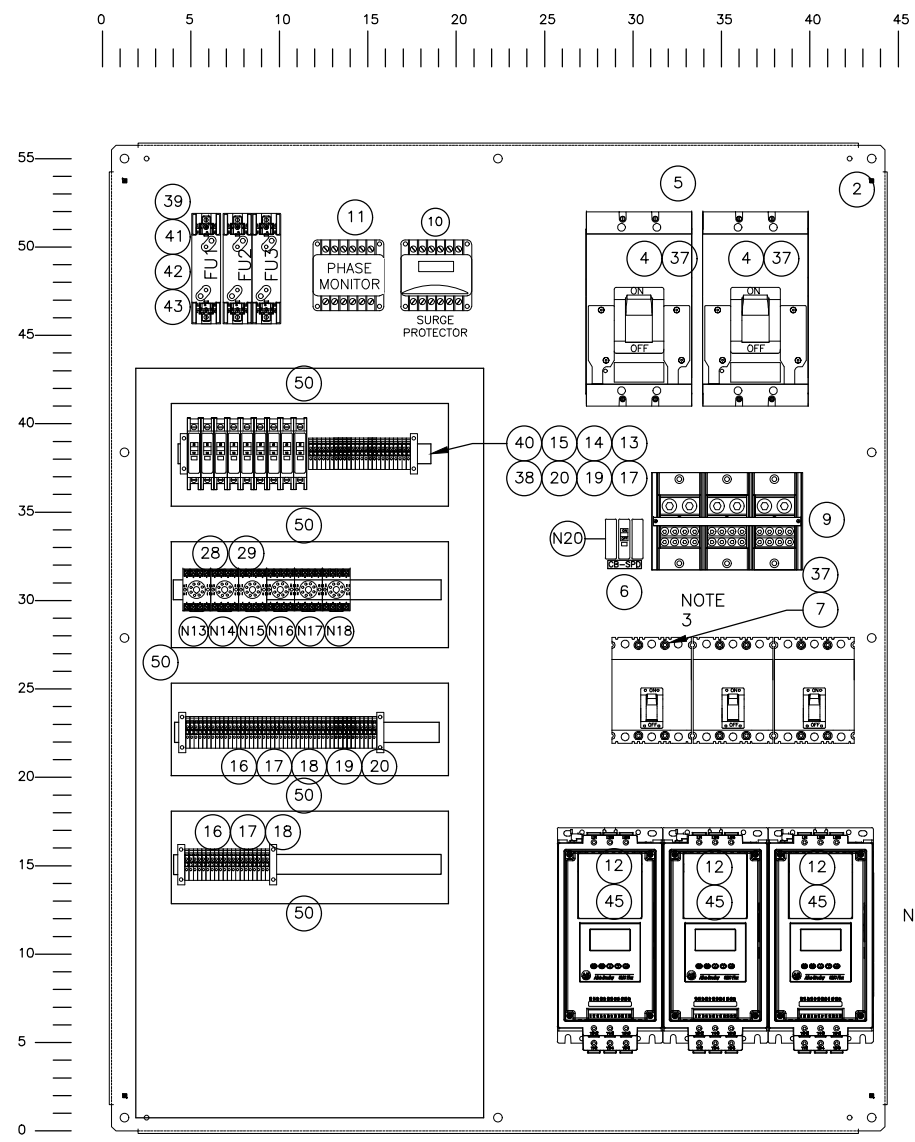
CITY OF WEST PALM BEACH

LATEST
 REVISION

NOV. 2023



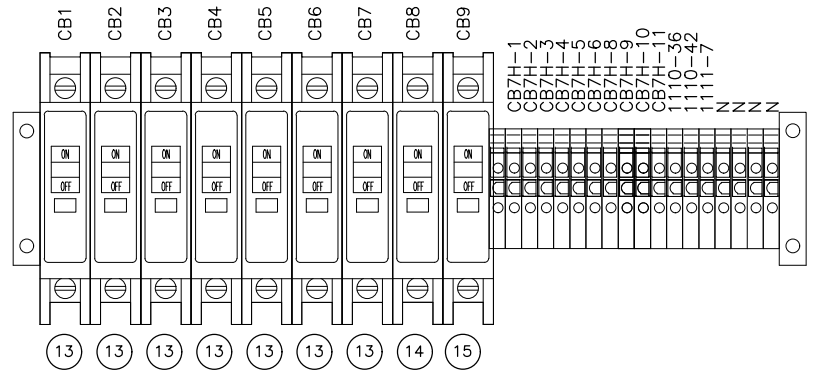
INNER PANEL DETAILS
MAIN FRONT DOOR NOT SHOWN



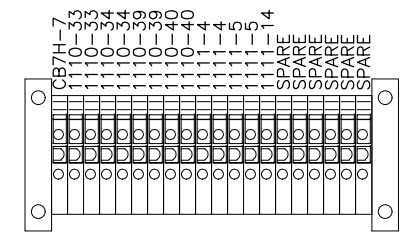
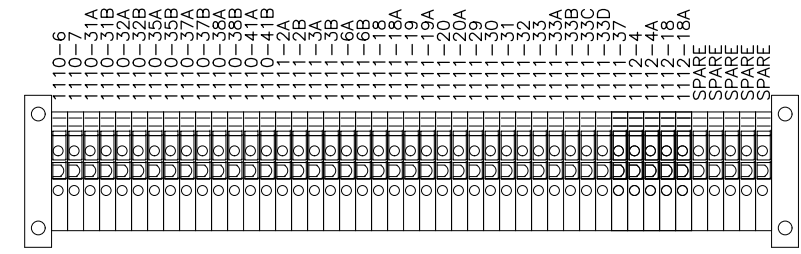
BACK PANEL DETAILS

GENERAL NOTES:

1. SEE APPROPRIATE BOM FOR ACTUAL PART NUMBERS QUANTITIES REQUIREMENTS.
2. SEE APPROPRIATE WIRING SCHEMATIC.
3. DRAWING SHOWN FOR A THREE MOTORS LAYOUT ONLY TWO WILL BE REQUIRED FOR A TWO PUMP STATION
4. THIS PANEL IS DESIGNED FOR MANUAL GENERATOR TRANSFER.
5. VFDs ARE ONLY REQUIRED PER CITY'S REQUEST.



NOTE 5



STANDARD
DETAIL

SLS-15.2

SUBMERSIBLE LIFT STATION - TYPE 2 PANEL LAYOUT

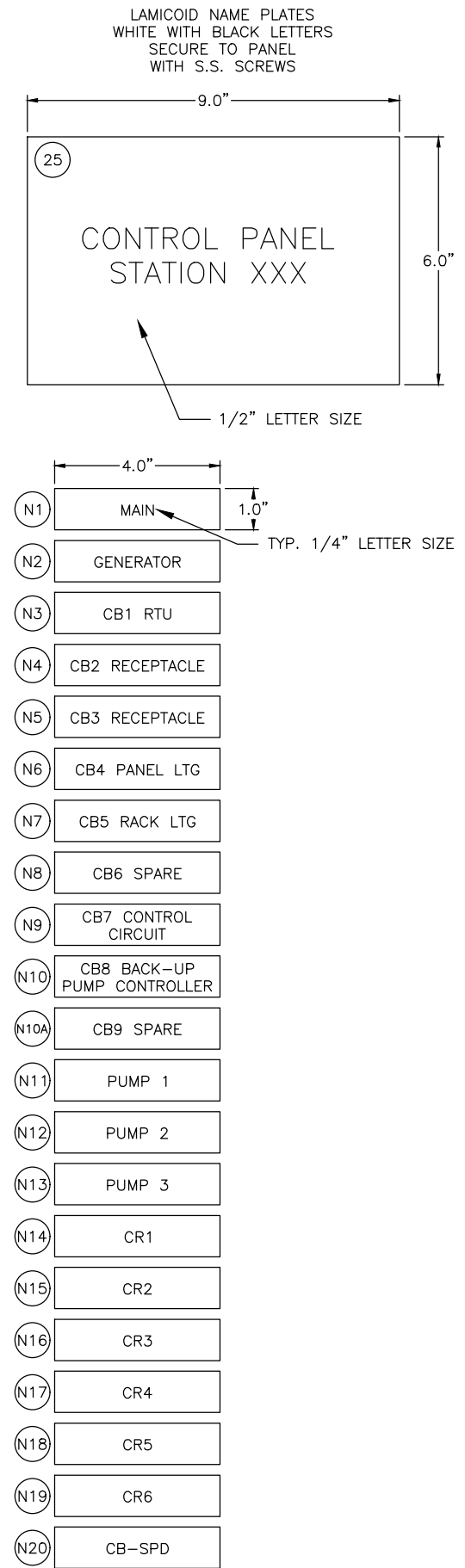
CITY OF WEST PALM BEACH

LATEST
REVISION

NOV. 2023

BILL OF MATERIALS					
ITEM	DESCRIPTION	MANUFACTURER	PART NUMBER	2 PUMP QTY.	3 PUMP QTY.
1	NEMA 4X SS PAINTED WHITE ENCLOSURE 62"x48"x18"	HOFFMAN	A62H4818SS6LP3PT	1	1
2	BACK PANEL	HOFFMAN	A60P48	1	1
3	SWING OUT PANEL KIT	HOFFMAN	ANADFK	2	2
4	MAIN BREAKERS	SQUARE D	SEE NOTE SLS-15.4	2	2
5	WALKING BEAM ASSEMBLY	SQUARE D	FA4WB	1	1
6	CB-SPD, 3 POLE 40 AMP BREAKER	SQUARE D	HDL36040	1	1
7	MOTOR BREAKERS 3 POLE	SQUARE D	SEE NOTE SLS-15.4	2	3
8	7.5 KVA 480V - 120V TRANSFORMER SS ENCLOSURE	SQUARE D	7S1FSS	1	1
9	POWER DISTRIBUTION BLOCK	SQUARE D	LBA36206	1	1
10	3 PHASE SURGE PROTECTION	EDCO	SEE NOTE SLS-15.4	1	1
11	PHASE MONITOR	ATC DIVERSIFIED	SLA-440-ALE	1	1
12	SMC-FLEX SOFTSTART	ALLEN-BRADLEY	SEE NOTE SLS-15.4	2	3
13	1 POLE 20 AMP BREAKER	SQUARE D	QOU120	7	7
14	1 POLE 10 AMP BREAKER	SQUARE D	QOU110	2	2
15	1 POLE 5 AMP BREAKER	SQUARE D	GCB50	1	1
16	TERMINALS (#28 - #12 AWG)	ALLEN-BRADLEY	1492-J3	A/R	
17	TERMINAL END ANCHORS	ALLEN-BRADLEY	1492-EAHJ35	A/R	
18	TERMINAL END BARRIERS	ALLEN-BRADLEY	1492-EBJ3	A/R	
19	TERMINAL CENTER JUMPERS	ALLEN-BRADLEY	1492-CJ6-10	A/R	
20	DIN RAIL	ALLEN-BRADLEY	1492-DR1	A/R	
21	3 POSITION SELECTOR SWITCH	SQUARE D	9001SKS43BH2	2	3
22	GREEN PUSH TO TEST PILOT LIGHT	SQUARE D	9001SKT38LGG31	2	3
24	4 PUMP STATION CONTROLLER	MOTOR PROTECTION ELECTRONICS	SC2000-11S	1	1
25	9" X 6" WHITE NAME PLATE W/BLACK LETTERING AS SHOWN	-	-	1	1
26	ALARM BEACON	FEDERAL SIGNAL	191XL-S120-240R	1	1
27	ALARM BEACON GUARD	FEDERAL SIGNAL	K8449090B	1	1
28	DPDT RELAY 120V COIL	SQUARE D	8501 KP12P14V20	4	6
29	RELAY BASE	SQUARE D	8501 NR51	4	6
30	GENERATOR RECEPTACLE WITH ANGLE ADAPTOR	APPLETON	SEE NOTE	1	1
31	GFCI RECEPTACLE IN BOX	-	-	1	1
32	DOOR ACTIVATED SWITCH	HOFFMAN	ALFSWD	1	1
33	H20MIT VENT DRAIN	HOFFMAN	AVDR4SS4	1	1
34	HAND OFF AUTO LEGEND	ALLEN-BRADLEY	800T-X511	2	3
35	RUN LEGEND	ALLEN-BRADLEY	800T-X540	2	3
36	4" X 1" WHITE NAME PLATE W/BLACK LETTERING AS SHOWN	-	-	A/R	A/R
37	FAL BREAKER HANDLE PADLOCK ATTACHMENT	SQUARE D	HPAFK	4	5
38	QOU BREAKER HANDLE PADLOCK ATTACHMENT	SQUARE D	QOU1PA	7	7
39	CLASS R FUSE HOLDER	SQUARE D	9080 FB1611R	3	3
40	TERMINALS (#18 - #6 AWG)	ALLEN-BRADLEY	1492-J10	A/R	
41	40 AMP CLASS R FUSE	BUSSMANN	FRN-R-40	2	2
42	20 AMP CLASS R FUSE	BUSSMANN	FRN-R-20	2	2
43	60 AMP CLASS R FUSE	BUSSMANN	FRN-R-60	1	1
44					
45	SMC-FLEX ETHERNET COMMUNICATION MODULE	ALLEN-BRADLEY	20-COMM-E	2	3
46	SWING OUT PANELS	HOFFMAN	A60P24	2	2
47	20A,1P GFCI RECEPTACLE w/NEMA 4 WHILE IN USE COVER	-	-	1	1
48					
49					
50	2"W X 3"H WIREWAY WITH COVER	-	-	A/R	A/R

*NOTE: AR20044-RS (240V SERVICE) OR AR2004-P4-RS (480V SERVICE) WITH TYPE AJA ANGLE ADAPTER



NOTES:
1. ITEM SHALL SHIP LOOSE; FIELD INSTALL

STANDARD
DETAIL

SLS-15.3

SUBMERSIBLE LIFT STATION - TYPE 2 BILL OF MATERIALS - 1

CITY OF WEST PALM BEACH

LATEST
REVISION

NOV. 2023

BOM ITEMS SELECTION CHART (2 PUMPS, 480 VOLTS 3Φ)												
MOTOR 3Φ		MAIN BREAKERS WIRE SIZE	ITEM 10 SURGE	ITEM 11 PHASE MONITOR	ITEM 4 (MAIN BREAKERS) 30kAIC		ITEM 4 (MAIN BREAKERS) 35kAIC		MOTOR FEEDER SIZE	ITEM 7 (MOTOR BREAKER)		ITEM 12 (SOFTSTART) CATALOG #
HP	FLA				AMPS	CATALOG #	AMPS	CATALOG #		AMPS	CATALOG #	
20	27	4	330DF 05AWRLIS	SLA-440- ALE	90	LAL36090WB	90	LHL36090WB	8	50	BDL36050	ATS22D32S6U
25	34	1	330DF 05AWRLIS	SLA-440- ALE	125	LAL36125WB	125	LHL36125WB	8	50	BDL36050	ATS22D47S6U
30	40	1/0	330DF 05AWRLIS	SLA-440- ALE	150	LAL36150WB	150	LHL36150WB	8	70	BDL36070	ATS22D47S6U

BOM ITEMS SELECTION CHART (3 PUMPS, 480 VOLTS 3Φ)												
MOTOR 3Φ		MAIN BREAKERS WIRE SIZE	ITEM 10 SURGE	ITEM 11 PHASE MONITOR	ITEM 4 (MAIN BREAKERS) 30kAIC		ITEM 4 (MAIN BREAKERS) 35kAIC		MOTOR FEEDER SIZE	ITEM 7 (MOTOR BREAKER)		ITEM 12 (SOFTSTART) CATALOG #
HP	FLA				AMPS	CATALOG #	AMPS	CATALOG #		AMPS	CATALOG #	
20	27	2/0	330DF 05AWRLIS	SLA-440- ALE	175	LAL36175WB	175	LHL36175WB	8	50	BDL36050	ATS22D32S6U
25	34	2/0	330DF 05AWRLIS	SLA-440- ALE	175	LAL36175WB	175	LHL36175WB	8	50	BDL36050	ATS22D47S6U
30	40	2/0	330DF 05AWRLIS	SLA-440- ALE	175	LAL36175WB	175	LHL36175WB	8	70	BDL36070	ATS22D47S6U

BOM ITEMS SELECTION CHART (2 PUMPS, 240 VOLTS 3Φ)												
MOTOR 3Φ		MAIN BREAKERS WIRE SIZE	ITEM 10 SURGE	ITEM 11 PHASE MONITOR	ITEM 4 (MAIN BREAKERS) 42kAIC		ITEM 4 (MAIN BREAKERS) 65kAIC		MOTOR FEEDER SIZE	ITEM 7 (MOTOR BREAKER)		ITEM 12 (SOFTSTART) CATALOG #
HP	FLA				AMPS	CATALOG #	AMPS	CATALOG #		AMPS	CATALOG #	
20	54	2/0	330HB 05AWRLIS	SLA-230- ALE	175	LAL36175WB	175	LHL36175WB	4	100	BDL36100	ATS22D62S6U
25	68	3/0	330HB 05AWRLIS	SLA-230- ALE	200	LAL36200WB	200	LHL36200WB	4	100	BDL36100	ATS22D75S6U
30	80	250MCM	330HB 05AWRLIS	SLA-230- ALE	250	LAL36250WB	250	LHL36250WB	3	125	LAL36125	ATS22D88S6U

BOM ITEMS SELECTION CHART (3 PUMPS, 240 VOLTS 3Φ)												
MOTOR 3Φ		MAIN BREAKERS WIRE SIZE	ITEM 10 SURGE	ITEM 11 PHASE MONITOR	ITEM 4 (MAIN BREAKERS) 42kAIC		ITEM 4 (MAIN BREAKERS) 65kAIC		MOTOR FEEDER SIZE	ITEM 7 (MOTOR BREAKER)		ITEM 12 (SOFTSTART) CATALOG #
HP	FLA				AMPS	CATALOG #	AMPS	CATALOG #		AMPS	CATALOG #	
20	54	250MCM	330HB 05AWRLIS	SLA-230- ALE	250	LAL36250WB	250	LHL36250WB	4	100	BDL36100	ATS22D62S6U
25	68	250MCM	330HB 05AWRLIS	SLA-230- ALE	250	LAL36250WB	250	LHL36250WB	4	100	BDL36100	ATS22D75S6U
30	80	350MCM	330HB 05AWRLIS	SLA-230- ALE	300	LAL36300WB	300	LHL36300WB	3	125	LAL36125	ATS22D88S6U

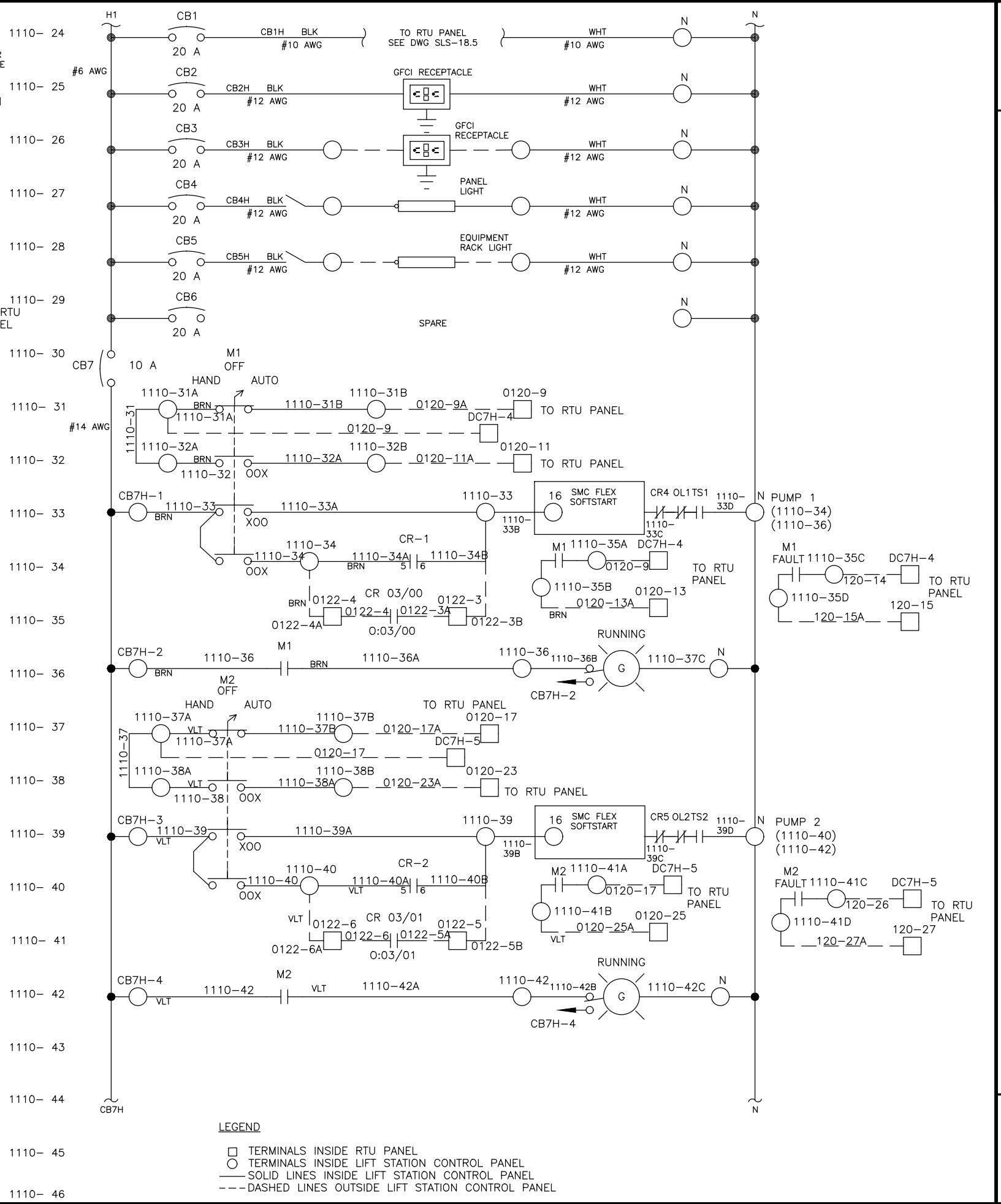
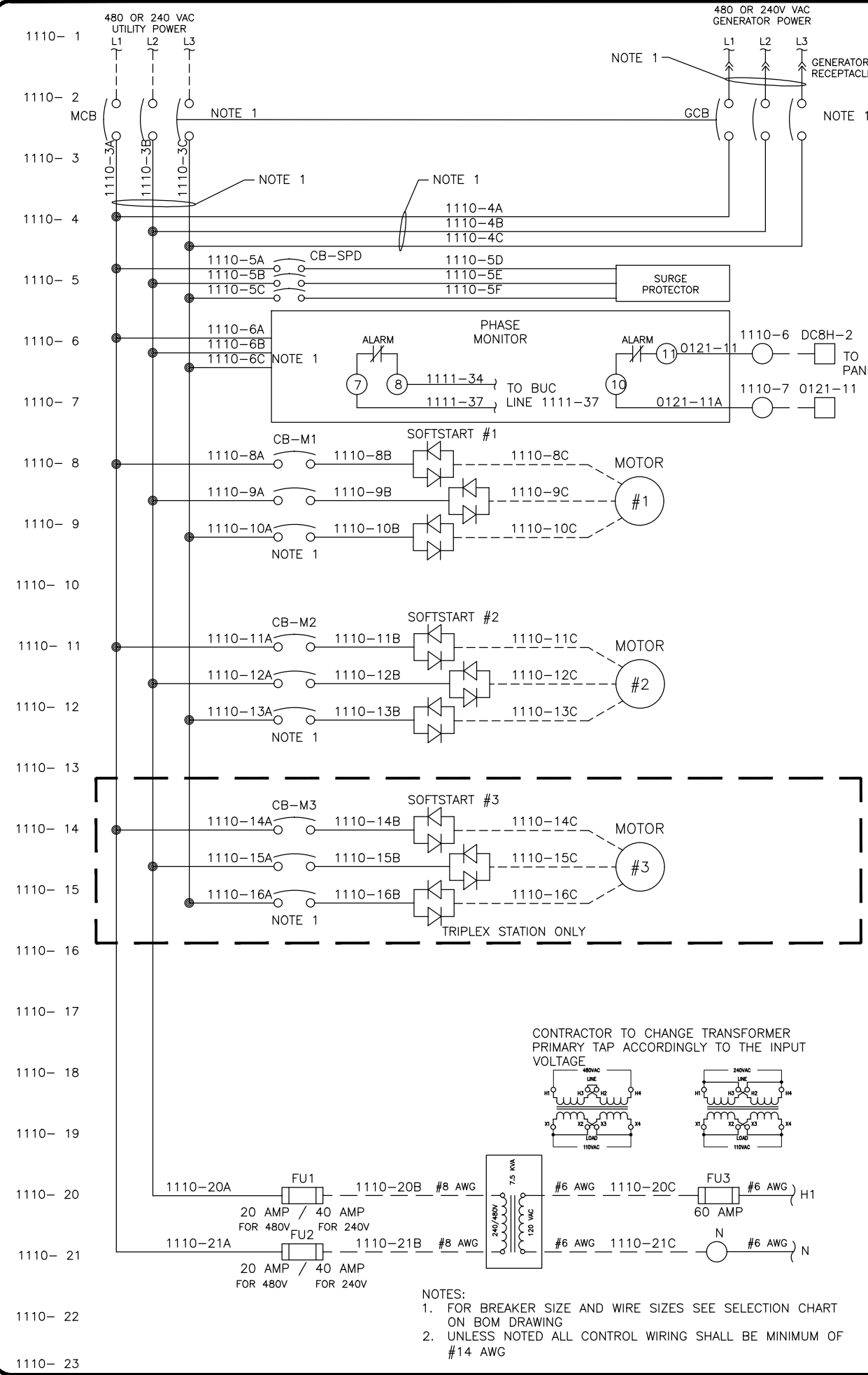
LATEST REVISION
NOV. 2023

SUBMERSIBLE LIFT STATION - TYPE 2 BILL OF MATERIALS - 2

CITY OF WEST PALM BEACH

STANDARD DETAIL

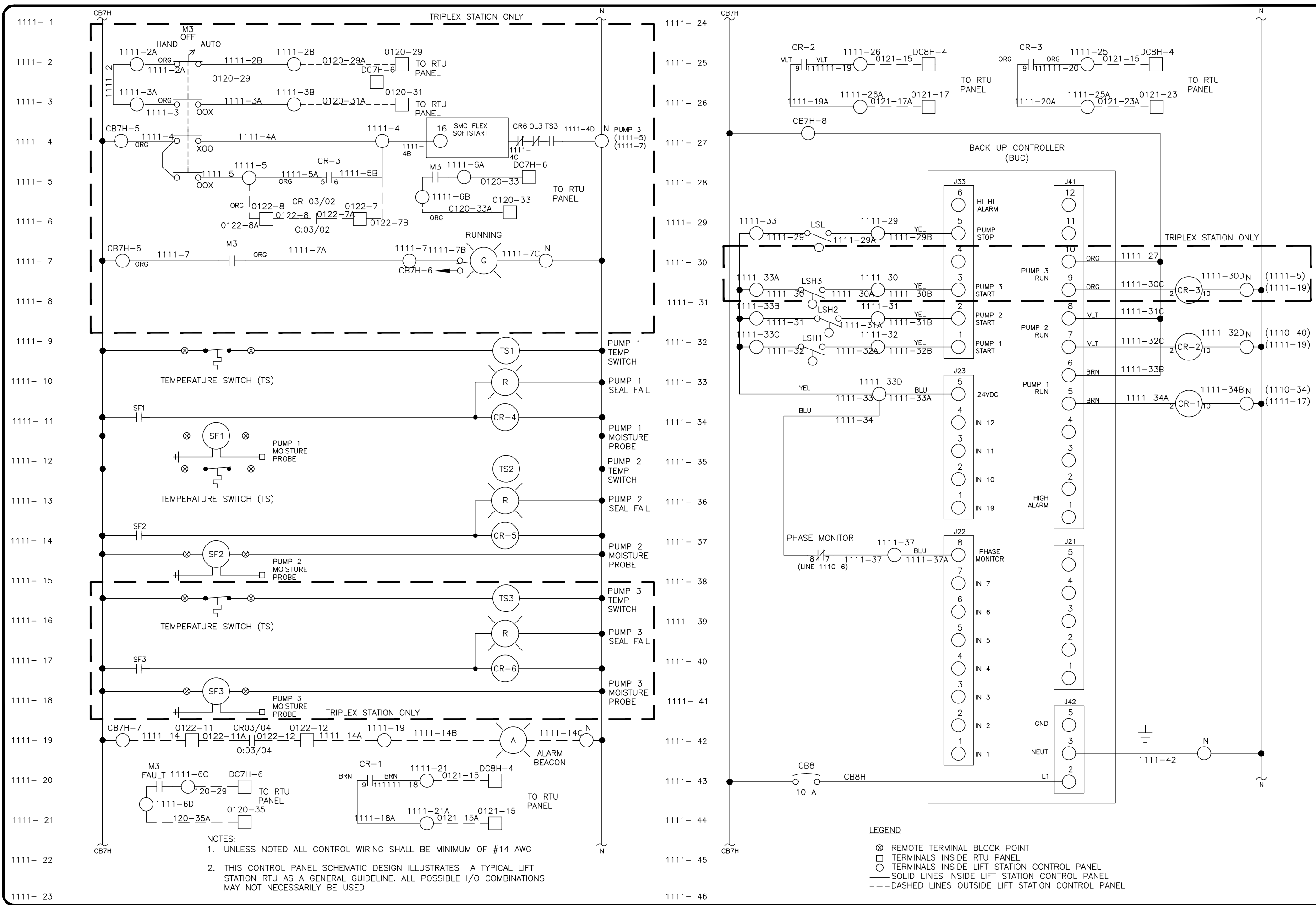
SLS-15.4



NOTES:
 1. FOR BREAKER SIZE AND WIRE SIZES SEE SELECTION CHART ON BOM DRAWING
 2. UNLESS NOTED ALL CONTROL WIRING SHALL BE MINIMUM OF #14 AWG

LEGEND
 □ TERMINALS INSIDE RTU PANEL
 ○ TERMINALS INSIDE LIFT STATION CONTROL PANEL
 — SOLID LINES INSIDE LIFT STATION CONTROL PANEL
 - - - DASHED LINES OUTSIDE LIFT STATION CONTROL PANEL

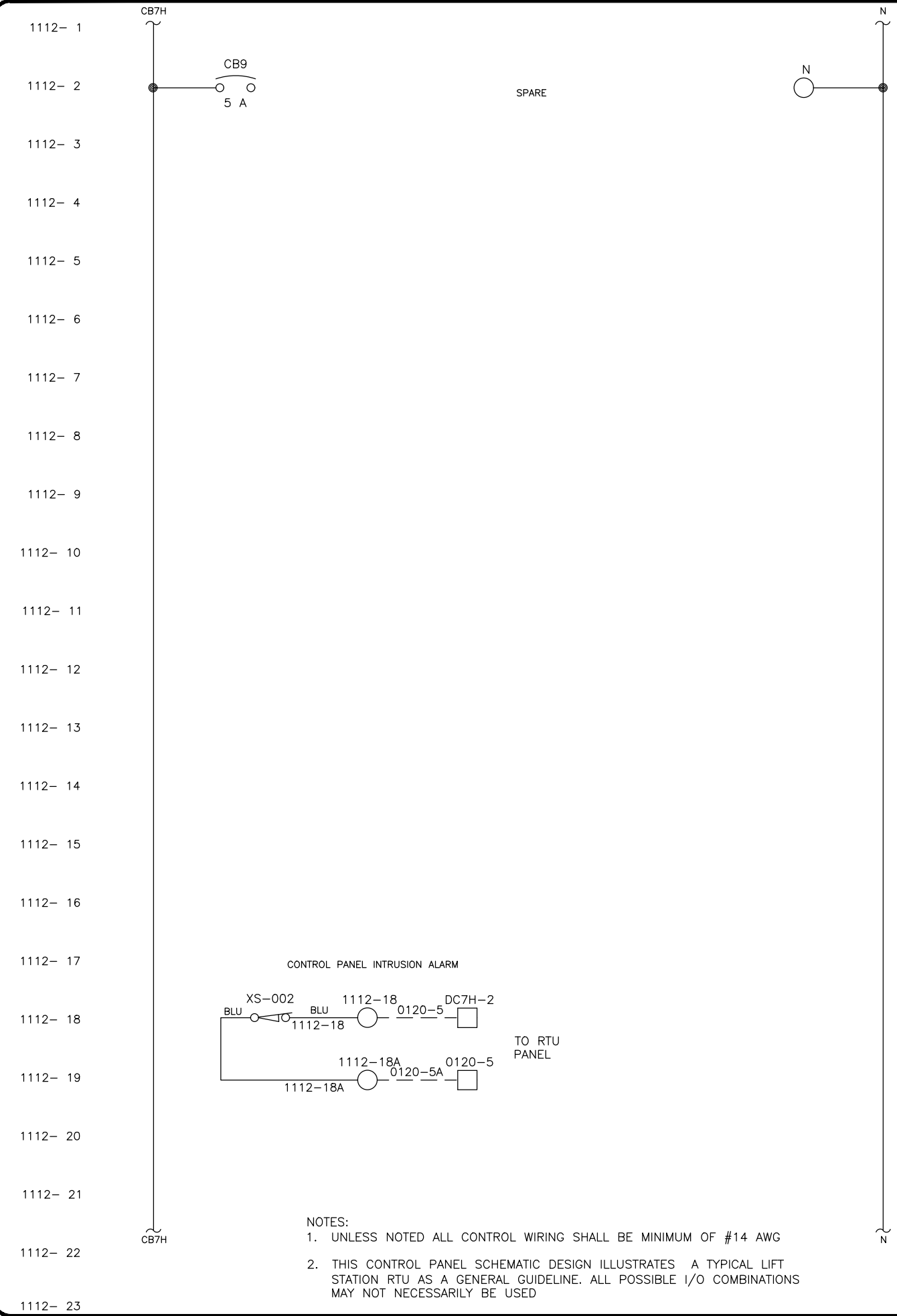
STANDARD DETAIL	SLS-15.5
SUBMERSIBLE LIFT STATION - TYPE 2 120V POWER SCHEMATIC - 1	
CITY OF WEST PALM BEACH	
LATEST REVISION	NOV. 2023



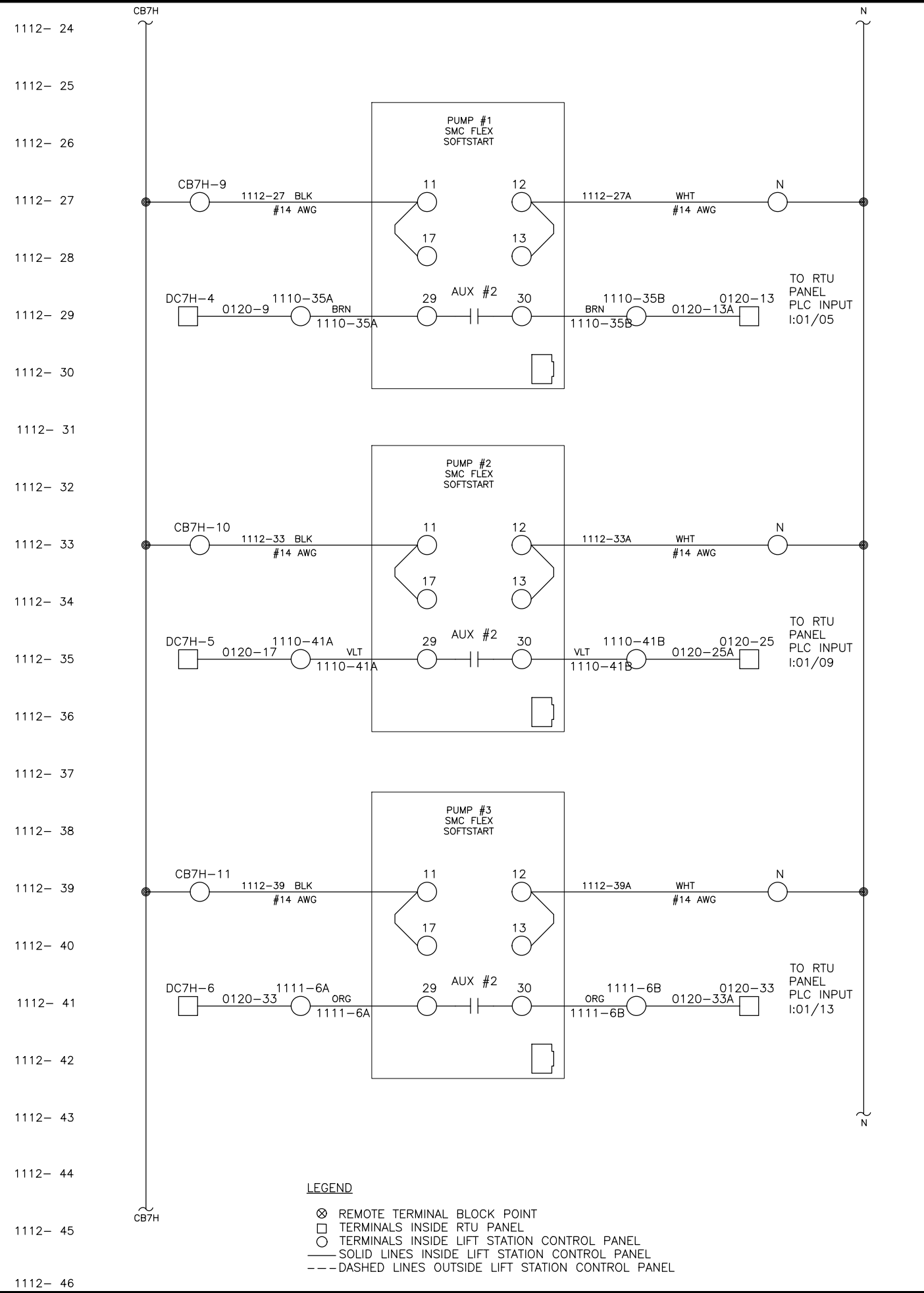
NOTES:
 1. UNLESS NOTED ALL CONTROL WIRING SHALL BE MINIMUM OF #14 AWG
 2. THIS CONTROL PANEL SCHEMATIC DESIGN ILLUSTRATES A TYPICAL LIFT STATION RTU AS A GENERAL GUIDELINE. ALL POSSIBLE I/O COMBINATIONS MAY NOT NECESSARILY BE USED

LEGEND
 ⊗ REMOTE TERMINAL BLOCK POINT
 □ TERMINALS INSIDE RTU PANEL
 ○ TERMINALS INSIDE LIFT STATION CONTROL PANEL
 — SOLID LINES INSIDE LIFT STATION CONTROL PANEL
 - - - DASHED LINES OUTSIDE LIFT STATION CONTROL PANEL

STANDARD DETAIL	SLS-15.6
SUBMERSIBLE LIFT STATION - TYPE 2 120V POWER SCHEMATIC - 2	
CITY OF WEST PALM BEACH	
LATEST REVISION	NOV. 2023



NOTES:
 1. UNLESS NOTED ALL CONTROL WIRING SHALL BE MINIMUM OF #14 AWG
 2. THIS CONTROL PANEL SCHEMATIC DESIGN ILLUSTRATES A TYPICAL LIFT STATION RTU AS A GENERAL GUIDELINE. ALL POSSIBLE I/O COMBINATIONS MAY NOT NECESSARILY BE USED



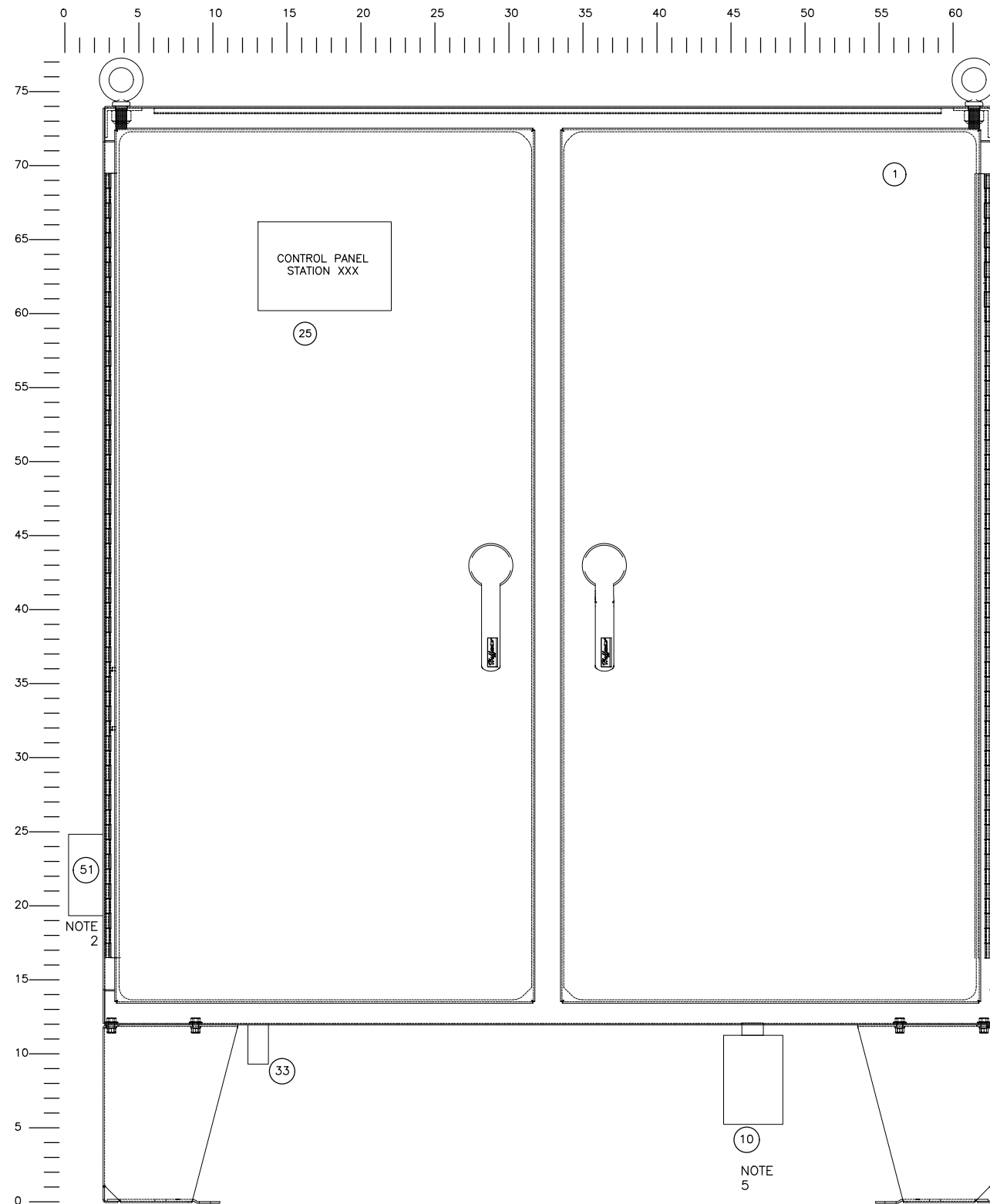
LEGEND
 ⊗ REMOTE TERMINAL BLOCK POINT
 □ TERMINALS INSIDE RTU PANEL
 ○ TERMINALS INSIDE LIFT STATION CONTROL PANEL
 — SOLID LINES INSIDE LIFT STATION CONTROL PANEL
 --- DASHED LINES OUTSIDE LIFT STATION CONTROL PANEL

STANDARD DETAIL	SLS-15.7
SUBMERSIBLE LIFT STATION - TYPE 2 120V POWER SCHEMATIC - 3	
CITY OF WEST PALM BEACH	
LATEST REVISION	NOV. 2023

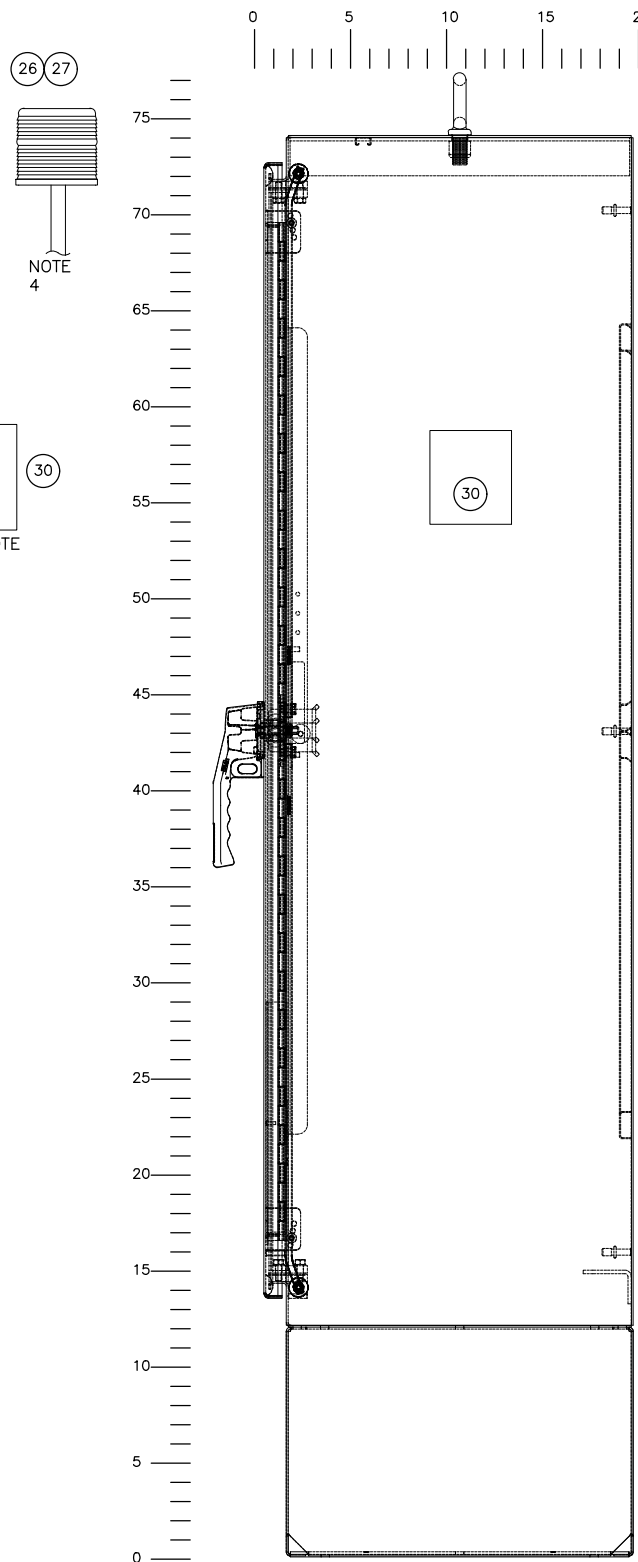
LIFT STATION VFD CONTROL PANEL ENCLOSURE DETAILS (TYPE 3)

"2 OR 3 PUMPS" "20 HP to 40HP" "480 VOLTS 3 ϕ "

2 OR 3 PUMPS" "15 HP to 20HP" "240 VOLTS 3 ϕ "



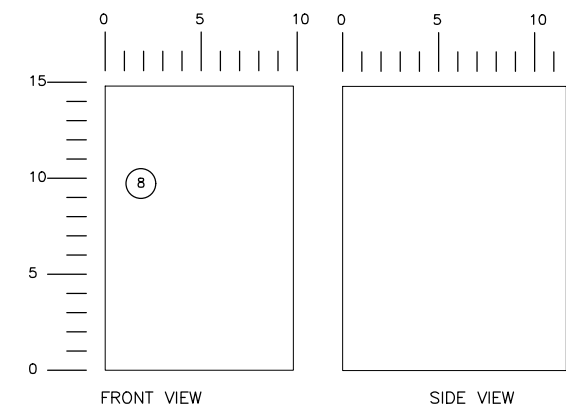
LIFT STATION PANEL (TYPE 3)
EXTERNAL FRONT LAYOUT



LIFT STATION PANEL (TYPE 3)
RIGHT SIDE LAYOUT

GENERAL NOTES:

1. SEE APPROPRIATE BOM FOR ACTUAL PART NUMBERS AND QUANTITIES REQUIREMENTS.
2. RECEPTACLE TO BE SHIPPED UNASSEMBLED AND FIELD INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR.
3. FOR 480V ONLY: TRANSFORMER IS TO BE SHIPPED UNASSEMBLED, AND INSTALLED AND WIRED IN THE FIELD BY ELECTRICAL CONTRACTOR.
4. ALARM LIGHT TO BE SHIPPED UNASSEMBLED, WIRED AND MOUNTED ON 3/4" RIGID ALUMINUM CONDUIT SEPARATE FROM THE CONTROL PANEL.
5. 240/480V SURGE PROTECTION TO BE SHIPPED UNASSEMBLED AND FIELD INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR.
6. ALL TERMINALS MUCH BE LABELED W/ NUMBER FROM STANDARD DETAIL.
7. ALL WIRE COLORS MUST MATCH W/ CITY'S STANDARD DETAIL.
8. ALL WIRE NUMBERS MUST MATCH W/ CITY'S STANDARD DETAIL.



CONTROL TRANSFORMER

NOTE 3

SUBMERSIBLE LIFT STATION - TYPE 3 ENCLOSURE LAYOUT

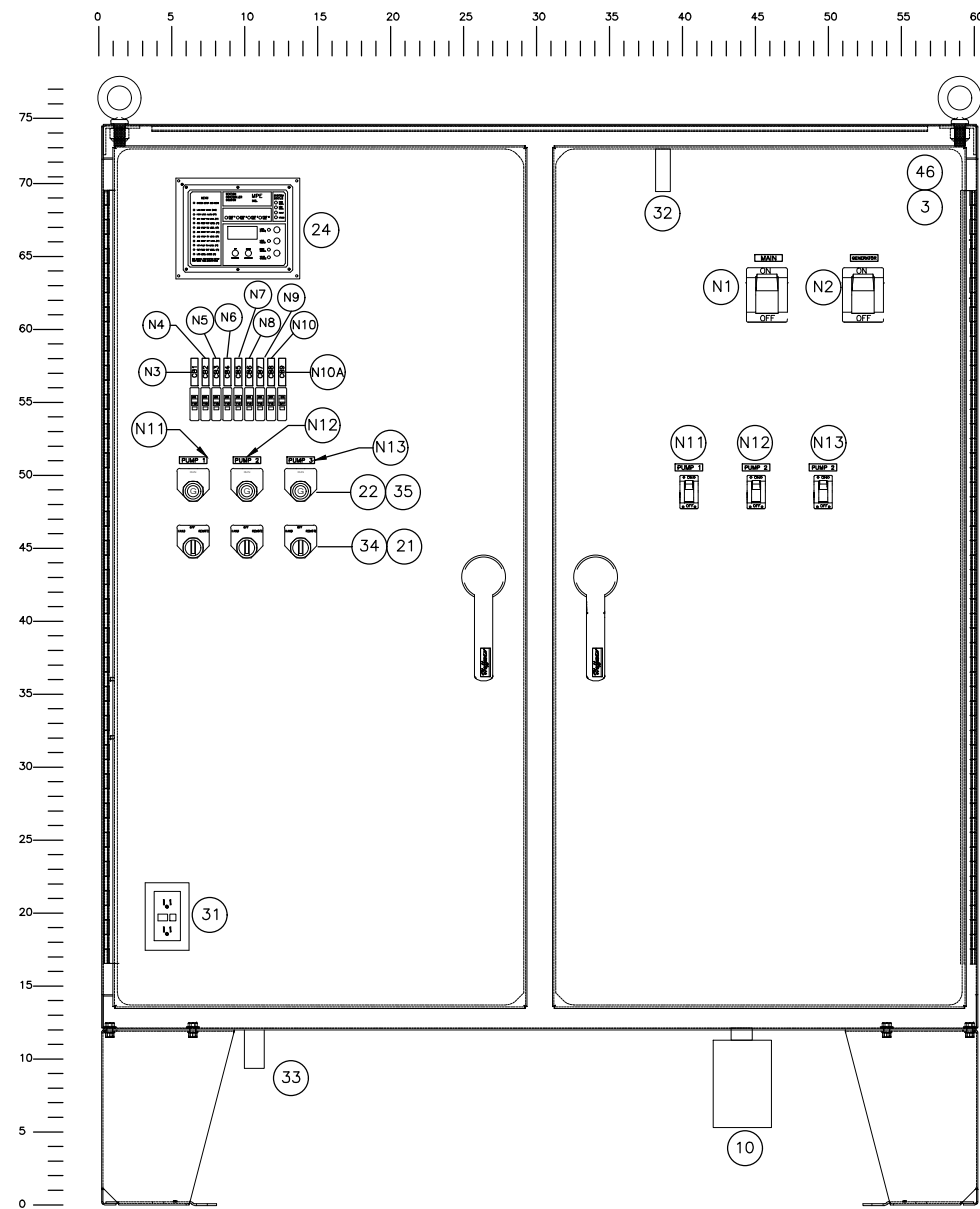
STANDARD
DETAIL

CITY OF WEST PALM BEACH

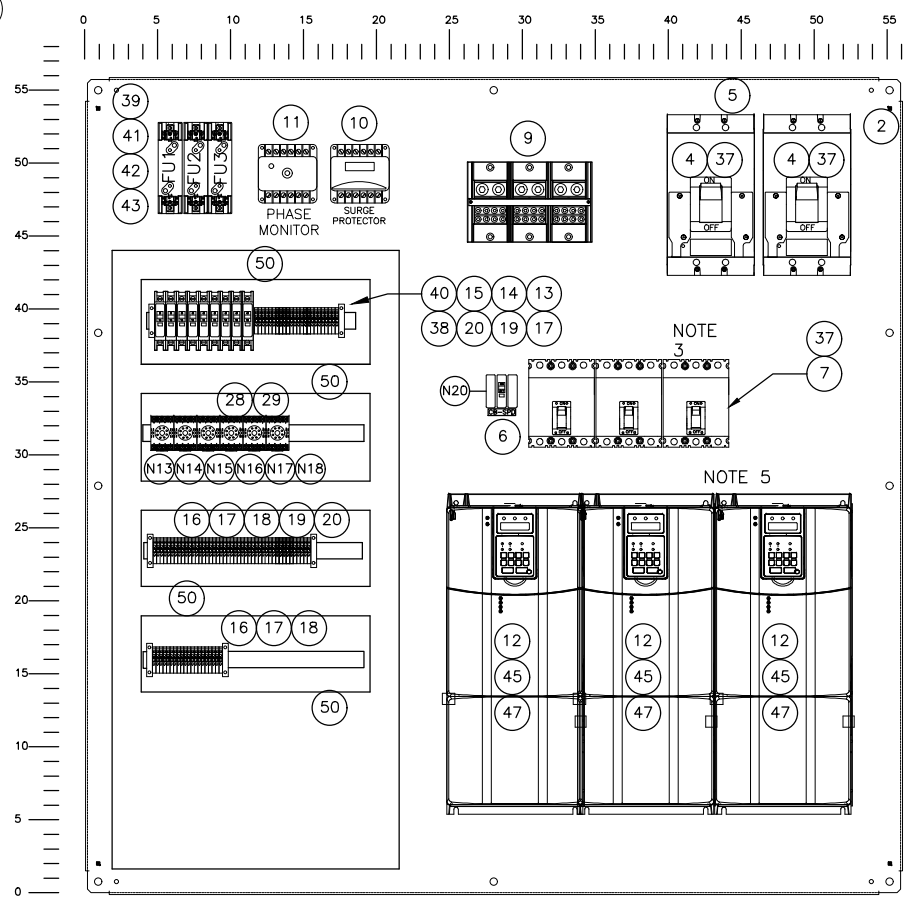
SLS-16.1

LATEST
REVISION

NOV. 2023



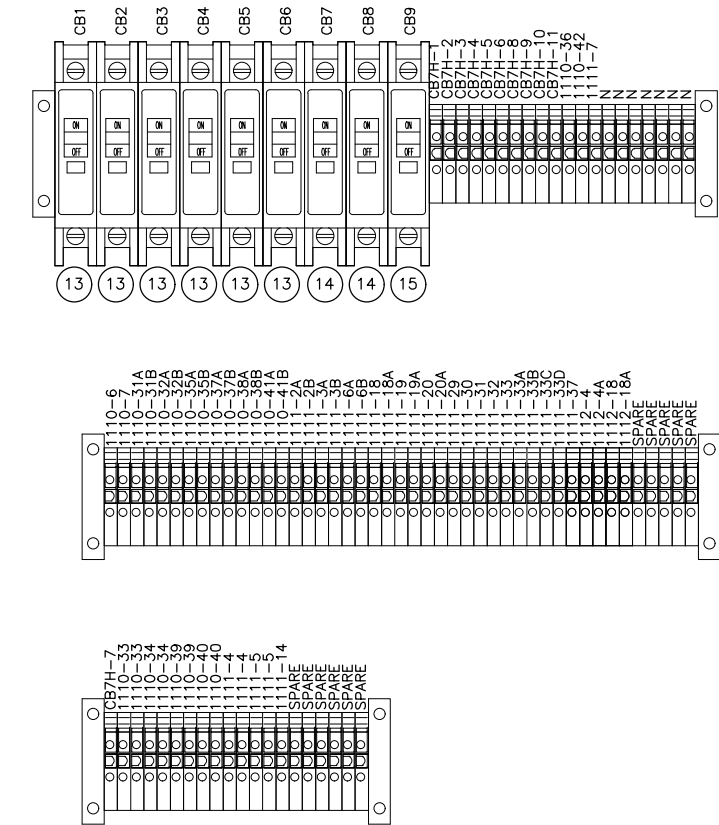
INNER PANEL DETAILS
MAIN FRONT DOOR NOT SHOWN



BACK PANEL DETAILS

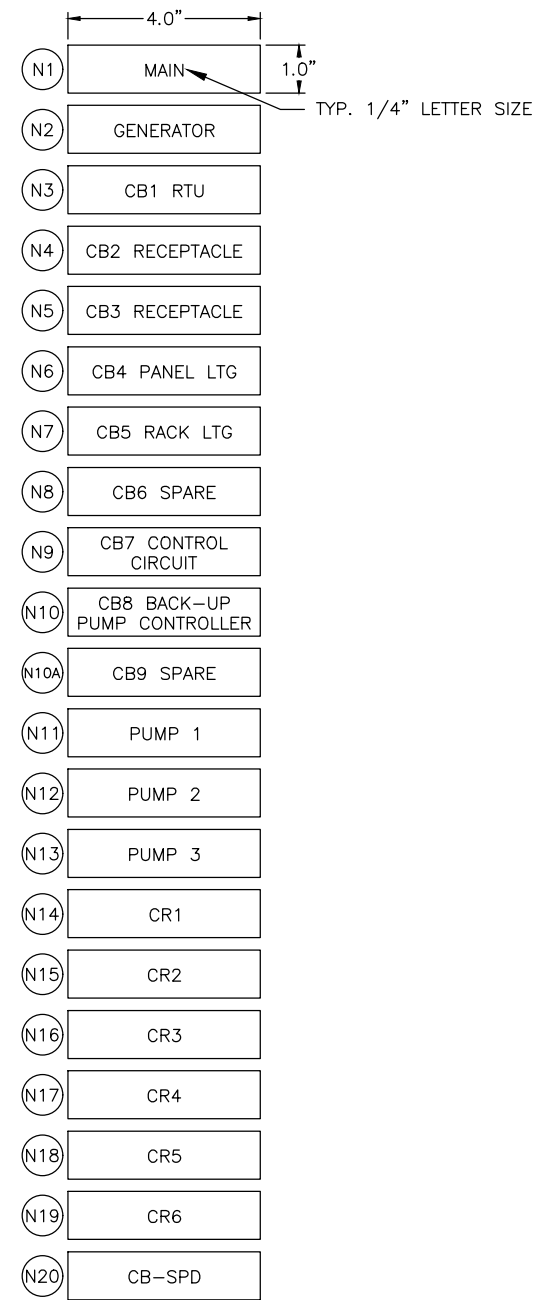
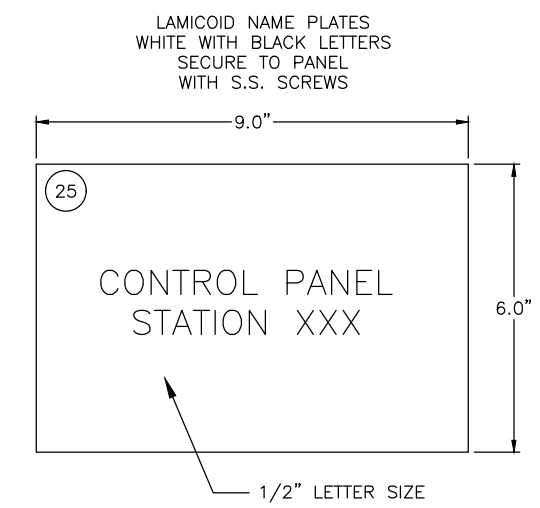
GENERAL NOTES:

- 1. SEE APPROPRIATE BOM FOR ACTUAL PART NUMBERS QUANTITIES REQUIREMENTS.
- 2. SEE APPROPRIATE WIRING SCHEMATIC.
- 3. DRAWING SHOWN FOR A THREE MOTORS LAYOUT ONLY TWO WILL BE REQUIRED FOR A TWO PUMP STATION
- 4. THIS PANEL IS DESIGNED FOR MANUAL GENERATOR TRANSFER.
- 5. VFDs ARE ONLY REQUIRED PER CITY'S REQUEST.



BILL OF MATERIALS					
ITEM	DESCRIPTION	MANUFACTURER	PART NUMBER	2 PUMP QTY.	3 PUMP QTY.
1	NEMA 4X SS PAINTED WHITE ENCLOSURE 62"x48"x18"	HOFFMAN	A62H6018SS6LP3PT	1	1
2	BACK PANEL	HOFFMAN	A60P60	1	1
3	SWING OUT PANEL KIT	HOFFMAN	ANADFK	2	2
4	MAIN BREAKERS	SQUARE D	SEE NOTE SLS-16.4	2	2
5	WALKING BEAM ASSEMBLY	SQUARE D	FA4WB	1	1
6	CB-SPD, 3 POLE 40 AMP BREAKER	SQUARE D	HDL36040	1	1
7	MOTOR BREAKERS 3 POLE	SQUARE D	SEE NOTE SLS-16.4	2	3
8	7.5 KVA 480V/240V - 120V TRANSFORMER SS ENCLOSURE	SQUARE D	7S1FSS	1	1
9	POWER DISTRIBUTION BLOCK	SQUARE D	LBA36206	1	1
10	3 PHASE SURGE PROTECTION	EDCO	SEE NOTE SLS-16.4	1	1
11	PHASE MONITOR	ATC DIVERSIFIED	SLA-440-ALE	1	1
12	POWER FLEX 700 VFD	ALLEN-BRADLEY	SEE NOTE SLS-16.4	2	3
13	1 POLE 20 AMP BREAKER	SQUARE D	QOU120	6	6
14	1 POLE 10 AMP BREAKER	SQUARE D	QOU110	2	2
15	1 POLE 5 AMP BREAKER	SQUARE D	GCB50	1	1
16	TERMINALS (#28 - #12 AWG)	ALLEN-BRADLEY	1492-J3	A/R	
17	TERMINAL END ANCHORS	ALLEN-BRADLEY	1492-EAHJ35	A/R	
18	TERMINAL END BARRIERS	ALLEN-BRADLEY	1492-EBJ3	A/R	
19	TERMINAL CENTER JUMPERS	ALLEN-BRADLEY	1492-CJ6-10	A/R	
20	DIN RAIL	ALLEN-BRADLEY	1492-DR1	A/R	
21	3 POSITION SELECTOR SWITCH	SQUARE D	9001SKS43BH2	2	3
22	GREEN PUSH TO TEST PILOT LIGHT	SQUARE D	9001SKT38LGG31	2	3
24	4 PUMP STATION CONTROLLER	MOTOR PROTECTION ELECTRONICS	SC2000-11S	1	1
25	9" X 6" WHITE NAME PLATE W/BLACK LETTERING AS SHOWN	-	-	1	1
26	ALARM BEACON	FEDERAL SIGNAL	191XL-S120-240R	1	1
27	ALARM BEACON GUARD	FEDERAL SIGNAL	K8449090B	1	1
28	DPDT RELAY 120V COIL	SQUARE D	8501 KP12P14V20	4	4
29	RELAY BASE	SQUARE D	8501 NR51	6	6
30	GENERATOR RECEPTACLE WITH ANGLE ADAPTOR	APPLETON	*SEE NOTE	1	1
31	GFCI RECEPTACLE IN BOX	-	-	1	1
32	DOOR ACTIVATED SWITCH	HOFFMAN	ALFSWD	1	1
33	H2OMIT VENT DRAIN	HOFFMAN	AVDR4SS4	1	1
34	HAND OFF AUTO LEGEND	ALLEN-BRADLEY	800T-X511	2	3
35	RUN LEGEND	ALLEN-BRADLEY	800T-X540	2	3
36	4" X 1" WHITE NAME PLATE W/BLACK LETTERING AS SHOWN	-	-	A/R	A/R
37	FAL BREAKER HANDLE PADLOCK ATTACHMENT	SQUARE D	HPAFK	4	5
38	QOU BREAKER HANDLE PADLOCK ATTACHMENT	SQUARE D	QOU1PA	7	7
39	CLASS R FUSE HOLDER	SQUARE D	9080 FB1611R	3	3
40	TERMINALS (#18 - #6 AWG)	ALLEN-BRADLEY	1492-J10	A/R	
41	40 AMP CLASS R FUSE	BUSSMANN	FRN-R-40	2	2
42	20 AMP CLASS R FUSE	BUSSMANN	FRN-R-20	2	2
43	60 AMP CLASS R FUSE	BUSSMANN	FRN-R-60	1	1
44					
45	POWERFLEX ETHERNET COMMUNICATION MODULE	ALLEN-BRADLEY	20-COMM-E	2	3
46	SWING OUT PANELS	HOFFMAN	A60P30	2	2
47	POWERFLEX LCD DISPLAY, FULL NUMERIC KEYPAD	ALLEN-BRADLEY	20-HIM-A3	2	3
48					
49					
50	2"W X 3"H WIREWAY WITH COVER	-	-	A/R	A/R
51	20A,1P GFCI RECEPTACLE w/ NEMA 4 WHILE IN USE COVER	-	-	1	1

*NOTE: AR20044-RS (240V SERVICE) OR AR2004-P4-RS (480V SERVICE) WITH TYPE AJA ANGLE ADAPTER



NOTES:
1. ITEM SHALL SHIP LOOSE; FIELD INSTALL

STANDARD
DETAIL

SLS-16.3

SUBMERSIBLE LIFT STATION - TYPE 3 BILL OF MATERIALS - 1

CITY OF WEST PALM BEACH

LATEST
REVISION

NOV. 2023

BOM ITEMS SELECTION CHART (2 PUMPS, 480 VOLTS 3Φ)

MOTOR 3Φ		MAIN BREAKERS WIRE SIZE	ITEM 10 SURGE	ITEM 11 PHASE MONITOR	ITEM 4 (MAIN BREAKERS) 30KAIC		ITEM 4 (MAIN BREAKERS) 35KAIC		MOTOR FEEDER SIZE	ITEM 7 (MOTOR BREAKER)		ITEM 12 (VFD)
HP	FLA				AMPS	CATALOG #	AMPS	CATALOG #		AMPS	CATALOG #	
20	27	4	330DF 05AWRLIS	SLA-440- ALE	90	LAL36090WB	90	LHL36090WB	8	50	BDL36050	ATV630D15N4
25	34	1	330DF 05AWRLIS	SLA-440- ALE	125	LAL36125WB	125	LHL36125WB	8	50	BDL36050	ATV630D18N4
30	40	1/0	330DF 05AWRLIS	SLA-440- ALE	150	LAL36150WB	150	LHL36150WB	8	70	BDL36070	ATV630D22N4
40	52	2/0	330DF 05AWRLIS	SLA-440- ALE	175	LAL36175WB	175	LHL36175WB	6	100	BDL36100	ATV630D30N4

BOM ITEMS SELECTION CHART (3 PUMPS, 480 VOLTS 3Φ)

MOTOR 3Φ		MAIN BREAKERS WIRE SIZE	ITEM 10 SURGE	ITEM 11 PHASE MONITOR	ITEM 4 (MAIN BREAKERS) 30KAIC		ITEM 4 (MAIN BREAKERS) 35KAIC		MOTOR FEEDER SIZE	ITEM 7 (MOTOR BREAKER)		ITEM 12 (VFD)
HP	FLA				AMPS	CATALOG #	AMPS	CATALOG #		AMPS	CATALOG #	
20	27	2/0	330DF 05AWRLIS	SLA-440- ALE	175	LAL36175WB	175	LHL36175WB	8	50	BDL36050	ATV630D15N4
25	34	2/0	330DF 05AWRLIS	SLA-440- ALE	175	LAL36175WB	175	LHL36175WB	8	50	BDL36050	ATV630D18N4
30	40	2/0	330DF 05AWRLIS	SLA-440- ALE	175	LAL36175WB	175	LHL36175WB	8	70	BDL36070	ATV630D22N4
40	52	3/0	330DF 05AWRLIS	SLA-440- ALE	200	LAL36200WB	200	LHL36200WB	6	100	BDL36100	ATV630D30N4

LATEST REVISION

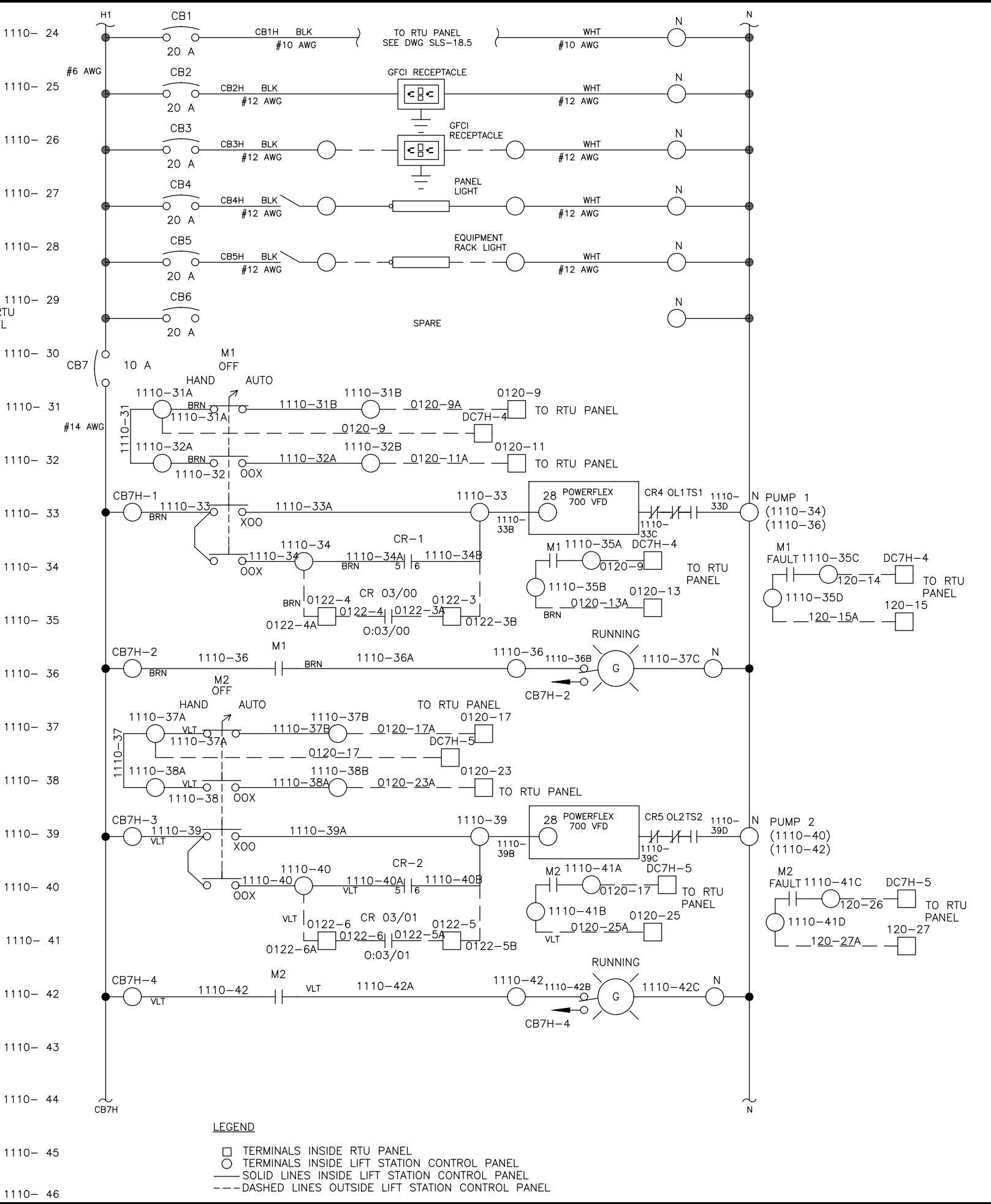
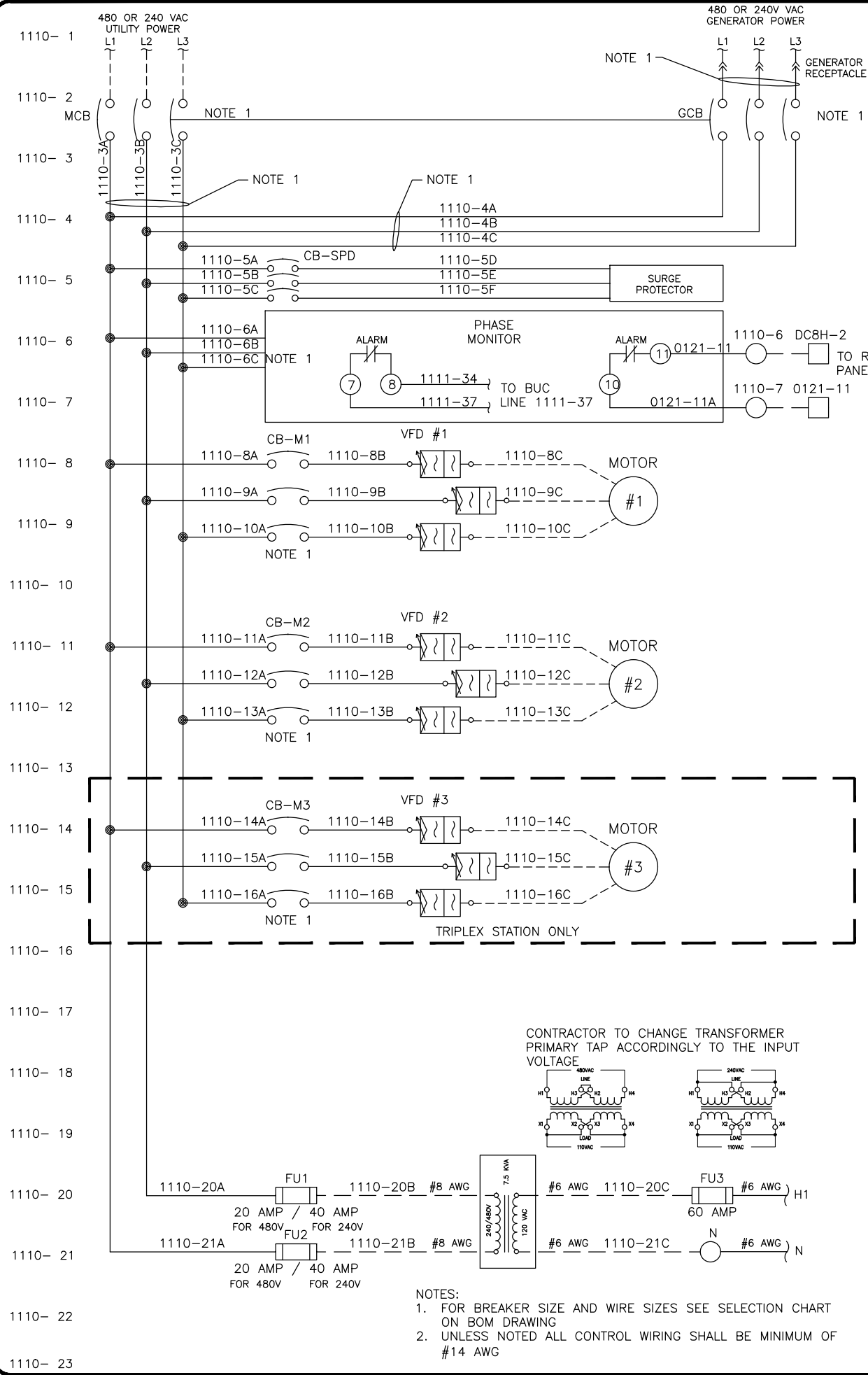
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SUBMERSIBLE LIFT STATION - TYPE 3 BILL OF MATERIALS - 2

CITY OF WEST PALM BEACH

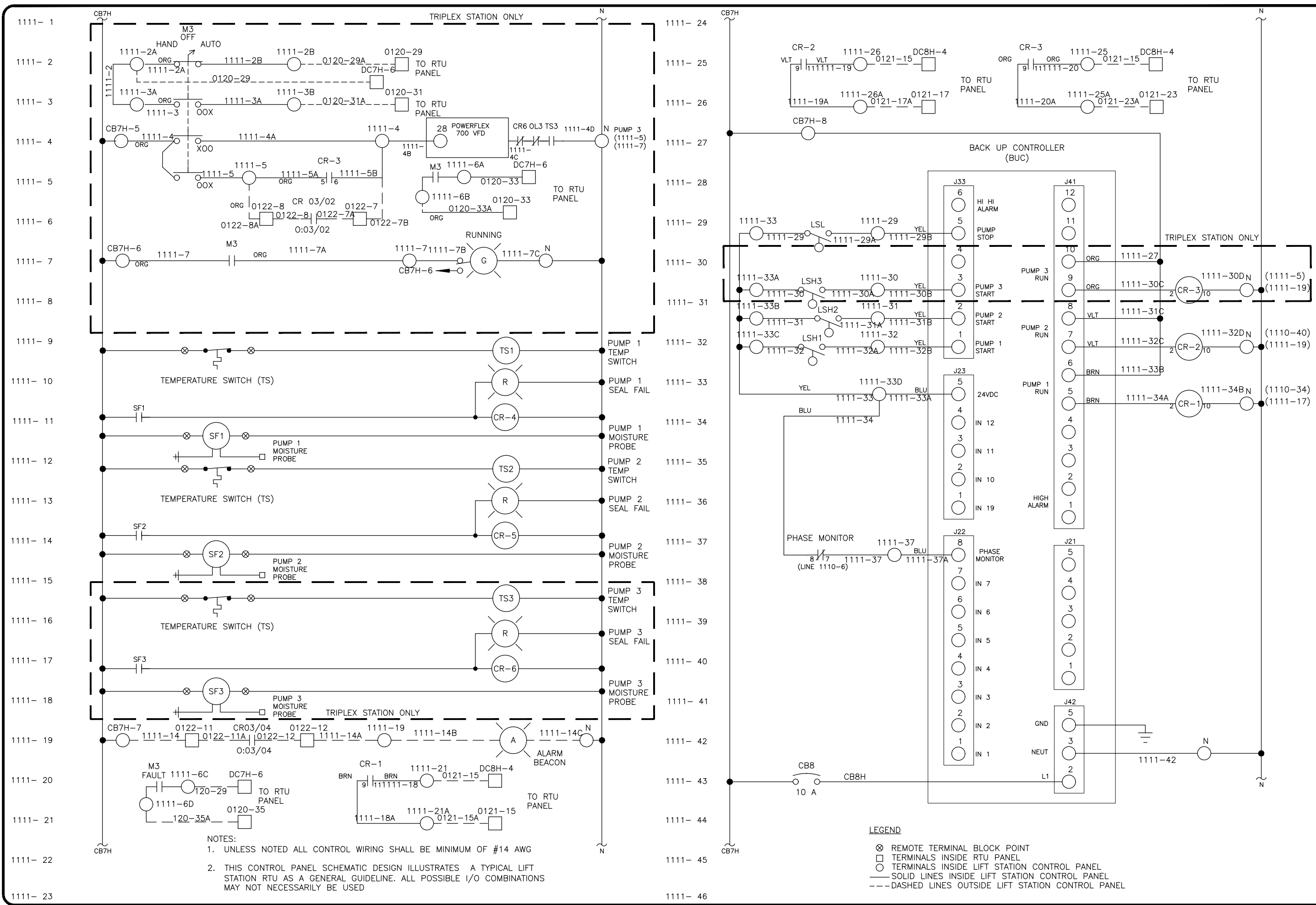
STANDARD DETAIL

SLS-16.4



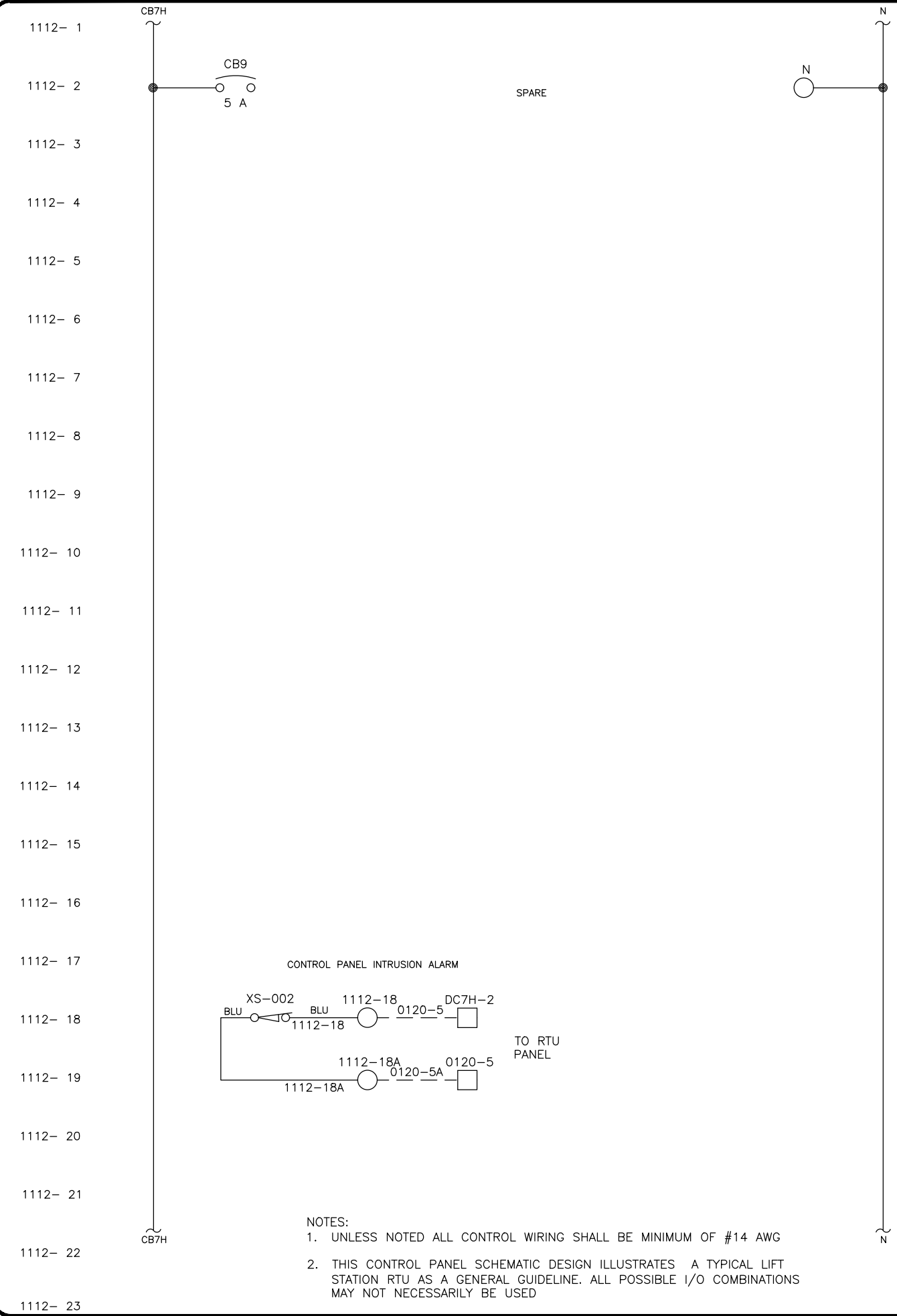
NOTES:
 1. FOR BREAKER SIZE AND WIRE SIZES SEE SELECTION CHART ON BOM DRAWING
 2. UNLESS NOTED ALL CONTROL WIRING SHALL BE MINIMUM OF #14 AWG

LEGEND
 □ TERMINALS INSIDE RTU PANEL
 ○ TERMINALS INSIDE LIFT STATION CONTROL PANEL
 — SOLID LINES INSIDE LIFT STATION CONTROL PANEL
 --- DASHED LINES OUTSIDE LIFT STATION CONTROL PANEL

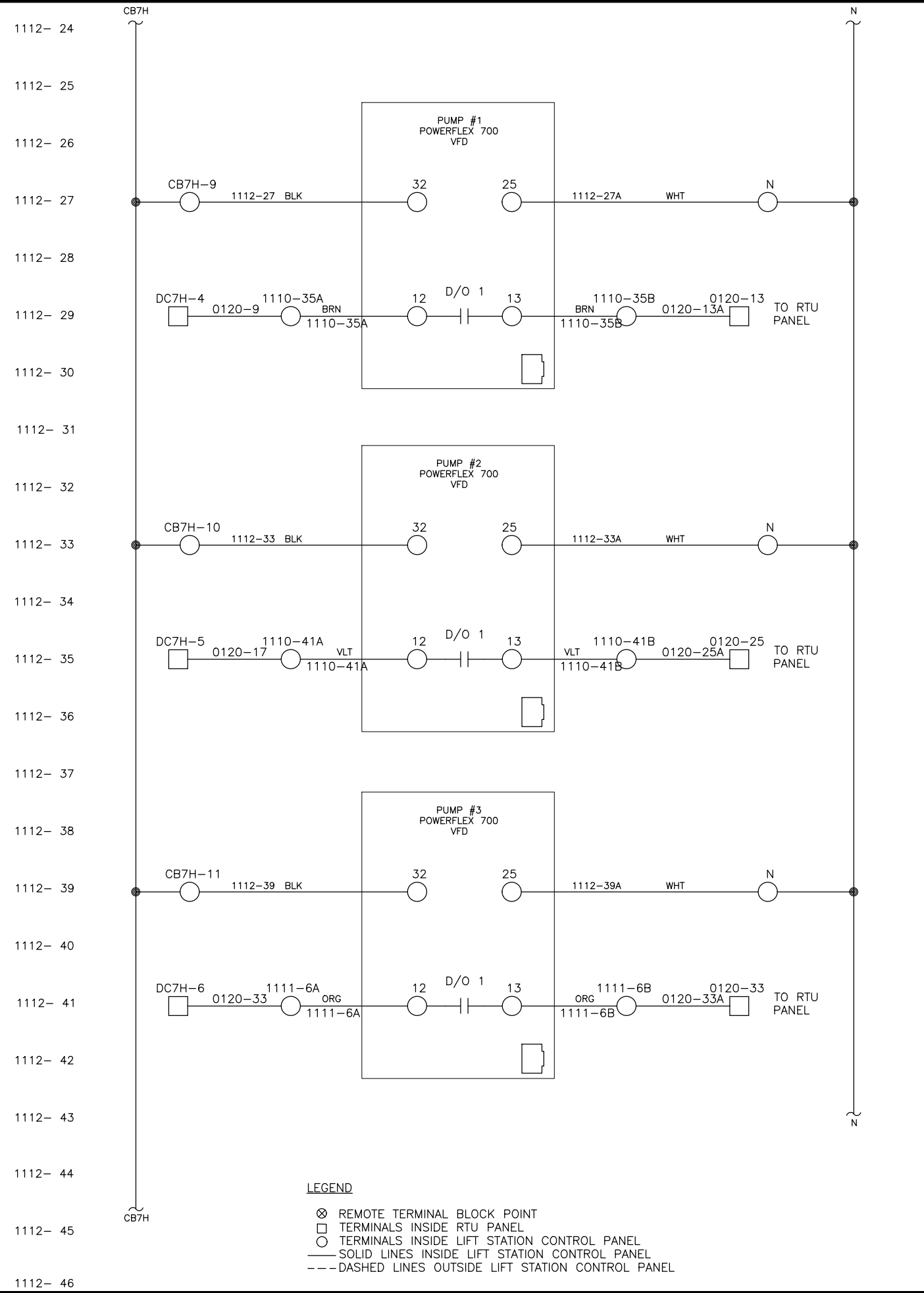


NOTES:
 1. UNLESS NOTED ALL CONTROL WIRING SHALL BE MINIMUM OF #14 AWG
 2. THIS CONTROL PANEL SCHEMATIC DESIGN ILLUSTRATES A TYPICAL LIFT STATION RTU AS A GENERAL GUIDELINE. ALL POSSIBLE I/O COMBINATIONS MAY NOT NECESSARILY BE USED

STANDARD DETAIL	SLS-16.6
SUBMERSIBLE LIFT STATION - TYPE 3 120V POWER SCHEMATIC - 2	
CITY OF WEST PALM BEACH	
LATEST REVISION	NOV. 2023



NOTES:
 1. UNLESS NOTED ALL CONTROL WIRING SHALL BE MINIMUM OF #14 AWG
 2. THIS CONTROL PANEL SCHEMATIC DESIGN ILLUSTRATES A TYPICAL LIFT STATION RTU AS A GENERAL GUIDELINE. ALL POSSIBLE I/O COMBINATIONS MAY NOT NECESSARILY BE USED

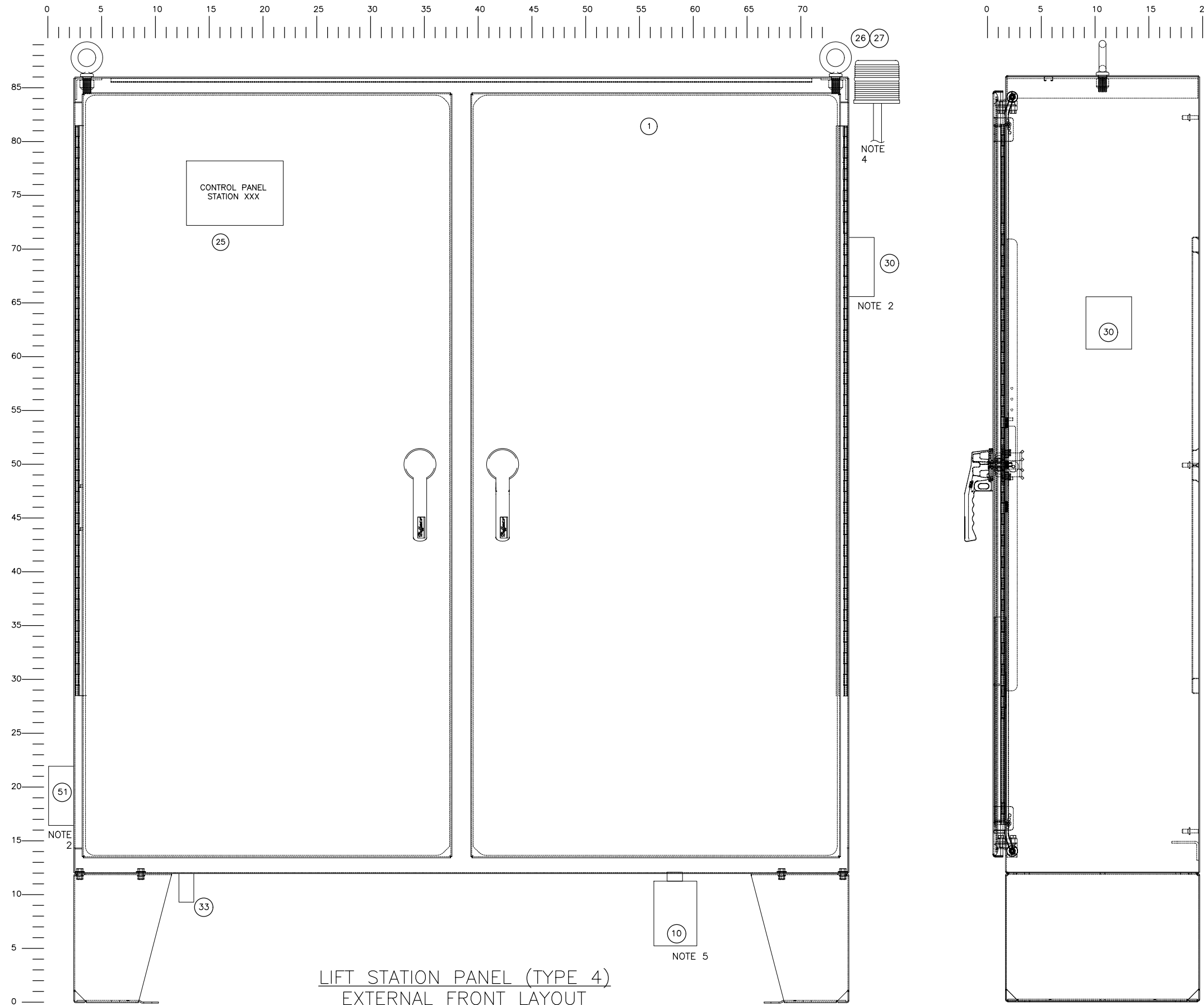


LEGEND
 ⊗ REMOTE TERMINAL BLOCK POINT
 □ TERMINALS INSIDE RTU PANEL
 ○ TERMINALS INSIDE LIFT STATION CONTROL PANEL
 — SOLID LINES INSIDE LIFT STATION CONTROL PANEL
 - - - DASHED LINES OUTSIDE LIFT STATION CONTROL PANEL

STANDARD DETAIL	SLS-16.7
SUBMERSIBLE LIFT STATION - TYPE 3 120V POWER SCHEMATIC - 3	
CITY OF WEST PALM BEACH	
LATEST REVISION	NOV. 2023

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LIFT STATION VFD CONTROL PANEL ENCLOSURE DETAILS (TYPE 4)
 "2 OR 3 PUMPS" "40 HP to 50 HP" "480 VOLTS 3 ϕ "

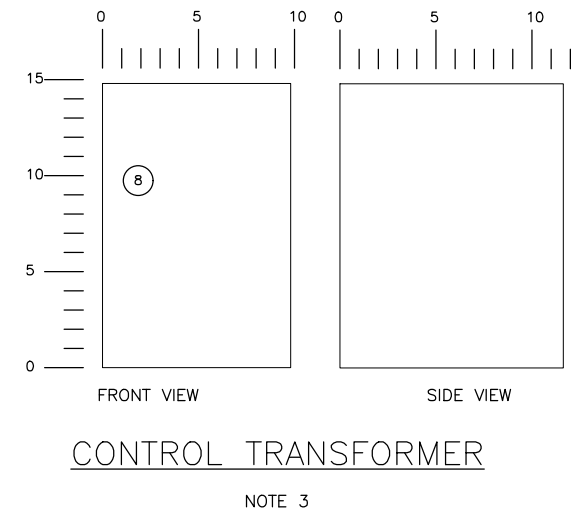


LIFT STATION PANEL (TYPE 4)
 EXTERNAL FRONT LAYOUT

LIFT STATION PANEL (TYPE 4)
 RIGHT SIDE LAYOUT

GENERAL NOTES:

1. SEE APPROPRIATE BOM FOR ACTUAL PART NUMBERS AND QUANTITIES REQUIREMENTS.
2. RECEPTACLE TO BE SHIPPED UNASSEMBLED AND FIELD INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR.
3. TRANSFORMER IS TO BE SHIPPED UNASSEMBLED, AND INSTALLED AND WIRED IN THE FIELD BY ELECTRICAL CONTRACTOR.
4. ALARM LIGHT TO BE SHIPPED UNASSEMBLED, WIRED AND MOUNTED ON 3/4" RIGID ALUMINUM CONDUIT SEPARATE FROM THE CONTROL PANEL.
5. 240/480V SURGE PROTECTION TO BE SHIPPED UNASSEMBLED AND FIELD INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR.



CONTROL TRANSFORMER

NOTE 3

SUBMERSIBLE LIFT STATION - TYPE 4 ENCLOSURE LAYOUT

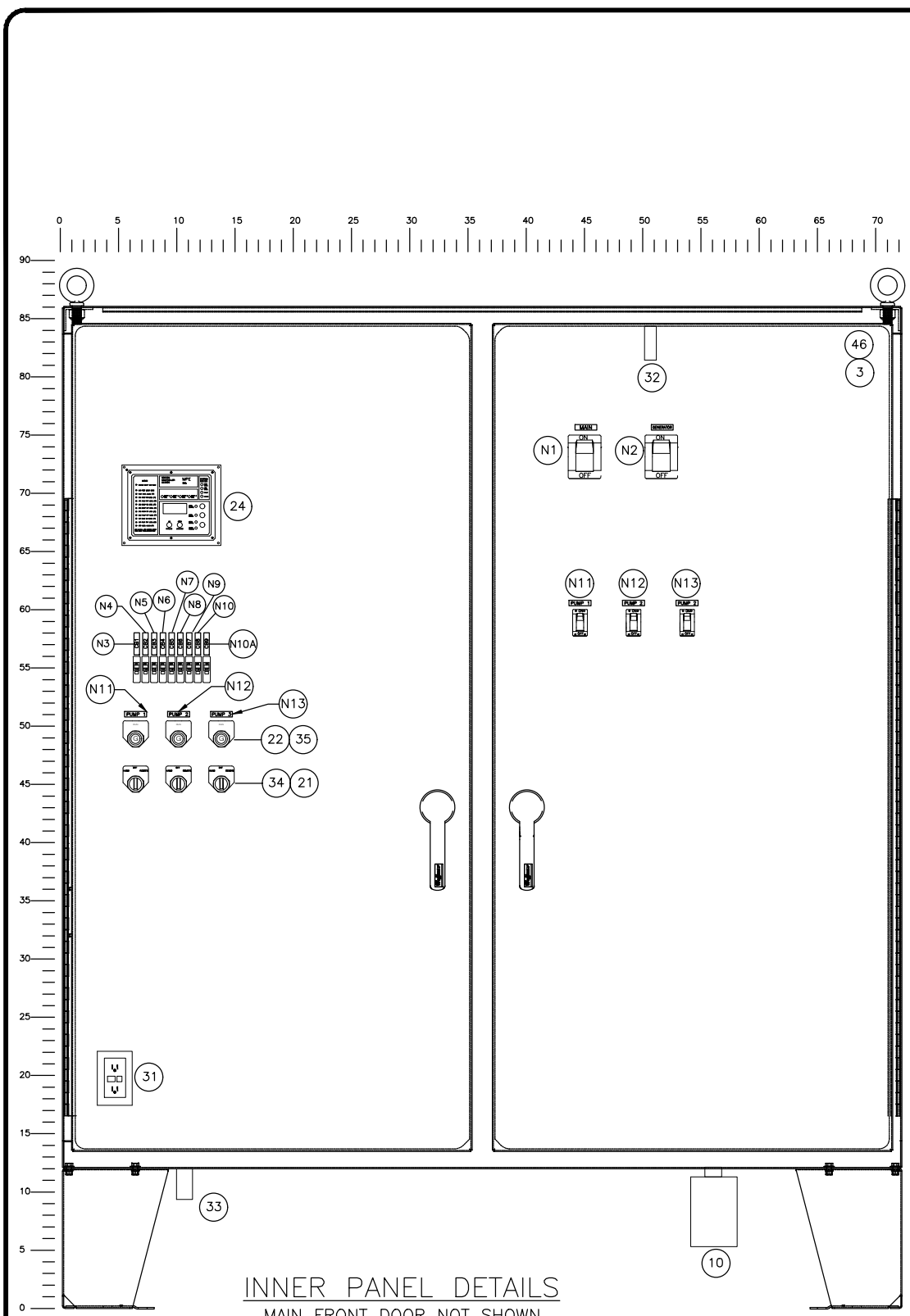
STANDARD
 DETAIL

CITY OF WEST PALM BEACH

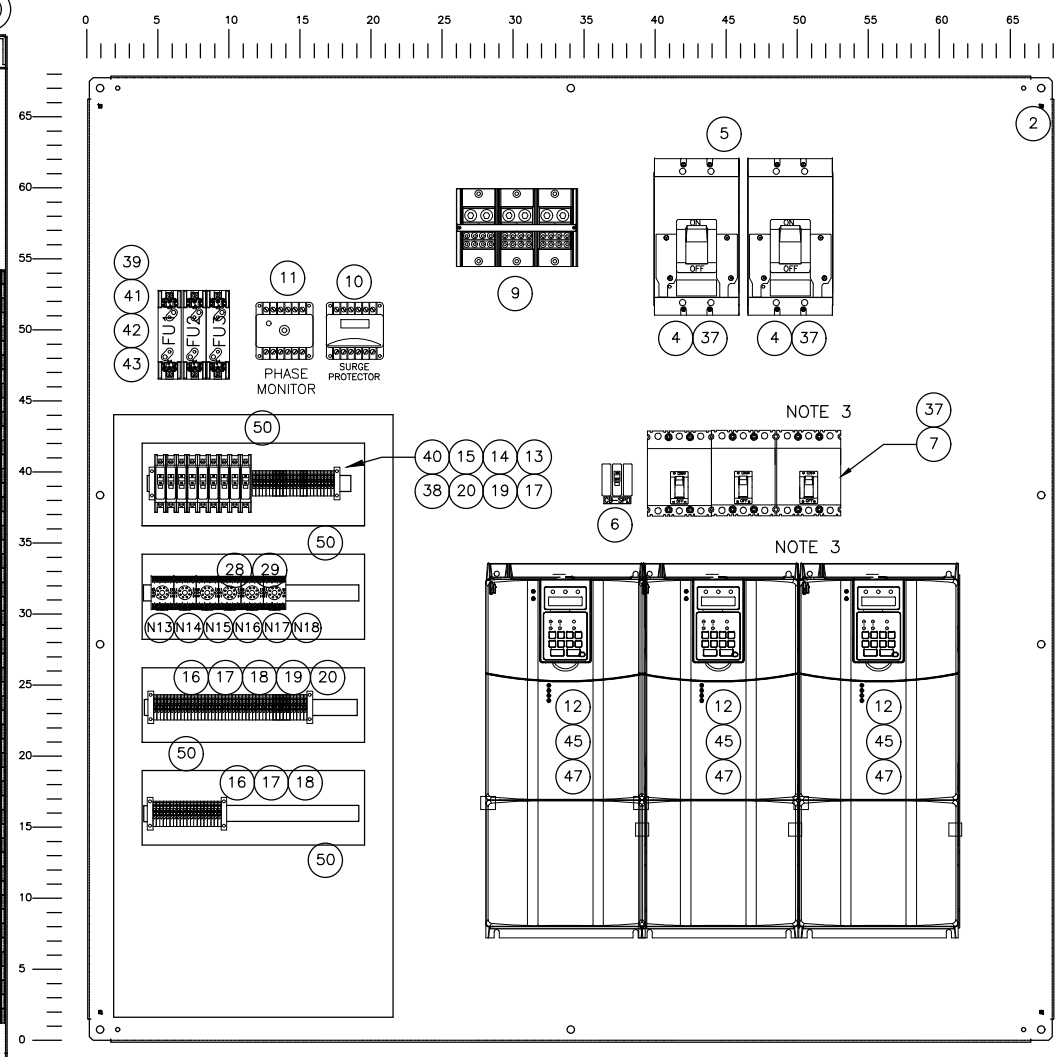
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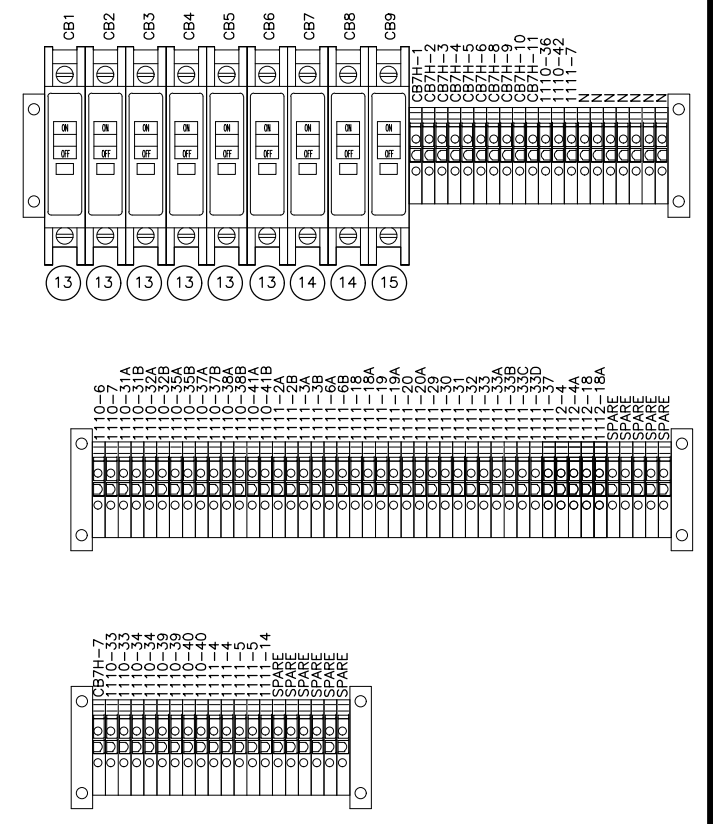


INNER PANEL DETAILS
MAIN FRONT DOOR NOT SHOWN



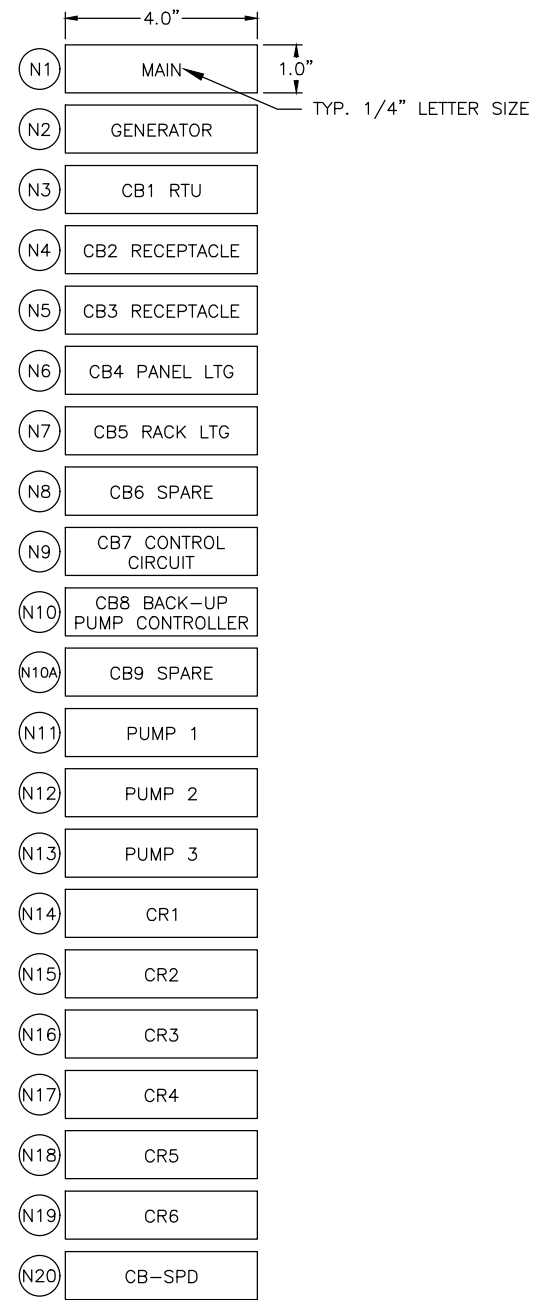
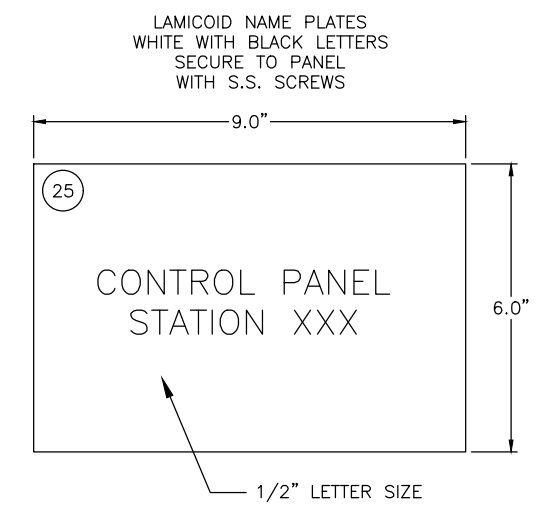
BACK PANEL DETAILS

- GENERAL NOTES:
 1. SEE APPROPRIATE BOM FOR ACTUAL PART NUMBERS QUANTITIES REQUIREMENTS.
 2. SEE APPROPRIATE WIRING SCHEMATIC.
 3. DRAWING SHOWN FOR A THREE MOTORS LAYOUT ONLY TWO WILL BE REQUIRED FOR A TWO PUMP STATION
 4. THIS PANEL IS DESIGNED FOR MANUAL GENERATOR TRANSFER.



BILL OF MATERIALS					
ITEM	DESCRIPTION	MANUFACTURER	PART NUMBER	2 PUMP QTY.	3 PUMP QTY.
1	NEMA 4X SS PAINTED WHITE ENCLOSURE 62"x48"x18"	HOFFMAN	A62H6018SS6LP3PT	1	1
2	BACK PANEL	HOFFMAN	A60P60	1	1
3	SWING OUT PANEL KIT	HOFFMAN	ANADFK	2	2
4	MAIN BREAKERS	SQUARE D	SEE SLS-17.4	2	2
5	WALKING BEAM ASSEMBLY	SQUARE D	FA4WB	1	1
6	CB-SPD, 3 POLE 40 AMP BREAKER	SQUARE D	HDL36040	1	1
7	MOTOR BREAKERS 3 POLE	SQUARE D	SEE SLS-17.4	2	3
8	7.5 KVA 480/240 - 120V TRANSFORMER SS ENCLOSURE	SQUARE D	7S1FSS	1	1
9	POWER DISTRIBUTION BLOCK	SQUARE D	LBA36206	1	1
10	3 PHASE SURGE PROTECTION	EDCO	SEE SLS-17.4	1	1
11	PHASE MONITOR	ATC DIVERSIFIED	SLA-440-ALE	1	1
12	POWER FLEX 700 VFD	ALLEN-BRADLEY	SEE SLS-17.4	2	3
13	1 POLE 20 AMP BREAKER	SQUARE D	QOU120	6	6
14	1 POLE 10 AMP BREAKER	SQUARE D	QOU110	2	2
15	1 POLE 5 AMP BREAKER	SQUARE D	GCB50	1	1
16	TERMINALS (#28 - #12 AWG)	ALLEN-BRADLEY	1492-J3	A/R	
17	TERMINAL END ANCHORS	ALLEN-BRADLEY	1492-EAHJ35	A/R	
18	TERMINAL END BARRIERS	ALLEN-BRADLEY	1492-EBJ3	A/R	
19	TERMINAL CENTER JUMPERS	ALLEN-BRADLEY	1492-CJ6-10	A/R	
20	DIN RAIL	ALLEN-BRADLEY	1492-DR1	A/R	
21	3 POSITION SELECTOR SWITCH	SQUARE D	9001SKS43BH2	2	3
22	GREEN PUSH TO TEST PILOT LIGHT	SQUARE D	9001SKT38LGG31	2	3
24	4 PUMP STATION CONTROLLER	MOTOR PROTECTION ELECTRONICS	SC2000-11S	1	1
25	9" X 6" WHITE NAME PLATE W/BLACK LETTERING AS SHOWN	-	-	1	1
26	ALARM BEACON	FEDERAL SIGNAL	191XL-S120-240R	1	1
27	ALARM BEACON GUARD	FEDERAL SIGNAL	K8449090B	1	1
28	DPDT RELAY 120V COIL	SQUARE D	8501 KP12P14V20	4	6
29	RELAY BASE	SQUARE D	8501 NR51	4	6
30	GENERATOR RECEPTACLE WITH ANGLE ADAPTOR	APPLETON	*SEE NOTE	1	1
31	GFCI RECEPTACLE IN BOX	-	-	1	1
32	DOOR ACTIVATED SWITCH	HOFFMAN	ALFSWD	1	1
33	H20MIT VENT DRAIN	HOFFMAN	AVDR4SS4	1	1
34	HAND OFF AUTO LEGEND	ALLEN-BRADLEY	800T-X511	2	3
35	RUN LEGEND	ALLEN-BRADLEY	800T-X540	2	3
36	4" X 1" WHITE NAME PLATE W/BLACK LETTERING AS SHOWN	-	-	A/R	A/R
37	FAL BREAKER HANDLE PADLOCK ATTACHMENT	SQUARE D	HPAFK	4	5
38	QOU BREAKER HANDLE PADLOCK ATTACHMENT	SQUARE D	QOU1PA	7	7
39	CLASS R FUSE HOLDER	SQUARE D	9080 FB1611R	3	3
40	TERMINALS (#18 - #6 AWG)	ALLEN-BRADLEY	1492-J10	A/R	
41	40 AMP CLASS R FUSE	BUSSMANN	FRN-R-40	2	2
42	20 AMP CLASS R FUSE	BUSSMANN	FRN-R-20	2	2
43	60 AMP CLASS R FUSE	BUSSMANN	FRN-R-60	1	1
44					
45	POWERFLEX ETHERNET COMMUNICATION MODULE	ALLEN-BRADLEY	20-COMM-E	2	3
46	SWING OUT PANELS	HOFFMAN	A60P30	2	2
47	POWERFLEX LCD DISPLAY, FULL NUMERIC KEYPAD	ALLEN-BRADLEY	20-HIM-A3	2	3
48					
49					
50	2"W X 3"H WIREWAY WITH COVER	-	-	A/R	A/R
51	20A,1P GFCI RECEPTACLE w/ NEMA 4 WHILE IN USE COVER	-	-	1	1

*NOTE: AR20044-RS (240V SERVICE) OR AR20044-P4-PS (480V SERVICE) WITH TYPE AJA ANGLE ADAPTER



NOTES:
1. ITEM SHALL SHIP LOOSE; FIELD INSTALL

BOM ITEMS SELECTION CHART (2 PUMPS, 480 VOLTS 3Φ)

MOTOR 3Φ		MAIN BREAKERS WIRE SIZE	ITEM 10 SURGE	ITEM 11 PHASE MONITOR	ITEM 4 (MAIN BREAKERS) 30kAIC		MOTOR FEEDER SIZE	ITEM 7 (MOTOR BREAKER)		ITEM 12 (VFD)
HP	FLA				AMPS	CATALOG #		AMPS	CATALOG #	
50	65	3/0	330DF 05AWRLIS	SLA-440- ALE	200	LAL36200WB	4	150	HDL36150	ATV630D45N4

BOM ITEMS SELECTION CHART (3 PUMPS, 480 VOLTS 3Φ)

MOTOR 3Φ		MAIN BREAKERS WIRE SIZE	ITEM 10 SURGE	ITEM 11 PHASE MONITOR	ITEM 4 (MAIN BREAKERS) 30kAIC		MOTOR FEEDER SIZE	ITEM 7 (MOTOR BREAKER)		ITEM 12 (VFD)
HP	FLA				AMPS	CATALOG #		AMPS	CATALOG #	
50	65	250MCM	330DF 05AWRLIS	SLA-440- ALE	250	LAL36250WB	4	150	HDL36150	ATV630D45N4

LATEST REVISION

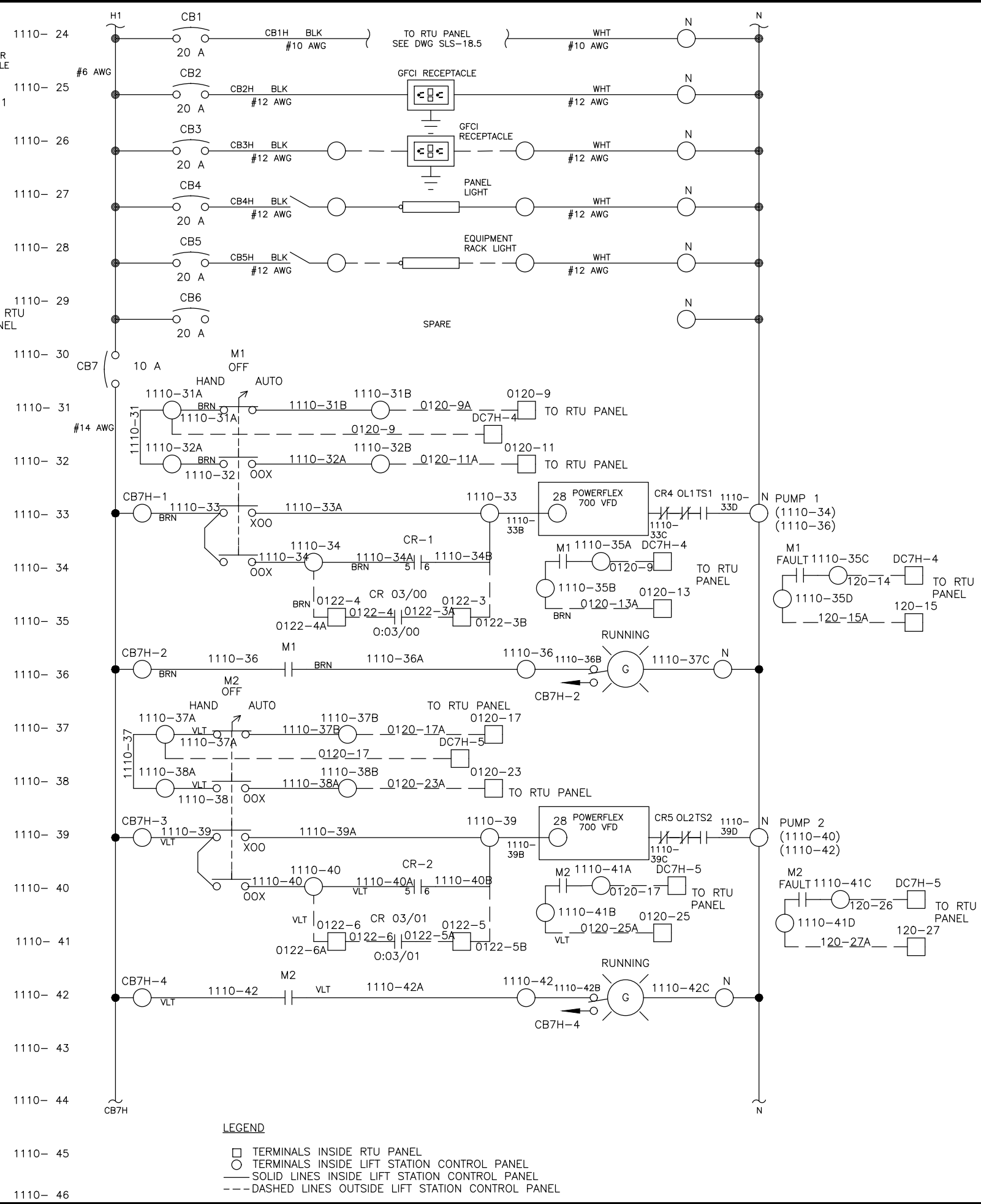
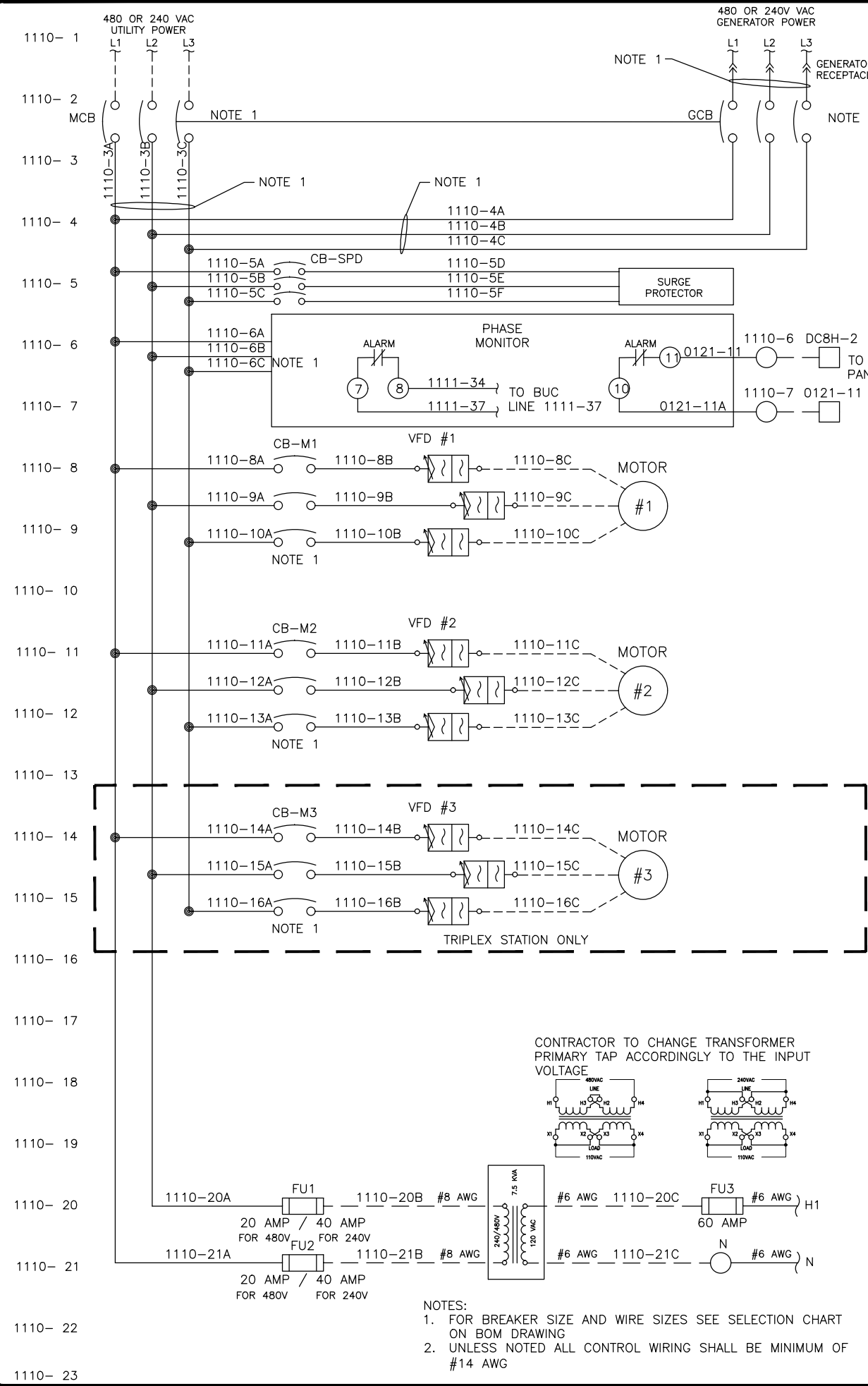
NOV. 2023

SUBMERSIBLE LIFT STATION - TYPE 4 BILL OF MATERIALS - 2

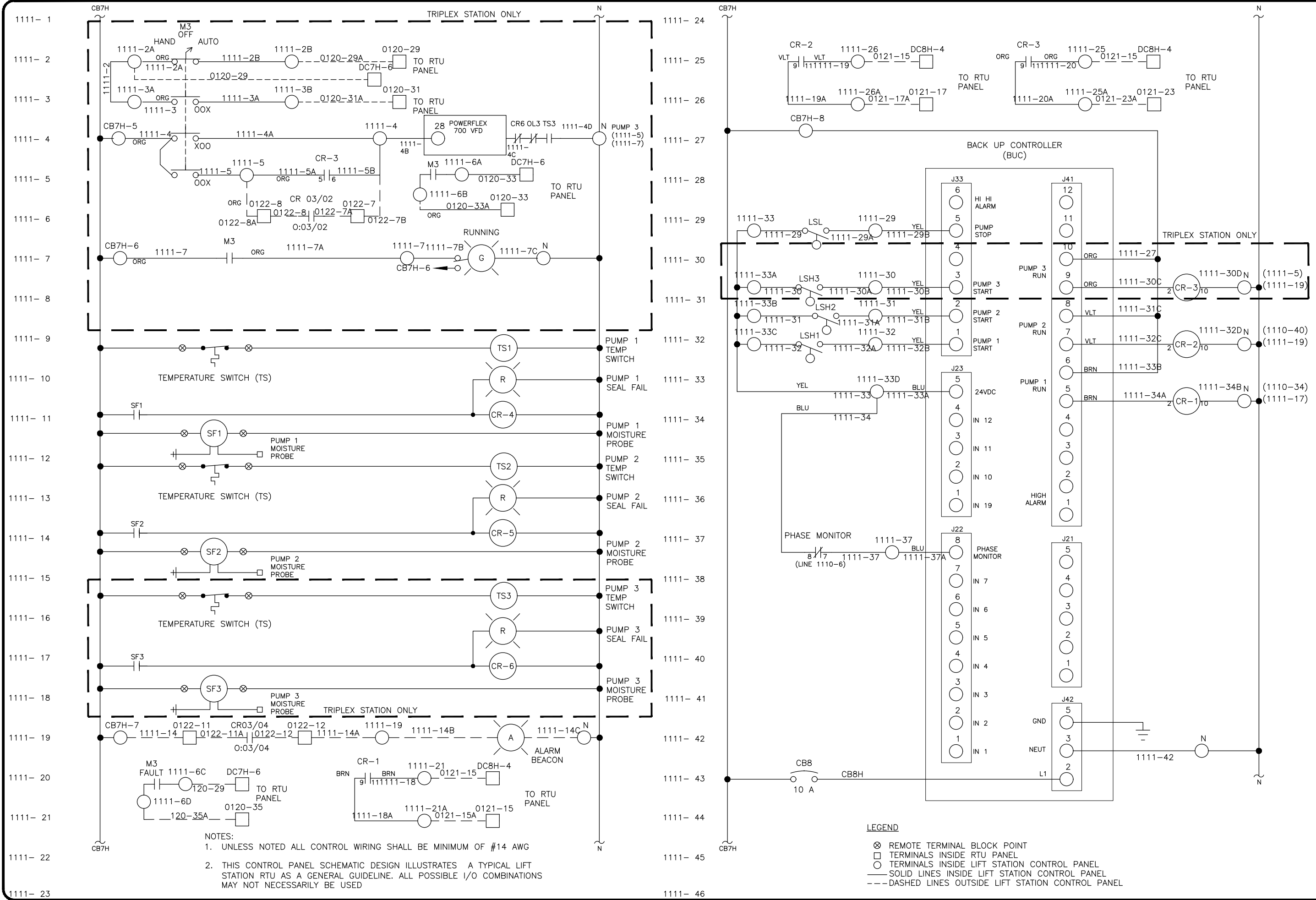
CITY OF WEST PALM BEACH

STANDARD DETAIL

SLS-17.4



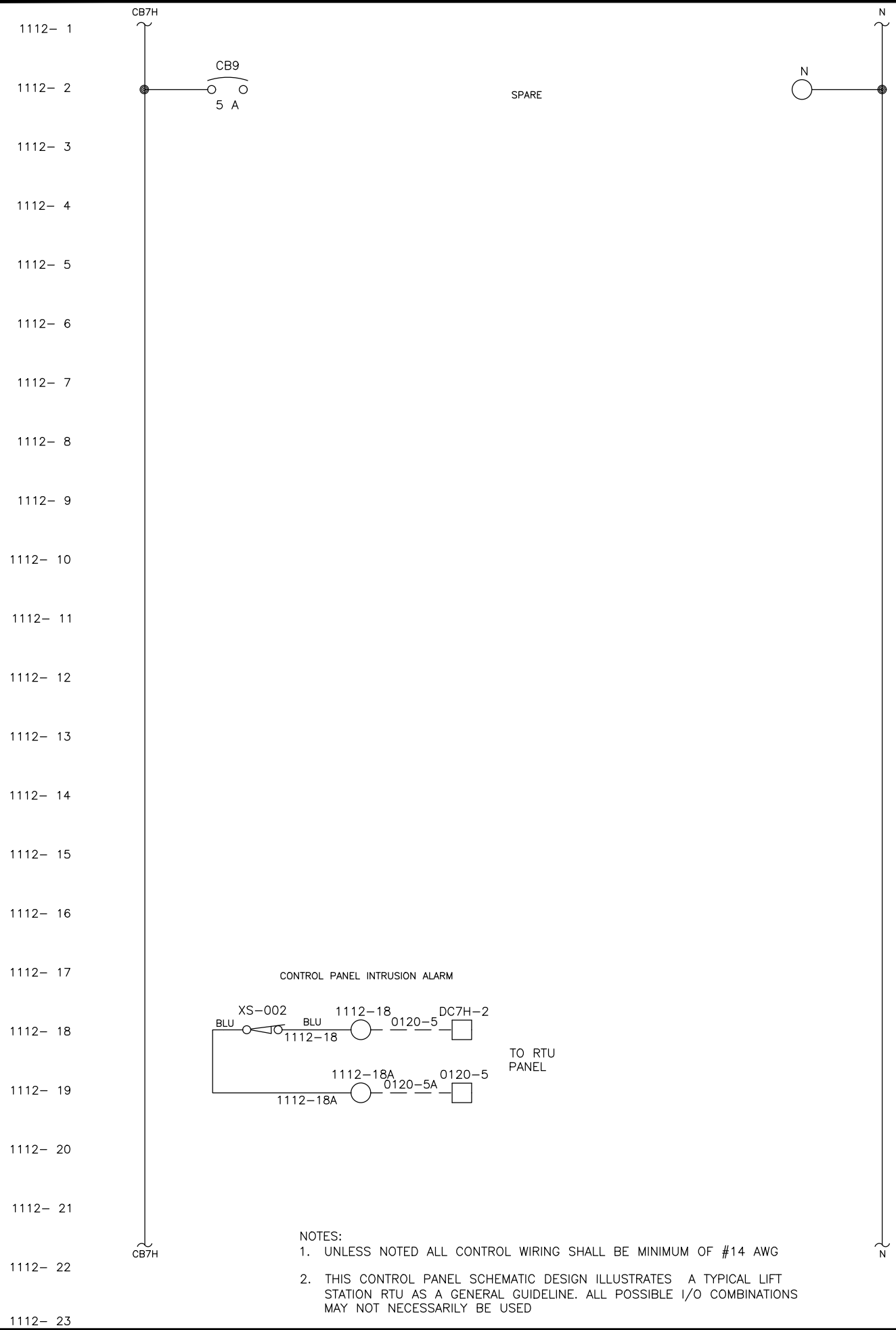
STANDARD DETAIL	SLS-17.5
SUBMERSIBLE LIFT STATION - TYPE 4 120V POWER SCHEMATIC - 1	
CITY OF WEST PALM BEACH	
LATEST REVISION	NOV. 2023



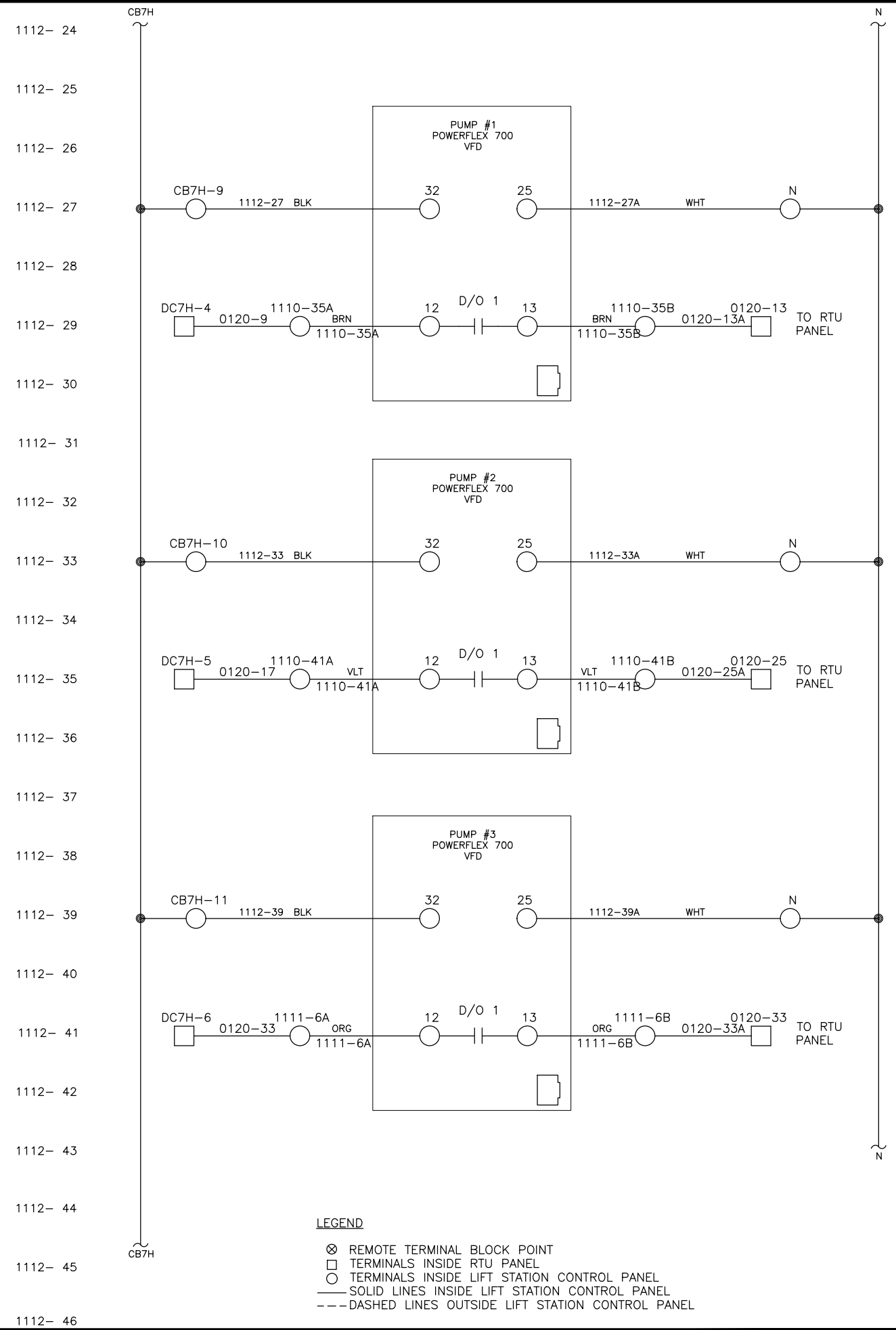
NOTES:
 1. UNLESS NOTED ALL CONTROL WIRING SHALL BE MINIMUM OF #14 AWG
 2. THIS CONTROL PANEL SCHEMATIC DESIGN ILLUSTRATES A TYPICAL LIFT STATION RTU AS A GENERAL GUIDELINE. ALL POSSIBLE I/O COMBINATIONS MAY NOT NECESSARILY BE USED

LEGEND
 ⊗ REMOTE TERMINAL BLOCK POINT
 □ TERMINALS INSIDE RTU PANEL
 ○ TERMINALS INSIDE LIFT STATION CONTROL PANEL
 — SOLID LINES INSIDE LIFT STATION CONTROL PANEL
 - - - DASHED LINES OUTSIDE LIFT STATION CONTROL PANEL

STANDARD DETAIL	SLS-17.6
SUBMERSIBLE LIFT STATION - TYPE 4 120V POWER SCHEMATIC - 2	
CITY OF WEST PALM BEACH	
LATEST REVISION	NOV. 2023



NOTES:
 1. UNLESS NOTED ALL CONTROL WIRING SHALL BE MINIMUM OF #14 AWG
 2. THIS CONTROL PANEL SCHEMATIC DESIGN ILLUSTRATES A TYPICAL LIFT STATION RTU AS A GENERAL GUIDELINE. ALL POSSIBLE I/O COMBINATIONS MAY NOT NECESSARILY BE USED

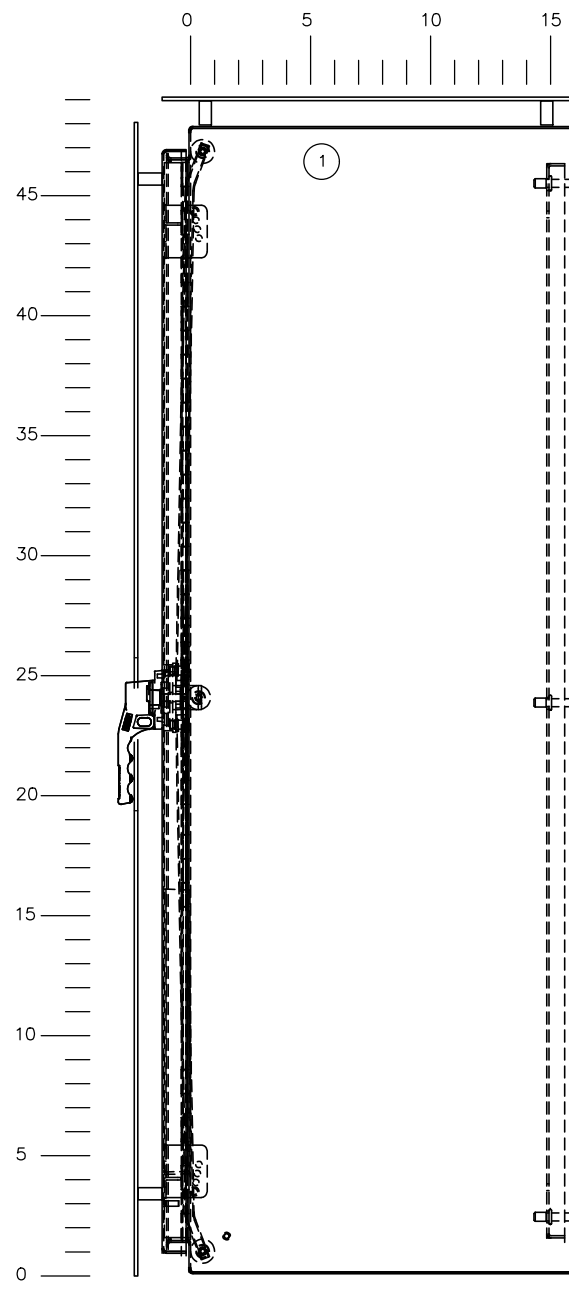
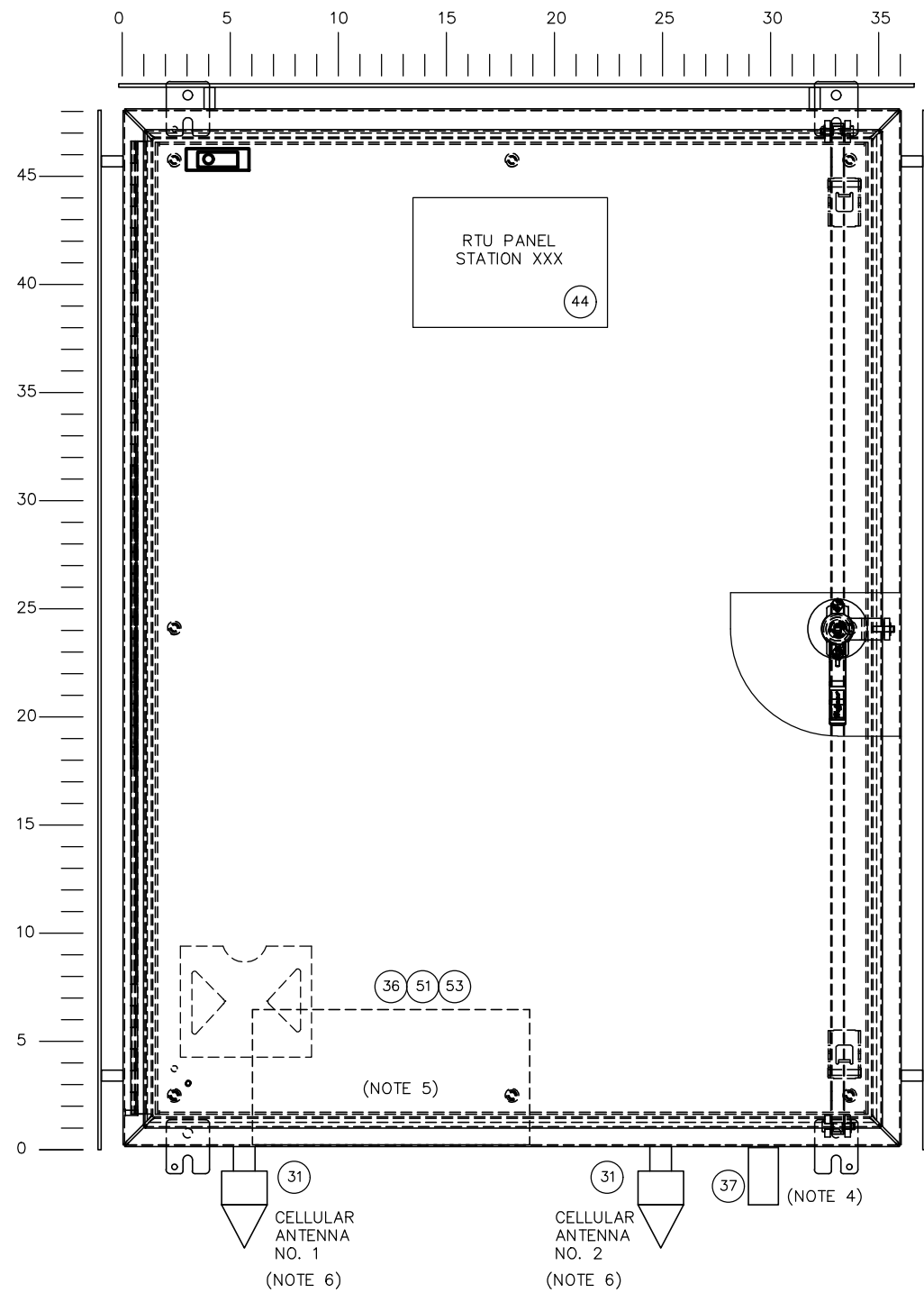


LEGEND
 ⊗ REMOTE TERMINAL BLOCK POINT
 □ TERMINALS INSIDE RTU PANEL
 ○ TERMINALS INSIDE LIFT STATION CONTROL PANEL
 — SOLID LINES INSIDE LIFT STATION CONTROL PANEL
 --- DASHED LINES OUTSIDE LIFT STATION CONTROL PANEL

STANDARD DETAIL	SLS-17.7
SUBMERSIBLE LIFT STATION - TYPE 4 120V POWER SCHEMATIC - 3	
CITY OF WEST PALM BEACH	
LATEST REVISION	NOV. 2023

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LIFT STATION RTU PANEL ENCLOSURE DETAILS



NOTES:

1. NO TOP OR SIDE ENTRY.
2. ENCLOSURE TO BE NEMA 4X 316 SS POWDER COATED WHITE.
3. ENCLOSURE TO HAVE SUNSHIELDS FRONT, REAR, SIDES, TOP AND SHEET PROVIDED FOR BACK. SUNSHIELDS SHALL BE 316 SS, POWDER COATED WHITE, MINIMUM 14 GAUGE STEEL.
4. ITEM SHALL SHIP LOOSE; FIELD INSTALL.
5. SECURE UPS TO ENCLOSURE FLOOR FOR TRANSPORT (NOT CUSTOM SHELF).
6. CELLULAR CABLE PENETRATIONS SHALL MAINTAIN ENCLOSURE TYPE 4X RATING.
7. CONTRACTOR SHALL FURNISH AND INSTALL VINYL WRAPPING TO COVER THE EXTERIOR OF THE RTU PANEL. REFER TO SPECIFICATION SECTION 16010 FOR ADDITIONAL REQUIREMENTS.

LABELS:

1. UL 508A LABEL.
2. TO MAINTAIN ENCLOSURE RATING, USE HUBS OR FITTINGS WITH THE SAME ENVIRONMENTAL RATING AS THE ENCLOSURE
 O-Z/GEDNEY CHM SERIES HUBS
 APPLETON HUB SERIES HUBS
 CROUSE HINDS ST SERIES HUBS
3. WARNING: UPS CIRCUITS STILL LIVE AFTER MAIN POWER IS DISCONNECTED.

LATEST REVISION

NOV. 2023

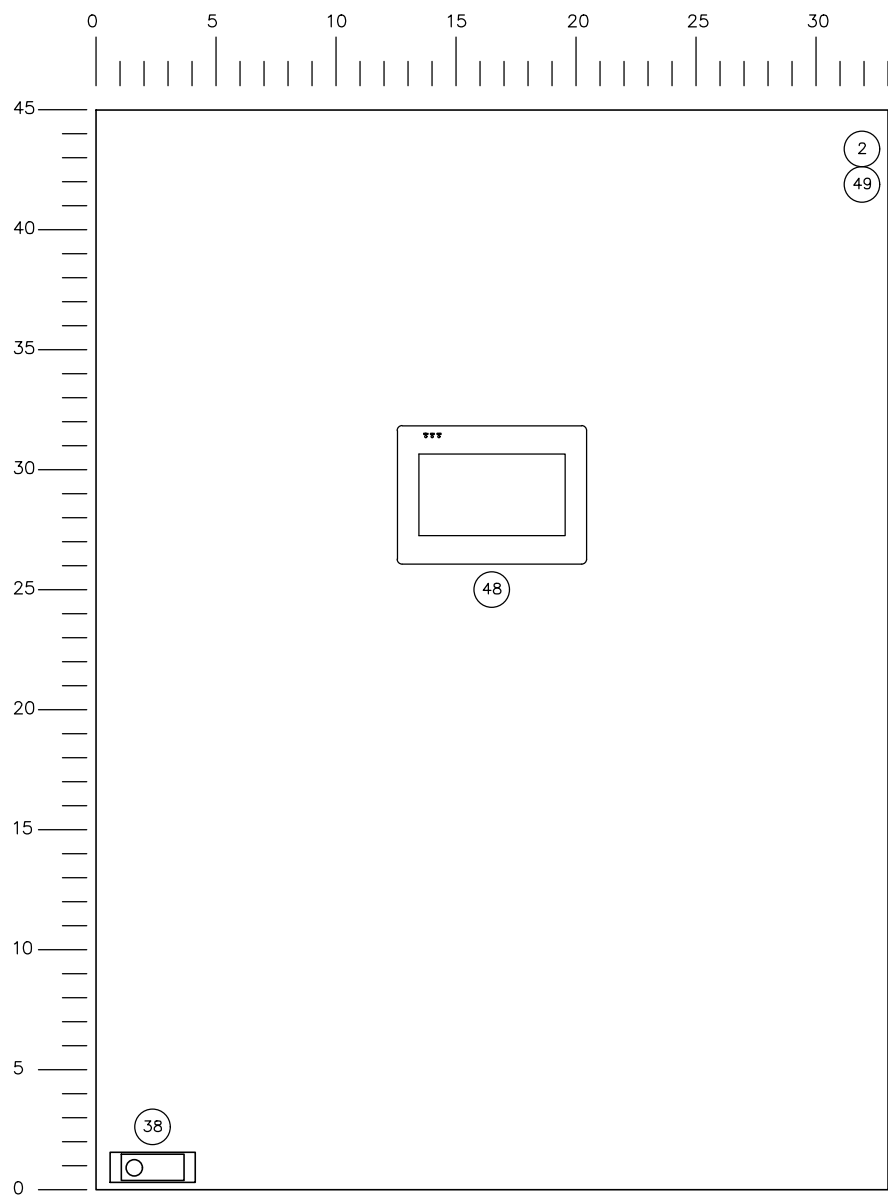
RTU PANEL (TYPE 1) EXTERNAL FRONT & SIDE ENCLOSURE LAYOUT

CITY OF WEST PALM BEACH

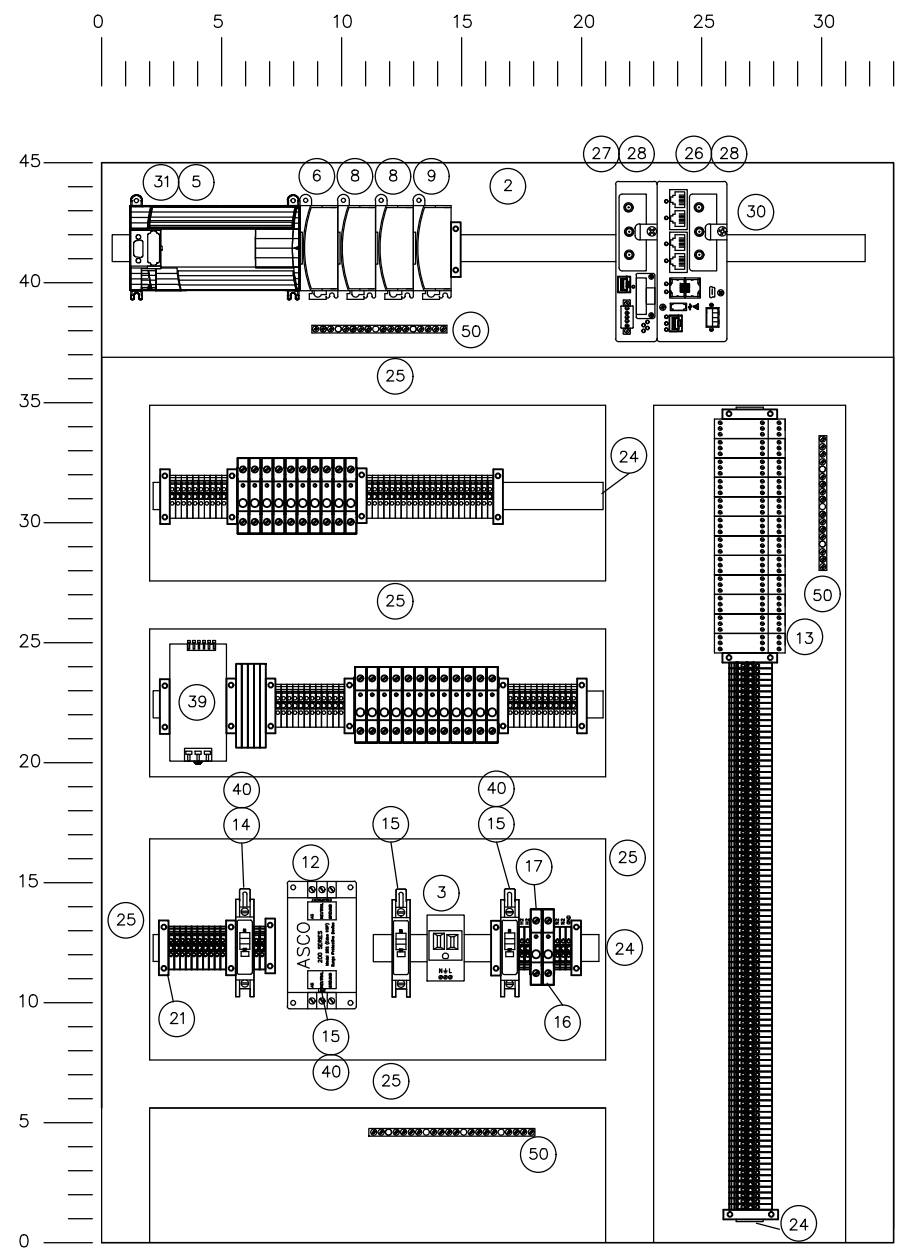
STANDARD DETAIL

SLS - 18.1

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RTU INNER PANEL DETAILS
MAIN FRONT DOOR NOT SHOWN



RTU BACK PANEL

COMMUNICATION DEVICES
ETHERNET SWITCH/EXPANSION MODULE
WIRELESS CELLULAR MODEM

NOTE:
LOCKOUT/ TAGOUT DEVICES
PROVIDED AND INSTALLED
ON ALL QOU BREAKERS

- GENERAL NOTES:
1. FIELD WIRING SHALL ENTER BOTTOM OF HORIZONTAL TERMINAL STRIPS OR RIGHT SIDE OF VERTICAL TERMINAL STRIPS.
 2. ONLY ONE (1) WIRE ALLOWED PER TERMINAL BLOCK SCREW.
 3. SEE TB DETAIL ON DRAWING SLS-18.4.
 4. ALL TERMINALS MUST BE LABELED WITH NUMBERS FROM THE CITY'S STANDARD DETAIL.
 5. ALL WIRE COLORS MUST MATCH WITH THE CITY'S STANDARD DETAIL.
 6. ALL WIRE NUMBERS MUST MATCH WITH THE CITY'S STANDARD DETAIL.

STANDARD
DETAIL

SLS - 18.2

RTU PANEL (TYPE 1) PANEL LAYOUT

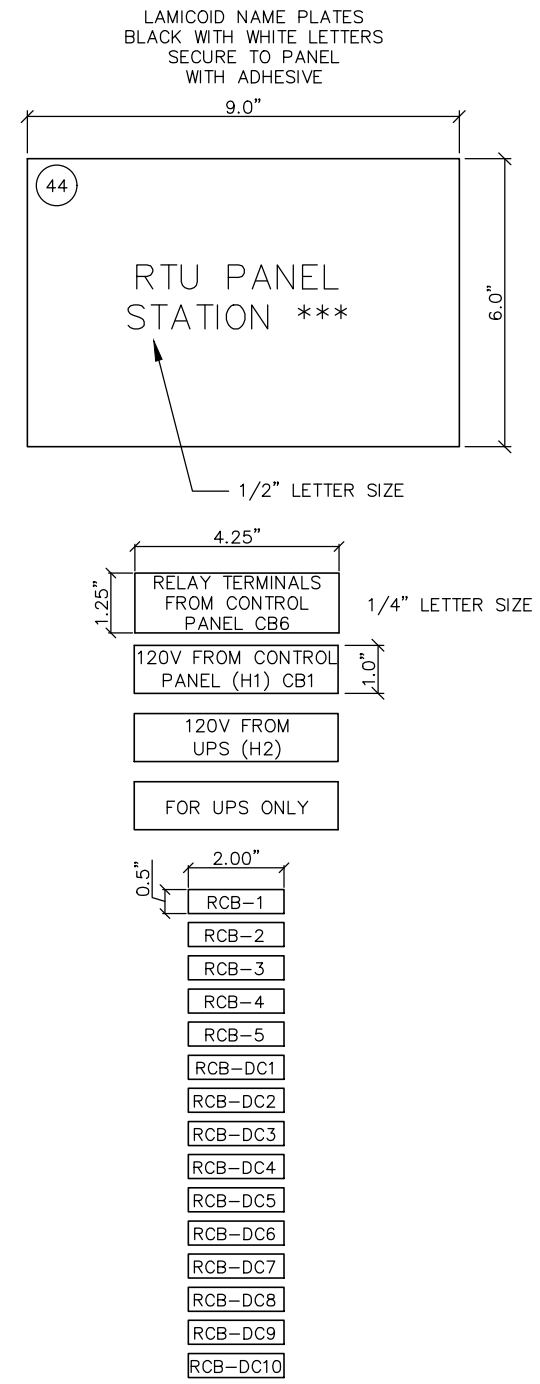
CITY OF WEST PALM BEACH

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NOV. 2023

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RTU PANEL BILL OF MATERIALS				
ITEM	DESCRIPTION	MANUFACTURER	PART NUMBER	RTU PANEL QTY.
1	NEMA 4X 316SS POWDER COATED WHITE ENCLOSURE W/SUNSHIELDS 48"x36"x16"	SCHAEFER	SPN4SS6-483616-195	1
2	BACK PANEL	SCHAEFER	SPP-4836	1
3	SINGLE RECEPTACLE, DIN RAIL, 15A, 120V	WEIDMULLER	9915480000	1
4				
5	MICROLOGIX 1400 CONTROLLER	ALLEN-BRADLEY	1766-L32BWA	1
6	16 POINT 24VDC DIGITAL INPUT MODULE	ALLEN-BRADLEY	1762-IQ16	1
7				
8	4 CHANNEL ANALOG INPUT MODULE	ALLEN-BRADLEY	1762-IF4	2
9	4 CHANNEL ANALOG OUTPUT MODULE	ALLEN-BRADLEY	1762-OF4	1
10				
11				
12	120V AC SURGE PROTECTION	EDCO	HSP121BT-1RU	1
13	24VDC ANALOG SURGE PROTECTION	SQUARE D	SSP030DRSE10	12
14	15 AMP CIRCUIT BREAKER	SQUARE D	QOU115	1
15	10 AMP CIRCUIT BREAKER	SQUARE D	QOU110	2
16	5 AMP CIRCUIT BREAKER	SQUARE D	9080GCB50	1
17	2 AMP CIRCUIT BREAKER	SQUARE D	9080GCB20	6
18	1 AMP CIRCUIT BREAKER	SQUARE D	9080GCB10	4
19	0.5 AMP CIRCUIT BREAKER	SQUARE D	9080GCB05	13
20	TERMINAL UT 2.5	PHOENIX CONTACT	3044076 UT 2,5	154
21	END CLAMP E/UK 1	PHOENIX CONTACT	1201413 E/UK 1	21
22	END COVER D-UT 2,5	PHOENIX CONTACT	3047028 D-UT 2,5	9
23	PLUG-IN JUMPER FBS 20-5	PHOENIX CONTACT	3030226 FBS 20-5	5
24	DIN RAIL	PHOENIX CONTACT	0801733 NS 35/ 7,5 PERF	A/R
25	2"W X 3"H WIREWAY WITH COVER	-	-	A/R
26	ETHERNET SWITCH INDUSTRIAL INTEGRATED SERVICES ROUTER	CISCO	IR1101-A-K9	1
27	ETHERNET SWITCH EXPANSION MODULE	CISCO	IRM-1100-SP	1
28	WIRELESS CELLULAR MODEM-4G LTE ADVANCED	CISCO	P-LTE-MNA	2
29				
30	DIN RAIL MOUNTING KIT FOR CELLULAR MODEM	CISCO	IR1101-DINRAIL	A/R
31	SURFACE MOUNT 4G LTE DUAL SMA MIMO OUTDOOR FIXED BRACKET WALL MOUNT WATERPROOF ANTENNA	AMAZON	BINGFU: BINGFU 4G DOUBLE ANTENNA CONNECTOR MODEL	2
32	ETHERNET SWITCH EXTENDED SERVICE AGREEMENT (CISCO SMART NET TOTAL CARE)	CISCO	CON-SNT-IR1101AK	1
33	NETWORK ADVANTAGE LICENSE	CISCO	SL-IR1101-NA	1
34	LEARNING CREDITS	CISCO	TRN-CLC-004	1
35				
36	750VA UPS	APC	SMT750	1
37	H2OMIT VENT DRAIN	HOFFMAN	AVDR4SS4	1
38	DOOR ACTIVATED SWITCH	HOFFMAN	ALFSWD	1
39	10A 24VDC POWER SUPPLY	ALLEN-BRADLEY	1606-XLS240E	1
40	QOU BREAKER HANDLE PADLOCK ATTACHMENT	SQUARE D	QOU1PA	3
41				
42				
43				
44	BLACK NAME PLATE W/WHITE LETTERING AS SHOWN	-	-	1
45	GIGATRUE CAT6 550-MHz PATCH CABLE, 3FT, BLUE SNAGLESS BOOTS	BLACK BOX	EVNSL641-0003	2
46	GIGATRUE CAT6 550-MHz PATCH CABLE, 10FT, BLUE SNAGLESS BOOTS	BLACK BOX	EVNSL641-0010	1
47	TERMINAL BLOCK RELAY	ALLEN-BRADLEY	700-HLT2Z24	5
48	7" GRAPHIC HMI SCREEN	MAPLE SYSTEMS INC.	HMI5070PV2	1
49	SWING OUT PANEL KIT	SCHAEFER	ALUMINUM PAINTED WHITE	1
50	GROUND BAR	PANDUIT	UGB2/O-414-12	2
51	GROUND BAR	PANDUIT	UGB2/O-414-18	1
52				
53	UPS DRY CONTACT I/O SMARTSLOT CARD	APC	AP9613	1
54	GND TERMINAL UT 2,5-PE	PHOENIX CONTACT	3044092 UT 2,5-PE	14
55	END COVER, YELLOW, D-UT 2.5/10 YE	PHOENIX CONTACT	3047248 D-UT 2.5/10 YE	3
56	UPS PATCH CORD - MALE PLUG, 15A 125V, 2 POLE 3 WIRE GROUNDING	HUBBELL	HBL5266C	1
(NOTE 1) 57	GROUNDING KIT (TESSCO #67471)	WIRELESS SOLUTIONS	WSCGK-C12	1
(NOTE 1) 58	WEATHERPROOFING KIT (TESSCO #488126)	COMMSCOPE	221213	1



NOTES:
1. ITEM SHALL SHIP LOOSE; FIELD INSTALL

RTU PANEL (TYPE 1) BILL OF MATERIALS

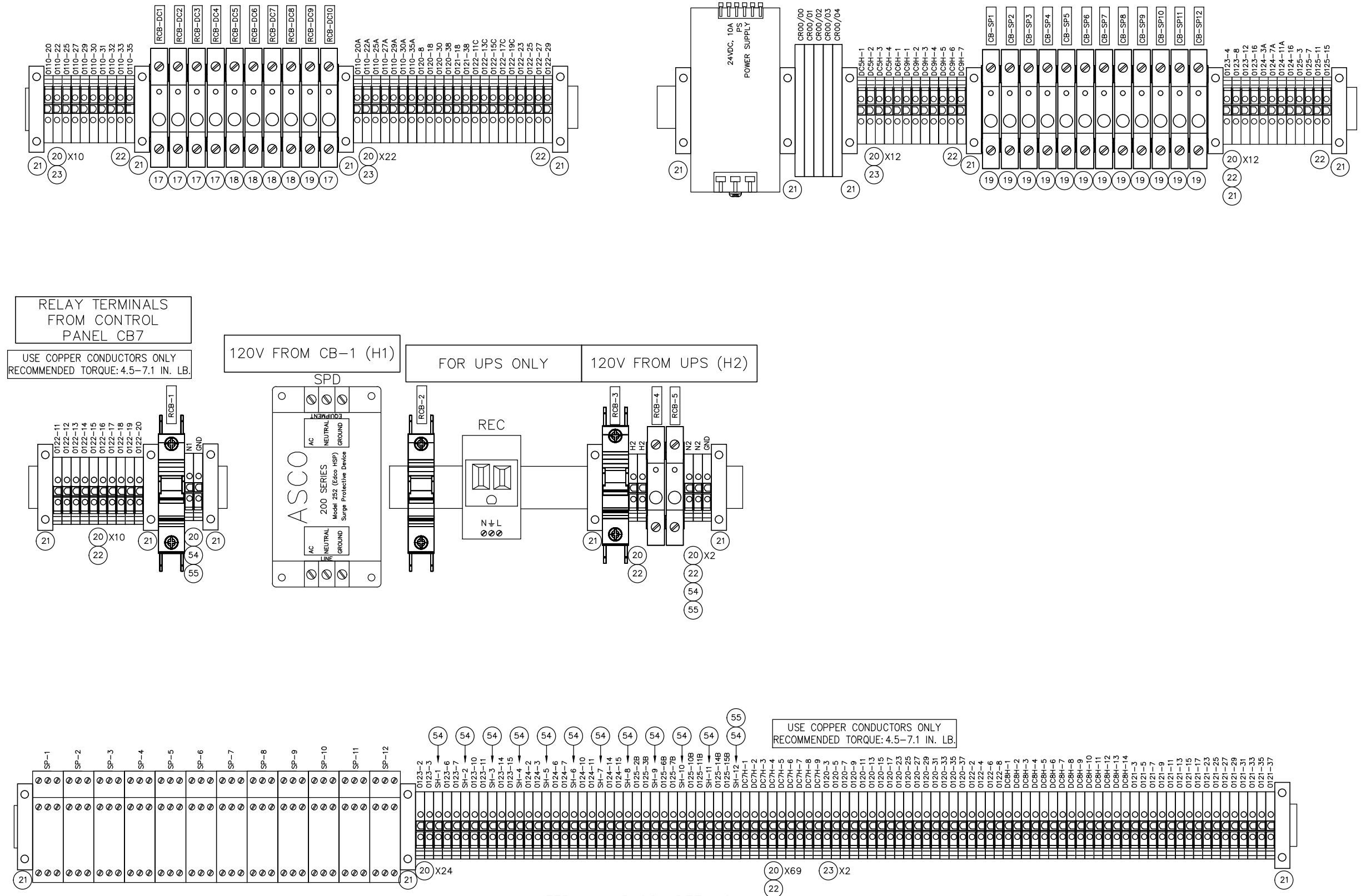
STANDARD
DETAIL

SLS - 18.3

CITY OF WEST PALM BEACH

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TERMINAL BLOCK DETAILS
NOT TO SCALE

STANDARD
DETAIL

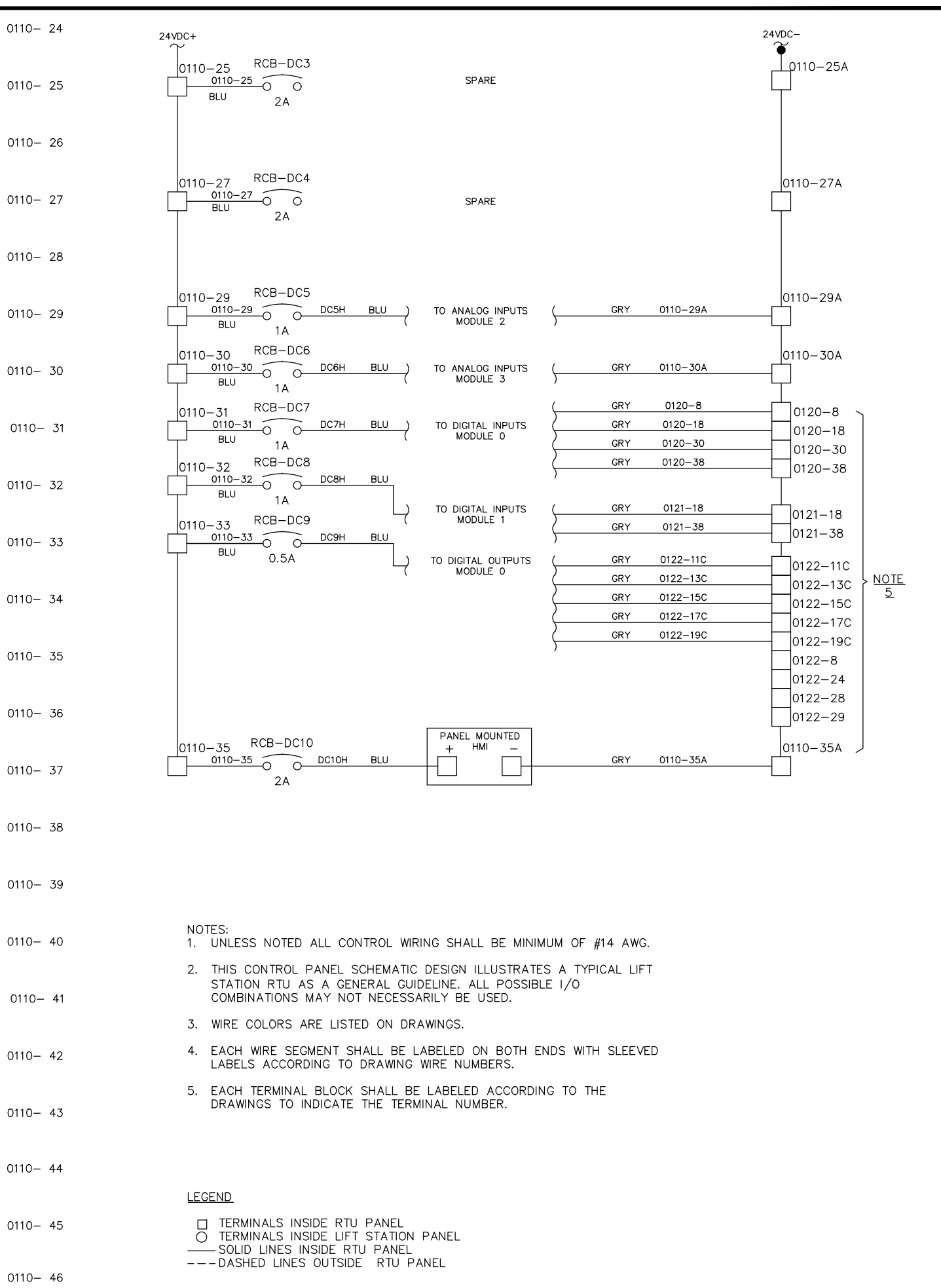
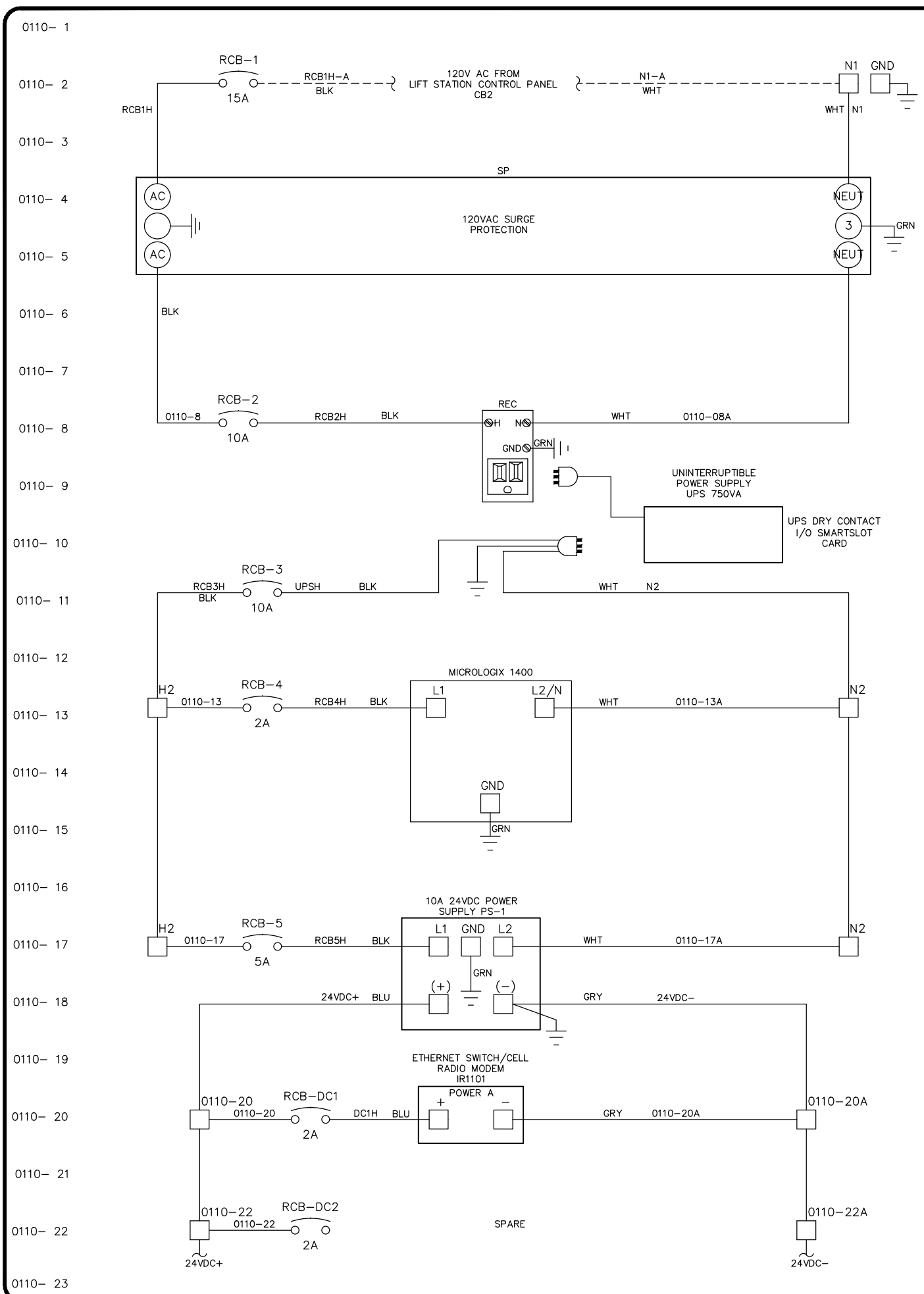
SLS - 18.4

RTU PANEL (TYPE 1) TERMINAL BLOCKS DETAILS

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LATEST
REVISION

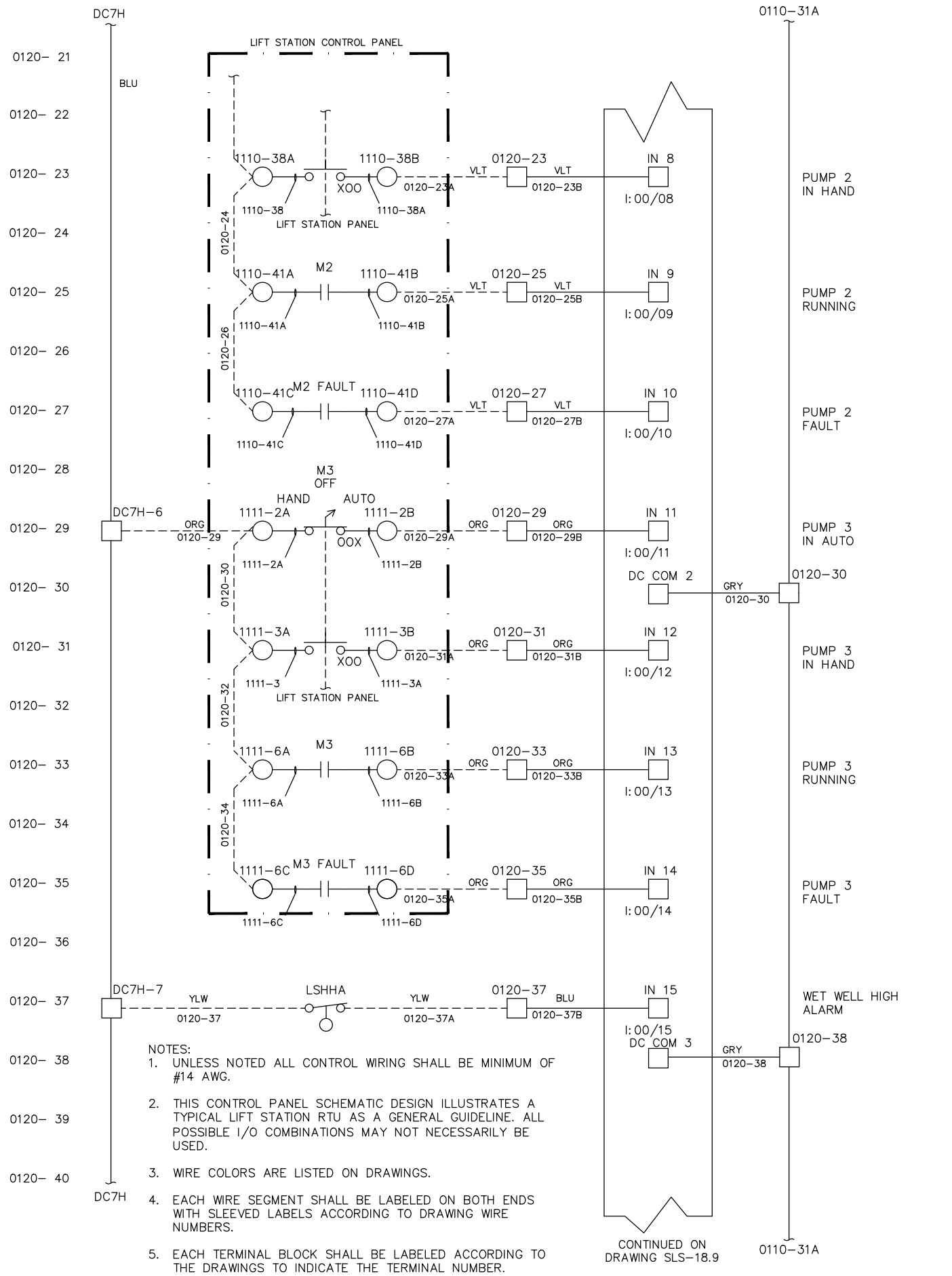
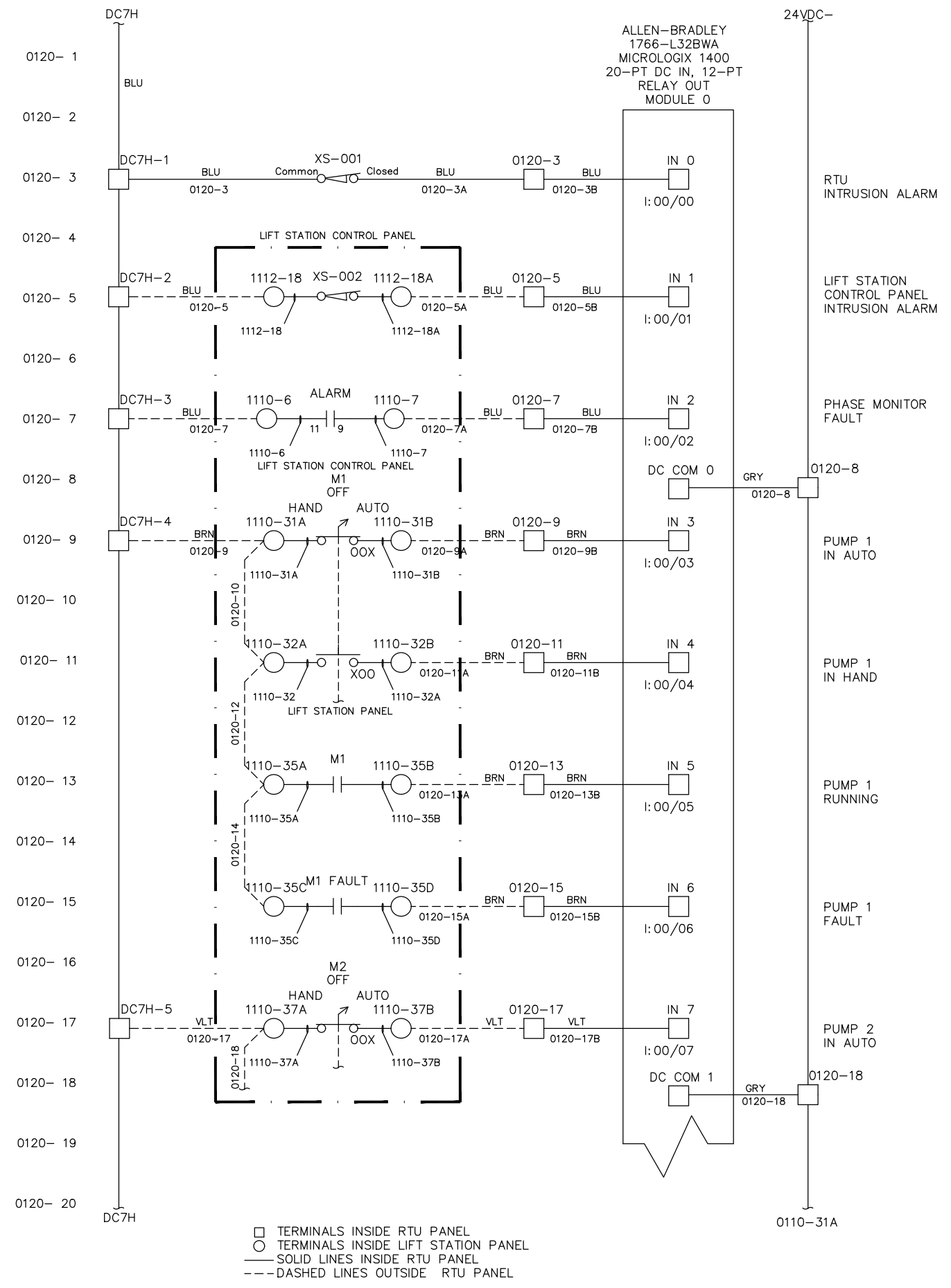
NOV. 2023



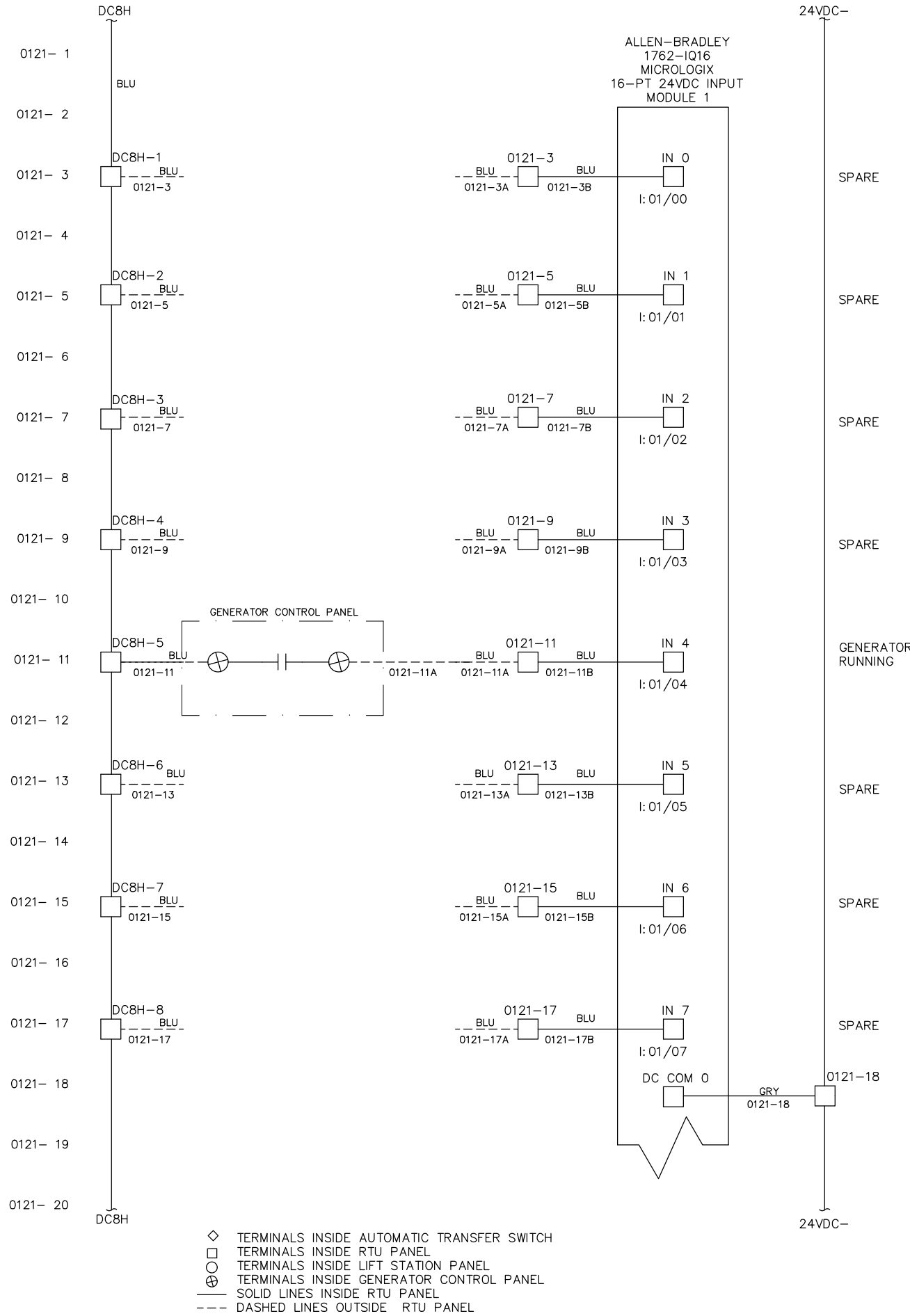
- NOTES:
1. UNLESS NOTED ALL CONTROL WIRING SHALL BE MINIMUM OF #14 AWG.
 2. THIS CONTROL PANEL SCHEMATIC DESIGN ILLUSTRATES A TYPICAL LIFT STATION RTU AS A GENERAL GUIDELINE. ALL POSSIBLE I/O COMBINATIONS MAY NOT NECESSARILY BE USED.
 3. WIRE COLORS ARE LISTED ON DRAWINGS.
 4. EACH WIRE SEGMENT SHALL BE LABELED ON BOTH ENDS WITH SLEEVED LABELS ACCORDING TO DRAWING WIRE NUMBERS.
 5. EACH TERMINAL BLOCK SHALL BE LABELED ACCORDING TO THE DRAWINGS TO INDICATE THE TERMINAL NUMBER.

- LEGEND
- TERMINALS INSIDE RTU PANEL
 - TERMINALS INSIDE LIFT STATION PANEL
 - SOLID LINES INSIDE RTU PANEL
 - - - DASHED LINES OUTSIDE RTU PANEL

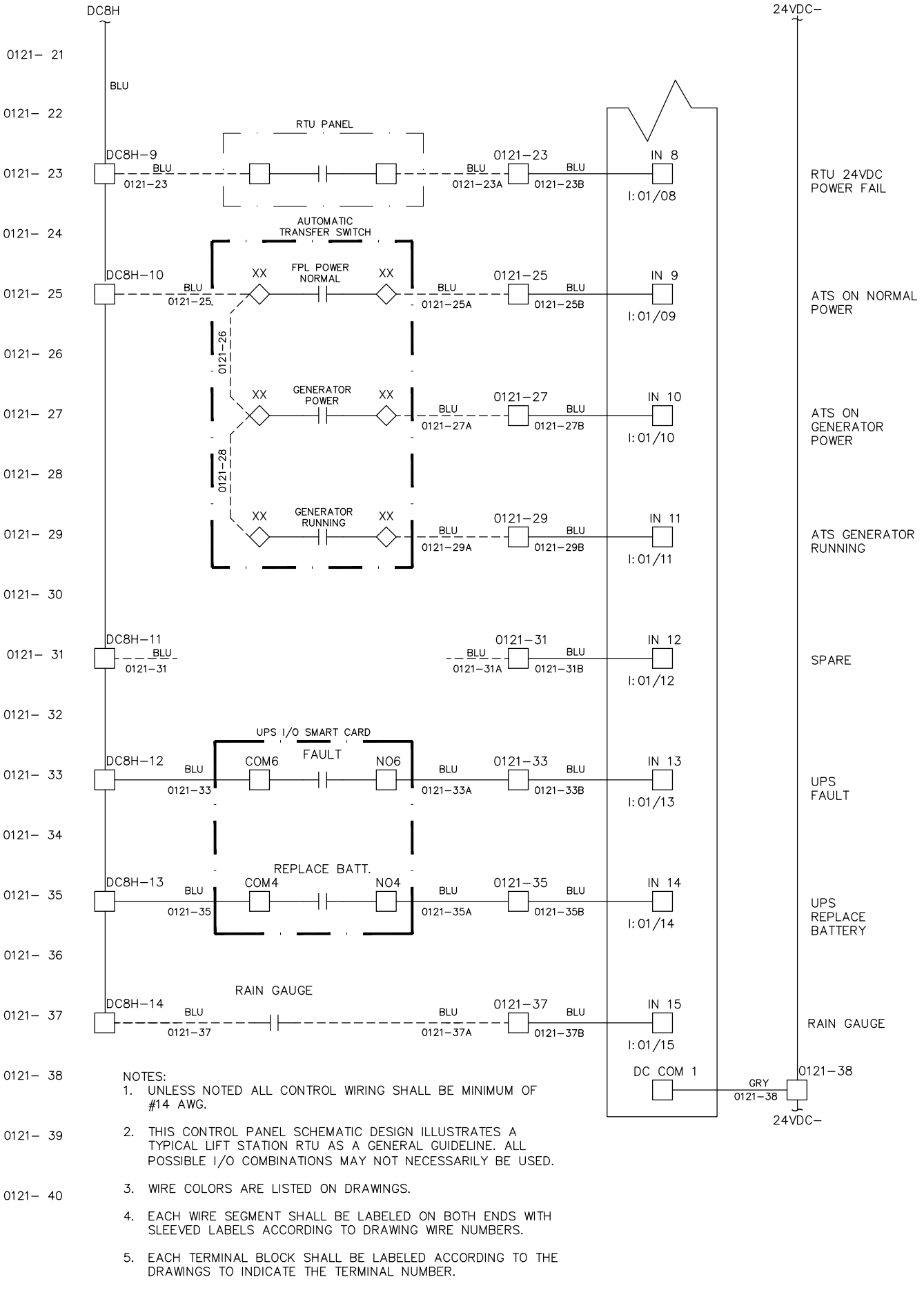
STANDARD DETAIL	SLS - 18.6
RTU PANEL (TYPE 1) 120V POWER SCHEMATIC	
CITY OF WEST PALM BEACH	
LATEST REVISION	NOV. 2023



STANDARD DETAIL	SLS - 18.7
RTU PANEL (TYPE 1) DIGITAL INPUTS SCHEMATIC - 1	
CITY OF WEST PALM BEACH	
LATEST REVISION	NOV. 2023

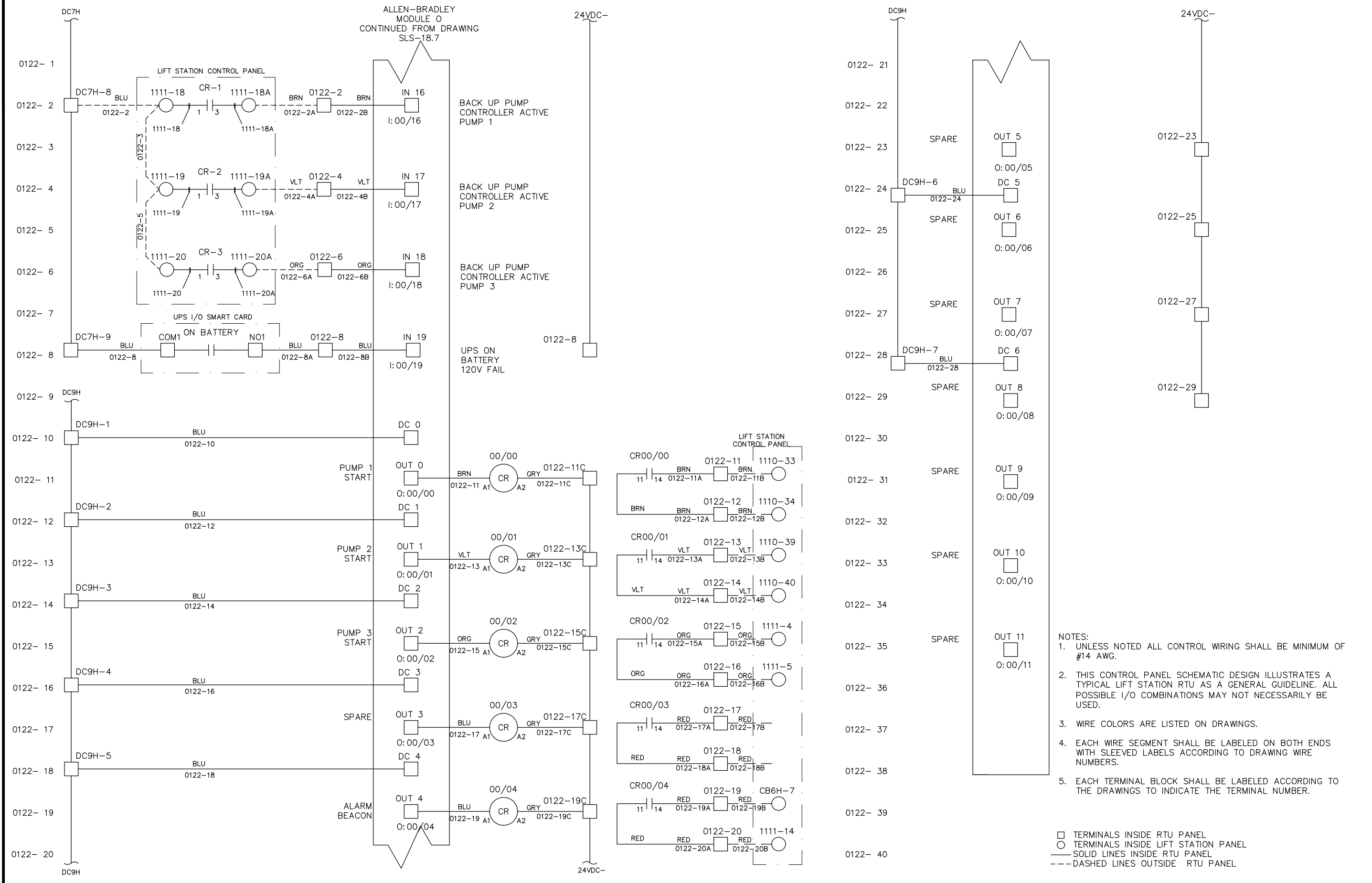


- ◇ TERMINALS INSIDE AUTOMATIC TRANSFER SWITCH
- TERMINALS INSIDE RTU PANEL
- TERMINALS INSIDE LIFT STATION PANEL
- ⊕ TERMINALS INSIDE GENERATOR CONTROL PANEL
- SOLID LINES INSIDE RTU PANEL
- - - DASHED LINES OUTSIDE RTU PANEL



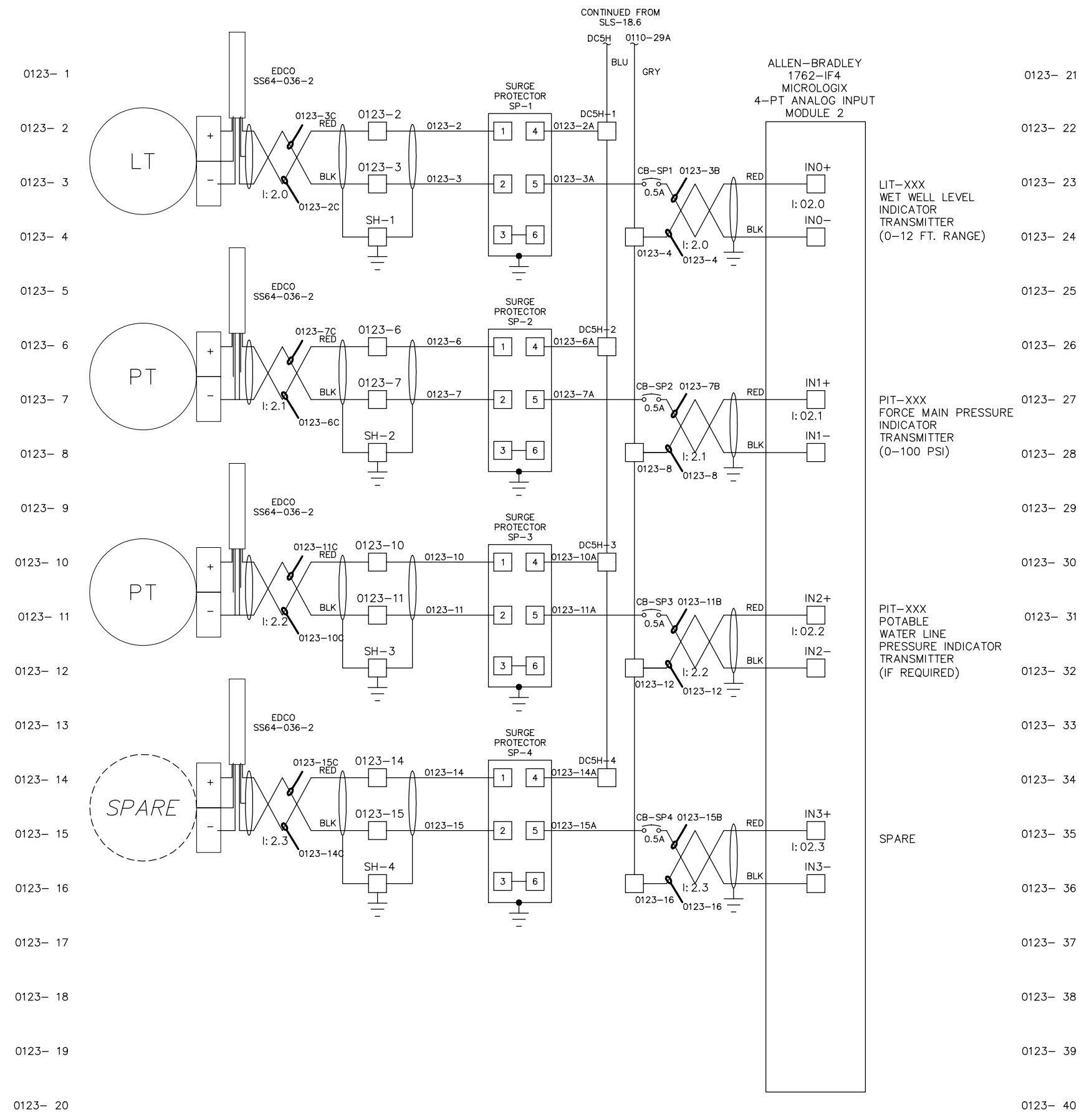
- NOTES:
1. UNLESS NOTED ALL CONTROL WIRING SHALL BE MINIMUM OF #14 AWG.
 2. THIS CONTROL PANEL SCHEMATIC DESIGN ILLUSTRATES A TYPICAL LIFT STATION RTU AS A GENERAL GUIDELINE. ALL POSSIBLE I/O COMBINATIONS MAY NOT NECESSARILY BE USED.
 3. WIRE COLORS ARE LISTED ON DRAWINGS.
 4. EACH WIRE SEGMENT SHALL BE LABELED ON BOTH ENDS WITH SLEEVED LABELS ACCORDING TO DRAWING WIRE NUMBERS.
 5. EACH TERMINAL BLOCK SHALL BE LABELED ACCORDING TO THE DRAWINGS TO INDICATE THE TERMINAL NUMBER.

STANDARD DETAIL	RTU PANEL (TYPE 1) DIGITAL INPUTS SCHEMATIC - 2
LATEST REVISION	CITY OF WEST PALM BEACH
NOV. 2023	SLS - 18.8



- NOTES:
- UNLESS NOTED ALL CONTROL WIRING SHALL BE MINIMUM OF #14 AWG.
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 - WIRE COLORS ARE LISTED ON DRAWINGS.
 - EACH WIRE SEGMENT SHALL BE LABELED ON BOTH ENDS WITH SLEEVED LABELS ACCORDING TO DRAWING WIRE NUMBERS.
 - EACH TERMINAL BLOCK SHALL BE LABELED ACCORDING TO THE DRAWINGS TO INDICATE THE TERMINAL NUMBER.
- TERMINALS INSIDE RTU PANEL
 TERMINALS INSIDE LIFT STATION PANEL
 ——— SOLID LINES INSIDE RTU PANEL
 - - - DASHED LINES OUTSIDE RTU PANEL

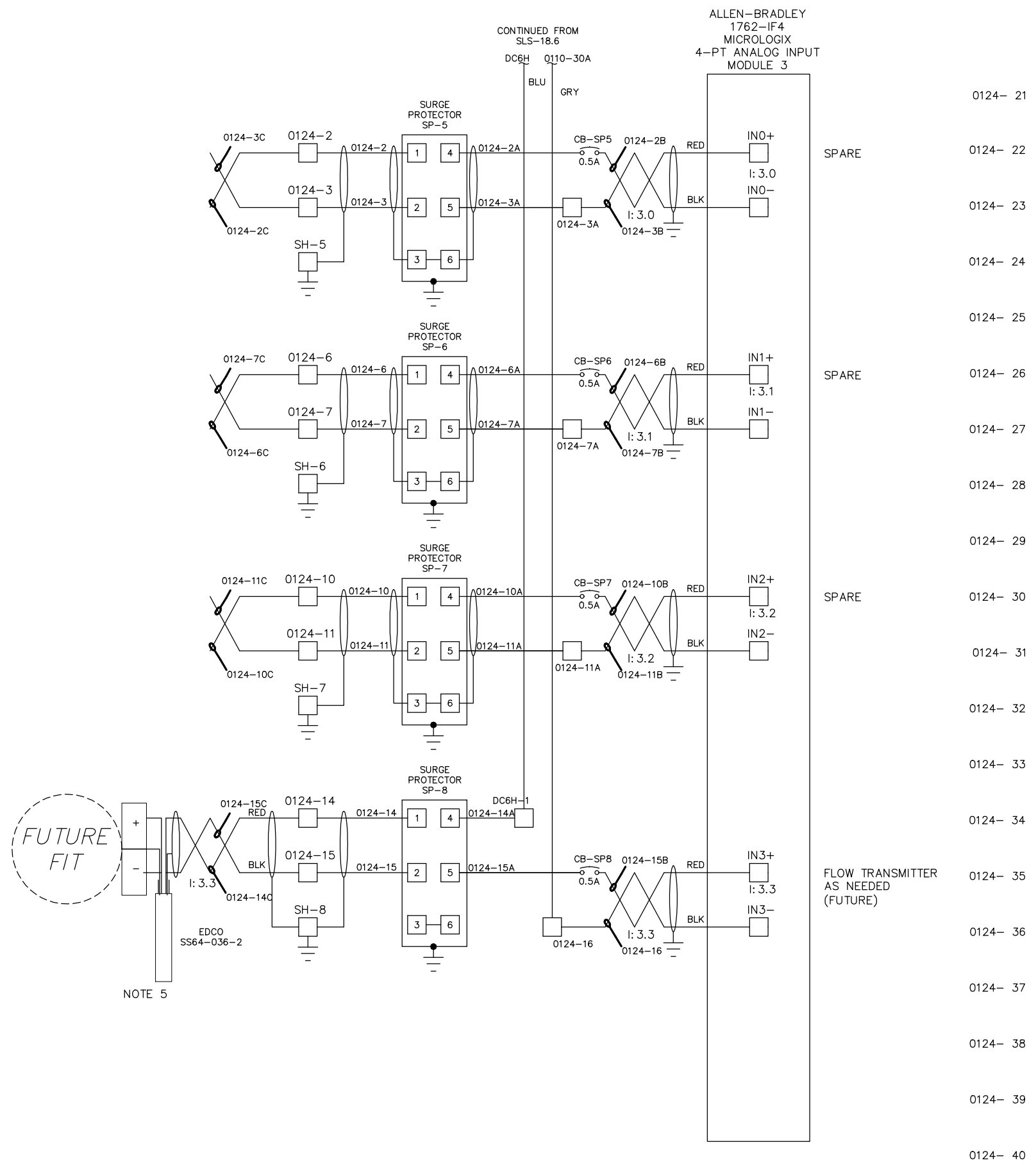
STANDARD DETAIL	SLS - 18.9
RTU PANEL (TYPE 1) DIGITAL INPUTS SCHEMATIC - 3	
CITY OF WEST PALM BEACH	
LATEST REVISION	NOV. 2023



- NOTES:
- UNLESS NOTED ALL CONTROL WIRING SHALL BE MINIMUM OF #14 AWG.
 - THIS CONTROL PANEL SCHEMATIC DESIGN ILLUSTRATES A TYPICAL LIFT STATION RTU AS A GENERAL GUIDELINE. ALL POSSIBLE I/O COMBINATIONS MAY NOT NECESSARILY BE USED.
 - WIRE COLORS ARE LISTED ON DRAWINGS.
 - EACH WIRE SEGMENT SHALL BE LABELED ON BOTH ENDS WITH SLEEVED LABELS ACCORDING TO DRAWING WIRE NUMBERS.
 - EACH TERMINAL BLOCK SHALL BE LABELED ACCORDING TO THE DRAWINGS TO INDICATE THE TERMINAL NUMBER.
- TERMINALS INSIDE RTU PANEL
 TERMINALS INSIDE LIFT STATION PANEL
 SOLID LINES INSIDE RTU PANEL
 DASHED LINES OUTSIDE RTU PANEL

LATEST REVISION	RTU PANEL (TYPE 1) ANALOG INPUTS SCHEMATIC - 1	STANDARD DETAIL
NOV. 2023	CITY OF WEST PALM BEACH	SLS - 18.10

0124- 1
0124- 2
0124- 3
0124- 4
0124- 5
0124- 6
0124- 7
0124- 8
0124- 9
0124- 10
0124- 11
0124- 12
0124- 13
0124- 14
0124- 15
0124- 16
0124- 17
0124- 18
0124- 19
0124- 20



FUTURE
FIT

NOTE 5

EDCO
SS64-036-2

- NOTES:
1. UNLESS NOTED ALL CONTROL WIRING SHALL BE MINIMUM OF #14 AWG.
 2. THIS CONTROL PANEL SCHEMATIC DESIGN ILLUSTRATES A TYPICAL LIFT STATION RTU AS A GENERAL GUIDELINE. ALL POSSIBLE I/O COMBINATIONS MAY NOT NECESSARILY BE USED.
 3. WIRE COLORS ARE LISTED ON DRAWINGS.
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 5. EACH TERMINAL BLOCK SHALL BE LABELED ACCORDING TO THE DRAWINGS TO INDICATE THE TERMINAL NUMBER.
- TERMINALS INSIDE RTU PANEL
 TERMINALS INSIDE LIFT STATION PANEL
 SOLID LINES INSIDE RTU PANEL
 DASHED LINES OUTSIDE RTU PANEL

STANDARD
DETAIL

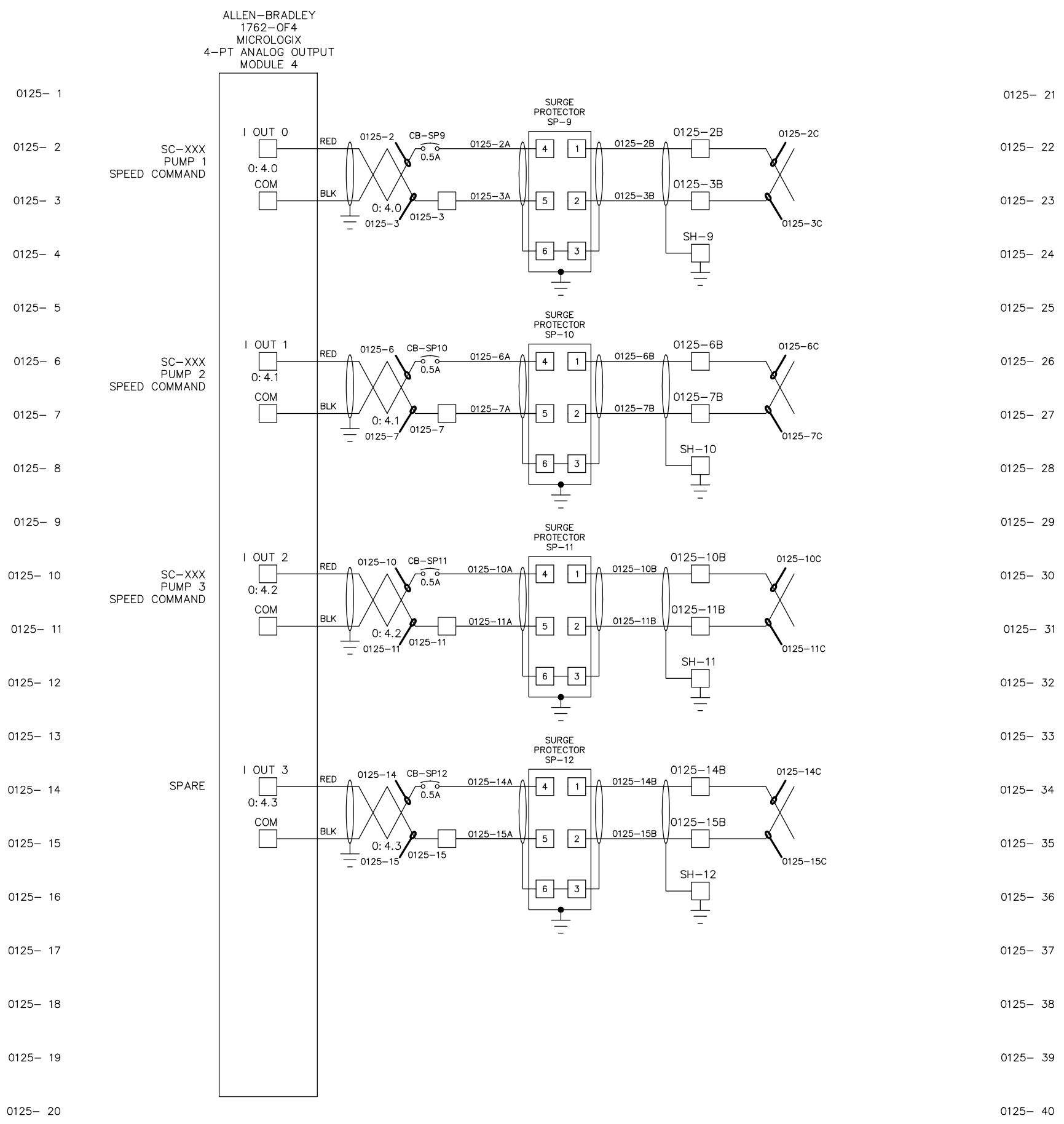
RTU PANEL (TYPE 1) ANALOG INPUTS SCHEMATIC - 2

SLS - 18.11

CITY OF WEST PALM BEACH

LATEST
REVISION

NOV. 2023



- NOTES:
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- TERMINALS INSIDE RTU PANEL
 TERMINALS INSIDE LIFT STATION PANEL
 ——— SOLID LINES INSIDE RTU PANEL
 - - - DASHED LINES OUTSIDE RTU PANEL

STANDARD
DETAIL

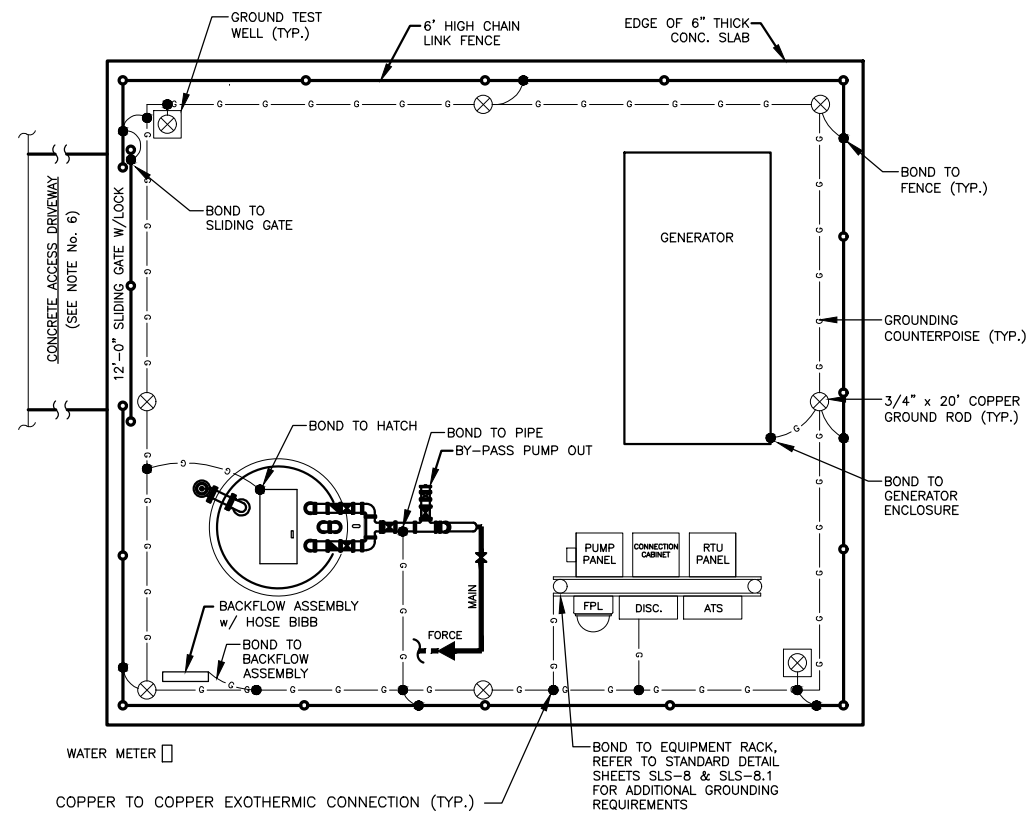
RTU PANEL (TYPE 1) ANALOG INPUTS SCHEMATIC - 3

SLS - 18.12

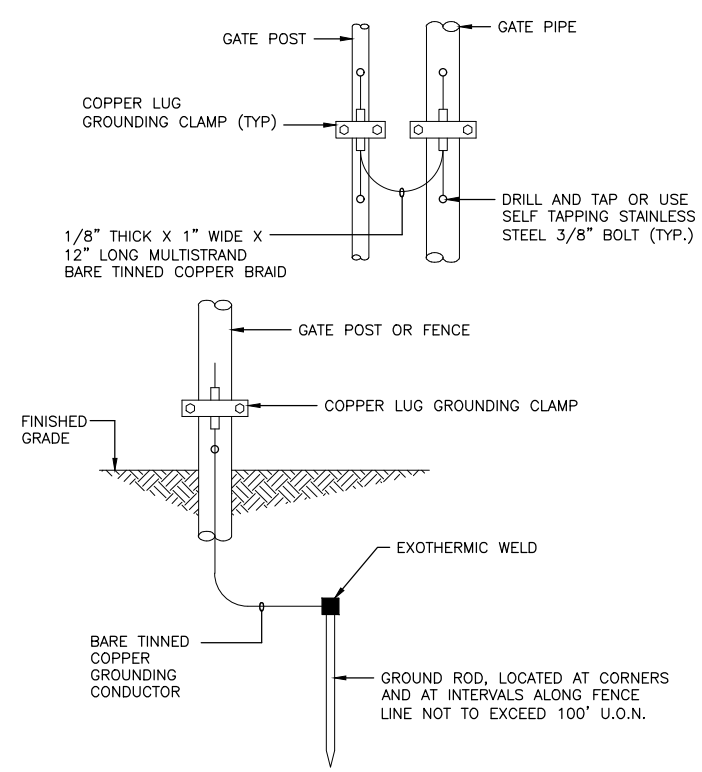
CITY OF WEST PALM BEACH

LATEST
REVISION

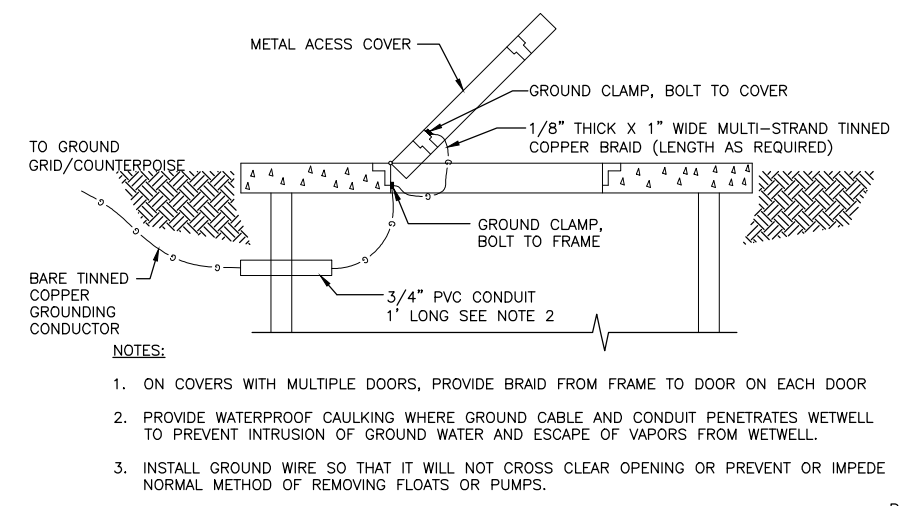
NOV. 2023



TYPICAL LIFT STATION GROUNDING PLAN
SCALE: N.T.S.

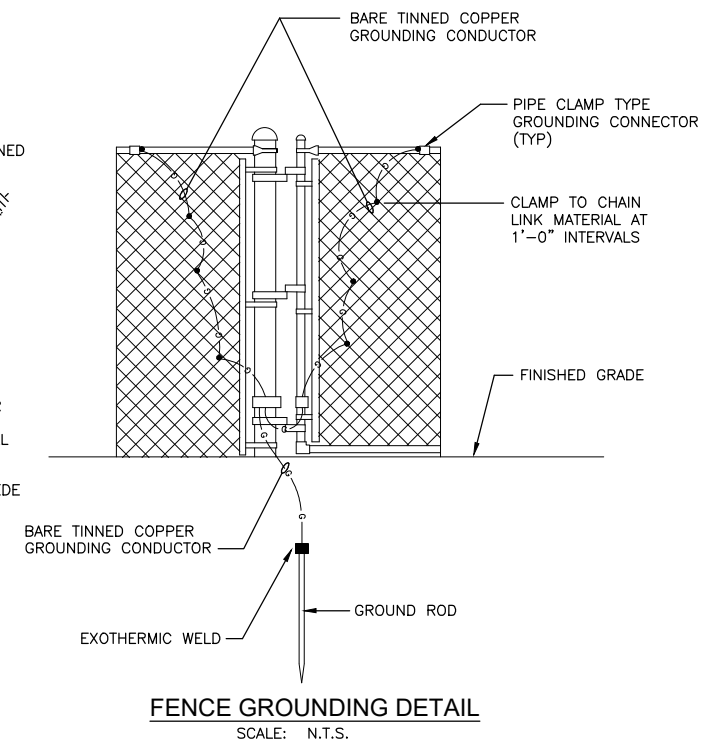


TYPICAL PVC COATED GATE OR FENCE POST GROUNDING
SCALE: N.T.S.

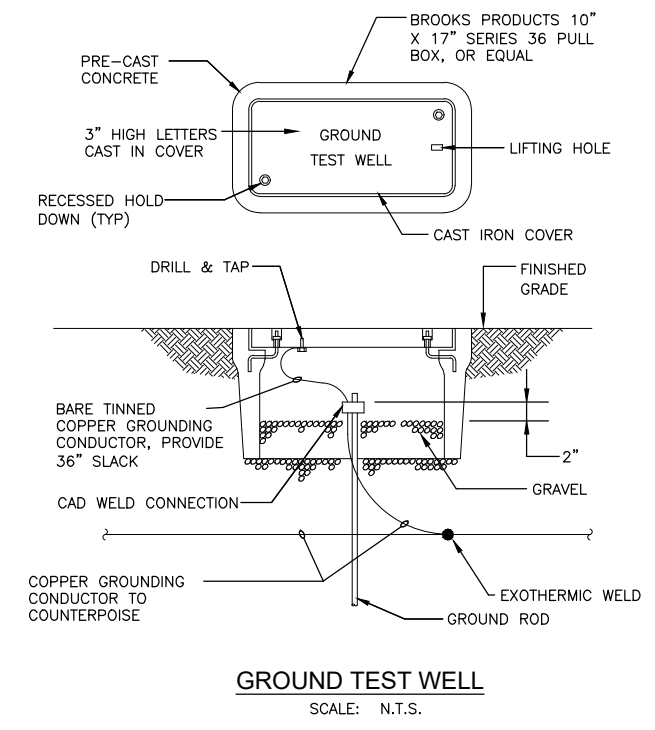


COVER & DOOR GROUNDING DETAIL
N.T.S.

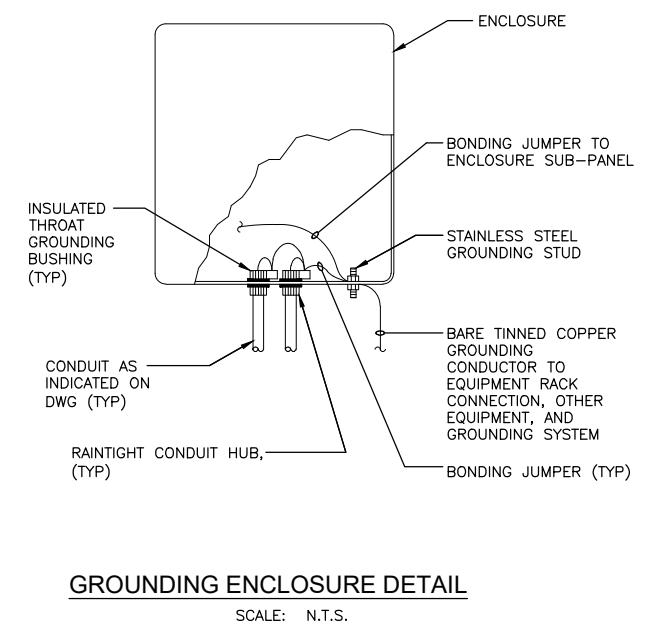
- NOTES:**
1. ON COVERS WITH MULTIPLE DOORS, PROVIDE BRAID FROM FRAME TO DOOR ON EACH DOOR
 2. PROVIDE WATERPROOF CAULKING WHERE GROUND CABLE AND CONDUIT PENETRATES WETWELL TO PREVENT INTRUSION OF GROUND WATER AND ESCAPE OF VAPORS FROM WETWELL.
 3. INSTALL GROUND WIRE SO THAT IT WILL NOT CROSS CLEAR OPENING OR PREVENT OR IMPEDE NORMAL METHOD OF REMOVING FLOATS OR PUMPS.



FENCE GROUNDING DETAIL
SCALE: N.T.S.

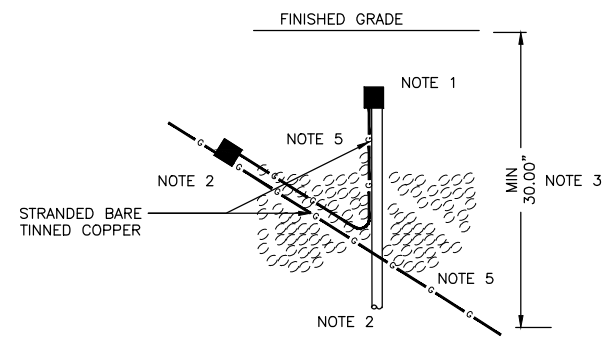


GROUND TEST WELL
SCALE: N.T.S.



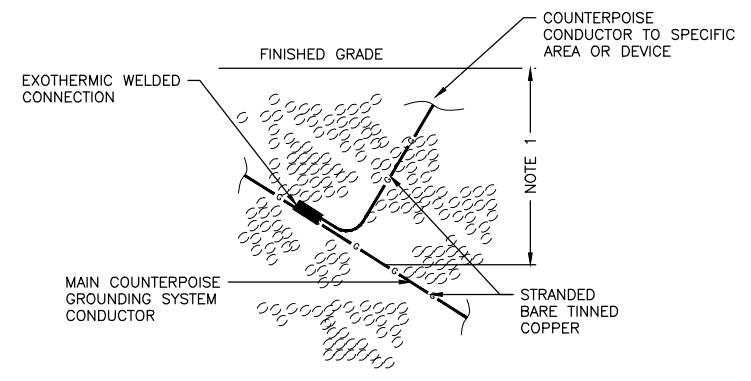
GROUNDING ENCLOSURE DETAIL
SCALE: N.T.S.

STANDARD DETAIL	SLS-19
SUBMERSIBLE LIFT STATION - GROUNDING PLAN & DETAILS	
CITY OF WEST PALM BEACH	
LATEST REVISION	NOV. 2023



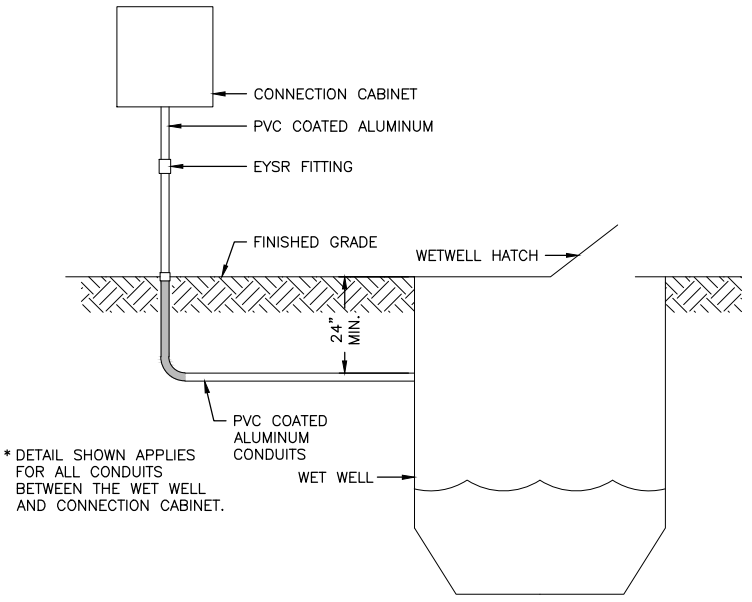
- NOTE:**
1. GROUND ROD TO COUNTERPOISE CONDUCTOR SHALL BE CONNECTED BY MEANS OF AN EXOTHERMIC WELD. GROUND ROD SHALL BE 3/4" INCH IN DIAMETER AND 20 FOOT LENGTH MINIMUM.
 2. COUNTERPOISE CONDUCTOR TO CONDUCTOR CONNECTION SHALL BE CONNECTED BY MEANS OF EXOTHERMIC WELD AND THE CONDUCTOR FROM COUNTERPOISE LENGTH TO GROUND ROD SHALL HAVE A MINIMUM OF 36 INCHES.
 3. UNDERGROUND INSTALLATION OF COUNTERPOISE SYSTEM SHALL BE BURIED AT A MINIMUM DEPTH OF 30 INCHES.
 4. ALL COMPONENTS USED IN INSTALLATION WITHIN SHALL COMPLY WITH SPECIFICATION 16450.
 5. STRANDED BARE TINNED COPPER CONDUCTOR.

COUNTERPOISE GROUND ROD CONNECTION DETAIL
SCALE: N.T.S.

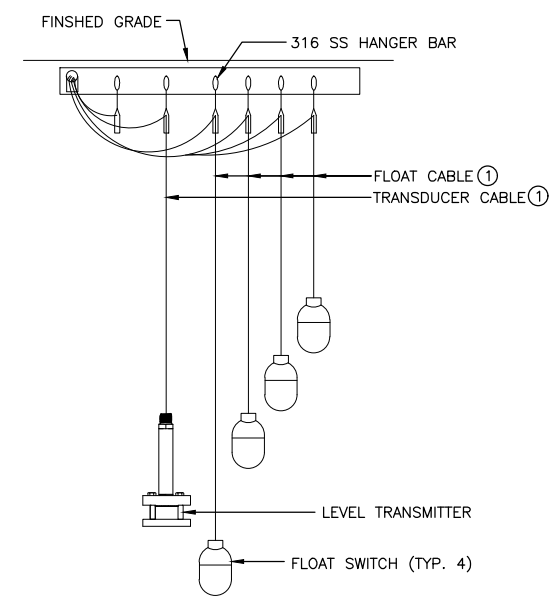


- NOTE:**
1. UNDERGROUND INSTALLATION OF COUNTERPOISE SYSTEM SHALL BE BURIED AT A MINIMUM DEPTH OF 30 INCHES.
 2. ALL COMPONENTS USED IN INSTALLATION WITHIN SHALL COMPLY WITH SPECIFICATION 16450.

COUNTERPOISE CONDUCTOR CONNECTION DETAIL
SCALE: N.T.S.

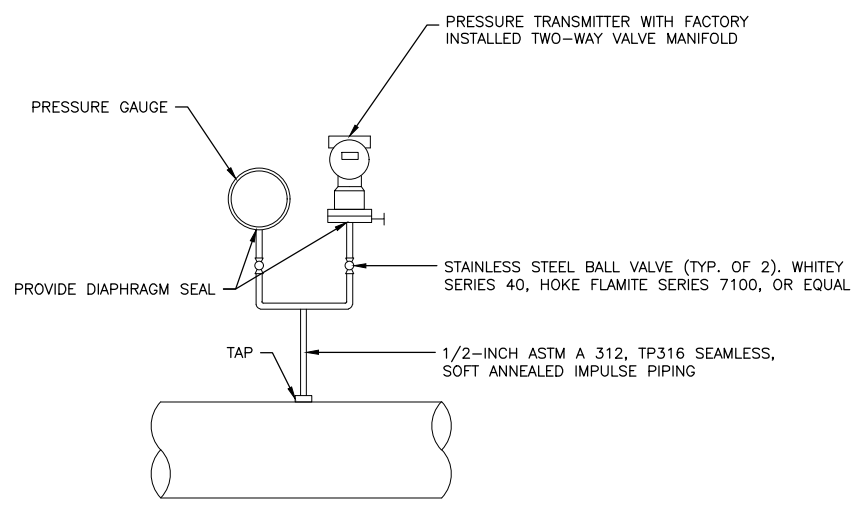


CONDUIT INSTALLATION DETAIL
SCALE: N.T.S.

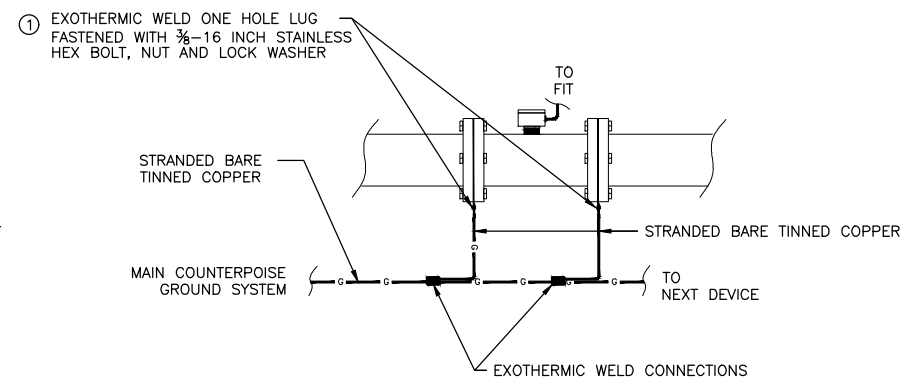


- NOTES:**
- ① ALL CABLES IN WETWELL SHALL BE PROTECTED WITH 316, STAINLESS STEEL KELLUM GRIP, SINGLE WEAVE HUBBLE 0240 SERIES.

FLOAT SWITCH/LEVEL TRANSDUCER MOUNTING DETAIL
SCALE: N.T.S.



PRESSURE INSTRUMENT INSTALLATION DETAIL
SCALE: N.T.S.



- NOTES:**
- ① GROUND RING CONNECTORS ON FLOW METER SHALL FACE TOWARD FINISHED GRADE.

FLOW METER PIPE GROUNDING DETAIL
SCALE: N.T.S.

STANDARD
DETAIL

SLS-20

SUBMERSIBLE LIFT STATION - DETAILS

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