

ELECTRICAL ONE LINE DIAGRAM

SIZE	QTY	TYPE	SERVICE (SEE CONDUIT & GROUNDING PLAN AND RELATED NOTES)	IDENTIFIER
2"	2	RGS	POWER TO SP-1 & SP-2	①
2"	3	RGS	SENSOR CONTROL TO SP-1, SP-2 & NP	②
2 1/2"	2	RGS	FLOAT CABLES FOR SP-1, SP-2 & NP	③
2 1/2"	1	RGS	INCOMING POWER FROM LOCAL UTILITY	④
2"	1	RGS	SPARE (STUB OUT 5 FT AND CAP)	⑤
2"	1	RGS	POWER TO NP	⑥
2"	1	RGS	SPARE TO WET WELL WITH PULL ROPE	⑦
1"	1	RGS	GROUND FIELD CONNECT TO TBE GROUND BUS (STUB OUT 1 FT)	⑧
2"	1	RGS	TRANSDUCER	⑨
1"	1	RGS	WET WELL EQUIPMENT GROUND (1/C #8 GND) (GND ONLY)	⑩
1"	1	RGS	TO LED SITE LIGHT (2/C #12 & 1/C #12 GND)	⑪

CONDUIT SCHEDULE

EQUIPMENT SCHEDULE - (MAJOR ITEMS - SEE EQUIPMENT NOTES 1, THRU 6)					
DESIGNATION	EQUIPMENT	UNIT SIZE &/ OR RATING	ELECTRICAL DATA		
			MOTOR HP	SUPPLY VOLTAGE/PHASE	RPM (NOT TO EXCEED)
PB-1	PANEL BOARD	SEE SPEC'S	N/A	240/120 V; 1Ø	N/A
SP-1	FLOODWATER PUMP	2,250 gpm @ 42 FT.	40 HP	480 V; 3Ø	1200
SP-2	FLOODWATER PUMP	2,250 gpm @ 42 FT.	40 HP	480 V; 3Ø	1200
(NONE)	TRIPLEX PUMP CONTROLLER	SEE SPEC'S.	AS REQ'D	480 V; 3Ø	N/A
TBE	TRAFFIC BOX ENCLOSURE	SEE SPEC'S (SIZE AS REQ'D)	N/A	480 V; 3Ø	N/A
SCADA	SCADA PANEL	----	N/A	24 V; 1Ø	N/A
NP	NUISANCE PUMP	200 gpm @ 37.5 FT.	5 HP	480 V; 3Ø	1800
MTS	MANUAL TRANSFER SWITCH	200 AMPS	N/A	480 V; 3Ø	N/A

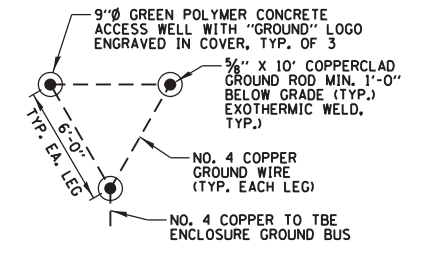
EQUIPMENT NOTES:

- THE EQUIPMENT SCHEDULE SHOWN ON THIS DRAWING IS A LIST OF MAJOR ITEMS OF POWER USING EQUIPMENT. THE EQUIPMENT SCHEDULE IS NOT INTENDED TO LIST EVERY ITEM OF EQUIPMENT.
- HORSEPOWERS OR KILOWATT RATINGS MAY BE LARGER OR SMALLER THAN INDICATED FOR SOME EQUIPMENT. CONTRACTOR TO COORDINATE WITH ELECTRICAL NOTE 6 ON THIS SHEET.
- CONTRACTOR TO SUBMIT TO THE OWNER'S REPRESENTATIVE DETAILS OF INSTALLATION & SHOP DRAWINGS OF EQUIPMENT PROVIDED.
- SEE PANEL BOARD LOAD SCHEDULE FOR OTHER EQUIPMENT SERVICED.
- SEE SPECIFICATIONS FOR ADDITIONAL DETAILS AND REQUIREMENTS.
- ALL ELECTRICAL WIRING IN WET WELL TO BE WATER TIGHT AND MOISTURE PROOF.

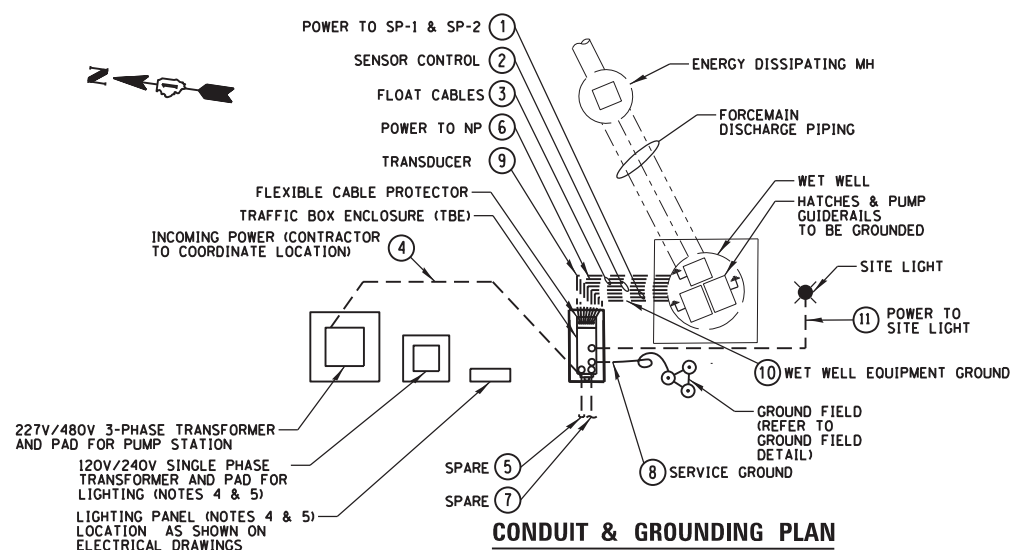
PANELBOARD SCHEDULE (PB-1)						
125 AMP BUS RATING 120/240 VOLTS		22,000A S.C. RATING 1 PH. 3 WIRE 60 HZ.		12 SPACES SURFACE MOUNTED		
DESCRIPTION	LOAD W	C/B AMP POLES	CIRCUIT NOS.	C/B AMP POLES	LOAD W	DESCRIPTION
MAIN CIRCUIT BREAKER 30 AMP/2 POLE						
ALARM LIGHT	75	20A	1	20A	1000	CONDENSATION HEATERS
120V GFI RECEPTACLE	1920	20A	3	20A	100	CORD REEL LIGHT
LED SITE LIGHT	275	20A	5	20A	--	SCADA
SPARE		20A	7	20A		SPARE
SPACE	--		9	--		SPACE
SPACE	--		11	--		SPACE

NOTES:

- SEE CONDUIT SCHEDULE FOR IDENTIFIERS. NOTE THAT REQUIRED SIZE OF CONDUIT IS FUNCTION OF CABLE SIZE OF SELECTED EQUIPMENT AND MAY BE LARGER OR SMALLER THAN INDICATED BY THE CONDUIT SCHEDULE. CONTRACTOR TO COORDINATE.
- SEE SITE PLAN FOR EQUIPMENT ORIENTATION AND ARRANGEMENT CONTRACTOR TO COORDINATE.
- THIS PLAN ILLUSTRATES A CONCEPTUAL LAYOUT. CONTRACTOR TO COORDINATE AS REQUIRED.
- SEE ROADWAY LIGHTING DRAWINGS FOR LIGHTING CONDUIT PLAN AND EQUIPMENT DETAILS.
- CONTRACTOR RESPONSIBLE FOR COORDINATING PUMPING EQUIPMENT AND LIGHTING EQUIPMENT INSTALLATION SCHEDULE SO AS TO MINIMIZE DISTURBANCE OF INVOLVED AREA.
- CONNECT EQUIPMENT GROUND CONDUCTOR FROM THE TBE GROUND BUS VIA ⑩ TO WET WELL HATCHES AND GUIDE RAILS.

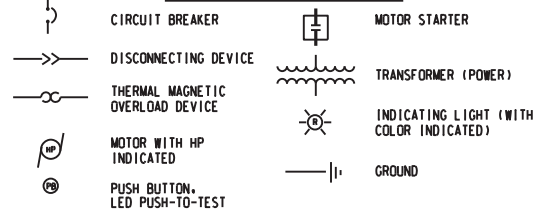


GROUND FIELD DETAIL (TYP.)
N.T.S.



CONDUIT & GROUNDING PLAN

ELECTRICAL SYMBOLS



ELECTRICAL ABBREVIATIONS

- FVR - FULL VOLTAGE REVERSING
- FVNR - FULL VOLTAGE NON-REVERSING
- RVNR - REDUCED VOLTAGE NON-REVERSING
- GRND - GROUND
- MTS - MANUAL TRANSFER SWITCH
- NEUT - NEUTRAL
- J.B. - JUNCTION BOX
- HOA - HAND-OFF-AUTO SELECTOR SWITCH
- ETM - ELAPSED TIME METER

ELECTRICAL NOTES

- POWER/CONTROL CABLES INTEGRALLY WIRED AND PROVIDED WITH RESPECTIVE PUMPING UNITS, AND/OR FLOATS. CONTRACTOR TO COORDINATE CABLE LENGTHS TO BE PROVIDED AS REQUIRED. CABLE LENGTHS TO BE CONTINUOUS AND UNSPLICED.
- PROVIDE SEPARATE CONDUITS FOR CABLING AS NOTED.
- COMMONWEALTH EDISON COMPANY (C.E. CO.) METER. (METER FURNISHED BY C.E. CO. AND INSTALLED BY CONTRACTOR. INSTALLATION PER C.E. CO. REQUIREMENTS).
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY/ALL NECESSARY COORDINATION FOR THE REQUIRED ELECTRICAL SERVICE.
- EXACT LOCATION OF EMBEDDED AND/OR BURIED CONDUITS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR SUBJECT TO THE REVIEW OF THE OWNER'S REPRESENTATIVE. ACTUAL NUMBER OF CONDUITS SHALL BE AS REQUIRED.
- TRIP RATINGS SHOWN OR SPECIFIED ARE FOR MOTOR HORSEPOWERS ANTICIPATED. SELECTED EQUIPMENT HORSEPOWER MAY BE LARGER OR SMALLER THAN INDICATED. CONTRACTOR SHALL PROVIDE THE NECESSARY TRIP RATINGS AS REQUIRED BY N.E.C. FOR THE ACTUAL EQUIPMENT PROVIDED.
- ELECTRICAL EQUIPMENT PADS TO BE MINIMUM 4" ABOVE GRADE.
- GROUND RODS SHALL BE USED FOR GROUNDING. MINIMUM SIZE SHALL BE 5/8" INCH DIA., 10 FEET LONG. INSTALLATION AND GROUND RESISTANCE SHALL BE IN ACCORDANCE WITH SPECIFICATIONS AND MEET OWNER APPROVAL. SEE GROUNDING NOTES FOR ADDITIONAL DETAILS.
- UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE DRAWINGS, USE PVC CONDUITS FOR BELOW GRADE OR EMBEDDED IN CONCRETE, AND RIGID GALVANIZED STEEL CONDUIT FOR OTHER APPLICATIONS.
- TIME DELAY RELAYS AND MOTOR STARTERS FOR EACH PUMP SHALL BE PROVIDED WITH A (0-60 SECOND) ADJUSTABLE TIME DELAY RELAY. RELAYS SHALL BE ADJUSTABLE IN 5 SECOND INTERVALS.
- THE CONTRACTOR SHALL FURNISH AND INSTALL COMPLETE ALL ELECTRICAL DEVICES, CONDUIT AND WIRING AND CONTROLS AS REQUIRED FOR THE UNATTENDED AND AUTOMATIC OPERATION OF THE PUMP STATION, AS SPECIFIED.
- PROVIDE GFCI PROTECTION FOR ALL POWER RECEPTACLES.
- THE ELECTRICAL DEVICES/COMPONENTS/CONTROLLER MUST BE LISTED FOR USE BY A NATIONALLY RECOGNIZED TESTING LABORATORY.
- AS BUILT DRAWINGS SHALL BE PROVIDED INCLUDING FIELD VERIFICATION BY THE CONTRACTOR.
- INSTALLATION SHALL COMPLY WITH NATIONAL ELECTRICAL CODE REQUIREMENT FOR CLASS 1, DIVISION 1, GROUP D.
- PLUG-IN RECEPTACLE FOR PORTABLE STANDBY ELECTRIC GENERATOR SET. CONTRACTOR TO COORDINATE PIN CONFIGURATION WITH OWNER'S PUBLIC WORKS DEPT. (PORTABLE ELECTRIC GENERATOR NOT PART OF THIS CONTRACT.)
- PROVIDE 3-PHASE FAILURE MONITOR AS PART OF THE PUMP CONTROLLER TO DROP OUT PUMPS UPON LOSS OF ANY LEG PHASE.

GROUNDING NOTES

- FURNISH AND INSTALL A GROUND FIELD AS SHOWN. GROUNDING CONDUCTOR SHALL BE INSTALLED 1-FT. MINIMUM BELOW GROUND.
- GROUND ALL EXPOSED METAL WORK SUCH AS HATCHES, METAL CABINETS, EQUIPMENT FRAMES, ETC. CONNECTIONS TO HATCHES AND OTHER METAL WORK SHALL BE FUSION WELDED. CONNECTIONS TO THE GALVANIZED EQUIPMENT AND TO EQUIPMENT WHICH MAY BE REMOVED FOR MAINTENANCE SHALL BE MADE WITH BOLTED CLAMP TYPE CONNECTIONS OF SOLID COPPER, WELDED TO THE GROUNDING CONNECTOR.
- UNLESS OTHERWISE INDICATED, THE MINIMUM SIZE OF SYSTEM GROUNDING CONDUCTOR SHALL BE NO. 4 AWG.
- EACH CONDUIT RUN SHALL BE GROUNDED TO THE COMMON GROUNDING BUS IN THE PANEL WHERE IT ORIGINATES. THE MINIMUM SIZE OF GROUNDING CONDUCTOR SHALL BE PER NEC SECTION 250.122 OR AS OTHERWISE SHOWN ON THE DRAWINGS.
- GROUNDING RODS SHALL BE COPPERWELD, MINIMUM 5/8 IN. DIAMETER x 10 FT. LONG. CABLE-TO-CABLE AND CABLE-TO-GROUND ROD CONNECTIONS SHALL BE MADE BY THE FUSION WELDING PROCESS.

CHRISTOPHER B. BURKE ENGINEERING, LTD.
9575 W. Higgins Road, Suite 600
Rosemont, Illinois 60018
(817) 923-0900

USER NAME = pmagnelli	DESIGNED JPC	REVISED -
PLOT SCALE = 48"	DRAWN KWB	REVISED -
PLOT DATE = 10/17/2012	CHECKED JPC	REVISED -
	DATE = 10/17/2012	REVISED -

**STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION**

**PROPOSED PUMP STATION
DETAILS (1 OF 4)**

SCALE:	SHEET NO.	OF SHEETS	STA.	TO STA.
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F.A. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
330	0105 WRS&HB	COOK	605	197
CONTRACT NO. 60G37				