

	DISTRICT	COUNTY	TOWNSHIP	BOROUGH	ROUTE	SECTION	TOTAL SHEETS
	6-0	PHILADELPHIA	PHILADELPHIA		-	-	7
WBS ELEMENT							
	T/P	SYS	WO	SPUR	PHA	SECTION	ORG
							PRG
							P-C

SCHUYLKILL RIVER DEVELOPMENT CORPORATION

ELECTRICAL DRAWINGS

FOR

CONSTRUCTION

OF

THE SCHUYLKILL RIVER TRAIL EXTENSION – SOUTH STREET TO CHRISTIAN STREET
IN PHILADELPHIA COUNTY, PENNSYLVANIA

FROM STA. 99+56.00 TO STA. 113+68.00 LENGTH 1412.00 FT, 0.27 MI.

SCALE

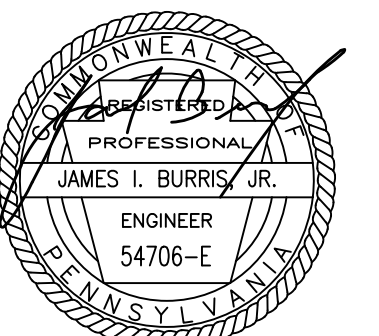
HORIZONTAL 0 25 50 FEET

VERTICAL 0 5 10 FEET

DESIGN DESIGNATION

HIGHWAY CLASSIFICATION – SHARED USE PATH
DESIGN SPEED – 20 MPH
PAVEMENT WIDTH – 12'-0"
SHOULDER WIDTH – 2'-0" (NON-PAVED)

PREPARED BY:
BURRIS ENGINEERS, INC.
716 N. BETHLEHEM PIKE, STE 201
LOWER GWYNEDD, PA 19002
215-643-4465
2012P006



DATE: MAY 2015

DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	PHILADELPHIA	-		2 OF 7
CITY OF PHILADELPHIA				
REVISION NUMBER	REVISIONS			DATE BY

SCHUYLKILL RIVER TRAIL EXTENSION
GENERAL ELECTRICAL NOTES, SYMBOLS, AND ABBREVIATIONS

GENERAL ELECTRICAL NOTES

- ALL WORK SHALL BE IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES, AND REGULATIONS ADOPTED BY MUNICIPAL, COUNTY, STATE, AND FEDERAL AUTHORITIES, INCLUDING THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) NFPA 70, AND WITH THE REQUIREMENTS/AMENDMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ).
- CONTRACT DRAWINGS ARE DIAGRAMMATIC IN NATURE AND ARE INTENDED TO CONVEY SCOPE, DESIGN INTENT, AND GENERAL ARRANGEMENT ONLY. CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL WORK OF ALL TRADES INCLUDING RESOLUTION OF FIELD CONFLICTS THAT MAY ARISE.
- ALL OF THE ELECTRICAL INSTALLATION SHALL BE INSTALLED IN A NEAT WORKMANLIKE MANNER AND IN ACCORDANCE WITH INDUSTRY STANDARDS.
- EACH FEEDER AND BRANCH CIRCUIT SHALL INCLUDE AN INSULATED EQUIPMENT GROUNDING CONDUCTOR. BOND ALL ELECTRICAL EQUIPMENT, OUTLET BOXES, GROUNDING TYPE RECEPTACLES, ETC., IN ACCORDANCE WITH NEC ARTICLE 250.
- MULTI-WIRE BRANCH CIRCUITS SHALL NOT BE PERMITTED. EACH 120V BRANCH CIRCUIT SHALL INCLUDE DEDICATED NEUTRAL AND INSULATED GROUNDING CONDUCTORS. BOND ALL ELECTRICAL EQUIPMENT, OUTLET BOXES, GROUNDING TYPE RECEPTACLES, ETC., IN ACCORDANCE WITH NEC ARTICLE 250.
- TRUNKING OR GROUPING OF BRANCH CIRCUITS SHALL BE PERMITTED, PROVIDED THAT THE NEC RULES PERTAINING TO MAXIMUM ALLOWABLE PERCENT FILL OF RACEWAYS, AND AMPACITY OF ADJUSTMENT FACTORS FOR MORE THAN 3 CURRENT CARRYING CONDUCTORS IN A RACEWAY ARE STRICTLY COMPLIED WITH. THE CONTRACTOR SHALL EXERCISE GREAT CAUTION IN PROVIDING AN EQUAL NUMBER OF A, B, AND C PHASE CONDUCTORS WHEN GROUPING CIRCUITS.
- TROUGHS, JUNCTION AND PULL BOXES ARE NOT NECESSARILY INDICATED, BUT SHALL BE PROVIDED WHERE MANDATED BY THE NEC, AND AS REQUIRED FOR EASE OF INSTALLATION. BOXES SHALL BE SIZED (MINIMUM) IN ACCORDANCE WITH NEC ARTICLE 314. TROUGHS SHALL BE SIZED PER NEC ARTICLE 366.
- BRANCH CIRCUIT WIRING IS DEPICTED BY ASSIGNMENT OF CIRCUIT NUMBERS, INTERCONNECTING WIRING AND HOMERUNS, OR HOMERUNS ONLY (FOR SINGULAR LOADS). ALL BRANCH CIRCUITS ARE NEW TO BE PROVIDED UNDER THIS CONTRACT UNLESS OTHERWISE NOTED. FLEXIBLE METAL CONDUIT OR LIQUID-TIGHT FLEXIBLE METAL CONDUIT SHALL BE UTILIZED IN LIMITED LENGTHS AS NECESSARY, OR AS REQUIRED/ALLOWED BY CODE.
- ALL NEW 600V OVER-CURRENT PROTECTIVE DEVICES SHALL HAVE INTERRUPTING CAPABILITIES OR RATINGS (AIC OR AIR) IN RMS AMPERES SYMMETRICAL. ALL DEVICES SHALL BE FULLY RATED FOR AVAILABLE FAULT CURRENT. ALL PANELBOARDS, SWITCHBOARDS, MDP'S, DEVICES, ETC. SHALL BE FULLY RATED.
- ALL BUILDING WIRE SHALL BE COPPER CONDUCTORS, TYPE THHN/THWN-2 (DUAL LISTED) 90 DEGREE CELSIUS RATED INSULATION, #12 AWG MINIMUM.
- DO NOT THROUGH-FEED WITH GFCI RECEPTACLES FOR DOWNSTREAM DEVICE PROTECTION. EACH WIRING DEVICE REQUIRED TO HAVE GFCI PROTECTION SHALL BE STAND-ALONE.
- THE CONTRACTOR SHALL PERFORM THE WORK AS INDICATED ON THE DRAWINGS. ANY DEVIATIONS FROM THE DRAWINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW AND APPROVAL IN WRITING. IF CHANGES ARE MADE WITHOUT THE ENGINEER'S WRITTEN CONSENT, THE CONTRACTOR SHALL BE LIABLE FOR ANY ISSUES THAT MAY ARISE DUE TO THE CHANGES.
- UNLESS OTHERWISE NOTED, ALL WIRE SIZES SHALL BE BASED ON THE FOLLOWING:
 - #14 THROUGH #1 OR 100A OR LESS - TABLE 310.16 60° COLUMN
 - #1/0 AND GREATER OR 101A OR GREATER - TABLE 310.16 75° COLUMN
 - OTHER ALLOWANCES OF 110.14(C)
- UNLESS OTHERWISE NOTED, ALL CONDUIT SIZES SHALL BE BASED ON EMT, RMC, OR RNC (PVC SCHEDULE 40).
- ALL ELECTRICAL MATERIALS, DEVICES, APPLIANCES AND EQUIPMENT SHALL BE NEW, LABELED AND LISTED BY A NATIONALLY RECOGNIZED TESTING LABORATORY OR AGENCY (E.G. UL), UNLESS OTHERWISE NOTED.
- ELECTRICAL CONTRACTOR SHALL FOLLOW ALL MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION OF ALL EQUIPMENT IF NOT INDICATED ON DRAWINGS. IF THERE IS A DISCREPANCY, MANUFACTURER'S INSTRUCTIONS TAKE PRECEDENCE.
- THE EC SHALL FURNISH ALL EQUIPMENT, LABOR, SERVICES, AND MATERIALS REQUIRED FOR COMPLETE INSTALLATION OF THE WORK INDICATED. UNLESS OTHERWISE NOTED, ALL MATERIALS SHALL BE NEW.
- ALL WIRING, EQUIPMENT, STARTERS AND CONTROLS SHALL CONFORM TO THE NATIONAL ELECTRIC CODE AND TO THE REQUIREMENTS OF THE LOCAL UTILITY COMPANY.
- ALL WIRING METHODS SHALL BE NEC COMPLIANT AND MEET THE REQUIREMENTS OF THE SPACE, OCCUPANCY & CONDITION OF USE.
- THE CONTRACTOR RESPONSIBLE FOR THE INSTALLATION OF ITEMS SHOWN ON THIS DRAWING SHALL FIELD VERIFY THE EXISTING CONDITIONS AND REPORT ANY DISCREPANCIES TO THE ENGINEER FOR CORRECTION, EDITING, RECALCULATION, ETC. AS REQUIRED.
- DO NOT SCALE DRAWINGS. CONTRACTOR SHALL VERIFY AND CONFIRM ALL DIMENSIONS IN THE FIELD AND NOTIFY THE ENGINEER OF ANY AND ALL DISCREPANCIES ON THE DRAWINGS. COPIES OF THIS DRAWING WITHOUT A PROFESSIONAL ENGINEER'S SEAL AND ORIGINAL SIGNATURE SHALL NOT BE CONSIDERED VALID AND ARE FOR CONVENIENCE TO THE USER AT THEIR OWN RISK.
- ALL WORK SHALL COMPLY WITH THE LATEST REVISION OF THE LOCAL UTILITY'S ELECTRICAL SERVICE REQUIREMENTS (PECO ENERGY'S BLUE BOOK) - COORDINATE ALL SERVICE WORK WITH UTILITY PRIOR TO INSTALLATION. OBTAIN UTILITY APPROVAL BEFORE ENERGIZING NEW WORK. NOTIFY PECO'S NEW BUSINESS SERVICES (FORMERLY CBS) VIA S&M APPLICATION. OBTAIN PECO REQUIREMENTS & DELINEATION OF RESPONSIBILITIES IN WRITING.
- CALL BEFORE YOU DIG (PA ONE CALL SYSTEM 1-800-242-1776 OR DIAL 811). EC TO HIRE AN INDEPENDENT UTILITY LOCATING COMPANY TO MARK-OUT CUSTOMER OWNED/PRIVATE PROPERTY FACILITIES BEFORE DIGGING AT EC'S EXPENSE.
- CONTRACTOR TO PLACE NEW EQUIPMENT AS REQUIRED TO COMPLY WITH WORKING CLEARANCE ISSUES, DEDICATED SPACE ISSUES, AND WITH APPLICABLE CODES.
- EXACT DIMENSIONS OF ALL SPACES/AREAS MUST BE VERIFIED IN THE FIELD. IF A MATERIAL DIFFERENCE IS DISCOVERED, THE EC IS RESPONSIBLE TO NOTIFY ENGINEER AND COORDINATE THE NECESSARY CORRECTIONS TO ALL CALCULATIONS AS REQUIRED.
- FURNISH ALL NECESSARY MATERIALS, TOOLS AND LABOR AND INSTALL A COMPLETE AND FULLY OPERABLE WIRING SYSTEM AS INDICATED OR REASONABLY IMPLIED. ALL OUTLETS SHALL BE FULLY CONNECTED TO SOURCES OF CURRENT SUPPLY AND LEFT READY FOR USE. UNLESS NOTED OTHERWISE, ALL MATERIALS SHALL BE NEW, FREE OF DEFECTS AND BE UL LISTED.
- CONTRACTOR SHALL MEET INSTALLATION CRITERIA FOR SEISMIC REQUIREMENTS IN PROJECT LOCATION.
- THE EC/INSTALLER IS RESPONSIBLE FOR THE CONSTRUCTABILITY OF THE DRAWINGS FROM A PRACTICAL AND EXISTING FIELD CONDITIONS PERSPECTIVE.
- WITH RESPECT TO CONSTRUCTION BASED ON THESE DRAWINGS, THE EC/INSTALLER IS ULTIMATELY RESPONSIBLE FOR ALL INSTALLED MEANS AND METHODS MEETING ALL APPLICABLE CODES AND STANDARDS.
- ALL NON-LOCKING 15A AND 20A, 125V AND 250V RECEPTACLES INSTALLED IN WET AND DAMP LOCATIONS SHALL BE LISTED WEATHER-RESISTANT TYPE AND SHALL CONTAIN A WEATHERPROOF ENCLOSURE PER NEC 406.8(A) AND (B).
- ALL LUMINAIRES INSTALLED IN WET AND DAMP LOCATIONS SHALL MEET NEC 410.10(A).
- ALL SWITCHES AND CIRCUIT BREAKERS INSTALLED IN WET AND DAMP LOCATIONS SHALL MEET NEC 404.4.
- ALL ELECTRICAL EQUIPMENT THAT IS LIKELY TO REQUIRE EXAMINATION, ADJUSTMENT, SERVICING, OR MAINTENANCE WHILE ENERGIZED SHALL BE FIELD MARKED PER NEC 110.16.
- EACH CONTRACTOR SHALL REVIEW ALL PROJECT DOCUMENTS OF ALL TRADES AND REVIEW ALL PROJECT REQUIREMENTS PRIOR TO BIDDING. DISCREPANCIES BETWEEN DOCUMENTS SHALL BE REPORTED BEFORE BIDS ARE DUE TO ALLOW FOR RESOLUTION AS REQUIRED.
- THE EC SHALL VISIT SITE AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS THAT MAY EFFECT HIS WORK (INCLUDING REQUIRED DEMOLITION). THE EC SHALL NOT BE ENTITLED TO CHANGE ORDER(S) DUE TO FAILURE TO COMPLY.
- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS ON ALL EQUIPMENT AND MATERIAL (AND METHODS WHEN SPECIFICALLY REQUESTED) BEING USED IN THE COURSE OF THE WORK. PURCHASE OF OR INSTALLATION OF MATERIALS OR SYSTEM PARTS SHALL NOT PROCEED UNTIL REVIEWED SHOP DRAWINGS/CATALOG CUTS ARE RETURNED TO THE SUBMITTING CONTRACTOR. ACCESSORIES SCHEDULED SHALL BE PROVIDED BY THE UNIT MANUFACTURER OR, IF NOT A FACTORY STANDARD, BY THE CONTRACTOR.
- COORDINATE WITH OTHER TRADES FOR ROUGH-IN SUPPORT AS REQUIRED.
- PRIOR TO ACCEPTANCE, ALL SYSTEMS SHALL BE TESTED, BALANCED AND OPERATED TO DEMONSTRATE TO THE OWNER THAT THE INSTALLATION AND PERFORMANCE OF THE INSTALLED SYSTEMS AND/OR PARTS THEREOF CONFORM TO THE DESIGN INTENT.
- THE CONTRACTOR SHALL GUARANTEE THE ENTIRE INSTALLATION FOR A MINIMUM PERIOD OF ONE YEAR (EXCEPT WHERE EXTENSIONS OF THIS ONE YEAR PERIOD ARE NOTED) FROM THE DATE OF ACCEPTANCE OF THE SYSTEM AS A WHOLE. ANY DEFECTS IN WORKMANSHIP, MATERIALS, MALFUNCTION OF EQUIPMENT OR UNSATISFACTORY PERFORMANCE, AND ALL OTHER PARTS OF THE BUILDING DAMAGED THEREBY, SHALL BE REPAIRED, REPLACED OR OTHERWISE REMEDIED WITHOUT EXPENSE TO THE OWNER. SUCH REPAIRS OR REPLACEMENTS SHALL BE MADE IN A TIMELY MANNER AND AT THE CONVENIENCE OF THE OWNER.
- UPON COMPLETION OF THE CONTRACT, THE CONTRACTOR SHALL PROVIDE THE OWNER WITH THREE (3) COMPLETE SETS OF MANUFACTURERS' OPERATING, MAINTENANCE AND PREVENTIVE MAINTENANCE INSTRUCTIONS (IN BOUND BOOK FORM) INCLUDING PARTS LIST, AND COMPLETE PROCUREMENT INFORMATION SPECIFYING EQUIPMENT NUMBERS AND DESCRIPTIONS. OPERATING STAFF PERSONNEL SHALL BE INSTRUCTED AS TO PROPER OPERATING AND SERVICE REQUIREMENTS OF THE SYSTEMS AND EQUIPMENT.
- CONTRACTOR SHALL UPON COMPLETION OF THE WORK, SUBMIT A SET OF RECORD DRAWINGS SHOWING ALL BURIED OR CONCEALED EQUIPMENT OF PARTS OF THE WORK.
- UPON COMPLETION OF ALL WORK, THOROUGHLY CLEAN ALL SYSTEMS OF OBSTRUCTIONS, DEBRIS, SCALE, DUST, DIRT, ETC. AND PLACE SYSTEMS IN OPERATION.
- THE CONTRACTOR SHALL APPLY FOR AND PAY FOR ALL REQUIRED PERMITS, INSPECTIONS, ETC.
- ALL ELECTRICAL EQUIPMENT AND RECEPTACLES SHALL BE LABELED WITH BRANCH CIRCUIT INFORMATION (PANEL AND CIRCUIT NUMBER).

ABBREVIATIONS

A	AMPERE	MC	METAL-CLAD CABLE or MECHANICAL CONTRACTOR
A/C, AC	AIR CONDITIONING or ARMORED CABLE or ALTERNATING CURRENT	MCB	MAIN CIRCUIT BREAKER
ADD#x	ADDENDUM #...	MCP	MOTOR CIRCUIT PROTECTOR
ADD-ALT#x	ADD ALTERNATE #...	MDP	MAIN DISTRIBUTION PANEL
AF	AMP FRAME	MECH	MECHANICAL
AFCI	ARC-FAULT CIRCUIT INTERRUPTER	MIN	MINIMUM
AFF	ABOVE FINISHED FLOOR	MLO	MAIN LUG ONLY
AHJ	AUTHORITY HAVING JURISDICTION	MTD	MOUNTED
AHU	AIR HANDLING UNIT	MV	MEDIUM VOLTAGE (2.4kV TO 35kV)
AIC	AMPERE INTERRUPTING CAPACITY	(N)	NEW WORK
AL	ALUMINUM	NEC	NATIONAL ELECTRIC CODE
AMP	AMPERE	NESCC	NATIONAL ELECTRIC SAFETY CODE
AT	AMP TRIP	NF	NON-FUSED
ATS	AUTOMATIC TRANSFER SWITCH	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
AWG	AMERICAN WIRE GAUGE	NIC	NOT IN CONTRACT
BEI	BURRIS ENGINEERS, INC.	NM, NMC	NONMETALLIC-SHEATHED CABLE (ROMEX)
BKR	BREAKER	NTS	NOT TO SCALE
BLDG	BUILDING	OCPD	OVER CURRENT PROTECTION DEVICE
B.O.D.	BASIS OF DESIGN	P	POLE
C	CONDUIT	PECO	PECO ENERGY COMPANY
CB	CIRCUIT BREAKER	PC	PHOTOCELL
CCT	CIRCUIT	PF	POWER FACTOR
CLG	CEILING or CEILING MOUNTED	PH	PHASE
cmil	CIRCULAR MILS	PRI	PRIMARY
CONC	CONCRETE	PT	POTENTIAL TRANSFORMER
CONT	CONTINUE(OUS)	PV	PHOTOVOLTAIC
CT	CURRENT TRANSFORMER	PVC	POLYVINYL CHLORIDE CONDUIT
CJ	COPPER	PWR	POWER
CJH	CABINET UNIT HEATER	(R)	REMOVE
(D)	DEMOLISH	RCP	REFLECTED CEILING PLAN
DISC	DISCONNECT SWITCH	(RE)	RELOCATED EXISTING
DW	DISHWASHER	REC	RECEPTACLE
DWG	DRAWING	REF	REFRIGERATOR or ROOF EXHAUST FAN
(E)	EXISTING TO REMAIN	RGS	RIGID GALVANIZED STEEL
EBJ	EQUIPMENT BONDING JUMPER	RMC	RIGID METAL CONDUIT
EC	ELECTRICAL CONTRACTOR	RNC	RIGID NONMETALLIC CONDUIT (PVC)
EF	EXHAUST FAN	RTU	ROOFTOP UNIT
EGC	EQUIPMENT GROUNDING CONDUCTOR	S&P	SPACE & PROVISION
ELEC	ELECTRICAL	SBJ	SYSTEM BONDING JUMPER
ELEV	ELEVATOR	SCCR	SHORT-CIRCUIT CURRENT RATING
EMT	ELECTRICAL METALLIC TUBING	SCHED	SCHEDULE(D)
(ER)	EXISTING TO BE RELOCATED	SD	SMOKE DAMPER
EWC	ELECTRIC WATER COOLER	SEC	SECONDARY
EWH	ELECTRIC WATER HEATER	SE, SER	SERVICE-ENTRANCE CABLE
FA	FIRE ALARM	SHT	SHEET
FAAP	FIRE ALARM ANNUNCIATOR PANEL	SLD	SINGLE LINE DIAGRAM
FACP	FIRE ALARM CONTROL PANEL	SPD	SURGE-PROTECTIVE DEVICE
FMT	FLEXIBLE METALLIC TUBING	SPEC	SPECIFICATION(S)
FMC	FLEXIBLE METAL CONDUIT	STD	STANDARD(S)
G, GRD	GROUND(ING)	STRUCT	STRUCTURE(AL)
GC	GENERAL CONTRACTOR	TBD	TO BE DETERMINED
GD	GARBAGE DISPOSAL	TOP	TEMPERATURE CONTROL PANEL
GE	GROUNDING ELECTRODE CONDUCTOR	TR	TAMPER RESISTANT
GFI, GFCI	GROUND FAULT CIRCUIT INTERRUPTER	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
GFPE	GROUND FAULT PROTECTION FOR EQUIPMENT	TYP	TYPICAL
HT	HEIGHT or HIGH TENSION	UG	UNDERGROUND
HV	HIGH VOLTAGE (GREATER THAN 69kV)	UON	UNLESS OTHERWISE NOTED
HVAC	HEATING/VENTILATING/AIR CONDITIONING	USE	SERVICE-ENTRANCE CABLE
HW, HWH	HOT WATER HEATER	XFMR	TRANSFORMER
I, IG	ISOLATED GROUND	XFR	TRANSFER
IBT	INTERSYSTEM BONDING TERMINATION	V	VOLT
IMC	INTERMEDIATE METAL CONDUIT	VIF	VERIFY IN FIELD
JB	JUNCTION BOX	VT	VOLTAGE TRANSFORMER
k	KILO-	W	WATT or WIRE
kmil	THOUSAND CIRCULAR MILS	W/	WITH
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT	WG	WIRE GUARD
LT(G)	LIGHT(ING)	WP	WEATHERPROOF
LV	LOW VOLTAGE (0 TO 600V)	WR	WEATHER-RESISTANT
MAX	MAXIMUM		

GENERAL SYMBOLS LEGEND

	CIRCUIT BREAKER
	INLINE FUSE
	HANDHOLE
	CONCRETE RECEPTACLE PEDESTAL (SEE DETAIL DRAWING)
	LIGHTING FIXTURE AND POLE (LX INDICATES FIXTURE TYPE)
	UNDERGROUND CONDUIT
	EXISTING
	NEW
	METER
	SURGE PROTECTIVE DEVICE
	RECEPTACLE OUTLET (DUPEX - WEATHER-RESISTANT LISTED) WITH WEATHERPROOF COVER AND GFCI FUNCTION (NEMA 5-20R)

ELECTRICAL DRAWING INDEX:	
1 -	ELECTRICAL COVER SHEET
2 -	GENERAL ELECTRICAL NOTES, SYMBOLS, AND ABBREVIATIONS
3 -	ELECTRICAL PLAN 1
4 -	ELECTRICAL PLAN 2
5 -	ELECTRICAL PLAN 3
6 -	ELECTRICAL DIAGRAMS, CALCULATIONS, AND SCHEDULES
7 -	ELECTRICAL DETAILS

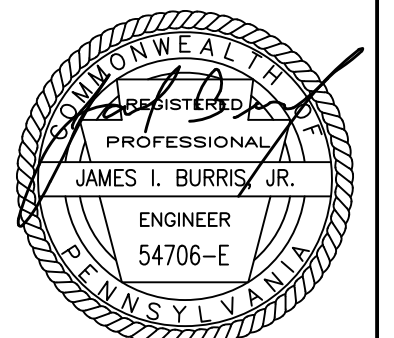


Know what's below.
Call before you dig.

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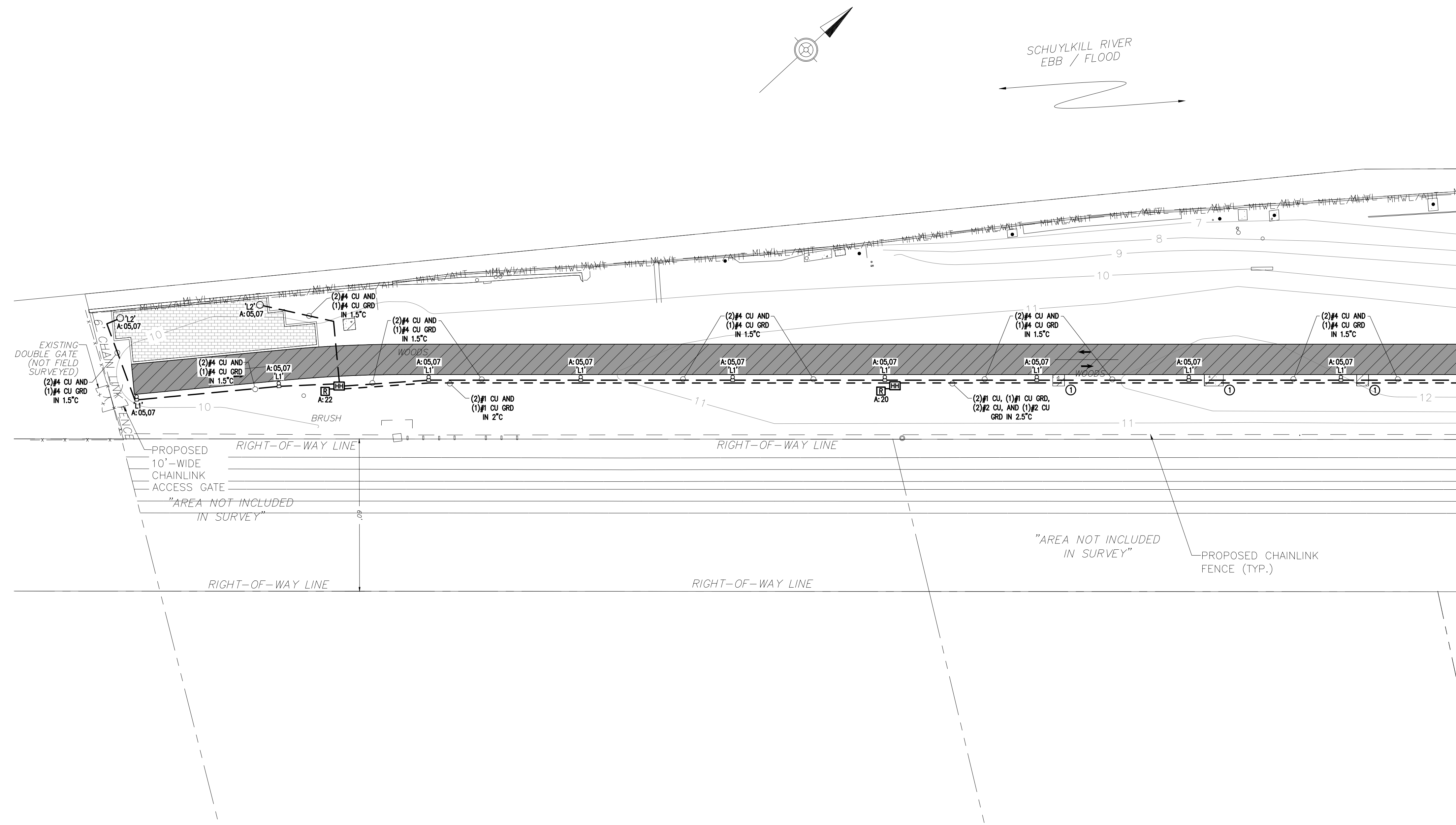
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DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	PHILADELPHIA	-		3 OF 7
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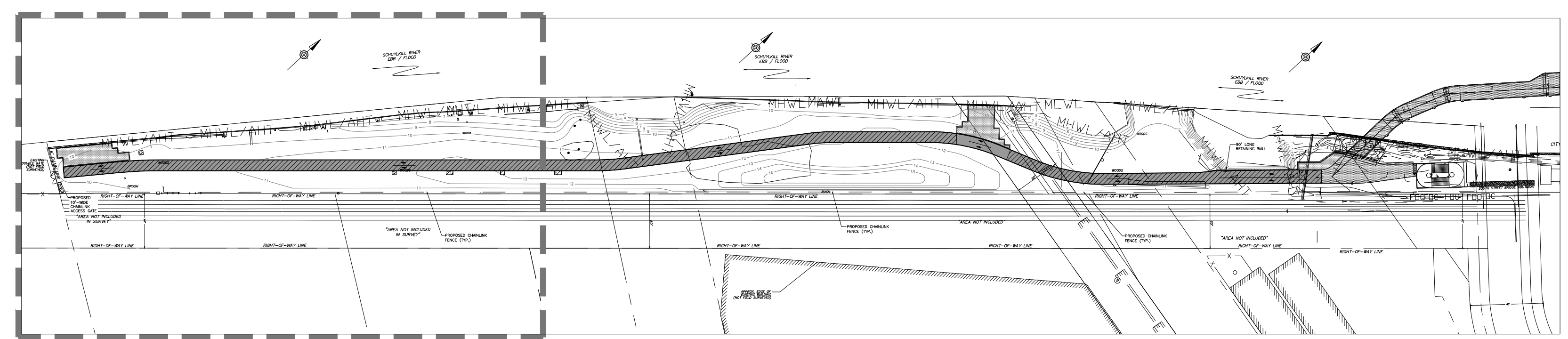
**SCHUYLKILL RIVER TRAIL EXTENSION
ELECTRICAL PLAN 1**



SEE SHEET 4

- GENERAL NOTES:**
- REFER TO DRAWING 2 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
 - REFER TO DRAWING 6 FOR LIGHTING FIXTURE SCHEDULE.
 - REFER TO DRAWING 7 FOR DETAILS.
 - HANDHOLE BASIS OF DESIGN: QUAZITE 24"x24"x24" PG STYLE (OPEN BOTTOM), TIER 22 EXTRA HEAVY DUTY (TYPE HH) COVER, PART NO. CODE G FOREST GREEN.
 - EC SHALL TAKE EXTREME CARE IN EXCAVATING. HAND-DIG AS REQUIRED.
 - EC SHALL COORDINATE ALL CONDUIT ROUTING WITH EXISTING CONDITIONS AND UTILITIES.
 - CALL BEFORE YOU DIG (PA ONE CALL SYSTEM 1-800-242-1776 OR DIAL 811). EC TO HIRE AN INDEPENDENT UTILITY LOCATING COMPANY TO MARK-OUT CUSTOMER OWNED/PRIVATE PROPERTY FACILITIES BEFORE DIGGING AT EC'S EXPENSE.
 - EC SHALL STUB PVC CONDUITS UP INTO POLE BASES AND TERMINATE CONDUCTORS USING (2) 5A INLINE FUSES. EC SHALL PROVIDE #12 AWG COPPER CONDUCTORS IN THE POLE SHAFT FROM THE LOAD SIDE OF THE INLINE FUSES UP TO THE LIGHTING FIXTURES AND SHALL MAKE ALL NECESSARY WIRING CONNECTIONS. ALL SPLICES IN THE POLE BASES SHALL BE WATERPROOF.
 - ALL TYPE 'L1' LIGHTING FIXTURES ADJACENT TO THE TRAIL SHALL BE INSTALLED WITH 2.2' BETWEEN THE EDGE OF THE TRAIL AND THE CENTER OF THE FIXTURE POLES. CONDUIT SHALL NOT BE ROUTED IN THIS 2' SHOULDER BETWEEN THE FIXTURE POLES AND THE TRAIL EDGE.
 - HAND HOLES SHALL NOT BE INSTALLED IN THE 2' SHOULDER BETWEEN THE FIXTURE POLES AND THE TRAIL EDGE.
 - THE SHOWN HANDHOLE LOCATIONS/QUANTITIES ARE SUGGESTED ONLY. EC SHALL DETERMINE EXACT LOCATIONS/QUANTITIES IN THE FIELD AS REQUIRED FOR EASE OF INSTALLATION. EC SHALL MARK OUT ALL LIGHT POLE/HANDHOLE LOCATIONS AND CONDUIT ROUTING IN THE FIELD AND SHALL OBTAIN APPROVAL FROM OWNER/ENGINEER PRIOR TO START OF WORK.
 - EC SHALL COORDINATE FINAL LOCATION OF ALL RECEPTACLE PEDESTALS WITH OWNER PRIOR TO INSTALLATION.

- KEYED NOTES: ①**
- EC SHALL COORDINATE THE INSTALLATION OF THE CONDUITS UNDERNEATH THE CONCRETE BENCH PAD AND SHALL MODIFY CONDUIT DEPTH AS REQUIRED TO AVOID CONFLICTS.



KEY PLAN
SCALE: NOT TO SCALE

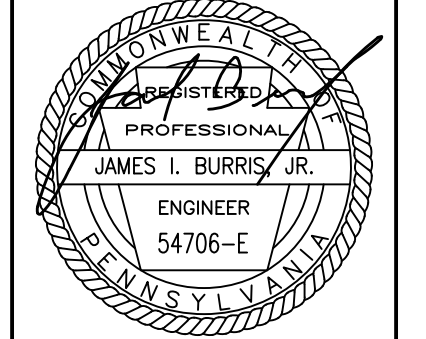
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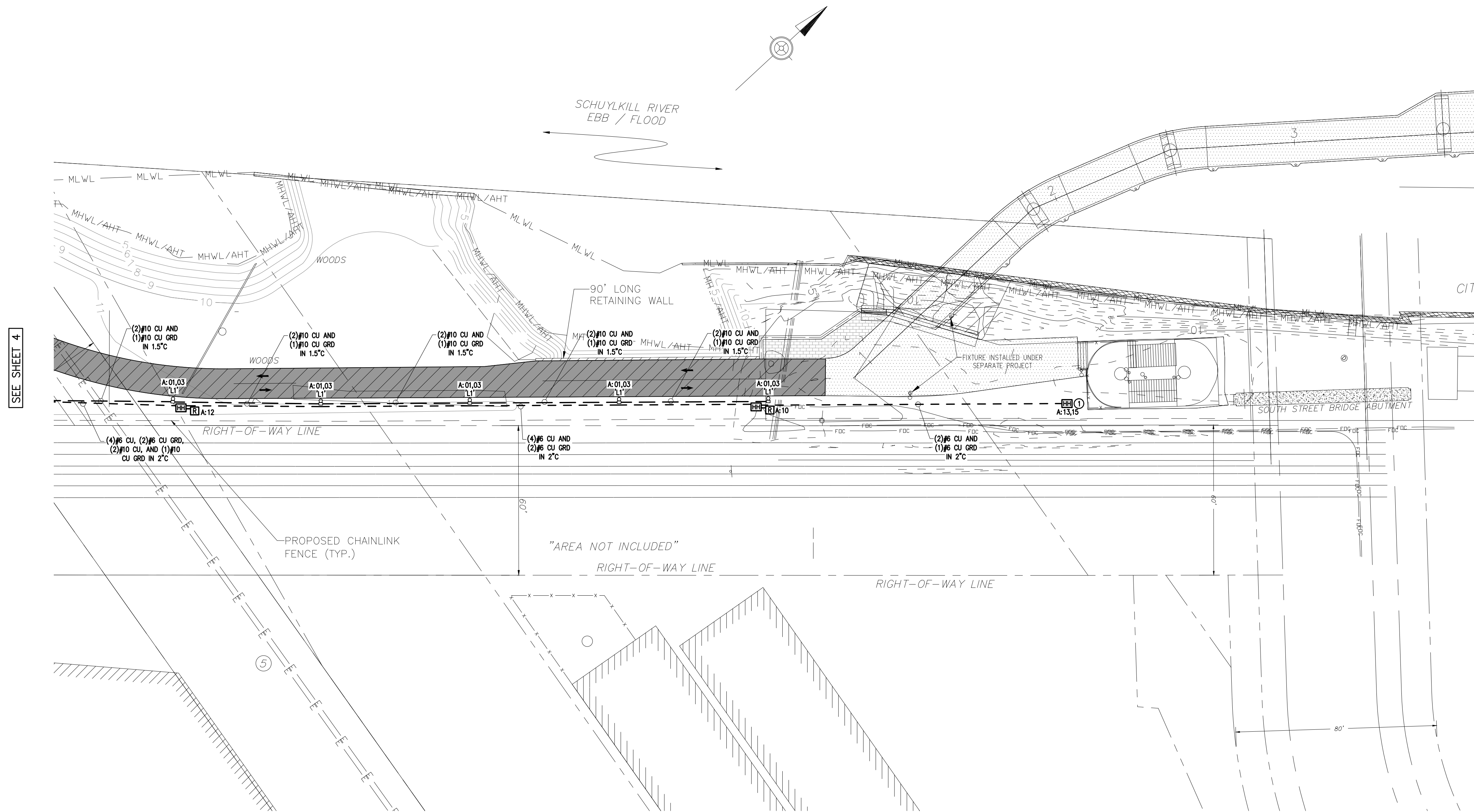
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DISTRICT	COUNTY	ROUTE	SECTION	SHEET
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CITY OF PHILADELPHIA				
REVISION NUMBER	REVISIONS	DATE	BY	

**SCHUYLKILL RIVER TRAIL EXTENSION
ELECTRICAL PLAN 3**



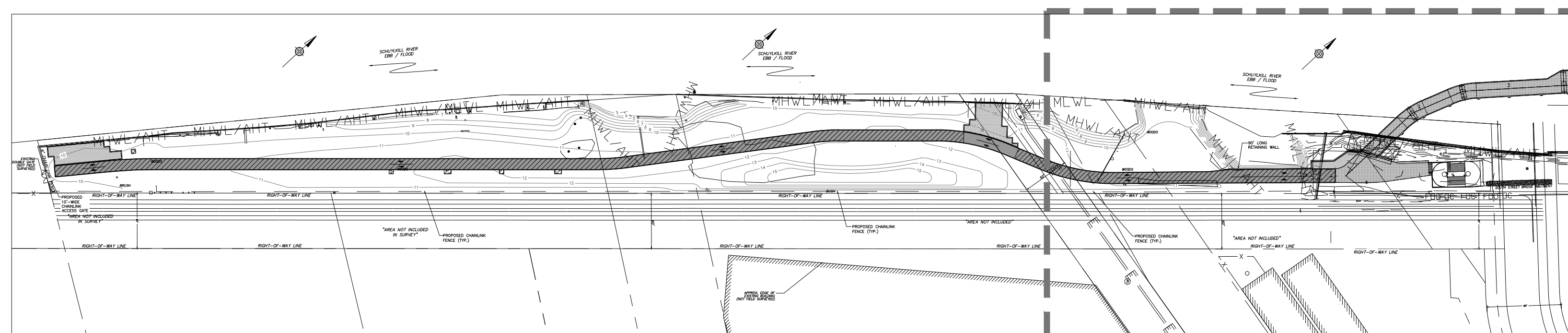
GENERAL NOTES:

- REFER TO DRAWING 2 FOR GENERAL NOTES, SYMBOLS, AND ABBREVIATIONS.
- REFER TO DRAWING 6 FOR LIGHTING FIXTURE SCHEDULE.
- REFER TO DRAWING 7 FOR DETAILS.
- HANDHOLE BASIS OF DESIGN: QUAZITE 24"x24"x24" PG STYLE (OPEN BOTTOM), TIER 22 EXTRA HEAVY DUTY (TYPE HH) COVER, PART NO. CODE G FOREST GREEN.
- EC SHALL TAKE EXTREME CARE IN EXCAVATING. HAND-DIG AS REQUIRED.
- EC SHALL COORDINATE ALL CONDUIT ROUTING WITH EXISTING CONDITIONS AND UTILITIES.
- CALL BEFORE YOU DIG (PA ONE CALL SYSTEM 1-800-242-1776 OR DIAL 811). EC TO HIRE AN INDEPENDENT UTILITY LOCATING COMPANY TO MARK-OUT CUSTOMER OWNED/PRIVATE PROPERTY FACILITIES BEFORE DIGGING AT EC'S EXPENSE.
- EC SHALL STUB PVC CONDUITS UP INTO POLE BASES AND TERMINATE CONDUCTORS USING (2) 5A INLINE FUSES. EC SHALL PROVIDE #12 AWG COPPER CONDUCTORS IN THE POLE SHAFT FROM THE LOAD SIDE OF THE INLINE FUSES UP TO THE LIGHTING FIXTURES AND SHALL MAKE ALL NECESSARY WIRING CONNECTIONS. ALL SPLICES IN THE POLE BASES SHALL BE WATERPROOF.
- ALL TYPE 'L1' LIGHTING FIXTURES ADJACENT TO THE TRAIL SHALL BE INSTALLED WITH 2.2' BETWEEN THE EDGE OF THE TRAIL AND THE CENTER OF THE FIXTURE POLES. CONDUIT SHALL NOT BE ROUTED IN THIS 2' SHOULDER BETWEEN THE FIXTURE POLES AND THE TRAIL EDGE.
- HAND HOLES SHALL NOT BE INSTALLED IN THE 2' SHOULDER BETWEEN THE FIXTURE POLES AND THE TRAIL EDGE.
- THE SHOWN HANDHOLE LOCATIONS/QUANTITIES ARE SUGGESTED ONLY. EC SHALL DETERMINE EXACT LOCATIONS/QUANTITIES IN THE FIELD AS REQUIRED FOR EASE OF INSTALLATION. EC SHALL MARK OUT ALL LIGHT POLE/HANDHOLE LOCATIONS AND CONDUIT ROUTING IN THE FIELD AND SHALL OBTAIN APPROVAL FROM OWNER/ENGINEER PRIOR TO START OF WORK.
- EC SHALL COORDINATE FINAL LOCATION OF ALL RECEPTACLE PEDESTALS WITH OWNER PRIOR TO INSTALLATION.

KEYED NOTES:

- EC SHALL COORDINATE EXACT HANDHOLE LOCATION WITH OWNER PRIOR TO INSTALLATION. BRANCH CIRCUIT FOR IRRIGATION BOOSTER PUMP SHALL BE INSTALLED TO HANDHOLE AS SHOWN. THE CONNECTION BETWEEN THE HANDHOLE AND BOOSTER PUMP TO BE PERFORMED BY OTHERS.

SEE SHEET 4



KEY PLAN
SCALE: NOT TO SCALE

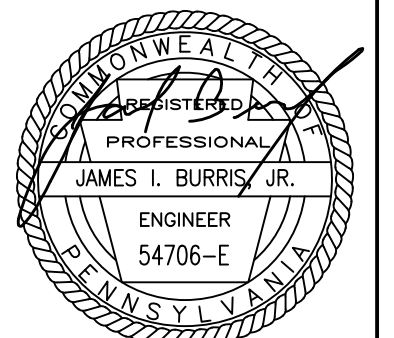
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2012P006



DISTRICT	COUNTY	ROUTE	SECTION	SHEET
6-0	PHILADELPHIA	-		6 OF 7
CITY OF PHILADELPHIA				
REVISION NUMBER	REVISIONS			DATE

SCHUYLKILL RIVER TRAIL EXTENSION
ELECTRICAL DIAGRAMS, CALCULATIONS, AND SCHEDULES

LIGHTING FIXTURE SCHEDULE								
TYPE	SYMBOL	MANUFACTURER	FIXTURE MODEL #	POLE MODEL #	VOLTAGE	LAMP	ESTIMATED WATTS	NOTES
'L1'		PHILIPS GARDCO	CA17L-1-4-70LA-NW-UNIV-NP	VALMONT R-160050554-SC GARDCO NP NATURAL PAINT (COORDINATE WITH VALMONT TO CUT TO 15' HEIGHT)	240	LED	83.2	FIXTURE - 17" CYLINDRICAL LED ARM MOUNTED FIXTURE, NEUTRAL WHITE 4000K 70CRI LED, UL LISTED FOR WET LOCATIONS, NATURAL ALUMINUM PAINT FINISH, TYPE IV DISTRIBUTION, UNIVERSAL VOLTAGE (120V-277V), FULL CUTOFF, TOP SHALL BE FLUSH WITH TOP OF POLE. POLE - 15' ROUND NON-TAPERED ALUMINUM, 5" DIAMETER, 4-BOLT ANCHOR BASE, TOP CAP, 3"x5" HANDHOLE WITH FLUSH TYPE COVER, BOLT COVER, GARDCO NP NATURAL PAINT TO MATCH FIXTURE, 90MPH WITH 1.3 GUST FACTOR (104 GUST MPH), IDENTIFICATION LABEL.
'L2'		PHILIPS HADCO	CS105 P4 FL I R5 D 100H G	PHILIPS HADCO P195 12 I	240	100W MH MEDIUM SCREW	125	FIXTURE - CONTEMPORARY ROUND POST FITTER FIXTURE, 4" INTERNAL SLIP FIT, FLAT TOP, HIGH POWER FACTOR (>90%) BALLAST, UL LISTED FOR WET LOCATIONS, IP65 RATED, GRAY FINISH, TYPE V REFRACTOR BOWL OPTICS, MEDIUM SOCKET, 240V. POLE - 12" ROUND NON-TAPERED ALUMINUM, 4" DIAMETER, 4-BOLT ANCHOR BASE, 2"x4" HANDHOLE WITH FLUSH TYPE COVER, BASE COVER, GRAY FINISH TO MATCH FIXTURE, 100MPH, IDENTIFICATION LABEL.
'L3'		PHILIPS GARDCO	CA17L-1-2-70LA-NW-UNIV-NP	VALMONT R-160050554-SC GARDCO NP NATURAL PAINT (COORDINATE WITH VALMONT TO CUT TO 15' HEIGHT)	240	LED	83.2	FIXTURE - 17" CYLINDRICAL LED ARM MOUNTED FIXTURE, NEUTRAL WHITE 4000K 70CRI LED, UL LISTED FOR WET LOCATIONS, NATURAL ALUMINUM PAINT FINISH, TYPE II DISTRIBUTION, UNIVERSAL VOLTAGE (120V-277V), FULL CUTOFF, TOP SHALL BE FLUSH WITH TOP OF POLE. POLE - 15' ROUND NON-TAPERED ALUMINUM, 5" DIAMETER, 4-BOLT ANCHOR BASE, TOP CAP, 3"x5" HANDHOLE WITH FLUSH TYPE COVER, BOLT COVER, GARDCO NP NATURAL PAINT TO MATCH FIXTURE, 90MPH WITH 1.3 GUST FACTOR (104 GUST MPH), IDENTIFICATION LABEL.

LIGHTING FIXTURE SCHEDULE

SCALE: NOT TO SCALE

NOTES:

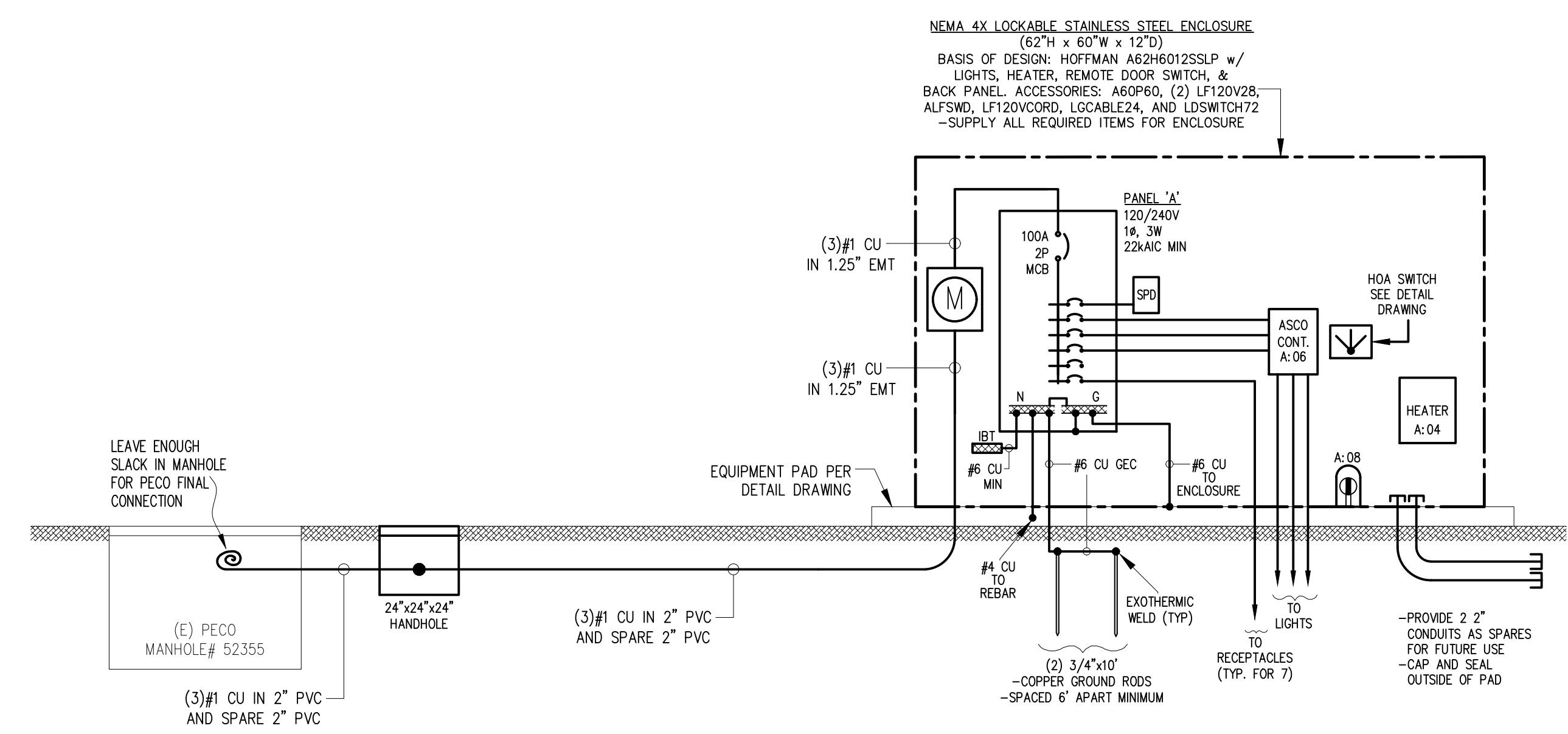
1. THE LIGHTING FIXTURES AND POLES HAVE BEEN CHOSEN TO MATCH FIXTURES AND POLES USED ON OTHER PARTS OF THE TRAIL, THEREFORE SUBSTITUTIONS WILL NOT BE CONSIDERED.

PANEL: Panel 'A'																
MAIN: 100 Amp MCB				BUS: Copper												
SERVICE: 120/240 1PH, 3W				SHORT CIRCUIT RATING: 22kAIC Minimum												
FEEDER DATA		CIR NO.	LOAD DESCRIPTION	C.B. POLE NO.	C.B. TRIP AMPS	C.B. LOAD KVA	PH L1 KVA	PH L2 KVA	C.B. LOAD KVA	C.B. TRIP AMPS	C.B. POLE NO.	LOAD DESCRIPTION	CIR NO.	FEEDER DATA		
NO.	WIRE	GRD											NO.	WIRE	GRD	
2	10	10	1	2	20	0.208	0.246	0.038	20	1		Field Box Lights	2	2	12	12
---	---	---	3	---	---	0.208	---	2.128	1.92	20	1	Field Box Heater	4	2	12	12
2	4	4	5	2	20	1.04	1.54	0.5	20	1		Contactor Control	6	2	12	12
---	---	---	7	---	---	1.04	---	1.22	0.18	20	1	Field Box Receptacle	8	2	12	12
2	10	10	9	2	20	0.125	0.305	0.18	20	1		Pad-Mounted Receptacle	10	2	6	6
---	---	---	11	---	---	0.125	0.305	0.18	20	1		Pad-Mounted Receptacle	12	2	10	10
2	6	6	13	2	30	1.44	1.62	0.18	20	1		Pad-Mounted Receptacle	14	2	10	10
---	---	---	15	---	---	1.44	---	1.62	0.18	20	1	Pad-Mounted Receptacle	16	2	6	6
---	---	---	17	1	20	0	0.18	0.18	20	1		Pad-Mounted Receptacle	18	2	4	4
---	---	---	19	1	20	0	0.18	0.18	20	1		Pad-Mounted Receptacle	20	2	2	2
---	---	---	21	1	20	0	0.18	0.18	20	1		Pad-Mounted Receptacle	22	2	1	1
---	---	---	23	1	20	0	0	0	20	1		Spare	24	---	---	---
---	---	---	25	1	20	0	0	0	20	1		Spare	26	---	---	---
3	10	10	27	2	30	0	0	0	20	1		Spare	28	---	---	---
---	---	---	29	---	---	0	0	0	20	1		Spare	30	---	---	---
TYPE: NEMA1				TOTAL PH KVA		3.825	3.325									
MOUNTING: Surface				TOTAL PH AMPS		32	28									
FED FROM: PECO Manhole				VOLTAGE		120	240									
LOCATION: Field Box				Phase		1	1									

NOTES: (1) Panel must have balanced phases when installed in field (2) AIC must be determined when Service information is supplied from PECO (3) See Load Calculations for panel/service size justification

PANEL SCHEDULE - 'A'

SCALE: NOT TO SCALE



FIELD BOX ENCLOSURE DIAGRAM

SCALE: NOT TO SCALE

NOTES:

- ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST ADOPTED EDITION OF THE NEC.
- SERVICE EQUIPMENT TO BE LOCATED AS CLOSE AS POSSIBLE TO SERVICE CONDUCTORS ENTERING THE FIELD BOX. GROUP EQUIPMENT TOGETHER AS REQUIRED.
- ALL CONDUCTORS SHALL BE CU AND THHN/THWN UNLESS OTHERWISE NOTED.
- ALL SERVICE RELATED WORK TO BE DONE IN STRICT ACCORDANCE WITH UTILITY COMPANY REQUIREMENTS.
- VERIFY SHORT CIRCUIT REQUIREMENTS WITH UTILITY COMPANY AND MAKE ADJUSTMENTS AS REQUIRED.
- ALL SERVICE EQUIPMENT SHALL BE LISTED FOR SERVICE ENTRANCE USE.
- COORDINATE ALL SERVICE CHANGES WITH PECO. EC SHALL BE RESPONSIBLE FOR SUBMITTING S&M AS REQUIRED.
- THE EC HAS THE FULL RESPONSIBILITY FOR MEETING WITH THE LOCAL ELECTRIC UTILITY AND COORDINATING WITH THE LOCAL ELECTRIC UTILITY COMPANY'S REQUIREMENTS BEFORE INSTALLATION BEGINS. BURRIS ENGINEERS ADVISES THE INSTALLER TO CONTACT THE LOCAL ELECTRIC UTILITY AS SOON AS POSSIBLE TO BEGIN THE PROCESS AS NOT DOING SO MAY CAUSE A DELAY IN OBTAINING THE REQUESTED SERVICE. ALSO, LOCAL ELECTRIC UTILITY FEES MAY APPLY TO OBTAIN REQUESTED SERVICE.
- THE EC IS RESPONSIBLE FOR THE PHYSICAL LAYOUT OF THE SERVICE EQUIPMENT AND ALL DISTRIBUTION EQUIPMENT MEETING WORKING CLEARANCES AND ALL OTHER REQUIREMENTS OF THE NEC BASED ON ACTUAL FIELD CONDITIONS. THE LOCATION OF THE SERVICE DISCONNECTING MEANS SHALL MEET THE REQUIREMENTS OF NEC ARTICLE 230, AND SHOULD BE REVIEWED WITH THE INSTALLER'S UNDERWRITER BEFORE INSTALLATION.
- EC TO COORDINATE FINAL LOCATION OF SERVICE EQUIPMENT WITH OWNER, SEEK FINAL APPROVAL FROM PECO, AND SHALL TAKE INTO CONSIDERATION ANY FUTURE CONSTRUCTION BEFORE PLACEMENT OF EQUIPMENT.
- REFER TO ELECTRICAL PLANS 1-3 FOR CONDUIT QUANTITIES TO BE INSTALLED FROM FIELD BOX.
- ALL EXPOSED CONDUIT UNDERNEATH THE FIELD BOX SHALL BE RMC.
- DUE TO VANDALISM CONCERNS, THE PECO METER IS SHOWN WITHIN THE FIELD BOX ENCLOSURE, WHICH MAY CONFLICT WITH PECO REQUIREMENTS. EC SHALL COORDINATE WITH PECO PRIOR TO INSTALLATION. IF PECO WILL NOT ALLOW THE METER TO BE INSTALLED WITHIN THE ENCLOSURE, EC SHALL INSTALL OUTSIDE PER PECO BLUE BOOK AND ADD PROTECTION FOR THE METER TO HELP WITH VANDALISM PROBLEMS.

General Information/Assumptions	VA	Notes
New lighting fixtures being installed along the Schuylkill River Trail and convenience receptacles being installed for use by maintenance personnel.		
120/240V single phase service to be provided by PECO. EC to coordinate all service requirements with PECO.		
All calculations are based on the 2008 Edition of the National Electrical Code (NFPA 70)		
Calculation for Service (Panel 'A')		
Type L1 Lighting Fixtures	24 fixtures x 83.2VA each x 1.25 (continuous)	2496 VA per given information by manufacturer
Type L2 Lighting Fixtures	4 fixtures x 100W each x 1.25 ballast factor x 1.25 (continuous)	625 VA per given information by manufacturer
Type L3 Lighting Fixtures	3 fixtures x 83.2VA each x 1.25 (continuous)	312 VA per given information by manufacturer
Pad-Mounted Receptacle	7 x 180VA each	1260 quantity per plan
Irrigation Booster Pump (2 HP)	12A FLA x 240V	2880 HP per given information; FLA per NEC 430.248
Field Box Lighting	2 x 15W x 1.25	38 Typical Field Box Lighting Load
Field Box Heating	1 x 20A x 120V x 80%	1920 Typical Conservative Load
Field Box Receptacle	1 x 180VA	180 Quantity per plan
Field Box Contactor	1 x 500VA	500 Typical Conservative Load
Largest Motor Load = Irrigation Booster Pump	Largest Motor Load x 25%	720 per NEC 220.50, 430.24
Total VA		10931
Voltage (L-L)	240	
Total Amps	Total VA / Single Phase Voltage	46
		Requires Minimum Service Ampacity of 46A

LOAD CALCULATION

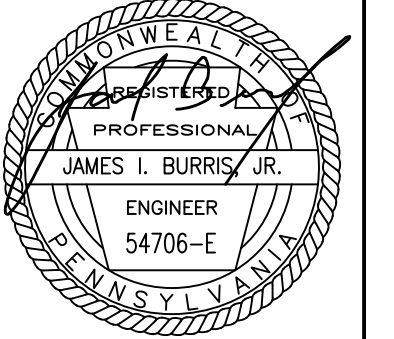
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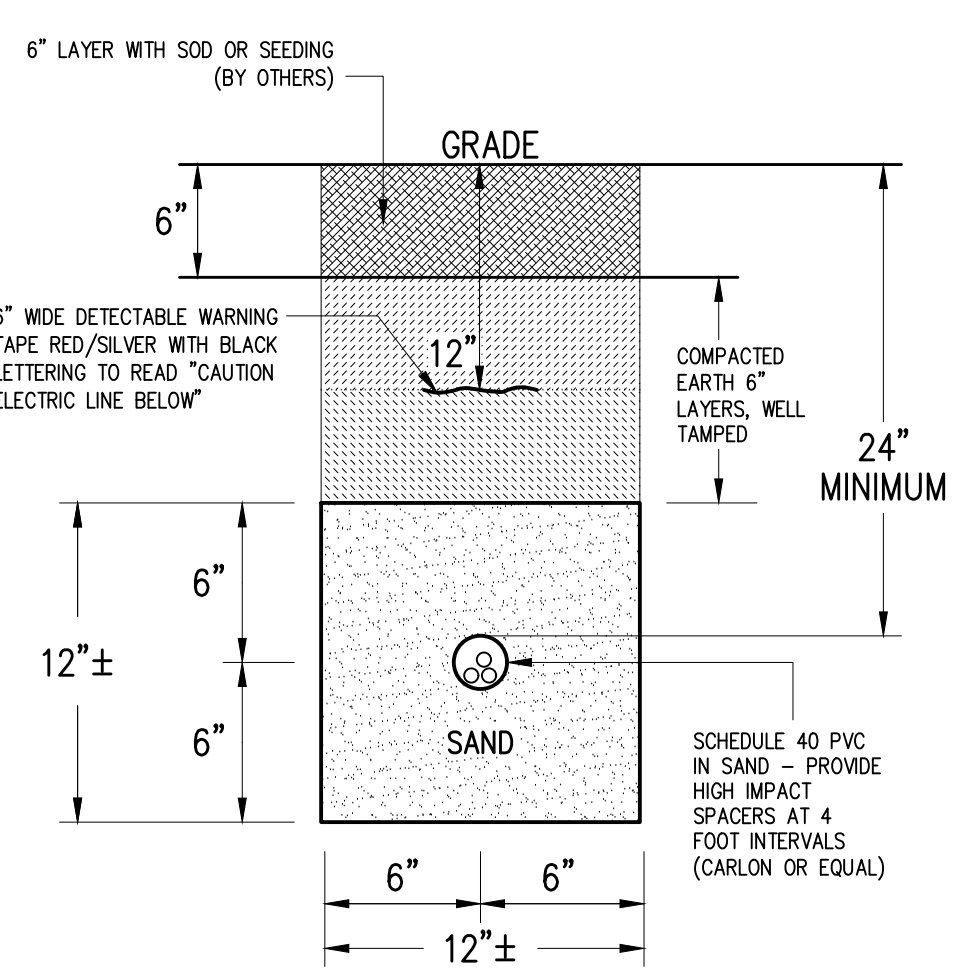
PA ONE CALL SERIAL NUMBERS:
#20130491115, #20130491116, #20130491117

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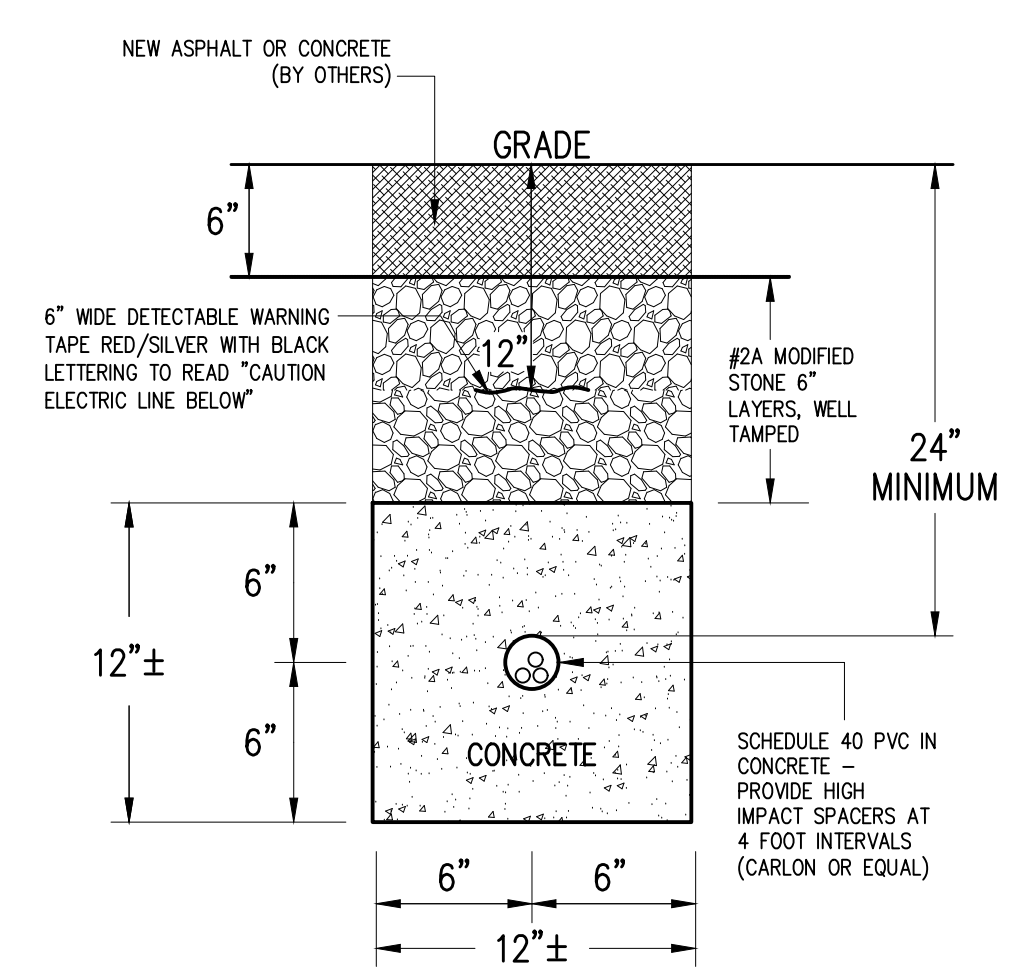


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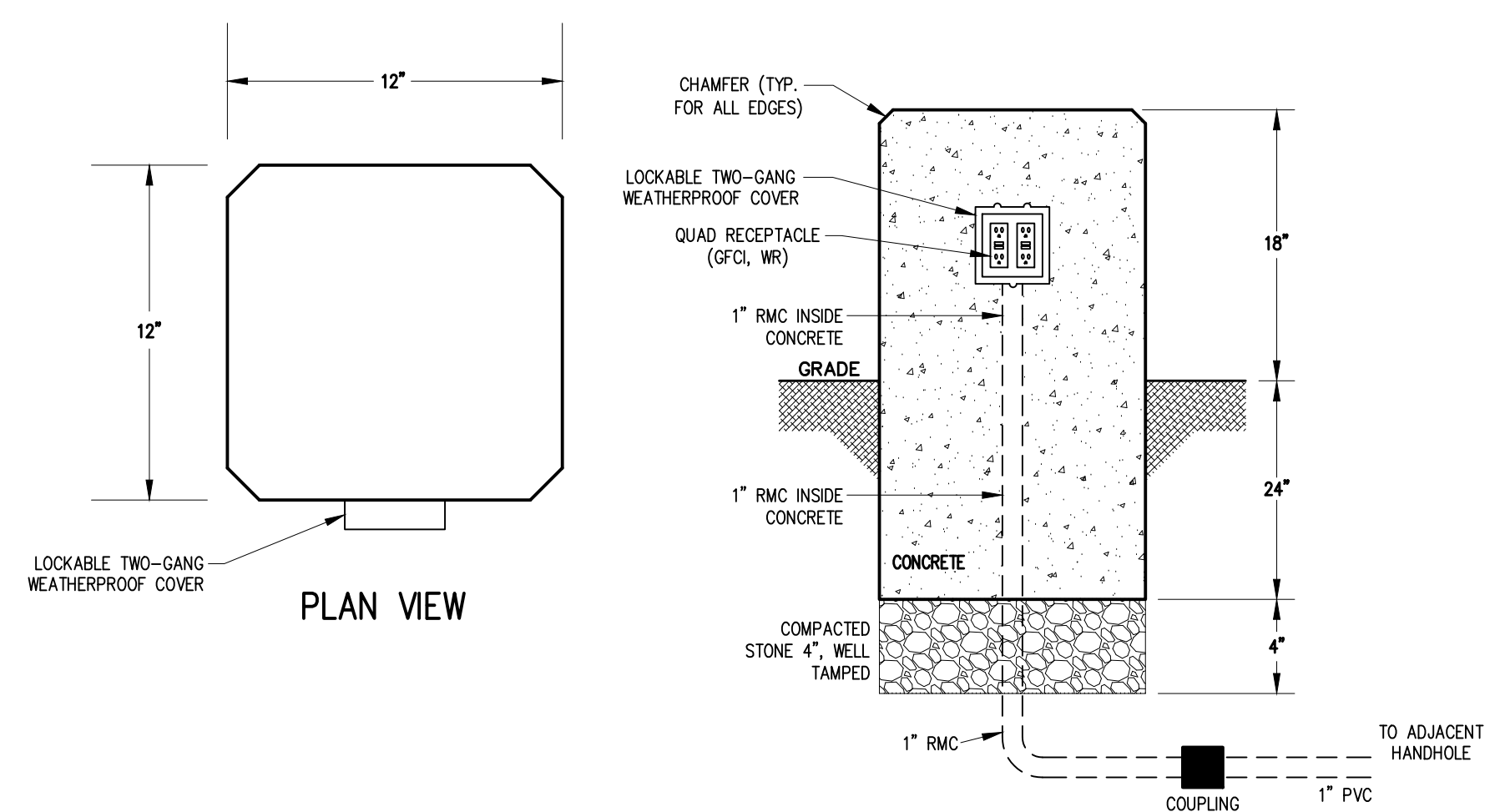
SAND DUCT BANK DETAIL (LAWN AREAS)
SCALE: NOT TO SCALE

- NOTES:**
- MINIMUM 3" COVER AROUND AND BETWEEN CONDUITS.
 - EC SHALL TAKE EXTREME CARE IN EXCAVATING AREA. HAND-DIG IF NECESSARY. MODIFY/RE-ROUTE DUCT BANK AS REQUIRED TO MINIMIZE CONFLICT WITH EXISTING UTILITIES.
 - COORDINATE ALL CONDUIT ROUTING WITH EXISTING CONDITIONS AND SITE WORK.
 - SEE SPECIFICATION 260543 FOR ADDITIONAL INFORMATION.
 - ADJUST TRENCH DETAIL FOR MULTIPLE CONDUITS WHEN REQUIRED. OBTAIN ENGINEER'S APPROVAL.
 - REFER TO ELECTRICAL PLANS 1-3 FOR CONDUIT SIZES AND QUANTITIES.



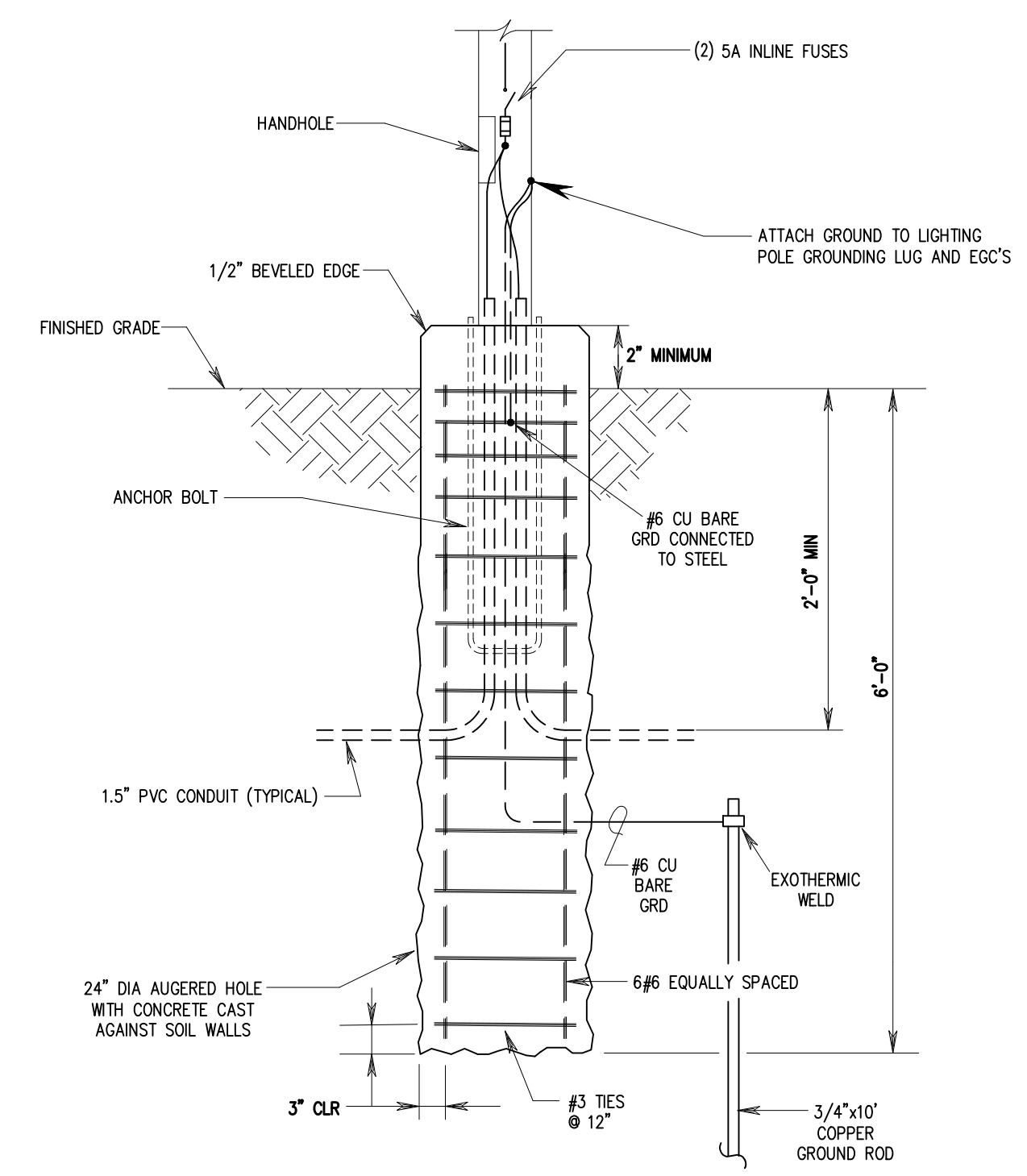
CONCRETE DUCT BANK DETAIL (UNDER TRAIL)
SCALE: NOT TO SCALE

- NOTES:**
- CONCRETE TO HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI & HAVE AN AIR ENTRAINING ADMIXTURE. AIR CONTENT TO BE 6% + or - 1%.
 - MINIMUM 3" COVER AROUND AND BETWEEN CONDUITS.
 - EC SHALL TAKE EXTREME CARE IN EXCAVATING AREA. HAND-DIG IF NECESSARY. MODIFY/RE-ROUTE DUCT BANK AS REQUIRED TO MINIMIZE CONFLICT WITH EXISTING UTILITIES.
 - COORDINATE ALL CONDUIT ROUTING WITH EXISTING CONDITIONS AND SITE WORK.
 - SEE SPECIFICATION 260543 FOR ADDITIONAL INFORMATION.
 - INSTALL ASPHALT PER INDUSTRY STANDARDS AND USE SEALANT BETWEEN OLD AND NEW ASPHALT AS REQUIRED.
 - ADJUST TRENCH DETAIL FOR MULTIPLE CONDUITS WHEN REQUIRED. OBTAIN ENGINEER'S APPROVAL.
 - REFER TO ELECTRICAL PLANS 1-3 FOR CONDUIT SIZES AND QUANTITIES.



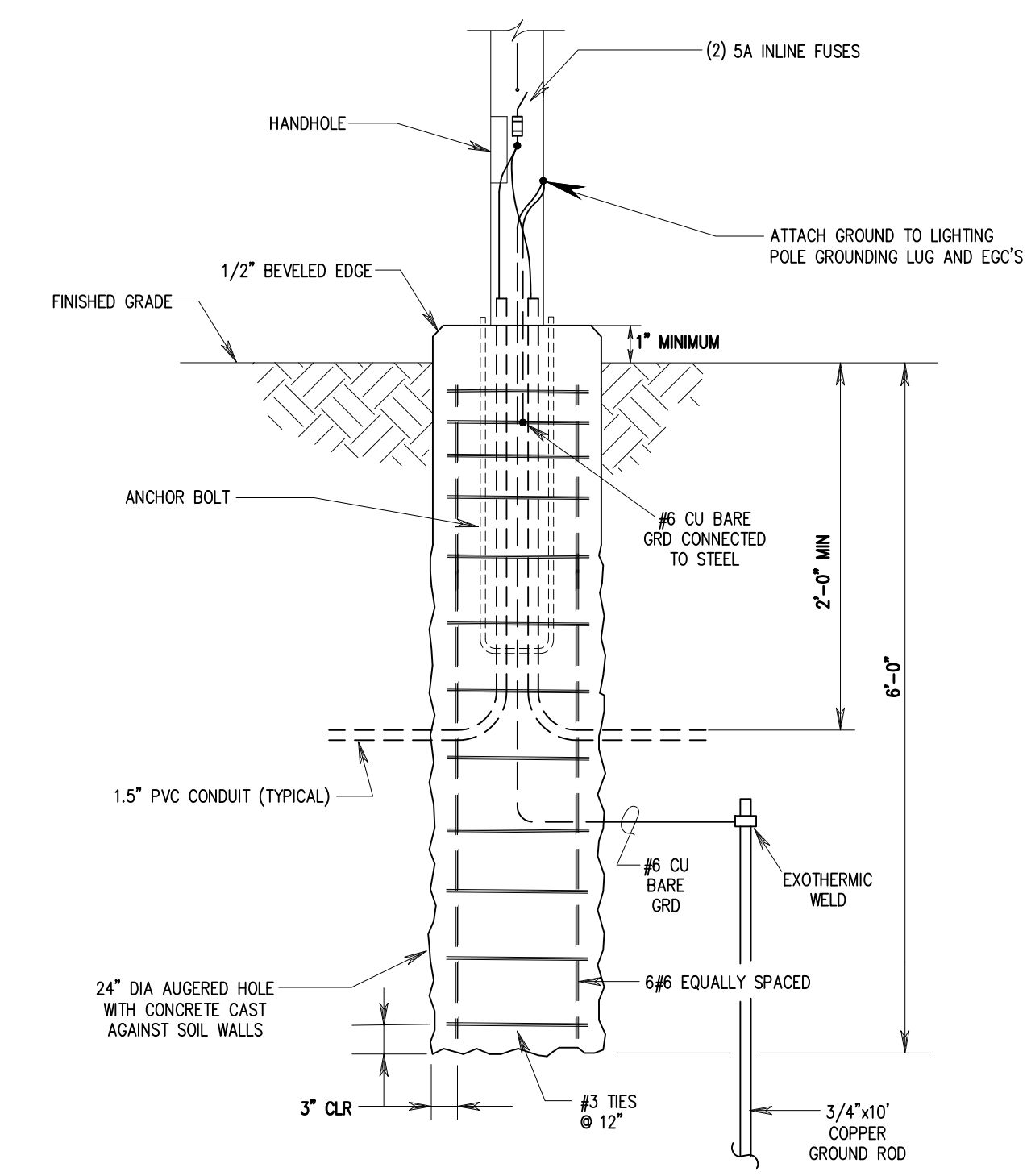
CONCRETE RECEPTACLE PEDESTAL DETAIL
SCALE: NOT TO SCALE

- NOTES:**
- CONCRETE TO HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI & HAVE AN AIR ENTRAINING ADMIXTURE. AIR CONTENT TO BE 6% + or - 1%.
 - CONDUIT SHALL BE INSTALLED INSIDE THE CONCRETE AND SHALL NOT BE SURFACE MOUNTED OR EXPOSED.
 - FINAL CONNECTIONS TO RECEPTACLES SHALL BE (2)#10 CU AND (1)#10 CU GRD IN 1" CONDUIT. EC SHALL SPLICE CIRCUITS AS REQUIRED IN ADJACENT HANDHOLES.
 - ALL EXPOSED EDGES SHALL BE CHAMFERED.
 - RECEPTACLES SHALL BE INSTALLED FLUSH INSIDE THE CONCRETE AND SHALL NOT BE SURFACE MOUNTED.



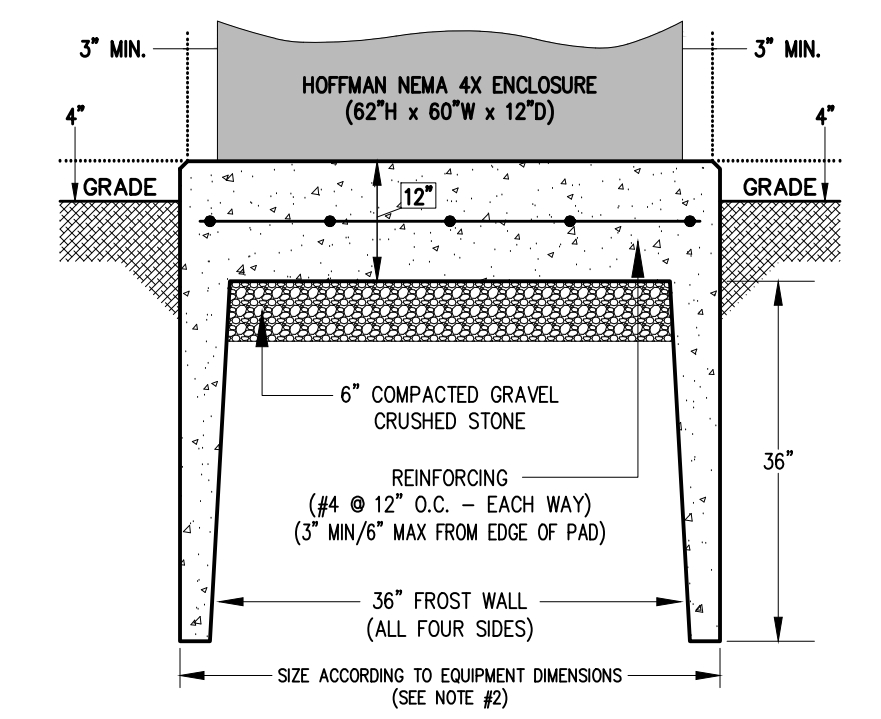
TYPICAL FOUNDATION DETAIL - LAWN AREAS
SCALE: NOT TO SCALE

- NOTES:**
- CONCRETE TO HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI & HAVE AN AIR ENTRAINING ADMIXTURE. AIR CONTENT TO BE 6% + or - 1%.
 - EC SHALL COORDINATE WITH THE LIGHTING POLE MANUFACTURER FOR THE EXACT BOLT PATTERN AND SHAPE OF BASE COVER AND SHALL MAKE ALL MODIFICATIONS AS REQUIRED.



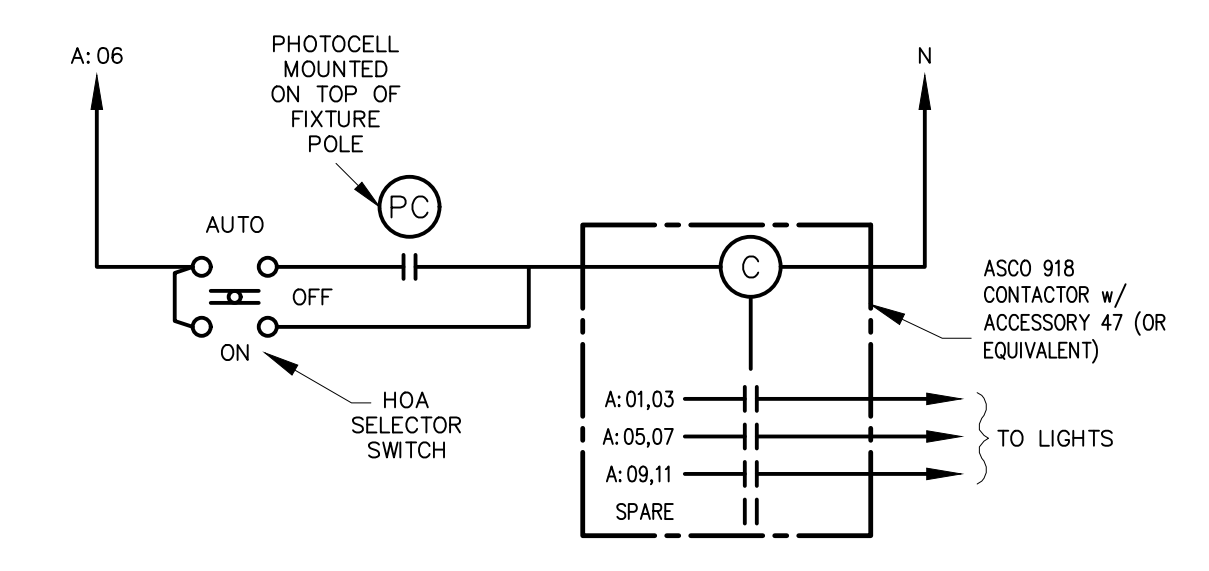
TYPICAL FOUNDATION DETAIL - PAVER AREA
SCALE: NOT TO SCALE

- NOTES:**
- CONCRETE TO HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI & HAVE AN AIR ENTRAINING ADMIXTURE. AIR CONTENT TO BE 6% + or - 1%.
 - EC SHALL COORDINATE WITH THE LIGHTING POLE MANUFACTURER FOR THE EXACT BOLT PATTERN AND SHAPE OF BASE COVER AND SHALL MAKE ALL MODIFICATIONS AS REQUIRED.



EQUIPMENT PAD DETAIL
SCALE: NOT TO SCALE

- NOTES:**
- CONCRETE TO HAVE MINIMUM 28 DAY COMPRESSIVE STRENGTH OF 4000 PSI & HAVE AN AIR ENTRAINING ADMIXTURE. AIR CONTENT TO BE 6% + OR - 1%.
 - PAD SHALL BE SIZED SO THAT PAD EXTENDS AT LEAST 3" BEYOND SPECIFIED EQUIPMENT IN ALL DIRECTIONS.



LIGHTING CONTROL DETAIL
SCALE: NOT TO SCALE



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