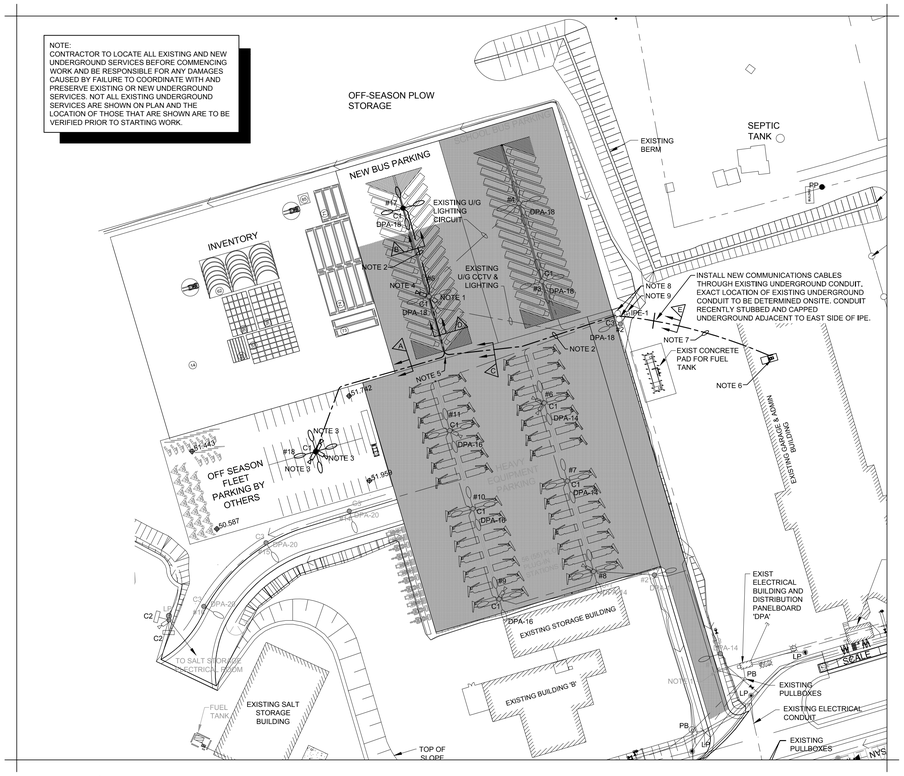
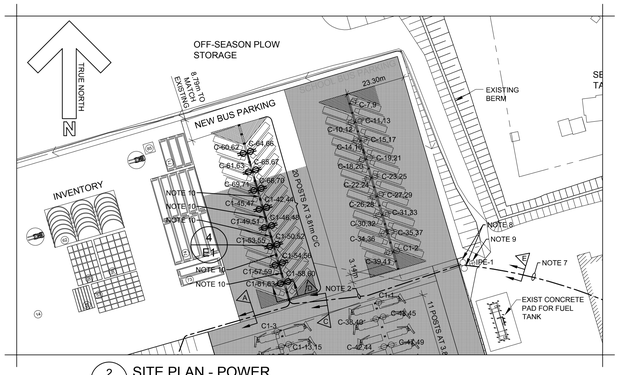


1 / E1 SITE PLAN - LIGHTING & CCTV
1:1000



2 / E1 SITE PLAN - POWER
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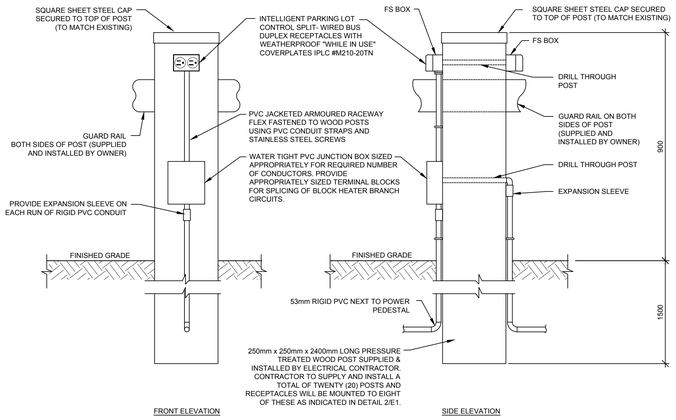
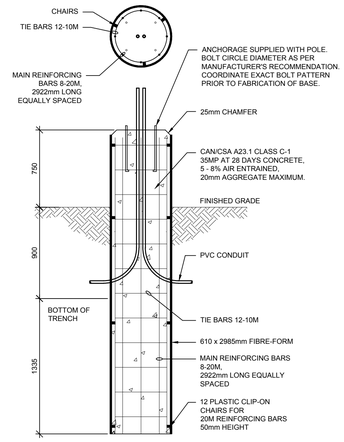
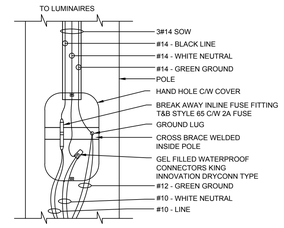


4 / E1 BLOCK HEATER POWER PEDESTAL (TYPICAL)
NTS



6 / E1 SITE LIGHTING BASE
NTS



7 / E1 SITE LIGHTING POLE HAND HOLE
NTS

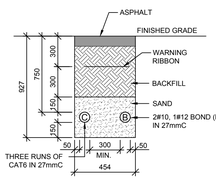
LEGEND	
	HEAVY LINEWEIGHT INDICATES NEW WORK
	LIGHT LINEWEIGHT INDICATES EXISTING TO REMAIN
	UNDERGROUND WIRING
	EXISTING ASPHALT
'DPA-18'	INDICATES CIRCUIT #18 IN PANEL 'DPA'
#	LUMINAIRE, POLE MOUNTED # - INDICATES TYPE IN LUMINAIRE SCHEDULE
	PROGRAMMABLE BLOCK HEATER RECEPTACLE, SPLIT WIRED AND C/W WEATHERPROOF WHILE-IN-USE COVER
PB	EXISTING IN-GROUND PULLBOX
	EXISTING INTEGRATED PANEL ENCLOSURE (IPE)
	PoE VIDEO SURVEILLANCE CAMERA, WEATHERPROOF AND POLE MOUNTED

GENERAL NOTES:

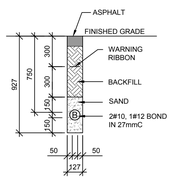
1. ANY WORK ACTIVITIES WHICH MAY DISRUPT DAY-TO-DAY USE OF SITE OR CONSTRUCTION ACTIVITIES ASSOCIATED WITH NEW DEPOT ADMIN BUILDING AND SERVICE GARAGE ARE TO BE COORDINATED WITH THE TIE PROJECT MANAGER IN ACCORDANCE WITH DIVISION 01-GENERAL REQUIREMENTS.
2. REMEDIATION OF EXISTING ASPHALT SURFACES REQUIRED TO ACCOMMODATE NEW WORK AS SHOWN AND ASSOCIATED SITE WORK AND PAVING IN OFF SEASON FLEET AND NEW BUS PARKING. TO BE COMPLETED BY OTHERS UNDER A SEPARATE CONTRACT. COORDINATE ALL ELECTRICAL WORK WITH OWNER. LAYING OF NEW ASPHALT IS NOT EXPECTED TO OCCUR UNTIL SPRING 2020. CONTRACTOR TO INSTALL GRAVEL BASE UP TO FINISHED GRADE AND REMEDIATE ADJACENT ASPHALT AS REQUIRED FOR WINTER TRAFFIC.
3. ALL NEW 20A INTELLIGENT RECEPTACLES ARE TO BE FIELD OR FACTORY PROGRAMMED TO NOT EXCEED A MAXIMUM OUTPUT OF 1000W PER RECEPTACLE. SEE DEMAND CALCULATION FOR ADDITIONAL INFORMATION.

NOTES:

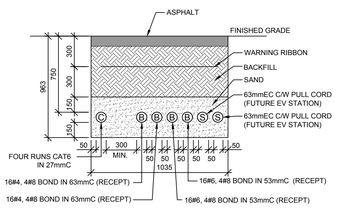
1. CONNECT NEW LIGHT STANDARD #17 TO SWITCHED SIDE OF EXISTING EXTERIOR LIGHTING BRANCH CIRCUIT 'DPA-18'. ROUTE NEW TECK CABLE UP ADJACENT TO EXISTING CONCRETE BASE OF LIGHT STANDARD #5 AND THEN THROUGH A 90 DEGREE TECK CONNECTOR LOCATED ADJACENT TO EXISTING POLE HANDHOLE AND CORE DRILL THROUGH LIGHT STANDARD TO FACILITATE WIRING. SEAL AROUND EXTERIOR PENETRATIONS WITH LOW VOC MASTIC COMPOUND.
2. CUT THROUGH EXISTING ASPHALT PAVEMENT AND EXCAVATE AS REQUIRED TO INSTALL NEW UNDERGROUND SERVICES (TYPICAL).
3. CAMERA TO BE MOUNTED TO NEW LIGHT POLE AT APPROXIMATELY 6m ABOVE GRADE WITH POLE MOUNT BRACKET AND STAINLESS STRAPPING. ROUTE CAT 6 CABLING FROM PoE EXTENDER RECEIVER ENCLOSED IN A NEMA 4x BOX THROUGH INTERIOR OF POLE AND CONCRETE BASE TO NEW PoE EXTENDER TRANSMITTER IN SALT STORAGE BUILDING. SEAL AROUND CABLE TO PROHIBIT WATER FROM ENTERING INTERIOR OF POLE. COORDINATE EXACT LOCATION OF NEMA 4x BOX ON SITE. CONTRACTOR TO VERIFY SPARE CAPACITY OF EXISTING PoE SWITCH. CONTRACTOR TO PROVIDE PoE EXTENDER TRANSMITTER RACK MOUNTED IN EXISTING DATA RACK IN ELECTRICAL ROOM OF EXISTING SALT STORAGE BUILDING. PoE EXTENDER TRANSMITTER AND RECEIVER AND NEMA 4x BOX TO BE SUPPLIED, INSTALLED AND WIRED BY CONTRACTOR.
4. CCTV CAMERA TO BE MOUNTED TO EXISTING LIGHT STANDARD #5 AT APPROXIMATELY 6m ABOVE GRADE WITH POLE MOUNT BRACKET AND STAINLESS STEEL STRAPPING. DRILL THROUGH EXISTING LIGHT POLE AND ROUTE ONE (1) CAT 6 CABLE THROUGH PoE EXTENDER RECEIVER ENCLOSED IN A NEMA 4x BOX THROUGH INTERIOR OF EXISTING LIGHT POLE AND THEN SURFACE MOUNTED IN 27mmC ALONG EXISTING CONCRETE BASE. CUT THROUGH EXISTING ASPHALT OF EXISTING BUS PARKING AND HEAVY EQUIPMENT PARKING AS REQUIRED TO ROUTE CAT 6 CABLING THROUGH NEW 27mm C TO A 8-PORT PoE SWITCH LOCATED IN DATA RACK #2 OF SUB LAN ROOM OF ADMINISTRATION BUILDING. CONTRACTOR TO PROVIDE PoE EXTENDER TRANSMITTER RACK MOUNTED IN DATA RACK #2. PROVIDE FOR REPAIR AND REINSTATEMENT OF DISTURBED ASPHALT PAVEMENT DAMAGED BY WORK OF CONTRACT. PoE EXTENDER TRANSMITTER AND RECEIVER AND NEMA 4x BOX TO BE SUPPLIED, INSTALLED AND WIRE BY ELECTRICAL CONTACTOR.
5. ROUTE NEW COMMUNICATIONS CABLING UP THROUGH A 200mm SQUARE NEMA 4x WATERPROOF PULLBOX SURFACE MOUNTED TO PRESSURE TREATED POST. PROVIDE FOR EXPANSION FITTING S ON ASSOCIATED UNDERGROUND CONDUIT AND A LAMICOID LABEL INDICATING CCTV CABLING AND ASSOCIATED CAMERA LOCATIONS.
6. SUPPLY AND INSTALL ONE (1) NEW 8-PORT PoE NVR IN DATA RACK #2 OF NEW ADMIN BUILDING NORTH LAN ROOM. TERMINATE ALL FOUR (4) CAT 6 CABLES WITH RJ45 JACKES, TEST, AND ROUTE THROUGH EXTERNAL POE EXTENDER AT DATA RACK TO NVR. PROVIDE FOR PROGRAMMING AND CONNECTION OF NVR NETWORK. IP ADDRESSES FOR NEW CCTV CAMERAS TO BE OBTAINED FROM ITSS DEPARTMENTAL REPRESENTATIVE. COORDINATE WORK WITH CONSTRUCTION SCHEDULE OF THE ADMINISTRATION BUILDING.
7. COORDINATE INSTALLATION OF NEW COMMUNICATIONS CABLING THROUGH EXISTING CONDUIT TO LAN ROOM WITH CONSTRUCTION SCHEDULE FOR THE NEW ADMINISTRATION BUILDING.
8. EXISTING UNDERGROUND POWER PULLBOXES. EXCAVATE AND ROUTE NEW POWER CONDUIT UNDERGROUND THROUGH BOTH EXISTING PULLBOXS AND UP INTO IPE. CONTRACTOR TO VERIFY SPARE CAPACITY OF EXISTING CONDUIT BETWEEN IPE AND PULLBOXES PRIOR TO CONSTRUCTION. EMPTY SPARE CONDUIT FOR FUTURE TO BE CAPPED AND CLEARLY LABELED WITHIN PULLBOX. EXCAVATE AND ROUTE NEW COMMUNICATIONS CONDUIT THROUGH A 300mm SQUARE PVC PULLBOX WITHIN LOCATED EXISTING IPE ENCLOSURE. COORDINATE EXACT ROUTING OF UNDERGROUND CONDUIT ON SITE WITH EXISTING UNDERGROUND SERVICES. EXTEND NEW COMMUNICATIONS CONDUIT THROUGH IPE BY EXCAVATING AND PARTIALLY UNDERMINING IPE WHERE POSSIBLE WITHOUT DISTURBING EXISTING UNDERGROUND SERVICES, OTHERWISE ELBOW INTO AND OUT OF EXISTING IPE.
9. SUPPLY AND INSTALL SIXTEEN (16) 20A/2P GFCI CIRCUIT BREAKERS IN EXISTING EATON #PRL1A SERIES PANELBOARDS 'C' AND 'C1' FOR NEW BLOCK HEATER RECEPTACLES. PROVIDE REDUCERS OR OTHER APPROVED MEANS TO TERMINATE LARGER BRANCH CIRCUIT WIRING AT CIRCUIT BREAKERS.
10. ROUTE TWO (2) 63mmEC UP THE SIDE OF THE PRESSURE TREATED POST INTO A 200mm SQUARE WATERTIGHT PVC PULLBOX MOUNTED AT 600mm ABOVE GRADE. ROUTE ONE (1) 63mmC DOWN OUT OF PULLBOX 750mm UNDERGROUND AND THEN THROUGH FOUR (4) MORE 200mm SQUARE POST MOUNTED PVC PULLBOXES AS INDICATED. PROVIDE EXPANSION SLEEVES ON ALL POST MOUNTED CONDUIT, AND PULL CORDS THROUGH ALL EMPTY CONDUIT. LABEL INSIDE OF PULLBOX COVER WITH INDELIBLE MARKER WHICH READS "SPARE FOR FUTURE EV POWER TO PULLBOX ADJACENT TO IPE-1".



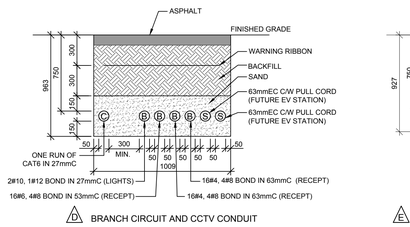
A BRANCH CIRCUIT AND CCTV CONDUIT



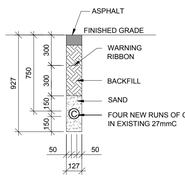
B BRANCH CIRCUIT CONDUIT



C BRANCH CIRCUIT AND CCTV CONDUIT



D BRANCH CIRCUIT AND CCTV CONDUIT

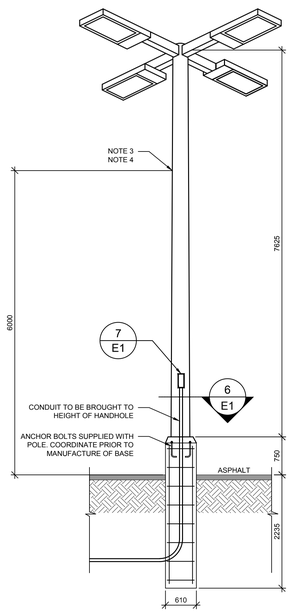


E CCTV CONDUIT

TRENCH DETAILS NOTES:

1. B = SECONDARY VOLTAGE OR BRANCH CIRCUIT. QUANTITY AND SIZE AS INDICATED.
2. C = CCTV SYSTEMS CONDUIT. QUANTITY AND SIZE AS INDICATED.
3. S = SPARE 63mmEC C/W PULL CORD FOR FUTURE EV CHARGING STATION
4. BACKFILLING OF TRENCH IN LAYERS NOT EXCEEDING 300mm (MECHANICALLY TAMPED).
5. USE NEW SOIL FREE FROM LARGE ROCKS OR DEBRIS FOR BACKFILL.
6. IF SITE CONDITIONS PROHIBIT TRENCH AS PER THIS DRAWING, ADVISE CONSULTANT.
7. 6mm DIA. NYLON ROPE INSTALLED IN ALL DUCTS.
8. CONDUIT MUST BE RIGID PVC. DB2 DUCT IS NOT ACCEPTABLE.
9. ALL CONDUITS TO BE LABELED WITH WEATHER PROOF TAGS INDICATION THE DESTINATION OF THE CONDUITS. (IE: NEW BUS PARKING RECEPTACLES "DPA #60 TO #67")

3 / E1 TRENCH DETAILS
NTS



5 / E1 LIGHTING STANDARD - LUMINAIRE TYPE C1 (TYPICAL)
N.T.S.

DEMAND CALCULATION			
REFERENCE CSA 22.1-18 ARTICLE 8-400			
AUTOMOBILE HEATER RECEPTACLES LOAD CALCULATION - BRANCH CIRCUITS ARE CONTROLLED BY INTELLIGENT RECEPTACLES			
REFERENCING CSA 22.1-18 8-400 (4) FOR BOTH 88 EXISTING AND 32 NEW INTELLIGENT RECEPTACLES	NUMBER OF VEHICLE SPACES	DEMAND	TOTAL DEMAND (W)
	30	975	29,250
	30	825	24,750
	60	675	40,500
		TOTAL	94,500
NOTE: GIVEN THE EXPECTED OCCUPANCY OF THE LOT, (75% MAXIMUM PLUGGED IN AT 1250W BLOCK HEATER) IN ACCORDANCE WITH CSA 22.1-18 ARTICLE 8-400 (5) THE NEW 32 RECEPTACLES ARE CALCULATED AT A DEMAND OF 1000W EACH AND BE PROGRAMMED TO NOT EXCEED 1000W OUTPUT.			
NOTE: LOAD ASSOCIATED WITH EV CHARGING STATIONS HAVE INTENTIONALLY BEEN OMITTED FROM DEMAND CALCULATION.			
TOTAL ELECTRIC DEMAND WITH AUGMENTED LOAD TO 8-400 (5) (SEE NOTE ABOVE)			100,850
MINIMUM SERVICE AT 600V, 3-PHASE x 1.25			121 AMPS

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PROFESSIONAL ENGINEER — Elliot S. Coles — 1620 — 15.10.2019 — PROVINCE OF PRINCE EDWARD ISLAND

Client: PEI Department of Transportation, Infrastructure and Energy

Project Title: Queens County Highway Depot Bus Parking Lot Extension, Electrical Services Brackley, PEI

Sheet Title: Electrical Site Plan & Details

No.	Description	Date
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Date: Oct. 2019
Drn By: M.E.M., C.E.T.
Chk By: E.S.C., P.ENG
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