



- SITE PLAN NOTES:**
- ES.1 ELECTRICAL CONTRACTOR SHALL ROUTE ALL UNDERGROUND CONDUCTORS ACCORDING TO DETAILS. CONFIRM ON SITE WITH OWNER EXACT ROUTING OF UNDERGROUND CONDUCTORS.
 - ES.2 ELECTRICAL CONTRACTOR SHALL PROVIDE FROST FREE CONCRETE PAD FOR GENERATOR. CONFIRM ON SITE WITH OWNER EXACT LOCATION OF GENERATOR PAD.
 - ES.3 ELECTRICAL CONTRACTOR SHALL PROVIDE BONDING BACK TO MAIN SYSTEM GROUND.
 - ES.4 ELECTRICAL CONTRACTOR SHALL REMOVE EXISTING SERVICE INCLUDING BUT NOT LIMITED TO MAIN PANEL AND DISCONNECT IN GARAGE AS SHOWN ON SITE PLAN AND SINGLE LINE DIAGRAM. ELECTRICAL CONTRACTOR TO REPLACE EQUIPMENT WITH NEW EQUIPMENT RATED FOR 600A. REFER TO SINGLE LINE DEMOLITION AND SINGLE LINE DIAGRAMS FOR MORE INFORMATION.
 - ES.5 NEW HYDRO POLE SHOWN IN APPROX AREA. HYDRO ONE TO PROVIDE WOODEN HYDRO POLE. CONFIRM WITH HYDRO ONE ALL REQUIREMENTS FOR SERVICE INTO BUILDING. SERVICE INTO BUILDING SHALL BE ON A SEPARATE METER FROM CENTRAL METER.
 - ES.6 CONFIRM COMMUNICATIONS ROUTING FROM EFFLUENT TREATMENT BUILDING TO NEW BUILDING. COMMUNICATIONS CONTRACTOR SHALL PROVIDE COMMUNICATION CABLING OVERHEAD.



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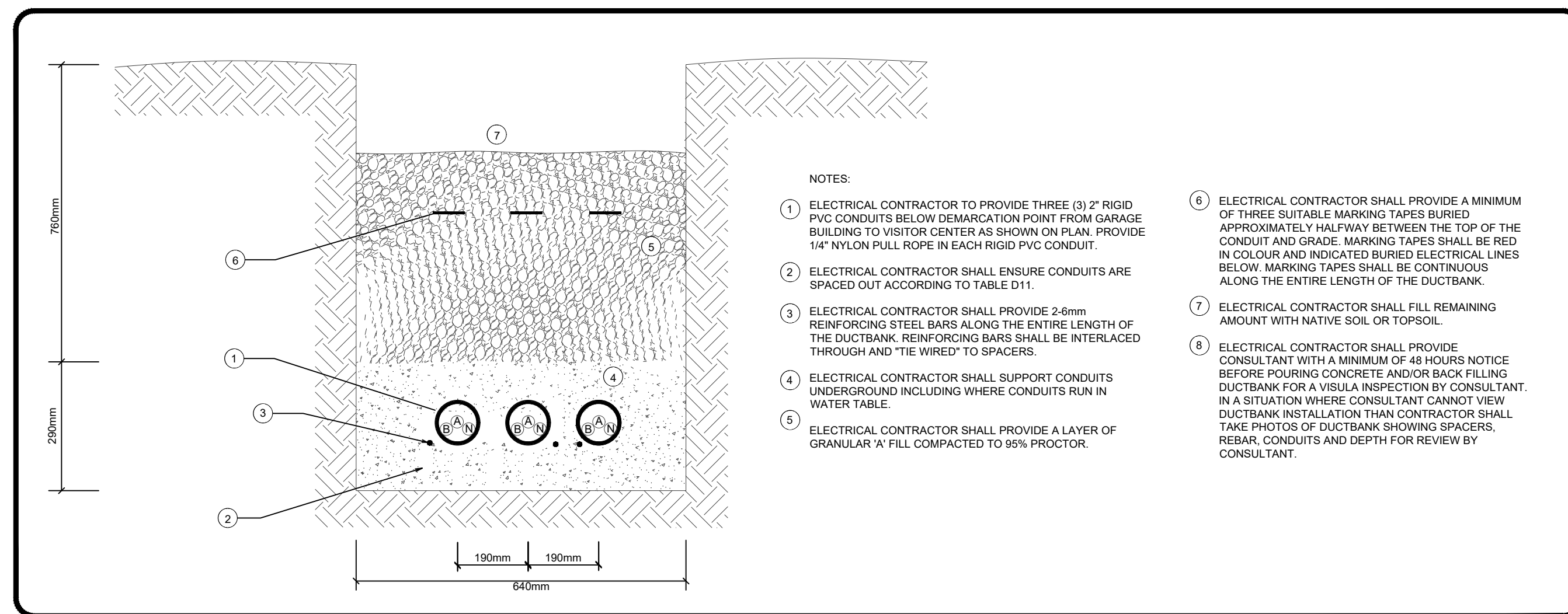
5	ISSUED FOR TENDER	09/18/23
4	ISSUED FOR HYDRO COORDINATION	07/06/23
3	ISSUED FOR REVIEW	07/06/23
2	ISSUED FOR REVIEW	06/05/23
1	ISSUED FOR REVIEW	05/23/23
#	DESCRIPTION	MM/DD/YY

CODRINGTON RESEARCH FACILITY
 15 FISH HATCHERY RD
 CODRINGTON, ON

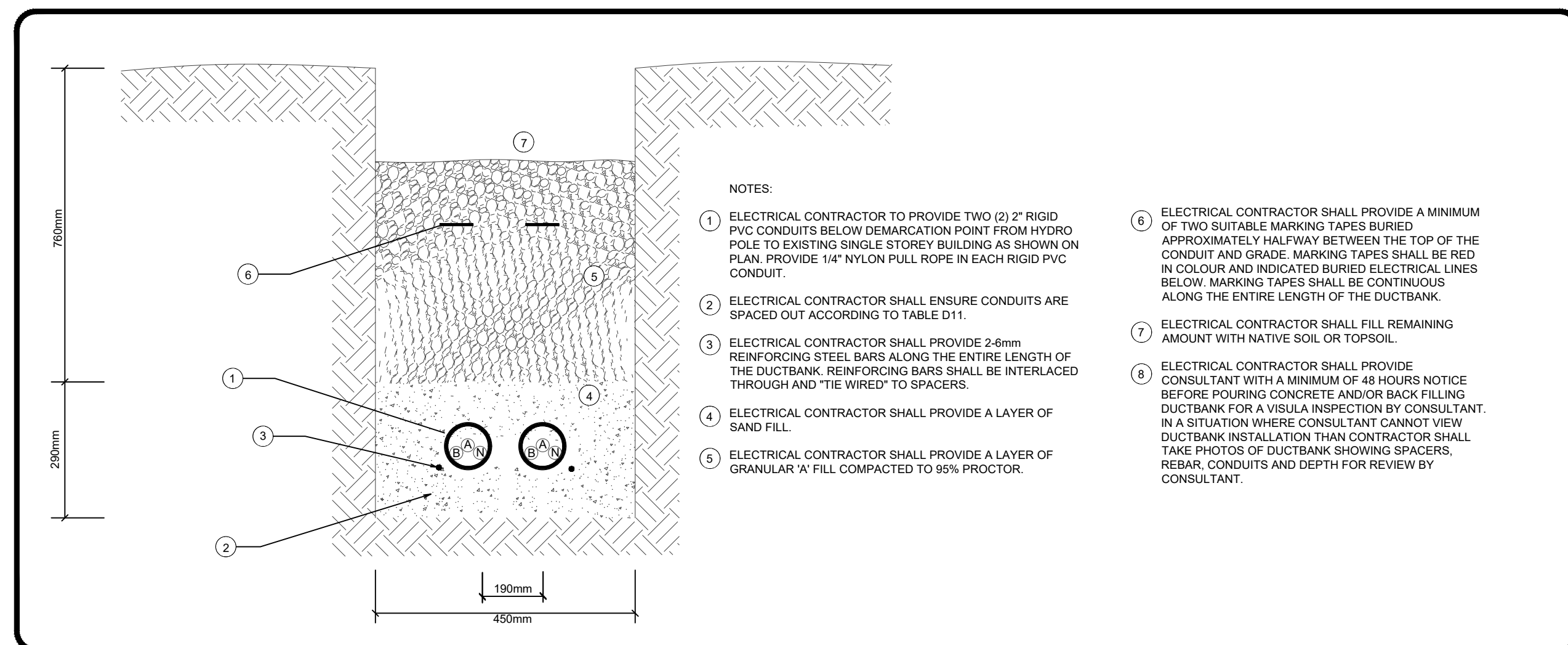
DRAWING TITLE:
ELECTRICAL SITE PLAN

DRAWN BY: N. RUTTAN	CHECKED BY: M. KRZEMINSKI	APPROVED BY: B. WIRZBA
SCALE: AS NOTED	SHEET SIZE: ARCH D	
PROJECT #: 22-250	SHEET #: ES.1	

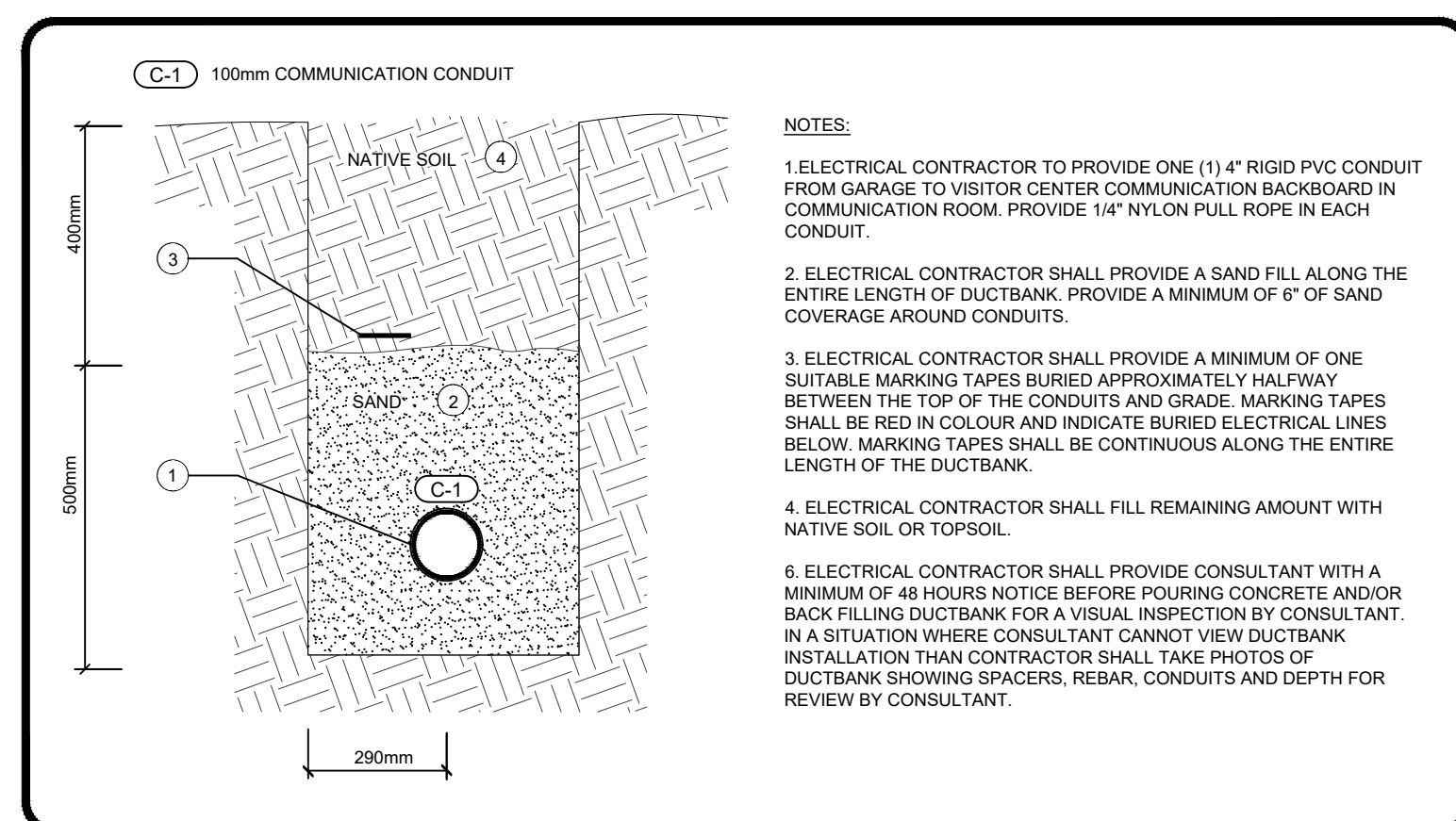
1 ELECTRICAL SITE PLAN
 ES.1 N.T.S



1 POWER DUCTBANK DETAIL
ES.2 NTS



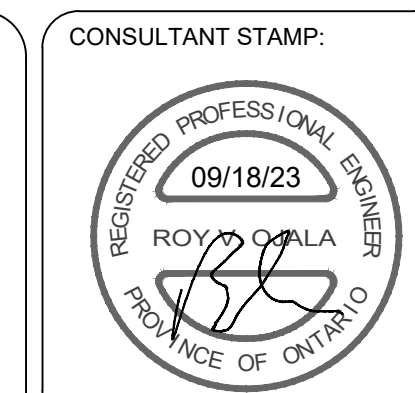
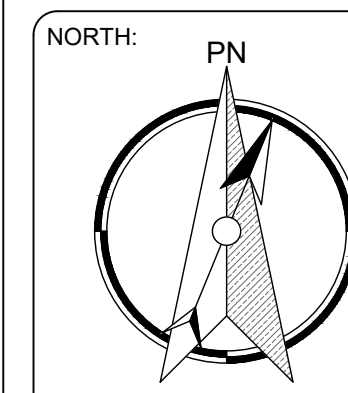
2 POWER DUCTBANK DETAIL
ES.2 NTS



3 COMMUNICATION DUCTBANK DETAIL
ES.2 NTS



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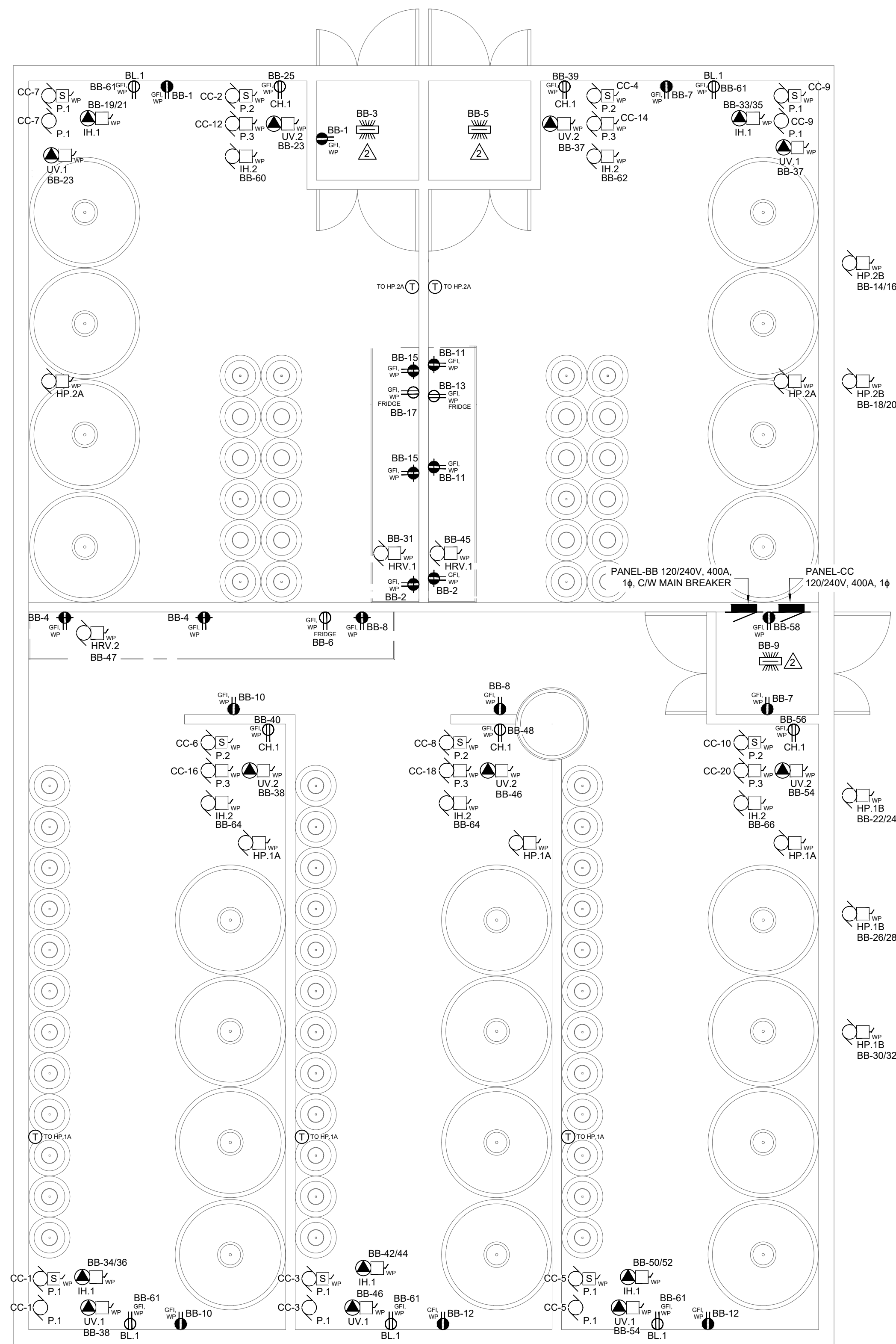


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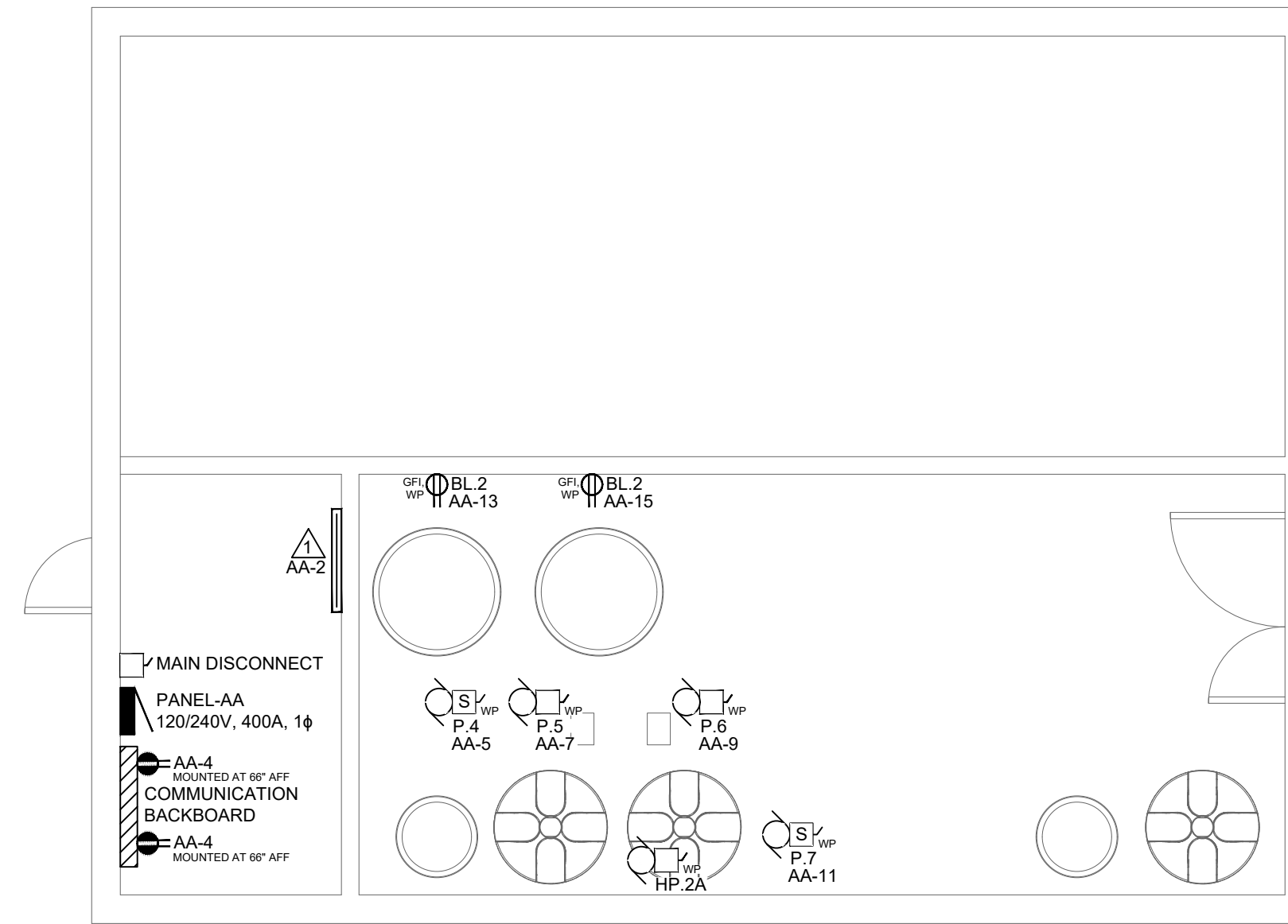
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15 FISH HATCHERY RD
CODRINGTON, ON

DRAWING TITLE:
ELECTRICAL SITE DUCTBANK DETAILS

DRAWN BY: N. RUTTAN	CHECKED BY: M. KRZEMINSKI	APPROVED BY: B. WIRZBA
SCALE: AS NOTED	SHEET SIZE: ARCH D	
PROJECT #: 22-250	SHEET #: ES.2	



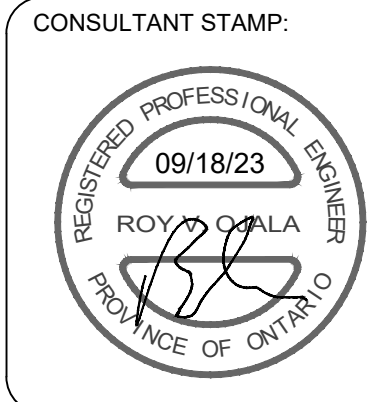
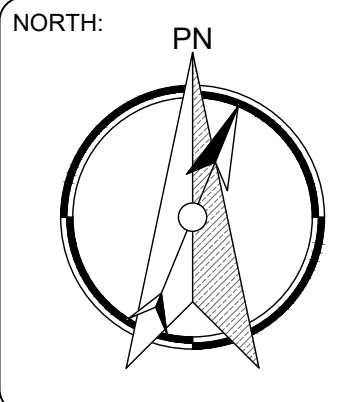
1 POWER & SYSTEMS PLAN
E1.1 1/4" = 1' - 0"



2 EFFLUENT TREATMENT POWER & SYSTEMS PLAN
E1.1 1/4" = 1' - 0"

- POWER & SYSTEM NOTES:**
- 1) ELECTRICAL CONTRACTOR SHALL PROVIDE TELECOMMUNICATION GROUNDING BUSBARS AT COMMUNICATIONS BACKBOARD. PROVIDE BONDING OF MAIN BACKBOARD AS PER DETAILS. MAIN BACKBOARD TO BE CONNECTED TO MAIN BUILDING GROUND.
 - 2) ELECTRICAL CONTRACTOR SHALL CONFIRM ALL EXISTING BREAKERS WILL WORK IN CONJUNCTION WITH NEW PANEL-G. IF BREAKERS WILL NOT FIT IN NEW PANEL THEN ELECTRICAL CONTRACTOR TO PROVIDE NEW BREAKERS FOR PANEL-G FOR ALL BREAKERS LABELLED AS EXISTING BREAKER.
 - 3) ELECTRICAL CONTRACTOR SHALL REMOVE EXISTING SERVICE INCLUDING BUT NOT LIMITED TO MAIN PANEL AND DISCONNECT IN GARAGE AS SHOWN ON SITE PLAN AND SINGLE LINE DIAGRAM. ELECTRICAL CONTRACTOR TO REPLACE EQUIPMENT WITH NEW EQUIPMENT RATED FOR 600A. REFER TO SINGLE LINE DEMOLITION AND SINGLE LINE DIAGRAMS FOR MORE INFORMATION.
 - 4) ELECTRICAL CONTRACTOR SHALL CONFIRM ALL REQUIREMENTS WITH HYDRO ONE FOR SERVICE UPGRADE. CONFIRM WITH HYDRO ONE POLE MOUNTED TRANSFORMER UPGRADE.
 - 5) ELECTRICAL CONTRACTOR SHALL INSTALL ALL EQUIPMENT IN TANK ROOM ACCORDING TO SECTION 22-800 AND 22-808 OF THE 2021 ONTARIO ELECTRICAL CODE BOOK.
 - 6) ELECTRICAL CONTRACTOR SHALL PROVIDE WEATHER TIGHT INSTALLATIONS IN ALL LOCATIONS SHOWN ON FLOOR PLANS. A WEATHER TIGHT INSTALLATION INCLUDES BUT IS NOT LIMITED TO PVC CONDUIT FOR ALL CONDUCTOR RUNS, WEATHER PROOF BOXES AND ENCLOSURES FOR ALL ELECTRICAL DEVICES. ELECTRICAL CONTRACTOR SHALL FOLLOW OESC-2021 SECTION 22 FOR WEATHER TIGHT INSTALLATIONS.
 - 7) ELECTRICAL CONTRACTOR SHALL CONFIRM WITH MECHANICAL CONTRACTOR ALL MECHANICAL CONTROLS AND ALARMS PRIOR TO ROUGH-IN.
 - 8) ELECTRICAL CONTRACTOR SHALL PROVIDE A WEATHER PROOF NEMA 4 RATED BOX FOR WIFI ROUTER. CONFIRM ON SITE WITH OWNER EXACT LOCATION AND REQUIREMENTS FOR ROUTER. ELECTRICAL CONTRACTOR SHALL ENSURE.
 - 9) ALL WIRING THROUGHOUT SPACE SHALL BE INSTALLED IN PVC. PVC SHALL BE ROUTED TO AVOID ALL INTERFERENCES WITH MECHANICAL PIPES. CONFIRM ON SITE WITH MECHANICAL CONTRACTOR ALL PIPE LOCATIONS.
 - 10) ELECTRICAL CONTRACTOR SHALL PROVIDE GROUNDING FOR COMMUNICATION BACKBOARD BACK TO MAIN COMMUNICATION GROUND.
 - 11) CONFIRM EXACT WALL BOX LOCATIONS FOR THERMOSTATS ALL THERMOSTATS SHALL BE EQUIPPED WITH SINGLE GANG BOX AND 18mm PVC CONDUIT C/W PULL STRING.
 - 12) ELECTRICAL CONTRACTOR SHALL CONFIRM LOCATIONS OF ALL EQUIPMENT DISCONNECTS WITH MECHANICAL CONTRACTOR AND TANK LOCATIONS. ALL DISCONNECTS SHALL MEET OESC 2021 REQUIREMENTS.
 - 13) ELECTRICAL CONTRACTOR SHALL PROVIDE STARTERS FOR PUMPS ACCORDING TO MECHANICAL EQUIPMENT SCHEDULE. CONFIRM WITH MANUFACTURE AND MECHANICAL CONTRACTOR ALL REQUIREMENTS FOR COMPLETE PUMP INSTALLATIONS.

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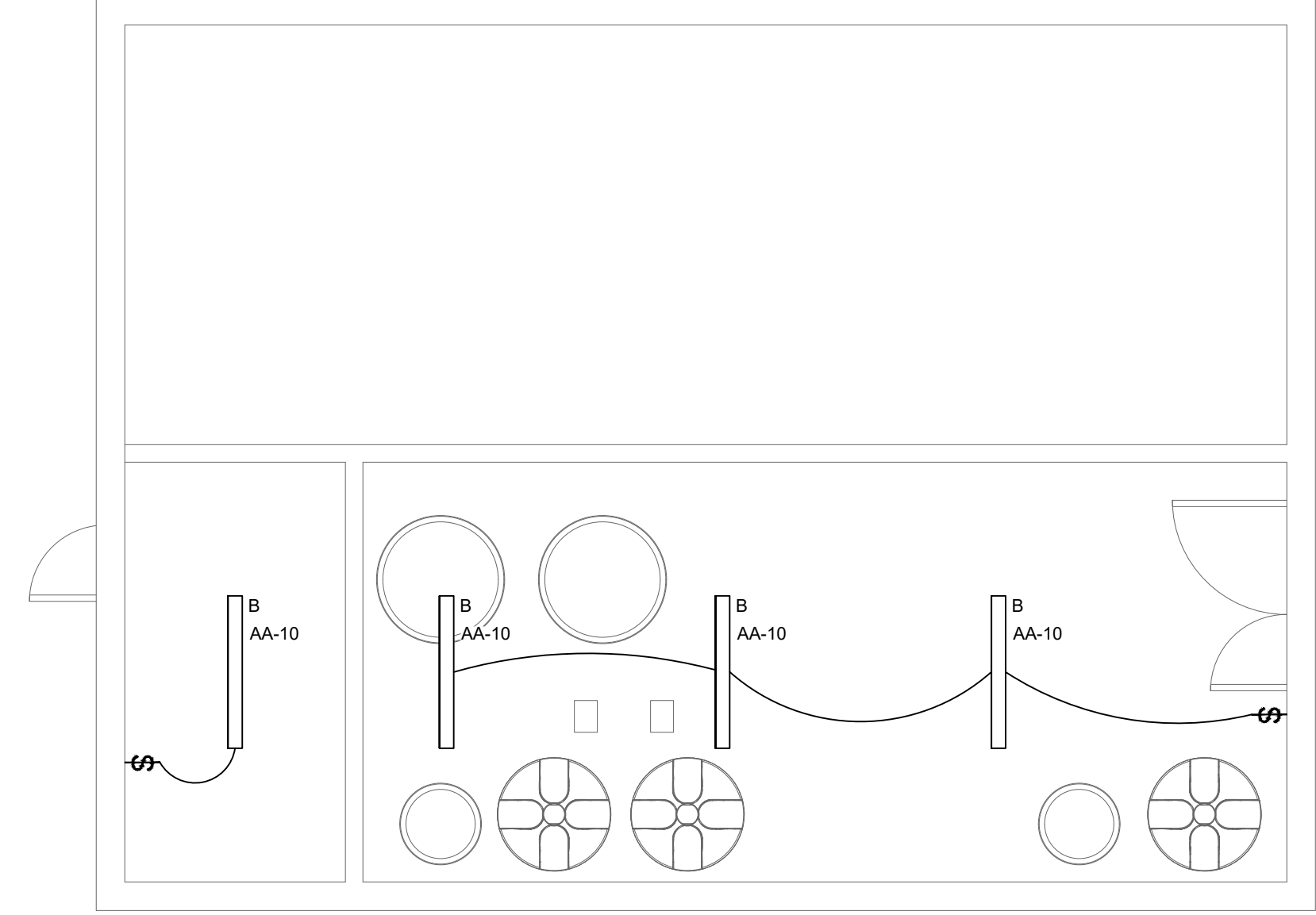
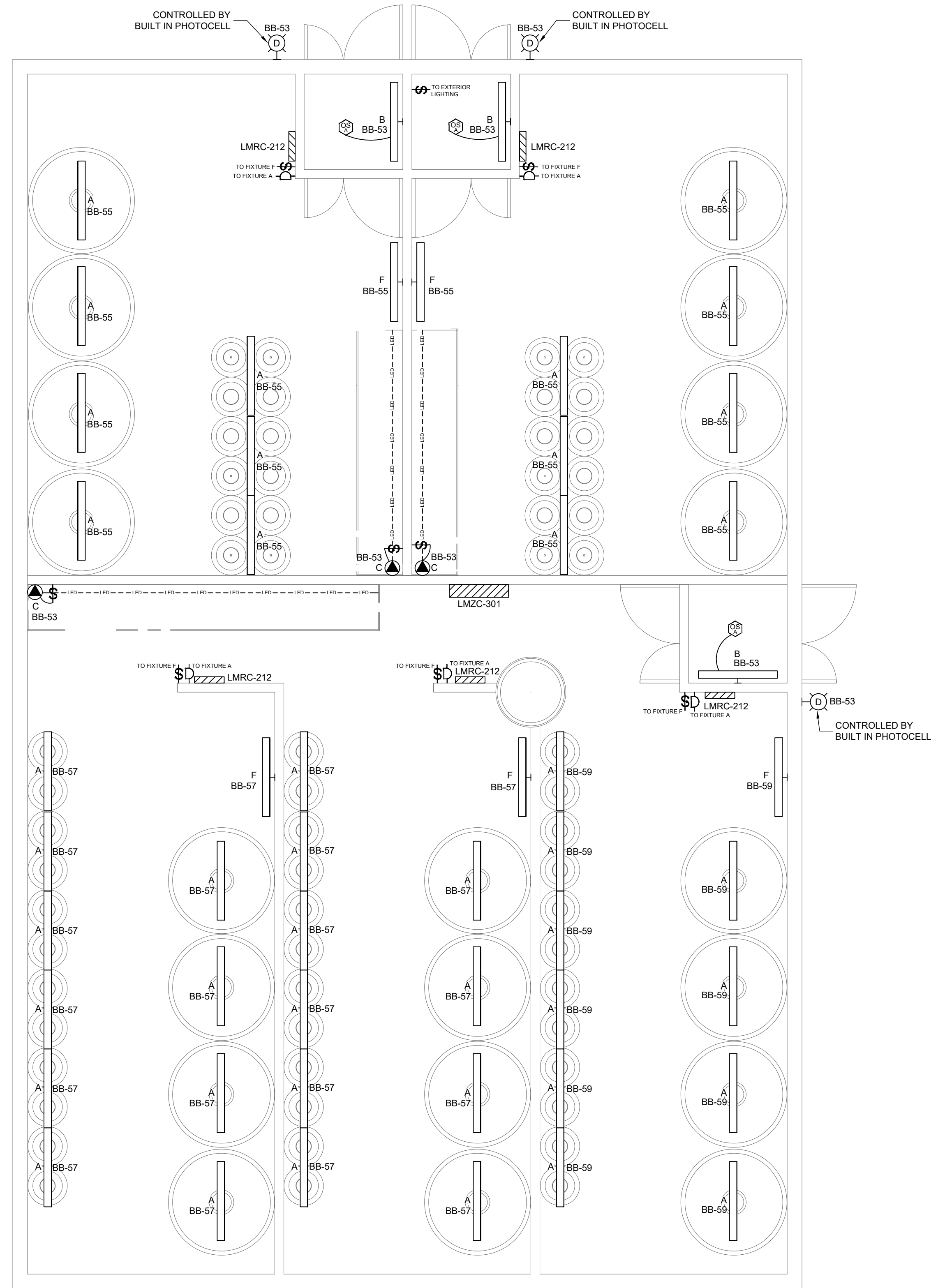


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CODRINGTON RESEARCH FACILITY
15 FISH HATCHERY RD
CODRINGTON, ON

DRAWING TITLE:
POWER & SYSTEMS PLANS

DRAWN BY: N. RUTTAN	CHECKED BY: M. KRZEMINSKI	APPROVED BY: B. WIRZBA
SCALE: AS NOTED	SHEET SIZE: ARCH D	
PROJECT #: 22-250	SHEET #: E1.1	



2 EFFLUENT TREATMENT LIGHTING PLAN
E2.1 1/4" = 1' - 0"

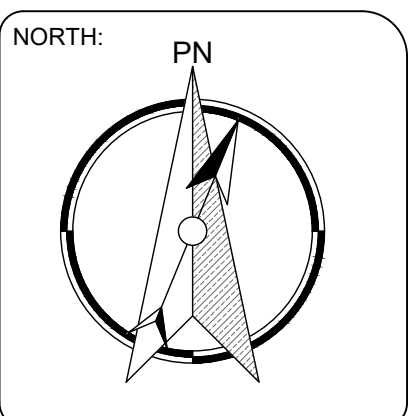
LIGHTING NOTES:

- 1. ELECTRICAL CONTRACTOR SHALL PROVIDE UNDER CABINET LIGHTING AS PER FIXTURE SCHEDULE. SPACE TAPE CENTERED AND STRAIGHT UNDER UPPER CABINETS.
- 2. LIGHTING SEQUENCE:
 - EACH ROOM IS CLASSIFIED AS ONE ZONE. ALL ZONES WILL OPERATE DIFFERENT ACCORDING TO THE PROGRAMMED SEQUENCE OF OPERATIONS BY LMZC-301.
 - EACH ZONE WILL BE EQUIPPED WITH A ROOM CONTROLLER (LMRC-212) AND A MANUAL SWITCH (LMSW-102).
 - SWITCH LMSW-102 SHALL BE EQUIPPED WITH 2 BUTTONS. BUTTONS SHALL CONTROL COLOUR TEMPERATURE OF ALL FIXTURES IN CERTAIN ROOM. COLOUR TEMPERATURE WILL BE MANUALLY CHANGED. COLOUR TEMPERATURE RANGE IS 2700-6000 KELVIN.
 - LIGHT FIXTURES WILL NEVER TURN ON FROM ZERO TO FULL BRIGHTNESS. FIXTURES SHALL RAMP UP TO FULL SUN BRIGHTNESS AND RAMP DOWN UNTIL 100% OFF.
 - LIGHT FIXTURES ARE TO SIMULATE SUN COVERAGE PER DAY. CONTROLLERS SHALL BE PROGRAMMED SO LIGHT FIXTURE SIMULATE SUN RISE, SUNLIGHT THROUGHOUT DAY, AND SUNSET. THIS WILL BE DONE BY HAVING THE FIXTURES DIM AUTOMATICALLY BY CONTROLLER.
 - OWNERS SHALL ALLOW FOR 2 DAYS OF TRAINING TO RE-COMMISSION CONTROLLERS AS REQUIRED TO CHANGE TIME OF SUNRISE AND SUNSET DURING DAY PERIOD WHEN FISH CYCLE IS COMPLETE.
- 3. ELECTRICAL CONTRACTOR SHALL PROVIDE 0-10V WIRING FOR DIMMING AND 0-10V FOR COLOUR TUNING. DIMMING AND COLOUR TUNING WILL BE 2 DIFFERENT PORTS. CONFIRM MANUFACTURER REQUIREMENTS FOR ALL WIRING.
- 4. ALL LIGHTING COMPONENTS SHALL BE INSTALLED IN NEMA-4 ENCLOSURE TO ENSURE ALL LIGHTING EQUIPMENT WILL BE WEATHER TIGHT AND NO WATER WILL INTERFERE WITH LIGHTING COMPONENTS.
- 5. RED LIGHTS (FIXTURE F) ARE TO BE INSTALLED THROUGHOUT TANK ROOMS FOR SAFETY REASONS ONLY. THESE FIXTURES ARE TO BE TURNED ON IN THE CASE THE LIGHTING SCHEDULE IS DARK AND WORK NEEDS TO BE COMPLETED. CONFIRM ON SITE WITH OWNER ALL EXACT LOCATIONS OF LIGHTING. RED LIGHTING WILL BE CONTROLLED VIA MANUAL SINGLE POLE SWITCH.

1 LIGHTING PLAN
E2.1 1/4" = 1' - 0"



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DRAWING TITLE:
LIGHTING PLANS

DRAWN BY: N. RUTTAN	CHECKED BY: M. KRZEMINSKI	APPROVED BY: B. WIRZBA
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PROJECT #: 22-250	SHEET #: E2.1	

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CODRINGTON RESEARCH FACILITY
 15 FISH HATCHERY RD
 CODRINGTON, ON

DRAWING TITLE:
ELECTRICAL NOTES & DETAILS

DRAWN BY: N. RUTTAN
 CHECKED BY: M. KRZEMINSKI
 APPROVED BY: B. WIRZBA

SCALE: AS NOTED
 SHEET SIZE: ARCH D

PROJECT #: 22-250
 SHEET #: E3.2

CONDUIT FEEDER SCHEDULE									
FEEDER DESIGNATION	PARALLEL RUNS	# OF CONDUCTORS	CONDUCTOR SIZE	CONDUCTOR TYPE	CONDUIT SIZE	CONDUIT TYPE	BOND CONDUCTOR SIZE	PRIMARY FUSE/BREAKER SIZE	REMARKS
(F0)	N/A	-	-	-	-	-	-	-	FROM HV LINE TO TRANSFORMER BY HONI
(F0)	N/A	-	-	-	-	-	-	-	SECONDARY TRANSFORMER TO METER BY HONI
(F1A)	2	3	#40	NS90 AL	N/A	N/A	OESC	600A	NS90 CABLE, SIZED PER TABLE 36A
(F1B)	2	3	#350	RW-90 CU	63mm	TBC	OESC	600A	CABLE FROM NEUTRAL SUPPORTED CABLE TO MAIN DISC
(F2)	2	3	#350	RW-90 CU	63MM	EMT	OESC	600A	TO PANEL-G
(F3)	2	3	#30	RW-90 CU	53MM	EMT	OESC	400A	FROM PANEL-G TO ATS
(F4)	3	3	#40	RW-90 CU	53MM	DB2	OESC	400A	FROM GARAGE ATS TO VISITOR CENTER DISCONNECT (SIZED FOR VOLTAGE DROP)
(F5)	2	3	#30	RW-90 CU	53MM	EMT	OESC	400A	
(F7)	N/A	3	350cmil	RW-90 CU	100MM	RPVC	OESC	300A	FROM GENERATOR TO ATS
(F7)	2	3	#10	NS90 AL	N/A	N/A	OESC	400A	NS90 CABLE, SIZED PER TABLE 36A
(F8)	2	3	#30	RW-90 CU	53MM	N/A	OESC	400A	FEED THROUGH LUG KIT

- NOTES:
- ELECTRICAL CONTRACTOR SHALL PROVIDE ENGRAVED LAMACOIDS FOR ALL DISTRIBUTION EQUIPMENT.
 - ELECTRICAL CONTRACTOR SHALL PROVIDE A WEATHER-PROOF NON-FUSED DISCONNECT SWITCHES AND LIQUID-TIGHT CONDUITS FOR ALL OUTDOOR EQUIPMENT.
 - ELECTRICAL CONTRACTOR SHALL TORQUE ALL TERMINATIONS OF ELECTRICAL DISTRIBUTION EQUIPMENT AS PER MANUFACTURERS SPECIFICATIONS.
 - ELECTRICAL CONTRACTOR SHALL PROVIDE BONDING CONDUCTORS AS PER OESC.
 - ELECTRICAL CONTRACTOR SHALL LABEL ALL FUSED DISCONNECT SWITCHES WITH MAX FUSE SIZE RATING.
 - ELECTRICAL CONTRACTOR SHALL CONFIRM WITH MANUFACTURER THAT DISTRIBUTION EQUIPMENT WILL FIT IN ELECTRICAL ROOM. CONTRACTOR TO SUBMIT SHOP DRAWINGS TO CONSULTANT FOR REVIEW PRIOR TO ORDERING.
 - ELECTRICAL CONTRACTOR TO SUPPLY, INSTALL AND COMMISSION A 60KW DIESEL GENERATOR C/W FLOATING POINT NEUTRAL AND LEVEL 1 OUTDOOR RATED ENCLOSURE. CONFIRM WITH MANUFACTURERS REQUIREMENTS FOR MORE INFORMATION. SIZE OF TANK SHALL BE DETERMINED WITH SPECIFIC MANUFACTURER. GENERATOR RUN TIME TO BE SIZED FOR 72 HOURS.
 - ELECTRICAL CONTRACTOR TO SUPPLY AND INSTALL A 240V, 400A, 2 POLE AUTOMATIC TRANSFER SWITCH, LOCATED IN MAIN ELECTRICAL ROOM. SIMILAR OR EQUAL TO ASCO 300 SERIES.
 - ELECTRICAL CONTRACTOR SHALL REFER TO DUCTBANK DETAILS FOR MORE INFORMATION ON UNDERGROUND WIRING.
 - ELECTRICAL CONTRACTOR SHALL ENSURE THAT CONDUCTORS ARE INSTALLED IN MAIN SERVICE ENTRANCE RATED DISCONNECT WITHIN 1.5M OF ENTRANCE INTO THE BUILDING WITH A COMBUSTIBLE BUILDING. INSTALLATIONS SHALL MEET OESC 2021.
 - ELECTRICAL CONTRACTOR SHALL REMOVE EXISTING MAIN PANEL IN GARAGE AND REPLACE WITH NEW AS SHOWN ON NEW SINGLE LINE DIAGRAM. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR ENSURING ALL EXISTING CIRCUITS IN GARAGE GET RECONNECTED INTO NEW PANEL-G. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR HYDRO ONE COORDINATION AND REQUEST FOR HYDRO ONE SERVICE LAYOUT DESIGN.
 - ELECTRICAL CONTRACTOR TO MATCH KA OF EXISTING PANELS IN GARAGE. CONFIRM ON SITE EXISTING KA OF PANELS PRIOR TO ORDERING.
 - ELECTRICAL CONTRACTOR SHALL COORDINATE AND CONFIRM WITH HONI TO ENSURE SCOPE OF WORK AND TO ENSURE COMPLIANCE WITH ALL HONI REQUIREMENTS PRIOR TO COMMENCING WORK.
 - ELECTRICAL CONTRACTOR SHALL PROVIDE GROUNDING AT EXISTING GARAGE BUILDING, WHERE NEW SERVICE COMES INTO THE BUILDING. DO NOT ESTABLISH NEW GROUND AT SUBSEQUENT BUILDINGS (PROPOSED BUILDING AND EXISTING VISITOR CENTRE). PROVIDE A BONDING CONDUCTOR FROM NEW SERVICE AT GARAGE BUILDING. CONFIRM GROUNDING REQUIREMENTS WITH HONI FOR WOODEN POLE LOCATION.
 - ENSURE OH NEUTRAL SUPPORTED CABLE IS INSTALLED ACCORDING TO ALL OESC RULES. PROVIDE REQUIRED EQUIPMENT TO TRANSITION FROM INSIDE THE BUILDING TO OH TO ADJACENT BUILDING.

