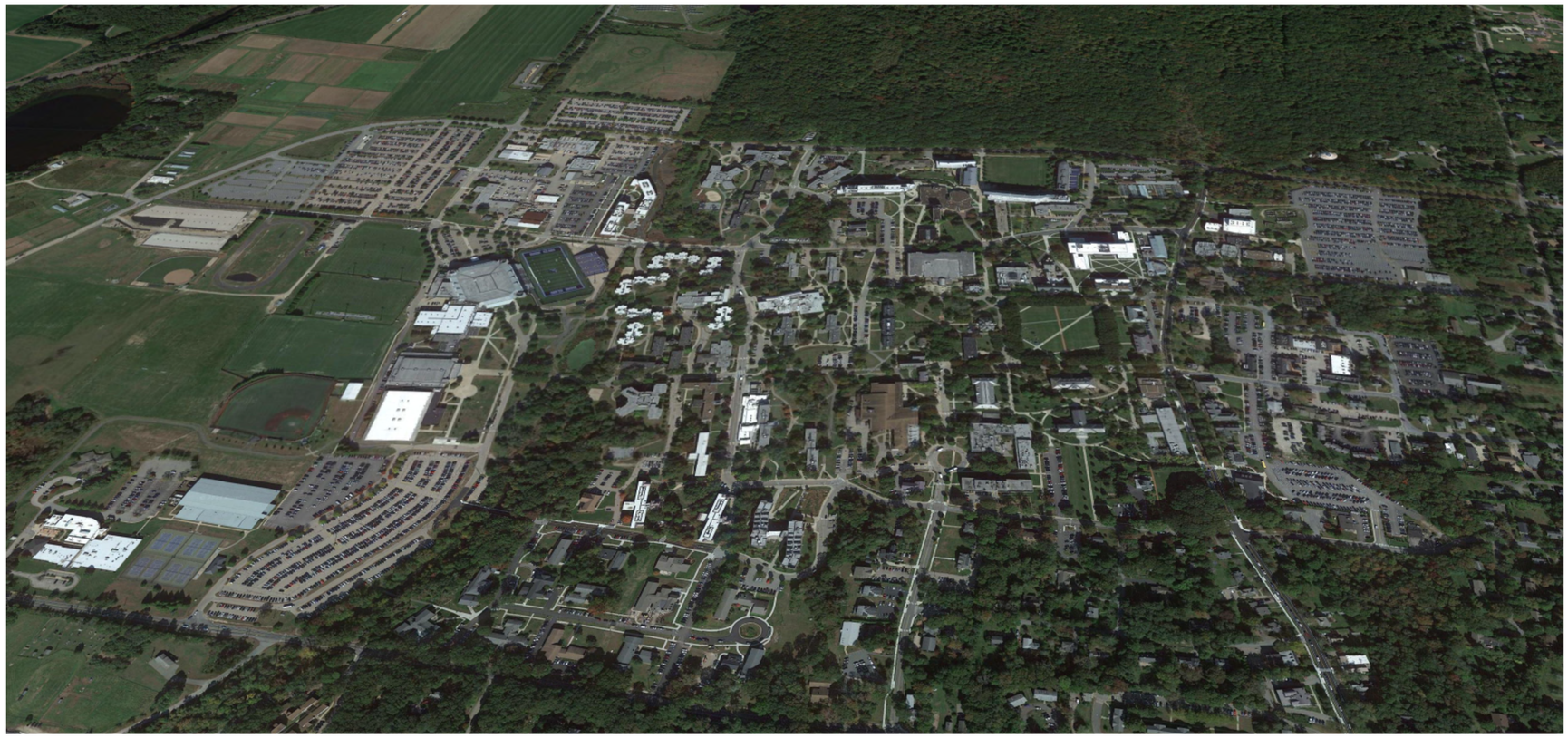
UNIVERSITY OF RHODE ISLAND

Roger Williams Complex Generator Project Phase 2

45 UPPER COLLEGE ROAD, KINGSTON, RI 02881

100% CONSTRUCTION DOCUMENTS
ISSUED FOR BID on FEBRUARY 23th, 2024



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ELECTRICAL DRAWING LIST	SHEET NUMBER
ELECTRICAL LEGEND AND GENERAL NOTES	E0.00
ELECTRICAL DEMOLITION SITE PLAN	E1.00
ELECTRICAL NEW WORK SITE PLAN	E2.00
ELECTRICAL PART PLANS	E4.00
ELECTRICAL PART PLANS	E4.01
ELECTRICAL PART PLANS	E4.02
ELECTRICAL PART PLANS	E4.03
ELECTRICAL PART PLANS	E4.04
ELECTRICAL ELEVATIONS	E5.00
ELECTRICAL ELEVATIONS	E5.01
ELECTRICAL DEMOLITION ONE-LINE DIAGRAM	E6.00
ELECTRICAL NEW WORK ONE-LINE DIAGRAM	E6.01
ELECTRICAL RISER DIAGRAMS	E6.02
ELECTRICAL FIRE ALARM RISER DIAGRAM	E6.03
ELECTRICAL DETAILS	E7.00
ELECTRICAL DETAILS	E7.01
ELECTRICAL DETAILS	E7.02
ELECTRICAL DETAILS	E7.03
ELECTRICAL DUCT BANK DETAILS	E7.04
ELECTRICAL MANHOLE DETAILS	E7.05
ELECTRICAL SCHEDULES	E8.00

LANDSCAPE DRAWING LIST	SHEET NUMBER
NOTES RELATING TO LANDSCAPE SITE WORK	LA 1
LANDSCAPE GRADING AROUND BERM	LA 2

CIVIL DRAWING LIST	SHEET NUMBER
LEGEND AND GENERAL NOTES	C1.00
SITE PLAN	C2.00
SITE GRADING AND DRAINAGE PLAN	C3.00
SITE DETAILS	C4.00

STRUCTURAL DRAWING LIST	SHEET NUMBER
STRUCTURAL NOTES - 1	S0.01
STRUCTURAL NOTES - 2	S0.02
FOUNDATION PLANS	S1.01
SECTION AND DETAILS	S2.01
TYPICAL DETAILS	S3.01

ELECTRICAL LEGEND

MOTORS AND EQUIPMENT

WP	DISC SWITCH, "WP" DENOTES WEATHERPROOF
WP	FUSED DISCONNECT SWITCH, "WP" DENOTES WEATHERPROOF
	MUSHROOM TYPE EM SHUTDOWN SWITCH
ATC	HVAC AUTO TEMPERATURE CONTROL PANEL FURNISHED AND INSTALLED BY HVAC CONTRACTOR, WIRED BY EC
CP	CONTROL PANEL, FURNISHED BY MFGR INSTALLED AND WIRED BY ELECTRICAL CONTRACTOR
J	JUNCTION BOX
ATC J	JUNCTION BOX W/FLEX CONNECTION

JUNCTION BOX SUBSCRIPT DESCRIPTION

"ATC"	CONNECTION TO AUTO TEMP CONTROLS
"SEC"	CONNECTION TO SECURITY

RECEPTACLES

C	DUPLEX RECEPTACLE, 'C' REFER TO RECEPTACLE SUBSCRIPT DESCRIPTION BELOW.
	DOUBLE DUPLEX RECEPTACLE
	GROUND FAULT INTERRUPTING DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE ON EMERGENCY CIRCUIT
	DOUBLE DUPLEX RECEPTACLE ON EMERGENCY CIRCUIT
	GROUND FAULT INTERRUPTING DUPLEX RECEPTACLE ON EMERGENCY CIRCUIT
	GROUND FAULT INTERRUPTING DOUBLE DUPLEX RECEPTACLE ON EMERGENCY CIRCUIT
	SPECIAL PURPOSE RECEPTACLE - REFER TO SCHEDULE FOR TYPE
CM	FLUSH MOUNT FLOOR OR CEILING BOX WITH RECEPTACLES AS SHOWN "CM" DENOTES CEILING MOUNTED

RECEPTACLE SUBSCRIPT DESCRIPTION

"WP"	WEATHERPROOF
"GFI"	GROUND FAULT INTERUPTING

RACEWAYS

LP1,2,4,6	HOMERUN TO PANEL LP1, CIRCUIT #'S 2, 4 & 6 VIA 20A-1P CIRCUIT BREAKERS. TICKS INDICATE QUANTITY OF #12 AWG COPPER PHASE AND NEUTRAL CONDUCTORS. EQUIPMENT GROUND CONDUCTOR NOT INDICATE BUT SHALL BE PROVIDED EQUIPMENT GROUND CONDUCTOR SHALL BE PROVIDED IN ACCORDANCE WITH SPECIFICATIONS AND NEC MINIMUM SIZE. CONDUIT SHALL BE 3/4" MINIMUM UNLESS OTHERWISE NOTED. REFER TO THE 'BRANCH CIRCUIT SCHEDULE' NOTES AND CIRCUIT LENGTH TABLE FOR WIRE SIZE INCREASES DUE TO VOLTAGE DROP.
LP1,3 60/3	HOMERUN TO PANEL 'LP1', CIRCUIT # 3 VIA 60A-3P CB. REFER TO 'BRANCH CIRCUITS SCHEDULE' FOR CONDUCTOR SIZE, QUANTITIES AND CONDUIT INFORMATION.
PB	PULL BOX
	CONDUIT TURN UP
	CONDUIT TURN DOWN
	CONDUIT STUB ABOVE CEILING
	4" SLEEVE
100Y	FEEDER SIZE TAG
HH	HANDHOLE

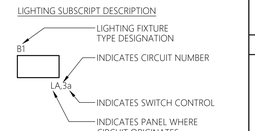
DISTRIBUTION EQUIPMENT

A	120/208V, 3PH 4W PANEL.
TS	TRANSFORMER, REFER TO DRY TYPE TRANSFORMER SCHEDULE FOR ADDITIONAL INFORMATION
M	METER WITH METER SOCKET, PROVIDE SOCKET AS REQUIRED BY ELECTRIC UTILITY COMPANY
CB	ENCLOSED CIRCUIT BREAKER

LIGHTING

	4'-0" STRIP LIGHTING FIXTURE
	WALL MOUNTED LIGHTING FIXTURE
	LIGHT FIXTURE SYMBOLS SHOWN WITH NO SHADING ARE CONNECTED TO NORMAL CIRCUIT
EB	EMERGENCY BATTERY UNIT W/LIGHT HEADS
	SINGLE FACE LED EXIT SIGN, WALL MOUNTED
	LED EXIT SIGN, WALL MOUNTED
	SITE LIGHTING FIXTURE MTD. TO STEEL SUPPORT

LIGHTING SUBSCRIPT DESCRIPTION



SWITCHING

Sa	SINGLE POLE SWITCH, SUBSCRIPT INDICATES CONTROL
S3	THREE-WAY SWITCH
S4	FOUR-WAY SWITCH
SP	SINGLE POLE SWITCH WITH PILOT LIGHT
TC	TIME CLOCK
PC	PHOTOCELL

AUTOMATIC LIGHTING CONTROLS

S1	WALL BOX MOUNTED, DUAL TECHNOLOGY SENSOR SWITCH WITH SINGLE MANUAL ON BUTTON. WATTSTOPPER #DSW-301, OR APPROVED EQUAL
S2	WALL BOX MOUNTED, OCCUPANCY SENSOR SWITCH WITH 0-10V DIMMING. WATTSTOPPER #DW-311, OR APPROVED EQUAL. PROGRAM SWITCH FOR PRESET LIGHT FIXTURE ON LEVEL OF 50%.
S3	CEILING MOUNTED, DUAL TECHNOLOGY SENSOR SWITCH WITH INTEGRAL PHOTO SENSOR. WATTSTOPPER #DT-300, OR APPROVED EQUAL
S4	CEILING/WALL MOUNTED, DUAL TECHNOLOGY SENSOR SWITCH WITH INTEGRAL PHOTO SENSOR. WATTSTOPPER #DT-200, OR APPROVED EQUAL

NOTES:
1. PROVIDE POWER PACKS AS NECESSARY.
2. EACH LIGHTING CONTROL ZONE SHALL HAVE CAPABILITY OF REPORTING OCCUPIED/UNOCCUPIED STATUS TO BUILDING AUTOMATION SYSTEM.

FIRE ALARM

F	AUDIO/VISUAL DEVICE MOUNTED AT 80" A.F.F. TO CENTERLINE ALL DEVICES 75cd UNLESS NOTED OTHERWISE
F	MANUAL PULL STATION MOUNTED AT 48" A.F.F. TO CENTERLINE
S	SMOKE DETECTOR
H	THERMAL HEAT DETECTOR - FIXED TEMP 165°F
	EXTERIOR FIRE ALARM BEACON
CM	CONTROL MODULE
FACP	FIRE ALARM CONTROL PANEL
F	FIRE ALARM MASTER BOX COORDINATE WITH FIRE DEPARTMENT FOR LOCATION AND REQUIREMENTS.

EXISTING EQUIPMENT LEGEND

E	DOTTED DENOTES EXISTING EQUIP TO BE REMOVED UNLESS OTHERWISE NOTED
XM	EXISTING EQUIPMENT TO REMAIN
XR	EXISTING EQUIPMENT TO BE REMOVED AND RELOCATED
RX	NEW LOCATION OF RELOCATED EXISTING EQUIPMENT
XN	EXISTING EQUIPMENT TO BE REMOVED & REPLACED WITH NEW, AS SPECIFIED
X	EXISTING EQUIPMENT TO BE REMOVED

DETAIL & EQUIPMENT IDENTIFIERS

1 / E711	DETAIL IDENTIFIER: "1" INDICATES DETAIL NUMBER "E711" INDICATES SHEET NUMBER
EF 1	MECHANICAL EQUIPMENT TAG: "EF" INDICATES EQUIPMENT TYPE "1" INDICATES EQUIPMENT NUMBER

SECURITY SYSTEM

SSCP	SECURITY SYSTEM CONTROL PANEL
CR	SYSTEM CARD READER

NOTE:
ELECTRICAL CONTRACTOR SHALL PROVIDE 4" BACK BOX WITH 1" CONDUIT TO SECURITY MANAGEMENT HEAD END EQUIPMENT. EQUIPMENT, DEVICES AND ALL WIRING BY SYSTEM INTEGRATOR.

TELECOMMUNICATION

	DATA SINGLE GANG RAISED COVER PLATE. 4" SQUARE BACK BOX WITH 1 1/4" CONDUIT TO ABOVE NEAREST ACCESSIBLE CORRIDOR CEILING. PROVIDE PULL STRING.

ONE LINE DIAGRAM

	SPLICE
	RACEWAY BREAK SYMBOL, INDICATES CONTINUATION OF RACEWAY AND WIRING
	RACEWAY CAP SYMBOL, INDICATES CAPPED AND SEALED RACEWAY
	DELTA
	WYE
	THERMAL CIRCUIT OVERLOAD
	CONTACT, NORMALLY OPEN
	CONTACT, NORMALLY CLOSED
CB	DRAW OUT MEDIUM VOLTAGE CIRCUIT BREAKER
150KVA Δ Y	POWER TRANSFORMER, SIZE AS INDICATED
CP	CONTROL POWER TRANSFORMER
PT	POTENTIAL TRANSFORMER
	CURRENT TRANSFORMER
	MOLDED CASE CIRCUIT BREAKER
	FUSE
4000AF 3000AT	DRAW OUT CIRCUIT BREAKER "4000AF" - INDICATES FRAME RATING "3000AT" - INDICATES TRIP RATING
GF	GROUND FAULT SENSOR AND RELAY
AS	AMMETER SWITCH
AM	AMMETER
VS	VOLTMETER SWITCH
VM	VOLTMETER
KWH	KILOWATT-HOUR METER
400AS 300AF	HEAVY DUTY FUSIBLE SAFETY SWITCH "400AS" - INDICATES SWITCH RATING "300AF" - INDICATES FUSE RATING
	SYSTEM GROUND OR EQUIP GROUND
	LIGHTNING ARRESTER AND
K	KIRK KEY
	GENERATOR

ABBREVIATIONS

3R	NEMA 3R RATING
4X	NEMA 4X RATING
A	AMPERES
AC	ALTERNATING CURRENT
A/C	AIR CONDITIONING
ADA	AMERICANS WITH DISABILITIES ACT
AFF	ABOVE FINISH FLOOR
AFG	ABOVE FINISH GRADE
AHJ	AUTHORITY HAVING JURISDICTION
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE
ARCH	ARCHITECT
ATS	AUTOMATIC TRANSFER SWITCH
ATC	AUTOMATIC TEMPERATURE CONTROL
AWG	AMERICAN WIRE GAUGE
BFG	BELOW FINISH GRADE
BLDG	BUILDING
BTU	BRITISH THERMAL UNITS
°C	DEGREE CELSIUS
C	CONDUIT
CAT	CATALOG
CATV	COMMUNITY ANTENNAE TELEVISION
CB	CRITICAL BRANCH
C/B	CIRCUIT BREAKER
CBM	CERTIFIED BALLASTS MANUFACTURERS
cd	CANDELA RATING
CKT	CIRCUIT
CL	CENTERLINE
CLF	CURRENT LIMITING FUSE
COL	COLUMN
CPT	CONTROL POWER TRANSFORMER
C.T.	CURRENT TRANSFORMER
CU	COPPER
dB	DECIBEL
DC	DIRECT CURRENT
DIA	DIAMETER
DWG	DRAWING
E	WIRED ON EMERGENCY CIRCUIT
EB	EQUIPMENT BRANCH
EC	ELECTRICAL CONTRACTOR
EF	EXHAUST FAN
EL	ELEVATION
ELEV	ELEVATOR
EM	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EP	EMERGENCY POWER
EPO	EMERGENCY POWER OFF
EWC	ELECTRIC WATER COOLER
°F	DEGREE FAHRENHEIT
F	FUSE
FA	FIRE ALARM
FAA	FIRE ALARM ANNUNCIATOR
FLA	FULL LOAD AMPERES
FMC	FLEXIBLE METAL CONDUIT
FT	FEET
GC	GENERAL CONTRACTOR
GFCI	GROUND-FAULT CIRCUIT INTERRUPTER
GND,G	GROUND OR GROUNDING
GRMC	GALVANIZED RIGID METALLIC CONDUIT
HOA	HAND, OFF, AUTOMATIC SWITCH
HVAC	HEATING, VENTILATION, AIR CONDITIONING CONTRACTOR
IEEE	INSTITUTE OF ELECTRICAL & ELECTRONIC ENGINEERS
IG	ISOLATED GROUND
IMC	INTERMEDIATE METAL CONDUIT
INT	INTERLOCK
°K	DEGREE KELVIN
KCMIL	THOUSAND CIRCULAR MILS
KVA	KILIVOLTAMPERES
KVAR	KILIVOLTAMPERES REACTIVE
KW	KILOWATTS
LFMC	LIQUID TIGHT FLEXIBLE METAL
LTG	LIGHTING
LRA	LOCKED ROTOR AMPS
MC	METAL CLAD CABLE
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MEC	MASSACHUSETTS ELECTRIC CODE
MI	MINERAL INSULATED CABLE
MISC	MISCELLANEOUS
MLO	MAIN LUGS ONLY
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NL	NIGHT LIGHT
NO	NORMALLY OPEN OR NUMBER
NTS	NOT TO SCALE
P	POLE
PB	PUSH-BUTTON
PC	PLUMBING CONTRACTOR
PH	PHASE
PNL	PANEL
POS	POINT OF SALE (CASHIER STATION)
PVC	POLYVINYL CHLORIDE
PWR	POWER
P.T.	POTENTIAL TRANSFORMER
QTY	QUANTITY
REQ'D	REQUIRED
RMC	RIGID METAL CONDUIT
RMS	ROOT MEAN SQUARED
RNC	RIGID NONMETALLIC CONDUIT
RTS	REMOTE TEST SWITCH
RTU	ROOFTOP UNIT
SP	SPARE
SPD	SURGE PROTECTIVE DEVICE
ST	SHUNT TRIP
SW	SWITCH
SYM	SYMMETRICAL
TEL	TELEPHONE
TM/CB	THERMAL MAGNETIC CIRCUIT BREAKER
UG	UNDERGROUND OR UNDER GRADE
UL	UNDERWRITERS LABORATORIES
V	VOLT
VA	VOLTAMPERE
VT	VOLTAGE TRANSFORMER
W	WIRE (OR WATT)
WH	WATER HEATER
WP	WEATHER PROOF
XFMR	TRANSFORMER
Ø	PHASE

GENERAL NOTES

1. THIS IS A STANDARD SYMBOL LIST. ALL DEVICE SYMBOLS AND ABBREVIATIONS MAY NOT NECESSARILY APPEAR ON THE PLANS OR DETAIL SHEET. ONLY THOSE SYMBOLS INDICATED ON THE PLANS ARE USED AND OTHERS SHOULD BE DISREGARDED.
2. WHERE THE REQUIREMENTS OF THESE DRAWINGS CONFLICT WITH OTHER PARTS OF THESE CONTRACT DOCUMENTS, THE MORE STRINGENT REQUIREMENTS SHALL APPLY. IN THE EVENT THAT THERE IS A CONFLICT, THE ELECTRICAL CONTRACTOR SHALL PROMPTLY NOTIFY THE ARCHITECT IN WRITING.
3. THESE CONTRACT DRAWINGS ARE DIAGRAMMATIC ONLY, INTENDING TO SHOW GENERAL RUNS AND LOCATIONS OF CONDUITS, DISTRIBUTION EQUIPMENT, LIGHTING FIXTURES, SYSTEMS EQUIPMENT, ETC., AND NOT NECESSARILY SHOWING ALL DETAILS, ACCESSORIES AND EQUIPMENT TO BE CONNECTED. THE ELECTRICAL CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR COORDINATING IN THE FIELD THE EXACT LOCATIONS, MOUNTING HEIGHTS OF EQUIPMENT AS WELL AS THE ROUTING OF RACEWAYS TO AVOID EXISTING FIELD CONDITIONS. ALL WORK SHALL BE ACCURATELY LAID OUT WITH OTHER TRADES TO AVOID CONFLICTS AND TO OBTAIN A NEAT AND WORKMANLIKE INSTALLATION WHICH WILL AFFORD MAXIMUM ACCESSIBILITY FOR OPERATION, MAINTENANCE AND HEADROOM.
4. THE WORK UNDER THIS CONTRACT SHALL INCLUDE ALL LABOR, MATERIALS, TOOLS, EQUIPMENT, TRANSPORTATION, INSURANCE, TEMPORARY PROTECTION, SUPERVISION AND INCIDENTAL ITEMS ESSENTIAL FOR PROPER INSTALLATION AND OPERATION, EVEN THOUGH NOT SPECIFICALLY MENTIONED OR INDICATED ON THE DRAWINGS, BUT WHICH ARE USUALLY PROVIDED OR ARE ESSENTIAL FOR PROPER INSTALLATION AND OPERATION, OF ALL SYSTEMS AS INDICATED ON THE DRAWINGS AND SPECIFIED HEREIN.
5. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE TO DETERMINE THE EXISTING CONDITIONS AND THE SCOPE OF WORK PRIOR TO SUBMISSION OF BIDS.
6. IN GENERAL, LIGHT CONTINUOUS LINE-WORK REPRESENTS EXISTING CONDITIONS TO REMAIN. BOLD CONTINUOUS LINE-WORK REPRESENTS NEW OR RELOCATED WORK TO BE PERFORMED. DASHED LINE WORK REPRESENTS EXISTING WORK TO BE DEMOLISHED OR RELOCATED. REFER TO PLANS AND DIAGRAMS FOR DETAIL.

DEMOLITION NOTES

1. ALL ITEMS SHOWN DASHED ON DEMOLITION DRAWINGS ARE EXISTING TO BE REMOVED UNLESS NOTED OTHERWISE. EXISTING BRANCH CIRCUITS TO REMAIN FOR RE-USE FOR CONNECTION TO NEW DEVICES AND LIGHTING ARE SHOWN CONTINUOUS.
2. THIS ELECTRICAL DEMOLITION PLAN INDICATES THE GENERAL INTENT AND IS NOT INTENDED TO SHOW ALL COMPONENTS AND ITEMS TO BE REMOVED OR RETAINED. THE ELECTRICAL CONTRACTOR SHALL VISIT THE SITE PRIOR TO SUBMISSION OF THEIR BID TO BECOME FAMILIAR WITH THE THE ACTUAL WORKING CONDITIONS AND EXTENT OF WORK. DEVICES AND EQUIPMENT LOCATED ON WALLS AND/OR IN CEILINGS DESIGNATED TO BE REMOVED SHALL BE DISCONNECTED AND MADE SAFE. THE ELECTRICAL CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE OF ANY UNANTICIPATED OR HIDDEN CONDITIONS ENCOUNTERED DURING DEMOLITION.
3. DISCONNECT AND MAKE SAFE ALL ELECTRICAL EQUIPMENT IDENTIFIED FOR REMOVAL ON THE PLANS. THE ELECTRICAL SCOPE MAY EXTEND BEYOND THE DEMOLITION LIMITS TO FULLY COMPLY WITH THE VARIOUS REQUIREMENTS DEFINED BY THESE NOTES.
4. CIRCUIT TRACE AND LABEL ALL EXISTING BRANCH CIRCUITS AND FEEDERS WITHIN OR ASSOCIATED WITH THE AREA OF DEMOLITION SCOPE PRIOR TO DE-ENERGIZING AND DISCONNECTION. ALL CIRCUITS WITHIN PANELBOARDS IDENTIFIED FOR REMOVAL SHALL BE TRACED AND LABELED TO ENSURE THAT NO AREA OUTSIDE THE DEMOLITION SCOPE LIMIT IS AFFECTED.
5. IDENTIFY ALL BRANCH CIRCUITS, FEEDERS AND SYSTEM COMPONENTS WHICH ARE TO REMAIN WITHIN THE AREA OF DEMOLITION SCOPE. THERE SHALL BE NO INTERRUPTION OF SERVICE TO ANY AREA OUTSIDE THE SCOPE LIMITS WITHOUT APPROVAL FROM THE OWNER'S REPRESENTATIVE. EXISTING EQUIPMENT TO REMAIN SHALL BE LEFT IN A CODE-COMPLIANT CONDITION.
6. THE ELECTRICAL CONTRACTOR SHALL DE-ENERGIZE AND REMOVE ALL CONDUCTORS AND RACEWAYS TO THEIR POINTS OF ORIGIN. ITEMS IDENTIFIED FOR DEMOLITION SHALL NOT BE ABANDONED IN PLACE. RACEWAYS THAT ENTER MASONRY WALLS AND FLOORS SHALL BE CUT FLUSH AT THE SURFACE FOR PATCHING BY OTHERS. ALL CIRCUIT BREAKERS ASSOCIATED WITH THE DEMOLITION SHALL BE DE-ENERGIZED AND LABELED SPARE. ANY EXISTING EQUIPMENT TO REMAIN DISCONNECTED DURING THE EXECUTION OF THE ELECTRICAL DEMOLITION WORK SHALL BE REFED AS REQUIRED BACK TO ENSURE A COMPLETE AND OPERATIONAL SYSTEM.
7. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OF ALL SYSTEMS OR BUILDING COMPONENTS DAMAGED DURING THE EXECUTION OF THE ELECTRICAL DEMO WORK. DAMAGE SHALL INCLUDE, BUT NOT BE LIMITED TO, THE DESTRUCTION OR DISPOSAL OF ITEMS INTENDED TO REMAIN OR BE SALVAGED.
8. ALL EXISTING ABANDONED AND EMPTY CONDUITS SHALL BE REMOVED UNLESS DESIGNATED FOR REUSE AS PART OF THIS PROJECT.
9. THE ELECTRICAL CONTRACTOR SHALL FURNISH MATERIALS AND EQUIPMENT NECESSARY TO PROVIDE ADDITIONAL SUPPORTS FOR EXISTING LOW-VOLTAGE CABLING WITHIN THE SCOPE OF WORK AREA TO REMAIN UPON COMPLETION OF DEMOLITION EFFORT TO ENSURE COMPLIANCE WITH CURRENT CODE REQUIREMENTS.

NEW WORK NOTES

1. THE CONTRACTOR SHALL COORDINATE ALL MANUFACTURER'S SHOP DRAWINGS FOR EXACT LOCATION AND ROUGHING IN DIMENSIONS OF ALL EQUIPMENT AND SHALL MAKE ALL FINAL CONNECTIONS AS REQUIRED.
2. WHERE NEW WIRING DEVICES, WIRING, OR FIXTURE LOCATIONS ARE SHOWN ON THE DRAWINGS BUT BUILDING CONSTRUCTION MAKES IT ADVISABLE OR NECESSARY TO CHANGE SUCH LOCATIONS TO NEW LOCATIONS WITHIN 10 FT. SUCH CHANGES SHALL BE MADE BY THE CONTRACTOR WITH THE CONSENT OF THE ENGINEER AND ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.
3. LIGHTING FIXTURES SHALL BE SUPPORTED FROM BUILDING STRUCTURAL ELEMENTS INDEPENDENT OF FURRED OR SUSPENDED CEILINGS. SUPPORTS FOR LIGHTING FIXTURES SHALL BE BOW CHAIN OR ROD. MINIMUM OF 2 SUPPORTS PER 4 FT OF FIXTURE SHALL BE PROVIDED. RECESSED FIXTURES SHALL BE CONNECTED BY FLEXIBLE METALLIC CONDUIT TO JUNCTION BOX.
4. BOND RACEWAYS AND THE FRAMES AND ENCLOSURES OF MOTORS, BREAKERS, SWITCHES, AND OTHER ELECTRICAL EQUIPMENT TO THE BUILDING GROUNDING SYSTEM. INSTALL AN INSULATED EQUIPMENT GROUND CONDUCTOR IN EACH RACEWAY OR CONDUIT. SIZE EQUIPMENT GROUND CONDUCTOR IN ACCORDANCE WITH THE NEC.
5. THE ELECTRICAL CONTRACTOR SHALL PROVIDE EXPANSION FITTINGS PROPERLY BONDED TO ENSURE GROUND CONTINUITY FOR ALL RACEWAYS CROSSING CONSTRUCTION OR EXPANSION JOINTS IN FLOORS AND CEILINGS. USE DOUBLE LOCK NUTS AND BUSHINGS ON PANEL FEEDERS AT PANEL ENCLOSURES.
6. CONDUCTORS SHALL BE COLOR CODED TO DIFFERENTIATE BETWEEN SYSTEMS OF DIFFERENT VOLTAGES AND TO DIFFERENTIATE BETWEEN PHASES OF EACH SYSTEM. COLOR CODING SHALL BE CONSISTENT THROUGHOUT SO THAT ACROSS PHASES AND VOLTAGES THE GIVEN PHASE OF A GIVEN SYSTEM SHALL ALWAYS BE THE SAME COLOR. COLORS FOR 120/208 VOLT SYSTEMS SHALL BE BLACK, RED AND BLUE. COLORS FOR 277/480 VOLT SHALL BE BROWN, ORANGE AND YELLOW.
7. ALL 120 VOLT BRANCH CIRCUITS, INCLUDING LIGHT CIRCUITS, SHALL HAVE THEIR OWN NEUTRAL (NO SHARED NEUTRALS).
8. ALL PANELS (NEW OR EXISTING) WHICH ARE MODIFIED AS PART OF THE SCOPE OF THIS PROJECT SHALL BE PROVIDED WITH A TYPE WRITTEN 8 1/2" X 11" CIRCUIT DIRECTORY. THIS DIRECTORY SHALL BE AFFIXED TO THE INSIDE OF THE PANEL ENCLOSURE DOOR AND SHALL CLEARLY IDENTIFY EXISTING AND NEW CIRCUITS.
9. OPENINGS THROUGH FIRE RATED FLOORS AND WALLS SHALL BE SEALED WITH U.L. LISTED FIRE SEALS FOR THE SPECIFIC APPLICATION. THE FIRE SEALS SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, ITS U.L. LISTING AND THE M.E.C. WHILE MAINTAINING THE FULL FIRE RATING OF THE BARRIER IN WHICH IT IS INSTALLED.

FIRE ALARM GENERAL NOTES

1. COORDINATE LOCATION AND MOUNTING HEIGHTS OF ALL NEW FIRE ALARM DEVICES WITH TYPICAL DEVICE MOUNTING HEIGHTS DETAIL. MOUNT DEVICES ON COMMON VERTICAL PLANE WITH OTHER DEVICES ON SAME SURFACE.
2. FIRE ALARM SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH LOCAL FIRE DEPARTMENT STANDARDS.
3. FIRE ALARM SYSTEM WIRING SHALL BE AS REQUIRED BY THE MANUFACTURER REQUIREMENTS AND INSTALLED IN CONDUIT. FIRE ALARM MC CABLE MAY BE USED IF APPROVED BY THE LOCAL FIRE DEPARTMENT.
4. ELECTRICAL CONTRACTOR SHALL ENGAGE THE SERVICES OF THE EXISTING CAMPUS FIRE ALARM SYSTEM MANUFACTURER OR AUTHORIZED REPRESENTATIVE TO ASSIST WITH EXPANSION OF EXISTING SYSTEM AND RECALCULATING BATTERY SIZING.
5. PROVIDE POWER SUPPLY (QUANTITY AS REQUIRED) FOR NEW SPEAKER/STROBE CIRCUITS.
6. FURNISH AND INSTALL ALL NEW ADDRESSABLE INITIATING AND INDICATING DEVICES COMPATIBLE WITH EXISTING CAMPUS FIRE ALARM SYSTEM.
7. ALL FIRE ALARM WORK SHALL BE COMPLETED AND TESTED IN ACCORDANCE WITH LOCAL, STATE AND NATIONAL CODES.

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Stamp -

Key Plan -

Project Name -
UNIVERSITY OF Rhode Island

UNIVERSITY OF RHODE ISLAND

Roger Williams Complex
Generator Project
Phase 2

100% CONSTRUCTION DOCUMENTS
ISSUED FOR BID
02/23/24

Submissions -

No:	Title:	Date:

Sheet Information -

Job No:	248-111
Drawn By:	DJS
Checked By:	DWM
Date:	02/23/2024
Scale:	NOT TO SCALE

Drawing Title -
ELECTRICAL LEGEND AND GENERAL NOTES

Sheet Number -
E0.00

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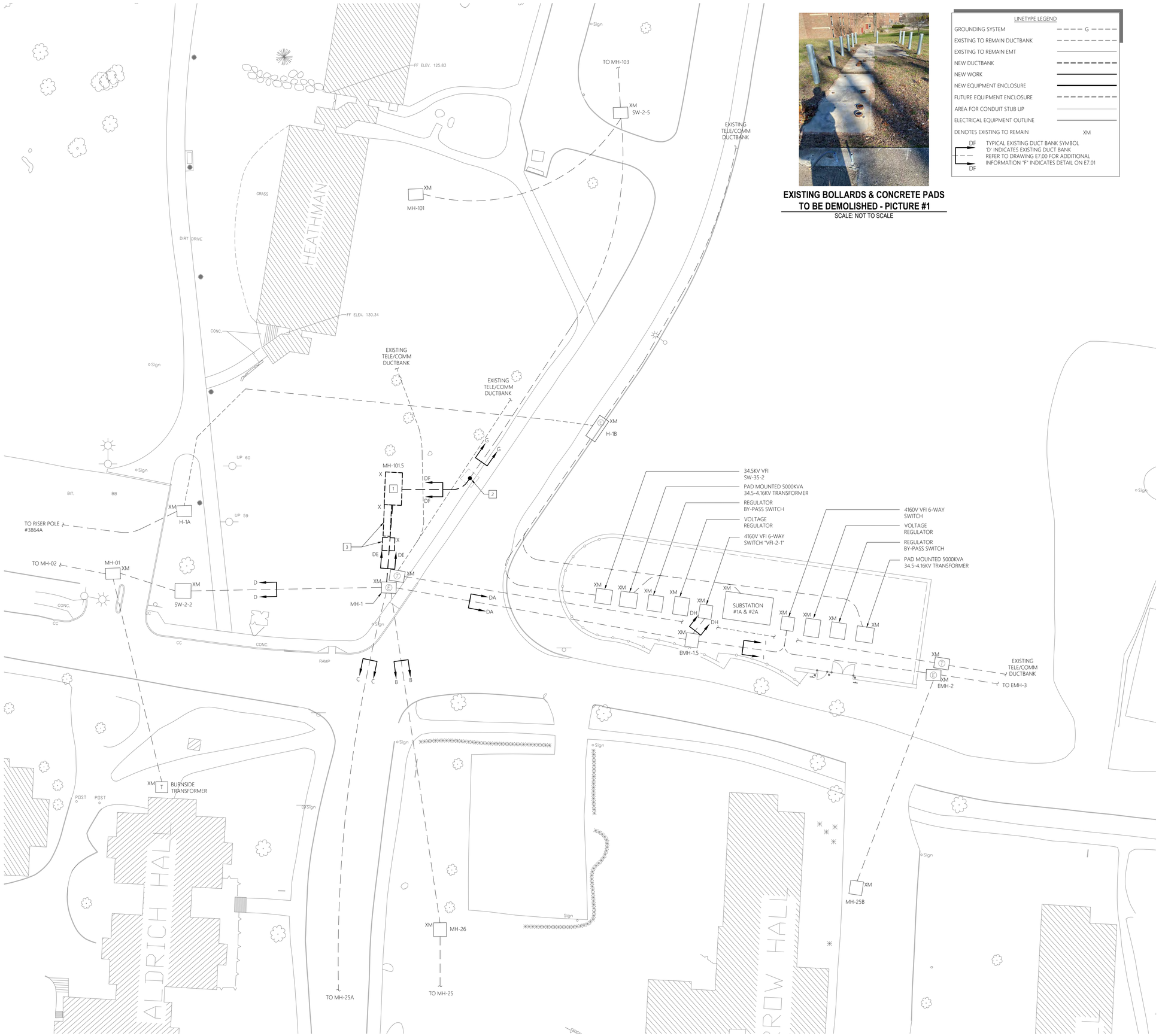

1 **ELECTRICAL DEMOLITION SITE PLAN**
SCALE: 1" = 20'-0"

EXISTING BOLLARDS & CONCRETE PADS TO BE DEMOLISHED - PICTURE #1
SCALE: NOT TO SCALE

LINETYPE LEGEND

GROUNDING SYSTEM	G
EXISTING TO REMAIN DUCTBANK	
EXISTING TO REMAIN EMT	
NEW DUCTBANK	
NEW WORK	
NEW EQUIPMENT ENCLOSURE	
FUTURE EQUIPMENT ENCLOSURE	
AREA FOR CONDUIT STUB UP	
ELECTRICAL EQUIPMENT OUTLINE	
DENOTES EXISTING TO REMAIN	XM

DF — TYPICAL EXISTING DUCT BANK SYMBOL 'D' INDICATES EXISTING DUCT BANK REFER TO DRAWING E7.00 FOR ADDITIONAL INFORMATION "F" INDICATES DETAIL ON E7.01 — DF

GENERAL NOTES

1. REFER TO DRAWING #E0.00 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. DUCT BANK(S) AND MANHOLE(S) SHOWN IN GENERAL LOCATION(S) TO ENCAPSULATE ELECTRICAL SCOPE OF WORK. REFER TO SITE/CIVIL DRAWINGS FOR EXACT DUCT BANK ROUTING AND MANHOLE LOCATIONS.
3. ALL NEW DUCT BANK(S) SHALL BE CONSTRUCTED IN ACCORDANCE WITH TYPICAL DUCT BANK DETAIL(S).
4. REFER TO ELECTRICAL DETAILS FOR DUCT BANK CONTENTS AND MANHOLE MAPS.

KEYED NOTES

1. EXISTING MANHOLE "MH-101.5" AND ALL APPURTENANCES SHALL BE DEMOLISHED IN ITS ENTIRETY INCLUDING, BUT NOT LIMITED TO MANHOLE STRUCTURE, MANHOLE COVER, BALLARDS AND INCOMMING/OUTGOING FEEDERS, DUCT BANKS AND CONDUIT. ITEMS DEMOLISHED SHALL BE DISPOSED OF OFF SITE.
2. BREAK INTO EXISTING DUCT BANK AND CAP DURING CONSTRUCTION FOR EXTENSION TO EXISTING MANHOLE "MH-1". REFER TO TYPICAL DUCT BANK TERMINATION DETAIL FOR PROTECTION DURING CONSTRUCTION.
3. REFER TO PICTURE #1 (THIS SHEET) FOR ADDITIONAL INFORMATION ON SITE STRUCTURAL ELEMENTS DESIGNATED FOR DEMOLITION.

RELOCATION OF FEEDER 2-5

THE VAULT UNDER THE FORMER SUBSTATION NEEDS TO BE REMOVED ALONG WITH MANHOLE MH-101.5 AND THE BOLLARDS SURROUNDING THE VAULT TO CONSTRUCT THE NEW DIESEL GENERATOR FOUNDATIONS. BEFORE THIS CAN BE DEMOLISHED THERE IS AN ACTIVE MEDIUM VOLTAGE ELECTRIC CABLE THAT MUST BE RELOCATED. EXISTING FEEDER 2-5 SUPPLIES POWER TO SWITCH-2-5 WHICH FEEDS HEATHMAN, WILLEY, GARRAHY, AND WHITE BUILDINGS FROM VFI-2-1 AT SUBSTATION NO. 2. FEEDER 2-5 IS A THREE PHASE 500 KCMIL CABLE THAT EXITS MH101.5 IN A SINGLE CONDUIT DUCTBANK TO SWITCH 2-5.

SUGGESTED SEQUENCE FOR RELOCATION OF FEEDER 2-5

1. CHISEL THE EXISTING DUCTBANK OF FEEDER 2-5 ALONG BUTTERFIELD RD. EXTEND SPARE 4" CONDUIT TO MH-1. PROVIDE NEW 4" CONDUIT AND CAP FOR FUTURE USE AS SPARE.
2. INSTALL NEW CONDUCTORS IN SPARE CONDUIT PARALLEL TO ENERGIZED FEEDER 2-5.
3. COORDINATE SHUTDOWN AND CUTOVER NEW CONDUCTORS IN MH-1 AND SWITCH SW-2-5.
4. REMOVE EXISTING CONDUCTORS.
5. CONNECT NEW SPARE 4" CONDUIT TO EXISTING CONDUIT AND BACKFILL TRENCH.
6. DEMOLISH AND REMOVE THE CABLE VAULT AND MANHOLE MH-101.5.

CONTRACTOR SHALL DEVELOP A DETAILED PLAN FOR THE RELOCATION OF FEEDER 2-5 AND THE DEMOLITION OF EXISTING VAULT AND MH101.5. THE SCHEDULE FOR THIS WORK SHALL BE AT THE DISCRETION OF THE UNIVERSITY. PLAN SHALL MINIMIZE THE AMOUNT OF TIME THAT FEEDER 2-5 IS OUT OF SERVICE. PLAN SHALL BE SUBMITTED TO THE UNIVERSITY FOR APPROVAL BEFORE WORK CAN COMMENCE.

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ELECTRICAL DEMOLITION SITE PLAN

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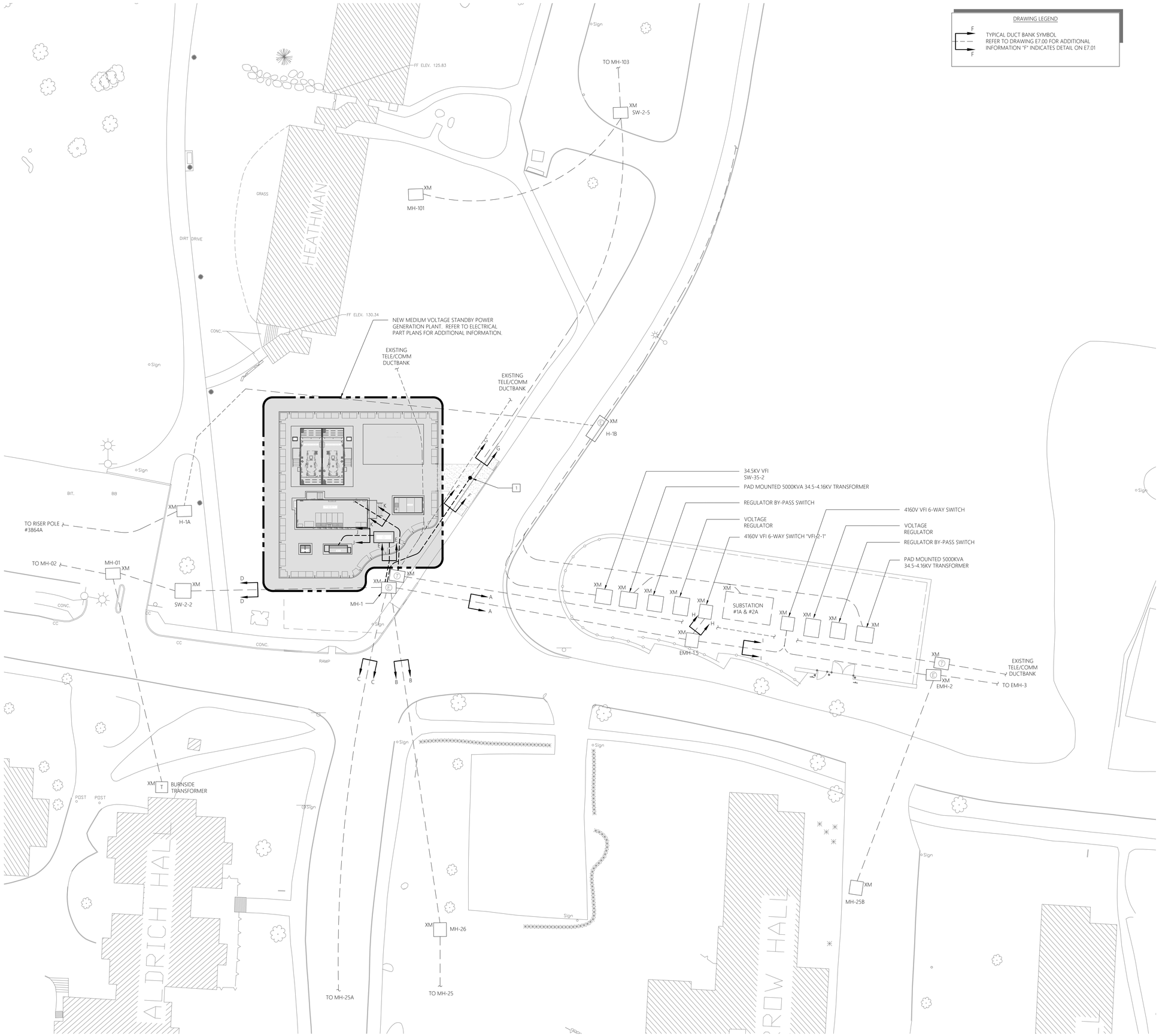

DRAWING LEGEND

F — TYPICAL DUCT BANK SYMBOL
REFER TO DRAWING E7.00 FOR ADDITIONAL INFORMATION "F" INDICATES DETAIL ON E7.01

GENERAL NOTES

1. REFER TO DRAWING #E0.00 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. DUCT BANK(S) AND MANHOLE(S) SHOWN IN GENERAL LOCATION(S) TO ENCAPSULATE ELECTRICAL SCOPE OF WORK. REFER TO SITE/CIVIL DRAWINGS FOR EXACT DUCT BANK ROUTING AND MANHOLE LOCATIONS.
3. ALL NEW DUCT BANK(S) SHALL BE CONSTRUCTED IN ACCORDANCE WITH TYPICAL DUCT BANK DETAIL(S).
4. ALL NEW MANHOLE(S) SHALL BE CONSTRUCTED IN ACCORDANCE WITH TYPICAL MANHOLE DETAIL(S).
5. REFER TO ELECTRICAL DETAILS FOR DUCT BANK CONTENTS AND MANHOLE MAPS.

KEYED NOTES

1. INTERCEPT AND EXTEND EXISTING DUCT BANK TO EXISTING MANHOLE "MH-1"

1 **ELECTRICAL NEW WORK SITE PLAN**
SCALE: 1" = 20'-0"

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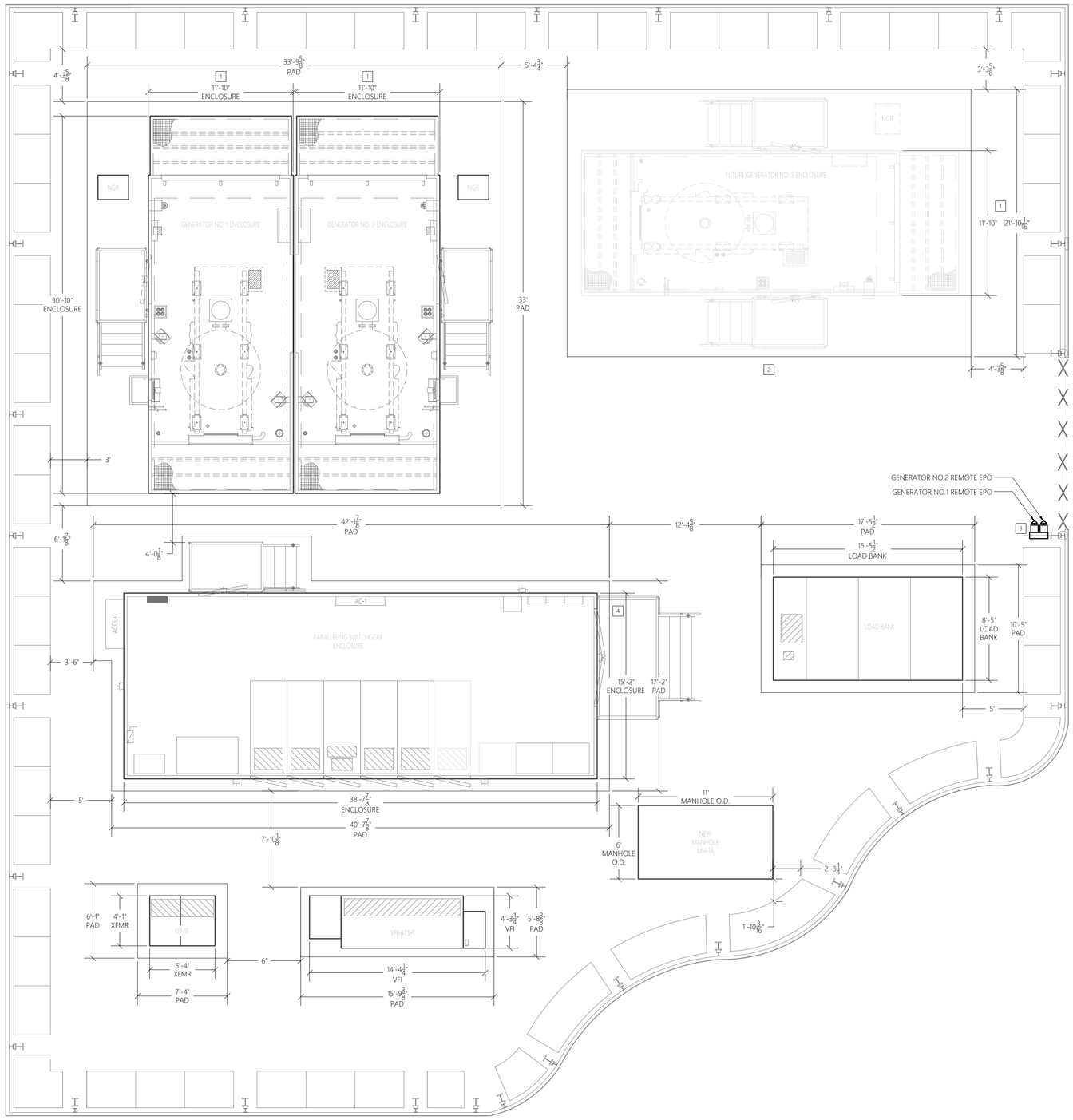

1 EQUIPMENT ARRANGEMENT PART PLAN

SCALE: 1/4" = 1'-0"

GENERAL NOTES

1. REFER TO DRAWING #E0.00 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. DRAWING INCLUDED TO SHOW GENERAL ARRANGEMENT OF EQUIPMENT WITHIN NEW GENERATOR PLANT. COORDINATE FINAL LAYOUT WITH APPROVED SHOP DRAWINGS. REFER TO SUBSEQUENT PART PLANS FOR ADDITIONAL INFORMATION.
3. DIMENSIONS INDICATED ARE APPROXIMATED. CONFIRM EXACT EQUIPMENT AND ENCLOSURE DIMENSIONS WITH APPROVED SHOP DRAWINGS.

KEYED NOTES

1. MAINTAIN MINIMUM 4'-0" CLEAR ON (3) SIDES TO ENSURE PROPER AIR FLOW. CONFIRM EXACT REQUIREMENTS WITH EQUIPMENT MANUFACTURER.
2. FUTURE GENERATOR HOUSEKEEPING PAD SHALL BE INSTALLED UNDER THIS PROJECT SCOPE. REFER TO CONDUIT ROUTING PLAN ON DRAWING E4.01 FOR ADDITIONAL INFORMATION.
3. GENERATOR REMOTE EPO BUTTONS SHALL BE MOUNTED TO FIELD FABRICATED UNISTRUT RACK. COORDINATE EXACT LOCATION WITH STATE FIRE MARTIAL.
4. NEW SECURITY CAMERA FOR PLANT MONITORING. EC SHALL PROVIDE (1) CAT6 ETHERNET CABLE IN 3/4"C FROM CAMERA BACK TO SECURITY SYSTEM CONTROL PANEL. FIELD COORDINATE FINAL SELECTION AND LOCATION WITH OWNER'S REPRESENTATIVE.

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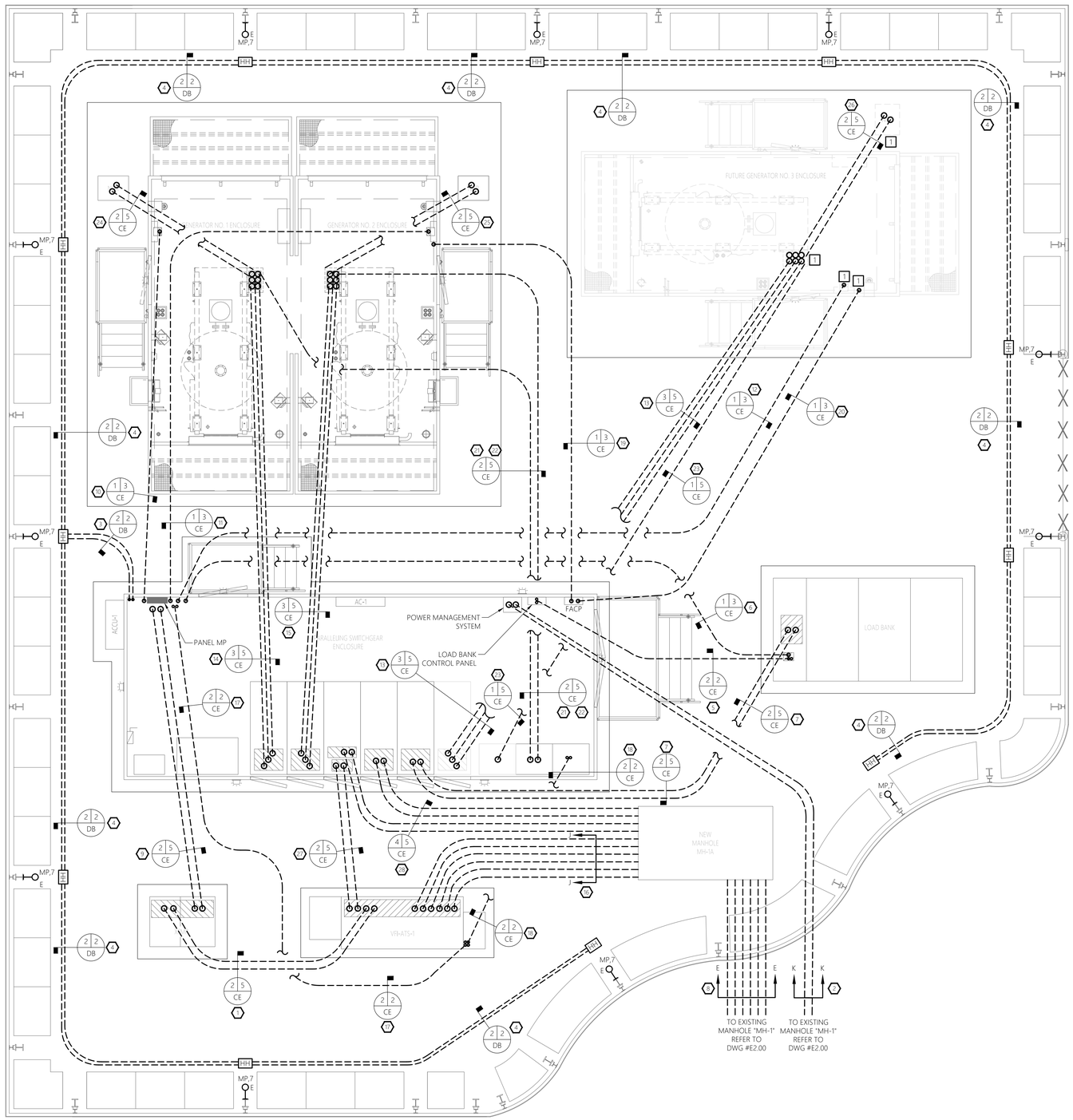

1 CONDUIT ROUTING AND SITE LIGHTING PART PLAN

SCALE: 1/4" = 1'-0"

LEGEND

EXISTING TO REMAIN DUCTBANK	
EXISTING TO REMAIN	
NEW DUCTBANK	
NEW WORK	
FUTURE	
DENOTES EXISTING TO REMAIN	XM

QUANTITY OF CONDUITS — SIZE OF CONDUIT — 2 5 DB

DB INDICATES DIRECT BURIED
CE INDICATES CONCRETE ENCASED

DF — TYPICAL EXISTING DUCT BANK SYMBOL
'D' INDICATES EXISTING DUCT BANK
REFER TO DRAWING E7.00 FOR ADDITIONAL INFORMATION
"H" INDICATES DETAIL ON E7.01

GENERAL NOTES

1. REFER TO DRAWING #E0.00 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. REFER TO UNDERGROUND CONDUIT SCHEDULE FOR CONDUIT CONTENTS AND QUANTITIES.
3. CONDUIT ROUTING IS SHOWN FOR GRAPHICAL REPRESENTATION ONLY. CONTRACTOR SHALL GROUP CONDUITS AND ROUTE ELECTRICAL DUCT BANK SYSTEM(S) AS REQUIRED AND AS MODIFIED DURING SHOP DRAWING SUBMITTAL PHASE. DUCT BANK CONSTRUCTION SHALL BE IN ACCORDANCE WITH TYPICAL CONCRETE DUCT BANK DETAIL DWG #E7.01.

KEYED NOTES

1. CONDUITS FOR FUTURE GENERATOR SHALL BE INSTALLED UNDER THIS PROJECT SCOPE. STUB AND CAP FUTURE CONDUITS 12" MINIMUM ABOVE NEW HOUSEKEEPING PAD. PROVIDE PULL STRINGS AND LABEL AS SPARE FOR FUTURE GENERATOR AT BOTH ENDS.

UNDERGROUND CONDUIT SCHEDULE

TAG	FROM	TO	SIZE	QUANTITY	DESCRIPTION
A	VFI-ATS1	112.5kVA MV TRANSFORMER	5"	2	(1) 5kV POWER (1) SPARE
B	MH-1 (TELECOMMUNICATIONS)	IT SERVER RACK	5"	2	REFER TO DUCT BANK SECTIONS
C	PANEL MP	LIGHTING (2) COMPARTMENT HANDHOLE (TYPICAL)	2"	2	(1) 120V POWER (1) LOW VOLTAGE CONTROLS
D	LIGHTING (2) COMPARTMENT HANDHOLE (TYPICAL)	LIGHTING (2) COMPARTMENT HANDHOLE (TYPICAL)	2"	2	(1) 120V POWER (1) LOW VOLTAGE CONTROLS
E	LOAD BANK CONTROL PANEL	LOAD BANK	2"	2	(1) CONTROLS (1) SPARE
F	PANEL MP	LOAD BANK	3"	1	(1) 120V POWER
G	PARALLELING SWITCHGEAR	LOAD BANK	5"	2	(1) 5kV POWER (1) SPARE
H	MH-1	MH-1A	4"	6	REFER TO DUCT BANK SECTIONS
I	112.5kVA MV TRANSFORMER	PANEL MP	5"	2	(1) 208V POWER (1) SPARE
J	PANEL MP	PANEL P1	3"	1	(1) 208V POWER
K	PANEL MP	PANEL P2	3"	1	(1) 208V POWER
L	PANEL MP	PANEL P3 (FUTURE)	3"	1	(1) SPARE (FUTURE 208V POWER)
M	GENERATOR #3 (FUTURE)	PARALLELING SWITCHGEAR	5"	3	(1) SPARE (FUTURE 5kV POWER) (2) SPARE
N	GENERATOR #1	PARALLELING SWITCHGEAR	5"	3	(1) 5kV POWER (2) SPARE
O	GENERATOR #2	PARALLELING SWITCHGEAR	5"	3	(1) 5kV POWER (2) SPARE
P	MH-1A	VFI-ATS1	5"	6	(3) 5kV POWER (3) SPARE
Q	PANEL MP	VFI-ATS1	2"	2	(1) 120V POWER (1) SPARE
R	MASTER CONTROL CUBICLE	VFI-ATS1	2"	2	(1) CONTROLS (1) SPARE
S	GENERATOR #2 ENCLOSURE	FIRE ALARM CONTROL PANEL	3"	1	(1) FIRE ALARM
T	GENERATOR #3 ENCLOSURE (FUTURE)	FIRE ALARM CONTROL PANEL	3"	1	(1) SPARE (FUTURE FIRE ALARM)
U	GENERATOR #1	DUAL GENERATOR CONTROL CUBICLE	5"	1	(1) LOW VOLTAGE CONTROLS
V	GENERATOR #2	DUAL GENERATOR CONTROL CUBICLE	5"	1	(1) LOW VOLTAGE CONTROLS
W	GENERATOR #3 (FUTURE)	FUTURE GENERATOR CONTROL CABINET	5"	1	(1) SPARE (LOW VOLTAGE CONTROLS)
X	GENERATOR #1	NGR #1	5"	2	(1) 5kV NEUTRAL (1) LOW VOLTAGE CONTROLS
Y	GENERATOR #2	NGR #2	5"	2	(1) 5kV NEUTRAL (1) LOW VOLTAGE CONTROLS
Z	GENERATOR #3 (FUTURE)	NGR #3 (FUTURE)	5"	2	(1) SPARE (FUTURE 5kV NEUTRAL) (1) SPARE (FUTURE LV CONTROLS)
AA	PARALLELING SWITCHGEAR	VFI-ATS1	5"	2	(1) 5kV POWER (1) SPARE
AB	PARALLELING SWITCHGEAR	MH-1A	5"	4	(4) SPARE

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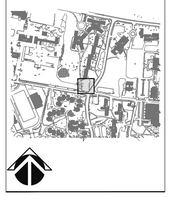

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ELECTRICAL PART PLANS

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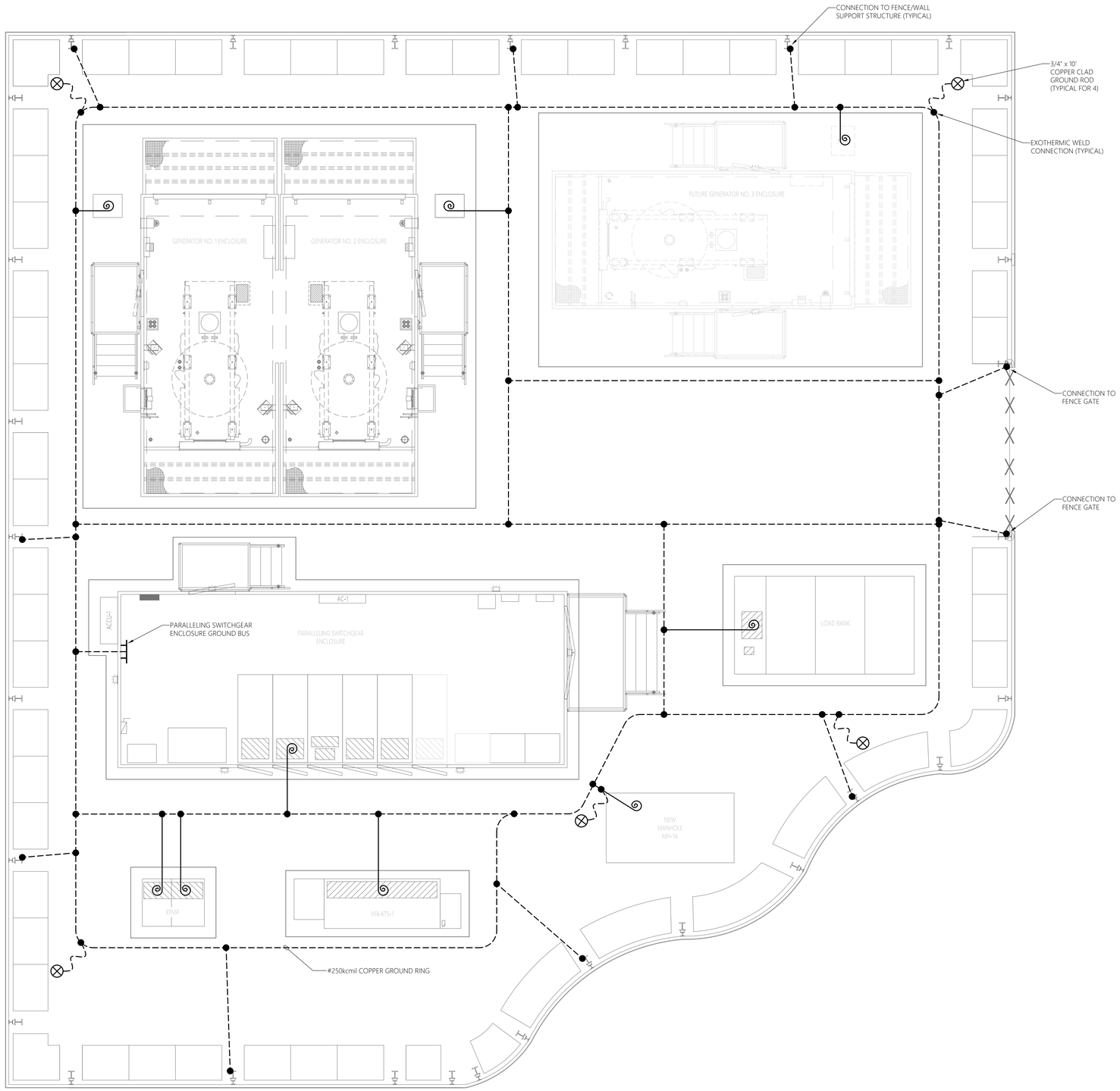
GENERAL NOTES

1. REFER TO DRAWING #E0.00 FOR ELECTRICAL LEGEND AND GENERAL NOTES.



1 **GROUNDING PART PLAN**
SCALE: 1/4" = 1'-0"

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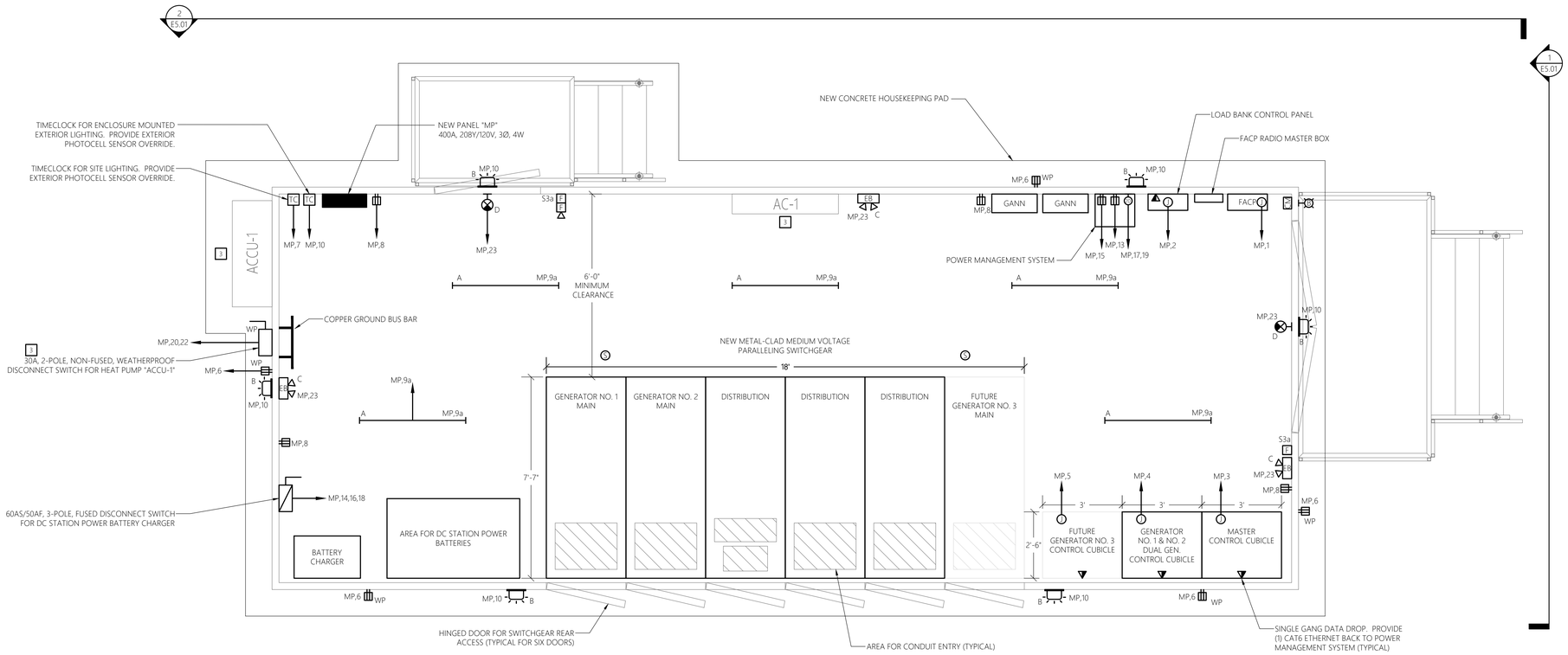
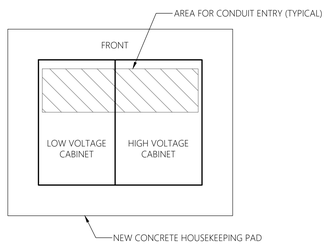
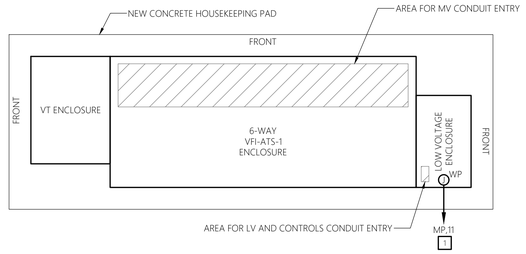


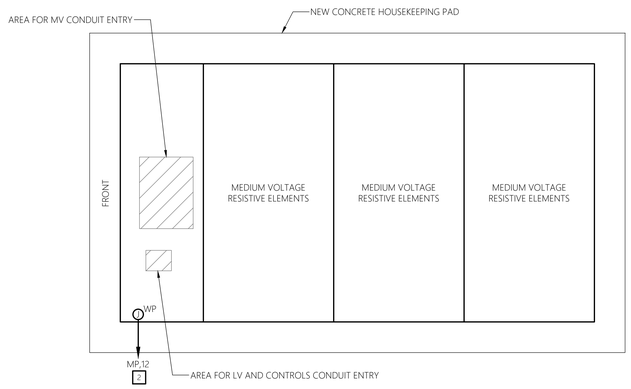
1 PARALLELING SWITCHGEAR ENCLOSURE PART PLAN
SCALE: 1/2" = 1'-0"



2 112.5kVA PAD MOUNTED TRANSFORMER ENLARGED PLAN
SCALE: 1/2" = 1'-0"



3 MEDIUM VOLTAGE TRANSFER SWITCH "VFI-ATS-1" ENLARGED PLAN
SCALE: 1/2" = 1'-0"



4 1000kW MEDIUM VOLTAGE LOAD BANK ENLARGED PLAN
SCALE: 1/2" = 1'-0"

GENERAL NOTES

1. REFER TO DRAWING #E0.00 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. SWITCHGEAR ENCLOSURE AND MISC. EQUIPMENT DIMENSIONS, ENCLOSURES AND COMPONENTS BASED ON PRELIMINARY INFORMATION FROM MULTIPLE MANUFACTURES. EXACT COMPONENTS AND DIMENSIONS TO BE CONFIRMED DURING SUBMITTAL REVIEW PROCESS.
3. REFER TO CIVIL AND STRUCTURAL DRAWING(S) FOR HOUSEKEEPING PAD REQUIREMENTS. SWITCHGEAR PAD EXTENTS SHALL INCLUDE ROOM FOR NEW "ACCU-1" AS SHOWN.
4. ALL COMPONENTS AND DEVICES INDICATED SHALL BE FURNISHED AND INSTALLED BY ENCLOSURE MANUFACTURER UNLESS NOTED OTHERWISE. REFER TO SPECIFICATIONS AND PLANT ASSEMBLY SCOPE OF WORK NOTES FOR ADDITIONAL INFORMATION.

KEYED NOTES

1. CONNECTION FOR "VFI-ATS1" 120V CONTROL POWER FROM NEW PANEL "MP." REFER TO CONDUIT ROUTING PART PLAN DWG. #E4.01 FOR ADDITIONAL INFORMATION.
2. CONNECTION FOR LOAD BANK 120V CONTROL POWER FROM NEW PANEL "MP." REFER TO CONDUIT ROUTING PART PLAN DWG. #E4.01 FOR ADDITIONAL INFORMATION.
3. INDOOR AIR CONDITIONING UNIT FED FROM OUTDOOR HEAT PUMP UNIT. PROVIDE (1) #12/3 IN 3/4"C FROM OUTDOOR UNIT "ACCU-1" TO INDOOR UNIT "AC-1." OUTDOOR UNIT SHALL BE FURNISHED BY ENCLOSURE MANUFACTURER AND SHIPPED LOOSE FOR FIELD INSTALLATION BY MECHANICAL CONTRACTOR. WIRING BY ELECTRICAL CONTRACTOR.

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Project Name -

UNIVERSITY OF Rhode Island

UNIVERSITY OF RHODE ISLAND

Roger Williams Complex
Generator Project
Phase 2

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No:	Title:	Date:

Sheet Information -

Job No:	248-111
Drawn By:	DS
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Date:	02/23/2024
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Drawing Title -

ELECTRICAL PART PLANS

Sheet Number -

E4.03

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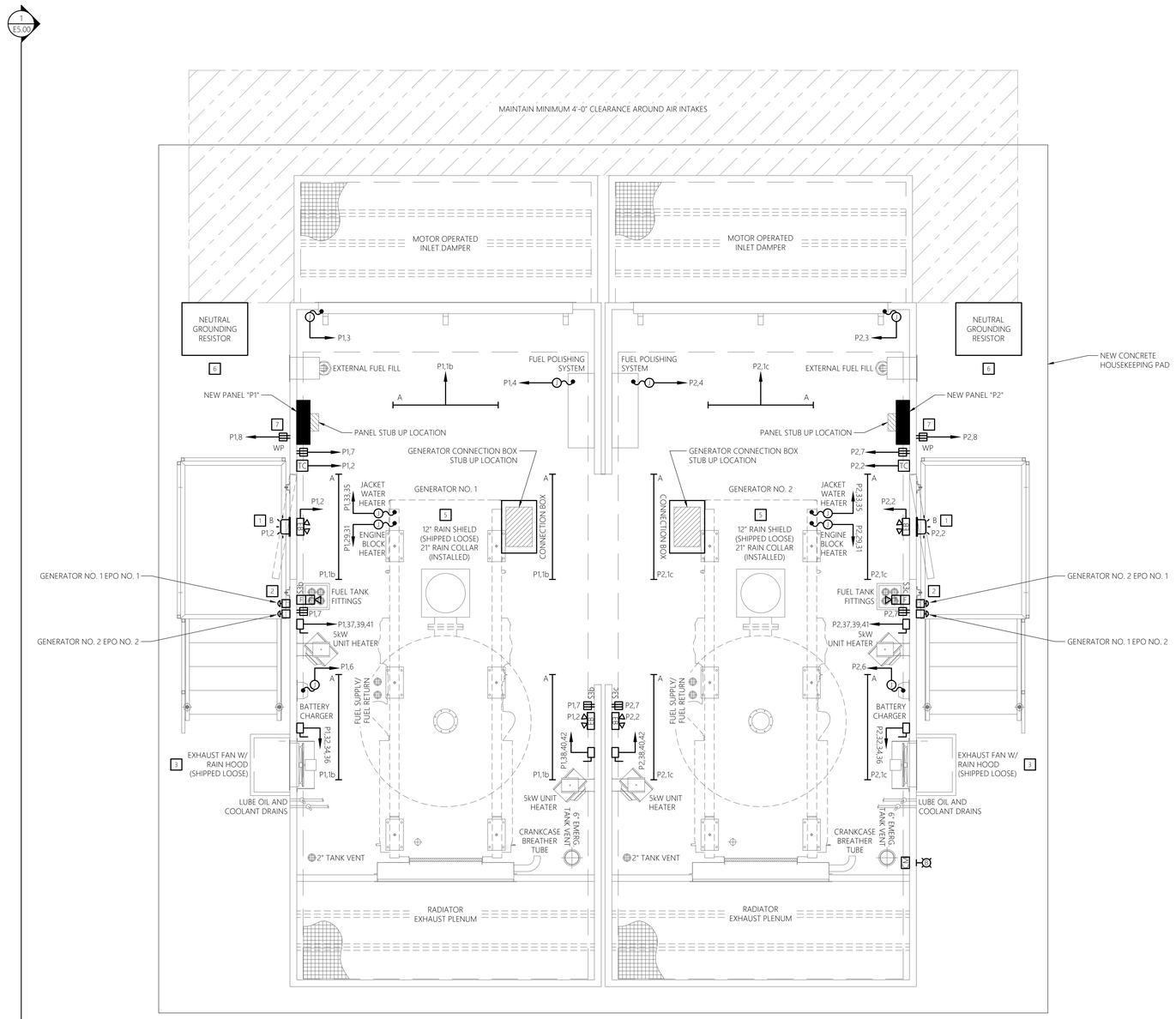

1 GENERATOR ENCLOSURE PART PLAN

SCALE: 1/2" = 1'-0"

GENERAL NOTES

1. REFER TO DRAWING #E0.00 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. GENERATOR PLANT DIMENSIONS, ENCLOSURES AND COMPONENTS BASED ON (2) 1MW DIESEL ENGINE GENERATORS. EXACT SIZES AND LAYOUTS TO BE CONFIRMED DURING SUBMITTAL REVIEW PROCESS.
3. REFER TO CIVIL AND STRUCTURAL DRAWING(S) FOR HOUSEKEEPING PAD REQUIREMENTS.
4. ALL COMPONENTS AND DEVICES INDICATED SHALL BE FURNISHED AND INSTALLED BY ENCLOSURE MANUFACTURER UNLESS NOTED OTHERWISE. REFER TO SPECIFICATIONS AND PLANT ASSEMBLY SCOPE OF WORK NOTES FOR ADDITIONAL INFORMATION.

KEYED NOTES

1. EXTERIOR LIGHTING MOUNTED TO GENERATOR ENCLOSURE SHALL BE FURNISHED BY ENCLOSURE MANUFACTURER AND SHIPPED LOOSE FOR FIELD INSTALLATION BY ELECTRICAL CONTRACTOR.
2. (4) MUSHROOM TYPE EPO BUTTONS FOR GENERATOR SHUT DOWN SHALL BE FURNISHED BY GENERATOR MANUFACTURER AND SHIPPED LOOSE FOR FIELD INSTALLATION BY ELECTRICAL CONTRACTOR.
3. (2) ENCLOSURE EXHAUST FAN RAIN HOODS SHALL BE FURNISHED BY ENCLOSURE MANUFACTURER AND SHIPPED LOOSE FOR FIELD INSTALLATION BY MECHANICAL CONTRACTOR.
4. (2) STAIRWAYS SHALL BE FURNISHED BY ENCLOSURE MANUFACTURER AND SHIPPED LOOSE FOR FIELD INSTALLATION BY GENERAL CONTRACTOR.
5. (2) RAIN SHIELDS FOR GENERATOR EXHAUST STACK SHALL BE FURNISHED BY ENCLOSURE MANUFACTURER AND SHIPPED LOOSE FOR FIELD INSTALLATION BY MECHANICAL CONTRACTOR.
6. NEUTRAL GROUNDING RESISTORS SHALL BE FURNISHED BY GENERATOR MANUFACTURER AND INSTALLED BY ELECTRICAL CONTRACTOR.
7. (2) EXTERIOR MOUNTED RECEPTACLES SHALL BE FURNISHED BY ENCLOSURE MANUFACTURER AND SHIPPED LOOSE FOR FIELD INSTALLATION BY ELECTRICAL CONTRACTOR.

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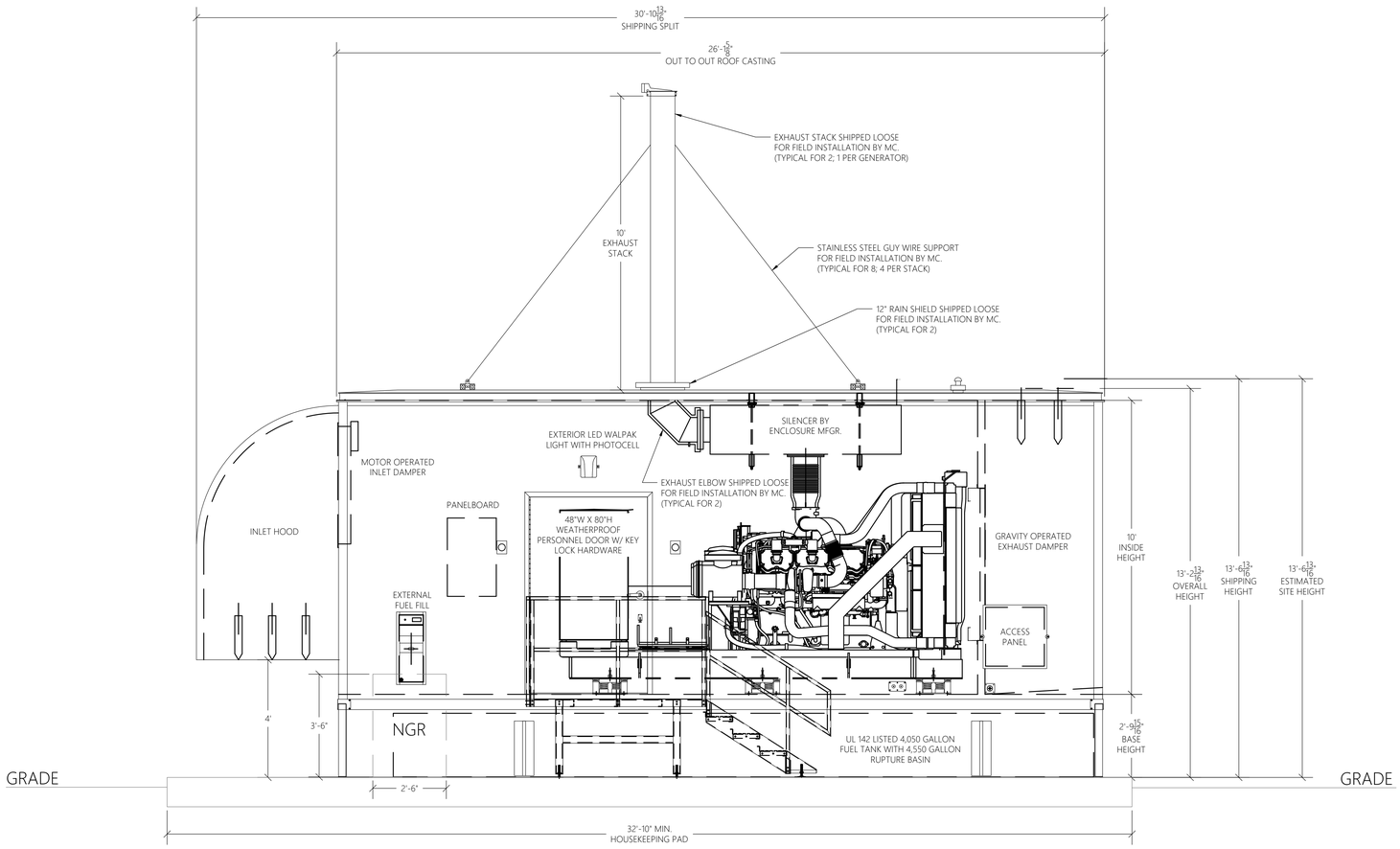

1 TYPICAL GENERATOR ENCLOSURE ELEVATION
SCALE: 1/2" = 1'-0"

GENERAL NOTES

1. REFER TO DRAWING #E0.00 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. GENERATOR PLANT DIMENSIONS, ENCLOSURES AND COMPONENTS BASED ON (2) 1MW DIESEL ENGINE GENERATORS.
3. ELEVATION NOT REPRESENTATIVE OF ALL EQUIPMENT REQUIRED.
4. REFER TO PLANT ASSEMBLY SCOPE OF WORK NOTES (THIS SHEET) FOR ADDITIONAL INFORMATION.
5. GENERATOR AND SWITCHGEAR ENCLOSURE ARRANGEMENT, COMPONENTS AND DIMENSIONAL INFORMATION BASED ON PRELIMINARY DISCUSSIONS WITH GENERATOR MANUFACTURERS. EXACT DIMENSIONS TO BE CONFIRMED DURING SUBMITTAL REVIEW PROCESS.
6. GENERATOR ENCLOSURE COLOR SHALL BE SELECTED BY OWNER FROM MANUFACTURER STANDARD OFFERING DURING SHOP DRAWING REVIEW; PROVIDE COLOR SAMPLES AS PART OF SUBMITTAL.

PLANT ASSEMBLY SCOPE OF WORK

A. THE FOLLOWING LIST OF EQUIPMENT SHALL BE FURNISHED BY THE ENCLOSURE MANUFACTURER AND SHIPPED LOOSE FOR INSTALLATION BY THE GENERAL & ELECTRICAL CONTRACTORS ON SITE UNDER SUPERVISION OF BOTH THE ENCLOSURE MANUFACTURER AND GENERATOR MANUFACTURER TECHNICIANS:
- (2) GENERATOR ENCLOSURES
- (1) SWITCHGEAR ENCLOSURE
- RUBBER GLANDS AND MEMBRANES, AS PART OF THE FIELD JOINING KIT, BETWEEN THE TWO GENERATOR ENCLOSURES
- (8) EXTERIOR LIGHT FIXTURES
- (2) ENGINE EXHAUST ELBOWS AND RAIN SHIELD
- (1) SPLIT SYSTEM AC UNIT HEAT PUMP FOR SWGR ENCLOSURE (OUTDOOR UNIT)
- (2) ENCLOSURE EXHAUST FAN RAIN HOODS
- (2) 10'-0" STAINLESS STEEL GENERATOR EXHAUST STACKS

B. THE FOLLOWING LIST OF EQUIPMENT & DEVICES SHALL BE FURNISHED AND INSTALLED BY THE ENCLOSURE MANUFACTURER AS PART OF THE PRE-SELECT PACKAGE:
- (3) PANELBOARDS
- INTERIOR LIGHTING
- RECEPTACLES
- SWITCHES
- TIMECLOCK FOR EXTERIOR LIGHTING AND SITE LIGHTING
- (4) 5kW ELECTRIC UNIT HEATERS
- (2) ENCLOSURE EXHAUST FANS W/ GRAVITY LOUVER, T'STAT
- (1) SPLIT SYSTEM AC UNIT FOR SWGR SHED (INDOOR UNIT)
- (2) MOTOR OPERATED INLET DAMPERS WITH ACOUSTIGRID AND BIRDSCREEN
- (2) AIR INLET HOODS
- (2) UL LISTED 4,050 GALLON FUEL TANKS W/ 4,550 GALLON RUPTURE BASINS
- (2) ENGINE EXHAUST RAIN COLLARS

C. THE FOLLOWING LIST OF EQUIPMENT SHALL BE FURNISHED BY THE GENERATOR MANUFACTURER AND INSTALLED BY THE ENCLOSURE MANUFACTURER PRIOR TO SHIPMENT:
- (1) PARALLELING SWITCHGEAR
- (1) DUAL GENERATOR CONTROL CUBICLE
- (1) PARALLELING SWGR MASTER CONTROL CUBICLE
- (1) LOAD BANK CONTROL PANEL
- (1) DC STATION POWER BATTERY BANK & CHARGER
- (2) ENGINE START BATTERY CHARGERS (1 PER GENERATOR)
- (2) GENERATOR BATTERY LINEUPS (1 PER GENERATOR)
- (2) FUEL POLISHING SYSTEMS (1 PER GENERATOR)

D. THE FOLLOWING LIST OF EQUIPMENT SHALL BE FURNISHED BY THE GENERATOR MANUFACTURER AND SHIPPED LOOSE FOR INSTALLATION BY THE ELECTRICAL CONTRACTOR ON SITE UNDER SUPERVISION OF GENERATOR MANUFACTURER TECHNICIANS:
- (2) NEUTRAL GROUNDING RESISTORS
- (1) PAD MOUNTED 4,160V LOAD BANK

E. THE FOLLOWING LIST OF EQUIPMENT SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR:
- (1) PAD MOUNTED, OIL FILLED TRANSFORMER
- (1) PAD MOUNTED, 6-WAY VFI SWITCH

F. GENERAL CONTRACTOR SHALL PERFORM A 2-HOUR SPRAY TEST IN THE PRESENCE OF BOTH ENCLOSURE MANUFACTURER AND GENERATOR MANUFACTURER TECHNICIANS UPON COMPLETION OF ENTIRE PLANT ASSEMBLY TO CONFIRM INTEGRITY OF ASSEMBLY FROM WATER INTRUSION. SPRAY TEST SHALL EQUAL 4" PER HOUR.

G. ENCLOSURE MANUFACTURER SHALL FURNISH AND INSTALL RACEWAYS (CONDUIT) AND BOXES REQUIRED FOR FIRE ALARM EQUIPMENT & DEVICES. ELECTRICAL CONTRACTOR SHALL FURNISH AND INSTALL FIRE ALARM EQUIPMENT, DEVICES AND WIRING. RACEWAYS AND CONDUIT TO BE COORDINATED DURING SUBMITTAL REVIEW.

H. ALL INTERCONNECTION WIRING BETWEEN THE THREE (3) GENERATOR PLANT ENCLOSURES NOT LIMITED TO POWER, LOW VOLTAGE/COMMUNICATIONS AND FIRE ALARM SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. ALL PLANT ENCLOSURE PENETRATIONS REQUIRED TO BE PERFORMED IN THE FIELD SHALL BE COORDINATED AND APPROVED BY THE ENCLOSURE MANUFACTURER.

I. ALL INTERCONNECTION POWER & CONTROL WIRING FROM/TO THE THREE (3) GENERATOR PLANT ENCLOSURES, THE LOAD BANK, NEUTRAL GROUNDING RESISTORS, PAD MOUNTED XFMR, AND VFI SWITCH INCLUDING POWER, LOW VOLTAGE/COMMUNICATIONS AND FIRE ALARM SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. ALL PLANT ENCLOSURE PENETRATIONS REQUIRED TO BE PERFORMED IN THE FIELD SHALL BE COORDINATED AND APPROVED BY THE ENCLOSURE MANUFACTURER.

J. G.C. TO PROVIDE STAGING AND PROTECTION OVER GENERATOR AND SWITCHGEAR ENCLOSURES FOR FIELD INSTALLATION OF SHIPPED LOOSE COMPONENTS.

K. ENCLOSURE MANUFACTURER SHALL FURNISH AND INSTALL RACEWAYS (CONDUIT) AND BOXES REQUIRED FOR SECURITY SYSTEM EQUIPMENT. DEVICES, EC SHALL FURNISH AND INSTALL SECURITY EQUIPMENT, DEVICES AND WIRING.

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Drawing Title -

ELECTRICAL ELEVATIONS

Sheet Number -

E5.00

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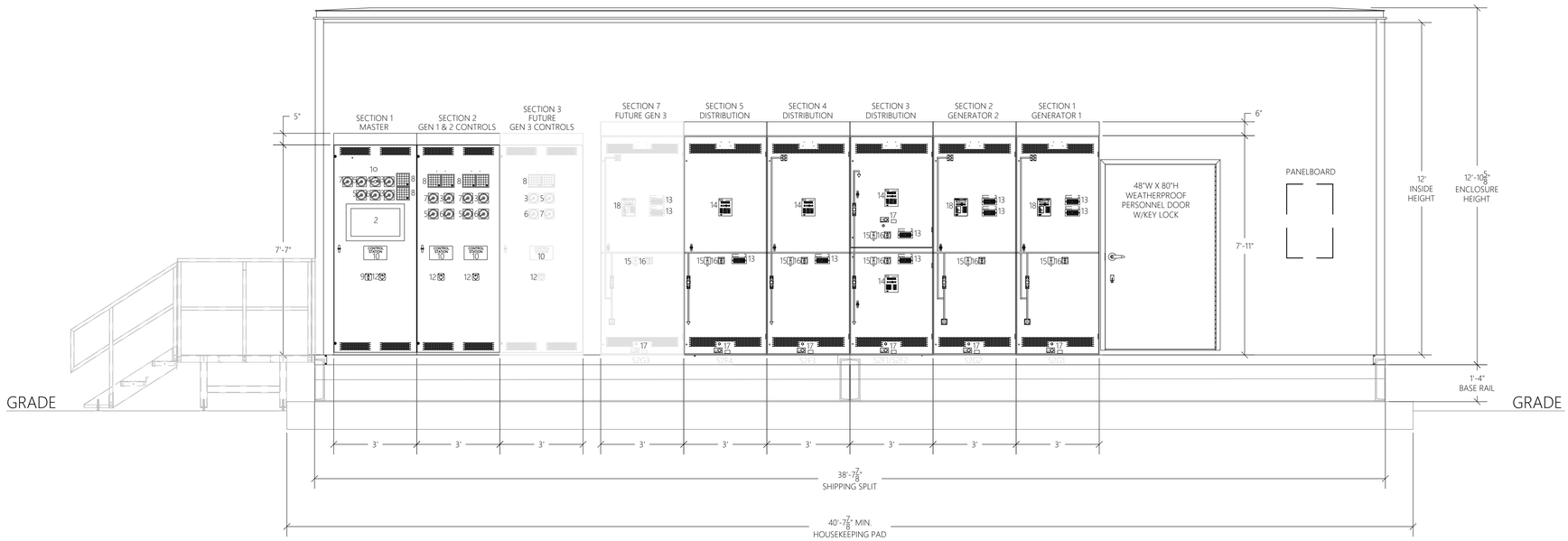
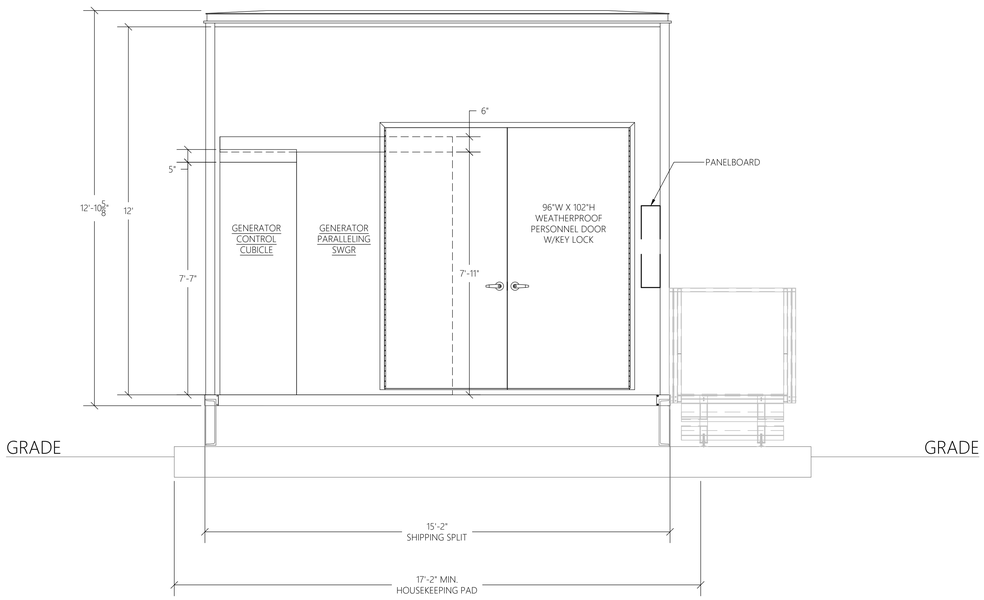


1 PARALLELING SWITCHGEAR ENCLOSURE ELEVATION
SCALE: 1/2" = 1'-0"



2 PARALLELING SWITCHGEAR ENCLOSURE ELEVATION
SCALE: 1/2" = 1'-0"

SWITCHGEAR COMPONENT SCHEDULE

ITEM NO.	DESCRIPTION
1	ALARM HORN
2	24" OPERATOR INTERFACE TERMINAL
3	FREQUENCY METER
4	SYNCHROSCOPE
5	VOLTMETER
6	AMMETER
7	WATTMETER
8	STATUS INDICATOR PANEL
9	PLANT SELECTOR SWITCH
10	MANUAL CONTROL STATION
11	-
12	VOLTMETER/AMMETER SELECTOR SWITCH
13	TEST SWITCH
14	FEEDER PROTECTIVE RELAY, SEL-751
15	CIRCUIT BREAKER CONTROL SWITCH
16	DEVICE 86, LOCKOUT RELAY
17	CIRCUIT BREAKER POSITION INDICATOR
18	GENERATOR PROTECTIVE RELAY, SEL-700G

GENERAL NOTES

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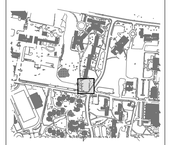

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Phase 2

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Drawing Title -
ELECTRICAL ELEVATIONS

Sheet Number -
E5.01

one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot
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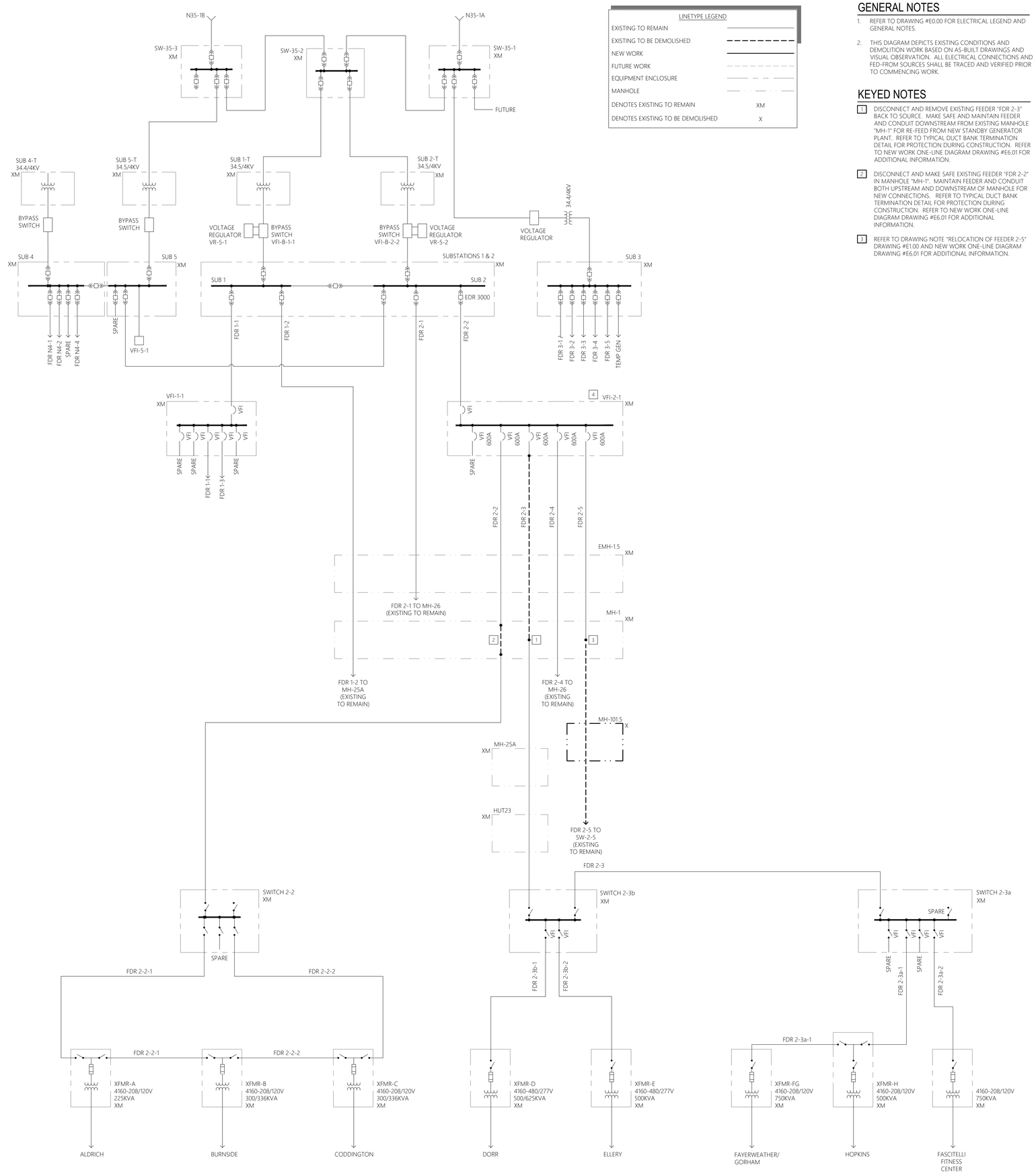

LINETYPE LEGEND	
EXISTING TO REMAIN	
EXISTING TO BE DEMOLISHED	
NEW WORK	
FUTURE WORK	
EQUIPMENT ENCLOSURE	
MANHOLE	
DENOTES EXISTING TO REMAIN	XM
DENOTES EXISTING TO BE DEMOLISHED	X

GENERAL NOTES

1. REFER TO DRAWING #E0.00 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. THIS DIAGRAM DEPICTS EXISTING CONDITIONS AND DEMOLITION WORK BASED ON AS-BUILT DRAWINGS AND VISUAL OBSERVATION. ALL ELECTRICAL CONNECTIONS AND FED-FROM SOURCES SHALL BE TRACED AND VERIFIED PRIOR TO COMMENCING WORK.

KEYED NOTES

1. DISCONNECT AND REMOVE EXISTING FEEDER "FDR 2-3" BACK TO SOURCE. MAKE SAFE AND MAINTAIN FEEDER AND CONDUIT DOWNSTREAM FROM EXISTING MANHOLE "MH-1" FOR RE-FEED FROM NEW STANDBY GENERATOR PLANT. REFER TO TYPICAL DUCT BANK TERMINATION DETAIL FOR PROTECTION DURING CONSTRUCTION. REFER TO NEW WORK ONE-LINE DIAGRAM DRAWING #E6.01 FOR ADDITIONAL INFORMATION.
2. DISCONNECT AND MAKE SAFE EXISTING FEEDER "FDR 2-2" IN MANHOLE "MH-1". MAINTAIN FEEDER AND CONDUIT BOTH UPSTREAM AND DOWNSTREAM OF MANHOLE FOR NEW CONNECTIONS. REFER TO TYPICAL DUCT BANK TERMINATION DETAIL FOR PROTECTION DURING CONSTRUCTION. REFER TO NEW WORK ONE-LINE DIAGRAM DRAWING #E6.01 FOR ADDITIONAL INFORMATION.
3. REFER TO DRAWING NOTE "RELOCATION OF FEEDER 2-5" DRAWING #E1.00 AND NEW WORK ONE-LINE DIAGRAM DRAWING #E6.01 FOR ADDITIONAL INFORMATION.

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ELECTRICAL DEMOLITION ONE-LINE DIAGRAM

Sheet Number -

E6.00

one eighth inch = one foot
one quarter inch = one foot
three eighths inch = one foot
one half inch = one foot
three quarters inch = one foot
one inch = one foot
one and one half inches = one foot

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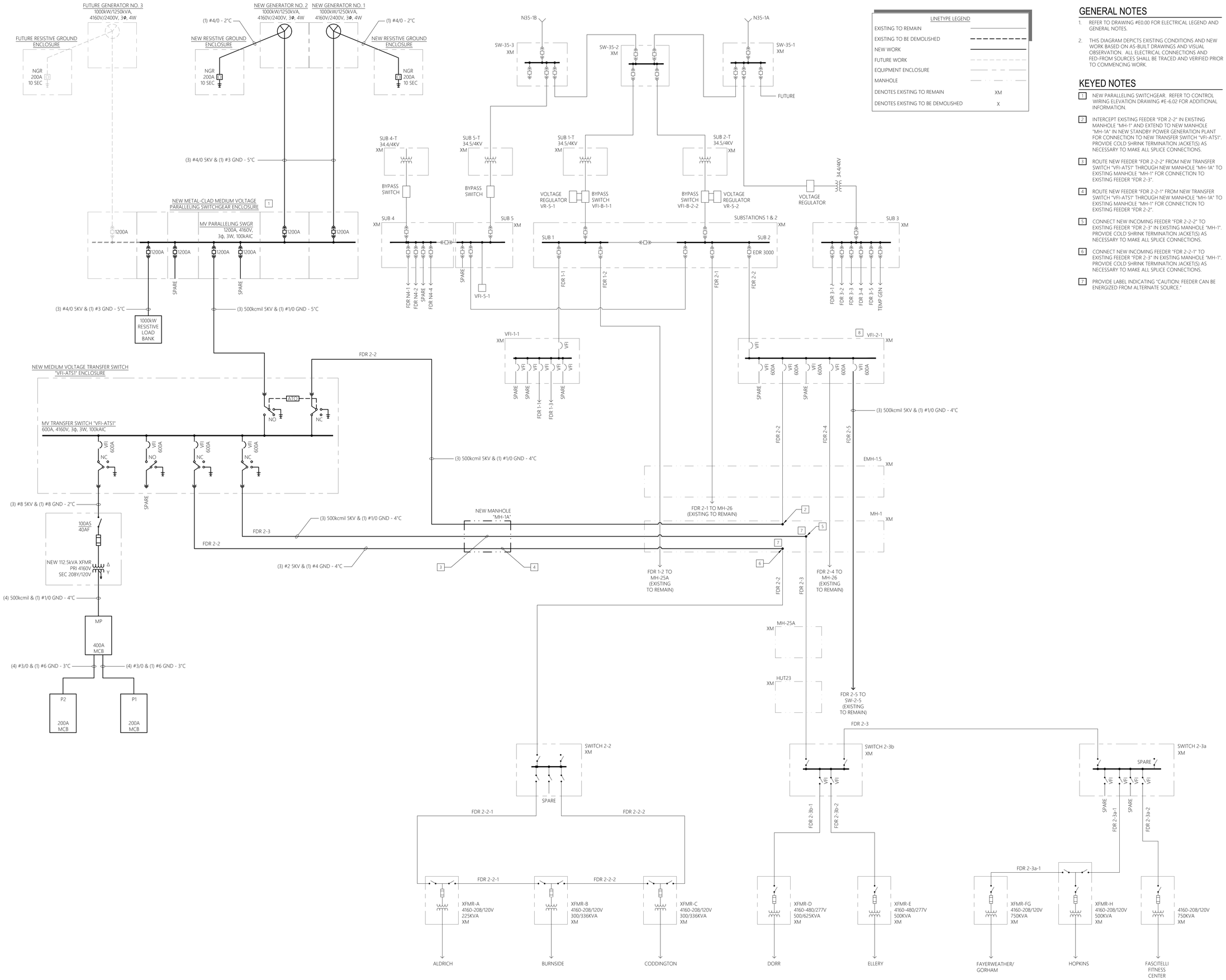

LINETYPE LEGEND	
EXISTING TO REMAIN	
EXISTING TO BE DEMOLISHED	
NEW WORK	
FUTURE WORK	
EQUIPMENT ENCLOSURE	
MANHOLE	
DENOTES EXISTING TO REMAIN	XM
DENOTES EXISTING TO BE DEMOLISHED	X

GENERAL NOTES

1. REFER TO DRAWING #E0.00 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. THIS DIAGRAM DEPICTS EXISTING CONDITIONS AND NEW WORK BASED ON AS-BUILT DRAWINGS AND VISUAL OBSERVATION. ALL ELECTRICAL CONNECTIONS AND FED-FROM SOURCES SHALL BE TRACED AND VERIFIED PRIOR TO COMMENCING WORK.

KEYED NOTES

1. NEW PARALLELING SWITCHGEAR. REFER TO CONTROL WIRING ELEVATION DRAWING #E-6.02 FOR ADDITIONAL INFORMATION.
2. INTERCEPT EXISTING FEEDER "FDR 2-2" IN EXISTING MANHOLE "MH-1" AND EXTEND TO NEW MANHOLE "MH-1A" IN NEW STANDBY POWER GENERATION PLANT FOR CONNECTION TO NEW TRANSFER SWITCH "VFI-ATS1". PROVIDE COLD SHRINK TERMINATION JACKET(S) AS NECESSARY TO MAKE ALL SPLICE CONNECTIONS.
3. ROUTE NEW FEEDER "FDR 2-2-2" FROM NEW TRANSFER SWITCH "VFI-ATS1" THROUGH NEW MANHOLE "MH-1A" TO EXISTING MANHOLE "MH-1" FOR CONNECTION TO EXISTING FEEDER "FDR 2-3".
4. ROUTE NEW FEEDER "FDR 2-2-1" FROM NEW TRANSFER SWITCH "VFI-ATS1" THROUGH NEW MANHOLE "MH-1A" TO EXISTING MANHOLE "MH-1" FOR CONNECTION TO EXISTING FEEDER "FDR 2-2".
5. CONNECT NEW INCOMING FEEDER "FDR 2-2-2" TO EXISTING FEEDER "FDR 2-3" IN EXISTING MANHOLE "MH-1". PROVIDE COLD SHRINK TERMINATION JACKET(S) AS NECESSARY TO MAKE ALL SPLICE CONNECTIONS.
6. CONNECT NEW INCOMING FEEDER "FDR 2-2-1" TO EXISTING FEEDER "FDR 2-3" IN EXISTING MANHOLE "MH-1". PROVIDE COLD SHRINK TERMINATION JACKET(S) AS NECESSARY TO MAKE ALL SPLICE CONNECTIONS.
7. PROVIDE LABEL INDICATING "CAUTION: FEEDER CAN BE ENERGIZED FROM ALTERNATE SOURCE."

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ELECTRICAL
NEW WORK
ONE-LINE DIAGRAM

Sheet Number -

E6.01

one eighth inch = one foot
one quarter inch = one foot
three eighths inch = one foot
one half inch = one foot
three quarters inch = one foot
one inch = one foot
one and one half inches = one foot
User: david skalbek
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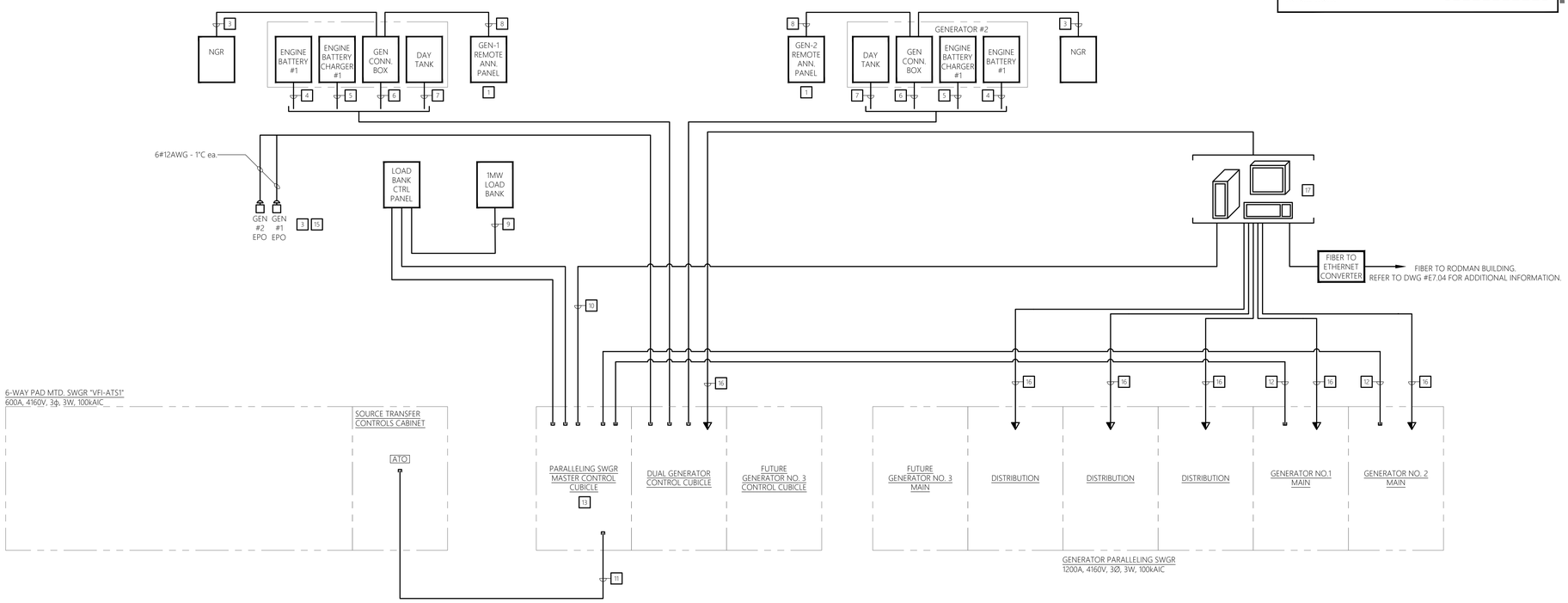


CONTROLS RISER LEGEND

NEW WORK	
EQUIPMENT SEPARATOR	
FUTURE WORK	

1 CONTROL RISER DIAGRAM

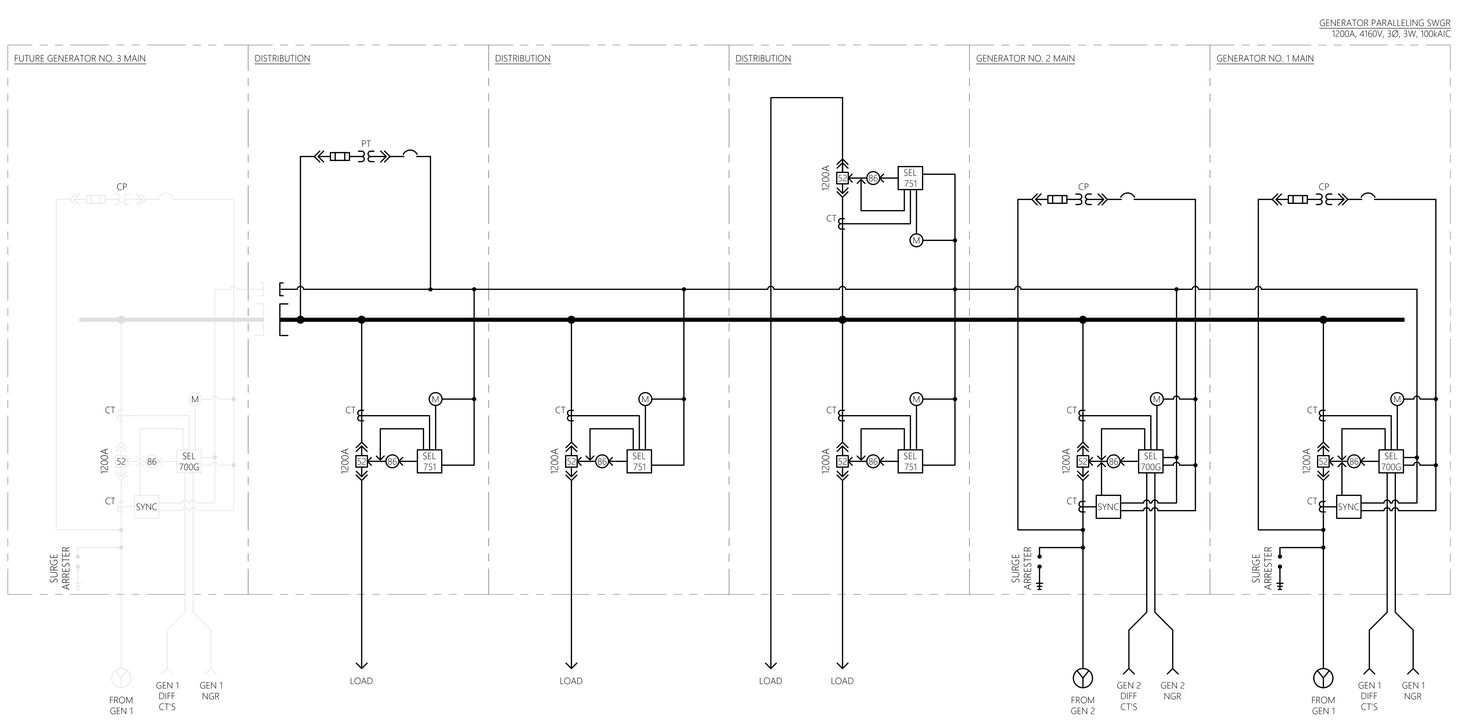
SCALE: NOT TO SCALE

PARALELLING SWITCHGEAR PROTECTION RISER LEGEND

- SPLICE
- RACEWAY BREAK SYMBOL, INDICATES CONTINUATION OF RACEWAY AND/OR WIRING
- BUSSING/WIRING/RACEWAY WITH PROVISIONS FOR EXTENSION TO FUTURE GENERATOR MAIN SECTION
- 1200A 52 — DRAW OUT MEDIUM VOLTAGE CIRCUIT BREAKER
- M — POWER QUALITY METER
- 86 — LOCKOUT RELAY
- SEL 700G — GENERATOR PROTECTION RELAY
- SEL 751 — FEEDER PROTECTION RELAY
- SURGE ARRESTER — DISTRIBUTION CLASS SURGE ARRESTER
- SYNC — DIGITAL SYNCHRONIZER AND LOAD CONTROL
- CP — CONTROL POWER TRANSFORMER
- PT — POTENTIAL TRANSFORMER
- CT — CURRENT TRANSFORMER
- MOLDED CASE CIRCUIT BREAKER
- FUSE
- GENERATOR

PARALELLING SWITCHGEAR PROTECTION RISER LINETYPE LEGEND

NEW WORK	
EQUIPMENT SEPARATOR	
FUTURE WORK	



2 PARALLELING SWITCHGEAR PROTECTION RISER DIAGRAM

SCALE: NOT TO SCALE

GENERAL NOTES

1. REFER TO DWG #E0.00 FOR ALL SYMBOLS, ABBREVIATIONS AND GENERAL NOTES.

KEYED NOTES

1. NEW REMOTE GENERATOR ANNUNCIATOR PANEL TO BE LOCATED IN PARALLELING SWITCHGEAR ENCLOSURE.
2. NOT USED.
3. (4) #10 IN 2"C FROM NGR CURRENT TRANSFORMER TO GENERATOR CONTROLLER.
4. (1) 1"C WITH (4) #6 FOR DC POWER WIRING
5. (1) 3/4"C WITH (8) #14 FOR DC BATTERY CHARGER MONITORING
6. (3) 2"CONDUITS FROM GENERATOR CONTROL PANEL TO CORRESPONDING SWITCHGEAR CONTROL CUBICLE. COORDINATE CONTROL WIRING REQUIREMENTS WITH GENERATOR SUBMITTAL. (1) OF THE 2" CONDUITS SHALL CONTAIN (4) #10 FOR NGR CURRENT TRANSFORMER WIRING.
7. (1) 1"CONDUIT WITH 12#14 FOR MONITORING TANK FUEL LOW LEVEL, CRITICAL LOW LEVEL, HIGH LEVEL, CRITICAL HIGH LEVEL, RUPTURE BASIN LEAK DETECTION AND REMAINING FUEL CAPACITY IN TANK
8. REMOTE ANNUNCIATOR CABLING SHALL BE (2) #14/3 TWISTED SHIELDED CABLE (BELDEN OR EQUAL) RUN IN 2" C FOR DATA LINK AND (4) #12AWG (DC POWER) RUN IN 2" C.
9. (2) 2" CONDUIT (BOTH SPARE) W/ PULL STRINGS FOR FUTURE LOAD BANK CONTROL AND MONITORING STUBBED AND CAPPED IN NEW SECONDARY BUS ENCLOSURE.
10. (1) 2"CONDUIT WITH (4) CAT 5 CABLES FOR POWER MANAGEMENT SYSTEM MONITORING.
11. (20) #12 RUN IN 2" CONDUIT TO S&C 4-WAY SWITCHGEAR AUTO THROW-OVER CONTROLLER FOR THE FOLLOWING:
    a. ENGINE START W/MONITORING
    b. SWGR NORMAL POSITION
    c. SWGR STANDBY POSITION
12. (2) 2"C FOR CONTROLS BETWEEN PARALLELING SWITCHGEAR MAIN SECTION AND MASTER CONTROL CUBICLE. COORDINATE CONTENTS WITH APPROVED SWITCHGEAR SUBMITTALS.
13. PROVISIONS FOR ALL FUTURE CONNECTIONS TO BE PROVIDED IN NEW MASTER CONTROL CUBICLE
14. NOT USED.
15. REFER TO PART PLANS FOR EXACT EPO BUTTON LOCATIONS.
16. DATA DROP FOR NOVA POWER METERING WIRED BACK TO EXISTING POWER HOUSE IT RACK. PROVIDE (1) CAT5 CABLE PER LOCATION SHOWN AND ROUTE BACK TO POWER HOUSE IN COMMON 2" CONDUIT.
17. NEW POWER MANAGEMENT SYSTEM. REFER TO SPECIFICATIONS AND DETAIL NO. 6 ON DWG #E7.00 FOR ADDITIONAL INFORMATION.

POWER MANAGEMENT NOTES

1. NOTE THAT THERE ARE TWO DISTINCT SYSTEMS SHOWN AND REQUIRED. THESE SHALL FROM HERE FORTH BE REFERRED TO AS "THE SHARK INDUSTRIES SYSTEM" AND THE "POWER MANAGEMENT SYSTEM". THE POWER MANAGEMENT SYSTEM SPECIFICATIONS SHALL APPLY TO BOTH SYSTEMS.
2. THE SHARK SYSTEM
   a) THE SYSTEM REQUIREMENTS INCLUDE THE INTEGRATION OF NEW DEVICES INTO AN EXISTING SOFTWARE SYSTEM. PROVIDE FOR A FACTORY TECHNICIAN TO PERFORM ALL SUCH WORK ASSOCIATED WITH THIS INTEGRATION AS REQUIRED FOR A COMPLETE OPERATIONAL SYSTEM
   b) THE EC SHALL PROVIDE ALL WIRING, AS SHOWN ON THE DRAWINGS AND AS REQUIRED TO CONNECT ALL NEW DEVICES INTO THE EXISTING SYSTEM WITHIN THE SUBSTATION AREA.
3. THE POWER MANAGEMENT SYSTEM
   a) THIS SYSTEM HAS AS ITS BASIS OF DESIGN, COOPER INDUSTRIES WITH SMP 16 GATEWAYS AND VISUAL T&D SOFTWARE AT EACH OF TWO SUBSTATION LOCATIONS.
   b) EACH SUBSTATIONS SHALL HAVE A GATEWAY CAPABLE OF BUT NOT LIMITED TO THE FOLLOWING KEY CAPABILITIES:
      i) ACTING AS A HUB FOR ALL INTELLIGENT ELECTRONIC DEVICES (IED) IN THE SUBSTATION AREA
      ii) WEB ENABLING THE ENTIRE SYSTEM iii) SUPPORTING UP TO 128 DEVICES, 64 CONTROL CENTERS AND 20,000 DATA POINTS PER SYSTEM
      iv) EXTRACTING AND CONCENTRATING DATA FROM ANY DEVICE, REGARDLESS OF PROTOCOL
      v) AUTOMATE DATA PROCESSING
   c) THE SOFTWARE PACKAGE SHALL
      i) ENABLE THE PROGRAMMING OF THE SMP-16 GATEWAYS
      ii) LOG ALL EVENTS, ALARMS, OPERATOR ACTIONS AND ALL TRANSITIONS ON ALL DATA POINTS IN A HIGH PERFORMANCE HISTORIAN BASED ON INDUSTRY-PROVEN postgreSQL AND MICROSOFT SQL SERVER DATA BASE
      iii) ELECTRICAL DISTRIBUTION INDUSTRY SHAPES LIBRARIES TO SIMPLIFY DIAGRAM CREATION.
      iv) AUTOMATED AND CUSTOMIZED ONELINES.
      v) PROVIDE FOR A FACTORY TECHNICIAN TO: (1) PERFORM INTEGRATION OF ALL IED'S INTO THE SYSTEM, TO GENERATE INTERACTIVE ONELINES EQUAL IN SCOPE TO THOSE IN THE CONTRACT DOCUMENTS, WITH LINKS TO EACH OTHER AND TO THE INDIVIDUAL IED'S METER COLLECTION PAGE. (2) VISIBLE COLOR CODED DYNAMIC STATUS INDICATION OF ALL SWITCHES AND CIRCUIT BREAKERS MAKING IT POSSIBLE TO KNOW WHICH ARE OPEN, CLOSED OR TRIPPED AT A GLANCE. (3) WITH EACH SWITCH AND CIRCUIT BREAKER HAVING A REAL TIME AMMETER. (4) PROVIDE TRAINING OF UNIVERSITY PERSONEL. (5) PROVIDE A MINIMUM OF 5 FULL DAYS OF ONSITE SERVICES.
   d) PROVIDE ALL NECESSARY INTERFACE COMPONENTS AS REQUIRED TO COMMUNICATE TO THE SYSTEM, OPEN/CLOSED STATUS OF ALL NON-VFI PROTECTED 35KV AND 5KV SWITCHES IN THE PAD MOUNTED SWITCHGEAR.
   e) PROVIDE ALL NECESSARY INTERFACE COMPONENTS AS REQUIRED TO COMMUNICATE POSITION OF ALL GROUNDED VISIBLE BREAK SWITCHES.
4. PROVIDE ALL WIRING AS REQUIRED TO INTERCONNECT AND COLLECT DATA FROM ALL DEVICES INDICATED, INCLUDING BUT NOT LIMITED TO:
   a) ALL PROTECTIVE RELAYS (INCLUDING TYPE 4.1 CONTROLLER AND OTHER RELAYS ASSOCIATED WITH THE VFI'S)
   b) THE VOLTAGE REGULATOR CONTROLLER
   c) BATTERY CHARGER
   d) UPS
5. PROVIDE ALL WIRING IN ACCORDANCE WITH THE NEC, WITH COMMUNICATIONS CABLING BEING RUN IN A SEPARATE CONDUIT AND AS REQUIRED FOR A SINGLE POINT CONNECTION (FOR EACH OF TWO SYSTEMS) TO THE UNIVERSITY'S WIDE AREA NETWORK.
6. COORDINATE WITH THE UNIVERSITY IT DEPARTMENT TO FACILITATE THEIR CONNECTING THESE SYSTEMS TO THEIR SYSTEM.
7. COORDINATE WITH THE UNIVERSITY TO CONNECT POWER MANAGEMENT SYSTEM TO LOCAL AREA NETWORK AND TO ESTABLISH COMMUNICATIONS BETWEEN SUBSTATION 1A/2A AND SUBSTATION 4/5

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Stamp -

Key Plan -

Project Name -
UNIVERSITY OF Rhode Island

UNIVERSITY OF RHODE ISLAND

Roger Williams Complex
Generator Project
Phase 2

100% CONSTRUCTION DOCUMENTS
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02/23/24

Submissions -

No.	Title:	Date:

Sheet Information -

Job No:	248-111
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Drawing Title -
ELECTRICAL RISER DIAGRAMS

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FIRE ALARM WIRING LEGEND

SYMBOL	WIRE TYPE / SIZE	DESCRIPTION
A	#18/2 TWISTED NON-SHIELDED PAIR FLOOR LOOP (RED FPLP CABLE WITH YELLOW STRIPE)	SIGNALING LINE CIRCUIT (SLC) NETWORK / ADD LOOP
B	(2) #16/2 TWISTED SHIELDED PAIR (TSP) • HORN CIRCUIT - RED FPLP CABLE W/ WHITE STRIPE	HORN CIRCUIT
C	#14/2 NON-SHIELDED (THHN) CABLE • STROBE CIRCUIT - BLACK AND ORANGE	NOTIFICATION APPLIANCE CIRCUIT (NAC / STROBE)
D	TBD - OWN CLASS "A" STYLE, (12) STRAND MULTI-MODE FIBER OPTIC CABLE ROUTED IN MIN. 2" CONDUIT FOR PRICING	CAMPUS FIRE ALARM LOOP
E	#14/2 TWISTED NON-SHIELDED PAIR (THHN) CABLE BLACK AND RED	POWER

NOTES:

1. CONDUCTOR SIZES SHOWN ARE MINIMUM SIZE TO BE FURNISHED. ACTUAL INSTALLED SIZES SHALL BE DETERMINED BY EQUIPMENT MANUFACTURERS VOLTAGE DROP CALCULATIONS DURING SUBMITTAL PROCESS.
2. ALL CONDUCTORS AND CABLING USED SHALL BE COMPATIBLE WITH SELECTED FIRE ALARM MANUFACTURER.
3. ELECTRICAL CONTRACTOR SHALL INSTALL FIRE ALARM CABLING AS REQUIRED BY EQUIPMENT MANUFACTURER AND IN COMPLIANCE WITH NFPA 70 & NFPA 72.
4. TYPE "C" AND TYPE "E" CABLES SHALL BE TWISTED PAIRS TO MAINTAIN PROPER POLARITY.
5. ALL WIRING SHALL BE INSTALLED IN MIN. 3/4" CONDUIT UNLESS NOTED OTHERWISE.
6. ALL FIRE ALARM SYSTEM WIRING SHALL COMPLY WITH THE ABOVE STANDARD. NO EXCEPTIONS.

FIRE ALARM RISER LINETYPE LEGEND

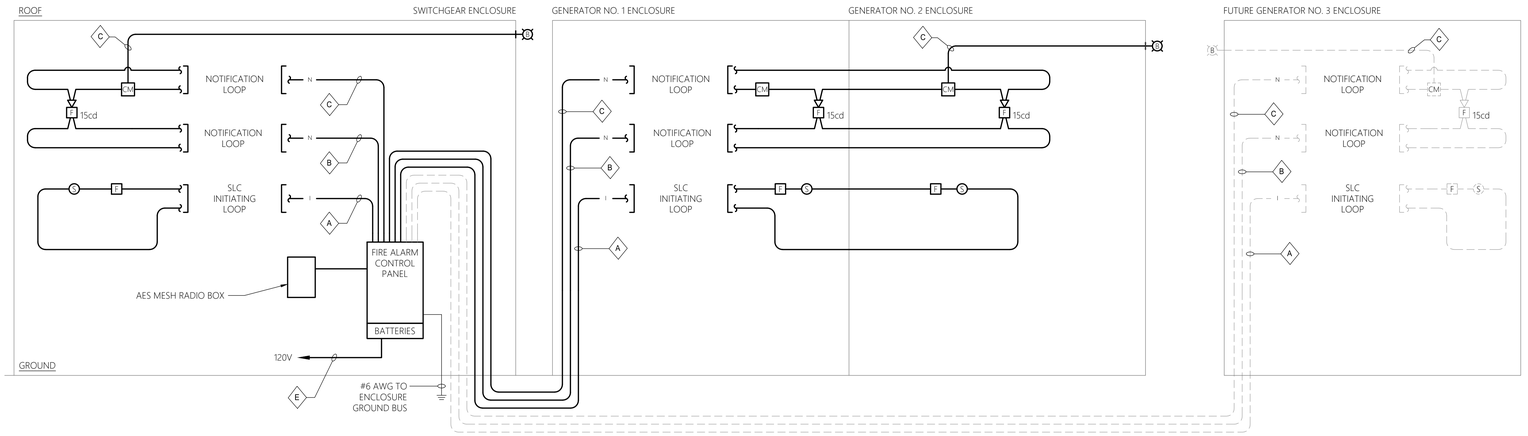
EXISTING TO REMAIN	
EXISTING TO BE DEMOLISHED	
NEW WORK	
FUTURE WORK	
ENCLOSURE OUTLINE	

GENERAL NOTES

1. FOR FIRE ALARM LEGEND, ABBREVIATIONS, GENERAL & NEW WORK NOTES REFER TO DRAWING #E0.00.
2. DEVICES AND WIRING FOR FUTURE GENERATOR NO. 3 ENCLOSURE SHOWN FOR INFORMATIONAL PURPOSES ONLY. REFER TO PART PLAN DWG #E4.00 FOR ADDITIONAL INFORMATION.

FIRE ALARM NOTES

1. THIS RISER DIAGRAM IS REPRESENTATIVE OF TYPICAL DEVICES REQUIRED. IT DOES NOT REFLECT EXACT QUANTITIES. REFER TO FLOOR PLANS FOR EXACT QUANTITIES AND LOCATIONS OF DEVICES.
2. CONNECTION OF FIRE ALARM MODULES TO ASSOCIATED NON-FIRE ALARM SYSTEM EQUIPMENT SHALL NOT EXCEED A DISTANCE OF 3'-0".
3. PROVIDE POWER SUPPLIES AND BOOSTER PANELS FOR STROBE DEVICES AS REQUIRED.
4. PROVIDE ALL INTERCONNECTING WIRING FOR ALL FIRE ALARM COMPONENTS SHOWN IN ACCORDANCE WITH THE SPECIFICATIONS AND AS REQUIRED FOR A COMPLETE OPERATIONAL SYSTEM.
5. ALL WALL PENETRATIONS SHALL BE APPROPRIATELY FIRE SEALED IN ACCORDANCE WITH THE SPECIFICATIONS.
6. FOR SUPPLY AND RETURN CIRCUITS, MAINTAIN 12 INCHES OF SEPARATION FOR VERTICAL CIRCUITS AND 48 INCHES FOR HORIZONTAL.
7. INITIATING DEVICE, NOTIFICATION APPLIANCE, AND SIGNALING LINE CIRCUITS SHALL BE NFPA 72 CLASS A.
8. STROBE SHALL BE FIELD SELECTABLE 15/30/75 CANDELA.
9. SPEAKERS IN GENERATOR ENCLOSURES SHALL BE HIGH-RANGE AND SPEAKERS IN PARALLELING SWITCHGEAR ENCLOSURE SHALL BE LOW RANGE.



1 **FIRE ALARM RISER DIAGRAM**
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Roger Williams Complex
Generator Project
Phase 2

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ELECTRICAL
FIRE ALARM
RISER DIAGRAM

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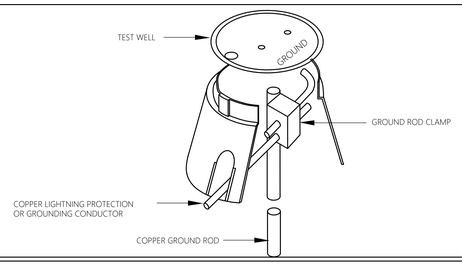
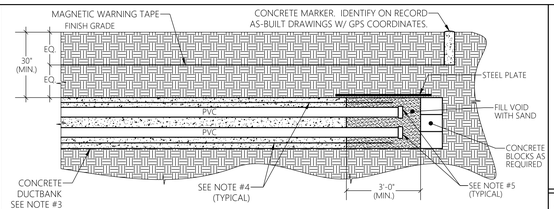


NOTES:
1. PROVIDE ONE (1) GROUNDING TEST WELL FOR EVERY GROUND ROD INSTALLED.

9 GROUND ROD TEST WELL

SCALE: NOT TO SCALE



NOTES:
1. DETAIL SHOWN INDICATES GENERAL CONSTRUCTION REQUIREMENTS OF DUCT BANK TERMINATED FOR FUTURE EXTENSION. REFER TO DUCT BANK SECTIONS FOR ARRANGEMENT.
2. REFER TO SITE PLAN FOR TERMINATION POINT OF DUCT BANK.
3. REFER TO DUCTBANK DETAILS FOR EXACT REQUIREMENTS.
4. EXTEND REBAR MINIMUM OF 18" FOR FUTURE DUCT BANK EXTENSION.
5. EXTEND CONDUITS MINIMUM OF 24" PAST CONCRETE FOR FUTURE EXTENSION. CAP AND PROTECT ENDS OF EXPOSED CONDUITS.
6. CONTRACTOR SHALL INCLUDE PHOTOS WITH RECORD AS-BUILTS.

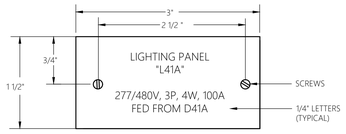
6 TYPICAL DUCT BANK TERMINATION DETAIL

SCALE: NOT TO SCALE

NOTES
1. THE ELECTRICAL CONTRACTOR SHALL PROVIDE SELF ADHESIVE ARC FLASH WARNING LABELS IN ACCORDANCE WITH NFPA 70E AND NEC 110.16 FOR ELECTRICAL DISTRIBUTION EQUIPMENT BEING INSTALLED AS NEW OR BEING MODIFIED AS A RESULT OF THE SCOPE OF WORK OF THIS PROJECT. EQUIPMENT SHALL INCLUDE, BUT NOT BE LIMITED TO, DISCONNECTS, PANELBOARDS, HVAC EQUIPMENT CONTROL PANELS OPERATING AT 240V OR ABOVE, VFD'S, UPS UNITS,ETC.
2. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING THE ARC FLASH HAZARD LABELS ON THE ASSOCIATED EQUIPMENT.
3. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

3 TYPICAL ARC FLASH PROTECTION WARNING LABEL

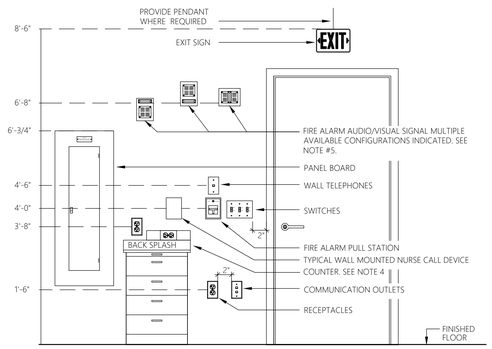
SCALE: NOT TO SCALE



NOTES:
1. REFER TO SPECIFICATIONS FOR ADDITIONAL NAMEPLATE REQUIREMENTS.
2. NAMEPLATE TO BE 1/16" THICK BLACK BAKELITE PLASTIC WITH WHITE RECESSED ENGRAVED LETTERS.
3. SECURE NAMEPLATE TO SURFACES WITH (2) FLAT HEAD BRASS SCREWS. ADHESIVE CEMENT SHALL NOT BE ALLOWED.
4. NAMEPLATE INFORMATION SHALL INCLUDE DEVICE NAME, SUPPLY VOLTAGE, AMPERAGE AND LOCATION FED FROM.

1 TYPICAL NAMEPLATE DETAIL

SCALE: NOT TO SCALE



NOTES:
1. DEVICE LOCATIONS AND MOUNTING HEIGHTS SHALL BE CHECKED AGAINST THE ARCHITECTURAL PLANS AND ELEVATIONS PRIOR TO ROUGH-IN IN ORDER TO AVOID INTERFERENCES WITH CASEWORK, FURNITURE, WINDOWS, MIRRORS, EQUIPMENT, ETC.
2. LOCATIONS OF OUTLETS AND EQUIPMENT AS INDICATED ON THE DRAWINGS ARE APPROXIMATE. THE EXACT CENTER OF ALL OUTLETS SHALL BE PLACED IN COOPERATION WITH THE GENERAL CONTRACTOR AND ARCHITECT. CONTRACTOR SHALL EXAMINE ALL INTERIOR DETAILS OF THE CONSTRUCTION DRAWINGS FOR OUTLET LOCATIONS NOT CONFORMING TO THE DETAIL ABOVE. WHERE DETAILED TO SPECIFIC LOCATIONS, THE ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE. IF AN OUTLET IS INSTALLED IN SUCH A LOCATION AS TO BE OUT OF PROPER RELATION TO WALLS OR DETAILS OF THE BUILDING, ITS LOCATION SHALL BE CORRECTED BY AND AT THE EXPENSE OF THE CONTRACTOR UNDER THE DIRECTION OF THE ARCHITECT OR ENGINEER.
3. DEVICES SHALL BE CENTERED IN A COMMON VERTICAL PLANE. HEIGHT SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE EXCEPT EXIT SIGNS, AND FIRE ALARM SIGNALS. COORDINATE LOCATION WITH MATERIALS SUCH AS MASONRY UNITS.
4. REFER TO THE ARCHITECT'S ELEVATION DETAILS FOR EXACT MOUNTING HEIGHT AND LENGTH OF SURFACE RACEWAYS. RECEPTACLE MOUNTING HEIGHT ABOVE COUNTERS SHALL BE COORDINATED WITH CASEWORK HEIGHTS.
5. THE ENTIRE LENS OF A FIRE ALARM A/V SIGNAL OR VISUAL-ONLY SIGNAL SHALL BE LOCATED BETWEEN 6'-8" A.F.F. AND 8'-0" A.F.F. OR 6" BELOW CEILING (WHICHEVER IS LOWER). ELEVATION SHALL BE CONSISTANT THROUGHOUT PROJECT.

10 TYPICAL DEVICE MOUNTING HEIGHTS

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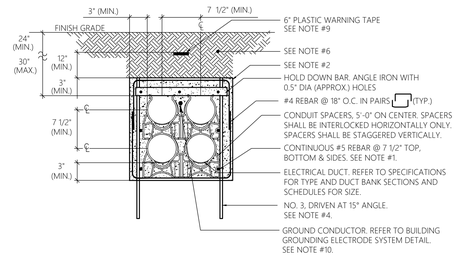

NOTES:
1. DUCT BANK SHALL BE ENCASED IN CONCRETE WITH AT LEAST THREE INCHES OF CONCRETE AT THE TOP, BOTTOM, AND SIDES. THIS IS A TYPICAL EXAMPLE OF DUCT BANK CONSTRUCTION. FOR ADDITIONAL COLUMN AND/OR ROW OF CONDUIT PROVIDE AN ADDITIONAL #REBAR SPACED AS NOTED ABOVE.
2. THE CONCRETE SHALL INCORPORATE 3/8" AGGREGATE WITH A NORMAL COMPRESSIVE STRENGTH OF 2,500 LBS. PER SQUARE INCH. THE SLUMP SHALL BE AT THE UPPER END OF THE RANGE, PREFERABLY 7 TO 8 INCHES. IT SHOULD HAVE JUST ENOUGH TO SLUMP TO FLOW TO THE BOTTOM OF THE DUCT BANK AND YET NOT BE SO WET AS TO CAUSE THE CONDUITS TO FLOAT EXCESSIVELY. COORDINATE EXACT REQUIREMENTS WITH CIVIL ENGINEER.
3. WHEN PLACING CONCRETE AROUND CONDUITS ADJUST THE DELIVERY CHUTE SO THE FALL OF THE CONCRETE INTO THE TRENCH IS MINIMAL. POUR THE CONCRETE SLOWLY AND DISTRIBUTE IT EVENLY SO AS NOT TO DISLODGE THE SPACERS.
4. THE REBAR STAKES AND HOLD DOWN BARS ARE REQUIRED TO PREVENT THE FLOATATION OF THE DUCT BANK. FLOATATION IS CAUSED BY DUCT BUOYANCY AND CHURNING OF THE CONCRETE DURING THE POUR. FOUR SETS OF REBAR STAKES AND HOLD DOWN BARS SHOULD BE USED PER 20 FEET OF DUCT BANK. THE 3" EXTENSION OF THE REBAR ABOVE THE DUCTS IS TO BE USED AS A CONCRETE GAUGE.
5. CONCRETE ENVELOPE SHALL BE POURED IN FORM. DO NOT USE THE SIDES OF THE TRENCH TO FORM THE VERTICAL WALLS, UNLESS APPROVED BY ENGINEER.
6. BACKFILL DUCTS WITH SELECT FILL BACKFILL TRENCH BANK IN LAYERS AFTER CONCRETE HAS SET.
7. STEEL REINFORCING RODS SHALL BE INTERFACED WITH BUILDING FOUNDATION AND MANHOLE WALLS TO MINIMIZE SHEARING.
8. CONCRETE CONSTRUCTION JOINTS SHALL NOT BE SPACED LESS THAN 40 FEET O.C..
9. PLASTIC WARNING TAPE SHALL BE "EXTRA STRETCH" 6" WIDE AS MANUFACTURED BY TERRA-TAPE, DIVISION OF REEF INDUSTRIES OR APPROVED EQUAL. COLOR CODE SHALL BE AS FOLLOWS; RED-ELECTRIC, ORANGE-COMMUNICATIONS. IMPRINTED TEXT SHALL IDENTIFY DUCT BANK SERVICE. UTILIZE NON-DETECTABLE TAPE FOR ELECTRIC DUCTS AND METALLIZED DETECABLE TAPE FOR COMMUNICATIONS DUCTS.
10. REQUIRED FOR SERVICE ENTRANCE DUCTBANK ONLY. REFER TO BUILDING GROUNDING ELECTRODE DETAIL.
11. BACKFILL DUCT BANK IN LAYERS AND MANUALLY TAMP OR "PUDDLE" CONCRETE FILL. PROVIDE RED DUCT MARKER TAPE WITH BLACK LETTERING READING: "CAUTION ELECTRICAL LINES BELOW", OVER ENTIRE LENGTH OF DUCTLINE. LOCATE TAPES 12 INCHES BELOW GRADE. PROVIDE A TAPE FOR EVERY 12 INCHES OF WIDTH OF DUCTLINE.
12. PRIMARY CONDUIT SHALL NOT BE LOCATED DIRECTLY ABOVE/BELOW LOW VOLTAGE OR COMMUNICATION CONDUIT, EXCEPT WHEN CROSSING BELOW LOW VOLTAGE OR COMMUNICATION CONDUIT AT APPROXIMATELY RIGHT ANGLES. PRIMARY CONDUIT AND LOW VOLTAGE OR COMMUNICATION CONDUIT SHALL BE MINIMUM 12" SEPARATION AND BY A MINIMUM OF 3" OF CONCRETE ENCASEMENT.

7 TYPICAL REINFORCED CONCRETE DUCT BANK CONSTRUCTION DETAIL

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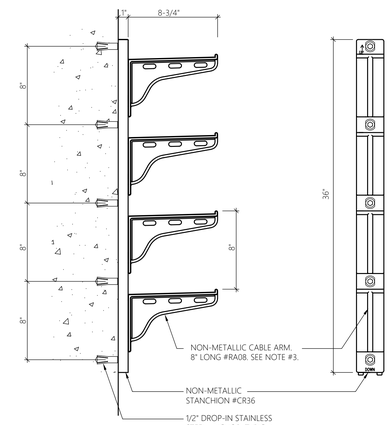
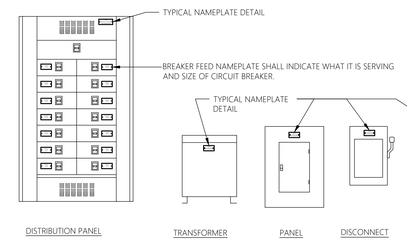


NOTES:
1. NON - METALLIC CABLE RACK COMPONENTS SHALL BE 50% GLASS REINFORCED NYLON. ALL METAL HARDWARE SHALL BE STAINLESS STEEL.
2. ALL CATALOG NUMBERS ARE THOSE OF "UNDERGROUND DEVICES INC." EQUIPMENT SHALL BE BY UNDERGROUND DEVICES INC. OR APPROVED EQUAL.
3. OTHER ARMS LENGTHS SHALL BE 14" (#RA14) AND 20" (#RA20) SEE RESPECTIVE MANHOLE DETAIL.

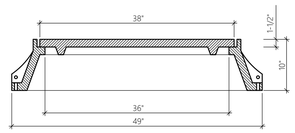
4 MANHOLE CABLE RACK DETAIL

SCALE: NOT TO SCALE

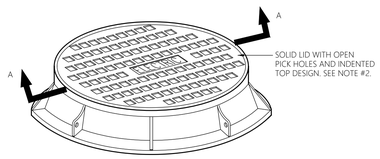


2 TYPICAL NAMEPLATE LOCATIONS

SCALE: NOT TO SCALE



SECTION A–A

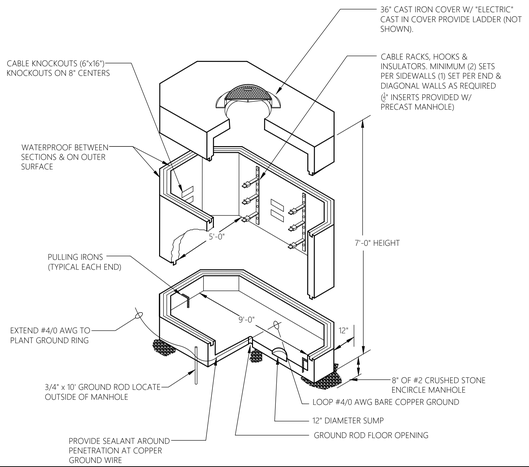


PERSPECTIVE

NOTES:
1. COORDINATE EXACT REQUIREMENTS WITH RESPECTIVE UTILITY COMPANY OR SERVICE PROVIDER AS REQUIRED.
2. LID TO BE LETTERED "ELECTRIC" OR TELEPHONE". REFER TO RESPECTIVE MANHOLE DETAIL.
3. MANHOLE FRAME AND LID SHALL BE "NEENAH FOUNDRY" 3r - 1640 - D OR EQUAL.

8 MANHOLE FRAME DETAIL

SCALE: NOT TO SCALE



NOTES:
1. CONCRETE - 5,000 P.S.I. MIN. STRENGTH @ 28 DAYS.
2. STEEL REINFORCEMENT - ASTM A-615, GRADE 60.
3. COVER TO STEEL - 1" MINIMUM.
4. VAULTS ARE DESIGNED TO MEET ASTM C857 AND ACI 318 WITH AASHTO HS-20 LOADING.
5. CONSTRUCTION JOINT - SEALED WITH BUTYL RUBBER RESIN OR EQUIVALENT.
6. PROVIDE WATERPROOFING TO ALL OUTSIDE SURFACES.

5 MANHOLE DETAIL

SCALE: NOT TO SCALE

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E7.00

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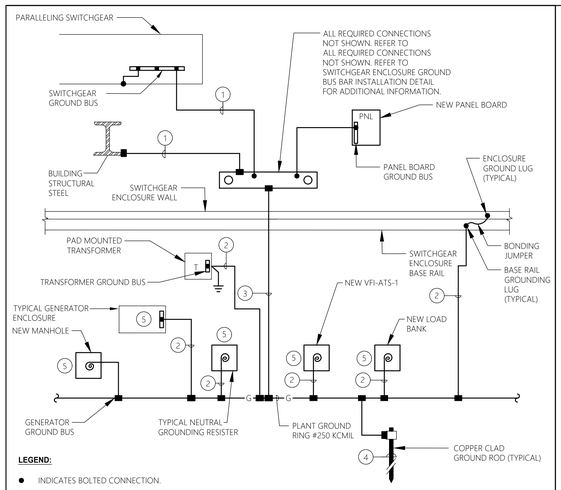
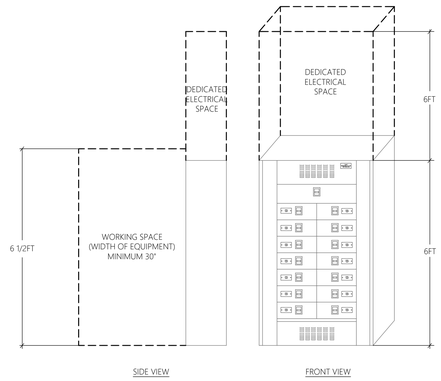


LEGEND:

- ● INDICATES BOLTED CONNECTION.
- ■ INDICATES EXOTHERMIC WELD CONNECTION, COMPATIBLE WITH MATERIALS BEING JOINED.
- (1) 4/0 AWG INSULATED COPPER GROUND CONDUCTOR IN 1 1/4" CONDUIT.
- (2) 4/0 AWG COPPER GROUND CONDUCTOR.
- (3) 4/0 AWG BARE COPPER GROUND CONDUCTOR.
- (4) 3/4" x 10'-0" LONG COPPER-CLAD GROUND ROD DRIVEN WITH TOP 1'-0" BELOW GRADE.
- (5) 4/0 AWG BARE COPPER GND. W/ 3'-0" MIN. SLACK ABOVE TOP OF HOUSEKEEPING PAD FOR CONNECTION TO EQUIPMENT GROUND TERMINAL.

6 BUILDING GROUNDING ELECTRODE SYSTEM DETAIL

SCALE: NOT TO SCALE

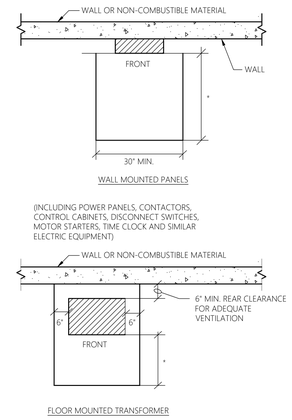


NOTES:

1. * DENOTES MINIMUM WORKING CLEARANCE (IN THE DIRECTION OF ACCESS TO LIVE PARTS) REQUIRED BY N.E.C. 110-26(a)
   - 3FT. FOR 0-150 VOLT TO GROUND ELECTRIC EQUIPMENT
   - 3 1/2 FT. FOR 150-600 VOLT TO GROUND (CONDITION 2 "LIVE TO GROUNDED PARTS")
   - 4 FT. FOR 150-600 VOLT TO GROUND (CONDITION 3 "LIVE PARTS TO LIVE PARTS")
   - 3FT. FOR 1001 - 2500V TO GROUND ELECTRICAL EQUIPMENT
   - 4FT. FOR 1001 - 2500V TO GROUND (CONDITION 2 "LIVE TO GROUNDED PARTS")
   - 5FT. FOR 1001 - 2500V TO GROUND (CONDITION 3 "LIVE PARTS TO LIVE PARTS")
2. THE MINIMUM HEADROOM OF WORKING SPACE SHALL BE 6'

4 WORKING SPACE & DEDICATED ELECTRICAL SPACE DETAIL

SCALE: NOT TO SCALE



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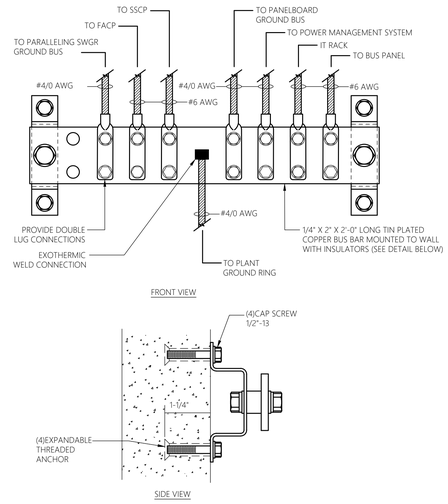
   - 4 FT. FOR 150-600 VOLT TO GROUND (CONDITION 3 "LIVE PARTS TO LIVE PARTS")
   - 3FT. FOR 1001 - 2500V TO GROUND ELECTRICAL EQUIPMENT
   - 4FT. FOR 1001 - 2500V TO GROUND (CONDITION 2 "LIVE TO GROUNDED PARTS")
   - 5FT. FOR 1001 - 2500V TO GROUND (CONDITION 3 "LIVE PARTS TO LIVE PARTS")
2. THE MINIMUM HEADROOM OF WORKING SPACE SHALL BE 6 1/2 FT.

1 REQUIRED CLEARANCE FOR ELECTRICAL EQUIPMENT

SCALE: NOT TO SCALE

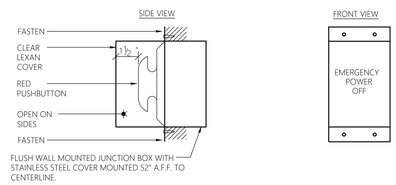


NOTES:

1. BUS BAR ASSEMBLY SHALL BE EQUAL TO ERICO #TGB-A25L14P.
2. BOND PANELBOARD(S) WHICH SERVICES EQUIPMENT WITHIN ROOM.
3. CONDUCTORS ILLUSTRATED REPRESENT MINIMUM SIZES. CONDUCTORS SHALL BE INCREASED AS REQUIRED TO MATCH SOURCE PANELBOARD FEEDER GROUNDING CONDUCTOR SIZE.

5 SWITCHGEAR ENCLOSURE GROUND BUS BAR INSTALLATION DETAIL

SCALE: NOT TO SCALE

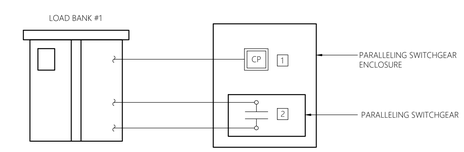


NOTE:

1. PROVIDE RED MUSHROOM MOMENTARY CONTACT OPERATOR (SQUARE D #KR-25R OR APPROVED EQUAL) AND TWO CONTACT BLOCKS WITH NORMALLY OPEN CONTACTS (SQUARE D #KA-2 OR APPROVED EQUAL).
2. PUSHBUTTON SHALL BE INSTALLED IN STAINLESS STEEL COVER WITH ENGRAVED LABEL "EMERGENCY POWER OFF" AS SHOWN.

2 EMERGENCY POWER OFF (EPO) PUSHBUTTON DETAIL

SCALE: NOT TO SCALE



KEYED NOTES:

1. LOAD BANK CONTROL PANEL. LOAD BANK CONTROL PANEL SHALL BE LOCATED IN NEW PARALLELING SWITCHGEAR ENCLOSURE WITH LOAD BANK DISCONNECT. PANEL SHALL ACCESSIBLE FROM THE FRONT. REFER TO SPECIFICATIONS FOR DETAILS.
2. LOAD DUMP CONTACTS.

3 LOAD BANK INTERCONNECTION DETAIL

SCALE: NOT TO SCALE

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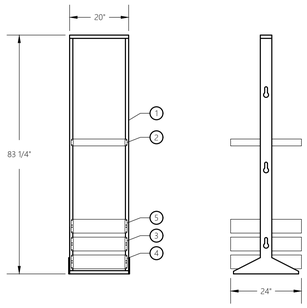
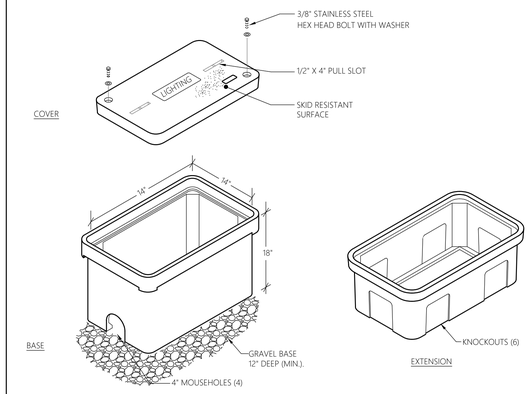
User: david skarbek

ITEM	QTY.	CATALOG NO.	DESCRIPTION *1
1	1	SEE SPEC.	DATA RACK
2	1	SEE SPEC.	RACK MOUNTED KEYBOARD AND MONITOR
3	1	SEE SPEC.	COMPUTER CPU
4	1	SEE SPEC.	UPS AND BATTERY
5	1	SEE SPEC.	PRINTER

*1 SEE SPECIFICATIONS FOR MORE DETAILS

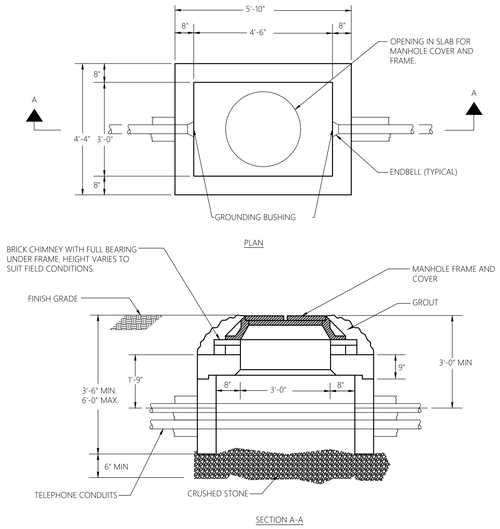


6 COMPUTER RACK DETAIL — SCALE: NOT TO SCALE



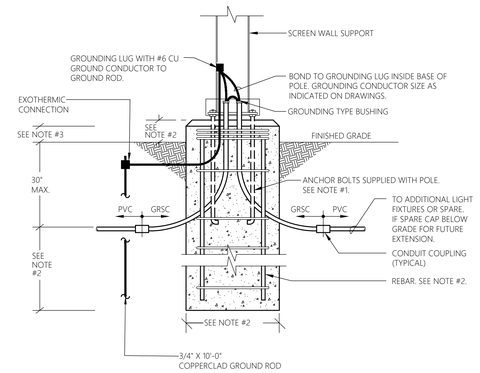
NOTES:
1. COORDINATE HANDHOLE BOX AND COVER COLOR WITH OWNER PRIOR TO PURCHASE.
2. PROVIDE 1" X 4" BELL PULL SLOT FOR EACH HANDHOLE
3. PROVIDE HANDHOLES BY QUAZITE OR APPROVED EQUAL
4. COVER, RING, AND BOX SHALL BE MADE OF THE SAME MATERIAL
5. PROVIDE IMPRINTED LOGO TO MATCH

4 TYPICAL HANDHOLD DETAIL — SCALE: NOT TO SCALE



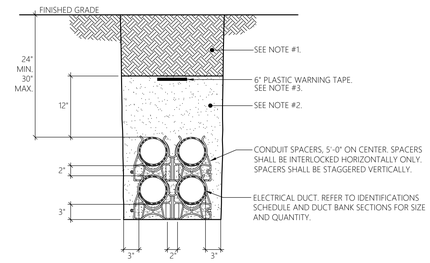
NOTES:
1. HANDHOLE SHALL PROVIDE H20 x1.25 LOADING MINIMUM.

1 HANDHOLE DETAIL — SCALE: NOT TO SCALE



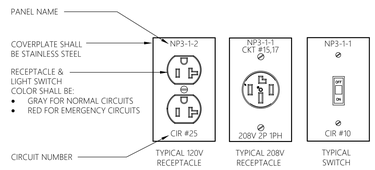
NOTES:
1. FURNISH GENERAL CONTRACTOR WITH POLE BASE BOLT TEMPLATE PRIOR TO CONCRETE POUR.
2. REFER TO STRUCTURAL, CIVIL, AND ARCHITECTURAL DRAWINGS FOR POLE BASE SIZE AND REBAR REQUIREMENTS.
3. COORDINATE POLE BASE HEIGHT WITH ARCHITECT.
4. COORDINATE EXACT ANCHOR BOLT REQUIREMENTS WITH ARCHITECTS AND/OR CIVIL ENGINEER e.g. BREAK - AWAY TYPE.

5 TYPICAL SCREEN WALL SUPPORT MOUNTED LIGHT FIXTURE — SCALE: NOT TO SCALE



NOTES:
1. BACKFILL DUCT BANK WITH SELECT FILL BACKFILL IN LAYERS.
2. SAND BACKFILL WHEN PLACING SAND POUR SLOWLY AND DISTRIBUTE IT CAREFULLY SO AS NOT TO DISLODGE THE SPACERS.
3. PLASTIC WARNING TAPE SHALL BE "EXTRA STRETCH", 6" WIDE, AS MANUFACTURED BY TERRA - TAPE, DIVISION OF REEF INDUSTRIES OR APPROVED EQUAL. COLOR CODE SHALL BE AS FOLLOWS: RED-ELECTRIC, ORANGE-COMMUNICATIONS. IMPRINTED TEXT SHALL IDENTIFY DUCTBANK SERVICE. UTILIZE NON-DETECTABLE TAPE FOR ELECTRIC DUCTS AND METALLIZED DETECTABLE TAPE FOR COMMUNICATION DUCTS.

2 TYPICAL DIRECT BURIED DUCTBANK CONSTRUCTION — SCALE: NOT TO SCALE



NOTES:
1. PANEL NAMES AND CIRCUIT NUMBERS SHALL BE MACHINE ENGRAVED (NO P-TOUCH LABELING ALLOWED)

3 TYPICAL DEVICE COVER PLATE LABELING DETAIL — SCALE: NOT TO SCALE

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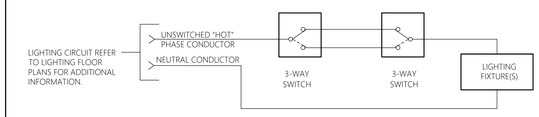


CONTROL SEQUENCE OF OPERATION:

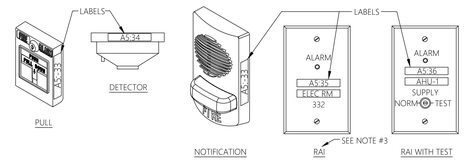
1. UPON SPACE BEING OCCUPIED, LIGHTS SHALL REMAIN IN CURRENT STATUS.
2. USER IS MANUALLY ABLE TO TURN LIGHTS ON/OFF AND LIGHT FIXTURE ILLUMINATION IS FIXED.
3. AFTER SPACE HAS BEEN VACATED, LIGHTS SHALL REMAIN IN CURRENT STATUS.

NOTES:

1. PROVIDE 0-10V CONTROL WIRING BETWEEN ALL LIGHT FIXTURES AND CONTROLS OPERATED BY SWITCHES. STORE EXCESS WIRING IN SWITCH BACKBOX.

1 THREE WAY SWITCH

SCALE: NOT TO SCALE

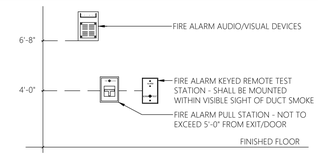


NOTES:

1. PROVIDE A LABEL ON ALL FIRE ALARM DEVICES. UTILIZE CLEAR SELF-ADHESIVE VINYL LABELS WITH LETTERING EASILY VISIBLE WITHOUT A LADDER.
2. LABEL ALL DEVICES WITH ADDRESS/ZONE INFORMATION AND WHERE APPLICABLE EQUIPMENT MONITORED (E.G. AHU-1 SUPPLY).
3. RAI IS REMOTE ALARM INDICATING LIGHT.

2 TYPICAL FIRE ALARM DEVICE LABELING

SCALE: NOT TO SCALE

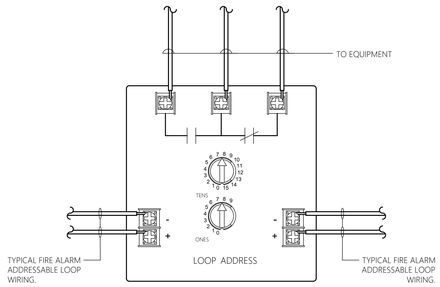


NOTES:

1. ALL MOUNTING HEIGHTS SHALL BE MEASURED FROM FINISHED FLOOR TO CENTERLINE OF DEVICE EXCEPT EXIT SIGNS AND FIRE ALARM VISUAL DEVICES.
2. DEVICES SHALL BE INSTALLED ON A COMMON VERTICAL CENTERLINE WHEREVER POSSIBLE.
3. FIRE ALARM AUDIO/VISUAL DEVICE TO BE MOUNTED AT 6'-8" ABOVE FINISHED FLOOR OR AT 6" BELOW FINISHED CEILING, WHICHEVER IS LOWER. DIMENSION IS TO THE CENTERLINE OF THE VISUAL PORTION OF THE DEVICE.
4. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH ARCHITECT AND ARCH. PLAN ELEVATIONS PRIOR TO ROUGHING IN ANY DEVICES ABOVE COUNTERS.

3 TYPICAL FIRE ALARM DEVICE ELEVATION DETAIL

SCALE: NOT TO SCALE



FIRE ALARM RELAY

DRAWING SYMBOL: CM

NOTES:

1. THE DIAGRAM REPRESENTS A TYPICAL FIRE ALARM RELAY MODULE WIRING DIAGRAM.
2. PROVIDE FIRE ALARM RELAY MODULES FOR CONTROL OF THE FOLLOWING. NOTE THAT THIS LIST IS A REPRESENTATION OF THE TYPICAL DEVICES CONTROLLED. ALL OF THE ITEMS IN THE LIST MAY NOT BE APPLICABLE TO THE PROJECT, HOWEVER IT IS ALL INCLUSIVE.

A. FIRE DOOR/SHUTTER (PROVIDE 1 PER DOOR/SHUTTER)
B. DOOR HOLDER (PROVIDE 1 PER DOOR)
C. BEACON (PROVIDE 1 PER BEACON)
D. ELEVATOR RECALL (PROVIDE 4 PER ELEVATOR)
E. SMOKE HATCH RELEASE (PROVIDE 1 PER HATCH)
F. LTG TO FULL ON (PROVIDE 1 PER LTG OR DIMMER PNL)
G. SECURITY SYSTEM INTERFACE (PROVIDE 2 PER SYSTEM)
H. DOOR UNLOCK (PROVIDE 2 PER SECURITY PANEL)
I. AUTOMATIC POWERED DOORS (PROVIDE 1 PER DOOR)

3. COORDINATE VOLTAGE REQUIREMENTS OF CONTROLLED EQUIPMENT WITH THE RATINGS OF THE FIRE ALARM RELAY MODULE.

4 FIRE ALARM CONTROL MODULE REQUIREMENTS

SCALE: NOT TO SCALE

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one half inch = one foot
one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot

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User: david skarbek

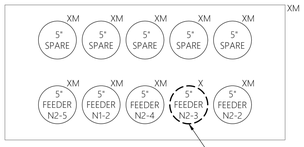
DUCT BANK SECTION LEGEND	
UNDERGROUND DUCT BANK OUTLINE	
EXISTING TO REMAIN	
EXISTING TO BE DEMOLISHED	
NEW WORK	
DENOTES EXISTING TO REMAIN	XM
DENOTES EXISTING TO BE DEMOLISHED	X

GENERAL NOTES

1. REFER TO DRAWING #E0.00 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. ALL NEW DUCT BANKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH TYPICAL DUCT BANK DETAIL DRAWING #E7.00 DETAIL NO. 4.

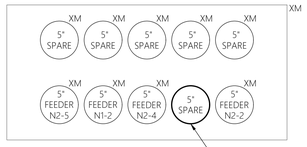
KEYED NOTES

1. DISCONNECT AND REMOVE EXISTING FEEDER "N2-3" BACK TO SOURCE. EXISTING 5" CONDUIT TO REMAIN AND BECOME SPARE.
2. EXISTING DUCT BANK AND ALL CONTENTS WITHIN INCLUDING BUT NOT LIMITED TO CONDUIT, CONDUCTORS, CONCRETE DEBRIS, MAGNETIC TAPE, ETC. SHALL BE DEMOLISHED AND DISPOSED OF OFF SITE.
3. REFER TO RELOCATION OF FEEDER 2-5 NOTE DWG #E1.00 FOR ADDITIONAL INFORMATION.
4. FEEDER 2-2 COMES THROUGH THE DUCT BANK AS A SOURCE TO VFI-ATS1 AND LEAVES AS A FEEDER TO THE ROGER WILLIAMS COMPLEX DORMITORIES ALDRICH - CODDINGTON.
5. PROVIDE (12) STRAND SINGLEMODE FIBER FROM THE PARALLELING SWITCHGEAR ENCLOSURE TO THE RODMAN BUILDING MAIN TELECOMMUNICATIONS ROOM. FIBER SHALL BE COILED WITH 25' OF SPARE LENGTH AT BOTH LOCATIONS FOR FUTURE TERMINATION. CONTRACTOR SHALL TEST FIBER FOR TO CONFIRM THE CABLE WAS NOT DAMAGED DURING INSTALLATION.



EXISTING DUCT BANK DETAIL

SECTION DA-DA
SCALE: NOT TO SCALE



REVISED DUCT BANK DETAIL

SECTION A-A
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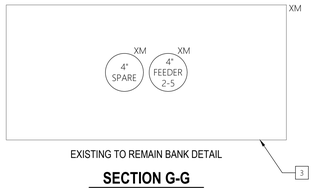

EXISTING TO REMAIN BANK DETAIL

SECTION G-G
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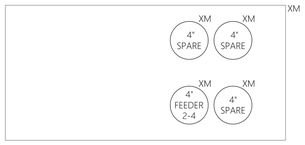

EXISTING TO REMAIN BANK DETAIL

SECTION B-B
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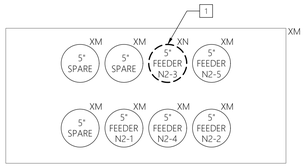

EXISTING DUCT BANK DETAIL

SECTION DH-DH
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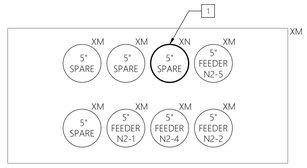

REVISED DUCT BANK DETAIL

SECTION H-H
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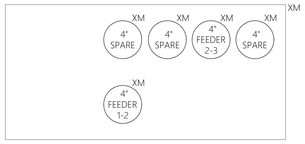
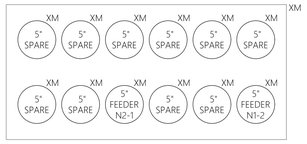


EXISTING TO REMAIN BANK DETAIL

SECTION C-C
SCALE: NOT TO SCALE

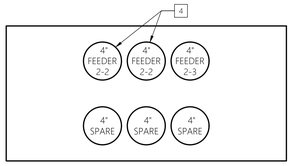


EXISTING TO REMAIN BANK DETAIL

SECTION I-I
SCALE: NOT TO SCALE

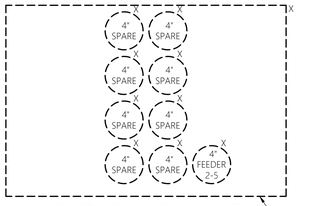
EXISTING TO REMAIN BANK DETAIL

SECTION D-D
SCALE: NOT TO SCALE



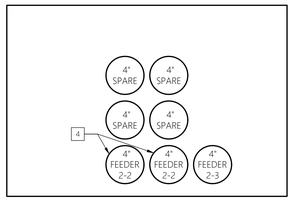
NEW DUCT BANK DETAIL

SECTION J-J
SCALE: NOT TO SCALE



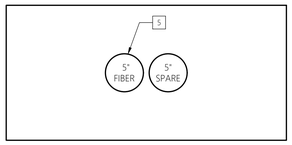
EXISTING TO BE DEMOLISHED DUCT BANK DETAIL

SECTION DE-DE
SCALE: NOT TO SCALE



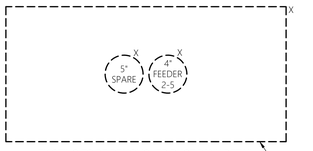
NEW DUCT BANK DETAIL

SECTION E-E
SCALE: NOT TO SCALE



NEW DUCT BANK DETAIL

SECTION K-K
SCALE: NOT TO SCALE



EXISTING TO BE DEMOLISHED DUCT BANK DETAIL

SECTION DF-DF
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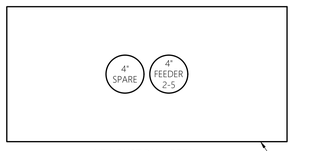

NEW DUCT BANK DETAIL

SECTION F-F
SCALE: NOT TO SCALE

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UNIVERSITY OF RHODE ISLAND

Roger Williams Complex
Generator Project
Phase 2

100% CONSTRUCTION DOCUMENTS
ISSUED FOR BID
02/23/24

Submissions -

No.	Title:	Date:

Sheet Information -

Job No:	248-111
Drawn By:	DS
Checked By:	DWM
Date:	02/23/2024
Scale:	SECTIONS

Drawing Title -
ELECTRICAL DUCT BANK DETAILS

Sheet Number -
E7.04

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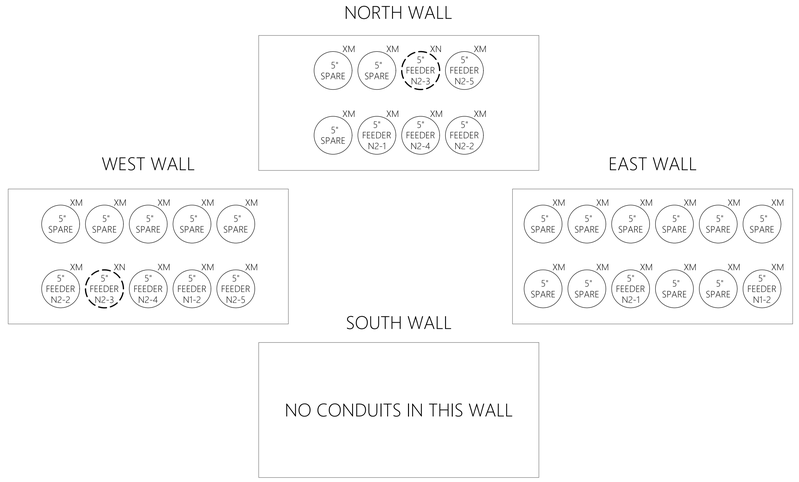
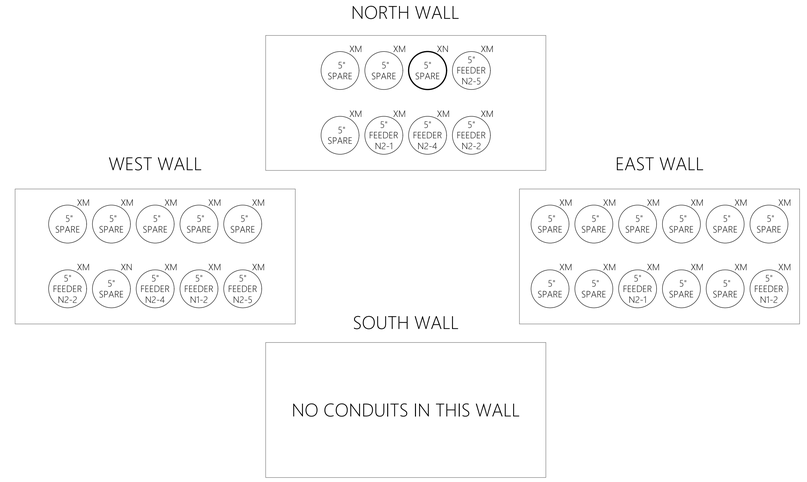


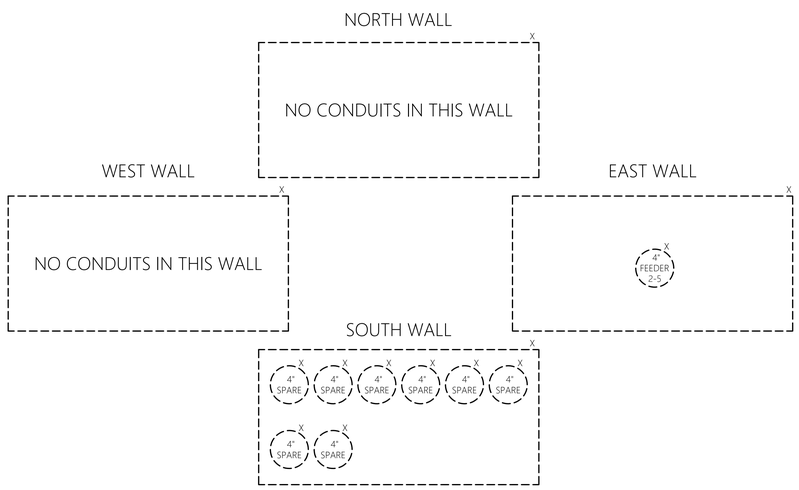
1 EXISTING MANHOLE EMH-1.5 DEMOLITION MAP

SCALE: NOT TO SCALE



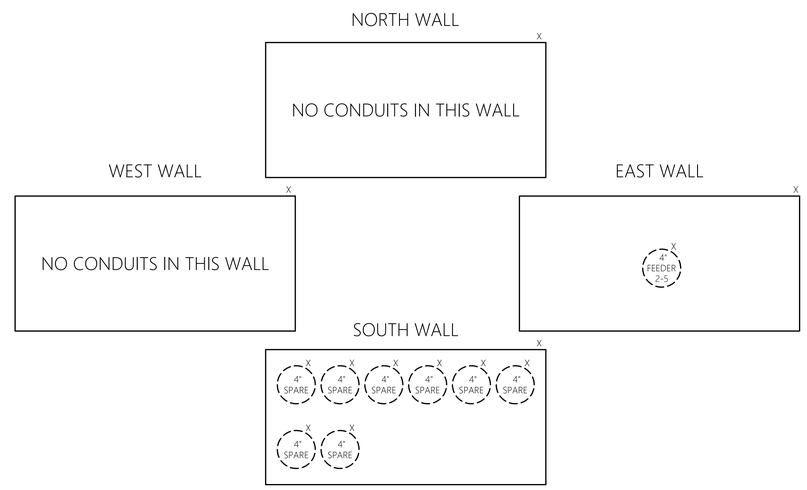
2 EXISTING MANHOLE EMH-1.5 NEW WORK MAP

SCALE: NOT TO SCALE



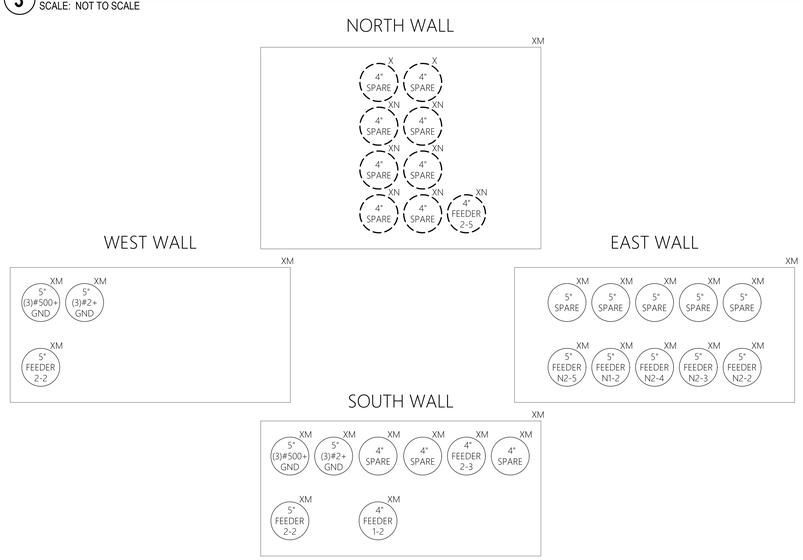
3 EXISTING MANHOLE MH-101.5 DEMOLITION MAP

SCALE: NOT TO SCALE



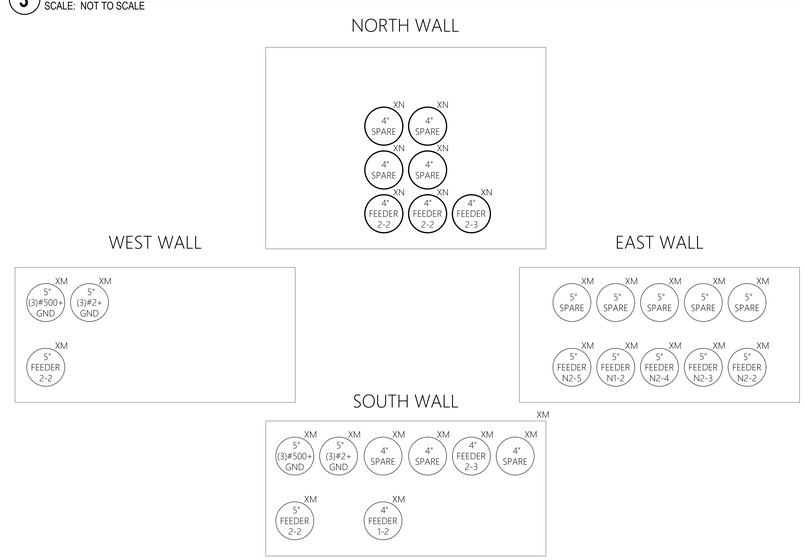
3 NEW MANHOLE MH-1A MAP

SCALE: NOT TO SCALE



5 EXISTING MANHOLE MH-1 DEMOLITION MAP

SCALE: NOT TO SCALE



6 EXISTING MANHOLE MH-1 NEW WORK MAP

SCALE: NOT TO SCALE

GENERAL NOTES

1. REFER TO DRAWING #E0.00 FOR ELECTRICAL LEGEND AND GENERAL NOTES.
2. ALL NEW MANHOLES SHALL BE CONSTRUCTED IN ACCORDANCE WITH MANHOLE DETAIL DRAWING #E7.00 DETAIL NO. 6.

MANHOLE MAP LEGEND	
MANHOLE WALL OUTLINE	
EXISTING TO REMAIN	
EXISTING TO BE DEMOLISHED	- - - - - - - -
NEW WORK	———
DENOTES EXISTING TO REMAIN	XM
DENOTES EXISTING TO BE DEMOLISHED	X

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Roger Williams Complex
Generator Project
Phase 2

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No:	Title:	Date:

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Job No:	248-111
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Drawing Title -

ELECTRICAL MANHOLE DETAILS

Sheet Number -

E7.05

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LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER	CATALOG #	VOLT	LED LAMP DATA WATTS	LUMENS	TEMP (K°)	MOUNTING	KEYED NOTES
A	4' LED VAPOR TIGHT INDUSTRIAL STRIP LIGHTING FIXTURE WITH INTEGRAL OCCUPANCY SENSOR	XTRALIGHT	VTE4-5000L-35K-DIM-RFA-WCS	UNV	36.5W	5,000L	3,500K	SURFACE	1
		KURTZON LIGHTING	WL-SEG-740 2LO 835 FP UNV DIMI OCCMW	UNV	55W	7,788L	3,500K		
		SLG LIGHTING	VTS 4 LS1 G1 35K MS-ACE-01	UNV	38W	5,100L	3,500K		
B	EXTERIOR LED WALL PACK WITH INTEGRAL PHOTOCELL	SLG LIGHTING	WFV LS70 G2 4K WFV-SMB	UNV	18W	3,000L	4,000K	SURFACE	1
		PARAFLEX LIGHTING	DC200-90-24W-40K-BZ-PC1	120V	24W	3,213L	4,000K		
		DURAGUARD LIGHTING	MWPQ F 1X25 U 4K Z PC3	UNV	25W	3,804L	4,000K		
C	EMERGENCY BATTERY UNIT	EMERGI-LITE	EL-2RHL-AD	UNV	10.8W	1,100L	-	SURFACE	1
		XTRALIGHT	EMX0036SDT	UNV	2W	-	-		
		LIGHTALARMS	LCA-2RHL-ID	UNV	10.8W	1,100L	-		
D	EXIT SIGN WITH BATTERY AND INTEGRAL SELF-TEST	EMERGI-LITE	WPREMSNXR	UNV	2.5W	-	-	SURFACE	1
		XTRALIGHT	EMX0035DT	UNV	-	-	-		
		LIGHTALARMS	QLXN500RN-ID	UNV	2.5W	-	-		
E	OUTDOOR ALL-IN-ONE SOLAR AREA LIGHT WITH INTEGRAL PHOTOCELL	SONARAY	SR2-060P-T4-7-40-ALM-L POLE: RSSP-4-TT3-16FT	-	60W	12,771L	4,000K	POLE	1
		CLEARWORLD	SLD90-T4M-40K POLE: RSSP-4-TT3-16FT	-	90W	11,745L	4,000K		
		SOLAS RAY LIGHTING	PLA100T340-U-PLA-PC277 POLE: RSSP-4-TT3-16FT	-	100W	13,000L	4,000K		

NOTES:

1. PROVIDE FIXTURE SIMILAR TO OPTIONS INDICATED IN SCHEDULE. COORDINATE FINAL LIGHT FIXTURE SELECTIONS WITH OWNER PRIOR TO PURCHASE.

BRANCH CIRCUITS SCHEDULE

CIRCUIT BREAKER	CONDUCTOR
120 OR 277 VOLT 1PH, 2W. CIRCUITS	
20A-1P	2 #12 & 1 #12 GND. - 3/4"C.
30A-1P	2 #10 & 1 #10 GND. - 3/4"C.
40A-1P	2 #8 & 1 #10 GND. - 3/4"C.
50A-1P	2 #6 & 1 #10 GND. - 3/4"C.
60A-1P	2 #6 & 1 #10 GND. - 3/4"C.
208 VOLT 1PH, 2W. CIRCUITS	
20A-2P	2 #12 & 1 #12 GND. - 3/4"C.
30A-2P	2 #10 & 1 #10 GND. - 3/4"C.
40A-2P	2 #8 & 1 #10 GND. - 3/4"C.
50A-2P	2 #6 & 1 #10 GND. - 3/4"C.
60A-2P	2 #6 & 1 #10 GND. - 3/4"C.
208/120 VOLT, 1PH, 3W. CIRCUITS	
20A-2P*	3 #12 & 1 #12 GND. - 3/4"C.
30A-2P*	3 #10 & 1 #10 GND. - 3/4"C.
40A-2P*	3 #8 & 1 #10 GND. - 3/4"C.
50A-2P*	3 #6 & 1 #10 GND. - 1"C.
60A-2P*	3 #6 & 1 #10 GND. - 1"C.
208 OR 480 VOLTS, 3PH, 3W. CIRCUITS	
20A-3P	3 #12 & 1 #12 GND. - 3/4"C.
30A-3P	3 #10 & 1 #10 GND. - 3/4"C.
40A-3P	3 #8 & 1 #10 GND. - 3/4"C.
50A-3P	3 #6 & 1 #10 GND. - 1"C.
60A-3P	3 #6 & 1 #10 GND. - 1"C.
208Y/120 & 480Y/277 VOLT, 3PH,4W. CIRCUITS	
20A-3P*	4 #12 & 1 #12 GND. - 3/4"C.
30A-3P*	4 #10 & 1 #10 GND. - 3/4"C.
40A-3P*	4 #8 & 1 #10 GND. - 3/4"C.
50A-3P*	4 #6 & 1 #10 GND. - 1"C.
60A-3P*	4 #6 & 1 #10 GND. - 1"C.

NOTES:

1. ALL BRANCH CIRCUIT SIZES ARE BASED ON RACEWAY LENGTH OF 65 FEET FOR 120 VOLT BRANCH CIRCUITS AND 150 FEET FOR 277 VOLT BRANCH CIRCUITS. IF LENGTH EXCEEDS 65 FEET (120 VOLT CIRCUITS) OR 150 FEET (277 VOLT CIRCUITS) THEN USE WIRE SIZE DENOTED BELOW AND INCREASE RACEWAY ACCORDINGLY. REDUCE LARGE CABLE SIZES IN JUNCTION BOX PRIOR TO DEVICE TERMINATION. PROVIDE WIRE REDUCERS AT BREAKERS WHEN REQUIRED.

CIRCUIT LENGTH		
WIRE SIZE	120V CIRCUIT	277V CIRCUIT
#10	65 FT. TO 120 FT.	150 FT. TO 240 FT.
#8	120 FT. TO 180 FT.	BEYOND 240 FT.
#6	BEYOND 180 FT.	

2. ALL TYPE MC CABLE, AND TYPE HFAC CABLE SHALL INCLUDE FULL SIZE INSULATED GROUND CONDUCTOR. SIZES AS INDICATED IN SCHEDULE.

3. ALL BRANCH CIRCUIT CONDUCTORS SHALL BE 98% CONDUCTIVITY, COPPER, THWN INSULATION, 75° C, RATED 600V, UNLESS NOTED OTHERWISE.

NEW PANEL "MP" SCHEDULE

VOLTAGE: 208Y/120V 3 PHASE 4 WIRE MAIN BUS: 400A
MAIN DEVICE: MCCB FRAME: 400A TRIP: 400A
MOUNTING: SURFACE GROUND BUS: YES SCR: 65 kAIC
NEUTRAL: 100 %

TOTAL VA, PHASE A: -
TOTAL VA, PHASE B: -
TOTAL VA, PHASE C: -
TOTAL CONNECTED: -
PANEL LOCATION: PARALLELING SWITCHGEAR ENCLOSURE
TOTAL VA DEMAND: -

NOTE	LOAD DESCRIPTION	CB/ PHASE	CKT #	A	B	C	A	B	C	CKT #	CB/ PHASE	LOAD DESCRIPTION	NOTE
1	FIRE ALARM CONTROL PANEL	20A/1P	1	-			-			2	20A/1P	LOAD BANK CONTROL PANEL	1
1	MASTER CONTROL CUBICLE POWER	20A/1P	3		-			-		4	20A/1P	DUAL GEN. CONTROL CUBICLE PWR.	1
1	FUTURE GEN. CONTROL CUBICLE PWR.	20A/1P	5			-			-	6	20A/1P	SWGR ENCLOSURE RECEPT. (OUTSIDE)	1
1	SITE LIGHTING	20A/1P	7	-			-			8	20A/1P	SWGR ENCLOSURE RECEPT. (INSIDE)	1
1	SWGR ENCLOSURE INTERIOR LTG.	20A/1P	9		-			-		10	20A/1P	SWGR ENCLOSURE EXTERIOR LTG.	1
1	VFI-ATS1 CONTROLS	20A/1P	11			-			-	12	20A/1P	LOAD BANK CONTROLS	1
1	POWER MANAGEMENT SYSTEM	20A/1P	13	-			-			14	50A/3P	DC STATION POWER	1
1	POWER MANAGEMENT SYSTEM	20A/1P	15		-			-		16			
1	L14-30R TWIST-LOCK RECEPT. FOR POWER MANAGEMENT SYSTEM SERVER RACK	30A/2P	17			-			-	18			
			19	-			-			20	30A/2P	SWGR ENCLOSURE HEAT PUMP ACCU-1	1
1	SPARE	20A/1P	21		-			-		22			
1	SWGR ENCLOSURE EMERGENCY LTG.	20A/1P	23			-			-	24	20A/1P	SPARE	2
2	SPARE	20A/1P	25	-			-			26	20A/1P	SPARE	2
2	SPARE	20A/1P	27		-			-		28	20A/1P	SPARE	2
2	SPARE	20A/1P	29			-			-	30	20A/1P	SPARE	2
2	SPARE	20A/1P	31	-			-			32	20A/1P	SPARE	2
2	SPARE	20A/1P	33		-			-		34	20A/1P	SPARE	2
2	SPARE	20A/1P	35			-			-	36	20A/1P	SPARE	2
2	SPARE	20A/3P	37	-			-			38	20A/1P	SPARE	2
			39		-			-		40	20A/1P	SPARE	2
			41			-				42	20A/1P	SPARE	2
2	SPARE	30A/3P	43	-			-			44	20A/1P	SPARE	2
			45		-			-		46	20A/1P	SPARE	2
			47			-				48	30A/1P	SPARE	2
2	SPARE	40A/3P	49	-			-			50	40A/1P	SPARE	2
			51		-			-		52	20A/2P	SPARE	2
			53			-				54			
1	PANEL "P1"	200A/3P	55	-			-			56	200A/3P	PANEL "P2"	1
			57		-			-		58			
			59			-				60			

NOTES

1. CIRCUIT BREAKER AND FEEDER/BRANCH CIRCUIT CONDUCTOR SIZE TO BE COORDINATED DURING SUBMITTAL PROCESS.
2. EXACT QUANTITY AND SIZE OF SPARE CIRCUIT BREAKERS TO BE DETERMINED DURING SUBMITTAL PROCESS.

NEW PANEL "P1" SCHEDULE

VOLTAGE: 208Y/120V 3 PHASE 4 WIRE MAIN BUS: 100A
MAIN DEVICE: 100A MCB FRAME: 100A TRIP: 100A
MOUNTING: SURFACE GROUND BUS: YES SCR: 42 kAIC
NEUTRAL: 100 %

TOTAL VA, PHASE A: -
TOTAL VA, PHASE B: -
TOTAL VA, PHASE C: -
TOTAL CONNECTED: -
PANEL LOCATION: GENERATOR NO. 1 ENCLOSURE
TOTAL VA DEMAND: -

NOTE	LOAD DESCRIPTION	CB/ PHASE	CKT #	A	B	C	A	B	C	CKT #	CB/ PHASE	LOAD DESCRIPTION	NOTE
1	ENCLOSURE LIGHTS (INSIDE)	20A/1P	1	-			-			2	20A/1P	ENCLOSURE LIGHTS (OUTSIDE)	1
1	MOTOR OPERATED INLET DAMPER	20A/1P	3		-			-		4	20A/1P	FUEL POLISHING SYSTEM	1
1	ENCLOSURE EBU'S	20A/1P	5			-			-	6	20A/1P	BATTERY CHARGER	1
1	ENCLOSURE RECEPTACLES (INSIDE)	20A/1P	7	-			-			8	20A/1P	ENCLOSURE RECEPTACLES (OUTSIDE)	1
2	SPARE	20A/1P	9		-			-		10	20A/1P	SPARE	2
2	SPARE	20A/1P	11			-			-	12	20A/1P	SPARE	2
2	SPARE	20A/1P	13	-			-			14	20A/1P	SPARE	2
2	SPARE	20A/1P	15		-			-		16	20A/1P	SPARE	2
2	SPARE	20A/1P	17			-			-	18	20A/1P	SPARE	2
2	SPARE	20A/1P	19	-			-			20	20A/1P	SPARE	2
2	SPARE	20A/1P	21		-			-		22	20A/1P	SPARE	2
2	SPARE	20A/1P	23			-			-	24	20A/1P	SPARE	2
2	SPARE	20A/1P	25	-			-			26	20A/1P	SPARE	2
2	SPARE	20A/1P	27		-			-		28	20A/1P	SPARE	2
1	ENGINE BLOCK HEATER	20A/2P	29			-			-	30	20A/1P	SPARE	2
			31	-			-			32	20A/3P	ENCLOSURE EXHAUST FAN	1
1	JACKET WATER HEATER	50A/2P	33		-			-		34			
			35			-			-	36			
1	ELECTRIC UNIT HEATER	20A/3P	37	-			-			38	20A/3P	ELECTRIC UNIT HEATER	1
			39		-			-		40			
			41			-				42			

NOTES

1. CIRCUIT BREAKER AND FEEDER/BRANCH CIRCUIT CONDUCTOR SIZE TO BE COORDINATED DURING SUBMITTAL PROCESS.
2. EXACT QUANTITY AND SIZE OF SPARE CIRCUIT BREAKERS TO BE DETERMINED DURING SUBMITTAL PROCESS.

NEW PANEL "P2" SCHEDULE

VOLTAGE: 208Y/120V 3 PHASE 4 WIRE MAIN BUS: 100A
MAIN DEVICE: 100A MCB FRAME: 100A TRIP: 100A
MOUNTING: SURFACE GROUND BUS: YES SCR: 42 kAIC
NEUTRAL: 100 %

TOTAL VA, PHASE A: -
TOTAL VA, PHASE B: -
TOTAL VA, PHASE C: -
TOTAL CONNECTED: -
PANEL LOCATION: GENERATOR NO. 2 ENCLOSURE
TOTAL VA DEMAND: -

NOTE	LOAD DESCRIPTION	CB/ PHASE	CKT #	A	B	C	A	B	C	CKT #	CB/ PHASE	LOAD DESCRIPTION	NOTE
1	ENCLOSURE LIGHTS (INSIDE)	20A/1P	1	-			-			2	20A/1P	ENCLOSURE LIGHTS (OUTSIDE)	1
1	MOTOR OPERATED INLET DAMPER	20A/1P	3		-			-		4	20A/1P	FUEL POLISHING SYSTEM	1
1	ENCLOSURE EBU'S	20A/1P	5			-			-	6	20A/1P	BATTERY CHARGER	1
1	ENCLOSURE RECEPTACLES (INSIDE)	20A/1P	7	-			-			8	20A/1P	ENCLOSURE RECEPTACLES (OUTSIDE)	1
2	SPARE	20A/1P	9		-			-		10	20A/1P	SPARE	2
2	SPARE	20A/1P	11			-			-	12	20A/1P	SPARE	2
2	SPARE	20A/1P	13	-			-			14	20A/1P	SPARE	2
2	SPARE	20A/1P	15		-			-		16	20A/1P	SPARE	2
2	SPARE	20A/1P	17			-			-	18	20A/1P	SPARE	2
2	SPARE	20A/1P	19	-			-			20	20A/1P	SPARE	2
2	SPARE	20A/1P	21		-			-		22	20A/1P	SPARE	2
2	SPARE	20A/1P	23			-			-	24	20A/1P	SPARE	2
2	SPARE	20A/1P	25	-			-			26	20A/1P	SPARE	2
2	SPARE	20A/1P	27		-			-		28	20A/1P	SPARE	2
1	ENGINE BLOCK HEATER	20A/2P	29			-			-	30	20A/1P	SPARE	2
			31	-			-			32	20A/3P	ENCLOSURE EXHAUST FAN	1
1	JACKET WATER HEATER	50A/2P	33		-			-		34			
			35			-			-	36			
1	ELECTRIC UNIT HEATER	20A/3P	37	-			-			38	20A/3P	ELECTRIC UNIT HEATER	1
			39		-			-		40			
			41			-				42			

NOTES

1. CIRCUIT BREAKER AND FEEDER/BRANCH CIRCUIT CONDUCTOR SIZE TO BE COORDINATED DURING SUBMITTAL PROCESS.
2. EXACT QUANTITY AND SIZE OF SPARE CIRCUIT BREAKERS TO BE DETERMINED DURING SUBMITTAL PROCESS.

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UNIVERSITY OF Rhode Island

UNIVERSITY OF RHODE ISLAND

Roger Williams Complex
Generator Project
Phase 2

100% CONSTRUCTION DOCUMENTS
ISSUED FOR BID
02/23/24

Submissions -

No:	Title:	Date:

Sheet Information -

Job No:	248-111
Drawn By:	DS
Checked By:	DWM
Date:	02/23/2024
Scale:	NOT TO SCALE

Drawing Title -

ELECTRICAL SCHEDULES

Sheet Number -

E8.00

one half inch = one foot
one eighth inch = one foot
one quarter inch = one foot
three eighths inch = one foot
one inch = one foot
three quarters inch = one foot
one and one half inches = one foot

File: J:\URI\248-111\Electrical\E8.00.dwg
Save Date: 3/22/2024 4:04:34 PM
Plot Date: 3/22/2024 4:18:16 PM
User: david skarbek

GENERAL NOTES RELATING TO LANDSCAPE WORK

1. ANY DAMAGE TO EXISTING PAVEMENT, ROADS, CONDUIT, SIDEWALK, FENCES, ETC., CAUSED BY THE CONTRACTOR SHALL BE REPAIRED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE STATE.

2. THE CONTRACTOR SHALL PLACE ALL EQUIPMENT AND MATERIAL AS FAR AWAY AS POSSIBLE FROM THE EDGE OF ALL SIDEWALKS AND ROADS SO AS NOT TO CAUSE A SAFETY HAZARD, IN ACCORDANCE WITH SECTION 106.06 OF THE R.I.D.O.T. STANDARD SPECIFICATION, LATEST EDITION.

3. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT THE EXISTING CONDITIONS ARE NOT OBLITERATED BEFORE CONTROL POINTS ARE LOCATED AND CONSTRUCTION LAYOUT IS ESTABLISHED. THE CONSTRUCTION LAYOUT SHALL BE PROVIDED IN SUFFICIENT DETAIL, THEREBY ENABLING THE CONTRACTOR TO CONSTRUCT THE PROJECT IN CONFORMITY WITH THE PLANS AND SPECIFICATIONS.

4. A LAYOUT SURVEY WILL BE PROVIDED BY THE CONTRACTOR AND PERFORMED BY A PROFESSIONAL LAND SURVEYOR. THE PROJECT MANAGER SHALL NOT AUTHORIZE CONSTRUCTION ACTIVITIES TO BEGIN UNTIL SATISFACTORY GROUND CONTROL HAS BEEN ESTABLISHED, TIED DOWN, AND DULY RECORDED IN STANDARD FIELD BOOKS.

5. THE FREQUENCY AND APPLICATION RATES FOR THE DUST CONTROL ITEMS WILL BE AS DIRECTED BY THE PROJECT MANAGER.

6. ALL SIDEWALK AND DRIVEWAYS DESIGNATED FOR REPLACEMENT OR CONSTRUCTION SHALL BE CUT AND MATCHED AT LOCATIONS SHOWN ON THE PLANS OR AS DIRECTED BY THE PROJECT MANAGER.

7. ASPHALT EMULSION TACK COAT SHALL BE PLACED PRIOR TO PAVEMENT PLACEMENT ON THE CONCRETE BASE OR COLD PLANED PAVEMENT, AND ON ANY NEW COURSE WHICH HAS BEEN OPEN TO TRAFFIC, OR ANY NEW COURSE WHICH HAS BEEN EXPOSED FOR MORE THAN 3 DAYS, AND/OR AS DIRECTED BY THE PROJECT MANAGER. IT SHALL ALSO BE APPLIED TO VERTICAL PAVEMENT FACES BETWEEN ADJOINING PAVEMENT SECTIONS.

8. THE LIMITS OF CLEARING AND SURFACE DISTURBANCE MUST BE STRICTLY ADHERED TO IN ALL AREAS. IN ADDITION TO THOSE AREAS SPECIFICALLY DESIGNATED ON THE PLANS, THE CONTRACTOR WILL BE RESPONSIBLE FOR PROVIDING AND PLACING, AT HIS OWN EXPENSE, PLANTABLE SOIL AND SEED IN AREAS WHICH ARE OUTSIDE OF THE PROJECT'S AREAS OF DISTURBANCE AND WHICH ARE IMPACTED BY CONSTRUCTION OPERATIONS INCLUDING THOSE AREAS WHERE VEHICLES, EQUIPMENT AND MATERIALS ARE STORED WITH THE PERMISSION OF THE PROJECT MANAGER.

9. UNDER NO CIRCUMSTANCE WILL THE CONTRACTOR BE ALLOWED TO STOCKPILE REMOVED PAVEMENT MATERIALS WITHIN THE PROJECT LIMITS. BITUMINOUS MATERIALS SHALL BE IMMEDIATELY REMOVED FROM THE SITE AND LEGALLY DISPOSED.

10. CLEANING AND SWEEPING OF PAVEMENT WILL INCLUDE REMOVAL OF ALL PAVEMENT DEBRIS PRIOR TO THE PLACEMENT OF EACH BITUMINOUS PAVEMENT LIFT. ALL CLEANING AND SWEEPING SHALL BE DONE TO THE SATISFACTION OF THE PROJECT MANAGER.

11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL ROADWAYS FREE OF DEBRIS RESULTING FROM THEIR CONSTRUCTION OPERATIONS. ALL DEBRIS SHALL BE REMOVED TO THE SATISFACTION OF THE PROJECT MANAGER AT NO ADDITIONAL COST TO THE OWNER.

12. NO FUEL STORAGE, VEHICLE REFUELING, OR EQUIPMENT STORAGE SHALL TAKE PLACE IN DESIGNATED WETLANDS, NOR WITHIN 100' OF ANY WATER BODY. THIS REQUIREMENT SHALL NOT SUPERSEDE ANY FEDERAL, STATE OR LOCAL LAW, ORDINANCE, RULE OR REGULATION THAT APPLIES TO THE SAME, UNLESS THIS REQUIREMENT IS MORE STRINGENT THAN SAID LAW, ORDINANCE, RULE OR REGULATION.

13. THE CONTRACTOR SHALL BE RESPONSIBLE TO ENSURE THAT AT THE END OF FINAL PAVING AND LANDSCAPE GRADING OPERATIONS, FLOW TO EXISTING DRAINAGE STRUCTURES HAS BEEN REESTABLISHED AND THAT NO ISOLATED DEPRESSIONS REMAIN. THERE SHALL BE NO SEPARATE PAYMENT FOR THIS PROVISION; IT SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT WORK.

14. ALL EMBANKMENTS SHALL BE PLACED IN HORIZONTAL LAYERS NOT EXCEEDING 12" (AFTER COMPACTION) AND SHALL BE COMPACTED AS SPECIFIED BEFORE THE NEXT LAYER IS PLACED. ALSO, EMBANKMENT CONSTRUCTION SHALL CONFORM TO SECTION 202.03.2 OF THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.

15. THE CONTRACTOR SHALL READ, BECOME FAMILIAR WITH, AND ADHERE TO ALL OF THE PROVISIONS, CONDITIONS, AND STIPULATIONS STATED IN THE ENVIRONMENTAL APPROVALS ISSUED FOR THE PROJECT FROM THE DEPARTMENT OF ENVIRONMENTAL MANAGEMENT (RIDEM). COPIES OF EACH OF THESE PERMITS ARE INCLUDED IN THE CONTRACT DOCUMENTS. ALL COSTS ASSOCIATED WITH THESE CONDITIONS SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND INCLUDED WITH THE COST FOR THE ASSOCIATED BID.

16. PROPERTY LINES INDICATED ON THE PLANS ARE APPROXIMATE.

DRAINAGE AND EROSION CONTROL FOR LANDSCAPING

1. FOR ALL PROJECTS WITH AT LEAST ONE(1) ACRE OF SOIL DISTURBANCE. RIDEM IS REQUIRED TO DEVELOP AND ENFORCE A SITE SPECIFIC STORM WATER POLLUTION PREVENTION PLAN (SWPPP) IN ORDER TO REMAIN IN COMPLIANCE WITH THE RIPDES GENERAL PERMIT FOR STORMWATER DISCHARGES ASSOCIATED WITH CONSTRUCTION ACTIVITIES. ALL COSTS ASSOCIATED WITH ADHERENCE TO THE SWPPP SHALL BE CONSIDERED INCIDENTAL TO THE CONSTRUCTION AND INCLUDED WITH THE COST FOR THE ASSOCIATED BID ITEM(S).

2. NO UNDISTURBED AREAS SHALL BE CLEARED OF EXISTING VEGETATION AFTER OCTOBER 15 OF ANY CALENDAR YEAR OR DURING ANY PERIOD OF FULL OR LIMITED WINTER SHUTDOWN. ALL DISTURBED SOILS EXPOSED PRIOR TO OCTOBER 15 OF ANY CALENDAR YEAR SHALL BE SEEDED OR PROTECTED BY THAT DATE. ANY SUCH AREAS THAT DO NOT HAVE ADEQUATE VEGETATIVE STABILIZATION, AS DETERMINED BY THE ENGINEER BY NOVEMBER 15 OF ANY CALENDAR YEAR, MUST BE STABILIZED THROUGH THE USE OF EROSION CONTROL MATTING OR HAY MULCH, IN ACCORDANCE WITH SPECIFICATIONS CONTAINED WITHIN THE R.I. SOIL EROSION AND SEDIMENT CONTROL HANDBOOK. IF WORK CONTINUES WITHIN ANY OF THESE AREAS DURING THE PERIOD FROM OCTOBER 15 THROUGH APRIL 15, CARE MUST BE TAKEN TO ENSURE THAT ONLY THE AREA REQUIRED FOR THAT DAY'S WORK IS EXPOSED, AND ALL ERODIBLE SOIL MUST BE RESTABILIZED WITHIN 5 WORKING DAYS. ANY WORK TO CORRECT PROBLEMS RESULTING FROM FAILURE TO COMPLY WITH THIS PROVISION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. THERE WILL BE NO SEPARATE PAYMENT FOR THIS PROVISION, IT SHALL BE CONSIDERED INCIDENTAL TO CONSTRUCTION OPERATIONS. STABILIZATION OF ONE FORM OR ANOTHER AS DESCRIBED ABOVE SHALL BE ACHIEVED WITHIN 2 WEEKS OF FINAL GRADING.

3. STOCKPILES OF MATERIAL SHALL NOT BE LOCATED WITHIN REGULATED WETLANDS OR BUFFER ZONE AREAS. THEY SHALL HAVE SIDE SLOPES NO GREATER THAN 30% AND STOCKPILES OF ERODABLE MATERIAL SHALL ALSO BE SEEDED AND RINGED WITH R.I. STD. 9.1.0 TO STABILIZE.

4. JUTE MESH SHALL BE USED TO STABILIZE PLANTABLE SOIL AND/OR LOAM IN ALL DITCHES, ON ALL SLOPES ADJACENT TO WETLANDS AND WETLAND PERIMETERS, AND ON ALL SLOPES WITHIN WATER QUALITY BASINS. JUTE MESH IN DITCHES SHALL EXTEND TO AN ELEVATION 2 FEET ABOVE THE BOTTOM OF THE DITCH.

5. SEEDING ON ALL SLOPES 3 TO 1 OR STEEPER SHALL CONSIST OF THE FOLLOWING APPLICATIONS UNLESS CHANGED IN THE CONTRACT.

   a. SEEDING TYPE I.– REFER TO R.I.D.O.T. STD SPECIFICATIONS – SECTION L – LANDSCAPING

   b. ADHESIVE MULCH STABILIZER

6. UNVEGETATED SLOPES SHALL NOT BE UNATTENDED OR EXPOSED FOR PERIODS IN EXCESS OF 2 WEEKS, DURING ADVERSE WEATHER CONDITIONS, OR THROUGH THE INACTIVE WINTER SEASON.

7. PRIOR TO DRAINAGE AND UTILITY CONSTRUCTION, THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE LOCATION (HORIZONTAL AND VERTICAL) OF ALL EXISTING PIPES AND/OR STRUCTURES WHICH ARE TO BE CONNECTED OR REMOVED. ANY VARIATION FOUND FROM THE PLANS MUST BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO DRAINAGE AND UTILITY CONSTRUCTION. WORK CAN COMMENCE ONLY UPON THE ENGINEER'S AUTHORIZATION.

8. ALL DRAINAGE AND UTILITY STRUCTURES WITHIN THE PAVED AREAS SHALL BE ADJUSTED TO GRADE WITH THE SURROUNDING PAVEMENT PRIOR TO A WINTER SHUTDOWN.

9. DURING CONSTRUCTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING DRAINAGE AND RUNOFF FLOW DURING STORMS AND PERIODS OF RAINFALL THROUGHOUT THE WORK AREA.

10. CATCH BASIN RIM GRADES NOTED ON PLANS ARE DEPRESSED 0.1' LOWER THAN THE GUTTER GRADE. RIM ELEVATIONS SHOWN ARE FINAL GRADES. THE CONTRACTOR SHALL PLACE FRAMES AND GRATES 0.1' BELOW THE GRADE CONSTRUCTED IN THIS CONTRACT OR AS DIRECTED BY THE ENGINEER.

11. PROVISIONS FOR CLEARING TO ACCESS OUTFALLS DURING THE CLEANING AND FLUSHING OF THE CLOSED DRAINAGE SYSTEM SHALL BE KEPT TO A MINIMUM.
    - 11.1. ANY VEGETATIVE CLEARING SHALL BE LIMITED TO BRUSH AND TREES LESS THAN 3" DIAMETER.
    - 11.2. NO HEAVY EQUIPMENT MAY ENCROACH UPON VEGETATED PERIMETER OR RIVERBANK WETLANDS AS WELL AS BIOLOGICAL WETLANDS.

12. THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL DEVICES FOR OUTLET PROTECTION PRIOR TO CLEANING AND FLUSHING STORM WATER DRAINAGE. EROSION CONTROL DEVICES SHALL REMAIN IN PLACE UNTIL ALL FLUSHED SEDIMENTS ARE REMOVED. AT ALL OUTFALL LOCATIONS WHERE PIPES ARE TO BE CLEANED AND FLUSHED, OUTLET PROTECTION (R.I. STD. 9.1.0 OR 9.3.0) SHALL BE INSTALLED TO TRAP SEDIMENTS. THESE SEDIMENTS SHALL THEN BE REMOVED AND DISPOSED OF LEGALLY BEFORE THE OUTLET PROTECTION DEVICES ARE REMOVED. IF OUTLET PROTECTION AT THE OUTFALL IS NOT FEASIBLE, THEN THE OUTLET PIPE OF THE LAST DRAINAGE STRUCTURE TO BE CLEANED SHALL BE PLUGGED TO CAPTURE ALL MATERIALS FLUSHED FROM PIPES. AFTER THE MATERIALS ARE REMOVED FROM THE DRAINAGE STRUCTURE, THE OUTLET SHALL BE UNPLUGGED TO RESUME NORMAL FUNCTIONING.

13. R.I. STD. 9.8.0 BALED HAY INLET PROTECTION SHALL BE INSTALLED AT ALL CATCH BASINS AND INLETS WHENEVER SUBBASE IS EXPOSED, AND SHALL REMAIN IN PLACE UNTIL THE ABUTTING GROUND SURFACES ARE STABILIZED.

14. WHERE BALED HAY INLET PROTECTION AND SILT FENCES ARE USED AT CATCH BASINS, THEY SHALL BE REMOVED AT THE END OF THE PROJECT OR AS DIRECTED BY THE ENGINEER IN ORDER TO PREVENT CLOGGING OF THE INLET.

DRAINAGE AND EROSION CONTROL FOR LANDSCAPING (CONT.)

15. THE TOE OF ANY FILL SLOPE IS TO REMAIN AT LEAST 1' INSIDE OF ALL EROSION CONTROLS. UNDER NO CIRCUMSTANCES SHALL THE CONTRACTOR COVER ANY PORTION OF THE EROSION CONTROL MEASURES WITH MATERIAL. ANY MATERIAL THAT IS PLACED ON ANY EROSION CONTROLS BY THE CONTRACTOR, OR ANY AGENT OF THE CONTRACTOR, SHALL BE IMMEDIATELY REMOVED BY THE CONTRACTOR, AND ANY NECESSARY REPAIRS TO THE EROSION CONTROLS ACCOMPLISHED.

16. PRIOR TO COMMENCING CONSTRUCTION ACTIVITIES, EROSION AND SEDIMENTATION CONTROLS SHALL BE INSTALLED AT THOSE AREAS INDICATED ON THE PLANS. CLEARING MAY OCCUR PRIOR TO INSTALLATION OF SUCH CONTROLS, HOWEVER NO GRUBBING, GRADING, FILLING, OR OTHER SOIL DISTURBANCE SHALL OCCUR PRIOR TO INSTALLATION. THE LIMITS OF CLEARING AND SURFACE DISTURBANCE MUST BE STRICTLY ADHERED TO IN ALL AREAS.

17. ALL HAY BALES, SILT FENCE OR TEMPORARY PROTECTION SHALL REMAIN IN PLACE UNTIL AN ACCEPTABLE STAND OF GRASS IS ESTABLISHED. IF NEEDED, TEMPORARY SEEDING CAN HELP TO MINIMIZE EROSION. TEMPORARY SEED WILL CONFORM TO R.I.D.O.T. STANDARD TEMPORARY SEED MIX.

18. THE CONTRACTOR MUST REPAIR AND/OR RESEED ANY AREAS THAT DO NOT DEVELOP WITHIN THE PERIOD OF ONE YEAR AND HE SHALL DO SO AT NO ADDITIONAL EXPENSE TO THE STATE.

19. THE NORMAL ACCEPTABLE SEASONAL SEEDING DATES ARE SPECIFIED IN SUBSECTION L.02.03 OF THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.

20. ADDITIONAL EROSION CONTROLS, SHALL BE INSTALLED AS DIRECTED BY THE PROJECT MANAGER.

UTILITY COORDINATION FOR SITE LANDSCAPING

1. EXISTING UTILITIES HAVE BEEN SHOWN ON THE PLANS USING THE BEST AVAILABLE INFORMATION.

2. THE CONTRACTOR SHALL VERIFY THE LOCATIONS OF ALL EXISTING DRAINAGE AND UTILITIES BOTH UNDERGROUND AND OVERHEAD BEFORE EXCAVATION BEGINS IN ACCORDANCE WITH THE "DIG SAFE LAW" ENACTED BY R.I. LEGISLATURE BILL NO. 79S–291, WHICH BECAME EFFECTIVE JULY 1, 1979 AND BY CONTACTING THE INDIVIDUAL UTILITY COMPANIES.

3. EXCAVATION SHALL BE IN ACCORDANCE WITH ALL STATUTES, ORDINANCES, RULES AND REGULATIONS OF ANY APPLICABLE CITY, TOWN, STATE OR FEDERAL AGENCY. THE CONTRACTOR SHOULD UNDERSTAND THAT NOT ALL UTILITIES SUBSCRIBE TO THE DIG SAFE PROGRAM. IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY ALL UTILITY COMPANIES AND ENSURE THAT ALL UTILITIES HAVE BEEN MARKED PRIOR TO COMMENCING THEIR WORK.

4. ANY DAMAGE TO EXISTING UTILITIES MARKED IN THE FIELD, OR AS A RESULT OF FAILING TO CONTACT THE APPROPRIATE UTILITY COMPANY, SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE OWNER.

5. UTILITY SERVICE CONNECTIONS SHALL BE MAINTAINED TO ALL EXISTING FACILITIES TO REMAIN.

6. FIRE HYDRANTS SHALL NOT BE REMOVED FROM SERVICE WITHOUT WRITTEN AUTHORIZATION FROM THE FIRE DEPARTMENT OR THE WATER AUTHORITY.

MAINTENANCE & PROTECTION OF TRAFFIC – LANDSCAPING

1. ALL MAINTENANCE AND PROTECTION OF TRAFFIC DEVICES AND PATTERNS SHALL BE INPLEMENTED IN ACCORDANCE WITH THE LATEST EDITIONS AND REVISIONS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AND ALL OTHER STATE AND FEDERAL REQUIREMENTS. ALL SIGNS AND TRAFFIC CONTROL DEVICES SHALL BE IN PLACE PRIOR TO PERFORMING ANY CONSTRUCTION OPERATIONS WHICH MAY POSE A HAZARD TO TRAFFIC.

2. ALL SIGN MOUNTINGS FOR TEMPORARY AND CONSTRUCTION SIGNS SHALL BE IN ACCORDANCE WITH THE R.I.D.O.T. STANDARD SPECIFICATIONS, LATEST EDITION.

3. THE CONTRACTOR SHALL COVER ALL EXISTING AND/OR TEMPORARY SIGNS THAT ARE NOT RELEVANT TO THE TRAFFIC CONTROL REQUIRED DURING ANY PARTICULAR STAGE OF THE CONTRACT.

4. ADVANCE FLAGPERSON SIGNS (W20–7A) SHALL BE USED IN ADVANCE OF ANY POINT AT WHICH A FLAGPERSON OR A POLICE OFFICER HAS BEEN STATIONED TO CONTROL TRAFFIC. WHEN NEEDED, AN APPROPRIATE DISTANCE MESSAGE MAY BE DISPLAYED ON A SUPPLEMENTAL PLATE (24"x18") BELOW THE FLAGPERSON SYMBOL SIGN. THE SIGN SHALL BE PROMPTLY REMOVED OR COVERED WHENEVER THE FLAGPERSON IS NOT AT THE STATION.

5. POLYETHYLENE DRUMS SHALL BE UTILIZED AS A CHANNELIZING DEVICE WHEN A TRAFFIC CONTROL SET–UP IS TO REMAIN BEYOND WORKING HOURS WHEN NO WORKERS ARE PRESENT. CONES SHALL BE UTILIZED WHEN A TRAFFIC CONTROL SET–UP IS TO REMAIN ONLY DURING WORKING HOURS AND IS SUBSEQUENTLY BROKEN DOWN AT THE END OF THE WORKDAY.

6. TEMPORARY CONSTRUCTION SIGNS AND OTHER WORKZONE TRAFFIC CONTROL DEVICES THAT ARE DAMAGED OR REQUIRE RELOCATION SHALL BE REPLACED AND/OR RELOCATED UNDER THE PAY ITEM FOR "MAINTENANCE AND MOVEMENT TRAFFIC PROTECTION."

7. TEMPORARY CONSTRUCTION SIGNS AND OTHER TEMPORARY TRAFFIC CONTROL DEVICES SHALL BE INSTALLED PRIOR TO THE START OF WORK IN ANY AREA OPEN TO TRAFFIC, AND SHALL BE REMOVED AS SOON AS PRACTICAL WHEN THEY ARE NO LONGER APPROPRIATE.

8. THE INTENDED VEHICLE PATHS THROUGH THE WORK ZONE SHALL BE CLEARLY MARKED AT ALL TIMES WITH CONES.

9. FLAGPERSONS SHALL BE USED TO CONTROL CONSTRUCTION TRAFFIC ENTERING AND LEAVING THE WORK AREAS.

10. ALL MOVING OPERATIONS (I.E. STRIPING, PLACEMENT OF CONES, ETC.) SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS AND REVISIONS OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES.

11. TEMPORARY CONSTRUCTION SIGNS SHALL NOT BE PLACED SO THEY ENCROACH ON OPEN LANES OF TRAFFIC.

12. CONSTRUCTION VEHICLES SHALL NOT ENCROACH UPON OPEN LANES OF TRAFFIC EXCEPT WHEN ENTERING AND EXITING THE WORK ZONE. CONSTRUCTION OPERATIONS SHALL NOT ENCROACH UPON OPEN LANES OF TRAFFIC ANY TIME.

13. THE PRIVATE VEHICLES OF CONSTRUCTION WORKERS SHALL NOT BE PARKED ON THE TRAVEL LANES OR SHOULDERS. DESIGNATED PARKING AREAS ON CAMPUS WILL BE PROVIDED FOR CONSTRUCTION WORKERS.

14. ANY SUBCONTRACTORS EMPLOYED BY THE CONTRACTOR ON THIS PROJECT SHALL WORK WITHIN THE SAME PROTECTED WORK AREAS AS THE CONTRACTOR. NO SEPARATE BLOCK CLOSURES WILL BE ALLOWED.

15. THE CONTRACTOR SHALL MAINTAIN ONE LANE OF TRAFFIC (11–FOOT MINIMUM) OPEN ON ALL ROADS NEAR THE CONSTRUCTION SITE AT ALL TIMES.

16. THE CONTRACTOR SHALL PROVIDE PLANS SHOWING THE PROPOSED SEQUENCE OF CONSTRUCTION FOR THE DRIVEWAY ACCESS TO THE GENERATOR AREA.

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Key Plan -

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UNIVERSITY OF Rhode Island

UNIVERSITY OF RHODE ISLAND

Roger Williams Complex
Generator Project
Phase 2

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1	Issue for Bid	02/23/24

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Job No:	248-111
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Drawing Title -

NOTES RELATING TO LANDSCAPE SITE WORK

Sheet Number -

LA1.00

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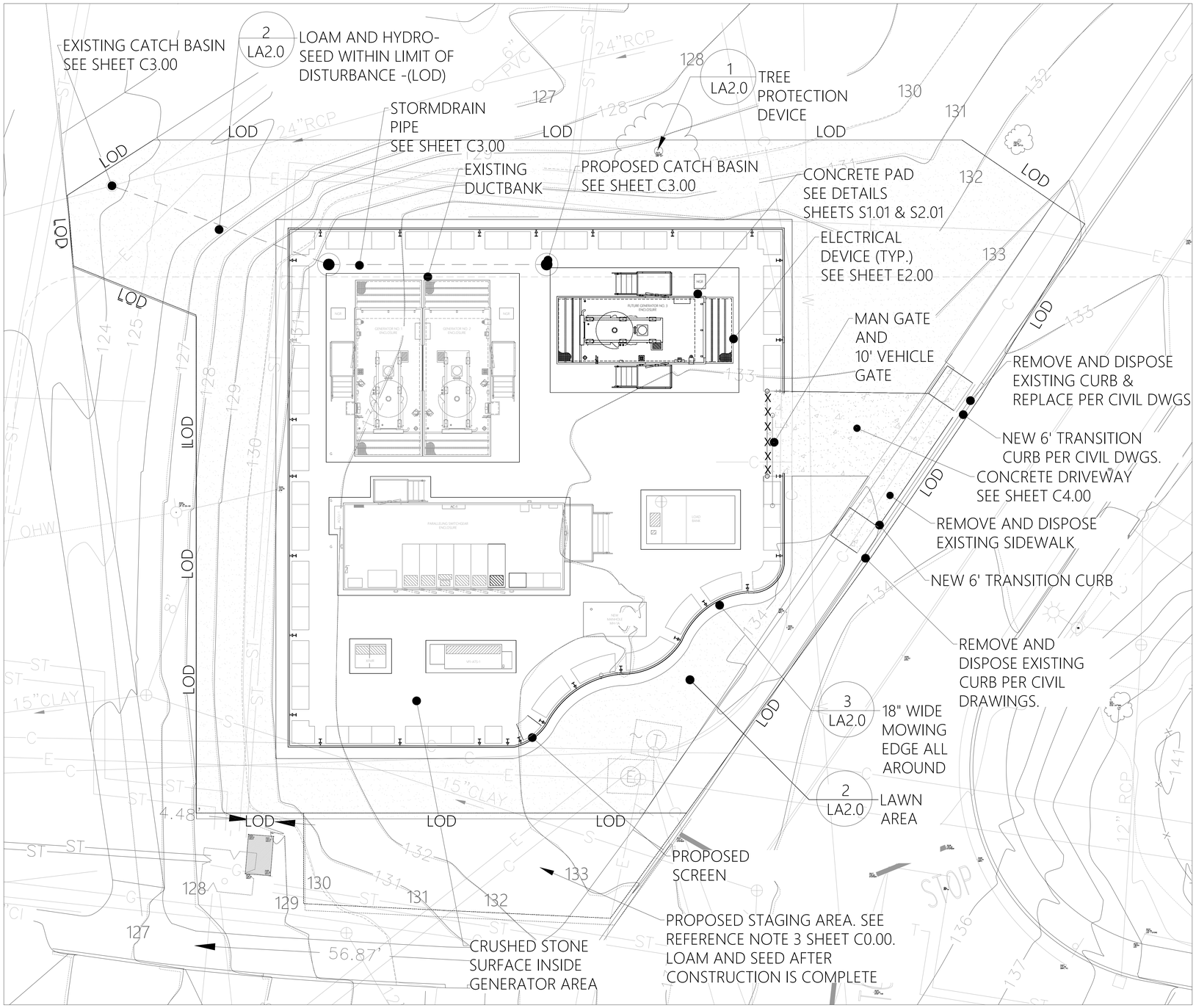


1 LA2 LANDSCAPE PLAN

ONE AND ONE-HALF INCHES – ONE FOOT

6" 0 1

SCALE IN FEET

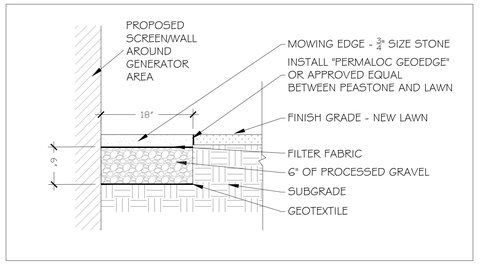
COORDINATION NOTES:

1. REFER TO ARCHITECTURAL DRAWINGS FOR ALL WORK RELATING TO THE SOUND WALL.
2. REFER TO ELECTRICAL/ENGINEERING DRAWINGS FOR ALL WORK RELATING TO THE GENERATOR COMPLEX.
3. REFER TO CIVIL ENGINEERING DRAWINSG FOR ALL GRADING AND STORMWATER MANAGEMENT.

LEGEND

PROPOSED LAWN AREAS

PROPOSED MOWING EDGE



3 LA2 MOWING EDGE

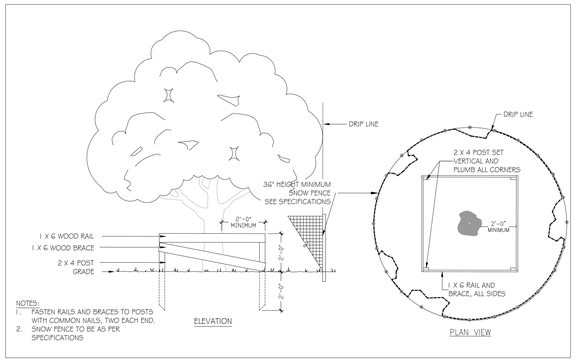
SCALE: 1" = 1'-0"

LANDSCAPE PREPARATION NOTES

1. THE CONTRACTOR SHALL VISIT THE SITE TO VERIFY EXISTING CONDITIONS AND TO BECOME THOROUGHLY FAMILIAR WITH THE PROJECT AND THE SITE PRIOR TO COMMENCING THE WORK.
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO FIELD VERIFY ACTUAL SITE CONTOURS PRIOR TO THE START OF ANY WORK. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE LANDSCAPE ARCHITECT,PROJECT MANAGER AND OWNER PRIOR TO THE START OF ANY WORK.
3. THE CONTRACTOR SHALL CONTACT "DIG-SAFE", OBTAIN A REGISTRATION NUMBER AND NOTIFY THE PROJECT MANAGER PRIOR TO THE START OF CONSTRUCTION.
4. ALL DIMENSIONS SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR.
5. THE PROJECT SITE SHALL BE CLEANED DAILY AND SHALL REMAIN FREE OF ANY DEBRIS OR HAZARDS THAT CAN CAUSE INJURY. THE OWNERS AND PROJECT TEAM MUST HAVE CLEAR ACCESS TO THE SITE AT ALL TIMES.
6. NO STORAGE OF MATERIAL IS ALLOWED WITHIN THE DRIPLINE OF EXISTING TREES TO REMAIN. STOCKPILE TOPSOIL AND OTHER NECESSARY CONSTRUCTION MATERIAL IN AREAS DESIGNATED ON PLANS AND/OR AS DIRECTED BY PROJECT MANAGER.
7. PROTECT AND SECURE ALL STOCKPILED MATERIALS FROM WEATHER AND POSSIBLE VANDALISM. DO NOT ALLOW STOCKPILED TOPSOIL TO RUN OFF THE SITE.
8. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALL STATE AND MUNICIPAL CODES AND REGULATIONS.
9. PROTECT ALL EXISTING LAWNS, PLANTS AND HARDSCAPES TO REMAIN THAT ARE WITHIN THE LIMIT OF DISTURBANCE. PROTECT ADJACENT BUILDINGS AND THE SOUND WALL DURING LANDSCAPE INSTALLATION WORK.
10. THE CONTRACTOR SHALL REPAIR ANY DAMAGE INCURRED AS A RESULT OF THE CONTRACTOR'S OPERATIONS TO THE BUILDINGS AND EXISTING SITE ELEMENTS TO REMAIN. THE CONTRACTOR SHALL BEAR THE COST OF THE REPAIR.
11. SCARIFY AND REMOVE ALL EXISTING LAWN, DEBRIS AND UNSUITABLE PLANTING MEDIUM IN AREAS DESIGNATED FOR NEW PLANT BEDS.
12. UNSUITABLE MATERIAL SHALL BE AS PER SOIL TEST RESULTS AND AS INDICATED BY THE LANDSCAPE ARCHITECT. DISPOSE OF ALL UNSUITABLE MATERIAL IN ACCORDANCE WITH STATE AND MUNICIPAL CODES.
13. THE CONTRACTOR SHALL MAINTAIN POSITIVE DRAINAGE AT ALL TIMES.

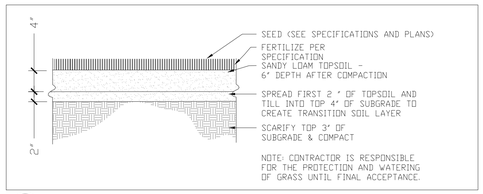
LANDSCAPE SEEDING NOTES

1. A LANDSCAPE REPRESENTATIVE MUST BE ON SITE TO APPROVE ALL TRIMMING AND CLEARING NECESSARY TO COMPLETE THE WORK AS SHOWN ON THE PLANS.
2. ANY TOPSOI SHALL HAVE A SANDY LOAM TEXTURE RELATIVELY FREE OF SUBSOIL MATERIAL, STONES, ROOTS, LUMPS OF SOIL, TREE LIMBS, TRASH OR CONSTRUCTION DEBRIS. TOPSOIL SHALL CONFORM WITH THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, LATEST EDITION , PART L. LANDSCAPING.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR TESTING ALL TOPSOIL TO MEET THE RHODE ISLAND DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS AND FOR PROVIDING TEST RESULTS TO THE LANDSCAPE ARCHITECT/PROJECT MANAGER FOR APPROVAL PRIOR TO PLACING ANY TOPSOIL OR BACKFILL MIX FOR PLANT PITS AND BEDS.
4. CONTRACTOR MUST REVEGETATE ALL DISTURBED AREAS OUTSIDE THE PROJECT LIMITS WITH 6" OF TOPSOIL AND THE PROJECT'S SPECIFIED SEED MIX. APPLY TOPSOIL TO THICKNESS OF 5 INCHES.
5. CERTIFICATES FOR SEED MIXTURE TO BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO APPLICATION OF SEED.



1 LA2 TREE PROTECTION DETAIL

SCALE: 1/8" = 1'-0"



2 LA2 LAWN DETAIL

SCALE: 1" = 1'-0"

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Stamp -

Key Plan -

Project Name -

UNIVERSITY OF Rhode Island

UNIVERSITY OF RHODE ISLAND

Roger Williams Complex
Generator Project
Phase 2

100% CONSTRUCTION DOCUMENTS
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LANDSCAPE LAWN AREAS AROUND GENERATOR ENCLOSURE

Sheet Number -

LA2.00

LEGEND

EXISTING		NEW
	EDGE OF PAVEMENT	
	BERM	
	CURB	
	GUARDRAIL	
MB	MAILBOX	
NO.	UTILITY POLE	
	POLE GUY	
	LUMINARE	
SIGN	SIGN	
OHW	OVERHEAD WIRES	
D	STORMDRAIN	
S	SANITARY SEWER	
W	WATER MAIN	
GAS	GAS MAIN	
UC	TELECOM UNDERGROUND	
E	ELECTRIC UNDERGROUND	
ST	STEAM UNDERGROUND	
	ABANDONED UTILITY	
	FLARED END SECTION	
	HEADWALL	
WG OR GG	WATER OR GAS GATE	
CB	CATCH BASIN	
MH	MANHOLE	
HYD	HYDRANT	
R.I.H.B.	R.I. HIGHWAY BOUND	
S.B.	STONE BOUND	
	RETAINING WALL	
	FENCE	
	WOOD OR BRUSH LINE	
	TREES	
(NAME)	RIVER OR STREAM	
	WETLAND AREA	
NO. TYPE MATERIAL	BUILDING	
	FOUNDATION	
	CUT AND MATCH	
	RIP–RAP	
	BALED HAY RI STD 9.1.0	
	LIMIT OF DISTURBANCE	LOD
	LIMIT OF CLEARING	LOC
	LOAM AND SEED	
	LIMIT OF EXCAVATION	
	CONCRETE EXTERIOR EQUIPMENT PAD	
	EXTERIOR ELECTRICAL EQUIPMENT	

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO THE STATE OF RHODE ISLAND STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, 2004 EDITION (AMENDED MARCH 2018) WITH ALL REVISIONS, AND THE RHODE ISLAND STANDARD DETAILS WITH ALL REVISIONS, WHICH ARE MADE A PART HEREOF AS FULLY AND COMPLETELY AS IF ATTACHED HERETO. THE CURRENT EDITION OF THE RHODE ISLAND STANDARD SPECIFICATIONS MAY BE OBTAINED AT HTTP://WWW.DOT.RI.GOV/BUSINESS/BLUEBOOK.PHP.
2. THE CONTRACTOR SHALL MAKE ALL NECESSARY CONSTRUCTION NOTIFICATIONS AND APPLY FOR AND OBTAIN ALL NECESSARY CONSTRUCTION PERMITS, PAY ALL FEES AND POST ALL BONDS ASSOCIATED WITH SAME AND COORDINATE WITH THE ENGINEER AND ARCHITECT AS REQUIRED.
3. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR JOB SITE SAFETY. THE CONTRACTOR SHALL PROVIDE TEMPORARY FENCING AND/OR BARRIERS AROUND ALL OPEN EXCAVATED AREAS IN ACCORDANCE WITH OSHA STANDARDS. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER ABOUT DECORATIVE SCRIM REQUIREMENTS ASSOCIATED WITH THE TEMPORARY FENCING, AS APPLICABLE.
4. IF ANY DEVIATION OR ALTERATION OF THE WORK PROPOSED ON THESE DRAWINGS IS REQUIRED, THE CONTRACTOR IS TO IMMEDIATELY CONTACT AND COORDINATE WITH THE ENGINEER AND OWNER.
5. ANY AREA OUTSIDE OF THE LIMIT OF WORK THAT IS DISTURBED SHALL BE RESTORED TO ITS ORIGINAL CONDITION AT NO COST TO THE OWNER.
6. ALL SITE WORK SHALL MEET OR EXCEED THE SITE WORK SPECIFICATIONS PREPARED FOR THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING THAT THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS DO NOT CONFLICT WITH ANY KNOWN EXISTING OR OTHER PROPOSED IMPROVEMENTS. IF ANY CONFLICTS ARE DISCOVERED, THE CONTRACTOR SHALL NOTIFY THE OWNER AND THE ENGINEER PRIOR TO INSTALLATION OF ANY PORTION OF THE SITE WORK THAT WOULD BE AFFECTED.
7. EXCAVATED ROCK SHALL BE REMOVED FROM THE SITE AND LEGALLY DISPOSED OF UNLESS OTHER ARRANGEMENTS ARE MADE WITH THE OWNER. ROCK OF ADEQUATE HARDNESS AND SIZE MAY BE UTILIZED IN FILL AREAS WITH WRITTEN APPROVAL OF THE OWNER'S REPRESENTATIVES.
8. ALL EXISTING TREES TO REMAIN SHALL BE PROTECTED IN ACCORDANCE WITH SECTION L.11 OF THE STATE OF RHODE ISLAND STANDARD SPECIFICATIONS.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROTECTING FRESHLY PLACED CONCRETE FROM DAMAGE UNTIL THE CONCRETE HAS CURED SUFFICIENTLY. COSTS TO REPLACE DAMAGE TO FRESHLY PLACED CONCRETE WILL BE THE CONTRACTOR'S RESPONSIBILITY WITH NO ADDITIONAL COST TO THE OWNER.
10. ANY SOIL EXCAVATED 30 INCHES BELOW GRADE SHALL BE TESTED, CHARACTERIZED FOR DISPOSAL, AND LEGALLY DISPOSED OF IF CONTAMINANTS ARE FOUND IN ACCORDANCE WITH THE OFFSITE RECYCLING/ DISPOSAL FACILITY'S REQUIREMENTS.
11. REFER TO SPECIFICATION SECTION 32 35 16 PRECAST SECURITY SCREEN WALL FOR ADDITIONAL INFORMATION FOR THE PROPOSED 14 FOOT WALL.

REFERENCE

1. PROJECT LOCATION: UNIVERSITY OF RHODE ISLAND (URI), WEST ALUMNI AVENUE AND HEATHMAN ROAD, KINGSTON, RI.
2. UNDERGROUND UTILITIES WERE COMPILED FROM AVAILABLE RECORD PLANS AND ABOVE GROUND LOCATIONS. BEFORE COMMENCING ANY SITE WORK ACTIVITIES, CONTACT DIG SAFE AT (888) DIG–SAFE AND DAVID LAMB, URI UTILITIES ENGINEER, AT (401) 874–7896 TO ASSIST IN THE LOCATION OF UNDERGROUND UTILITIES. THE CONTRACTOR SHALL PROVIDE AN UNDERGROUND UTILITY LOCATOR TO MARK THE LOCATION OF ALL EXISTING UTILITIES WITHIN THE LIMIT OF DISTURBANCE PRIOR TO COMMENCING WORK.
3. THE STAGING AREA SHOWN ON THE PLAN IS FOR BIDDING PURPOSES ONLY. EXACT AREA TO BE COORDINATED WITH THE OWNER.

GRADING AND UTILITY NOTES

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ESTABLISHING AND MAINTAINING ALL TEMPORARY SEDIMENT AND EROSION CONTROLS IN ACCORDANCE WITH RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT REGULATIONS.
2. THE EROSION AND SEDIMENTATION CONTROLS SHOWN ON THE PLANS ARE INTENDED TO REPRESENT THE MINIMUM CONTROL NECESSARY TO MEET ANTICIPATED SITE CONDITIONS. ADDITIONAL MEASURES SHALL BE IMPLEMENTED AS CONDITIONS WARRANT OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
3. REQUIRED PERIMETER CONTROL SHALL BE PROPERLY ESTABLISHED, CLEARLY VISIBLE, AND IN OPERATION PRIOR TO INITIATING ANY LAND CLEARING ACTIVITY AND/OR OTHER CONSTRUCTION RELATED WORK. SUCH FACILITIES SHALL REPRESENT THE LIMIT OF WORK. WORKERS SHALL BE INFORMED THAT NO CONSTRUCTION ACTIVITY IS TO OCCUR BEYOND THE LIMIT OF WORK AT ANY TIME THROUGHOUT THE CONSTRUCTION PERIOD.
4. AS FEASIBLE, CONSTRUCTION WILL BE PHASED TO LIMIT THE AREA OF EXPOSED SOIL AND THE DURATION OF EXPOSURE. ALL DISTURBED AREAS WILL BE TEMPORARILY AND/OR PERMANENTLY STABILIZED WITHIN 14 DAYS FOLLOWING COMPLETION OF GRADING ACTIVITIES.
5. THE CONTRACTOR SHALL INSPECT AND MAINTAIN ALL EROSION AND SEDIMENTATION CONTROL MEASURES THROUGHOUT THE CONSTRUCTION PERIOD.
6. EROSION AND SEDIMENTATION CONTROL MEASURES SHALL BE INSPECTED AND MAINTAINED ON A WEEKLY BASIS AND AFTER EACH RAINFALL EVENT OF 0.25 INCH OR GREATER DURING CONSTRUCTION.
7. THE CONTRACTOR SHALL CLEAN AND MAINTAIN SEDIMENTATION CONTROL BARRIERS WHEN SEDIMENT ACCUMULATES TO ONE–QUARTER THE HEIGHT OF THE BARRIER. MATERIAL COLLECTED FROM THE SEDIMENTATION BARRIER SHALL BE REMOVED AS NECESSARY AND DISPOSED IN AN UPLAND AREA.
8. THE CONTRACTOR SHALL MAINTAIN A SUFFICIENT RESERVE OF VARIOUS EROSION CONTROL MATERIALS ONSITE AT ALL TIMES FOR EMERGENCY PURPOSES OR FOR ROUTINE MAINTENANCE.
9. THE CONTRACTOR SHALL SCHEDULE ITS WORK TO ALLOW THE FINISHED SUBGRADE ELEVATIONS TO DRAIN PROPERLY WITHOUT PUDDLING; SPECIFICALLY, TO ALLOW WATER TO ESCAPE WHERE PROPOSED CURB MAY RETAIN RUNOFF PRIOR TO PAVING. TEMPORARY POSITIVE DRAINAGE SHALL BE PROVIDED, AS REQUIRED, TO STABILIZED DISCHARGE POINTS.
10. SOIL AND OTHER MATERIALS RESULTING FROM SITE CLEARING MAY BE RECYCLED AND/OR REUSED ON THE SITE AS APPROPRIATE. WET MATERIALS SHALL BE REMOVED FROM THE SITE.
11. ANY DAMAGE TO EXISTING UTILITIES OR STRUCTURES AS SHOWN ON THE PLANS SHALL BE THE CONTRACTOR'S RESPONSIBILITY. COSTS OF SUCH DAMAGE SHALL BE THE CONTRACTOR'S RESPONSIBILITY. NO EXCAVATION SHALL BE DONE UNTIL UTILITY COMPANIES ARE PROPERLY NOTIFIED IN ADVANCE. NOTE THAT NOT ALL EXISTING UNDERGROUND UTILITIES ARE SHOWN. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONTACT ALL RESPECTIVE UTILITY COMPANIES TO VERIFY AND LOCATE EXISTING UTILITIES.
12. TEMPORARY DIVERSION (TD) MAY CONSIST OF A DITCH OR SWALE OR MAY BE ACHIEVED USING WOOD CHIP PILES, OR SIMILAR MATERIALS.
13. TEMPORARY SEDIMENT BASINS (TSB) AND TEMPORARY SWALES (TS) SHALL BE SIZED BY THE CONTRACTOR USING THE PARAMETERS CONTAINED IN THE RHODE ISLAND SOIL EROSION AND SEDIMENT CONTROL MANUAL.
14. DUST SHALL BE CONTROLLED BY SPRINKLING OR OTHER APPROVED METHODS AS NECESSARY OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
15. CATCH BASINS AND STORM DRAINS SHALL BE PROTECTED WITH HAY BALES (RIDOT STD. 9.8.0) OR SEDIMENT BAGS IN PAVED AREAS UNTIL THE CONTRIBUTING AREA IS PERMANENTLY STABILIZED.
16. CONSTRUCTION SITE WASTE MATERIALS WILL BE PROPERLY CONTAINED ON SITE AND DISPOSED OFF SITE AT A LOCATION IN ACCORDANCE WITH LOCAL AND STATE REGULATIONS.
17. NEWLY VEGETATED AREAS SHALL BE REGULARLY INSPECTED AND MAINTAINED TO ENSURE THE ESTABLISHMENT OF STABLE VEGETATED SURFACES.
18. THE CONTRACTOR SHALL NOT REMOVE ANY HAY BALES, SILT FENCE, OR OTHER EROSION CONTROLS UNTIL THE CONTRIBUTING AREA IS PERMANENTLY STABILIZED.
19. ALL DRAINAGE STRUCTURES SHALL BE CLEARED OF ACCUMULATED SEDIMENT PRIOR TO ACCEPTANCE OF THE FINAL PROJECT.
20. CONTRACTOR TO EXCAVATE TEST PITS AT ALL UTILITY CROSSINGS OF THE PROPOSED TRENCH AND WALL FOOTINGS PRIOR TO EXCAVATION TO EXPOSE AND MEASURE THE DEPTH OF ALL UTILITIES. SHOULD A CONFLICT WITH THE DUCT BANK OR WALL BE OBSERVED, THE ENGINEER/ OWNER SHALL BE NOTIFIED AND NO CHANGES WILL BE MADE WITHOUT THE ENGINEER'S/OWNER'S CONSENT.

ABBREVIATIONS

GENERAL

A/C	AIR CONDITIONER UNIT
AP	ASSESSOR'S PLAT
BIT	BITUMINOUS
CC	CONCRETE CURB
CLF	CHAINLINK FENCE
CONC	CONCRETE
DYL	DOUBLE YELLOW LINE
ELEV	ELEVATION
EA	EACH
EP	ENDPOINT
EOP	EDGE OF PAVEMENT
E&S	EROSION AND SEDIMENT CONTROL
FF	FLOOR ELEVATION
FT	FEET
GRAN	GRANITE
HT	HEIGHT ABOVE GRADE
L	LENGTH
LA	LANDSCAPE AREA

GENERAL (CONTINUED

LOD	LIMIT OF DISTURBANCE
NTS	NOT TO SCALE
OFF	OFFSET
OH	OVERHANG
PL	PROPERTY LINE
PT	POINT OF TANGENT
S	SLOPE
SCH	SCHEDULE
SWL	SINGLE WHITE LINE
TE	THRESHOLD ELEVATION
TS	TOP OF SLOPE
TYP	TYPICAL
WD	WOOD

UTILITY

AG	ADJUST CURB STOP TO GRADE
AW	ADJUST GAS GATE BOX TO GRADE
CB	CATCH BASIN
CMH	COMMUNICATION MANHOLE
DMH	DRAIN MANHOLE
DIP	DUCTILE IRON PIPE
ELEC	ELECTRIC
ER	ELECTRIC RISER
FES	FLARED END SECTION
GG	GAS GATE
HDPE	HIGH DENSITY POLYETHYLENE PIPE
HYD	HYDRANT
ISC	INLET SEDIMENT CONTROL
INV	INVERT ELEVATION
MH	MANHOLE
LB	LEACH BASIN

UTILITY (CONTINUED)

OHW	OVERHEAD
P	LIGHT/UTILITY POLE
PVC	POLYVINYL CHLORIDE PIPE
R	RADIUS
RCP	REINFORCED CONCRETE PIPE
RD	ROOF DRAIN
RIM	RIM ELEVATION
SHH	SIGNAL HANDHOLE
SMH	SANITARY MANHOLE
UGE	UNDERGROUND ELECTRIC
WG	WATER GATE
UIC	UNDERGROUND INJECTION CONTROL

THE EQUIPMENT AND WALL/ENCLOSURE LOCATIONS SHOWN ON THE SITE/CIVIL PLANS, AND ASSOCIATED NOTES, DETAILS, ETC., NEED TO BE UPDATED TO MATCH THE CURRENT EQUIPMENT CONFIGURATION, WHICH ARE SHOWN ON THE ELECTRICAL DRAWING E4.00.

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Generator Project
Phase 2

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LEGEND AND GENERAL NOTES

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one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot

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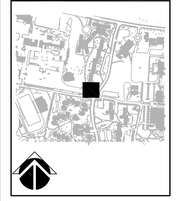

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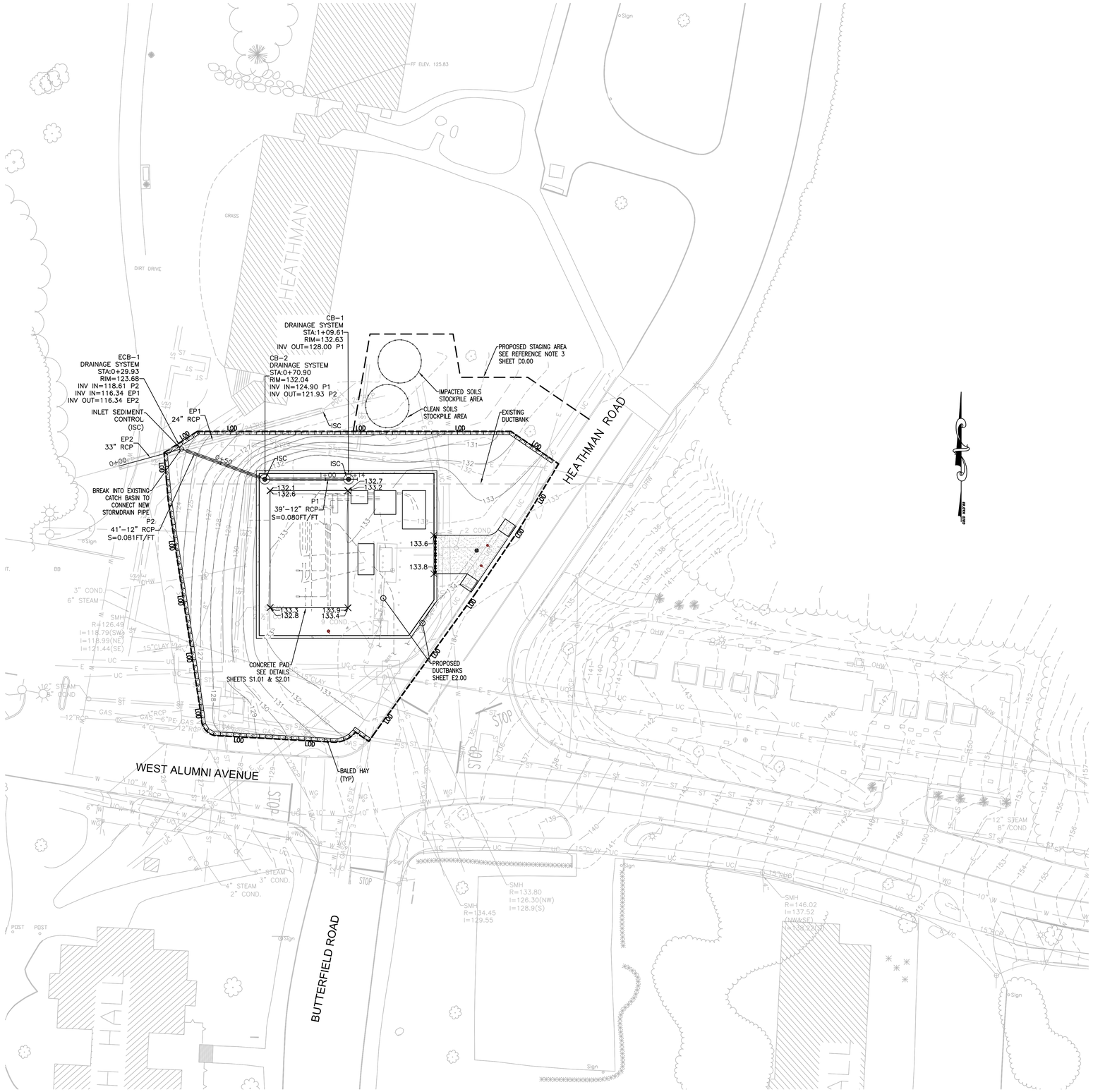
SITE PLAN

Sheet Number -

C2.00



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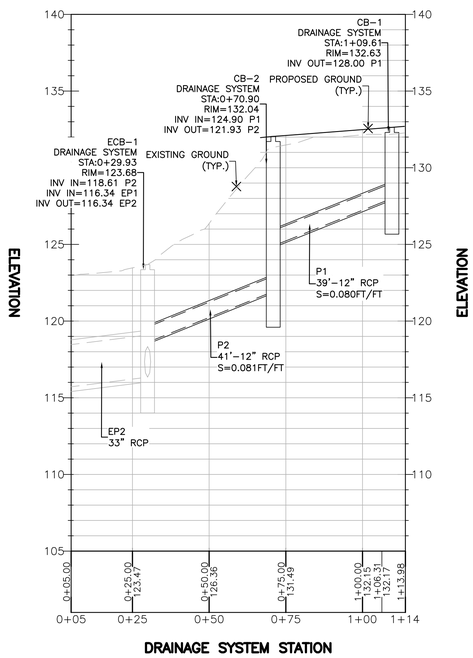

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Stamp -

Key Plan -

Project Name -

UNIVERSITY OF Rhode Island

UNIVERSITY OF RHODE ISLAND

Roger Williams Complex
Generator Project
Phase 2

100% CONSTRUCTION DOCUMENTS
ISSUED FOR BID
02/23/24

Submissions -

No:	Title:	Date:

Sheet Information -

Job No:	248-111
Drawn By:	LGA
Checked By:	TEB
Date:	02/23/2024
Scale:	1"=20'

Drawing Title -

SITE GRADING AND DRAINAGE PLAN

Sheet Number -

C3.00

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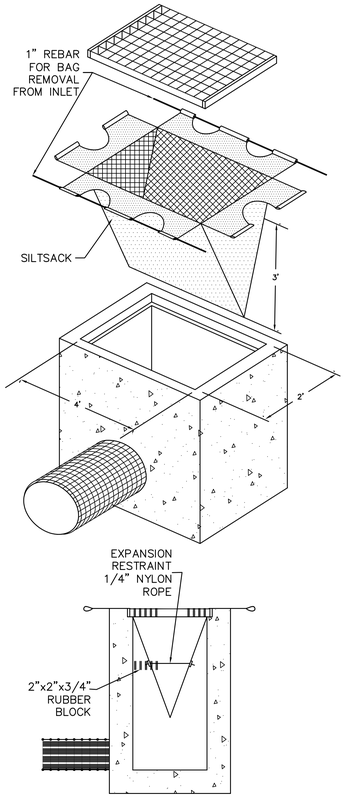
Save Date: 2/22/2024 3:44:01 PM
Plot Date: 2/22/2024 3:44:19 PM
User: rosiball blandin

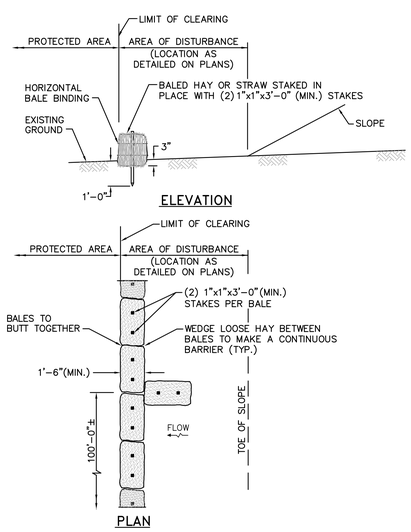
THE EQUIPMENT AND WALL/ENCLOSURE LOCATIONS SHOWN ON THE SITE/CIVIL PLANS, AND ASSOCIATED NOTES, DETAILS, ETC., NEED TO BE UPDATED TO MATCH THE CURRENT EQUIPMENT CONFIGURATION, WHICH ARE SHOWN ON THE ELECTRICAL DRAWING E4.00.



1 INLET SEDIMENT CONTROL

SCALE: NTS

NOTE:
REGULAR FLOW=40 GAL./MIN/SF
HIGH FLOW=200 GAL./MIN/SF

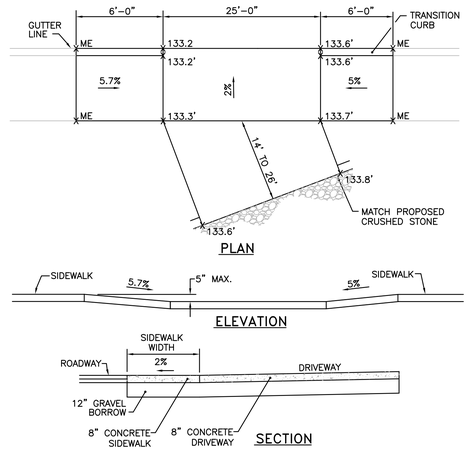


2 BALED HAY EROSION CHECK

R.I. STANDARD 9.1.0

SCALE: NTS

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 206 OF THE R.I. STANDARD SPECIFICATIONS.
2. TO BE USED WHERE THE EXISTING GROUND SLOPES AWAY FROM THE EMBANKMENT AS CALLED FOR ON PLANS.
3. AT APPROXIMATE 100'-0" INTERVALS A BALE OF HAY IS TO BUTT PERPENDICULARLY.

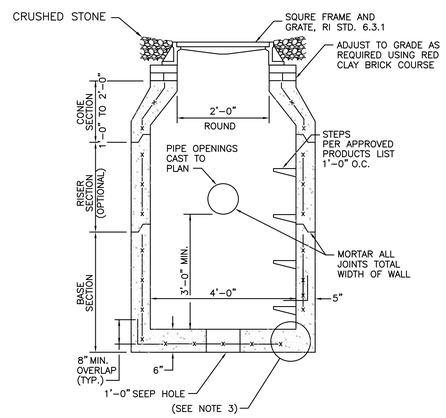


3 DRIVEWAY DEVELOPMENT FOR 6'-0" TRANSITION CURB

R.I. STANDARD 43.4.1M

SCALE: NTS

NOTE:
SHALL BE IN ACCORDANCE WITH SECTION 904 OF THE R.I. STANDARD SPECIFICATIONS.

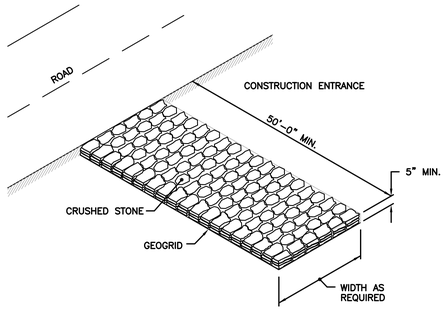


4 PRECAST 4'-0" ROUND CATCH BASIN

R.I. STANDARD 4.4.0M

SCALE: NTS

NOTES:
1. SHALL BE IN ACCORDANCE WITH SECTION 702 OF THE R.I. STANDARD SPECIFICATIONS.
2. CIRCUMFERENTIAL STEEL REINFORCEMENT SHALL BE 0.12 SQ. IN./LIN. FT. * FOR LONGITUDINAL (VERTICAL STANDING) REINFORCEMENT REFER TO ASTM C478, ITEM 8.1.2.
3. STEEL REINFORCEMENT FOR BASE SECTION BOTTOM SHALL BE A MINIMUM OF 4'-0" (BOTH WAYS).
4. STEPS SHALL CONFORM TO STD. 5.3.0 AND SHALL BE INSTALLED AT THE CASTING PLANT.
5. ONE POUR MONOLITHIC BASE SECTION.
6. ANY NECESSARY ADJUSTMENTS DURING CONSTRUCTION WILL BE DONE BY SAW-CUTTING AND/OR CORING ONLY. NO JACKHAMMERS, HAMMERS AND CHISELS OR PNEUMATIC TOOLS WILL BE ALLOWED.
7. CORBEL MADE OF RED CLAY BRICK WILL BE PERMITTED FOR THE "CONE SECTION" OF THE CATCH BASIN ONLY. THE CENTERLINE OF THE OPENING MUST BE WITHIN FROM THE STEPS.
8. FRAME AND GRATE SHALL BE IN ACCORDANCE WITH SECTION M.04 OF THE R.I. STANDARD SPECIFICATIONS.

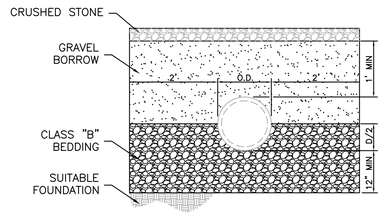


5 CONSTRUCTION ENTRANCE

R.I. STANDARD 9.9.0

SCALE: NTS

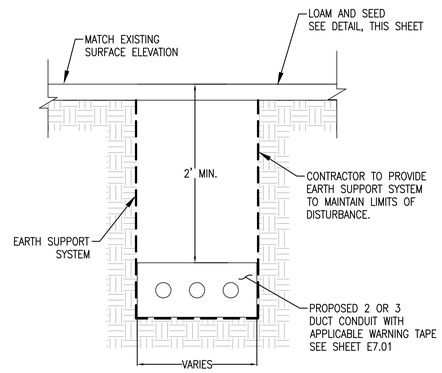
NOTE:
SHALL BE IN ACCORDANCE WITH SECTION 211 OF THE R.I. STANDARD SPECIFICATIONS.



6 RCP PIPE TRENCH DETAIL

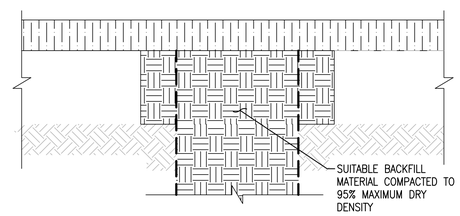
SCALE: NTS

NOTES:
IF IT IS NECESSARY TO ROUTE CONSTRUCTION TRAFFIC OVER THE TRENCHES, THE CONTRACTOR SHALL SIZE, PROVIDE, AND INSTALL STEEL PLATING IN ACCORDANCE WITH THE LATEST EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (MUTCD). THERE WILL BE NO SEPARATE PAY ITEM FOR THIS WORK.



7 DUCT CONDUIT TRENCH DETAIL IN GRASSED AREAS

NOT TO SCALE



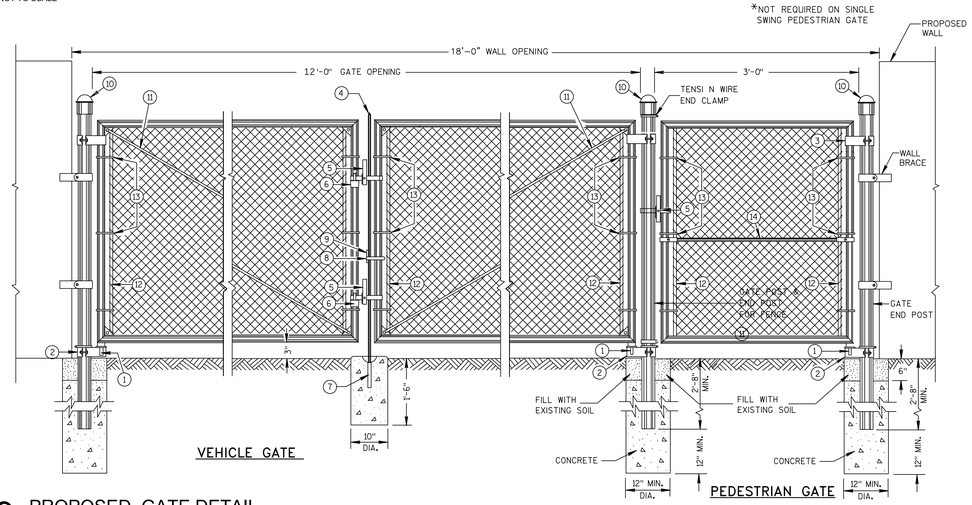
8 PROPOSED LOAM AND SEED DETAIL

NOT TO SCALE

LEGEND

1. STRAIGHT PLUG
2. BOTTOM HINGE
3. TOP HINGE
4. PLUNGER ROD
5. FULCRUM LATCH
6. FORK CATCH *
7. PLUNGER ROD CATCH
8. LOCK KEEPER GUIDE
9. LOCK KEEPER
10. DOME TOPS
11. TRUSS RODS
12. TENSION BAR
13. TENSION BANDS
14. BRACE RAIL

*NOT REQUIRED ON SINGLE SWING PEDESTRIAN GATE



9 PROPOSED GATE DETAIL

SCALE: NTS

NOTE:
SHALL BE IN ACCORDANCE WITH THE MANUFACTORY'S SPECIFICATIONS.
SOUSA & SONS IRONWORKS, INC.
788 STATE ROAD, NORTH DARTMOUTH, MA 02747
508-994-0962

Engineer -
THOMPSON CONSULTANTS, INC.
525 MILL STREET, MARION, MA 02738
Tel: (508) 748-2620 / Toll Free: (866) 261-7487
www.TCIEngineers.com

Consultants -
BRYANT ASSOCIATES
Improving lives through infrastructure
640 George Washington Highway
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Lincoln, RI 02865
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317 Iron Horse Way
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Providence, RI 02908
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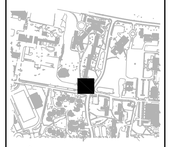

Project Name -

UNIVERSITY OF Rhode Island

UNIVERSITY OF RHODE ISLAND

Roger Williams Complex
Generator Project
Phase 2

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No:	Title:	Date:

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Job No:	248-111
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Drawing Title -

SITE DETAILS

Sheet Number -

C4.00

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Save Date: 2/22/2024 3:39:00 PM
Plot Date: 2/22/2024 3:39:39 PM
User: rosibel.blandin

GENERAL NOTES

1. ALL STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE CIVIL/SITE, ELECTRICAL, AND SHOP DRAWINGS AND SPECIFICATIONS.
2. EXISTING CONDITIONS AS SHOWN ON THESE PLANS ARE FOR REFERENCE ONLY. THE CONTRACTOR IS REQUIRED TO FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION.
3. THE CONTRACTOR SHALL REVIEW AND VERIFY DIMENSIONS SHOWN IN ALL PLANS AND REVIEW ALL FIELD CONDITIONS THAT MAY AFFECT THE INSTALLATION OF THE FACILITY. SHOULD DISCREPANCIES APPEAR, THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING TO OBTAIN ENGINEER'S CLARIFICATION BEFORE COMMENCING WITH THE WORK.
4. ANY DEVIATION, MODIFICATION, OR SUBSTITUTION FROM THE APPROVED SET OF STRUCTURAL DRAWINGS SHALL BE SUBMITTED TO THE OWNER AND ENGINEER FOR REVIEW/APPROVAL PRIOR TO ITS USE OR INCLUSION ON THE SHOP DRAWINGS.
5. ALL WORK SHALL BE CONTINUOUSLY MONITORED AND INSPECTED BY AN INDEPENDENT TESTING AGENCY REFER TO SPECIAL INSPECTION NOTES ON SHEET S0.02. SUBMIT ALL TEST AND INSPECTION REPORTS TO A/E FOR REVIEW.
6. FOR ALL ITEMS EMBEDDED IN OR PASSED THROUGH CONCRETE AND RECESSES NOT SHOWN ON THE STRUCTURAL DRAWINGS, THE CONTRACTOR SHALL INITIALLY REFER TO CIVIL AND ELECTRICAL DRAWINGS FOR THE TYPE, SIZE, LOCATION, AND SPECIAL INSTALLATION REQUIREMENTS FOR THESE ITEMS.
7. THE CONTRACTOR SHALL TAKE ANY AND ALL NECESSARY MEASURES TO PROTECT EXISTING STRUCTURES FROM DAMAGE WHEN WORKING IN AND AROUND EXISTING STRUCTURES PERFORMING WORK SUCH AS DEMOLITION, FOUNDATION EXCAVATION, AND OTHER.
8. SIZE AND LOCATION OF EQUIPMENT PADS AND ANCHOR BOLTS SHALL BE PER EQUIPMENT MANUFACTURERS REQUIREMENTS. CONTRACTOR SHALL VERIFY PLACEMENT OF EQUIPMENT AND LOCATION OF CONDUIT FROM MANUFACTURERS AND VENDER SPECIFICATIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL OPENINGS AND SLEEVES FOR PROPER DISTRIBUTION OF ALL UTILITIES.
9. ALL DIMENSIONS MUST BE COORDINATED WITH EQUIPMENT MANUFACTURER. REFER TO MANUFACTURERS CUT SHEETS FOR EXACT EQUIPMENT NOT SHOWN ON STRUCTURAL DRAWINGS.
10. IN CASES WHERE ELECTRICAL EQUIPMENT LOADING LISTED ON THE MANUFACTURER'S PRODUCT DATA SHEET EXCEEDS DESIGN LOADS INDICATED ON THE PLANS, CONTRACTOR SHALL NOTIFY STRUCTURAL ENGINEER PRIOR TO PROCEEDING WITH WORK.
11. ANY EQUIPMENT THAT MAY INDUCE VIBRATION TO THE STRUCTURE SHALL BE ADEQUATELY ISOLATED FROM THE STRUCTURES.
12. CONTRACTOR SHALL COORDINATE PLACEMENT OF, OR BOX OUT FOR, ALL PIPE SLEEVES (CONDUIT), OPENINGS, ETC. REQUIRED FOR VARIOUS TRADES.
13. CONTRACTOR SHALL COORDINATE AND NOTIFY OTHER TRADES IN SUFFICIENT TIME TO ALLOW THEM TO SET ANCHORS, INSERTS, BOLTS, ETC., AS REQUIRED FOR THEIR USE.
14. TYPICAL DETAILS, SCHEDULES, AND SECTIONS INDICATED MAY NOT BE SPECIFICALLY REFERENCED ON THE DRAWINGS. THE CONTRACTOR IS RESPONSIBLE TO DETERMINE WHERE EACH TYPICAL DETAIL OR SCHEDULE OR SECTION APPLIES. IF LOCATIONS ARE FOUND WHERE NO TYPICAL DETAIL, TYPICAL SCHEDULE, TYPICAL SECTION, OR SPECIFIC DETAIL APPLIES, NOTIFY THE ENGINEER.
15. STANDARD DETAILS APPLY TO ALL SIMILAR SITUATIONS ON THE PROJECT, EXCEPT WHERE A DIFFERENT DETAIL IS SHOWN.
16. DRAWINGS ARE NOT TO BE SCALED.
17. THE CONTRACTOR SHALL PROVIDE MEANS, METHOD, TECHNIQUES, SEQUENCE, AND PROCEDURE OF CONSTRUCTION AS REQUIRED.
18. ALL CONSTRUCTION PROCEDURES SHALL COMPLY WITH THE SAFETY REQUIREMENTS OF OSHA, THE OWNER, AND OTHER APPLICABLE REGULATIONS.

GOVERNING DESIGN CODES

1. THE DESIGN IS FOR GENERATOR AND ANCILLARY STRUCTURE FOUNDATIONS FOR A NEW CENTRAL GENERATOR STATION AT THE ROGER WILLIAMS COMPLEX (RWC), UNIVERSITY OF RHODE ISLAND, KINGSTON, RHODE ISLAND.
2. RHODE ISLAND STATE BUILDING CODE – 2019
3. INTERNATIONAL BUILDING CODE – 2015
4. ACI 301: SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS – LATEST EDITION
   ACI 318: BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE – LATEST EDITION

SITE SPECIFIC DESIGN DATA

FLOOR LIVE LOADS: NOT APPLICABLE

ROOF LIVE LOADS: NOT APPLICABLE

GROUND SNOW LOAD, Pg: 30 psf

WIND DESIGN DATA:
BASIC WIND SPEED: 149 mph
BUILDING EXPOSURE CATEGORY: B
IMPORTANCE FACTOR: 1.15

EARTHQUAKE (SEISMIC) DESIGN DATA:
RISK CATEGORY: IV (EMERGENCY POWER GENERATOR)
SEISMIC IMPORTANCE FACTOR Ie: 1.5
SITE CLASS: D
SEISMIC COEFFICIENTS:
SS: 0.161 g
S1: 0.058 g
SEISMIC DESIGN CATEGORY: C
SDS: 0.13
SD1: 0.07

GENERATOR INFORMATION USED FOR BASIS OF DESIGN (DEAD LOADS)

OPERATING WEIGHT: 47,000 lbs. MAX. (INCLUDING SUPPORT FRAME AND TANK)

IF ACTUAL LOADS ARE DIFFERENT THAN THOSE INDICATED ABOVE THIS DESIGN MAY BE INVALID AND THE DESIGN ENGINEER SHOULD BE CONSULTED.

CONSTRUCTION RESPONSIBILITY

1. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. UNLESS OTHERWISE INDICATED, THEY DO NOT INDICATE THE MEANS, METHODS, TIMING, OR PROCEDURES USED TO COMPLETE THE CONSTRUCTION. TEMPORARY BRACING, SHORING, OR PROTECTION OF THE STRUCTURE AGAINST WIND, ERECTION AND OTHER SITE CONDITIONS DURING CONSTRUCTION OF THE FACILITY SHALL BE THE RESPONSIBILITY OF CONTRACTOR. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, SEQUENCES, AND FOR JOB SAFETY.
2. THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE OR HAVE CONTROL OR CHARGE OF CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES OR PROCEDURES FOR THE SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTIONS WITH THE PROJECT. THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE FOR THE CONTRACTOR'S FAILURES TO CARRY OUT HIS/HER WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS. THE STRUCTURAL ENGINEER SHALL NOT BE RESPONSIBLE OR HAVE CONTROL OVER THE ACTS OF OMISSIONS OF THE CONTRACTOR, SUBCONTRACTOR, ANY OF THE AGENTS, EMPLOYEES, OR ANY OTHER PERSONS PERFORMING ANY OF THE WORK, OR FOR FAILURE OF ANY OTHER PERSONS OUT OF THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
3. PERIODIC STRUCTURAL OBSERVATION VISITS (SITE VISITS) PERFORMED BY THE ENGINEER DURING CONSTRUCTION DO NOT INCLUDE INSPECTION OF CONSTRUCTION MEANS AND METHODS. SITE VISITS DURING CONSTRUCTION ARE NOT THE CONTINUOUS AND DETAILED SPECIAL INSPECTION SERVICES WHICH ARE TO BE PERFORMED BY OTHERS AND DO NOT WAIVE THE RESPONSIBILITY FOR THE INSPECTIONS REQUIRED OF THE TESTING AGENCY. OBSERVATIONS ARE PERFORMED SOLELY FOR THE PURPOSE OF CONTRACTOR UNDERSTANDING DESIGN INTENT SHOWN IN THE CONTRACT DRAWINGS. OBSERVATIONS DO NOT GUARANTEE CONTRACTOR'S PERFORMANCE AND SHALL NOT BE CONSTRUED AS SUPERVISION OR VERIFICATION OF CONSTRUCTION.

FOUNDATION NOTES

1. FOUNDATION DESIGN AND RECOMMENDATIONS ARE BASED ON THE GEOTECHNICAL REPORT BY GZA GEOENVIRONMENTAL INC., FILE NO. 03.0034874.00, DATED FEBRUARY 2021. REFERENCE SOIL REPORT AND SPECIFICATIONS FOR FURTHER INFORMATION ABOUT EXCAVATION, SITE PREPARATION, AND FOUNDATION CONSTRUCTION.
2. CONTRACTOR SHALL BE FAMILIAR WITH THE SUBSURFACE CONDITIONS AND GEOTECHNICAL REPORT BEFORE COMMENCING EXCAVATION.
3. FOR ANY DISCREPANCY BETWEEN STRUCTURAL DRAWINGS AND GEOTECHNICAL REPORT, THE GEOTECHNICAL REPORT SHALL TAKE PRECEDENCE. ANY SUCH DISCREPANCIES SHALL BE REPORTED TO THE ENGINEER OF RECORD (EOR).
4. ALL EXISTING FOUNDATION REMNANTS, ABANDONED UNDERGROUND UTILITIES, EXISTING TOPSOIL, EXISTING FILL, BURIED TOPSOIL/SUBSOIL, AND ALL ORGANIC AND/OR OTHER UNSUITABLE MATERIALS SHALL BE REMOVED FROM SUBGRADE AND BACKFILL AREAS FROM BENEATH EQUIPMENT PAD AREAS TO FIRM UNDISTURBED NATURAL GLACIAL TILL DEPOSITS.
5. FOLLOWING THE OVER-EXCAVATION, AND PRIOR TO THE PLACEMENT OF FILL, THE SOIL SUBGRADE SHOULD BE SURFACE COMPACTED WITH A MINIMUM OF SIX PASSES OF A VIBRATORY ROLLER HAVING A DRUM WEIGHT OF AT LEAST 10,000 POUNDS AND A DYNAMIC FORCE OF AT LEAST 20,000 POUNDS. ALL AREAS NOT ACCESSIBLE TO LARGE VIBRATORY ROLLERS SHOULD BE COMPACTED WITH TEN PASSES OF A WALK-BEHIND COMPACTOR HAVING A CENTRIFUGAL FORCE RATED NOT LESS THAN 1,000 POUNDS.
6. FOLLOWING SUBGRADE SURFACE COMPACTION, STRUCTURAL FILL CONSISTING OF "GRANULAR FILL" AND/OR "SAND-GRAVEL FILL" SHOULD THEN BE PLACED TO THE PROPOSED EQUIPMENT PAD SUBGRADE ELEVATIONS. EXTERIOR SLABS-ON-GRADE AND EQUIPMENT PADS SHOULD BE SUPPORTED ON A MINIMUM 18-INCH-THICK BASE COURSE OF "SAND-GRAVEL FILL" OR "CRUSHED STONE".
7. STRUCTURAL FILL AND BACKFILL SHOULD BE PLACED AND COMPACTED IN HORIZONTAL LIFTS. THE MAXIMUM LOOSE LIFT THICKNESS SHOULD BE 12 INCHES FOR VIBRATORY ROLLERS AND 6 INCHES FOR PLATE COMPACTORS. STRUCTURAL FILL IN THE EQUIPMENT PAD AREAS AND BEARING ZONES SHOULD BE COMPACTED TO 95% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE MODIFIED PROCTOR TEST (ASTM D1557). SEE GEOTECHNICAL REPORT FOR SPECIFIC RECOMMENDATIONS.
8. ALL SUB-GRADES AND PREPARED SOIL BEARING SURFACES, PRIOR TO PLACEMENT OF FOUNDATION REINFORCING STEEL AND CONCRETE SHALL BE INSPECTED. A LETTER TO THE OWNER STATING THAT SOILS ARE ADEQUATE TO SUPPORT THE "ALLOWABLE FOUNDATION BEARING PRESSURE(S)" SHALL BE PROVIDED.
9. THE DESIGN OF FOUNDATIONS AND SLAB-ON-GRADE IS BASED ON AN ALLOWABLE SOIL BEARING PRESSURE OF 4,000 PSF.
10. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING. ANY PROBLEMS WITH ACCESS, INTERFERENCE, ETC. SHALL BE RESOLVED PRIOR TO MOVING ONTO THE JOB SITE.
11. THE CONTRACTOR SHALL BE RESPONSIBLE TO REVIEW THE GEOTECHNICAL REPORT AND BE THOROUGHLY FAMILIAR WITH SITE AND SUBGRADE PREPARATIONS INFORMATION GIVEN THEREIN.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING, PROTECTING, AND RELOCATING AS REQUIRED ALL SERVICE AND UNDERGROUND UTILITIES IN THE VICINITY OF THE WORK SITE PRIOR TO BEGINNING WORK. ALL EXCAVATIONS NEAR THESE LINES ARE TO BE CARRIED OUT WITH EXTREME CAUTION. COORDINATE ALL RELOCATIONS WITH THE OWNER.
13. ALL FILL SHOULD BE FREE FROM ICE, SNOW, ROOTS, SOD, RUBBISH, RUBBLE, AND OTHER DELETERIOUS OR ORGANIC MATTER. GRADATION REQUIREMENTS FOR THE FILL MATERIALS SHOULD MEET THE REQUIREMENTS IN THE TABLE BELOW.

SIEVE SIZE	PERCENT FINER BY WEIGHT		
	SAND-GRAVEL FILL	GRANULAR FILL	¾"-INCH CRUSHED STONE
*	100	100	–
1 ½-INCH	–	–	–
1 ¼-INCH	–	–	–
¾-INCH	–	–	90-100
½-INCH	50-85	–	10-50
NO. 4	40-75	–	0-5
NO. 10	30-60	30-95	–
NO. 40	10-35	10-70	–
NO. 100	5-20**	–	–
NO. 200	0-8	0-10	–

* THE MAXIMUM RECOMMENDED STONE SIZE IS 4 INCHES TO BE USED AS A BASE COURSE BELOW SLABS AND PAVEMENT; ELSEWHERE, MAXIMUM STONE SIZES SHOULD BE 2/3 OF THE LOOSE LIFT THICKNESS.
** THE AMOUNT PASSING THE NO. 100 SIEVE SHOULD BE BETWEEN FORTY PERCENT (40%) AND SEVENTY PERCENT (70%) OF THAT AMOUNT PASSING THE NO. 40 SIEVE.

14. COMPACTION TESTING OF ALL FILL MATERIAL IS BY THE GEOTECHNICAL TESTING COMPANY DESIGNATED FOR THE PROJECT. SCHEDULING AND COORDINATION IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR. REPORTS OF ALL TESTING ARE TO BE PROMPTLY DELIVERED TO THE ENGINEER.
15. WHERE BOTTOMS OF FOOTING BEARING SURFACES ARE DISTURBED, THEY SHALL BE FILLED WITH THE APPROVED MATERIAL AND COMPACTED AS NOTED ABOVE.
16. NO FOUNDATIONS OR SLABS SHALL BE PLACED ONTO OR AGAINST SUBGRADE CONTAINING FREE WATER, FROST OR ICE. SHOULD WATER, FROST, OR ICE ENTER A FOOTING OR SLAB EXCAVATION AFTER SUBGRADE APPROVAL, THE SUBGRADE SHALL BE RE-INSPECTED BY THE OWNER'S TESTING LABORATORY.
17. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO PREVENT ANY FROST OR ICE FROM PENETRATING ANY FOOTING OR SLAB SUBGRADE BEFORE AND AFTER PLACEMENT OF CONCRETE UNTIL SUCH SUBGRADE IS FULLY PROTECTED BY THE PERMANENT BUILDING STRUCTURE.
18. ALL EXTERIOR SLABS-ON-GRADE (EQUIPMENT PADS) AND EXTERIOR FOUNDATIONS SHALL BE A MINIMUM OF 3'-4" BELOW FINISHED GRADE.
19. FOOTINGS SHALL NOT BE EARTH FORMED.
20. THE CONTRACTOR SHALL USE CARE IN EXCAVATION AND GRADING NEAR EXISTING ITEMS TO REMAIN. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY MEASURES TO TEMPORARILY SUPPORT EXISTING FOUNDATIONS TO REMAIN DURING CONSTRUCTION.

FOUNDATION CONCRETE

1. ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF ACI 301 "SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS," LATEST EDITION, UNLESS NOTED ON THE PLANS OR IN THE SPECIFICATIONS.
2. ALL REINFORCING BARS SHALL BE FABRICATED AND PLACED IN ACCORDANCE WITH THE LATEST REVISION OF ASTM A615, GRADE 60 SPECIFICATIONS AND DETAILED IN ACCORDANCE WITH THE LATEST REVISION OF ACI 315 AND THE CONCRETE REINFORCING STEEL INSTITUTE RECOMMENDATIONS.
3. CONCRETE CURING PROCEDURES SHALL BE IN ACCORDANCE WITH ACI 301.
4. PROVIDE 3'-0" X 3'-0" CORNER BARS IN FOUNDATION WALL AT CORNERS. BARS SHALL BE THE SAME SIZE AND LOCATION OF THE HORIZONTAL REINFORCING.
5. PROVIDE OPENING REINFORCING FOR ALL MISCELLANEOUS OPENINGS THROUGH FOUNDATION WALL OR SLAB.
6. REBAR SHALL BE HANDLED, PLACED, AND TIED IN ACCORDANCE WITH CRSI (PLACING REINFORCING BARS). REBAR SHALL HAVE MINIMUM CLEARANCE OF 3" UNLESS OTHERWISE NOTED.
7. ALL REINFORCING BARS SHALL BE MARKED SO THEIR IDENTIFICATION CAN BE MADE WHEN THE FINAL IN-PLACE INSPECTION OCCURS.
8. TIE ALL EMBEDMENT SECURELY IN PLACE PRIOR TO PLACING CONCRETE. PROVIDE SUFFICIENT SUPPORTS TO MAINTAIN POSITIONS OF REINFORCEMENT WITHIN SPECIFIED TOLERANCES DURING ALL CONSTRUCTION ACTIVITES. "STICKING" DOWELS INTO WET CONCRETE IS NOT PERMITTED.
9. ALL STRUCTURAL CONCRETE SHALL BE THOROUGHLY CONSOLIDATED WITH MECHANICAL VIBRATORS UNLESS OTHERWISE DIRECTED BY THE ENGINEER. VIBRATION OF THE CONCRETE MUST ASSURE THAT HONEYCOMBING WILL BE AT A MINIMUM.
10. CHAMFER ALL EXPOSED EXTERNAL CORNERS OF CONCRETE WITH 3/4" X 45° CHAMFER, UNLESS OTHERWISE NOTED.
11. CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND FABRICATION OF ALL FORM WORK.
12. CONCRETE FORMWORK IS TO BE STRIPPED WITHIN 48 HOURS BUT NOT EARLIER THAN 24 HOURS.
13. AFTER FORMS ARE REMOVED, FILL ALL VOIDS, HOLIDAYS, ETC., WITH NON-SHRINK CEMENTATIOUS GROUT. ABOVE GRADE CONCRETE IS TO BE RUBBED AND PATCHED TO ASSURE SMOOTH FINISH.
14. CONTRACTOR SHALL PROVIDE A BROOM FINISH ON THE TOP SURFACE OF THE EQUIPMENT FOUNDATIONS.
15. SHOP DRAWINGS SHOWING ALL NECESSARY SECTIONS AND DETAILS FOR THE PROPER POSITIONING OF ALL REINFORCING STEEL SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW BEFORE FABRICATION OR PLACEMENT OF STEEL.
16. THE OWNER'S TESTING LABORATORY SHALL INSPECT THE PLACEMENT OF ALL CONCRETE, REINFORCEMENT, AND FORMWORK.

CONCRETE MIX DESIGN

1. NOTE: MAXIMUM WATER-SOLUBLE CHLORIDE ION CONCENTRATIONS IN HARDENED CONCRETE SHALL NOT EXCEED 0.30 PERCENT (0.003) BY WEIGHT OF CEMENT. THIS INCLUDES, BUT IS NOT LIMITED TO, CONTRIBUTIONS FROM WATER, AGGREGATES, CEMENTITIOUS MATERIALS, AND ADMIXTURES. TESTING FOR WATER SOLUBLE CHLORIDE ION CONTENT SHALL CONFORM WITH AASHTO T-260.
   A. PORTLAND CEMENT: ASTM C 150, TYPE 1.
   B. NORMAL WEIGHT AGGREGATES: ASTM C 33. PROVIDE AGGREGATES FROM A SINGLE SOURCE FOR EXPOSED CONCRETE. AGGREGATE SIZE SHALL NOT EXCEED ONE-FIFTH THE DISTANCE BETWEEN FORMS, ONE-THIRD THE DEPTH OF SLABS, NOR THREE-FOURTHS OF THE MINIMUM CLEAR SPACE BETWEEN REINFORCING BARS.
   C. WATER: POTABLE AND COMPLYING WITH ASTM C 94.
   D. AIR-ENTRAINING MIXTURE: ASTM C 260, CERTIFIED BY THE MANUFACTURER TO BE COMPATIBLE WITH OTHER REQUIRED ADMIXTURES.
   E. WATER-REDUCING ADMIXTURE: ASTM C 494, TYPE A, D, E, OR F, CONTAINING NOT MORE THAN 0.1 PERCENT CHLORIDE IONS, CERTIFIED BY THE MANUFACTURER TO BE COMPATIBLE WITH OTHER REQUIRED ADMIXTURES.
   F. PROHIBITED ADMIXTURES: CALCIUM CHLORIDE THYOCYANATES OR ADMIXTURES CONTAINING CHLORIDE IONS WHICH WILL EXCEED THE MAXIMUM TOTAL CONCENTRATIONS SPECIFIED HEREIN ARE NOT PERMITTED.
   G. DO NOT ADD WATER TO CONCRETE DURING DELIVERY, AT PROJECT SITE OR DURING PLACEMENT.
   H. DESIGN MIXES SHALL PROVIDE NORMAL WEIGHT CONCRETE WITH THE FOLLOWING PROPERTIES:

      FORMED SLABS-ON-GRADE: 4,000 PSI MINIMUM 28-DAY COMPRESSIVE STRENGTH. AIR ENTRAINMENT: 6% ± 1%. A MAXIMUM WATER/CEMENT RATIO OF 0.46 FOR AIR-ENTRAINED CONCRETE MAY BE USED IN LIEU OF TRIAL BATCH OR FIELD EXPERIENCE RECORDS. CONCRETE SHALL HAVE A SLUMP BETWEEN 3" TO 6".

   I. CAST-IN-PLACE CONCRETE SHALL BE SUBJECT TO TESTING BY AN INDEPENDENT TESTING LABORATORY. SEE SPECIAL TESTS AND INSPECTIONS FOR REQUIREMENTS.
   J. TEST CYLINDERS SHALL BE MOLDED AND LABORATORY CURED IN ACCORDANCE WITH ACI C172 (SAMPLING FRESH CONCRETE). THE CONTRACTOR SHALL OBTAIN THREE CONCRETE TEST CYLINDERS FROM EACH DAY'S CONCRETE POUR. CYLINDERS SHALL BE TESTED IN ACCORDANCE WITH THE LATEST REVISION TO ASTM C39 (COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS). FURNISH TWO (2) COPIES OF THE TEST RESULTS TO THE ENGINEER FOR THE 7 DAY BREAK AND 28 DAY BREAKS.

ANCHORAGE DESIGN

1. ANCHORAGE DESIGNS ARE BY OTHERS BASED ON SITE PARAMETERS AND LOAD DATA LISTED HEREIN, AND MANUFACTURER'S PUBLISHED REQUIREMENTS.
2. ANCHORAGE DESIGNS SHALL BE IN ACCORDANCE WITH THE RHODE ISLAND STATE BUILDING CODE, AND ALL APPLICABLE LOCAL, STATE AND FEDERAL REGULATIONS.
3. DO NOT CUT OR DAMAGE REINFORCING BARS FOR ANCHORAGE INSTALLATION -- ADJUST REINFORCING SPACINGS AS REQUIRED.

THE EQUIPMENT AND WALL/ENCLOSURE LOCATIONS SHOWN ON THE STRUCTURAL PLANS, AND ASSOCIATED NOTES, DETAILS, ETC., NEED TO BE UPDATED TO MATCH THE CURRENT EQUIPMENT CONFIGURATION, WHICH ARE SHOWN ON THE ELECTRICAL DRAWING E4.00.

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Key Plan -

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Drawing Title -
STRUCTURAL NOTES - 1

Sheet Number -
S0.01

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POST-INSTALLED ANCHORS

1. POST-INSTALLED ANCHORS SHALL BE INSTALLED BY QUALIFIED PERSONNEL IN ACCORDANCE WITH THE MANUFACTURER'S PRINTED INSTALLATION INSTRUCTIONS (MPII), AND THE DRAWINGS AND SPECIFICATIONS. INSTALLATION OF ADHESIVE ANCHORS SHALL BE PERFORMED BY PERSONNEL TRAINED TO INSTALL ADHESIVE ANCHORS.
2. POST-INSTALLED ANCHORS SHALL BE MANUFACTURED BY HILTI FASTENING SYSTEM OR SHOWN TO BE STRUCTURALLY EQUIVALENT.
3. ANCHORS EXPOSED TO EARTH OR WEATHER SHALL BE PROTECTED FROM CORROSION BY HOT-DIP GALVANIZING OR USE OF STAINLESS STEEL.
4. POST-INSTALLED ANCHORS OF EQUAL QUALITY AND IN ACCORDANCE WITH CURRENT ICC-ES REPORT MAY BE SUBSTITUTED IF APPROVED BY THE STRUCTURAL ENGINEER.
5. ALL ANCHORS SHALL BE INSTALLED IN STRICT CONFORMANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND PRODUCT EVALUATION REPORTS. REQUESTS FOR ANCHOR SUBSTITUTIONS SHALL BE SUBMITTED TO THE EOR IN WRITING ALONG WITH EVIDENCE OF EQUAL OR GREATER CAPACITY TO THE SPECIFIED CONNECTION.
   A. WHEN INSTALLING DRILLED-IN ANCHORS IN EXISTING REINFORCED CONCRETE, CONTRACTOR SHALL USE CARE AND CAUTION TO AVOID CUTTING OR DAMAGING EXISTING REINFORCING BARS. CONTRACTOR SHALL LOCATE EXISTING REINFORCING STEEL, CONDUITS, ET CETERA USING A NON-DESTRUCTIVE METHOD PRIOR TO DRILLING FOR ANCHORS. DO NOT CUT OR DAMAGE REINFORCEMENT IN NEW OR EXISTING CONCRETE DURING INSTALLATION. MAINTAIN A MINIMUM CLEARANCE OF ONE INCH BETWEEN THE REINFORCEMENT AND THE DRILLED-IN ANCHOR.
   B. DELETERIOUS MATERIALS: KEEP ANCHORS FREE OF DUST, GREASE, AND OTHER MATERIALS WHICH WILL IMPAIR BOND WITH CONCRETE.
   C. ALL ANCHORS SHALL MEET THE MINIMUM EMBEDMENT AND SPACING, EDGE DISTANCE AND SIDE THICKNESS CRITERIA ESTABLISHED BY THE RELEVANT ICC-ES REPORT. UNLESS NOTED OTHERWISE IN REPORT, ANCHOR EDGE DISTANCE SHALL BE A MINIMUM OF 10 BOLT DIAMETERS FROM ANY FREE EDGE OF THE SLAB AND SHALL BE SPACED A MINIMUM 12 BOLT DIAMETERS CENTER TO CENTER.
   D. DO NOT DRILL HOLES WITHIN 4 INCHES OF EXISTING ELECTRICAL OUTLETS THAT ARE EMBEDDED IN SUBSTRATE.
6. BRING TO THE ATTENTION OF THE STRUCTURAL ENGINEER ANY POST-INSTALLED ANCHOR LOCATION THAT CANNOT COMPLY WITH THE PARAMETERS STATED HEREIN AND INDICATED ON THE DRAWINGS.
7. CONTRACTOR SHALL PROVIDE INSPECTION AND TESTING AS REQUIRED PER THE "SPECIAL TESTS AND INSPECTIONS" SECTION OF THESE STRUCTURAL NOTES.

SPECIAL TESTS AND INSPECTIONS

1. CONTRACTOR IS RESPONSIBLE FOR NOTIFYING THE APPROPRIATE BUILDING OFFICIAL, REGISTERED SPECIAL INSPECTOR, AND/OR REGISTERED LICENSED ENGINEER FOR ALL SPECIAL INSPECTIONS OR TESTING REQUIRED IN THIS SECTION.
2. CONTRACTOR SHALL SUBMIT ALL SPECIAL INSPECTION REPORTS TO THE STRUCTURAL ENGINEER OF RECORD (SER) WITHIN 14 DAYS OF EACH REPORT BEING COMPLETED.
3. INSPECTIONS: SPECIAL INSPECTIONS AND TESTING SHALL BE DONE IN ACCORDANCE WITH THE STATEMENT OF SPECIAL INSPECTIONS PER IBC SECTIONS 1704 AND 1705 AS APPLICABLE.
4. FOUNDATIONS, FOOTINGS, AND UNDER SLAB SYSTEMS ARE SUBJECT TO INSPECTION BY THE BUILDING OFFICIAL, IF REQUIRED BY AUTHORITIES HAVING JURISDICTION IN ACCORDANCE WITH IBC SECTION 110.3. IF REQUIRED, THE CONTRACTOR SHALL COORDINATE ALL INSPECTIONS WITH THE BUILDING OFFICIAL.
5. SPECIAL INSPECTORS: SPECIAL INSPECTORS SHALL BE EMPLOYED BY THE OWNER TO PROVIDE SPECIAL INSPECTIONS FOR THE PROJECT. SPECIAL INSPECTORS SHALL BE QUALIFIED PERSONS WHO DEMONSTRATE COMPETENCE TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION PER IBC SECTION 1704.1.
6. STATEMENT OF SPECIAL INSPECTIONS: SPECIAL INSPECTIONS AND TESTING ARE REQUIRED BY IBC SECTIONS 1704 AND 1705 FOR THE FOLLOWING:
   A. SOIL AND FOUNDATION CONSTRUCTION: PER IBC SECTION 1705.6:
      1. PERIODIC INSPECTION OF SOILS EARTHWORK PER TABLE 1705.6 IS REQUIRED FOR:
         a. FOOTING SOIL BEARING SURFACES PRIOR TO PLACING ANY REINFORCING STEEL.
         b. EXCAVATION DEPTH AND BEARING LAYER PRIOR TO PLACING ANY REINFORCING STEEL.
         c. COMPACTED FILL MATERIAL CLASSIFICATION.
         d. SUBGRADE PREPARATION PRIOR TO FILLING.
      2. CONTINUOUS INSPECTION PER TABLE 1705.6 REQUIRED TO VERIFY:
         a. FILLING OPERATIONS TO SATISFY REQUIREMENTS OF IBC TABLE 1705.6 AND THE GEOTECHNICAL REPORT LISTED UNDER SOILS AND FOUNDATIONS SECTION.
         b. COMPACTED FILL DENSITY TESTING OF EACH LIFT, PROPER LIFT THICKNESS AND MATERIAL CLASSIFICATION.
   B. CONCRETE CONSTRUCTION: PER IBC SECTION 1705.3 AND TABLE 1705.3 INCLUDING:
      1. PERIODIC INSPECTION REQUIRED FOR:
         a. SIZE AND PLACEMENT OF ALL REINFORCING STEEL PRIOR TO THE POUR.
         b. PLACEMENT CLEARANCES AROUND REINFORCING STEEL AT EMBEDDED CONDUIT.
         c. SHAPE, LOCATION AND DIMENSIONS OF MEMBERS FORMED.
         d. USE OF THE REQUIRED DESIGN CONCRETE MIX.
         e. MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.
         f. VERIFICATION OF IN-SITU CONCRETE STRENGTH PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.
      2. CONTINUOUS INSPECTION REQUIRED DURING THE:
         a. PLACING OF REINFORCED CONCRETE, INCLUDING CONCRETE ON METAL DECK FOR PROPER APPLICATION TECHNIQUES.
         b. PLACING AND STRESSING OF POST-TENSIONING.
         c. PLACING AND SIZE OF CAST-IN-PLACE BOLTS AND EMBEDDED FABRICATIONS PRIOR TO THE POUR.
         d. PLACING OF MECHANICAL BAR SPLICES.
         e. PLACING OF CONCRETE AROUND CAST-IN-PLACE BOLTS AND EMBEDS.
         f. SAMPLING OF FRESH CONCRETE.
         g. DETERMINATIONS OF SLUMP, AIR CONTENT AND TEMPERATURE.
7. POST INSTALLED ANCHORS TO CONCRETE: SHALL COMPLY WITH IBC SECTION 1705. INSPECTIONS SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS SET FORTH IN THE APPROVED ICC EVALUATION REPORT AND AS INDICATED BY THE DESIGN REQUIREMENTS. REFER TO THE POST INSTALLED ANCHORS SECTION OF THESE NOTES FOR ANCHORS THAT ARE THE BASIS OF THE DESIGN. SPECIAL INSPECTOR SHALL VERIFY ANCHORS ARE AS SPECIFIED IN THE POST INSTALLED ANCHORS SECTION OF THESE NOTES OR AS OTHERWISE SPECIFIED ON THE DRAWINGS. SUBSTITUTIONS REQUIRE APPROVAL BY THE SER AND REQUIRE SUBSTANTIATING CALCULATIONS AND CURRENT IBC RECOGNIZED ICC ESR REPORT. SPECIAL INSPECTOR SHALL DOCUMENT IN THEIR SPECIAL INSPECTION REPORT COMPLIANCE WITH EACH OF THE ELEMENTS REQUIRED WITHIN THE APPLICABLE ICC ESR REPORT.
8. INSPECTION SUBMITTALS: SPECIAL INSPECTION REPORTS SHALL BE PROVIDED ON A WEEKLY BASIS. FINAL SPECIAL INSPECTION REPORTS WILL BE REQUIRED BY EACH SPECIAL INSPECTION FIRM PER IBC 1704.2.4. SUBMIT COPIES OF ALL INSPECTION REPORTS TO THE ENGINEER AND THE AUTHORITY HAVING JURISDICTION FOR REVIEW.

SUBMITTALS

1. ALL SHOP DRAWINGS PREPARED BY SUPPLIERS, SUB CONTRACTORS, ETC, SHALL BE DIMENSIONED, REVIEWED, COORDINATED FOR COMPLETENESS AND COMPLIANCE WITH CONTRACT DOCUMENTS, AND SIGNED/STAMPED BY THE GENERAL CONTRACTOR PRIOR TO SUBMITTING TO THE STRUCTURAL ENGINEER. SUBMITTAL WITHOUT CONTRACTOR REVIEW WILL RESULT IN DELAYS. THE CONTRACTOR SHALL CONFIRM THAT SHOP DRAWINGS HAVE BEEN COMPLETED AND CHECKED BY THE SUPPLIER PRIOR TO SUBMISSION.
2. SHOP DRAWING SUBMITTAL REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE STRUCTURAL SPECIFICATIONS. CHANGES OR ADDITIONS MADE ON RESUBMITTED SHOP DRAWINGS SHALL BE CLEARLY INDICATED, AND THE PURPOSE OF THE RESUBMITTAL SHALL BE NOTED ON THE TRANSMITTAL. REVIEW OF RESUBMITTED SHOP DRAWINGS SHALL BE LIMITED SPECIFICALLY TO THE ITEMS NOTED FOR CORRECTION ON THE PREVIOUS SUBMITTAL.
3. THE GENERAL CONTRACTOR SHALL SUBMIT FOR STRUCTURAL ENGINEER REVIEW SHOP DRAWINGS FOR THE FOLLOWING ITEMS:
   - CONCRETE MIX DESIGNS
   - REINFORCING STEEL
   - POST-INSTALLED ANCHORS
4. MANUFACTURER'S LITERATURE: SUBMIT TWO COPIES OF MANUFACTURER'S LITERATURE FOR ALL MATERIALS AND PRODUCTS USED IN CONSTRUCTION ON THE PROJECT.
5. THE ENGINEER'S REVIEW OF SHOP DRAWINGS IS FOR GENERAL CONFORMANCE OF THE DESIGN CONCEPT. AFTER THE CONTRACTOR HAS REVIEWED THE SHOP DRAWINGS, PROMPT REVIEW BY THE ENGINEER WILL BE MADE OF ALL SUBMITTALS. FOR LARGE SUBMITTALS, REASONABLE REVIEW TIME SHALL BE ALLOWED AND MAY EXCEED TWO WEEKS. THE CONCURRENT SUBMITTAL OF MULTIPLE SHOP DRAWINGS ("DUMPING") WILL FURTHER EXTEND THE REVIEW PROCESS AND TIME FRAME NECESSARY TO PROPERLY REVIEW EACH SUBMITTAL.
6. REVIEW OF THE SHOP DRAWINGS BY THE ENGINEER SHALL NOT BE CONSTRUED AS AN AUTHORIZATION TO DEVIATE FROM THE CONTRACT DOCUMENTS.
7. SHOP DRAWINGS WILL NOT BE PROCESSED IF THEY ARE INCOMPLETE, LACK COORDINATION WITH RELEVANT PORTION OF CONTRACT DOCUMENTS, LACK CALCULATIONS IF REQUIRED, OR IF DEVIATIONS, MODIFICATIONS, AND SUBSTITUTIONS ARE INDICATED WITHOUT PRIOR WRITTEN APPROVAL FROM THE ENGINEER.
8. REPRODUCTION OF THESE CONTRACT DOCUMENTS BY ANYONE FOR USE IN SHOP DRAWINGS SHALL SIGNIFY THEIR ACCEPTANCE OF ALL INFORMATION SHOWN AS BEING CORRECT. BRYANT ASSOCIATES, INC. SHALL BE INDEMNIFIED AND HELD HARMLESS FROM ALL CLAIMS, DAMAGES, LOSSES, EXPENSES OR LIABILITIES OF ANY KIND, INCLUDING ATTORNEY'S FEES. THE CONTRACTOR IS RESPONSIBLE FOR PROPER CHECKING AND COORDINATING OF DETAILS, DIMENSIONS, SIZES AND QUANTITIES AS REQUIRED TO FACILITATE COMPLETE AND ACCURATE FABRICATION AND ERECTION.

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Roger Williams Complex
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STRUCTURAL NOTES - 2

Sheet Number -

S0.02

one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot

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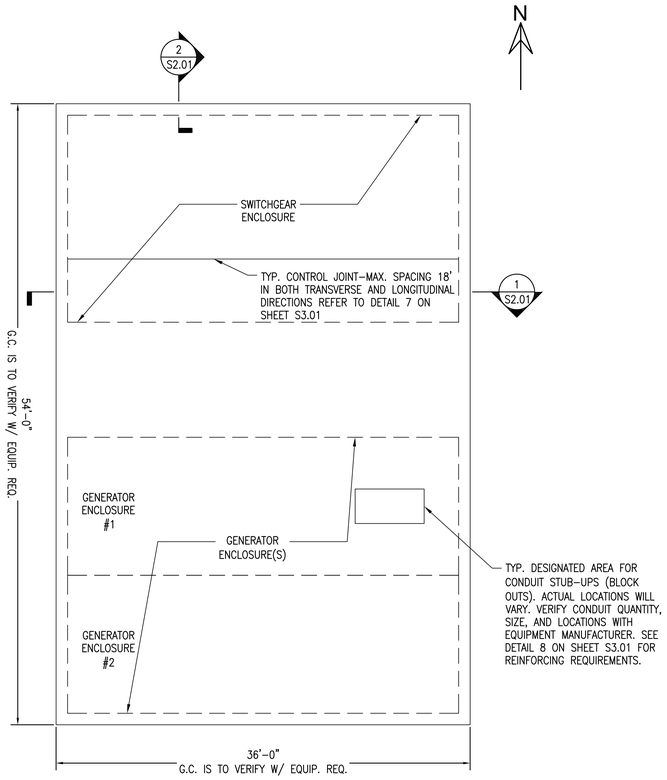
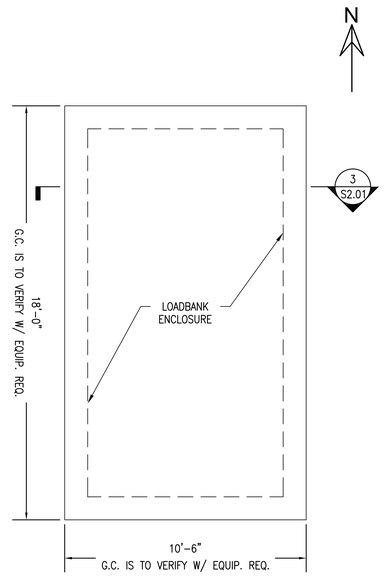


1 S1.01 GENERATORS AND SWITCHGEAR ENCLOSURES FOUNDATION PLAN
SCALE 3/16" = 1'-0"



2 S1.01 LOADBANK ENCLOSURE FOUNDATION PLAN
SCALE 3/8" = 1'-0"

GENERAL PLAN NOTES

1. FOR STRUCTURAL GENERAL NOTES SEE SHEETS S0.01 AND S0.02.
2. REFER TO CIVIL DRAWINGS FOR LOCATION AND GRADING/STRUCTURE ELEVATION INFORMATION.
3. PROVIDE 12" COMPACTED STONE BENEATH ENTIRE BOTTOM SLAB UNLESS NOTED OTHERWISE (UNO) IN GEOTECHNICAL REPORT.
4. DIMENSIONS SHOWN FOR GENERATOR EQUIPMENT ARE FOR REFERENCE ONLY. EXACT DIMENSIONS SHALL BE DETERMINED BASED ON APPROVED EQUIPMENT BEING SUPPLIED.
5. EQUIPMENT PAD SIZE SHALL BE THE MINIMUM INDICATED OR AS SHOWN ON THE PLANS OR AS INDICATED BY THE MANUFACTURER AND APPROVED BY THE ENGINEER.
6. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL SLAB OPENINGS AND PENETRATIONS. OPENINGS NOT SPECIFICALLY SHOWN SHALL BE APPROVED BY THE ENGINEER.
7. EQUIPMENT BASES SHALL BE INSTALLED LEVEL UNLESS INDICATED OTHERWISE.
8. ALL EXPOSED EDGES OF CONCRETE SHALL HAVE 3/4" x 45° CHAMFER.
9. GENERATOR BASE/EQUIPMENT ATTACHMENT TO SUPPORT SLAB DESIGNED BY MANUFACTURER AND SHALL BE ANCHORED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
10. CONTRACTOR TO COORDINATE SLAB THICKNESS WITH EQUIPMENT ANCHOR BOLT EMBEDMENT REQUIREMENTS AND INCREASE THICKNESS AS REQUIRED.
11. SEE MECHANICAL, ELECTRICAL, AND CIVIL DRAWINGS FOR ADDITIONAL INFORMATION, DIMENSIONS, AND DETAILS REQUIRED AS STRUCTURAL WORK BUT NOT SHOWN HERE.
12. CONTRACTOR SHALL REFER TO DRAWINGS OF OTHER TRADES AND VENDOR DRAWINGS FOR EMBEDDED ITEMS AND RECESSES NOT SHOWN ON THE STRUCTURAL DRAWINGS. CONTRACTOR SHALL VERIFY PLACEMENT OF EQUIPMENT AND LOCATION OF CONDUIT FOR MANUFACTURERS AND VENDORS SPECIFICATIONS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE ALL OPENINGS AND SLEEVES FOR PROPER DISTRIBUTION OF ALL UTILITIES.
13. MAT SLAB PENETRATIONS ARE NOT SHOWN. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE AND FIELD LOCATE ALL SLAB PENETRATION REQUIREMENTS. ALL SLAB PENETRATIONS SHALL BE VERTICAL (90° TO SLAB) AND COORDINATE WITH SLAB REINFORCING AND EQUIPMENT.
14. FOR ADDITIONAL STRUCTURAL SECTIONS AND DETAILS SEE SHEETS S2.01 AND S3.01.

SLAB NOTES

1. CONSTRUCTION JOINT AND CONTROL JOINT MAY BE INTERCHANGED TO SUIT CONCRETE POUR SCHEDULE.
2. EXACT LOCATION OF CONTROL JOINTS SHALL BE ESTABLISHED PRIOR TO CUTTING OF REINFORCING AND PLACING OF CONCRETE. FIELD CONTROL SHALL ASSURE THAT THE JOINTS OCCUR OVER CUT REINFORCING.
3. THE PROPOSED LOCATIONS OF CONCRETE JOINTS MUST BE SUBMITTED TO THE STRUCTURAL ENGINEER BEFORE POURING OF CONCRETE. PLACE JOINTS AT LOCATIONS TO MINIMIZE CONCRETE CRACKING AND OTHER EFFECTS FOR CURING AND SHRINKAGE. JOINT LOCATIONS SHOWN ON DRAWINGS ARE A MINIMUM.
4. SAWING OF JOINTS
   A. THE PREFERRED METHOD FOR SAWING CONTROL JOINTS IS WITH THE "SOFF–CUT" SAW WITHIN ONE HOUR OF FINISHED CONCRETE.
   B. THE CONVENTIONAL CONCRETE SAW CUTTING A 3/16" WIDE GROOVE IS ALSO ACCEPTABLE. SAWING SHALL BEGIN AS SOON AS THE CONCRETE SURFACE HAS SUFFICIENTLY HARDENED TO PERMIT SAWING WITHOUT EXCESSIVE RAVELING AND BEFORE SHRINKAGE CRACKS OCCUR. SAWING SHALL BEGIN WITHIN 10 HOURS OF FINAL FINISHING OPERATION.
   C. WHERE THE SAW IS OBSTRUCTED, TOOLED OR FORMED JOINTS SHALL BE PROVIDED TO JOIN THE SAW CUT JOINT AND COMPLETE THE CONTROL JOINT.
   D. THE CONTRACTOR SHALL MAKE ALL NECESSARY PROVISIONS TO ENSURE THAT SAWED JOINTS ARE MADE IN THE PROPER INTERVAL INCLUDING, BUT NOT LIMITED TO LIGHTING, TWO SHIFTS, OVERTIME, ETC.
5. SLAB CONTROL JOINTS SHALL BE PLACED SUCH THAT SPACING DOES NOT EXCEED 36 x SLAB THICKNESS UP TO A MAXIMUM 18 FEET BETWEEN JOINTS PER ACI 302. JOINTS SHALL BE SAWCUT INTO THE SLAB WITHIN 12 HOURS OF SLAB POUR.
6. JOINTS SHALL BE CUT AS SOON AS CONCRETE HAS CURED ENOUGH TO PREVENT DISLODGING AGGREGATE.
7. JOINTS SHALL BE ¼" IN WIDTH BY 1" MINIMUM IN DEPTH.
8. JOINT SEALANT SHALL BE ONE COMPONENT POLYURETHANE SEALANT.

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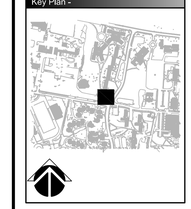

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FOUNDATION PLANS

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S1.01

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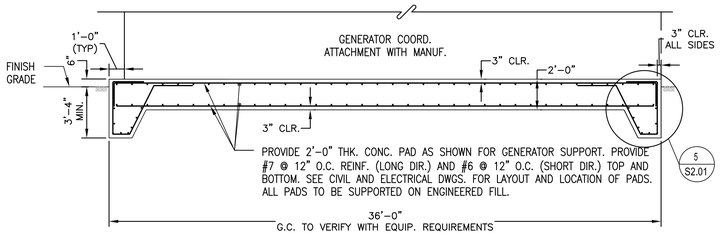
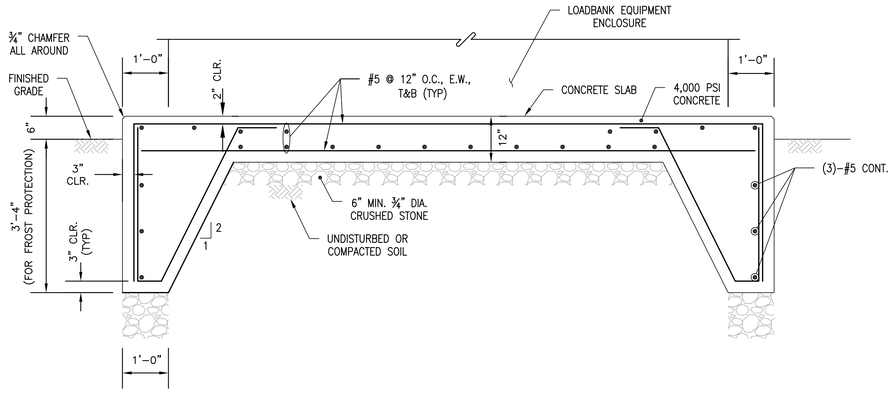
GENERAL PLAN NOTES

1. SEE SHEETS S0.01 AND S0.02 FOR GENERAL STRUCTURAL NOTES.
2. VERIFY ALL DIMENSIONS, SITE CONDITIONS, AND ELEVATIONS WITH CIVIL AND ELECTRICAL DRAWINGS BEFORE CONSTRUCTION COMMENCES. IF ANY DISCREPANCIES ARE NOTED, CONTRACTOR SHALL NOTIFY ENGINEER IMMEDIATELY.
3. CONTRACTOR SHALL FULLY COORDINATE CONCRETE FOUNDATIONS WITH MANUFACTURER DRAWINGS.
4. FOR ADDITIONAL STRUCTURAL DETAILS SEE SHEETS S3.01.



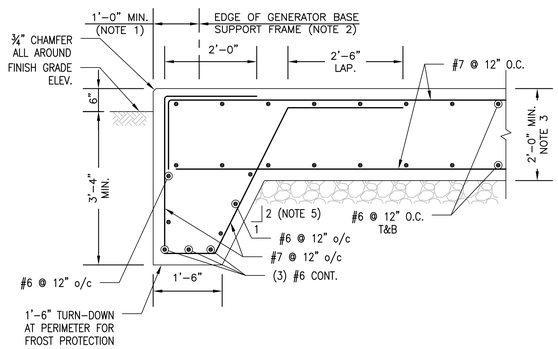
1 / S2.01 GENERATOR AND SWITCHGEAR ENCLOSURE PAD ELEVATION

SCALE: 1/4" = 1'-0"



3 / S2.01 TYPICAL LOAD BANK EQUIPMENT ENCLOSURE CONCRETE PAD DETAIL

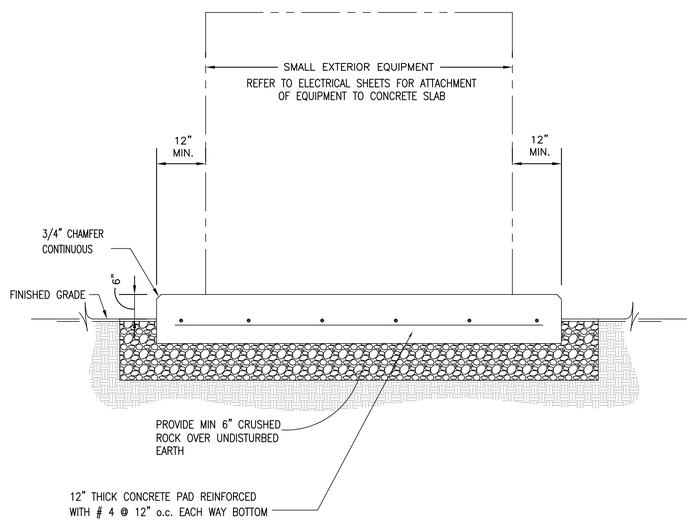
SCALE: NTS



2 / S2.01 TYP. SECTION FOR NORTH AND SOUTH EDGE

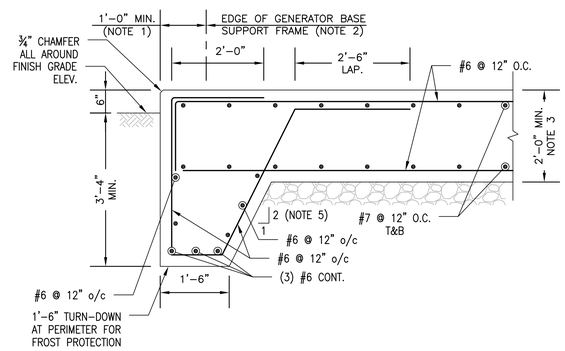
SCALE: 3/4" = 1'-0"

NOTES:
1. CONTRACTOR TO COORDINATE EXACT LOCATION AND EXTENT OF BASE SLAB WITH GENERATOR. REFER TO MECHANICAL, ELECTRICAL, AND CIVIL DRAWINGS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. GENERATOR BASE AND ATTACHMENT TO SUPPORT SLAB TO BE DESIGNED BY MANUFACTURER.
3. CONTRACTOR TO COORDINATE SLAB THICKNESS WITH EQUIPMENT ANCHOR BOLT EMBEDMENT REQUIREMENTS AND INCREASE THICKNESS AS REQUIRED.
4. FOUNDATION PENETRATIONS ARE NOT SHOWN. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE AND FIELD LOCATE ALL SLAB PENETRATION REQUIREMENTS. ALL SLAB PENETRATIONS SHALL BE VERTICAL (90° TO SLAB) AND COORDINATED WITH SLAB REINFORCEMENT AND EQUIPMENT. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
5. MAINTAIN 2 TO 1 SLOPE OR SLOPE AS STEEP AS SOIL WILL ALLOW.



4 / S2.01 TYPICAL MISC. SMALL EXTERIOR EQUIPMENT PAD DETAIL

NOT TO SCALE



5 / S2.01 TYP. SECTION FOR EAST AND WEST EDGE

SCALE: 3/4" = 1'-0"

NOTES:
1. CONTRACTOR TO COORDINATE EXACT LOCATION AND EXTENT OF BASE SLAB WITH GENERATOR. REFER TO MECHANICAL, ELECTRICAL, AND CIVIL DRAWINGS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
2. GENERATOR BASE AND ATTACHMENT TO SUPPORT SLAB TO BE DESIGNED BY MANUFACTURER.
3. CONTRACTOR TO COORDINATE SLAB THICKNESS WITH EQUIPMENT ANCHOR BOLT EMBEDMENT REQUIREMENTS AND INCREASE THICKNESS AS REQUIRED.
4. FOUNDATION PENETRATIONS ARE NOT SHOWN. THE CONTRACTOR IS RESPONSIBLE TO COORDINATE AND FIELD LOCATE ALL SLAB PENETRATION REQUIREMENTS. ALL SLAB PENETRATIONS SHALL BE VERTICAL (90° TO SLAB) AND COORDINATED WITH SLAB REINFORCEMENT AND EQUIPMENT. REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION AND REQUIREMENTS.
5. MAINTAIN 2 TO 1 SLOPE OR SLOPE AS STEEP AS SOIL WILL ALLOW.

THE EQUIPMENT AND WALL/ENCLOSURE LOCATIONS SHOWN ON THE STRUCTURAL PLANS, AND ASSOCIATED NOTES, DETAILS, ETC., NEED TO BE UPDATED TO MATCH THE CURRENT EQUIPMENT CONFIGURATION, WHICH ARE SHOWN ON THE ELECTRICAL DRAWING E4.00.

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Stamp -

Key Plan -

Project Name -

UNIVERSITY OF Rhode Island

UNIVERSITY OF RHODE ISLAND

Roger Williams Complex
Generator Project
Phase 2

100% CONSTRUCTION DOCUMENTS
ISSUED FOR BID
02/23/24

Submissions -

No:	Title:	Date:

Sheet Information -

Job No:	248-111
Drawn By:	RB
Checked By:	MEL
Date:	02/23/2024
Scale:	AS SHOWN

Drawing Title -

SECTIONS AND DETAILS

Sheet Number -

S2.01

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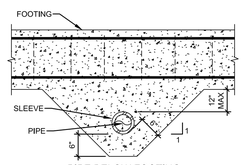
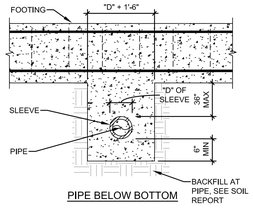
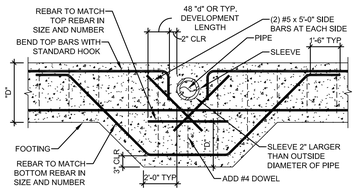


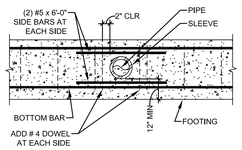
PIPE BELOW FOOTING



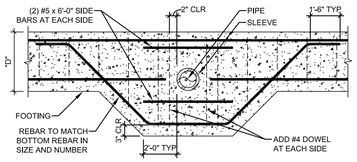
PIPE BELOW BOTTOM



PIPE AT TOP REBAR



PIPE BETWEEN TOP AND BOTTOM REBAR

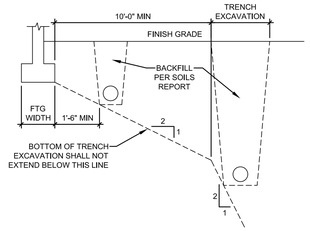


PIPE AT BOTTOM REBAR

1 PIPES PERPENDICULAR TO TURNDOWN FOOTINGS

SCALE: NTS

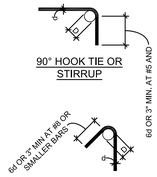
NOTES:
1. "D" = DENOTES DEPTH OF FOOTING OR GRADE BEAM.
2. "d" = DENOTES DIAMETER OF BAR.
3. SLEEVE INSIDE DIAMETER 2" LARGER THAN PIPE OUTSIDE DIAMETER OR BELL OUTSIDE DIAMETER.
4. SEAL VOID BETWEEN PIPE AND SLEEVE WITH ELASTIC WATERPROOF MATERIAL, TYP.
5. FOR PIPES 3'-0" OR LESS BELOW FOOTING PROVIDE SLEEVE AND CONCRETE AS SHOWN. MORE THAN 3'-0" COMPACT BACKFILL OVER PIPE TO 90% AS APPROVED BY ENGINEER OR USE STEPPED FOOTING BELOW PIPE.



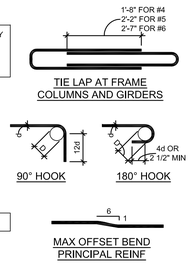
2 EXCAVATIONS PARALLEL TO FOOTING

SCALE: NTS

NOTES:
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR SHORING, SHEATHING OR OTHERWISE MAINTAINING THE SIDES OF THE EXCAVATION FROM CAVE-INS UNTIL ALL BACKFILL IS COMPLETED PER SPECS.



TIES AND STIRRUPS ONLY
#3: D=1 1/2"
#4: D=2"
#5: D=2 1/2"
#6: D=4 1/2"

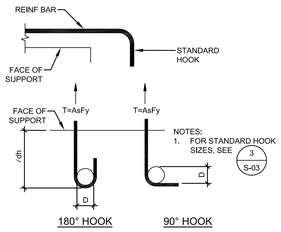


D=6d FOR #3 TO #8

3 STANDARD HOOK AND TIE DETAILS

SCALE: NTS

NOTES:
1. ALL BENDS SHALL BE MADE COLD.



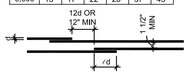
MIN TENSION EMBED LENGTHS, (/dh), FOR STANDARD END HOOKS ON GRADE 60 BARS GENERAL USE (NON-SEISMIC)			
BAR SIZE	NORMAL WEIGHT CONCRETE, f'c (psi)		
	3,000	4,000	5,000
#3	6"	6"	6"
#4	8"	7"	6"
#5	10"	9"	8"
#6	12"	10"	9"
#7	14"	12"	11"
#8	16"	14"	12"

4 EMBEDMENT LENGTHS FOR HOOKED BARS

SCALE: NTS

NOTES:
1. SIDE COVER ≥ 2 1/2 INCHES.
2. END COVER 90° HOOKS > 2 INCHES.
3. FOR SIDE COVER < 2 1/2 INCHES AND END COVER < 2 INCHES, MULTIPLY THE TABULATED VALUES BY 1.43.

REBAR LAP LENGTHS AND DEVELOPMENT LENGTHS (INCHES)						
f'c PSI	#3	#4	#5	#6	#7	#8
3,000	17"	22"	28"	33"	48"	55"
4,000	15"	19"	24"	29"	42"	48"
5,000	13"	17"	22"	26"	37"	43"

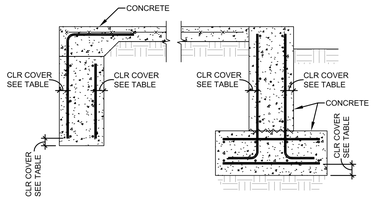


WALL OR SLAB REINF SPLICE DETAIL

5 REINFORCED BAR LAP LENGTH SCHEDULE

SCALE: NTS

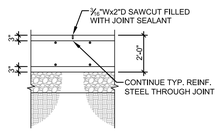
NOTES:
1. LAP SPLICE LENGTH VALUES ARE BASED ON ACI 318 CHAPTER 12, GRADE 60 REINFORCING BARS AND NORMAL WEIGHT CONCRETE.
2. db = NOMINAL DIAMETER OF A BAR.
3. SMALLER BAR LAP LENGTH MAY BE USED WHEN SPLICING DIFFERENT SIZE BARS.
4. NON CONTACT LAP SPLICED BARS SHALL NOT BE PLACED TRANSVERSELY FURTHER APART THAN 1/5 OF THE REQUIRED LAP SPLICE LENGTH NOR 6 INCHES.
5. FOR LIGHTWEIGHT AGGREGATE CONCRETE, MULTIPLY THE LAP SPLICE LENGTH VALUES BY 1.3.



REINFORCEMENT CLEAR COVERAGE REQUIREMENTS AT EXTERIOR CONCRETE	
CONDITION	CLEAR COVER
CONCRETE CAST AGAINST EARTH	3"
CONCRETE CAST AGAINST FORM AND LEFT EXPOSED TO EARTH OR WEATHER:	
#5 BAR AND SMALLER	1 1/2"
# BAR AND LARGER	2"

6 MINIMUM EXTERIOR CONCRETE COVER OVER REINFORCING

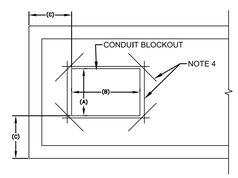
SCALE: NTS



7 TYPICAL SAW-CUT CONTROL JOINT DETAIL FOR SLAB-ON-GRADE

SCALE: NTS

NOTES:
1. SAW CUTS ARE TO BE MADE IMMEDIATELY UPON COMPLETION OF FINAL TROWELLING. FOR BROOMED FINISHES, CUTS ARE TO BE MADE AFTER THE FINAL FINISH IS COMPLETED. AS SOON AS THE CUTTING OPERATION DOES NOT RAVEL THE JOINT EDGE OR OTHERWISE DISTURB THE FINISH.
2. SAW CUT TO BE SMOOTH, CLEAN, AND STRAIGHT.



8 TYPICAL ADDITIONAL REINFORCING AT SLAB OPENINGS

SCALE: NTS

NOTES:
1. COORDINATE THE SIZE AND LOCATION OF THE CONCRETE BLOCKOUT WITH THE APPROVED GENERATOR/EQUIPMENT DRAWINGS.
2. ADDITIONAL REINFORCING TYPICAL BOTH DIRECTIONS OF CONCRETE SLAB REINFORCING.
3. WHERE CONDUIT BLOCKOUTS ARE PROVIDED IN SLAB, LOCATE OPENING AND CENTER WITHIN THE WIDTH OF THE SLAB BELOW THE GENERATOR/EQUIPMENT. THE OPENING SHALL BE (A) NO WIDER THAN 1/3 OF THE PAD WIDTH BELOW GENERATOR/EQUIPMENT, (B) NO LONGER THAN 1/2 THE WIDTH OF THE SLAB BELOW THE GENERATOR/EQUIPMENT, AND (C) THE OPENING SHALL BE NO CLOSER TO THE END OF THE SLAB THAN 1/3 THE WIDTH OF THE PAD BELOW THE GENERATOR/EQUIPMENT OR 12-INCHES.
4. WHERE CONDUIT BLOCKOUTS ARE PROVIDED IN SLAB PROVIDE #5 X 2'-6" CORNER BARS FOR BOTH TOP AND BOTTOM LAYERS AS SHOWN. PROVIDE ADDITIONAL #5 BARS ON EACH SIDE OF THE OPENING AND TIE TO THE BARS CUT FOR THE OPENING FOR EACH LAYER OF REINFORCING STEEL. EXTEND BARS ON EACH SIDE A MINIMUM OF 12 INCHES BEYOND THE OPENING AT EACH END. ALL BARS PROVIDED FOR OPENING SHALL BE A MINIMUM OF 2 INCHES FROM THE EDGE OF THE OPENING.

GENERAL PLAN NOTES

1. SEE SHEETS S0.01 AND S0.02 FOR GENERAL STRUCTURAL NOTES.
2. VERIFY ALL DIMENSIONS AND ELEVATIONS WITH CIVIL AND ELECTRICAL DRAWINGS BEFORE CONSTRUCTION COMMENCES.
3. CONTRACTOR SHALL FULLY COORDINATE MANUFACTURER DRAWINGS WITH CONSTRUCTION DETAILS AND FULLY RESOLVE ANY CONFLICTS PRIOR TO COMMENCING WORK.

THE EQUIPMENT AND WALL/ENCLOSURE LOCATIONS SHOWN ON THE STRUCTURAL PLANS, AND ASSOCIATED NOTES, DETAILS, ETC., NEED TO BE UPDATED TO MATCH THE CURRENT EQUIPMENT CONFIGURATION, WHICH ARE SHOWN ON THE ELECTRICAL DRAWING E4.00.

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Stamp -

Key Plan -

Project Name -

UNIVERSITY OF Rhode Island

UNIVERSITY OF RHODE ISLAND

Roger Williams Complex
Generator Project
Phase 2

100% CONSTRUCTION DOCUMENTS
ISSUED FOR BID
02/23/24

Submissions -

No:	Title:	Date:

Sheet Information -

Job No:	248-111
Drawn By:	RB
Checked By:	MEL
Date:	02/23/2024
Scale:	AS SHOWN

Drawing Title -

TYPICAL DETAILS

Sheet Number -

S3.01

one and one half inches = one foot
one inch = one foot
three quarters inch = one foot
one half inch = one foot
three eighths inch = one foot
one quarter inch = one foot
one eighth inch = one foot
User: rosilbel.blandin
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