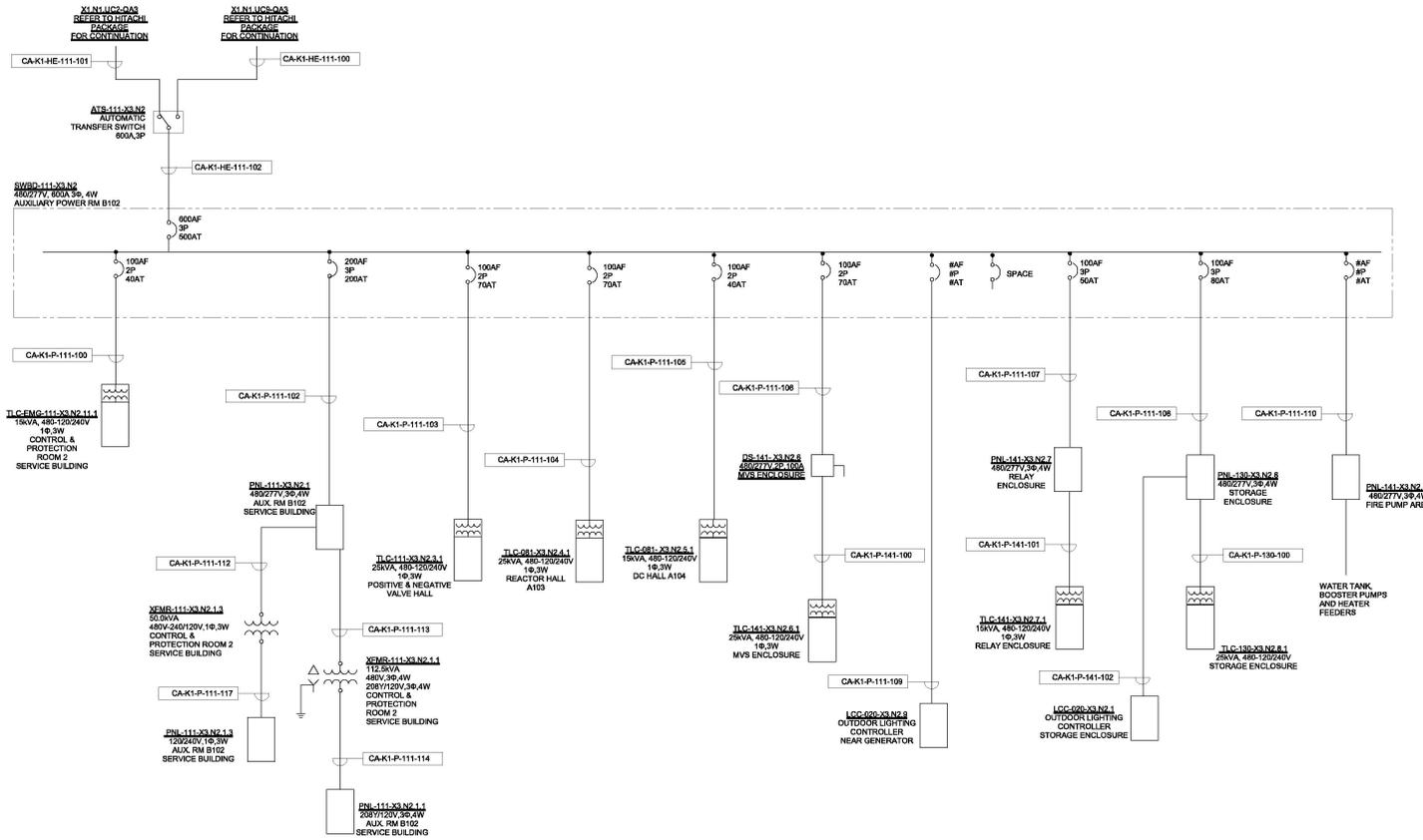


ELECTRICAL GENERAL NOTES

1. REFER TO SHEET E-001.00 AND E-002.00 FOR GENERAL NOTES AND ABBREVIATIONS.
2. REFER TO SHEET E-000.00 FOR CONDUIT & CABLE SCHEDULE.



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Engineering and Land Surveying, P.C. 370 7th Avenue SUITE 1604 New York, NY 10001

SOWINSKI SULLIVAN 25 Mohawk Avenue Sparta, NJ 07871

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B	100% SUBMISSION	X.LIU	D.DUDAN	12/12/2022
A	INTERIM SUBMISSION	N.WU	D.DUDAN	09/13/2022
REV	DESCRIPTION	DRAWN BY	CHECK BY	DATE

Kiewit 478 Chestnut Ridge Rd # 2, Woodcliff Lake, NJ 07877

Hitachi Energy 901 Main Campus Drive Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hydro
Power Express

Astoria HVDC Converter Station
31-45 20th Avenue, Astoria, Queens NY 11105
Block #650 - Lot #310 - BIN #4624437

BUILDING SMALL POWER & LIGHTING SINGLE LINE DIAGRAM

DATE: 12/12/2022

PROJECT NO: 109121

DRAWING BY: X.LIU

CHECKED BY: D.DUDAN

DRAWING NO: **E-300.00**

CADD FILE NO:
AUTOCAD FILE NO:
DATE: 12/12/2022

12/21/2022 10:41:18 AM

PANELBOARD: SWBD-111-X3.N2

VOLTAGE/PHASE/WIRE: 480Y/277V,3PH,4W LOCATION: AUXILIARY ROOM B102
 BUS AMPACITY: 600A FED FROM: SWBD111X3.N1
 MAINS: 600A MCB MOUNTING: SURFACE ENCLOSURE: NEMA 1
 MCB RATINGS: 65KAC, FULLY RATED

CKT NO.	CIRCUIT DESCRIPTION	VAPHASE			WIRE SIZE	GND SIZE	BKR SIZE	BKR [P] SIZE	GND WIRE SIZE	VAPHASE			CIRCUIT DESCRIPTION	CKT NO.	
		A	B	C						A	B	C			
SECTION 1															
1	PNL-111-X3.N2.1 - SERVICE BUILDING	80,043					200	3	40			6,452	TLC-141-X3.N2.6.1 - MVS ENCLOSURE	2	
3		46,637										6,355		4	
5			36,023									0		6	
7	PNL-141-X3.N2.7 - RELAY ENCLOSURE	6,690					50	3	80			18,384	PNL-141-X3.N2.8 - STORAGE ENCLOSURE	8	
9			6,721									18,473		9	
11				2,106								10,735		12	
13	TLC-111-X3.N2.3.1	8,818					70	2					ICC-020-X3.N2.3-A - OUTDOOR LIGHTING	14	
15	POSITIVE & NEGATIVE VALVE ROOM		7,254											16	
17	TLC-081-X3.N2.4.1 - REACTOR HALL A103			9,526			40	2					TLC-EMG-X3.N2.11.1	18	
19		8,694										5,965		20	
21	TLC-081-X3.N2.5.1 - DC HALL A104		4,755				40	2				5,047		22	
23				9,465										24	
25	UPS-111-X3.N2.11 - SERVICE BUILDING	0										0		26	
27		0										0		28	
29		0										0		30	
31	PNL-141-X3.N2.10	0										0		32	
33		0										0		34	
35		0										0		36	
37		0										0		38	
39		0										0		40	
41		0										0		42	
SUBTOTALS		75,251	65,376	57,121								30,802	30,905	10,735	

CONNECTED TOTALS		LOAD		CONN. VA		DF		LOAD		CONN. VA		DF	
PHASE A	VA	106,652											
AMPS		383											
PHASE B	VA	96,280											
AMPS		346											
PHASE C	VA	67,558											
AMPS		245											
TOTAL	VA	270,489											
AMPS		325											

PANELBOARD NOTES: HC - HANDLE CLAMP (ON POSITION) GF-CI - GROUND FAULT CIRCUIT INTERRUPTER OL - REFER TO ONE-LINE DIAGRAM
 LCK - PAD-LOCKABLE DEVICE (OFF) GFEP - GROUND FAULT EQUIPMENT PROTECTION - ROUTE THROUGH CONTACTOR #
 SW - SWITCH RATED ST - SHUNT TRIP

PANELBOARD: PNL-111-X3.N2.1

VOLTAGE/PHASE/WIRE: 480Y/277V,3PH,4W LOCATION: AUXILIARY ROOM B102
 BUS AMPACITY: 225A FED FROM: SWBD111X3.N2
 MAINS: 200A MCB MOUNTING: SURFACE ENCLOSURE: NEMA 1
 MCB RATINGS: 14KAC, FULLY RATED

CKT NO.	CIRCUIT DESCRIPTION	VAPHASE			WIRE SIZE	GND SIZE	BKR SIZE	BKR [P] SIZE	GND WIRE SIZE	VAPHASE			CIRCUIT DESCRIPTION	CKT NO.	
		A	B	C						A	B	C			
SECTION 1															
1	PNL-111-X3.N2.1.1	24,503					70	3	80			14,382	PNL-111-X3.N2.1.3	2	
3			21,121									14,382	THRU XFMR-111X3.N2.1	4	
5				24,378								0	SPARE	6	
7	PNL-111-X3.N2.1.2	3,288					1	20				2,217		8	
9			3,263									2,217		10	
11				3,775								2,217	EHU-111-01 - B113	12	
13		610										610		14	
15	EF-111-01A,01B - B202		610				20	3	1			610	EF-111-02A,02B - B205	16	
17				610								610		18	
19	EHU-111-02 - B115	2,217					20	3	20			2,217	EHU-111-03 - B108	20	
21			2,217									2,217		22	
23		0										0		24	
25		0										0		26	
27		0										0		28	
29		0										0		30	
31		0										0		32	
33		0										0		34	
35		0										0		36	
37		0										0		38	
39		0										0		40	
41		0										0		42	
SUBTOTALS		30,617	27,211	30,980								19,426	19,426	5,044	

CONNECTED TOTALS		LOAD		CONN. VA		DF		LOAD		CONN. VA		DF	
PHASE A	VA	50,943											
AMPS		181											
PHASE B	VA	46,637											
AMPS		168											
PHASE C	VA	36,023											
AMPS		130											
TOTAL	VA	132,703											
AMPS		190											

PANELBOARD NOTES: HC - HANDLE CLAMP (ON POSITION) GF-CI - GROUND FAULT CIRCUIT INTERRUPTER OL - REFER TO ONE-LINE DIAGRAM
 LCK - PAD-LOCKABLE DEVICE (OFF) GFEP - GROUND FAULT EQUIPMENT PROTECTION - ROUTE THROUGH CONTACTOR #
 SW - SWITCH RATED ST - SHUNT TRIP

PANELBOARD: PNL-111-X3.N2.1.1

VOLTAGE/PHASE/WIRE: 208Y/120V,3PH,4W LOCATION: AUXILIARY ROOM B102
 BUS AMPACITY: 125A FED FROM: PNL-111-X3.N2.1
 MAINS: 110A MCB MOUNTING: SURFACE ENCLOSURE: NEMA 1
 MCB RATINGS: 10KAC, FULLY RATED

CKT NO.	CIRCUIT DESCRIPTION	VAPHASE			WIRE SIZE	GND SIZE	BKR SIZE	BKR [P] SIZE	GND WIRE SIZE	VAPHASE			CIRCUIT DESCRIPTION	CKT NO.	
		A	B	C						A	B	C			
SECTION 1															
1	REC - B101, B102, OUTDOOR	900.0					20	1	20			900.00	REC - B104,B105, B106, B107	2	
3	EF-111-04,07 - B102,B105,B112		149.40				20	1	20			900.00	REC - B107,B109	4	
5	REC - B115, B116			1,060.00			20	1	20			900.00	REC - B110,B111,B112	6	
7	REC - B111, B115, OUTDOOR		720.00				20	1	20			1,060.00	REC - B201, B205	8	
9	REC - B204, B203		1,060.00				20	1	20			1,000	COFFEE MAKER REC - B111	10	
11	MICROWAVE REC - B111			1,000			20	1	20			1,000	REFRIG. REC - B111	12	
13	REC - B104, 105, OUTDOOR		1,060				20	1	20			104	AD-111-05,06,09,10,11 - B102,B104,B107	14	
15	AC-111-01A,01B,02,03 - B115,B116		399				20	2				104	B109	16	
17				399			20	2				167	EF-111-05,06,09 - B110,B113,B116	18	
19	AC-111-04,07,08,15 - B111,B110		83				20	2	20			88	AC-111-12,13,14,16 - B201,B203,B204,B208	20	
21			83									88		22	
23	EF-111-03A,03B - B203			1,056			20	2	30			2,080	CU-111-01B - B203	24	
25	CU-111-01A - B203		2,080				30	2				2,080		26	
27			2,080									720	REC - B114, OUTDOOR	28	
29	REC - B108,B110,B113			1,080			20	1	20			720	REC - B202	30	
31	REC - B102,B103		720				20	1	20			3,482	REC - B203	32	
33			3,723									3,482	CU-111-03 - B202	34	
35	CU-111-02 - B202		3,723				40	3	40					36	
37				3,723										38	
39	CU-111-04 - B202			2,080			30	2	30			900	DRINKING FOUNDATION - B115	40	
41				2,080								2,579	NITROGEN GENERATOR - B115	42	
43	BWH-111-02 - B113		9,412				100	3	35			2,579		44	
45			8,412									0		46	
47			9,412									0		48	
49		0										0		50	
51		0										0		52	
53		0										0		54	
55		0										0		56	
57		0										0		58	
59		0										0		60	
SUBTOTALS		18,717.61	19,006.37	19,829.77								11,034.07	6,794.87	10,946.87	

CONNECTED TOTALS		LOAD		CONN. VA		DF		LOAD		CONN. VA		DF	
PHASE A	VA	26,752											
AMPS		249											
PHASE B	VA	25,801											
AMPS		215											
PHASE C	VA	35,779											
AMPS		298											
TOTAL	VA	88,332											

PANELBOARD: PNL-111-X3.N2.1.3

VOLTAGE/PHASE/WIRE: 120/240V, 1PH/3W LOCATION: AUXILIARY ROOM B102 PANELBOARD ACCESSORIES/OPTIONS:
 BUS AMPACITY: 250A FED FROM: PNL-111-X3.N2.1
 MAINS: 150A MCB MOUNTING: SURFACE ENCLOSURE: NEMA 1

CKT NO.	CIRCUIT DESCRIPTION	VAPHAISE		WIRE SIZE	GND	BKR	BKR	GND	WIRE SIZE	VAPHAISE		CIRCUIT DESCRIPTION	CKT NO.
		A	B							A	B		
1	240V REC - B116	250.0				20	2	20		250.00		240V REC - B204	2
3		250.00								250.00			4
5	WH-111-01 - B112	6,841.18				70	2	2		0.00	0.00		6
7		6,841.18								0.00	0.00		8
9	WH-111-03 - B111	6,841.18				70	2	1		0.00	0.00		10
11		6,841.18								0.00	0.00		12
13		0				1				0	0		14
15		0				1				0	0		16
17		0				1				0	0		18
19		0				1				0	0		20
21		0				1				0	0		22
23		0				1				0	0		24
SUBTOTALS		14132	14132							250	250		

CONNECTED TOTALS		LOAD		CONN. VA		DF		LOAD		CONN. VA		DF	
PHASE A	VA	14,382											
	AMPS	120											
PHASE B	VA	14,382											
	AMPS	120											
PHASE C	VA												
	AMPS												
TOTAL	VA	28,765											
	AMPS	69											

PANELBOARD NOTES
 HC - HANDLE CLAMP (ON POSITION)
 LCK - PAD-LOCKABLE DEVICE (OFF)
 SW - SWITCH RATED
 GFIC - GROUND FAULT CIRCUIT INTERRUPTER OL - REFER TO ONE-LINE DIAGRAM
 GFEP - GROUND FAULT EQUIPMENT PROTECTION CR - ROUTE THROUGH CONTACTOR #
 ST - SHUNT TRIP

PANELBOARD: TLC-111-X3.N2.3.1

VOLTAGE/PHASE/WIRE: 120/240V, 1PH/3W LOCATION: SERVICE BLDG + VALVE RM B115 PANELBOARD ACCESSORIES/OPTIONS:
 BUS AMPACITY: 150A FED FROM: SWBD-111-X3.N2
 MAINS: 150A MCB MOUNTING: SURFACE ENCLOSURE: NEMA 1

CKT NO.	CIRCUIT DESCRIPTION	VAPHAISE		WIRE SIZE	GND	BKR	BKR	GND	WIRE SIZE	VAPHAISE		CIRCUIT DESCRIPTION	CKT NO.
		A	B							A	B		
1	MODULAR COMBI	500				20	2	20		500	500	MODULAR COMBI	2
3	POSITIVE VALVE ROOM	500								500	500	POSITIVE VALVE ROOM	4
5	MODULAR COMBI	500				20	2	20		500	500	MODULAR COMBI	6
7	POSITIVE VALVE ROOM	500								500	500	POSITIVE VALVE ROOM	8
9	MODULAR COMBI	500				20	2	20		500	500	MODULAR COMBI	10
11	NEGATIVE VALVE ROOM	500				20	2	20		500	500	NEGATIVE VALVE ROOM	12
13	MODULAR COMBI	500								500	500	MODULAR COMBI	14
15	NEGATIVE VALVE ROOM	500				20	2	20		500	500	NEGATIVE VALVE ROOM	16
17	VALVE HALL LIGHTS NORMAL	1,770				20	1	1		500	500	VESDA PANEL - A101	18
19	VALVE HALL LIGHTS NORMAL	1,770	2,124			20	1	1		0	500	VESDA PANEL - A102	20
21	VALVE HALL LIGHTS NORMAL	1,770				20	1	1		0	0	SPARE	22
23	SPARE	0				20	1	1		0	0	SPARE	24
25	SPARE	0				1				0	0	SPARE	26
27	SPARE	0				1				0	0	SPARE	28
29	SPARE	0				1				0	0	SPARE	30
SUBTOTALS		5,540	4,124							2,500	2,500		

CONNECTED TOTALS		LOAD		CONN. VA		DF		LOAD		CONN. VA		DF	
PHASE A	VA	6,040											
	AMPS	67											
PHASE B	VA	6,624											
	AMPS	55											
PHASE C	VA												
	AMPS												
TOTAL	VA	14,664											
	AMPS	33											

PANELBOARD NOTES
 HC - HANDLE CLAMP (ON POSITION)
 LCK - PAD-LOCKABLE DEVICE (OFF)
 SW - SWITCH RATED
 GFIC - GROUND FAULT CIRCUIT INTERRUPTER OL - REFER TO ONE-LINE DIAGRAM
 GFEP - GROUND FAULT EQUIPMENT PROTECTION CR - ROUTE THROUGH CONTACTOR #
 ST - SHUNT TRIP

PANELBOARD: TLC-081-X3.N2.4.1

VOLTAGE/PHASE/WIRE: 120/240V, 1PH/3W LOCATION: REACTOR HALL A103 ENTRANCE PANELBOARD ACCESSORIES/OPTIONS: 250VA MIN-POWER CENTER
 BUS AMPACITY: 150A FED FROM: SWBD-111-X3.N2
 MAINS: 150A MCB MOUNTING: SURFACE ENCLOSURE: NEMA 4X

CKT NO.	CIRCUIT DESCRIPTION	VAPHAISE		WIRE SIZE	GND	BKR	BKR	GND	WIRE SIZE	VAPHAISE		CIRCUIT DESCRIPTION	CKT NO.
		A	B							A	B		
1	MODULAR COMBI - REACTOR HALL A103	500				20	2	20		500	500	MODULAR COMBI - REACTOR HALL A103	2
3		500								500	500		4
5	MODULAR COMBI - REACTOR HALL A103	500				20	2	20		500	500	MODULAR COMBI - REACTOR HALL A103	6
7		500								500	500		8
9	REACTOR HALL LIGHTS NORMAL	1,770				20	1	1		800	800	HOA SWITCH	10
11	LTG - ROADWAY	2,548				20	1	1		896	896	LTG - CONVERTER AND SERVICE	12
13	LTG - XFMR BAY	620				20	1	1		620	620	LTG - XFMR BAY	14
15	LTG - XFMR BAY	620				20	1	1		620	620	LTG - XFMR BAY	16
17	SPARE	0				20	1	1		620	620	LTG - XFMR BAY	18
19	RECEPTACLES - XFMR BAY	540				20	1	1		0	500	VESDA PANEL - A103	20
21	REACTOR HALL LIGHTS NORMAL	1,770				20	1	1		0	0		22
23	LTG - XFMR BAY	0				1				0	0		24
25		0				1				0	0		26
27		0				1				0	0		28
29		0				1				0	0		30
SUBTOTALS		5,180	5,328							3,040	3,016		

CONNECTED TOTALS		LOAD		CONN. VA		DF		LOAD		CONN. VA		DF	
PHASE A	VA	8,200											
	AMPS	66											
PHASE B	VA	6,344											
	AMPS	70											
PHASE C	VA												
	AMPS												
TOTAL	VA	15,544											
	AMPS	40											

PANELBOARD NOTES
 HC - HANDLE CLAMP (ON POSITION)
 LCK - PAD-LOCKABLE DEVICE (OFF)
 SW - SWITCH RATED
 GFIC - GROUND FAULT CIRCUIT INTERRUPTER OL - REFER TO ONE-LINE DIAGRAM
 GFEP - GROUND FAULT EQUIPMENT PROTECTION CR - ROUTE THROUGH CONTACTOR #
 ST - SHUNT TRIP

PANELBOARD: TLC-081-X3.N2.5.1

VOLTAGE/PHASE/WIRE: 120/240V, 1PH/3W LOCATION: DC HALL A104 ENTRANCE PANELBOARD ACCESSORIES/OPTIONS:
 BUS AMPACITY: 100A FED FROM: SWBD-111-X3.N2
 MAINS: 80A MCB MOUNTING: SURFACE ENCLOSURE: NEMA 4X

CKT NO.	CIRCUIT DESCRIPTION	VAPHAISE		WIRE SIZE	GND	BKR	BKR	GND	WIRE SIZE	VAPHAISE		CIRCUIT DESCRIPTION	CKT NO.
		A	B							A	B		
1	MODULAR COMBI - DC HALL A104	500				20	2	20		500	500	MODULAR COMBI - DC HALL A104	2
3		500								500	500		4
5	MODULAR COMBI - DC HALL A104	500				20	2	20		500	500	MODULAR COMBI - DC HALL A104	6
7		500								500	500		8
9	REC - A105	540				20	1	1		0	0	SPARE	10
11	DC HALL LIGHTS NORMAL	1,770				20	1	1		0	500	VESDA PANEL - A104	12
13	DC HALL LIGHTS NORMAL	1,770				20	1	1		0	0		14
15		0				1				0	0		16
17		0				1				0	0		18
19		0				1				0	0		20
21		0				1				0	0		22
23		0				1				0	0		24
SUBTOTALS		3,310	2,770							1,000	1,500		

CONNECTED TOTALS		LOAD		CONN. VA		DF		LOAD		CONN. VA		DF	
PHASE A	VA	4,310											
	AMPS	36											
PHASE B	VA	4,270											
	AMPS	36											
PHASE C	VA												
	AMPS												
TOTAL	VA	8,580											
	AMPS	21											

PANELBOARD NOTES
 HC - HANDLE CLAMP (ON POSITION)
 LCK - PAD-LOCKABLE DEVICE (OFF)
 SW - SWITCH RATED
 GFIC - GROUND FAULT CIRCUIT INTERRUPTER OL - REFER TO ONE-LINE DIAGRAM
 GFEP - GROUND FAULT EQUIPMENT PROTECTION CR - ROUTE THROUGH CONTACTOR #
 ST - SHUNT TRIP

K Engineering and Land Surveying, P.C. 370 7th Avenue SUITE 1604 New York, NY 10001

SOWINSKI SULLIVAN 22 Mohawk Avenue Sparta, NJ 07871

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B 100% SUBMISSION A.K.W. D.D.U.ZAN 12/12/2022
 A INTERIM SUBMISSION N.W.U. D.D.U.ZAN 09/13/2022
 REV DESCRIPTION (DRAW BY) (CHK BY) DATE

Kiewit 470 Chemical Ridge Rd #2, Woodcliff Lake, NJ 07877
Hitachi Energy 881 Main Campus Drive Raleigh, North Carolina 27606

PROJECT CHPE
 Champlain Hudson Power Express
Astoria HVDC Converter Station
 31-45 26th Avenue, Astoria, Queens NY 11105
 Block #850 - Lot #310 - BIN #4624437

PANELBOARD SCHEDULES-2

DATE 12/12/2022
 PROJECT NO 180125
 DRAWING BY X.L.B.J.
 CHECKED BY E.D.U.ZAN
 DRAWING NO **E-311.00**
 CAD FILE NO of #9

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PANELBOARD: TLC-141-X3.N2.6.1

VOLTAGE/PHASE/WIRE: 120/240V, 1PH, 3W LOCATION: W/S ENCLOSURE PANELBOARD ACCESSORIES/OPTIONS: 25 KVA MINI-POWER CENTER
 BUS AMPACITY: 150A FED FROM: SWBD-111-X3.N2 MOUNTING: SURFACE
 MINS: 50A MCB ENCLOSURE: NEMA 1 AC RATING: 10kV, FULLY RATED

CKT NO.	CIRCUIT DESCRIPTION	VAPhASE			WIRE GND	BKR	BKR	GND	WIRE	VAPhASE			CIRCUIT DESCRIPTION	CKT NO.						
		A	B	C						A	B	C								
1	TVSS	0	0	0	12	12	20	2	20	12	12	500	500	RCPT 240V - ME101, ME102	2					
3	RELAY ENCLOSURE													RECEPTACLES - ME101	4					
5	LTG - EXTERIOR ME101 & ME102	85	0	0	12	12	20	1	1	12	12	720	0	CU-141-03A - ME101	6					
7	LTG - INTERIOR ME101	248	186	0	12	12	20	1	2	30	10	10	2,080	0	CU-141-03A - ME101	8				
9	LTG - INTERIOR ME102	0	0	0	12	12	20	1	1				2,080	0	CU-141-03B (STANDBY) - ME101	10				
11	HVAC PANEL - ME102	500	900	0	12	12	20	1	2	30	10	10	2,080	0	AC-141-03B (STANDBY) - ME101	12				
13	HEAT TRACE	500	0	0	12	12	20	1	1				52	52	AC-141-03A,03B - ME101	14				
15	RECEPTACLES - ME102	2,080	900	0	12	12	20	1	2	20	12	12	52	52	AC-141-03A,03B - ME101	16				
17	CU-141-04A - ME102	2,080	2,080	0	10	10	30	2	2				52	52	AC-141-04A,04B - ME102	18				
19	AC-141-04B (STANDBY) - ME102	2,080	2,080	0	10	10	30	2	2				0	0		20				
21	AC-141-04B (STANDBY) - ME102	2,080	2,080	0	10	10	30	2	2				0	0		22				
23	AC-141-04B (STANDBY) - ME102	2,080	2,080	0	10	10	30	2	2				0	0		24				
25	ACCS POWER SUPPLY #	144	0	0	12	12	20	1	1				0	0		26				
27	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		28				
29	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		30				
31	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		32				
33	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		34				
35	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		36				
37	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		38				
39	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		40				
41	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		42				
SUBTOTALS													5,137	5,748			5,484	4,784	SUBTOTALS	

PANELBOARD: TLC-141-X3.N2.7.1

VOLTAGE/PHASE/WIRE: 120/240V, 1PH, 3W LOCATION: AC RELAY ENCLOSURE PANELBOARD ACCESSORIES/OPTIONS: 15 KVA MINI-POWER CENTER
 BUS AMPACITY: 100A FED FROM: PNL-141-X3.N2.7 MOUNTING: SURFACE
 MINS: 80A MCB ENCLOSURE: NEMA 1 AC RATING: 10kV, FULLY RATED

CKT NO.	CIRCUIT DESCRIPTION	VAPhASE			WIRE GND	BKR	BKR	GND	WIRE	VAPhASE			CIRCUIT DESCRIPTION	CKT NO.						
		A	B	C						A	B	C								
1	TVSS	0	0	0	12	12	20	1	1	12	12	360	360	RCPT - K101	2					
3	RELAY ENCLOSURE												540	RCPT - K101	4					
5	LTG - WEST EXTERIOR LIGHTING	85	0	0	12	12	20	1	1				500	240V RCPT - K101	6					
7	LTG - EAST EXTERIOR LIGHTING	85	0	0	12	12	20	1	1				116	AC-141-01A,02A - K101	8					
9	LTG - EAST ROW - HOUSE LIGHTING	310	310	0	12	12	20	1	2	20	12	12	116	116	AC-141-01A,02A - K101	10				
11	LTG - WEST ROW - HOUSE LIGHTING	310	310	0	12	12	20	1	2	20	12	12	116	116	AC-141-01B,02B - K101	12				
13	CU-141-01 - K101	2,496	2,496	0	10	10	40	2	2				116	116	RSFACU - K101	14				
15	CU-141-02 - K101	2,496	2,496	0	10	10	40	2	2				500	500	RSFACU - K101	16				
17	ROOF HEAT TRACE	500	0	0	12	12	20	1	1				0	0		18				
19	ACCS POWER SUPPLY #	144	0	0	12	12	20	1	1				0	0		20				
21	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		22				
23	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		24				
25	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		26				
27	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		28				
29	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		30				
31	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		32				
33	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		34				
35	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		36				
37	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		38				
39	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		40				
41	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		42				
SUBTOTALS													5,511	5,867			1,593	1,273	SUBTOTALS	

PANELBOARD: PNL-141-X3.N2.7

VOLTAGE/PHASE/WIRE: 480/277V, 3PH, 4W LOCATION: RELAY ENCLOSURE PANELBOARD ACCESSORIES/OPTIONS:
 BUS AMPACITY: 100A FED FROM: SWBD-111-X3.N2 MOUNTING: SURFACE
 MINS: 50A MCB ENCLOSURE: NEMA 1 AC RATING: 14kV, FULLY RATED

CKT NO.	CIRCUIT DESCRIPTION	VAPhASE			WIRE GND	BKR	BKR	GND	WIRE	VAPhASE			CIRCUIT DESCRIPTION	CKT NO.							
		A	B	C						A	B	C									
1	TVSS	0	0	0	12	12	20	2	20	12	12	500	500	RCPT 240V - ME101, ME102	2						
3	RELAY ENCLOSURE													RECEPTACLES - ME101	4						
5	LTG - EXTERIOR ME101 & ME102	85	0	0	12	12	20	1	1	12	12	720	0	CU-141-03A - ME101	6						
7	LTG - INTERIOR ME101	248	186	0	12	12	20	1	2	30	10	10	2,080	0	CU-141-03A - ME101	8					
9	LTG - INTERIOR ME102	0	0	0	12	12	20	1	1				2,080	0	CU-141-03B (STANDBY) - ME101	10					
11	HVAC PANEL - ME102	500	900	0	12	12	20	1	2	30	10	10	2,080	0	AC-141-03B (STANDBY) - ME101	12					
13	HEAT TRACE	500	0	0	12	12	20	1	1				52	52	AC-141-03A,03B - ME101	14					
15	RECEPTACLES - ME102	2,080	900	0	12	12	20	1	2	20	12	12	52	52	AC-141-03A,03B - ME101	16					
17	CU-141-04A - ME102	2,080	2,080	0	10	10	30	2	2				52	52	AC-141-04A,04B - ME102	18					
19	AC-141-04B (STANDBY) - ME102	2,080	2,080	0	10	10	30	2	2				0	0		20					
21	AC-141-04B (STANDBY) - ME102	2,080	2,080	0	10	10	30	2	2				0	0		22					
23	AC-141-04B (STANDBY) - ME102	2,080	2,080	0	10	10	30	2	2				0	0		24					
25	ACCS POWER SUPPLY #	144	0	0	12	12	20	1	1				0	0		26					
27	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		28					
29	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		30					
31	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		32					
33	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		34					
35	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		36					
37	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		38					
39	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		40					
41	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		42					
SUBTOTALS													4,992	4,615	0		2,106	2,106	2,106	SUBTOTALS	

PANELBOARD: PNL-130-X3.N2.8

VOLTAGE/PHASE/WIRE: 480/277V, 3PH, 4W LOCATION: STORAGE ENCLOSURE PANELBOARD ACCESSORIES/OPTIONS:
 BUS AMPACITY: 100A FED FROM: SWBD-111-X3.N2 MOUNTING: SURFACE
 MINS: 80A MCB ENCLOSURE: NEMA 1 AC RATING: 14kV, FULLY RATED

CKT NO.	CIRCUIT DESCRIPTION	VAPhASE			WIRE GND	BKR	BKR	GND	WIRE	VAPhASE			CIRCUIT DESCRIPTION	CKT NO.		
		A	B	C						A	B	C				
1	TVSS	0	0	0	12	12	20	1	1	12	12	360	360	RCPT - K101	2	
3	RELAY ENCLOSURE												540	RCPT - K101	4	
5	LTG - WEST EXTERIOR LIGHTING	85	0	0	12	12	20	1	1				500	240V RCPT - K101	6	
7	LTG - EAST EXTERIOR LIGHTING	85	0	0	12	12	20	1	1				116	AC-141-01A,02A - K101	8	
9	LTG - EAST ROW - HOUSE LIGHTING	310	310	0	12	12	20	1	2	20	12	12	116	116	AC-141-01A,02A - K101	10
11	LTG - WEST ROW - HOUSE LIGHTING	310	310	0	12	12	20	1	2	20	12	12	116	116	AC-141-01B,02B - K101	12
13	CU-141-01 - K101	2,496	2,496	0	10	10	40	2	2				116	116	RSFACU - K101	14
15	CU-141-02 - K101	2,496	2,496	0	10	10	40	2	2				500	500	RSFACU - K101	16
17	ROOF HEAT TRACE	500	0	0	12	12	20	1	1				0	0		18
19	ACCS POWER SUPPLY #	144	0	0	12	12	20	1	1				0	0		20
21	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		22
23	ACCS POWER SUPPLY #	0	0	0	12	12	20	1	1				0	0		

PANELBOARD: TLC-EMG-111-X3.N2.11.1

VOLTAGE/PHASE/WIRE: 120/240V, 1PH, 3W		LOCATION: AUXILIARY ROOM B102		PANELBOARD ACCESSORIES/OPTIONS: 15 KVA MINIPOWER CENTER	
BUS AMPACITY: 100A		FED FROM: SWB0-111-03JN2		480/120/240 VOLTS	
MAIN: 10A MCB		MOUNTING SURFACE		ENCLOSURE: NEMA 1	
AIC RATING: 10kAIC, FULLY RATED		ENCLOSURE: NEMA 1			

CKT NO.	CIRCUIT DESCRIPTION	VAPPHASE		WIRE SIZE	GND SIZE	BKR SIZE	BKR P	WIRE SIZE	GND SIZE	VAPPHASE		CIRCUIT DESCRIPTION	CKT NO.
		A	B							A	B		
SECTION 1													
1	SERVICE BUILDING 1ST FLOOR EMG LIGHTS	0.0		20	11	20		0.00				SERVICE BUILDING 2ND FLOOR EMG LIGHTS	3
3	DC HALL EMG LIGHTS	1,590.00		20	11	20		1,590				REACTOR HALL EMG LIGHTS	4
5	VALVE HALL EMG LIGHTS	1,416.0		20	11	25		2,400.0					5
7	RFACU - B102	500.00		20	11	20		500				VELA10 - B201	8
9	SPARE	0.0		20	11	20		0.00				SPARE	10
11	ASO - A102	500.00		20	11	20		500				VELA10 - B201	12
13	VALVE HALL EMG LIGHTS	1,416.0		20	11	20		18				INTRUSION DETECTION CABINET	14
15		0		11	20			268				ACS POWER SUPPLY 2 AND 3	16
17		0		11	20			144				ACS POWER SUPPLY 1	18
19		0		11	1			0					20
21		0		11	1			0					22
23		0		11	1			0					24
SUBTOTALS		2,832.00 (2,590.00)						2,562.00 (2,676.00)				SUBTOTALS	

CONNECTED TOTALS		2,832.00 (2,590.00)				2,562.00 (2,676.00)		SUBTOTALS	
PHASE A	VA	5,394							
	AMPS	45							
PHASE B	VA	5,488							
	AMPS	46							
PHASE C	VA								
	AMPS								
TOTAL	VA	10,882							
	AMPS	26							

LOAD	CONN. VA	DF	LOAD	CONN. VA	DF
HVAC - HEATING	0	1.00	REFRIGERATION	0	1.00
HVAC - COOLING	0	0.00	KITCHEN EQUIP	0	1.00
SUPP HEAT	0	1.00	SHOW WINDOW	0	1.25
MOTORS	0	1.00	DISPLAY CASE/SIGN	0	1.25
LARGEST MOTOR	0	1.25	LIGHTING	5,730	1.25
RECEPTACLES	0	1.00/5	TRACK LIGHTING	0	1.00
MISCELLANEOUS	4,850	1.00	EXISTING	0	1.00

DEMAND TOTAL	
TOTAL	VA 12913
	AMPS 29

PANELBOARD NOTES
 HC - HANDLE CLAMP (ON POSITION) GFIC - GROUND FAULT CIRCUIT INTERRUPTER OL - REFER TO ONE-LINE DIAGRAM
 LCK - PADLOCKABLE DEVICE (OFF) GFEP - GROUND FAULT EQUIPMENT PROTECTION# - ROUTE THROUGH CONTACTOR #
 SW - SWITCH RATED ST - SHUNT TRIP

PANELBOARD: TLC-130-X3.N2.8.1

VOLTAGE/PHASE/WIRE: 120/240V, 1PH, 3W		LOCATION: STORAGE ENCLOSURE		PANELBOARD ACCESSORIES/OPTIONS: 25 KVA MINIPOWER CENTER	
BUS AMPACITY: 150A		FED FROM: PNL-130-X3.N2.8		480/120/240 VOLTS	
MAIN: 150A MCB		MOUNTING SURFACE		ENCLOSURE: NEMA 1	
AIC RATING: 10kAIC, FULLY RATED		ENCLOSURE: NEMA 1			

CKT NO.	CIRCUIT DESCRIPTION	VAPPHASE		WIRE SIZE	GND SIZE	BKR SIZE	BKR P	WIRE SIZE	GND SIZE	VAPPHASE		CIRCUIT DESCRIPTION	CKT NO.	
		A	B							A	B			
SECTION 1														
1	HVAC CONTROL PANEL - ST101	500		12	12	20	11	20	12	12	90	LTG - EXTERIOR WEST	2	
3	BAF-130-01 - ST101	1,920						11	20	12	12	90	LTG - EXTERIOR EAST	4
5	SPARE	0						20	11	20	12	84	LTG - CANOPY	6
7	RCPT - 240V	500		12	12	20	21	20	10	10		528	LTG - INTERIOR STORAGE	8
9	SPARE	500						11	20	12	12	800	HDA SWITCH	10
11	RCPT EXTERIOR - ST101	720		10	10	20	11	20	12	12		1,638	LTG - AC YARD	12
13	RCPT INTERIOR - ST101	540		12	12	20	11	20	12	12		2,184	LTG - ROADWAY	14
15	SPARE	0		12	12	20	11	20	12	12		910	LTG - FENCE	16
17	LTG - CONVERTER WALLPACK N	450		12	12	12	11	20	12	12		1,458	LTG - CONVERTER AREA N	18
19	BRE ALARM PANEL - ST101	500		12	12	20	11					0		20
21	ACS POWER SUPPLY 5	144		12	12	20	11					0		22
23		0		11	1							0		24
25		0		11	1							0		26
27		0		11	1							0		28
29		0		11	1							0		30
31		0		11	1							0		32
33		0		11	1							0		34
35		0		11	1							0		36
37		0		11	1							0		38
39		0		11	1							0		40
41		0		11	1							0		42
SUBTOTALS		2,134 (3,640)						4,584 (3,166)				SUBTOTALS		

CONNECTED TOTALS		2,134 (3,640)				4,584 (3,166)		SUBTOTALS	
PHASE A	VA	5,728							
	AMPS	56							
PHASE B	VA	6,806							
	AMPS	57							
PHASE C	VA								
	AMPS								
TOTAL	VA	13,534							
	AMPS	33							

LOAD	CONN. VA	DF	LOAD	CONN. VA	DF
HVAC - HEATING	0	1.00	REFRIGERATION	0	1.00
HVAC - COOLING	0	0.00	KITCHEN EQUIP	0	1.00
SUPP HEAT	0	1.00	SHOW WINDOW	0	1.25
MOTORS	1,920	1.00	DISPLAY CASE/SIGN	0	1.25
LARGEST MOTOR	0	1.25	LIGHTING	7,410	1.25
RECEPTACLES	2,280	1.00/5	TRACK LIGHTING	0	1.00
MISCELLANEOUS	1,944	1.00	EXISTING	0	1.00

DEMAND TOTAL	
TOTAL	VA 15387
	AMPS 37

PANELBOARD NOTES
 HC - HANDLE CLAMP (ON POSITION) GFIC - GROUND FAULT CIRCUIT INTERRUPTER OL - REFER TO ONE-LINE DIAGRAM
 LCK - PADLOCKABLE DEVICE (OFF) GFEP - GROUND FAULT EQUIPMENT PROTECTION# - ROUTE THROUGH CONTACTOR #
 SW - SWITCH RATED ST - SHUNT TRIP

Engineering and Land Surveying, P.C. 370 7th Avenue SUITE 1604 New York, NY 10001

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B	100% SUBMISSION	AJK/WR	DJ/DZAN	13/12/2022
A	INTERIM SUBMISSION	NWJ	DJ/DZAN	09/13/2022
REV	DESCRIPTION	DATE	DATE	DATE

Kiewit 470 Chatham Ridge Rd # 2, Woodcliff Lake, NJ 07077

Hitachi Energy 891 Main Campus Drive Raleigh, North Carolina 27606

PROJECT

CHPE
 Champlain Hudson Power Express

Astoria HVDC Converter Station
 31-45 26th Avenue, Astoria, Queens NY 11105
 Block #850 • Lot #310 • BIN #4624437

PANELBOARD SCHEDULES-4

DATE: 13/12/2022
 PROJECT NO: 188125
 DRAWING BY: XLBJ
 CHECKED BY: DJ/DZAN
 DRAWING NO: E-313.00
 CADD FILE NO: OF 88

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LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER/SERIES	NO.	LAMP	VOLTAGE	INPUT WATTS	INPUT VA	DESCRIPTION	FIXTURE NOTES
A1	ITHRONA ZV4L6 SE SERIES EQUIVALENT H.E. WILLIAMS DL LED SERIES CORLETT R022Z LED SERIES COLUMBIA L12T24 SERIES	1	LED 3000 LUMENS 4000K, 82 CRI	120	38	40	2W x 4L x 8 1/2"D RECESSED DIRECT INDIRECT LED TROFFER, GRID MOUNTING, WHITE FINISH, PROVIDE WITH GRID MOUNTING, STATIC AIR FUNCTION, METAL DIFFUSER WITH ROUND HOLES, AND PROVIDE WITH 100-1% 0-10V DIMMING DRIVER.	
A4	ITHRONA ZV4L6 SE SERIES EQUIVALENT H.E. WILLIAMS DL LED SERIES CORLETT R022Z LED SERIES COLUMBIA L12T24 SERIES	2	LED 2000 LUMENS 4000K, 82 CRI	120	22	24	2W x 4L x 8 1/2"D RECESSED DIRECT INDIRECT LED TROFFER, GRID MOUNTING, WHITE FINISH, PROVIDE WITH GRID MOUNTING, STATIC AIR FUNCTION, METAL DIFFUSER WITH ROUND HOLES, AND PROVIDE WITH 100-1% 0-10V DIMMING DRIVER.	
E1	EMERGLITE RS SERIES	2	LED 12V 6W MR16 565 LUMENS (INCLUDED)	120	38	40	11-1/2" x 7 1/4" x 6 1/4" D RECESSED LED EMERGENCY LIGHTING UNIT, FULLY ADJUSTABLE HEADS, PROVIDE WITH WHITE FINISH, 12V3SW LEAD-CALCIUM BATTERY, TWO HEADS, 50° HMM PLASTIC MIRR HEAD STYLE, AND ADVANCED DIAGNOSTICS (NON-AUDIBLE).	
E2	EMERGLITE 12HP SERIES	2	LED 12V 6W MR16 565 LUMENS (INCLUDED)	120	-	-	8-1/8" W x 8 1/4" x 6 1/4" D REMOTE EXTERIOR LED EMERGENCY LIGHT FIXTURE, ENCLOSURE RATED NEMA 4X, TWIN FULLY ADJUSTABLE HEADS, GRAY FINISH, PROVIDE LOW VOLTAGE CONNECTION TO EXIT SIGN OR EMERGENCY LIGHTING UNIT WITHIN INTERIOR OF BUILDING AS INDICATED ON THE DRAWINGS, MOUNT TO EXTERIOR WALL WITH TOP OF FIXTURE EVEN WITH TOP OF ADJACENT DOOR FRAME JING, USING NEMA 4X JUNCTION BOX.	1,3
E3	EMERGLITE 12HP SERIES	2	LED 12V 6W MR16 565 LUMENS (INCLUDED)	120	38	40	11-1/2" x 7 1/4" x 6 1/4" D LED EMERGENCY LIGHTING UNIT, ENCLOSURE RATED NEMA 4X, TWIN FULLY ADJUSTABLE HEADS, 3000K OPERATING TEMPERATURE, PROVIDE WITH 12V3SW LEAD-CALCIUM BATTERY, TWO HEADS, ADVANCED DIAGNOSTICS (AUDIBLE), MOUNT AT 10'-0" AFF UNO.	4
L1	ITHRONA FEX LED SERIES	1	LED 4000 LUMENS 4000K, 80 CRI	120	28	31	4" LONG LED LINEAR STRIP, PROVIDE WITH FLAT POLY PROST, WITH WHITE SUPER FINISH, AND RABIA BRACKETS FOR WALL MOUNTING, ENCLOSURE RATED NEMA 4X, IP 65 AMBIENT TEMP, RATINGS ABOVE 100 DEGREES F, PROVIDE MVOLT, MEDIUM DISTRIBUTION AND MOUNT AT 10'-0" AFF UNO.	
L2	ITHRONA FEX LED SERIES	1	LED 8000 LUMENS 4000K, 80 CRI	120	54	60	4" LONG LED LINEAR STRIP, PROVIDE WITH FLAT POLY PROST, WITH WHITE SUPER FINISH, AND RABIA BRACKETS FOR SUSPENDED MOUNTING, ENCLOSURE RATED NEMA 4X, IP 65 AMBIENT TEMP, RATINGS ABOVE 100 DEGREES F, PROVIDE MVOLT, MEDIUM DISTRIBUTION AND MOUNT AT 10'-0" AFF UNO.	
L3	ITHRONA FEX LED SERIES	1	LED 7200 LUMENS 4000K, 80 CRI	120	77	86	4" LONG LED LINEAR STRIP, PROVIDE WITH FLAT POLY PROST, WITH WHITE SUPER FINISH, AND RABIA BRACKETS FOR SUSPENDED MOUNTING, ENCLOSURE RATED NEMA 4X, IP 65 AMBIENT TEMP, RATINGS ABOVE 100 DEGREES F, PROVIDE MVOLT, MEDIUM DISTRIBUTION AND MOUNT AT 10'-0" AFF UNO.	
G22	ITHRONA ZL10 SERIES EQUIVALENT H.E. WILLIAMS 75R LED SERIES CORLETT H03L SERIES COLUMBIA M15 LED SERIES	1	LED 5000 LUMENS 5000K, 80 CRI	120	41	46	4" LONG LED LINEAR STRIP, PROVIDE WITH ROUND DROP LENS, WHITE FINISH, AND 10' AIRCRAFT CABLES, MOUNT AT 8'-0" AFF UNO.	
S16	INTELLITE S16 SERIES	1	LED 5000 LUMENS 5000K, 80 CRI	120	37.2	41	4" LONG LED LINEAR STRIP, PROVIDE WITH ROUND DROP LENS, WHITE FINISH, AND T-GRID MOUNTING KIT, MOUNT AT CEILING HEIGHT.	
EG4	LS ECG SERIES	1	LED 5000 LUMENS 5000K, 80 CRI	120	48	53	4" WET LOCATION LED WALL MOUNTED LIGHT, WALL MOUNT AT 8'-0" AFF UNO.	
HEM4	COLUMBIA HEM SERIES	1	LED 800 LUMENS 5000K, 80 CRI	120	59	66	4" LONG LED LINEAR STRIP, FIBERGLASS, ENCLOSED, AND GASKETED CEILING MOUNTED AT 12' AFF.	
P1	ITHRONA J8L1 SERIES EQUIVALENT KNOX EOS SERIES SHAW-WHELD 280H850 SERIES METALUX L10B SERIES	1	LED 12000 LUMENS 5000K, 80 CRI	120	316.7	354	11-1/2" W x 12 1/2" x 2 1/2" D LED SUSPENDED HMM BAY, STANDARD EFFICIENCY WITH CLEAR ACRYLIC LENS, GENERAL DISTRIBUTION, PROVIDE WITH 10' AIRCRAFT CABLE WITH HOOK, MOUNT AT V.	2
V2	ITHRONA V21 SERIES EQUIVALENT H.E. WILLIAMS V2TZ LUMARK WAL-PAK SERIES HUBBELL L10C2 LED SERIES H.E. WILLIAMS V2P	1	LED 3000 LUMENS 4000K, 70 CRI	120	25	28	17" W x 8 1/2" x 10-3/16" DEEP TRAPEZOIDAL EXTERIOR WALL LED SCOWIE, PROVIDE WITH VISUAL COMFORT FORWARD THROW, PREMIUM SURFACE MOUNTED BACK BOX, AND BLACK FINISH, UNLESS NOTED OTHERWISE, MOUNT TO CEILING AT 10' ABOVE TOP OF PERSONNEL DOOR FRAME AND 2'-0" ABOVE TOP OF OVERHEAD DOOR DRAWING AS APPLICABLE.	3

LIGHT FIXTURE SCHEDULE

TYPE	MANUFACTURER/SERIES	NO.	LAMP	VOLTAGE	INPUT WATTS	INPUT VA	DESCRIPTION	FIXTURE NOTES
X1	EMERGLITE PREM SERIES	1	LED (INCLUDED)	120	3	3	11-1/2" W x 1 1/4" x 2 1/2" LED EXIT SIGN, SEALED AND MAINTENANCE FREE NICKEL-CADMIUM BATTERY, CHARGER, TEST SWITCH, INDICATOR LIGHT, AND BAR HANGERS, PROVIDE WITH WHITE FINISH, SELF-POWERED ADVANCED DIAGNOSTICS, SINGLE FACE, AND RED LEGEND, PROVIDE ARROWS AS INDICATED ON THE DRAWINGS, WHERE SHOWN AS WALL MOUNTED, MOUNT AT 1'-0" ABOVE TOP OF DOOR FRAME UNO.	
X2	EMERGLITE 8V024N SERIES	1	LED (INCLUDED)	120	24	24	15-1/4" W x 8-1/8" H x 5-1/4" D LED EXIT SIGN, ENCLOSURE RATED NEMA 4X, INTEGRAL LED LIGHT SOURCE, SEALED AND MAINTENANCE FREE NICKEL-CADMIUM BATTERY, CHARGER, MAGNETIC TEST SWITCH, INDICATOR LIGHTS, UNIVERSAL MOUNTING, REMOTE LAMP CAPACITY, PROVIDE WITH GRAY/ALUMINUM FINISH, SINGLE FACE, RED LEGEND, ADVANCED DIAGNOSTICS (AUDIBLE) AND NO HEADS, MOUNT AT 1'-0" ABOVE TOP OF DOOR FRAME UNO.	4
SA07	MGRANWEDSER GAIN SERIES GALNSA60-830A-14T4	1	LED 33,056 LUMENS 3000K, 85 CRI	120-277	321	367	22" W x 3-3/4" H x 31-1/2" D POLE MOUNTED T4FT OUTDOOR LIGHT FIXTURE, POLE MOUNT AT 40'-0" AFF UNO.	
SA08L	MGRANWEDSER GAIN SERIES GALNSA60-830A-14L2	1	LED 33,068 LUMENS 3000K, 85 CRI	120-277	321	367	22" W x 3-3/4" H x 31-1/2" WALL MOUNTED SL2 OUTDOOR LIGHT FIXTURE, WALL MOUNT AT 40'-0" AFF UNO.	
L40XL	COLUMBIA LXXM SERIES LXXM-A-SM-L-DCA-EDU	1	LED 8,416 LUMENS 3000K, 85 CRI	120-277	42	47	8-7/8" W x 5-5/8" H x 51-20" D LINEAR OUTDOOR LIGHT FIXTURE, WALL MOUNT AT 20'-0" AND 30'-0" AFF IN TRANSFORMER BAYS, UNO.	

GENERAL NOTES:
A. PROVIDE LAMP AND DRIVER PRODUCT DATA SHEETS FOR EACH LIGHT FIXTURE AS PART OF THE SUBMITTAL REVIEW PROCESS.
B. FIXTURE AMBIENT TEMPERATURE OPERATING RANGES MUST BE CLEARLY INDICATED ON DATA SHEETS PROVIDED AS PART OF THE SUBMITTAL REVIEW PROCESS.
C. PACKAGING OF LIGHT FIXTURES WILL NOT BE CONSIDERED OR APPROVED.
D. LIGHTING CONTROLS PRICING, INCLUDING BUT NOT LIMITED TO THOSE REFERENCED IN 260923, SHALL BE COMPLETELY SEPARATE OF ANY LIGHT FIXTURE PRICING.
E. VERIFY CEILING CONDITIONS AND COORDINATE LIGHT FIXTURE MOUNTING HARDWARE AND TRIMS NEEDED TO SUIT CEILING CONDITIONS PRIOR TO ORDERING.
F. VERIFY QUANTITIES, MODELS, NUMBERS AND DESCRIPTIONS WITH MANUFACTURER PRIOR TO PLACING ORDER.
G. USE THIS TABLE IN CONJUNCTION WITH THE LIGHTING PLANS AND SPECIFICATIONS TO DETERMINE THE EXACT ORDERING NUMBERS FOR FIXTURES, LAMPS AND ACCESSORIES.
H. REFER TO ARCHITECTURAL DRAWINGS AND DETAILS FOR EXACT LOCATIONS, MOUNTING HEIGHTS AND ADDITIONAL MOUNTING INFORMATION. CONTACT ARCHITECT AND ENGINEER OF RECORD IF THERE ARE DISCREPANCIES BETWEEN THE ARCHITECTURAL AND ELECTRICAL PLANS.
I. LISTED VOLTAGES ARE THOSE THAT THE FIXTURES ARE TO BE OPERATED AT, WHERE SINGLE VOLTAGES ARE LISTED, UNIVERSAL VOLTAGE AND MULTITAP BALLAST DRIVERS ARE ACCEPTABLE IF CAPABLE OF SUPPLYING THE VOLTAGES LISTED IN THIS SCHEDULE.
FIXTURE NOTES:
V. DO NOT EXCEED MANUFACTURER RECOMMENDED MAXIMUM DISTANCE BETWEEN BATTERY SUPPLY AND REMOTE FIXTURE.

Engineering and Land Surveying, P.C. 370 7th Avenue SUITE 1604 New York, NY 10001

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B. 100% SUBMISSION	AJK/WH	DJ/DAN	12/12/2022
A. INTERNAL SUBMISSION	N/WJ	DJ/DAN	09/13/2022
REV	DESCRIPTION	DATE	

Kiewit 470 Chatham Ridge Rd # 2, Woodcliff Lake, NJ 07077

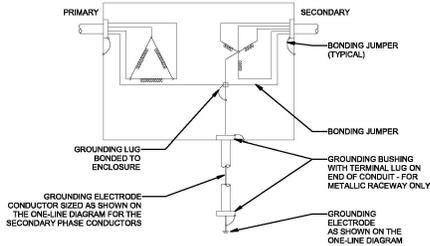
Hitachi Energy 881 Main Campus Drive Raleigh, North Carolina 27606

PROJECT CHPE
Champlain Hudson Power Express
Astoria HVDC Converter Station
31-45 26th Avenue, Astoria, Queens NY 11105
Block #850 • Lot #310 • BIN #4624437

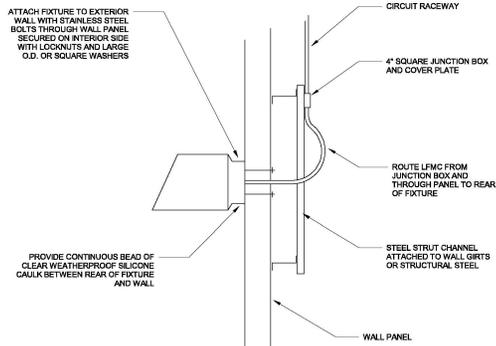
LIGHT FIXTURE SCHEDULES

DATE: 12/12/2022
PROJECT NO: 188151
DRAWING BY: SUEB/FATHY
CHECKED BY: DJ/DAN
DRAWING NO: **E-330.00**
CAID FILE NO: _____ OF #F

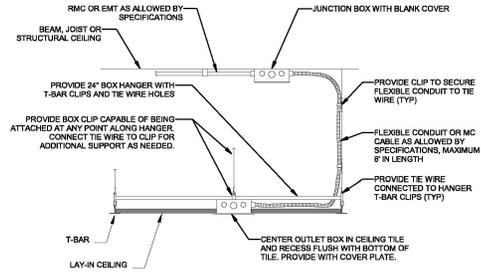
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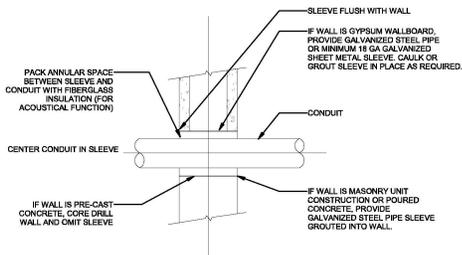
1 DRY TYPE TRANSFORMER GROUNDING
E-400.00 1" = 1'-0"



2 EXTERIOR WALL MOUNTED FIXTURE
E-400.00 1" = 1'-0"

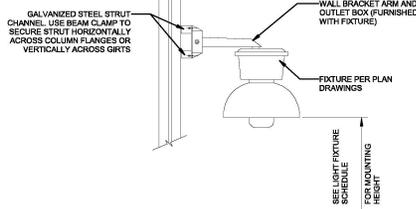


3 RECESSED DEVICE - LAY-IN CEILING
E-400.00 1" = 1'-0"

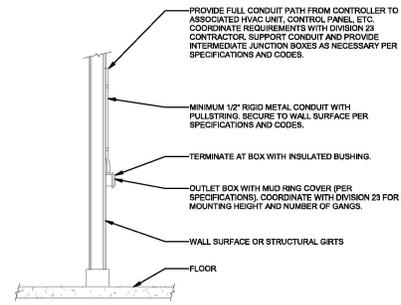


REFER TO ARCHITECTURAL DRAWINGS FOR WALL LOCATIONS.
REFER TO SPECIFICATIONS FOR ALTERNATIVE INSTALLATIONS.
COORDINATE REQUIREMENTS WITH GENERAL BUILDING CONTRACTOR.

4 CONDUIT PENETRATION THRU NON-FIRE WALL
E-400.00 1" = 1'-0"

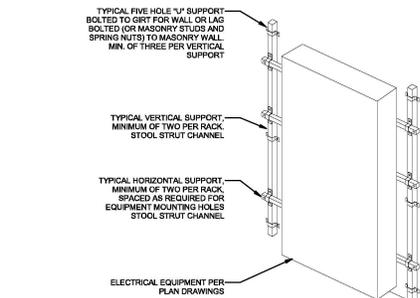


5 GIRT OR COLUMN MOUNTED FIXTURE
E-400.00 1" = 1'-0"

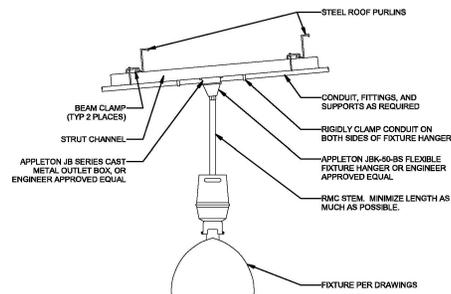


NOTES:
1. REFER TO HVAC PLANS FOR ALL CONTROLS LOCATIONS.

6 HVAC CONTROLS EXPOSED ROUGH-IN
E-400.00 1" = 1'-0"



7 ENCLOSURE MOUNTING DETAIL
E-400.00 1" = 1'-0"



8 ROOF STRUCTURE LIGHT FIXTURE MOUNTING
E-400.00 1" = 1'-0"

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REV	DESCRIPTION	CHK BY	DATE
B	100% SUBMISSION	N.W.U.	D. DUDAN 12/12/2022
A	INTERIM SUBMISSION	N.W.U.	D. DUDAN 09/13/2022

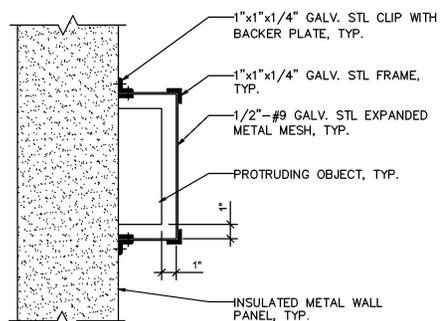
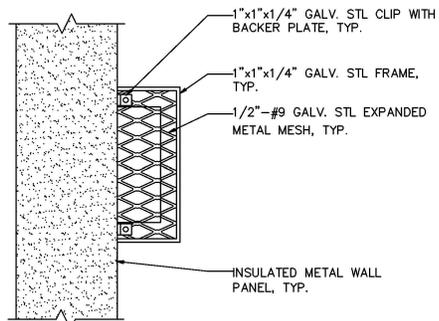
Kiewit 478 Chestnut Ridge Rd # 2 Woodcliff Lake, NJ 07877

Hitachi Energy 801 Main Campus Drive Raleigh, North Carolina 27606

PROJECT CHPE
Astoria HVDC Converter Station
31-45 20th Avenue, Astoria, Queens NY 11105
Block #650 - Lot #310 - BIN #4624437

TYPICAL DETAILS

DATE	12/12/2022
INQUIRY NO.	169121
DRAWING BY	N.W.U.
CHECKED BY	D. DUDAN
DRAWING NO.	E-400.00
CADD FILE NO.	ASTORIA HVDC 04 01 00

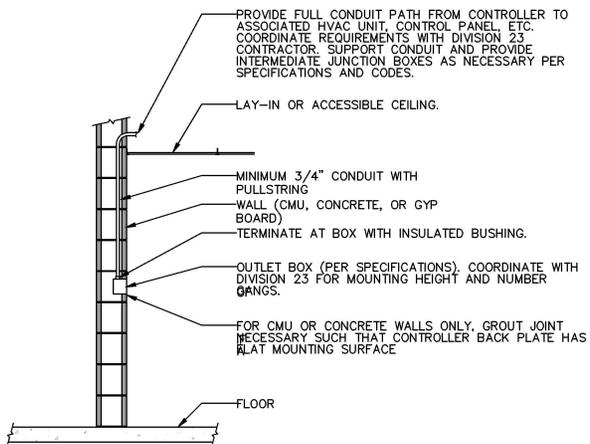


1 FARADAY CAGE ELEVATION DETAIL
E-401.00 N.T.S.

2 FARADAY CAGE SECTION DETAIL
E-401.00 N.T.S.

NOTES:

1. RUN AND CONNECT A GAUGE 6 COPPER INSULATED WIRE AT THE BOTTOM OF THE WIRE MESH TO SERVE AS A CONTINUOUS GROUNDING SYSTEM. CONNECT GROUND WIRE TO A 5/8"Øx10' COPPER CLAD STEEL GROUND ROD EVERY 50' TO ATTAIN THE NEC REQUIRED OHMIC RESISTANCE VALUE OF 25 OHMS.
2. CONNECT GROUNDING ELECTRODE CONDUCTOR TO MOTOR GROUNDING TERMINAL.
3. THE UPPER END OF THE ELECTRODE SHALL BE FLUSH OR BELOW GROUND LEVEL UNLESS THE ELECTRODE IS PROTECTED AGAINST PHYSICAL DAMAGE.
4. THE SLIDE GATE OPERATOR MOTOR SHAFT ARE ALL MECHANICALLY LINK BY METAL CHAIN AND METAL SPROCKETS.



NOTE:
REFER TO HVAC PLANS FOR ALL CONTROLS LOCATIONS.

3 HVAC CONTROLS CONCEALED ROUGH-IN
E-401.00 N.T.S.

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A	INTERNAL SUBMISSION	N/WJ	DJ/DZAN	09/13/2022
REV		DATE		

REV	DESCRIPTION	DATE
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Woodcliff Lake, NJ 07077

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Raleigh, North Carolina 27606

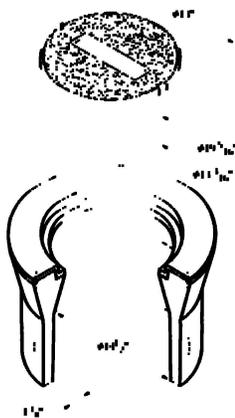
PROJECT

CHPE
Champlain Hudson
Power Express

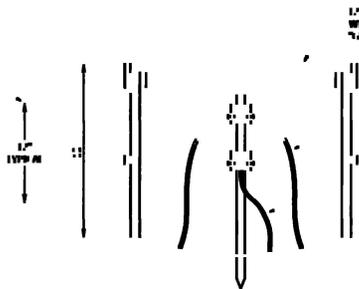
**Astoria HVDC
Converter Station**
31-45 26th Avenue, Astoria, Queens NY 11105
Block #850 • Lot #310 • BIN #4624437

TYPICAL DETAILS

DATE 12/12/2022
PROJECT NO 188123
DRAWING BY M/ENERPSON
CHECKED BY DJ/DZAN
DRAWING NO
E-401.00
CADD FILE NO
OF #8



1 CHAIN LINK DOUBLE SWING GATE ELEVATION
E-510.00 N.T.S.



2 HANDRAIL GROUNDING DETAIL
INSTALL @ 150' INTERVALS
E-510.00 N.T.S.



3 CONNECTOR
E-510.00 N.T.S.

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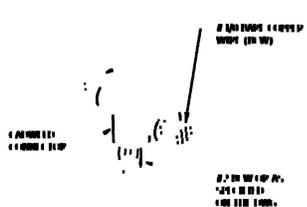
Kiewit
470 Chatham Ridge Rd # 2, Woodcliff Lake, NJ 07877

Hitachi Energy
301 Main Campus Drive, Raleigh, North Carolina 27606

PROJECT
CHPE
Champlain Hudson Power Express
Astoria HVDC Converter Station
31-45 26th Avenue, Astoria, Queens NY 11105
Block #850 • Lot #310 • BIN #4624437

GROUNDING DETAILS

DATE	12/13/2022
PROJECT NO	180121
DRAWING BY	XLBJ
CHECKED BY	EDUZAN
DRAWING NO	E-510.00
CADD FILE NO	
OF #	



1 CABLE TAP
E-511.00
N.T.S.



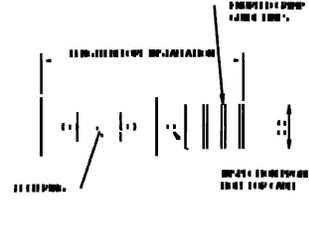
2 CABLE TO REBAR
E-511.00
N.T.S.



3 CROSS OF HORIZONTAL CABLE
E-511.00
N.T.S.



4 CABLE GROUND ROD SIDE
E-511.00
N.T.S.



5 CABLE TO LUG
E-511.00
N.T.S.



6 CABLE TO SURFACE
E-511.00
N.T.S.



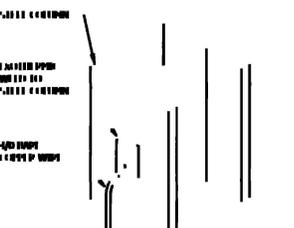
7 CABLE TO SURFACE
E-511.00
N.T.S.

NOTE: PROVIDE SILICON BRONZE MATERIAL KIT WITH BARRELS PREFILLED WITH PENETROX AND SEALED.

NOTE: PROVIDE SILICON BRONZE MATERIAL



8 CROSS CONNECTING GROUND CABLE
E-511.00
N.T.S.



9 COLUMN GROUNDING
E-511.00
N.T.S.

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A	INTERNAL SUBMISSION	NWU	DJ/DZAN	09/13/2022
REV	DESCRIPTION	DATE	DATE	DATE

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Hitachi Energy 881 Main Campus Drive Raleigh, North Carolina 27606

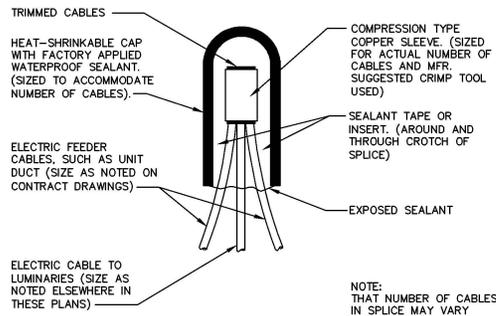
PROJECT **CHPE** Champlain Hudson Power Express

Astoria HVDC Converter Station

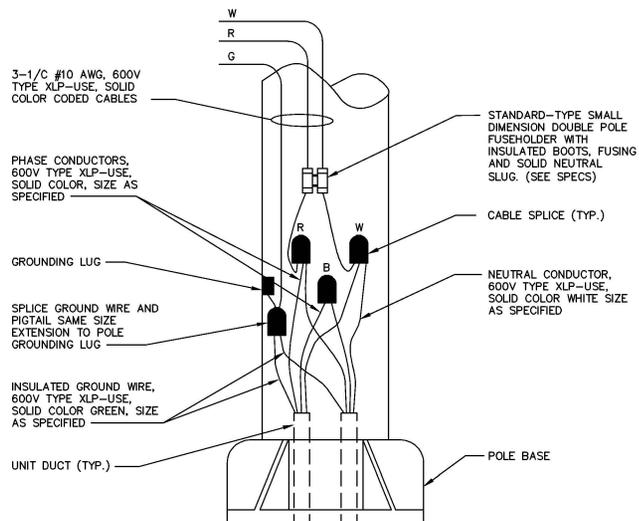
31-45 26th Avenue, Astoria, Queens NY 11105
Block #850 • Lot #310 • BIN #4624437

GROUNDING DETAILS

DATE 12/12/2022
PROJECT NO 180121
DRAWING BY XLB/J
CHECKED BY DJ/DZAN
DRAWING NO **E-511.00**
CADD FILE NO
OF #8



1 TYPICAL SPLICE DETAIL
E-600.00 N.T.S.



2 POLE WIRING DETAIL
E-600.00 N.T.S.

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Hitachi Energy 801 Main Campus Drive Raleigh, North Carolina 27606

PROJECT

CHPE
Champlain Hudson Power Express

Astoria HVDC Converter Station
31-45 26th Avenue, Astoria, Queens NY 11105
Block #850 • Lot #310 • BIN #4624437

MISCELLANEOUS ELECTRICAL DETAILS

DATE: 13/12/2022
PROJECT NO: 180121
DRAWING BY: E.WATTS
CHECKED BY: E.DUZAN
DRAWING NO: **E-600.00**
CADD FILE NO: _____ OF #F: _____

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B	100% SUBMISSION	N.W.J.	D. DULGAN	12/13/2022
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REV	DESCRIPTION	CHK BY	DATE	

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PROJECT

CHPE
 Ghemgliait Hyyeet
 PowerExpress

Astoria HVDC Converter Station
 31-45 20th Avenue, Astoria, Queens NY 11105
 Block #950 - Lot #310 - BIN #462447

TYPICAL CONTROL ROOM
 GROUNDING DETAILS

DATE: 12/13/2022

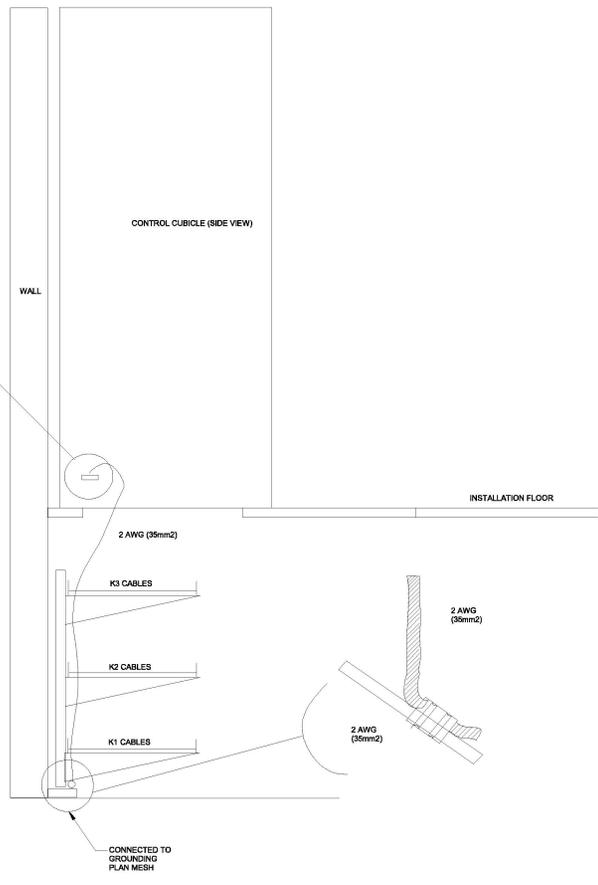
PROJECT NO: 169121

DRAWING BY: N.W.J.

CHECKED BY: D. DULGAN

DRAWING NO: E-610.00

CHPE FILE NO: 169121-001



THE 2 AWG (35MM2) BARE COPPER CONDUCTOR SHALL BE CONNECTED TO THE GROUNDING BAR IN THE CABLE COMPARTMENT CUBICLE BY MEANS OF TINNED CRIMPED - ON CABLE LUGS AND BOLTS.

CONNECTIONS OF COPPER CONDUCTOR TO STEEL STRUCTURES SHALL BE MADE WITH TINNED CRIMPED-ON CABLE LUGS

ALL JOINTS SHALL BE MADE WITH C-CLAMPS

1 STEEL STRUCTURE CONNECTION DETAIL
 E-610.00 N.T.S

2 GROUND JOINT CONNECTION DETAIL
 E-610.00 N.T.S

CUBICLE COMBINATION 1		CUBICLE COMBINATION 2		CUBICLE COMBINATION 3	
MACH I/O	EXTERNAL CABLE TERMINATIONS	MACH I/O	EXTERNAL CABLE TERMINATIONS	MACH I/O	EXTERNAL CABLE TERMINATIONS
GND BAR INSIDE THE CUBICLE					

3 CONTROL ROOM CUBICLE GROUNDING PLAN ELEVATION DETAIL
 E-610.00 N.T.S

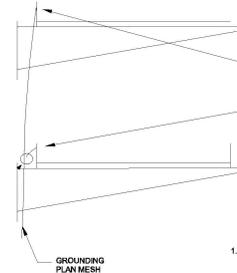
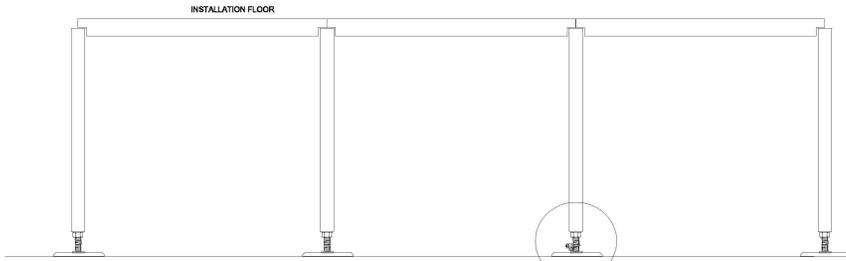
2 AWG (35 MM2) BARE COPPER CONDUCTOR (GROUNDING PLAN MESH)

4 CONTROL ROOM GROUNDING PLAN ELEVATION DETAIL
 E-610.00 N.T.S

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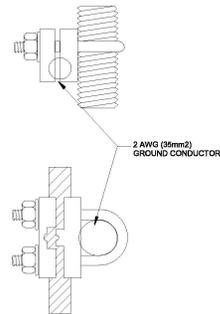
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THE COPPER CONDUCTOR SHALL BE CONNECTED TO THE CABLE LADDER BY MEANS OF TINNED CRIMPED - ON ONE HOLE NEMA CONNECTORS

2 AWG (35mm²)

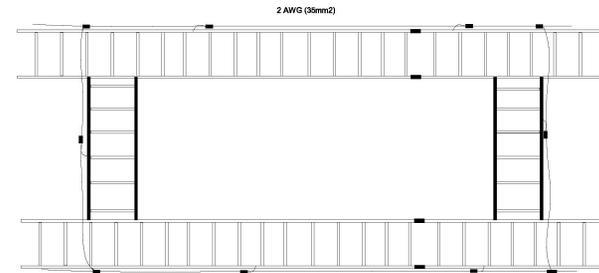
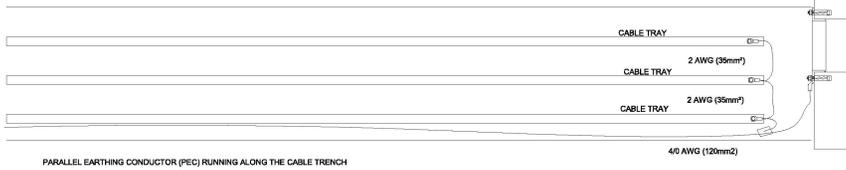
- ONE BARE COPPER WIRE OF MINIMUM CROSS SECTION #2 AWG SHALL RUN ALONG THE CABLE LADDER AS PARALLEL EARTH CONDUCTOR (PEC).
- EACH SECTION OF THE LADDER SHALL BE CONNECTED TO ONE BARE COPPER CONDUCTOR OF MINIMUM CROSS SECTION #2 AWG TO THE ROOM BONDING RING CONDUCTOR AND THIS CONDUCTOR SHALL BE TERMINATED WITH NEMA CONNECTORS.
- AT PARALLEL RUNS OF LADDERS ONLY ONE MINIMUM 2 AWG COPPER CONDUCTOR IS REQUIRED ON ONE OF THE LADDERS BUT ALL LADDERS SHALL BE GROUNDED FROM THIS CONDUCTOR.
- THE LADDERS RUNNING UNDER THE FALSE FLOOR MAY BE CONNECTED TO THE GROUNDING CONDUCTOR OF THE FALSE FLOOR/GROUNDING PLANE INSTEAD OF INSTALLING A SEPARATE PEC ON THE CABLE LADDERS. SEE PAGE 6.



CONNECTION OF 2 AWG (35mm²) GROUND CONDUCTOR TO INSTALLATION FLOOR PEDESTAL USING U-CLAMP

1 CONTROL ROOM GROUNDING PLAN DETAIL
E-611.00 / N.T.S

CABLE TRENCH OUTSIDE THE CONTROL ROOM
SECONDARY ENTRY OF CABLES TO THE CONTROL ROOM



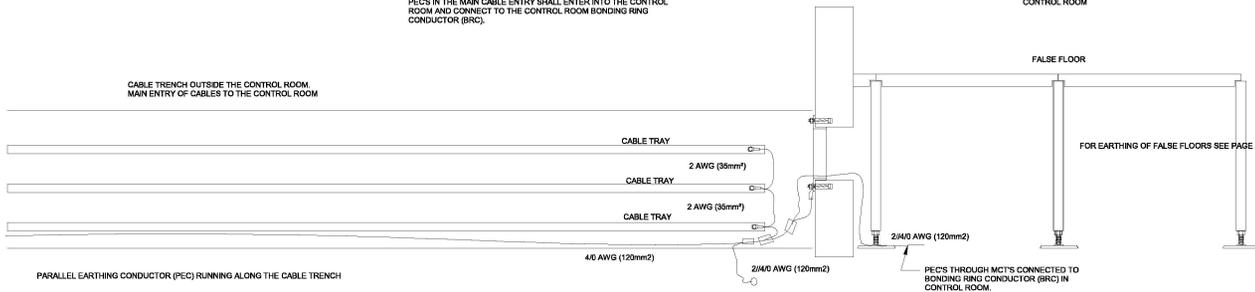
2 AWG (35mm²)

ONE HOLE NEMA CONNECTOR

2 CONTROL ROOM CABLE TRAY GROUNDING DETAIL
E-611.00 / N.T.S

IF THE CONTROL ROOM HAS MORE THAN ONE CABLE ENTRY, ONLY THE PEC'S IN THE MAIN CABLE ENTRY SHALL ENTER INTO THE CONTROL ROOM AND CONNECT TO THE CONTROL ROOM BONDING RING CONDUCTOR (BRC).

CABLE TRENCH OUTSIDE THE CONTROL ROOM
MAIN ENTRY OF CABLES TO THE CONTROL ROOM



CONTROL ROOM

FALSE FLOOR

FOR EARTHING OF FALSE FLOORS SEE PAGE 7.

PARALLEL EARTHING CONDUCTOR (PEC) RUNNING ALONG THE CABLE TRENCH

NOTE:
IF THE CABLE ENTRY TO CONTROL ROOM IS FROM AN OUTDOOR CABLE TRENCH AND NEEDS TO BE WATER TIGHT, THE BARE COPPER WIRES BE REPLACED BY BLACK INSULATED CABLES TYPE H9721-RFD) WHEN PASSING THE MCT.

3 CONTROL ROOM CABLE PENETRATION GROUNDING DETAIL
E-611.00 / N.T.S

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REV	DESCRIPTION	CHK BY	DATE

Kiewit 478 Chestnut Ridge Rd # 2, Woodcliff Lake, NJ 07877

Hitachi Energy 901 Main Campus Drive Raleigh, North Carolina 27606

PROJECT **CHPE** Ghampaint Hydropower Express

Astoria HVDC Converter Station
31-45 20th Avenue, Astoria, Queens NY 11105
Block #650 - Lot #310 - BIN #462447

TYPICAL CONTROL ROOM GROUNDING DETAILS 2

DATE: 12/13/2022
PROJECT NO: 159121
DRAWING BY: N.W.J.
CHECKED BY: D. DALZAN
DRAWING NO: E-611.00
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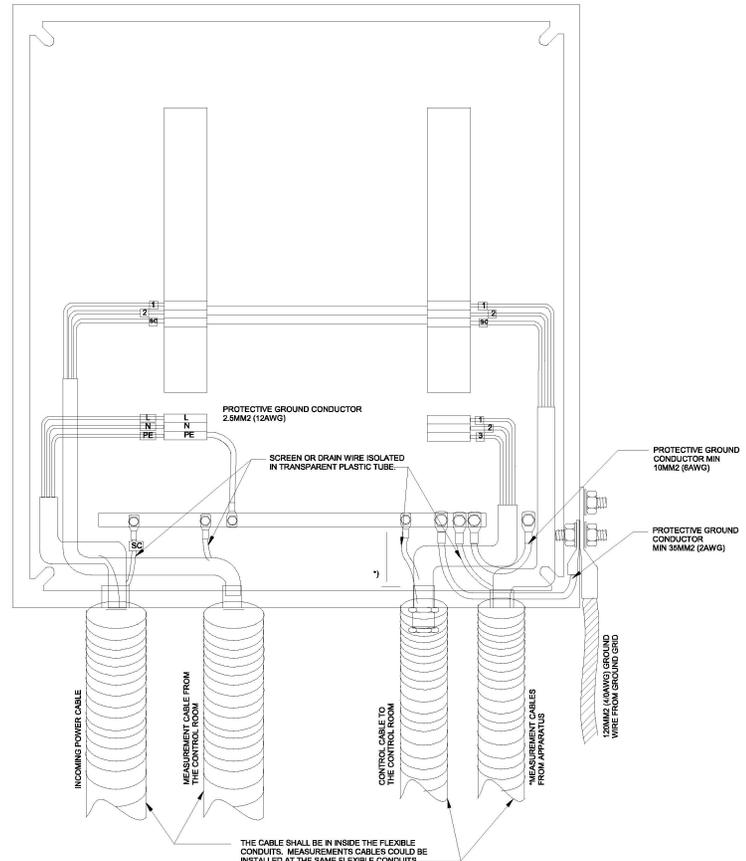
PROJECT

CHPE
Champlain Hudson PowerExpress

Astoria HVDC Converter Station
31-45 20th Avenue, Astoria, Queens NY 11105
Block #650 - Lot #310 - BIN #4624437

TYPICAL JUNCTION BOX GROUNDING DETAILS

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 INQUIRY NO: 169121
 DRAWING BY: N.W.J.
 CHECKED BY: D. DALZAN
 DRAWING NO: E-612.00
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POWER CABLES:
THE CABLE SHALL BE STRIPPED DOWN TO THE OUTER SCREEN AND THE OUTER SCREEN SHALL BE CONNECTED TO THE GROUND BAR. THE PROTECTIVE GROUND CONDUCTOR OF THE CABLE SHALL BE CONNECTED TO THE GROUND BAR.

CABLES FOR CONTROL AND MEASUREMENTS:
THE CABLE SHALL BE STRIPPED DOWN TO THE OUTER SCREEN AND THE OUTER SCREEN SHALL BE CONNECTED TO THE GROUND BAR. ANY DRAIN WIRE MUST BE ISOLATED WITH TRANSPARENT PLASTIC TUBE AND CONNECTED TO THE GROUND BAR. THE PROTECTIVE CONDUCTOR OF THE CABLE SHALL BE CONNECTED TO THE GROUND BAR.

JUNCTION BOXES FOR CT AND CVT:
THE SCREENS OF THE CABLES FROM THE CONTROL EQUIPMENT AND THE CT, OR CVT, APPARATUS MUST BE CONNECTED TOGETHER ON A TERMINAL BLOCK.

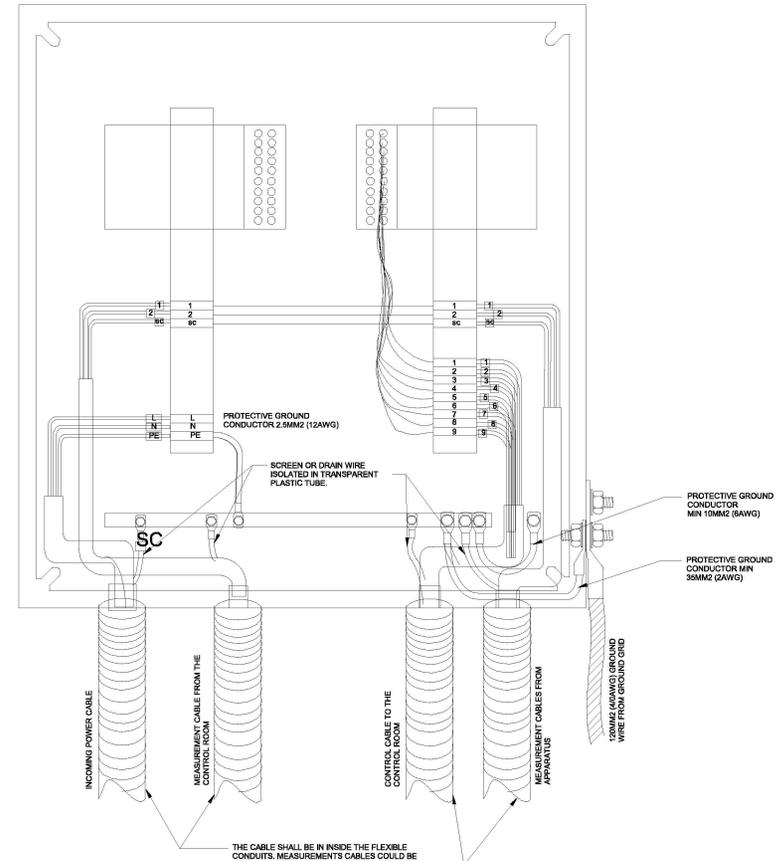
THE JUNCTION BOXES SHALL BE MADE OF METAL AND HAVE AT LEAST TWO HOLE NEMA BOLT CONNECTOR FOR GROUNDING IN THE BOTTOM OF THE BOX. THIS BOLT SHALL BE CONNECTED TO THE GROUND GRID OF THE STATION. THE CONNECTION SHALL BE PERFORMED BY A 120MM² (4AWG) COPPER WIRE AND A CABLE LUG.

A BAR FOR GROUNDING SHALL BE PLACED IN THE BOTTOM OF THE JUNCTION BOX. THE INTERNAL CONNECTION BETWEEN BOLT AND GROUND BAR SHALL BE OF 30MM² (2AWG) PROTECTIVE COPPER CONDUCTOR.

THE BOX METALLIC ENCLOSURE SHALL BE CONNECTED TO THE GROUND BAR WITH A MINIMUM 10MM² (6AWG) PROTECTIVE GROUND CONDUCTOR.

BOXES WITH ELECTRONIC EQUIPMENT SHALL COMPLY WITH EMC STANDARDS. DOOR GASKETS SHALL BE INSTALLED WITH EMC SEAL.

1 UNARMOURED CABLE JUNCTION BOX GROUNDING DETAIL
E-612.00 N.T.S.



POWER CABLES:
THE CABLE SHALL BE STRIPPED DOWN TO THE OUTER SCREEN AND THE OUTER SCREEN SHALL BE CONNECTED TO THE GROUND BAR. THE PROTECTIVE GROUND CONDUCTOR OF THE CABLE SHALL BE CONNECTED TO THE GROUND BAR.

CABLES FOR CONTROL AND MEASUREMENTS:
THE CABLE SHALL BE STRIPPED DOWN TO THE OUTER SCREEN AND THE OUTER SCREEN SHALL BE CONNECTED TO THE GROUND BAR. ANY DRAIN WIRE MUST BE ISOLATED WITH TRANSPARENT PLASTIC TUBE AND CONNECTED TO THE GROUND BAR. THE PROTECTIVE CONDUCTOR OF THE CABLE SHALL BE CONNECTED TO THE GROUND BAR.

JUNCTION BOXES:
THE JUNCTION BOXES SHALL BE MADE OF METAL AND HAVE AT LEAST TWO HOLE NEMA BOLT CONNECTOR FOR GROUNDING IN THE BOTTOM OF THE BOX. THIS BOLT SHALL BE CONNECTED TO THE GROUND GRID OF THE STATION. THE CONNECTION SHALL BE PERFORMED BY A 120MM² (4AWG) COPPER WIRE AND A CABLE LUG.

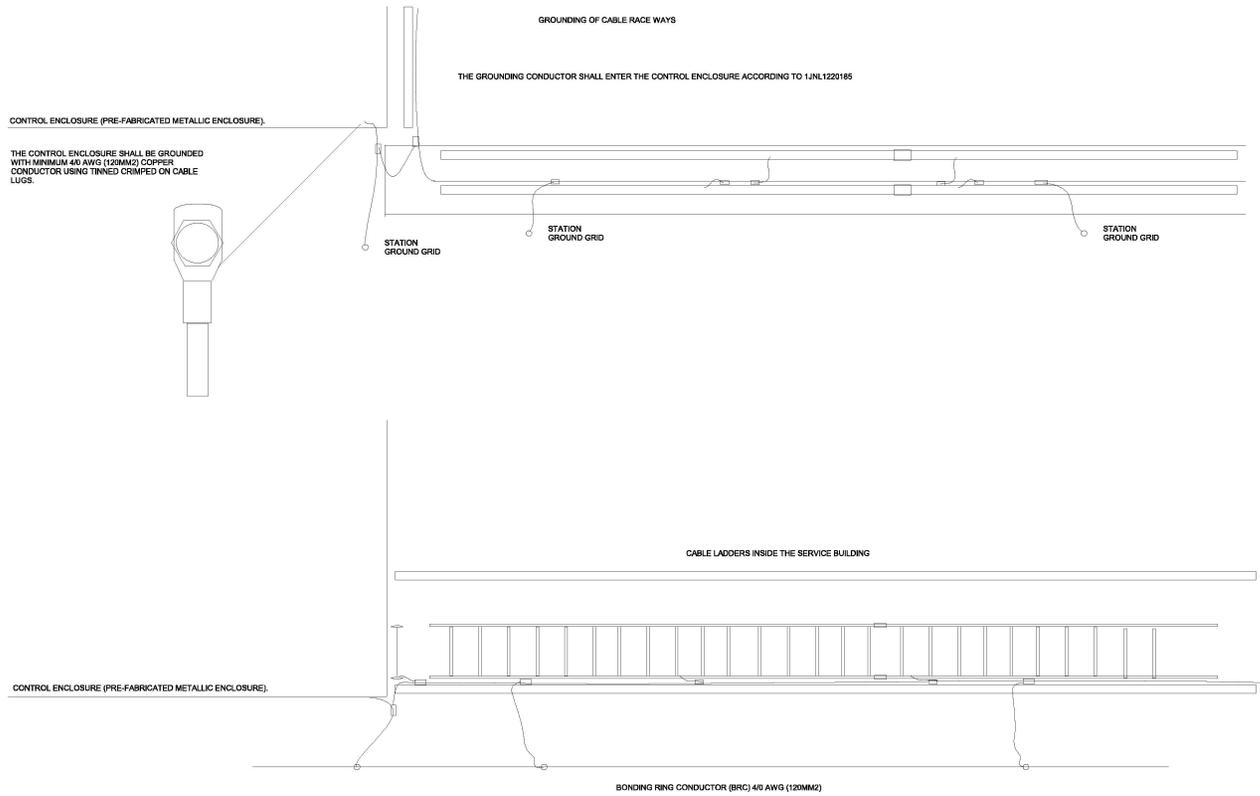
A BAR FOR GROUNDING SHALL BE PLACED IN THE BOTTOM OF THE JUNCTION BOX. THE INTERNAL CONNECTION BETWEEN BOLT AND GROUND BAR SHALL BE OF 30MM² (2AWG) PROTECTIVE COPPER CONDUCTOR.

THE BOX SHALL BE CONNECTED TO THE GROUND BAR WITH A MINIMUM 10MM² (6AWG) PROTECTIVE GROUND CONDUCTOR. BOX METALLIC ENCLOSURES WITH ELECTRONIC EQUIPMENT SHALL COMPLY WITH EMC STANDARDS. DOOR GASKETS SHALL BE INSTALLED WITH EMC SEAL.

2 JUNCTION BOX WITH ELECTRONIC EQUIPMENT GROUNDING DETAIL
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CONTROL ENCLOSURE (PRE-FABRICATED METALLIC ENCLOSURE)

THE CONTROL ENCLOSURE SHALL BE GROUNDED WITH MINIMUM 4/0 AWG (120MM2) COPPER CONDUCTOR USING TINNED CRIMPED ON CABLE LUGS.

GROUNDING OF CABLE RACEWAYS

THE GROUNDING CONDUCTOR SHALL ENTER THE CONTROL ENCLOSURE ACCORDING TO I.N.L.1220185

STATION GROUND GRID

STATION GROUND GRID

STATION GROUND GRID

CABLE LADDERS INSIDE THE SERVICE BUILDING

CONTROL ENCLOSURE (PRE-FABRICATED METALLIC ENCLOSURE)

BONDING RING CONDUCTOR (BRC) 4/0 AWG (120MM2)

ONE MINIMUM 4/0 AWG (120MM2) COPPER CONDUCTOR SHALL RUN ALONG THE CABLE TRENCH FROM THE SERVICE BUILDING OR CONTROL ENCLOSURE ALL THE WAY TO THE SWITCHYARD APPARATUS OR JUNCTION BOX.

THE MINIMUM 4/0 AWG (120MM2) COPPER CONDUCTOR RUNNING ALONG THE CABLE TRENCH SHALL BE CONNECTED TO THE STATION GROUND GRID AT EACH 30' - 40' (10 - 12 METERS). FOR STATIONS WITH GROUND GRID RODS, CONNECTION SHALL BE MADE TO EACH CROSSING STATION GROUND GRID. C-CLAMPS SHALL BE USED FOR ALL JOINTS.

1 CABLE TRAY WITHIN BUILDING GROUND DETAIL
E-613.00 N.T.S.

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Hitachi Energy 901 Main Campus Drive Raleigh, North Carolina 27606

PROJECT **CHPE** Ghemplainth Hydroff PowerExpress

Astoria HVDC Converter Station
31-45 20th Avenue, Astoria, Queens NY 11105
Block #650 - Lot #310 - BIN #4624437

TYPICAL INTERIOR CABLE TRAY GROUNDING DETAILS

DATE: 12/13/2022

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