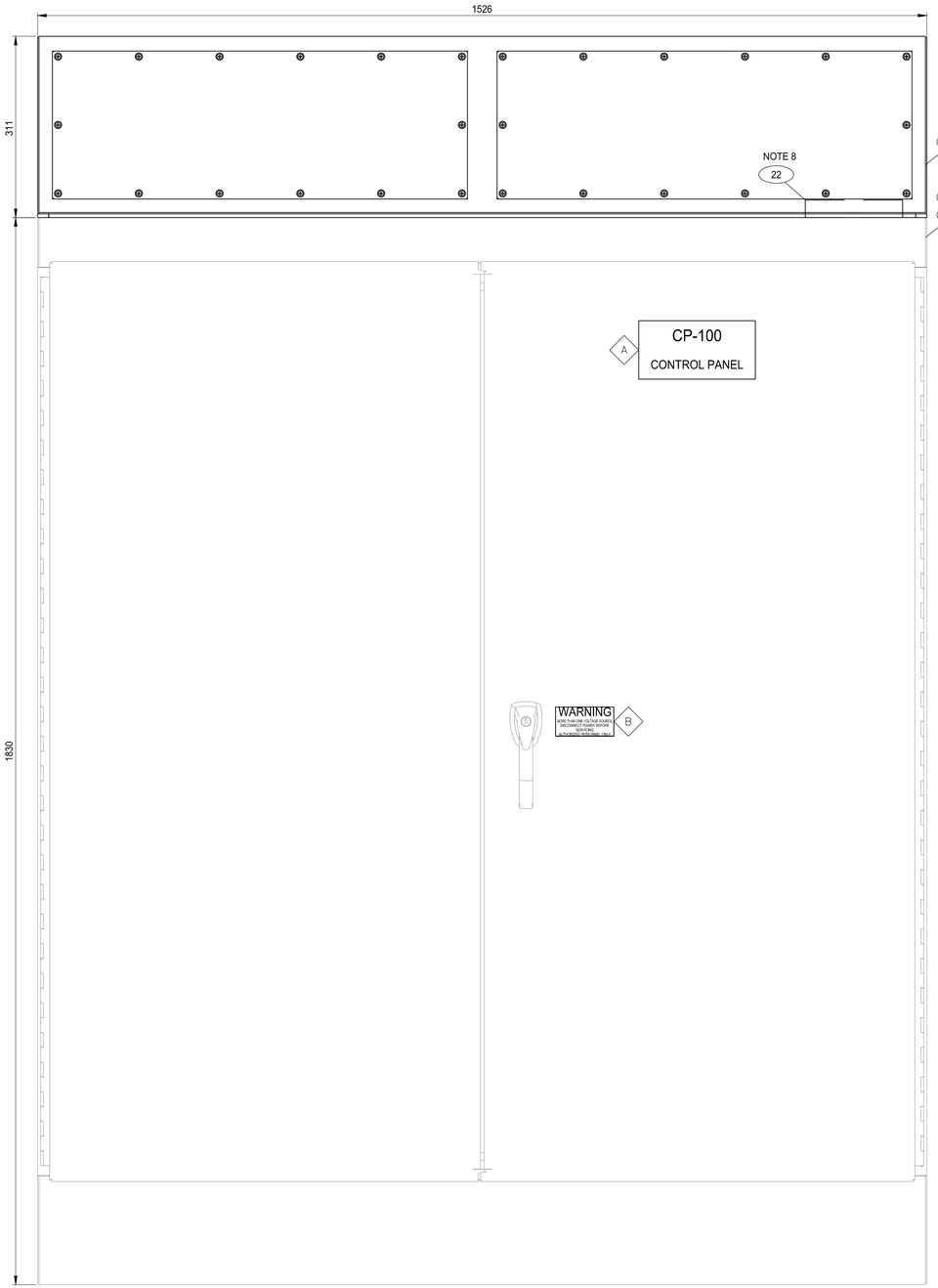
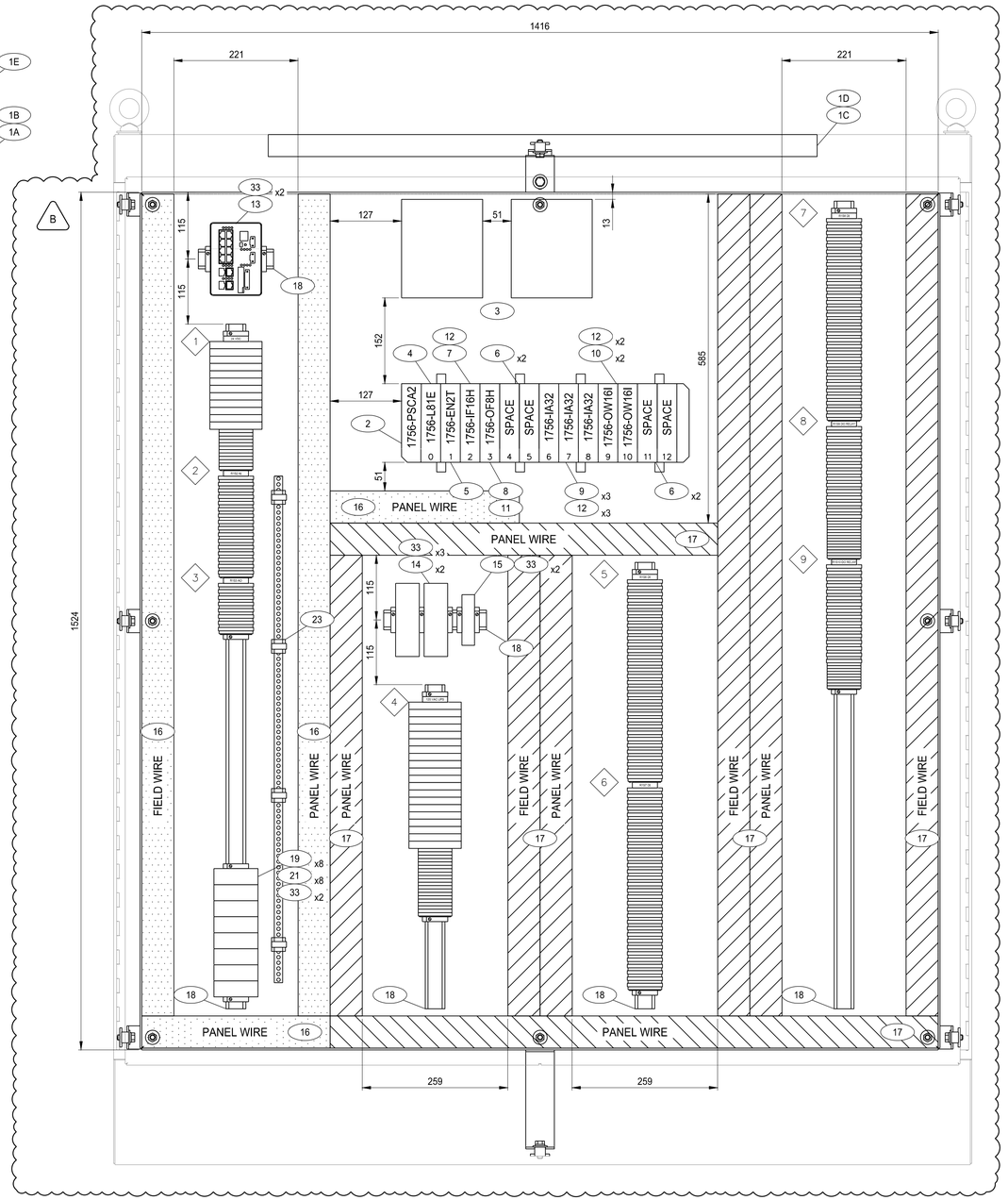




WIRE DUCT LEGEND

- WHITE - 24VDC
- GREY - 120VAC

REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
GN-I-305	CP-100 BILL OF MATERIALS	1

NOTES:

1. FOR BILL OF MATERIALS, TERMINAL STRIP BREAKDOWNS & LAMICOIDS SEE REFERENCE 1.
2. ALL LAMICOIDS/LABELLING TO BE PROVIDED/INSTALLED BY PANEL VENDOR.
3. NAME PLATE SHALL BE MOUNTED WITH STAINLESS STEEL SELF TAPPING SCREWS ON THE OUTSIDE OF THE CONTROL PANEL DOOR. ENSURE PANEL NEMA RATING INTEGRITY IS MAINTAINED.
4. CABLES SHALL ENTER PANEL FROM THE TOP IF POSSIBLE.
5. ALL INTERNAL CABINET WIRING TO BE ON LEFT HAND SIDE WHEREVER POSSIBLE.
6. COMPLETED CABINET TO MEET CSA APPROVAL OR EQUIVALENT.
7. PANEL VENDOR TO MOUNT TS35 DIN RAIL ON STAND-OFFS. TERMINALS TO BE FLUSH WITH THE TOP OF THE WIRE DUCT.
8. GROUND BAR TO BE INSTALLED INSIDE TOP HAT FOR CABLE BONDING.

CONSTRUCTION NOTES: B

1. PANEL VENDOR TO DRILL A 2.5" Ø HOLE IN THE ENCLOSURE & TOP HAT ABOVE THE FIELD WIRING PANDUITS THAT REACH THE TOP OF THE ENCLOSURE.

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FABRICATION
Date: 2022/AUG/18

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REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD
B	22/08/18	ISSUED FOR PANEL FABRICATION	LTW	AS	
A	22/06/08	ISSUED FOR REVIEW	LTW	AS	

CLIENT: REGIONAL DISTRICT OF NANAIMO

Allnorth

CLIENT NO:	-	DRWN:	LTW	DATE:	22/04/14
PROJECT NO:	2103128	DSGN:	LTW	DATE:	22/04/14
DRAWING SIZE:	ANSI "D"	CHKD:	AS	DATE:	22/06/08
SCALE:	NTS	APVD:		DATE:	

PROJECT:

RDN-GNPCC
MCC REPLACEMENT

TITLE:

CONTROL PANEL CP-100
GENERAL ARRANGEMENT

DWG NO: **GN-I-303**

REV: **B**

Date: 2022/08/18 1:34 PM | User: Lionel Wong | File: P:\NA\2021\21\03128 RDN-GNPCC MCC Replacement\1000-Dwgs\1017-Instr\01-Production\GN-I-303 | Layout: RevB | Paper Size: 863.6mm x 558.8mm

BILL OF MATERIALS (-)

ITEM	QUANTITY	DESCRIPTION	MANUFACTURER	MODEL	PROVIDED BY
1A	1	NEMA 12 FREESTANDING ENCLOSURE, SINGLE ACCESS, DOUBLE DOOR - 72" x 60" x 24" (1828mm x 1524mm x610mm)	HAMMOND	1418ZX24	PANEL VENDOR
1B	1	FULL HEIGHT INNER PANEL 60" X 56" (1524mm x 1422mm)	HAMMOND	72ZXFW	PANEL VENDOR
1C	1	LED LIGHTING KIT 38.5" (978mm), 120VAC	HAMMOND	FLK17LED	PANEL VENDOR
1D	1	ENCLOSURE LIGHT DOOR SWITCH	HAMMOND	FLKDS	PANEL VENDOR
1E	1	TOP HAT CABLE MODULE - 12" x 60" x 24"D (305mm x 1524mm x 610mm)	HAMMOND	HTH126024	PANEL VENDOR
2	1	CONTROLLOGIX CHASSIS - 13 SLOT B SERIES	ALLEN BRADLEY	1756-A13/B	PANEL VENDOR
3	1	CONTROLLOGIX REDUNDANT POWER SUPPLY SYSTEM - 2 x 1756-PA75R 120 / 220 VAC POWER SUPPLIES, 2 x 1756-CPR2 CABLES, 1 x 1756-PSCA2 CHASSIS ADAPTER MODULE	ALLEN BRADLEY	1756-PAR2	PANEL VENDOR
4	1	CONTROLLOGIX CONTROLLER - 3MB USER MEMORY, ETHERNET PORT	ALLEN BRADLEY	1756-L81E	PANEL VENDOR
5	1	CONTROLLOGIX ETHERNET INTERFACE MODULE	ALLEN BRADLEY	1756-EN2T	PANEL VENDOR
6	4	CONTROLLOGIX CHASSIS SPACE FILLER	ALLEN BRADLEY	1756-N2	PANEL VENDOR
7	1	CONTROLLOGIX ANALOG INPUT MODULE - 16 CHANNEL, 0-20mA, +/- 10VDC, 0-5 VDC, HART	ALLEN BRADLEY	1756-IF16H	PANEL VENDOR
8	1	CONTROLLOGIX ANALOG OUTPUT MODULE - 8 CHANNEL, 0-20mA, +/- 10VDC, HART	ALLEN BRADLEY	1756-OF8H	PANEL VENDOR
9	3	CONTROLLOGIX DISCRETE INPUT MODULE - 32 CHANNEL, 120VAC	ALLEN BRADLEY	1756-IA32	PANEL VENDOR
10	2	CONTROLLOGIX RELAY OUTPUT MODULE - 16 POINT, 1A @ 24VDC, 1.5A @ 120 VAC OUTPUT MAX	ALLEN BRADLEY	1756-OW16I	PANEL VENDOR
11	1	CONTROLLOGIX TERMINAL BLOCK HOUSING - SCREW CLAMP, 20 PIN	ALLEN BRADLEY	1756-TBNH	PANEL VENDOR
12	6	CONTROLLOGIX TERMINAL BLOCK HOUSING - SCREW CLAMP, 36 PIN	ALLEN BRADLEY	1756-TBCH	PANEL VENDOR
13	1	ETHERNET MANAGED SWITCH - STRATIX 5700, 24VDC, 10 PORT (8 x RJ45, 2 x COMBO PORTS), LAYER 2	ALLEN BRADLEY	1783-BMS10CA	PANEL VENDOR
14	2	POWER SUPPLY - 120VAC - 24VDC, 10A	PHOENIX CONTACT	2903149	PANEL VENDOR
15	1	POWER REDUNDANCY MODULE - 24VDC, 2x10A INPUT	PHOENIX CONTACT	2905489	PANEL VENDOR
16	A/R	PVC WIRE DUCT WHITE - 2"W x 4"H WIDE SLOT c/w DUCT COVER	PANDUIT	F2X4WH6 / C2WH6	PANEL VENDOR
17	A/R	PVC WIRE DUCT GREY - 2"W x 4"H WIDE SLOT c/w DUCT COVER	PANDUIT	F2X4LG6 / C2LG6	PANEL VENDOR
18	A/R	TS-35 DIN MOUNTING RAIL	OPEN	OPEN	PANEL VENDOR
19	0	CONTROL RELAY - 24VDC, 2 POLE	OMRON	LY2N-DC24	PANEL VENDOR
20	8	CONTROL RELAY - 120VAC, 2 POLE	OMRON	LY2N-AC120	PANEL VENDOR
21	8	CONTROL RELAY BASE - SCREW TERMINAL	OMRON	PTF08A	PANEL VENDOR

B

BILL OF MATERIALS

ITEM	QUANTITY	DESCRIPTION	MANUFACTURER	MODEL	PROVIDED BY
22	1	COPPER GROUND BAR (MINIMUM $\frac{1}{4}$" THICKx 1"H WITH MINIMUM 10 GROUNDING SCREWS SUITABLE FOR #14 AWG TO #4 AWG CONDUCTORS AND 1 GROUND LUG SUITABLE FOR #2 AWG CONDUCTOR	OPEN	OPEN	PANEL VENDOR
23	A/R	NSCH 1M ISOLATED COPPER BUSBAR c/w CLAMPING SCREW (0296700000), CLAMPING PRESSURE PIECE (0280100000) & BUS SUPPORT (2998600000)	WEIDMULLER	280200000	PANEL VENDOR
24	9	LABEL HOLDERS - DIN RAIL MOUNT SCHT-5S	WEIDMULLER	1631930000	PANEL VENDOR
25	9	ESO 5 S DIN A4 WS TERMINAL LABEL FOR SCHT-5S	WEIDMULLER	1631920000	PANEL VENDOR
26	9	SCHT-5S LABEL TRANSPARENT COVER	WEIDMULLER	1631940000	PANEL VENDOR
27	173	FEED THROUGH TERMINAL BLOCK (WDU 2.5) - 20A, 600V, #12-#26 AWG	WEIDMULLER	1020000000	PANEL VENDOR
28	32	FEED THROUGH TERMINAL BLOCK (WDU 4) - 35A, 600V, #10-#26 AWG	WEIDMULLER	1020100000	PANEL VENDOR
29	24	FUSED TERMINAL BLOCK (WFS4 10-36VDB) - 6.3A, 10-36VDC, #10-#22 AWG, LED, 5mm x 20mm FUSE	WEIDMULLER	2562060000	PANEL VENDOR
30	128	FUSED TERMINAL BLOCK (WFS4 100-250VDB) - 6.3A, 100-250VAC, #10-#22 AWG, LED, 5mm x 20mm FUSE	WEIDMULLER	2561950000	PANEL VENDOR
31	0	DISCONNECT TERMINAL BLOCK (WTR2.5) - 24A, 500V, #12-#30 AWG	WEIDMULLER	1855610000	PANEL VENDOR
32	9	TERMINAL BLOCK END PLATE (WAP2.5-10)	WEIDMULLER	1050000000	PANEL VENDOR
33	17	TERMINAL BLOCK END CLAMP (EW35) - FOR TS35 RAIL	WEIDMULLER	383560000	PANEL VENDOR
34	1	20A BRANCH RATED AC CIRCUIT BREAKER - 1P, 120/240VAC, #10-#14 AWG	WEIDMULLER	9926251020	PANEL VENDOR
35	2	15A BRANCH RATED AC CIRCUIT BREAKER - 1P, 120/240VAC, #10-#14 AWG	WEIDMULLER	9926251015	PANEL VENDOR
36	2	5A BRANCH RATED AC CIRCUIT BREAKER - 1P, 120/240VAC, #10-#14 AWG	WEIDMULLER	9926251005	PANEL VENDOR
37	15	2A BRANCH RATED AC CIRCUIT BREAKER - 1P, 120/240VAC, #10-#14 AWG	WEIDMULLER	9926251002	PANEL VENDOR
38	1	15A BRANCH RATED DC CIRCUIT BREAKER - 1P, 80VDC, #10-#14 AWG	WEIDMULLER	9926251915	PANEL VENDOR
39	2	5A BRANCH RATED DC CIRCUIT BREAKER - 1P, 80VDC, #10-#14 AWG	WEIDMULLER	9926251905	PANEL VENDOR
40	9	2A BRANCH RATED DC CIRCUIT BREAKER - 1P, 80VDC, #10-#14 AWG	WEIDMULLER	9926251902	PANEL VENDOR
41	140	0.25A FUSE - FAST ACTING, NON-HAZARDOUS NOTE C1	BUSSMANN	GMA-250-R	PANEL VENDOR
42	52	1A FUSE - FAST ACTING, NON-HAZARDOUS NOTE C1	BUSSMANN	GMA-1-R	PANEL VENDOR
43	20	2A FUSE - FAST ACTING, NON-HAZARDOUS NOTE C1	BUSSMANN	GMA-2-R	PANEL VENDOR

B

B

TERMINAL STRIP BOM BREAKDOWN (-) NOTE 1

TAG#	DESCRIPTION	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43
1	24VDC	1	1	1		12				1	1					1	2	9			
2	R1S2 AI	1	1	1	16	B	16	B	0	1									16		
3	R1S3 AO	1	1	1	8		8			1	1								8		
4	120VAC UPS	1	1	1		20				1	2	1	2	2	15						
5	R1S6 DI	1	1	1	32			32		1	1								32		
6	R1S7 DI	1	1	1	32			32		1	1								32		
7	R1S8 DI	1	1	1	32			32		1	1								32		
8	R1S9 DO RELAY	1	1	1	29			16		1										16	
9	R1S10 DO RELAY	1	1	1	24			16		1	1									16	

B

LAMACOIDS (-)

TAG #	TAG	COLOR	LAMACOID SIZE (mm)	TEXT HEIGHT (mm)
A	CP-100 / CONTROL PANEL	WHITE ON BLACK	200 x 100	20 / 15
B	SEE DETAIL A	WHITE ON RED	50 x 100	15 / 5

WARNING

MORE THAN ONE VOLTAGE SOURCE.
DISCONNECT POWER BEFORE SERVICING.
AUTHORIZED PERSONNEL ONLY

DETAIL A
SCALE: NTS

REFERENCE DRAWINGS

DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
GN-I-303	CP-100 GENERAL ARRANGEMENT	1

NOTES:

1. FOR TERMINAL STRIP EQUIPMENT ORDER, REFER TO I/O SCHEMATICS.

CONSTRUCTION NOTES:

1. PANEL VENDOR TO PROVIDE 20 FUSES OF EACH SIZE LISTED IN A BOX TO BE PLACED ON THE FLOOR OF THE CABINET.

B

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REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD
B	22/08/18	ISSUED FOR PANEL FABRICATION	LTW	AS	
A	22/06/08	ISSUED FOR REVIEW	LTW	AS	

CLIENT: REGIONAL DISTRICT OF NANAIMO

Allnorth

CLIENT NO: -	DRWN: LTW	DATE: 22/04/14	
PROJECT NO: 2103128	DSGN: LTW	DATE: 22/04/14	
DRAWING SIZE: ANSI "D"	CHKD: AS	DATE: 22/06/08	
SCALE: NTS	APVD:	DATE:	

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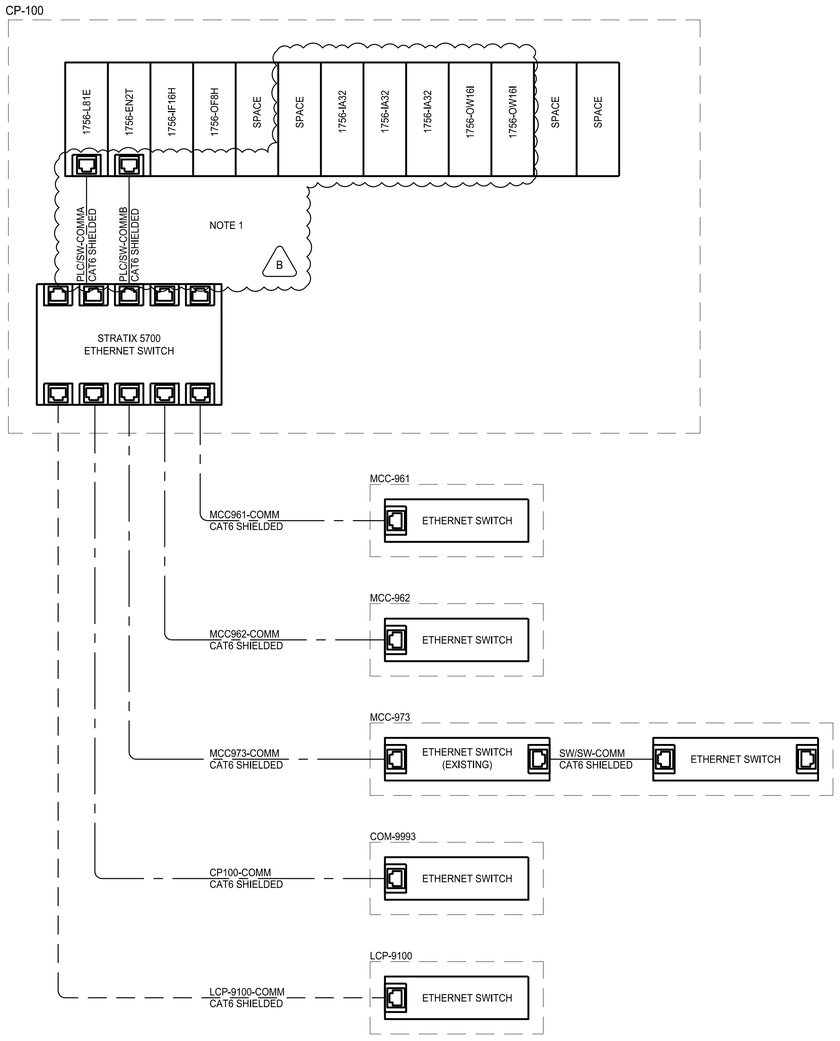
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MCC REPLACEMENT

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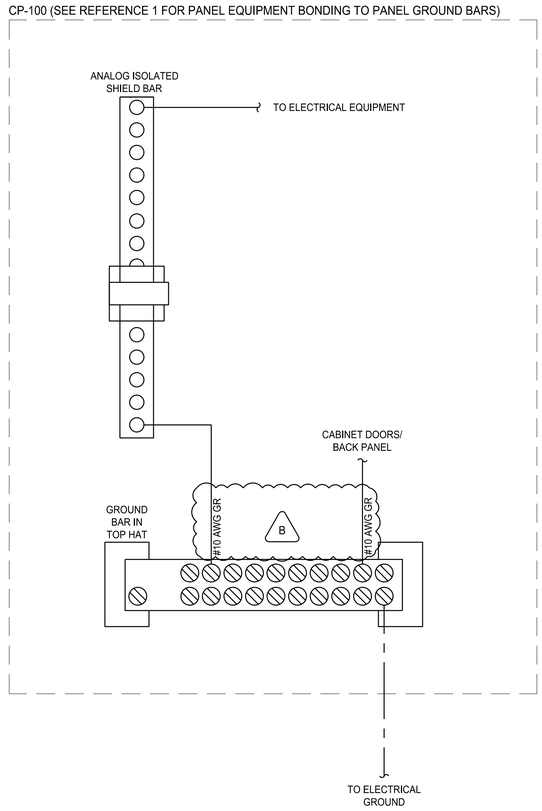
CONTROL PANEL CP-100
BILL OF MATERIALS

DWG NO: **GN-I-305** REV: **B**

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NETWORK CONNECTIONS
SCALE: NTS



PANEL EQUIPMENT GROUNDING
SCALE: NTS

WIRING LEGEND
- PANEL WIRING
- FIELD WIRING (EXISTING)
- FIELD WIRING (NEW)

REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
GN-I-307	CP-100 POWER DISTRIBUTION	1
GN-I-101	I&C CONTROL SYSTEM ARCHITECTURE	2

NOTES:
1. ETHERNET CABLES TO BE FACTORY MADE, NOT SHOP FABRICATED.

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REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD
B	22/08/18	ISSUED FOR PANEL FABRICATION	LTW	AS	
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CLIENT: REGIONAL DISTRICT OF NANAIMO

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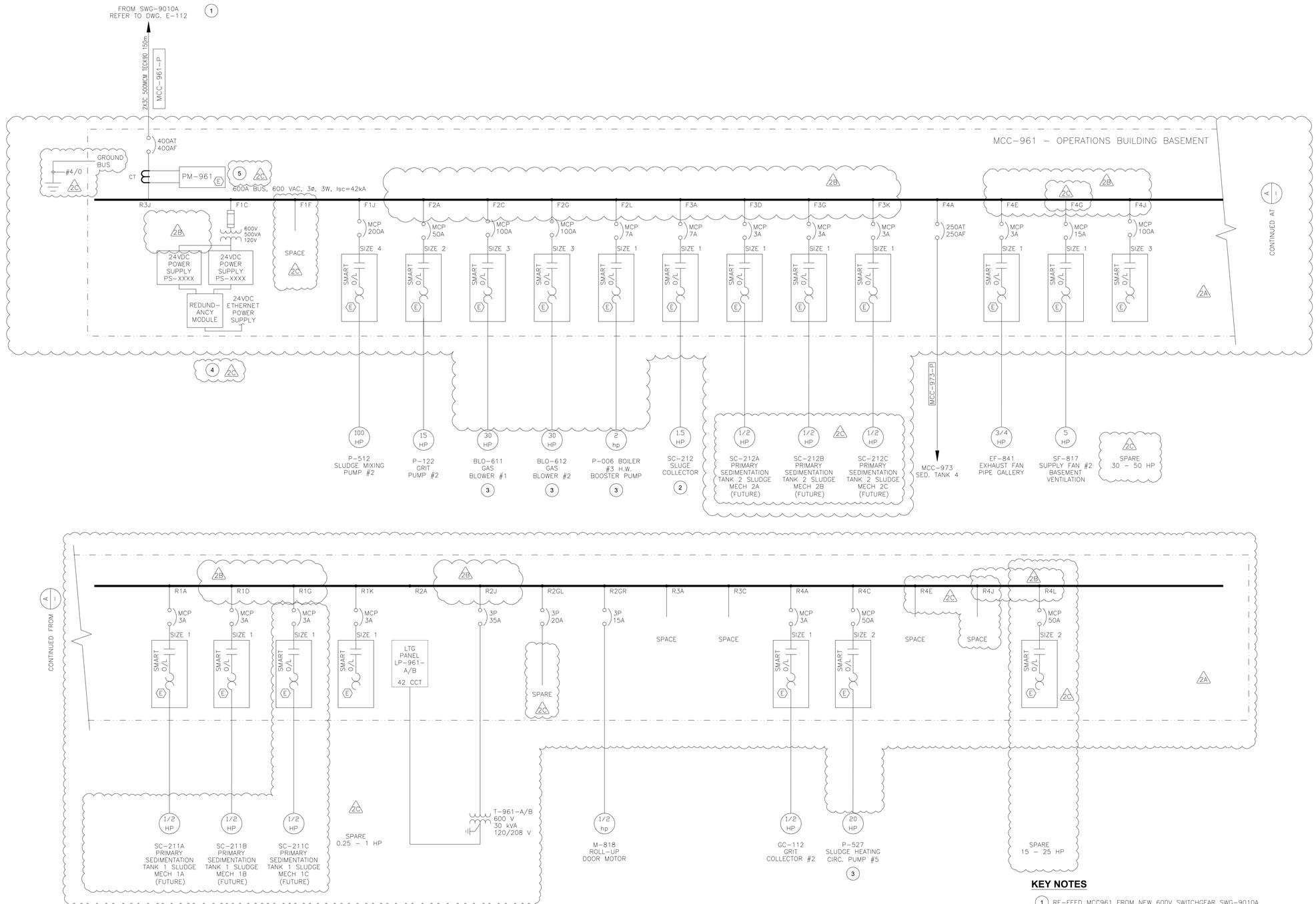
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PROJECT NO:	2103128	DSGN:	LTW	DATE:	22/04/14
DRAWING SIZE:	ANSI "D"	CHKD:	AS	DATE:	22/06/08
SCALE:	NTS	APVD:		DATE:	

PROJECT:
RDN-GNPCC
MCC REPLACEMENT

TITLE:
CONTROL PANEL CP-100
GENERAL SCHEMATICS

DWG NO: **GN-I-306**
REV: **B**

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KEY NOTES

1. RE-FEED MCC961 FROM NEW 600V SWITCHGEAR SWG-9010A
2. (2C) TAG BUCKET F3A AS "SPARE" AFTER SC-212 IS REPLACED BY SC-212A/B/C IN THE FUTURE
3. EXISTING LOAD TO BE RELOCATED FROM MCC-962. NEW FIELD CABLE REQUIRED.
4. (2C) 600V ETHERNET SWITCH POWER COMES FROM MCC BUS, NO UPS POWER REQUIRED.
5. POWER METER PM-961 IS LOCATED IN SECTION R3F

REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
E-259	MCC-962 SINGLE LINE DIAGRAM	1
E-260	MCC-961 ELEVATION	2
E-261	MCC-973 SINGLE LINE DIAGRAM	3

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REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD
2C	22/07/22	ISSUED FOR QUOTATION	JR	AF	-
2B	22/06/02	ISSUED FOR REVIEW	AF	AS	-
2A	22/05/27	ISSUED FOR COST ESTIMATE	JR	AF	-
2	20/12/01	RECORD DRAWING	KSB	LCS	-
1	17/03/01	ISSUED FOR CONSTRUCTION	KSB	LCS	-
0	16/11/28	ISSUED FOR TENDER	KSB	LCS	-

CLIENT: REGIONAL DISTRICT OF NANAIMO

Allnorth

CLIENT NO:	-	DRWN:	JR	DATE:	22/05/27
PROJECT NO:	2103128	DSGN:	AF	DATE:	22/05/27
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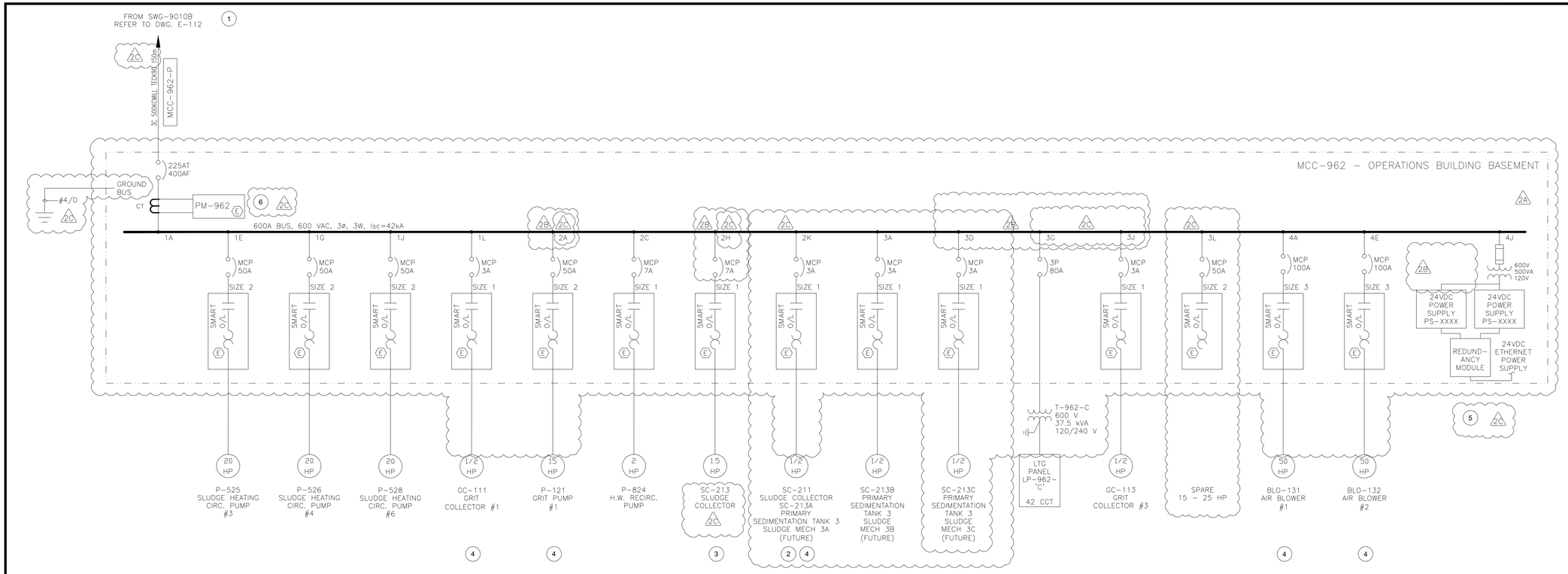
RDN GNPCC MCC UPGRADE

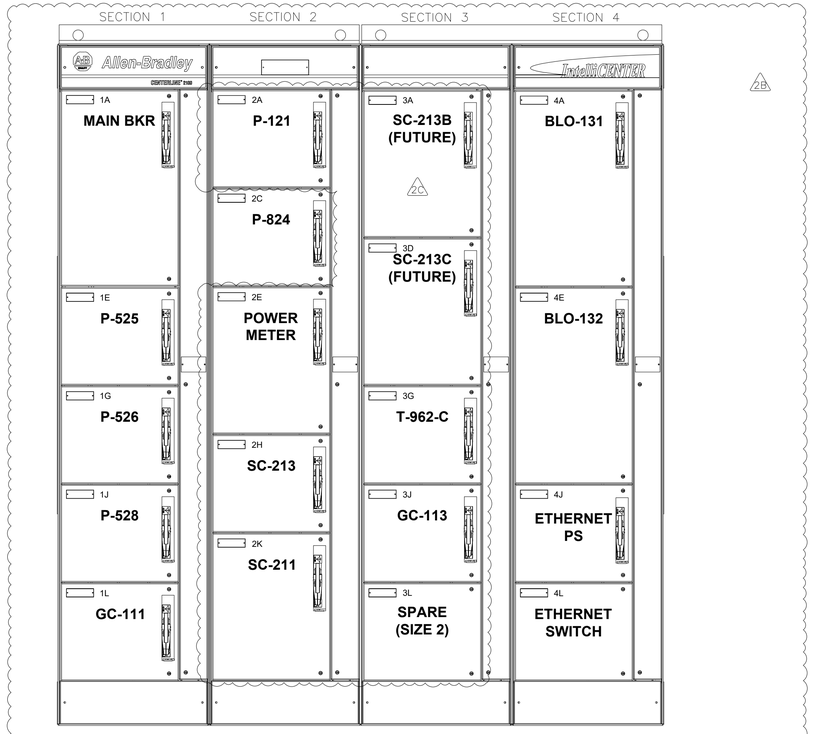
TITLE:

ELECTRICAL OPERATIONS BUILDING MCC-961 SINGLE LINE DIAGRAM

DWG NO:	REV:
E-258	**2C**

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MCC-962 ELEVATION
1:10

KEY NOTES

1. RE-FEED MCC-962 FROM NEW 600V SWITCHGEAR SWG-9010B
2. (2C) REMOVE FEED TO SC-211 IN BUCKET 2K AFTER SC-211 IS REPLACED BY SC-211A/B/C. USE EXISTING STARTER TO FEED FUTURE LOAD SC-213A
3. (2C) TAG BUCKET 2H AS "SPARE" AFTER SC-213 IS REPLACED BY SC-213A/B/C.
4. EXISTING LOAD TO BE RELOCATED FROM MCC-961. NEW FIELD CABLE REQUIRED.
5. (2C) 600V ETHERNET SWITCH POWER COMES FROM MCC BUS, NO UPS POWER REQUIRED.
6. POWER METER PM-962 IS LOCATED IN SECTION 2E.

REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
E-258	MCC-961 SINGLE LINE DIAGRAM	1
E-261	MCC-973 SINGLE LINE DIAGRAM	2

NOTES:

1. MCC DOORS SHOWN W/ BLANK DOORS ARE EMPTY SPACE.
2. THE FRONT OF THE MCC SHALL FACE SOUTH WHEN MOUNTED IN THE MCC ROOM, (FACING MCC-961)

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REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD
2C	22/07/22	ISSUED FOR QUOTATION	JR	AF	-
2B	22/06/02	ISSUED FOR REVIEW	AF	AS	-
2A	22/05/27	ISSUED FOR COST ESTIMATE	JR	AF	-
2	20/12/01	RECORD DRAWING	KSB	LCS	-
1	17/03/01	ISSUED FOR CONSTRUCTION	KSB	LCS	-
0	16/11/28	ISSUED FOR TENDER	KSB	LCS	-

CLIENT: REGIONAL DISTRICT OF NANAIMO

Allnorth

CLIENT NO:	-	DRWN:	JR	DATE:	22/05/27
PROJECT NO:	2103128	DSGN:	AF	DATE:	22/05/27
DRAWING SIZE:	ANSI "D"	CHKD:	AS	DATE:	22/06/01
SCALE:	NTS	APVD:	-	DATE:	-

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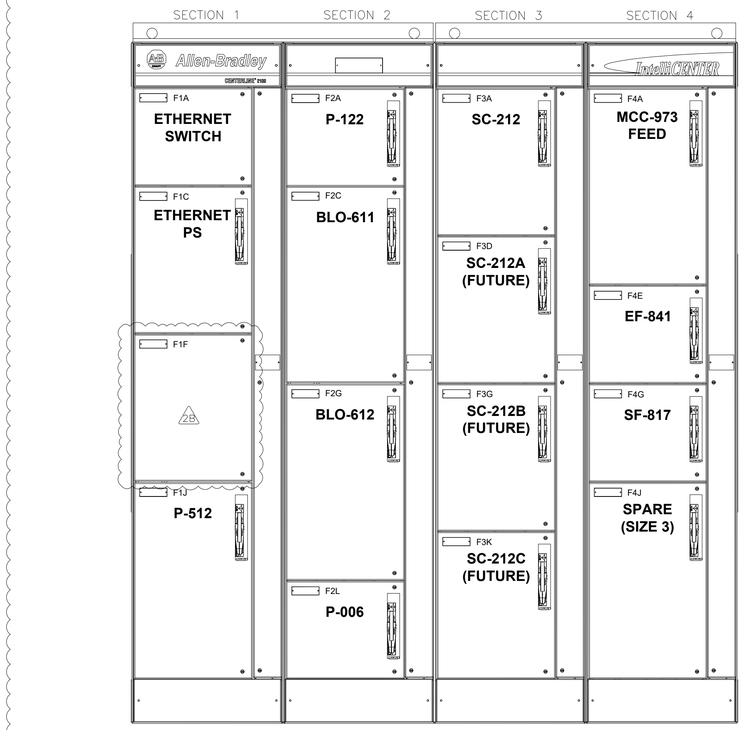
RDN GNPCC MCC UPGRADE

TITLE:

ELECTRICAL OPERATIONS BUILDING MCC-962 SINGLE LINE DIAGRAM

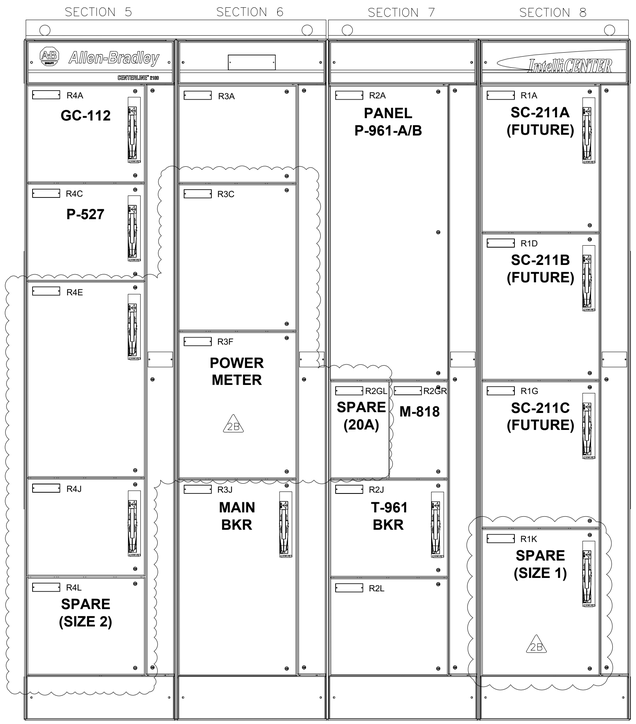
DWG NO:	REV:
E-259	2C

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MCC-961 ELEVATION - FRONT

1:10



MCC-961 ELEVATION - BACK

1:10

2A

2B

NOTES:

1. MCC DOORS SHOWN W/ BLANK DOORS ARE EMPTY SPACE.
2. SECTIONS 5 - 8 SHOULD BE MOUNTED ON THE NORTH SIDE OF THE MCC MOUNTING PAD (FACING MCC-962).

REFERENCE DRAWINGS

DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
E-258	MCC-961 SINGLE LINE DIAGRAM	1

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Date: 2022/JUL/22

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2B	22/07/22	ISSUED FOR QUOTATION	JR	AF	-
2A	22/06/02	ISSUED FOR REVIEW	JR	AS	XX
2	20/12/01	RECORD DRAWING	KSB	LCS	XX
1	17/03/01	ISSUED FOR CONSTRUCTION	KSB	LCS	XX
0	16/11/28	ISSUED FOR TENDER	KSB	LCS	XX

CLIENT: REGIONAL DISTRICT OF NANAIMO

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CLIENT NO:	-	DRWN:	JR	DATE:	22/05/27
PROJECT NO:	2103128	DSGN:	AF	DATE:	22/05/27
DRAWING SIZE:	ANSI "D"	CHKD:	AS	DATE:	22/06/01
SCALE:	NTS	APVD:	-	DATE:	-

PROJECT:

RDN GNPCC MCC UPGRADE

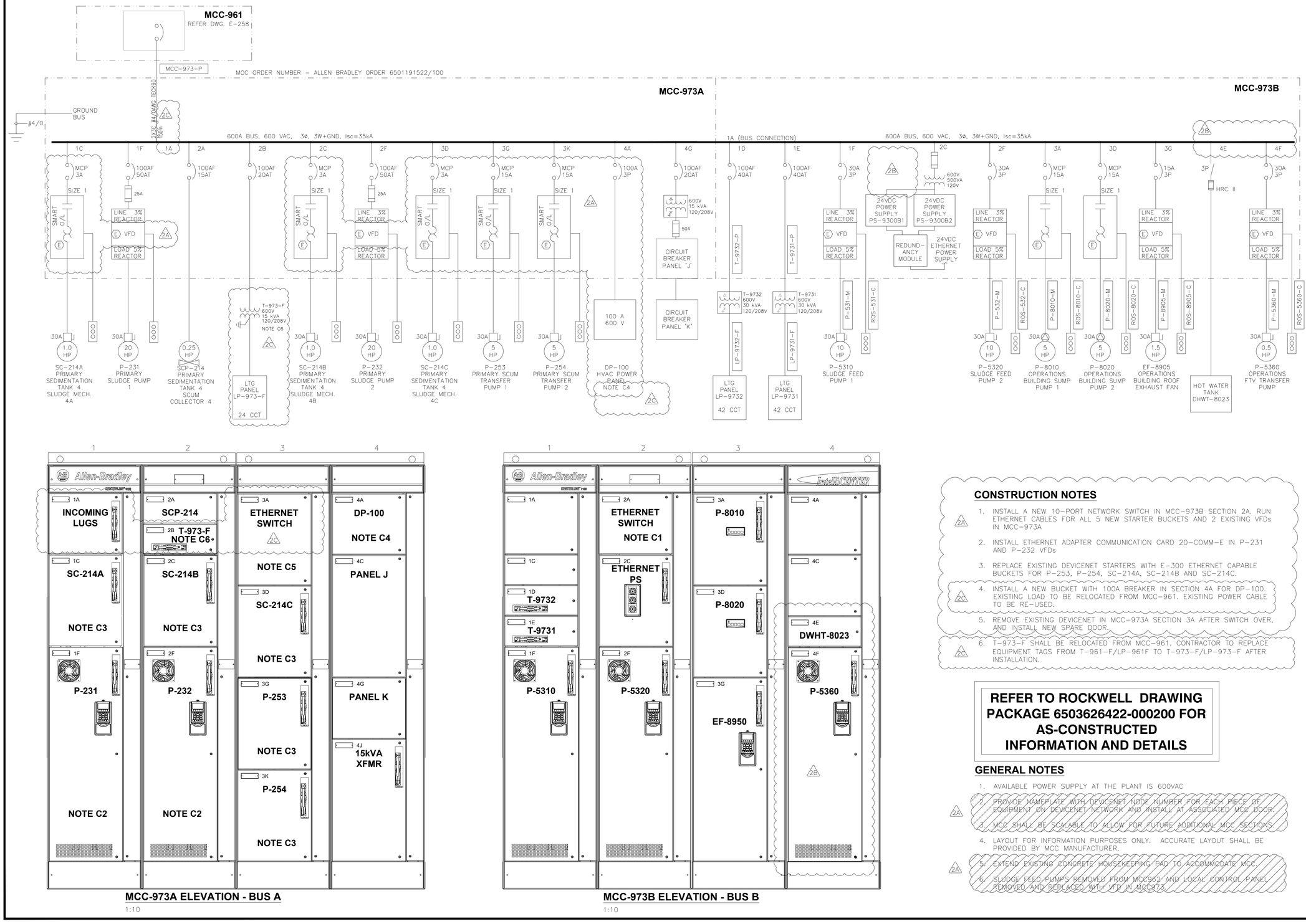
TITLE:

ELECTRICAL OPERATIONS BUILDING
MCC-961 ELEVATIONS

DWG NO: **E-260**

REV: **2B**

Date: 2022/07/21 2:59 PM | User: Ava Fu | File: P:\NA\2021\2103128 RDN-GNPCC MCC Replacement\1000-Dwgs\1016-Elec\01-Production\E-260 | Layout: Rev 2B | Paper Size: 863.6mm x 558.8mm



MCC-973A ELEVATION - BUS A

1:10

MCC-973B ELEVATION - BUS B

1:10

CONSTRUCTION NOTES

2A
1. INSTALL A NEW 10–PORT NETWORK SWITCH IN MCC–973B SECTION 2A. RUN ETHERNET CABLES FOR ALL 5 NEW STARTER BUCKETS AND 2 EXISTING VFDs IN MCC–973A
2. INSTALL ETHERNET ADAPTER COMMUNICATION CARD 20–COMM–E IN P–231 AND P–232 VFDs
3. REPLACE EXISTING DEVICENET STARTERS WITH E–300 ETHERNET CAPABLE BUCKETS FOR P–253, P–254, SC–214A, SC–214B AND SC–214C.

2C
4. INSTALL A NEW BUCKET WITH 100A BREAKER IN SECTION 4A FOR DP–100. EXISTING LOAD TO BE RELOCATED FROM MCC–961. EXISTING POWER CABLE TO BE RE–USED.
5. REMOVE EXISTING DEVICENET IN MCC–973A SECTION 3A AFTER SWITCH OVER, AND INSTALL NEW SPARE DOOR.
2C
6. T–973–F SHALL BE RELOCATED FROM MCC–961. CONTRACTOR TO REPLACE EQUIPMENT TAGS FROM T–961–F/LP–961F TO T–973–F/LP–973–F AFTER INSTALLATION.

REFER TO ROCKWELL DRAWING PACKAGE 6503626422-000200 FOR AS-CONSTRUCTED INFORMATION AND DETAILS

GENERAL NOTES

1. AVAILABLE POWER SUPPLY AT THE PLANT IS 600VAC

2A
2. PROVIDE NAMEPLATE WITH DEVICENET NODE NUMBER FOR EACH PIECE OF EQUIPMENT ON DEVICENET NETWORK AND INSTALL AT ASSOCIATED MCC DOOR.
3. MCC SHALL BE SCALABLE TO ALLOW FOR FUTURE ADDITIONAL MCC SECTIONS.
4. LAYOUT FOR INFORMATION PURPOSES ONLY. ACCURATE LAYOUT SHALL BE PROVIDED BY MCC MANUFACTURER.
2A
5. EXTEND EXISTING CONCRETE HOUSEKEEPING PAD TO ACCOMMODATE MCC.
6. SLUDGE FEED PUMPS REMOVED FROM MCC962 AND LOCAL CONTROL PANEL REMOVED AND REPLACED WITH VFD IN MCC973.

REFERENCE DRAWINGS		
DRAWING NO	DRAWING DESCRIPTION/TITLE	REF
E-258	MCC-961 SINGLE LINE DIAGRAM	1
E-259	MCC-962 SINGLE LINE DIAGRAM	2

NOT FOR CONSTRUCTION

ISSUED FOR
QUOTATION
Date: 2022/JUL/22

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REV	YY/MM/DD	DESCRIPTION	DRWN	CHKD	APVD
2C	22/07/22	ISSUED FOR QUOTATION	JR	AF	-
2B	22/06/02	ISSUED FOR REVIEW	JR	AF	-
2A	22/05/27	ISSUED FOR COST ESTIMATE	JR	AF	-
2	20/12/01	RECORD DRAWING	KSB	LCS	-
1	17/03/01	ISSUED FOR CONSTRUCTION	KSB	LCS	-
0	16/11/28	ISSUED FOR TENDER	KSB	LCS	-

CLIENT: REGIONAL DISTRICT OF NANAIMO

Allnorth

CLIENT NO:	-	DRWN: JR	DATE: 22/05/27
PROJECT NO:	2103128	DSGN: AF	DATE: 22/05/27
DRAWING SIZE:	ANSI "D"	CHKD: AS	DATE: 22/06/01
SCALE:	NTS	APVD: -	DATE: -

PROJECT:

RDN GNPCC MCC UPGRADE

TITLE:
ELECTRICAL OPERATIONS BUILDING MCC-973 SINGLE LINE DIAGRAM

DWG NO:	REV:
E-261	2C

Date: 2022/07/21 2:58 PM | User: Ava Fu | File: P:\NA\2021\2103128 RDN-GNPCC MCC Replacement\1000-Dwgs\1016-Elec\01-Production\E-261 | Layout: Rev 2C | Paper Size: 863.6mm x 558.8mm

Rev	Client	RDN
B	Project Title	GNPCC MCC Replacement
	Project #	2103128
	Document #	2103128-1604-PLN-001
	Client Project #	-

Rev	Issued For	YYYY-MM-DD	By	Check	Approve
A	Draft for Review	2022-05-12	AS	BDH	
B	Issued for Approval	2022-06-24	AF	AS	

EQUIPMENT REPLACEMENT SEQUENCE PLAN

PRELIMINARY
FOR INFORMATION ONLY

PHASE 0 - RDN Pre-Work	PHASE 1 - Network Switch Relocation	PHASE 2 - Install New CP-100	PHASE 3 - Switch MCC-973A from DNET to ENET	PHASE 4 - Move loads from MCC-961 to 962
Start Date: July 1st, 2022	Start Date: April 3rd 2023	Start Date: April 11th 2023	Start Date: May 15th 2023	Start Date: April 3rd, 2023
Expected Duration: 3 Months	Expected Duration: 1 Week	Expected Duration: 1 Month	Expected Duration: 2 Weeks	Expected Duration: 2 Months
Preparation	**Preparation**	**Preparation**	**Preparation**	**Preparation**
1 - RDN to replace active underground wiring between existing CP-100, MCC-961 and MCC-962 with interim multiconductor Teck cable. Interim cabling to be used until Phase 4. 2 - Obsolete/unused control and power wiring shall be decomissioned and removed from MCC-961 and MCC-962. 3 - RDN to move existing LCP-5325 control panel to make room for new lighting transformer.	1 - Contractor to verify the length of existing wire/cable and conduit fill. Prepare and pull new network cables ahead of network switch changeover. 2 - Programming and network configuration prep work required ahead of network switch relocation. 3 - Install new ground bar in basement MCC room and route/terminate dedicated ground cable back to the switchgear electrical room ground.	1 - Prepare and pull new cables required for power and communication to new-CP-100 prior to installation. 2 - CP-100 panel FAT to be completed prior to installation. 3 - PLC program to be completed, tested and uploaded on the controller prior to installation. 4 - Network configuration and programming setup required to allow for motor control of MCC-973B loads from new CP-100 panel. 5 - Move UPS cabinet and replace cabling as required. 6 - Install IS junction box for LSHH-257A in the field to correct IS wiring.	1 - All required network and programming work for switchover from DNET to ENET shall be completed prior to switchover to limit downtime. 2 - Pre-route all the required power and network cables for MCC-973B power supply bucket to new ethernet switch to minimize downtime. 3 - Pre-route all ethernet cables from new ethernet switch to each new MCC ENET bucket/vfd. 4 - Pre-route power cable from MCC-973A to T-961-F.	1 - All required network and programming work for MCC bucket relocation shall be completed prior to execution. 2 - Pre-route new cables (power and control) for each load ahead of bucket switchover. 3 - Pre-route new Devicenet cables in MCC-962 to the 5 MCC bucket locations in preparation for the bucket switchover from MCC-961 to MCC-962.
Execution	**Execution**	**Execution**	**Execution**	**Execution (June 5th)**
-	1- Install new network switch in COM-9993. 2. Move existing connections as required from existing network switch in old-CP-100 to COM-9993. 3- Install new network connections as required for COM-9993, & old-CP-100. 4- Establish network communications and re-commission equipment via new managed network switch (Net-XXX). 5 - Relocation of networks from old switch to new will require temporary network outages to equipment.	1- Install new control panel CP-100 and connect to new network switch in COM-9993. 2- Establish communication between OLD-CP-100 and New-CP-100, as well as COM-9993. 3- Move all IO points from OLD-CP-100 to NEW-CP-100. Coordinate with Operations for swingover and commissioning of I/O groups to new-CP-100. 4 - Commission MCC-973B on the new CP-100 control panel. 5 - OLD-CP-100 still required for MCC-961/962 DeviceNet controls only. 6 - CP-500 DeviceNet connection to MCC-962 is still required to control the P-525/526/527/528 drives. 7 - Commission LSHH-257A with the IS relay located in the field junction box.	1- Install an additional network switch in MCC-973B Ethernet bucket. Connect the new network switch to existing power supply. 2- Install replacement Ethernet Comms cards in the two VFDs inside MCC-973A and commission drives on Ethernet comms. (P-231 & P-232) 3- Replace and commission existing DeviceNet starter buckets with Ethernet capable buckets. P-253 SC-214A P-254 SC-214B SC-214C Full MCC lockout required for bucket replacement. 4 - Network configuration and programming setup required to allow for motor control of new MCC-973A ethernet buckets from new-CP-100. 5 - Move T-961-F from MCC-961 to MCC-973A. Existing spare 20 amp breaker shall be used to feed T-961-F. 6 - Remove MCC-973A DeviceNet power supply bucket, and install new 100A breaker in the empty space. 7 - Relocate DP-100 cable feed from MCC-961 to MCC-973A. The above mentioned 100A breaker will be used to feed DP-100.	1 - Move critical loads from MCC-961 to MCC-962: - BLO-131 (permanent relocation) - BLO-132 (permanent relocation) - P-121 (permanent relocation) - SC-211 (permanent relocation) - GC-111 (permanent relocation) * Contractor to install blank doors on MCC-961 after loads are moved out. 2 - The above motors shall be moved over 1 by 1 to limit operational and safety risks. Full MCC lockout required for bucket relocation. 3 - Recommission MCC-962 with the above MCC starters/buckets installed.

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B	Project Title	GNPCC MCC Replacement
	Project #	2103128
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	Client Project #	-

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A	Draft for Review	2022-05-12	AS	BDH	
B	Issued for Approval	2022-06-24	AF	AS	

EQUIPMENT REPLACEMENT SEQUENCE PLAN

PHASE 5 - Replace MCC-961	**PHASE 6 - Move loads from MCC-962 to 961**	**PHASE 7 - Replace MCC-962**	**General Notes:**
Start Date: June 19th 2023	**Start Date: July 3rd 2023**	**Start Date: July 24th 2023**	
Expected Duration: 1 Week (24 hr shifts)	**Expected Duration: 2 Weeks**	**Expected Duration: 1 Week (24 hr shifts)**	
Preparation	**Preparation**	**Preparation**	
1 - All required network and programming work for switchover from DNET to ENET shall be completed. 2 - Pre-route temporary power cables for critical 120/240V loads on panels P-961-A and P-961-B. 3 - Pre-route cables for new replacement transformers T-961-A/B and T-962-C and mount the new transformers. 4 - Pre-route temp. power cable for MCC-973 from MCC-9110. Install new 200A breaker in MCC-9110. 5 - Pre-route new communication cable from new CP-100 to MCC-961.	1- Pre-route all new cabling required for critical loads moving to MCC-961. 2 - All required network and programming setup shall be completed prior to bucket relocation. 3 - Network configuration required to control boiler PLC (CP-500) load BLO-527 from MCC-961. An existing network fiber optic connection will be used to enable this communication.	1 - All required network and programming work for switchover from DNET to ENET shall be completed prior to switchover to limit downtime. This includes enabling control of BLO-525/526/527 from CP-500 through existing network connections. 2 - Pre-route temporary power cables for critical loads on panel P-962-C. 3 - Pre-route all new cabling required for MCC-962 replacement and the removal of the MCC-962 control section.	
Execution	**Execution**	**Execution**	
1- Install temporary power for critical loads fed from panels P-961-A and P-961-B. 120/240V temp power loads: TBD 2 - Connect MCC-973 to temporary power source MCC-9110. 3 - Remove MCC-961 from service. 4 - Install new MCC-961. - Commission main feeder. - Terminate all existing power and control cables. - Commission starters / feeder breakers 1 by 1 in order of criticality. 5 - Commission MCC-961 on the new CP-100 control panel. 6- Terminate and commission all connections for new replacement transformers T-961-A/B & T-962-C. 7. Remove old transformers and associated cabling.	1 - Move critical loads from MCC-962 to New MCC-961: - BLO-527 (Permanent relocation) - P-006 (Permanent relocation) - BLO-611 (Permanent relocation) - BLO-612 (Permanent relocation) - BLO-131 (Temporary relocation) - BLO-132 (Temporary relocation) - P-121 (Temporary relocation) Full MCC lockout required for bucket replacement.	1- Install temporary power for critical loads fed from panel P-962-C. 120/240V temp power loads: TBD 2- Remove MCC-962 from service. 3- Install new MCC-962. - Commission main feeder. - Terminate all power and control cables. - Commission starters / feeder breakers 1 by 1 in order of criticality. 4 - Terminate and commission all control signals from the existing control MCC-962 cubical through the new cabling. 5 - Commission MCC-962 on the new CP-100 control panel. Establish network connection to CP-500 controlled drives. (P-525/526/527/528) 6 - De-commission and remove old CP-100. 7 - Re-install MCC-973 feed from MCC-961.	

PRELIMINARY
FOR INFORMATION ONLY