POWER PLAN SYMBOLS

	DUPLEX 5-15R RECEPTACLE
GF	DUPLEX 5-15R RECEPTACLE C/W INTEGRAL GFCI PROTECTION
J	CEILING MOUNTED JUNCTION BOX
J	WALL MOUNTED JUNCTION BOX
J	FLOOR MOUNTED JUNCTION BOX
	POWER PANELBOARD
	PANEL (TYPE AS INDICATED - SECURITY, LIGHTING RELAY, ETC.)
	MOTOR
	MOTOR c/w DISCONNECT SWITCH
	COMBINATION DISCONNECT AND MAGNETIC MOTOR STARTER
	DISCONNECT SWITCH
	FUSED DISCONNECT SWITCH
	MAGNETIC MOTOR STARTER
T	THERMOSTAT
VFD	VARIABLE FREQUENCY DRIVE
	CONDUIT STUB
	CONDUIT UP
	CONDUIT DOWN

GENERAL SYMBOLS

#	NOTE REFERENCE
# #	EQUIPMENT REFERENCE
#	REVISION NUMBER
#	WIRING HOME RUN

FIRE ALARM SYMBOLS

S	FIRE ALARM SMOKE DETECTOR
DS	FIRE ALARM SMOKE DETECTOR, DUCT MOUNTED

SCHEMATIC SYMBOLS

	LOW VOLTAGE CIRCUIT BREAKER
	LOAD BREAK SWITCH
	DISCONNECT SWITCH
	FUSE
	TRANSFORMER
	TRANSFER SWITCH
G	GENERATOR
	GROUND CONNECTION
A	AMMETER
PANEL N2A 42CCT / PNL N2A	PANELBOARD

ABBREVIATIONS

EX	EXISTING DEVICE TO REMAIN
RE	REMOVE EXISTING DEVICE
RP	REPLACE EXISTING DEVICE WITH NEW DEVICE
RL	RELOCATE EXISTING DEVICE
ER	EXISTING DEVICE IN RELOCATED POSITION
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
GF	GROUND FAULT
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
JB	JUNCTION BOX
MCC	MOTOR CONTROL CENTER
IG	ISOLATED GROUND
SPD	SURGE PROTECTIVE DEVICE
TR	TAMPER RESISTANT
TYP	TYPICAL
WP	WEATHERPROOF

NATIONAL CENTER FOR ANIMAL DISEASES AHU REPLACEMENT

SHEET NUMBER	DRAWING TITLE
E001	ELECTRICAL SYMBOL LEGEND, GENERAL NOTES, DRAWING LIST
E100	DEMOLITION PLAN - MECHANICAL ROOM - PARTIAL MAIN LEVEL - POWER AND FIRE ALARM SYSTEMS
E101	DEMOLITION PLAN - MECHANICAL ROOM - INTERSTITIAL LEVEL - POWER AND FIRE ALARM SYSTEMS
E102	DEMOLITION PLAN - MECHANICAL ROOM - FAN LOFT LEVEL - POWER AND FIRE ALARM SYSTEMS
E103	DEMOLITION PLAN - SUPPORT BLOCK - FAN LOFT LEVEL - POWER AND FIRE ALARM SYSTEMS
E104	DEMOLITION PLAN - HIGH HAZARD BLOCK - BASEMENT & MAIN PARTIAL LEVEL - POWER AND FIRE ALARM SYSTEMS
E105	DEMOLITION PLAN - 500 WING BUILDING - PARTIAL SECOND LEVEL - POWER AND FIRE ALARM SYSTEMS
E200	RENOVATION PLAN - MECHANICAL ROOM - PARTIAL MAIN LEVEL - POWER AND FIRE ALARM SYSTEMS
E201	RENOVATION PARTIAL PLAN - MECHANICAL ROOM - INTERSTITIAL LEVEL - POWER AND FIRE ALARM SYSTEMS
E202	RENOVATION PLAN - MECHANICAL ROOM - FAN LOFT LEVEL - POWER AND FIRE ALARM SYSTEMS
E203	RENOVATION PLAN -SUPPORT BLOCK - FAN LOFT LEVEL - POWER AND FIRE ALARM SYSTEMS
E204	RENOVATION PLAN - HIGH HAZARD BLOCK - BASEMENT & MAIN PARTIAL LEVEL - POWER AND FIRE ALARM SYSTEMS
E205	RENOVATION PLAN - 500 WING BUILDING - SECOND LEVEL - POWER AND FIRE ALARM SYSTEMS
E300	MOTORLIST
E301	ELECTRICAL PANEL SCHEDULES & PARTIAL SINGLE LINE DIAGRAM
E400	ELECTRICAL SPECIFICATIONS & DETAILS

ELECTRICAL GENERAL NOTES

1. ALL ELECTRICAL MATERIALS AND INSTALLATIONS SHOWN AND/OR SPECIFIED SHALL BE INSTALLED AS PER THE MANUFACTURER'S RECOMMENDATIONS AND SHALL COMPLY IN STRICT ACCORDANCE WITH THE LATEST EDITION OF C.S.A. STANDARDS AND THE C.E.C.
2. ALL CONDUIT WORK AND JUNCTION BOXES AS MAY BE REQUIRED SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
3. ELECTRICAL CONTRACTOR TO PROVIDE AS-BUILT DRAWINGS AT PROJECT COMPLETION.
4. ELECTRICAL CONTRACTOR TO INSTALL NEWLY TYPE WRITTEN DIRECTORIES IN ALL PANELS TO CLEARLY IDENTIFY ALL NEW AND EXISTING CIRCUITS.
5. MAXIMUM VOLTAGE DROP SHALL BE 2% FOR FEEDERS AND 3% FOR BRANCH CIRCUITS. ELECTRICAL CONTRACTOR SHALL SIZE WIRES TO SUIT.
6. ALL EXPOSED CONDUIT SHALL BE RUN PARALLEL TO BUILDING LINES. ALL CONDUIT RUNS ARE TO BE APPROVED PRIOR TO INSTALLATION.
7. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF ALL EQUIPMENT PRIOR TO INSTALLATION.
8. PROVIDE LAMACOID LABELS FOR DISCONNECT SWITCHES AND RECEPTACLES C/W PANEL FEED, VOLTAGE, CIRCUIT NUMBERS.
9. PROVIDE LABELS FOR ALL EQUIPMENT, SWITCHES, RECEPTACLES AND FEEDERS C/W PANEL FEED AND CIRCUIT NUMBERS.
10. DUPLEX RECEPTACLES, OUTLETS AND LIGHT FIXTURES SHOWN AS EXISTING SHOULD BE VERIFIED.
11. THE ELECTRICAL CONTRACTOR SHALL SEAL ALL PENETRATIONS FOR RACEWAY, CABLES AND ALL OTHER PENETRATIONS MADE BY THE ELECTRICAL CONTRACTOR THROUGH FIRE RATED ASSEMBLIES TO PREVENT THE SPREAD OF SMOKE AND FIRE. A SYSTEM LISTED IN ULC-S115 FTH RATED, FIRESTOP SYSTEMS AND COMPONENTS SHALL BE USED TO MAINTAIN THE FIRE RATING OF THE ASSEMBLIES.

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PROFESSIONAL ENGINEER ALBERTA
2020,07,07

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Signature
Date 2020,07,07
PERMIT NUMBER: P 0258
The Association of Professional Engineers and Geoscientists of Alberta

Revision	Description	Date
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0	ISSUED FOR TENDER	2020.07.07

Client / client

Public Services and Procurement Canada

Project / Projet

LETHBRIDGE, AB
TOWNSHIP ROAD 9-1, T1J 3Z4

NATIONAL CENTRE FOR ANIMAL DISEASES AHU REPLACEMENT

Designed by / Conçu par: **WH**
Drawn by / Dessiné par: **GB**
Approved by / Approuvé par: **WH**
PWGSC Project Manager / Administrateur de Projets TPSGC

Drawing title / Titre du dessin

ELECTRICAL
ELECTRICAL SYMBOL LEGEND, GENERAL NOTES DRAWING LIST

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
115303307	E001 01 OF 16	0

PWGSC – A0 – 1189X841

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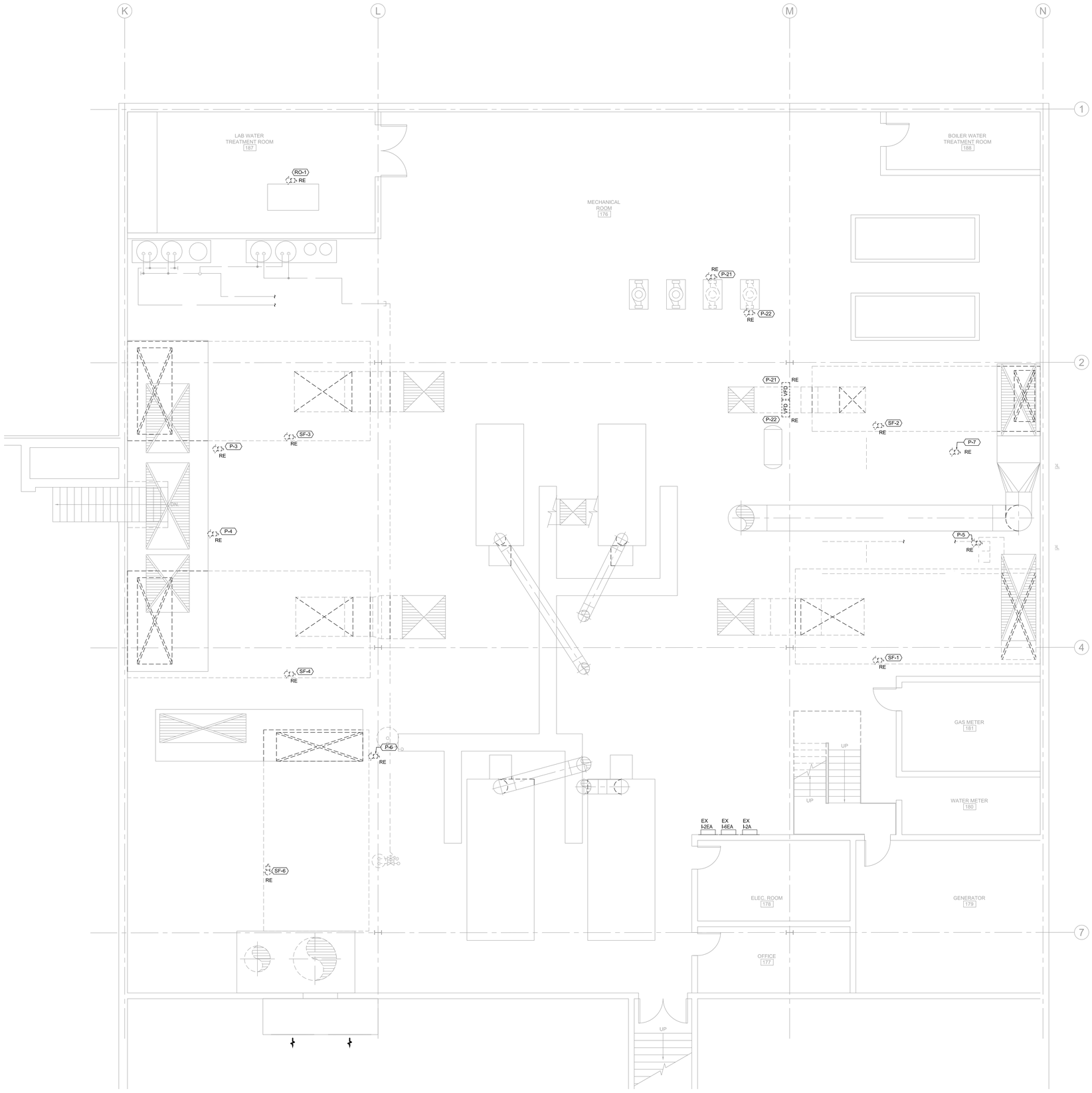

1 E100 **DEMOLITION PLAN - MECHANICAL ROOM - PARTIAL MAIN LEVEL - POWER AND FIRE ALARM SYSTEMS**

1:50

DEMOLITION POWER & SYSTEMS GENERAL NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY EXAMINE ALL REQUIRED DEMOLITION WORK AND INCLUDE ALL LABOR AND INCIDENTALS WHICH MAY BE NECESSARY TO PERFORM DEMOLITION RECONNECTION AND TEMPORARY POWER CONNECTIONS IN THE BID. REFER TO MECHANICAL DRAWINGS FOR INDICATION OF DEMOLISHED MECHANICAL EQUIPMENT.
2. THE ELECTRICAL CONTRACTOR SHALL REMOVE FROM THE PREMISES AND DISPOSE OF ALL DEMOLISHED ELECTRICAL EQUIPMENT, TRANSFORMERS, PANEL BOARDS ETC. VERIFY LOCAL AGENCY REQUIREMENTS PRIOR TO BIDDING.
3. COORDINATE THE ELECTRICAL DEMOLITION WORK WITH THE GENERAL CONTRACTOR AND ALL OTHER TRADES AT THE JOBSITE. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARLY IDENTIFYING ALL CONDUITS, WIRING, AND EQUIPMENT BY THE DEMOLITION WORK OF OTHER TRADES. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR REPAIR OR REPLACEMENT OF ELECTRICAL CIRCUITS AND/OR EQUIPMENT DAMAGED BY THE DEMOLITION WORK OF OTHERS RESULTING FROM THE FAILURE OF THE ELECTRICAL CONTRACTOR TO CLEARLY IDENTIFY SAID CIRCUITS OR EQUIPMENT.
4. REFER TO MECHANICAL PLANS FOR INDICATION OF DEMOLISHED MECHANICAL EQUIPMENT. ELECTRICAL CONTRACTOR TO BE RESPONSIBLE FOR TEMPORARY OR PERMANENT REMOVAL, DISCONNECTION, AND / OR RELOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH THE DEMOLISHED MECHANICAL EQUIPMENT INCLUDING BUT NOT LIMITED DISCONNECT SWITCHERS, MOTOR STARTERS, FIRE ALARM DEVICES, ETC.
5. ELECTRICAL CONTRACTOR TO VISIT THE SITE DURING BIDDING PROCESS, INSPECT AREAS BEING RENOVATED OR DEMOLISHED AND ACQUAINT THEMSELVES FULLY WITH THE EXISTING EQUIPMENT. DISCREPANCIES TO BE REPORTED TO THE ENGINEER 7 DAYS PRIOR TO SUBMISSION OF BID FOR INCLUSION IN ADDENDA IF REQUIRED, IN THE ABSENCE OF NOTIFICATION, IT WILL BE ASSUMED THAT THE CONTRACTOR HAS INCLUDED THE MORE EXPENSIVE ALTERNATIVE IN THE TENDERED PRICE.
6. ELECTRICAL CONTRACTOR TO ALLOW FOR TEMPORARY REMOVAL AND REINSTALLATION AS REQUIRED TO ACCOMMODATE WALL , FLOOR AND CEILING REFINISHING.
7. ELECTRICAL CONTRACTOR SHALL SEAL ALL WALL AND FLOOR PENETRATIONS RELATED TO ELECTRICAL WORK TO MAINTAIN RATING INTEGRITY OF BUILDING STRUCTURE. A SYSTEM LISTED IN ULC-S115 FTH RATED FIRE STOP SYSTEMS AND COMPONENTS SHALL BE USED TO MAINTAIN THE FIRE RATING OF THE ASSEMBLY.
8. ELECTRICAL CONDUIT, WIRES AND SYSTEM CABLING SHALL BE REMOVED FROM OUTLET BACK TO SOURCE.
9. FOR DEVICES TO BE REMOVED, REMOVE ALL WIRING AND CONDUIT BACK TO SOURCE.

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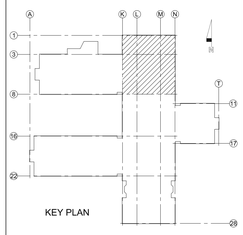

KEY PLAN

PROFESSIONAL ENGINEER WILLIAD HAGEN ALBERTA

2020.07.07

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Client / client

Public Services and Procurement Canada

Project / Projet

LETHBRIDGE, AB
TOWNSHIP ROAD 9-1, T1J 3Z4

NATIONAL CENTRE FOR ANIMAL DISEASES AHU REPLACEMENT

Designed by / Conçu par: WH

Drawn by / Dessiné par: GB

Approved by / Approuvé par: WH

PWGSC Project Manager / Administrateur de Projets TPSGC

Drawing title / Titre du dessin

ELECTRICAL DEMOLITION PLAN MECHANICAL ROOM PARTIAL MAIN LEVEL POWER AND FIRE ALARM SYSTEMS

Projet no./No. du projet	Drawing no./No. du dessin	Revision no.
115303307	E100 02 OF 16	0

PWGSC – A0 – 1189X841

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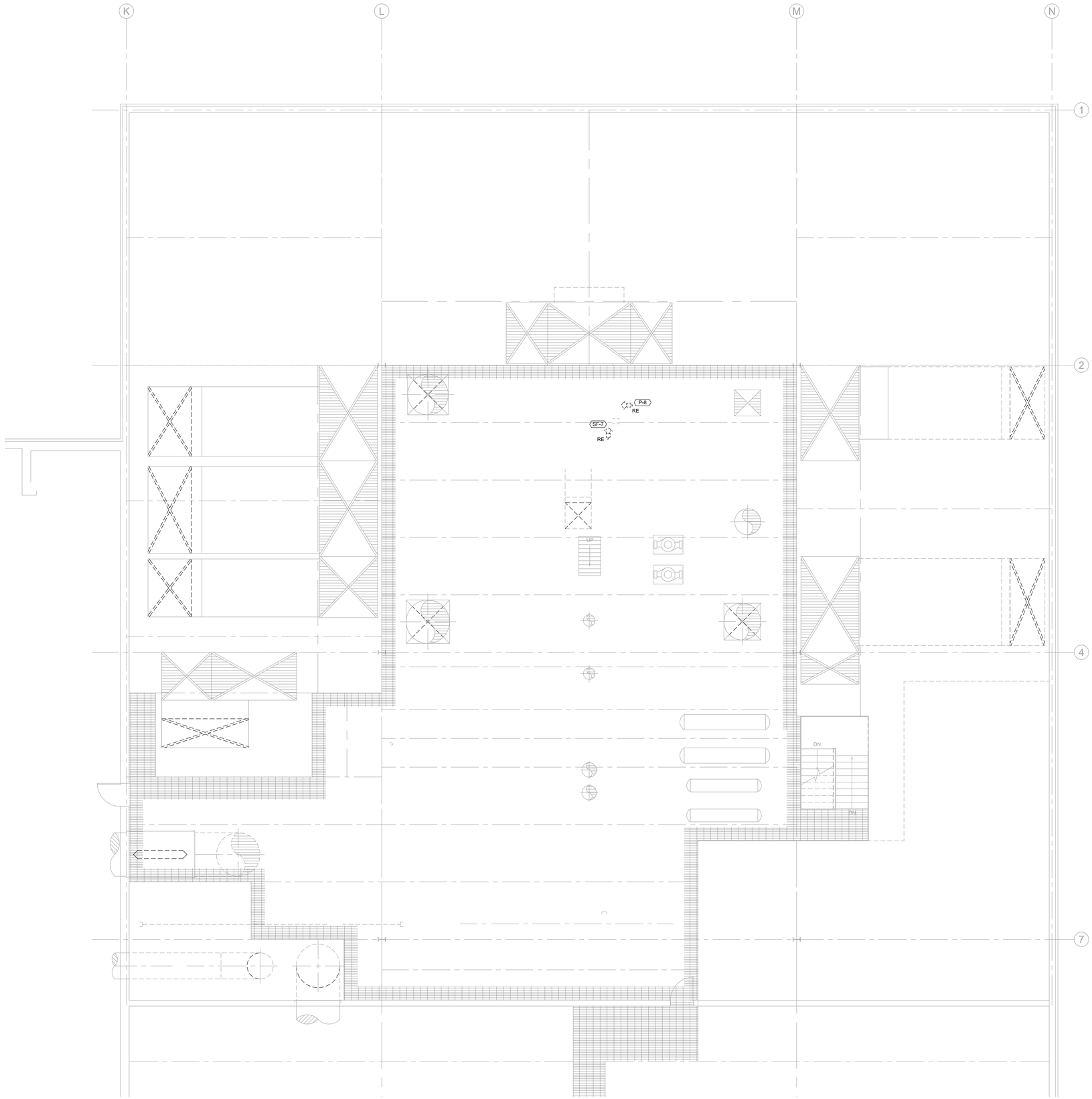

1 E101 **DEMOLITION PLAN - MECHANICAL ROOM - INTERSTITIAL LEVEL - POWER AND FIRE ALARM SYSTEMS**
1:50

DEMOLITION POWER & SYSTEMS GENERAL NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY EXAMINE ALL REQUIRED DEMOLITION WORK AND INCLUDE ALL LABOR AND INCIDENTALS WHICH MAY BE NECESSARY TO PERFORM DEMOLITION RECONNECTION AND TEMPORARY POWER CONNECTIONS IN THE BID. REFER TO MECHANICAL DRAWINGS FOR INDICATION OF DEMOLISHED MECHANICAL EQUIPMENT.
2. THE ELECTRICAL CONTRACTOR SHALL REMOVE FROM THE PREMISES AND DISPOSE OF ALL DEMOLISHED ELECTRICAL EQUIPMENT, TRANSFORMERS, PANEL BOARDS ETC. VERIFY LOCAL AGENCY REQUIREMENTS PRIOR TO BIDDING.
3. COORDINATE THE ELECTRICAL DEMOLITION WORK WITH THE GENERAL CONTRACTOR AND ALL OTHER TRADES AT THE JOBSITE. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARLY IDENTIFYING ALL CONDUITS, WIRING, AND EQUIPMENT BY THE DEMOLITION WORK OF OTHER TRADES. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR REPAIR OR REPLACEMENT OF ELECTRICAL CIRCUITS AND/OR EQUIPMENT DAMAGED BY THE DEMOLITION WORK OF OTHERS RESULTING FROM THE FAILURE OF THE ELECTRICAL CONTRACTOR TO CLEARLY IDENTIFY SAID CIRCUITS OR EQUIPMENT.
4. REFER TO MECHANICAL PLANS FOR INDICATION OF DEMOLISHED MECHANICAL EQUIPMENT. ELECTRICAL CONTRACTOR TO BE RESPONSIBLE FOR TEMPORARY OR PERMANENT REMOVAL, DISCONNECTION, AND / OR RELOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH THE DEMOLISHED MECHANICAL EQUIPMENT INCLUDING BUT NOT LIMITED DISCONNECT SWITCHERS, MOTOR STARTERS, FIRE ALARM DEVICES, ETC.
5. ELECTRICAL CONTRACTOR TO VISIT THE SITE DURING BIDDING PROCESS, INSPECT AREAS BEING RENOVATED OR DEMOLISHED AND ACQUAINT THEMSELVES FULLY WITH THE EXISTING EQUIPMENT. DISCREPANCIES TO BE REPORTED TO THE ENGINEER 7 DAYS PRIOR TO SUBMISSION OF BID FOR INCLUSION IN ADDENDA IF REQUIRED, IN THE ABSENCE OF NOTIFICATION, IT WILL BE ASSUMED THAT THE CONTRACTOR HAS INCLUDED THE MORE EXPENSIVE ALTERNATIVE IN THE TENDERED PRICE.
6. ELECTRICAL CONTRACTOR TO ALLOW FOR TEMPORARY REMOVAL AND REINSTALLATION AS REQUIRED TO ACCOMMODATE WALL , FLOOR AND CEILING REFINISHING.
7. ELECTRICAL CONTRACTOR SHALL SEAL ALL WALL AND FLOOR PENETRATIONS RELATED TO ELECTRICAL WORK TO MAINTAIN RATING INTEGRITY OF BUILDING STRUCTURE. A SYSTEM LISTED IN ULC-S115 FTH RATED FIRE STOP SYSTEMS AND COMPONENTS SHALL BE USED TO MAINTAIN THE FIRE RATING OF THE ASSEMBLY.
8. ELECTRICAL CONDUIT, WIRES AND SYSTEM CABLING SHALL BE REMOVED FROM OUTLET BACK TO SOURCE.
9. FOR DEVICES TO BE REMOVED, REMOVE ALL WIRING AND CONDUIT BACK TO SOURCE.

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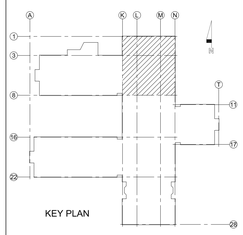

KEY PLAN

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The Association of Professional Engineers and Geoscientists of Alberta

2020.07.07

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Public Services and Procurement Canada

Project / Projet

LETHBRIDGE, AB
TOWNSHIP ROAD 9-1, T1J 3Z4

NATIONAL CENTRE FOR ANIMAL DISEASES AHU REPLACEMENT

Designed by / Conçu par: WH
Drawn by / Dessiné par: GB
Approved by / Approuvé par: WH
PWGSC Project Manager / Administrateur de Projets TPSGC

Drawing title / Titre du dessin

ELECTRICAL DEMOLITION PLAN MECHANICAL ROOM INTERSTITIAL LEVEL POWER AND FIRE ALARM SYSTEMS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
115303307	E101 03 OF 16	0

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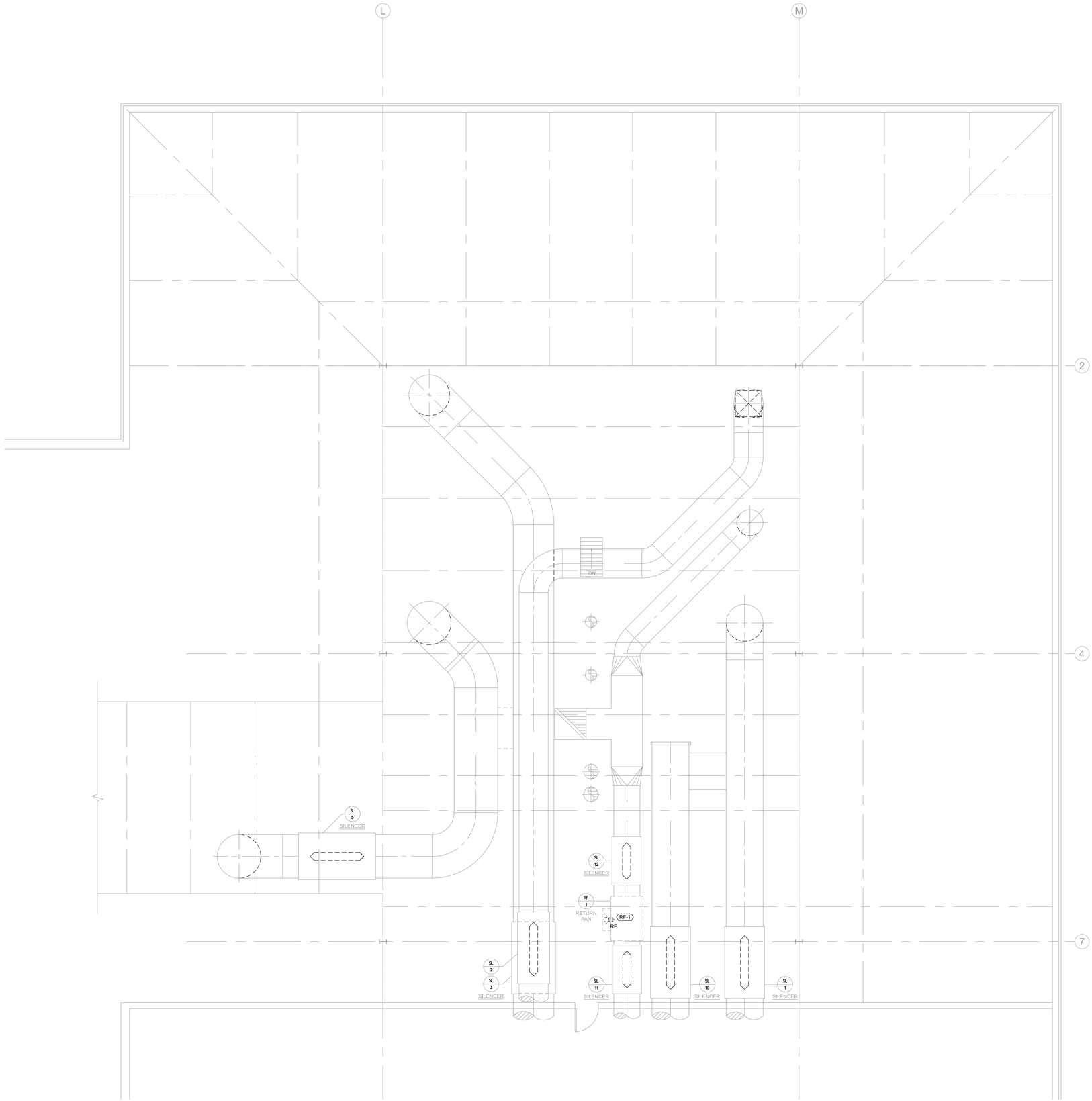

1 E102 **DEMOLITION PLAN - MECHANICAL ROOM - FAN LOFT LEVEL - POWER AND FIRE ALARM SYSTEMS**

1:50

DEMOLITION POWER & SYSTEMS GENERAL NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY EXAMINE ALL REQUIRED DEMOLITION WORK AND INCLUDE ALL LABOR AND INCIDENTALS WHICH MAY BE NECESSARY TO PERFORM DEMOLITION RECONNECTION AND TEMPORARY POWER CONNECTIONS IN THE BID. REFER TO MECHANICAL DRAWINGS FOR INDICATION OF DEMOLISHED MECHANICAL EQUIPMENT.
2. THE ELECTRICAL CONTRACTOR SHALL REMOVE FROM THE PREMISES AND DISPOSE OF ALL DEMOLISHED ELECTRICAL EQUIPMENT, TRANSFORMERS, PANEL BOARDS ETC. VERIFY LOCAL AGENCY REQUIREMENTS PRIOR TO BIDDING.
3. COORDINATE THE ELECTRICAL DEMOLITION WORK WITH THE GENERAL CONTRACTOR AND ALL OTHER TRADES AT THE JOBSITE. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARLY IDENTIFYING ALL CONDUITS, WIRING, AND EQUIPMENT BY THE DEMOLITION WORK OF OTHER TRADES. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR REPAIR OR REPLACEMENT OF ELECTRICAL CIRCUITS AND/OR EQUIPMENT DAMAGED BY THE DEMOLITION WORK OF OTHERS RESULTING FROM THE FAILURE OF THE ELECTRICAL CONTRACTOR TO CLEARLY IDENTIFY SAID CIRCUITS OR EQUIPMENT.
4. REFER TO MECHANICAL PLANS FOR INDICATION OF DEMOLISHED MECHANICAL EQUIPMENT. ELECTRICAL CONTRACTOR TO BE RESPONSIBLE FOR TEMPORARY OR PERMANENT REMOVAL, DISCONNECTION, AND / OR RELOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH THE DEMOLISHED MECHANICAL EQUIPMENT INCLUDING BUT NOT LIMITED DISCONNECT SWITCHERS, MOTOR STARTERS, FIRE ALARM DEVICES, ETC.
5. ELECTRICAL CONTRACTOR TO VISIT THE SITE DURING BIDDING PROCESS, INSPECT AREAS BEING RENOVATED OR DEMOLISHED AND ACQUAINT THEMSELVES FULLY WITH THE EXISTING EQUIPMENT. DISCREPANCIES TO BE REPORTED TO THE ENGINEER 7 DAYS PRIOR TO SUBMISSION OF BID FOR INCLUSION IN ADDENDA IF REQUIRED, IN THE ABSENCE OF NOTIFICATION, IT WILL BE ASSUMED THAT THE CONTRACTOR HAS INCLUDED THE MORE EXPENSIVE ALTERNATIVE IN THE TENDERED PRICE.
6. ELECTRICAL CONTRACTOR TO ALLOW FOR TEMPORARY REMOVAL AND REINSTALLATION AS REQUIRED TO ACCOMMODATE WALL , FLOOR AND CEILING REFINISHING.
7. ELECTRICAL CONTRACTOR SHALL SEAL ALL WALL AND FLOOR PENETRATIONS RELATED TO ELECTRICAL WORK TO MAINTAIN RATING INTEGRITY OF BUILDING STRUCTURE. A SYSTEM LISTED IN ULC-S115 FTH RATED FIRE STOP SYSTEMS AND COMPONENTS SHALL BE USED TO MAINTAIN THE FIRE RATING OF THE ASSEMBLY.
8. ELECTRICAL CONDUIT, WIRES AND SYSTEM CABLING SHALL BE REMOVED FROM OUTLET BACK TO SOURCE.
9. FOR DEVICES TO BE REMOVED, REMOVE ALL WIRING AND CONDUIT BACK TO SOURCE.

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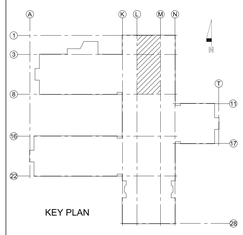

KEY PLAN

PROFESSIONAL ENGINEER ALBERTA
DAVID THAMES
2020.07.07

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Date 2020.07.07
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Public Services and Procurement Canada

Project / Projet

LETHBRIDGE, AB
TOWNSHIP ROAD 9-1, T1J 3Z4

NATIONAL CENTRE FOR ANIMAL DISEASES AHU REPLACEMENT

Designed by / Conçu par: **WH**

Drawn by / Dessiné par: **GB**

Approved by / Approuvé par: **WH**

PWGSC Project Manager / Administrateur de Projets TPSGC

Drawing title / Titre du dessin

ELECTRICAL DEMOLITION PLAN MECHANICAL ROOM FAN LOFT LEVEL POWER AND FIRE ALARM SYSTEMS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
115303307	E102	0
	04 OF 16	

PWGSC – A0 – 1189X841

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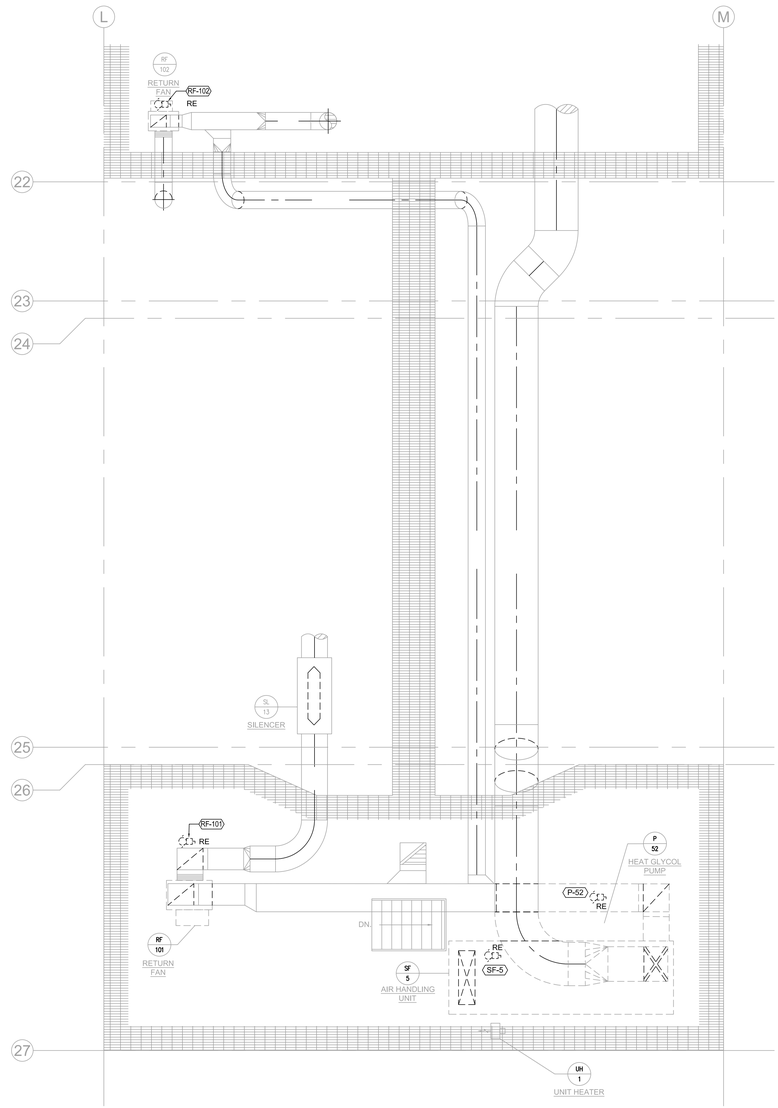

1 E103 **DEMOLITION PLAN - SUPPORT BLOCK - FAN LOFT LEVEL - POWER AND FIRE ALARM SYSTEMS**
1:50

DEMOLITION POWER & SYSTEMS GENERAL NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY EXAMINE ALL REQUIRED DEMOLITION WORK AND INCLUDE ALL LABOR AND INCIDENTALS WHICH MAY BE NECESSARY TO PERFORM DEMOLITION RECONNECTION AND TEMPORARY POWER CONNECTIONS IN THE BID. REFER TO MECHANICAL DRAWINGS FOR INDICATION OF DEMOLISHED MECHANICAL EQUIPMENT.
2. THE ELECTRICAL CONTRACTOR SHALL REMOVE FROM THE PREMISES AND DISPOSE OF ALL DEMOLISHED ELECTRICAL EQUIPMENT, TRANSFORMERS, PANEL BOARDS ETC. VERIFY LOCAL AGENCY REQUIREMENTS PRIOR TO BIDDING.
3. COORDINATE THE ELECTRICAL DEMOLITION WORK WITH THE GENERAL CONTRACTOR AND ALL OTHER TRADES AT THE JOBSITE. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARLY IDENTIFYING ALL CONDUITS, WIRING, AND EQUIPMENT BY THE DEMOLITION WORK OF OTHER TRADES. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR REPAIR OR REPLACEMENT OF ELECTRICAL CIRCUITS AND/OR EQUIPMENT DAMAGED BY THE DEMOLITION WORK OF OTHERS RESULTING FROM THE FAILURE OF THE ELECTRICAL CONTRACTOR TO CLEARLY IDENTIFY SAID CIRCUITS OR EQUIPMENT.
4. REFER TO MECHANICAL PLANS FOR INDICATION OF DEMOLISHED MECHANICAL EQUIPMENT. ELECTRICAL CONTRACTOR TO BE RESPONSIBLE FOR TEMPORARY OR PERMANENT REMOVAL, DISCONNECTION, AND / OR RELOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH THE DEMOLISHED MECHANICAL EQUIPMENT INCLUDING BUT NOT LIMITED DISCONNECT SWITCHERS, MOTOR STARTERS, FIRE ALARM DEVICES, ETC.
5. ELECTRICAL CONTRACTOR TO VISIT THE SITE DURING BIDDING PROCESS, INSPECT AREAS BEING RENOVATED OR DEMOLISHED AND ACQUAINT THEMSELVES FULLY WITH THE EXISTING EQUIPMENT. DISCREPANCIES TO BE REPORTED TO THE ENGINEER 7 DAYS PRIOR TO SUBMISSION OF BID FOR INCLUSION IN ADDENDA IF REQUIRED. IN THE ABSENCE OF NOTIFICATION, IT WILL BE ASSUMED THAT THE CONTRACTOR HAS INCLUDED THE MORE EXPENSIVE ALTERNATIVE IN THE TENDERED PRICE.
6. ELECTRICAL CONTRACTOR TO ALLOW FOR TEMPORARY REMOVAL AND REINSTALLATION AS REQUIRED TO ACCOMMODATE WALL , FLOOR AND CEILING REFINISHING.
7. ELECTRICAL CONTRACTOR SHALL SEAL ALL WALL AND FLOOR PENETRATIONS RELATED TO ELECTRICAL WORK TO MAINTAIN RATING INTEGRITY OF BUILDING STRUCTURE. A SYSTEM LISTED IN ULC-S115 FTH RATED FIRE STOP SYSTEMS AND COMPONENTS SHALL BE USED TO MAINTAIN THE FIRE RATING OF THE ASSEMBLY.
8. ELECTRICAL CONDUIT, WIRES AND SYSTEM CABLING SHALL BE REMOVED FROM OUTLET BACK TO SOURCE.
9. FOR DEVICES TO BE REMOVED, REMOVE ALL WIRING AND CONDUIT BACK TO SOURCE.

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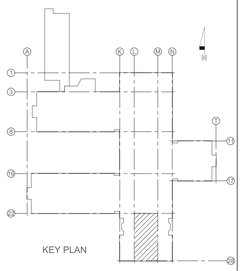

KEY PLAN

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LETHBRIDGE, AB
TOWNSHIP ROAD 9-1, T1J 3Z4

NATIONAL CENTRE FOR ANIMAL DISEASES AHU REPLACEMENT

Designed by / Conçu par: **WH**
Drawn by / Dessiné par: **GB**
Approved by / Approuvé par: **WH**
PWGSC Project Manager / Administrateur de Projets TPSGC

Drawing title / Titre du dessin
ELECTRICAL DEMOLITION PLAN SUPPORT BLOCK FAN LOFT LEVEL POWER AND FIRE ALARM SYSTEMS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
115303307	E103 05 OF 16	0

PWGSC – A0 – 1189X841

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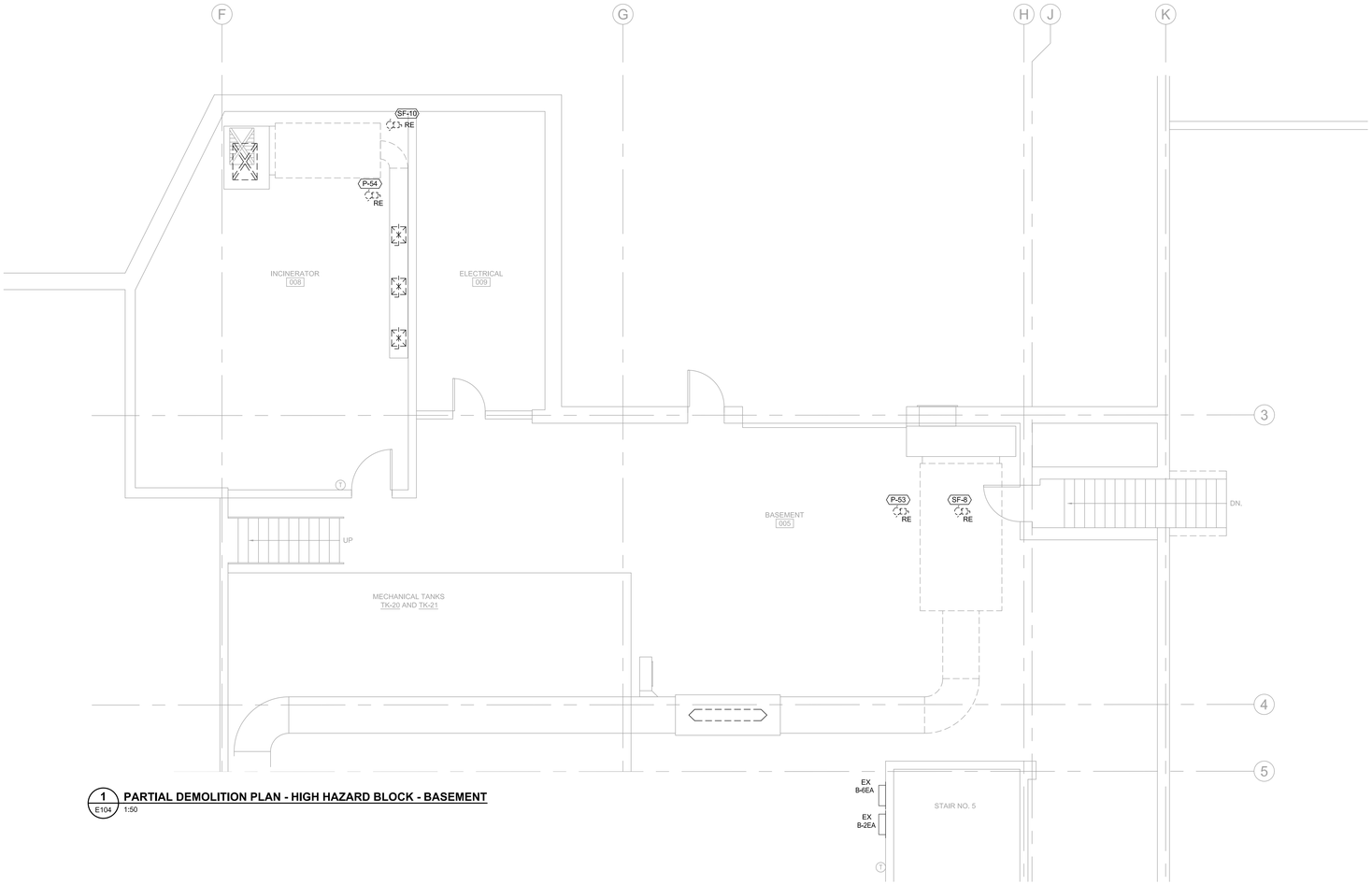
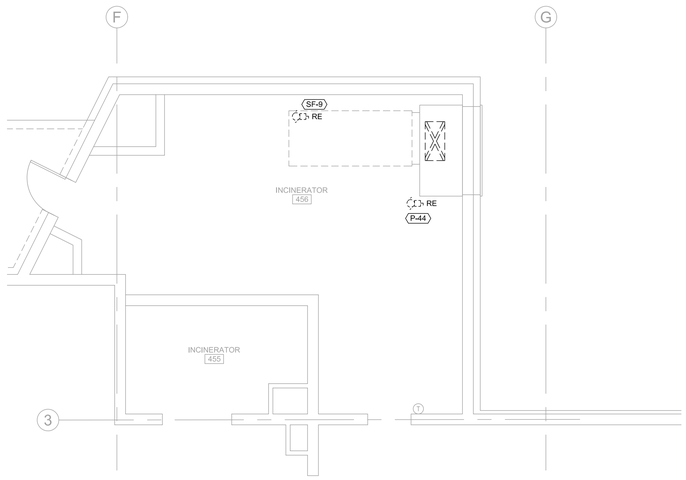
E103.DWG



1 E104 **PARTIAL DEMOLITION PLAN - HIGH HAZARD BLOCK - BASEMENT**
1:50



2 E104 **PARTIAL DEMOLITION PLAN - HIGH HAZARD BLOCK - MAIN LEVEL**
1:50

DEMOLITION POWER & SYSTEMS GENERAL NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY EXAMINE ALL REQUIRED DEMOLITION WORK AND INCLUDE ALL LABOR AND INCIDENTALS WHICH MAY BE NECESSARY TO PERFORM DEMOLITION RECONNECTION AND TEMPORARY POWER CONNECTIONS IN THE BID. REFER TO MECHANICAL DRAWINGS FOR INDICATION OF DEMOLISHED MECHANICAL EQUIPMENT.
2. THE ELECTRICAL CONTRACTOR SHALL REMOVE FROM THE PREMISES AND DISPOSE OF ALL DEMOLISHED ELECTRICAL EQUIPMENT, TRANSFORMERS, PANEL BOARDS ETC. VERIFY LOCAL AGENCY REQUIREMENTS PRIOR TO BIDDING.
3. COORDINATE THE ELECTRICAL DEMOLITION WORK WITH THE GENERAL CONTRACTOR AND ALL OTHER TRADES AT THE JOBSITE. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARLY IDENTIFYING ALL CONDUITS, WIRING, AND EQUIPMENT BY THE DEMOLITION WORK OF OTHER TRADES. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR REPAIR OR REPLACEMENT OF ELECTRICAL CIRCUITS AND/OR EQUIPMENT DAMAGED BY THE DEMOLITION WORK OF OTHERS RESULTING FROM THE FAILURE OF THE ELECTRICAL CONTRACTOR TO CLEARLY IDENTIFY SAID CIRCUITS OR EQUIPMENT.
4. REFER TO MECHANICAL PLANS FOR INDICATION OF DEMOLISHED MECHANICAL EQUIPMENT. ELECTRICAL CONTRACTOR TO BE RESPONSIBLE FOR TEMPORARY OR PERMANENT REMOVAL, DISCONNECTION, AND / OR RELOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH THE DEMOLISHED MECHANICAL EQUIPMENT INCLUDING BUT NOT LIMITED DISCONNECT SWITCHERS, MOTOR STARTERS, FIRE ALARM DEVICES, ETC.
5. ELECTRICAL CONTRACTOR TO VISIT THE SITE DURING BIDDING PROCESS, INSPECT AREAS BEING RENOVATED OR DEMOLISHED AND ACQUAINT THEMSELVES FULLY WITH THE EXISTING EQUIPMENT. DISCREPANCIES TO BE REPORTED TO THE ENGINEER 7 DAYS PRIOR TO SUBMISSION OF BID FOR INCLUSION IN ADDENDA IF REQUIRED, IN THE ABSENCE OF NOTIFICATION, IT WILL BE ASSUMED THAT THE CONTRACTOR HAS INCLUDED THE MORE EXPENSIVE ALTERNATIVE IN THE TENDERED PRICE.
6. ELECTRICAL CONTRACTOR TO ALLOW FOR TEMPORARY REMOVAL AND REINSTALLATION AS REQUIRED TO ACCOMMODATE WALL, FLOOR AND CEILING REFINISHING.
7. ELECTRICAL CONTRACTOR SHALL SEAL ALL WALL AND FLOOR PENETRATIONS RELATED TO ELECTRICAL WORK TO MAINTAIN RATING INTEGRITY OF BUILDING STRUCTURE. A SYSTEM LISTED IN ULC-S115 FTH RATED FIRE STOP SYSTEMS AND COMPONENTS SHALL BE USED TO MAINTAIN THE FIRE RATING OF THE ASSEMBLY.
8. ELECTRICAL CONDUIT, WIRES AND SYSTEM CABLING SHALL BE REMOVED FROM OUTLET BACK TO SOURCE.
9. FOR DEVICES TO BE REMOVED, REMOVE ALL WIRING AND CONDUIT BACK TO SOURCE.

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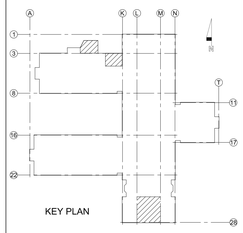

KEY PLAN

PROFESSIONAL ENGINEER ALBERTA
DAVID HAMPSON
2020.07.07

PERMIT TO PRACTICE
STANTEC CONSULTING LTD.
Signature
Date 2020.07.07
PERMIT NUMBER: P 0258
The Association of Professional Engineers and Geoscientists of Alberta

Revision	Description	Date
5		
4		
3		
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0	ISSUED FOR TENDER	2020.07.07

Client / Client

Public Services and Procurement Canada

Project / Projet

LETHBRIDGE, AB
TOWNSHIP ROAD 9-1, T1J 3Z4

NATIONAL CENTRE FOR ANIMAL DISEASES AHU REPLACEMENT

Designed by / Conçu par: **WH**
Drawn by / Dessiné par: **GB**
Approved by / Approuvé par: **WH**
PWGSC Project Manager / Administrateur de Projets TPSGC

Drawing title / Titre du dessin

ELECTRICAL DEMOLITION PLAN HIGH HAZARD BLOCK BASEMENT & MAIN PARTIAL LEVEL POWER AND FIRE ALARM SYSTEMS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
115303307	E104 06 OF 16	0

PWGSC – A0 – 1189X841

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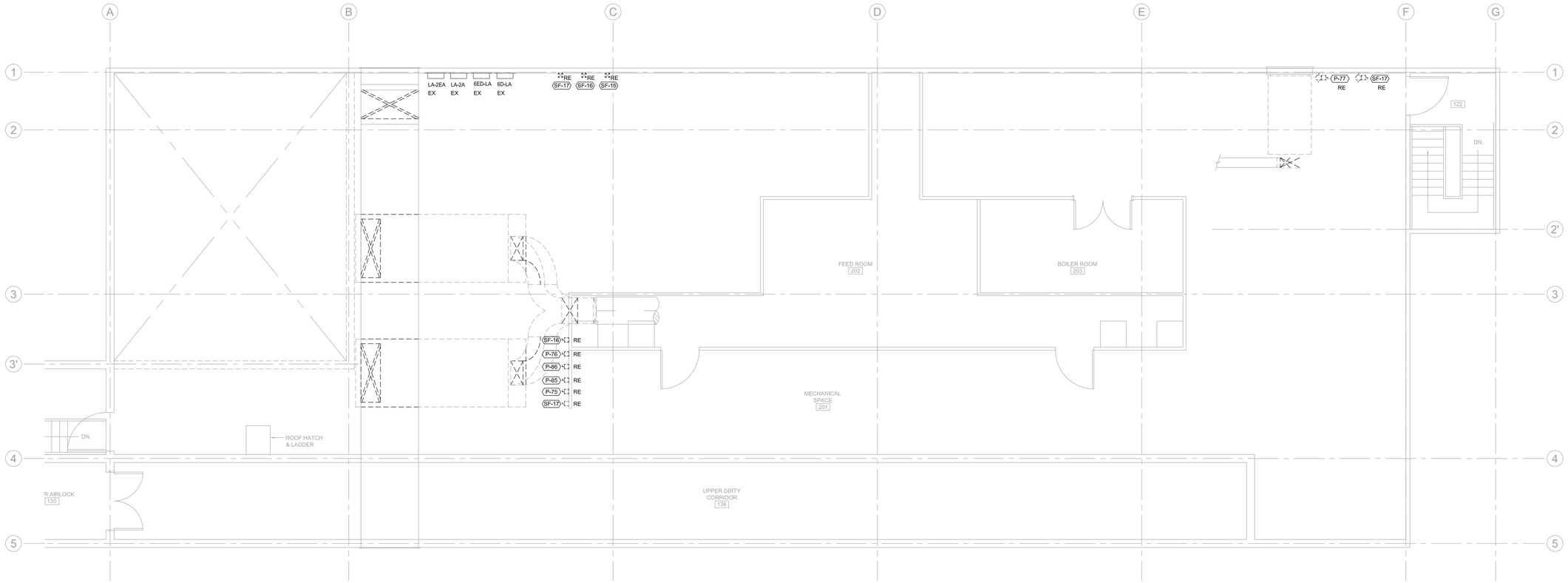
E104.DWG



1 E105 **DEMOLITION PLAN - 500 WING BUILDING - PARTIAL SECOND LEVEL - POWER AND FIRE ALARM**
1:50

DEMOLITION POWER & SYSTEMS GENERAL NOTES:

1. THE ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE AND THOROUGHLY EXAMINE ALL REQUIRED DEMOLITION WORK AND INCLUDE ALL LABOR AND INCIDENTALS WHICH MAY BE NECESSARY TO PERFORM DEMOLITION RECONNECTION AND TEMPORARY POWER CONNECTIONS IN THE BID. REFER TO MECHANICAL DRAWINGS FOR INDICATION OF DEMOLISHED MECHANICAL EQUIPMENT.
2. THE ELECTRICAL CONTRACTOR SHALL REMOVE FROM THE PREMISES AND DISPOSE OF ALL DEMOLISHED ELECTRICAL EQUIPMENT, TRANSFORMERS, PANEL BOARDS ETC. VERIFY LOCAL AGENCY REQUIREMENTS PRIOR TO BIDDING.
3. COORDINATE THE ELECTRICAL DEMOLITION WORK WITH THE GENERAL CONTRACTOR AND ALL OTHER TRADES AT THE JOBSITE. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR CLEARLY IDENTIFYING ALL CONDUITS, WIRING, AND EQUIPMENT BY THE DEMOLITION WORK OF OTHER TRADES. NO ADDITIONAL COMPENSATION WILL BE ALLOWED FOR REPAIR OR REPLACEMENT OF ELECTRICAL CIRCUITS AND/OR EQUIPMENT DAMAGED BY THE DEMOLITION WORK OF OTHERS RESULTING FROM THE FAILURE OF THE ELECTRICAL CONTRACTOR TO CLEARLY IDENTIFY SAID CIRCUITS OR EQUIPMENT.
4. REFER TO MECHANICAL PLANS FOR INDICATION OF DEMOLISHED MECHANICAL EQUIPMENT. ELECTRICAL CONTRACTOR TO BE RESPONSIBLE FOR TEMPORARY OR PERMANENT REMOVAL, DISCONNECTION, AND / OR RELOCATION OF ELECTRICAL EQUIPMENT ASSOCIATED WITH THE DEMOLISHED MECHANICAL EQUIPMENT INCLUDING BUT NOT LIMITED DISCONNECT SWITCHERS, MOTOR STARTERS, FIRE ALARM DEVICES, ETC.
5. ELECTRICAL CONTRACTOR TO VISIT THE SITE DURING BIDDING PROCESS, INSPECT AREAS BEING RENOVATED OR DEMOLISHED AND ACQUAINT THEMSELVES FULLY WITH THE EXISTING EQUIPMENT. DISCREPANCIES TO BE REPORTED TO THE ENGINEER 7 DAYS PRIOR TO SUBMISSION OF BID FOR INCLUSION IN ADDENDA IF REQUIRED, IN THE ABSENCE OF NOTIFICATION, IT WILL BE ASSUMED THAT THE CONTRACTOR HAS INCLUDED THE MORE EXPENSIVE ALTERNATIVE IN THE TENDERED PRICE.
6. ELECTRICAL CONTRACTOR TO ALLOW FOR TEMPORARY REMOVAL AND REINSTALLATION AS REQUIRED TO ACCOMMODATE WALL , FLOOR AND CEILING REFINISHING.
7. ELECTRICAL CONTRACTOR SHALL SEAL ALL WALL AND FLOOR PENETRATIONS RELATED TO ELECTRICAL WORK TO MAINTAIN RATING INTEGRITY OF BUILDING STRUCTURE. A SYSTEM LISTED IN ULC-S115 FTH RATED FIRE STOP SYSTEMS AND COMPONENTS SHALL BE USED TO MAINTAIN THE FIRE RATING OF THE ASSEMBLY.
8. ELECTRICAL CONDUIT, WIRES AND SYSTEM CABLING SHALL BE REMOVED FROM OUTLET BACK TO SOURCE.
9. FOR DEVICES TO BE REMOVED, REMOVE ALL WIRING AND CONDUIT BACK TO SOURCE.

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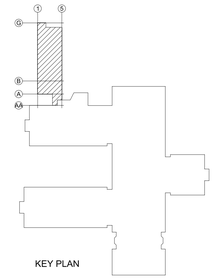

KEY PLAN

PROFESSIONAL ENGINEER SAJID HAMID ALBERTA
2020.07.07

PERMIT TO PRACTICE
STANTEC CONSULTING LTD.
Signature
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TOWNSHIP ROAD 9-1, T1J 3Z4

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Approved by / Approuvé par: **WH**
PWGSC Project Manager / Administrateur de Projets TPSGC

Drawing title / Titre du dessin
ELECTRICAL DEMOLITION PLAN 500 WING BUILDING PARTIAL SECOND LEVEL POWER AND FIRE ALARM SYSTEMS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
115303307	E105 07 OF 16	0

PWGSC – A0 – 1189X841
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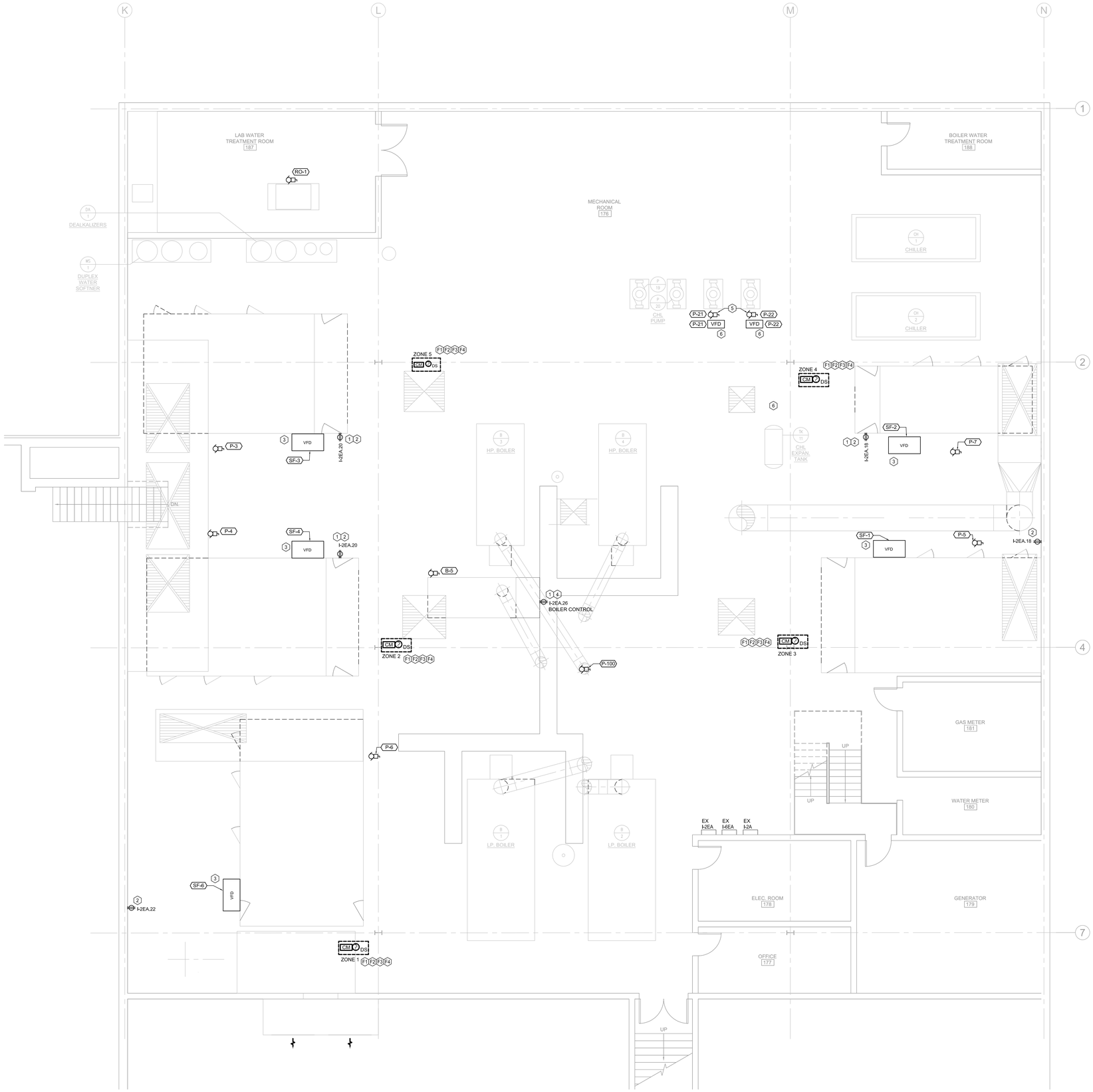

1 RENOVATION PLAN - MECHANICAL ROOM - PARTIAL MAIN LEVEL - POWER AND FIRE ALARM SYSTEMS

E200 1:50

POWER KEYNOTES:

1. RECEPTACLES SHOULD BE PLACED AT APPROXIMATELY 3600mm A.F.F.
2. BMS RECEPTACLES SHALL BE ON A SEPARATE CIRCUIT AND DO NOT SHARE CIRCUITS WITH OTHER SYSTEMS.
3. VFD WILL BE SUPPLIED AND INSTALLED BY OTHERS AND WIRED BY ELECTRICAL.
4. BOILER CONTROLLER RECEPTACLE SHALL BE ON A SEPARATE CIRCUIT AND SHALL NOT SHARE CIRCUITS WITH OTHER SYSTEM. COORDINATE EXACT LOCATION WITH MECHANICAL BEFORE INSTALLATION.
5. DISCONNECT SWITCH MUST BE PROVIDED WITH AUXILIARY CONTACT THAT COULD BE INTERLOCKED WITH THE VFD RUN PERMISSIVE CIRCUIT SO THAT WHEN THE DISCONNECT IS CLOSED A PERMISSIVE RUN SIGNAL WILL RESTART THE VFD AT LOW VOLTAGE AND FREQUENCY.
6. VFD WILL BE SUPPLIED BY OTHERS, INSTALLED AND WIRED BY ELECTRICAL.

FIRE ALARM SYSTEM KEYNOTES:

- F1 FIRE ALARM CONTROL MODULE AND DUCT SMOKE DETECTOR SHALL BE FROM THE SAME BASE BUILDING FIRE ALARM MANUFACTURER AND SHALL MATCH EXISTING.
- F2 ALLOW FOR THE PROVISION OF ASPIRATION TYPE DUCT SMOKE DETECTOR (XTRALIS XAS) COMPLETE WITH MONITOR MODULE IF THE LOCATION OF DUCT SMOKE DETECTOR IS NOT EASILY ACCESSIBLE.
- F3 AHU DUCT SMOKE DETECTOR AND CONTROL MODULE SHALL BE ON A SEPARATE FIRE ALARM ZONE. CONTRACTOR SHALL ALLOW FOR THE UPGRADE OF EXISTING FACP AND ANNUNCIATOR PANEL TO INDICATE THE NEW FIRE ALARM ZONES. DUCT SMOKE DETECTORS SHALL BE INSTALLED AS PER CAN/ULC-524 REQUIREMENT.
- F4 SHUT DOWN AIR HANDLING UNIT UPON ACTIVATION OF THE FIRE ALARM.

FIRE ALARM SYSTEM NOTES:

1. ALL NEW FIRE ALARM DEVICES SHALL MATCH EXISTING AND TO BE FROM THE SAME MANUFACTURER AS THOSE EXISTING ON SITE.
2. ELECTRICAL CONTRACTOR SHALL CONFIRM THAT EXISTING FIRE ALARM BATTERIES CAN ACCOMMODATE THE NEWLY ADDED DEVICES IN SUCH A MANNER THAT IT CAN MAINTAIN SUPERVISORY POWER FOR NOT LESS THAN 24 HOURS AND IMMEDIATELY FOLLOWING THAT PERIOD AN EMERGENCY POWER UNDER FULL LOAD FOR NOT LESS THAN 0.5 HOUR AND ALLOW FOR ANY BATTERY UPGRADE IF REQUIRED.
3. ALL FIRE ALARM WIRING SHALL BE FAS-90 CABLE INSTALLED INSIDE EMT CONDUIT. THE MINIMUM WIRE SIZE SHALL NOT BE LESS THAN # 18AWG FOR FIRE ALARM INITIATING CIRCUITS OR AS PER SYSTEM MANUFACTURER RECOMMENDATIONS.
4. CONTRACTOR SHALL ALLOW FOR ALL EXPENSES REQUIRED BY BASE BUILDING FIRE ALARM CONTRACTOR TO PROGRAM AND VERIFY THE FIRE ALARM SYSTEM TO ACCOMMODATE NEW CONFIGURATION.
5. CONTRACTOR SHALL CONFIRM EXISTING FIRE ALARM DATA COMMUNICATION LINK (DCL) WIRING AND ALLOW FOR THE PROVISION OF FAULT ISOLATOR MODULE AT EACH FIRE ALARM ZONE ENTRANCE POINT. FIRE SEPARATION AND WHEREVER REQUIRED BY CAN/ULC-524
6. CONTRACTOR SHALL ALLOW FOR ALL EXPENSES REQUIRED BY BASE BUILDING FIRE ALARM CONTRACTOR TO UPDATE FIRE ALARM ANNUNCIATOR AND PASSIVE GRAPHIC DISPLAY TO MATCH THE NEW CONFIGURATION.
7. ELECTRICAL CONTRACTOR SHALL KEEP THE FIRE ALARM SYSTEM IN OPERATION DURING CONSTRUCTION AND ALLOW FOR THE PROVISION OF 24/7 FIRE WATCH IF REQUIRED.
8. DUCT SMOKE DETECTORS LOCATION SHOWN ON THE DRAWINGS ARE APPROXIMATE. CONTRACTOR SHALL CONFIRM DUCT ROUTING ON SITE AND INSTALL DUCT SMOKE DETECTOR AS PER CAN/ULC-524 REQUIREMENT.
9. FIRE ALARM ZONES SHOWN ON THE DRAWINGS ARE FOR INTENT ONLY. CONTRACTOR SHALL CONFIRM WITH THE BASE BUILDING FIRE ALARM CONTRACTOR AND ASSIGN THE NEXT FREE ZONE NUMBER. FIRE ALARM ZONE NUMBERS SHALL BE SHOWN ON THE AS-BUILT DRAWINGS.

POWER GENERAL NOTES:

1. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION OF MECHANICAL EQUIPMENT PRIOR TO INSTALLATION.
2. ELECTRICAL CONTRACTOR SHALL VISIT SITE PRIOR TO TENDER SUBMISSION TO DETERMINE EXISTING SITE CONDITIONS.
3. ELECTRICAL EQUIPMENT SHOWN ARE NEW UNLESS OTHERWISE NOTED.
4. ELECTRICAL EQUIPMENT DISCONNECTED DURING DEMOLITION AND/OR CONSTRUCTION SHALL BE RECONNECTED AND MADE FULLY OPERATIONAL.
5. COORDINATE EXACT LOCATION OF DISCONNECT SWITCHES, CONTROL RECEPTACLES AND BMS RECEPTACLES WITH MECHANICAL PRIOR TO INSTALLATION.
6. ELECTRICAL CONTRACTOR TO INSTALL NEWLY TYPE-WRITTEN DIRECTORIES IN ALL PANELS TO CLEARLY IDENTIFY ALL NEW AND EXISTING CIRCUITS.
7. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL A KROY "DURATAPE" TYPE 200 LABEL ON ALL JUNCTION BOXES TO IDENTIFY PANEL AND ALL CIRCUIT NUMBERS WITHIN JUNCTION BOX. LABEL SHALL BE 19mm BLACK LETTERING ON WHITE TAPE.
8. CIRCUIT NUMBERS SHOWN ON THE DRAWINGS AND MOTOR LIST ARE FOR INTENT ONLY CONTRACTOR SHALL CONFIRM BASED ON REAL SITE CONDITIONS AND ALLOW FOR THE PROVISION OF NEW CIRCUIT BREAKER AND FOR PANEL BOARD UPGRADE IF REQUIRED. CIRCUIT NUMBERS SHALL BE INDICATED ON THE AS-BUILT DRAWING.
9. CONDUCTOR SIZE FOR BRANCH CIRCUITS (120/208V) 75 FEET (22860mm) IN LENGTH FROM BRANCH CIRCUIT PANEL TO CENTER OF LOAD, NOT SMALLER THAN No.12 . UP TO 150 FEET NOT SMALLER THAN No. 10, UP TO 200 FEET (60960mm) NOT SMALLER THAN No.8. CONDUCTOR SIZE FOR BRANCH CIRCUITS (347/600V) NOT SMALLER THAN No.12. UP TO 300 FEET (91440mm) NOT SMALLER THAN No. 10, UP TO 400 FEET (121920mm) NOT SMALLER THAN No.8.
10. ALL EXPOSED CONDUIT SHALL BE RUN PARALLEL TO BUILDING LINES. ALL CONDUIT RUNS ARE TO BE REVIEWED PRIOR TO INSTALLATION.
11. THE ELECTRICAL CONTRACTOR SHALL SEAL ALL PENETRATIONS FOR RACEWAY, CABLES AND ALL OTHER PENETRATIONS MADE BY THE ELECTRICAL CONTRACTOR THROUGH FIRE RATED ASSEMBLIES TO PREVENT THE SPREAD OF SMOKE AND FIRE. A SYSTEM LISTED IN ULC-S115 FTH RATED, FIRE STOP SYSTEMS AND COMPONENTS SHALL BE USED TO MAINTAIN THE FIRE RATING OF THE ASSEMBLIES.
12. DRILLING OF CUTTING OF THE FLOOR SLAB IS NOT PERMITTED WITHOUT PRIOR WRITTEN APPROVAL FROM THE PROPERTY MANAGER. X-RAYING OF CORE LOCATIONS MUST BE COMPLETED PRIOR TO CORING. CO-ORDINATE WITH TRADES & OWNER.

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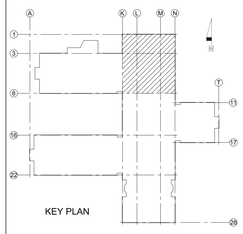

KEY PLAN

PROFESSIONAL ENGINEER WALID HAMED ALBERTA

2020.07.07

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TOWNSHIP ROAD 9-1, T1J 3Z4

NATIONAL CENTRE FOR ANIMAL DISEASES AHU REPLACEMENT

Designed by / Conçu par: WH
Drawn by / Dessiné par: GB
Approved by / Approuvé par: WH
PWGSC Project Manager / Administrateur de Projets TPSGC

Drawing title / Titre du dessin

ELECTRICAL RENOVATION PLAN MECHANICAL ROOM PARTIAL MAIN LEVEL POWER AND FIRE ALARM SYSTEMS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
115303307	E200	0

08 OF 16

PWGSC – A0 – 1189X841

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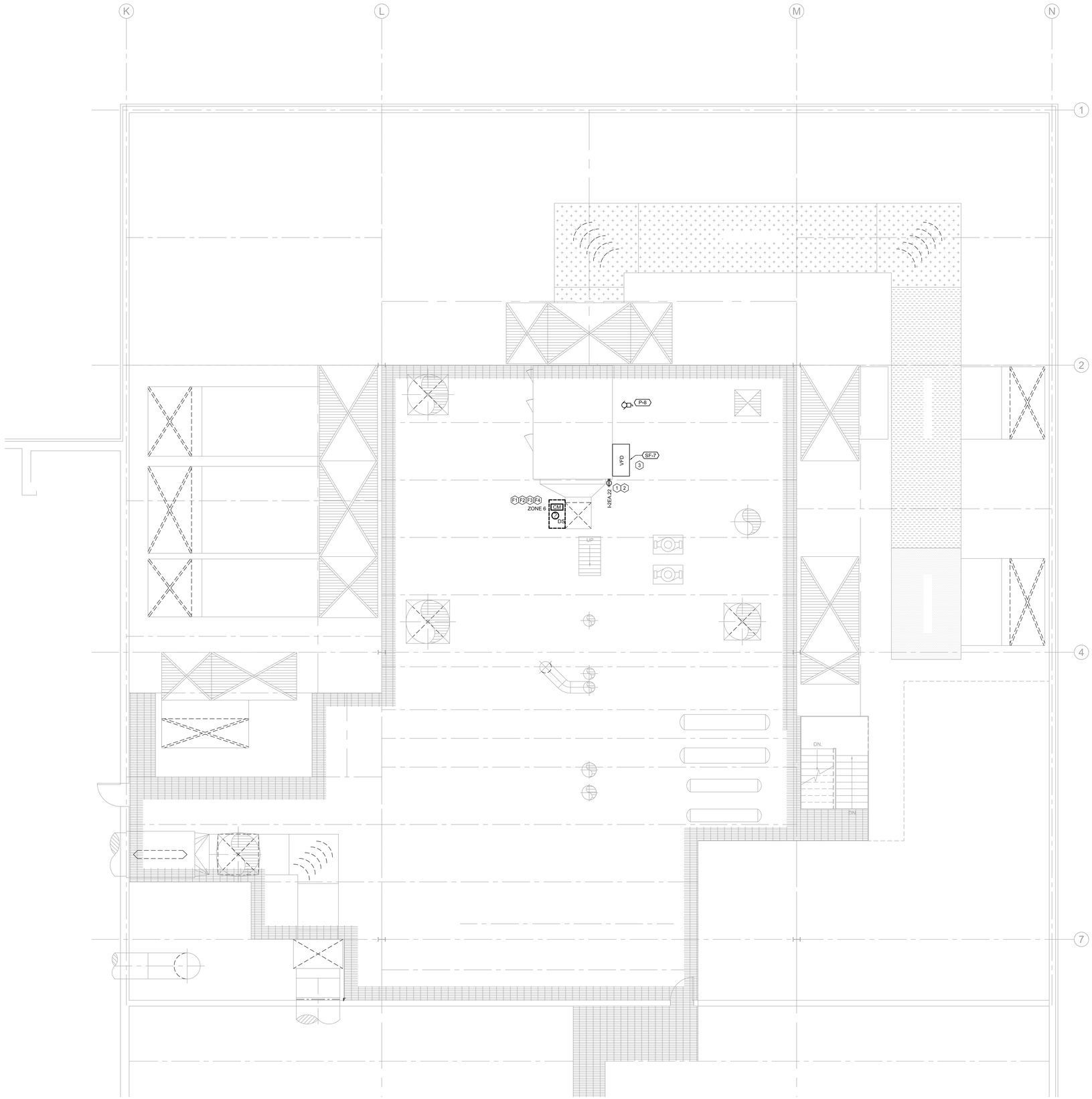

1 E201 **RENOVATION PARTIAL PLAN - MECHANICAL ROOM - INTERSTITIAL LEVEL - POWER AND FIRE ALARM SYSTEMS**
1:50

POWER KEYNOTES:

1. RECEPTACLES SHOULD BE PLACED AT APPROXIMATELY 3600mm A.F.F.
2. BMS RECEPTACLES SHALL BE ON A SEPARATE CIRCUIT AND SHALL NOT SHARE CIRCUITS WITH OTHER SYSTEMS.
3. VFD WILL BE SUPPLIED AND INSTALLED BY OTHERS AND WIRED BY ELECTRICAL.

FIRE ALARM SYSTEM KEYNOTES:

F1. FIRE ALARM CONTROL MODULE AND DUCT SMOKE DETECTOR SHALL BE FROM THE SAME BASE BUILDING FIRE ALARM MANUFACTURER AND SHALL MATCH EXISTING.

F2. ALLOW FOR THE PROVISION OF ASPIRATION TYPE DUCT SMOKE DETECTOR (XTRALIS XAS) COMPLETE WITH MONITOR MODULE IF THE LOCATION OF DUCT SMOKE DETECTOR IS NOT EASILY ACCESSIBLE.

F3. AHU DUCT SMOKE DETECTOR AND CONTROL MODULE SHALL BE ON A SEPARATE FIRE ALARM ZONE. CONTRACTOR SHALL ALLOW FOR THE UPGRADE OF EXISTING FACP AND ANNUNCIATOR PANEL TO INDICATE THE NEW FIRE ALARM ZONES. DUCT SMOKE DETECTORS SHALL BE INSTALLED AS PER CAN/ULC-524 REQUIREMENT.

F4. SHUT DOWN AIR HANDLING UNIT UPON ACTIVATION OF THE FIRE ALARM.

FIRE ALARM SYSTEM NOTES:

1. ALL NEW FIRE ALARM DEVICES SHALL MATCH EXISTING AND TO BE FROM THE SAME MANUFACTURER AS THOSE EXISTING ON SITE.
2. ELECTRICAL CONTRACTOR SHALL CONFIRM THAT EXISTING FIRE ALARM BATTERIES CAN ACCOMMODATE THE NEWLY ADDED DEVICES IN SUCH A MANNER THAT IT CAN MAINTAIN SUPERVISORY POWER FOR NOT LESS THAN 24 HOURS AND IMMEDIATELY FOLLOWING THAT PERIOD AN EMERGENCY POWER UNDER FULL LOAD FOR NOT LESS THAN 0.5 HOUR AND ALLOW FOR ANY BATTERY UPGRADE IF REQUIRED.
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4. CONTRACTOR SHALL ALLOW FOR ALL EXPENSES REQUIRED BY BASE BUILDING FIRE ALARM CONTRACTOR TO PROGRAM AND VERIFY THE FIRE ALARM SYSTEM TO ACCOMMODATE NEW CONFIGURATION.
5. CONTRACTOR SHALL CONFIRM EXISTING FIRE ALARM DATA COMMUNICATION LINK (DCL) WIRING AND ALLOW FOR THE PROVISION OF FAULT ISOLATOR MODULE AT EACH FIRE ALARM ZONE ENTRANCE POINT, FIRE SEPARATION AND WHEREVER REQUIRED BY CAN/ULC-524
6. CONTRACTOR SHALL ALLOW FOR ALL EXPENSES REQUIRED BY BASE BUILDING FIRE ALARM CONTRACTOR TO UPDATE FIRE ALARM ANNUNCIATOR AND PASSIVE GRAPHIC DISPLAY TO MATCH THE NEW CONFIGURATION.
7. ELECTRICAL CONTRACTOR SHALL KEEP THE FIRE ALARM SYSTEM IN OPERATION DURING CONSTRUCTION AND ALLOW FOR THE PROVISION OF 24/7 FIRE WATCH IF REQUIRED.
8. DUCT SMOKE DETECTORS LOCATION SHOWN ON THE DRAWINGS ARE APPROXIMATE. CONTRACTOR SHALL CONFIRM DUCT ROUTING ON SITE AND INSTALL DUCT SMOKE DETECTOR AS PER CAN/ULC-524 REQUIREMENT.
9. FIRE ALARM ZONES SHOWN ON THE DRAWINGS ARE FOR INTENT ONLY. CONTRACTOR SHALL CONFIRM WITH THE BASE BUILDING FIRE ALARM CONTRACTOR AND ASSIGN THE NEXT FREE ZONE NUMBER. FIRE ALARM ZONE NUMBERS SHALL BE SHOWN ON THE AS-BUILT DRAWINGS.

POWER GENERAL NOTES:

1. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION OF MECHANICAL EQUIPMENT PRIOR TO INSTALLATION.
2. ELECTRICAL CONTRACTOR SHALL VISIT SITE PRIOR TO TENDER SUBMISSION TO DETERMINE EXISTING SITE CONDITIONS.
3. ELECTRICAL EQUIPMENT SHOWN ARE NEW UNLESS OTHERWISE NOTED.
4. ELECTRICAL EQUIPMENT DISCONNECTED DURING DEMOLITION AND/OR CONSTRUCTION SHALL BE RECONNECTED AND MADE FULLY OPERATIONAL.
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12. DRILLING OF CUTTING OF THE FLOOR SLAB IS NOT PERMITTED WITHOUT PRIOR WRITTEN APPROVAL FROM THE PROPERTY MANAGER. X-RAYING OF CORE LOCATIONS MUST BE COMPLETED PRIOR TO CORING. CO-ORDINATE WITH TRADES & OWNER.

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REAL PROPERTY SERVICES
Western Region
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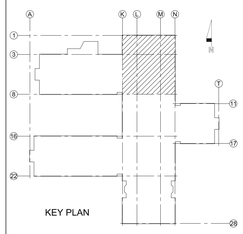

KEY PLAN

PROFESSIONAL ENGINEER ALBERTA
PAUL HAMPSON
2020.07.07

PERMIT TO PRACTICE
STANTEC CONSULTING LTD.
Signature
Date 2020.07.07
PERMIT NUMBER: P 0258
The Association of Professional Engineers and Geoscientists of Alberta

Revision	Description	Date
5		
4		
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0	ISSUED FOR TENDER	2020.07.07

Client / client

Public Services and Procurement Canada

Project / Projet

LETHBRIDGE, AB
TOWNSHIP ROAD 9-1, T1J 3Z4

NATIONAL CENTRE FOR ANIMAL DISEASES AHU REPLACEMENT

Designed by / Conçu par: WH
Drawn by / Dessiné par: GB
Approved by / Approuvé par: WH
PWGSC Project Manager / Administrateur de Projets TPSGC

Drawing title / Titre du dessin

ELECTRICAL
RENOVATION PARTIAL PLAN
MECHANICAL ROOM
INTERSTITIAL LEVEL
POWER AND FIRE ALARM SYSTEMS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
115303307	E201	0

09 OF 16

PWGSC – A0 – 1189X841

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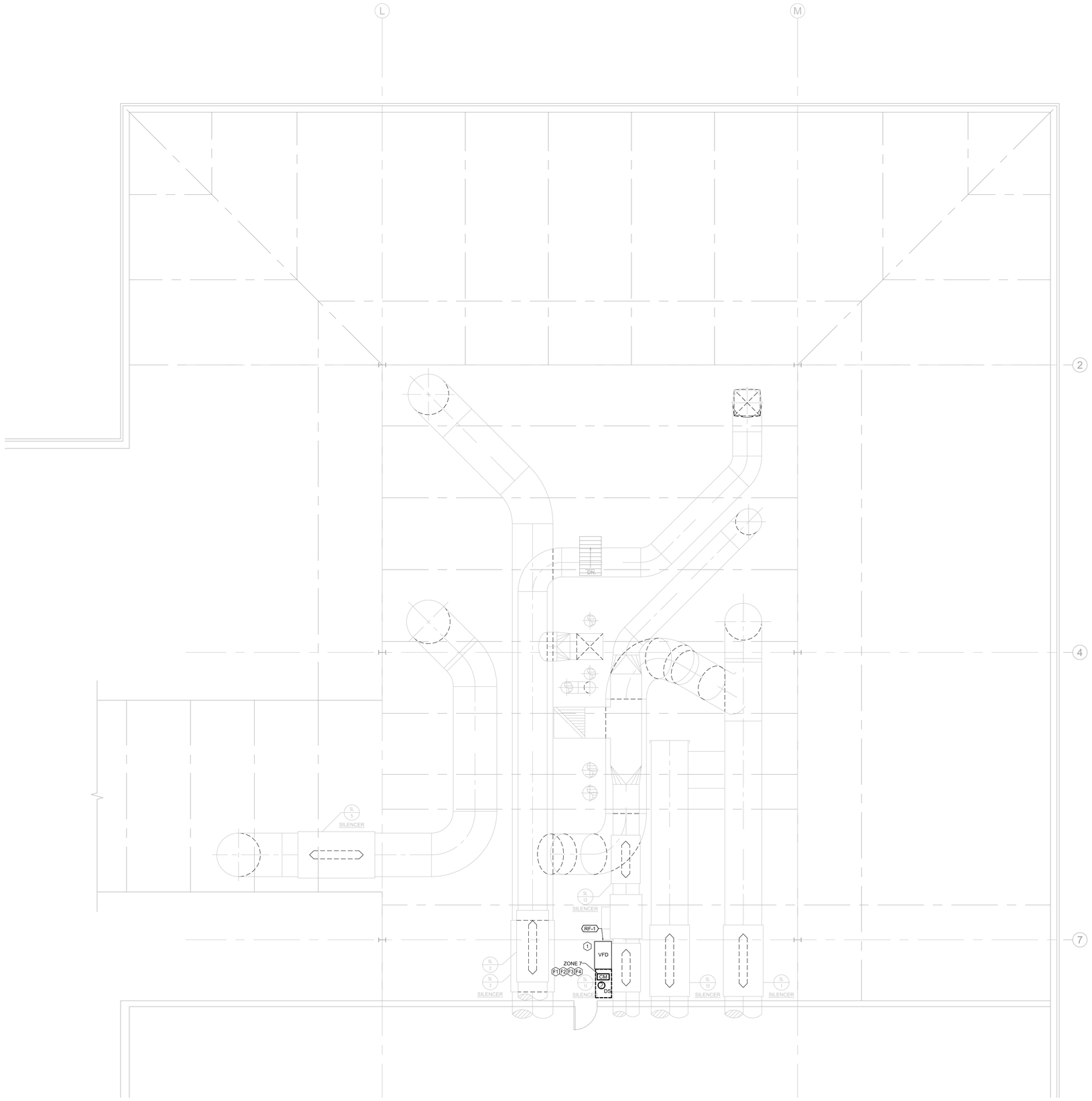
E201.DWG



1 E202 **RENOVATION PLAN - MECHANICAL ROOM - FAN LOFT LEVEL - POWER AND FIRE ALARM SYSTEMS**
1:50

POWER KEYNOTES:

1. VFD WILL BE SUPPLED AND INSTALLED BY OTHERS AND WIRED BY ELECTRICAL.

FIRE ALARM SYSTEM KEYNOTES:

F1. FIRE ALARM CONTROL MODULE AND DUCT SMOKE DETECTOR SHALL BE FROM THE SAME BASE BUILDING FIRE ALARM MANUFACTURER AND SHALL MATCH EXISTING.

F2. ALLOW FOR THE PROVISION OF ASPIRATION TYPE DUCT SMOKE DETECTOR (XTRALIS XAS) COMPLETE WITH MONITOR MODULE IF THE LOCATION OF DUCT SMOKE DETECTOR IS NOT EASILY ACCESSIBLE.

F3. RF-1 DUCT SMOKE DETECTOR AND CONTROL MODULE SHALL BE ON A SEPARATE FIRE ALARM ZONE. CONTRACTOR SHALL ALLOW FOR THE UPGRADE OF EXISTING FACP AND ANNUNCIATOR PANEL TO INDICATE THE NEW FIRE ALARM ZONES.

F4. SHUT DOWN RETURN AIR FAN UPON ACTIVATION OF THE FIRE ALARM.

FIRE ALARM SYSTEM NOTES:

1. ALL NEW FIRE ALARM DEVICES SHALL MATCH EXISTING AND TO BE FROM THE SAME MANUFACTURER AS THOSE EXISTING ON SITE.
2. ELECTRICAL CONTRACTOR SHALL CONFIRM THAT EXISTING FIRE ALARM BATTERIES CAN ACCOMMODATE THE NEWLY ADDED DEVICES IN SUCH A MANNER THAT IT CAN MAINTAIN SUPERVISORY POWER FOR NOT LESS THAN 24 HOURS AND IMMEDIATELY FOLLOWING THAT PERIOD AN EMERGENCY POWER UNDER FULL LOAD FOR NOT LESS THAN 0.5 HOUR AND ALLOW FOR ANY BATTERY UPGRADE IF REQUIRED.
3. ALL FIRE ALARM WIRING SHALL BE FAS-90 CABLE INSTALLED INSIDE EMT CONDUIT. THE MINIMUM WIRE SIZE SHALL NOT BE LESS THAN # 18AWG FOR FIRE ALARM INITIATING CIRCUITS OR AS PER SYSTEM MANUFACTURER RECOMMENDATIONS.
4. CONTRACTOR SHALL ALLOW FOR ALL EXPENSES REQUIRED BY BASE BUILDING FIRE ALARM CONTRACTOR TO PROGRAM AND VERIFY THE FIRE ALARM SYSTEM TO ACCOMMODATE NEW CONFIGURATION.
5. CONTRACTOR SHALL CONFIRM EXISTING FIRE ALARM DATA COMMUNICATION LINK (DCL) WIRING AND ALLOW FOR THE PROVISION OF FAULT ISOLATOR MODULE AT EACH FIRE ALARM ZONE ENTRANCE POINT, FIRE SEPARATION AND WHEREVER REQUIRED BY CAN/ULC-524
6. CONTRACTOR SHALL ALLOW FOR ALL EXPENSES REQUIRED BY BASE BUILDING FIRE ALARM CONTRACTOR TO UPDATE FIRE ALARM ANNUNCIATOR AND PASSIVE GRAPHIC DISPLAY TO MATCH THE NEW CONFIGURATION.
7. ELECTRICAL CONTRACTOR SHALL KEEP THE FIRE ALARM SYSTEM IN OPERATION DURING CONSTRUCTION AND ALLOW FOR THE PROVISION OF 24/7 FIRE WATCH IF REQUIRED.
8. DUCT SMOKE DETECTORS LOCATION SHOWN ON THE DRAWINGS ARE APPROXIMATE. CONTRACTOR SHALL CONFIRM DUCT ROUTING ON SITE AND INSTALL DUCT SMOKE DETECTOR AS PER CAN/ULC-524 REQUIREMENT.
9. FIRE ALARM ZONES SHOWN ON THE DRAWINGS ARE FOR INTENT ONLY. CONTRACTOR SHALL CONFIRM WITH THE BASE BUILDING FIRE ALARM CONTRACTOR AND ASSIGN THE NEXT FREE ZONE NUMBER. FIRE ALARM ZONE NUMBERS SHALL BE SHOWN ON THE AS-BUILT DRAWINGS.

POWER GENERAL NOTES:

1. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION OF MECHANICAL EQUIPMENT PRIOR TO INSTALLATION.
2. ELECTRICAL CONTRACTOR SHALL VISIT SITE PRIOR TO TENDER SUBMISSION TO DETERMINE EXISTING SITE CONDITIONS.
3. ELECTRICAL EQUIPMENT SHOWN ARE NEW UNLESS OTHERWISE NOTED.
4. ELECTRICAL EQUIPMENT DISCONNECTED DURING DEMOLITION AND/OR CONSTRUCTION SHALL BE RECONNECTED AND MADE FULLY OPERATIONAL.
5. COORDINATE EXACT LOCATION OF DISCONNECT SWITCHES, CONTROL RECEPTACLES AND BMS RECEPTACLES WITH MECHANICAL PRIOR TO INSTALLATION.
6. ELECTRICAL CONTRACTOR TO INSTALL NEWLY TYPE-WRITTEN DIRECTORIES IN ALL PANELS TO CLEARLY IDENTIFY ALL NEW AND EXISTING CIRCUITS.
7. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL A KROY 'DURATAPE' TYPE 200 LABEL ON ALL JUNCTION BOXES TO IDENTIFY PANEL AND ALL CIRCUIT NUMBERS WITHIN JUNCTION BOX. LABEL SHALL BE 19mm BLACK LETTERING ON WHITE TAPE.
8. CIRCUIT NUMBERS SHOWN ON THE DRAWINGS AND MOTOR LIST ARE FOR INTENT ONLY CONTRACTOR SHALL CONFIRM BASED ON REAL SITE CONDITIONS AND ALLOW FOR THE PROVISION OF NEW CIRCUIT BREAKER AND FOR PANEL BOARD UPGRADE IF REQUIRED. CIRCUIT NUMBERS SHALL BE INDICATED ON THE AS-BUILT DRAWING.
9. CONDUCTOR SIZE FOR BRANCH CIRCUITS (120/208V) 75 FEET (22860mm) IN LENGTH FROM BRANCH CIRCUIT PANEL TO CENTER OF LOAD, NOT SMALLER THAN No.12, UP TO 150 FEET NOT SMALLER THAN No. 10, UP TO 200 FEET (60960mm) NOT SMALLER THAN No.8. CONDUCTOR SIZE FOR BRANCH CIRCUITS (347/600V) NOT SMALLER THAN No.12, UP TO 300 FEET (91440mm) NOT SMALLER THAN No. 10, UP TO 400 FEET (121920mm) NOT SMALLER THAN No.8.
10. ALL EXPOSED CONDUIT SHALL BE RUN PARALLEL TO BUILDING LINES. ALL CONDUIT RUNS ARE TO BE REVIEWED PRIOR TO INSTALLATION.
11. THE ELECTRICAL CONTRACTOR SHALL SEAL ALL PENETRATIONS FOR RACEWAY, CABLES AND ALL OTHER PENETRATIONS MADE BY THE ELECTRICAL CONTRACTOR THROUGH FIRE RATED ASSEMBLIES TO PREVENT THE SPREAD OF SMOKE AND FIRE. A SYSTEM LISTED IN ULC-S115 FTH RATED, FIRE STOP SYSTEMS AND COMPONENTS SHALL BE USED TO MAINTAIN THE FIRE RATING OF THE ASSEMBLIES.
12. DRILLING OF CUTTING OF THE FLOOR SLAB IS NOT PERMITTED WITHOUT PRIOR WRITTEN APPROVAL FROM THE PROPERTY MANAGER. X-RAYING OF CORE LOCATIONS MUST BE COMPLETED PRIOR TO CORING. CO-ORDINATE WITH TRADES & OWNER.

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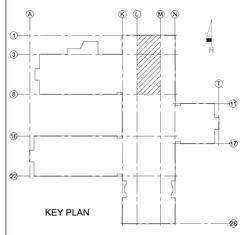

KEY PLAN

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TOWNSHIP ROAD 9-1, T1J 3Z4

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Designed by / Conçu par: **WH**
Drawn by / Dessiné par: **GB**
Approved by / Approuvé par: **WH**
PWGSC Project Manager / Administrateur de Projets TPSGC

Drawing title / Titre du dessin

ELECTRICAL RENOVATION PLAN MECHANICAL ROOM FAN LOFT LEVEL POWER AND FIRE ALARM SYSTEMS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
115303307	E202	0

10 OF 16

PWGSC – A0 – 1189X841

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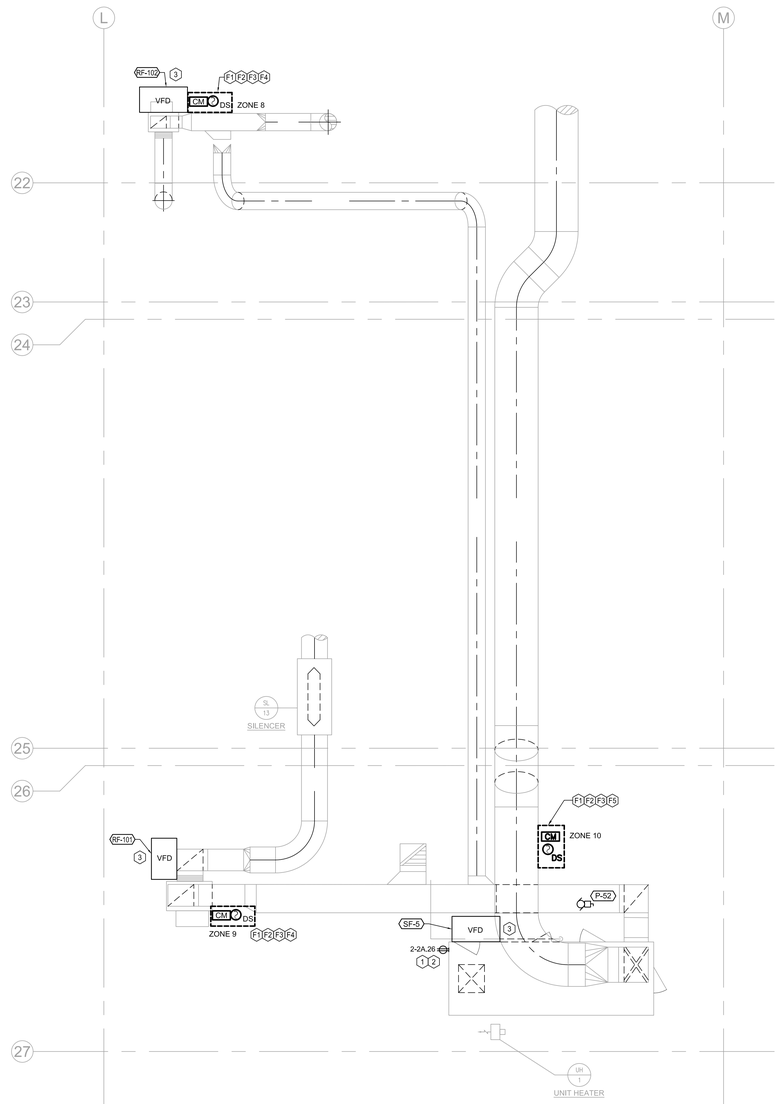

1 E203 **RENOVATION PLAN -SUPPORT BLOCK - FAN LOFT LEVEL - POWER AND FIRE ALARM SYSTEMS**
1:50

POWER KEYNOTES:

1. RECEPTACLES SHOULD BE PLACED AT APPROXIMATELY 3600mm A.F.F.
2. BMS RECEPTACLES SHALL BE ON A SEPARATE CIRCUIT AND SHALL NOT SHARE CIRCUITS WITH OTHER SYSTEMS.
3. VFD WILL BE SUPPLIED AND INSTALLED BY OTHERS AND WIRED BY ELECTRICAL.

FIRE ALARM SYSTEM KEYNOTES:

F1. FIRE ALARM CONTROL MODULE AND DUCT SMOKE DETECTOR SHALL BE FROM THE SAME BASE BUILDING FIRE ALARM MANUFACTURER AND SHALL MATCH EXISTING.

F2. ALLOW FOR THE PROVISION OF ASPIRATION TYPE DUCT SMOKE DETECTOR (XTRALIS XAS) COMPLETE WITH MONITOR MODULE IF THE LOCATION OF DUCT SMOKE DETECTOR IS NOT EASILY ACCESSIBLE.

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F4. SHUT DOWN RETURN AIR FAN UPON ACTIVATION OF THE FIRE ALARM.

F5. SHUT DOWN AIR HANDLING UNIT UPON ACTIVATION OF THE FIRE ALARM.

FIRE ALARM SYSTEM NOTES:

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Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

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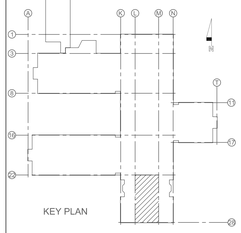

KEY PLAN

PROFESSIONAL ENGINEER ALBERTA

2020.07.07

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Public Services and Procurement Canada

Project / Projet
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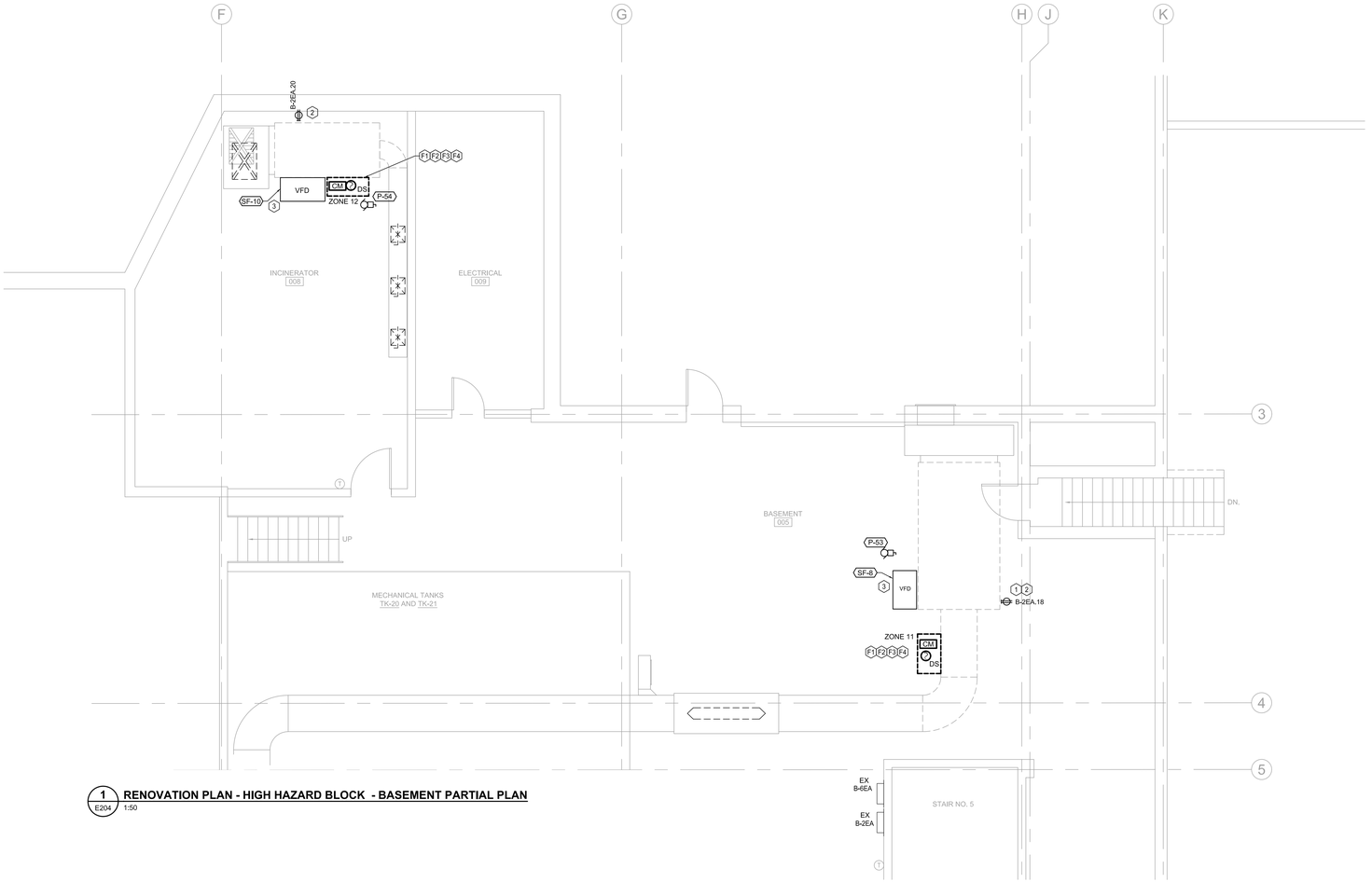
TOWNSHIP ROAD 9-1, T1J 3Z4

NATIONAL CENTRE FOR ANIMAL DISEASES AHU REPLACEMENT

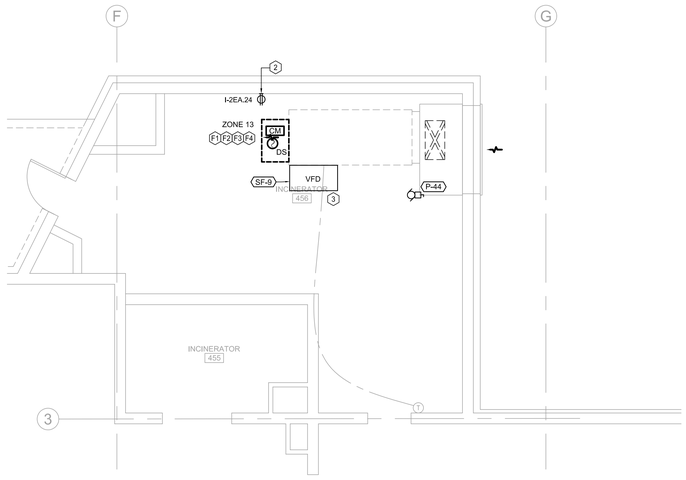
Designed by / Conçu par: WH
Drawn by / Dessiné par: GB
Approved by / Approuvé par: WH
PWGSC Project Manager / Administrateur de Projets TPSGC

Drawing title / Titre du dessin
ELECTRICAL RENOVATION PLAN SUPPORT BLOCK FAN LOFT LEVEL POWER AND FIRE ALARM SYSTEMS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
115303307	E203 11 OF 16	0



1 E204 **RENOVATION PLAN - HIGH HAZARD BLOCK - BASEMENT PARTIAL PLAN**
1:50



2 E204 **RENOVATION PLAN - HIGH HAZARD BLOCK - MAIN PARTIAL PLAN**
1:50

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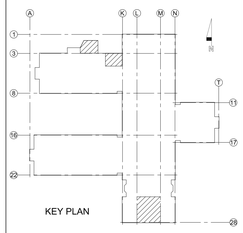

KEY PLAN

PROFESSIONAL ENGINEER SAJID HAMID ALBERTA
2020.07.07

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PWGSC Project Manager / Administrateur de Projets TPSGC

Drawing title / Titre du dessin
ELECTRICAL RENOVATION PLAN HIGH HAZARD BLOCK BASEMENT & MAIN PARTIAL LEVEL POWER AND FIRE ALARM SYSTEMS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
115303307	E204	0

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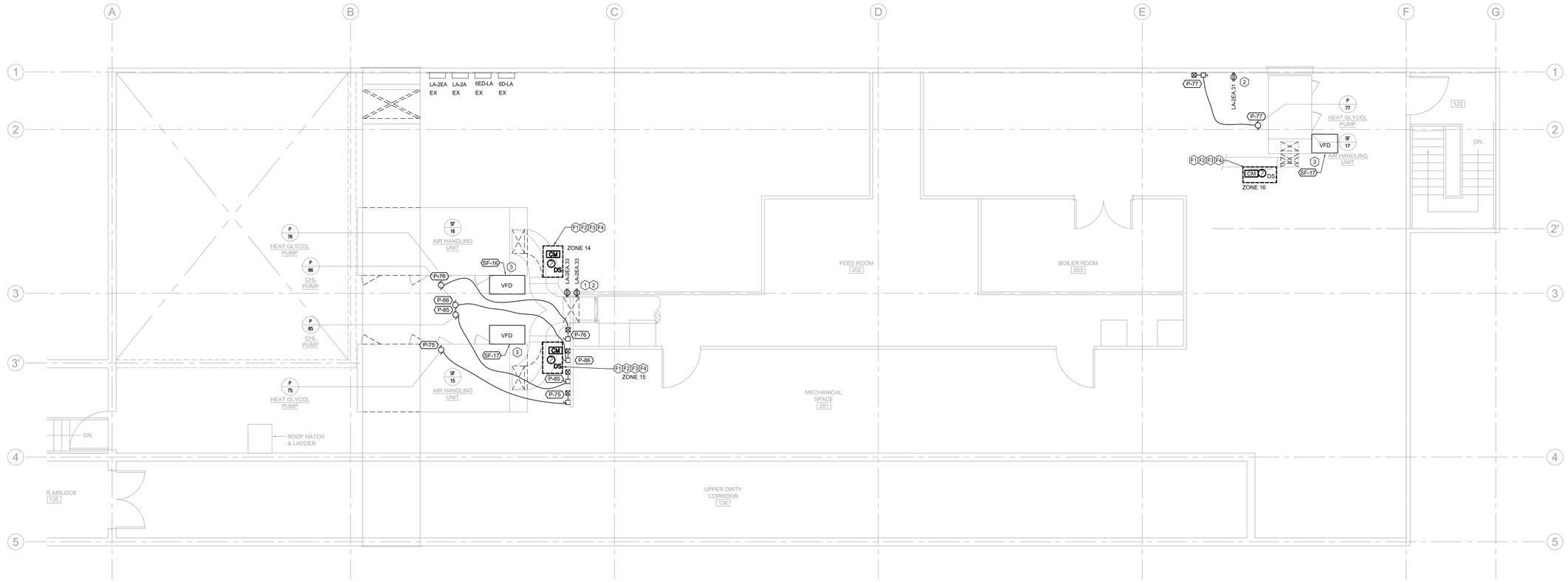
PWGSC – A0 – 1189X841

0 10 20 30 40 50 60 70 80 90 100mm

E204.DWG



1 E205 **RENOVATION PLAN - 500 WING BUILDING - SECOND LEVEL - POWER AND FIRE ALARM**
1:50

POWER KEYNOTES:

1. RECEPTACLES SHOULD BE PLACED AT APPROXIMATELY 3600mm A.F.F.
2. BMS RECEPTACLES SHALL BE ON A SEPARATE CIRCUIT AND SHALL NOT SHARE CIRCUITS WITH OTHER SYSTEMS.
3. VFD WILL BE SUPPLIED AND INSTALLED BY OTHERS AND WIRED BY ELECTRICAL.

FIRE ALARM SYSTEM KEYNOTES:

F1 FIRE ALARM CONTROL MODULE AND DUCT SMOKE DETECTOR SHALL BE FROM THE SAME BASE BUILDING FIRE ALARM MANUFACTURER AND SHALL MATCH EXISTING.

F2 ALLOW FOR THE PROVISION OF ASPIRATION TYPE DUCT SMOKE DETECTOR (XTRALIS XAS) COMPLETE WITH MONITOR MODULE IF THE LOCATION OF DUCT SMOKE DETECTOR IS NOT EASILY ACCESSIBLE.

F3 AHU DUCT SMOKE DETECTOR AND CONTROL MODULE SHALL BE ON A SEPARATE FIRE ALARM ZONE. CONTRACTOR SHALL ALLOW FOR THE UPGRADE OF EXISTING FACP AND ANNUNCIATOR PANEL TO INDICATE THE NEW FIRE ALARM ZONES.

F4 SHUT DOWN AIR HANDLING UNIT UPON ACTIVATION OF THE FIRE ALARM.

FIRE ALARM SYSTEM NOTES:

1. ALL NEW FIRE ALARM DEVICES SHALL MATCH EXISTING AND TO BE FROM THE SAME MANUFACTURER AS THOSE EXISTING ON SITE.
2. ELECTRICAL CONTRACTOR SHALL CONFIRM THAT EXISTING FIRE ALARM BATTERIES CAN ACCOMMODATE THE NEWLY ADDED DEVICES IN SUCH A MANNER THAT IT CAN MAINTAIN SUPERVISORY POWER FOR NOT LESS THAN 24 HOURS AND IMMEDIATELY FOLLOWING THAT PERIOD AN EMERGENCY POWER UNDER FULL LOAD FOR NOT LESS THAN 0.5 HOUR AND ALLOW FOR ANY BATTERY UPGRADE IF REQUIRED.
3. ALL FIRE ALARM WIRING SHALL BE FAS-90 CABLE INSTALLED INSIDE EMT CONDUIT. THE MINIMUM WIRE SIZE SHALL NOT BE LESS THAN # 18AWG FOR FIRE ALARM INITIATING CIRCUITS OR AS PER SYSTEM MANUFACTURER RECOMMENDATIONS.
4. CONTRACTOR SHALL ALLOW FOR ALL EXPENSES REQUIRED BY BASE BUILDING FIRE ALARM CONTRACTOR TO PROGRAM AND VERIFY THE FIRE ALARM SYSTEM TO ACCOMMODATE NEW CONFIGURATION.
5. CONTRACTOR SHALL CONFIRM EXISTING FIRE ALARM DATA COMMUNICATION LINK (DCL) WIRING AND ALLOW FOR THE PROVISION OF FAULT ISOLATOR MODULE AT EACH FIRE ALARM ZONE ENTRANCE POINT, FIRE SEPARATION AND WHEREVER REQUIRED BY CAN/ULC-524
6. CONTRACTOR SHALL ALLOW FOR ALL EXPENSES REQUIRED BY BASE BUILDING FIRE ALARM CONTRACTOR TO UPDATE FIRE ALARM ANNUNCIATOR AND PASSIVE GRAPHIC DISPLAY TO MATCH THE NEW CONFIGURATION.
7. ELECTRICAL CONTRACTOR SHALL KEEP THE FIRE ALARM SYSTEM IN OPERATION DURING CONSTRUCTION AND ALLOW FOR THE PROVISION OF 24/7 FIRE WATCH IF REQUIRED.
8. DUCT SMOKE DETECTORS LOCATION SHOWN ON THE DRAWINGS ARE APPROXIMATE. CONTRACTOR SHALL CONFIRM DUCT ROUTING ON SITE AND INSTALL DUCT SMOKE DETECTOR AS PER CAN/ULC-524 REQUIREMENT.
9. FIRE ALARM ZONES SHOWN ON THE DRAWINGS ARE FOR INTENT ONLY. CONTRACTOR SHALL CONFIRM WITH THE BASE BUILDING FIRE ALARM CONTRACTOR AND ASSIGN THE NEXT FREE ZONE NUMBER. FIRE ALARM ZONE NUMBERS SHALL BE SHOWN ON THE AS-BUILT DRAWINGS.

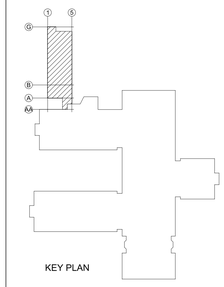
POWER GENERAL NOTES:

1. REFER TO MECHANICAL DRAWINGS FOR EXACT LOCATION OF MECHANICAL EQUIPMENT PRIOR TO INSTALLATION.
2. ELECTRICAL CONTRACTOR SHALL VISIT SITE PRIOR TO TENDER SUBMISSION TO DETERMINE EXISTING SITE CONDITIONS.
3. ELECTRICAL EQUIPMENT SHOWN ARE NEW UNLESS OTHERWISE NOTED.
4. ELECTRICAL EQUIPMENT DISCONNECTED DURING DEMOLITION AND/OR CONSTRUCTION SHALL BE RECONNECTED AND MADE FULLY OPERATIONAL.
5. COORDINATE EXACT LOCATION OF DISCONNECT SWITCHES, CONTROL RECEPTACLES AND BMS RECEPTACLES WITH MECHANICAL PRIOR TO INSTALLATION.
6. ELECTRICAL CONTRACTOR TO INSTALL NEWLY TYPE-WRITTEN DIRECTORIES IN ALL PANELS TO CLEARLY IDENTIFY ALL NEW AND EXISTING CIRCUITS.
7. ELECTRICAL CONTRACTOR SHALL SUPPLY AND INSTALL A KROY 'DURATAPE' TYPE 200 LABEL ON ALL JUNCTION BOXES TO IDENTIFY PANEL AND ALL CIRCUIT NUMBERS WITHIN JUNCTION BOX. LABEL SHALL BE 19mm BLACK LETTERING ON WHITE TAPE.
8. CIRCUIT NUMBERS SHOWN ON THE DRAWINGS AND MOTOR LIST ARE FOR INTENT ONLY CONTRACTOR SHALL CONFIRM BASED ON REAL SITE CONDITIONS AND ALLOW FOR THE PROVISION OF NEW CIRCUIT BREAKER AND FOR PANEL BOARD UPGRADE IF REQUIRED. CIRCUIT NUMBERS SHALL BE INDICATED ON THE AS-BUILT DRAWING.
9. CONDUCTOR SIZE FOR BRANCH CIRCUITS (120/208V) 75 FEET (22860mm) IN LENGTH FROM BRANCH CIRCUIT PANEL TO CENTER OF LOAD, NOT SMALLER THAN No.12 , UP TO 150 FEET NOT SMALLER THAN No. 10, UP TO 200 FEET (60960mm) NOT SMALLER THAN No.8. CONDUCTOR SIZE FOR BRANCH CIRCUITS (347/600V) NOT SMALLER THAN No.12, UP TO 300 FEET (91440mm) NOT SMALLER THAN No. 10, UP TO 400 FEET (121920mm) NOT SMALLER THAN No.8.
10. ALL EXPOSED CONDUIT SHALL BE RUN PARALLEL TO BUILDING LINES. ALL CONDUIT RUNS ARE TO BE REVIEWED PRIOR TO INSTALLATION.
11. THE ELECTRICAL CONTRACTOR SHALL SEAL ALL PENETRATIONS FOR RACEWAY, CABLES AND ALL OTHER PENETRATIONS MADE BY THE ELECTRICAL CONTRACTOR THROUGH FIRE RATED ASSEMBLIES TO PREVENT THE SPREAD OF SMOKE AND FIRE. A SYSTEM LISTED IN ULC-S115 FTH RATED, FIRE STOP SYSTEMS AND COMPONENTS SHALL BE USED TO MAINTAIN THE FIRE RATING OF THE ASSEMBLIES.
12. DRILLING OF CUTTING OF THE FLOOR SLAB IS NOT PERMITTED WITHOUT PRIOR WRITTEN APPROVAL FROM THE PROPERTY MANAGER. X-RAYING OF CORE LOCATIONS MUST BE COMPLETED PRIOR TO CORING. CO-ORDINATE WITH TRADES & OWNER.

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

Stantec



KEY PLAN

PERMIT TO PRACTICE
STANTEC CONSULTING LTD.
Signature
Date 2020.07.07
PERMIT NUMBER: P 0258
The Association of Professional Engineers and Geoscientists of Alberta

2020.07.07

Revision	Description	Date
5		
4		
3		
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0	ISSUED FOR TENDER	2020.07.07

Client / client
Public Services and Procurement Canada

Project / Projet
LETHBRIDGE, AB
TOWNSHIP ROAD 9-1, T1J 3Z4

NATIONAL CENTRE FOR ANIMAL DISEASES AHU REPLACEMENT

Designed by / Conçu par: **WH**
Drawn by / Dessiné par: **GB**
Approved by / Approuvé par: **WH**
PWGSC Project Manager / Administrateur de Projets TPSGC

Drawing title / Titre du dessin
ELECTRICAL RENOVATION PLAN 500 WING BUILDING SECOND LEVEL POWER AND FIRE ALARM

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
115303307	E205	0

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PWGSC – A0 – 1189X841

0 10 20 30 40 50 60 70 80 90 100mm

E205.DWG

Mechancial										Mechanical/Electrical							Mechancial				Electrical		Mechancial					Electrical	M/E	M/E	M	
MECHANICAL EQUIPMENT SCHEDULE																																
			LOAD								STARTER & ACCESSORIES						CONTROL						MOTOR DISCONNECT									
UNIT No.	UNIT	LOCATION	HP	Kw	FLA	MOCP / MOP (Or MCA)	MCA (AMPS)	VOLTS (Check Main Service)	PHASE	PACKAGED EQUIPMENT (Y/N)	TYPE [B]	CONTROL [C]	PILOT LIGHTS [E]	SUPPLIED BY [A]	INSTALLED BY [A]	WIRING BY [A]	TYPE [D]	SUPPLIED BY [A]	INSTALLED BY [A]	WIRING BY [A]	CIRCUIT	BREAKER / FUSE SIZE	SUPPLIED BY [A]	INSTALLED BY [A]	WIRED BY [A]	INTEGRATED SWITCH BY MECH (Y/N)	DISCONNECT SWITCH SIZE	FEEDER (SEE NOTES 2 & 8)	FIRE ALARM SHUTDOWN (Y/N)	FIRE ALARM STARTUP (Y/N)	EMERGENCY POWER (Y/N)	REMARKS
SF-1	SUPPLY FAN 1	MECHANICAL ROOM	100.00	74.57	104.00			575	3	Y	VFD	HOA		M	M	E	BMS	M	M	E	MCC#1	175AF/200A,3P				Y		(3#3/0)AWG+1#6GND,CU,XLPE,RW90, 1000V Inside 53mm EMT conduit	Y	N		1 - Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current 3- Provide shielded VFD Cable
SF-1	BMS POWER	MECHANICAL ROOM				15	15.00	120	1	N	REC			E	E	E					1-2EA.18	15A,1P						(2#12AWG)+1#12GND,CU,RW90,600V Inside 21mm EMT conduit				1- BMS receptacles shall be on a dedicated circuit and shall not sharee circuits with other systems. 2- Provide new 15A,1P,120V circuit breaker at PNL 1-2EA
SF-2	SUPPLY FAN 2	MECHANICAL ROOM	30.00	22.37	28.20			575	3	Y	VFD	HOA		M	M	E	BMS	M	M	E	MCC#2	45AF/60A,3P				Y		(3#4)AWG+1#8GND,CU,XLPE,RW90, 1000V Inside 35mm EMT conduit	Y	N		1 - Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current. 3- Provide shielded VFD Cable 4- New SF-2 will be removed from MCC-1 and connected to MCC-2
SF-2	BMS POWER	MECHANICAL ROOM				15	15.00	120	1	N	REC			E	E	E					1-2EA.18	15A,1P						(2#12AWG)+1#12GND,CU,RW90,600V Inside 21mm EMT conduit				1- BMS receptacles shall be on a dedicated circuit and shall not share circuits with other systems. 2- Provide new 15A,1P,120V circuit breaker at PNL 1-2EA
SF-3	SUPPLY FAN 3	MECHANICAL ROOM	120.00	89.48	112.00			575	3	Y	VFD	HOA		M	M	E	BMS	M	M	E	MCC#1	175AF/200A,3P				Y		(3#3/0)AWG+1#6GND,CU,XLPE,RW90, 1000V Inside 53mm EMT conduit	Y	N		1 - Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current 3- Provide shielded VFD Cable
SF-3	BMS POWER	MECHANICAL ROOM				15	15.00	120	1	N	REC			E	E	E					1-2EA.20	15A,1P						(2#12AWG)+1#12GND,CU,RW90,600V Inside 21mm EMT conduit				1- BMS receptacles shall be on a dedicated circuit and shall not share circuits with other systems. 2- Provide 15A,1P,120V circuit breaker at PNL 1-2EA
SF-4	SUPPLY FAN 4	MECHANICAL ROOM	120.00	89.48	112.00			575	3	Y	VFD	HOA		M	M	E	BMS	M	M	E	MCC#E1	175AF/200A,3P				Y		(3#3/0)AWG+1#6GND,CU,XLPE,RW90, 1000V Inside 53mm EMT conduit	Y	N		1 - Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current. 3- Provide shielded VFD Cable
SF-4	BMS POWER	MECHANICAL ROOM				15	15.00	120	1	N	REC			E	E	E					1-2EA.20	15A,1P						(2#12AWG)+1#12GND,CU,RW90,600V Inside 21mm EMT conduit				1- BMS receptacles shall be on a dedicated circuit and shall not share circuits with other systems. 2- Provide new 15A,1P,120V circuit breaker at PNL 1-2EA
SF-5	SUPPLY FAN 5	ADMIN. BLDG. LOFT	10.00	7.46	10.40			575	3	Y	VFD	HOA		M	M	E	BMS	M	M	E	MCC#4	15AF/30A,3P				Y		(3#10)AWG+1#12GND,CU,XLPE,RW90, 1000V Inside 21mm EMT conduit	Y	N		1 - Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current. 3- Provide shielded VFD Cable
SF-5	BMS POWER	ADMIN. BLDG. LOFT				15	15.00	120	1	N	REC			E	E	E					2-2A.26	15A,1P						(2#12AWG)+1#12GND,CU,RW90,600V Inside 41mm EMT conduit				1- BMS receptacles shall be on a dedicated circuit and shall not share circuits with other systems. 2- Provide new 15A,1P,120V circuit breaker at PNL 2-2A
SF-6	SUPPLY FAN 6	MECHANICAL ROOM	150.00	112.00	144.00			575	3	Y	VFD	HOA		M	M	E	BMS	M	M	E	MCC#2	250AF/300A,3P				Y		(3#350)kcmil+1#3GND,CU,XLPE,RW90, 1000V Inside 63mm EMT conduit	Y	N		1 - Proivde Time Delay Fuse. 2-New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current. 3- Provide shielded VFD Cable 4-New SF-6 will be removed from MCC-1 and connected to MCC-2
SF-6	BMS POWER	MECHANICAL ROOM				15	15.00	120	1	N	REC			E	E	E					1-2EA.22	15A,1P						(2#12AWG)+1#12GND,CU,RW90,600V Inside 21mm EMT conduit				1- BMS receptacles shall be on a dedicated circuit and shall not share circuits with other systems. 2- Provide new 15A,1P,120V circuit breaker at PNL 1-2EA
SF-7	SUPPLY FAN 7	MECHANICAL ROOM	15.00	11.19	15.00			575	3	Y	VFD	HOA		M	M	E	BMS	M	M	E	MCC#1	25AF/30A,3P				Y		(3#10)AWG+1#12GND,CU,XLPE,RW90, 1000V Inside 21mm EMT conduit	Y	N		1 - Proivde Time Delay Fuse. 2-New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current. 3- Provide shielded VFD Cable
SF-7	BMS POWER	MECHANICAL ROOM				15	15.00	120	1	N	REC			E	E	E					1-2EA.22	15A,1P						(2#12AWG)+1#12GND,CU,RW90,600V Inside 21mm EMT conduit				1- BMS receptacles shall be on a dedicated circuit and shall not share circuits with other systems. 2- Provide new 15A,1P,120V circuit breaker at PNL 1-2EA
SF-8	SUPPLY FAN 8	HIGH HAZARD BLOCK	15.00	11.19	15.00			575	3	Y	VFD	HOA		M	M	E	BMS	M	M	E	MCC#E2	25AF/30A,3P				Y		(3#10)AWG+1#12GND,CU,XLPE,RW90, 1000V Inside 21mm EMT conduit	Y	N		1 - Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current. 3- Provide shielded VFD Cable
SF-8	BMS POWER	HIGH HAZARD BLOCK				15	15.00	120	1	N	REC			E	E	E					B-2EA.18	15A,1P						(2#12AWG)+1#12GND,CU,RW90,600V Inside 21mm EMT conduit				1- BMS receptacles shall be on a dedicated circuit and shall not share circuits with other systems. 2- Provide new 15A,1P,120V circuit breaker at PNL B-2EA
SF-9	SUPPLY FAN 9	HIGH HAZARD BLOCK 456	3.00	2.24	3.10	15	2.00	575	3	Y	VFD	HOA		M	M	E	BMS	M	M	E	MCC#2	15AF/30A,3P				Y		(3#10)AWG+1#12GND,CU,XLPE,RW90, 1000V Inside 21mm EMT conduit	Y	N		1 - Proivde Time Delay Fuse. 2-New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current. 3- Provide shielded VFD Cable
SF-9	BMS POWER	HIGH HAZARD BLOCK 456				15	15.00	120	1	N	REC			E	E	E					1-2EA.24	15A,1P						(2#12AWG)+1#12GND,CU,RW90,600V Inside 21mm EMT conduit				1- BMS receptacles shall be on a dedicated circuit and shall not share circuits with other systems. 2- Provide new 15A,1P,120V circuit breaker at PNL B-2EA
SF-10	SUPPLY FAN 10	HIGH HAZARD BLOCK	1.50	1.12	1.70	15	3.00	575	3	Y	VFD	HOA		M	M	E	BMS	M	M	E	MCC#2	15AF/30A,3P				Y		(3#10)AWG+1#12GND,CU,XLPE,RW90, 1000V Inside 21mm EMT conduit	Y	N		1 - Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current. 3- Provide shielded VFD Cable
SF-10	BMS POWER	HIGH HAZARD BLOCK				15	15.00	120	1	N	REC			E	E	E					B-2EA.20	15A,1P						(2#12AWG)+1#12GND,CU,RW90,600V Inside 21mm EMT conduit				1- BMS receptacles shall be on a dedicated circuit and shall not share circuits with other systems. 2- Provide new 15A,1P,120V circuit breaker at PNL B-2EA
SF-15	SUPPLY FAN 15	500 WING SPACE MECHANICAL	20.00	14.91	18.90	40	24.00	575	3	Y	VFD	HOA		M	M	E	BMS	M	M	E	6ED-LA	40A,3P				Y		(3#10)AWG+1#12GND,CU,XLPE,RW90, 1000V Inside 21mm EMT conduit	Y	N		1- Provide shielded VFD Cable 2- Replace exisitng 70A with new 40A,3P,600V circuit breaker at PNL 6ED-LA
SF-15	BMS POWER	500 WING SPACE MECHANICAL				15	15.00	120	1	N	REC			E	E	E					LA-2EA.33	15A,1P						(2#12AWG)+1#12GND,CU,RW90,600V Inside 21mm EMT conduit				1- BMS receptacles shall be on a dedicated circuit and shall not share circuits with other systems. 2- Provide new 15A,1P,120V circuit breaker at PNL LA-2EA
SF-16	SUPPLY FAN 16	500 WING SPACE MECHANICAL	20.00	14.91	18.90	40	24.00	575	3	Y	VFD	HOA		M	M	E	BMS	M	M	E	6ED-LA	40A,3P				Y		(3#10)AWG+1#12GND,CU,XLPE,RW90, 1000V Inside 21mm EMT conduit	Y	N		1- Provide shielded VFD Cable 2- Replace exisitng 70A with new 40A,3P,600V circuit breaker at PNL 6ED-LA
SF-16	BMS POWER	500 WING SPACE MECHANICAL				15	15.00	120	1	N	REC			E	E	E					LA-2EA.33	15A,1P						(2#12AWG)+1#12GND,CU,RW90,600V Inside 21mm EMT conduit				1- BMS receptacles shall be on a dedicated circuit and shall not share circuits with other systems. 2- Provide new 15A,1P,120V circuit breaker at PNL LA-2EA
SF-17	SUPPLY FAN 17	500 WING SPACE MECHANICAL	1.50	1.12	2.00	15	3.00	575	3	Y	VFD	HOA		M	M	E	BMS	M	M	E	6D-LA	15A,3P				Y		(3#12)AWG+1#12GND,CU,XLPE,RW90, 1000V Inside 21mm EMT conduit	Y	N		1- Provide shielded VFD Cable 2- Provide new 40A,3P,600V circuit breaker at PNL 6D-LA
SF-17	BMS POWER	500 WING SPACE MECHANICAL				15	15.00	120	1	N	REC			E	E	E					LA-2EA.31	15A,1P						(2#12AWG)+1#12GND,CU,RW90,600V Inside 21mm EMT conduit				1- BMS receptacles shall be on a dedicated circuit and shall not share circuits with other systems. 2- Provide 15A,1P,120V circuit breaker at PNL LA-2EA
RF-1	RETURN FAN 1	MECHANICAL ROOM LOFT		5.00				575	3	Y	VFD	HOA		M	M	E	BMS	M	M	E	MCC#1	15AF/30A,3P				Y		(3#10)AWG+1#12GND,CU,XLPE,RW90, 1000V Inside 21mm EMT conduit	Y	N		1 - Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current. 3- Provide shielded VFD Cable
RF-101	RETURN FAN 101	ADMIN. BLDG. LOFT		2.00				575	3	Y	VFD	HOA		M	M	E	BMS	M	M	E	MCC#4	15AF/30A,3P				Y		(3#10)AWG+1#12GND,CU,XLPE,RW90, 1000V Inside 21mm EMT conduit	Y	N		1 - Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current. 3- Provide shielded VFD Cable
RF-102	RETURN FAN 102	ADMIN. BLDG. LOFT		1.00				575	3	Y	VFD	HOA		M	M	E	BMS	M	M	E	MCC#4	15AF/30A,3P				Y		(3#10)AWG+1#12GND,CU,XLPE,RW90, 1000V Inside 21mm EMT conduit	Y	N		1 - Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current. 3- Provide shielded VFD Cable
RO-1	REVERSE OSMOSIS 1	MECHANICAL ROOM		2.20				208	1	Y	D										1-2A.34,36	20A,2P						(2#12AWG)+1#12GND,CU,RW90,600V Inside 21mm EMT conduit				Provide new 20A,2P,208V circuit breaker at PNL 1-2A
P-100	BOILER FEED PUMP	MECHANICAL ROOM	1.00					208	3	Y	D			M	E	E	I	M	M	M	1-2EA,28,30,32	15A,3P	E	E	E	N	30A,3P	(3#12)AWG+1#12GND,CU,XLPE,RW90, 600V Inside 21mm EMT conduit	N	N		Provide new 15A,3P,208V circuit breaker at PNL 1-2EA
B-5	BOILER B-5 Main Voltage	MECHANICAL ROOM	4.30		5.30			575	3	Y	D						T	M	M	E	MCC#E1	15AF/30A,3P	E	E	E	N	30A,3P	(3#12AWG)+1#12GND,CU, XLPE,RW90,600V inside 21mm EMT conduit	N	N		1-Provide Time Delay Fuse. 2- New MCC disconnect switch shall be form the same manufacturer as existing MCC and shall have a minimum of 42kA short circuit withstand current.
B-5	Boiler B-5 Control voltage	MECHANICAL ROOM						120	1	Y	REC			E	E	E					1-2EA,26	15A,1P						(2#12AWG)+1#12GND,CU,RW90,600V Inside 21mm EMT conduit				Provide new 15A,1P,120V circuit breaker at PNL 1-2EA

Mechancial										Mechanical/Electrical							Mechancial				Electrical		Mechancial					Electrical	M/E	M/E	M	
MECHANICAL EQUIPMENT SCHEDULE																																
			LOAD								STARTER & ACCESSORIES						CONTROL						MOTOR DISCONNECT									
UNIT No.	UNIT	LOCATION	HP	Kw	FLA	MOCP / MOP (Or MCA)	MCA (AMPS)	VOLTS (Check Main Service)	PHASE	PACKAGED EQUIPMENT (Y/N)	TYPE [B]	CONTROL [C]	PILOT LIGHTS [E]	SUPPLIED BY [A]	INSTALLED BY [A]	WIRING BY [A]	TYPE [D]	SUPPLIED BY [A]	INSTALLED BY [A]	WIRING BY [A]	CIRCUIT	BREAKER / FUSE SIZE	SUPPLIED BY [A]	INSTALLED BY [A]	WIRED BY [A]	INTEGRATED SWITCH BY MECH (Y/N)	DISCONNECT SWITCH SIZE	FEEDER (SEE NOTES 2 & 8)	FIRE ALARM SHUTDOWN (Y/N)	FIRE ALARM STARTUP (Y/N)	EMERGENCY POWER (Y/N)	REMARKS
P-5	GLYCOL PUMP, SF-1	MECHANICAL ROOM	5.00	3.73				575	3	N	MG	HOA		M	E	E	BMS	M	M	M	MCC#1	15AF/30A,3P	E	E	E	N	30A,3P	(3#10)AWG+1#12GND,CU,XLPE,RW90, 600V Inside 21mm EMT conduit	N	N		1- Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current.
P-7	GLYCOL PUMP, SF-2	MECHANICAL ROOM	1.50	1.12				575	3	N	MG	HOA		M	E	E	BMS	M	M	M	MCC#2	15AF/30A,3P	E	E	E	N	30A,3P	(3#10)AWG+1#12GND,CU,XLPE,RW90, 600V Inside 21mm EMT conduit	N	N		1- Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current. 3- New P-7 will be removed from MCC-1 and connected to MCC-2
P-3	GLYCOL PUMP, SF-3	MECHANICAL ROOM	5.00	3.73				575	3	N	MG	HOA		M	E	E	BMS	M	M	M	MCC#E1	15AF/30A,3P	E	E	E	N	30A,3P	(3#10)AWG+1#12GND,CU,XLPE,RW90, 600V Inside 21mm EMT conduit	N	N		1- Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current.
P-4	GLYCOL PUMP, SF-4	MECHANICAL ROOM	5.00	3.73				575	3	N	MG	HOA		M	E	E	BMS	M	M	M	MCC#E1	15AF/30A,3P	E	E	E	N	30A,3P	(3#10)AWG+1#12GND,CU,XLPE,RW90, 600V Inside 21mm EMT conduit	N	N		1- Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current.
P-52	GLYCOL PUMP, SF-5	ADMIN. BLDG. LOFT	0.50	0.37				120	1	N	MG	HOA		M	E	E	BMS	M	M	M	2-2A.28	20A,1P	E	E	E	N	30A,2P	(2#12)AWG+1#12GND,CU,XLPE,RW90, 600V Inside 21mm EMT conduit	N	N		Provide new 15A,1P,120V circuit breaker at PNL 2-2A
P-6	GLYCOL PUMP, SF-6	MECHANICAL ROOM	5.00	3.73				575	3	N	MG	HOA		M	E	E	BMS	M	M	M	MCC#2	15AF/30A,3P	E	E	E	N	30A,3P	(3#10)AWG+1#12GND,CU,XLPE,RW90, 600V Inside 21mm EMT conduit	N	N		1- Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current. 3- New P-6 will be removed from MCC-1 and connected to MCC-2
P-8	GLYCOL PUMP, SF-7	MECHANICAL ROOM	1.00	0.75				575	3	N	MG	HOA		M	E	E	BMS	M	M	M	MCC#1	15AF/30A,3P	E	E	E	N	30A,3P	(3#10)AWG+1#12GND,CU,XLPE,RW90, 600V Inside 21mm EMT conduit	N	N		1- Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current.
P-53	GLYCOL PUMP, SF-8	HIGH HAZARD BLOCK	0.75	0.56				575	3	N	MG	HOA		M	E	E	BMS	M	M	M	MCC#E2	15AF/30A,3P	E	E	E	N	30A,3P	(3#10)AWG+1#12GND,CU,XLPE,RW90, 600V Inside 21mm EMT conduit	N	N		1- Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current.
P-44	GLYCOL PUMP, SF-9	HIGH HAZARD BLOCK 456	0.33					120	1	N	MG	HOA		M	E	E	BMS	M	M	M	B-2EA.22	15A,1P	E	E	E	N	15A,1P	(2#12AWG)+1#12GND,CU,RW90,600V Inside 21mm EMT conduit	N	N		Provide new 15A,1P,120V circuit breaker at PNL B-2EA
P-54	GLYCOL PUMP, SF-10	HIGH HAZARD BLOCK	0.17					120	1	N	MG	HOA		M	E	E	BMS	M	M	M	1-2A.38	15A,1P	E	E	E	N	15A,1P	(2#12AWG)+1#12GND,CU,RW90,600V Inside 21mm EMT conduit	N	N		Provide new 15A,1P,120V circuit breaker at PNL 1-2A
P-75	GLYCOL PUMP, SF-15	500 WING MECHANICAL SPACE	1.00	0.75				208	3	N	MG	HOA		M	E	E	BMS	M	M	M	LA-2EA.67,69,71	15A,3P	E	E	E	N	30A,3P	(3#12)AWG+1#12GND,CU,XLPE,RW90, 600V Inside 21mm EMT conduit	N	N		Provide new 15A,3P,208V circuit breaker at PNL LA-2EA
P-76	GLYCOL PUMP, SF-16	500 WING MECHANICAL SPACE	1.00	0.75				208	3	N	MG	HOA		M	E	E	BMS	M	M	M	LA-2EA.73,75,77	15A,3P	E	E	E	N	30A,3P	(3#12)AWG+1#12GND,CU,XLPE,RW90, 600V Inside 21mm EMT conduit	N	N		Provide new 15A,3P,208V circuit breaker at PNL LA-2EA
P-77	GLYCOL PUMP, SF-17	500 WING MECHANICAL SPACE	0.33	0.00				120	1	N	MG	HOA		M	E	E	BMS	M	M	M	LA-2A.23	15A,1P	E	E	E	N	15A,1P	(2#12AWG)+1#12GND,CU,RW90,600V Inside 21mm EMT conduit	N	N		Provide new 15A,1P,120V circuit breaker at PNL LA-2A
P-21	CHILLED WATER PUMP	MECHANICAL ROOM	30.00	22.37				575	3	N	VFD	HOA		M	E	E	BMS	M	M	M	MCC#1	50AF/60A,3P	E	E	E	N	60A,3P	(3#4)AWG+1#8GND,CU,XLPE,RW90, 1000V Inside 27mm EMT conduit	N	N		1 - Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current. 3- Provide shielded VFD Cable 4- Pump remote disconnect swicth must be proivded with auxilary contact that could be interlocked with VFD run permissive circuit so when the disconnect is close a permissive run signal restart the VFD at low voltage and frequency.
P-22	CHILLED WATER PUMP	MECHANICAL ROOM	30.00	22.37				575	3	N	VFD	HOA		M	E	E	BMS	M	M	M	MCC#1	50AF/60A,3P	E	E	E	N	60A,3P	(3#4)AWG+1#8GND,CU,XLPE,RW90, 1000V Inside 27mm EMT conduit	N	N		1 - Proivde Time Delay Fuse. 2- New MCC disconnect switch shall be from the same manufacturer as exisiting MCC and shall have a miminuim of 42kA short circuit withstanding current. 3- Provide shielded VFD Cable 4- Pump remote disconnect swicth must be proivded with auxilary contact that could be interlocked with VFD run permissive circuit so when the disconnect is close a permissive run signal restart the VFD at low voltage and frequency.
P-85	CHILLED WATER PUMP (SF-15)	500 WING MECHANICAL SPACE	1.00					208	3	N	MG	HOA		M	E	E	BMS	M	M	M	LA-2EA.79,81,83	15A,3P	E	E	E	N	30A,3P	(3#12)AWG+1#12GND,CU,XLPE,RW90, 600V Inside 21mm EMT conduit	N	N		Provide new 15A,3P,208V circuit breaker at PNL LA-2EA
P-86	CHILLED WATER PUMP (SF-16)	500 WING MECHANICAL SPACE	1.00					208	3	N	MG	HOA		M	E	E	BMS	M	M	M	LA-2EA.56,58,60	15A,3P	E	E	E	N	30A,3P	(3#12)AWG+1#12GND,CU,XLPE,RW90, 600V Inside 21mm EMT conduit	N	N		Provide new 15A,3P,208V circuit breaker at PNL LA-2EA

[A] SUPPLIED BY:
E = ELECTRICAL
M = MECHANICAL

[B] STARTER TYPE:
D = DIRECT CONNECTION
CM = COMBINATION MAGNETIC STARTER / **SEE NOTE #3**
MA = MANUAL STARTER C/W PILOT LIGHT
MG = MAGNETIC STARTER / **SEE NOTE #3**
MG2 = MAGNETIC STARTER (2-SPEED) / **SEE NOTE #4**
REC = RECEPTACLE
RVS = REDUCED VOLTAGE STARTER
SS = SOFT START
VFDD = VARIABLE FREQUENCY DRIVE / DIRECT MOUNT / **SEE NOTE #1**
VFDR = VARIABLE FREQUENCY DRIVE / REMOTE MOUNT / **SEE NOTE #1**
AR = BMS HP RATED CONTROL RELAY / SEE NOTE #7

[C] CONTROL TYPE:
HOA = HAND/OFF/AUTO
SS = START/STOP - MOM PB

[D] CONTROL DEVICE:
BMS = BUILDING MANAGEMENT SYSTEM
C = TIME CLOCK / **SEE NOTE #5**
ET = ELECTRONIC THERMOSTAT / **SEE NOTE #5**
F = FLOAT SWITCH
FA = FIRE ALARM
GS = GAS SENSOR / **SEE NOTE #6**
H = HUMIDISTAT
I = INTERLOCK
O = OTHER (IDENTIFY)
P = PRESSURE SWITCH
S = MANUAL SWITCH
T = THERMOSTAT

[E] PILOT LIGHTS:
G = GREEN (ON)
R = RED (OFF)

NOTES
1. VFDs are supplied by Division 22, 23 and contain a disconnect. Internal fusing is for electronic equipment in VFD unless otherwise indicated.
2. Cable sizes shown on the drawings are the minimum required. Electrical contractor shall confirm sizes based on the real site routes and in accordance with the latest CEC Table 2 and Table D3 in such a manner that the overall voltage drop across motor terminals shall not exceed 5%. Electrical contractor shall allow for any cable upgrade if required.
3. Magnetic starters to be complete with 120 volt control transformer, HOA Switch, 2 NO auxiliary contacts, unless otherwise indicated.
4. 2-Speed Starters are to be for 2-winding motors and complete with 120 volt control transformer, HOA Switch, HI-LO Switch, 1 auxiliary contact NO - low, 1 auxiliary contact NO - high unless otherwise indicated.
5. Electronic thermostats and Time Clocks required a source of 120/1/60 power.
6. If Gas sensor such as CO, NO2, etc. are not part of BMS, sensor will require a control panel and a source of 120/1/60 power for panel
7. For single phase loads controlled by BMS. HP rated relay normally provided by BMS contractor, unit equal to Functional Devices RIBXLCV c/w 1/3 HP, 120-240 volt rated relay contact, 10-30 Vac/dc coil, 0-10 amp current transducer. Other models available for increased HP
8. Cables from the VFD to the motor to be labelled and certified for VFD application with a minimum of 1000V rating.
9. Single phase motors to be complete with integral o/l with automatic reset, unless otherwise indicated.
10. If package equipment is answered as 'Y' assume it is complete with starters, contactors, overloads, fusing, transformers, etc. to accommodate a single power source.

Public Works and Government Services Canada / Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

Stantec

PROFESSIONAL ENGINEER — WALID HAMED — ALBERTA
2020.07.07

PERMIT TO PRACTICE
STANTEC CONSULTING LTD.
Signature
Date 2020.07.07
PERMIT NUMBER: P 0258
The Association of Professional Engineers and Geoscientists of Alberta

Revision	Description	Date
5		
4		
3		
2		
1		
0	ISSUED FOR TENDER	2020.07.07

Client / client
Public Services and Procurement Canada

Project / Projet
LETHBRIDGE, AB
TOWNSHIP ROAD 9-1, T1J 3Z4

NATIONAL CENTRE FOR ANIMAL DISEASES AHU REPLACEMENT

Designed by / Conçu par: **WH**
Drawn by / Dessiné par: **GB**
Approved by / Approuvé par: **WH**
PWGSC Project Manager / Administrateur de Projets TPSGC

Drawing title / Titre du dessin
ELECTRICAL MOTORLIST

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
115303307	E300 14 OF 16	0

PANEL NUMBER: 1-2A (EXISTING)

Mounting : Surface | VOLTAGE 120/208 V | PHASES 3 | WIRE 4 | CIRCUITS 42 | BUS RAT. : A | MAIN BRKR: A | INTERRUPT. | CAPACITY : A
Panel Loc:
Print Date: Mar 11, 2020 03:05 PM

CCT No	Type	LOAD Description	KVA	BRK SIZE	PH	BRK SIZE	KVA	Type	LOAD Description	CCT No
1	REC.	5 Receptacles Rm 176		15A	A			MTR.	D1-1	2
3	REC.	2 Receptacles Rm 188		15A	B			MTR.	2-U/H 3 Big Door Mech. Rm	4
5	REC.	4 Receptacles Rm 17		15A	C			MTR.	UV-1 Fuel oil leak Monitor & Solu - Mete	6
7	MTR.	F-1 Rm 180		15A	A			LTG.	Photo Cell Relay (for outside lights)	8
9	MTR.	F-2 Rm 178		15A	B	30A		MTR.	P-33-32-35-36 2 Agit. & Sulph Pump	10
11	OTH.	Lights , SF-3-4-6 & 2-U/H Rm 176		15A	C				Spare	12
13	OTH.	Lights, SF-1,2 & 3 U/H Rm 176		15A	A				Spare	14
15	MTR.	Chem. Pumps Agitator		15A	B				Spare	16
17	MTR.	WS-1 & DA-1 Control		15A	C			REC.	12 Receptacles	18
19	MTR.	Chem. Pumps P-35 & 36		15A	A			REC.	12 Receptacles	20
21	REC.	5 Receptacles RM 171 & 172		15A	B			REC.	11 Receptacles	22
23	REC.	5 Receptacles RM 171 & 172		15A	C	20A		HTR.	Block Heater	24
25	REC.	Special Oultet Rm 171		15A	A	20A		HTR.	Block Heater	26
27	REC.			3P	B				Spare	28
29	REC.				C	20A		MTR.	P-55 A & B	30
31	REC.	2 Receptacles Rm 171		15A	A	20A		MTR.	P-59 A & B	32
33	MTR.	Overhead Door		20A	B	20A*	0.46	MTR.	RO-1	34
35	OTH.	Rad-2		20A	C	2P	0.46	MTR.		36
37	MTR.	AC-5 (Control)		15A	A	15A*	0.46	MTR.	P-54	38
39	OTH.	Carbon Filter & U/H		15A	B				Space	40
41	OTH.	LCP-6 Honeywell		15A	C				Space	42

NOTE: * NEW CIRCUIT BREAKER

PANEL NUMBER: 1-2EA (EXISTING)

Mounting : Surface | VOLTAGE 120/208 V | PHASES 3 | WIRE 4 | CIRCUITS 42 | BUS RAT. : A | MAIN BRKR: A | INTERRUPT. | CAPACITY : A
Panel Loc:
Print Date: Mar 11, 2020 03:05 PM

CCT No	Type	LOAD Description	KVA	BRK SIZE	PH	BRK SIZE	KVA	Type	LOAD Description	CCT No
1	REC.	2 Receptacles Loft		15A	A	15A		MTR.	Gas Rm U/H	2
3	REC.	6 Receptacles Inter		15A	B	15A			Spare	4
5	MTR.	3-U/H-1 Loft			C	15A		OTH.	SC-2	6
7					A	15A		OTH.	BC-1	8
9					B	15A		OTH.	BC-2	10
11					C	15A		MTR.	UH-1 Rm 175	12
13					A	15A		REC.	Main Elect. Rm Receptacle	14
15					B	15A		REC.	Tel.Rm Receptacle	16
17					C	15A*	0.30	REC.	BMS Receptacle	18
19					A	15A*	0.30	REC.	BMS Receptacle	20
21	OTH.	RAD-3 (A)		30A	B	15A*	0.30	REC.	BMS Receptacle	22
23	OTH.	RAD-3 (B)		30A	C	15A*	0.30	REC.	BMS Receptacle	24
25	OTH.	P-56		20A	A	15A*	0.30	OTH.	Boiler Controller Receptacle	26
27	OTH.	LCP-6		15A	B	15A*	0.30	MTR.	P-100	28
29	OTH.	LCP-6		15A	C	3P	0.30	MTR.		30
31	OTH.	LCP-6		15A	A		0.30	MTR.		32
33	OTH.	FA Panel		15A	B					34
35	OTH.	FA Relays		15A	C					36
37	REC.	Honeywell Computer Rm 172		15A	A					38
39				15A	B					40
41	OTH.	Freezer Alarm		15A	C					42

NOTE: *NEW CIRCUIT BREAKER

PANEL NUMBER: 2-2A (EXISTING)

Mounting : Surface | VOLTAGE 120/208 V | PHASES 3 | WIRE 4 | CIRCUITS 42 | BUS RAT. : A | MAIN BRKR: A | INTERRUPT. | CAPACITY : A
Panel Loc:
Print Date: Mar 11, 2020 03:05 PM

CCT No	Type	LOAD Description	KVA	BRK SIZE	PH	BRK SIZE	KVA	Type	LOAD Description	CCT No
1	REC.	6 Receptacles Rm 107, 108		15A	A	15A		REC.	2 Receptacle Institial	2
3	REC.	6 Receptacles RM 107, 108		15A	B	15A		MTR.	3 UH-1'S Institial	4
5	REC.	5 Receptacles Rm 105, 107		15A	C	15A		REC.	12 Receptacles Crawl Space	6
7	REC.	5 Receptacles Rm 105, 107		15A	A	15A		REC.	12 Receptacles Crawl Space	8
9	REC.	6 Receptacles RM 110, 118		15A	B	15A		LTG.	Lighting Rm 1902, 191	10
11	REC.	6 Receptacles Rm 109, 113		15A	C	15A		REC.	2 Receptacles Rm 186	12
13	REC.	5 Receptacles Rm 108, 110		15A	A	15A		REC.	Coffee Rm	14
15	REC.	2 WP Receptacles Rm 100		15A	B			REC.	plugs 115	16
17	REC.	5 Receptacles Rm 103		15A	C	15A		MTR.	EF-1 STWY # 1	18
19	REC.	4 Receptacles Rec. Counter		15A	A					20
21	OTH.	EF-103		15A	B					22
23	OTH.	EOT. Water RFS.		30A	C	15A		REC.	Plugs Rm 116 & 117	24
25		Spare		15A	A	15A*	0.3	REC.	BMS Receptacle	26
27	MTR.	4- U/H #1 Fan Loft		15A	B	20A*	0.45	MTR.	P-52	28
29					C					30
31					A					32
33					B					34
35					C					36
37					A					38
39					B					40
41					C	15A			LCP-5 HONEYWELL	42

NOTE: * NEW CIRCUIT BREAKER

PANEL NUMBER: B-2EA (EXISTING)

Mounting : Surface | VOLTAGE 120/208 V | PHASES 3 | WIRE 4 | CIRCUITS 42 | BUS RAT. : A | MAIN BRKR: A | INTERRUPT. | CAPACITY : A
Panel Loc:
Print Date: Mar 11, 2020 03:05 PM

CCT No	Type	LOAD Description	KVA	BRK SIZE	PH	BRK SIZE	KVA	Type	LOAD Description	CCT No
1	REC.	4 Receptacles		15A	A			HTR.	UH-3 2 Heaters	2
3	REC.	4 Receptacles		15A	B			HTR.	4 UH-1 4 Heaters	4
5	REC.	11 Receptacles		15A	C			HTR.	2 UH-2 1Heater	6
7	MTR.	P-48		15A	A			OTH.	FF-3	8
9	MTR.	LCP-7		15A	B			HTR.	6 UH-1	10
11	OTH.	RAD-4		15A	C	20A		MTR.	Overhead Door	12
13	MTR.	P-57 A&B			A			OTH.	HH Dock Leveler	14
15	OTH.	FF-3 WEST H/H Crawl SP			B				Spare	16
17	OTH.	FF-3 WEST H/H Crawl SP			C	15A*	0.3	REC.	BMS Receptacle	18
19					A	15A*	0.3	REC.	BMS Receptacle	20
21					B	15A*	0.3	MTR.	P-44	22
23					C					24
25					A					26
27					B					28
29					C					30
31					A					32
33					B					34
35					C					36
37					A					38
39					B					40
41					C					42

NOTE: * NEW CIRCUIT BREAKER

PANEL NUMBER: LA-2A (EXISTING)

Mounting : Surface | VOLTAGE 120/208 V | PHASES 3 | WIRE 4 | CIRCUITS 42 | BUS RAT. : 400 A | MAIN BRKR: A | INTERRUPT. | CAPACITY : A
Panel Loc:
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CCT No	Type	LOAD Description	KVA	BRK SIZE	PH	BRK SIZE	KVA	Type	LOAD Description	CCT No
1	MTR.	Exhaust Fan (EF-5)		15A	A	15A		MTR.	Pump P-7	2
3	MTR.	Pump P-17		15A	B	15A		MTR.	Pump P-8	4
5	MTR.	Pump P-18		15A	C	15A		MTR.	EF-3	6
7	MTR.	Pump P-19		15A	A	3P		MTR.		8
9		Spare		15A	B			MTR.		10
11		Spare		15A	C	15A			Spare	12
13	LTG.	Exterior Lighting		15A	A	15A		REC.	2nd Flr Receptacle O/S	14
15	HTR.	Unit Heaters 4,8,9		15A	B	15A		REC.	2nd Flr Receptacle	16
17		Spare		15A	C	15A		REC.	CCTV Outlet	18
19	REC.	CCT Outlet		15A	A	15A		OTH.	Solenoid Valve	20
21		Space		15A	B	15A		LTG.	Crawl Space LTG	22
23	OTH.	P-77	0.3	15A*	C	15A		LTG.	Crawl Space LTG	24
25		Space			A	15A		LTG.	Crawl Space LTG	26
27		Space			B	15A		LTG.	Crawl Space Receptacle	28
29		Space			C	15A		LTG.	Crawl Space Receptacle	30
31		Space			A	15A		HTR.	Unit Heaters 2,10	32
33		Space			B	15A		HTR.	Unit Heaters 1,3	34
35		Space			C	15A		HTR.	Unit Heaters 5,6,7	36
37		Space			A				Space	38
39		Space			B				Space	40
41		Space			C				Space	42

NOTE: * NEW CIRCUIT BREAKER

PANEL NUMBER: LA-2EA Tub -1 (EXISTING)

Mounting : Surface | VOLTAGE 120/208 V | PHASES 3 | WIRE 4 | CIRCUITS 42 | BUS RAT. : 225 A | MAIN BRKR: A | INTERRUPT. | CAPACITY : A
Panel Loc:
Print Date: Mar 11, 2020 03:05 PM

CCT No	Type	LOAD Description	KVA	BRK SIZE	PH	BRK SIZE	KVA	Type	LOAD Description	CCT No
1	MTR.	Boiler -1 Control		15A	A	15A		MTR.	Pump P-1	2
3	MTR.	Boiler - 2 Control		15A	B	3P		MTR.		4
5	OTH.	ECMS Panel		15A	C			MTR.		6
7	MTR.	Door Control		15A	A	15A		MTR.	Pump P-2	8
9		Spare		15A	B	3P		MTR.		10
11	REC.	Second Flr Receptacle		15A	C			MTR.		12
13	LTG.	Second Flr LTG		15A	A	15A			Spare	14
15	LTG.	Second Flr LTG		15A	B	15A			Spare	16
17	LTG.	Second Flr LTG		15A	C	15A			Spare	18
19	LTG.	Second Flr LTG		15A	A	15A		REC.	Ground Flr. Receptacle	20
21	LTG.	Second Flr LTG		15A	B	15A		REC.	Ground Flr. Receptacle	22
23	LTG.	Second Flr LTG		15A	C	15A		REC.	Ground Flr. Receptacle	24
25	LTG.	Clean Corr - LTG		15A	A	15A		LTG.	ISO Rm A LTG	26
27	LTG.	Change Rm - LTG		15A	B	15A		REC.	ISO Rm A Receptacle	28
29	LTG.	Change Rm - LTG		15A	C	15A		LTG.	ISO Rm B LTG	30
31	REC.	BMS Receptacle	0.3	15A*	A	15A		REC.	ISO Rm B Receptacle	32
33	REC.	BMS Receptacle	0.3	15A*	B	15A		LTG.	ISO Rm C LTG	34
35		Space			C	15A		REC.	ISO Rm C Receptacle	36
37		Space			A	15A		LTG.	ISO Rm D LTG	38
39		Space			B	15A		REC.	ISO Rm D Receptacle	40
41	LTG.	Exit Signs		15A	C	15A		OTH.	Fire Alarm Panel	42

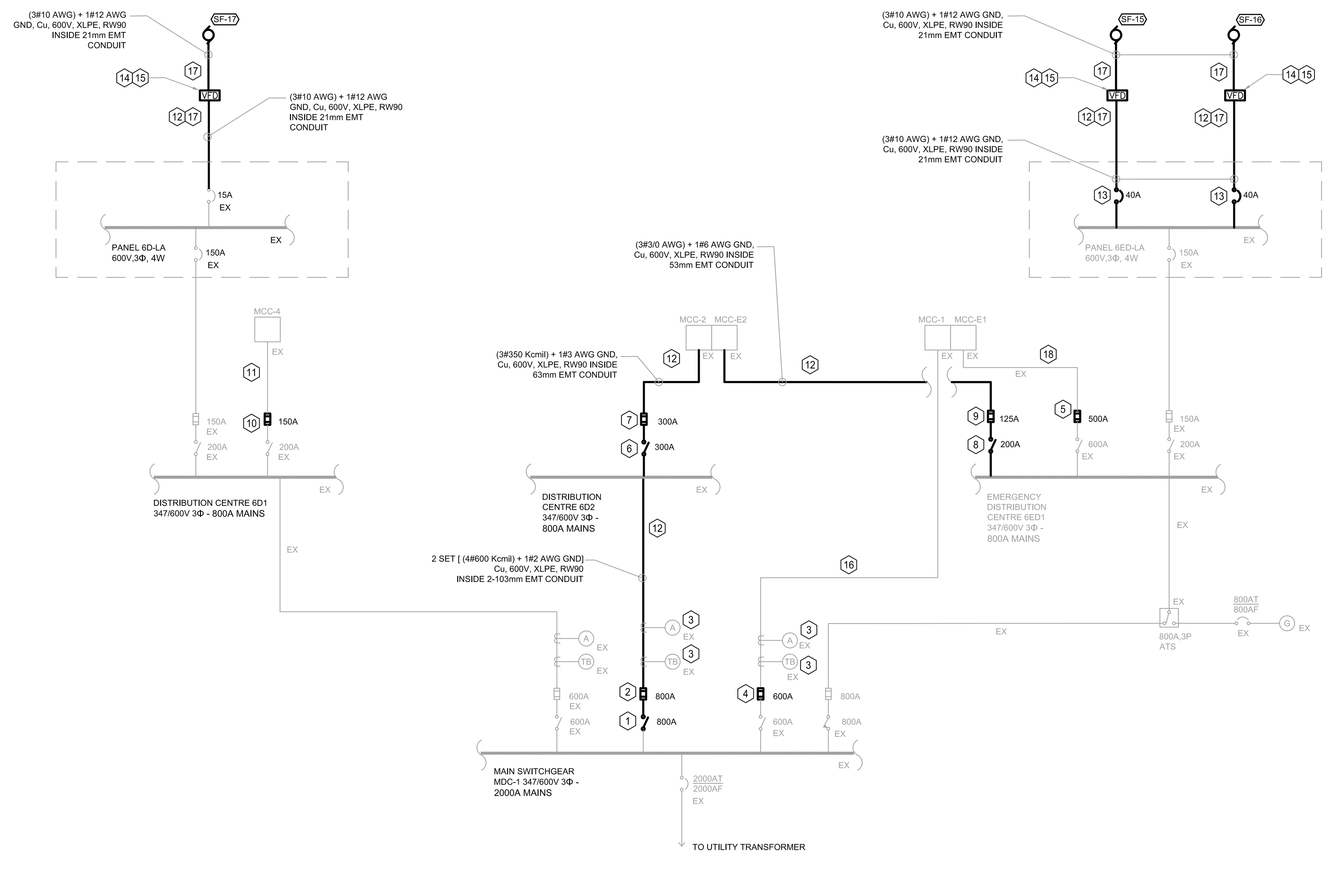
NOTE: * NEW CIRCUIT BREAKER

PANEL NUMBER: LA-2EA Tub-2 (EXISTING)

Mounting : Surface | VOLTAGE 120/208 V | PHASES 3 | WIRE 4 | CIRCUITS 42 | BUS RAT. : 225 A | MAIN BRKR: A | INTERRUPT. | CAPACITY : A
Panel Loc:
Print Date: Mar 11, 2020 03:05 PM

CCT No	Type	LOAD Description	KVA	BRK SIZE	PH	BRK SIZE	KVA	Type	LOAD Description	CCT No
43	MTR.	Pump P-3		15A	A	15A		MTR.	Pump P-5	44
45	MTR.			3P	B	3P		MTR.		46
47	MTR.				C			MTR.		48
49	MTR.	Pump P-4		15A	A	15A		MTR.	Pump P-6	50
51	MTR.			3P	B	3P		MTR.		52
53	MTR.				C			MTR.		54
55	MTR.	Pump P-15		15A	A	15A*	0.3	MTR.	P-86	56
57	MTR.			3P	B	3P	0.3	MTR.		58
59	MTR.				C		0.3	MTR.		60
61	MTR.	Pump P-16		15A	A					62
63	MTR.			3P	B					64
65	MTR.				C					66
67	MTR.	P-75	0.3	15A*	A					68
69	MTR.		0.3	3P	B					70
71	MTR.		0.3		C					72
73	MTR.	P-76	0.3	15A*	A					74
75	MTR.		0.3	3P	B					76
77	MTR.		0.3		C					78
79	MTR.	P-85	0.3	15A*	A					80
81	MTR.		0.3	3P	B					82
83	MTR.		0.3		C					84

NOTE: *NEW CIRCUIT BREAKER



1 PARTIAL SINGLE LINE DIAGRAM
E301 N.T.S.

PARTIAL SINGLE LINE DIAGRAM KEYNOTES:

1. REPLACE EXISTING 600A, 3P, 600V LOAD BREAK SWITCH WITH NEW 800A, 3P, 600V. NEW LOAD BREAK SWITCH SHALL BE FROM THE SAME MANUFACTURER AS MAIN SWITCH GEAR MDC-1 AND SHALL HAVE THE SAME WITHSTANDING SHORT CIRCUIT LEVEL AS EXISTING.
2. REPLACE EXISTING 600A FUSE WITH NEW 800A TIME DELAY FUSE C/W FUSE HOLDER.
3. CONTRACTOR SHALL CONFIRM THAT EXISTING CURRENT TRANSFORMER AND METER ARE SUITABLE FOR THE NEW LOAD BREAK SWITCH RATING AND ALLOW FOR UPGRADE IF REQUIRED.
4. REPLACE EXISTING 600A FUSE WITH NEW 600A TIME DELAY FUSE.
5. REPLACE EXISTING 600A FUSE WITH NEW 500A TIME DELAY FUSE
6. REPLACE EXISTING 100A, 3P, 600V LOAD BREAK SWITCH WITH NEW 300A, 3P, 600V. NEW LOAD BREAK SWITCH SHALL BE FROM THE SAME MANUFACTURER AS DISTRIBUTION CENTER 6D2 AND SHALL HAVE THE SAME WITHSTANDING SHORT CIRCUIT LEVEL.
7. REPLACE EXISTING 100A FUSE WITH NEW 300A TIME DELAY FUSE C/W FUSE HOLDER.
8. REPLACE EXISTING 100A, 3P, 600V LOAD BREAK SWITCH WITH NEW 200A, 3P, 600V. NEW LOAD BREAK SWITCH SHALL BE FROM THE SAME MANUFACTURER AS DISTRIBUTION CENTER 6ED1 AND SHALL HAVE THE SAME WITHSTANDING SHORT CIRCUIT LEVEL.
9. REPLACE EXISTING 100A FUSE WITH NEW 125A TIME DELAY FUSE C/W FUSE HOLDER.
10. REPLACE EXISTING 200A FUSE WITH 150A TIME DELAY FUSE.
11. CONTRACTOR SHALL CONFIRM THAT EXISTING CABLE IS NOT LESS THAN 3#250 Kcmil AL-RA90, 600V ARMORED AND ALLOW FOR UPGRADE IF REQUIRED.
12. REMOVE EXISTING CABLE BACK TO SOURCE AND SUPPLY AND INSTALL NEW CABLES.
13. REPLACE EXISTING 70A, 3P BREAKER WITH NEW 40A, 3P, 600V. NEW CIRCUIT BREAKER SHALL BE MOLDED CASE, BOLT IN TYPE WITH THERMAL MAGNETIC TRIP MECHANISM AND SHALL BE FROM THE SAME MANUFACTURER AS THE PANEL IN WHICH IT WILL BE INSTALLED AND SHALL MATCH PANEL CURRENT INTERRUPTING CAPACITY.
14. REMOVE EXISTING SF-13, SF-16 AND SF-17 STARTERS AND DISCONNECTED SWITCH.
15. NEW SF-15, SF-16 AND SF-17 WILL BE PROVIDED WITH INTEGRATED DISCONECNT SWITCH. NEW VFD WILL BE SUPPLIED, INSTALLED BY OTHERS AND WIRED BY ELECTRICAL.
16. CONTRACTOR TO CONFIRM THAT EXISTING CABLE IS NOT LESS THAN 2 SET (3#500 Kcmil + 1#2 GND) Cu, 600V CABLE INSIDE 2-103mm EMT CONDUIT AND ALLOW FOR UPGRADE IF REQUIRED.
17. CABLES SHALL BE RATED FOR VFD APPLICATION.
18. CONTRACTOR SHALL CONFIRM THAT EXISTING CABLE IS NOT LESS THAN 2 SET [(3#300 Kcmil) + 1#4 GND], Cu, 600V AND ALLOW FOR UPGRADE IF REQUIRED.

PARTIAL SINGLE LINE DIAGRAM NOTES:

1. CABLES SIZES SHOWN ON THE DRAWINGS ARE THE MINIMUM REQUIREMENTS. CONTRACTOR SHALL CONFIRM BASED ON REAL SITE ROUTES AND IN A SUCH MANNER THAT THE VOLTAGE DROP ACROSS ANY FEEDER DOES NOT EXCEED 2% AND ACROSS ANY BRANCH CIRCUIT DOES NOT EXCEED 3% AND THE OVERALL VOLTAGE DROP ACROSS ANY MOTOR TERMINAL DOES NOT EXCEED 5%.
2. SUBMIT VOLTAGE DROP CALCULATION TO CONSULTANT FOR REVIEW PRIOR TO CABLE ORDERING AND INSTALLATION.

Public Works and Government Services Canada | Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

Stantec

PROFESSIONAL ENGINEER WALID HAMED ALBERTA
2020.07.07

PERMIT TO PRACTICE
STANTEC CONSULTING LTD.
Signature
Date 2020.07.07
PERMIT NUMBER: P 0258
The Association of Professional Engineers and Geoscientists of Alberta

Revision	Description	Date
5		
4		
3		
2		
1		
0	ISSUED FOR TENDER	2020.07.07

Client / client
Public Services and Procurement Canada

Project / Projet
LETHBRIDGE, AB
TOWNSHIP ROAD 9-1, T1J 3Z4

NATIONAL CENTRE FOR ANIMAL DISEASES AHU REPLACEMENT

Designed by / Conçu par: WH
Drawn by / Dessiné par: GB
Approved by / Approuvé par: WH
PWGSC Project Manager / Administrateur de Projets TPSGC

Drawing title / Titre du dessin
ELECTRICAL
ELECTRICAL PANEL SCHEDULES & PARTIAL SINGLE LINE DIAGRAM

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
115303307	E301	0

0 10 20 30 40 50 60 70 80 90 100mm

1.0 GENERAL REQUIREMENTS

1.1 SCOPE

SUPPLY, INSTALL, COMMISSION ALL MATERIALS LABOUR, AND EQUIPMENT AND SERVICES REQUIRED FOR A COMPLETE AND WORKING INSTALLATION AS SPECIFIED HERE AND AS SHOWN ON THE DRAWINGS.

1.2 RELATED DOCUMENTS AND WORK

THIS SPECIFICATION IS AN INTEGRAL PART OF THE PROJECT PACKAGE WHICH INCLUDES DOCUMENTATION GOVERNING THE GENERAL CONDITIONS OF THE CONTRACT, INSTRUCTIONS TO BIDDERS AND DRAWINGS AND SPECIFICATIONS FOR OTHER SECTIONS OF THE WORK. EXAMINE THE MECHANICAL ENGINEERING DRAWINGS AND SPECIFICATIONS TO ENSURE THAT THE WORK UNDER THIS CONTRACT CAN BE SATISFACTORILY CARRIED OUT. REPORT ANY DISCREPANCIES TO THE ENGINEER. EXAMINE THE SITE, LOCAL CONDITIONS, AND ALL EXISTING MATERIAL WHICH IS INTENDED FOR RE-USE AND CONFIRM THAT THE CONDITION OF THIS EQUIPMENT IS SUITABLE FOR ITS INTENDED USE IN THE NEW CONSTRUCTION. DETERMINE ALL EXISTING CONDITIONS AND FACTORS WHICH MAY AFFECT THE WORK AND INCLUDE FOR ALL THESE ITEMS IN THE TENDER PRICE.

THE GENERAL REQUIREMENTS, INSTRUCTIONS TO BIDDERS THIS SPECIFICATION AND ANY ADDENDA HERE TO FROM PART OF THE CONTRACT DOCUMENTS AND SHALL BE READ IN CONJUNCTION WITH THEM. WORK SHALL INCLUDE THE FURNISHING OF ALL LABOR AND MATERIALS UNLESS SPECIFICALLY NOTED OTHERWISE INDICATED ON THE DRAWINGS OR OTHER SECTIONS IN THE SPECIFICATIONS.

THE DRAWINGS AND SPECIFICATIONS ARE ALL ONE COMPLETE SET THAT COMPLIMENT EACH OTHER. WHATEVER IS SHOWN OR INDICATED ON THE DRAWINGS OR SPECIFICATION IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.

THESE DRAWINGS ARE BY NATURE SCHEMATIC. FOR EXACT DIMENSIONS AND SIZES, REFER TO THOSE SHOWN ON THE MECHANICAL DRAWINGS OR TAKE PHYSICAL MEASUREMENTS ON SITE. PROPERLY LAY OUT AND PLAN THE INSTALLATION AND EQUIPMENT LOCATIONS WITH REFERENCE TO SAFETY CODE CLEARANCES; EASE OF USE; SITE CONDITIONS; EXISTING EQUIPMENT AND OBSTRUCTIONS; AND GOOD PRACTICE. IF REQUIRED TO SUIT THE JOB CONDITIONS AND WITH CONFIRMATION FROM THE ENGINEER, RELOCATE OUTLETS AND EQUIPMENT WITHIN 3 M OF THOSE LOCATIONS INDICATED ON THE DRAWINGS WITHOUT ADDITIONAL COST. MARK REVISIONS DUE TO SITE CONDITIONS ON THE AS-BUILT DRAWINGS.

PRIOR TO SUBMITTING HIS TENDER, ELECTRICAL CONTRACTOR SHALL CAREFULLY EXAMINE THE SITE AND ASCERTAIN ALL CONDITIONS WHICH SHALL AFFECT HIS TRADE. NO EXTRAS WILL BE ALLOWED FOR WORK RESULTING FROM CONDITIONS THAT WOULD BE EVIDENT UPON A THOROUGH EXAMINATION OF SITE.

1.3 CODES, STANDARDS AND PERMITS

ALL WORK IS TO COMPLY WITH THE CANADIAN ELECTRICAL CODE (CEC) PART 1 2018, STANDATA, THE ALBERTA BUILDING CODE (ABC) 2014, AND ALL REQUIREMENTS OF THOSE AUTHORITIES HAVING JURISDICTION. OBTAIN ALL NECESSARY APPLICABLE PERMITS, LICENSES AND PAY ALL FEES. DISPLAY PERMITS PROMINENTLY IN THE ELECTRICAL ROOM.

ALL EQUIPMENT, PRODUCTS AND SERVICES SUPPLIED UNDER THIS CONTRACT ARE TO BE NEW AND CERTIFIED BY A TESTING AGENCY ACCREDITED BY THE STANDARDS COUNCIL OF CANADA SUCH AS: CSA AND CAN/ ULC.

PRODUCT DATA, SUBSTITUTIONS AND SHOP DRAWINGS

1.3.1 SUBMIT EQUIPMENT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW WITHIN 3 TO 7 DAYS OF CONTRACT AWARD. DO NOT FABRICATE EQUIPMENT BEFORE THESE SHOP DRAWINGS HAVE BEEN REVIEWED.

1.3.2 THE ENGINEER'S REVIEW OF THE SHOP DRAWINGS SHALL BE FOR GENERAL DESIGN ONLY AND SHALL NOT RELIEVE THE ELECTRICAL CONTRACTOR OR SUPPLIERS FROM THEIR RESPONSIBILITY FOR ERRORS, PROPER FITTING, CONSTRUCTION OF THE WORK AND FURNISHING OF MATERIALS. THE REVIEW SHALL NOT BE CONSTRUED AS APPROVING DEPARTURE FROM CONTRACT DOCUMENT REQUIREMENTS IN SUCH DEPARTURE ARE NOT SPECIFICALLY NOTED IN A COVERING LETTER ACCOMPANYING SUCH DRAWINGS. ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS.

1.3.3 **SHOP DRAWINGS GENERAL REQUIREMENTS**

- THE SHOP DRAWINGS NEED TO HAVE THE PROJECT NAME AT TOP RIGHTHAND CORNER
- THE PRODUCT TYPE AT TOP RIGHTHAND CORNER UNDER PROJECT NAME (I.E.: TYPE H FLOOR BOX)
- ALL CATALOGUE NUMBERS NEED TO BE SELECTED FOR ALL PARTS AND PIECES THAT MAKE FOR A COMPLETE PRODUCT. FOR EXAMPLE, IN FLOOR BOXES SELECT BOX MODEL; SELECT FLANGE, SELECT COVER, SELECT INTERIOR PLATES, SELECT ANY ADDITIONAL OPTION.
- GENERAL CONTRACTOR STAMP AND NAME OF REVIEWER. GENERAL CONTRACTOR SHOULD BE REVIEWING THE SHOP DRAWINGS FOR GENERAL CONFORMANCE. IF THE SHOP DRAWINGS DO NOT MEET THE GENERAL CONFORMANCE (BLANK SHEETS WITH NOTHING INDICATED ETC.) THEY SHOULD NOT BE SENT TO THE CONSULTANT, THEY NEED TO BE RETURNED TO SUBCONTRACTOR FOR RESUBMITTAL.
- THERE NEED TO BE A STAMP PAGE WITH ROOM FOR THE ELECTRICAL CONSULTANT STAMPS AND COMMENTS.
- ANY SHOP DRAWING SUBMITTAL THAT DOESN'T MEET THE CRITERIA ABOVE WILL BE REVISE AND RESUBMIT.
- WILL ONLY ALLOW FOR 2 SHOP DRAWING REVIEWS AND AFTER THE SECOND REJECTED SHOP DRAWING THE NEXT REVIEW WILL BE CHARGED BACK TO THE CONTRACTOR.

1.4 QUALITY CONTROL AND GUARANTEE

SUPERVISE THE WORK AT ALL TIMES THROUGH A FULL TIME RESPONSIBLE AND COMPETENT SUPERVISOR. FULLY CO-OPERATE WITH OTHER TRADES TO PROPERLY CO-ORDINATE AND FACILITATE THE INSTALLATION AND TO AVOID DELAYS IN CARRYING OUT THE WORK.

REMOVE DEBRIS AND WASTE MATERIAL DAILY. ON COMPLETION OF THE WORK, REMOVE SURPLUS MATERIALS, RUBBISH, TOOLS AND EQUIPMENT AND CLEAN ALL EXPOSED SURFACES. LEAVE THE PROJECT CLEAN AND READY FOR OCCUPANCY.

THE INSTALLATION SHALL BE COMPLETELY TESTED TO CONFIRM THAT THE EQUIPMENT AND SYSTEMS THAT HAVE BEEN INSTALLED AND PERFORM IN THE MANNER INTENDED.

UPON COMPLETION OF THE INSTALLATION, OBTAIN A LETTER OF COMPLIANCE FROM THE ELECTRICAL SAFETY INSPECTION AUTHORITY.

AFTER PROJECT COMPLETION, MEASURE INDIVIDUAL PHASE CURRENTS TO PANELBOARDS WITH NORMAL LOADS OPERATING AND ADJUST BRANCH CIRCUIT CONNECTIONS TO OBTAIN BALANCE OF CURRENT BETWEEN PHASES WITH 15%. THESE CIRCUIT CHANGES ARE TO BE MADE AT A TIME CONVENIENT TO THE OWNER.

THE SATISFACTORY OPERATION OF ALL WORK IS TO BE GUARANTEED FOR A PERIOD OF TWELVE CALENDAR MONTHS AFTER FINAL ACCEPTANCE.

1.5 DRAWINGS AND MANUALS

KEEP A RECORD SET OF THE DRAWINGS ON THE SITE AT ALL TIMES AND RECORD ANY CHANGES MADE. CONDUIT AND CABLE LOCATIONS AND BRANCH CIRCUIT DESIGNATIONS MAY BE MODIFIED TO SUIT THE INSTALLATION BUT ALL SUCH CHANGES TO CIRCUITRY AND CONDUIT LOCATIONS MUST BE RECORDED ON AS-BUILT DRAWINGS. ALL CIRCUIT CHANGES ARE TO BE RECORDED ON "AS-BUILT" DRAWINGS. ON COMPLETION OF THE WORK SUBMIT A CAD PLOTS TO THE TENANT AND LANDLORD.

STANTEC CONSULTING LTD CAN PROVIDE THIS SERVICE TO THE ELECTRICAL CONTRACTOR FOR THE SUM OF $1500 EXCLUDING GST. THE ELECTRICAL CONTRACTOR IS NOT OBLIGED TO SECURE THE SERVICES OF STANTEC CONSULTING LTD.

SUBMIT TO THE ENGINEER ONE NEATLY BOUND, INDEXED BINDERS CONTAINING REVIEWED EQUIPMENT SHOP DRAWINGS, MAINTENANCE INSTRUCTIONS, LIST OF SUPPLIER CONTACTS, TEST AND VERIFICATION RESULTS, AND INSPECTION CERTIFICATES FOR ALL EQUIPMENT INSTALLED.

1.6 VALUATION OF CHANGES

ALL QUOTATIONS IN RESPONSE TO A REQUEST FOR CHANGE MUST BE SUBMITTED COMPLETE WITH A COST BREAKDOWN OF MATERIALS AND LABOUR WHICH ITEMIZES ALL QUANTITIES, UNIT PRICES FOR MATERIAL, AND UNIT RATES FOR LABOUR.

1.7 CUTTING AND PATCHING

LOCATE SUPERVISE ALL CUTTING AND PATCHING OF THE WORK OF OTHER TRADES THAT IS REQUIRED FOR ELECTRICAL CONSTRUCTION.

PRIOR TO SAW CUTTING, CHIPPING, OR CORE DRILLING AN OPENING THROUGH THE BUILDING STRUCTURE, DETERMINE THE LOCATION OF EXISTING SERVICES OR REINFORCING STEEL BY X-RAYING, AND OBTAIN THE WRITTEN PERMISSION OF THE BASE BUILDING STRUCTURAL ENGINEER.

PAY FOR ALL CUTTING AND PATCHING REQUIRED FOR THE ELECTRICAL INSTALLATION. WORK IS TO BE PERFORMED BY THE APPROPRIATE SUB TRADE ON THE PROJECT OR BY TRADE PERSONS SKILLED IN THE GIVEN DISCIPLINE.

WHERE WORK BY THE ELECTRICAL CONTRACTOR DAMAGES WORK OF OTHER TRADES, THE ELECTRICAL CONTRACTOR SHALL REPAIR AND MAKE GOOD SUCH DAMAGE TO THE SATISFACTION OF THE TRADE CONCERNED AND THE ARCHITECT.

FLOOR PENETRATIONS USED AND UNUSED CREATED BY DIVISIONS 26 & 28 SHALL BE PROPERLY FILLED WITH CONCRETE AND SUITABLE PLASTIC CUP/PLUG, OR OTHER APPROVED FIRE STOP METHODS.

2.0 DEMOLITION OF THE EXISTING INSTALLATION

DISCONNECT AND COMPLETELY REMOVE ALL CONDUIT, WIRING, SUPPORTS, STRAPS, ELECTRICAL BOXES, AND OTHER ELECTRICAL COMPONENTS WHICH ARE NOT INTENDED FOR REUSE.

DISCONNECT AND REMOVE COMPLETELY ALL ELECTRICAL EQUIPMENT, WIRING DEVICES, BOXES, COMPONENTS AND POWER WIRING BACK TO THE POINT OF ORIGIN.

MAKE GOOD EXISTING WIRING AFFECTED BY THE DEMOLITION WHICH SERVES ADJACENT AREAS.

EXISTING CONDUIT AND WIRING IN CEILING SPACE MAY BE REUSED IF THEY ARE IN LIKE NEW CONDITION AND ARE COMPLYING WITH CURRENT CODE. EXISTING WIRING DEVICES AND PLATES MAY BE REUSED IF IN LIKE NEW CONDITION.

ALL EXISTING ELECTRICAL EQUIPMENT AND DEVICES WHICH ARE IN GOOD WORKING CONDITION AND NOT BEING REUSED ARE TO BE TURNED OVER TO THE OWNER. PACKAGE ALL SUCH MATERIALS, IDENTIFY AND TURN OVER TO THE OWNER IN AN ORDERLY FASHION, OR AT THE DISCRETION OF THE OWNER, REMOVE ALL MATERIALS FROM THE SITE AND DISPOSE IN ACCORDANCE WITH THE LAWS OF CANADA. PAY ALL COSTS AND DISPOSAL FEES.

3.0 CLEANUP

THE ELECTRICAL CONTRACTOR AND HIS SUBTRADES SHALL AT ALL TIMES DURING CONSTRUCTION, KEEP THE SITE FREE OF ALL DEBRIS, BOXES, PACKING, ETC. RESULTING FROM WORK OF THIS TRADE.
AT THE COMPLETION OF THE WORK, THE ELECTRICAL INSTALLATION SHALL BE LEFT IN A CLEAN FINISHED CONDITION TO THE SATISFACTION OF THE ENGINEER.

4.0 PRODUCTS AND METHODS

UNLESS OTHERWISE SPECIFICALLY CALLED FOR IN THE SPECIFICATIONS, UNIFORMITY OF THE MANUFACTURER SHALL BE MAINTAINED FOR ANY PARTICULAR ITEM THROUGHOUT THE PROJECT.

ALL TENDERS SHALL BE BASED ON THE PRODUCTS SPECIFIED OR EQUIVALENT PRODUCTS WHICH HAVE BEEN GIVEN WRITTEN APPROVAL PRIOR TO TENDER BY THE ENGINEER. THE ENGINEER DECISION AS TO THE EQUIVALENCY OF PRODUCTS SHALL BE FINAL.

ELECTRICAL CONTRACTOR WISHING TO SUBMIT EQUIVALENT PRODUCTS SHALL DO SO IN WRITING. IT SHALL BE THE ELECTRICAL CONTRACTOR RESPONSIBILITY TO ENSURE THAT ANY SUPPLIER QUOTING TO THE ELECTRICAL CONTRACTOR HAVE OBTAINED THE WRITTEN APPROVAL OF THE ENGINEER. ALL REQUESTS FOR EQUIVALENT PRODUCTS APPROVAL MUST BE IN THE OFFICE OF THE ENGINEER NOT LESS THAN SEVEN (7) DAYS PRIOR TO CLOSING OF TENDER. NO EQUIVALENT REQUESTS WILL BE CONSIDERED AFTER THIS TIME.

THE ELECTRICAL CONTRACTOR SHALL BE HELD COMPLETELY RESPONSIBLE FOR INCLUDING IN HIS TENDER PRICE THE COST OF ANY ALTERATIONS OR ADDITIONS BROUGHT ABOUT THROUGH HIS USED OF ANY APPROVED EQUAL PRODUCTS. THE APPROVED EQUIVALENT PRODUCTS WILL BE GRANTED ON THE BASIS OF GENERAL DESIGN ONLY. SUCH APPROVAL WILL NOT RELIEVE THE ELECTRICAL CONTRACTOR FROM PROVIDING ALL NECESSARY COMPONENTS AND FUNCTIONS REQUIRED IN THE SPECIFICATIONS AND THE DRAWINGS.

4.1 WIRING

ALL WIRING IS TO BE COPPER WITH RW90, 600V AND 1000V INSULATION AND CSA CERTIFIED. CABLES USED FOR VARIABLE FREQUENCY DRIVE (VFD) SHALL HAVE 1000V INSULATION, SHIELD, XLPE AND RATED FOR VFD APPLICATIONS. UNLESS OTHERWISE SPECIFIED. INSTALL ALL WIRING IN ELECTRICAL METALLIC TUBING (EMT)

USE LIQUID-TIGHT FLEXIBLE CONDUIT FOR CONNECTIONS BETWEEN DISCONNECT SWITCHES AND MOTORS.

ALL HORIZONTAL WIRING IN THE CEILING SPACE BETWEEN JUNCTION BOXES AND HOME RUN WIRING TO PANELBOARDS IS TO BE INSTALLED IN CONDUIT. ALL WIRING IN FINISHED AREAS IS TO BE CONCEALED ABOVE CEILINGS AND WITHIN PARTITIONS.

NO CONDUCTOR SMALLER THAN #12AWG IS TO BE USED FOR BRANCH CIRCUIT WIRING.

ALL CONDUCTOR TO BE COLOR CODED THROUGHOUT THE BUILDING IN ACCORDANCE WITH THE FOLLOWING SCHEDULE OR TO MATCH EXISTING:

1. SYSTEM AND EQUIPMENT GROUNDING CONDUCTOR: GREEN
2. NEUTRAL CONDUCTOR: WHITE
3. 120/208V PHASE CONDUCTORS: RED, BLACK AND BLUE
4. 347/600V PHASE CONDUCTORS: ORANGE, BROWN AND YELLOW

A COMMON NEUTRAL CONDUCTOR MAY BE EMPLOYED FOR STANDARD POWER AND LIGHTING BRANCH CIRCUIT HOME RUNS FOR EACH GROUP OF THREE PHASE CONDUCTORS.

A SEPARATE NEUTRAL SHALL BE PROVIDED FOR EVERY BMS RECEPTACLE

NEUTRAL CONDUCTOR IS TO MATCH CIRCUIT CONDUCTOR SIZE.

AN INDIVIDUAL MINIMUM #12AWG BOND CONDUCTOR MUST BE PROVIDED IN EACH CONDUIT.

CONDUITS ARE TO BE RUN PERPENDICULAR TO AND PARALLEL WITH BUILDING LINES. CONDUITS RUNS ARE TO BE GROUPED AND SUPPORTED RIGIDLY FROM THE BUILDING STRUCTURE IN A NEAT AND WORKMANLIKE MANNER.

4.2 GROUNDING AND BONDING

ALL ELECTRICAL EQUIPMENT MUST BE BONDED WITH A MINIMUM #12 AWG COPPER CONDUCTOR.

4.3 ELECTRICAL BOXES AND ENCLOSURES

ALL TERMINATIONS AND SPLICES ARE TO BE MADE IN METAL ELECTRICAL ENCLOSURES. EVERY RECEPTACLE OR OTHER OUTLET IS TO BE PROVIDED WITH AN OUTLET BOX WHICH IS TO CONFORM WITH CSA REQUIREMENTS AND BE GALVANIZED PRESSED STEEL OF A SIZE AND TYPE SUITED TO THE APPLICATION. OUTLET BOXES USED WITHIN PARTITIONS WALLS SHALL BE 4" SQUARE BOX WITH PLASTER OR TILE RING.

ALL OUTLET BOXES TO BE FLUSH MOUNTED IN ALL AREAS UNLESS OTHERWISE SPECIFIED.

ALL OUTLETS BOXES MOUNTED IN EXTERIOR WALLS SHALL BE ENCLOSED IN VAPOUR BARRIER POLY HATS.

SUPPLY AND INSTALL PULL BOXES AS REQUIRED TO SUIT JOB CONDITIONS. PULL BOXES TO CONFORM TO CEC 22.1-18 REQUIREMENTS AND BE FINISHED IN ENAMEL OVER CORROSION-RESISTANT PRIMER WITH SCREW-ON OR HINGED COVER AS INDICATED. IN REMOVABLE CEILING AREAS, PULL BOXES ARE TO BE INSTALLED ABOVE THE CEILING. PULL BOXES IN FINISHED WALLS AND PLASTER OR NON-REMOVABLE CEILINGS TO HAVE OVERLAPPING TYPE TRIM WITH COVERS PRIME COATED AND PAINTED ON JOB TO MATCH WALL OR CEILING FINISH.

ALL VENTILATED ELECTRICAL ENCLOSURES INSTALLED IN SPRINKLERED ROOMS ARE TO BE EQUIPPED WITH SHIELDS TO PREVENT A DIRECT SPRAY OF WATER FROM ENTERING THE ENCLOSURE.

PRODUCTS THAT ARE EQUAL TO THOSE BELOW ARE ACCEPTABLE
THOMAS & BETTS
HUBBELL

4.4 EQUIPMENT IDENTIFICATION AND LABELS

MAJOR COMPONENTS AND EQUIPMENT ARE TO HAVE THE EQUIPMENT IDENTIFYING LABEL, VOLTAGE AND CURRENT RATING ENGRAVED ON A LAMACOID PLATE PERMANENTLY AFFIXED TO THE EQUIPMENT. ALL RECEPTACLES AND ALL FIRE ALARM DEVICES ARE TO BE LABELLED WITH THE CIRCUIT NUMBER OR IDENTIFIER SHOWN ON THE DRAWINGS. RECEPTACLES NOTED FOR SPECIFIC EQUIPMENT, E.G. "BMS", ARE ALSO TO BE APPROPRIATELY LABELLED "BMS". LABELS ARE TO BE SELF-ADHESIVE PRODUCED ON A MECHANICAL LABELING SYSTEM. LABELS ARE TO BE BLACK LETTERING ON A WHITE BACKGROUND AND ARE TO BE APPLIED TO THE COVER PLATE WITH THE CIRCUIT LABEL ON THE TOP AND THE EQUIPMENT LABEL ON THE BOTTOM.
INDICATE THE SERVICES OF BOXES IN THE CEILING SPACE BY MARKING CIRCUIT NUMBERS, AND SPRAY PAINTING THE BOX COVERS TO MATCH THE BASE BUILDING COLOUR SCHEME.

4.5 FIRE AND SMOKE SEALS

SUPPLY AND INSTALL FIRE STOPPING AND SMOKE SEALING SYSTEMS SUITABLE FOR THE APPLICATION FOR ALL PENETRATIONS THROUGH FIRE-RATED RELATED MASONRY, DRYWALL AND CONCRETE FLOORS AND WALLS, INCLUDING OPENINGS AND SLEEVES INSTALLED FOR FUTURE USE. SEAL ALL OPENING IN THE FLOOR AND FIRE RATED WALLS WITH CAN4-S115-M FTH RATED MATERIAL. FIRE STOPPING MATERIAL SHALL BE EQUAL TO THE RATING OF THE FLOOR OR WALL BEING PENETRATED. SUBMIT TEST DESIGN NUMBERS AS OUTLINED IN CAN4-S115-M FOR ALL PENETRATIONS TO THE ENGINEER FOR REVIEW PRIOR TO INSTALLATION.
PROPERLY SPACE PENETRATING CONDUIT SLEEVES, CONDUIT AND CABLES AND INSTALL THE FIRE STOPPING AFTER THE INSTALLATION IS COMPLETE. INSTALL THE BACKING MATERIAL BY FIRMLY PACKING SPACES WITH AT LEAST 100 MM OF MINERAL WOOL AND RECESS THE BACKING MATERIAL 25 MM FROM TOP OF THE FLOOR. APPLY THE ELASTOMERIC COMPOUND AND TROWEL SMOOTH AND FLUSH WITH THE FLOOR AND ENSURE THAT THE ENTIRE INSTALLATION IS WATERPROOF.
PRODUCTS THAT ARE EQUAL TO THOSE BELOW ARE ACCEPTABLE:
HILTI
3M

4.6 WIRING DEVICES

DUPLEX RECEPTACLES ARE TO BE SPECIFICATION GRADE15A 120V 5-15R FOR NORMAL AND EMERGENCY POWER. PROVIDE BRUSHED STAINLESS-STEEL COVER PLATES. MOUNT RECEPTACLES 300MM ABOVE FINISHED FLOOR UNLESS SPECIFICALLY SHOWN OTHERWISE. PRODUCTS THAT ARE EQUAL TO THOSE BELOW ARE ACCEPTABLE.
LEVITON
HUBBELL

4.7 MECHANICAL EQUIPMENT WIRING

WIRE TO AND CONNECT ALL MOTORS AND HEATING, VENTILATING AND PLUMBING EQUIPMENT, INCLUDING LINE VOLTAGE AND LOW VOLTAGE CONTROL WIRING UNLESS SPECIFICALLY SHOWN OTHERWISE.

MANUAL MOTOR STARTERS FOR SINGLE PHASE MOTORS ARE TO BE GENERAL PURPOSE, INDIVIDUALLY ENCLOSED, FULL VOLTAGE AND EQUIPPED WITH OVERLOAD RELAYS AND RED PILOT LIGHT.

MOTOR STARTERS FOR THREE-PHASE MOTORS ARE TO BE GENERAL PURPOSE, INDIVIDUALLY ENCLOSED FULL VOLTAGE ACROSS-THE-LINE, MAGNETICALLY OPERATED WITH 120V CONTROL TRANSFORMER AND OVERLOAD RELAYS, NON-COMBINATION. A HAND-OFF-AUTO SELECTOR SWITCH AND GREEN ON PILOT LIGHT ARE TO BE MOUNTED ON THE COVER.
PRODUCTS THAT ARE EQUAL TO THOSE BELOW ARE ACCEPTABLE.
[EATON]
[MATCH EXISTING MCC]

4.8 POWER PANEL BOARDS

REVISE EXISTING PANEL BOARD DIRECTORIES TO INDICATE THE LOADS CONTROLLED. DIRECTORIES MUST BE TYPEWRITTEN. INSTALL NEW CIRCUIT BREAKERS IN EXISTING PANEL BOARDS AS INDICATED ON THE DRAWINGS.

NEW CIRCUIT BREAKERS IN EXISTING PANELS ARE TO BE BOLT-IN TYPE, MOULDED CASE, WITH THERMAL-MAGNETIC TRIP MECHANISMS, ARE TO BE PRODUCTS FROM THE SAME MANUFACTURER AS THE PANEL BOARDS IN WHICH THEY ARE MOUNTED AND ARE TO MATCH THEIR CURRENT INTERRUPTING CAPACITY.
PRODUCTS THAT ARE EQUAL TO THOSE BELOW ARE ACCEPTABLE.

4.9 SAFETY DISCONNECT SWITCHES

SAFETY DISCONNECT SWITCHES ARE TO BE 30A, ,60A, 100A ,200A AND 400A, 120/208VOLT AND 347/600VOLT, 2P, 3P, INDOOR HEAVY DUTY NON-FUSED, QUICK MAKE, QUICK BREAK UNDER FULL LOAD AND EQUIPPED WITH LOCKABLE HANDLE INTERLOCKS WHICH WILL PERMIT OPENING OF THE DOOR IN THE OFF POSITION ONLY.
PRODUCTS THAT ARE EQUAL TO THOSE BELOW ARE ACCEPTABLE.
EATON
SQUARE D

4.10 FUSES

FUSES ARE TO BE *TIME DELAY*, WITH REJECTION FEATURE AND ARE TO HAVE CURRENT INTERRUPTING CAPACITY OF 200,000A SYMMETRICAL.
PRODUCTS THAT ARE EQUAL TO THOSE BELOW ARE ACCEPTABLE.
FERRAZ SHAWMUT
EATON

4.11 FIRE DETECTION AND FIRE ALARM

ADDITIONAL FIRE DETECTION AND FIRE ALARM DEVICES ARE TO BE THE SAME TYPE AS INSTALLED ELSEWHERE IN THE BUILDING AND ARE TO BE COMPATIBLE WITH THE BASE BUILDING FIRE ALARM SYSTEM.
MODIFY EXISTING FIRE ALARM WIRING AND FIRE ALARM ZONES AS INDICATED IN ACCORDANCE WITH CAN/ULC S524-14 " STANDARD FOR THE INSTALLATION OF FIRE ALARM SYSTEMS" AND CAN/ULC S537-13 - "INSPECTION AND TESTING OF FIRE ALARM SYSTEMS."
ALL FIRE ALARM WIRING IS TO BE TYPE FAS-90 INSTALLED IN EMT CONDUIT. FIRE ALARM WIRE SIZE SHALL BE PROVIDED AS PER SYSTEM MANUFACTURER RECOMMENDATION; HOWEVER, THE MINIMUM WIRE SIZE SHOULDN'T BE LESS THAN #18AWG FOR FIRE ALARM DEVICE CIRCUITS.

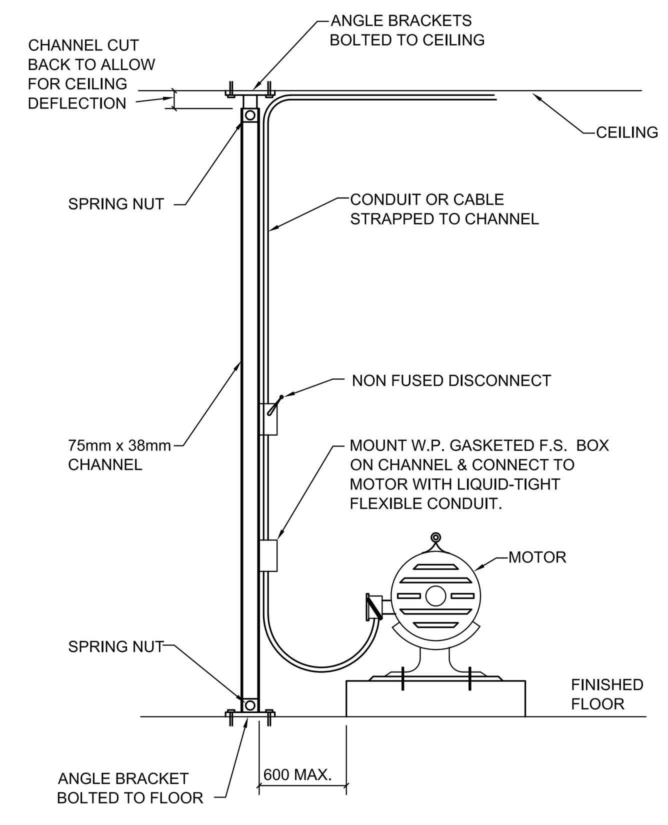
UPON COMPLETION, ALL NEW AND REVISED FIRE ALARM COMPONENTS, WIRING AND ZONES ARE TO BE TESTED AND VERIFIED BY A PROFESSIONAL ENGINEER IN ACCORDANCE WITH THE REQUIREMENTS OF THE ALBERTA BUILDING CODE AND WITH CAN/ULC-S537-13 "STANDARD FOR THE VERIFICATION OF FIRE ALARM SYSTEMS". INCLUDE THE SERVICES OF THE FIRE ALARM MANUFACTURER AND THE ELECTRICAL CONTRACTOR TO ASSIST WITH THE VERIFICATION.
INCLUDE A CASH ALLOWANCE FOR PROFESSIONAL ENGINEER'S VERIFICATION SERVICES.

THE VERIFICATION IS TO BE CONDUCTED AT A SUITABLE TIME ARRANGED WITH THE BUILDING OPERATOR WHICH WILL MOST LIKELY BE AFTER HOURS OR ON A WEEKEND. SUBMIT A VERIFICATION CERTIFICATE UPON COMPLETION.

STANTEC CONSULTING LTD CAN PROVIDE THIS SERVICE TO THE ELECTRICAL CONTRACTOR FOR THE SUM OF $2,500.00 EXCLUDING GST. THE ELECTRICAL CONTRACTOR IS NOT OBLIGED TO SECURE THE SERVICES OF STANTEC CONSULTING LTD.

RE-VERIFICATION OF FAULTY DEVICES OR IMPROPERLY INSTALLED OR WIRED DEVICES WILL BE CHARGED AT AN ENGINEERS VERIFICATION COST OF $187.00 PER HOUR, WITHIN NORMAL HOURS (8:00 A.M. - 4:30 P.M.), OR AT TIME RATE PLUS A HALF OUTSIDE OF THESE HOURS. A PURCHASE ORDER TO BE PROVIDED TO THE CONSULTANT PRIOR TO THE RE-VERIFICATION OF THESE DEVICES.

IF THE VERIFICATION IS UNABLE TO START, STOPPED OR HALTED AND THE CONSULTANT IS ON SITE AND UNABLE TO CONTINUE, THESE HOURS WILL BE CHARGED AT $187.00 PER HOUR, WITHIN NORMAL HOURS (8:00 A.M. - 4:30 P.M.), OR AT TIME RATE PLUS A HALF OUTSIDE OF THESE HOURS



1 / E400 TYPICAL PUMP CONNECTION
N.T.S.

Public Works and Government Services Canada — Travaux publics et Services gouvernementaux Canada

REAL PROPERTY SERVICES
Western Region
SERVICES IMMOBILIERS
Région de l'ouest

Stantec

PROFESSIONAL ENGINEER — WALID HAMED — ALBERTA
2020.07.07

PERMIT TO PRACTICE
STANTEC CONSULTING LTD.
Signature
Date 2020.07.07
PERMIT NUMBER: P 0258
The Association of Professional Engineers and Geoscientists of Alberta

Revision	Description	Date
5		
4		
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0	ISSUED FOR TENDER	2020.07.07

Client / client
Public Services and Procurement Canada

Project / Projet
LETHBRIDGE, AB
TOWNSHIP ROAD 9-1, T1J 3Z4

NATIONAL CENTRE FOR ANIMAL DISEASES AHU REPLACEMENT

Designed by / Conçu par: WH
Drawn by / Dessiné par: GB
Approved by / Approuvé par: WH
PWGSC Project Manager / Administrateur de Projets TPSGC

Drawing title / Titre du dessin
ELECTRICAL
ELECTRICAL SPECIFICATIONS & DETAILS

Project no./No. du projet	Drawing no./No. du dessin	Revision no.
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