

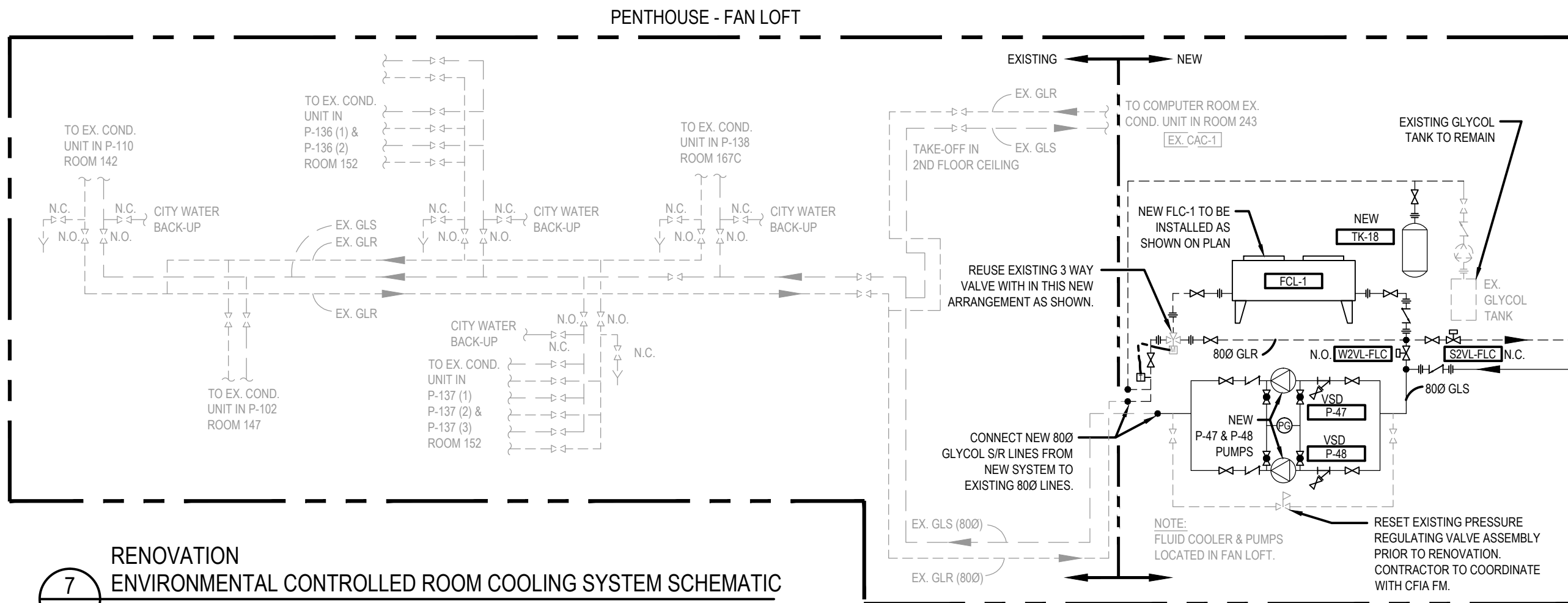
CFIA LAB DRYCOOLER  
SPECIFICATIONS AND DRAWINGS  
  
FOR MECHANICAL AND ELECTRICAL

1157 – 57 AVENUE N.E.  
CALGARY, ALBERTA

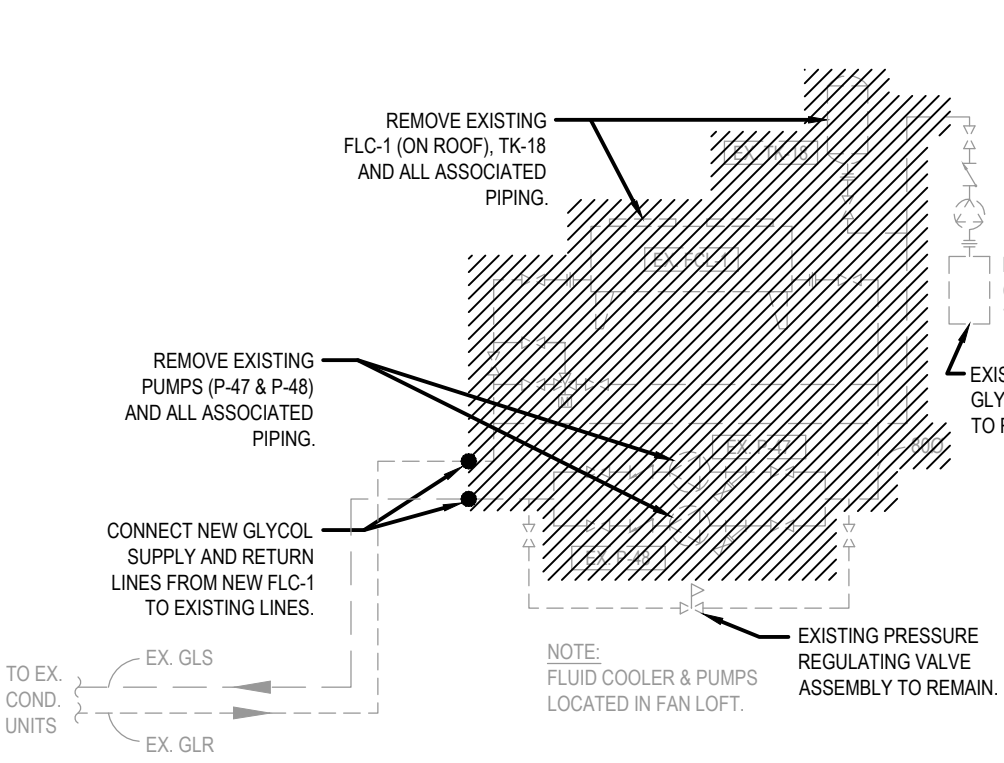
Prepared by:

WSP Canada Inc.

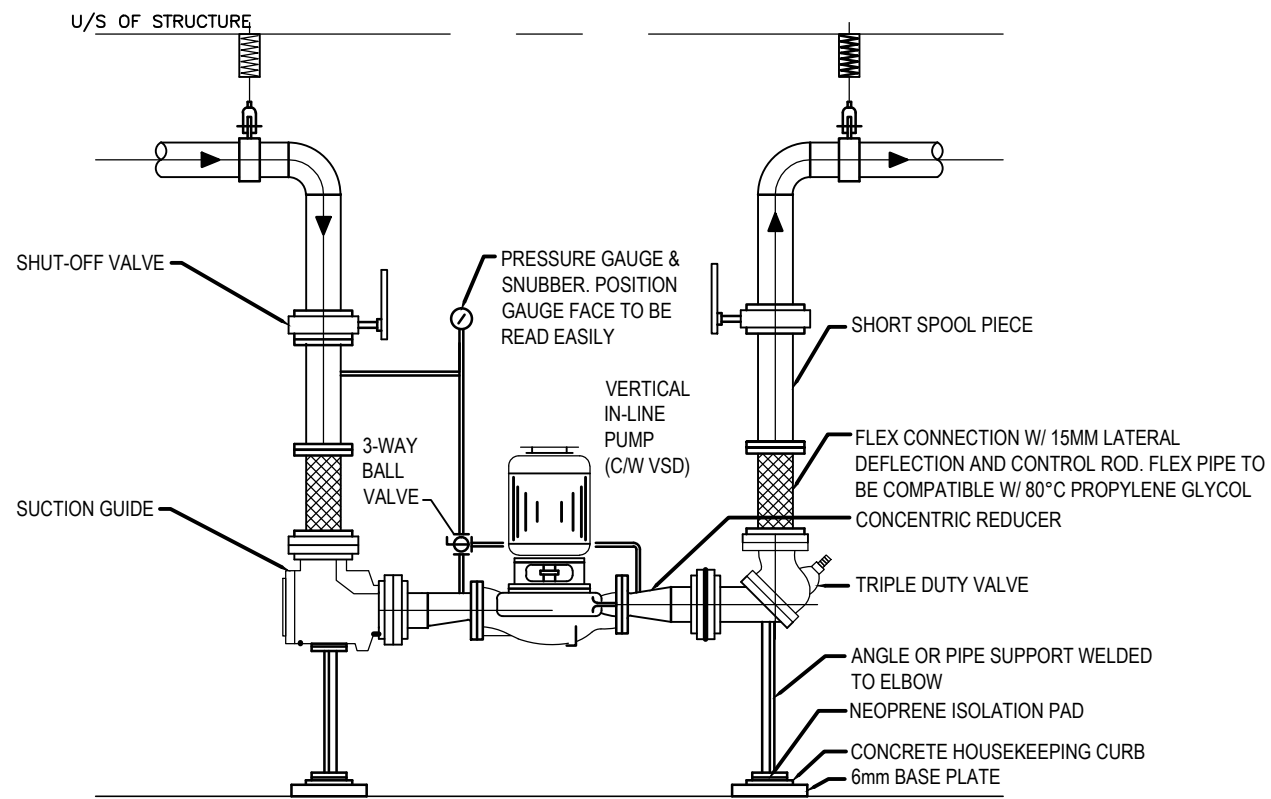
Project No.: 151-05168-00



7 RENOVATION ENVIRONMENTAL CONTROLLED ROOM COOLING SYSTEM SCHEMATIC  
M-01 SCALE: N.T.S.



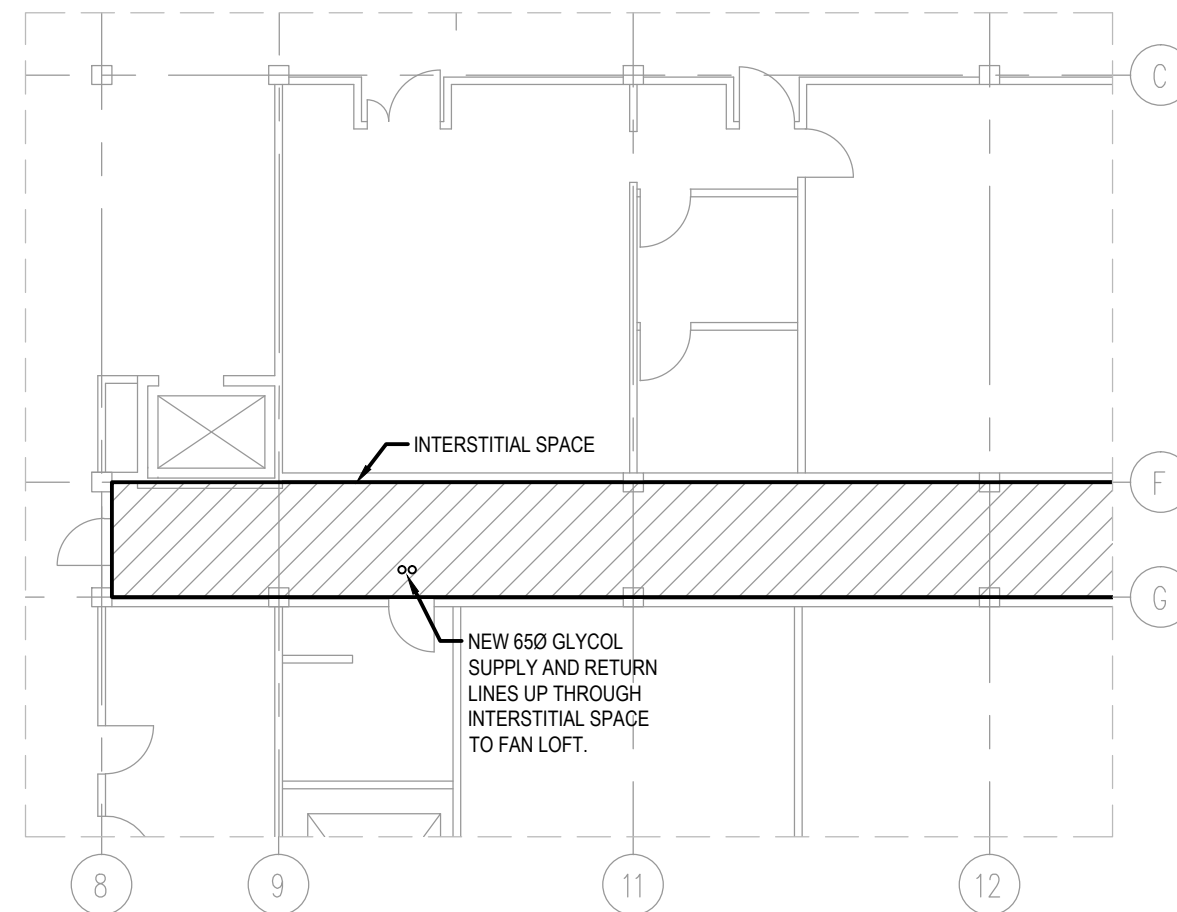
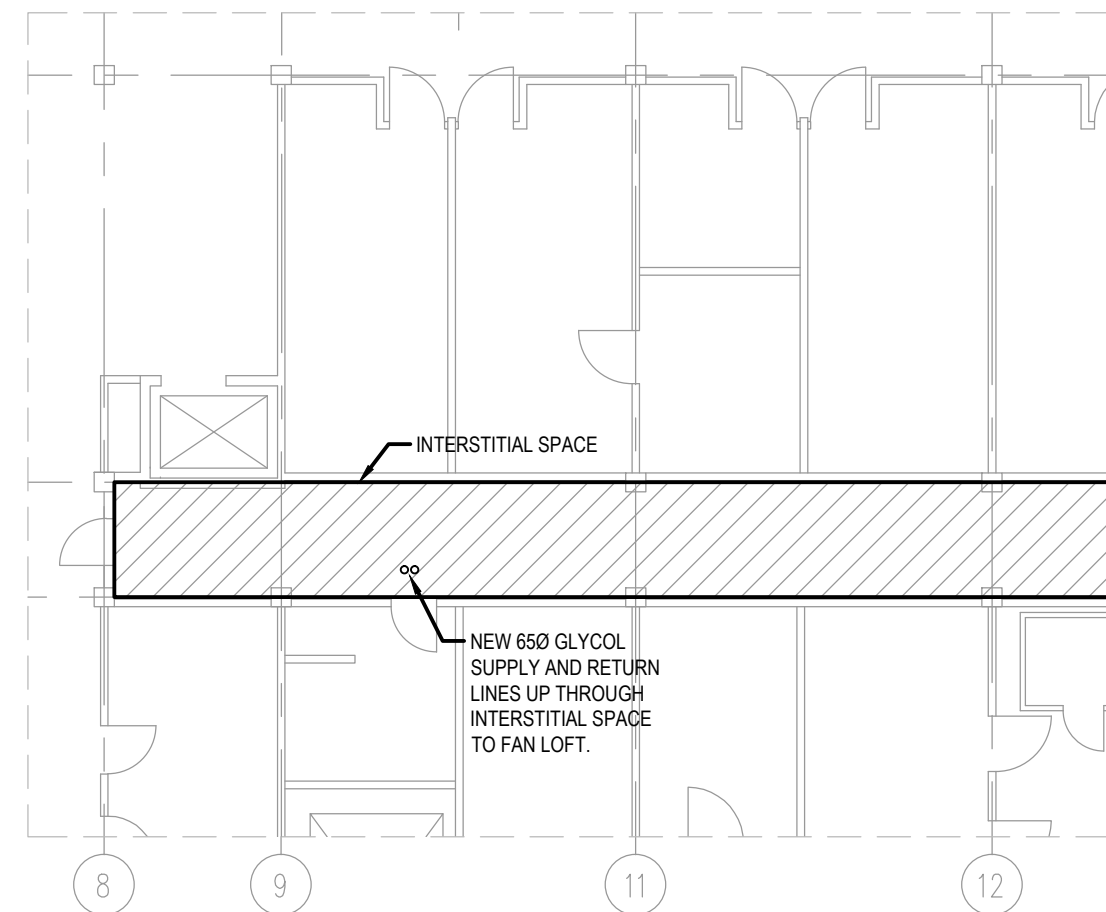
6 DEMOLITION ENVIRONMENTAL CONTROLLED ROOM COOLING SYSTEM SCHEMATIC  
M-01 SCALE: N.T.S.



8 TYPICAL PUMP DETAIL  
M-01 SCALE: N.T.S.

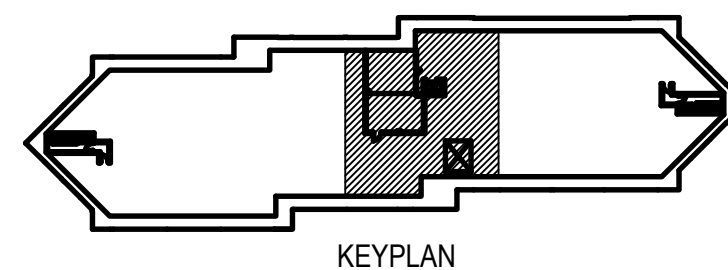
FLUID COOLER SYSTEM - SEQUENCE OF OPERATION:

- THE FLUID COOLER SYSTEM CONSISTS OF: FLUID COOLER (FLC-1), TWO IN-LINE VERTICAL CIRCULATOR PUMPS (P-47 & 48), HEAT EXCHANGERS (HE-6), TWO SETS OF NEW TWO-WAY VALVES AND EXISTING THREE-WAY CONTROL VALVE.
- THE PUMP (P-47 OR P-48) RUNS CONTINUOUSLY (24/7) IN LEAD LAG TYPE. IN THE EVENT OF LEAD PUMP FAILURE, THE LAG (STANDBY) PUMP SHALL STARTS AUTOMATICALLY. BUILDING OPERATOR SHOULD BE ABLE TO SELECT LEAD LAG PUMP ARRANGEMENT IN ORDER TO ENSURE THAT ALL PUMPS OPERATE SIMILAR NUMBER OF HOURS.
  - PUMPS ARE SUPPLIED WITH MANUFACTURE INSTALLED VARIABLE SPEED DRIVE (ONE PER PUMP).
  - EITHER PUMP (LEAD OR LAG) SHALL OPERATE DURING WINTER TIME (WHENEVER OUTSIDE TEMPERATURE IS BELOW 15°C) @ LOWER PRESSURE HEAD AND CONSTANT FLOW AS INDICATED.
  - DURING SUMMER OPERATION (WHENEVER OUTSIDE TEMPERATURE IS ABOVE 15°C) @ HIGHER PRESSURE HEAD AND CONSTANT FLOW AS INDICATED.
- FLC-1 FAN SHALL RUN WHENEVER THE OUTSIDE TEMPERATURE IS BELOW 15°C. DURING THIS TIME THE SUPPLY WATER TEMPERATURE (SELECTED, SET AND ADJUSTABLE T.B.D BY CFIA-FM THROUGH FLC UNIT CONTROLLER AND BMS) IS MAINTAINED BY DIVERTING EXISTING THREE-WAY CONTROL VALVE AND FLC FANS, DURING THIS TIME TWO-WAY VALVE (W2VL-FLC) SHALL BE IN FULL OPEN POSITION AND TWO-WAY VALVE (S2VL-FLC) IN FULLY CLOSED POSITION.
- FLC UNIT STATUS AND START-STOP SHALL BE CONTROLLED BY EXISTING BLDG. BMS SYSTEM.
- IF OUTSIDE TEMPERATURE IS ABOVE 15°C, THEN TWO-WAY VALVE (W2VL-FLC) SHALL CLOSE AND FLC FANS SHALL TURN OFF. TWO-WAY VALVE (S2VL-FLC) SHALL OPEN AND WITHIN 30 SEC (ADJUSTABLE) ALSO LEAD PUMP VARIABLE SPEED DRIVE SHALL ADJUST THE SPEED AND MAINTAIN SUMMER CONDITION FLOW AND HEAD. BMS SYSTEM SHALL COORDINATE WITH PUMP MANUFACTURE SUPPLIER PRIOR TO START UP! ALSO THREE-WAY VALVE SHALL BE IN FULL DIVERTING POSITION AND DIVERT ALL THE FLUID TOWARD THE HE-4 SYSTEM. THE PUMPS ARE OPERATED ON A LEADLAG SYSTEM TO ENSURE THAT ALL PUMPS OPERATE SIMILAR NUMBER OF HOURS.
- IF OUTSIDE TEMPERATURE IS ABOVE 15°C AND EITHER OF BUILDING CHILLERS SYSTEM FAIL, THEN FLC-1 SHALL BE OPERABLE MANUALLY BY CFIA-FM. IF FLC IS SELECTED TO OPERATE THEN PUMPS (P-47 OR 48) SHALL OPERATE UNDER WINTER CONDITION AT LOWER PRESSURE HEAD
- MISCELLANEOUS ALARMS
  - IF EITHER OF FLC-1 FANS FAIL, BMS SYSTEM SHALL GENERATE ALARM 2.
  - IF THE LEAD PUMPS IS FAILED, THEN GENERATE ALARM 1 AT THE CONTROL CENTRE.
  - IF THE LAG PUMPS FROM IS FAILED TO TURN ON DURING COME ON THEN GENERATE ALARM 2 AT THE CONTROL CENTRE.
  - IF EITHER OF THE TWO-WAY VALVES OR THREE-WAY VALVE FAIL TO OPERATE AS COMMANDED, THEN GENERATE ALARM 2.
  - A FLOW SWITCH IN THE PIPING CIRCUIT TO THE CONDENSERS SOUNDS AN ALARM AT THE CONTROL CENTRE IN THE EVENT OF LOSS CIRCUIT FLOW.



GENERAL NOTES:

- THESE DRAWINGS ARE DIAGRAMMATIC ONLY. CONTRACTOR SHALL PROVIDE ALL INSTALLATIONS IN ACCORDANCE TO THE NATIONAL BUILDING CODE 2010. CONTRACTOR SHALL VERIFY AND FAMILIARIZE EXISTING SITE CONDITION PRIOR COMMENCEMENT OF WORK.
  - CONTRACTOR TO CONFIRM EXISTING LOCATIONS FOR ALL EXISTING EQUIPMENT PRIOR TO DEMOLITION.
  - ALL WORK TO BE COORDINATED WITH ALL DISCIPLINES AND OWNER.
- KEYNOTES:
- NEW CONNECTION POINT. CONTRACTOR TO ENSURE THE REPLACEMENT OF THE EXISTING 50% P. GLYCOL FOR HE-5 WITH NEW 50% P. GLYCOL.
  - CONTRACTOR TO REMOVE EXISTING 50% E. GLYCOL AND REPLACE IT WITH NEW 50% E. GLYCOL.
  - THE FOLLOWING INFORMATION IS FOR PRICING ONLY. AND SHALL BE REVIEWED BY THE CONSULTANT PRIOR TO FABRICATION AFTER FINAL SHOP DRAWINGS ARE REVIEWED. CONTRACTOR TO PROVIDE W360X51 CURB WITH INTERMEDIATE CROSS MEMBER AT INTERMEDIATE LEGS. FASTEN CURB TO CONCRETE SLAB USING 2-19MM DIA HAS RODS EMBED 100MM USING HT HY 150 MAX @ 100MM MAX SPACING. WEB STIFFENERS TO BE PROVIDED BELOW ALL LEGS OF THE UNIT. CONTRACTOR SHALL SCAN AND LOCATE ALL POST TENSIONING STRANDS PRIOR TO DRILLING.



1 FAN LOFT - MECHANICAL DEMOLITION LAYOUT  
M-01 SCALE: 1:150

2 FAN LOFT - MECHANICAL NEW LAYOUT  
M-01 SCALE: 1:150

3 BASEMENT - MECHANICAL NEW LAYOUT  
M-01 SCALE: 1:150



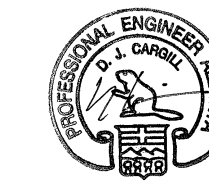
5940 MACLEOD TRAIL SW  
CALGARY (ALBERTA) CANADA T2H 2G4  
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WSP #151-05168-00

CONSULTANT - SUBCONSULTANT:

SEAL:

WSP CANADA INC.  
APECA PERMIT #P7541



2015-06-02

WSP CANADA INC.  
APECA PERMIT #P7541

CLIENT:



CLIENT REF #: H0004

PROJECT:

CFIA  
LAB DRY COOLER PROJECT  
CALGARY, AB

KEY PLAN:

DISCLAIMER:

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ISSUED FOR - REVISION:

IS	RE	DATE	DESCRIPTION
A		2015.06.02	ISSUED FOR TENDER

PROJECT NO: H0004	DATE: JUNE 2015
ORIGINAL SCALE: AS SHOWN	IF THIS BAR IS NOT 1" LONG, ADJUST YOUR PLOTTING SCALE.
DESIGNED BY: EL	
DRAWN BY: AT	
CHECKED BY: EL/DJC	
DISCIPLINE:	

MECHANICAL BUILDING

MECHANICAL LAYOUT

SHEET NUMBER:

M-01

SHEET A:

1 OF 2

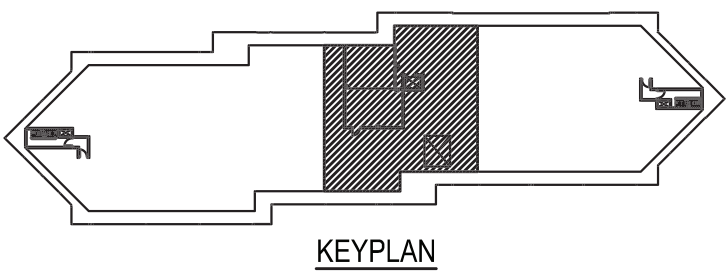
ISSUE:

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