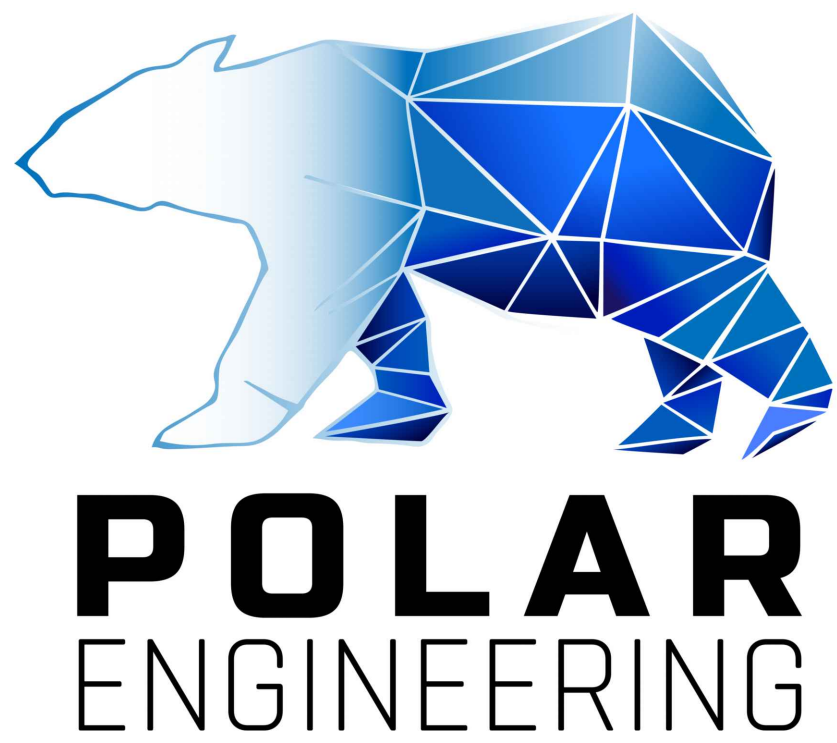


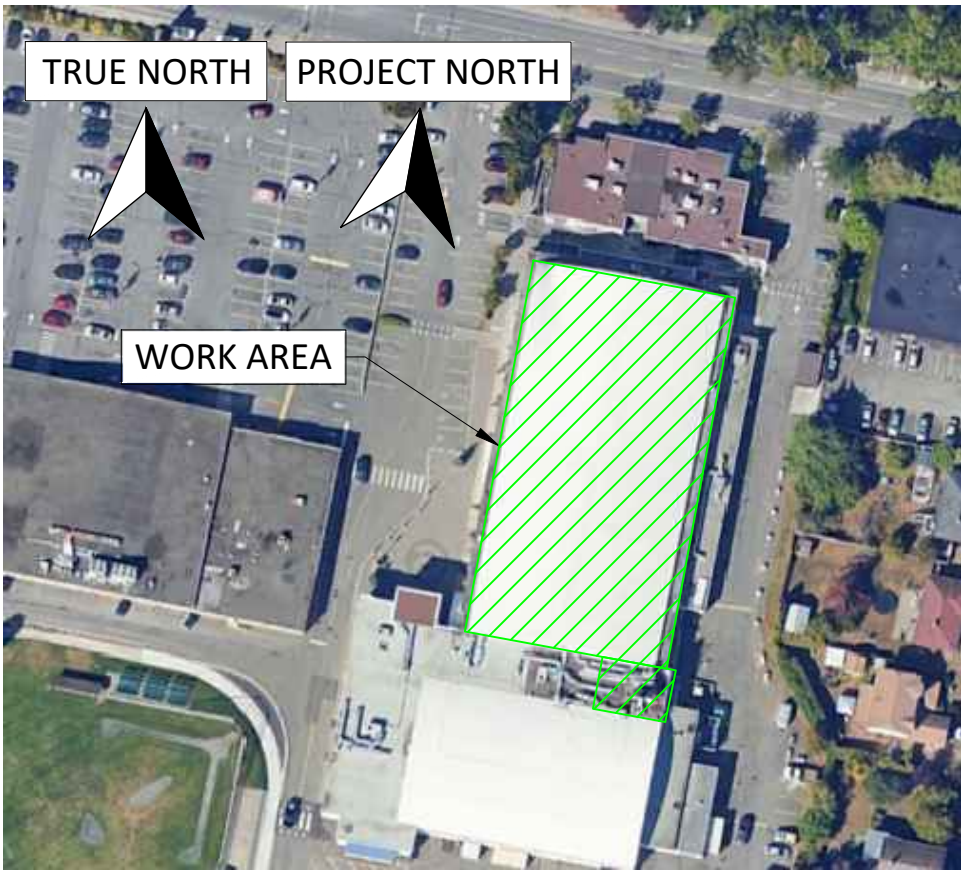
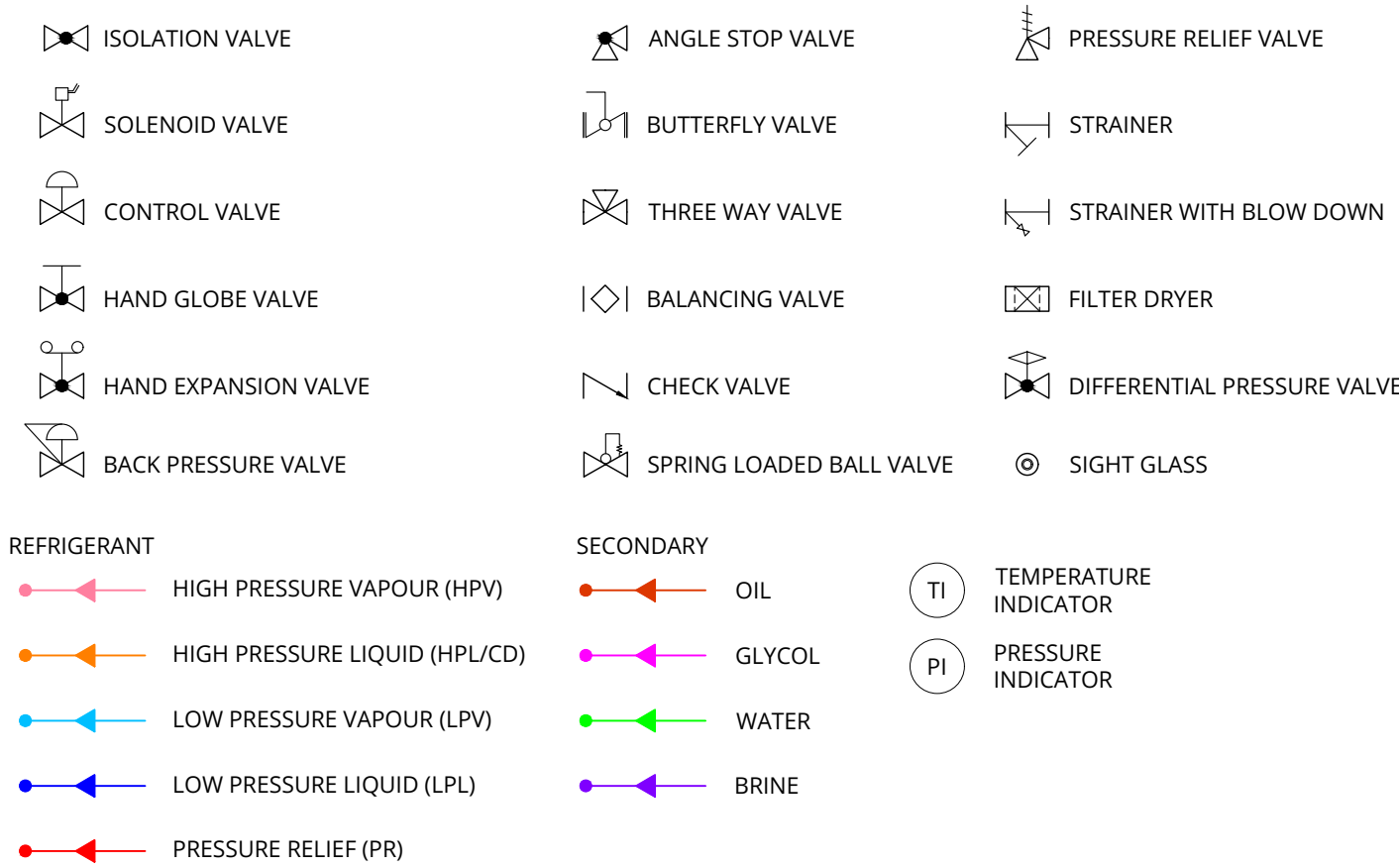


# Archie Browning Sports Centre Refrigerated Floor Replacement



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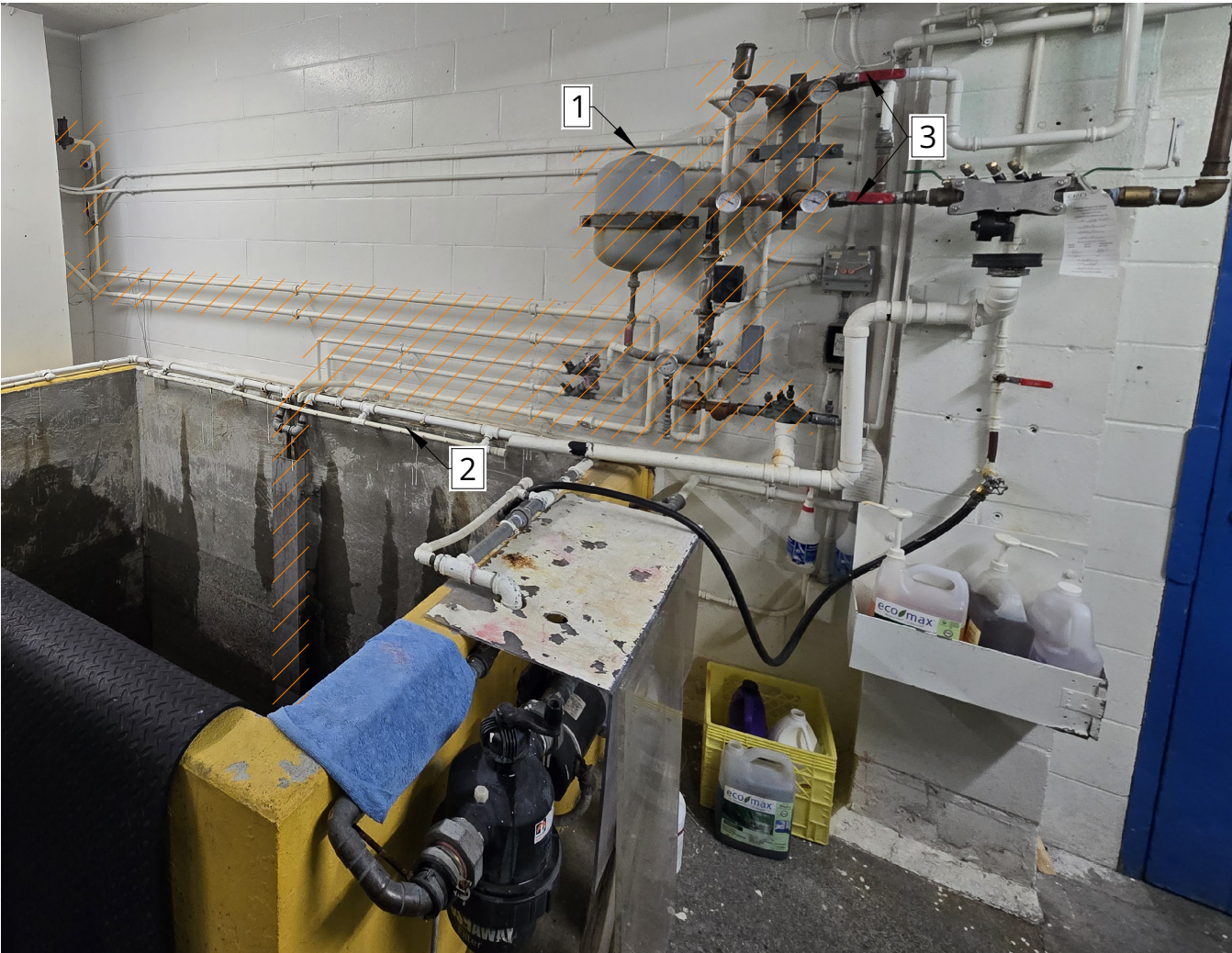
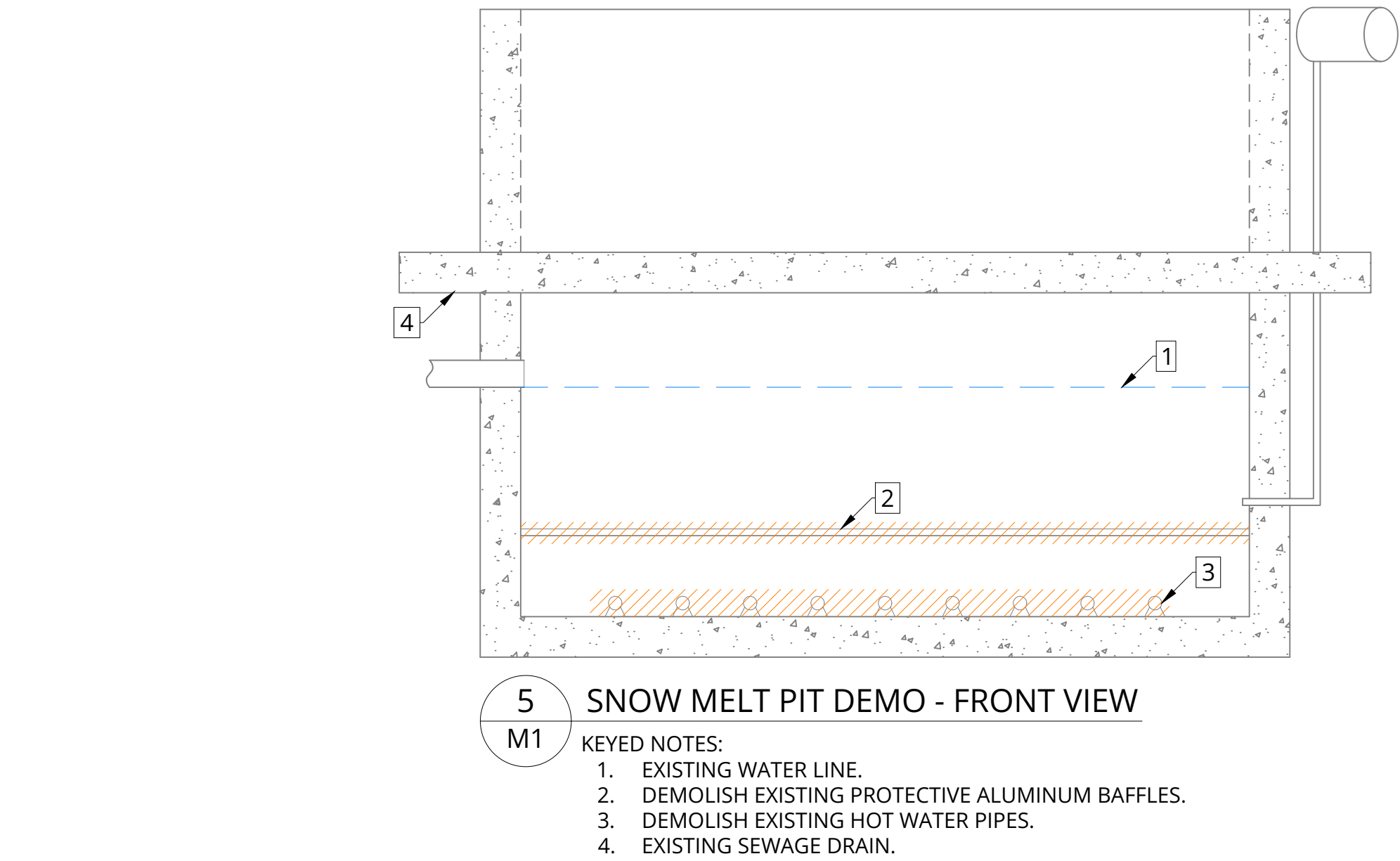
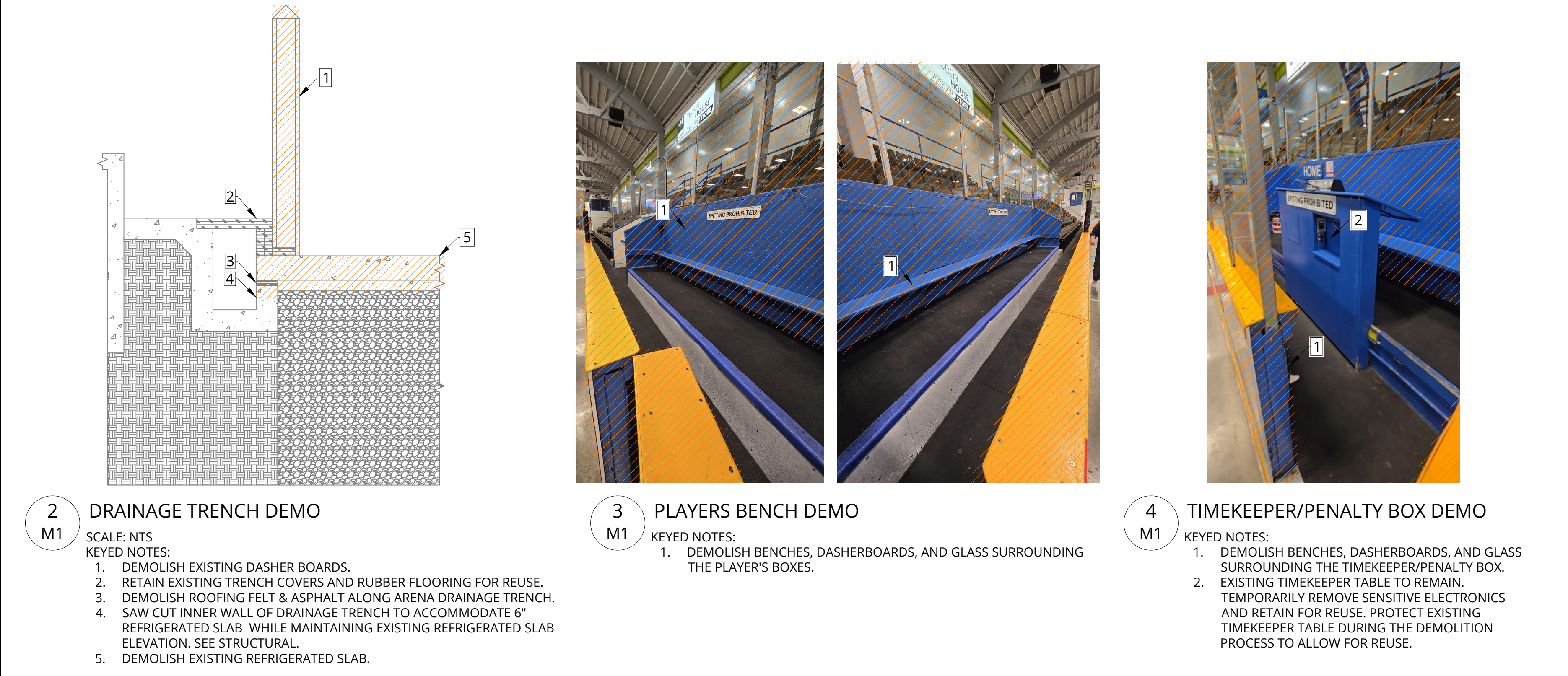
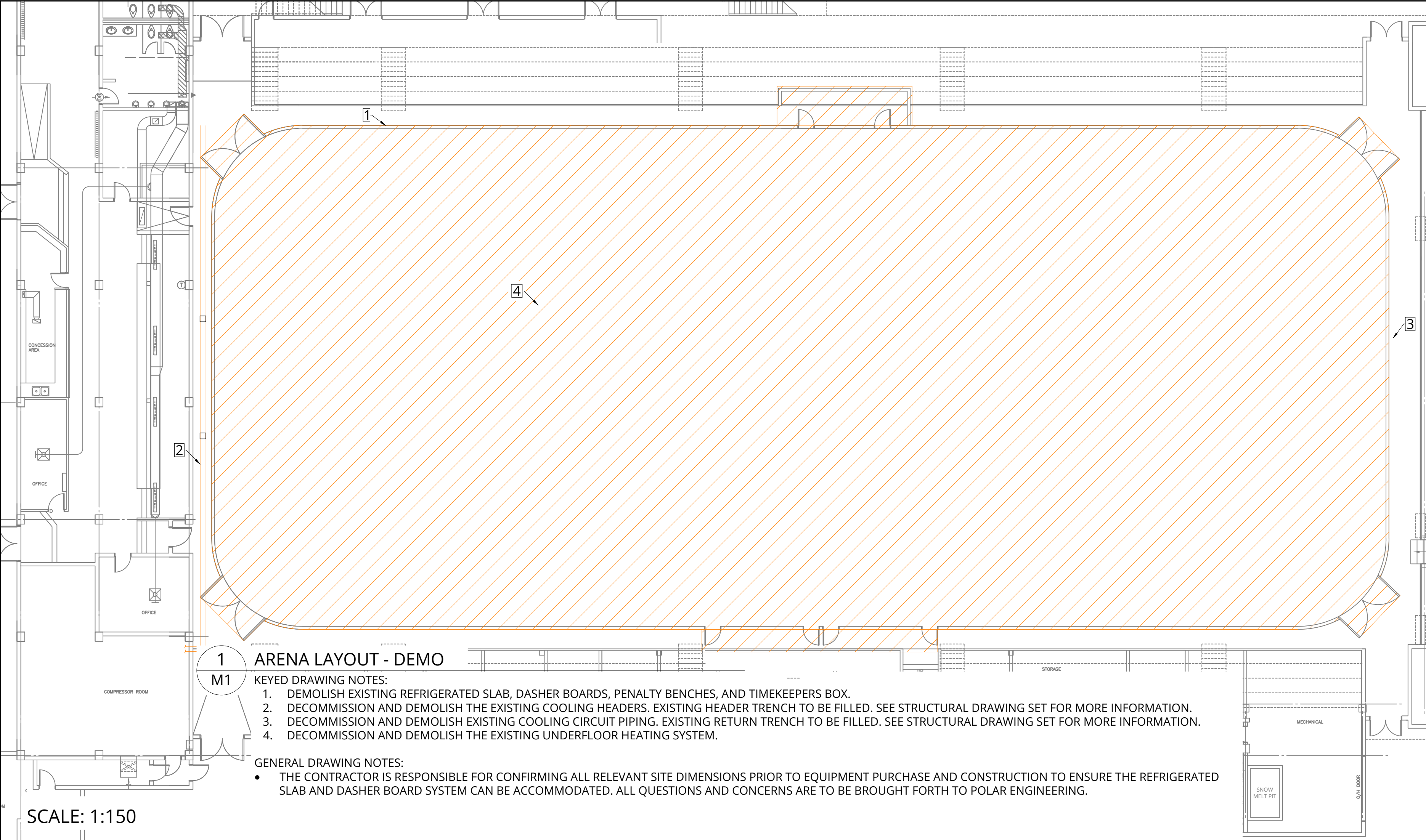
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M2	KEY PLAN VIEW
M3	REFRIGERATION PLANT P&ID
M4	REFRIGERATION PLANT PLAN VIEW
M5	SNOW MELT PIT DETAILS
M6	CENTER HEADER CROSS SECTION
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M11	SCHEDULES, POINTS LIST, CONTROLS



Archie Browning Sports Centre  
1151 Esquimalt Rd, Victoria, BC

PRIME CONSULTANT  PHONE 778-700-1086 WEBSITE www.polareng.ca	CONSULTANT	CLIENT  PHONE 250-414-7100 WEBSITE www.esquimalt.ca	ENGINEER OF RECORD  2025-12-11 IAN WELLE P.ENG. EGBC PERMIT TO PRACTICE NUMBER 1003657	PROJECT TITLE ARCHIE BROWNING SPORTS CENTRE - REFRIGERATED FLOOR REPLACEMENT	REV #	DATE	DRAWN BY	CHECKED BY	DESCRIPTION	PROJ # 2546
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					2	2025-11-28	AH	IW	ISSUED FOR TENDER	
					3	2025-12-03	AH	IW	RE-ISSUED FOR TENDER	SHEET NAME M0
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					5	-	-	-	-	
					6	-	-	-	-	





**6 SNOW MELT PIT - PIPING DEMO**  
M1

**KEYED NOTES:**




- DECOMMISSION AND DEMOLISH EXISTING SNOW MELT HOT WATER PIPING, ELECTRIC BOILER, HEAT EXCHANGER, EXPANSION TANK, VALVES, AND OTHER SUPPLEMENTARY SNOW MELT EQUIPMENT ON THE NON-POTABLE SIDE OF THE HEAT EXCHANGER.
- EXISTING SPRAY SYSTEM INCLUDING PUMP, PIPING, VALVES, AND FILTRATION EQUIPMENT IS TO REMAIN IN PLACE.
- CUT AND CAP DOMESTIC HOT WATER PIPING AT EXISTING ISOLATION VALVES. OPEN THE BYPASS TO MAINTAIN FLOW INTEGRITY.



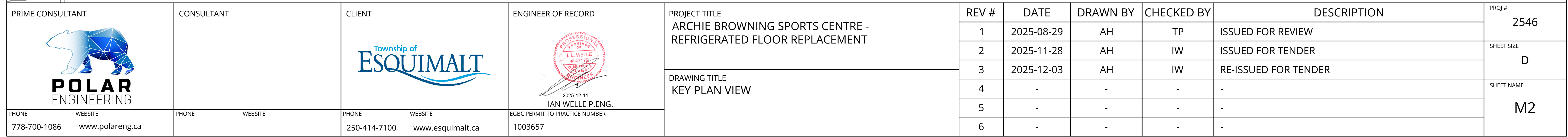
**7 SNOW MELT PIT - BOILER DEMO**  
M1

**KEYED NOTES:**

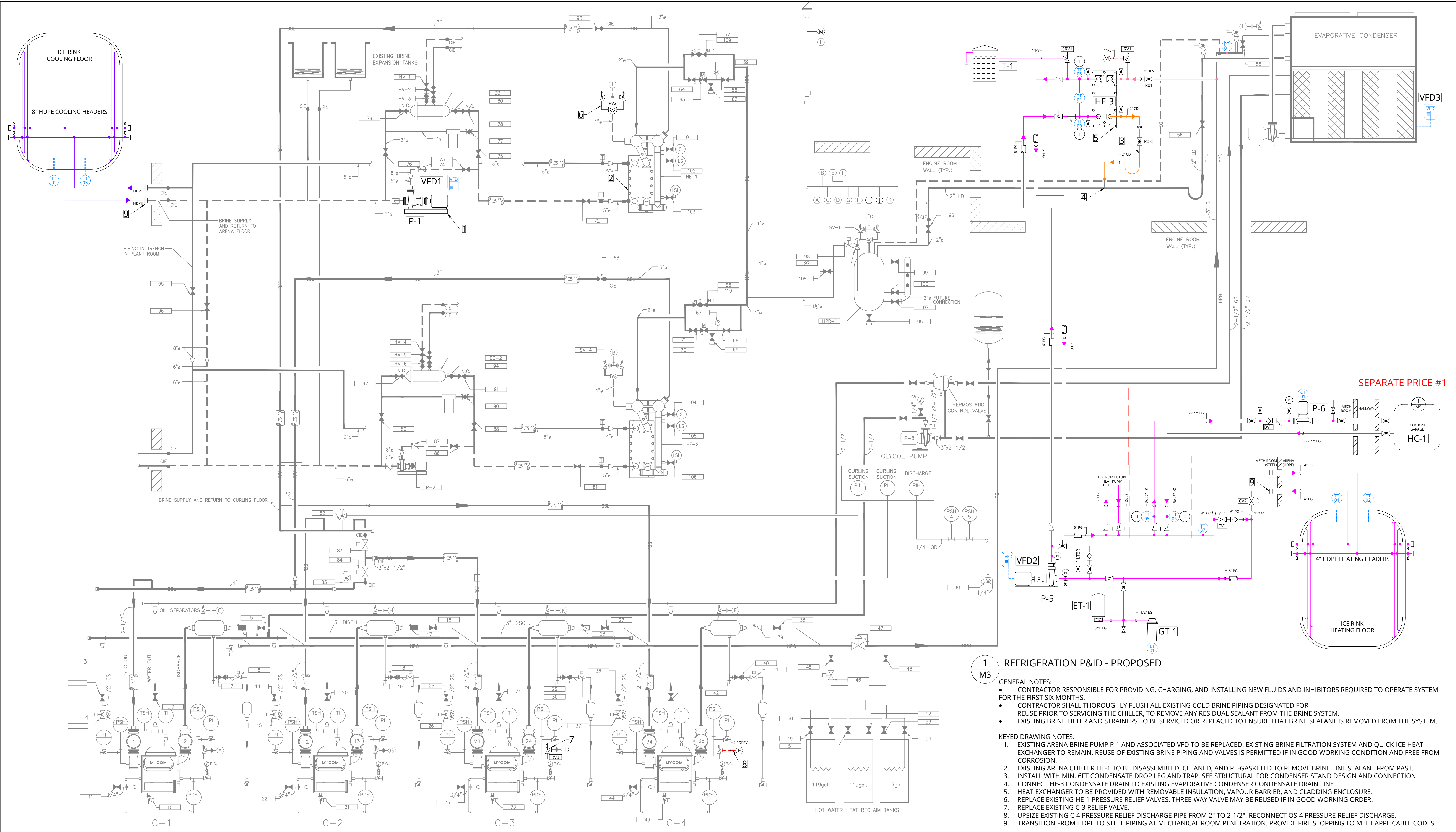
- DECOMMISSION AND DEMOLISH ELECTRIC SNOW MELT PIT BOILER AND ADJACENT ELECTRICAL EQUIPMENT. CONTRACTOR TO CONFIRM ELECTRICAL EQUIPMENT WAS CONNECTED SOLELY TO THIS BOILER PRIOR TO REMOVAL.

PRIME CONSULTANT		CONSULTANT		CLIENT		ENGINEER OF RECORD		PROJECT TITLE		REV #	DATE	DRAWN BY	CHECKED BY	DESCRIPTION	PROJ #
 <b>POLAR</b> ENGINEERING				 2025-12-11 IAN WELLE P.ENG.		ARCHIE BROWNING SPORTS CENTRE - REFRIGERATED FLOOR REPLACEMENT		DRAWING TITLE DEMOLITION		1	2025-08-29	AH	TP	ISSUED FOR REVIEW	2546
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PHONE 778-700-1086	WEBSITE www.polareng.ca	PHONE 250-414-7100	WEBSITE www.esquimalt.ca	EGBC PERMIT TO PRACTICE NUMBER 1003657											









### 1 M3 REFRIGERATION P&ID - PROPOSED

- GENERAL NOTES:
- CONTRACTOR RESPONSIBLE FOR PROVIDING, CHARGING, AND INSTALLING NEW FLUIDS AND INHIBITORS REQUIRED TO OPERATE SYSTEM FOR THE FIRST SIX MONTHS.
  - CONTRACTOR SHALL THOROUGHLY FLUSH ALL EXISTING COLD BRINE PIPING DESIGNATED FOR REUSE PRIOR TO SERVICING THE CHILLER, TO REMOVE ANY RESIDUAL SEALANT FROM THE BRINE SYSTEM.
  - EXISTING BRINE FILTER AND STRAINERS TO BE SERVICED OR REPLACED TO ENSURE THAT BRINE SEALANT IS REMOVED FROM THE SYSTEM.

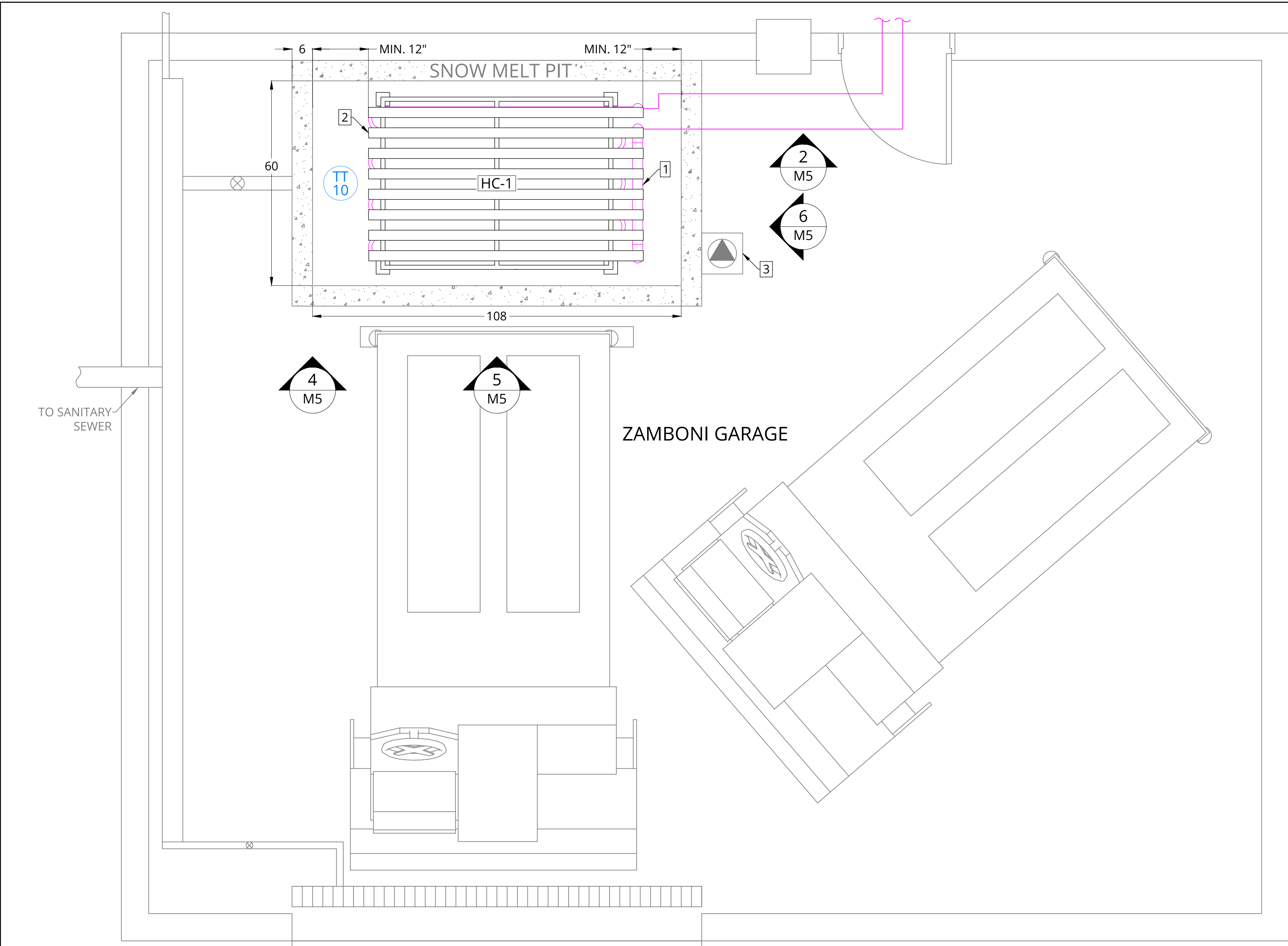
- KEYED DRAWING NOTES:
- EXISTING ARENA BRINE PUMP P-1 AND ASSOCIATED VFD TO BE REPLACED. EXISTING BRINE FILTRATION SYSTEM AND QUICK-ICE HEAT EXCHANGER TO REMAIN. REUSE OF EXISTING BRINE PIPING AND VALVES IS PERMITTED IF IN GOOD WORKING CONDITION AND FREE FROM CORROSION.
  - EXISTING ARENA CHILLER HE-1 TO BE DISASSEMBLED, CLEANED, AND RE-GASKETED TO REMOVE BRINE LINE SEALANT FROM PAST.
  - INSTALL WITH MIN. 6FT CONDENSATE DROP LEG AND TRAP. SEE STRUCTURAL FOR CONDENSER STAND DESIGN AND CONNECTION.
  - CONNECT HE-3 CONDENSATE DRAIN TO EXISTING EVAPORATIVE CONDENSER CONDENSATE DRAIN LINE
  - HEAT EXCHANGER TO BE PROVIDED WITH REMOVABLE INSULATION, VAPOUR BARRIER, AND CLADDING ENCLOSURE.
  - REPLACE EXISTING HE-1 PRESSURE RELIEF VALVES. THREE-WAY VALVE MAY BE REUSED IF IN GOOD WORKING ORDER.
  - REPLACE EXISTING C-3 RELIEF VALVE.
  - UPSIZE EXISTING C-4 PRESSURE RELIEF DISCHARGE PIPE FROM 2" TO 2-1/2". RECONNECT OS-4 PRESSURE RELIEF DISCHARGE.
  - TRANSITION FROM HDPE TO STEEL PIPING AT MECHANICAL ROOM PENETRATION. PROVIDE FIRE STOPPING TO MEET APPLICABLE CODES.

PRIME CONSULTANT	CONSULTANT	CLIENT	ENGINEER OF RECORD	PROJECT TITLE	REV #	DATE	DRAWN BY	CHECKED BY	DESCRIPTION	PROJ #
 POLAR ENGINEERING		 Township of ESQUIMALT	 IAN WELLE P.ENG.	ARCHIE BROWNING SPORTS CENTRE - REFRIGERATED FLOOR REPLACEMENT	1	2025-08-29	AH	TP	ISSUED FOR REVIEW	2546
PHONE 778-700-1086	WEBSITE www.polareng.ca	PHONE 250-414-7100	WEBSITE www.esquimalt.ca	DRAWING TITLE REFRIGERATION PLANT P&ID	2	2025-11-28	AH	IW	ISSUED FOR TENDER	SHEET SIZE D
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					6	-	-	-	-	









1 SNOW MELT PIT LAYOUT DRAWING

- SCALE: 1:20
- GENERAL DRAWING NOTES
- UNITS IN INCHES UNLESS OTHERWISE SPECIFIED.
  - CONTRACTOR TO CONFIRM ALL RELEVANT DIMENSIONS PRIOR TO ORDERING EQUIPMENT.
  - FINAL COIL DESIGN AND DIMENSIONS TO BE APPROVED BY CONSULTANT AND OWNER PRIOR TO CONSTRUCTION.
- KEYNOTES:
1. SNOW MELT COIL AND STRUCTURE TO ALLOW SPACE FOR SUBMERSIBLE PUMP FOR PIT DRAINING.
  2. ANGLE IRON TO PROTECT HEATING COIL FROM FALLING ICE AND SNOW. OVERHANG ANGLE IRON AS REQUIRED TO PROTECT RETURN BENDS AND SUPPLY AND RETURN HEADERS.
  3. EXISTING WATER SPRAY PUMP TO REMAIN AS BACKUP.

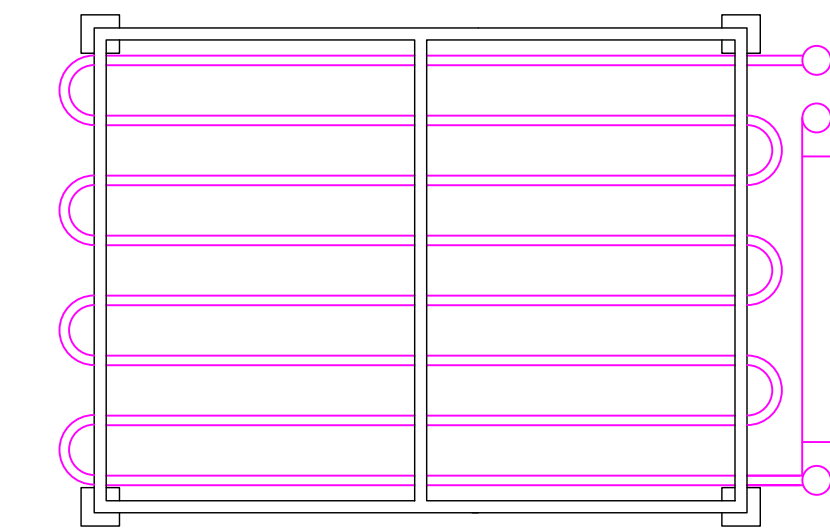
HYDRONIC COILS							
TAG	DESCRIPTION	CAPACITY [MBH]	FLUID	FLOW RATE [GPM]	TEMP IN [F]	TEMP OUT [F]	NOTES
HC1	SNOW MELT COIL	700	30% EG	77	82	62	ALL

- NOTES:
1. HEADERS AND HEATING CIRCUITS ARE TO BE SCH. 10S STAINLESS STEEL TUBING.
  2. REVERSE RETURN HEADER FOR FLOW EQUALIZATION.
  3. COORDINATE COIL DIMENSIONS AND LAYOUT WITH EXISTING SPRAY SYSTEM AND NEW DRAIN AND DRAIN SHIELD.
  4. THERE MUST BE A MINIMUM OF 24" OF WATER ABOVE THE HEATING COIL STRUCTURE TO ACCOMODATE THE SNOW LOAD AND AVOID SPLASHING.
  5. COIL MUST ACHIEVE MINIMUM LINEAR LENGTH OF 320' OF 1" SS TUBING TO MEET DESIGN CAPACITY.
  6. SUBMIT FINAL COIL DESIGN TO CONSULTANT FOR REVIEW PRIOR TO CONSTRUCTION.



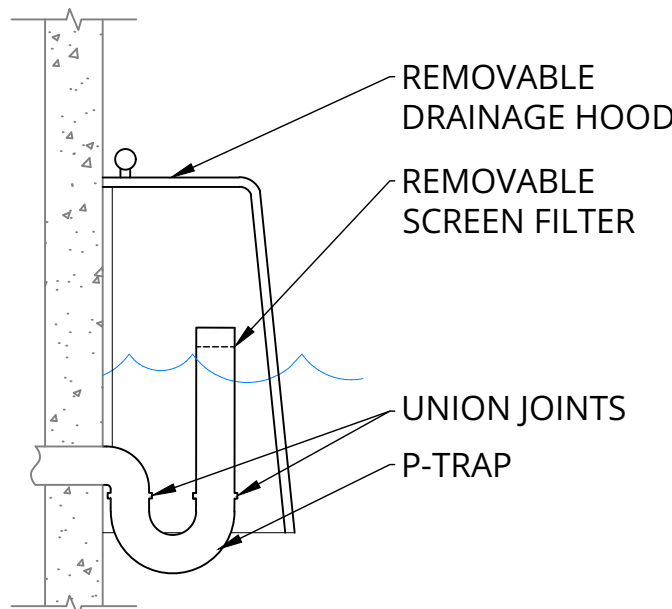
2 SNOW MELT PIT PIPING INTEGRATION

- KEYED NOTES:
1. WALL PENETRATION FOR NEW PIPING.
  2. CAP PIPING AT ISOLATION VALVES

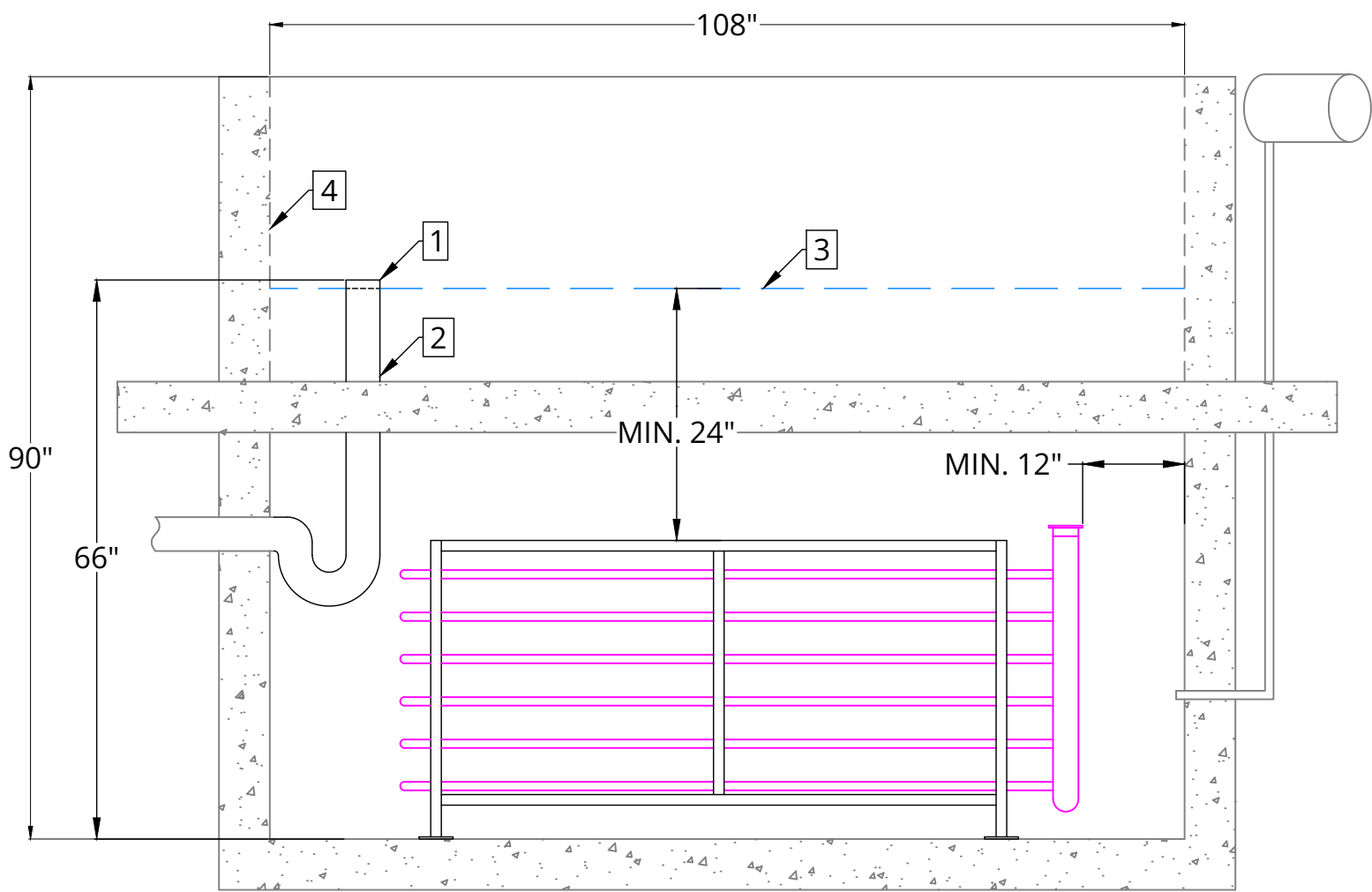


3 SNOW MELT PIT COIL NEW - TOP VIEW

- KEYNOTES:
1. ANGLE IRON OMITTED FOR CLARITY.

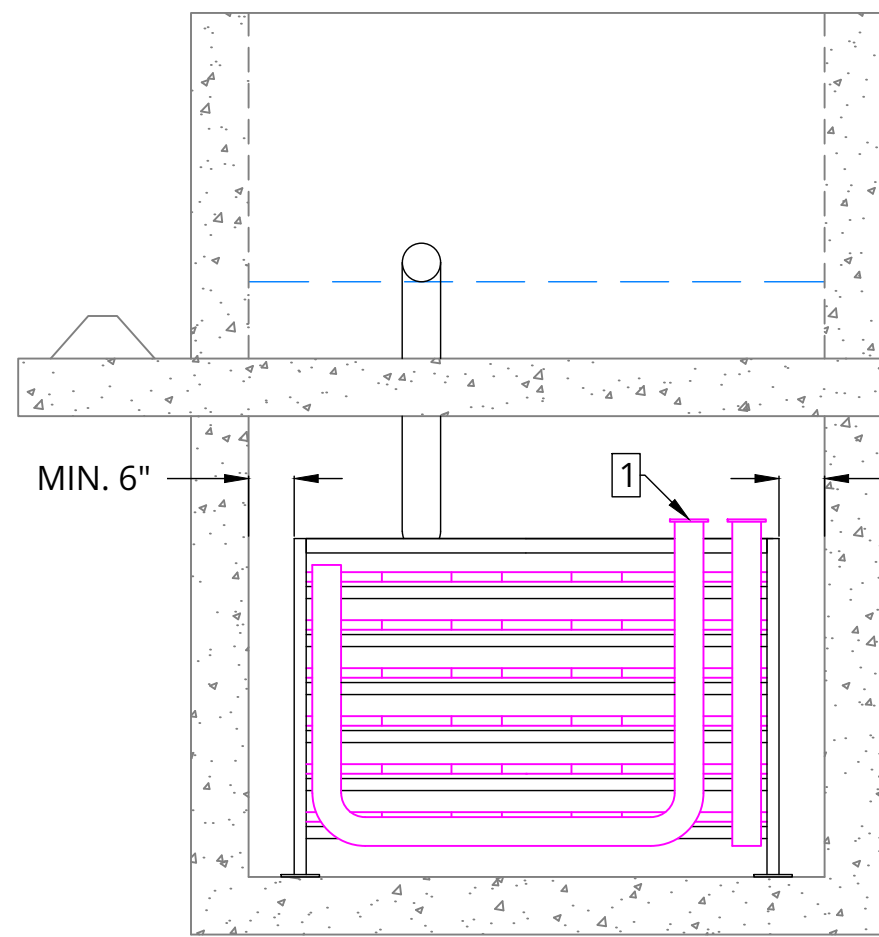


4 DRAINAGE PIPE DETAIL



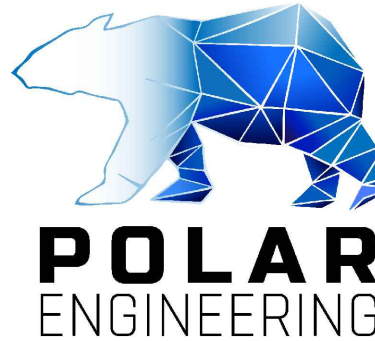


5 SNOW MELT PIT NEW - FRONT VIEW

- KEYNOTES:
1. EXTEND WATER DRAIN TO 5'6" ABOVE BOTTOM OF TANK. SECURE NEW DRAIN PIPE TO MELT PIT WALL.
  2. INSTALL METAL SHIELD ON DRAIN TO PREVENT DAMAGE DURING USE. SEE DETAIL 4/M5 FOR DETAILS.
  3. NEW WATER LINE.
  4. CONTRACTOR TO REVIEW THE CONDITION OF EXISTING CONCRETE PIT AND APPLY PATCHES OR REPAIR SEALANT TO CONFIRM THAT IT IS WATERTIGHT BEFORE INCREASING DRAIN HEIGHT.

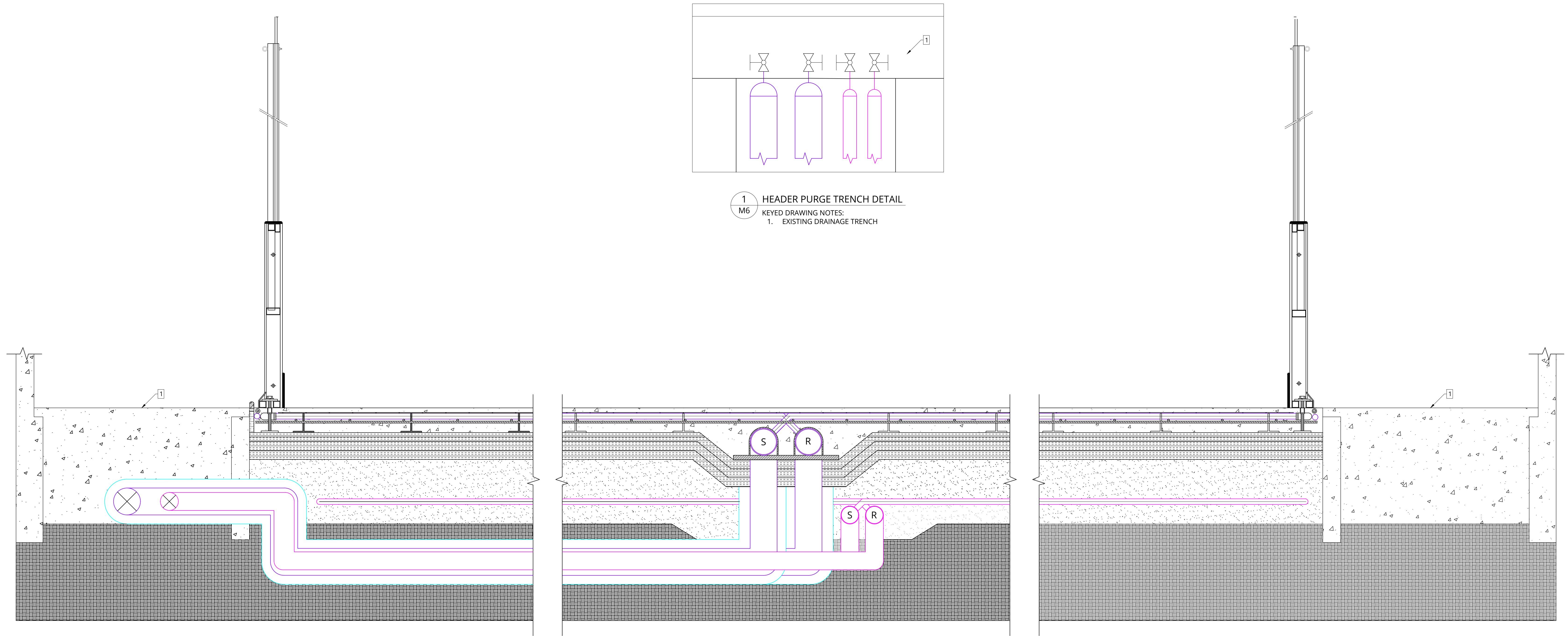


6 SNOW MELT PIT NEW - SIDE VIEW

- KEYNOTES:
1. CONNECTIONS TO SNOW MELT HEADERS TO/FROM ICE PLANT.

<div>PRIME CONSULTANT</div> <div></div> <div>PHONE 778-700-1086</div> <div>WEBSITE www.polareng.ca</div>	<div>CONSULTANT</div> <div></div> <div>PHONE</div> <div>WEBSITE</div>	<div>CLIENT</div> <div></div> <div>PHONE 250-414-7100</div> <div>WEBSITE www.esquimalt.ca</div>	<div>ENGINEER OF RECORD</div> <div></div> <div>2025-12-11</div> <div>IAN WELLE P.ENG.</div> <div>EGBC PERMIT TO PRACTICE NUMBER 1003657</div>	PROJECT TITLE	REV #	DATE	DRAWN BY	CHECKED BY	DESCRIPTION	PROJ #	
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					2	2025-11-28	AH	IW	ISSUED FOR TENDER	SHEET SIZE D	
					3	2025-12-03	AH	IW	RE-ISSUED FOR TENDER		
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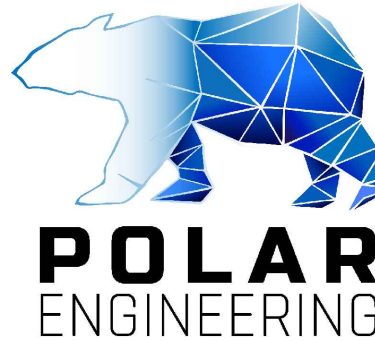






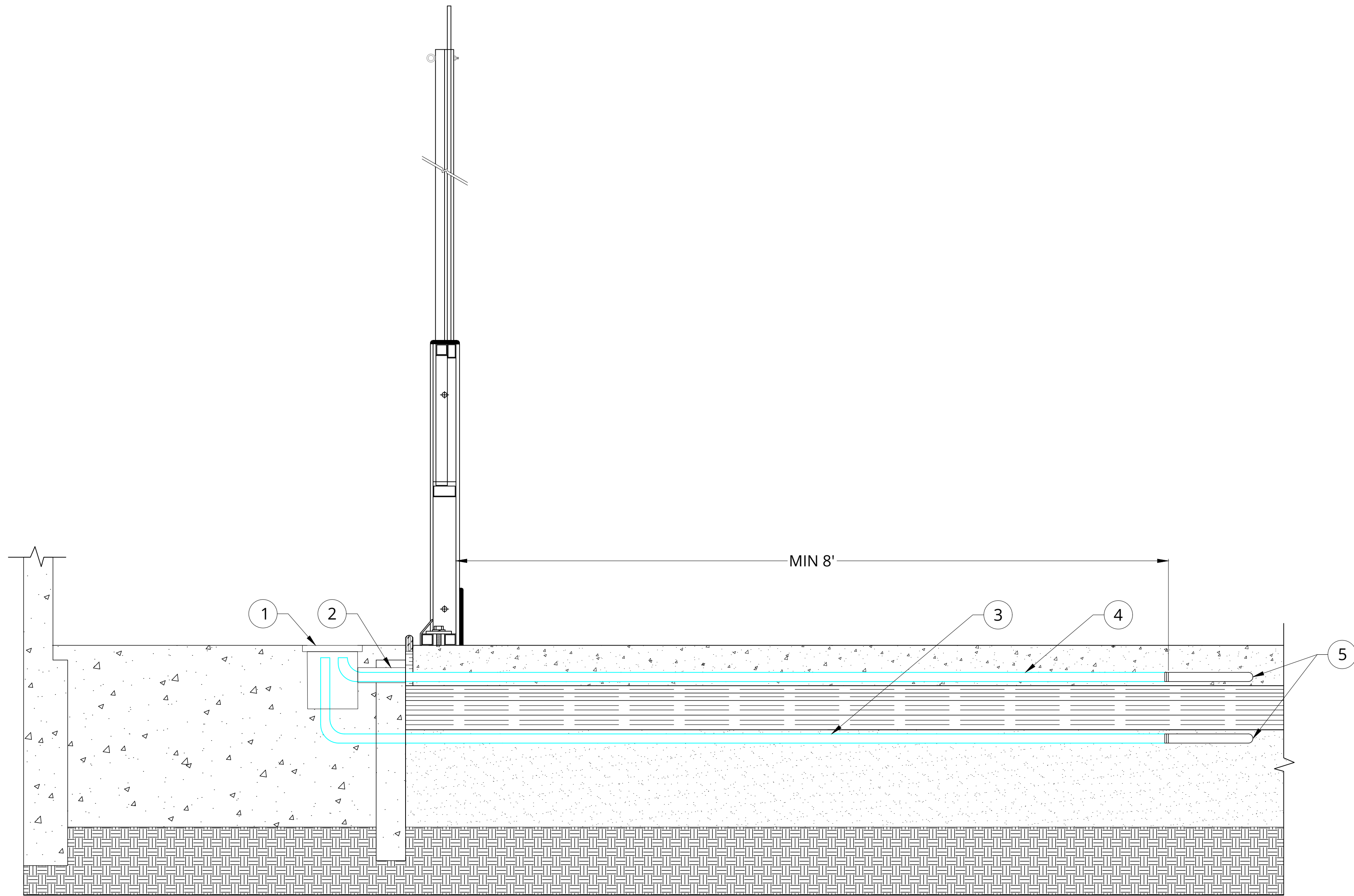
1  
M6  
HEADER PURGE TRENCH DETAIL  
KEYED DRAWING NOTES:  
1. EXISTING DRAINAGE TRENCH

2  
M6  
HEADER DETAIL CROSS-SECTION  
KEYED DRAWING NOTES:  
1. EXISTING SUPPLY AND RETURN HEADER TRENCHES TO BE FILLED IN. SEE STRUCTURAL FOR MORE DETAILS.

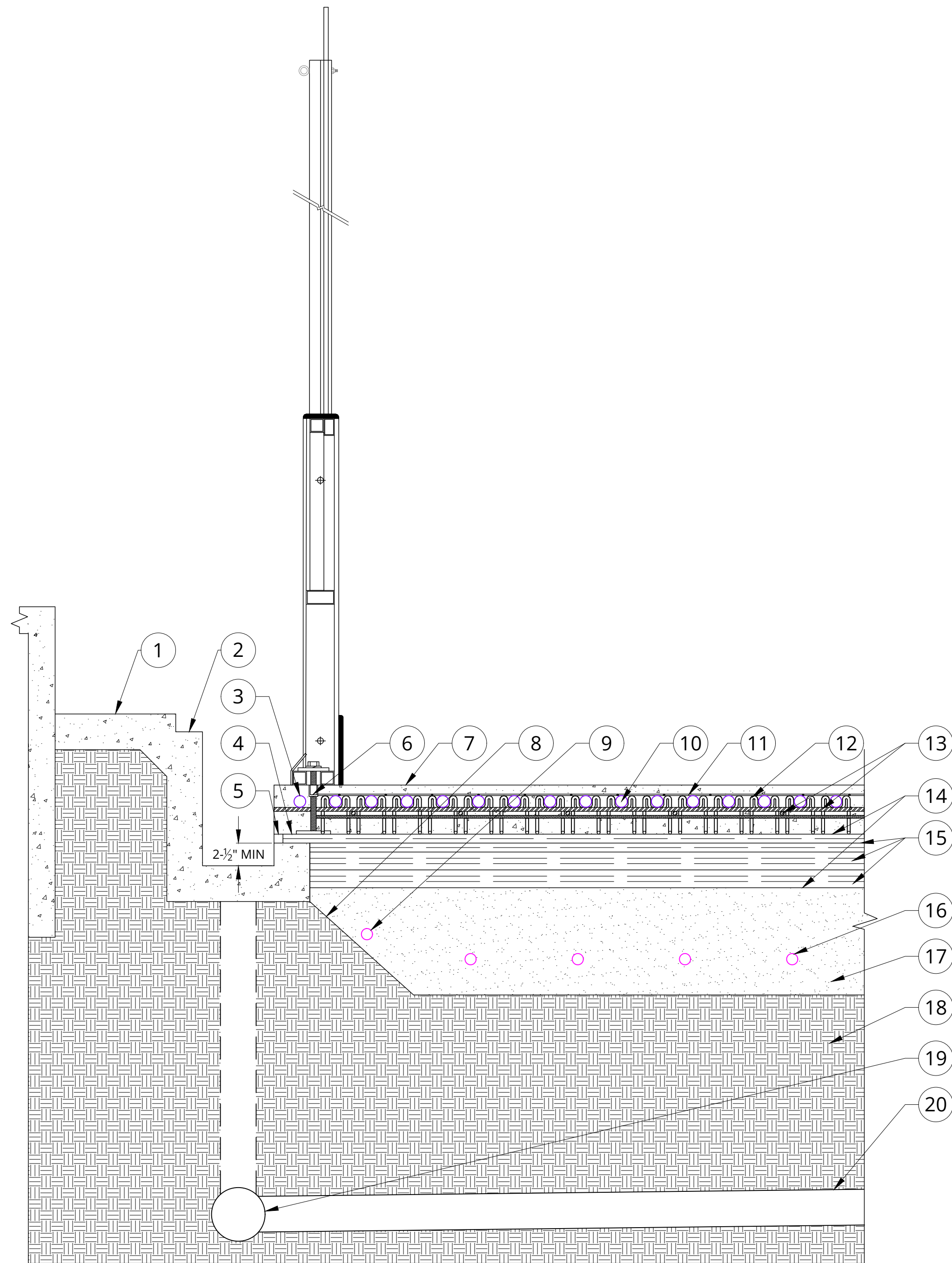
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<div>PRIME CONSULTANT</div> <div><div>POLAR ENGINEERING</div></div> <div>PHONE: 778-700-1086   WEBSITE: www.polareng.ca</div>		<div>CONSULTANT</div> <div></div> <div>PHONE:   WEBSITE:</div>		<div>CLIENT</div> <div><div>Township of ESQUIMALT</div></div> <div>PHONE: 250-414-7100   WEBSITE: www.esquimalt.ca</div>		<div>ENGINEER OF RECORD</div> <div><div>PROFESSIONAL ENGINEER L.L. WELLE # 47179 BC 2025-12-11 IAN WELLE P.ENG.</div></div> <div>EGBC PERMIT TO PRACTICE NUMBER: 1003657</div>		<div>PROJECT TITLE</div> <div>ARCHIE BROWNING SPORTS CENTRE - REFRIGERATED FLOOR REPLACEMENT</div>		REV #	DATE	DRAWN BY	CHECKED BY	DESCRIPTION	PROJ # 2546
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										2	2025-11-28	AH	IW	ISSUED FOR TENDER	
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										5	-	-	-	-	
										6	-	-	-	-	





- 1**  
M7
- TEMPERATURE SENSOR PULL STATION CROSS-SECTION**
1. TEMPERATURE PROBE ACCESS BOX WITH REMOVABLE LID. COORDINATE WITH STRUCTURAL.
  2. 3" PVC SHEAR SLEEVE.
  3. 1" HDPE TEMPERATURE PROBE CONDUIT (HEATING FLOOR)
  4. 1" HDPE TEMPERATURE PROBE CONDUIT (COOLING FLOOR)
  5. 1" GALVANIZED STEEL PIPE CAP
- GENERAL DRAWING NOTES:
- GALVANIZED STEEL PIPE CAP TO START NO LESS THAN 8FT FROM DASHER BOARDS.
  - PIPE CAPS IN COOLING AND HEATING FLOORS TO BE INSTALLED NEAR TO THE INSULATION.



- 2**  
M7
- EDGE DETAIL CROSS-SECTION**
- KEYED DRAWING NOTES:
1. PERIMETER SLAB - SEE STRUCTURAL DRAWINGS
  2. CONTRACTOR SHALL REINSTALL ALL ADJACENT TRENCH COVERS TO MATCH THE EXISTING INSTALLATION. MODIFY OR REPLACE TRENCH COVERS AS REQUIRED TO ENSURE CONSISTENT ALIGNMENT AND SUPPORT.
  3. 1" HDPE PERIMETER COOLING PIPE
  4. TOP LAYER OF 1" INSULATION TO BE INSTALLED OVER TOP OF THE PERIMETER CONCRETE BEARING SURFACE
  5. ELASTOMERIC SEALANT
  6. DASHER BOARD ANCHOR. ANCHOR LOCATIONS TO BE COORDINATED WITH DASHER BOARD MANUFACTURER.
  7. 6" CONCRETE COOLING FLOOR
  8. NATIVE EARTH TO BE EXCAVATED AT 45 DEGREE ANGLE TO AVOID UNDERCUTTING EXISTING PERIMETER SLAB.
  9. ADJUST POSITION OF OUTERMOST HEATING FLOOR CIRCUIT TO MINIMIZE UNHEATED AREA. MINIMUM 2" OF SAND COVERAGE BETWEEN HEATING LINE AND NATIVE EARTH
  10. 1" HDPE COOLING PIPES @ 4" O.C. (128 CIRCUITS)
  11. WIRE MESH - SEE STRUCTURAL
  12. "M"-STYLE PIPE CHAIR
  13. REBAR GRID - SEE STRUCTURAL
  14. 6 MIL POLY SHEETING
  15. 2 LAYERS OF 2" XPS INSULATION AND 2 LAYERS OF 1" XPS INSULATION (6" TOTAL)
  16. 1" HDPE HEATING PIPES @ 12" O.C. (43 CIRCUITS)
  17. SAND - 12" DEPTH
  18. NATIVE EARTH
  19. 6" ASBESTOS HEADER DRAIN PIPE
  20. EXISTING 4" ASBESTOS DRAIN PIPE

SCALE: 1:10

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				ARCHIE BROWNING SPORTS CENTRE - REFRIGERATED FLOOR REPLACEMENT	1	2025-08-29	AH	TP	ISSUED FOR REVIEW	2546
				DRAWING TITLE EDGE DETAIL CROSS SECTION	2	2025-11-28	AH	IW	ISSUED FOR TENDER	SHEET SIZE
					3	2025-12-03	AH	IW	RE-ISSUED FOR TENDER	D
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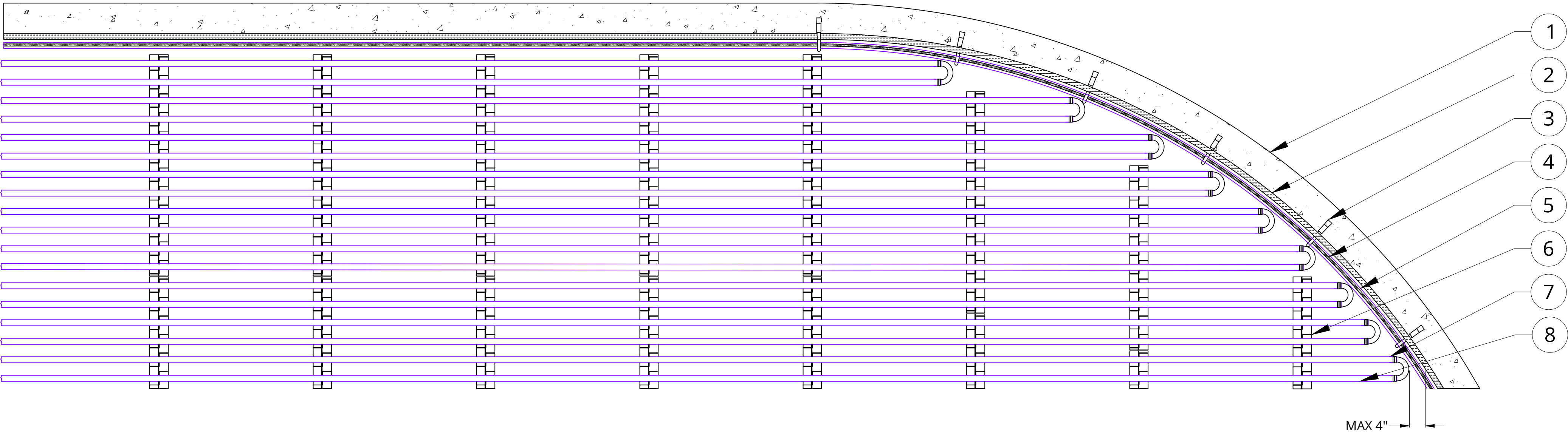
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M8

ARENA COOLING CIRCUITS CORNER DETAIL VIEW

- KEYED DRAWING NOTES:
- PERIMETER SLAB
  - 1" XPS PERIMETER INSULATION/EXPANSION JOINT
  - EYE BOLT - TO BE ANCHORED TO PERIMETER SLAB @ 30" O.C.
  - 10M REBAR - PASS THROUGH HOLES OF EYE BOLTS
  - 1" HDPE PERIMETER COOLING PIPE
  - "M"-STYLE PIPE CHAIR
  - HDPE RETURN BEND - FASTEN TO REBAR WITH TIE WIRE
  - 1" HDPE COOLING PIPE AT 4" O.C.

NOTE: COOLING CIRCUIT PIPING TO BE INSTALLED WITHIN 4" OF THE PERIMETER SLAB.



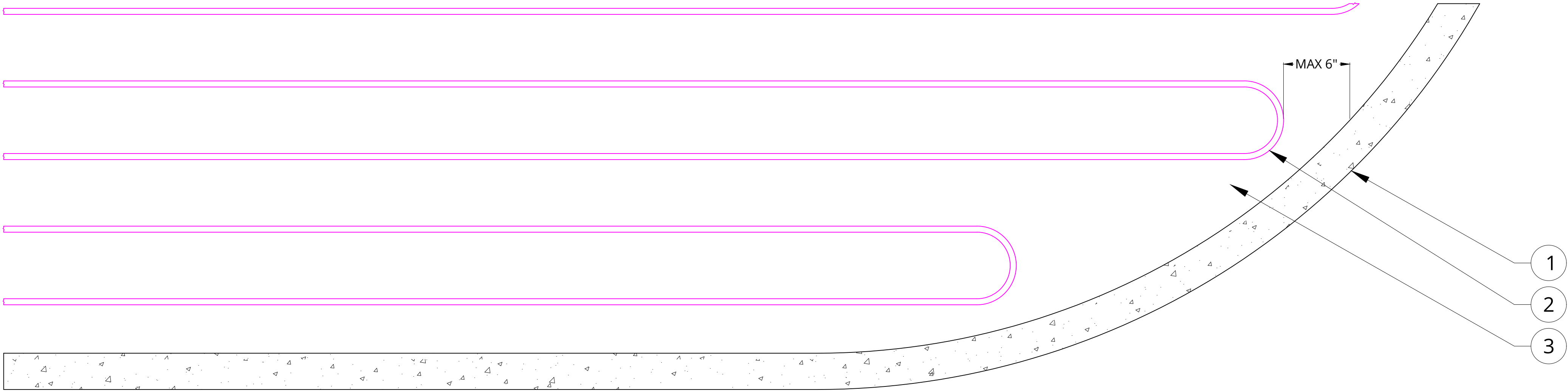
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M8

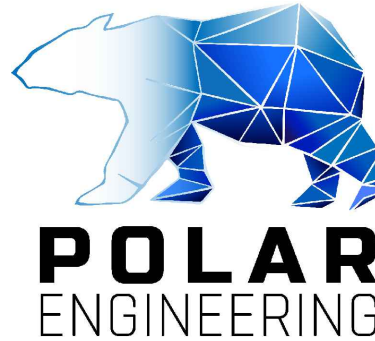


ARENA HEATING CIRCUITS CORNER DETAIL VIEW

- KEYED DRAWING NOTES:
- PERIMETER SLAB
  - 1" HDPE HEATING PIPE AT 12" O.C.
  - SAND - 12" DEPTH

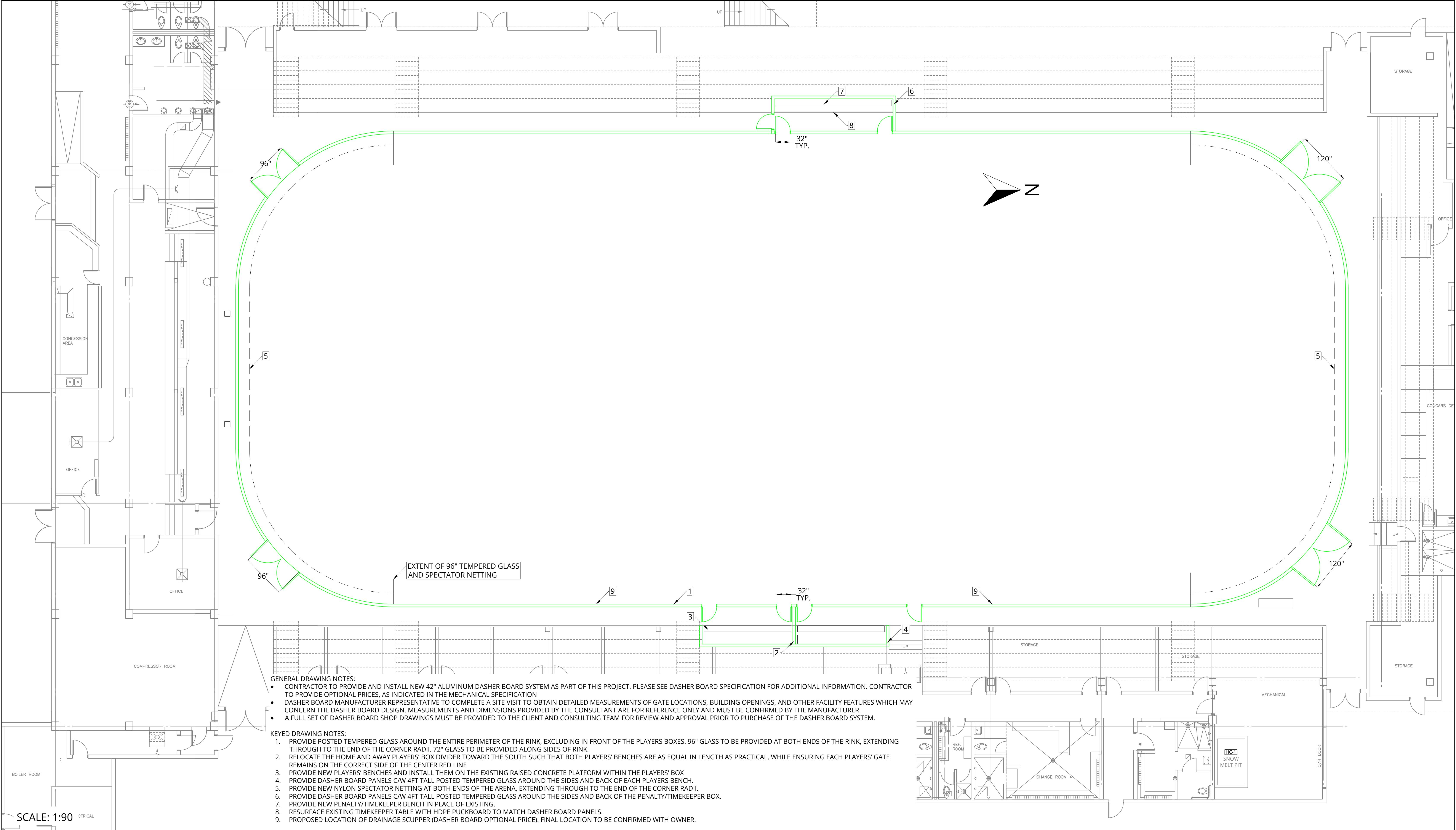
NOTE: HEATING CIRCUIT PIPING TO BE INSTALLED WITHIN 6" OF THE PERIMETER SLAB.






SCALE: 1:12

<div>PRIME CONSULTANT</div> <div><div>POLAR ENGINEERING</div></div> <div>PHONE778-700-1086WEBSITEwww.polareng.ca</div>	<div>CONSULTANT</div> <div></div> <div>PHONEWEBSITE</div>	<div>CLIENT</div> <div><div>Township of ESQUIMALT</div></div> <div>PHONE250-414-7100WEBSITEwww.esquimalt.ca</div>	<div>ENGINEER OF RECORD</div> <div><div>PROFESSIONAL ENGINEER IAN WELLE P.ENG. 2025-12-11</div></div> <div>EGBC PERMIT TO PRACTICE NUMBER1003657</div>	<div>PROJECT TITLE</div> <div>ARCHIE BROWNING SPORTS CENTRE - REFRIGERATED FLOOR REPLACEMENT</div>	REV #	DATE	DRAWN BY	CHECKED BY	DESCRIPTION	PROJ # 2546
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					2	2025-11-28	AH	IW	ISSUED FOR TENDER	
				<div>DRAWING TITLE</div> <div>ARENA CORNER RADIUS DETAIL VIEW</div>	3	2025-12-03	AH	IW	RE-ISSUED FOR TENDER	SHEET NAME M8
					4	-	-	-	-	
					5	-	-	-	-	
	</									





- GENERAL DRAWING NOTES:
- CONTRACTOR TO PROVIDE AND INSTALL NEW 42" ALUMINUM DASHER BOARD SYSTEM AS PART OF THIS PROJECT. PLEASE SEE DASHER BOARD SPECIFICATION FOR ADDITIONAL INFORMATION. CONTRACTOR TO PROVIDE OPTIONAL PRICES, AS INDICATED IN THE MECHANICAL SPECIFICATION
  - DASHER BOARD MANUFACTURER REPRESENTATIVE TO COMPLETE A SITE VISIT TO OBTAIN DETAILED MEASUREMENTS OF GATE LOCATIONS, BUILDING OPENINGS, AND OTHER FACILITY FEATURES WHICH MAY CONCERN THE DASHER BOARD DESIGN. MEASUREMENTS AND DIMENSIONS PROVIDED BY THE CONSULTANT ARE FOR REFERENCE ONLY AND MUST BE CONFIRMED BY THE MANUFACTURER.
  - A FULL SET OF DASHER BOARD SHOP DRAWINGS MUST BE PROVIDED TO THE CLIENT AND CONSULTING TEAM FOR REVIEW AND APPROVAL PRIOR TO PURCHASE OF THE DASHER BOARD SYSTEM.
- KEYED DRAWING NOTES:
- PROVIDE POSTED TEMPERED GLASS AROUND THE ENTIRE PERIMETER OF THE RINK, EXCLUDING IN FRONT OF THE PLAYERS BOXES. 96" GLASS TO BE PROVIDED AT BOTH ENDS OF THE RINK, EXTENDING THROUGH TO THE END OF THE CORNER RADII. 72" GLASS TO BE PROVIDED ALONG SIDES OF RINK.
  - RELOCATE THE HOME AND AWAY PLAYERS' BOX DIVIDER TOWARD THE SOUTH SUCH THAT BOTH PLAYERS' BENCHES ARE AS EQUAL IN LENGTH AS PRACTICAL, WHILE ENSURING EACH PLAYERS' GATE REMAINS ON THE CORRECT SIDE OF THE CENTER RED LINE
  - PROVIDE NEW PLAYERS' BENCHES AND INSTALL THEM ON THE EXISTING RAISED CONCRETE PLATFORM WITHIN THE PLAYERS' BOX
  - PROVIDE DASHER BOARD PANELS C/W 4FT TALL POSTED TEMPERED GLASS AROUND THE SIDES AND BACK OF EACH PLAYERS BENCH.
  - PROVIDE NEW NYLON SPECTATOR NETTING AT BOTH ENDS OF THE ARENA, EXTENDING THROUGH TO THE END OF THE CORNER RADII.
  - PROVIDE DASHER BOARD PANELS C/W 4FT TALL POSTED TEMPERED GLASS AROUND THE SIDES AND BACK OF THE PENALTY/TIMEKEEPER BOX.
  - PROVIDE NEW PENALTY/TIMEKEEPER BENCH IN PLACE OF EXISTING.
  - RESURFACE EXISTING TIMEKEEPER TABLE WITH HDPE PUCKBOARD TO MATCH DASHER BOARD PANELS.
  - PROPOSED LOCATION OF DRAINAGE SCUPPER (DASHER BOARD OPTIONAL PRICE). FINAL LOCATION TO BE CONFIRMED WITH OWNER.

<div>PRIME CONSULTANT</div> <div></div> <div>PHONE: 778-700-1086</div> <div>WEBSITE: www.polareng.ca</div>	<div>CONSULTANT</div> <div></div> <div>PHONE: </div> <div>WEBSITE: </div>	<div>CLIENT</div> <div></div> <div>PHONE: 250-414-7100</div> <div>WEBSITE: www.esquimalt.ca</div>	<div>ENGINEER OF RECORD</div> <div></div> <div>2025-12-11</div> <div>IAN WELLE P.ENG.</div> <div>EGBC PERMIT TO PRACTICE NUMBER: 1003657</div>	<div>PROJECT TITLE</div> <div>ARCHIE BROWNING SPORTS CENTRE - REFRIGERATED FLOOR REPLACEMENT</div> <div>DRAWING TITLE</div> <div>DASHER BOARD LAYOUT</div>	REV #	DATE	DRAWN BY	CHECKED BY	DESCRIPTION	PROJ #
					1	2025-08-29	AH	TP	ISSUED FOR REVIEW	2546
					2	2025-11-28	AH	IW	ISSUED FOR TENDER	SHEET SIZE
					3	2025-12-03	AH	IW	RE-ISSUED FOR TENDER	D
					4	-	-	-	-	SHEET NAME
					5	-	-	-	-	
					6	-	-	-	-	



AIR TERMINALS		
TAG		S1
LOCATION		DEHUMIDIFIER SUPPLY DUCT
DESCRIPTION		DOUBLE DEFLECTION SPIRAL DUCT GRILLE
TYPE	WIDTH [IN]	18
	HEIGHT [IN]	12
CAPACITY	AIRFLOW [CFM]	500
BASIS OF DESIGN	MAKE	PRICE
	MODEL	SDGE
	NOTES	1, 2, 3

NOTES:  
1. EXTRUDED ALUMINUM CONSTRUCTION WITH CLEAR ANODIZED FINISH.  
2. FRONT BLADES PARALLEL TO VERTICAL DIMENSION.  
3. COMPLETE WITH ROD OPERATED AIR SCOOP.

- GENERAL NOTES:
- A) ALLOW FOR AIR BALANCING OF EXISTING DEHUMIDIFIER DH-1. COORDINATE SUPPLY FAN SPEED DRIVE ADJUSTMENT WITH THE CONTROLS CONTRACTOR.
- B) CONTRACTOR TO PREPARE DUCT SUPPORT DETAILS INCLUDING SEISMIC RESTRAINTS AND SUBMIT TO THE CONSULTANT FOR REVIEW.
- C) DEHUMIDIFIER MODIFICATIONS ARE TO BE PROVIDED AS SEPARATE PRICE.

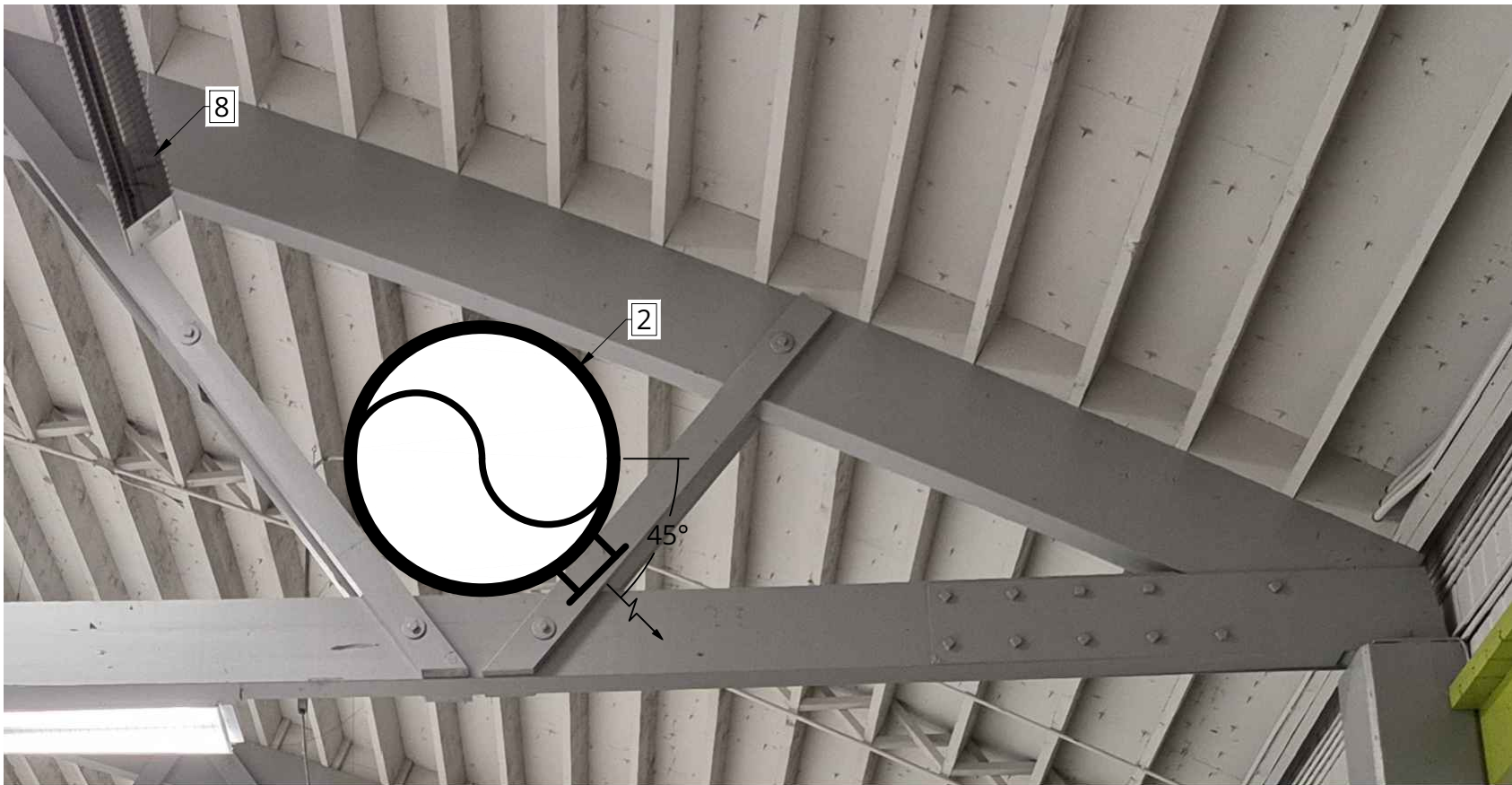
- KEYNOTES:
- CONNECT TO EXISTING 36"x24" SUPPLY DUCT FROM DH-1. VERIFY EXISTING DIMENSIONS ON SITE.
  - NEW 30" DIA. RIGID SPIRAL DUCT. ROUTE THROUGH OPEN-WEB ROOF JOISTS AND SUPPORT FROM ROOF PURLINS.
  - TERMINATE WITH OPEN-ENDED DUCT COMPLETE WITH BIRD SCREEN.
  - NEW 36"x25" RETURN AIR DUCT COMPLETE WITH 1" ACOUSTIC LINING.
  - CONNECT TO EXISTING 36"x24" RETURN AIR DUCT TO DH-1. VERIFY EXISTING DIMENSIONS ON SITE.
  - REMOVE AND DISPOSE OF EXISTING DH-1 SUPPLY DUCTWORK AND LOUVRE.
  - REMOVE AND DISPOSE OF EXISTING DH-1 RETURN DUCTWORK AND GRILLES.
  - MAINTAIN CLEARANCE FROM EXISTING ELECTRIC HEATERS. ALLOW FOR MINOR ADJUSTMENTS IN HEATER ANGLE AS REQUIRED TO SUIT NEW DUCT MAIN.
  - NEW SUPPLY AIR TERMINAL EQUALLY SPACED ALONG SPIRAL DUCT AND SET TO 45 DEGREES BELOW HORIZONTAL. ADJUST FRONT VERTICAL BLADES TO MAXIMUM HORIZONTAL SPREAD.



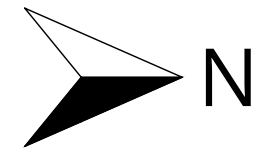
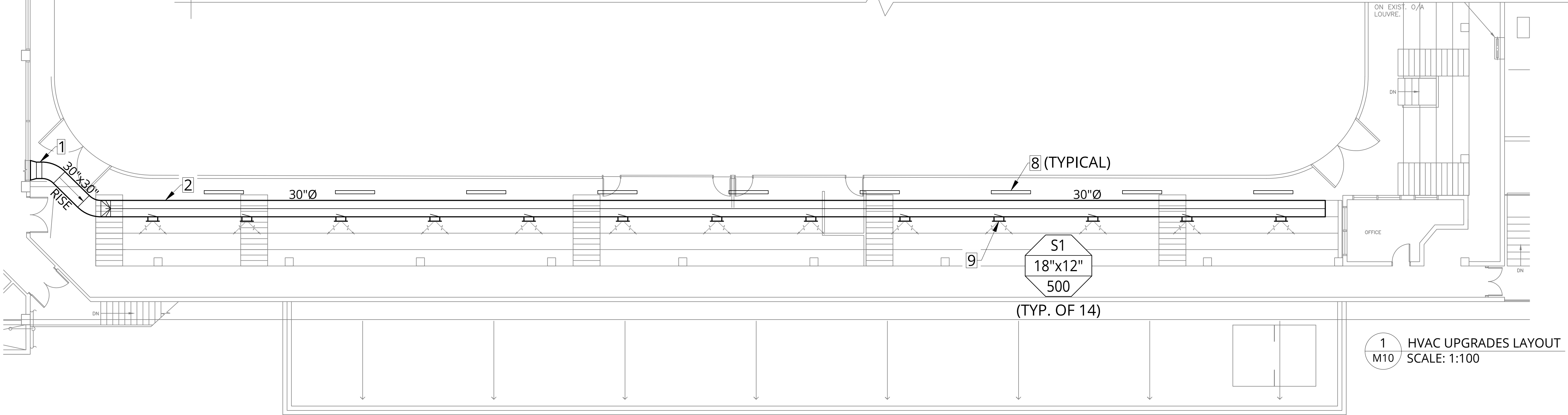
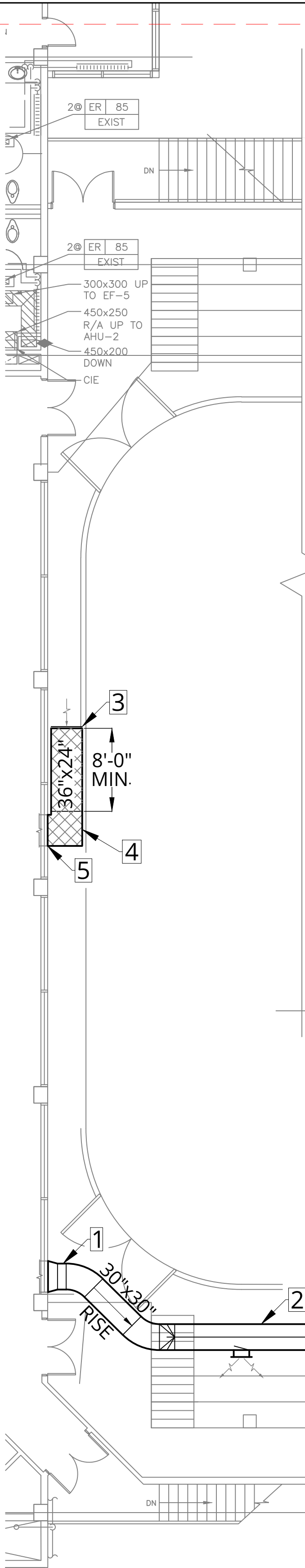
2 DEMOLITION: EXISTING SUPPLY AIR  
M10



3 DEMOLITION: EXISTING RETURN AIR  
M10





4 NEW SUPPLY DUCT ROUTING  
M10

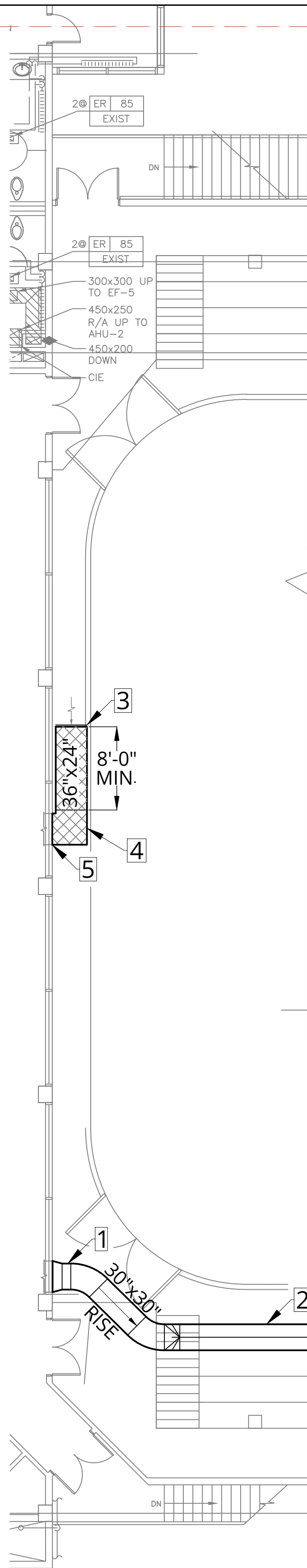


1 HVAC UPGRADES LAYOUT  
M10 SCALE: 1:100

SEPARATE PRICE #2

<div>PRIME CONSULTANT</div> <div><div>POLAR ENGINEERING</div></div> <div>PHONE 778-700-1086</div> <div>WEBSITE www.polareng.ca</div>	<div>CONSULTANT</div> <div></div> <div>PHONE</div> <div>WEBSITE</div>		<div>CLIENT</div> <div><div>Township of ESQUIMALT</div></div> <div>PHONE 250-414-7100</div> <div>WEBSITE www.esquimalt.ca</div>		<div>ENGINEER OF RECORD</div> <div><div>PROFESSIONAL ENGINEER S. K. STEWART # 50681 2025-12-08</div></div> <div>SCOTT STEWART, P.ENG.</div> <div>EGBC PERMIT TO PRACTICE NUMBER 1003657</div>		<div>PROJECT TITLE</div> <div>ARCHIE BROWNING SPORTS CENTRE - REFRIGERATED FLOOR REPLACEMENT</div> <div>DRAWING TITLE</div> <div>ARENA DEHUMIDIFIER HVAC UPGRADES</div>		REV #	DATE	DRAWN BY	CHECKED BY	DESCRIPTION	PROJ #
									1	2025-08-29	AH	LI	ISSUED FOR REVIEW	2546
									2	2025-11-28	AH	SS	ISSUED FOR TENDER	D
									3	2025-12-03	AH	IW	RE-ISSUED FOR TENDER	
									4	-	-	-	-	M10
									5	-	-	-	-	
									6	-	-	-	-	

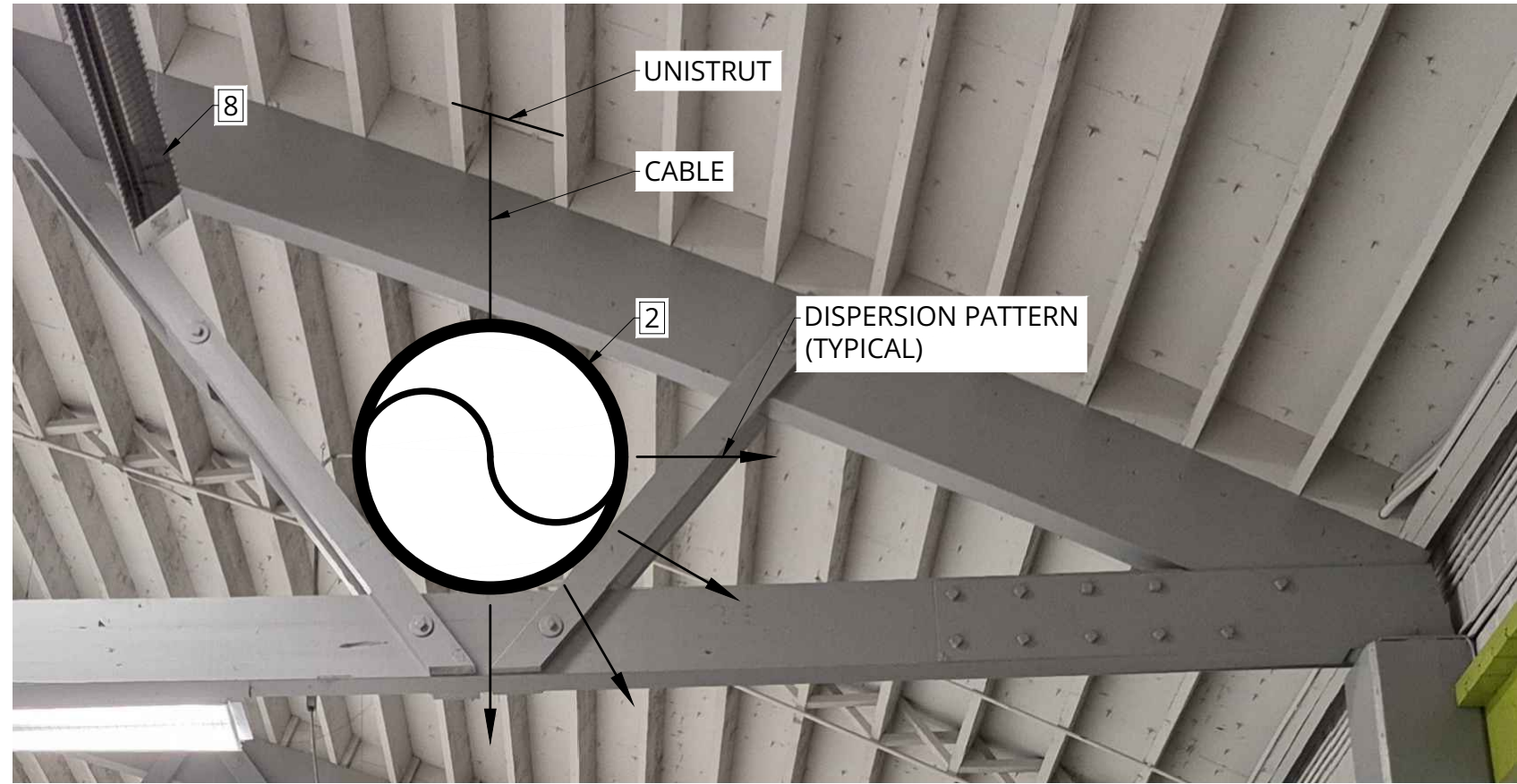




2 DEMOLITION: EXISTING SUPPLY AIR  
M10.1



3 DEMOLITION: EXISTING RETURN AIR  
M10.1



4 NEW SUPPLY DUCT ROUTING  
M10.1

GENERAL NOTES:

- ALLOW FOR AIR BALANCING OF EXISTING DEHUMIDIFIER DH-1. COORDINATE SUPPLY FAN SPEED DRIVE ADJUSTMENT WITH THE CONTROLS CONTRACTOR.
- CONTRACTOR TO PREPARE DUCT SUPPORT DETAILS INCLUDING SEISMIC RESTRAINTS AND SUBMIT TO THE CONSULTANT FOR REVIEW.
- DEHUMIDIFIER MODIFICATIONS ARE TO BE PROVIDED AS SEPARATE PRICE.

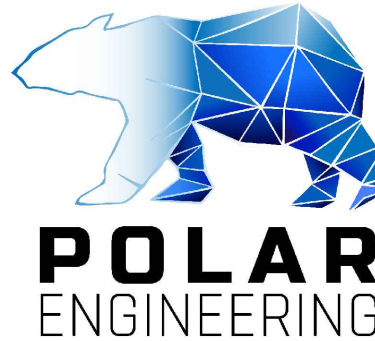
KEYNOTES:

- CONNECT TO EXISTING 36"x24" SUPPLY DUCT FROM DH-1. VERIFY EXISTING DIMENSIONS ON SITE.
- NEW 28" DIA. FABRIC DUCT AND ASSOCIATED HARDWARE. ROUTE THROUGH OPEN-WEB ROOF JOISTS AND SUPPORT FROM ROOF PURLINS. INSTALL FABRIC DUCT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- TERMINATE WITH OPEN-ENDED DUCT COMPLETE WITH BIRD SCREEN.
- NEW 36"x25" RETURN AIR DUCT COMPLETE WITH 1" ACOUSTIC LINING.
- CONNECT TO EXISTING 36"x24" RETURN AIR DUCT TO DH-1. VERIFY EXISTING DIMENSIONS ON SITE.
- REMOVE AND DISPOSE OF EXISTING DH-1 SUPPLY DUCTWORK AND LOUVRE.
- REMOVE AND DISPOSE OF EXISTING DH-1 RETURN DUCTWORK AND GRILLES.
- MAINTAIN CLEARANCE FROM EXISTING ELECTRIC HEATERS. ALLOW FOR MINOR ADJUSTMENTS IN HEATER ANGLE AS REQUIRED TO SUIT NEW DUCT MAIN.

FABRIC DUCT SPECIFICATION:

- BASIS OF DESIGN: DUCTSOX
- FABRIC: "VERONA" 28" DIA., 7,000 CFM @ 0.50 " W.G., COMPLETE WITH ADJUSTABLE FLOW DEVICE (TOTAL 2) AND ZIPPERED ENDCAP. COLOUR WHITE. NFPA 90A AND UL-C APPROVED.
- DISPERSION: TOTAL OF 4 DISPERSION SETS, ORIFICE SIZE 1.0, LOCATED AT 3, 4, 5 AND 6 O'CLOCK.
- SUSPENSION: 1 ROW STAINLESS STEEL CABLE SUSPENSION AT 12 O'CLOCK POSITION WITH "SKELECORE PULL-TIGHT" INTERNAL FRAMEWORK SYSTEM (1% DEFLATION).
- WARRANTY: 15 YEARS (FABRIC), 10 YEARS (SUSPENSION SYSTEM)
- SUBMIT COMPLETE SYSTEM SHOP DRAWING FOR REVIEW PRIOR TO ORDERING.

SEPARATE PRICE #3

<div>PRIME CONSULTANT</div> <div><b>POLAR</b> ENGINEERING</div> <div>PHONE 778-700-1086 WEBSITE www.polareng.ca</div>	<div>CONSULTANT</div> <div></div> <div>PHONE WEBSITE</div>	<div>CLIENT</div> <div>Township of <b>ESQUIMALT</b></div> <div>PHONE 250-414-7100 WEBSITE www.esquimalt.ca</div>	<div>ENGINEER OF RECORD</div> <div>PROFESSIONAL ENGINEER S. K. STEWART #50681 2025-12-08</div> <div>SCOTT STEWART, P.ENG. EGBC PERMIT TO PRACTICE NUMBER 1003657</div>	<div>PROJECT TITLE</div> <div>ARCHIE BROWNING SPORTS CENTRE - REFRIGERATED FLOOR REPLACEMENT</div>		REV #	DATE	DRAWN BY	CHECKED BY	DESCRIPTION	PROJ #
						1	2025-08-29	AH	LI	ISSUED FOR REVIEW	2546
						2	2025-11-28	AH	SS	ISSUED FOR TENDER	SHEET SIZE D
				3	2025-12-03	AH	IW	RE-ISSUED FOR TENDER	SHEET NAME M10.1		
				<div>DRAWING TITLE</div> <div>ARENA DEHUMIDIFIER HVAC UPGRADES (FABRIC DUCT)</div>		4	-	-		-	-
						5	-	-		-	-
		6	-	-	-	-					



PUMPS				
TAG		P-1	P-5	P-6
LOCATION		MECH ROOM	MECH ROOM	MECH ROOM
SERVICE		ARENA COLD BRINE	ARENA UNDERFLOOR	SNOW MELT PIT
TYPE	FLUID TYPE	22% CaCl2	30% PG	30% PG
	SUCT. CONN. [IN]	6	4	1.25
	IMPELLER DIAM [IN]	10.84	8.87	4.8
	OPERATING TEMP [F]	16	70	60
	PUMP FLOW [GPM]	800	423	73
CAPACITY	HEAD [PSI]	40	24	24
	NPSH [PSI]	2.87	5.55	6.03
	PUMP EFFICIENCY [%]	81.4	66.7	61.6
	MOTOR SIZE [HP]	40	10	2
	MOTOR RPM	1800	1800	3600
ELECTRICAL	VOLT/PHASE/HZ	SEE ELECTRICAL	SEE ELECTRICAL	SEE ELECTRICAL
	WEIGHT [LB]	906	356	38
BASIS OF DESIGN	MAKE	ARMSTRONG	ARMSTRONG	ARMSTRONG
	MODEL	4030-6XS11.5-4P-40HP	4030-4x3X10-4P-10HP	4360-1.25B-2P-2HP
		NOTES		

- NOTES:  
1. "ALL IRON" CONSTRUCTION, SUITABLE FOR USE WITH CALCIUM CHLORIDE BRINE  
2. PROVIDE WITH INVERTER DUTY MOTOR AND SUITABLE VARIABLE FREQUENCY DRIVE.  
3. FIXED SPEED PUMP. COMMISSION TO DESIGN FLOW WITH INLINE BALANCING VALVE

VARIABLE FREQUENCY DRIVES (VFD)			
TAG	VFD1	VFD2	VFD3
LOCATION	COMPRESSOR ROOM	COMPRESSOR ROOM	ROOF
SERVICE	ARENA COLD BRINE	ARENA UNDERFLOOR	EVAP. CONDENSER
CONTROLLED COMPONENT	P-1	P-5	EC-1
COMPONENT HP	40	10	20
ELECTRICAL	SEE ELECTRICAL	SEE ELECTRICAL	EXISTING
NOTES: 1. TO BE INSTALLED WITH 2 CONTACTOR BYPASS 2. EXISTING VFD MAY BE REUSED IF FOUND TO BE IN GOOD WORKING CONDITION			

HYDRONIC CONTROL VALVES			
TAG		CV1	CV2
LOCATION		COMPRESSOR ROOM	COMPRESSOR ROOM
DESCRIPTION		UNDERFLOOR BYPASS CONTROL	UNDERFLOOR GLYCOL CONTROL
TYPE		MODULATING BUTTERFLY VALVE	MODULATING BUTTERFLY VALVE
FAILSAFE		OPEN	OPEN
BASIS OF DESIGN	PIPE SIZE	6"	4"
	MAKE	BELIMO	BELIMO
	NOTES	1	1
NOTES: 1. CONTRACTOR TO SELECT SUITABLE MODULATING ACTUATOR.			

AMMONIA PRESSURE RELIEF VALVES				
TAG	RV1		RV2	RV3
LOCATION	HE-3		HE-1	C-3
SERVICE	ARENA UNDERFLOOR CONDENSER		ARENA BRINE CHILLER	COMPRESSOR 3
RELIEF NOTATION		SINGLE	DUAL	SINGLE
BASIS OF DESIGN	MAKE	PARKER	PARKER	PARKER
	MODEL	SR1R	SR1	SRH1R
	SET PRESSURE [PSI]	250	250	250
	INLET [IN]	0.5"	0.5"	0.5"
	OUTLET [IN]	0.75"	0.75"	0.75"
	NOTES	1	2	3
NOTES: 1. NEW PRESSURE RELIEF VALVE. CONNECT TO EXISTING PRV DISCHARGE HEADER WITH 1" RELIEF LINE. 2. REPLACES EXISTING PARKER SR1R VALVE. EXISTING RELIEF LINE MAY BE REUSED. 3. REPLACES EXISTING HANSEN H5632R VALVE. EXISTING RELIEF LINE MAY BE REUSED.				

SECONDARY PRESSURE RELIEF VALVES			
TAG		SRV1	
LOCATION		HE-3	
SERVICE		ARENA UNDERFLOOR	
SECONDARY COOLANT		30% PROPYLENE GLYCOL	
BASIS OF DESIGN	MAKE	MERCER	
	MODEL	91-12E51T07LC	
	SET PRESSURE [PSI]	75	
	INLET [IN]	0.75"	
	OUTLET [IN]	1"	
NOTES: 1. PIPE TO SECONDARY RELIEF HOLDING TANK. HOLDING TANK TO BE INSTALLED IN LOCATION THAT ALLOWS FOR VISUAL CHECK OF TANK FLUID LEVEL			

HEAT EXCHANGERS		
TAG	HX3	
LOCATION	COMPRESSOR ROOM	
SERVICE	ARENA UNDERFLOOR	
SIDE 1	FLUID	NH3
	FLOW [LB/HR]	4,123
	MAX P.D. [PSI]	0.10
	TEMP IN [F]	222
	TEMP OUT [F]	85
SIDE 2	FLUID	30% PROPYLENE GLYCOL
	FLOW	423 GPM
	P.D. [PSI]	6.25
	TEMP IN [F]	70.1
	TEMP OUT [F]	82
CAPACITY	CAPACITY [KBTU/HR]	2,400
	DWP [PSI]	300
BASIS OF DESIGN	MAKE	ALFA LAVAL
	MODEL	M10-BWFD
	DESCRIPTION	NH3 CONDENSER
	NOTES	1,2
NOTES: 1. TO BE RE-RATED BY ALFA LAVAL TO MINIMUM DESIGN TEMPERATURE OF -15°F FOR OUTDOOR INSTALLATION 2. TO BE INSULATED ENTIRELY AND PROVIDED WITH ALUMINUM CLADDING, INSULATION AND CLADDING TO BE FULLY REMOVEABLE FOR ACCESS AND MAINTENANCE.		

EXPANSION TANKS		
TAG	ET-1	
LOCATION	AMMONIA MECH.	
SERVICE	ARENA UNDERFLOOR	
TYPE	MINIMUM ACCEPTANCE VOLUME (GAL)	34
	FLUID	30% PROPYLENE GLYCOL
BASIS OF DESIGN	MAKE	AMTROL
	MODEL	AX-120V
	DESCRIPTION	HEAD AND SHEL DIAPHRAGM EXPANSION TANK
	NOTES	1
NOTES: 1. COMMISSION TO 20PSI FILL PRESSURE		

TANKS		
TAG		T-1
LOCATION		HE-3
SERVICE		ARENA UNDERFLOOR
TYPE	CAPACITY [GAL]	26
	FLUID	30% PROPYLENE GLYCOL
BASIS OF DESIGN	MAKE	ROMOTECH
	MODEL	82123899
	DESCRIPTION	PLASTIC STORAGE TANK
	NOTES	1,2
NOTES: 1. TRANSLUCENT FOR VISIBLE CONTENT LEVEL. 2. INSTALL IN LOCATION THAT ALLOWS FOR EASY VISUAL CHECK OF FLUID LEVEL		

GLYCOL FEED TANKS		
TAG		GT-1
LOCATION		AMMONIA MECH.
SERVICE		ARENA UNDERFLOOR
TYPE	CAPACITY [GAL]	18
	FLUID	30% PROPYLENE GLYCOL
	POWER	120V/60HZ/1PH
BASIS OF DESIGN	MAKE	CALEFACTIO
	MODEL	GMP-18
	NOTES	1

- NOTES:  
1. PROVIDE WITH ALARM PANEL KIT (#GMPAL), BAS ALARM OPTION, LIQUID LEVEL GAUGE, PUMP SUCTION HOSE W. STRAINER,CHECK VALVE, CUTOUT LEVEL FLOAT SWITCH, AND AJUSTABLE PRV (75 PSI SP). COMMISSION TO 20PSI FILL PRESSURE

AMMONIA VALVES					
TAG	LOCATION	DESCRIPTION	MAKE	MODEL	NOTES
R01	E.R. CONDENSER DISCHARGE LINE	STOP VALVE	DANFOSS	SVA 80 ANGLE	
R03	E.R. CONDENSER LIQUID LINE	STOP VALVE	DANFOSS	SVA 50 STRAIGHT	
NOTES: 1.					

DASHER BOARD SYSTEM	
SEE POLAR ENGINEERING SPECIFICATION FOR INFORMATION REGARDING DASHER BOARD SYSTEM REQUIREMENTS AND ACCEPTABLES MANUFACTURERS.	

INPUT POINT LIST					
TAG	DESCRIPTION	PURPOSE	LOCATION	SIGNAL	NOTES
TT01	TEMPERATURE SENSOR	ARENA COOLING FLOOR PROBE A	ARENA COOLING FLOOR	AI	
TT02	TEMPERATURE SENSOR	ARENA HEATING FLOOR PROBE A	ARENA HEATING FLOOR	AI	
TT03	TEMPERATURE SENSOR	ARENA COOLING FLOOR PROBE B	ARENA COOLING FLOOR	AI	
TT04	TEMPERATURE SENSOR	ARENA HEATING FLOOR PROBE B	ARENA HEATING FLOOR	AI	
TT05	TEMPERATURE SENSOR	HC-1 SUPPLY TEMPERATURE	HC-1	AI	
TT06	TEMPERATURE SENSOR	HC-1 RETURN TEMPERATURE	HC-1	AI	
TT07	TEMPERATURE SENSOR	UNDERFLOOR SUPPLY TEMPERATURE	GLYCOL MAIN	AI	
TT08	TEMPERATURE SENSOR	HE-3 LEAVING TEMPERATURE	HE-3	AI	
TT09	TEMPERATURE SENSOR	HE-3 ENTERING TEMPERATURE	HE-3	AI	
TT11	TEMPERATURE SENSOR	SNOW MELT PIT TEMPERATURE	HC-1	AI	
DP01	DIFFERENTIAL PRESSURE SENSOR	HE-3 GLYCOL PRESSURE DIFFERENTIAL	HE-3	AI	
LT01	LOW LEVEL ALARM	GT-1 LOW LEVEL ALARM	GT-1	DI	
PT01	PRESSURE SENSOR	DISCHARGE HEADER PRESSURE	ROOF	AI	
CT01	CURRENT TRANSDUCER	P-6 CURRENT	P-6	AI	
GENERAL NOTES: 1. MECHANICAL CONTRACTOR RESPONSIBLE FOR PURCHASE, INSTALLATION, & CONNECTION OF MECHANICAL DEVICES, WELLS, SENSORS, LOW VOLTAGE WIRING, & CONTROLS. 2. SIGNAL CODES: AI = ANALOG INPUT, DI = DIGITAL INPUT, AO = ANALOG OUTPUT, DO = DIGITAL OUTPUT. 3. ALLOW FOR TRENDING AND STORAGE OF DATA FOR ALL INPUT POINTS. 4. ENSURE ALL SENSOR RANGES ENCOMPASS RESPECTIVE OPERATING RANGES.					

OUTPUT POINT LIST					
TAG	DESCRIPTION	PURPOSE	LOCATION	SIGNAL	NOTES
VFD1	P-1 START/STOP	RUN P-1	COMPRESSOR ROOM	DO	
VFD1	PUMP 1 SET SPEED	CONTROL P-1 SPEED	COMPRESSOR ROOM	AO	
VFD2	P-5 START/STOP	RUN P-5	COMPRESSOR ROOM	DO	
VFD2	PUMP 5 SET SPEED	CONTROL P-5 SPEED	COMPRESSOR ROOM	AO	
VFD3	EC-1 FAN START/STOP	RUN EC-1 FAN	COMPRESSOR ROOM	DO	
VFD3	EC-1 FAN SPEED	CONTROL EC-1 FAN SPEED	COMPRESSOR ROOM	AO	
P-6	P-6 START/STOP	RUN P-6	COMPRESSOR ROOM	DO	
CV1	UNDERFLOOR BYPASS CONTROL VALVE	BYPASS FLOW AROUND U/F	COMPRESSOR ROOM	DO	
CV2	UNDERFLOOR CONTROL VALVE	CONTROL GLYCOL FEED TO U/F	COMPRESSOR ROOM	DO	

- GENERAL NOTES:  
1. MECHANICAL CONTRACTOR RESPONSIBLE FOR PURCHASE, INSTALLATION, & CONNECTION OF MECHANICAL DEVICES, WELLS, SENSORS, LOW VOLTAGE WIRING, & CONTROLS.  
2. SIGNAL CODES: AI = ANALOG INPUT, DI = DIGITAL INPUT, AO = ANALOG OUTPUT, DO = DIGITAL OUTPUT.  
KEYED NOTES:  
1. REUSE EXISTING ARENA BRINE PUMP POINTS

EQUIPMENT CONTROL STRATEGIES	
<b>ENERGY RECOVERY</b> 1. ENABLE (ER_HEAT_CALL) WHEN EITHER OF THE FOLLOWING CONDITIONS ARE TRUE. 1.1. (UF_HEAT_CALL) IS ENABLED - SEE BELOW 1.2. (MELT_PIT_HEAT_CALL) IS ENABLED - SEE BELOW	
<b>UNDERFLOOR HEATING SYSTEM CONTROL STRATEGY</b> 1. DEFINE (UF_AVG_TEMP) AS THE AVERAGE OF TT02 AND TT04. 2. DEFINE (UF_MAX_TEMP) AS THE MAXIMUM DESIRED UNDERFLOOR TEMPERATURE (DEFAULT 55F, ADJUSTABLE). 3. DEFINE (UF_MIN_TEMP) AS THE MINIMUM ALLOWABLE UNDERFLOOR TEMPERATURE (DEFAULT 40F, ADJUSTABLE). 4. DEFINE (UF_SP) AS THE UNDERFLOOR TEMPERATURE SETPOINT (DEFAULT 45F, ADJUSTABLE). 5. ENABLE (UF_HEAT_CALL) WHEN (UF_AVG_TEMP) < (UF_SP). 6. DISABLE (UF_HEAT_CALL) WHEN (UF_AVG_TEMP) > (UF_MAX_TEMP).	
<b>P6 - SNOW MELT PIT GLYCOL PUMP CONTROL STRATEGY</b> 1. COMMISSION P-6 TO 78GPM USING BV1 WHILE P-5 IS ENABLED AT 172 GPM (1.2 PSI PRESSURE DIFFERENTIAL ACROSS HE-3) 2. DEFINE (MELT_PIT_SP) AS THE DESIRED MELT PIT TEMPERATURE (40F, ADJUSTABLE). 3. DEFINE (MELT_PIT_MAX_TEMP) AS THE MAXIMUM SNOW MELT PIT TEMPERATURE (50F, ADJUSTABLE). 4. ENABLE (MELT_PIT_HEAT_CALL) WHEN SNOW MELT PIT TEMPERATURE SENSOR (TT11) READS BELOW (MELT_PIT_SP). 4.1. WHEN (MELT_PIT_HEAT_CALL) IS ENABLED: 4.1.1. ENABLE P-6. 5. DISABLE (MELT_PIT_HEAT_CALL) WHEN TT11 READS AT OR ABOVE (MELT_PIT_MAX_TEMP). 6. DISABLE (MELT_PIT_HEAT_CALL) WHEN (UF_AVG_TEMP) < (UF_MIN_TEMP). 6.1. (MELT_PIT_HEAT_CALL) CAN BE RE-ENABLED ONCE (UF_AVG_TEMP) > 40F.	
<b>EC-1 EVAPORATIVE CONDENSER CONTROL STRATEGY</b> 1. DEFINE (DISCHARGE_PRESSURE_SP) = 152 PSIG (85°F SCT) (ADJUSTABLE) 2. DEFINE (DISCHARGE_PRESSURE_OFFSET) = 8 PSI (ADJUSTABLE) 3. WHEN AMMONIA COMPRESSORS ARE ENABLED, CONTROL EVAPORATIVE CONDENSER FAN VFD TO MAINTAIN DISCHARGE PRESSURE: 3.1. WHEN (ER_HEAT_CALL) IS ENABLED, CONTROL FAN SPEED TO MAINTAIN DISCHARGE PRESSURE OF (DISCHARGE_PRESSURE_SP) + (DISCHARGE_PRESSURE_OFFSET), MEASURED AT PT01 (88°F SCT) 3.2. WHEN (ER_HEAT_CALL) IS DISABLED, USE EVAPORATIVE CONDENSER FAN VFD TO MAINTAIN DISCHARGE PRESSURE OF (DISCHARGE_PRESSURE_SP)	
<b>P-5 - ARENA UNDERFLOOR GLYCOL PUMP COMMISSIONING</b> 1. COMMISSION P-5 TO 172 GPM USING DP01 (1.2 PSI DIFFERENTIAL PRESSURE ACROSS HE-3) WITH CV1 (BYPASS) CLOSED AND CV2 (UNDERFLOOR) OPEN. 1.1. WHILE OPERATING AT THE SAME PUMP SPEED: 1.1.1. CLOSE CV02, OPEN CV01. 1.1.2. ADJUST BV1 TO MAINTAIN 172GPM THROUGH HX2 (1.2 PSI DIFFERENTIAL PRESSURE AT DP01).	
<b>P-5 - ARENA UNDERFLOOR GLYCOL PUMP CONTROL STRATEGY</b> 1. ENABLE P-5 WHEN (ER_HEAT_CALL) IS ENABLED 1.1. IF (UF_HEAT_CALL) IS ENABLED, CLOSE CV01, OPEN CV02. 1.1.1. IF (UF_HEAT_CALL) IS DISABLED, OPEN CV01, CLOSE CV02. NOTE: CV01 AND CV02 ARE TO OPERATE RECIPROCALLY. 2. CONTROL SPEED OF UNDERFLOOR GLYCOL PUMP P-5 USING VFD2 TO MAINTAIN DISCHARGE PRESSURE EQUAL TO (DISCHARGE_PRESSURE_SP) 2.1. SET MAXIMUM SPEED OF P-5 EQUAL TO 172 GPM (1.2 PSI DIFFERENTIAL PRESSURE AT DP01) 3. DISABLE P-5 WHEN (ER_HEAT_CALL) IS DISABLED	
NOTE: UNDERFLOOR PUMP P-5 IS BEING UTILIZED AT PARTIAL CAPACITY PRIOR TO THE INSTALLATION OF THE PROPOSED HEAT PUMP & FUTURE ENERGY RECOVERY INTEGRATIONS.	

PRIME CONSULTANT	CONSULTANT	CLIENT	ENGINEER OF RECORD	PROJECT TITLE	REV #	DATE	DRAWN BY	CHECKED BY	DESCRIPTION	PROJ #
 PHONE 778-700-1086 WEBSITE www.polareng.ca			 2025-12-11 IAN WELLE P.ENG.	ARCHIE BROWNING SPORTS CENTRE - REFRIGERATED FLOOR REPLACEMENT	1	2025-08-29	AH	TP	ISSUED FOR REVIEW	2546
					2	2025-11-28	AH	IW	ISSUED FOR TENDER	SHEET SIZE D
					3	2025-12-03	AH	IW	RE-ISSUED FOR TENDER	
				DRAWING TITLE	4	-	-	-	-	SHEET NAME
				SCHEDULES, POINT LIST, CONTROLS	5	-	-	-	-	M11
					6	-	-	-	-	