

SITE PLAN
SCALE: NTS

SYMBOL SCHEDULE

PIPING		
DEMOLITION	EXISTING	NEW
EQUIPMENT TAGS		
FITTINGS AND VALVES		
SYSTEM MONITORING		
DEMOLITION	EXISTING	NEW

MECHANICAL ABBREVIATIONS

AD	AREA DRAIN	EF	EXHAUST FAN
AFF	ABOVE FINISHED FLOOR	E	EXISTING
AHU	AIR HANDLING UNIT	FD	FLOOR DRAIN
BFP	BACKFLOW PREVENTER	FE	FIRE EXTINGUISHER
BHP	BREAK HORSEPOWER	FPM	FEET PER MINUTE
BTUH	BRITISH THERMAL UNIT / HOUR	GPM	GALLONS PER MINUTE
CFM	CUBIC FEET PER MINUTE	HP	HORSEPOWER
CW	COMPLETE WITH	IN	INCH
CONT	CONTINUATION	MAR	MANUAL AIR VENT
CTE	CONNECT TO EXISTING	MBH	1000 BRITISH THERMAL UNITS/HOUR
DB	DRY BULB	MD	MOTORIZED DAMPER
CTE	CONNECT TO EXISTING	NIC	NOT IN CONTRACT
DCW	DOMESTIC COLD WATER	NC	NORMALLY CLOSED
DDC	DIRECT DIGITAL CONTROL	NO	NORMALLY OPEN
DHW	DOMESTIC HOT WATER	NTS	NOT TO SCALE
DIAM	DIAMETER	PRV	PRESSURE REDUCING VALVE
DN	DOWN	PSI	POUNDS PER SQUARE INCH
DWHR	DOMESTIC HOT WATER RECIRCULATION	SPEC	SPECIFICATION
E/A	EXHAUST AIR	Typ	TYPICAL
EAT	ENTERING AIR TEMPERATURE	VFD	VARIABLE FREQUENCY DRIVE

COOLING TOWER REPLACEMENT COMPARISON

	EXISTING	NEW
MODEL	VXT-185C	VTD-132-L
FLOW RATE (GPM)	550	550
PRESSURE DROP (PSI)	2.1	5.8
DESIGN HOT WATER TEMP (F)	95	95
DESIGN COLD WATER TEMP (F)	80	80
DESIGN WET BULB TEMP (F)	70	70
HEAT REJECTION (BTUH)	2,750,000	2,750,000
FAN MOTOR (HP)	25	15
WEIGHT (LBS)	5,650	5,190
DIMENSIONS (LxWxH)	11.96 ft x 4.78 ft x 12.26 ft (3.64m x 1.46m x 3.74m)	11.96 ft x 4.73 ft x 11.77 ft (3.64m x 1.44m x 3.58m)

MECHANICAL GENERAL NOTE

GENERAL

- ALL CONTRACTORS' WORKERS, CRANE CONTRACTORS, LABOURERS, ETC. WILL NEED TO BE RCMP CLEARED BEFORE THEY CAN BE ON SITE. ESCORT REQUIRED.
- READ THE DRAWINGS IN CONJUNCTION WITH ALL OTHER CONTRACT DOCUMENTS INCLUDING THE PROJECT SPECIFICATIONS AND OTHER DRAWINGS SETS. IN CASES OF DIFFERENCE BETWEEN THE DOCUMENTS WITH RESPECT TO THE QUANTITY, SIZES, OR SCOPE OF WORK, THE GREATER SHALL APPLY.
- THE MECHANICAL SPECIFICATION IS INCLUDED IN BOOK SPECIFICATION PART OF THE BID PACKAGE.
- PROVIDE ALL MATERIALS AND EQUIPMENT AND PERFORM ALL LABOUR REQUIRED TO INSTALL COMPLETE AND FULLY OPERATIONAL MECHANICAL SYSTEMS AS INDICATED ON THE DRAWINGS, AS SPECIFIED, AND AS REQUIRED BY CODE.
- ALL WORK SHALL COMPLY WITH THE LATEST ADOPTED PROVINCIAL AND LOCAL CODES, AS WELL AS FEDERAL, PROVINCIAL, AND MUNICIPAL REGULATIONS, APPLICABLE BUILDING CODE, NATIONAL BUILDING CODE 2015.
- WHEN MECHANICAL WORK IS SUB-CONTRACTED, IT IS THE MECHANICAL CONTRACTOR'S RESPONSIBILITY TO COORDINATE SUBCONTRACTORS AND ASSOCIATED CONTRACTORS. WHEN DISCREPANCIES ARISE PERTAINING TO WHICH CONTRACTOR PROVIDES A PARTICULAR ITEM OF THE MECHANICAL CONTRACT OR WHICH CONTRACTOR PROVIDES FINAL CONNECTIONS FOR A PARTICULAR ITEM OF THE MECHANICAL CONTRACT, IT SHALL BE BROUGHT TO THE ATTENTION OF THE MECHANICAL CONTRACTOR, WHOSE DECISION SHALL BE FINAL.
- THE INFORMATION INDICATED IN THESE DRAWINGS IS DIAGRAMMATIC IN NATURE. CONTAINING INFORMATION TO A DEGREE OF DETAIL CONSISTENT WITH THEIR SCALE, ADEQUATE TO CONVEY THE DESIGN INTENT AND THEREFORE DOES NOT INDICATE EVERY REQUIRED OFFSET, FITTING OR SLOPE. PROVIDE EQUIPMENT, MATERIALS AND METHODS NOT SHOWN OR SPECIFIED BUT REQUIRED TO PROVIDE A COMPLETE AND COORDINATED INSTALLATION.
- THE LOCATIONS OF ALL ITEMS SHOWN ON THE DRAWINGS OR CALLED FOR IN THE SPECIFICATIONS THAT ARE NOT DEFINITELY FIXED BY DIMENSIONS ARE APPROXIMATE ONLY. THE EXACT LOCATIONS NECESSARY TO SECURE THE BEST CONDITIONS AND RESULTS MUST BE DETERMINED BY THE PROJECT SITE CONDITIONS AND SHALL HAVE THE APPROVAL OF THE CONSULTANT BEFORE BEING INSTALLED. DO NOT SCALE DRAWINGS.
- COORDINATE CONSTRUCTION OF ALL MECHANICAL WORK WITH OTHER CONTRACT DOCUMENT DRAWINGS.
- THESE DOCUMENTS ARE NOT TO BE USED FOR CONSTRUCTION UNLESS SPECIFICALLY NOTED FOR SUCH PURPOSE.
- THIS IS AN EXISTING BUILDING WITH EXISTING SERVICES AND UNKNOWN CONDITIONS. NOT ALL EXISTING SERVICES AND CONDITIONS HAVE BEEN IDENTIFIED ON THE DRAWINGS. THE CONTRACTOR IS TO COORDINATE ALL NEW WORK WITH EXISTING SERVICES AND CONFIRM EXACT ROUTING ON SITE.
- PRIOR TO COMMENCEMENT OF WORK, CONTRACTOR SHALL COMPARE ALL RELATED DRAWINGS, CONFIRM ALL DIMENSIONS, AND FIELD MEASURE AND CONFIRM ALL EXISTING CONDITIONS. REPORT ANY DISCREPANCIES TO THE CONSULTANT THAT WILL AFFECT SUCCESSFUL COMPLETION OF THE WORK.
- ANY WORK REQUIRING SYSTEM SHUTDOWNS MUST BE COORDINATED PRIOR TO SHUTDOWN.
- ANY WORK REQUIRING A MEETING TO BLOCK MUST BE COORDINATED WITH THE CITY OF SURREY TO GET PERMIT/APPROVAL PRIOR TO CONSTRUCTION.
- INSTALL ALL MECHANICAL EQUIPMENT RELATED WORK IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, CONTRACT DOCUMENTS, AND APPLICABLE CODES AND REGULATIONS.
- COORDINATE ALL MECHANICAL WORK WITH OTHER TRADES TO ENSURE PROPER AND ADEQUATE INTERFACE WITH THE OTHER OUTLINED FOR THIS PROJECT.
- COORDINATE ALL EQUIPMENT CONNECTIONS WITH MANUFACTURER'S CERTIFIED DRAWINGS. COORDINATE AND PROVIDE ALL DUCT AND PIPING TRANSITIONS REQUIRED FOR FINAL EQUIPMENT CONNECTIONS TO FURNISHED EQUIPMENT. FIELD VERIFY AND COORDINATE ALL DUCT AND PIPING DIMENSIONS BEFORE FABRICATION.
- REFER TO THE MECHANICAL SPECIFICATIONS AND SCHEMATICS FOR ALL EQUIPMENT CONNECTION DETAILS.
- PROVIDE STARTERS FOR ALL EQUIPMENT UNLESS SPECIFICALLY IDENTIFIED AS BEING PROVIDED BY THE ELECTRICAL CONTRACTOR.
- ALL OPENINGS IN FIRE WALLS DUE TO PIPING, CONDUIT, ETC. SHALL BE FIRED STOPPED WITH A PRODUCT SIMILAR TO 3M OR APPROVED EQUAL.
- ROOFING TO BE COMPLETED BY AN APPROVED RCMP CONTRACTOR. CONTRACTOR TBD.
- CONTACT INFORMATION.
- BASE BUILDING CONTROLS CONTRACTOR: BRAD KOWAL (AINSWORTH), 604-575-5912

SUMMARY SCOPE OF WORK

- WORK INCLUDED: FURNISH AND INSTALL ALL EQUIPMENT AND SYSTEMS SPECIFIED IN THE CONTRACT DOCUMENTS AS REQUIRED FOR COMPLETE AND FULLY FUNCTIONAL SYSTEMS, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
 - DEMOLITION AND DISPOSAL OF REDUNDANT EQUIPMENT
 - RIGGING
 - PERMITS, FEES, ETC. REQUIRED FOR COMPLETION OF THE SCOPE OF WORK
 - SUPPLY AND INSTALLATION OF NEW EQUIPMENT AND APPROPRIATE SYSTEMS
 - NEW AND/OR EXPANDING EXISTING CONCRETE CURBS AND BASES AS REQUIRED
 - ROOFING AND WALL PENETRATION REPAIR AND SEALING. INCLUDE COSTS FOR ALL ASSOCIATED CUTTING, DRILLING, SCANNING AND/OR X-RAYING.
 - TEMPORARILY REMOVING THEN REPAIRING DOORS, WALLS, OR ROOF SECTIONS FOR ACCESS AS REQUIRED.
 - SEISMIC RESTRAINTS AND VIBRATION ISOLATION.
 - ELECTRICAL POWER WIRING, DISCONNECTS, ETC. FOR NEW EQUIPMENT.
 - CONTROL SYSTEM MODIFICATION AND EXPANSION TO INTEGRATE NEW EQUIPMENT AND SYSTEMS.
 - FLUSHING AND PURGING OF PIPING SYSTEMS AFFECTED BY SCOPE OF WORK.
 - TESTING AND BALANCING
 - COMMISSIONING
 - OPERATOR TRAINING
 - OVERTIME, IF REQUIRED.
- WORK EXCLUDED:
 - COST OF REPAIRING EXISTING EQUIPMENT THAT IS SPECIFIED TO BE REUSED, IF REQUIRED.

PROJECT SCHEDULE

- CONSTRUCTION WORK TO BE APPROVED BY OWNER'S DESIGNATED REPRESENTATIVE PRIOR TO START
 - START DATE (AWARD OF CONTRACT): TBD
 - DESIRED END DATE: TBD
 - SCHEDULE OF WORK CONSTRAINTS:
 - NO SHUTDOWN IS PERMITTED WITHOUT THE EXPRESSED WRITTEN APPROVAL FROM THE OWNER'S REPRESENTATIVE. THE CONTRACTOR SHALL SUBMIT REQUESTS FOR EACH SHUTDOWN AT LEAST ONE WEEK IN ADVANCE. THE REQUEST SHALL STATE WHAT SYSTEM IS TO BE SHUTDOWN, WHAT AREAS WILL BE AFFECTED, HOW LONG THE PERIOD WILL BE, AND WHAT CONTINGENCY PLAN IS PROVIDED IF THE WORK CANNOT BE COMPLETED WITHIN THE SPECIFIED TIME.
 - ALLOW TO WORKING DAYS FOR REVIEW OF SUBMITTALS UNLESS CONSULTANT AGREES TO ACCELERATED SCHEDULE.
 - CONTRACTOR IS REQUIRED TO HAVE CONTRACTOR CHECK CERTIFICATION AS A MINIMUM. CONTRACTOR MUST SHOW THAT CONTRACTOR CHECK APPLICATION IS BEING PROCESSED WHEN SUBMITTING PROPOSALS.

PRIME CONTRACTOR

- MAGNITUDE OF SCOPE OF WORK ON THIS PROJECT SHALL NOT BE BASED SOLELY ON PREPARED CONSTRUCTION DOCUMENTS (DRAWINGS AND SPECIFICATION), AS THESE DOCUMENTS ARE OF A DIAGRAMMATIC AND GENERALLY DESCRIPTIVE NATURE, AND LIMITED IN THE AMOUNT OF DETAILS SPECIFIC TO EXISTING SITE CONDITIONS. THEREFORE, A SITE WALKTHROUGH IS STRICTLY "MANDATORY" FOR PRIME CONTRACTOR, PRIOR TO PRICING. FURTHER SITE VERIFICATION WILL ALSO BE REQUIRED UPON CONTRACT AWARD.
- THE MECHANICAL CONTRACTOR SHALL BE THE PRIME CONTRACTOR FOR THIS PROJECT AND COORDINATE ALL WORK ASSOCIATED WITH THIS PROJECT INCLUDING ANY STRUCTURAL, ROOFING, ELECTRICAL, AND CONTROLS WORK, AND ANY OTHER TRADES REQUIRED FOR SUCCESSFUL COMPLETION OF THE PROJECT.
- NO EXTRA COSTS WILL BE CONSIDERED FOR ANY COORDINATION OR TRADE THAT WAS NOT CONSIDERED BY THE PRIME CONTRACTOR TO BE NECESSARY TO COMPLETE THE SCOPE OF WORK.
- ALL TRADES SHALL BE SPECIALIZED IN THE FIELD OF WORK THAT THEY ARE BEING RETAINED TO COMPLETE. IN NO CASE SHALL OWN FORCES BE USED FOR WORK THAT THEY ARE UNFAMILIAR OR UNQUALIFIED TO CARRY OUT.
- PRIOR TO THE START OF ANY WORK, THE PRIME CONTRACTOR SHALL THOROUGHLY REVIEW THE CONTRACT DOCUMENTS AND ARRANGE FOR A START-UP MEETING WITH THE CONSULTANT(S) AND CLIENT TO REVIEW THE PHASING OF WORK AND CONSTRUCTION METHODOLOGY.

HAZARDOUS MATERIALS

- SHOULD ANY HAZARDOUS MATERIALS BE DISCOVERED ON THE AREAS OF WORK, IMMEDIATELY CEASE WORK IN THIS AREA AND NOTIFY THE PRIME CONSULTANT AND OWNER IMMEDIATELY. ALL WORK IN THE AFFECTED AREA SHALL BE STOPPED UNTIL ABATEMENT WORKS ARE COMPLETE.

DEMOLITION

- DEMOLITION SCOPE OF WORK SHALL INCLUDE DEMOLITION OF ALL EXISTING SYSTEM COMPONENTS THAT WILL BE FOUND TO BE REDUNDANT ONCE THE NEW WORK IS INSTALLED. THIS INCLUDES COMPONENTS SUCH AS, BUT NOT LIMITED TO, EXISTING EQUIPMENT, PIPING, DUCTWORK, CONTROLS, ETC.
- DURING REMOVAL OF EXISTING EQUIPMENT, USE CAUTION TO PREVENT DAMAGE TO ANY EQUIPMENT THAT HAS SALVAGE VALUE. ALL REUSABLE SALVAGED MATERIAL SHALL REMAIN THE PROPERTY OF THE OWNER AND BE RETAINED FOR THEIR INSPECTION. ONLY ITEMS AGREED BY THE OWNER SHALL BE DISPOSED OF BY THE CONTRACTOR. THIS CONTRACTOR SHALL HAVE IN THEIR CONTRACT PRICE THE TOTAL REMOVAL AND DISPOSAL OF ALL EQUIPMENT AND MATERIALS.
- IF ANY EXISTING DEFICIENCIES OUTSIDE THE SCOPE OF WORK ARE DISCOVERED, ADVISE THE PRIME CONSULTANT AND AVOID INSTRUCTIONS BEFORE PROCEEDING.
- ALL SYSTEMS THAT ARE CUT-BACK OR AFFECTED SHALL BE CAPPED FOR FUTURE CONNECTION. DO NOT LEAVE ANY SERVICES OPEN ENDED.
- PATCH AND MAKE GOOD (TO BASE BUILDING STANDARDS) MECHANICAL COMPONENTS AND FINISHES DAMAGED DURING RENOVATION. PROVIDE INSULATED CAPPED CURBS EQUAL TO OR BETTER THAN ROOF R-VALUE FOR FANS, DOOSENECK OPENINGS AND VENTS BEING ADDED AND REMOVED.

- MECHANICAL TRADES BIDDING DEMOLITION WORK SHALL ALLOW FOR A FULL DAY ON SITE TO REVIEW EXISTING MECHANICAL SERVICES AND EQUIPMENT IN DEMOLITION AREAS. ACCESS SHALL BE GIVEN TO ROOF AND EXISTING MECHANICAL AND ELECTRICAL ROOMS AS REQUIRED.
- INCLUDE FOR DISPOSAL (FROM SITE) OF ALL REMOVED EQUIPMENT AND SERVICES, DUCTWORK, PIPING, PLUMBING, ETC. INCLUDING INSULATION AND HANGARS.

SUBMITTALS & SHOP DRAWINGS

- SEE SPECIFICATION FOR SUBMITTAL AND SHOP DRAWING REQUIREMENTS.

CONSULTANT FIELD REVIEWS

- ALL MECHANICAL WORK REQUIRES WRITTEN REVIEW BY THE CONSULTANT. CONSULTANT REVIEW IS FOR GENERAL COMPLIANCE WITH MECHANICAL CONCEPTS ONLY. CONTRACTOR REMAINS SOLELY RESPONSIBLE FOR BUILDING THE WORK IN CONFORMANCE WITH THE CONTRACT DOCUMENTS.
- CONTRACTOR IS RESPONSIBLE TO GIVE REASONABLE ADVANCE NOTICE OF WHEN WORK IS READY FOR REVIEW BY THE CONSULTANT. MINIMUM 48 HOURS PRIOR TO CONCEALMENT. CONTRACTOR IS RESPONSIBLE FOR REVIEWING THEIR OWN WORK AND THE WORK OF THE SUBTRADES PRIOR TO REVIEW BY THE CONSULTANT.

PIPING

- ISOLATION VALVES ARE TO BE FULL PORT BALL VALVES FOR PIPE SIZES 2 NPS AND SMALLER; AND BUTTERFLY VALVES FOR PIPE SIZES 2-1/2 NPS AND LARGER.
- ALL VALVES (EXCEPT CONTROL VALVES) AND STRAINERS SHALL BE FULL SIZE OF PIPE BEFORE REDUCING SIZE TO MAKE CONNECTIONS TO EQUIPMENT AND CONTROLS.
- ALL PIPING SYSTEM COMPONENTS INSTALLED IN THE PROJECT SHALL BE RATED FOR A MINIMUM PRESSURE RATING OF 125 PSI AND TEMPERATURES OF 250F.
- INSTALL AUTOMATIC AIR VENTS AT THE HIGHEST POINTS & DRAIN VALVES AT LOWEST POINTS OF ALL NEW PIPING SYSTEMS, AND WHERE SPECIFIED.
- ALL DRAIN VALVES SHALL BE MINIMUM 3/4 NPS UNLESS NOTED OTHERWISE. VALVES SHALL BE COMPLETE WITH HOSE END MALE THREADED CONNECTIONS AND PROVIDED WITH CAP AND CHAIN. DRAIN VALVES TO BE FULL PORT BALL VALVES RATED TO WITHSTAND THE MAXIMUM RATED PRESSURE OF THE CONNECTED SYSTEM.
- ENSURE THAT THE SPECIFIED STRAINER MESH SIZE IS INSTALLED IN ALL STRAINERS PRIOR TO SYSTEM START-UP.
- PERFORM HYDROSTATIC TESTING ON ALL NEW PIPING SYSTEMS AS 1.5 TIMES THE MAXIMUM OPERATING PRESSURE, BUT NOT LESS THAN 125 PSI.
- ALL PRESSURE TESTS SHALL BE COMPLETED BEFORE ANY MECHANICAL EQUIPMENT OR PIPING IS INSTALLED.
- PROVIDE AN AIR VENT AT THE HIGH POINT OF EACH DROP IN THE HEATING WATER, CHILLED WATER, AND OTHER CLOSED-LOOP HVAC PIPING SYSTEMS. ALL PIPING SHALL GRADE TO LOW POINTS. PROVIDE HOSE END DRAIN VALVES AT THE BOTTOM OF ALL RISERS AND LOW POINTS.
- UNLESS OTHERWISE NOTED, ALL PIPING IS OVERHEAD, TIGHT TO UNDERSIDE OF STRUCTURE OR SLAB, WITH SPACE FOR INSULATION AS REQUIRED.
- INSTALL ALL PIPING WITHOUT FORGING OR SPRINGING.
- INSTALL PIPING SO THAT ALL VALVES, STRAINERS, UNIONS, TRAPS, FLANGES, AND OTHER ACCESSORIES REQUIRING ACCESS ARE ACCESSIBLE.
- ALL VALVES SHALL BE INSTALLED SO THAT THE VALVE REMAINS IN SERVICE WHEN EQUIPMENT OR PIPING ON EQUIPMENT SIDE OF VALVE IS REMOVED.
- ALL BALANCING VALVES AND BUTTERFLY VALVES SHALL BE PROVIDED WITH POSITION INDICATORS AND MAXIMUM ADJUSTABLE STOPS (MEMORY STOPS).
- PROVIDE CHAINWHEEL OPERATORS FOR ALL VALVES IN EQUIPMENT ROOMS MOUNTED GREATER THAN 24 M (7' 10") ABOVE FLOOR LEVEL. CHAIN SHALL EXTEND TO 24 M (7' 10").
- UNIONS AND/OR FLANGES SHALL BE INSTALLED AT EACH PIECE OF EQUIPMENT, IN BYPASSES, AND IN LONG PERMIT DISASSEMBLY (100 FT) OR MORE TO PERMIT DISASSEMBLY FOR ALTERATION AND REPAIRS. ALL VALVES SHALL BE ADJUSTED FOR SMOOTH AND EASY OPERATION.
- ALL PIPING WORK SHALL BE COORDINATED WITH ALL TRADES INVOLVED. OFFSETS IN PIPING AROUND OBSTRUCTIONS SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.
- PROVIDE FLEXIBLE CONNECTIONS IN ALL PIPING SYSTEMS CONNECTED TO PUMPS, CHILLERS, COOLING TOWERS, AND OTHER EQUIPMENT WHICH REQUIRE VIBRATION ISOLATION EXCEPT WATER COILS. FLEXIBLE CONNECTIONS SHALL BE PROVIDED AS CLOSE TO THE EQUIPMENT AS POSSIBLE OR AS INDICATED ON THE DRAWINGS.

INSULATION

- MECHANICAL CONTRACTOR TO CARRY AN APPROVED INSULATING CONTRACTOR TO PROVIDE ALL REQUIRED INSULATION WORK ASSOCIATED WITH THE SCOPE OF THIS PROJECT.
- REPAIR PIPING INSULATION WHERE DAMAGED WITHIN THE DESIGNATED AREAS OF WORK AND PROVIDE INSULATION ON ALL NEW PIPING AS SPECIFIED. REQUEST CLARIFICATION DURING BID PERIOD IF SCOPE OF REPAIR WORK IS UNCLEAR.
- PROVIDE IDENTIFICATION OF ALL EXISTING AND NEW PIPING IN ACCORDANCE WITH THE SPECIFICATION WITHIN THE DESIGNATED AREAS OF WORK.
- PIPE, DUCT, AND EQUIPMENT INSULATION SHALL NOT BE CRUSHED OR COMPRESSED THROUGH INTERFERENCE WITH SYSTEMS INSTALLED BY OTHER TRADES OR BUILDING CONSTRUCTION.
- SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- ALL PIPING EXPOSED TO THE EXTERIOR SHALL BE FULLY INSULATED COMPLETE WITH ALUMINUM JACKETING AND HEAT TRACE.

CONTROLS

- ALL CONTROLS WORK TO BE PERFORMED BY BASE BUILDING CONTRACTOR.
- MODIFY THE EXISTING BMS TO ACCOMMODATE THE NEW EQUIPMENT AND OPERATING SEQUENCES DESCRIBED IN THE CONTRACT DOCUMENTS. PROVIDE NEW GRAPHICS TO ACCOMMODATE PROJECT CHANGES. PROVIDE ALL REQUIRED HARDWARE, SOFTWARE, PROGRAMMING, AND TROUBLESHOOTING REQUIRED TO ACHIEVE THE DESIGN INTENT.
- LOCATE ALL TEMPERATURE, PRESSURE, AND FLOW MEASURING DEVICES IN ACCESSIBLE LOCATIONS WITH STRAIGHT SECTION OF PIPING OR DUCT UP- AND DOWNSTREAM AS RECOMMENDED BY THE MANUFACTURER FOR GOOD ACCURACY.
- ALL NEW VALVES ARE TO BE LINE SIZE, C/W FULLY ELECTRONIC ACTUATOR AND END SWITCH.
- ALL NEW VFD'S (EXCEPT WHEN PACKAGED WITH EQUIPMENT) ARE TO BE SUPPLIED BY CONTROL CONTRACTOR. COORDINATE WITH VFD SUPPLIER THAT VFD'S COME WITH BACNET MS/ TP CARD INTERFACE. ALL VFD'S ARE TO BE ALSO HARDWIRED FOR ESSENTIAL CONTROL POINTS.
- CONDENSER WATER PUMPS AND COOLING TOWER FANS ARE TO BE VFD CONTROLLED THRU DDC.
- ALLOW FOR ANY OTHER CONTROL WORK REQUIRED (BUT MENTIONED ABOVE), TO MEET DESIGN INTENT AND TO MAKE MECHANICAL SYSTEMS FULLY OPERATIONAL AND FUNCTIONAL.
- SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

SEISMIC, VIBRATION ISOLATION & MISCELLANEOUS STEEL

- RETAIN THE SERVICES OF A QUALIFIED STRUCTURAL ENGINEER TO PROVIDE A COMPLETE DESIGN, SIZING AND DETAILING OF ALL ANCHORS, SUPPORTS AND SEISMIC RESTRAINT FOR ALL MECHANICAL SYSTEMS. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- ALL MISCELLANEOUS STEEL REQUIRED TO ENSURE PROPER INSTALLATION AND AS SHOWN IN DETAILS FOR PIPING, DUCTWORK, AND EQUIPMENT (UNLESS NOTED OTHERWISE) SHALL BE FURNISHED AND INSTALLED BY THE MECHANICAL CONTRACTOR.
- EQUIPMENT, PIPING, DUCTWORK, ETC. SHALL BE SUPPORTED AS DETAILED, SPECIFIED, AND AS REQUIRED TO PROVIDE A VIBRATION FREE INSTALLATION.
- PROVIDE VIBRATION ISOLATION FOR ALL MECHANICAL EQUIPMENT TO PREVENT TRANSMISSION OF VIBRATION TO BUILDING STRUCTURE.
- MECHANICAL EQUIPMENT, DUCTWORK, AND PIPING SHALL NOT BE SUPPORTED FROM METAL DECK.

ELECTRICAL

- THE ELECTRICAL SCOPE OF THIS PROJECT IS TO BE CARRIED OUT AS DESIGN-BUILD.
- ALL ELECTRICAL WORK WILL BE COMPLETED BY A LICENSED ELECTRICAL TRADE.
- ALL ELECTRICAL WORK WILL CONFORM TO APPLICABLE CODES AND STANDARDS.
- PROVIDE ALL REQUIRED ELECTRICAL PERMITS, FEES, ETC. REQUIRED TO COMPLETE THE SCOPE OF WORK.

CLEANING AND SYSTEM FLUSHING

- FLUSH-OUT AND CHEMICALLY CLEAN ALL NEW PIPING SYSTEMS INSTALLED AS PART OF THIS PROJECT. PROVIDE ANY TEMPORARY EQUIPMENT (PUMPS, ETC.) AS REQUIRED TO COMPLETE FLUSHING.
- ALL CHEMICAL TREATMENT SHALL BE COMPLETED BY THE BASE-BUILDING CHEMICAL TREATMENT CONTRACTOR: ROCHESTER MIDLAND.
- SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

TESTING, ADJUSTING AND BALANCING

- MECHANICAL CONTRACTOR SHALL CARRY AN APPROVED TESTING, ADJUSTING, AND BALANCING (TAB) CONTRACTOR FOR THIS PROJECT. SEE SPECIFICATIONS FOR LIST OF APPROVED CONTRACTORS AND ADDITIONAL REQUIREMENTS.
- PROVIDE TAB SERVICES ON THE FOLLOWING SYSTEMS AS PART OF THIS PROJECT: CONDENSER WATER SYSTEM.
- SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

COMMISSIONING AND TRAINING

- ALL SYSTEMS MODIFIED AS PART OF THIS PROJECT SHALL BE (RE)COMMISSIONED.
- THE OWNER HAS RETAINED A THIRD-PARTY COMMISSION AGENT FOR THIS PROJECT: TBD
- SEE SPECIFICATION FOR ADDITIONAL REQUIREMENTS.

GARBAGE REMOVAL

- GARBAGE AND CONSTRUCTION DEBRIS GENERATED AS PART OF THIS PROJECT AT THE RESPONSIBILITY OF THE PRIME CONTRACTOR.
- CORRIDORS, ELEVATORS, LOBBIES, AND COMMON AREAS ARE TO BE KEPT CLEAR OF DEBRIS AT ALL TIMES.
- DEBRIS AND WASTE MUST BE REMOVED FROM SITE ON A DAILY BASIS. CONSTRUCTION DISPOSAL BINS ARE ALL ALLOWED TO REMAIN IN DESIGNATED AREAS UPON APPROVAL OF THE OWNER'S DESIGNATED REPRESENTATIVE. UPON REMOVAL OF DISPOSAL BINS, CLEAN THE AREA AROUND THE BINS TO A TIDY SWEEP CONDITION WITH NO MATERIALS LEFT IN THE DESIGNATED AREAS.

CHEMICAL TREATMENT

- CONTRACTOR TO RE-USE EXISTING CHEMICAL TREATMENT SYSTEM THAT ARE PREVIOUSLY DONE.

END OF DOCUMENT

DRAWING LIST

DWG NO.	DWG TITLE	SCALE
M000	COVER PAGE	NTS
M001	SCHEDULES AND DETAILS	NTS
M200	SECOND FLOOR AND ROOF PLAN	AS NOTED

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REV.	DATE	DESCRIPTION
1.	2023.05.18	ISSUED FOR 95% REVIEW
2.	2023.06.29	ISSUED FOR RFO

CONSULTANT:

SEAL:

PROJECT TITLE:
**CITY OF SURREY
RCMP COOLING
TOWER
REPLACEMENT**

PROJECT ADDRESS:
14355 57 AVE,
SURREY, BC

DRAWN BY: MLC
CHECKED BY: AO
SCALE: NTS
DATE: JUN 29, 2023

DRAWING TITLE:
COVER PAGE

COOLING TOWER SCHEDULE

EQUIPMENT TAG	DESCRIPTION	SERVICE	MANUFACTURER	MODEL NO.	LxWxH (M)	OPERATING WT. (KG)	FLOW (LPM)	COOLING (KW)	FLUID P. DROP (KPA)	FLUID TYPE	GLYCOL CON (%)	TEMPERATURES (DEG C)			FAN MOTOR		NOTES
												INLET AIR (DEG C WB)	EWT (DWG C)	LWT (DWG C)	AIR FLOW (LPS)	MOTOR (HP)	
CT-1	COOLING TOWER	BUILDING HEAT REJECTION	BAC	VT0-132-L	3.84x1.44x3.58	2354	2082	806	40.5	WATER	0	21.1	35.0	26.7	1931	15	ALL

- NOTES:
- PROVIDE MANUFACTURER RECOMMENDED VIBRATION ISOLATION.
 - PROVIDE VARIABLE FREQUENCY DRIVE FOR FAN MOTOR C/W NEMA 4 ENCLOSURE
 - PROVIDE 5 KW BASIN HEATER
 - PROVIDE BMS INTERFACE. PROVIDE ALL REQUIRED POINTS TO MATCH EXISTING INSTALLATION
 - PROVIDE NEW MANUFACTURED STRUCTURAL STEEL SUPPORTS
 - PROVIDE BALL FLOAT TYPE WATER LEVEL CONTROL

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MECHANICAL MOTORLIST

UNIT NUMBER	QTY	UNIT DESCRIPTION	UNIT LOCATION	ELECTRICAL LOAD				VOLT	PH	EQUIPMENT			STARTER			DISCONNECT			CONTROL			EMERGENCY POWER (YES/NO)	NOTES	
				MCA	FLA	KW	HP			S	I	C	S	I	C	TYPE	S	I	C	S	I			C
CT-1	1	COOLING TOWER CELL 1 FAN MOTOR	ROOF				15	575	3	M	M	E	M	M	E	VFD	M	E	E	M	E	E	BMS	1
	1	COOLING TOWER CELL 1 VFD	ROOF					575	3	M	M	E	M	M	E		M	E	E	M	E	E	BMS	1
	1	COOLING TOWER CELL 1 BASIN HEATER	ROOF			5		575	3	M	M	E	M	M	E	CP	M	E	E	M	E	E	BMS	1
-	-	MISCELLANEOUS																						
		HEAT TRACE	ROOF					120	1	M	M	E	-	-	-	-	E	E	E	M	M	E	BMS	2

SUPPLIER / INSTALL / WIRE CODES:
 MECH = MECHANICAL
 ELEC = ELECTRICAL
 G = GENERAL CONTRACTOR
 S = SUPPLIED BY
 I = INSTALLED BY
 C = CONNECTED BY

STARTER CODES:
 MAN = MANUAL STARTER
 HOA = MAGNETIC STARTER W/ HAND/OFF/AUTO SWITCH W/ AUX. CONTACTS
 MAG = MAGNETIC STARTER C/W AUX STATUS CONTACTS
 MRR = MOTOR RATED RELAY, 24 VAC COIL & MOTOR PROTECTION SWITCH
 PCS = PACKAGED CONTROL SYSTEM
 VFD = VARIABLE FREQUENCY DRIVE
 RVS = REDUCED VOLTAGE STARTER
 WS = WALL SWITCH
 CP = CONTROL PANEL

CONTROL DEVICE CODES:
 AQUA = PUMP CONTROLLED BY AQUASTAT
 BMS = BLDG MANAGEMENT SYSTEM
 ES = END SWITCH
 ET = LINE VOLTAGE T'STAT
 FA = FIRE ALARM
 FAP = FIRE ALARM PANEL
 FS = FLOW SWITCH
 GS = GAS SENSOR
 H = HUMIDITY SENSOR
 I = INTERLOCK, SEE NOTES
 LIGHT = WIRED TO LIGHT SWITCH
 LS = LEVEL SWITCH
 OS = OCCUPANT SENSOR
 PS = PRESSURE SWITCH
 R. STAT = REVERSE ACTING THERMOSTAT
 TC = TIME CLOCK
 T = LOW VOLTAGE T'STAT OR SENSOR
 TS = TAMPER SWITCH
 VS = VARIABLE SPEED SWITCH
 WS = WALL SWITCH

ELECTRICAL LOAD CODES:
 BHP = BRAKE HORSEPOWER
 FLA = UNIT FULL LOAD AMPS
 HP = UNIT OR MOTOR HORSE POWER
 PH = POWER PHASE
 MCA = MINIMUM CIRCUIT AMPS
 VOLT = REQUIRED SUPPLY VOLTAGE

MISCELLANEOUS CODES:
 FFPCP = FIRE FIGHTERS CONTROL PANEL
 FRAC = FRACTIONAL HORSEPOWER
 INT = INTEGRAL PART OF UNIT

GENERAL NOTES:
 A. ALL FIRE ALARM DEVICES WIRED BY ELECTRICAL
 B. CONTROL PANELS ARE SHIPPED LOSS & REQUIRE FIELD WIRING
 C. PCS EQUIPMENT REQUIRES SINGLE SOURCE POWER CONNECTION, UNLESS NOTED OTHERWISE
 D. CP, VFD EQUIPMENT REQUIRES POWER WIRING TO AND FROM CONTROL PANEL TO CONTROLLED EQUIPMENT

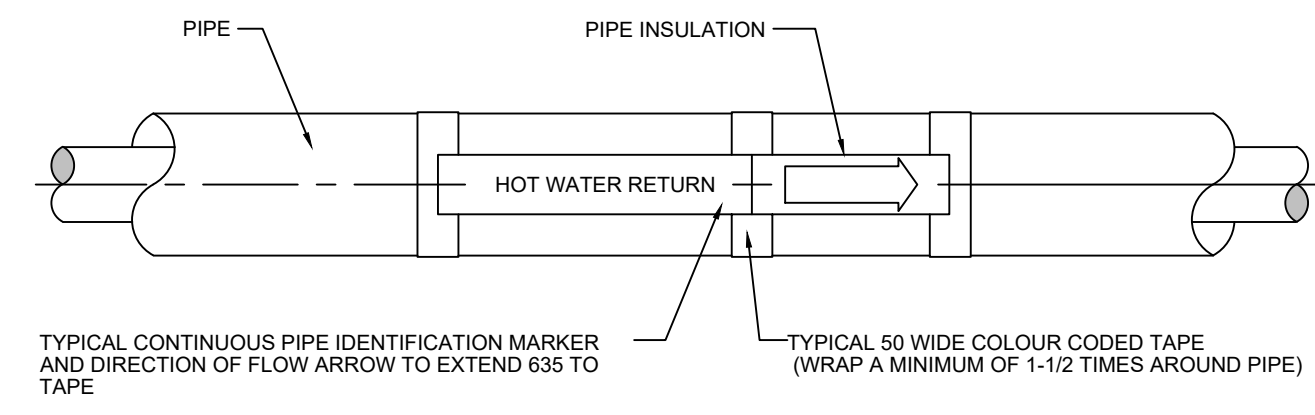
NOTES:
 1. SINGLE POINT POWER CONNECTION
 2. HEAT TRACE LOAD ESTIMATE TO 8WFT

REV.	DATE	DESCRIPTION
1.	2023.05.18	ISSUED FOR 95% REVIEW
2.	2023.06.29	ISSUED FOR Rfq

HEAT TRACE

EQUIPMENT TAG	SERVICE	MANUFACTURER	MEAN AMBIENT TEMP DEG C	PIPES SIZE (MM)	MODEL	CAPACITY (WM)	ELECTRICAL INFO (V/PH/Hz)	NOTES
HT-1	DCW MAKE UP	CHROMALOX	-9.0	50	THERMWIRE	16.35	120/1/60	1,2

- NOTES:
- PROVIDE AMBIENT AIR SENSOR CONTROL HEAT TRACE TO SHUT OFF AT 4.4 DEG. C AMBIENT
 - SEE MECHANICAL MOTORLIST FOR HEAT TRACING ELECTRICAL LOADS



DETAIL NOTES

- ALL DIMENSIONS IN MM
- APPLY A CONTINUOUS COATING OF CONTACT CEMENT TO THE LABEL TO ENSURE PERMANENT ADHESION.
- REFER TO SPECIFICATION FOR COLOUR CODING OF SERVICES.
- INSTALL AT 15000 INTERVALS (MAXIMUM) AND AT EACH CHANGE DIRECTION.

1 PIPE IDENTIFICATION
 M001 SCALE: NTS

CONSULTANT:

Permit to Practice No: 1000236



PROJECT TITLE:
**CITY OF SURREY
 RCMP COOLING
 TOWER
 REPLACEMENT**

PROJECT ADDRESS:
 14355 57 AVE,
 SURREY, BC

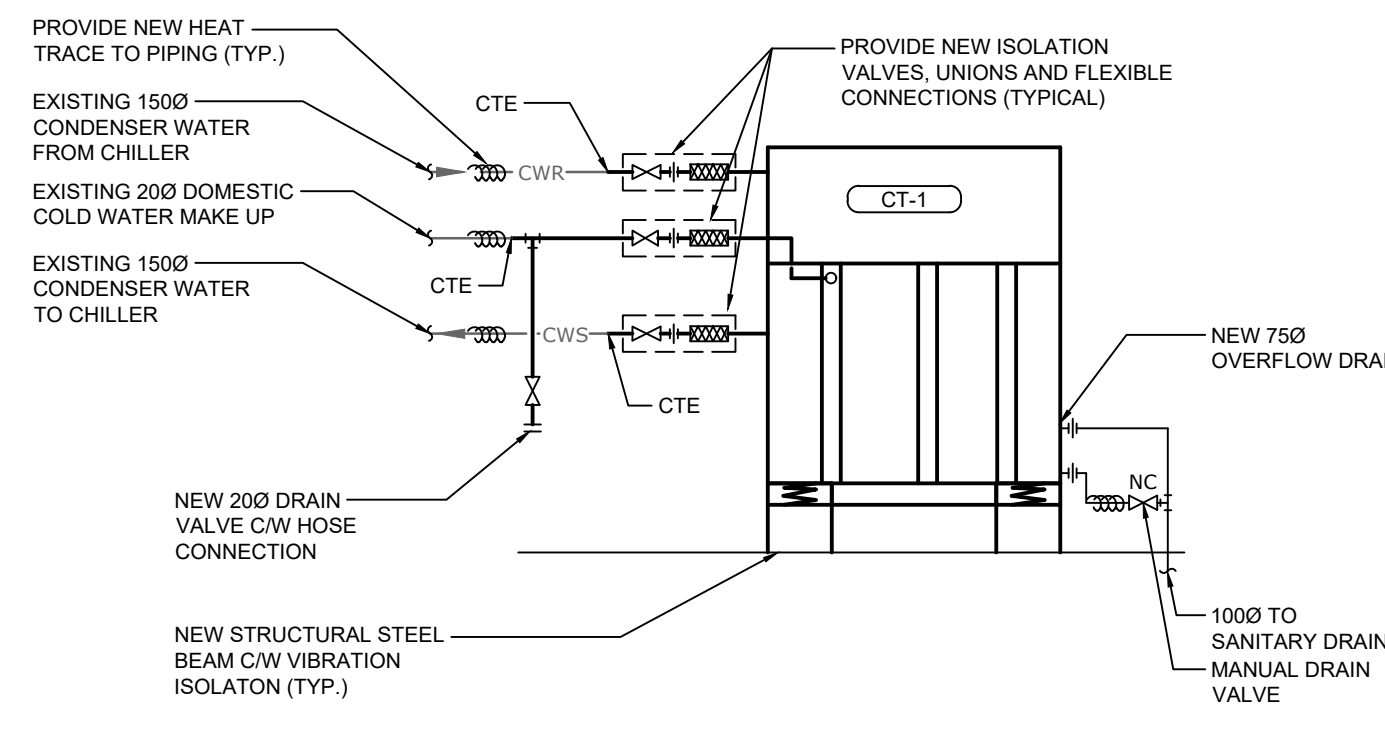
DRAWN BY	MLC
CHECKED BY	AO
SCALE	NTS
DATE	Jun 29, 2023

DRAWING TITLE:
**SCHEDULES AND
 DETAILS**

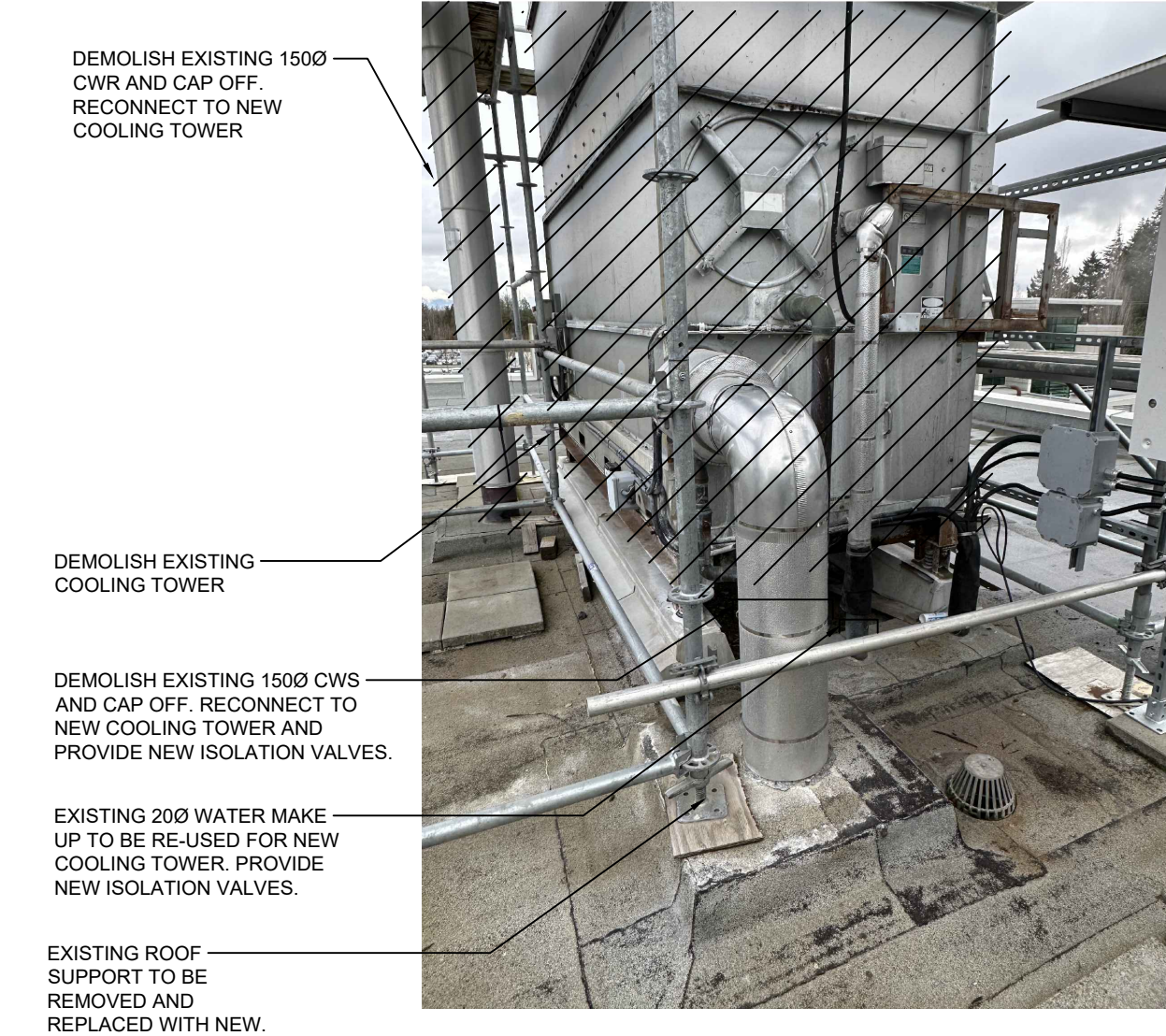
PROJECT NO.	DRAWING NO.
085b-075-23	M001

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REV.	DATE	DESCRIPTION
1.	2023.05.18	ISSUED FOR 95% REVIEW
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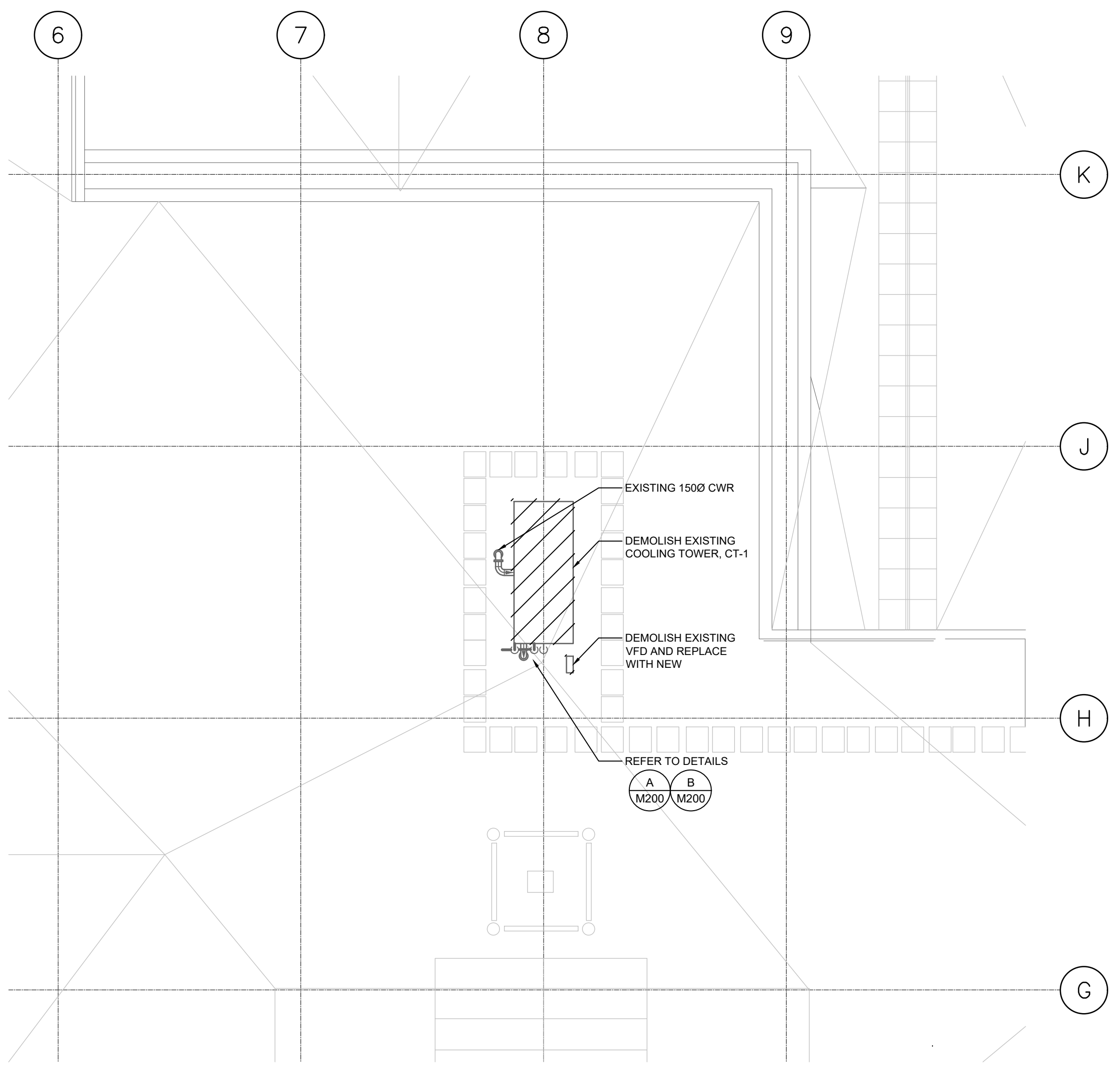
5 NEW COOLING TOWER PIPING SCHEMATIC
 M200 SCALE: NTS



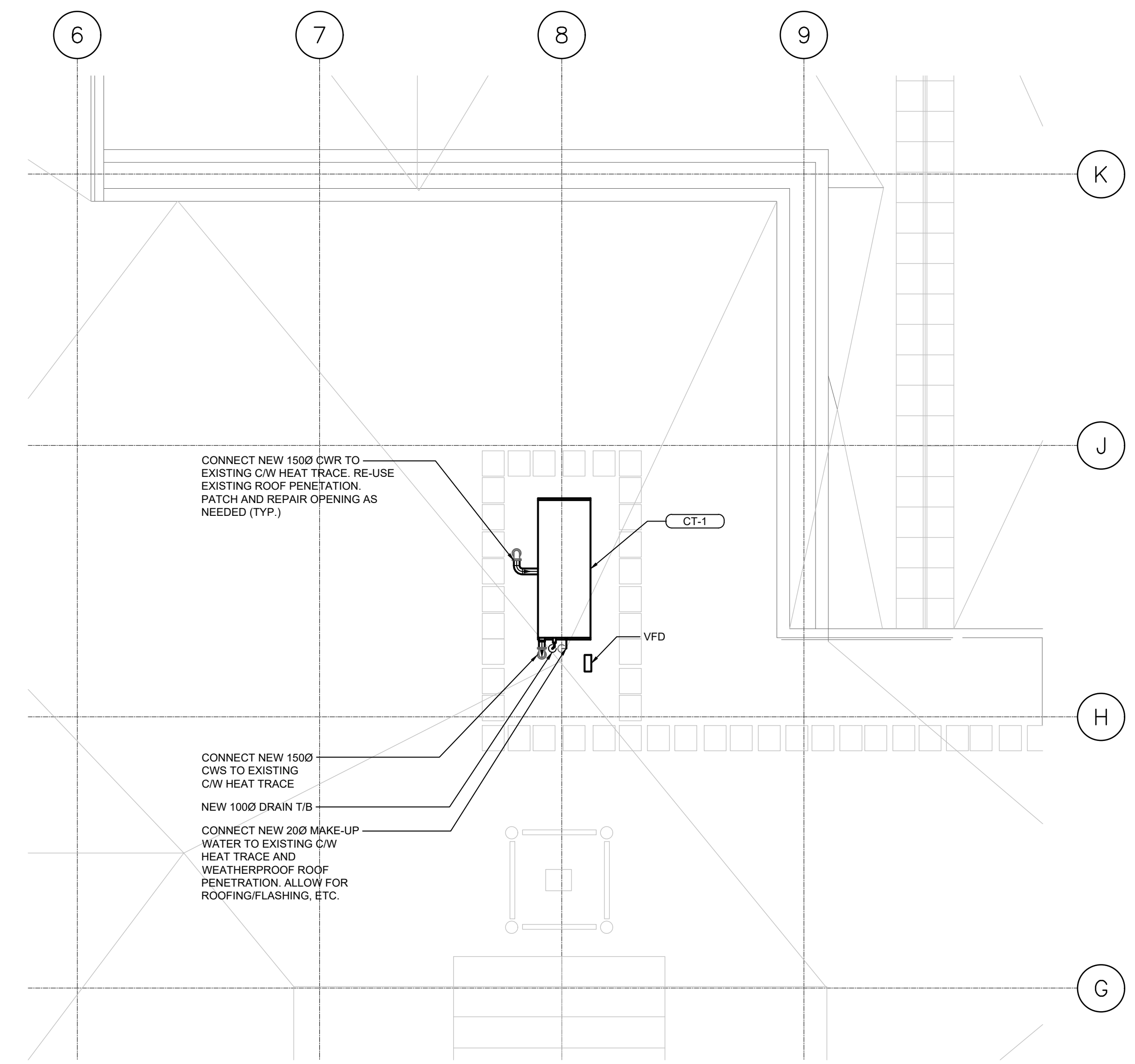
A EXISTING COOLING TOWER
 M200 SCALE: 1:100



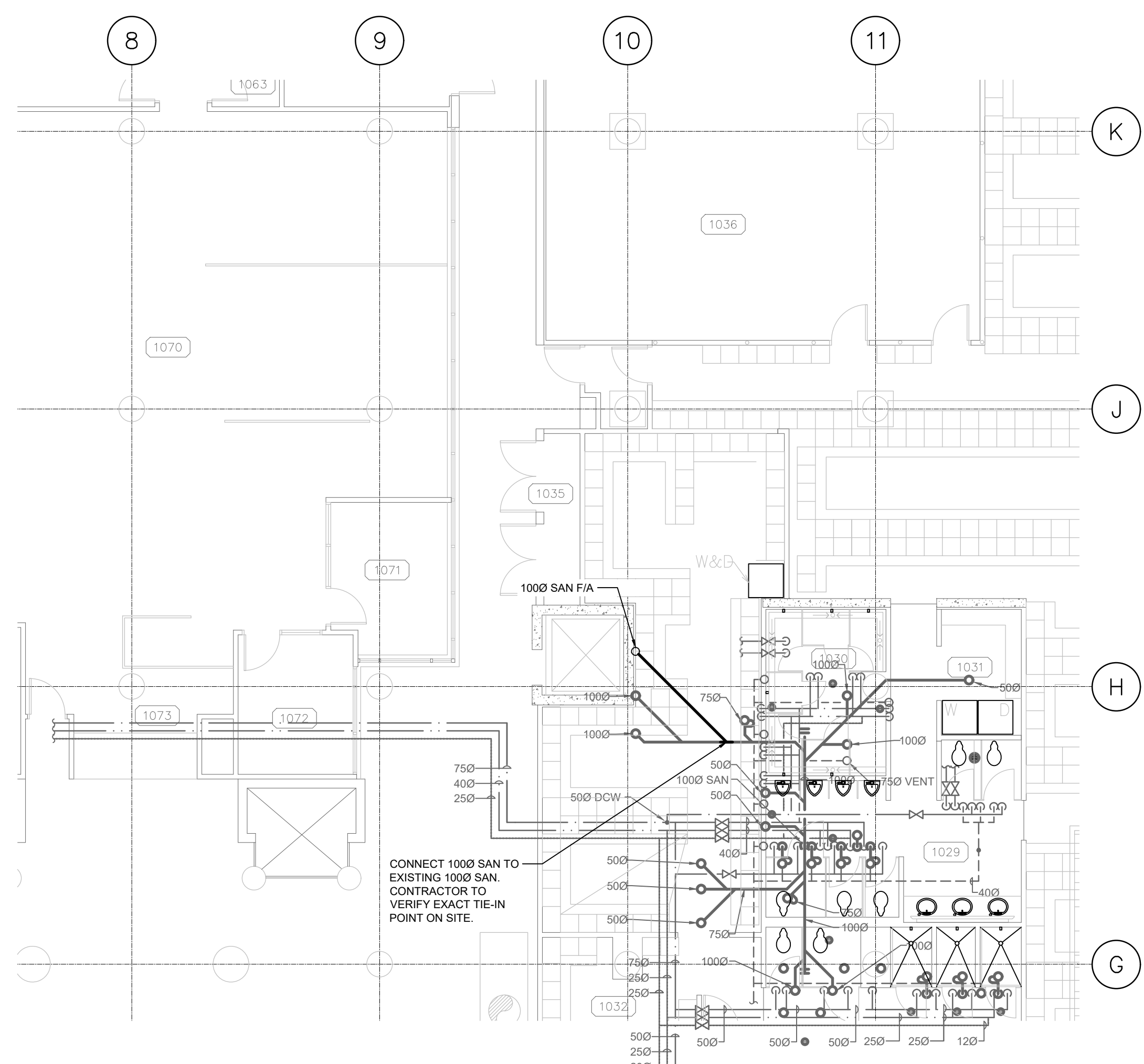
B EXISTING COOLING TOWER DRAIN
 M200 SCALE: 1:100



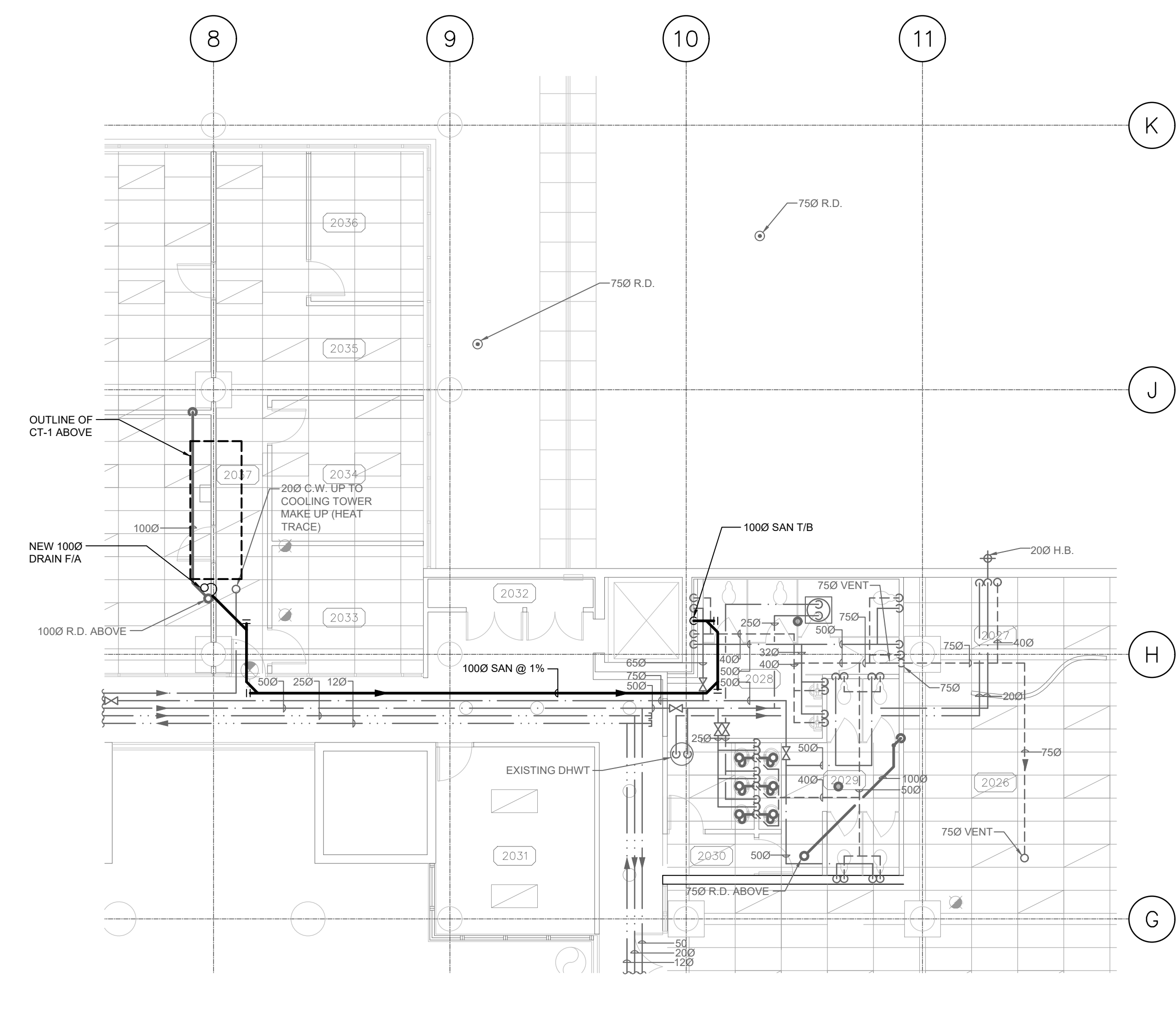
2 ROOF PLAN - DEMOLITION
 M200 SCALE: 1:100



1 ROOF PLAN - CONSTRUCTION
 M200 SCALE: 1:100



4 MAIN FLOOR - CONSTRUCTION
 M200 SCALE: 1:100



3 SECOND FLOOR - CONSTRUCTION
 M200 SCALE: 1:100

CONSULTANT:

SEAL: Permit to Practice No: 1000236



PROJECT TITLE:
**CITY OF SURREY
 RCMP COOLING
 TOWER
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PROJECT ADDRESS:
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DRAWN BY	MLC
CHECKED BY	AO
SCALE	AS NOTED
DATE	Jun 29, 2023

DRAWING TITLE:
**SECOND FLOOR AND
 ROOF PLAN**

PROJECT NO.	DRAWING NO.
085b-075-23	M200