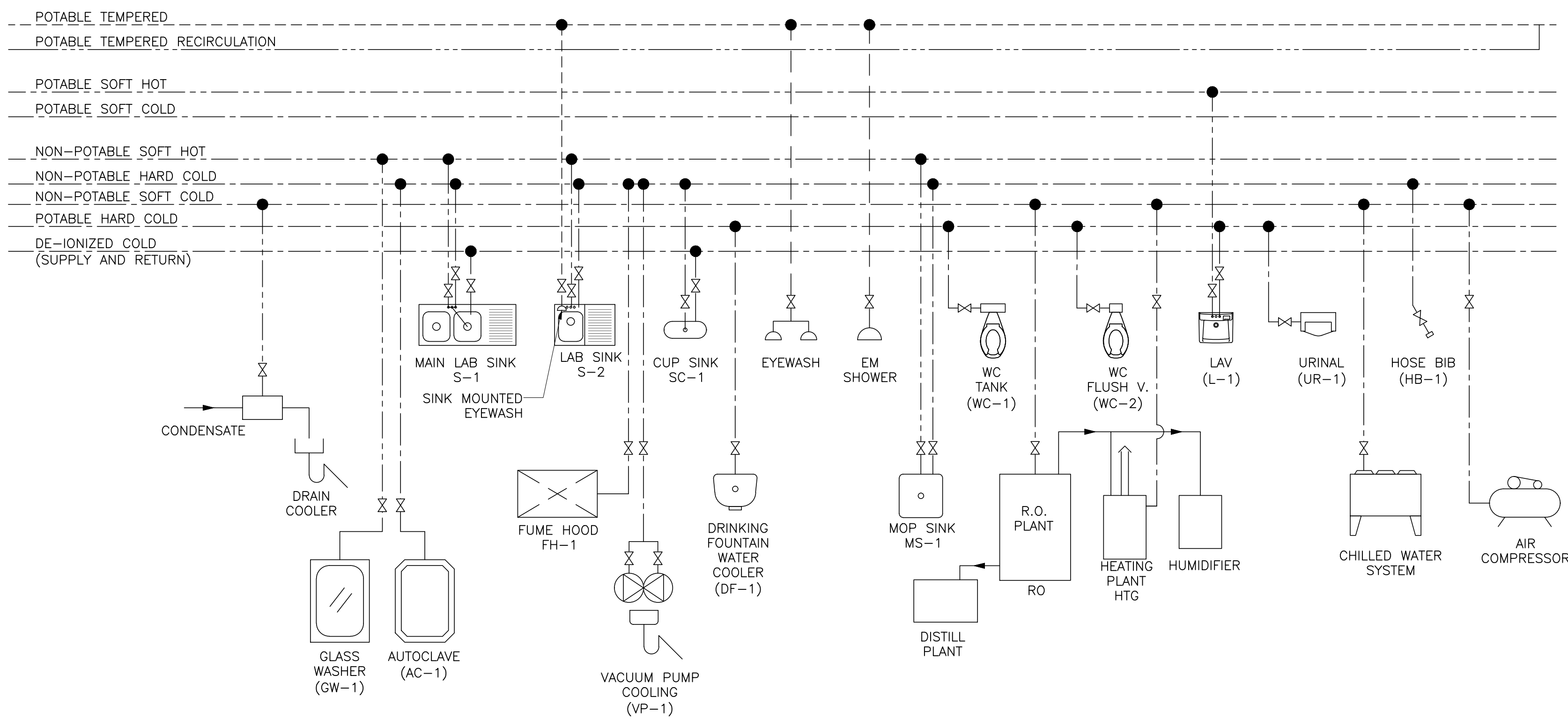
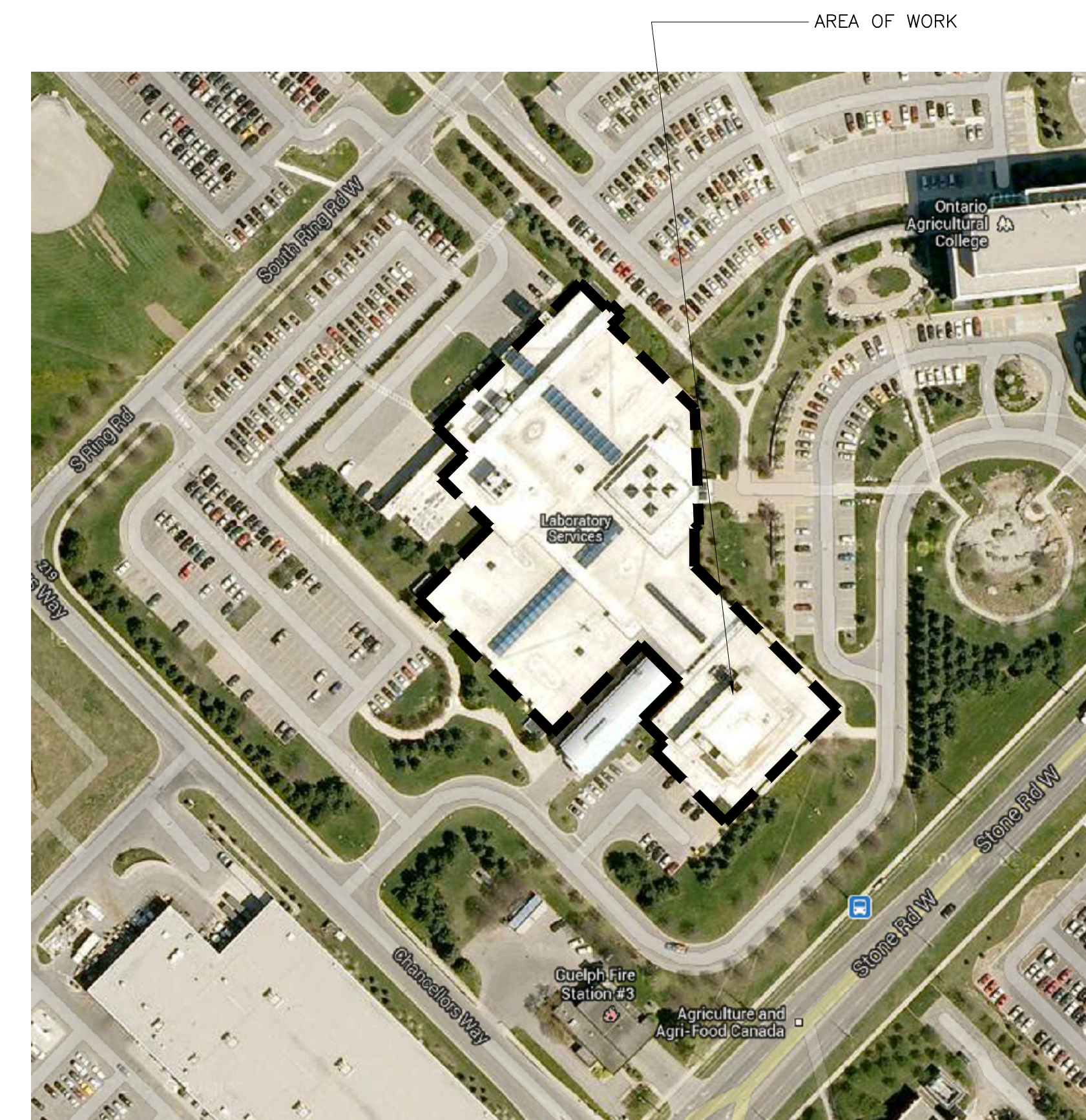


PROPOSED OVERALL BUILDING SYSTEM SCHEMATIC



FIXTURE WATER CLASSIFICATION



SITE PLAN

No.	Date	Description
5	12/09/13	REDUCED SCOPE--ISSUED FOR TENDER
4	04/07/13	100% ISSUED FOR REVIEW
3	03/06/13	99% ISSUED FOR REVIEW
2	24/04/13	50% ISSUED FOR REVIEW
1	26/03/13	ISSUED FOR REVIEW

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NORTH	STAMP
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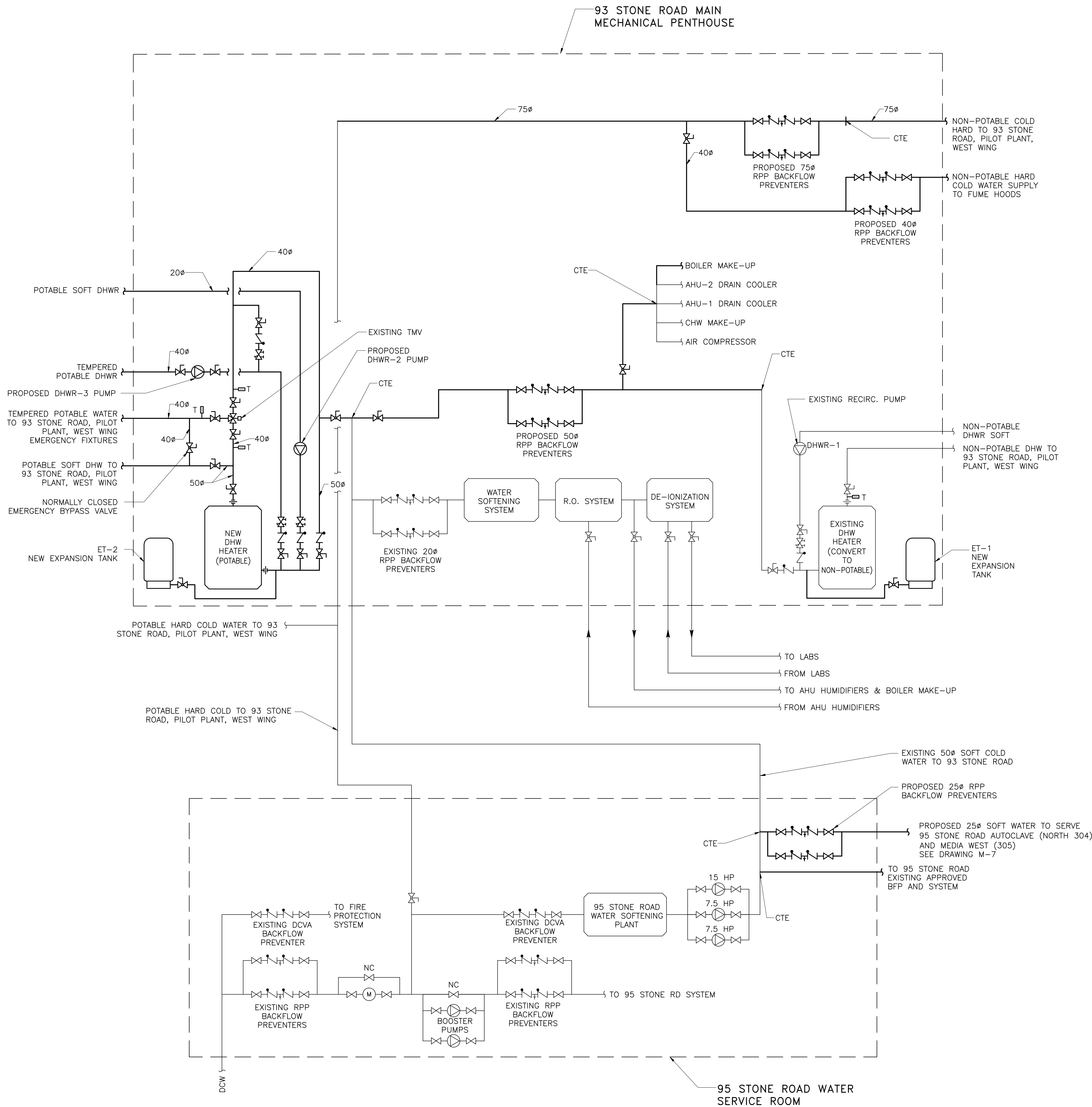
**Moon-Matz Ltd.**  
**Consulting Engineers**  
 1435 HURONTARIO ST.  
 MISSISSAUGA, ONTARIO  
 L5G 3H5  
 TEL: (905)274-7556  
 FAX: (905)274-5382

FOOD RESEARCH CENTER

PROJECT  
 TEMPERED WATER &  
 CROSS CONNECTION CONTROL  
 LOCATION  
 93 STONE ROAD  
 GUELPH, ONTARIO

MECHANICAL  
 OVERALL WATER SUPPLY  
 SYSTEM SCHEMATIC &  
 FIXTURE CLASSIFICATION

SCALE	AS SHOWN	JOB No.	4393
DRAWN BY	H.J	DRAWING NO.	M-1
CHECKED BY	W,K	OF 10	
DATE	MAR 2013		
CAD FILE	4393-M-1.DWG		



PROPOSED SYSTEM SCHEMATIC

**GENERAL NOTES:**

- THE DESIGN DOCUMENTS HAVE BEEN PREPARED ON THE BASIS OF INFORMATION OBTAINED FROM THE GENERAL SITE REVIEW AND FROM THE EXISTING DOCUMENTS. MAKE NECESSARY ADJUSTMENTS TO LOCATIONS OF EQUIPMENT, PIPING, ETC. TO SUIT EXISTING SITE CONDITIONS. MAKE ALLOWANCES FOR ADDITIONAL ELBOWS, FITTINGS, SUPPORTS, ETC. REQUIRED TO PROVIDE OFFSETS IN THE PIPING, ETC. TO SUIT EXISTING SITE CONDITIONS. NO EXTRAS WILL BE ALLOWED FOR THE INTENDED SCOPE OF WORK SHOWN IN THE TENDER DOCUMENTS.
- PRIOR TO COMMENCING OF WORK, THOROUGHLY REVIEW AND VERIFY AT SITE SIZES AND ROUTINGS OF THE EXISTING PIPING, CONTROLS AND ELECTRICAL POWER SUPPLY, AND ENSURE THAT THE NEW EQUIPMENT/COMPONENTS CAN BE INSTALLED TO PROVIDE A FULLY FUNCTIONAL SYSTEM. OBTAIN APPROVALS FROM THE CONSULTANTS OF DEFICIENCIES AFFECTING INTENDED EXECUTION OF WORK.
- EXAMINE THE EXISTING BUILDING, THE SITE AND SURROUNDING AREAS AND BE FULLY INFORMED AS TO THE CONDITIONS AND LIMITATIONS UNDER WHICH THE WORK HAS TO BE EXECUTED. CLAIMS FOR ADDITIONAL COSTS WILL NOT BE ENTERTAINED WITH RESPECT TO CONDITIONS WHICH COULD REASONABLY HAVE BEEN ASCERTAINED BY AN INSPECTION PRIOR TO PRICING. INCLUDE IN BASE PRICE FOR RELOCATION OF ANY EXISTING SERVICES TO ALLOW FOR INSTALLATION OF NEW EQUIPMENT, PIPING, CONDUIT AND NEW PENETRATIONS.
- IF OBVIOUS AMBIGUITIES OR OMISSIONS ARE NOTICED WHEN TENDERING REFER THE SAME TO THE CONSULTANT FOR A RULING AND OBTAIN THE RULING IN WRITING IN THE FORM OF AN ADDENDUM. CLAIMS FOR EXTRA FOR AMBIGUITIES OR OMISSION OF ITEMS BROUGHT TO THE ATTENTION OF THE CONSULTANT AFTER THE AWARD OF A CONTRACT WHICH, DUE TO THE NATURE OF THE AMBIGUITY OR OMISSION, SHOULD HAVE BEEN BROUGHT TO THE ATTENTION OF THE CONSULTANT DURING THE TENDERING PERIOD, WILL NOT BE ALLOWED.
- OBTAIN A SET OF WHITE PRINTS OF DRAWINGS AND MARK-UP THE CHANGES NEATLY AS THE JOB PROGRESSES TO ACCURATELY INDICATE THE WORK "AS-BUILT". MAINTAIN THE "AS-BUILT" WHITE PRINTS AT SITE FOR PERIODIC INSPECTION. ON COMPLETION OF WORK, PREPARE AS-BUILT DRAWINGS AND SUBMIT THREE PRINTS AND A CD CONTAINING THESE DRAWINGS TO THE OWNER.
- COORDINATE WITH AAFC TO PROTECT OR RELOCATE ALL AFFECTED EXISTING EQUIPMENT DURING CONSTRUCTION.
- DO ALL CUTTING, PATCHING AND MAKING GOOD TO LEAVE IN A FINISHED CONDITION AND TO MAKE THE SEVERAL PARTS OF THE WORK COME TOGETHER PROPERLY. CO-ORDINATE WORK TO KEEP CUTTING AND PATCHING TO A MINIMUM. CONTRACTOR SHALL PERFORM ULTRASONIC SCAN OF WALL/FLOOR AREAS BEFORE DRILLING HOLES FOR RUNNING NEW PIPING.
- QUALITY OF WORKMANSHIP AND MATERIALS USED IN PATCHING, MAKING GOOD AND REFINISHING OF EXISTING CONSTRUCTION AND/OR COMPARTMENTS SHALL BE OF A STANDARD EQUAL TO THAT SPECIFIED FOR NEW CONSTRUCTION AND IF NOT SPECIFIED, EQUAL TO OR EXCEEDING THAT OF ORIGINAL EXISTING WORK.
- SHUTOFF OF EQUIPMENT AND WATER SHUTDOWNS SHALL ONLY BE PERFORMED ON SATURDAY FROM 18:00 TO SUNDAY 06:00. WORK IN PENTHOUSES CAN BE COMPLETED DURING NORMAL DAYTIME WORK HOURS. WORK IN OCCUPIED SPACES (LABS, OFFICES, ETC.) SHALL BE AFTER HOURS. CONTRACTOR SHALL BEAR ALL COSTS RELATED TO PROVIDING SECURITY ESCORT FOR AFTER HOURS WORK DURING CONSTRUCTION AND FOR ALL INSPECTIONS. CONTRACTOR SHALL ENSURE OCCUPIED SPACE IS READY FOR TENANT USE EACH DAY BY 06:00AM AND DAILY HOUSEKEEPING OF SPACE SHALL INCLUDE WET CLEANING AND VACUUMING TO ENSURE SPACE IS RETURNED TO TENANT IN A CLEAN STATE AT THE END OF EACH SHIFT ON EVERY DAY.
- CONTRACTOR SHALL REVIEW DESIGNATED SUBSTANCE REPORT BY FRONTLINE ENVIRONMENTAL MANAGEMENT LTD. BEFORE COMMENCING CONSTRUCTION. CONTRACTOR SHALL INCLUDE IN TENDER PRICE ALL COSTS ASSOCIATED WITH ANY REMEDIATION, ABATEMENT, AND MITIGATION WORK. CONTRACTOR SHALL ARRANGE FOR AND INCLUDE IN TENDER PRICE TO INSPECT AND VERIFY ABATEMENT WORK HAS BEEN PERFORMED AS PER REGULATIONS.
- CONTRACTOR SHALL INCLUDE ALL COST ASSOCIATED WITH SYSTEM VERIFICATION, BFP TESTING, AND TRAINING OF STAFF.
- THE CONTRACTOR SHALL ENSURE THAT THE ENTIRE SYSTEM HAS BEEN TESTED AND OPERATED PROPERLY, AND ANY DAMAGED AND IMPROPERLY INSTALLED MATERIALS OR LEAKS SHALL BE REPAIRED IMMEDIATELY.
- ALL EQUIPMENT, DEVICES AND MATERIALS SHALL BE NEW AND COMMERCIAL GRADE, AND SHALL CARRY APPROPRIATE CSA, CGA, UL, ETC. APPROVAL. ALL EQUIPMENT AND MATERIALS SHALL BE PROVIDED AS SPECIFIED OR ALTERNATE APPROVED EQUAL. THE ALTERNATE EQUIPMENT AND MATERIALS SHALL BE EQUIVALENT IN SIZE, PERFORMANCE AND OPERATING CHARACTERISTICS TO THE SPECIFIED ONES, AND ALL COSTS FOR ADDITIONAL SPACE, HEAVIER SUPPORTS, ETC. REQUIRED FOR THE ALTERNATE EQUIPMENT AND MATERIALS SHALL BE BORN BY THE CONTRACTOR. NO SUBSTITUTION OF EQUIPMENTS AND MATERIALS ARE PERMITTED UNLESS APPROVED BY THE CONSULTANT.
- 93 STONE ROAD BUILDING WATER SYSTEM BASIS OF DESIGN ASSUMPTION: SOFT COLD WATER FROM 95 STONE ROAD BUILDING IS CONSIDERED POTABLE AS ADVISED BY AAFC UNLESS OTHERWISE NOTIFIED.

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No.	Date	Description

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NORTH	STAMP
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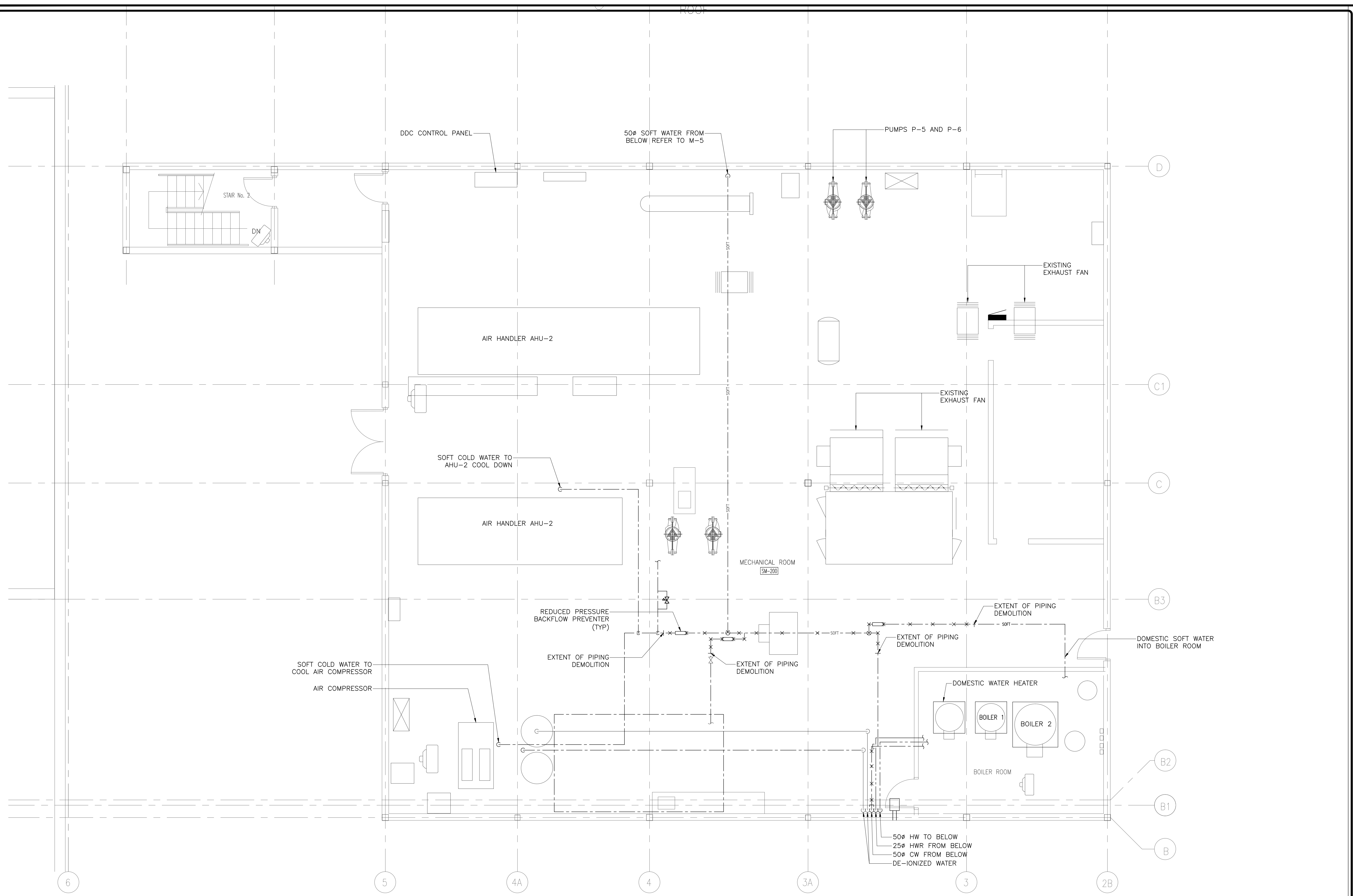
**Moon-Matz Ltd.**  
**Consulting Engineers**  
 1435 HURONTARIO ST.  
 MISSISSAUGA, ONTARIO  
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 FAX: (905)274-5382

PROJECT  
**TEMPERED WATER & CROSS CONNECTION CONTROL**

LOCATION  
 93 STONE ROAD  
 GUELPH, ONTARIO

**MECHANICAL**  
**OVERALL WATER SUPPLY SYSTEM SCHEMATIC**

SCALE AS SHOWN	JOB No. 4393
DRAWN BY H.J	DRAWING NO. M-2
CHECKED BY W.K	OF 10
DATE MAR 2013	
CAD FILE 4393-M-1.DWG	



**PENTHOUSE PLAN - MECHANICAL DEMOLITION**  
SCALE: 1:50

No.	Date	Description
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NORTH	STAMP
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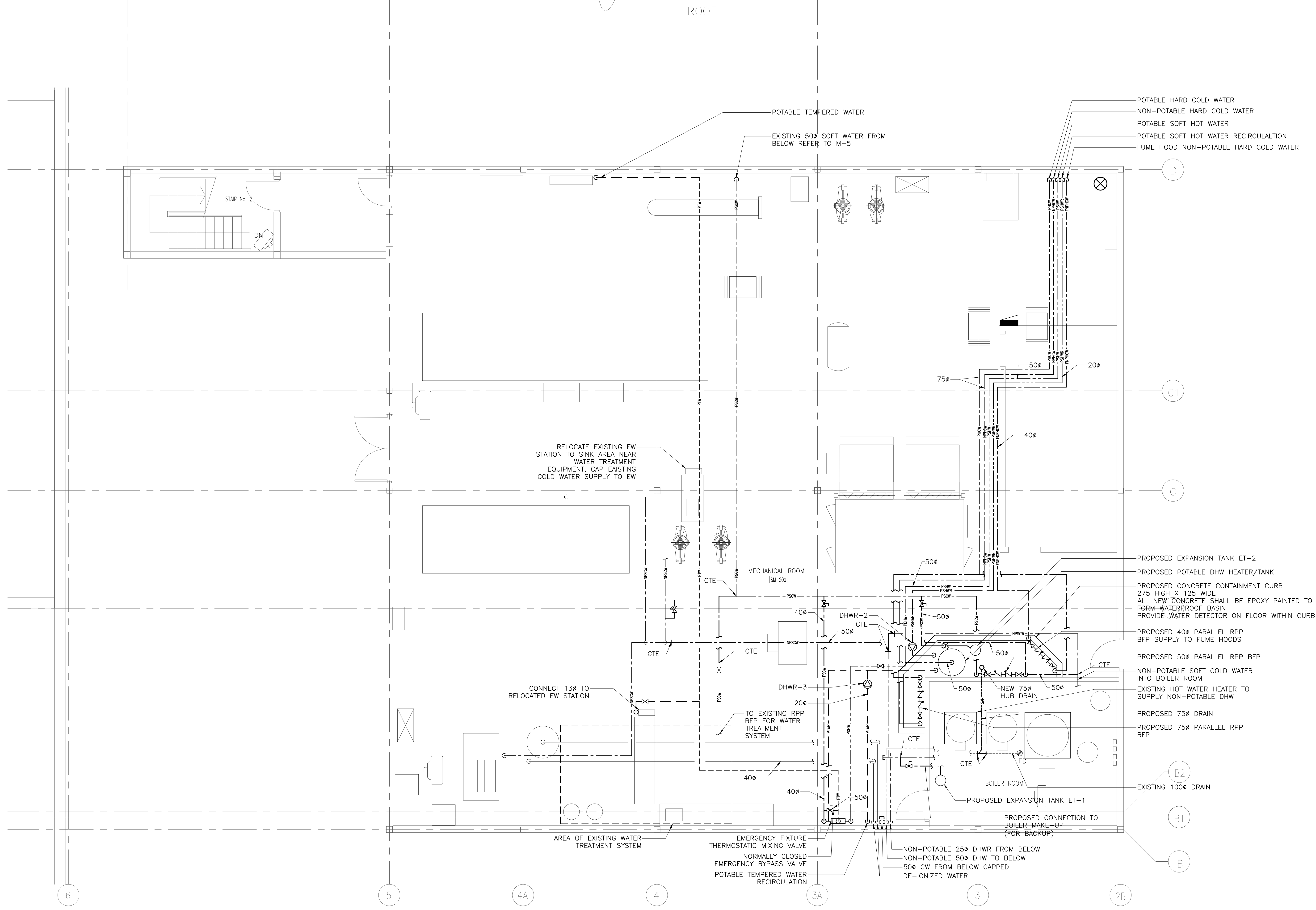
**Moon-Matz Ltd.**  
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**FOOD RESEARCH CENTER**

PROJECT  
**TEMPERED WATER & CROSS CONNECTION CONTROL**  
LOCATION  
93 STONE ROAD  
GUELPH, ONTARIO

**MECHANICAL  
PENTHOUSE DEMOLITION**

SCALE	AS SHOWN	JOB No.	4393
DRAWN BY	H.J.	DRAWING NO.	M-3
CHECKED BY	W.K.	DATE	MAR 2013
CAD FILE	4393-M-1.DWG		OF 10



PENTHOUSE PLAN - MECHANICAL PROPOSED  
SCALE: 1:50

No.	Date	Description
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REVISIONS PLOT SCALE: 1=1

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND CHECK ALL JOB CONDITIONS ON THE SITE BEFORE PROCEEDING WITH THE WORK.

NORTH	STAMP

**Moon-Matz Ltd.**  
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FOOD RESEARCH CENTER

PROJECT  
TEMPERED WATER & CROSS CONNECTION CONTROL

LOCATION  
93 STONE ROAD  
GUELPH, ONTARIO

MECHANICAL  
PENTHOUSE PROPOSED LAYOUT

SCALE	AS SHOWN	JOB No.	4393
DRAWN BY	H,J	DRAWING NO.	M-4
CHECKED BY	W,K	DATE	MAR 2013
CAD FILE	4393-M-1.DWG	OF 10	



NON-POTABLE DE-IONIZED WATER  
NON-POTABLE COLD WATER

DETAIL 5 - TYPICAL CUP SINK AND LOCATION OF LAMICOID LABEL (SCALE: N.T.S.)



NON-POTABLE HOT & COLD WATER

DETAIL 6 - TYPICAL FIXTURE AND LAMICOID LABEL FOR MAIN LABS (SCALE: N.T.S.)



NON-POTABLE HOT & COLD WATER

DETAIL 7 - TYPICAL FIXTURE AND LAMICOID LABELS FOR PILOT PLANT (SEE M-8) (SCALE: N.T.S.)



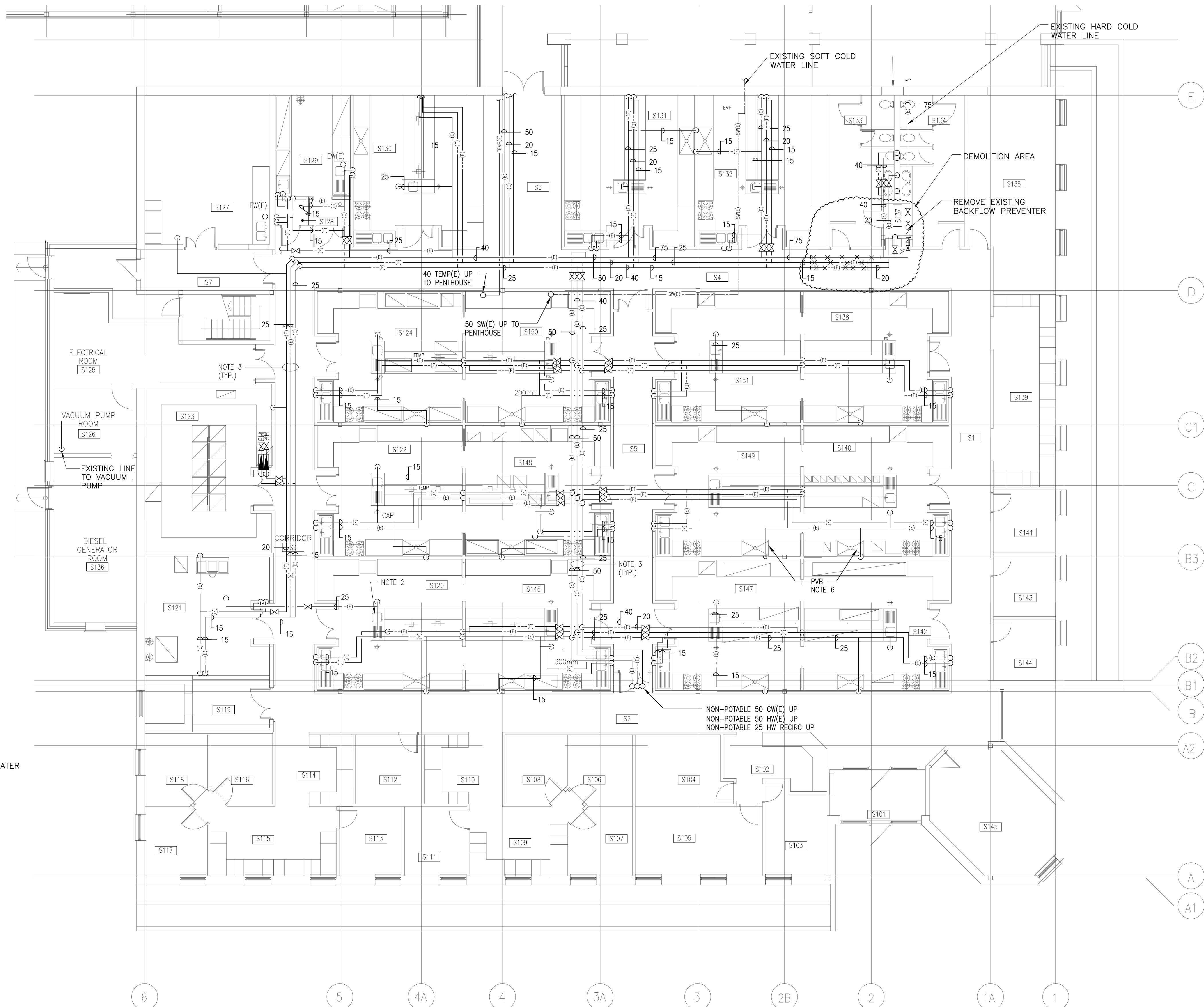
NON-POTABLE WATER DE-IONIZED  
NON-POTABLE SOFT COLD WATER  
POTABLE TEMPERED WATER

DETAIL 8 - TYPICAL FIXTURE AND LAMICOID LABELS FOR WEST WING (SEE M-8) (SCALE: N.T.S.)



POTABLE TEMPERED WATER  
NON-POTABLE WATER DE-IONIZED  
NON-POTABLE HOT & COLD WATER

DETAIL 9 - TYPICAL FIXTURE AND LOCATION OF LAMICOID LABELS FOR MAIN LABS (SCALE: N.T.S.)



FLOOR PLAN PLUMBING - DEMOLITION  
SCALE: 1:100

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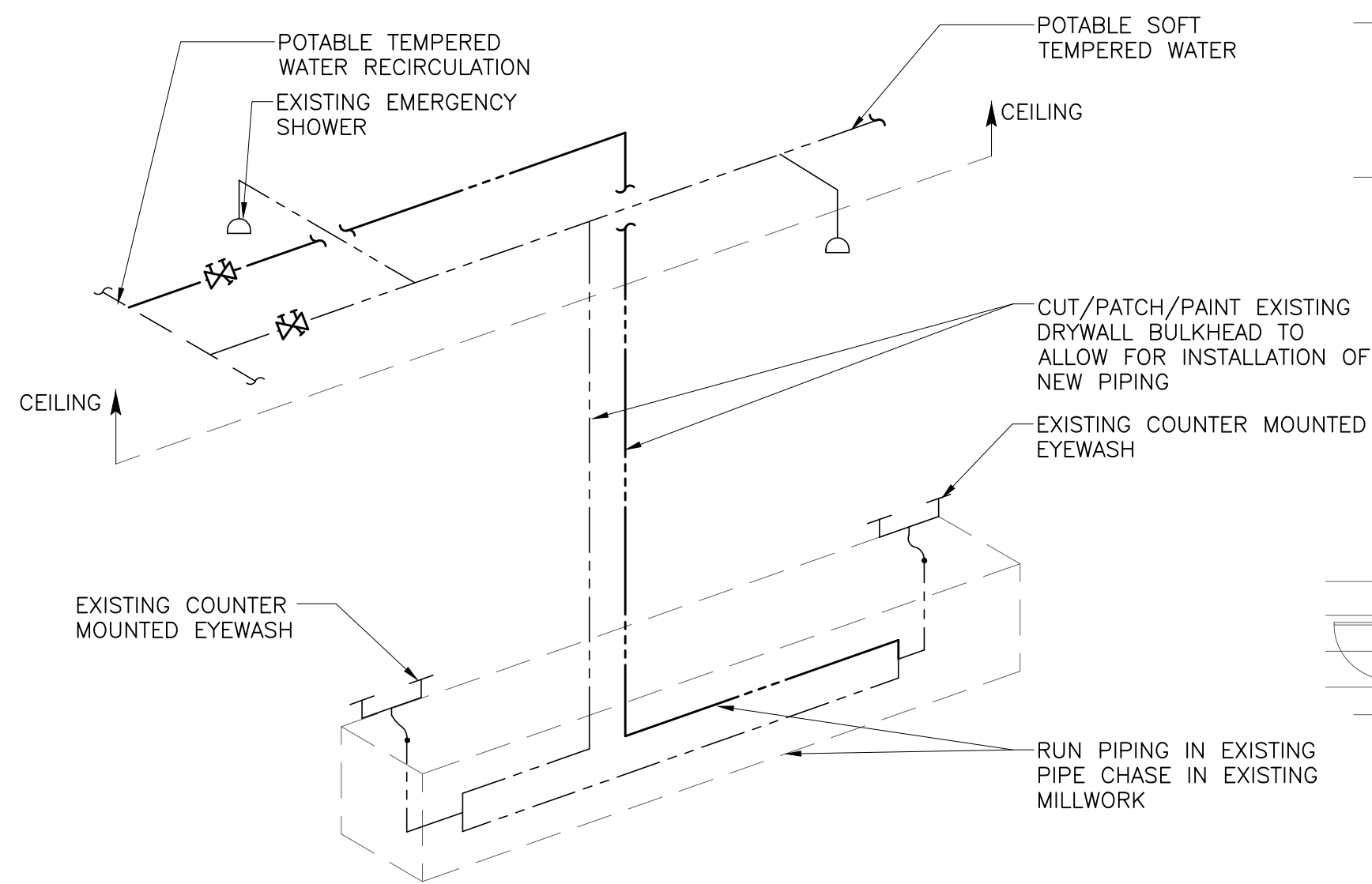
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FOOD RESEARCH CENTER

PROJECT  
TEMPERED WATER &  
CROSS CONNECTION CONTROL  
LOCATION  
93 STONE ROAD  
GUELPH, ONTARIO

MECHANICAL  
FLOOR PLAN PLUMBING-  
DEMOLITION  
DETAIL 5-9

SCALE AS SHOWN	JOB No. 4393
DRAWN BY H.J.	DRAWING NO. M-5
CHECKED BY W.K.	OF 10
DATE MAR 2013	
CAD FILE 4393-M-1.DWG	



**DETAIL 1: TYPICAL LAB POTABLE TEMPERED WATER PIPING SCHEMATIC**

ADJUST PIPING AS NECESSARY DEPENDING ON SUPPLY DIRECTION

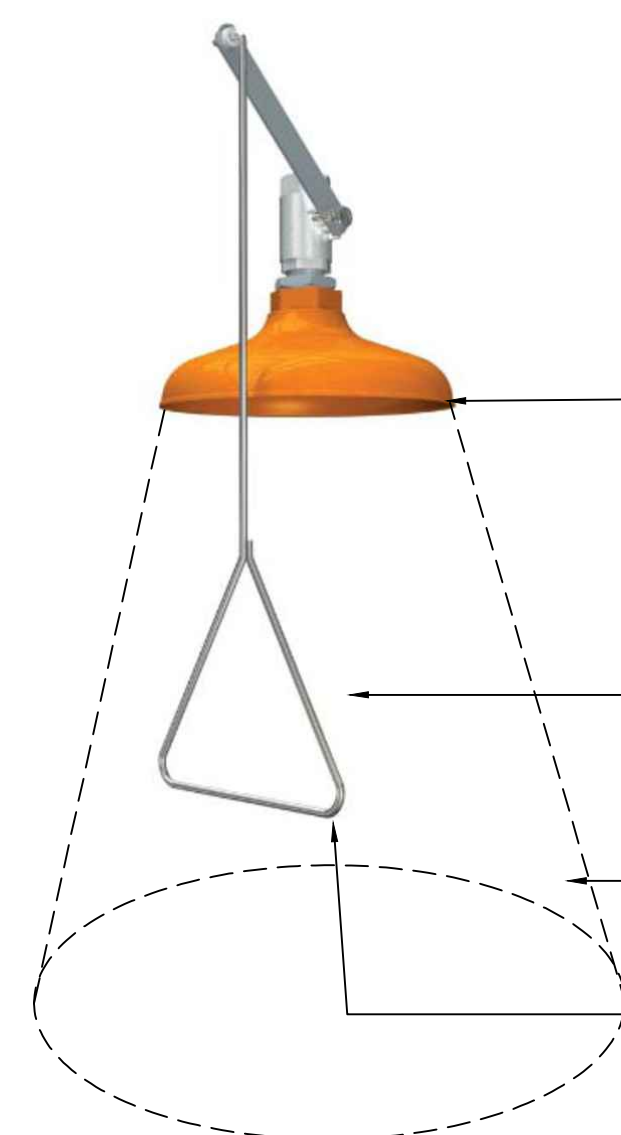
(SCALE: N.T.S)



OUTLETS SHALL BE BETWEEN 33"(83.8CM) AND 45"(114.3CM) FROM THE FLOOR AND AT LEAST 6"(15.3CM) FROM THE WALL OR NEAREST OBSTRUCTION.

**DETAIL 2 - TYPICAL EYEWASH/DRENCH HOSE REQUIREMENTS**

(SCALE: N.T.S)



HEIGHT OF WATER COLUMN SHALL BE BETWEEN 82"(208.3CM) AND 96"(243.8CM) ABOVE FLOOR.

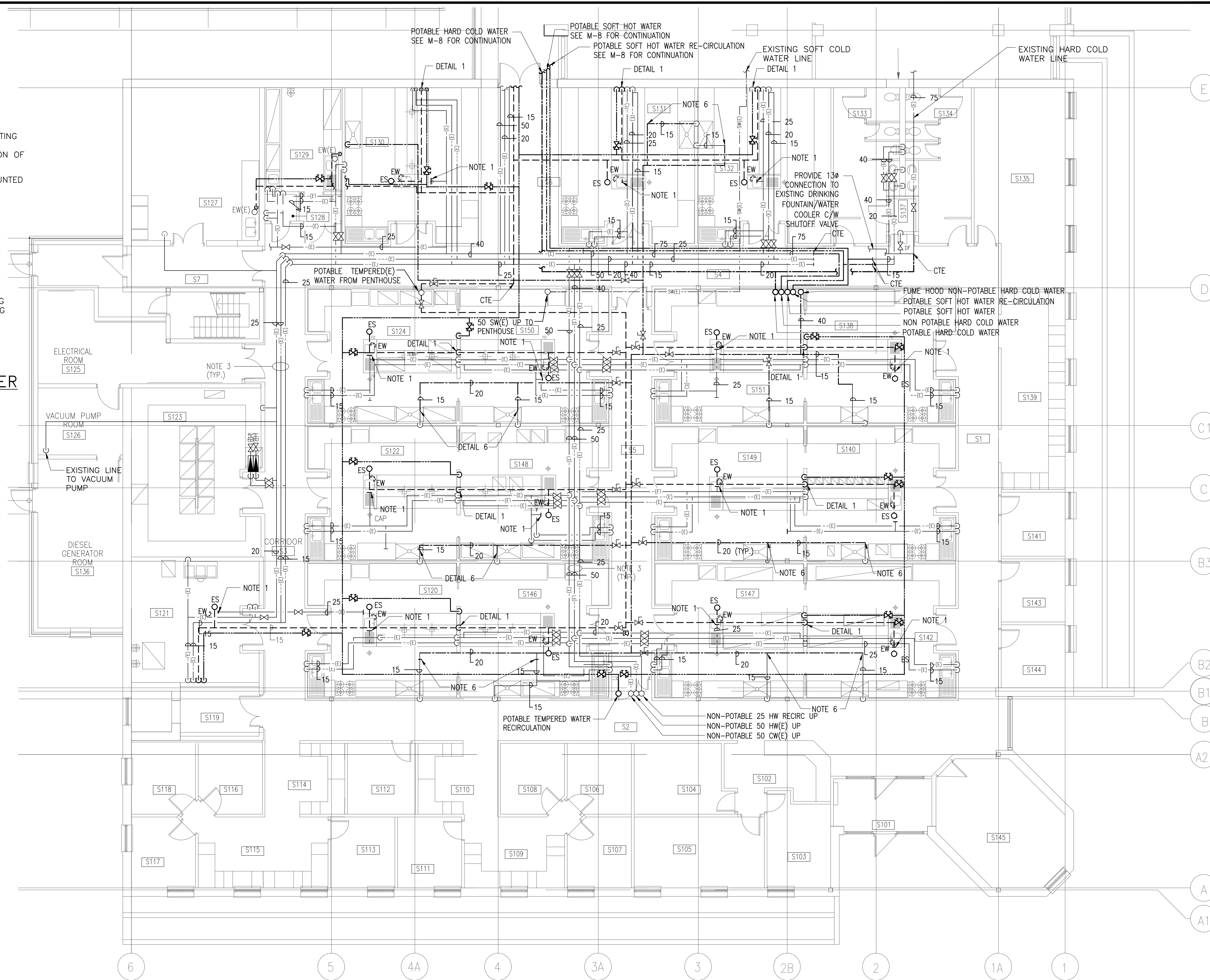
CENTER OF WATER PATTERN SHALL BE AT LEAST 16"(40.6CM) FROM ANY OBSTRUCTIONS.

AT 60"(152.4CM) ABOVE FLOOR, WATER PATTERN MUST BE AT LEAST 20"(50.8CM) IN DIAMETER.

ACTUATOR SHALL BE EASILY LOCATED, ACCESSIBLE, NO HIGHER THAN 69"(173.3CM) ABOVE FLOOR

**DETAIL 3 - TYPICAL EMERGENCY SHOWER REQUIREMENTS**

(SCALE: N.T.S)



**NOTES:**

- CONNECT POTABLE SOFT TEMPERED WATER TO EXISTING EMERGENCY SHOWER. CUT BACK AND CAP EXISTING COLD WATER SUPPLY TO WATER EMERGENCY SHOWER.
- LAB COUNTER MOUNTED EYEWASH/DRENCH HOSE, REMOVE EXISTING THERMOSTATIC MIXING VALVE UNDERNEATH COUNTER AND CONNECT NEW POTABLE TEMPERED WATER PIPE.
- ALL FIXTURES IN MAIN LAB, PILOT PLANT AND WEST WING SHALL BE LABELED WITH LAMICOID LABELS IDENTIFYING FIXTURE AS POTABLE OR NON-POTABLE WATER. TYPICAL LAMICOID LABEL SHALL BE 100mmX35mmX2.5mm THICKNESS. COLOR SHALL BE AS FOLLOWS:  
POTABLE WATER: GREEN  
NON-POTABLE WATER: PURPLE
- ALL PIPING IN MAIN LAB, PILOT PLANT AND WEST WING SHALL BE LABELED SHOWING:  
DIRECTION OF WATER FLOW  
POTABLE OR NON-POTABLE WATER  
TYPE - HOT/COLD/R.O./DE-IONIZED/TEMPERED
- PIPE LABELS SHALL BE :  
EVERY 4 FEET  
EVERY CHANGE IN DIRECTION  
EVERY OUTLET  
EVERY DROP
- CUT BACK AND CAP EXISTING COLD WATER SUPPLY TO FUME HOOD. CONNECT NON POTABLE SOFT COLD WATER SUPPLY TO FUME HOOD.
- ALL SHUTOFF VALVES FOR EMERGENCY EYE/FACEWASH AND EMERGENCY SHOWERS SHALL BE REPLACED WITH APPROVED VALVES FROM THE SAME EMERGENCY FIXTURE MANUFACTURER.
- CONTRACTOR SHALL ENSURE THERE ARE NO LONG RUNS OF DEAD END PIPE.

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REVISIONS PLOT SCALE: 1=1

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NORTH	STAMP
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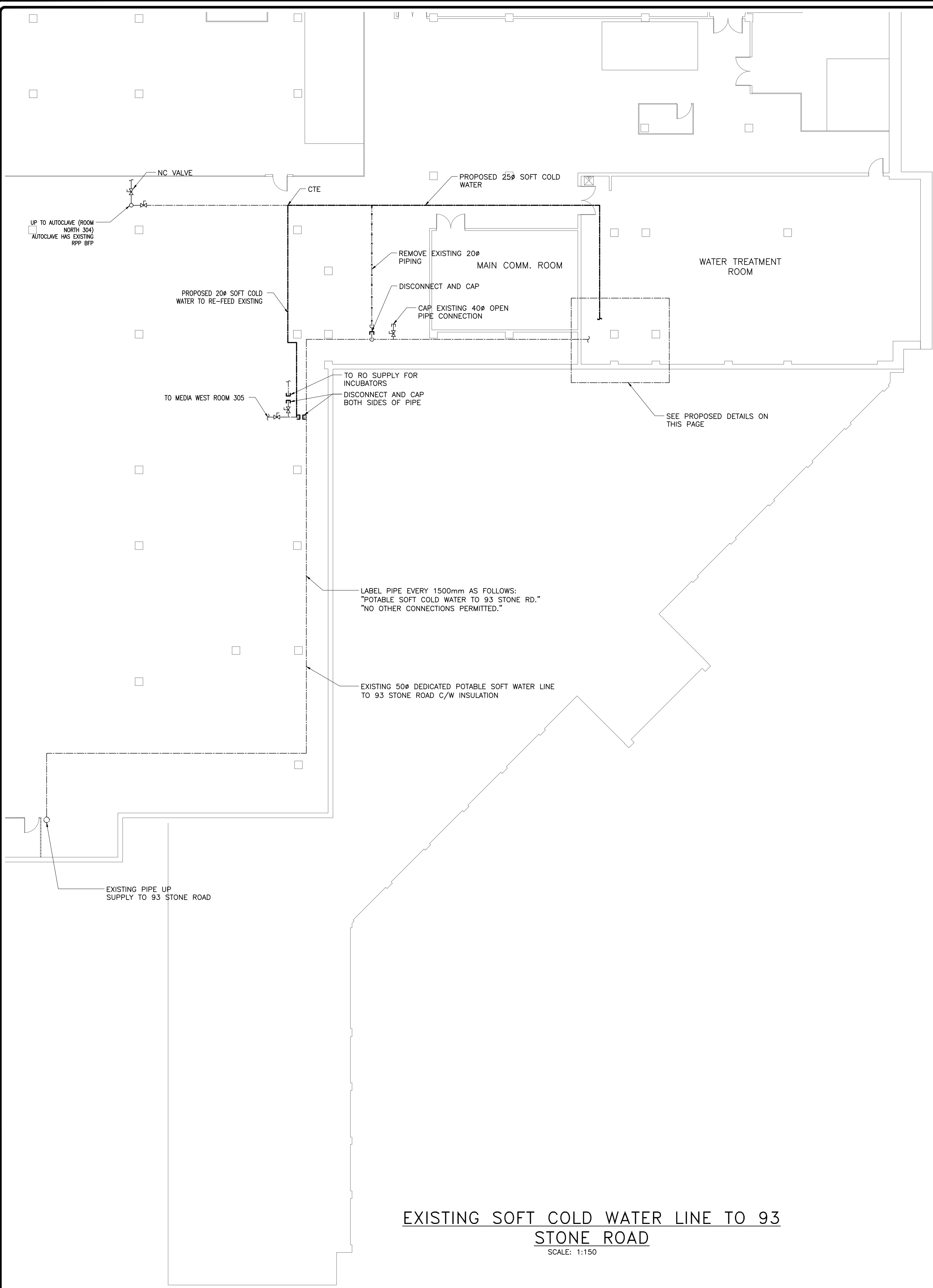
**Moon-Matz Ltd.**  
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**FOOD RESEARCH CENTER**

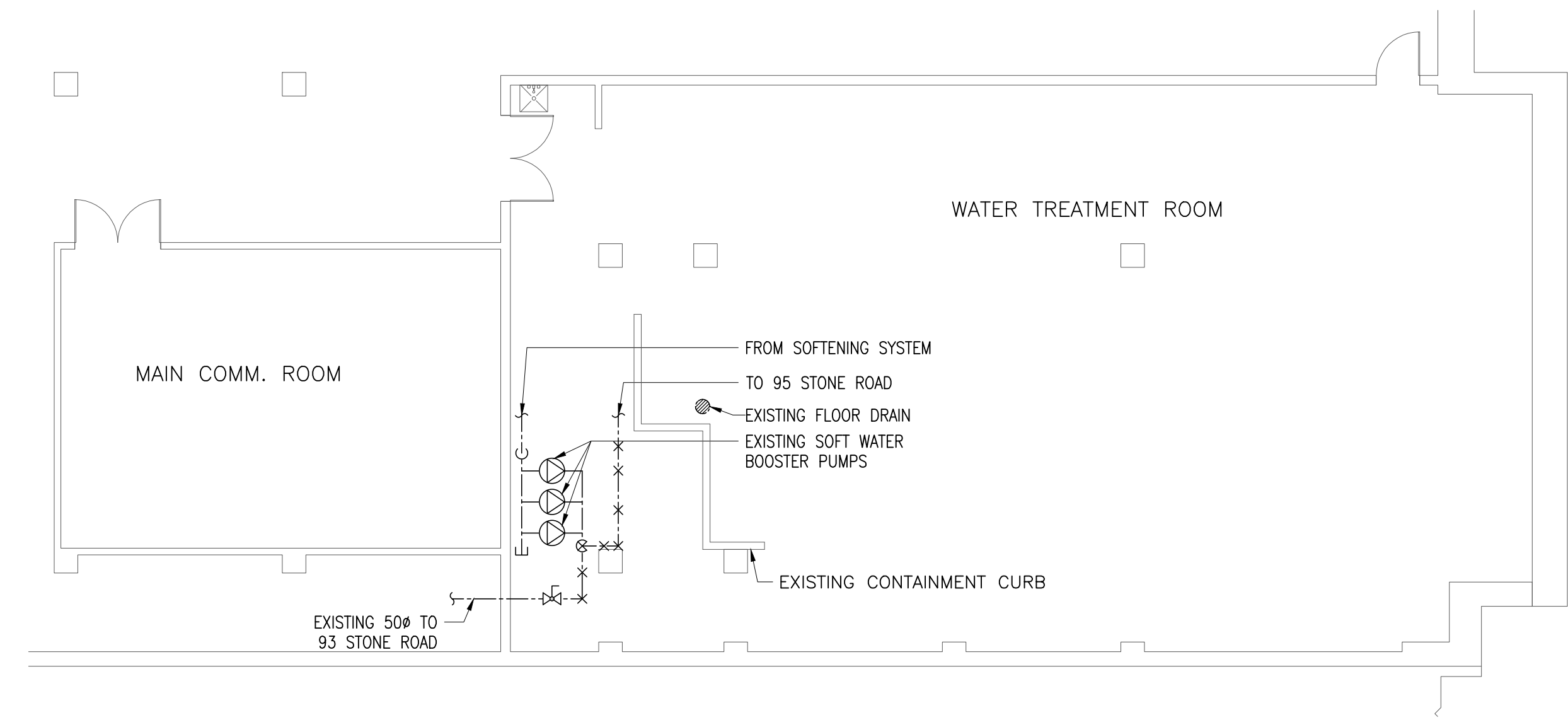
PROJECT  
**TEMPERED WATER & CROSS CONNECTION CONTROL**  
LOCATION  
93 STONE ROAD  
GUELPH, ONTARIO

**MECHANICAL FLOOR PLAN PLUMBING-PROPOSED DETAIL 1-3**

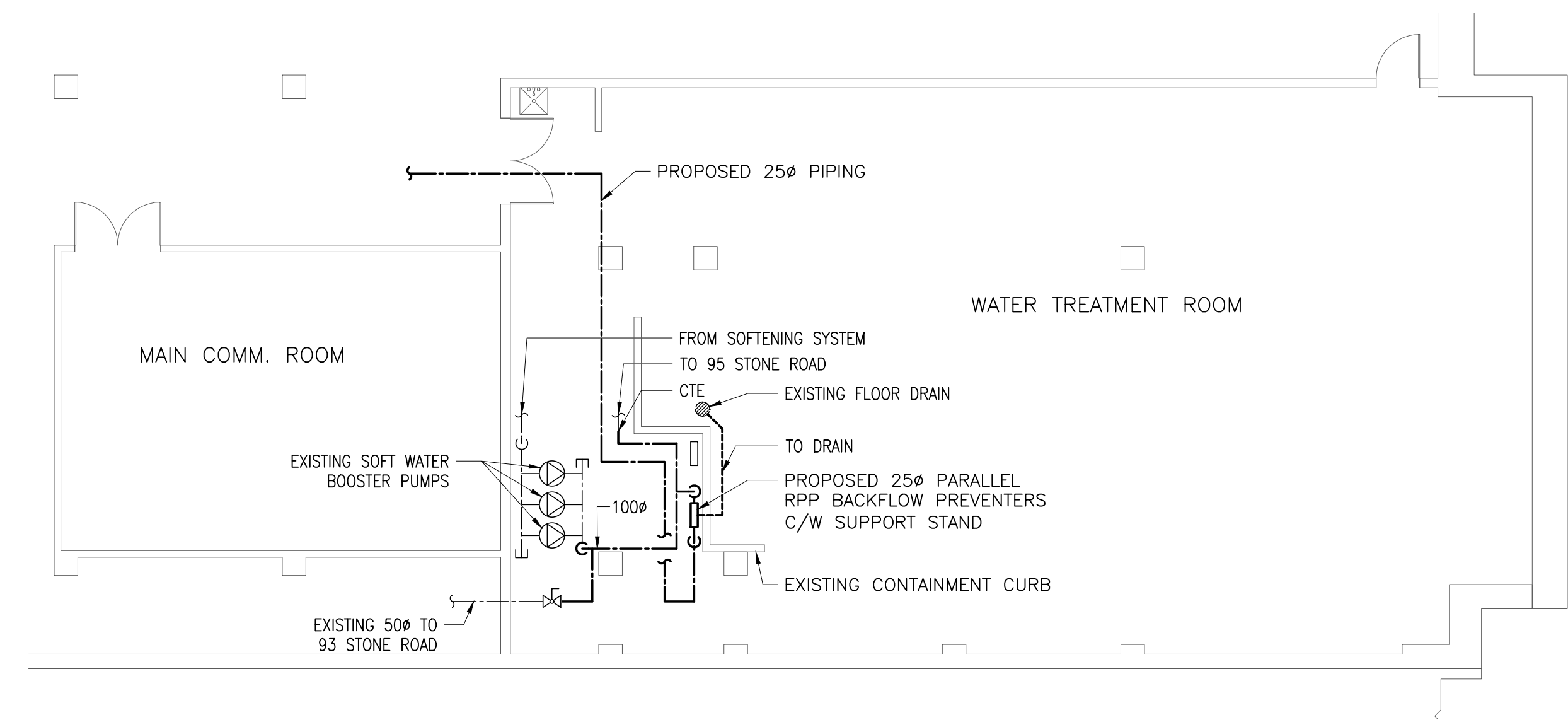
SCALE AS SHOWN	JOB No. 4393
DRAWN BY H.J	DRAWING NO. M-6
CHECKED BY W.K	OF 10
DATE MAR 2013	
CAD FILE 4393-M-1.DWG	



**EXISTING SOFT COLD WATER LINE TO 93 STONE ROAD**  
SCALE: 1:150



**95 STONE ROAD WATER TREATMENT ROOM – DEMOLITION**  
SCALE: 1:100



**95 STONE ROAD WATER TREATMENT ROOM – PROPOSED**  
SCALE: 1:100

No.	Date	Description
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NORTH	STAMP
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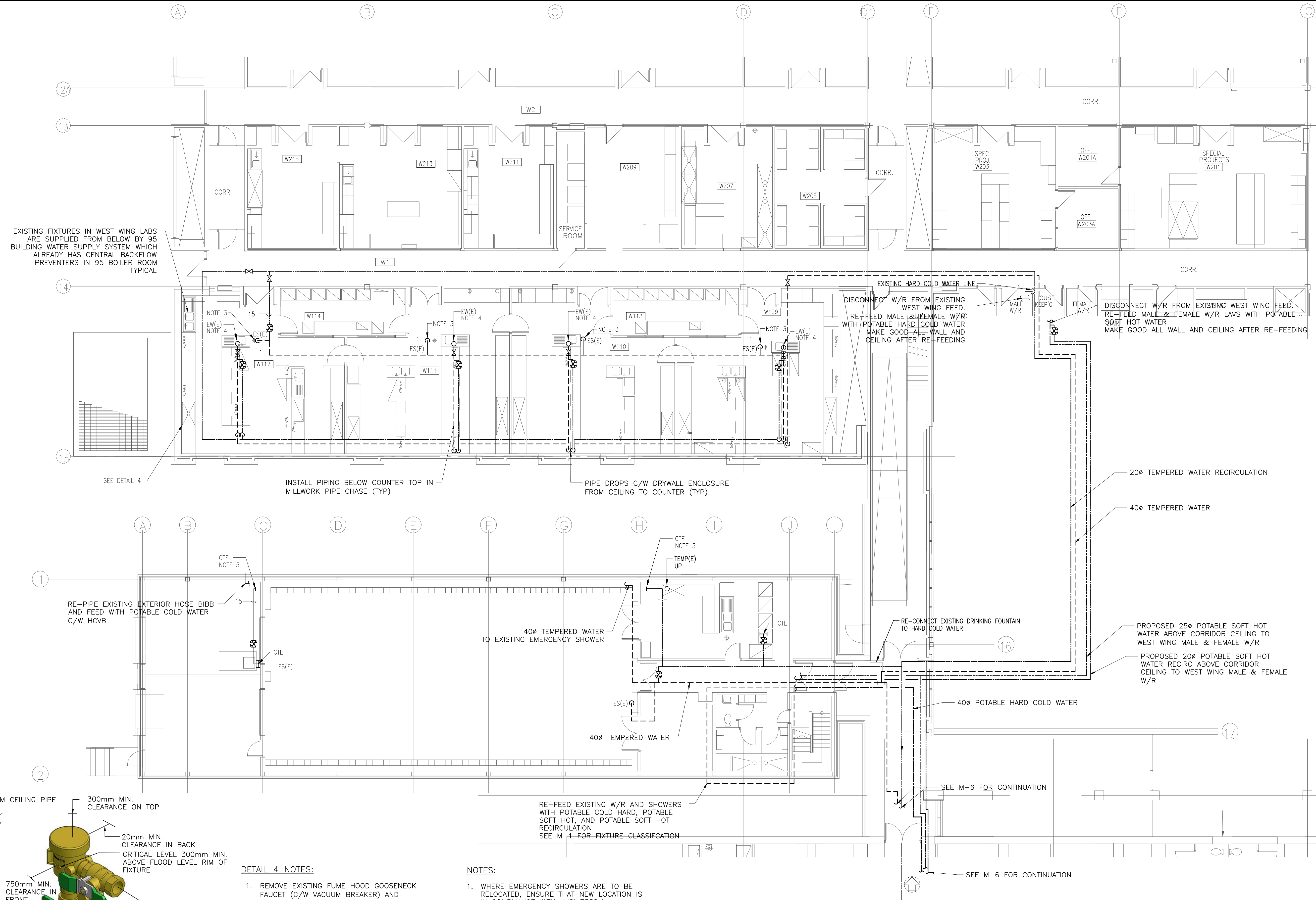
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**FOOD RESEARCH CENTER**

PROJECT  
**TEMPERED WATER & CROSS CONNECTION CONTROL**  
LOCATION  
95 STONE ROAD  
GUELPH, ONTARIO

**MECHANICAL  
SOFT WATER LINE  
MODIFICATIONS**

SCALE	AS SHOWN	JOB No.	4393
DRAWN BY	H.J.	DRAWING NO.	M-7
CHECKED BY	W.K.	DATE	MAR 2013
CAD FILE	4393-M-1.DWG		OF 10



EXISTING FIXTURES IN WEST WING LABS ARE SUPPLIED FROM BELOW BY 95 BUILDING WATER SUPPLY SYSTEM WHICH ALREADY HAS CENTRAL BACKFLOW PREVENTERS IN 95 BOILER ROOM TYPICAL

SEE DETAIL 4

INSTALL PIPING BELOW COUNTER TOP IN MILLWORK PIPE CHASE (TYP)

PIPE DROPS C/W DRYWALL ENCLOSURE FROM CEILING TO COUNTER (TYP)

EXISTING HARD COLD WATER LINE  
DISCONNECT W/R FROM EXISTING WEST WING FEED. RE-FEED MALE & FEMALE W/R WITH POTABLE HARD COLD WATER MAKE GOOD ALL WALL AND CEILING AFTER RE-FEEDING

DISCONNECT W/R FROM EXISTING WEST WING FEED. RE-FEED MALE & FEMALE W/R LAVS WITH POTABLE SOFT HOT WATER MAKE GOOD ALL WALL AND CEILING AFTER RE-FEEDING

RE-PIPE EXISTING EXTERIOR HOSE BIBB AND FEED WITH POTABLE COLD WATER C/W HCVB

40# TEMPERED WATER TO EXISTING EMERGENCY SHOWER

RE-CONNECT EXISTING DRINKING FOUNTAIN TO HARD COLD WATER

PROPOSED 25# POTABLE SOFT HOT WATER ABOVE CORRIDOR CEILING TO WEST WING MALE & FEMALE W/R

PROPOSED 20# POTABLE SOFT HOT WATER RECIRC ABOVE CORRIDOR CEILING TO WEST WING MALE & FEMALE W/R

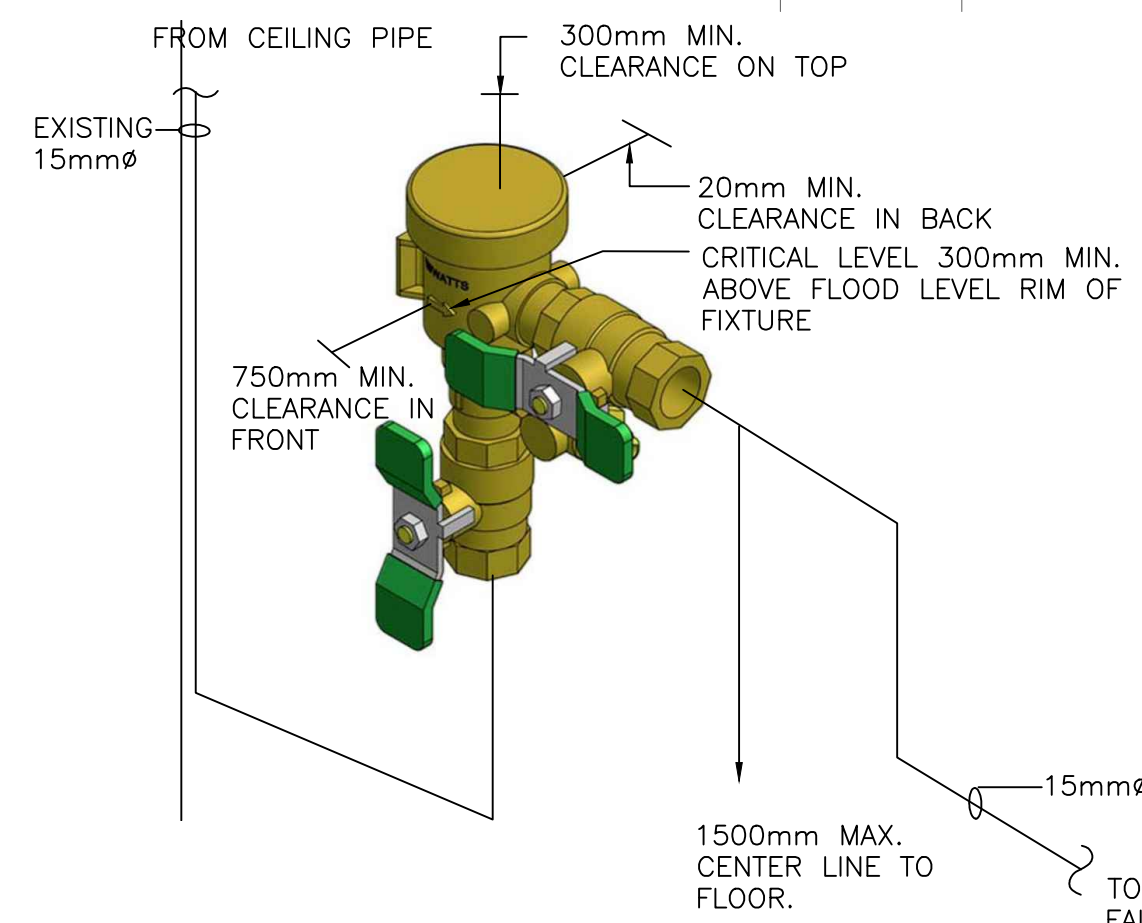
40# POTABLE HARD COLD WATER

40# TEMPERED WATER

RE-FEED EXISTING W/R AND SHOWERS WITH POTABLE COLD HARD, POTABLE SOFT HOT, AND POTABLE SOFT HOT RECIRCULATION SEE M-1 FOR FIXTURE CLASSIFICATION

SEE M-6 FOR CONTINUATION

SEE M-6 FOR CONTINUATION



DETAIL 4 - TYPICAL FUME HOOD FAUCET SRPVB DETAIL (SCALE: N.T.S)

DETAIL 4 NOTES:

1. REMOVE EXISTING FUME HOOD GOOSENECK FAUCET (C/W VACUUM BREAKER) AND REPLACE WITH NEW GOOSENECK FAUCET (NO VACUUM BREAKER).
2. INSULATE ALL NEW PIPING WITH 15mm INSULATION.
3. PROVIDE NEW SPILL RESISTANT PRESSURE VACUUM BREAKER (SRPVB) BACKFLOW PREVENTER BESIDE FUME HOOD. RE-PIPE TO CONNECT SRPVB TO FUME HOOD FAUCET SUPPLY PIPE. USE LEFT HAND OR RIGHT HAND SRPVB AS NECESSARY TO ACCOMMODATE SITE CONDITIONS.

NOTES:

1. WHERE EMERGENCY SHOWERS ARE TO BE RELOCATED, ENSURE THAT NEW LOCATION IS IN COMPLIANCE WITH ANSI Z358.1.
2. TEMPERED WATER & RECIRC DN TO SERVE EXISTING EYEWASH STATION. DISCONNECT & CAP EXISTING COLD WATER SERVING EYE WASH.
3. CUT BACK & CAP EXISTING 25 CW SERVING EXISTING EMERGENCY SHOWER. CONNECT NEW 25 TEMPERED WATER.
4. CONNECT NEW TEMPERED WATER LINE TO EXISTING EYEWASH STATION. REMOVE EXISTING MIXING VALVE & REDUNDANT PIPING.
5. CONNECT TO EXISTING 15mm TEMPERED WATER RECIRC PIPE, INSTALLED DURING PREVIOUS PILOT PLANT PROJECT.

PART FLOOR PLAN PILOT PLANT & WEST LABS - PLUMBING  
SCALE: 1:100

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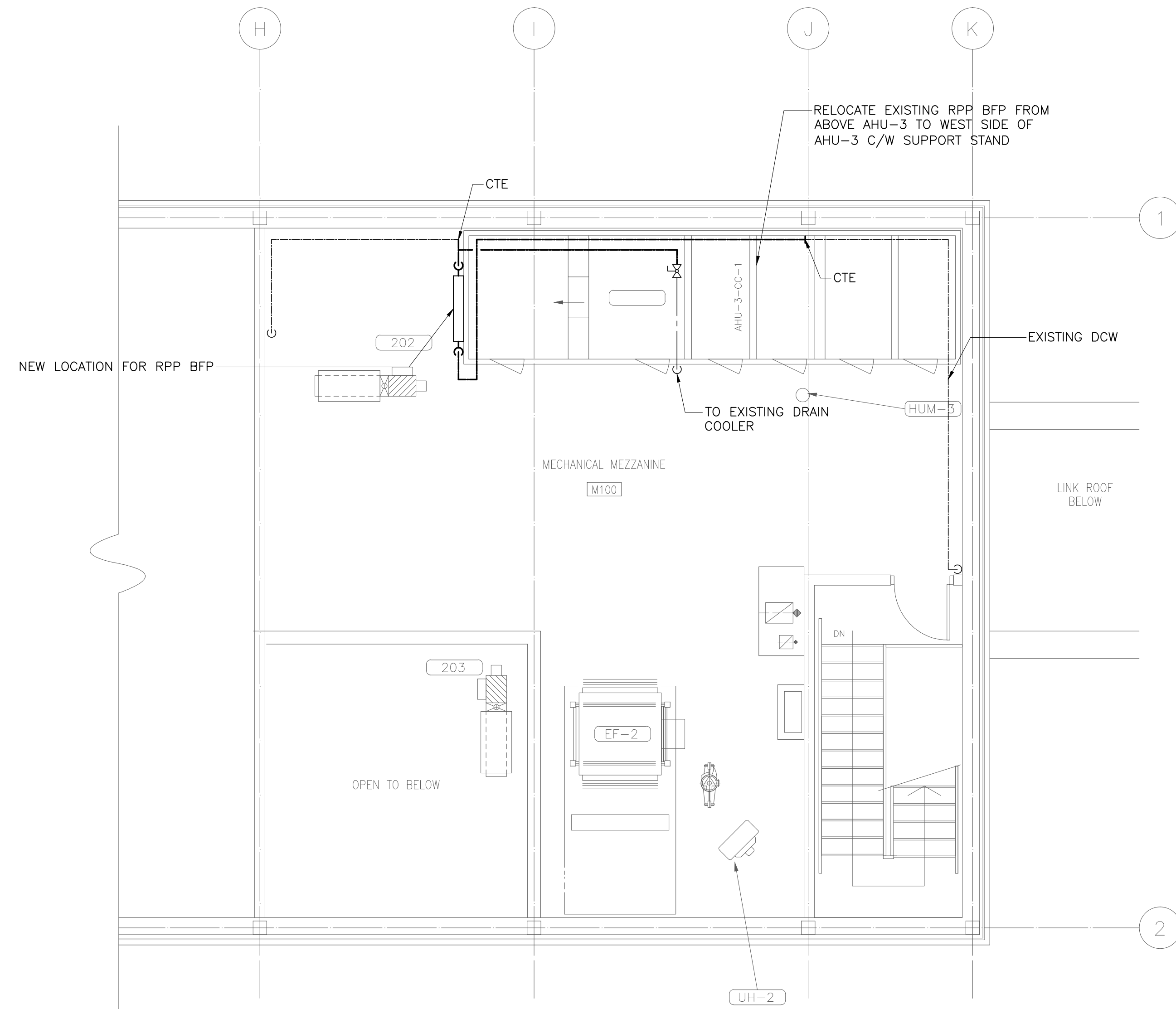
FOOD RESEARCH CENTER

PROJECT  
TEMPERED WATER & CROSS CONNECTION CONTROL  
LOCATION  
95 STONE ROAD  
GUELPH, ONTARIO

MECHANICAL  
WEST WING & PILOT PLANT  
PROPOSED  
DETAIL 4

SCALE AS SHOWN	JOB No. 4393
DRAWN BY H.J	DRAWING NO. M-8
CHECKED BY W.K	OF 10
DATE MAR 2013	
CAD FILE 4393-M-1.DWG	





**PART FLOOR PLAN PILOT PLANT PH - PLUMBING**  
SCALE: 1:100

**LEGEND:**

- REMOVE EXISTING PIPEWORK/ DUCTWORK/ EQUIPMENT
- NEW PIPEWORK/ DUCTWORK/ EQUIPMENT
- EXISTING PIPEWORK/ DUCTWORK/ EQUIPMENT
- FUME HOOD NON POTABLE HARD COLD WATER
- NON. POTABLE HARD COLD WATER
- POTABLE HARD COLD WATER
- POTABLE TEMPERED WATER
- POTABLE SOFT HOT WATER RECIRCULATION
- POTABLE SOFT HOT WATER
- EXISTING SOFT COLD WATER
- EXISTING PIPEWORK
- SANITARY BELOW GRADE
- CONNECT TO EXISTING
- COLD WATER
- HOT WATER
- DOMESTIC HOT WATER TANK
- EYE WASH
- EMERGENCY SHOWER
- FLOW CONTROL VALVE
- HOSE BIB
- NORMALLY CLOSED
- FLOOR DRAIN
- PUMP
- BALANCING VALVE
- CHECK VALVE
- BALL VALVE
- VALVE
- THERMOMETER
- PIPE GUIDE
- WATER METER
- MECHANICAL DEVICES AS NOTED
- RPP BACKFLOW PREVENTER

EQUIPMENT ELECTRICAL SCHEDULE												
EQUIPMENT SUPPLIED AND INSTALLED BY OTHERS WIRED BY DIV. 26						CONTROL EQUIPMENT SUPPLIED AND INSTALLED BY DIV. 26	FEED FROM	BREAKER SIZE	POLES	CONDUCTOR SIZE	CONDUIT SIZE	
ITEM	DESCRIPTION	LOCATION	HP	MCA	PHASE	VOLTS	STARTER/CONTROL TYPE				REMARKS/NOTES	
WH-01	DOMESTIC WATER HEATER	PH MECHANICAL ROOM	FHP		1	120	HARD WIRED C/W LOCAL DISCONNECT	RD-SUB2	15	1 2 #12	21mm	NOTE 4
DHWR-2	POTABLE WATER RECIRC PUMP	PH MECHANICAL ROOM	FHP		1	120	MAN, PL	RD-SUB2	15	1 2 #12	21mm	NOTE 4
DHWR-3	TEMPERED WATER RECIRC PUMP	PH MECHANICAL ROOM	FHP		1	120	MAN, PL	RD-SUB2	15	1 2 #12	21mm	NOTE 4

NOTES:  
 1. DIVISION 26 TO OBTAIN COPIES OF MECHANICAL EQUIPMENT SHOP DRAWINGS AND COORDINATE ELECTRICAL SERVICES.  
 2. PROVIDE LOCAL NON-FUSED DISCONNECT SWITCHES AT MOTORS IN ACCORDANCE WITH SECTION 28-604 OF THE ONTARIO ELECTRICAL SAFETY CODE.  
 3. UNLESS INDICATED OTHERWISE ALL CONTROL WIRING IS BY DIVISION 23.  
 4. PROVIDE 15A 1P BREAKERS TO SUIT EXISTING SQUARE D PANEL.

MOTOR CONTROL ABBREVIATIONS			
FHP	FRACTIONAL HORSE POWER	MCC	MOTOR CONTROL CENTRE
MAN	MANUAL STARTER	PL	PILOT LIGHT
MCA	MINIMUM CIRCUIT AMPACITY	REC	RECEPTACLE

PUMP SCHEDULE (P)													
GENERAL DATA			MEDIA		PUMP			POWER SUPPLY			MAKE	MODEL	REMARKS
EQUIP. NO.	LOCATION	SERVICE	FLUID	TEMP. °C (*F)	FLOW L/S (GPM)	HEAD KPa (FT)	DESIGN PRESSURE KPa (psi)	VOLTS	PHASE	POWER KW (HP)			
DHWR-2	PH MECH.	DHWR POTABLE	HW	60 (140)	0.13 (2)	60 (20)	1,034 (150)	115	1	0.09 (1/8)	-	-	CONTINUOUS OPERATION
DHWR-3	PH MECH. ROOM	DHWR TEMPERED	HW	18 (65)	0.44 (7)	63 (21)	1,034 (150)	115	1	0.09 (1/8)	-	-	CONTINUOUS OPERATION

NOTES: 1. PUMP SHALL BE SUITABLE FOR DOMESTIC HOT WATER CIRCULATION.  
 2. PUMP SHALL BE C/W ADJUSTABLE TIMER.

DOMESTIC WATER HEATER SCHEDULE (WH)																	
GENERAL DATA			FUEL		WATER SIDE					ELECTRICAL			MAKE	MODEL	REMARKS		
EQUIP. NO.	LOCATION	SERVICE	TYPE	INPUT KW (MBH)	OUTPUT KW (MBH)	FLOW L/H (GPH)	TEMP. RISE °C (*F)	STORAGE CAP. LITERS GALLONS	RECOVERY RATE L/H (GPH)	GAS PRESSURE (in.wc)	NUMBER OF ELEMENTS	MCA AMPS	POWER VOLTS	PHASE 60HZ			
WH-01	MAIN PH	POTABLE WATER	NG	58 (199.9)	55 (189.9)	-	50 (90)	379 (100)	968 (256)	10.5	-	-	120V	1ø/60Hz	-	-	-

NOTES: 1. -

EXPANSION TANK SCHEDULE														
GENERAL DATA			SIZE						CONSTRUCTION			MAKE	MODEL	REMARKS
EQUIP. NO.	LOCATION	SERVICE	CAPACITY LITER (GALLON)	ACCEPTANCE VOLUME LITER (GALLON)	DIA. mm (IN)	LENGTH mm (IN)	WIDTH mm (IN)	HEIGHT mm (IN)	CONNECTION SIZE mm (IN)	DESIGN PRESSURE KPa (psi)	SHIPPING WEIGHT KG (LBS)			
ET-1	MAIN PH	NON-POTABLE DHW HEATER	30 (8)	12 (3.2)	300 (12)	-	-	480 (19)	20 (3/4)	1034 (150)	19 (41)	-	-	-
ET-2	MAIN PH	POTABLE DHW HEATER	30 (8)	12 (3.2)	300 (12)	-	-	480 (19)	20 (3/4)	1034 (150)	19 (41)	-	-	-

NOTES: 1. -

No.	Date	Description
5	12/09/13	REDUCED SCOPE-ISSUED FOR TENDER
4	04/07/13	100% ISSUED FOR REVIEW
3	03/06/13	99% ISSUED FOR REVIEW
2	24/04/13	50% ISSUED FOR REVIEW
1	26/03/13	ISSUED FOR REVIEW

No. Date Description  
 REVISIONS PLOT SCALE: 1=1

CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND CHECK ALL JOB CONDITIONS ON THE SITE BEFORE PROCEEDING WITH THE WORK.

NORTH STAMP

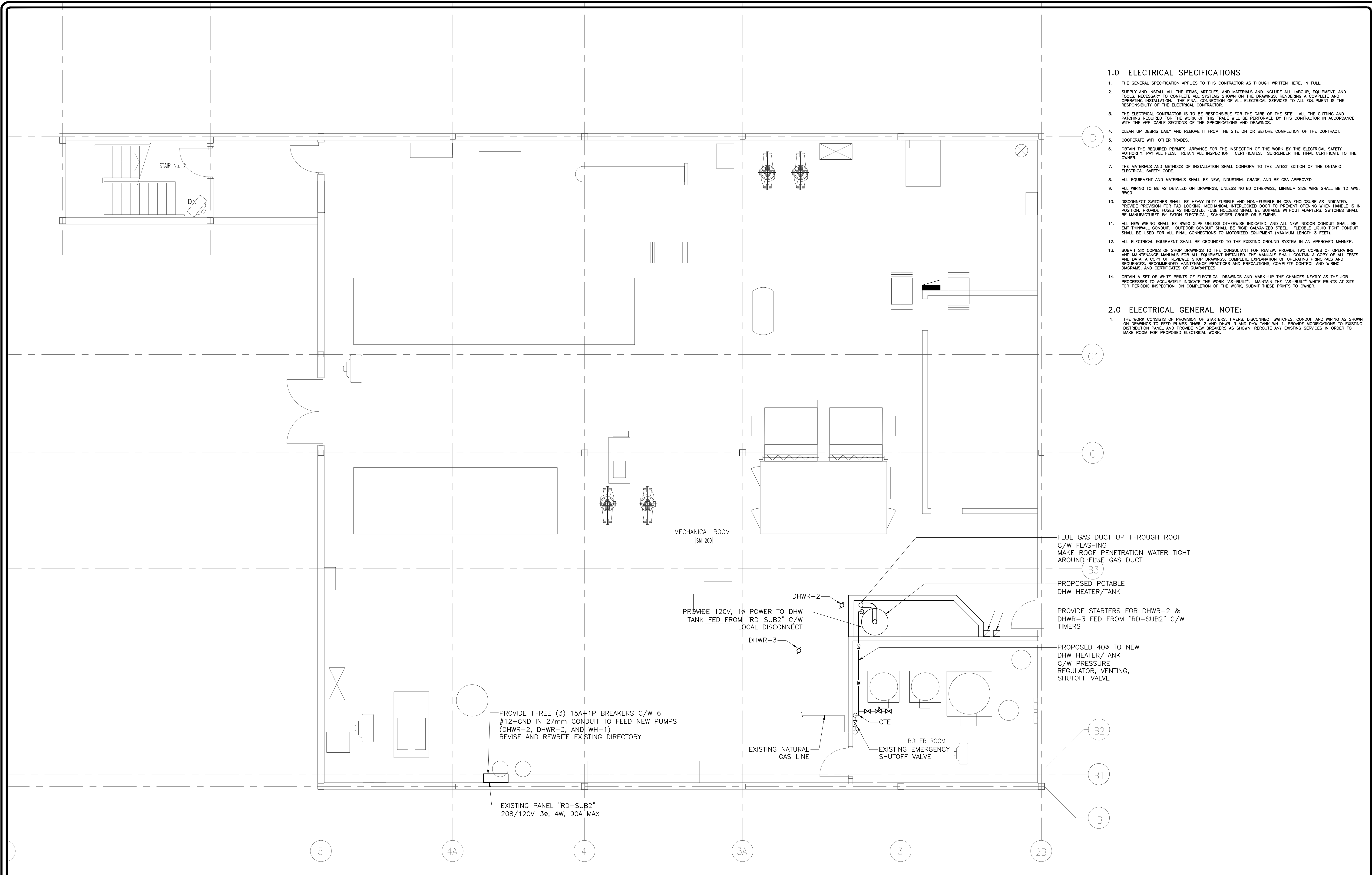
**Moon-Matz Ltd.**  
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FOOD RESEARCH CENTER

PROJECT  
 TEMPERED WATER & CROSS CONNECTION CONTROL  
 LOCATION  
 95 STONE ROAD  
 GUELPH, ONTARIO

MECHANICAL  
 FLOOR PLAN PLUMBING-  
 PROPOSED  
 DETAIL 1-4

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**PENTHOUSE PLAN – MECHANICAL/ELECTRICAL PROPOSED NATURAL GAS & POWER**  
 SCALE: 1:50

**1.0 ELECTRICAL SPECIFICATIONS**

1. THE GENERAL SPECIFICATION APPLIES TO THIS CONTRACTOR AS THOUGH WRITTEN HERE, IN FULL.
2. SUPPLY AND INSTALL ALL THE ITEMS, ARTICLES, AND MATERIALS AND INCLUDE ALL LABOUR, EQUIPMENT, AND TOOLS NECESSARY TO COMPLETE ALL SYSTEMS SHOWN ON THE DRAWINGS, RENDERING A COMPLETE AND OPERATING INSTALLATION. THE FINAL CONNECTION OF ALL ELECTRICAL SERVICES TO ALL EQUIPMENT IS THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR.
3. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE CARE OF THE SITE. ALL THE CUTTING AND PATCHING REQUIRED FOR THE WORK OF THIS TRADE WILL BE PERFORMED BY THE CONTRACTOR IN ACCORDANCE WITH THE APPLICABLE SECTIONS OF THE SPECIFICATIONS AND DRAWINGS.
4. CLEAN UP DEBRIS DAILY AND REMOVE IT FROM THE SITE ON OR BEFORE COMPLETION OF THE CONTRACT.
5. COOPERATE WITH OTHER TRADES.
6. OBTAIN THE REQUIRED PERMITS, ARRANGE FOR THE INSPECTION OF THE WORK BY THE ELECTRICAL SAFETY AUTHORITY, PAY ALL FEES, RETAIN ALL INSPECTION CERTIFICATES, SURRENDER THE FINAL CERTIFICATE TO THE OWNER.
7. THE MATERIALS AND METHODS OF INSTALLATION SHALL CONFORM TO THE LATEST EDITION OF THE ONTARIO ELECTRICAL SAFETY CODE.
8. ALL EQUIPMENT AND MATERIALS SHALL BE NEW, INDUSTRIAL GRADE, AND BE CSA APPROVED.
9. ALL WIRING TO BE AS DETAILED ON DRAWINGS, UNLESS NOTED OTHERWISE, MINIMUM SIZE WIRE SHALL BE 12 AWG. RW90.
10. DISCONNECT SWITCHES SHALL BE HEAVY DUTY FUSIBLE AND NON-FUSIBLE IN CSA ENCLOSURE AS INDICATED. PROVIDE PROVISION FOR PAD LOCKING, MECHANICAL INTERLOCKED DOOR TO PREVENT OPENING WHEN HANDLE IS IN POSITION. PROVIDE FUSES AS INDICATED, FUSE HOLDERS SHALL BE SUITABLE WITHOUT ADAPTERS. SWITCHES SHALL BE MANUFACTURED BY EATON ELECTRICAL, SCHNEIDER GROUP OR SIEMENS.
11. ALL NEW WIRING SHALL BE RW90 ALXPE UNLESS OTHERWISE INDICATED, AND ALL NEW INDOOR CONDUIT SHALL BE EXIT THRUWALL CONDUIT, OUTDOOR CONDUIT SHALL BE RIGID GALVANIZED STEEL. FLEXIBLE LIQUID TIGHT CONDUIT SHALL BE USED FOR ALL FINAL CONNECTIONS TO MOTORIZED EQUIPMENT (MAXIMUM LENGTH 3 FEET).
12. ALL ELECTRICAL EQUIPMENT SHALL BE GROUNDED TO THE EXISTING GROUND SYSTEM IN AN APPROVED MANNER.
13. SUBMIT SIX COPIES OF SHOP DRAWINGS TO THE CONSULTANT FOR REVIEW. PROVIDE TWO COPIES OF OPERATING AND MAINTENANCE MANUALS FOR ALL EQUIPMENT INSTALLED. THE MANUALS SHALL CONTAIN A COPY OF ALL TESTS AND DATA, A COPY OF REVISED SHOP DRAWINGS, COMPLETE EXPLANATION OF OPERATING PRINCIPALS AND SCHEMATIC, RECOMMENDED MAINTENANCE PRACTICES AND PRECAUTIONS, COMPLETE CONTROL AND WIRING DIAGRAMS, AND CERTIFICATES OF GUARANTEES.
14. OBTAIN A SET OF WHITE PRINTS OF ELECTRICAL DRAWINGS AND MARK-UP THE CHANGES NEATLY AS THE JOB PROGRESSES TO ACCURATELY INDICATE THE WORK "AS-BUILT". MAINTAIN THE "AS-BUILT" WHITE PRINTS AT SITE FOR PERIODIC INSPECTION. ON COMPLETION OF THE WORK, SUBMIT THESE PRINTS TO OWNER.

**2.0 ELECTRICAL GENERAL NOTE:**

1. THE WORK CONSISTS OF PROVISION OF STARTERS, TIMERS, DISCONNECT SWITCHES, CONDUIT AND WIRING AS SHOWN ON DRAWINGS TO FEED PUMPS DHWR-2 AND DHWR-3 AND DHW TANK WH-1. PROVIDE MODIFICATIONS TO EXISTING DISTRIBUTION PANEL, AND PROVIDE NEW BREAKERS AS SHOWN. REROUTE ANY EXISTING SERVICES IN ORDER TO MAKE ROOM FOR PROPOSED ELECTRICAL WORK.

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**MECHANICAL/ELECTRICAL  
 PENTHOUSE PROPOSED  
 NATURAL GAS/ELECTRICAL**

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