

Norway House Hospital

ABBREVIATIONS:

ABOVE FINISH FLOOR	.....A.F.F.
ACOUSTIC CEILING TILE	.....ACT.
ALUMINUM	.....ALUM.
ANODIZED	.....ANOD.
ARCHITECTURAL	.....ARCH.
BASE BUILDING	.....B.B.
BATT INSULATION	.....BATT INSUL.
BEAM	.....BM.
BOTH WAYS	.....B.W.
BOTTOM	.....BOT.
BUILDING	.....BLDG.
CARPET	.....CPT.
CEILING	.....CLG.
CENTRE LINE	.....CL.
CERAMIC WALL TILE	.....C.W.T.
COLUMN	.....COL.
COMPLETE WITH CONCRETE	.....C/W CONC.
CONCRETE BLOCK	.....CONC. BLK.
CONTINUOUS	.....CONT.
CORNER GUARD	.....CG
CORRIDOR	.....CORR.
DIMENSION	.....DIM.
DIAMETER	.....DIA.
DOUBLE GLAZING	.....D.G.
DOWN	.....DN.
DRAWING	.....DWG.
EACH	.....EA.
ELEVATION	.....EL.
ELECTRICAL	.....ELECT.
EQUAL	.....EQ.
EXISTING	.....EXIST.
EXTERIOR	.....EXT.
FACE OF FINISH	.....F.O. FIN.
FIRE RATED	.....F.R.
FIRE RESISTANCE RATING	.....F.R.R.
FLOOR	.....FL.
FLOOR DRAIN	.....F.D.
FIRE HOSE CABINET	.....F.H.C.
FIRE EXTINGUISHER	.....F.E.
FIRE EXTINGUISHER CABINET	.....F.E.C.
FULL SIZE	.....F.S.
GAUGE	.....GA.
GLASS	.....GL.
GRADE	.....GR.
GYPSUM WALL BOARD	.....GWB.
HORIZONTAL	.....HORIZ.
HOLLOW CORE	.....H.C.
HOLLOW STEEL SECTION	.....H.S.S.
INTERIOR	.....INT.
INSIDE FACE	.....I.F.
INSULATION	.....INSUL.
LAMINATED LAVATORY	.....LAM. LAV.
MAXIMUM	.....MAX.
MECHANICAL	.....MECH.
METAL	.....MET.
MISCELLANEOUS	.....MISC.
MINIMUM	.....MIN.
NATURAL	.....NAT.
NOT IN CONTRACT	.....N.I.C.
NOT TO SCALE	.....N.T.S.
NUMBER	.....NO.
ON CENTRE	.....O.C. OR O/C
OPENING	.....OPC.
OUT TO OUT	.....O. TO O.
OUTSIDE FACE	.....O.F.
PAINT	.....PT.
PAIR	.....PR.
PLATE	.....PL.
PLASTIC LAMINATE	.....P.LAM.
PRECAST CONCRETE	.....P.C. CONC.
PARTITION	.....PTN.
PREFINISHED	.....PREFIN.
PLYWOOD	.....PLYWD.
POLYETHYLENE	.....POLY.
PORCELAIN FLOOR TILE	.....P.F.T.
PRESSED STEEL	.....P.S.
QUARRY TILE	.....Q.T.
RAINWATER LEADER	.....R.W.L.
RECEIVE	.....RCV.
REINFORCED	.....REIN.
REQUIRED	.....REQ.
REVERSED	.....REV.
ROOM	.....RM.
ROOF DRAIN	.....R.D.
ROUGH OPENING	.....R.O.
RUBBER COVE BASE	.....R.B.C.
SEALED CONCRETE	.....S.C.
SIMILAR	.....SIM.
SPECIFICATION	.....SPEC.
SOAP DISPENSER	.....S.D.
SOLID CORE	.....S.C.
SOLID VINYL TILE	.....S.V.T.
STAINLESS STEEL	.....S.S.
STEEL	.....STL.
STRUCTURAL	.....STRUCT.
SUPPLIED BY OWNER	.....S.B.O.
TEXTURED	.....TEX.
TOP OF	.....T/O
TONGUE AND GROOVE	.....T.&G.
TOWEL DISPENSER	.....T.D.
TENANT IMPROVEMENT	.....T.I.
UNDERSIDE	.....U/S
UNDERWRITER LABORATORIES OF CANADA	.....U.L.C.
VENEER	.....VEN.
VERTICAL	.....VERT.
VINYL COMPOSITE TILE	.....V.C.T.
VINYL WALL COVERING	.....V.W.C.
WATERPROOF	.....W.P.
WOOD	.....WD.

GENERAL NOTES:

- THE FOLLOWING NOTES ARE APPLICABLE TO ALL ARCHITECTURAL DRAWINGS AND WORK WITHIN THE SCOPE OF WORK DOCUMENTATION.
- THESE DRAWINGS ARE TO BE READ IN CONJUNCTION WITH ELECTRICAL, MECHANICAL, AND STRUCTURAL ENGINEERING DRAWINGS AND SPECIFICATIONS AND PICTURES (APPENDIX C) AS REQUIRED. SPECIFICATIONS ARE CONTAINED ON THE DRAWINGS. A SEPARATE BOOK SPECIFICATION IS NOT PROVIDED.
- DO NOT SCALE DRAWINGS. WRITTEN DIMENSIONS SHALL HAVE PRECEDENCE. THE CONTRACTOR SHALL VERIFY, COORDINATE AND BE RESPONSIBLE FOR ALL DIMENSIONS ON THE JOB SITE. DIMENSIONS REQUIRING SITE MEASUREMENT SHALL BE CONFIRMED PRIOR TO PROCEEDING WITH THE WORK.
- ALL DIMENSIONS ARE IN METRIC MEASURE, UNLESS OTHERWISE NOTED.
- ALL WORK TO BE IN COMPLIANCE WITH THE LATEST EDITION OF THE MANITOBA BUILDING CODE.
- CONTRACTOR SHALL REFERENCE THE WRITTEN SPECIFICATION CONTAINED WITHIN THESE DRAWINGS.
- GENERAL CONTRACTOR TO COORDINATE AND REPORT ANY DISCREPANCIES IN CONSULTANT'S DOCUMENTATION TO THE ARCHITECT FOR RESOLUTION PRIOR TO CONSTRUCTION / INSTALLATION.
- THE CONTRACT DOCUMENTS ARE DIAGRAMMATIC ONLY AND ARE FURNISHED TO ESTABLISH SCOPE, MATERIAL, QUANTITIES, AND DESIGN INTENT. THE DOCUMENTS ARE NOT DETAILED INSTALLATION DRAWINGS. MINOR DETAILS ARE USUALLY NOT SHOWN OR SPECIFIED AND ANY INCIDENTAL ACCESSORIES REQUIRED FOR PROPER INSTALLATION OF THE DESIGN ARE TO BE INCLUDED IN THE WORK.
- SCHEDULING OF ALL WORK SHALL BE ARRANGED WITH THE OWNER. COORDINATE THE SHUT-DOWN OF EXISTING UTILITIES AND SERVICES AS REQUIRED FOR CONNECTIONS OF NEW WORK. WORK WITHIN THE BUILDING MAY HAVE TO BE PERFORMED DURING NON-REGULAR HOURS, AND MUST CONFORM TO THE WORK RULES OF THE BUILDING, AS DIRECTED BY THE OWNER.
- THE DOMESTIC WATER SERVICE TO THE HOSPITAL CANNOT BE SHUT-DOWN ON MONDAY, WEDNESDAY, & FRIDAY AS THERE ARE CRITICAL SERVICES WITHIN THE HOSPITAL THAT NEED TO BE PERFORMED.
- BUILDING WILL BE ON FIRE WATCH DURING CONSTRUCTION. TEMPORARY FIRE LINES WILL NOT BE REQUIRED.

DRAWING SYMBOLS

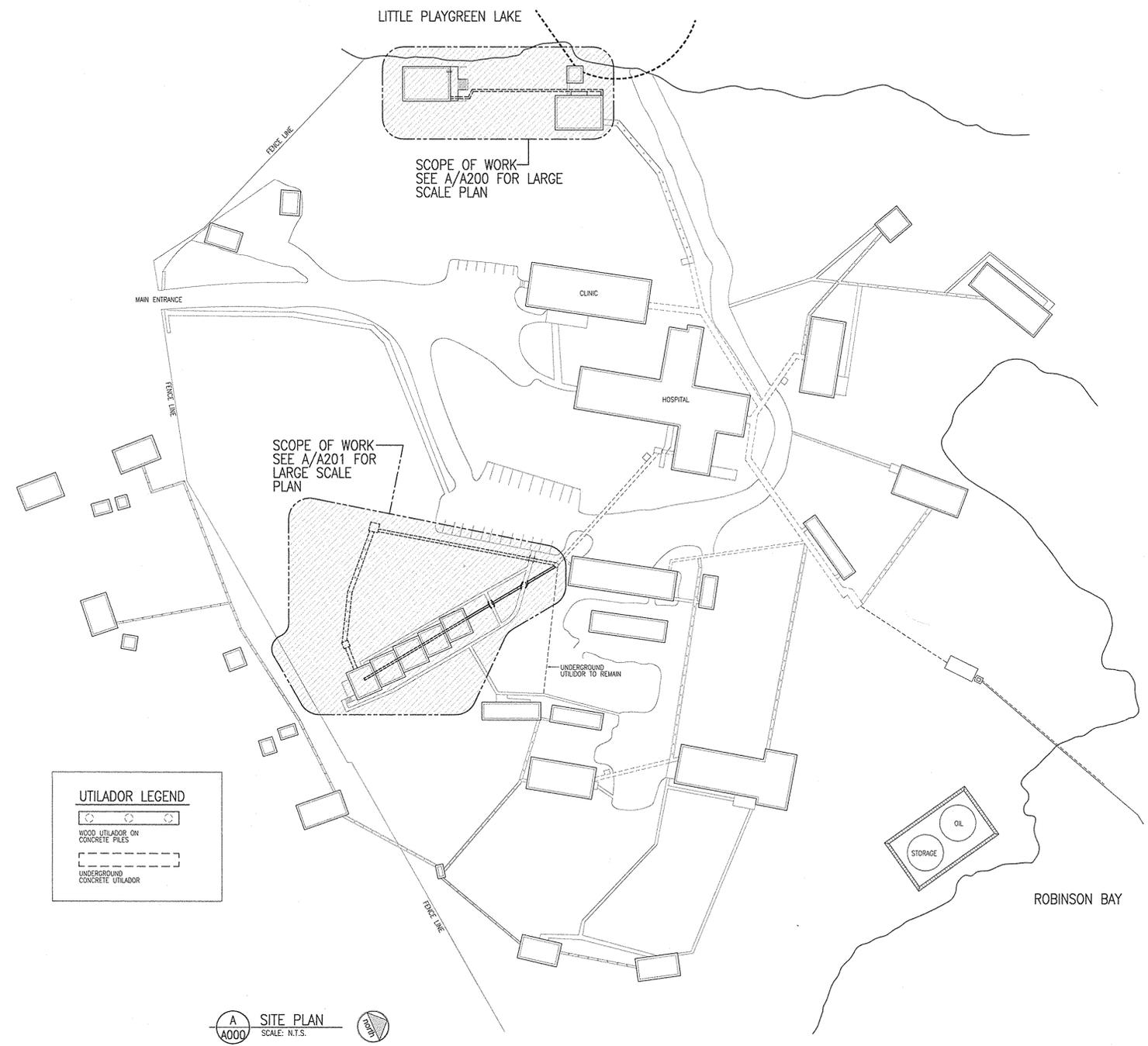
W1	WALL TYPE	SEE SECTIONS AND DETAILS FOR SCHEDULE
R1	ROOF TYPE	SEE SECTIONS AND DETAILS FOR SCHEDULE
F1	FLOOR TYPE	SEE SECTIONS AND DETAILS FOR SCHEDULE
W1	WINDOW TYPE	SEE A4.1 FOR SCHEDULE
D101	DOOR TYPE	SEE A4.1 FOR SCHEDULE
1-1	DETAIL FLAG	
A	SECTION FLAG	
ELEV	ELEVATION FLAG	

LEGEND

[Symbol]	DENOTES EXISTING PARTITION TO REMAIN. PROTECT DURING DEMOLITION AND CONSTRUCTION.
[Symbol]	DENOTES EXISTING PARTITION TO BE DEMOLISHED.
[Symbol]	DENOTES EXISTING DEMISING WALLS.
[Symbol]	DENOTES NEW WALL CONSTRUCTION.
[Symbol]	DENOTES EXISTING WINDOW TO BE REMOVED. [SALVAGE FOR REINSTALLATION AS NOTED ON PARTITION PLAN].
[Symbol]	DENOTES EXISTING DOOR AND FRAME C/W HARDWARE TO BE REMOVED. [SALVAGE FOR REINSTALLATION AS NOTED ON MAIN FLOOR].
[Symbol]	DENOTES EXISTING DOOR AND FRAME TO REMAIN. PROTECT DURING DEMOLITION AND CONSTRUCTION.
[Symbol]	DENOTES NEW DOOR AND FRAME C/W HARDWARE.
12'-0"	DENOTES EXISTING CEILING HEIGHTS.

UTILADOR LEGEND

[Symbol]	WOOD UTILADOR ON CONCRETE PILES
[Symbol]	UNDERGROUND CONCRETE UTILADOR



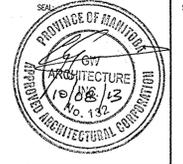
A SITE PLAN SCALE: N.T.S.

DRAWING INDEX

ARCHITECTURAL:		MECHANICAL:		ELECTRICAL:	
A000	SITE PLAN/TITLE PAGE	M1.1	MECHANICAL PUMP HOUSE UTILADOR PIPING LAYOUT	E1.0	ELECTRICAL SITE PLAN
A200	LARGE SCALE PLAN	M1.2	MECHANICAL TOWNHOUSE UTILADOR PIPING LAYOUT	E1.1	ELECTRICAL PART POWER & SYSTEMS PLAN-PUMP & WWTP
A201	LARGE SCALE PLAN	M2.0	MECHANICAL SPECIFICATIONS	E1.2	ELECTRICAL PART POWER & SYSTEMS PLAN-TOWNHOUSES
A600	SECTIONS & DETAILS			E2.1	ELECTRICAL SPECIFICATIONS

LEVEL	DATE	DESCRIPTION
7		
6		
5		
4		
3		
2	10/8/13	ISSUED FOR TENDER
1	9/27/13	ISSUED FOR REVIEW

REVISIONS:
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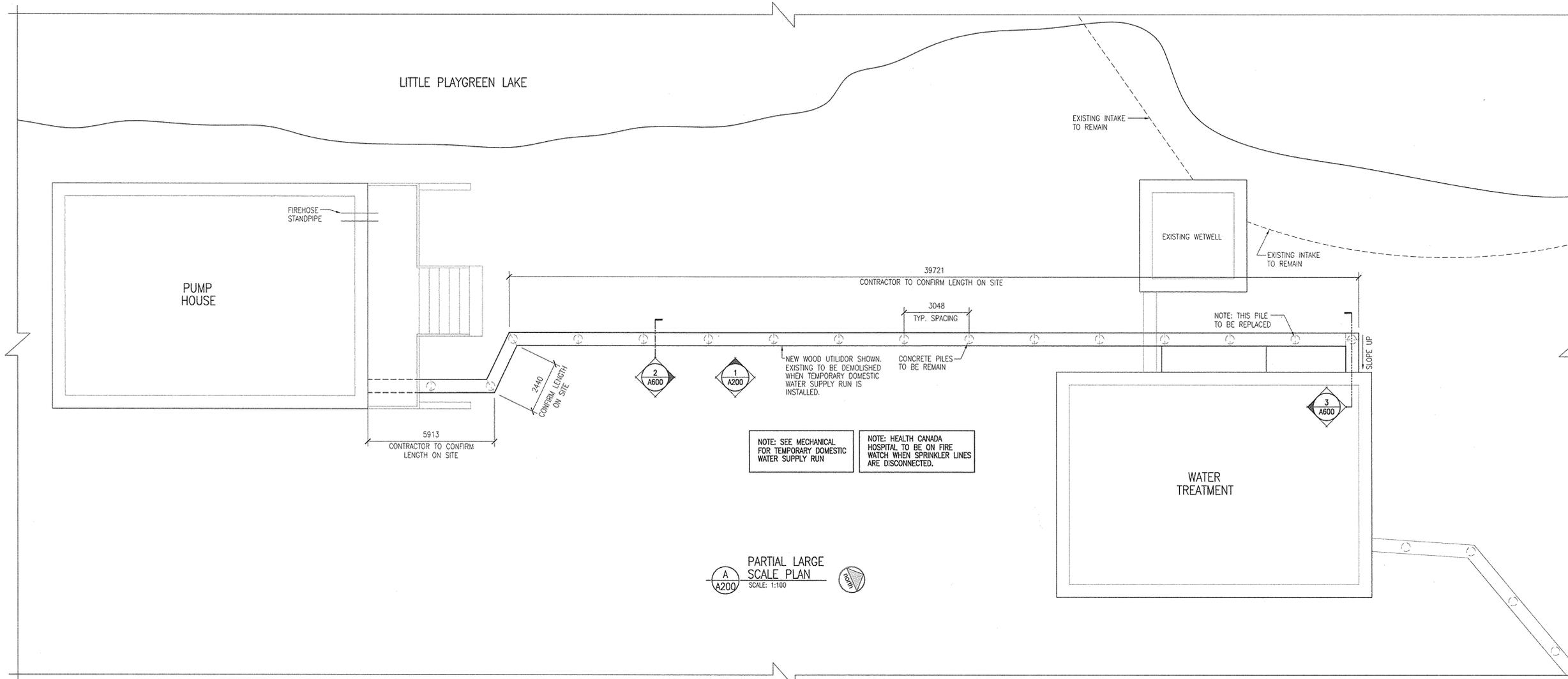
gw architecture inc.
103-44 PINECREST STREET, WINNIPEG, MANITOBA R6R 1A1 PH: (204) 982-0727 FAX: (204) 982-0728

STRUCTURAL/MECHANICAL/ELECTRICAL
TOWER PROJECT NO.: 131319
TOWER ENGINEERING GROUP
WINNIPEG, MB: (204) 955-1150
CALGARY, AB: (403) 235-2659
EDMONTON, ON: (516) 857-1844
WWW.TOWERENG.CA

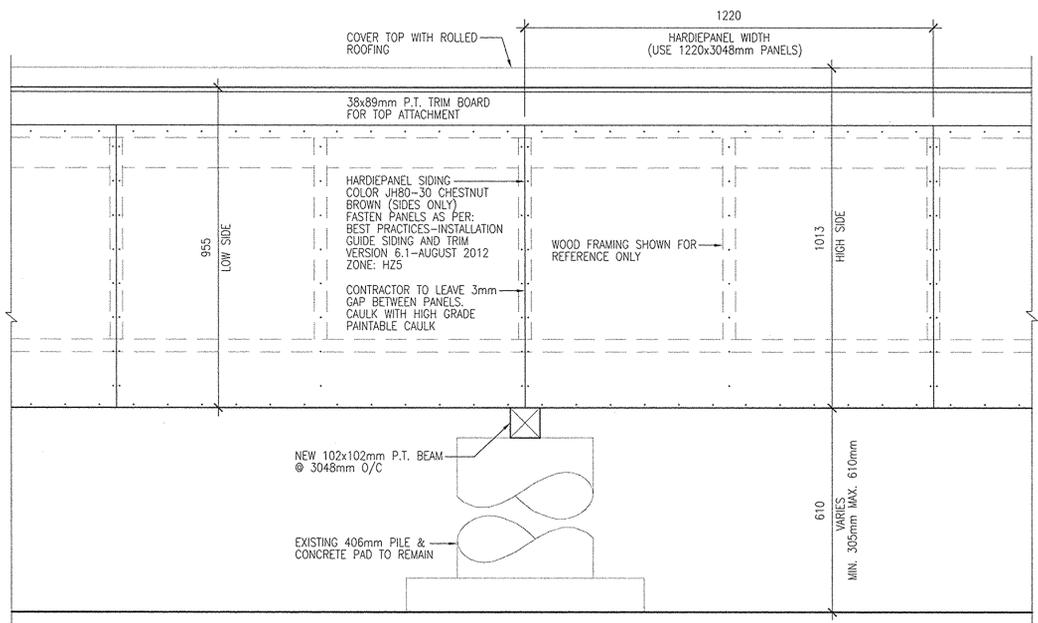
NORWAY HOUSE HOSPITAL
NORWAY HOUSE, MANITOBA

DRAWING TITLE
SITE PLAN/TITLE PAGE

SCALE: AS NOTED	FILE NO: 4.001.003
DATE: SEPTEMBER 10, 2013	DRAWING #: A000
DRAWN BY: DA	



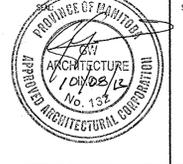
PARTIAL LARGE SCALE PLAN
SCALE: 1:100



NEW UTILIDOR PANEL ELEVATION
SCALE: 1:10

LEVEL	DATE	DESCRIPTION
7		
6		
5		
4		
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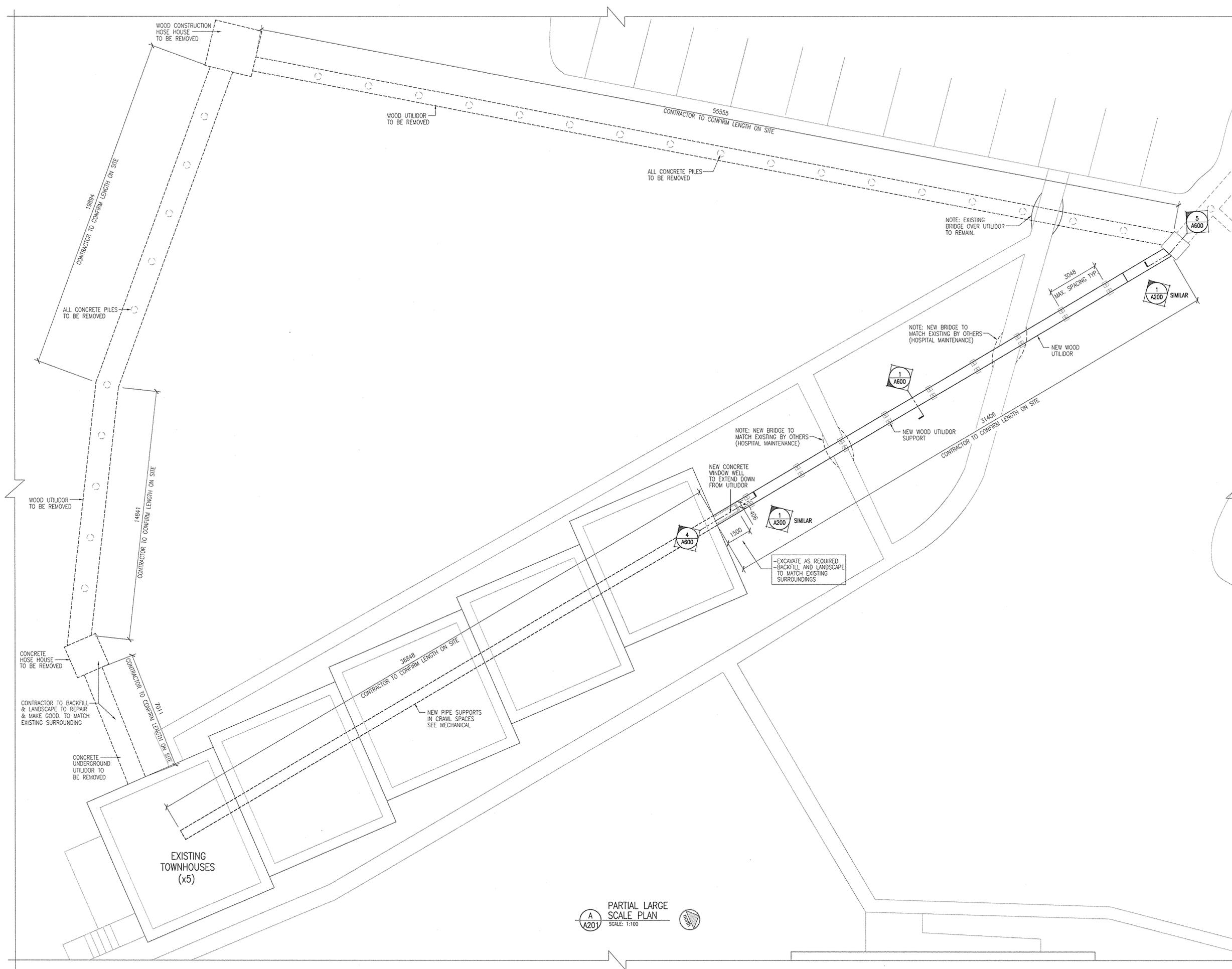
ARCHITECTURE:
gw architecture inc.
303-44 PROSSER STREET WINNIPEG, MANITOBA R4S 1K8 CAN. TEL: (204) 950-0797 FAX: (204) 421-1919

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TOWER PROJECT NO.: 131319
WINNIPEG, MB: (204) 925-1150
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EDMONTON, ON: (519) 957-1944
WWW.TOWERENG.CA

PROJECT:
NORWAY HOUSE HOSPITAL
NORWAY HOUSE, MANITOBA

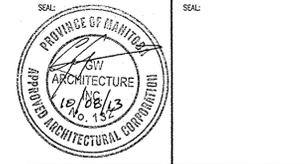
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LARGE SCALE PLAN

SCALE: AS NOTED	FILE NO.: 4.001.003
DATE: SEPTEMBER 10, 2013	DRAWING #: A200
DRAWN BY: DA	



LEVEL	DATE	DESCRIPTION
7		
6		
5		
4		
3		
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ARCHITECTURE:
gw architecture inc.
 302-44 PRINCE STREET WINNIP, MANITOBA R2N 2Y4 TEL: (204) 940-0377 FAX: (204) 940-0378

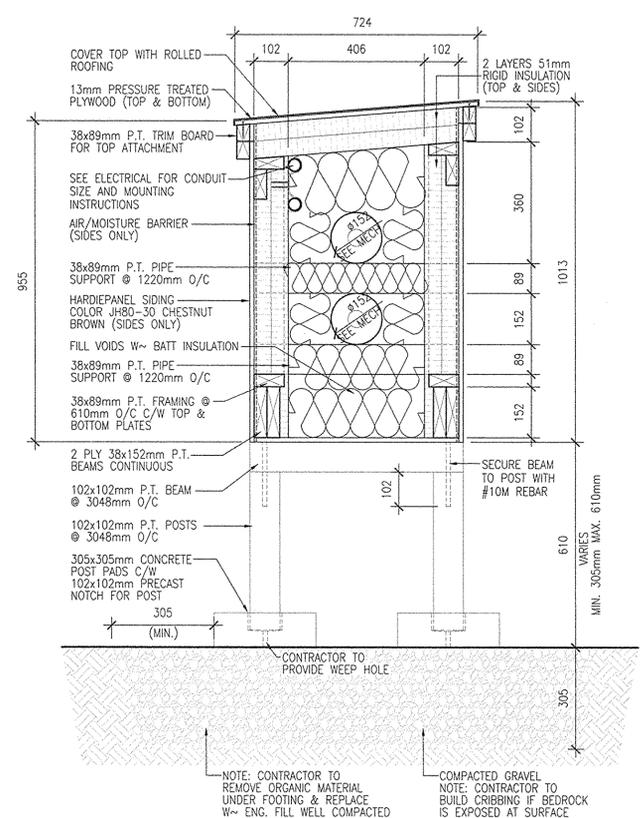
STRUCTURAL/MECHANICAL/ELECTRICAL:
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 TOWER PROJECT NO.: 131319
 WINNIP, MB: (204) 925-1150
 CALGARY, AB: (403) 235-2655
 CAMBRIDGE, ON: (519) 937-1944
 WWW.TOWERENG.CA

PROJECT:
NORWAY HOUSE HOSPITAL
 NORWAY HOUSE, MANITOBA

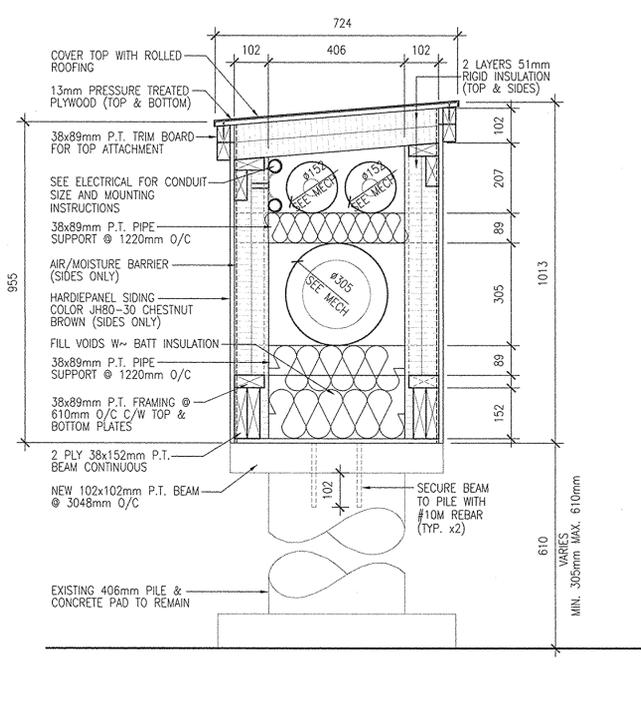
DRAWING TITLE:
LARGE SCALE PLAN

PARTIAL LARGE SCALE PLAN
 SCALE: 1:100

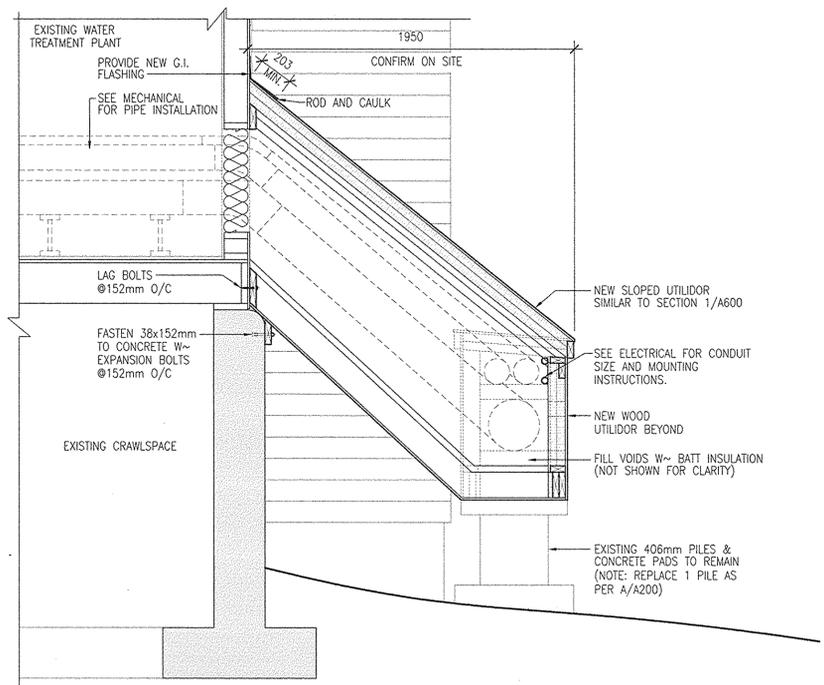
SCALE	FILE NO.
AS NOTED	4.001.003
DATE	DRAWING #
SEPTEMBER 10, 2013	A201
DRAWN BY:	DA



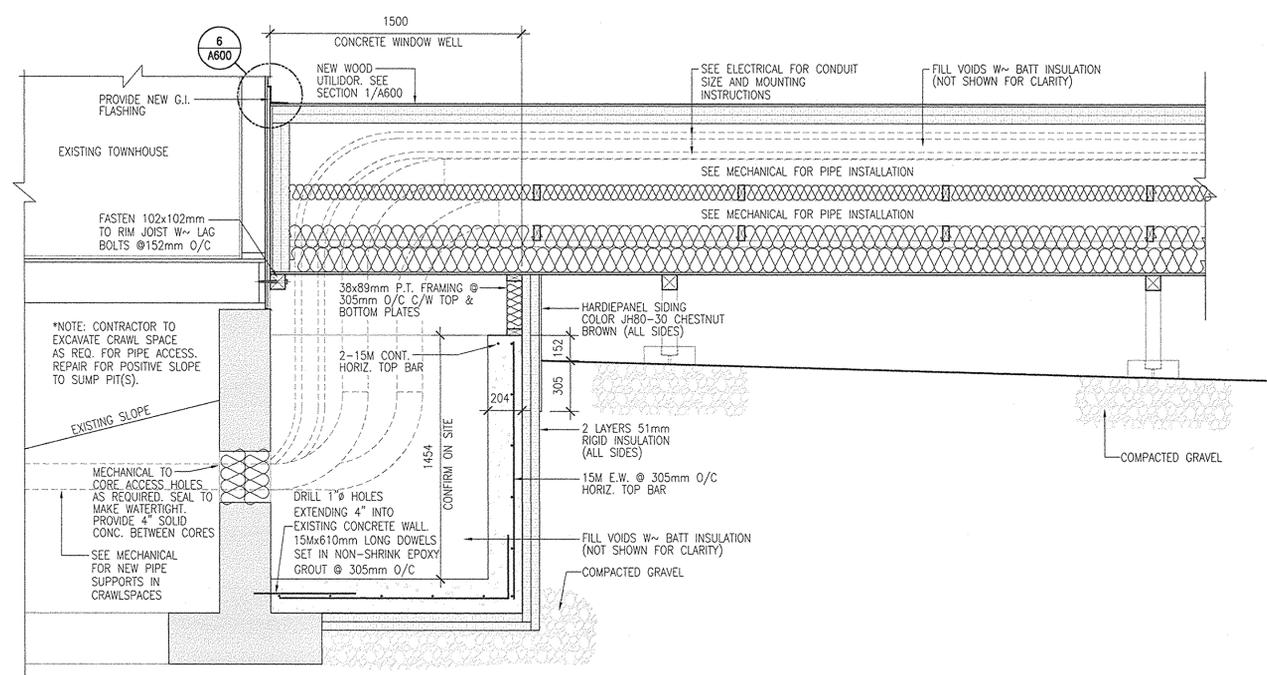
1 SECTION THRU NEW UTILIDOR
SCALE: 1:10



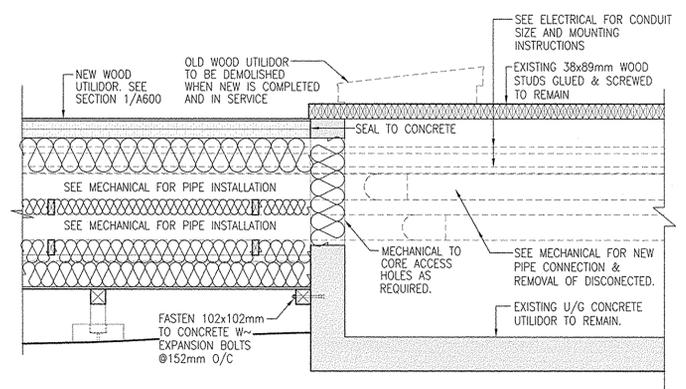
2 SECTION THRU REPLACED UTILIDOR
SCALE: 1:10



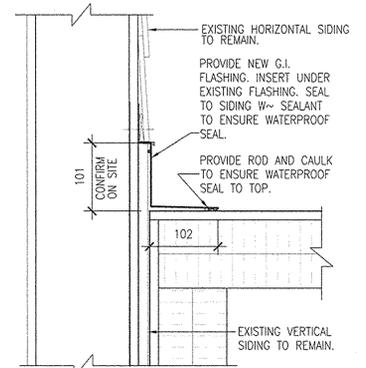
3 SECTION THRU SLOPED UTILIDOR
SCALE: 1:20



4 SECTION THRU UNDERGROUND CONCRETE WINDOW WELL
SCALE: 1:20



5 SECTION THRU CONNECTION TO EXISTING U/G UTILIDOR
SCALE: 1:20



6 FLASHING DETAIL
SCALE: 1:5

LEVEL	DATE	DESCRIPTION
7		
6		
5		
4		
3		
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ARCHITECTURE:

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PROJECT:

TOWER PROJECT NO.: 131319
TOWER ENGINEERING GROUP

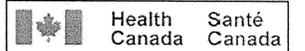
NORWAY HOUSE HOSPITAL
NORWAY HOUSE, MANITOBA

DRAWING TITLE
SECTIONS AND DETAILS

SCALE:	FILE NO.
AS NOTED	4.001.003
DATE:	DRAWING #:
SEPTEMBER 10, 2013	A600
DRAWN BY:	DA

GENERAL NOTES:

1. BIDDERS MUST EXAMINE THE SITE & EXISTING CONDITIONS AFFECTING THE PROJECT. EXAMINE THE COMPLETE SET OF CONTRACT DOCUMENTS TO ENSURE THAT THE WORK CAN BE CARRIED OUT WITHOUT SIGNIFICANT CHANGES TO THE INTENT OF THE DOCUMENTS. NO FUTURE ALLOWANCE WILL BE MADE FOR CHANGES UNLESS THE ENGINEER HAS BEEN NOTIFIED IN WRITING OF ANY DISCREPANCIES OR INTERFERENCES, PRIOR TO THE CLOSE OF TENDERS. NO ALLOWANCE WILL BE MADE FOR ITEMS THAT SHOULD HAVE BEEN NOTED DURING PRE-TENDER SITE INSPECTION.
2. THE LOCATION ROUTING & ELEVATION OF ALL NEW AND EXISTING SERVICES & UTILITIES AS SHOWN ON THE DRAWING ARE TO BE CONSIDERED AS APPROXIMATIONS ONLY. VERIFY EXACT LOCATIONS, ROUTINGS & ELEVATIONS OF ALL SERVICES PRIOR TO COMMENCING WORK, & ASSUME RESPONSIBILITY FOR ANY DAMAGE TO EXISTING SERVICES & UTILITIES.
3. MECHANICAL CONTRACTOR SHALL VERIFY EXACT LOCATIONS, CONNECTIONS, SIZES, INVERTS, ETC. PRIOR TO TENDER CLOSE AND COMMENCEMENT OF WORK.
4. MECHANICAL CONTRACTOR SHALL REFER TO ARCHITECTURAL, STRUCTURAL, ELECTRICAL DRAWINGS, EQUIPMENT SUPPLIER SHOP DRAWINGS, ETC. FOR EXACT LOCATIONS OF ALL FIXTURES, EQUIPMENT, ETC.
5. ALL PLUMBING INSTALLATIONS, ETC. SHALL BE PERFORMED IN ACCORDANCE WITH ALL CODES, REGULATIONS & AUTHORITIES HAVING JURISDICTION.
6. VISIT THE SITE PRIOR TO TENDER CLOSING. ALL EXISTING MECHANICAL EQUIPMENT SHOULD BE SITE CONFIRMED PRIOR TO THE START OF ANY NEW MECHANICAL WORK. NO EXTRA COST WILL BE CONSIDERED FOR WORK WHICH WOULD REASONABLY HAVE BEEN ASCERTAINED BY THE SITE VISIT.
7. THE DRAWINGS INDICATE APPROXIMATE LOCATIONS OF SOME EXISTING MECHANICAL SERVICES. ALLOW FOR ALL NECESSARY RELOCATION OF SERVICES TO ACCOMMODATE THE NEW WORK.
8. COORDINATE PLUMBING WITH DUCT RUNS & ALL OTHER TRADES.

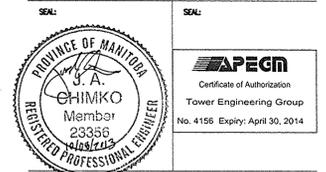


LEGEND:

- - - - - TO BE DEMOLISHED
- _____ EXISTING TO REMAIN
- _____ NEW
- - - - - TEMPORARY WATER LINE

LEVEL	DATE	DESCRIPTION
2	10/8/13	ISSUED FOR TENDER
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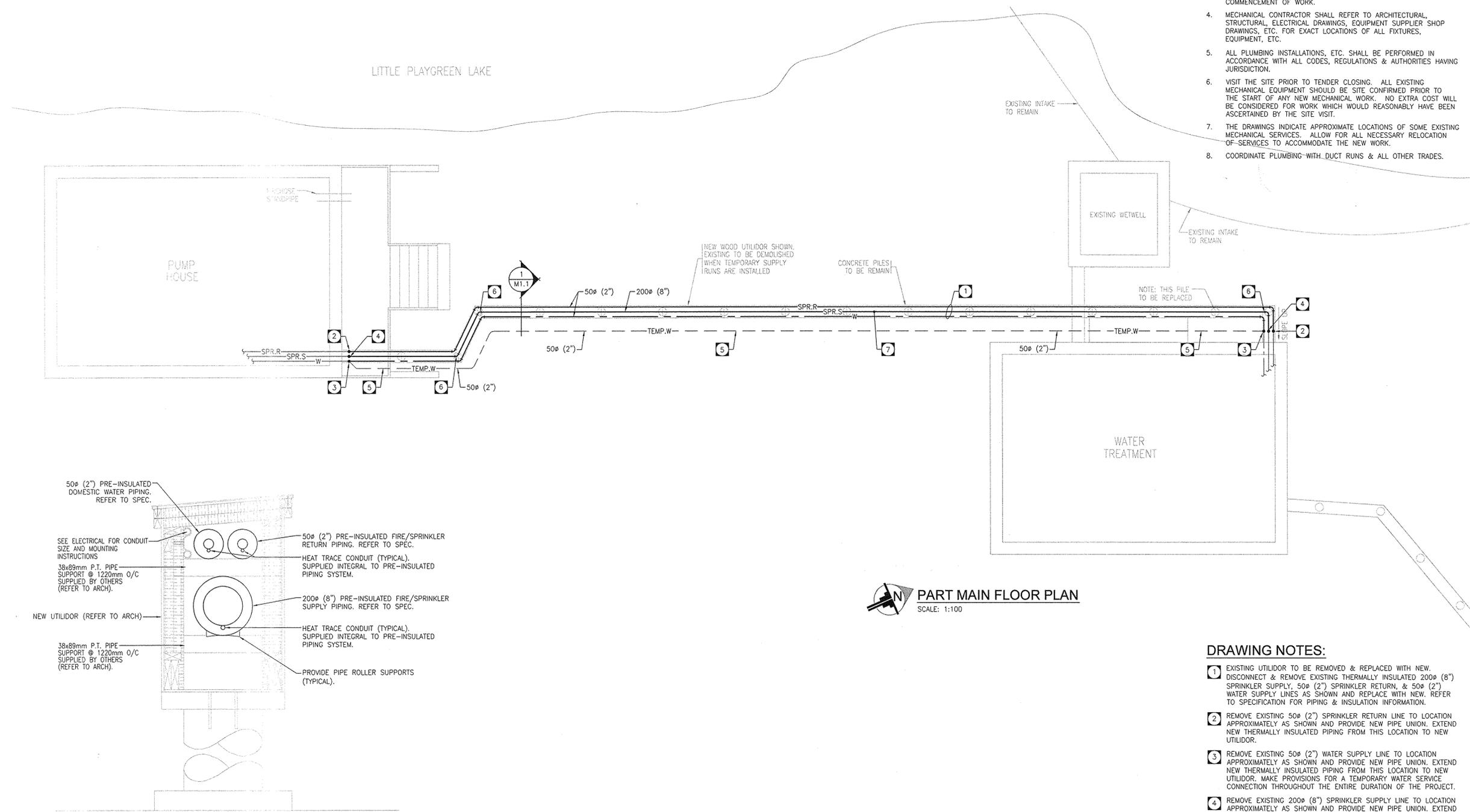
gw architecture inc.
102-44 PRINCE STREET, MANITOBA HOUSE, 4TH FLOOR, WINNIPEG, MB R3P 0S9



PROJECT:
NORWAY HOUSE HOSPITAL
NORWAY HOUSE, MANITOBA

DRAWING TITLE:
MECHANICAL
PUMP HOUSE UTILIDOR
PIPING LAYOUT

SCALE: AS NOTED	FILE NO.: 4.001.003
DATE: OCT. 8th, 2013	DRAWING #: M1.1
DRAWN BY: JRR	

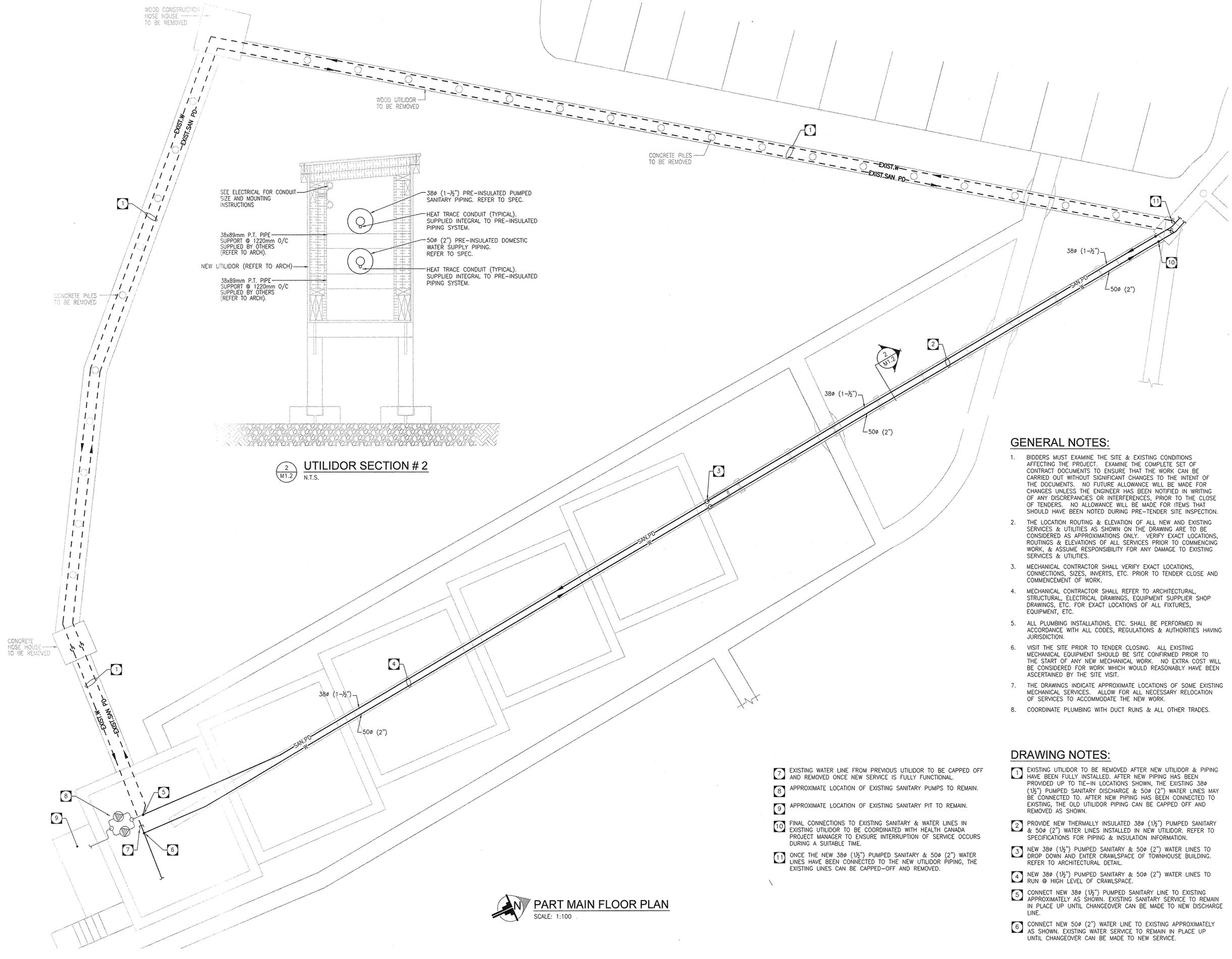


PART MAIN FLOOR PLAN
SCALE: 1:100

DRAWING NOTES:

1. EXISTING UTILIDOR TO BE REMOVED & REPLACED WITH NEW. DISCONNECT & REMOVE EXISTING THERMALLY INSULATED 200ø (8") SPRINKLER SUPPLY, 50ø (2") SPRINKLER RETURN, & 50ø (2") WATER SUPPLY LINES AS SHOWN AND REPLACE WITH NEW. REFER TO SPECIFICATION FOR PIPING & INSULATION INFORMATION.
2. REMOVE EXISTING 50ø (2") SPRINKLER RETURN LINE TO LOCATION APPROXIMATELY AS SHOWN AND PROVIDE NEW PIPE UNION. EXTEND NEW THERMALLY INSULATED PIPING FROM THIS LOCATION TO NEW UTILIDOR.
3. REMOVE EXISTING 50ø (2") WATER SUPPLY LINE TO LOCATION APPROXIMATELY AS SHOWN AND PROVIDE NEW PIPE UNION. EXTEND NEW THERMALLY INSULATED PIPING FROM THIS LOCATION TO NEW UTILIDOR. MAKE PROVISIONS FOR A TEMPORARY WATER SERVICE CONNECTION THROUGHOUT THE ENTIRE DURATION OF THE PROJECT.
4. REMOVE EXISTING 200ø (8") SPRINKLER SUPPLY LINE TO LOCATION APPROXIMATELY AS SHOWN AND PROVIDE NEW PIPE UNION. EXTEND NEW THERMALLY INSULATED PIPING FROM THIS LOCATION TO NEW UTILIDOR. NO TEMPORARY LINES SHALL BE PROVIDED FOR SPRINKLER SUPPLY/RETURN LINES; THE HOSPITAL WILL BE ON A FIRE WATCH PROGRAM AS DIRECTED BY HEALTH CANADA & THEIR PROJECT MANAGER AND/OR REPRESENTATIVE.
5. PROVIDE TEMPORARY 50ø (2") WATER SERVICE LINE CONNECTED FROM PUMP HOUSE TO WATER TREATMENT BUILDING. COORDINATE WATER SERVICE SHUT DOWN & RECONNECTION WITH MANITOBA HEALTH PROJECT MANAGER TO ENSURE INTERRUPTION OF SERVICE OCCURS DURING A SUITABLE TIME. REFER TO ARCHITECTURAL SPECIFICATIONS & DRAWINGS FOR FURTHER INFO. TEMPORARY WATER SERVICE TO BE EQUAL TO: CertainTeed Certa-Lok Yelomine RESTRAINED-JOINT, PVC PIPE & COUPLINGS, FOR NON-PERMANENT USE, SUITABLE FOR TEMPORARY WATER MAINS. REFER TO MECHANICAL SPECIFICATIONS FOR FURTHER INFO.
6. PROVIDE 'ROBAR' SUPPORT AT EACH PIPE FITTING CHANGE IN DIRECTION ON NEW 200ø (8") SPRINKLER SUPPLY PIPING.
7. PROVIDE EXPANSION FITTING, IF REQUIRED, ON NEW 200ø (8") SPRINKLER SUPPLY PIPING.

UTILIDOR SECTION # 1
N.T.S.



UTILIDOR SECTION # 2
N.T.S.

LEGEND:

---	TO BE DEMOLISHED
—	EXISTING TO REMAIN
—	NEW

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- VISIT THE SITE PRIOR TO TENDER CLOSING. ALL EXISTING MECHANICAL EQUIPMENT SHOULD BE SITE CONFIRMED PRIOR TO THE START OF ANY NEW MECHANICAL WORK. NO EXTRA COST WILL BE CONSIDERED FOR WORK WHICH WOULD REASONABLY HAVE BEEN ASCERTAINED BY THE SITE VISIT.
- THE DRAWINGS INDICATE APPROXIMATE LOCATIONS OF SOME EXISTING MECHANICAL SERVICES. ALLOW FOR ALL NECESSARY RELOCATION OF SERVICES TO ACCOMMODATE THE NEW WORK.
- COORDINATE PLUMBING WITH DUCT RUNS & ALL OTHER TRADES.

DRAWING NOTES:

- EXISTING UTILIDOR TO BE REMOVED AFTER NEW UTILIDOR & PIPING HAVE BEEN FULLY INSTALLED. AFTER NEW PIPING HAS BEEN PROVIDED UP TO TIE-IN LOCATIONS SHOWN, THE EXISTING 38ø (1½") PUMPED SANITARY DISCHARGE & 50ø (2") WATER LINES MAY BE CONNECTED TO. AFTER NEW PIPING HAS BEEN CONNECTED TO EXISTING, THE OLD UTILIDOR PIPING CAN BE CAPPED OFF AND REMOVED AS SHOWN.
- PROVIDE NEW THERMALLY INSULATED 38ø (1½") PUMPED SANITARY & 50ø (2") WATER LINES INSTALLED IN NEW UTILIDOR. REFER TO SPECIFICATIONS FOR PIPING & INSULATION INFORMATION.
- NEW 38ø (1½") PUMPED SANITARY & 50ø (2") WATER LINES TO DROP DOWN AND ENTER CRAWLSPACE OF TOWNHOUSE BUILDING. REFER TO ARCHITECTURAL DETAIL.
- NEW 38ø (1½") PUMPED SANITARY & 50ø (2") WATER LINES TO RUN @ HIGH LEVEL OF CRAWLSPACE.
- CONNECT NEW 38ø (1½") PUMPED SANITARY LINE TO EXISTING APPROXIMATELY AS SHOWN. EXISTING SANITARY SERVICE TO REMAIN IN PLACE UP UNTIL CHANGEOVER CAN BE MADE TO NEW DISCHARGE LINE.
- CONNECT NEW 50ø (2") WATER LINE TO EXISTING APPROXIMATELY AS SHOWN. EXISTING WATER SERVICE TO REMAIN IN PLACE UP UNTIL CHANGEOVER CAN BE MADE TO NEW SERVICE.

REVISIONS:

DRAWING NOT TO BE SCALED. ALL DIMENSIONS SHALL BE VERIFIED BEFORE WORK COMMENCES. ANY DISCREPANCIES, VARIANCES, OR MISSING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR BEFORE WORK PROCEEDS.

ALL STRUCTURAL SYSTEMS AND COMPONENTS SHALL BE APPROVED BY A PROFESSIONAL ENGINEER. GW ARCHITECTURE INC. ASSUMES NO LIABILITY FOR ANY FAILURE IN THE STRUCTURAL SYSTEM OR THE COMPONENTS THERE-OF.

SEAL:

SEAL:

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NORWAY HOUSE HOSPITAL
NORWAY HOUSE, MANITOBA

DRAWING TITLE
MECHANICAL TOWN HOUSE UTILIDOR PIPING LAYOUT

SCALE: AS NOTED	FILE NO: 4.001.003
DATE: OCT. 8th, 2013	DRAWING #: M1.2
DRAWN BY: JRR	

GENERAL SPECIFICATIONS

- THE BIDDERS SHALL EXAMINE THE SITE AND THE EXISTING CONDITIONS AFFECTING THE PROJECT. EXAMINE THE COMPLETE SET OF CONTRACT DOCUMENTS TO ENSURE THAT THE WORK CAN BE CARRIED OUT WITHOUT SIGNIFICANT CHANGES TO THE INTENT OF THE DOCUMENTS. NO FUTURE ALLOWANCE WILL BE MADE FOR CHANGES UNLESS THE ENGINEER HAS BEEN NOTIFIED IN WRITING OF ANY DISCREPANCIES OR INTERFERENCES PRIOR TO THE CLOSURE OF TENDERS. NO ALLOWANCE WILL BE MADE FOR ITEMS THAT SHOULD HAVE BEEN NOTED DURING A PRE-TENDER SITE INSPECTION.
- THE LOCATION, ROUTING AND ELEVATIONS OF ALL NEW AND EXISTING SERVICES AND UTILITIES AS SHOWN ON THE DRAWINGS ARE TO BE CONSIDERED AS APPROXIMATIONS ONLY. VERIFY THE EXACT LOCATIONS, ROUTINGS AND ELEVATIONS OF ALL SERVICES PRIOR TO COMMENCING WORK, AND ASSUME RESPONSIBILITY FOR LAYING OUT ALL WORK. THE CONTRACTOR SHALL RETAIN RESPONSIBILITY FOR ANY DAMAGE TO EXISTING SERVICES AND UTILITIES.
- ALL ASPECTS OF THE INSTALLATION MUST COMPLY WITH THE MOST STRINGENT OF THE APPLICABLE BUILDING CODES, LOCAL REGULATIONS, AND BY-LAWS. BEFORE PROCEEDING WITH THE WORK, OBTAIN APPROVED DRAWINGS AND SPECIFICATIONS FROM THE AUTHORITIES HAVING JURISDICTION.
- BUILDING MECHANICAL SYSTEMS SHALL CONFORM TO THE FOLLOWING CODES AND STANDARDS:
 - LATEST ADOPTED VERSION OF THE NATIONAL BUILDING CODE OF CANADA.
 - LATEST ADOPTED VERSION OF THE NATIONAL PLUMBING CODE OF CANADA.
 - LATEST ADOPTED VERSION OF THE NATIONAL FIRE CODE OF CANADA.
 - MANITOBA BUILDING CODE (LATEST REVISED ISSUE)
 - MANITOBA FIRE CODE (LATEST REVISED ISSUE)
 - NFPA STANDARDS
 - SMACNA STANDARDS
 - ASHRAE STANDARDS
 - CANADIAN STANDARDS ASSOCIATION (CSA)
 - ALL LOCAL CODES
 - AUTHORITIES HAVING JURISDICTION
- USE LATEST ADOPTED EDITION OF ALL REFERENCED CODES, STANDARDS, REGULATIONS, ETC.
- ALL EQUIPMENT, MATERIALS AND COMPONENTS SHALL BE TESTED, CERTIFIED AND LABELED BY ULG AND/OR CSA FOR USE IN CANADA. THE CERTIFICATION AND LABELING SHALL BE APPROPRIATE FOR THE INTENDED FUNCTION OF THE ITEM BEING SUPPLIED, AS DICTATED BY THE RELEVANT CODES AND STANDARDS.
- WHERE ITEMS ARE NOT ADEQUATELY CERTIFIED AND LABELED BY THE MANUFACTURER, THE CONTRACTOR SUPPLYING THE ITEM SHALL BE RESPONSIBLE FOR OBTAINING APPROVAL FOR THE USE OF THE ITEM FROM THE LOCAL AUTHORITY HAVING JURISDICTION, AND SHALL BEAR ALL ASSOCIATED COSTS.
- PROVIDE ALL NECESSARY NOTICES, OBTAIN ALL REQUIRED PERMITS, PAY ALL FEES REQUIRED BY LAW, AND ARRANGE FOR ALL INSPECTIONS RELATED TO THE PERFORMANCE OF THE SPECIFIED WORK.
- PROVIDE ALL MATERIALS, LABOUR AND EQUIPMENT REQUIRED TO COMPLETE THE WORK AS SHOWN AND AS SPECIFIED, SO AS TO LEAVE THE OWNER WITH A COMPLETE AND FUNCTIONING SYSTEM.
 - ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND C.S.A. APPROVED, UNLESS SPECIFICALLY NOTED OTHERWISE.
 - ALL SIMILAR EQUIPMENT AND OR MATERIALS SHALL BE BY THE SAME MANUFACTURER.
- REQUEST FOR APPROVAL OF SUBSTITUTE MATERIAL AND/OR EQUIPMENT FOR THAT SPECIFIED, SHALL BE SUBMITTED TO THE ENGINEER WITH A STAMPED SELF-ADDRESSED ENVELOPE OR RETURN FAX NUMBER AT LEAST FIVE WORKING DAYS PRIOR TO TENDER CLOSING. REQUESTS SHALL INCLUDE ALL PERFORMANCE SPECIFICATIONS, PHYSICAL DATA AND OTHER PERTINENT INFORMATION REQUIRED FOR THE ENGINEER TO MAKE A COMPLETE COMPARISON.
- PROVIDE A MINIMUM OF SEVEN COPIES OF SHOP DRAWINGS FOR REVIEW BY THE ENGINEER. THE SHOP DRAWINGS MUST BE ASSEMBLED INTO COMPLETE BROCHURES, WITH NO LOOSE SHEETS. UNASSEMBLED SUBMISSIONS WILL BE RETURNED AS INCOMPLETE.
 - THE REVIEW OF THE SHOP DRAWINGS IS FOR THE SOLE PURPOSE OF ASCERTAINING CONFORMANCE WITH THE GENERAL DESIGN CONCEPT. THE REVIEW SHALL NOT MEAN APPROVAL OF THE DETAILED DESIGN INHERENT IN THE EQUIPMENT, THE RESPONSIBILITY FOR WHICH SHALL REMAIN WITH THE CONTRACTOR. THE REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL REMAIN RESPONSIBLE FOR CONFIRMING AND CORRELATING THE DIMENSIONS ON THE JOB-SITE, AND FOR INFORMATION THAT PERTAINS TO THE FABRICATION PROCESS, CONSTRUCTION TECHNIQUES, AND INSTALLATION DETAILS, AND FOR COORDINATING ALL WORK OF THE RELATED "SUB-TRADES."
- ALL CUTTING AND PATCHING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. EXISTING EXPOSED SURFACES SHALL BE RETURNED TO AN "AS-FOUND" CONDITION ACCEPTABLE TO THE OWNER.
- EACH CONTRACTOR SHALL COORDINATE THE WORK WITH OTHER CONTRACTORS IN ORDER TO AVOID CONFLICTS.
- NEATLY STORE ALL MATERIALS, AND CLEAN UP REFUSE ON A REGULAR BASIS. PROTECT AND MAINTAIN ALL WORK UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
- THE INSTALLATION SHALL BE COMPLETELY TESTED, DEMONSTRATING THAT THE EQUIPMENT AND SYSTEMS INSTALLED ARE PERFORMING IN THE MANNER INTENDED.
- AT THE COMPLETION OF THE INSTALLATION, PROVIDE TWO MARKED-UP COPIES OF THE TENDER DRAWINGS FOR RECORD PURPOSES. PROVIDE THREE SETS OF OPERATION AND MAINTENANCE MANUALS. PAY ALL COSTS ASSOCIATED WITH THE PRODUCTION OF THE "RECORD" DRAWINGS AND THE MANUALS. SUBMIT TO THE DOCUMENTS TO THE ENGINEER FOR REVIEW, AND MAKE ANY REQUESTED CHANGES BEFORE DELIVERING THEM TO THE OWNER.
- REVIEW THE OPERATION AND MAINTENANCE OF THE SYSTEMS WITH THE OWNER'S MAINTENANCE PERSONNEL AND PROVIDE WRITTEN AND/OR VERBAL INSTRUCTIONS AS REQUIRED.
- FURNISH CERTIFICATES CONFIRMING THAT THE WORK HAS BEEN INSTALLED TO THE SATISFACTION OF THE AUTHORITIES HAVING JURISDICTION.
 - NO CERTIFICATE ISSUED, PAYMENT MADE, OR PARTIAL OR ENTIRE USE OF THE SYSTEMS BY THE OWNER, SHALL BE CONSIDERED AS ACCEPTANCE OF DEFECTIVE WORK OR MATERIALS.
- THE CONTRACTOR SHALL PROVIDE A ONE YEAR LABOUR AND MATERIAL WARRANTY ON ALL NEW EQUIPMENT AND COMPONENTS, COMMENCING UPON THE DATE OF ACCEPTANCE BY THE OWNER.
 - REPLACE AT NO CHARGE TO THE OWNER, ALL ITEMS WHICH FAIL OR PROVE DEFECTIVE WITHIN A PERIOD OF ONE YEAR AFTER THE DATE OF FINAL ACCEPTANCE BY THE OWNER, PROVIDED THAT THE FAILURE IS NOT DUE TO IMPROPER USAGE BY THE OWNER. MAKE GOOD ALL DAMAGES INCURRED AS A RESULT OF THE FAILURE AND OF THE REPAIRS.
- PROVIDE TEMPORARY HEATING AS REQUIRED. DO NOT USE NEW EQUIPMENT FOR THIS PURPOSE WITHOUT THE EXPRESS CONSENT OF THE ENGINEER.
- SCHEDULING OF ALL WORK SHALL BE ARRANGED WITH THE OWNER. COORDINATE THE SHUT-DOWN OF EXISTING UTILITIES AND SERVICES AS REQUIRED FOR CONNECTIONS OF NEW WORK. WORK WITHIN THE BUILDING MAY HAVE TO BE PERFORMED DURING NON-REGULAR HOURS, AND MUST CONFORM TO THE WORK RULES OF THE BUILDING, AS DIRECTED BY THE OWNER. THE DOMESTIC WATER SERVICE TO THE HOSPITAL CANNOT BE SHUT-DOWN ON MONDAY, WEDNESDAY, & FRIDAY AS THERE ARE CRITICAL SERVICES WITHIN THE HOSPITAL THAT NEED TO BE PERFORMED. PLEASE REFER TO THE FRONT END OF THE ARCHITECTURAL SPECIFICATIONS/DRAWINGS FOR FURTHER INFORMATION ON SCHEDULING.
- THE DRAWINGS FOR THE MECHANICAL WORK ARE PERFORMANCE DRAWINGS, DIAGRAMMATIC AND APPROXIMATELY TO SCALE, INTENDED TO CONVEY THE SCOPE OF WORK AND INDICATE THE GENERAL ARRANGEMENT AND APPROXIMATE LOCATIONS OF APPARATUS, FIXTURES AND PIPE/DUCT RUNS. THESE DRAWINGS DO NOT INTEND TO SHOW ARCHITECTURAL AND STRUCTURAL DETAILS.
- EVEN THOUGH SOME PIPING AND/OR DUCTWORK IS NOT COMPLETELY SHOWN SCHEMATICALLY, AND ALL DETAILS ARE NOT SHOWN OR SPECIFIED, IT IS EXPECTED THAT THE CONTRACTORS BE FAMILIAR ENOUGH WITH THEIR FIELDS OF WORK TO COMPLETE THE PROJECT TO THE STANDARDS GENERALLY ADHERED TO BY THE LOCAL INDUSTRY, INCLUDING GOOD WORKMANSHIP AND COMMON SENSE. THE ENGINEER RESERVES THE RIGHT TO FURNISH ANY ADDITIONAL DETAIL DRAWINGS, WHICH IN THE JUDGEMENT OF THE ENGINEER, MAY BE NECESSARY TO CLARIFY THE WORK, AND SUCH DRAWINGS SHALL FORM PART OF THIS CONTRACT. THE WORK FOR SUCH CLARIFICATIONS SHALL BE AT NO COST TO THE OWNER.

MECHANICAL SPECIFICATIONS

SECTION 15100 - GENERAL

- PROVIDE ONE SET OF SPECIAL TOOLS REQUIRED TO SERVICE EQUIPMENT, AS RECOMMENDED BY THE MANUFACTURER/SUPPLIERS.
- PROVIDE DI-ELECTRIC COUPLINGS WHEREVER PIPES OF DISSIMILAR METALS ARE JOINED.
- HOISTING AND PLACING OF MECHANICAL EQUIPMENT SHALL BE THE RESPONSIBILITY OF THE SUB-CONTRACTOR PROVIDING THE EQUIPMENT.
- PIPE HANGERS SHALL BE GRINNELL FIGURE 65 FOR STEEL PIPE AND FIGURE CP65 FOR COPPER PIPE. WITH FIGURE 140 THREADED ROD. THREADED ROD SHALL BE ATTACHED TO FIGURE 117 EXPANSION CASE SET IN HOLES DRILLED IN CONCRETE, OR ATTACHED TO FIGURE 225 OR FIGURE 227 CLAMP ATTACHED TO ROOF/FLOOR JOISTS. FOR INSULATED PIPING, PROVIDE FIGURE 167 PROTECTION SADDLES. SIZE HANGERS AND SADDLES TO SUIT INDIVIDUAL PIPE SIZES, INCLUDING INSULATION WHERE APPLICABLE.
- ON COPPER PIPING, PROVIDE COPPER PLATED TYPE HANGER OR SEPARATE PIPING FROM HANGER WITH AN APPROVED INSULATING TAPE OR PLASTIC COATING.
- HANGER RODS MAY BE ATTACHED TO BEAM OR JOIST CLAMPS, BRACKETS, OR CONCRETE INSERTS. EXPLOSIVE ACTUATED TOOLS ARE NOT PERMITTED. DO NOT WELD TO STRUCTURAL STEEL UNLESS ENGINEER'S APPROVAL IS GIVEN.
- USE THE FOLLOWING SCHEDULE FOR MINIMUM HANGING STANDARDS FOR HORIZONTAL PIPING (MAXIMUM SPACING FOR CAST IRON IS 5'-0"):

PIPE SIZE	ROD DIAMETER	MAXIMUM SPACING
1-1/4" (32mm) AND SMALLER	3/8" (10mm)	3'-0" (900mm)
1-1/2" (38mm) AND 2" (50mm)	3/8" (10mm)	10'-0" (3000mm)
2-1/2" (65mm) AND 3" (75mm)	1/2" (12mm)	12'-0" (3600mm)
4" (100 mm) AND 5" (125mm)	5/8" (16mm)	12'-0" (3600mm)
6" (150 mm)	3/8" (10mm)	12'-0" (3600mm)
- STEEL PIPE

SIZE	ROD DIAMETER	MAXIMUM SPACING
1-1/4" (32mm) AND 2" (50mm)	3/8" (10mm)	10'-0" (3000mm)
- COPPER PIPE

SIZE	ROD DIAMETER	MAXIMUM SPACING
1" (25mm) AND SMALLER	3/8" (10mm)	6'-0" (1800mm)
1-1/4" (32mm) AND 2" (50mm)	3/8" (10mm)	10'-0" (3000mm)
- PIPE HANGERS MAY BE PERFORATED GALVANIZED STEEL STRAP HANGERS FOR 2" (50mm) AND SMALLER PIPING IN CONCEALED SPACES.
- WALL SUPPORTS:
 - HORIZONTAL PIPE ADJACENT TO HORIZONTAL PIPE ADJACENT TO WALL.
 - ANGLE IRON WALL BRACKETS WITH SPECIFIED HANGERS.
 - VERTICAL PIPE ADJACENT TO WALL.
 - EXPOSED PIPE WALL GUIDE, GRINNELL FIG. 235 OR 236
 - CHANNEL TYPE SUPPORTS (BRUNDTY, CANADIAN STRUT, CANTRESS OR UNISTRUT).
- INSERTS, ANCHORS AND BEAM CLAMPS:
 - SELECTED FOR APPLICATION AND LOAD (GRINNELL OR MYATT).
 - DO NOT USE EXPLOSIVE TYPE INSERTS UNLESS PERMITTED BY THE CONSULTANT.
- ON INSULATED PIPING WHERE THE INSULATION IS CALLED TO HAVE CONTINUOUS VAPOUR BARRIER, INSTALL OVERSIZED HANGERS AND INSULATION PROTECTION SHELDS WITH GAUGES AND LENGTHS AS RECOMMENDED BY MANUFACTURER.
- PROVIDE ACCESS DOORS AS REQUIRED TO INSTALL, MAINTAIN AND ADJUST EQUIPMENT AND CONTROLS. ACCESS DOORS IN CEILINGS AND WALLS SHALL HAVE FRAMO HINGES AND SCREWDRIVER CAM LOCKS.
- PROVIDE FIRESTOPPING AND/OR INTUMESCENT DONUTS, AS REQUIRED, WHERE PIPING PASSES THROUGH FIRE SEPARATIONS.
- PIPE AND FITTINGS
 - DOMESTIC AND TEMPERED WATER (ABOVE GRADE & WITHIN UTILIDOR):
 - TYPE L HARD COPPER WITH WROUGHT COPPER OR CAST BRONZE FITTINGS USING LEAD-FREE SOLDER, TO ASTM B 88 STANDARD.
 - PVC PRESSURE WATER PIPE TO CAN/CSA-B137.3 STANDARD. OR
 - CROSSLINKED POLYETHYLENE (PEX) PRESSURE TUBING TO CAN/CSA-B137.5
 - SEWAGE AND SUMP PUMP DISCHARGE PIPE (ABOVE GRADE & WITHIN UTILIDOR):
 - PVC DWV PIPE TO CAN/CSA-B181.2 STANDARD.
 - DWV COPPER WITH SOLDERED COPPER OR CAST BRONZE DRAINAGE FITTINGS.

SECTION 15180 - INSULATION (For Piping in Townhouse Crawlspace).

- PROVIDE 1/2" (12mm) THICK, FOIL-FACED RIGID PRE-FORMED FIBREGLASS EXTERNAL THERMAL PIPE INSULATION ON ALL NEW DOMESTIC WATER PIPES.
- PROVIDE 1" (25mm) THICK, FOIL-FACED RIGID PRE-FORMED FIBREGLASS EXTERNAL PIPE INSULATION ON ALL NEW PLUMBING VENTS FOR 10" (300mm) ON WARM SIDE OF A PENETRATION THROUGH A WALL OR CEILING/ROOF TO A COLD SPACE, AND FOR FULL LENGTH IN COLD ATTIC SPACES.
- ALL JOINTS AND ELBOWS SHALL BE COMPLETELY INSULATED EXCEPT JOINTS AND ELBOWS MAY BE LEFT UNCOVERED ON HOT PIPING IN CONCEALED SPACES.
- ALL VALVES AND UNIONS SHALL BE COMPLETELY INSULATED, EXCEPT VALVES AND UNIONS MAY BE LEFT UNCOVERED ON HOT PIPING IN CONCEALED SPACES.
- SEAMS OF FOIL-FACED THERMAL INSULATION SHALL BE SEALED WITH ALUMINIUM DUCT TAPE.
- PROVIDE ADDITIONAL LAYER OF CANVAS, FIELD APPLIED, ADHERED, LAP SEALED AND FINISHED WITH A BRUSH COAT OF SIZING.
- PROVIDE PVC FITTING COVERS WHERE CANVAS JACKET IS APPLIED.
- COVER BUTT JOINTS WITH A STRIP OF THE SAME MATERIAL AS THE JACKET.
- FLEXIBLE INSULATION SHALL BE INSTALLED IN A MANNER THAT DOES NOT REDUCE ITS THICKNESS.

SECTION 15180.10 - PRE-INSULATED PIPING FOR UTILIDORS

- GENERAL
 - THE PRE-INSULATED PIPING SHALL BE EQUAL TO URECON STANDARD U.I.P. PIPING SYSTEM AS NOTED HEREINAFTER. THE PIPE SHALL BE INSULATED USING THE U.I.P.8 FACTORY INSULATION PROCESS, AS SUPPLIED BY URECON LTD., COMPLETE WITH INTEGRAL CONDUIT FOR ELECTRIC HEAT TRACE CABLE AND 1.27 MM (50 MILS) TO 2.54MM (100MILS) BLACK POLYETHYLENE JACKET WITH UV INHIBITOR. THE JACKET THICKNESS IS DEPENDANT ON THE DIAMETER AND INTENDED FUNCTION. THE INSULATION OF ASSOCIATED JOINTS, FITTINGS AND ACCESSORIES SHALL BE AS PER URECON'S RECOMMENDATIONS, DEPENDING ON THE SIZE AND TYPE OF PIPE INVOLVED. THE PRODUCT SHALL BE MANUFACTURED IN ACCORDANCE TO ISO 9001-2000 STANDARDS, OR APPROVED EQUAL.
 - MANUFACTURER & SUPPLIER CONTACT INFORMATION:

URECON Pre-Insulated Pipe (ALBERTA) 5010 - 43rd Avenue, P.O. Box 210 Calmar, Alberta T0C 0V0	Contact Name: Ron Gravel Phone: (780) 985-3636 Cell: (780) 983-0393 Fax: (780) 985-2466 Email: r.gravel@urecon.com, or sales.west@urecon.com
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 - PIPE PREPARATION
 - PIPE AND CASING SHALL BE CLEANED OF SURFACE DUST OR DIRT. IF NECESSARY, TO INSURE ADHESION OF THE FOAM TO THE PIPE AND CASING SURFACE, THE PIPE MAY BE TREATED BY SAND BLASTING OR THE APPLICATION OF A CHEMICAL FOAM-BONDING COMPOUND TO ENHANCE ADHESION, AS DEEMED NECESSARY BY URECON AND PROJECT REQUIREMENTS.
 - HEAT TRACING CONDUIT(S)
 - HEAT TRACING CONDUIT(S) SHALL CONSIST OF AN EXTRUDED MOLDING AND SHALL BE APPLIED TO THE PIPE PRIOR TO APPLICATION OF THE INSULATION. THE CONDUIT(S) WILL BE SECURELY FASTENED TO THE PIPE TO PREVENT THE INGRESS OF FOAM THEREIN DURING THE INSULATION PROCESS. ALL CONDUIT(S) SHALL BE CHECKED AFTER INSULATING TO INSURE THEY ARE NOT FLUIDGED. THE ENDS SHALL BE SEALED PRIOR TO SHIPPING TO PREVENT ANY FOREIGN MATERIAL FROM ENTERING THE CONDUIT WHILE IN TRANSIT OR DURING INSTALLATION.
 - INSULATION
 - MATERIAL: RIGID POLYURETHANE FOAM, FACTORY APPLIED.
 - THICKNESS: 50 MM (2 IN.) OR AS REQUIRED.
 - DENSITY: (ASTM D 1622) 35 TO 46 KG/M³ (2.2 TO 3.0 LBS/FT³).
 - CLOSED CELL CONTENT: (ASTM D 6226) 90%, MINIMUM.
 - WATER ABSORPTION: (ASTM D 2842) 4.0% BY VOLUME.
 - THERMAL CONDUCTIVITY: (ASTM C518) 0.020 TO 0.026 W/M OC (0.14 TO 0.17 BTU · IN/FT² · HR · °F).
 - TEMPERATURE LIMITATIONS: CRYOGENIC TO 9300 (2000F)
 - SYSTEM PROPERTIES
 - SYSTEM COMPRESSIVE STRENGTH: (MODIFIED ASTM D 1621 WITH 50 MIL JACKET) APPROXIMATELY 414 TO 552 KPA (60-80 LBS/IN²), VARIES WITH PIPE DIAMETER.
 - TEMPERATURE LIMITATIONS:
 - MINIMUM AMBIENT INSTALLATION TEMPERATURE @ -34°C (-30°F)
 - SERVICE TEMPERATURE APPROXIMATELY -45°C (-49°F)
 - OUTER JACKET ON PIPE INSULATION WITH ENHANCED COLD CLIMATE HANDLING PROPERTIES
 - THE OUTER PROTECTIVE JACKET SHALL CONSIST OF EITHER -
 - TAPE WRAP SYSTEM - (AVAILABLE FROM BOTH MANUFACTURING FACILITIES)
 - JACKET MATERIAL: SCAPA #366 POLYETHYLENE, UV INHIBITED, SPECIALLY FORMULATED FOR SUPERIOR COLD ENVIRONMENT PROPERTIES.
 - SEALANT: BUTYL RUBBER AND RESIN, APPLIED HOT IN 1.27MM (25 MILS) MULTIPLE LAYERS PROVIDING A SHRINK TIGHTENED WATERPROOF BOND THROUGHOUT ITS ENTIRE LENGTH.
 - MINIMUM ELONGATION: (ASTM D 1000) 300%, 6 MONTH TEST.
 - TENSILE STRENGTH: (ASTM D-1000) 6.83 KG/CM WIDE (38 LBS/IN WIDE).
 - EXTRUDED SYSTEM - (FROM CALMAR, AB ONLY)
 - THE OUTER PROTECTIVE JACKET ON THE CASING SYSTEM SHALL CONSIST OF HIGH DENSITY POLYETHYLENE COPOLYMER BLACK PE, UV INHIBITED, FACTORY APPLIED AS PER THE FOLLOWING SPECIFICATIONS:
 - MINIMUM CELL CLASSIFICATION 435580A FOR PE AS PER ASTM D 3350
 - MINIMUM 2% CARBON BLACK, WELL DISPERSED
 - DENSITY 0.953 GM/CC ASTM D 4883
 - TENSILE STRENGTH AT YIELD (50 MM(2 IN.) MIN) 26 MPA (3,700 PSI) , ASTM D 638
- INSULATED PIPE JOINTS
 - BUTT-FUSED AND WELDED JOINTS
 - INSULATED PIPE JOINTS SHALL BE COMPLETED USING PRE-FABRICATED RIGID POLYISOCYANURATE OR URETHANE HALF SHELLS AND SEALED WITH THE APPLICATION OF INSULATED WRAP AROUND ADHESIVE LINED HEAT SHRINK SLEEVES AS SUPPLIED BY URECON. THE HEAT SHRINK SLEEVES SHALL OVERLAP THE INSULATION JACKET BY A MINIMUM OF 75 MM (3 IN) ON EITHER SIDE OF THE JOINT.
 - BELL X SPIGOT JOINTS
 - INSULATED PIPE JOINTS SHALL BE SEALED WITH A 150 MM (6 IN.) WIDE HEAT SHRINK SLEEVE OR BUTYL MASTIC TAPE IF THE SYSTEM IS NOT ELECTRICALLY HEAT TRACED, 300 MM (12 IN.) WIDE IF TRACED.
- INSULATION KITS FOR FITTINGS
 - INSULATION KITS FOR FITTINGS SHALL CONSIST OF RIGID POLYISOCYANURATE OR URETHANE FOAM INSULATION WITH A FULLY BONDED POLYMER PROTECTIVE COATING ON ALL EXTERIOR AND INTERIOR SURFACES, INCLUDING ENDS. KITS TO BE SUPPLIED COMPLETE WITH SILICONE CAULKING FOR SEAMS, STAINLESS STEEL ATTACHMENT STRAPS AND CLIPS, AND HEAT SHRINK SLEEVES OR BUTYL MASTIC TAPE TO SEAL BETWEEN PIPE AND INSULATION KIT.
 - RIGID POLYISOCYANURATE OR URETHANE FOAM INSULATION
 - DENSITY: (ASTM D1622) 27 TO 32 KG/M³ (1.7 TO 2.0 LBS/FT³).
 - COMPRESSIVE STRENGTH: (ASTM D1621) 131 TO 158 KPA (19 TO 23 LBS/IN²)
 - CLOSED CELL CONTENT: 90%, MINIMUM.
 - WATER ABSORPTION: (ASTM C272) 4.0% BY VOLUME.
 - THERMAL CONDUCTIVITY: (ASTM C 518) 0.027 W/M OC (0.19 BTU IN/FT² HR °F).
 - THICKNESS: TO MATCH PIPE INSULATION THICKNESS.
 - POLYMER COATING, URECON BL-75-20EP
 - TWO COMPONENT HIGH DENSITY POLYURETHANE COATING, BLACK IN COLOR.
 - DENSITY: 1170 KG/M³ (73 LBS/FT³).
 - DIAMETER D SCALE 60.
 - TENSILE STRENGTH: 11,100 KPA (1610 LBS/IN²).
 - TEAR STRENGTH: 26.5 N/MM (151 LBS/IN).
 - THICKNESS: 1.9mm (75 MILS) OUTSIDE SURFACES, 0.51MM (20 MILS) INSIDE SURFACES.
- ELECTRIC TRACING SYSTEM
 - THE ELECTRIC TRACING SYSTEM AND ASSOCIATED CONTROLS SHALL BE AS PER THE MANUFACTURER'S RECOMMENDATIONS WITH PARTICULAR ATTENTION BEING PAID TO THE WATT DENSITIES APPLIED THROUGH CONDUITS ON CONTROL PIPES. ALL TRACING CABLES AND RELATED ACCESSORIES TO BE CSA APPROVED AND COMPLY WITH CSA HEAT TRACING STANDARD C222-ND, 130-03. STANDARD OF ACCEPTANCE IS URECON'S THERMOGARD OR APPROVED EQUAL. PLEASE CONTACT YOUR URECON REPRESENTATIVE FOR FURTHER DETAILS AND DESIGN ASSISTANCE.

SECTION 15400.10 - TEMPORARY PIPING FOR PRESSURE-RATED POTABLE WATER DELIVERY SYSTEMS

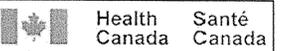
- GENERAL
 - THE TEMPORARY WATER MAIN PIPING & JOINTS SHALL BE EQUAL TO CERTAINTED , CERT-LOK™ VELOMINEM™, RESTRAINED-JOINT PVC PIPE.
 - THIS SPECIFICATION COVERS THRUST-RESTRAINED POLYVINYL CHLORIDE (PVC) PIPE, 2" - 16", WITH IRON PIPE SIZE (I.P.S.) OUTSIDE DIAMETERS. PIPE IS INTENDED FOR USE IN PRESSURE-RATED POTABLE WATER DELIVERY SYSTEMS, AS WELL AS IN SEWER FORCE MAIN AND FIRE PROTECTION WATER DELIVERY SYSTEMS.
 - REFERENCE DOCUMENTS & STANDARDS
 - TEMPORARY PIPING SYSTEMS SHALL CONFORM TO THE FOLLOWING CODES AND STANDARDS:
 - LATEST ADOPTED VERSION OF THE NATIONAL BUILDING CODE OF CANADA.
 - LATEST ADOPTED VERSION OF THE NATIONAL PLUMBING CODE OF CANADA.
 - LATEST ADOPTED VERSION OF THE NATIONAL FIRE CODE OF CANADA.
 - MANITOBA BUILDING CODE (LATEST REVISED ISSUE)
 - MANITOBA FIRE CODE (LATEST REVISED ISSUE)
 - NFPA STANDARDS
 - CANADIAN STANDARDS ASSOCIATION (CSA)
 - ALL LOCAL CODES
 - AUTHORITIES HAVING JURISDICTION
 - ALL ASPECTS OF THE INSTALLATION MUST COMPLY WITH THE MOST STRINGENT OF THE APPLICABLE BUILDING CODES, LOCAL REGULATIONS, AND BY-LAWS. BEFORE PROCEEDING WITH THE WORK, OBTAIN APPROVED DRAWINGS AND SPECIFICATIONS FROM THE AUTHORITIES HAVING JURISDICTION.
 - USE LATEST EDITION OF ALL REFERENCED CODES, STANDARDS, REGULATIONS, ETC.
 - ALL EQUIPMENT, MATERIALS AND COMPONENTS SHALL BE TESTED, CERTIFIED AND LABELED BY ULG AND/OR CSA FOR USE IN CANADA. THE CERTIFICATION AND LABELING SHALL BE APPROPRIATE FOR THE INTENDED FUNCTION OF THE ITEM BEING SUPPLIED, AS DICTATED BY THE RELEVANT CODES AND STANDARDS.
 - WHERE ITEMS ARE NOT ADEQUATELY CERTIFIED AND LABELED BY THE MANUFACTURER, THE CONTRACTOR SUPPLYING THE ITEM SHALL BE RESPONSIBLE FOR OBTAINING APPROVAL FOR THE USE OF THE ITEM FROM THE LOCAL AUTHORITY HAVING JURISDICTION, AND SHALL BEAR ALL ASSOCIATED COSTS.
 - ASTM INTERNATIONAL
 - ASTM D1784 - STANDARD SPECIFICATION FOR RIGID PVC COMPOUNDS AND CHLORINATED PVC COMPOUNDS
 - ASTM D2241 - STANDARD SPECIFICATION FOR POLY(VINYL CHLORIDE) (PVC) PRESSURE-RATED PIPE (SDR SERIES)
 - ASTM D2837 - STANDARD TEST METHOD FOR OBTAINING HYDROSTATIC DESIGN BASIS FOR THERMOPLASTIC PIPE MATERIALS
 - ASTM D3139 - STANDARD SPECIFICATION FOR JOINTS FOR PLASTIC PRESSURE PIPES USING FLEXIBLE ELASTOMERIC SEALS
 - ASTM F477 - STANDARD SPECIFICATION FOR ELASTOMERIC SEALS (GASKETS) FOR JOINING PLASTIC PIPE
 - NATIONAL SANITATION FOUNDATION (NSF)
 - NSF61 - DRINKING WATER SYSTEM COMPONENTS - HEALTH EFFECTS
 - NSF14 - PLASTIC PIPING SYSTEM COMPONENTS AND RELATED MATERIALS
 - REQUIREMENTS
 - GENERAL
 - PRODUCTS DELIVERED UNDER THIS SPECIFICATION SHALL BE MANUFACTURED ONLY FROM WATER DISTRIBUTION PIPE AND COUPLINGS CONFORMING TO ASTM D2241. THE RESTRAINED JOINT PIPE SYSTEM SHALL ALSO MEET ALL SHORT AND LONG TERM PRESSURE TEST REQUIREMENTS OF ASTM D2241. PIPE, COUPLINGS, AND LOCKING SPLINES SHALL BE COMPLETELY NON-METALLIC TO ELIMINATE CORROSION PROBLEMS.
 - MATERIALS
 - PIPE AND COUPLINGS SHALL BE MADE FROM UNPLASTICIZED PVC COMPOUNDS HAVING A MINIMUM CELL CLASSIFICATION OF 12454, AS DEFINED IN ASTM D1784. THE COMPOUND SHALL QUALIFY FOR A HYDROSTATIC DESIGN BASIS (HDB) OF 4000 PSI FOR WATER AT 73.4°F. IN ACCORDANCE WITH THE REQUIREMENTS OF ASTM D2837. 16" HIGH-PRESSURE COUPLINGS SHALL BE MADE FROM GLASS-REINFORCED THERMOSET FILAMENT-WOUND MATERIALS.
 - APPROVALS
 - RESTRAINED JOINT PVC PIPE PRODUCTS SHALL HAVE BEEN TESTED AND APPROVED BY NSF INTERNATIONAL. 2" THROUGH 16" PVC PIPE AND COUPLING SYSTEMS UP TO CLASS 250 SHALL BE LISTED IN NSF14. ALL PRODUCTS INTENDED FOR CONTACT WITH POTABLE WATER SHALL BE EVALUATED, TESTED, AND CERTIFIED FOR CONFORMANCE WITH NSF 61 BY AN ACCEPTABLE CERTIFYING ORGANIZATION. COPIES OF AGENCY APPROVAL REPORTS OR PRODUCT LISTINGS SHALL BE PROVIDED TO THE ENGINEER.
 - DIMENSIONS
 - NOMINAL OUTSIDE DIAMETERS AND WALL THICKNESSES OF THRUST-RESTRAINED PIPE SHALL CONFORM TO THE REQUIREMENTS OF ASTM D2241. THRUST-RESTRAINED PIPE SHALL BE FURNISHED IN 2', 3', 4', 6', 8', 10', 12', & 16" SIZES, WITH PRESSURE RATINGS FROM 30 PSI TO 315 PSI. PIPE SHALL BE FURNISHED IN STANDARD LENGTHS OF 20 FEET. DIMENSIONS OF THE PIPE ARE SHOWN BELOW.
 - JOINTS
 - COUPLED JOINTS
 - PIPE SHALL BE JOINED USING NON-METALLIC COUPLINGS TO FORM AN INTEGRAL SYSTEM FOR MAXIMUM RELIABILITY AND INTERCHANGEABILITY. HIGH-STRENGTH, FLEXIBLE THERMOPLASTIC SPLINES SHALL BE INSERTED INTO MATING, PRECISIONMACHINED GROOVES IN THE PIPE AND COUPLING TO PROVIDE FULL 360° RESTRAINT WITH EVENLY DISTRIBUTED LOADING. COUPLINGS SHALL BE DESIGNED FOR USE AT OR ABOVE THE RATED PRESSURES OF THE PIPE WITH WHICH THEY ARE UTILIZED, AND SHALL INCORPORATE TWIN ELASTOMERIC SEALING GASKETS MEETING THE REQUIREMENTS OF ASTM F477. JOINTS SHALL BE DESIGNED TO MEET THE LEAKAGE TEST REQUIREMENTS OF ASTM D3139.
 - INTEGRAL BELL JOINTS
 - PIPE SHALL BE JOINED UTILIZING AN INTEGRAL BELL SYSTEM THAT DOES NOT REQUIRE COUPLINGS. A HIGH-STRENGTH, FLEXIBLE THERMOPLASTIC SPLINE SHALL BE INSERTED INTO MATING, PRECISION-MACHINED GROOVES IN THE PIPE AND INTEGRAL-BELL TO PROVIDE FULL 360° RESTRAINT WITH EVENLY DISTRIBUTED LOADING. INTEGRAL BELL SHALL INCORPORATE AN ELASTOMERIC SEALING GASKET MEETING THE REQUIREMENTS OF ASTM F477. JOINTS SHALL BE DESIGNED TO MEET THE LEAKAGE TEST REQUIREMENTS OF ASTM D3139.
 - WORKMANSHIP
 - PIPE AND COUPLINGS SHALL BE HOMOGENEOUS THROUGHOUT AND FREE FROM VOIDS, CRACKS, INCLUSIONS AND OTHER DEFECTS, AND SHALL BE AS UNIFORM AS COMMERCIALLY PRACTICABLE IN COLOR, DENSITY AND OTHER PHYSICAL CHARACTERISTICS.
 - QUALITY CONTROL
 - Q.C. PROGRAM SHALL BE IN ACCORDANCE WITH NSF REQUIREMENTS.
 - MARKING
 - PIPE AND COUPLINGS SHALL BE LEGIBLY AND PERMANENTLY MARKED IN INK WITH THE FOLLOWING MINIMUM INFORMATION:
 - NOMINAL SIZE (FOR EXAMPLE, 4 IN.)
 - OUTSIDE DIAMETER SYSTEM (I.P.S.)
 - PVC
 - STANDARD DIMENSION RATIO (SDR) AND PRESSURE RATING
 - ASTM DESIGNATION D2241-05 (OR LATEST EDITION)
 - MANUFACTURER'S NAME OR TRADEMARK AND PRODUCTION RECORD CODE
 - SEAL (MARK) OF THE TESTING AGENCY VERIFYING THE SUITABILITY OF THE PIPE MATERIAL FOR POTABLE WATER SERVICE
 - APPROVED MANUFACTURERS
 - CERTA-LOK VELOMINE RESTRAINED-JOINT PIPE FROM CERTAINTED CORPORATION, OR APPROVED EQUAL.

SECTION 15400 - PLUMBING (For Piping in Townhouse Crawlspace).

- DOMESTIC WATER PIPING ABOVE GROUND SHALL BE TYPE "L" HARD COPPER, WITH SOLDERED COPPER JOINTS AND FITTINGS. USE LEAD-FREE SOLDER.
- DRAIN AND VENT PIPING ABOVE GROUND SHALL BE AS ALLOWED BY CODE, INCLUDING DWV COPPER, CAST IRON, AND PVC/ABS PLASTIC. JOINTS SHALL BE SOLDERED FOR COPPER, SOLVENT WELDED FOR PLASTIC, AND MECHANICAL JOINT FOR CAST IRON.
- DRAIN AND VENT PIPING BELOW GROUND SHALL BE AS ALLOWED BY CODE, INCLUDING CAST IRON, AND PVC/ABS PLASTIC. JOINTS SHALL BE SOLVENT WELDED FOR PLASTIC, AND MECHANICAL JOINT FOR CAST IRON.
- DOMESTIC WATER VALVES SHALL BE BALL OR BUTTERFLY TYPE.
- PROVIDE CHROME PLATED ESCUTCHEONS WHERE VISIBLE PIPING PASSES THROUGH WALLS AND PARTITIONS.
- PROVIDE UNIONS WHERE PIPING CONNECTS TO EQUIPMENT. UNIONS SHALL BE LOCATED SO THAT THE PIPING DOES NOT HAVE TO BE ADJUSTED IN ORDER TO REMOVE THE EQUIPMENT.
- DURING CONSTRUCTION, OPEN ENDED PIPING SHALL BE TEMPORARILY CAPPED TO PREVENT THE ENTRY OF DIRT AND DEBRIS. ON COMPLETION, PIPING SYSTEMS SHALL BE FLUSHED TO REMOVE ANY FOREIGN MATERIAL.
- SLOPE ALL DRAIN LINES AT A MINIMUM OF 1/8" PER FOOT (1%) UNLESS A GREATER SLOPE IS REQUIRED BY CODE, OR A LESSER SLOPE IS NOTED ON THE DRAWINGS.

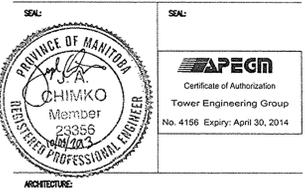
SECTION 15500 - FIRE PROTECTION PIPING AND FITTINGS

- FIRE PROTECTION PIPING AND FITTINGS
 - ALL FIRE PROTECTION SPRINKLER PIPING SHALL BE U.L. LISTED AND AS NOTED ACCEPTABLE BY N.F.P.A. #13 & INSURANCE COMPANY UNDERWRITERS.
 - PIPING:
 - BLACK OR GALVANIZED STEEL PIPE TO ASTM A53 AND ANSI STANDARD B36.10.
 - SCHEDULE 40 "STANDARD WALL" PIPE FOR SIZES UNDER NPS 8 FOR PRESSURES TO 300 PSI.
 - SCHEDULE 30 PIPE FOR SIZES NPS 8 AND LARGER FOR PRESSURES TO 300 PSI.
 - FITTINGS:
 - COMPATIBLE WITH PIPING MATERIAL.
 - SUITABLE FOR MAXIMUM PRESSURES IN SYSTEM BUT NOT LESS THAN 175 PSI (1207 KPA) WORKING PRESSURE.
 - CAST IRON, SCREWED, TO ANSI B16.4 - 1977, 860 KPA
 - MALLEABLE IRON, SCREWED, TO ANSI B16.3-1977, 860 KPA
 - CAST IRON, FLANGED, TO ANSI B16.1-1975, 860 KPA
 - MECHANICAL, B31.3-1980.
 - ALL FITTINGS TO WITHSTAND 1.4 MPA TEST PRESSURE.
 - FOR PIPING 8" (200mm) AND LARGER, FITTINGS SHALL BE OF THE FLANGED PATTERN.
 - FLANGE BOLTS: SQUARE OR HEX HEAD BOLTS WITH HEAVY HEX NUTS TO ASTM A307.78.
 - FLANGE GASKETS: 1.6 MM THICK PLAIN OR CLOTH INSERTED RED RUBBER TO ANSI B16.20-1973 AND ANSI B16.21-1978.
- GENERAL NOTES
 - ALL WELDING SHALL BE DONE IN THE SHOP AND WELDING FITTINGS USED.
 - WELDING FITTINGS SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS.
 - ANSI B16.9 AND B16.25.
 - ASTM DESIGNATION A234.
 - APPROVED EXPANSION JOINTS OR FLEXIBLE COUPLINGS SHALL BE PROVIDED WHERE NECESSARY.
 - FLANGE FITTINGS SHALL BE USED AT ALL VALVE STATIONS.
 - ALL GROOVED END FITTINGS SHALL BE OF ONE MANUFACTURER.
- ACCEPTABLE MANUFACTURERS: FITTINGS - VICTALUC, RIMCO.
- HANGERS AND SUPPORTS
 - ALL HANGERS AND SUPPORT SHALL CONFORM TO APPROPRIATE NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS FOR THE INSTALLATION OF FIRE PROTECTION SYSTEMS.
 - NOTE: TOGGLE HANGERS OR STRAP HANGERS SHALL NOT BE USED.
- PIPING EXPANSION
 - ALL FIRE PROTECTION PIPING SYSTEMS, INCLUDING ALL TAKE-OFFS SHALL BE SO INSTALLED WITHIN THE BUILDING THAT THE PIPING AND CONNECTED EQUIPMENT WILL IN NO WAY BE DISTORTED BY EXPANSION, CONTRACTION OR BUILDING SETTLING.
 - IF CIRCUMSTANCES ON THE JOB REQUIRE ADDITIONAL CHANGES IN DIRECTION FROM THOSE SHOWN ON THE DRAWINGS, THE CONFIGURATION SHALL BE ADJUSTED TO SUIT AT NO EXTRA COST.
 - ANCHORS SHALL BE INSTALLED WHERE NECESSARY TO CONTROL EXPANSION.
- TESTS AND INSPECTIONS
 - FURNISH ALL LABOUR, MATERIALS, INSTRUMENTS, ETC. NECESSARY FOR ALL REQUIRED TESTS. ALL WORK SHALL BE SUBJECT TO INSPECTION BY THE LOCAL PLUMBING INSPECTORS OR DESIGN AUTHORITY. AT LEAST FORTY-EIGHT (48) HOURS NOTICE SHALL BE GIVEN IN ADVANCE OF MAKING THE REQUIRED TESTS.
 - TESTS ON FIRE PROTECTION SYSTEMS SHALL CONSIST OF PRESSURE TESTS AND SHALL CONFORM TO STANDARDS OF INSPECTION AUTHORITY AS LISTED IN SEPARATE CLAUSES OF THIS SECTION OF THE SPECIFICATION. TEST CONNECTIONS FOR SIAMASE CONNECTION LINES SHALL ALSO BE HYDROSTATICALLY TESTED.
 - NOTE: RESPONSIBILITY FOR COMPLETING "CONTRACTOR'S MATERIALS AND TEST CERTIFICATE" IN ACCORDANCE WITH INSPECTION AUTHORITY TEST PROCEDURE IS INCLUDED IN THIS SECTION.
 - SPECIAL REQUIREMENTS REGARDING ELBOWS AND FITTINGS
 - RESPONSIBILITY FOR ALLOWING FOR ALL ELBOWS, FITTINGS, HIPPLES, DRANS, TEST CONNECTIONS AND ALL ACCESSORY PIPEWORK FOR A COMPLETE INSTALLATION IS INCLUDED IN THIS SECTION OF THE WORK. ALL WITHIN THE BASIC TENDER PRICE.
 - NO EXTRA COST WILL BE CONSIDERED BASED ON FAILURE OF CONTRACTOR TO ALLOW FOR EXTRA FITTINGS AND PIPEWORK AS REQUIRED DURING CONSTRUCTION TO AVOID EXISTING STRUCTURE, DUCTWORK OR OTHER OBSTACLES WHETHER SHOWN ON DRAWINGS OR NOT.



LEVEL	DATE	DESCRIPTION
2	10/8/13	ISSUED FOR TENDER
1	9/26/13	ISSUED FOR REVIEW

REVISIONS:
DRAWING NOT TO BE SCALED. ALL DIMENSIONS SHALL BE VERIFIED BEFORE WORK COMMENCES. ANY DISCREPANCIES, VARIANCES OR MISSING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR BEFORE WORK PROCEEDS.
ALL STRUCTURAL SYSTEMS AND COMPONENTS SHALL BE APPROVED BY A PROFESSIONAL ENGINEER. ARCHITECTURE INC. ASSUMES NO LIABILITY FOR ANY FAILURE IN THE STRUCTURE OR SYSTEMS OR COMPONENTS THERE-OF.



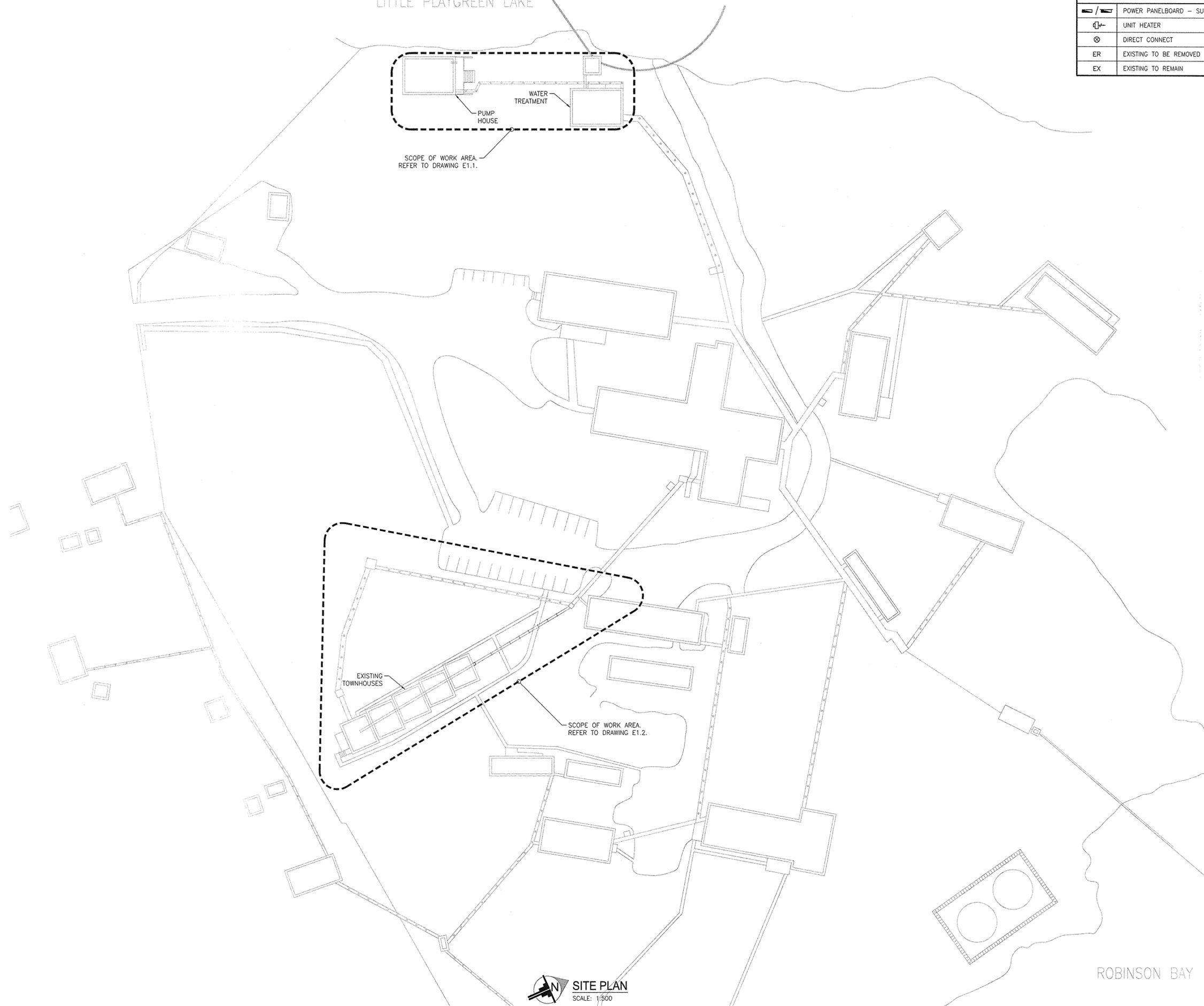
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101-41 FINCH STREET WEST, SUITE 200, SCARBORA, ONT. M1S 4T6 (416) 291-2727 FAX (416) 291-0188

STRUCTURAL/MECHANICAL/ELECTRICAL:
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TOWER ENGINEERING GROUP
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CALGARY, AB: (403) 235-2555
CAMBRIDGE, ON: (519) 857-1944
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PROJECT:
NORWAY HOUSE HOSPITAL
NORWAY HOUSE, MANITOBA
MECHANICAL SPECIFICATIONS

LITTLE PLAYGREEN LAKE

LEGEND	
	POWER PANELBOARD - SURFACE MOUNT/FLUSH MOUNT
	UNIT HEATER
	DIRECT CONNECT
ER	EXISTING TO BE REMOVED
EX	EXISTING TO REMAIN



SCOPE OF WORK AREA
REFER TO DRAWING E1.1.

EXISTING
TOWNHOUSES

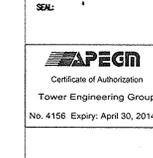
SCOPE OF WORK AREA
REFER TO DRAWING E1.2.

SITE PLAN
SCALE: 1/500

LEVEL	DATE	DESCRIPTION
2	10/8/13	ISSUED FOR TENDER
1	9/26/13	ISSUED FOR REVIEW

REVISIONS:

DRAWING NOT TO BE SCALED. ALL DIMENSIONS SHALL BE VERIFIED BEFORE WORK COMMENCES. ANY DISCREPANCIES, TYPOGRAPHS, OR MISSING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR BEFORE WORK PROCEEDS.
ALL STRUCTURAL SYSTEMS AND COMPONENTS SHALL BE APPROVED BY A PROFESSIONAL ENGINEER. GW ARCHITECTURE INC. ASSUMES NO LIABILITY FOR ANY FAILURE IN THE STRUCTURAL SYSTEM OR THE COMPONENTS THERE-OF.



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PROJECT:
 NORWAY HOUSE HOSPITAL
 NORWAY HOUSE, MANITOBA

DRAWING TITLE:
 ELECTRICAL
 SITE PLAN

SCALE: AS NOTED	FILE NO: 4.001.003
DATE:	DRAWN BY: E1.0
DRAWN BY: AJ	

ROBINSON BAY

PART 1 GENERAL

1. GENERAL SPECIFICATION

- 1.1. IT IS RECOMMENDED THAT THE BIDDERS EXAMINE THE SITE AND THE EXISTING CONDITIONS AFFECTING THE PROJECT. EXAMINE THE COMPLETE SET OF CONTRACT DOCUMENTS TO ENSURE THAT THE WORK CAN BE CARRIED OUT WITHOUT SIGNIFICANT CHANGES TO THE INTENT OF THE DOCUMENTS. NO FUTURE ALLOWANCE WILL BE MADE CHANGES UNLESS THE ENGINEER HAS BEEN NOTIFIED IN WRITING OF ANY DISCREPANCIES OR INTERFERENCES, PRIOR TO THE CLOSE OF TENDERS. NO ALLOWANCE WILL BE MADE FOR ITEMS WHICH SHOULD HAVE BEEN NOTED DURING A PRE-TENDER SITE INSPECTION.
- 1.2. THE LOCATION, ROUTING AND ELEVATIONS OF ALL NEW AND EXISTING SERVICES AND UTILITIES AS SHOWN ON THE DRAWINGS ARE TO BE CONSIDERED AS APPROXIMATIONS ONLY. VERIFY THE EXACT LOCATIONS, ROUTINGS AND ELEVATIONS OF ALL SERVICES PRIOR TO COMMENCING WORK, AND ASSUME RESPONSIBILITY FOR LAYING OUT ALL WORK. THE CONTRACTOR SHALL RETAIN RESPONSIBILITY FOR ANY DAMAGE TO EXISTING SERVICES AND UTILITIES.
- 1.3. ALL ASPECTS OF THE INSTALLATION MUST COMPLY WITH THE MOST STRINGENT OF THE APPLICABLE BUILDING CODES, LOCAL REGULATIONS, AND BY-LAWS. BEFORE PROCEEDING WITH THE WORK, OBTAIN APPROVED DRAWINGS AND SPECIFICATIONS FROM THE AUTHORITIES HAVING JURISDICTION.
- 1.4. PROVIDE ALL NECESSARY NOTICES, OBTAIN ALL REQUIRED PERMITS, PAY ALL FEES REQUIRED BY LAW, AND ARRANGE FOR ALL INSPECTIONS RELATED TO THE PERFORMANCE OF THE SPECIFIED WORK.
- 1.5. PROVIDE ALL MATERIALS, LABOR AND EQUIPMENT REQUIRED TO COMPLETE THE WORK AS SHOWN AND AS SPECIFIED, SO AS TO LEAVE THE OWNER WITH A COMPLETE AND FUNCTIONING SYSTEM. ALL EQUIPMENT AND MATERIALS SHALL BE NEW AND C.S.A. APPROVED, UNLESS SPECIFICALLY NOTED OTHERWISE. ALL SIMILAR EQUIPMENT AND OR MATERIALS SHALL BE BY THE SAME MANUFACTURER.
- 1.6. ALL CUTTING AND PATCHING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. EXISTING EXPOSED SURFACES SHALL BE RETURNED TO AN "AS-FOUND" CONDITION ACCEPTABLE TO THE OWNER.
- 1.7. PROVIDE ALL REQUIRED ACCESS PANELS WITH SUITABLE FIRE RATINGS FOR THE WALL OR CEILING THAT THEY ARE BEING INSTALLED IN.
- 1.8. EACH CONTRACTOR SHALL COORDINATE THE WORK WITH OTHER CONTRACTORS IN ORDER TO AVOID CONFLICTS.
- 1.9. NEATLY STORE ALL MATERIALS, AND CLEAN UP REFUSE ON A REGULAR BASIS. PROTECT AND MAINTAIN ALL WORK UNTIL THE PROJECT HAS BEEN COMPLETED AND TURNED OVER TO THE OWNER.
- 1.10. THE INSTALLATION SHALL BE COMPLETELY TESTED, DEMONSTRATING THAT THE EQUIPMENT AND SYSTEMS INSTALLED ARE PERFORMING IN THE MANNER INTENDED.
- 1.11. AT THE COMPLETION OF THE INSTALLATION, PROVIDE TWO MARKED-UP COPY OF THE OF THE "AS-BUILT" DRAWINGS FOR RECORD PURPOSES. PROVIDE THREE SETS OF OPERATION AND MAINTENANCE MANUALS. PAY ALL COSTS ASSOCIATED WITH THE PRODUCTION OF THE "AS-BUILT" DRAWINGS AND THE MANUALS. SUBMIT THE DOCUMENTS TO THE ENGINEER FOR REVIEW, AND MAKE ANY REQUESTED CHANGES BEFORE DELIVERING THEM TO THE OWNER.
- 1.12. REVIEW THE OPERATION AND MAINTENANCE OF THE SYSTEMS WITH THE OWNER'S MAINTENANCE PERSONNEL AND PROVIDE WRITTEN AND/OR VERBAL INSTRUCTIONS AS REQUIRED.
- 1.13. FURNISH CERTIFICATES CONFIRMING THAT THE WORK HAS BEEN INSTALLED TO THE SATISFACTION OF THE AUTHORITIES HAVING JURISDICTION.
- 1.14. NO CERTIFICATE ISSUED, PAYMENT MADE, OR PARTIAL OR ENTIRE USE OF THE SYSTEMS BY THE OWNER, SHALL BE CONSTRUED AS ACCEPTANCE OF DEFECTIVE WORK OR MATERIALS.
- 1.15. THE CONTRACTOR SHALL PROVIDE A ONE YEAR LABOR AND MATERIAL WARRANTY ON ALL NEW EQUIPMENT AND COMPONENTS, COMMENCING UPON THE DATE OF ACCEPTANCE BY THE OWNER.
- 1.16. REPLACE AT NO CHARGE TO THE OWNER, ALL ITEMS WHICH FAIL OR PROVE DEFECTIVE WITHIN A PERIOD OF ONE YEAR AFTER THE DATE OF FINAL ACCEPTANCE BY THE OWNER, PROVIDED THAT THE FAILURE IS NOT DUE TO IMPROPER USAGE BY THE OWNER. MAKE GOOD ALL DAMAGES INCURRED AS A RESULT OF THE FAILURE AND OF THE REPAIRS.
- 1.17. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AND INSTALL ALL UNIT, FLOW AND BASEBOARD HEATERS.

2. ELECTRICAL SPECIFICATIONS

- 2.1. REFER TO DIVISION 1 AND ARCHITECTURAL SPECIFICATIONS AND OTHER GENERAL CONDITIONS.
- 2.2. PROVIDE FOR A COMPLETE AND WORKING INSTALLATION AS HEREIN SPECIFIED AND AS SHOWN ON THE DRAWINGS.
- 2.3. THE ELECTRICAL INSTALLATION SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE CANADIAN ELECTRICAL CODE, PROVINCIAL AND MUNICIPAL CODES AND REGULATIONS.
- 2.4. OBTAIN ALL PERMITS, APPROVALS AND PAY ALL RELATED FEES REQUIRED FOR THIS INSTALLATION.
- 2.5. ALL EQUIPMENT SUPPLIED UNDER THIS CONTRACT SHALL BE NEW AND BE C.S.A. APPROVED.
- 2.6. ARRANGE FOR, AND COORDINATE, ROUGH-IN AND FINAL INSPECTIONS WITH INSPECTION AUTHORITIES, CONSULTANT AND THE BUILDING OWNER'S REPRESENTATIVE.
- 2.7. CONFIRM ALL RECEPTACLE CONFIGURATIONS, OUTLETS AND WIRING FOR OWNER SUPPLIED EQUIPMENT BEFORE INSTALLATION OF SAME. VISIT EXISTING SITE WHERE SUCH EQUIPMENT IS PRESENTLY INSTALLED, AND/OR OBTAIN OUTLETS, WIRING AND RECEPTACLE CONFIGURATIONS FROM EQUIPMENT MANUFACTURERS. EXACT CONFIGURATIONS MAY DIFFER FROM THOSE SHOWN ON THE DRAWINGS. INCLUDE ALL COSTS TO PROVIDE NECESSARY OUTLETS WIRING AND RECEPTACLES.

3. EXAMINATION

- 3.1. EXAMINE THE ARCHITECTURAL, INTERIOR DESIGN, STRUCTURAL AND MECHANICAL DRAWINGS TO ENSURE THAT THE WORK UNDER THIS CONTRACT CAN BE SATISFACTORILY CARRIED OUT. REPORT ANY

DISCREPANCIES TO THE CONSULTANT PRIOR TO SUBMISSION OF TENDER.

- 3.2. THE ELECTRICAL SUBCONTRACTOR SHALL EXAMINE THE SITE, LOCAL CONDITIONS AND CONSIDER HOW THEY MAY AFFECT THE PROJECT.

4. SUPERVISION

- 4.1. SUPERVISE THE WORK AT ALL TIMES THROUGH A RESPONSIBLE AND COMPETENT JOURNEYMAN ELECTRICIAN / SUPERVISOR.
- 4.2. FULL COOPERATION SHALL BE SHOWN WITH OTHER TRADES TO FACILITATE INSTALLATIONS AND TO AVOID DELAYS IN CARRYING OUT THE WORK.

5. ACCURACY OF DATA

- 5.1. DRAWINGS ARE SCHEMATIC; EXACT LOCATIONS, DISTANCES, LEVELS AND OTHER DIMENSIONS SHALL BE GOVERNED BY THE BUILDING AS CONSTRUCTED.
- 5.2. OUTLETS OR EQUIPMENT SHALL BE MOVED TO ANY POINT WITHIN A 10' RADIUS WHEN RELOCATION IS REQUESTED BY THE CONSULTANT OR OWNER BEFORE THE WORK HAS BEEN SUBSTANTIALLY COMPLETED, WITHOUT ADDITIONAL COST.
- 5.3. BRANCH CIRCUIT WIRING SHALL BE INSTALLED WITH CIRCUITS ARRANGED EXACTLY AS SHOWN ON THE DRAWINGS. CONDUIT AND CABLE RUNS MAY BE MODIFIED TO SUIT THE INSTALLATION.

6. APPROVAL OF MATERIAL

- 6.1. REQUEST FOR APPROVAL OF MATERIAL AS EQUALS OR ALTERNATES TO THAT SPECIFIED SHALL BE SUBMITTED TO THE CONSULTANT WITH A STAMPED SELF-ADDRESSED ENVELOPE OR RETURN FAX NUMBER AND PERFORMANCE SPECIFICATIONS FIVE (5) WORKING DAYS PRIOR TO THE TENDER SUBMITTAL. SAMPLES SHALL BE PROVIDED ON REQUEST.

7. SHOP DRAWINGS

- 7.1. SUBMIT SHOP DRAWINGS FOR REVIEW BY THE ENGINEER IN PDF FORMAT VIA EMAIL.
- 7.2. THE REVIEW OF THE SHOP DRAWINGS IS FOR THE SOLE PURPOSE OF ASCERTAINING CONFORMANCE WITH THE GENERAL DESIGN CONCEPT. THE REVIEW SHALL NOT MEAN APPROVAL OF THE DETAILED DESIGN INHERENT IN THE EQUIPMENT, THE RESPONSIBILITY FOR WHICH SHALL REMAIN WITH THE CONTRACTOR. THE REVIEW SHALL NOT RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL REMAIN RESPONSIBLE FOR CONFIRMING AND CORRELATING THE DIMENSIONS ON THE JOBSITE, AND FOR INFORMATION THAT PERTAINS TO THE FABRICATION PROCESS, CONSTRUCTION TECHNIQUES, AND INSTALLATION DETAILS, AND FOR COORDINATING ALL WORK OF THE RELATED SUB-TRADES.
- 7.3. FABRICATION OF EQUIPMENT SHALL NOT COMMENCE UNTIL SHOP DRAWINGS OF SUCH EQUIPMENT HAVE BEEN REVIEWED BY THE CONSULTANT. TWO SETS SHALL BE SUBMITTED WITH LOCAL INSPECTION DEPARTMENT APPROVAL WHERE REQUIRED.
- 7.4. THE ELECTRICAL CONTRACTOR SHALL REVIEW ALL MECHANICAL SHOP DRAWINGS - REQUIRING ELECTRICAL CONNECTION - AND COORDINATE VOLTAGE AND SIZES WITH DIVISION 15 AND GENERAL CONTRACTOR.
- 7.5. REQUIRED SHOP DRAWINGS:
 - ELECTRIC HEATING EQUIPMENT AND CONTROLS.

8. AS-BUILT DRAWINGS

- 8.1. KEEP A RECORD SET OF DRAWINGS ON THE SITE AT ALL TIMES RECORDING ANY CHANGES THAT MAY OCCUR. SUBMIT THESE DRAWINGS TO THE CONSULTANT UPON COMPLETION OF THE WORK. AS-BUILTS SHALL INCLUDE CIRCUITING OF NEW AND EXISTING EQUIPMENT TO REMAIN.
- 8.2. SUBMIT A CERTIFICATE OF INSPECTION FROM THE LOCAL INSPECTION AUTHORITY UPON COMPLETION OF WORK AND INCLUDE WITH "AS-BUILT" DRAWINGS.
- 8.3. THE CONSULTANT RESERVES THE RIGHT TO RECOMMEND THAT A PORTION OF THE CONTRACT FUNDS BE WITHHELD PENDING SUBMISSION OF ACCEPTABLE AS-BUILT DRAWINGS.

9. TESTING

- 9.1. THE ELECTRICAL INSTALLATION SHALL BE COMPLETELY TESTED DEMONSTRATING THAT THE EQUIPMENT AND SYSTEMS INSTALLED PERFORM IN THE MANNER INTENDED.

10. GUARANTEE

- 10.1. THE SATISFACTORY OPERATION OF ALL WORK SHALL BE GUARANTEED FOR A PERIOD OF 12 CALENDAR MONTHS AFTER FINAL ACCEPTANCE OF THE BUILDING.

11. REQUEST FOR CHANGE

- 11.1. ALL QUOTATIONS IN RESPONSE TO REQUEST FOR CHANGE SHALL BE SUBMITTED COMPLETE WITH AN ITEMIZED COST BREAKDOWN OF ALL MATERIALS AND LABOUR REQUIRED IN THE CHANGE.

12. GROUNDING

- 12.1. THE ENTIRE INSTALLATION SHALL BE GROUNDED IN ACCORDANCE WITH THE CANADIAN ELECTRICAL CODE AND AS SHOWN ON DRAWINGS.

13. WORKMANSHIP

- 13.1. INSTALL EQUIPMENT, CONDUIT AND CABLES IN A WORKMANLIKE MANNER TO PRESENT A NEAT APPEARANCE TO THE SATISFACTION OF THE CONSULTANT. INSTALL CONDUIT AND CABLE RUNS PARALLEL AND PERPENDICULAR IN CHASES, BEHIND FURRING OR ABOVE CEILINGS. IN AREAS WHERE SYSTEMS ARE TO BE EXPOSED, INSTALL NEATLY AND GROUP TO PRESENT A TIDY APPEARANCE.
- 13.2. INSTALL EQUIPMENT AND APPARATUS REQUIRING MAINTENANCE, ADJUSTMENT OR EVENTUAL REPLACEMENT WITH ADEQUATE CLEARANCES AND ACCESSIBILITY FOR SAME.
- 13.3. INCLUDE, IN THE WORK, ALL REQUIREMENTS SHOWN ON THE SHOP DRAWINGS OR MANUFACTURERS' INSTALLATION INSTRUCTIONS.
- 13.4. REPLACE WORK UNSATISFACTORY TO THE CONSULTANT WITHOUT EXTRA COST.

- 13.5. USE OF CLIPS FOR SECURING AC90 TO CEILING SYSTEM IS PROHIBITED.

- 13.6. ALL CONDUITS MUST BE CLIPPED TO STRUCTURAL CONCRETE BY MEANS OF ANCHORS OR SUPPORTED BY UNISTRUT HANGERS AS CLOSE TO UNDERSIDE AS POSSIBLE. THE WRAPS FOR WIRE HANGING AND FASTENING IS NOT ACCEPTABLE. PERFORATED STRAPPING IS ALSO UNACCEPTABLE. ALL ELECTRICAL COMPONENTS MUST BE SUPPORTED INDEPENDENTLY.

- 13.7. ALL ELECTRICAL SUPPORTS AND HANGER ARE TO CO-ORDINATED AND ACCEPTABLE TO THE PRE-ENGINEERED MANUFACTURE PRIOR TO INSTALLATION.

14. WORK IN EXISTING BUILDING

- 14.1. THE BUILDINGS SHALL REMAIN OPEN AND WILL OPERATE NORMALLY DURING THE CONSTRUCTION PERIOD OF THIS CONTRACT.
 - 14.2. REFER TO ARCHITECTURAL AND GENERAL CONDITIONS FOR PHASING AND STAGING OF WORK AND ADHERE TO THAT PROGRAM. COMPLY WITH INSTRUCTIONS REGARDING WORKING HOURS NECESSARY TO MAINTAIN THE BUILDING IN OPERATION. COORDINATE ALL WORK WITH GENERAL CONTRACTOR.
 - 14.3. REFER TO ELECTRICAL, ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS AND SPECIFICATIONS FOR NEW WORK INVOLVED IN EXISTING BUILDING.
 - 14.4. EXAMINE THE SITE AND LOCAL CONDITIONS AFFECTING ALL THE WORK TO OBTAIN DETAILS AND ALL INFORMATION NECESSARY TO DO THE WORK. NO EXTRA COMPENSATION WILL BE ALLOWED DUE TO FAILURE TO MAKE THIS EXAMINATION. REFER TO ARCHITECT'S SUMMARY OF WORK SECTION 01010.
 - 14.5. CONTRACTOR IS RESPONSIBLE TO INCLUDE ALL WORK AND ITEMS REQUIRED TO ACCOMMODATE ALL CHANGES AND ALTERATIONS TO THE EXISTING BUILDING. INCLUDE ALL COSTS IN ORIGINAL TENDER PRICE.
 - 14.6. WHERE EXISTING SERVICES SUCH AS ELECTRICAL POWER AND FIRE ALARM SYSTEM, ETC. ARE REQUIRED TO BE INTERRUPTED AND/OR SHUT-DOWN, COORDINATE THE SHUT-DOWNS WITH THE OWNER AND CARRY OUT THE WORK AT A TIME AND IN A MANNER ACCEPTABLE TO THEM. CAREFULLY SCHEDULE ALL DISRUPTIONS AND/OR SHUT-DOWNS AND ENSURE THAT THE DURATION OF SAME IS KEPT TO A MINIMUM. SUBMIT FOR APPROVAL, A WRITTEN SCHEDULE OF EACH DISRUPTION AT LEAST 72 HOURS IN ADVANCE OF PERFORMING WORK AND OBTAIN OWNER'S WRITTEN CONSENT PRIOR TO IMPLEMENTING.
 - 14.7. SHOULD ANY CONNECTIONS BE REQUIRED TO MAINTAIN SERVICES DURING WORK IN THE EXISTING BUILDING, SUPPLY AND INSTALL ALL NECESSARY MATERIAL AND EQUIPMENT AND PROVIDE ALL LABOUR AT NO EXTRA COST. SHOULD ANY EXISTING SYSTEM BE DAMAGED, MAKE FULL REPAIRS WITHOUT EXTRA COST, AND TO THE SATISFACTION OF THE OWNER.
 - 14.8. THE DRAWINGS INDICATE MAJOR ITEMS OF EQUIPMENT TO BE DELETED OR RELOCATED BUT MAY NOT INDICATE EVERY ITEM OF EQUIPMENT OR CONDUIT TO BE DELETED OR RELOCATED. CONTRACTOR SHALL BE RESPONSIBLE FOR DETERMINING WHICH EXISTING EQUIPMENT IS TO BE DELETED OR RELOCATED BY EXAMINING THE SITE AND ALL CONSTRUCTION DOCUMENTS.
 - 14.9. EXISTING JUNCTION BOXES SHALL REMAIN ACCESSIBLE.
 - 14.10. PROVIDE PIPE GUARD RAILS FOR PANELBOARDS WHERE INDICATED AND WHERE PANELS OR CONDUITS MAY BE SUBJECT TO DAMAGE. COORDINATE ALL WORK WITH G.C.
 - 14.11. RE-WIRE, MODIFY AND EXTEND EXISTING WIRING AS SPECIFIED AND AS MAY BE REQUIRED TO PROVIDE AND COMPLETE, APPROVED AND FULLY OPERATIVE INSTALLATION TO THE SATISFACTION OF THE ENGINEER AND OWNER.
 - 14.12. IN AREAS WHERE EXISTING WALLS, CEILINGS, ETC. ARE REQUIRED TO BE CUT INTO OR REMOVED, OR OTHER SIMILAR CONSTRUCTION ALTERNATIONS ARE REQUIRED, THE EXISTING WIRING IN THE AREAS REQUIRED TO REMAIN IN USE FOR ANY REASON, THE CONTRACTOR SHALL RE-ROUTE, ALTER AND /OR EXTEND ALL SUCH WIRING IN THESE AREAS IN AN APPROVED MANNER, CONCEALED IN THE BUILDING STRUCTURE WHERE REQUIRED, IN SUCH A MANNER THAT THE ORIGINAL ELECTRICAL CAPACITY OR CHARACTERISTICS IS MAINTAINED. ALL WORK SHALL BE TO THE COMPLETE SATISFACTION OF THE ENGINEER AND OWNER.
 - 14.13. DISCONNECT AND REMOVE EXISTING CEILING MOUNTED ELECTRICAL DEVICES FOR THE CONSTRUCTION OF NEW CEILINGS, SKY-LIGHT OPENINGS OR RELATED WORK. ONCE NEW WORK IS COMPLETE, RE-INSTALL AND RE-CONNECT ELECTRICAL DEVICES TO ORIGINAL LOCATIONS AND CIRCUITS. PROVIDE ALL WIRING REQUIRED.
 - 14.14. ALL EXISTING AND NEW OWNERS EQUIPMENT IS TO BE WIRED AND CONNECTED. SUPPLY AND INSTALL, WIRE AND CONNECT MATCHING RECEPTACLE FOR PORTABLE EQUIPMENT COMPLETE WITH CORD AND CAP. REFER TO EQUIPMENT NAMEPLATE RATING FOR ELECTRICAL CHARACTERISTICS PRIOR TO ROUGH-IN.
 - 14.15. ALL EXISTING OWNER EQUIPMENT WHICH IS NON-PORTABLE, SHALL BE DIRECTLY CONNECTED VIA SOW OR SOWJ CORD MATCHING ELECTRICAL CHARACTERISTICS AS DETERMINED BY NAMEPLATE RATINGS OF EQUIPMENT. CONFIRM NAMEPLATE CHARACTERISTICS PRIOR TO ROUGH-IN.
 - 14.16. MINIMIZE ELECTRICAL SERVICE AND OTHER SYSTEM INTERRUPTIONS. COORDINATE CHANGE-OVER WORK WITH OWNER SITE REPRESENTATIVE ON SITE PRIOR TO INITIATING WORK.
- 15. REMEDIAL WORK SPECIFICATIONS**
- 15.1. ALL NEW CONDUCTORS SHALL MATCH EXISTING CONDUCTORS BEING REPLACED, UNLESS OTHERWISE NOTED.
 - 15.2. ALL UNUSED CABLES AND CONDUITS (INCLUDING COMMUNICATIONS CONDUCTORS) SHALL BE REMOVED FROM SITE.
 - 15.3. IT IS THE ELECTRICAL CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ANY CORING OF HOLES THROUGH DECKS OR FLOOR SLABS WILL NOT PENETRATE EXISTING CONDUITS, CABLES OR MECHANICAL EQUIPMENT IN OR UNDER DECKS OR FLOOR SLABS. HE SHALL AT HIS COST, BE RESPONSIBLE TO TAKE ALL ACTIONS REQUIRED AND AS MAY BE DEEMED NECESSARY BY THE CONSULTANT/OWNER'S REPRESENTATIVE TO CORRECT ANY DAMAGE. NO CORING SHALL BE UNDERTAKEN UNLESS PERMISSION IS GIVEN BY THE CONSULTANT.
 - 15.4. ALL EXISTING JUNCTION BOXES PRESENTLY MOUNTED ON DUCTWORK OR CEILING SYSTEM SHALL BE RELOCATED AND INDEPENDENTLY SUPPORTED.
- 16. RE-USE EXISTING EQUIPMENT**
- 16.1. EXISTING 'MANUFACTURER' OF ELECTRICAL DISTRIBUTION EQUIPMENT SHALL

BE CONSIDERED 'APPROVED' FOR NEW INSTALLATION WHERE REQUIRED.

- 16.2. THE CONTRACTOR SHALL VISIT THE WORK SITE PRIOR TO TENDER CLOSE TO DETERMINE WHAT ELECTRICAL DEVICES AND EQUIPMENT CAN BE RE-USED.
- 16.3. WHERE A DEVICE IS INDICATED TO BE "NEW", THE CONTRACTOR MAY RE-USE AN EXISTING DEVICE IN THE SAME LOCATION. RE-USED DEVICE SHALL HAVE SAME CHARACTERISTICS AND SHALL NOT REDUCE QUALITY OR DESIGN INTENT.
- 16.4. REPLACE OR REPAIR EXISTING ELECTRICAL EQUIPMENT TO BE RE-USED AS NECESSARY, TO EFFECT A GOOD AND "LIKE NEW" WORKING UNIT/SYSTEM.
- 16.5. WHERE COST EFFECTIVE, AND UNLESS SPECIFIED OTHERWISE, THE CONTRACTOR MAY RE-USE EXISTING ELECTRICAL DEVICES WHICH HE DEEMS TO BE RE-USABLE. CAUTION: THIS DOES NOT APPLY TO MAIN DISTRIBUTION BREAKERS OR OTHER SUCH MAJOR EQUIPMENT THAT ARE SPECIFICALLY NOTED TO BE NEW. COORDINATE ALL EQUIPMENT RELOCATIONS WITH G.C.
- 16.6. THE CONTRACTOR SHALL NOT JEOPARDIZE STORE OPERATION OR PROJECT COMPLETION SCHEDULE BY SPENDING TOO MUCH TIME RE-FURBISHING OLD EXISTING PANELS OR OTHER EXISTING EQUIPMENT.

PART 2 MATERIALS AND INSTALLATION

1. OUTLET BOXES

- 1.1. OUTLET, JUNCTION AND SWITCH BOXES SHALL BE GALVANIZED PRESSED STEEL OF SIZE AND TYPE TO SUIT EACH INDIVIDUAL APPLICATION.

2. WIRING METHODS

- 2.1. UNLESS OTHERWISE SHOWN ON THE DRAWINGS, ALL WIRE SHALL BE COPPER, MINIMUM #12 AWG WITH 90 DEGREES CELSIUS X-LINK INSULATION. WIRING TO BE INSTALLED IN CONDUIT (INCLUDING WIRING ON ROOF DECK FLUTES WHERE APPROVED).
- 2.2. WIRING IN CONCRETE OR MASONRY CONSTRUCTION SHALL BE INSTALLED IN STEEL ELECTRICAL METALLIC TUBING (EMT). PROVIDE A SEPARATE GROUNDING CONDUCTOR IN EMT CONDUIT RUNS EMBEDDED IN CONCRETE SLABS. CONDUITS INSTALLED IN AREAS EXPOSED TO MOISTURE SHALL HAVE WATERTIGHT FITTINGS.
- 2.3. ALL CONDUCTORS AND CONDUITS SHALL BE RUN PERPENDICULAR OR PARALLEL TO THE BUILDING CORE WALLS.
- 2.4. CONDUIT AND WIRING SHALL BE GROUPED WHERE POSSIBLE AND CLIPPED IN A NEAT AND WORKMANLIKE MANNER.
- 2.5. ALL AC-90 USED FOR DROPS SHALL BE RUN TIGHT TO DECK AND FOLLOW LINES OF BREAMS AND BUILDING.
- 2.6. ALL WIRING IN SERVICE AREAS TO BE IN SURFACE MOUNTED EMT. DO NOT RUN CONDUIT HORIZONTALLY ON WALLS, VERTICAL DROPS ONLY.

ALL CONDUITS TO BE MINIMUM 3/4" IN SIZE.
DIE CAST SET SCREW COUPLINGS AND CONNECTORS (INSULATED THROAT).

3. IDENTIFICATION OF EQUIPMENT

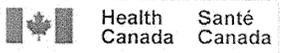
- 3.1. ALL EQUIPMENT SHALL BE IDENTIFIED WITH 3/8" X 1 1/2" (1/8" LETTERS) ENGRAVED LAMACOID NAMEPLATES INDICATING PANEL AND CIRCUIT NUMBER OR FIRE ALARM HORN DESIGNATION. LAMACOIDS SHALL BE EITHER SCREWED OR RIVETED IN PLACE. WITH EXCEPTION TO RECEPTACLES AND LIGHTING SWITCHES, SELF ADHESIVE TYPE IS NOT ACCEPTABLE. LAMACOIDS SHALL BE WHITE LETTERING ON RED FACE FOR EMERGENCY AND FIRE ALARM DEVICES AND WHITE LETTERING ON BLACK FACE TO NORMAL POWER DEVICES AND COMMUNICATION PANELS.
- 3.2. PROVIDE 1" X 3" LAMACOIDS FOR EACH NEW CDP BREAKER, INDICATING PANEL OR FEED BEING FED.

4. MECHANICAL EQUIPMENT WIRING

- 4.1. WHERE CONDUIT IS TO BE INSTALLED IN DESIGNATED EXPOSED AREAS (OPEN BEAM CEILING, ETC), E.C. COORDINATE EXACT INSTALLATION LOCATION WITH G.C. AND ARCHITECT. WHERE CONDUIT IS INSTALLED WITHOUT COORDINATE AND IS NOT BE THE SATISFACTION OF THE CONSULTANT.
- 4.2. PROVIDE, INSTALL AND CONNECT UNIT HEATERS C/W BUILT-IN THERMOSTAT. AS INDICATED ON DRAWINGS. ACCEPTABLE MANUFACTURERS CHROMALOX, Q-MARK, STELPRO AND OUELLET OR APPROVED EQUAL.

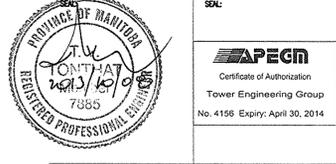
5. CUTTING AND PATCHING

- 5.1. ARRANGE AND PAY FOR ALL CUTTING AND PATCHING AS REQUIRED FOR THE ELECTRICAL INSTALLATION.
- 5.2. PROVIDE APPROPRIATE FIRE STOP AT ALL FIRE WALL PENETRATIONS. ACCEPTABLE MANUFACTURERS: DOW CORNING, FIRE-STOP SYSTEMS (ELASTA-SEAL) OR G.E. SILICONE.
- 5.3. REFER TO ARCHITECTURAL SPECIFICATIONS FOR PRODUCT AND INSTALLATION DETAILS.



LEVEL	DATE	DESCRIPTION
2	10/8/13	ISSUED FOR TENDER
1	9/26/13	ISSUED FOR REVIEW

REVISIONS:
DRAWING NOT TO BE SEALED. ALL DIMENSIONS SHALL BE VERIFIED BEFORE WORK COMMENCES. ANY DISCREPANCIES, OMISSIONS, OR MISSING DIMENSIONS SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR BEFORE WORK PROCEEDS.
ALL STRUCTURAL SYSTEMS AND COMPONENTS SHALL BE APPROVED BY A PROFESSIONAL ENGINEER. (BY ARCHITECTURE INC. ASSUMES NO LIABILITY FOR ANY FAILURE IN THE STRUCTURAL SYSTEM OR THE COMPONENTS THERE-OF.)



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DRAWING TITLE
ELECTRICAL SPECIFICATIONS

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