

GENERAL NOTES

- DO NOT SCALE DRAWINGS.
- THESE NOTES ARE TO BE READ IN CONJUNCTION WITH THE PROJECT SPECIFICATIONS AND ALL OTHER PERTINENT CODES AND CONTRACT DOCUMENTS. IN THE EVENT OF A CONFLICT, THE MOST STRINGENT REQUIREMENT SHALL GOVERN.
- VERIFY ALL DIMENSIONS AND ELEVATIONS SHOWN PRIOR TO COMMENCING CONSTRUCTION.
- VERIFY WEIGHT AND LOCATION OF ALL EQUIPMENT ON OR IN THE STRUCTURE AND REPORT ANY DISCREPANCIES TO THE CONTRACT ADMINISTRATOR PRIOR TO COMMENCING CONSTRUCTION.
- LOCATE UNDERGROUND SERVICES AND PROTECT THEM AT ALL TIMES DURING CONSTRUCTION.
- STRUCTURAL DRAWINGS SHOWING THE COMPLETED STRUCTURE DO NOT INDICATE COMPONENTS WHICH MAY BE NECESSARY FOR SAFETY DURING CONSTRUCTION.

SHOP DRAWINGS:

- THE CONTRACTOR SHALL SUBMIT SPECIFIED SHOP DRAWINGS TO THE CONTRACT ADMINISTRATOR FOR REVIEW. ALL SUBMISSIONS MUST BE IN METRIC UNITS. WHERE DATA IS IN IMPERIAL UNITS, THE CORRECT METRIC EQUIVALENT SHALL ALSO BE SHOWN ON ALL SUBMISSIONS FOR REVIEW.
- ORIGINAL, PURPOSE-SPECIFIC SHOP DRAWINGS ARE TO BE PREPARED BY THE CONTRACTOR, FABRICATOR, SUBCONTRACTOR, SUPPLIER, DISTRIBUTOR, OR MANUFACTURER, TO ILLUSTRATE THE APPROPRIATE PORTIONS OF THE WORK SHOWING FABRICATION, LAYOUT, SETTING OR ERECTION DETAILS AS SPECIFIED IN APPROPRIATE SECTIONS.
- SHOP DRAWINGS FOR THE FOLLOWING COMPONENTS SHALL BE SEALED, SIGNED AND DATED BY A PROFESSIONAL ENGINEER LICENSED TO PRACTICE IN THE PROVINCE OF MANITOBA:
 - REINFORCING STEEL.
 - METAL FABRICATIONS.
 - WOODEN TRUSSES (DESIGN CALCULATIONS, FABRICATION DRAWINGS AND LAYOUT PLAN).
 - METAL ROOF SYSTEM.
- THE CONTRACTOR SHALL REVIEW SHOP DRAWINGS, PRODUCT DATA AND SAMPLES PRIOR TO SUBMISSION AND STAMP AND SIGN DRAWINGS INDICATING CONFORMANCE TO THE CONTRACT REQUIREMENTS. THE CONTRACTOR SHALL VERIFY
 - FIELD MEASUREMENTS.
 - FIELD CONSTRUCTION CRITERIA.
 - CATALOGUE NUMBERS AND SIMILAR DATA.
 - WEIGHTS AND LOADS.
- THE CONTRACTOR SHALL COORDINATE EACH SUBMISSION WITH REQUIREMENTS OF WORK AND CONTRACT DOCUMENTS. INDIVIDUAL SHOP DRAWINGS WILL NOT BE REVIEWED UNTIL ALL RELATED DRAWINGS ARE AVAILABLE.
- THE CONTRACTOR SHALL NOTIFY THE CONTRACT ADMINISTRATOR, IN WRITING AT TIME OF SUBMISSION, OF DEVIATIONS FROM REQUIREMENTS OF CONTRACT DOCUMENTS.
- THE CONTRACTOR'S RESPONSIBILITY FOR ERRORS AND OMISSIONS IN SUBMISSION IS NOT RELIEVED BY THE CONTRACT ADMINISTRATOR'S REVIEW OF SUBMITTALS.
- NO DELAY OR CLAIMS WILL BE ALLOWED THAT ARISE BECAUSE OF DELAYS IN SUBMISSION, RE-SUBMISSION, AND REVIEW OF SHOP DRAWINGS.

DESIGN SPECIFICATIONS:

- THIS STRUCTURE HAS BEEN DESIGNED IN ACCORDANCE WITH THE LATEST EDITIONS AND ADDENDUM OF THE FOLLOWING CODES AND DOCUMENTS, WHICH ARE TO BE USED AND MADE AVAILABLE FOR REFERENCE ON SITE FOR THE DURATION OF THE WORK:
 - NATIONAL BUILDING CODE OF CANADA (NBCC)
 - CONCRETE CODE CAN/CSA A23.1, A23.2, A23.3
 - CANADIAN FOUNDATION ENGINEERING MANUAL (CFEM)
 - STEEL CODE CSA S16-01 AND CSA G40.21-350W
 - CAN3-A371 MASONRY CONSTRUCTION FOR BUILDINGS
 - ALL SPECIFICATIONS COMPLETE WITH ADDENDA AND CHANGE ORDERS.
 - DRAWINGS WITH THE LATEST REVISIONS AS THEY OCCUR.

DESIGN LOADS

- FLOOR LIVE LOAD: 4.8 KPA
- GROUND SNOW LOAD: SS = 1.9 KPA, SR = 0.2 KPA. (TRUSS AND METAL ROOF SUPPLIERS TO MODIFY FOR EXPOSURE AND DRIFT AS PER NBCC).
- WIND LOAD: Q (1/10) = 0.35 KPA, Q (1/50) = 0.45 KPA. (TRUSS AND METAL ROOF SUPPLIERS TO ALLOW FOR 2.0 KPA UPLIFT).

PILING

- CAST-IN-PLACE FRICTION PILES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE GEOTECHNICAL REPORT PREPARED BY THE NATIONAL TESTING LABORATORIES LTD., DATED JUNE 3, 2010.
- INSTALLATION OF CAST-IN-PLACE FRICTION PILES SHALL BE SUPERVISED BY QUALIFIED FIELD PERSONNEL. ACCURATE LOG RECORDS SHALL BE KEPT BY THE PILING CONTRACTOR, INCLUDING A RECORD OF ALL PROBLEMS ENCOUNTERED DURING DRILLING.
- NO DEVIATION FROM APPROVED CONTRACT DOCUMENTS IS PERMITTED WITHOUT WRITTEN PERMISSION FROM THE CONTRACT ADMINISTRATOR.
- CAST-IN-PLACE FRICTION PILE REINFORCING SHALL EXTEND THE FULL LENGTH OF THE PILE. THE UPPER 3 M OF ALL PILES SHALL BE CONSOLIDATED WITH A MECHANICAL VIBRATOR.

5. ALLOWABLE SKIN FRICTION VALUES:

0 TO 2.5 M: 0 KPA
 2.5 TO 6 M: 20 KPA
 6 TO 9.5 M: 13 KPA

CAST-IN-PLACE CONCRETE

- ALL CONCRETE TO BE MIXED, PLACED, AND TESTED ACCORDING TO CSA A23.1 AND CSA A23.2.
- CONCRETE: COMPRESSIVE STRENGTH = 32 MPA AT 28 DAYS, SLUMP = 80 +/- 20 MM, MAXIMUM AGGREGATE SIZE = 20 MM, ENTRAINED AIR = 5 +/- 1%, CEMENT = SULPHATE RESISTANT.
- MASONRY FILL: COMPRESSIVE STRENGTH = 20 MPA AT 28 DAYS, SLUMP = 200 MM, MAXIMUM AGGREGATE SIZE = 10 MM.
- THE USE OF ADDITIVES WITHIN THE CONCRETE MIX ONLY UPON WRITTEN APPROVAL OF THE CONTRACT ADMINISTRATOR PRIOR TO CONSTRUCTION.
- PVC WATERSTOPS TO BE PROVIDED FOR ALL POUR AND CONSTRUCTION JOINTS AT OR BELOW TOP OF SLAB.
- ADVISE THE CONTRACT ADMINISTRATOR AT LEAST 48 HOURS IN ADVANCE OF CONCRETE POUR.
- SLABS TO HAVE MINIMUM 2% SLOPE TOWARDS DRAINS. REFER TO BUILDING AND MECHANICAL DRAWINGS IF NOT INDICATED ON STRUCTURAL SET.
- FORMS SHALL NOT BE STRIPPED UNTIL 75% OF THE SPECIFIED CONCRETE STRENGTH HAS BEEN REACHED.

REINFORCING STEEL

- ALL REINFORCING STEEL TO CONFORM TO CSA G30.12M, GRADE 400.
- ALL REINFORCING STEEL TO BE DETAILED IN ACCORDANCE WITH THE LATEST RSIC REINFORCING STEEL MANUAL OF STANDARD PRACTICE, CAN/CSA-A23.1 AND CAN/CSA-A23.3.
- CONCRETE COVER:

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|--------------------------|-----------------------|
| PILES | 75 MM |
| GRADE BEAMS (BOTTOM) | 40 MM (USE VOID FORM) |
| GRADE BEAMS (SIDE & TOP) | 40 MM |
| SLABS (BOTTOM) | 40 MM (USE VOID FORM) |
| SLABS (TOP) | 25 MM |
- SUBMIT TO THE CONTRACT ADMINISTRATOR SHOP DRAWINGS WHICH CLEARLY INDICATE BAR SIZES, GRADE, SPACING, HOOKS, BENDS, AND SUPPORTING / SPACING DEVICES, ETC., FOR REVIEW PRIOR TO THE FABRICATION OF REINFORCING STEEL.
- DO NOT PLACE REINFORCEMENT WITHOUT FIRST OBTAINING A COPY OF THE REVIEWED SHOP DRAWINGS FROM THE CONTRACT ADMINISTRATOR.
- ALL REINFORCING SHALL BE HELD IN PLACE AND TIED BY THE USE OF PROPER ACCESSORIES SUPPLIED BY THE REINFORCING STEEL FABRICATOR.
- ALL REINFORCING STEEL SHALL BE CLEANED OF ALL DIRT, GREASE AND OTHER DELETERIOUS MATERIALS PRIOR TO PLACING.
- REINFORCING STEEL SHALL NOT BE WELDED OR HEATED.
- EXTEND LONGITUDINAL STEEL IN GRADE BEAMS 450 MM AROUND CORNERS, OR USE 900 MM CORNER BARS.
- IF REINFORCING STEEL IS LAPPED, BOTTOM STEEL SHALL ONLY BE LAPPED OVER SUPPORTS, TOP STEEL SHALL ONLY BE LAPPED AT MID-SPAN.

MASONRY

- ALL MASONRY WORK SHALL BE DONE IN ACCORDANCE WITH CAN3-A371.
- CONCRETE BLOCKS TO CONFORM TO CAN3-A165. STANDARD HOLLOW MASONRY UNITS TO BE H/15/A/M.
- BRICKS TO BE BURNED CLAY TO CAN/CSA A82.1. ACCEPTABLE MATERIAL: IXI 246 WHISTLER GRAY ROCKFACED UNLESS NOTED OTHERWISE.
- MORTAR TO CONFORM TO CSA-A179, TYPES BASED ON PROPORTION SPECIFICATIONS. EXTERIOR BEARING WALLS = TYPE S. BRICK VENEER = TYPE N. COLOURING ADMIXTURE NOT TO EXCEED 10% OF CEMENT MASS.
- USE DURAWALL REINFORCEMENT, TIES AND ANCHORS EVERY SECOND COURSE.
- TOP COURSE OF ALL BLOCK WALLS TO BE "U" BLOCK WITH 2 - 15M REINFORCING BARS AND 20 MPA CONCRETE FILL CONTINUOUS UNLESS OTHERWISE NOTED.
- ALL MASONRY WALLS TO BE SECURELY BRACED UNTIL THE STRUCTURE IS CLOSED IN.
- BRICK VENEER TO BE TIED TO BACKUP STRUCTURE WITH SHEAR CONNECTORS AS MANUFACTURED BY FERRO HOLDINGS LTD.
- SUPPORT OPENINGS IN BRICK VENEER UP TO A MAXIMUM OF 1000 MM WITH L 100 X 100 X 6.5 GALVANIZED STEEL ANGLE. PROVIDE MINIMUM 200 MM BEARING ON EACH SIDE.
- PROVIDE "U" - BLOCK LINTELS OVER OPENINGS IN BLOCK WALL AS FOLLOWS UNLESS OTHERWISE NOTED:

- UP TO 1200 MM
- 200 MM "U"-BLOCK, 2-15M BOTTOM, 20 MPA FILL, BEAR MINIMUM 200 MM EACH END, FILL 3 CORES THREE COURSES DEEP IN WALL EACH END TYPICAL.

- UP TO 2400 MM
- 400 MM "U"-BLOCK, 2-15M BOTTOM, 20 MPA FILL, BEAR MINIMUM 200 MM EACH END, FILL 3 CORES THREE COURSES DEEP IN WALL EACH END TYPICAL.


- VERTICAL REINFORCING: PROVIDE ONE 15M FULL HEIGHT VERTICAL BAR WITH MATCHING DOWEL AND COREFILL AT:

1000 MM O/C OR AS PER DRAWINGS.
 UNSUPPORTED ENDS OF WALLS AND AT CONTROL JOINTS.
 EACH CORNER AND AT WALL INTERSECTIONS.
 EACH SIDE OF DOORS.
 EACH SIDE OF OPENINGS

ROUGH CARPENTRY

- WALL STUDS, PLATES, LINTELS TO BE SPF NO. 2 OR BETTER.
- NAILING PATTERNS AND LENGTHS TO CONFORM TO THE REQUIREMENTS OF PART 9 OF THE NBCC.
- ALL WOODEN TRUSSES TO BE DESIGNED IN ACCORDANCE WITH:
 - CAN3-086 ENGINEERING DESIGN IN WOOD
 - THE NATIONAL BUILDING CODE OF CANADA
 - THE MANITOBA BUILDING CODE.
- TRUSSES FRAMING INTO BEAMS OR OTHER TRUSSES SHALL BE CONNECTED WITH ENGINEERED FRAMING ACCESSORIES.

RIGID INSULATION

- MATERIAL: STYROFOAM CAVITYMATE OR APPROVED EQUIVALENT IN ACCORDANCE WITH B6. 
- FASTEN RIGID INSULATION WITH FLAT DISK CONCRETE ANCHORS, SPACING AS PER INSULATION MANUFACTURER'S WRITTEN INSTRUCTIONS.
- INSTALL INSULATION TO MAINTAIN CONTINUITY OF THERMAL BARRIER, FIT TIGHT TO PENETRATIONS. SEAL JOINTS AND JUNCTIONS.

BATT INSULATION

- MATERIAL: FIBREGLASS FRICTION FIT, UNFACED.
- VAPOUR BARRIER: MINIMUM 6 MIL POLYETHYLENE. TAPE SEAL ALL JOINTS AND JUNCTIONS.
- INSTALL INSULATION TO MAINTAIN CONTINUITY OF THERMAL BARRIER, FIT TIGHT TO PENETRATIONS. SEAL JOINTS AND JUNCTIONS. DO NOT COMPRESS.
- INSTALL VAPOUR BARRIER ON WARM SIDE OF INSULATION. COMPLETELY SEAL BY TAPING ALL JOINTS. PATCH ALL TEARS AND PENETRATIONS.

METAL CLADDING

- DESIGN OF SYSTEM TO PROVIDE FOR THERMAL MOVEMENT CAUSED BY TEMPERATURE RANGE OF -40 TO + 40 C.
- PROVIDE FOR MOISTURE DRAINAGE TO EXTERIOR.
- LINER PANEL: 24 GAUGE GALVANIZED SHEET STEEL.
- FLASHING: OF SAME MATERIAL AS CLADDING.
- SCREWS: AS RECOMMENDED BY ROOFING SUPPLIER, GALVANIZED, LENGTH AND DIAMETER TO CONFORM TO ROOF SYSTEM DESIGN. HEAD COLOUR TO MATCH CLADDING.
- SYSTEM TO BE FINISHED FREE FROM RATTLES, WIND WHISTLES, OR NOISE DUE TO THERMAL MOVEMENT.
- SEALANTS: DOW CORNING 795 SILICONE SEALANT. SEALANT COLOUR TO MATCH ADJACENT SURFACES WHERE EXPOSED IN FINISHED ASSEMBLY.

DOORS

- EXTERIOR DOORS: 45 MM STEEL DOOR, 18 GAUGE, WITH POLYURETHANE INSULATION FILL.
- EXTERIOR FRAME: 16 GAUGE PRESSED STEEL FRAME, BATT INSULATION FILL, FIX TO WALL WITH A MINIMUM OF 4 ANCHORS PER JAMB.
- REFER TO SPECIFICATIONS FOR DOOR HARDWARE.

FINISH

- REFER TO SPECIFICATIONS FOR PAINT FINISHES AND FORMULAE.
- SPRINKLE CLEAN SILICA SAND IN PAINT FINISH ON CONCRETE FLOOR TO PROVIDE A SLIP RESISTANT FINISH.
- COLOR SCHEDULE:

| MARK | COLOR | LOCATION |
|--------|--------------------------------|-----------------------|
| PT - 1 | GP 1202W RENOVATION | AS INDICATED |
| PT - 2 | GP CL3173 M EXCALIBUR | ALL INT. PLYWOOD |
| PT - 3 | ENVIROGARD GLOSS SAFETY YELLOW | PIPE BOLLARDS AND JIB |
| PT - 4 | GP CL3173 M EXCALIBUR | CONCRETE FLOOR |

CAULKING

- CAULKING: CLEAR SILICON.



| NO. | REVISIONS | DATE | DESIGN | CHECK |
|-----|-------------------|------------|--------|-------|
| 01 | REVISED NOTE | 2010/10/05 | AD | CR |
| 00 | ISSUED FOR TENDER | 2010/10/01 | AD | RB |

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| SNC-LAVALIN INC. 148 Nature Park Way Winnipeg, MB, Canada R3P 0X7 204-786-8080 | |
| DESIGNED BY: A. DEGER | CHECKED BY: R. BEAN |
| DRAWN BY: L. GAO | APPROVED BY: C. REIMER |
| SCALE: 1:1 | RELEASED FOR CONSTRUCTION BY: K. ZUREK |
| DATE: 2010/07/07 | DATE: 2010/10/04 |
| CONSULTANT NO.: 113368-0000-42DD-0001 | |

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| ENGINEER'S SEAL |
| ORIGINAL DRAWING SEALED BY: ANTHONY DEGER SNC-LAVALIN 2010/10/01 REV. 00 |

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| THE CITY OF WINNIPEG WATER AND WASTE DEPARTMENT | |
| MARION WASTEWATER PUMPING STATION INSTALLATION OF PUMPING UNITS & BUILDING UPGRADES GENERAL NOTES | |
| CITY DRAWING NUMBER | SHEET REV. SIZE |
| 1-0159L-S0001 | 001 01 A1 |