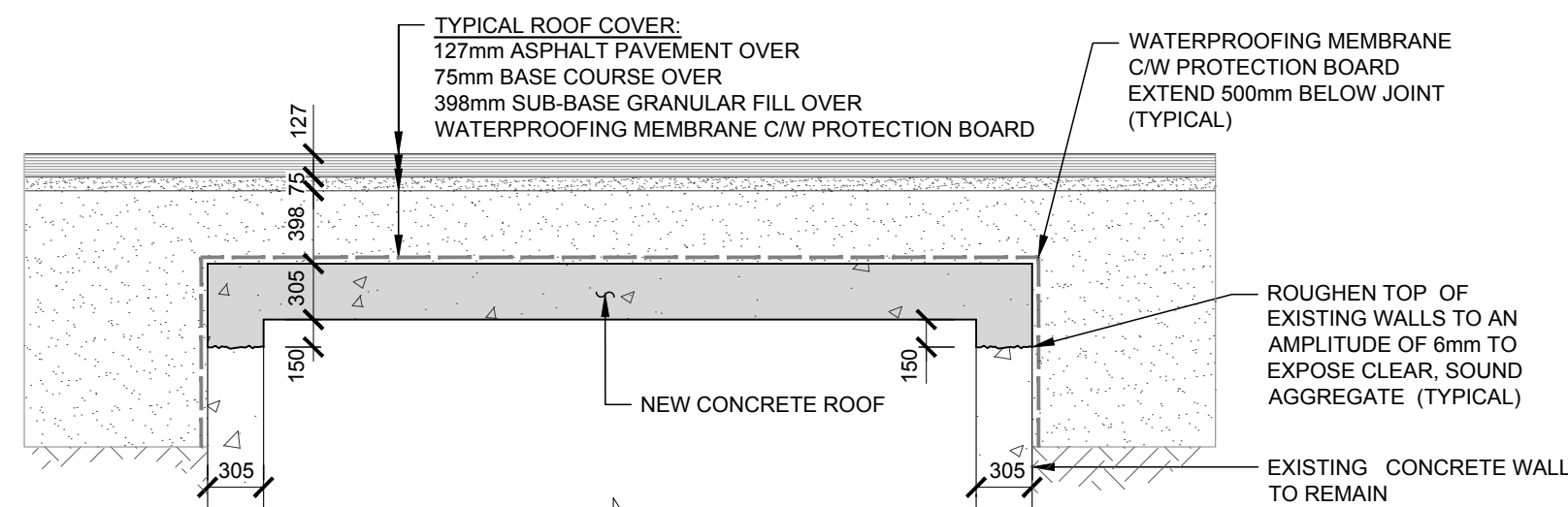
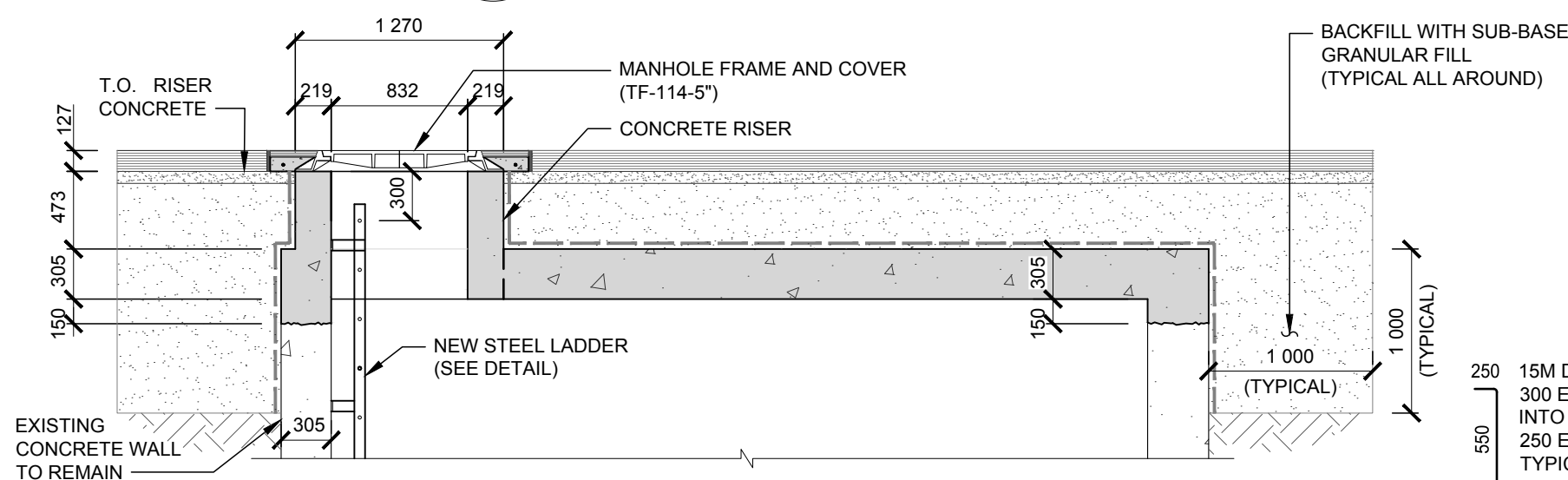


NEW ROOF PLAN

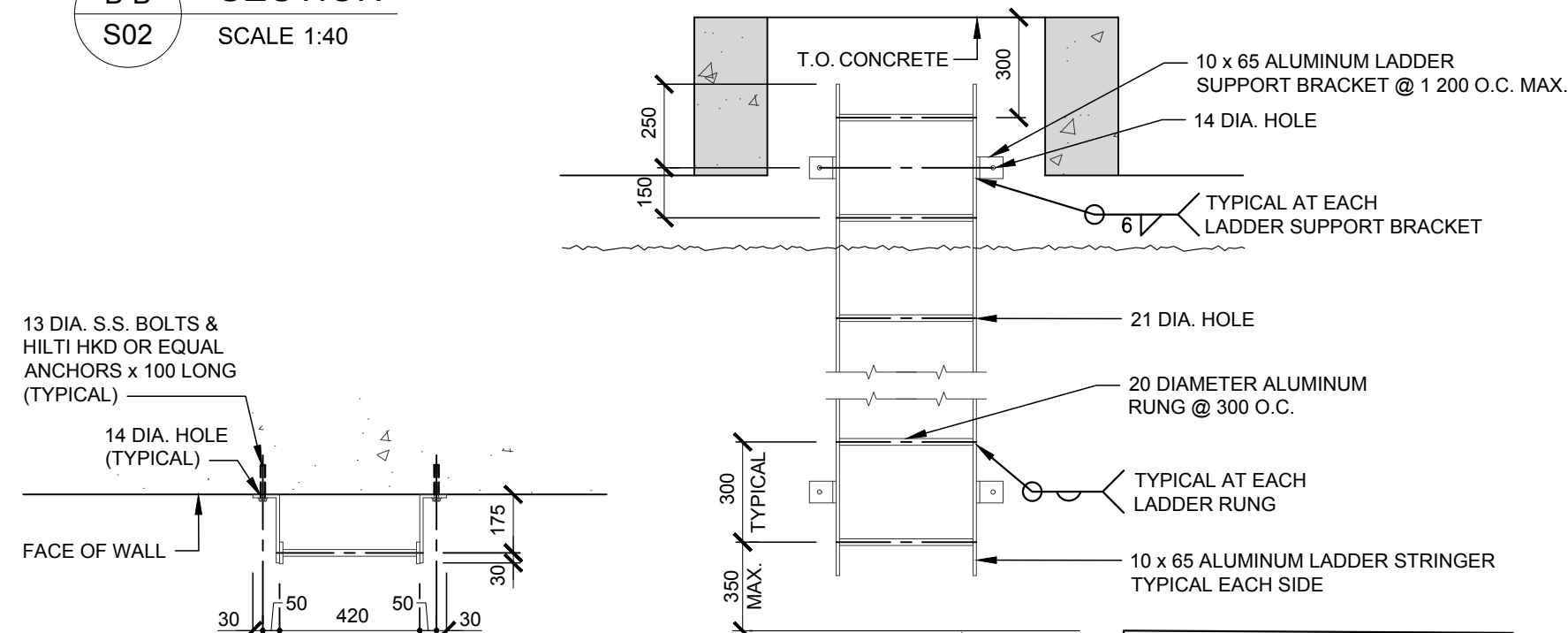
SCALE: 1:40



A-A
S02
SECTION
SCALE: 1:40



B-B
S02
SECTION
SCALE: 1:40



PLAN

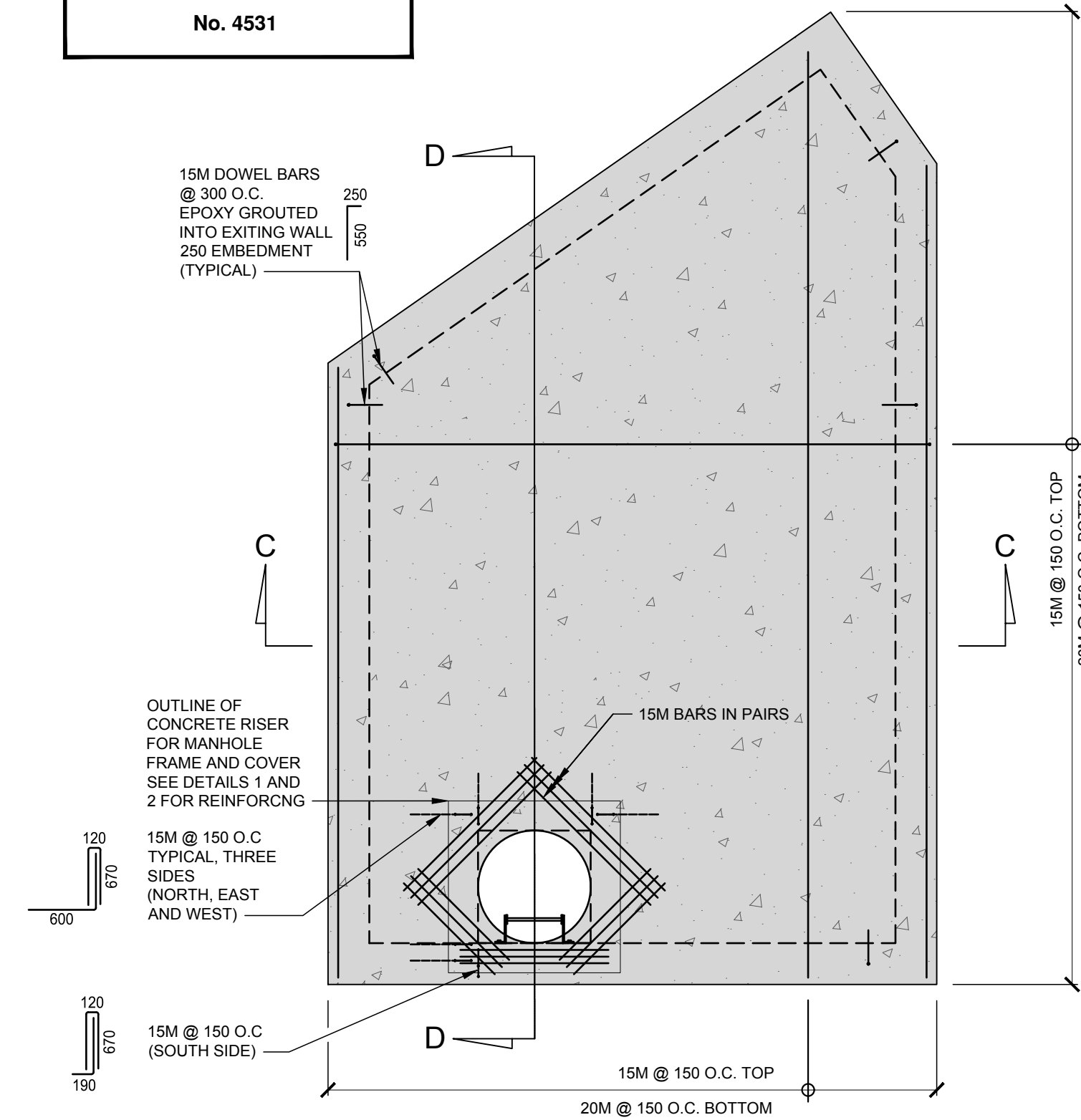
F-F
S02

STEEL LADDER DETAIL

SCALE: 1:20

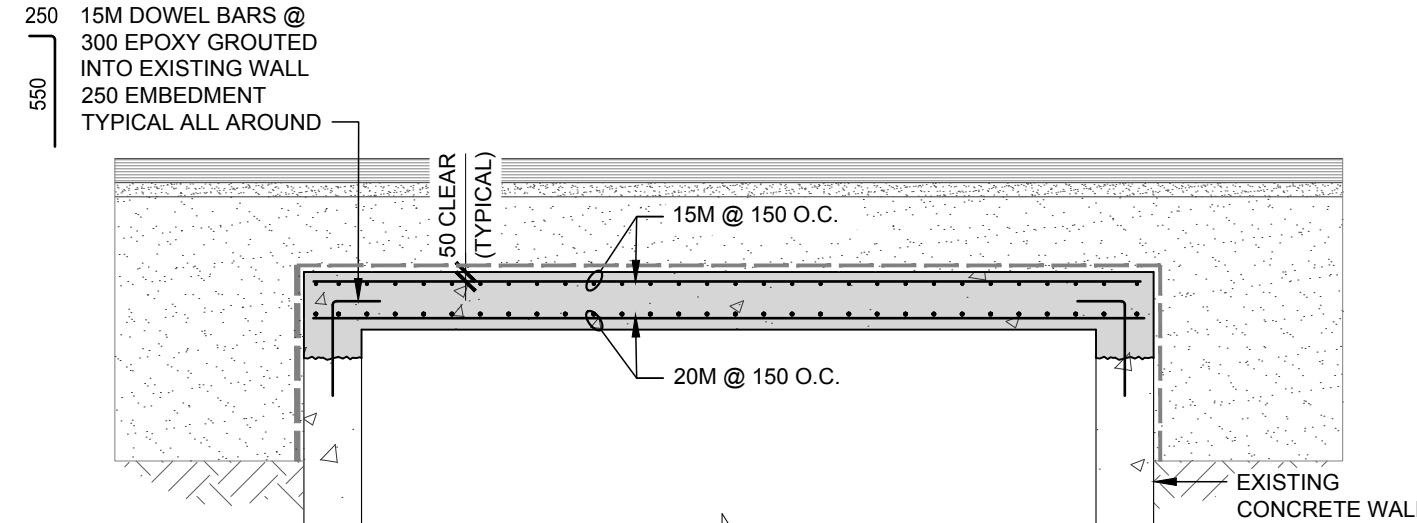
ELEVATION

NOTE:
CONTRACTOR TO CONFIRM EXACT
LENGTH OF LADDER PRIOR TO
FABRICATION

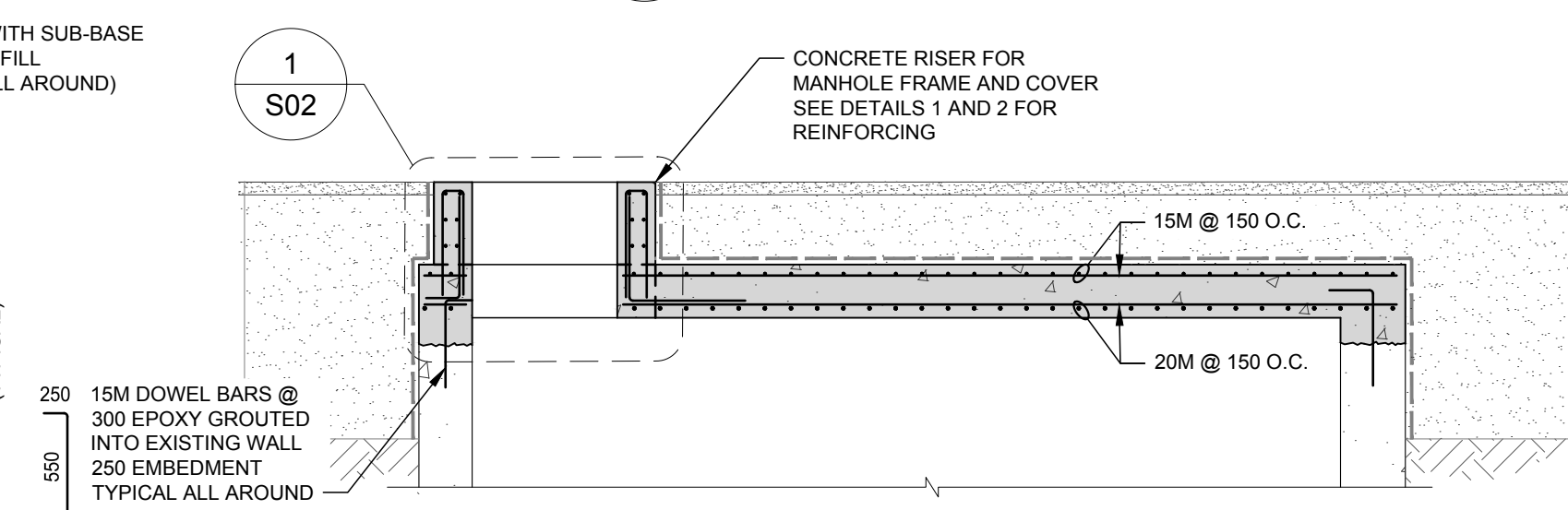


ROOF REINFORCING

SCALE: 1:40

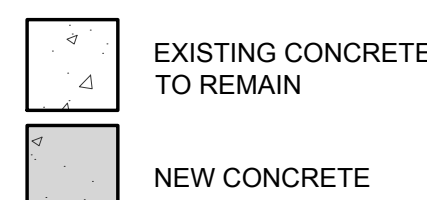


C-C
S02
SECTION
SCALE: 1:40



D-D
S02
SECTION
SCALE: 1:40

LEGEND:



LOCATIONS APPROVED
UNDERGROUND STRUCTURES

SIGNED BY: _____ DATE: _____
SVP/UG STRUCTURES

LOCATION OF UNDERGROUND STRUCTURES AS
SHOWN ARE BASED ON THE BEST INFORMATION
AVAILABLE BUT NO GUARANTEE IS GIVEN THAT ALL
EXISTING UTILITIES ARE SHOWN OR THAT THE GIVEN
LOCATIONS ARE EXACT LOCATION OF ALL SERVICES
MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES
BEFORE PROCEEDING



MMM Group Limited
Suite 111 - 93 Lombard Ave
Winnipeg, MB R3B 3B1
t. 204.943.3178
f. 204.943.4948
www.mmmgrouplimited.com

G.B.M. ELEV.	DESIGNED BY MR/IEH	CHECKED BY EH
	DRAWN BY KD	APPROVED BY JPL
	HOR. SCALE VERTICAL	RELEASED FOR CONSTRUCTION
1	ISSUED FOR UNDERGROUND STRUCTURES REVIEW	01/17/17
NO.	REVISIONS	DATE

ENGINEER'S SEAL	BID OPPORTUNITY	27-2017
	PLOT DATE	01/17/2017

GENERAL NOTES:

- DESIGN IN ACCORDANCE WITH NATIONAL BUILDING CODE OF CANADA 2015 EDITION PLUS LATEST MANITOBA AMENDMENTS.
- ANY UNSOUND STRUCTURAL CONDITIONS OBSERVED OR CREATED DURING CONSTRUCTION SHALL BE REPORTED IMMEDIATELY TO CONTRACT ADMINISTRATOR.
- DRAWINGS SHALL NOT BE SCALED.
- STRUCTURAL DRAWINGS MAY NOT SHOW ALL MECHANICAL OPENINGS. NOTIFY THE CONTRACT ADMINISTRATOR OF ANY ADDITIONAL OPENINGS.
- DESIGN LOADS AS NOTED BELOW:

- SUPERIMPOSED DEAD LOAD:
- 125 mm THICK ASPHALT PAVEMENT: 2.94 kPa
 - 75 mm THICK BASE COURSE: 1.65 kPa
 - 388 mm THICK GRANULAR FILL: 8.5 kPa

- LIVE LOAD:
- CL-625 STANDARD VEHICLE

- ALL DIMENSIONS IN MILLIMETRES UNLESS NOTED OTHERWISE.

CAST IN PLACE CONCRETE:

- TO BE READ IN CONJUNCTION WITH CW 2160 AND AS AMENDED IN ACCORDANCE WITH THESE NOTES.
- CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF CSA A23.1.
- ROOF CONCRETE MIX SHALL BE IN ACCORDANCE WITH ALTERNATIVE 1, AND SHALL HAVE THE FOLLOWING PROPERTIES:
 - CLASS OF EXPOSURE: S-1
 - MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS: 35 MPa
 - MAXIMUM SLUMP: 80mm ± 20mm
 - AIR CONTENT: 5 - 8%
 - MAXIMUM WATER/CEMENT RATIO: 0.40

- ISOLATION CONCRETE MIX SHALL BE IN ACCORDANCE WITH TYPE 1, AND SHALL HAVE THE FOLLOWING PROPERTIES:
 - CLASS OF EXPOSURE: C-2
 - MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS: 32 MPa
 - MAXIMUM SLUMP: 70mm ± 20mm
 - AIR CONTENT: 5 - 8%
 - MAXIMUM WATER/CEMENT RATIO: 0.45

- CONCRETE COVER SHALL BE 50mm.
- CHAMFER ALL EXTERIOR CORNERS 20mm.
- FORMWORK, SHORING AND BRACING SHALL MEET DESIGN CODE AND CSA A23.1 REQUIREMENTS, AND BE CONSTRUCTED ACCURATELY SO THAT RESULTANT FINISHED CONCRETE CONFORMS TO THE SHAPES, LINES AND DIMENSIONS INDICATED ON THE DRAWINGS.
- FOR COLD WEATHER CONCRETING, ALL ICE, SNOW AND FROST SHALL BE REMOVED FROM THE FORMWORK AND THE TEMPERATURE OF ALL CONTACT SURFACES INCLUDING REINFORCING STEEL SHALL BE RAISED ABOVE 10°C FOR AT LEAST 24 HOURS PRIOR TO CASTING CONCRETE. CONCRETE SHALL NOT BE LESS THAN 20°C NOR MORE THAN 30°C WHEN DEPOSITED. CONCRETE SHALL BE ENCLOSED, AND THIS AREA SHALL HAVE A TEMPERATURE OF NOT LESS THAN 20°C FOR 5 DAYS AND NOT LESS THAN 5°C FOR AN ADDITIONAL 5 DAYS.
- THREE CONCRETE TEST CYLINDERS AND ONE SLUMP/AIR TEST SHALL BE TAKEN EACH DAY THAT CONCRETE IS PLACED, AND SHALL BE REPEATED FOR EVERY 20 m³ OF CONCRETE PLACED EACH DAY UNLESS OTHERWISE DIRECTED BY THE CONTRACT ADMINISTRATOR.
- NOTIFY THE CONTRACT ADMINISTRATOR OR TESTING AGENCY 48 HOURS PRIOR TO PLACING CONCRETE.

REINFORCING STEEL:

- TO BE READ IN CONJUNCTION WITH CW 2160 AND AS AMENDED IN ACCORDANCE WITH THESE NOTES.
- ALL REINFORCING STEEL SHALL CONFORM TO CSA G30.18M, GRADE 400W.
- PERFORM CONCRETE REINFORCING WORK IN ACCORDANCE WITH CSA A23.1.
- LAPS SHALL BE AT LEAST 40 BAR DIAMETERS, LOCATE REINFORCING SPLICES NOT INDICATED IN THE DRAWINGS AT POINTS OF MINIMUM STRESS.
- BEFORE PLACING CONCRETE, ENSURE REINFORCING IS CLEAN, FREE OF LOOSE SCALE, DIRT OR OTHER FOREIGN MATTER THAT WOULD REDUCE OR PREVENT BOND TO THE CONCRETE.
- SHOP DRAWINGS SHALL BE SUBMITTED WHICH CLEARLY INDICATE BAR SIZES, SPACING, LOCATIONS AND QUANTITIES OF REINFORCING STEEL. COPIES OF STRUCTURAL DRAWINGS WILL NOT BE ACCEPTED FOR USE AS SHOP DRAWINGS.

WATERPROOFING MEMBRANE:

- INSTALL WATERPROOFING MEMBRANE AS PER MANUFACTURER'S SPECIFICATIONS.
- WATERPROOFING MEMBRANE: STYRENE-BUTADIENE-STYRENE (SBS) ELASTOMERIC POLYMER PREFABRICATED SHEET, REINFORCED WITH NON-WOVEN POLYESTER WEIGHING 180 g/m². TOP SURFACE POLYETHYLENE FILM. BOTTOM SURFACE: THERMOFUSIBLE PLASTIC FILM. ACCEPTABLE MATERIAL: SOPREMA SOPRALENE FLAM 180, IKO AQUABARRIER TG OR APPROVED EQUAL.
- PRIMES, MASTIC SEALANT AND ACCESSORIES: AS RECOMMENDED BY MEMBRANE MANUFACTURER, APPLICABLE FOR SUBSTRATE.
- PROTECTION BOARD: INSULATING FIBREBOARD TO CAN/CSA-A247, TYPE II, 12mm THICK.
- INSTALLATION OF WATERPROOFING MEMBRANE SHALL BE PERFORMED BY WORKERS APPROVED AND TRAINED BY MANUFACTURER FOR APPLICATION OF ITS PRODUCTS. APPLICATORS MUST HAVE MINIMUM 5 YEARS PROVEN EXPERIENCE. IF REQUESTED, SUBMIT PROOF OF EXPERIENCE, IN WRITING, FROM MANUFACTURER.
- MAINTAIN AIR TEMPERATURE AND STRUCTURAL BASE TEMPERATURE AT INSTALLATION AREA ABOVE MEMBRANE MANUFACTURER'S RECOMMENDATIONS BEFORE, DURING AND 72 HOURS AFTER INSTALLATION.
- FOR APPLICATIONS IN FREEZING WEATHER DO NOT COMMENCE APPLICATION UNTIL AUTHORIZED BY MEMBRANE MANUFACTURER.
- INSTALL PROTECTION BOARD AGAINST ALL WATERPROOFING MEMBRANES TO PROTECT AGAINST BACKFILLING OPERATIONS.
- INSTALL BOARDS VERTICALLY WITHOUT FASTENERS OR ADHESIVES.
- INSTALL PROTECTION BOARD DURING BACKFILLING OPERATIONS TO ALLOW BACKFILL MATERIALS TO HOLD PROTECTION BOARD TIGHT TO WATERPROOFING MEMBRANE.

BACKFILL:

- NO BACKFILL SHALL BE PLACED AGAINST CONCRETE UNTIL APPROVED BY THE CONTRACT ADMINISTRATOR AND IN NO CASE BEFORE FIELD CURED TEST CYLINDER SHOW THE CONCRETE STRENGTH TO BE 75% OF THAT SPECIFIED. EXCAVATE AND PLACE BASE COURSE AND GRANULAR FILL IN ACCORDANCE WITH CW 3110.



THE CITY OF WINNIPEG
PUBLIC WORKS DEPARTMENT
ENGINEERING SERVICES DIVISION

CITY OF WINNIPEG
NORTH EAST EXCHANGE DISTRICT
LILY STREET/GALT AVENUE INTERSECTION
UNDERGROUND COMMUNITARY STRUCTURE ROOF REPLACEMENT
NEW ROOF CONCRETE, REINFORCING AND
MANHOLE ISOLATION DETAILS

CONSULTANT DRAWING NUMBER:	5515038-GC-02
SHEET	2
CITY DRAWING No.	2