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DRAWING NOTES

GENERAL

- 1. DO NOT SCALE DRAWINGS.
2. LOCATE UNDERGROUND SERVICES AND PROTECT THEM AT ALL TIMES DURING CONSTRUCTION.
3. ALL DIMENSIONS ARE TO BE VERIFIED WITH THE ARCHITECTURAL DRAWINGS PRIOR TO CONSTRUCTION.
4. BUILDING IMPORTANCE CATEGORY: HIGH
5. SEISMIC INFORMATION: SPECTRAL RESPONSE ACCELERATION, (Sa(0.2))=0.12, SOIL SITE CLASSIFICATION, SITE CLASS D AS PROVIDED BY THE GEOTECHNICAL ENGINEER OF RECORD.
6. WIND LOAD AS PER NBC, PART 4, SUBSECTION 4.1.7
7. SNOW AND RAIN LOAD AS PER NBC, PART 4, SUBSECTION 4.1.6

SELECTIVE DEMOLITION

- 1. REMOVE ITEMS AND MATERIALS WHERE SHOWN ON DRAWINGS. REMOVE ONLY MATERIALS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION.
2. PROTECT WORK TO REMAIN.
3. PROVIDE PROTECTION TO PERSONNEL WORKING IN ADJACENT AREAS, AND TO THE PUBLIC.
4. PROVIDE INSULATED, DUSTPROOF TEMPORARY HOARDING WHERE SHOWN.
5. CAP OFF AND MAKE SAFE MECHANICAL AND ELECTRICAL SERVICES AS REQUIRED.
6. STORE AND PROTECT MATERIALS AND ITEMS TO BE INSTALLED IN RENOVATED AREAS.
7. REMOVE FROM SITE ALL MATERIALS NOT REQUIRED.

FOUNDATIONS

- 1. A GEOTECHNICAL REPORT IS AVAILABLE FOR REVIEW AT UMA ENGINEERING LTD.
2. SOIL LOGS ARE FOR THE INFORMATION OF THE FOUNDATION CONTRACTOR. HE SHALL SATISFY HIMSELF AS TO THE PREVAILING CONDITIONS AT THE SITE AS NO EXTRAS SHALL BE GRANTED SHOULD CONDITIONS DIFFER FROM THOSE INDICATED.
3. PRECAST CONCRETE PILES TO BE DRIVEN TO WORKING LOAD CAPACITY AS FOLLOWS:
A) 305mm HEX. - 445 kN
B) 356mm HEX. - 623 kN
C) 406mm HEX. - 800 kN
4. DRIVEN PILING SHALL BE COMPLETED BEFORE ANY FRICTION OR BELLED PILING OPERATION COMMENCES.

CAST-IN-PLACE CONCRETE

I CONCRETE

- 1. ALL CONCRETE IS TO BE MANUFACTURED AND INSTALLED IN ACCORDANCE WITH LATEST EDITION OF CAN3-CSA A23.1 "CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION" AND CAN3-CSA A23.2 "METHOD OF TEST FOR CONCRETE".
2. CONCRETE STRENGTH AT 28 DAYS SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE ON DRAWINGS.

PILES: TYPE HS CEMENT; WATER/CEMENT RATIO 0.45; 35 MPa MIN. SLUMP MINIMUM 125mm ± 25mm; AGGREGATE MAXIMUM 40mm; ENTRAINED AIR/CATEGORY: 2 CLASS OF EXPOSURE: S-2

PRECAST DRIVEN PILES: 35MPa; TYPE HS CEMENT; SLUMP, AGGREGATE ETC. TO MANUFACTURERS REQUIREMENTS

PILE CAPS: TO MATCH PILES.

WALLS AND GRADE BEAMS: 30MPa; SLUMP MAX. 100mm; AGGREGATE MAX. 20mm; ENTRAINED AIR/CATEGORY: 2 CLASS OF EXPOSURE: F-2

INTERIOR STRUCTURAL SLABS: 30MPa; SLUMP MAX. 100mm; AGGREGATE MAX. 20mm; ENTRAPPED AIR: LESS THAN 3% CLASS OF EXPOSURE: N

MASONRY FILL: 20MPa; SLUMP MIN. 100mm; MAX. 200mm; AGGREGATE MAX. 12mm EXTRAINED AIR/CATEGORY: 2

- 3. AIR ENTRAINING ADMIXTURES SHALL CONFORM TO THE REQUIREMENTS OF ASTM C260 "STANDARD SPECIFICATION FOR AIR ENTRAINING ADMIXTURES FOR CONCRETE". SUPERPLASTICIZING ADMIXTURES SHALL CONFORM TO ASTM C494/C494M-99a "STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR CONCRETE", OR ASTM C1017/C1017M-99 "STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR USE IN PRODUCING FLOWING CONCRETE" WHEN FLOWING CONCRETE IS APPLICABLE. AIR ENTRAINED ADMIXTURES TO HAVE A DURABILITY FACTOR GREATER THAN 75, WHEN TESTED TO ASTM STANDARDS C666 PROCEDURE A. SPACING FACTOR FOR ANY AIR ENTRAINING ADMIXTURE MUST BE 0.17mm OR LESS WHEN TESTED IN ACCORDANCE WITH ASTM C457 "STANDARD TEST METHOD FOR MICROSCOPICAL DETERMINATION OF PARAMETERS OF THE AIR-VOID SYSTEM IN HARDENED CONCRETE".

II REINFORCING STEEL

- 1. ALL REINFORCING STEEL TO BE CSA G30.18M 400MPa DEFORMED BARS UNLESS NOTED. ALL REINFORCING TO BE DETAILED IN ACCORDANCE WITH LATEST EDITION OF ACI DETAILING MANUAL, UNLESS OTHERWISE NOTED.
2. REINFORCING STEEL COVER IS TO CONFORM TO THE LATEST EDITION OF CSA CAN3 A23.3 "DESIGN OF CONCRETE STRUCTURES FOR BUILDINGS" AND AS FOLLOWS:

INTERIOR WALLS: 20mm OUTSIDE FACE; 20mm INSIDE FACE. PILES: 75mm TO TIES. INTERIOR SLABS: 20mm TOP; 20 mm BOTTOM. EXTERIOR SLABS: 38mm TOP; 20 mm BOTTOM. GRADE BEAMS: 75mm BOTTOM TO MAIN STEEL; 40mm SIDES AND TOP TO TIES. BEAMS: 40mm TO TIES; 50mm CLEAR BETWEEN LAYERS

- 3. IN WALLS AND BEAMS BEND ALL HORIZONTAL STEEL 450mm AROUND CORNERS, OR USE EXTRA L-BARS 900mm LONG.
4. TOP STEEL IN BEAMS TO BE LAPPED AT CENTRE SPAN, BOTTOM STEEL TO BE LAPPED AT SUPPORT.
5. ALL REINFORCING TO BE HELD IN PLACE AND TIED WITH PROPER ACCESSORIES, SUCH AS HI-CHAIRS, SPACERS, ETC. TO BE SUPPLIED BY THE REINFORCING STEEL FABRICATOR. HI-CHAIRS TO HAVE 4 LEGS AND TO BE STAPLED OR NAILED TO THE FORMWORK.
6. ALL OPENINGS IN CAST-IN-PLACE CONCRETE TO BE TRIMMED WITH 2-15M ALL AROUND ON BOTH FACES, UNLESS NOTED OTHERWISE.
7. FOR ALL STRUCTURAL SLABS A MINIMUM OF 50% OF THE BOTTOM STEEL SHALL BE CONTINUED A MINIMUM DISTANCE OF 150mm INTO ALL SUPPORTING WALLS AND BEAMS. IF KEYS ARE USED AT JOINT BETWEEN SLABS AND WALLS OR BEAMS, BOTTOM DOWELS EQUAL TO BOTTOM REINFORCEMENT OR 10M AT 300mm O/C SHALL BE PROVIDED WHICHEVER IS GREATER.
8. ALL MISCELLANEOUS CONCRETE PADS AND CURBS ARE TO BE REINFORCED WITH A MINIMUM OF 10M AT 450mm O/C EACH WAY, UNLESS NOTED.
9. WHEN CONCRETE BEAMS ARE CAST INTO A WALL CHASE, DOWEL SIZE AND NUMBER SAME AS BEAM REINFORCING ARE TO BE PROVIDED FROM WALL, UNLESS OTHERWISE SHOWN ON PLAN.

III FORMWORK

- 1. 6" (150mm) SHEARMAT SHALL BE USED AS THE BOTTOM FORM FOR STRUCTURAL SLABS AT GRADE. ACCESSORIES SUCH AS HI-CHAIRS, SPACERS, ETC. SHALL BE SUPPORTED BY PADS OF PLYWOOD OR TEMPERED HARDBOARD TO PREVENT PUNCTURING THE SHEARMAT. 6" (150mm) SHEARMAT UNDER ALL GRADE BEAMS IN CONTACT WITH SOIL.
2. SLIP JOINT ALL PAVING OR CONCRETE SLABS ON GRADE AGAINST STRUCTURAL MEMBERS WITH 13mm ASPHALT IMPREGNATED FIBREBOARD.
3. ALL CONSTRUCTION JOINT KEYS TO BE A MINIMUM OF 38mm DEEP.
4. ALL STRUCTURAL SLABS FRAMING INTO BASEMENT WALLS ARE TO HAVE A MINIMUM KEY OF 50mm.
5. ALL CONCRETE BEAMS FRAMING INTO CONCRETE WALLS ARE TO BE SUPPORTED BY A CHASE OF MINIMUM 100mm DEEP BY HEIGHT AND WIDTH OF BEAM.
6. PLACE 10 MIL POLYETHYLENE UNDER ALL SLABS ON FILL.
7. PROVIDE 200mm WIDE, RIBBED, PVC WEATHERSTOPS IN ALL HORIZONTAL AND VERTICAL CONSTRUCTION JOINTS IN ALL EXTERIOR WALLS BELOW GRADE AND PIT WALLS.

STRUCTURAL STEEL

- 1. STRUCTURAL STEEL TO CONFORM TO CSA CAN-G40.21, "STRUCTURAL QUALITY STEELS" AND CSA G40.20 "GENERAL REQUIREMENTS FOR ROLLED OR WELDED STRUCTURAL QUALITY STEEL".
2. ALL ROLLED OR STEEL STRUCTURAL SECTIONS SHALL BE G40.21 350W. ALL HOLLOW STRUCTURAL SECTIONS TO BE G40.21-350W CLASS C. ALL ANGLES, CHANNELS AND PLATES SHALL BE G40.21-300W UNLESS NOTED.
3. FABRICATION AND ERECTION OF STRUCTURAL STEEL TO BE PERFORMED IN ACCORDANCE WITH CAN3-S16.1-M84, "STEEL STRUCTURES FOR BUILDINGS".
4. ALL WELDING TO CONFORM TO THE LATEST EDITION OF CSA W59, "WELDED STEEL CONSTRUCTION". FABRICATORS SHALL BE PROPERLY CERTIFIED IN ACCORDANCE WITH CSA W47.1, "CERTIFICATION OF COMPANIES FOR FUSION WELDING OF STEEL STRUCTURES".
5. ALL BOLTED CONNECTIONS TO USE A MINIMUM OF 2-A325 HIGH STRENGTH BOLTS.
6. ALL STRUCTURAL STEEL TO RECEIVE ONE COAT OF CISC/CPMA 1-73a SHOP PRIMER. STEEL IN CRAWLSPACES SHALL RECEIVE 2 COATS. STEEL TO BE CLEANED IN CONFORMANCE WITH SSPC-SP2.
7. STRUCTURAL STEEL SUPPLIER TO PROVIDE 38mm x 4.8mm GALVANIZED MASONRY ANCHORS AT MAX. 800mm O/C ON ALL COLUMNS AND BEAMS IN CONTACT WITH MASONRY UNLESS NOTED OTHERWISE.
8. NO HOLES PERMITTED IN TOP FLANGE OF BEAMS AT COLUMNS WHERE BEAMS ARE CONTINUOUS OVER COLUMNS.
9. ALL BEAMS CONTINUOUS OVER COLUMNS ARE TO HAVE WEB STIFFENERS THE SAME SIZE AND ORIENTATION AS THE COLUMN BELOW, UNLESS OTHERWISE NOTED.
10. ALL BEARING STIFFENERS NOTED ON DRAWINGS SHALL BE FULL HEIGHT OF BEAM AND FIT TIGHT TO BEAM WEB & FLANGES.
11. ANCHOR BOLTS TO BE PROVIDED BY STEEL SUPPLIER AND SET BY THE GENERAL CONTRACTOR.
12. FABRICATOR TO NOTIFY THE CONTRACT ADMINISTRATOR OF ANY PROPOSED MEMBER SUBSTITUTIONS AND CHANGED CONNECTION DETAILS.
13. THE STRUCTURAL STEEL SUPPLIER SHALL PROVIDE AND BE RESPONSIBLE FOR ALL HOLES IN STEEL SECTIONS REQUIRED BY OTHER TRADES. SECTION SHALL BE STRENGTHENED WHERE REQUIRED TO GUARANTEE THE ORIGINAL STRENGTH OF THE BEAM. ANY CUTTING OF STEEL AT THE JOBSITE SHALL BE DONE ONLY AS DIRECTED AND APPROVED BY THE CONTRACT ADMINISTRATOR.
14. THE STRUCTURAL STEEL ERECTOR SHALL BE RESPONSIBLE FOR SUPPLYING AND ERECTING ALL TEMPORARY GUYING AND BRACING TO PROVIDE STABILITY FOR THE STRUCTURE AS A WHOLE. THESE SHALL REMAIN IN PLACE UNTIL ALL HOLLOWCORE IS ERECTED, GROUTED IN PLACE AND ALL MASONRY WALLS CONSTRUCTED.
15. STRUCTURAL STEEL SUPPLIER IS TO SUBMIT ENGINEERING DRAWINGS BEARING THE SEAL OF A REGISTERED ENGINEER COVERING THE DESIGN OF CONNECTIONS, TO THE PROJECT DESIGN ENGINEER FOR REVIEW PRIOR TO FABRICATION.

MISCELLANEOUS METAL - STEEL STAIR AND GUARDRAILS

- 1. STEEL STAIR AND GUARDRAIL SUPPLIER IS TO SUBMIT ENGINEERING DRAWINGS BEARING THE SEAL OF A REGISTERED ENGINEER FOR REVIEW BY THE CONTRACT ADMINISTRATOR, PRIOR TO FABRICATION. ENGINEERING SHOP DRAWINGS SHALL INCLUDE DESIGN LOADS, LAYOUT PLAN, CONNECTION DETAILS, AND ALL OTHER PERTINENT INFORMATION.
2. STEEL STAIR AND GUARDRAIL SUPPLIER/DESIGNER SHALL PROVIDE A FINAL INSPECTION AND A LETTER SEALED BY THE ENGINEER RESPONSIBLE FOR THE STAIR AND GUARDRAIL DESIGN, CERTIFYING THAT STAIRS AND GUARDRAILS ARE CONSTRUCTED AND INSTALLED AS PER DESIGN ASSUMPTIONS AND INSTALLATION REQUIREMENTS.

METAL DECK

- 1. ROOF DECK SHALL BE 38mm DEEP PROFILE, 0.76mm, WITH RIB SPACING OF 150mm
2. DECK SHALL BE MINIMUM GRADE A WITH A MINIMUM WIPE COAT ZINC COATING TO ZF075 (A25). DECK SHALL BE ARC WELDED TO BEARING SUPPORTS AT 300mm O/C. WELDS SHALL BE 16mm DIAMETER.
3. SIDE LAPS SHALL BE MECHANICALLY FASTENED AT 450mm O/C.
4. DECK SUPPLIER SHALL REINFORCE OPENINGS OVER 150mm TO 300mm ACROSS FLUTES WITH MINIMUM L 51mm x 51mm x 6.4mm EACH SIDE OF OPENING PERPENDICULAR TO FLUTES. ANGLE SHALL BE WELDED TO AT LEAST TWO FLUTES ON EACH SIDE OF OPENING.
5. DECK SUPPLIER SHALL REINFORCE OPENINGS OVER 300mm TO 450mm ACROSS THE FLUTES WITH SUITABLE REINFORCEMENT BASED ON A STRUCTURAL ANALYSIS OF THE LOADS INVOLVED.
6. TOUCH UP DECK WITH ZINC RICH PAINT WHERE ZINC COATING HAD BEEN BURNED BY WELDING.
7. CANOPY DECK SHALL BE 75mm DEEP PROFILE, 0.76mm WITH RIB SPACING OF 150mm.

MASONRY

- 1. CONCRETE BLOCKS TO CONFORM TO CAN3-A165 SERIES-M85, "STANDARDS FOR CONCRETE MASONRY UNITS".
A) STANDARD HOLLOW MASONRY UNITS SHALL BE H/20/AM AS NOTED.
B) STANDARD SOLID MASONRY UNITS SHALL BE S/15/AM.
C) LIGHTWEIGHT HOLLOW MASONRY UNITS SHALL BE H/15/CM.
D) LIGHTWEIGHT SOLID MASONRY UNITS SHALL BE S/15/CM.
(COMPRESSIVE STRENGTH IS BASED ON NET AREA)
3. EXTERIOR AND LOAD BEARING WALLS ARE TO BE BUILT WITH TYPE 'S' MORTAR HAVING A MINIMUM STRENGTH OF 12 MPa AT 28 DAYS. INTERIOR MASONRY NON-LOAD BEARING WALLS MAY BE BUILT WITH TYPE 'N' MORTAR HAVING A COMPRESSIVE STRENGTH OF 5MPa AT 28 DAYS. MORTAR SHALL CONFORM TO THE LATEST EDITION OF CSA A179, "MORTAR AND GROUT FOR UNIT MASONRY".
4. USE DUR-O-WAL OR EQUAL EVERY SECOND COURSE UNLESS NOTED ON DRAWINGS. EVERY COURSE FOR STACK BOND.
5. THE TOP COURSE OF ALL BLOCK WALLS IS TO BE A 'U' BLOCK WITH 1-10M CONTINUOUS CENTRED AND FILLED WITH 20 MPa CONCRETE UNLESS NOTED ON DRAWINGS.
6. ALL MASONRY WALLS TO BE PROPERLY BRACED UNTIL STRUCTURE IS CLOSED IN AND WALLS PERMANENTLY SUPPORTED.
7. ALL BLOCK WALLS RECEIVING BEAMS TO HAVE 2 COURSES, 400mm LONG FILLED WITH 20 MPa CONCRETE UNLESS NOTED ON DRAWINGS.
8. MASONRY TIES AND ANCHORS SHALL BE DESIGNED IN CONFORMANCE WITH CSA CAN3-A370-M84, "CONNECTORS FOR MASONRY". DESIGN WIND PRESSURE FOR TIES IN EXTERIOR WALLS SHALL BE 1.5 KPa.
9. DOOR LINTELS IN BLOCK WALLS SHALL BE AS FOLLOWS UNLESS NOTED ON DRAWINGS:
UP TO 1200mm 200mm HIGH 'U' BLOCK 1200mm TO 2440mm 400mm HIGH 'U' BLOCK
20 MPa CONCRETE FILL 20 MPa CONCRETE FILL
2-10M BOTTOM 2-15M BOTTOM

PRE-CAST

- 1. ALL ANGLES, ANCHOR BOLTS AND OTHER MISCELLANEOUS METAL NECESSARY TO SUPPORT PRE-CAST CONCRETE SHALL BE DESIGNED, DETAILED AND SUPPLIED BY THE PRE-CAST SUPPLIER. WHERE APPLICABLE, THESE SHALL BE INSTALLED BY THE GENERAL CONTRACTOR WHO SHALL ALLOW FOR INSTALLATION COST IN HIS PRICE.
2. HOLLOWCORE SUPPLIER TO CHECK WITH MECHANICAL AND ELECTRICAL DRAWINGS FOR ANY FLOOR OPENINGS. ALL HOLES LARGER THAN 150mm IN DIAMETER TO BE FORMED IN THE SHOP. THE MANUFACTURER SHALL SUBMIT GENERAL LAYOUT DRAWINGS TO THE CONTRACT ADMINISTRATOR SHOWING LOCATION OF OPENINGS AND OTHER MISCELLANEOUS DETAILS. EACH HOLLOWCORE SLAB SHALL BE IDENTIFIED BY A STANDARD MARK PLACED LEGIBLY ON THE UNIT AT THE TIME OF MANUFACTURE AND LOCATED ON THE MANUFACTURERS LAYOUT PLAN. ALL INSERTS, ANCHORS, HANGERS AND MISCELLANEOUS ATTACHMENTS FOR OTHER TRADES SHALL BE THE RESPONSIBILITY OF OTHERS. LOCATION OF POINT LOADS OVER 0.5KN SHOULD BE GIVEN TO HOLLOWCORE FABRICATOR PRIOR TO FABRICATION. INSTALLATION OF THE HOLLOWCORE UNITS SHALL BE BY THE SUPPLIER OR UNDER THEIR SUPERVISION, AND SHALL BE DONE BY A SKILLED ERECTION CREW. SUPPLIER SHALL PROVIDE CERTIFICATION OF INSTALLATION UNDER SEAL OF ENGINEER AFTER COMPLETION. THE GENERAL CONTRACTOR SHALL PROVIDE TRUE AND LEVEL BEARING SURFACES BEFORE ANY HOLLOWCORE SLABS SHALL BE DELIVERED FOR ERECTION. HOLLOWCORE SLABS MUST BE ALIGNED AND LEVELLED BEFORE GROUTING THE KEYS AND JOINTS WITH A GROUT MIX AS SPECIFIED BY THE HOLLOWCORE SUPPLIER/DESIGNER.
3. HOLLOWCORE & PRE-CAST ERECTION TOLERANCES AT BEARING LOCATION SHALL BE +12mm, -0mm
4. THE PRE-CAST CONCRETE SUPPLIER SHALL SUBMIT ENGINEERING DRAWINGS BEARING THE SEAL OF A REGISTERED ENGINEER FOR REVIEW PRIOR TO FABRICATION.
5. PRE-CAST CONCRETE IS TO BE DESIGNED IN ACCORDANCE WITH THE LATEST EDITION OF CSA A23.3 "DESIGN OF CONCRETE STRUCTURES FOR BUILDINGS".
6. ALL STRUCTURAL PRE-CAST ELEMENTS ARE TO BE PRODUCED BY A MANUFACTURING PLANT CONFORMING TO CSA STANDARD CAN3-A23.4-78 "PRE-CAST CONCRETE-MATERIALS AND CONSTRUCTION".

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Table with columns DRN, CHK, DES, ENG, IDR and a signature block for UMA | AECOM REVIEW.

Revision table with columns NO., REVISION/DESCRIPTION, BY, DATE. Includes entries for 'REVISED AS PER CITY PREVIEW' and 'ISSUED FOR TENDER'.

PROFESSIONAL ENGINEER seal for B.L. LAU, dated July 30, 2007.

DRAWN BY: DJH, CHECKED BY: USER APPROVAL, DATE: 2007.07.23

CITY OF WINNIPEG PLANNING, PROPERTY & DEVELOPMENT DEPARTMENT CIVIC ACCOMMODATIONS DIVISION 300 - 65 GARRY ST. R3C 4K4

PROJECT: Construction of Cindy Klassen Recreation Complex Facility Enhancement Project 999 Sargent St, Winnipeg, Manitoba

SHEET TITLE: Structural Drawing Notes

SCALE: AS NOTED, PROJECT NO.: 2005-059, SHEET NO.: S1.1