A. GENERAL NOTES

1.) THIS STRUCTURE IS DESIGNED IN ACCORDANCE WITH, AND SHALL BE CONSTRUCTED IN COMPLIANCE WITH THE NBCC 2010, MBC 2011, AND ALL APPLICABLE LOCAL BYLAWS.
2.) DO NOT SCALE DRAWING.
3.) ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED PRIOR TO COMMENCING CONSTRUCTION. DISCREPANCIES OR AMBIGUITIES ON THE DRAWINGS AND/OR THE SITE, SHALL BE REPORTED TO CONTRACT ADMINISTRATOR.
4.) MODIFICATIONS, ALTERATIONS OR SUBSTITUTIONS MUST BE AUTHORIZED IN WRITING BY THE CONTRACT ADMINISTRATOR IN ACCORDANCE WITH B7.
5.) LOCATE ALL EXISTING SITE SERVICES PRIOR TO CONSTRUCTION.
6.) FOR OPENINGS IN SLAB, FLOOR, WALLS, ROOF, ETC. REFER TO ARCHITECTURAL, MECHANICAL, AND/OR OTHER PERTINENT DRAWINGS.
7.) LOCATION OF CONSTRUCTION JOINTS IS THE RESPONSIBILITY OF THE CONTRACTOR BUT APPROVAL MUST BE OBTAINED FROM THE CONTRACT ADMINISTRATOR BEFORE PROCEEDING.
8.) THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN AND INSTALLATION OF ALL NECESSARY SHORING, BRACING AND FORMWORK. FORM WORK FOR NEW CONSTRUCTION SHALL BE BRIDGED OVER EXISTING SERVICES. PROCEDURE MUST BE APPROVED BY THE CONTRACT ADMINISTRATOR. PROVIDE FORMWORK SHOP DRAWINGS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
9.) CONSTRUCTION SAFETY REQUIREMENTS SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
10.) THE CONTRACTOR SHALL NOTIFY THE ENGINEER AT LEAST 72 HOURS PRIOR TO ALL CONCRETE POURS TO ALLOW FOR SITE INSPECTIONS.
11.) ANY DEFECTIVE OR UNACCEPTABLE WORK SHALL BE REPAIRED TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR AND THE CITY AT NO COST TO THE CITY OF WINNIPEG OR CONTRACT ADMINISTRATOR.
12.) WHERE THERE IS A DISCREPANCY BETWEEN PROJECT SPECIFICATIONS AND GENERAL NOTES, INFORMATION SHOWN IN SPECIFICATIONS SHALL GOVERN.
13.) DESIGN LIVE LOAD SHALL NOT BE EXCEEDED AT ANY TIME DURING CONSTRUCTION.

B. DESIGN LOAD PARAMETERS

1.) ENVIRONMENTAL LOAD INFORMATION
Ss=1.9 kPa, Sr=0.2 kPa
Is=1.0
HOURLY WIND PRESSURE
(1/50) = 0.45 kPa
2.) ROOF SNOW AND DEAD LOADS
SEE DWG. S-02

3.) MAIN FLOOR LOADS
SEE DWG. S-01

C. FOUNDATION - PRECAST DRIVEN PILES

1.) PRECAST DRIVEN PILES ARE DESIGNED FOR ULC CAPACITY AS FOLLOWS:
- 300 MM HEXAGONAL – 550 KN

2.) ALL PILES SHALL BE DRIVEN TO REFUSAL AND IN ACCORDANCE WITH RECOMMENDATIONS IN THE GEOTECHNICAL REPORT. THE ACTUAL SET SHALL BE ESTABLISHED FROM THE HAMMER RATINGS TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR BEFORE DRIVING COMMENCES.
3.) IF ANY MEASURABLE UPHEAVING OCCURS TO A PILE DURING THE DRIVING OF ADJACENT PILES, THE PILE IS TO BE REDRIVEN TO THE ORIGINAL ELEVATION AND SET.
4.) PILES SHALL BE CUT OFF SQUARE AND NEAT FOR A MINIMUM OF 450 MM (UNLESS OTHERWISE NOTED) STRAND PROJECTION FROM THE PILE. SHATTERING OR SPLITTING OF THE TOP OF THE PILE SHALL BE CAUSE FOR REJECTION.
5.) ALL PILES AND PILE CAPS SHALL BE MADE WITH SULPHATE RESISTANT CEMENT TYPE HS AND HAVE A 28-DAY STRENGTH OF 35 MPa. AT TIME OF DRIVING CONCRETE FOR PILES SHALL HAVE A COMPRESSIVE STRENGTH OF 35 MPa. CONCRETE STRENGTH AT TRANSFER OF PRESTRESS SHALL BE MINIMUM 25 MPa.
6.) FULL TIME INSPECTION BY AN APPROVED GEOTECHNICAL CONSULTANT IS TO BE PROVIDED DURING THE DRIVING OF ALL PILES. A DRIVING RECORD OF PENETRATION PER BLOW SHALL BE KEPT BY THE INSPECTOR. THESE RECORDS SHALL INCLUDE FINAL PENETRATION RESISTANCE, PILE HEAVE AND AMOUNT OF DOWNWARD MOVEMENT OF REDRIVE.
7.) OUT OF PLACE, DEFECTIVE OR PILES WHICH ARE DAMAGED IN HANDLING OR DRIVING WILL NOT BE ACCEPTED. ADDITIONAL PILES SHALL BE SUBSTITUTED AT NO EXTRA COST TO THE CITY OF WINNIPEG.
8.) SURVEY THE STRUCTURAL CONDITIONS OF SURROUNDING EXISTING BUILDING AND KEEP PHOTO RECORDS PRIOR TO START OF DRIVING PILES. ANY DAMAGE TO BUILDING COMPONENTS SHALL BE REPAIRED TO THE SATISFACTION OF THE CONTRACT ADMINISTRATOR AT NO EXTRA COST TO THE CONTRACT.
9.) MINIMUM PRE-BORED DEPTH FOR PILES FROM GROUND LEVEL TO BE 11 METRES.

D. CAST-IN-PLACE CONCRETE

1.) ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH CSA-A23.1-14/A23.2-14 CONCRETE MATERIALS AND METHODS OF CONCRETE CONSTRUCTION/METHODS OF TEST AND STANDARD PRACTICES FOR CONCRETE.
2.) SUPPLEMENTARY CEMENTITIOUS MATERIALS TO CAN/CSA-A3000-13 CEMENTITIOUS MATERIALS COMPENDIUM.
3.) CHEMICAL ADMIXTURES TO ASTM C494/C494M-12 AND ASTM C1017/1017M-07.
4.) GENERAL CONTRACTOR TO PROVIDE PROPRIETARY MIX DESIGN PERFORMANCE RECORD AS REQUIRED BY THE MANITOBA READY-MIX ASSOCIATION.
5.) CONCRETE SPECIFICATIONS: SEE TABLE D.1
6.) CONSTRUCT FORMWORK SHORING AND BRACING TO MEET DESIGN, CODE CSA-S269.1 AND A23.1-14. 1-09 REQUIREMENTS CONSTRUCT ACCURATELY, SO THAT RESULTANT FINISHED CONCRETE CONFORMS TO SHAPES, LINES AND DIMENSIONS INDICATED ON THE DRAWINGS.
7.) VIBRATE ALL CONCRETE WORK WITH APPROPRIATE INTERNAL VIBRATORS.
8.) CONCRETE WORKING TIME, FROM BATCHING TO PLACEMENT AND CONSOLIDATION, SHALL NOT EXCEED 1-1/2 HOURS.
9.) CONCRETE CONTRACTOR SHALL PLACE ALL COMPONENTS TO BE EMBEDDED IN THE CONCRETE (ie. WELD PLATES. DOWELS FOR CONCRETE AND/OR MASONRY, ANCHOR BOLTS, INSERTS, WATER STOP BARS, SLEEVING, ETC.) SEE STRUCTURAL, ARCHITECTURAL, MECHANICAL AND ANY OTHER PERTINENT DRAWINGS.
10.) CLEAR CONCRETE COVER TO REINFORCING STEEL SHALL BE AS FOLLOWS U.N.O.: SEE TABLE D.2
11.) WHERE NO EMBEDMENT OR EMBEDMENT TYPE IS INDICATED ON THESE DRAWINGS IT SHALL BE A TENSION EMBEDMENT EXCEPT FOR COLUMNS WHICH SHALL BE A COMPRESSION EMBEDMENT. SEE TABLE D.3
12.) WHERE NO SPLICE OR SPLICE TYPE IS INDICATED ON THESE DRAWINGS IT SHALL BE A FULL TENSION SPLICE EXCEPT FOR COLUMNS WHICH SHALL BE AS COMPRESSION SPLICE (UNLESS DETAILED OTHERWISE): SEE TABLE D.4
13.) INSTALL WATER STOP BAR IN ALL FOUNDATION WALLS, TRENCH WALLS AND PIT CONSTRUCTION JOINTS.
14.) SEE ARCHITECTURAL DRAWINGS FOR SURFACE FINISHES, EDGE TREATMENTS, ETC.
15.) CONCRETE TESTING SHALL BE PERFORMED BY AN INDEPENDENT CSA APPROVED TESTING COMPANY. THREE CONCRETE TEST CYLINDERS AND ONE SLUMP TEST SHALL BE TAKEN FOR EVERY 75 (OR LESS) CUBIC METERS OF EACH CLASS OF CONCRETE PLACED, OR EACH DAY CONCRETE IS PLACED, WHICHEVER IS GREATER, TESTING SHALL BE PERFORMED IN ACCORDANCE WITH CSA STANDARD A23.2-09 AND THE RESULTS SHALL BE FORWARDED TO THE CONTRACT ADMINISTRATOR.
16.) VOID FORMS UNDER SLABS, BEAMS, AND WALLS SHALL BE HONEYCOMB TYPE /BIODEGRADABLE CARDBOARD, 150mm THICK TREATED TO PROVIDE SUFFICIENT STRUCTURAL SUPPORT FOR CONCRETE UNTIL CONCRETE IS CURED (UNO).
17.) ALL FORMWORK INCLUDING CARDBOARD "SONO-TUBES" TO BE REMOVED UPON COMPLETION.
18.) UNDER IDEAL WEATHER CONDITIONS, ALLOW MINIMUM CURING TIME AS SCHEDULED BELOW BEFORE REMOVING FORM WORK:
- GRADE BEAMS – 3 DAYS
- WALLS – 7 DAYS
- BEAM SIDES – 7 DAYS
- BEAM AND SLAB BOTTOMS – 14 DAYS

19.) ALL HOLES CORED THROUGH REINFORCED CONCRETE TO BE REVIEWED AND APPROVED BY THE CONTRACT ADMINISTRATOR APPROVAL PRIOR TO CORING.
20.) CONSTRUCTION JOINTS, CONCRETE PLACEMENT SCHEDULING AND WORK PROCEDURES SHALL BE DISCUSSED WITH THE CONTRACT ADMINISTRATOR PRIOR TO COMMENCING CONSTRUCTION.
21.) TYPICAL HOUSEKEEPING PAD UNDER ALL EQUIPMENT AND STORAGE AREAS = 150 THICK CONCRETE UNO ON DRAWINGS.
22.) FOR COLD WEATHER CONCRETE WORK, ALL ICE, SNOW AND FROST SHALL BE REMOVED FROM FORMWORK AND THE TEMPERATURE OF ALL CONTACT SURFACES SHALL BE RAISED ABOVE 10°C FOR 24 HOURS PRIOR TO PLACING CONCRETE. CONCRETE SHALL BE NOT 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 THREE (3) DAYS AND NOT LESS THAN 5°C FOR AN ADDITIONAL FOUR (4) DAYS.
23.) NOTIFY THE CONTRACT ADMINISTRATOR 48 HOURS PRIOR TO PLACING CONCRETE.

E. CONCRETE SLAB-ON-GRADE

1.) CONCRETE BASE SLAB:
- SUB-BASE PREPARATION – PREPARE SUB-BASE IN STRICT ACCORDANCE WITH THE GEOTECHNICAL REPORT.
- REMOVE ALL TOPSOIL, SILT, LOOSE FILL, DEBRIS, ORGANIC MATERIAL (INCLUDING TREE ROOTS), EXISTING FOUNDATION ELEMENTS, TANKS, ETC.
- FILL ALL VOIDS AND LOW AREAS WITH CLEAN WELL GRADED GRANULAR FILL COMPACTED TO A MINIMUM 100% STANDARD PROCTOR DENSITY. INSTALL AND COMPACT IN 6" (150mm) HIGH LIFTS.
- FOR WINTER OR EARLY SPRING STARTS, THAW ALL FROZEN AREAS PRIOR TO INSTALLING MUD SLAB.
- REFER TO STRUCTURAL DRAWINGS FOR PLACEMENT OF DOWELS EXTENDING INTO OR FROM SLAB.
- REFER TO MECHANICAL AND ELECTRICAL DRAWINGS FOR SERVICES INSTALLED BELOW THE SLAB AND SLEEVING REQUIRED FOR SERVICES PENETRATING THE SLAB.
- REFER TO STRUCTURAL DRAWINGS AND SPECIFICATIONS FOR SURFACE LEVEL TOLERANCES, SLOPES, FINISHES, SURFACE SEALERS OR HARDENERS, ETC.
- REFER TO "CAST-IN-PLACE CONCRETE" AND "REINFORCING STEEL" NOTES FOR MATERIAL SPECIFICATIONS AND REQUIREMENTS.
- PROVIDE LEAM MIX 5MPa CONCRETE WORKING BASE UNDER THE BASE SLAB.

2.) GRANULAR BASE – INSTALL A BASE OF CLEAN WELL GRADED GRANULAR FILL COMPACTED TO MINIMUM 100% STANDARD PROCTOR DENSITY. INSTALL AND COMPACT IN 16" (150mm) HIGH LIFTS TO THE THICKNESS SPECIFIED ON THE DRAWINGS.
3.) SAMPLE PROPOSED GRANULAR BASE AND SUB-BASE MATERIAL SHALL BE SUBMITTED TO CONTRACT ADMINISTRATOR FOR REVIEW AND APPROVAL.
4.) THAW ALL FROZEN AREAS PRIOR TO INSTALLING GRANULAR MATERIAL.
5.) COMPACTION TESTS SHALL BE PERFORMED BY AN INDEPENDENT TESTING COMPANY DURING THE INSTALLATION OF ALL GRANULAR MATERIAL. THE RESULTS SHALL BE FORWARDED TO THE CONTRACT ADMINISTRATOR.
6.) PROVIDE 10 MIL POLY MOISTURE BARRIER (WELL LAPPED AND SEALED) BETWEEN COMPACTED GRANULAR BASE AND CONCRETE SLAB.
7.) PROVIDE A FULL AND CONTINUOUS 1/2" (12mm) WIDE PREFORMED FIBER ASPHALT IMPREGNATED EXPANSION JOINT FILLER TO ASTM D1751-04 (REAPPROVED 2013) BETWEEN THE EDGE OF SLAB AND ALL OTHER STRUCTURAL ELEMENTS (I.E., GRADE BEAMS, FOUNDATION AND RETAINING WALLS, COLUMNS, ETC.) U.N.O.
8.) INSTALL SAWCUTS AS SHOWN ON STRUCTURAL PLANS. SAWCUTS TO BE 1" (25mm) DEEP AND 1/8" (3mm) WIDE. CUT NO SOONER THAN 24 HOURS BUT NOT LATER THAN 48 HOURS AFTER SLAB IS POURED. FILL SAWCUTS WITH APPROVED BITUMINOUS COMPOUND OR CAULKING.
9.) PROVIDE CONSTRUCTION JOINTS C/W 1/2" (12mm) FLEXCELL AND GREASED DOWELS TO MATCH SLAB REINFORCING.
10.) ALL STUD WALLS LOCATED ON A SLAB-ON-GRADE SHALL BE CONSTRUCTED WITH A MINIMUM 1" (25mm) GAP AT THE TOP, OR OTHER APPROVED SLIP JOINT.

F. REINFORCING STEEL

1.) REINFORCING STEEL SHALL BE NEW BILLET, DEFORMED BARS IN ACCORDANCE WITH CSA STANDARDS G30.10 MINIMUM YIELD STRENGTH TO BE 400 MPa
2.) REINFORCING STEEL SHALL BE DETAILED IN ACCORDANCE WITH THE LATEST ACI DETAILING MANUAL.
3.) LAP TOP BARS AT CENTRE SPAN AND BOTTOM BARS OVER SUPPORTS. UNLESS NOTED OTHERWISE.
4.) ALL REINFORCING TO BE HELD IN PLACE AND TIES BY THE USE OF PROPER ACCESSORIES SUCH AS HI-CHAIRS, SPACERS, ETC., TO BE SUPPLIED BY THE REINFORCING STEEL FABRICATOR.
5.) REINFORCING IN CONCRETE BEAMS/WALLS TO BE BENT 600 mm AROUND CORNERS OR USE 900 x 900 CORNER BARS.
6.) FRAME ALL OPENINGS IN CONCRETE BEAMS, WALLS AND/OR SLABS WITH 2-20M BARS (EXTRA) ALL 4 SIDES. EXTEND BARS 600 mm BEYOND EDGES OF OPENING EXCEPT AS NOTED. PROVIDE 1-20m x 1200 LONG DIAGONAL TOP AND BOTTOM OF EACH CORNER.
7.) SUBMIT SHOP DRAWINGS WHICH CLEARLY INDICATE BAR SIZES, GRADE, SPACING, HOOKS, BENDS, AND SUPPORTING/SPACING DEVICES, ETC. FOR REVIEW TO THE CONTRACT ADMINISTRATOR PRIOR TO FABRICATION OF THE REINFORCING STEEL.
9.) HOUSEKEEPING PADS SHALL BE A MINIMUM OF 100 mm THICK AND REINFORCED WITH 10M @ 300 O/C EACH WAY AT CENTER UNLESS OTHERWISE SHOWN. PROVIDE MATCHING DOWELS ALONG THE PARAMETER EMBED MIN. 125 INTO CONCRETE.
10.) PRIOR TO PLACING CONCRETE, ENSURE THAT ALL REINFORCING STEEL IS CLEAN, FREE OF LOOSE SCALE, RUST, MUD, OIL OR OTHER FOREIGN MATERIAL WHICH WOULD REDUCE BOND.
11.) HEATING, QUENCHING AND BENDING OF REINFORCING STEEL ON THE SITE IS NOT ALLOWED.

H. WOOD

1.) ALL LUMBER SHALL CONFORM TO "NLGA – STANDARD TRADING RULES FOR CANADIAN LUMBER" LATEST EDITION.
2.) LUMBER FOR ALL FRAMING INCLUDING JOISTS, BEAMS, LINTELS, STUDS, PLATES ETC. SHALL BE No. 2 SPF UNLESS NOTED.
3.) MOISTURE CONTENT OF LUMBER SHALL NOT EXCEED 19% (BY WEIGHT) AT TIME OF INSTALLATION.
4.) CUT ALL COMPONENTS NEAT AND SQUARE, PROVIDING FULL CONTACT WITH ADJACENT MEMBERS.
5.) NAILING (SIZE AND, NUMBER OR SPACING) SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL BUILDING CODE OF CANADA UNLESS NOTED.
6.) USE METAL HANGERS AT ALL FLUSH FRAMING CONNECTIONS.
7.) PROVIDE SOLID BLOCKING BETWEEN ALL STUDS AT A MAXIMUM SPACING OF 1200 ALONG STUDS. TYPICAL FOR ALL LOAD BEARING STUDS AND STUDS GREATER THAN 3000 IN HEIGHT.
8.) CARPENTRY CONTRACTOR SHALL SUPPLY AND INSTALL TEMPORARY BRACINGS NECESSARY TO PROVIDE STABILITY FOR THE STRUCTURE AS A WHOLE. TEMPORARY BRACINGS SHALL REMAIN IN PLACE UNTIL ALL WALLS, FLOORS AND ROOF HAVE BEEN SHEATHED.
9.) ALL FRAMING SHALL BE INSPECTED AND APPROVED BY THE CONTRACT ADMINISTRATOR PRIOR TO INSTALLING INTERIOR SHEATHING. PROVIDE MINIMUM 72 HOURS NOTICE.

J. WOOD TRUSSES

1.) WOOD TRUSSES SHALL BE DESIGNED IN ACCORDANCE WITH CAN/CSA-086 AND APPLICABLE PARTS OF THE NATIONAL BUILDING CODE OF CANADA (LATEST).
2.) WOOD TRUSSES SHALL BE DESIGNED AND CERTIFIED BY OTHERS UNLESS OTHERWISE NOTED. REFER TO STRUCTURAL DRAWINGS FOR "DESIGN LOADS".
3.) TRUSS SUPPLIER SHALL SUBMIT SHOP DRAWINGS, UNDER THE SEAL OF PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA, TO THE CONTRACT ADMINISTRATOR FOR APPROVAL PRIOR TO FABRICATION. SHOP DRAWINGS SHALL SHOW SPAN, SPACING, SLOPES, DESIGN LOADS, DEFLECTION CRITERIA, MEMBER SIZES, CONNECTION DETAILS, BRACING AND BRIDGING REQUIREMENTS, ETC. OF ALL TRUSSES AND/OR GIRDER TRUSSES.
4.) TRUSS SUPPLIER SHALL BE RESPONSIBLE FOR DESIGN AND SUPPLY OF ALL TIE DOWN CONNECTIONS TO WALLS AND TRUSS TO TRUSS CONNECTIONS.
5.) DEFLECTION OF TRUSSES DUE TO LIVE LOAD SHALL NOT EXCEED SPAN/360 ROOF.
6.) TRUSSES SHALL NOT BE MODIFIED IN ANY WAY UNLESS APPROVED BY, AND DONE IN ACCORDANCE WITH TRUSS DESIGNER'S REQUIREMENTS.
7.) THE WOOD TRUSS SUPPLIER SHALL BE RESPONSIBLE TO ENSURE THAT THE INSTALLATION HAS BEEN CARRIED OUT IN ACCORDANCE WITH THE DESIGN AND SHOP DRAWINGS. HE SHALL PROVIDE WRITTEN CERTIFICATION TO THE CONTRACT ADMINISTRATOR PRIOR TO THE INSTALLATION OF THE CEILING SHEATHING.

WOOD BEARING WALL SCHEDULE

MARK	DESCRIPTION
WB1	38x140 SPF#2 OR BETTER STUDS @ 300 O/C DOUBLE TOP PLATE PRESSURE TREATED SILL PLATE W/13mm⌀ EXP ANCHORS AT 800 O/C PROVIDE 38x140 SOLID BLOCKING BETWEEN STUDS @ 1200 O/C MAX A.F.F. 16mm EXTERIOR PLYWOOD SHEATHING 76mm COMMON NAILS @ 150 O/C TYPICAL ALONG PANEL EDGES 76mm COMMON NAILS @ 300 O/C TYPICAL ALONG INTERMEDIATE FRAMING MEMBERS. 13mm INTERIOR PLYWOOD SHEATHING

NOTE: SEE ARCHITECTURAL DRAWINGS FOR ADDITIONAL COMPONENTS

CONCRETE PILE SCHEDULE

MARK	SIZE	REINFORCING	COMMENTS
P1	300⌀ HEX PILE DRIVE TO REFUSAL	PRE-STRESSED STRANDS BY MANUFACTURER	RETAIN 600 STRAND LENGTH TO EMBED INTO GRADE BEAM. STRAND TO BE UNWOUND SO WIRES ARE SEPARATED.

CONCRETE COLUMN SCHEDULE

MARK	SIZE	REINFORCING	COMMENTS
CC1	400⌀ CONCRETE COLUMN TO ELEVATION SHOWN	5-20M VERTICALS W/500 HOOK TOP 3-10M RINGS @ 125 O/C TOP REMAINDER @ 300 O/C	5-20Mx1100 C/500 HOOK DOWELS FROM FOUNDATION SLAB

CONCRETE BEAM SCHEDULE

MARK	SIZE	REINFORCING		COMMENTS
GB1	300 x 900	2-25M TOP CONT. 3-25M BOTTOM CONT. 3-15M HORIZ. EF CONT. 15M STIRRUPS AT 300 O/C		– PROVIDE 150mm CARDBOARD VOID FORM BELOW ALL GRADE BEAMS
B2	300 x 900	2-20M CONTINUOUS T&B 1-15M MIDDLE EF 15M HOOKED STIRRUPS @ 300 O/C		
B3	300 x 600	3-20M TOP & BOTTOM 10M STIRRUPS @ 150 O/C		– PROVIDE CLIP ANGLE SUPPORT AT TANK WALL

CONCRETE SLAB SCHEDULE

MARK	SIZE	REINFORCING		COMMENTS
SL-1	450mm	20M @ 300 O/C EW T&B 15M VERTICAL DOWELS @ 300 O/C ALONG TANK PERIMETER UPSTAND BEAMS		– FORM SLAB ON UNDISTURBED NATIVE MATERIAL – PROVIDE 75 5MPa MUD SLAB UNDER ENTIRE FOUNDATION SLAB
SL-2	200mm	15M @ 300 O/C E.W. T&B 15M @ 300 O/C TOP DOWELS FROM PERIMETER BEAMS ALL AROUND 15M ADDITIONAL TOP BARS @ 300 O/C ALONG INTERIOR GRADE BEAMS		– FORM SLAB ON 150mm CARDBOARD VOID FORM – REFER TO PLAN FOR ADDITIONAL REINFORCING OVER INTERIOR BEAMS AND AT OPENINGS
SL-3	125mm	10M @ 300 O/C EACH WAY TOP 10M BENT BARS @ 300 O/C TOP ON THREE EDGES 2-15 ADDITIONAL BTM OF THK. EDGE C/W 15M 400x400 CORNER BARS 10M DOWELS FROM PERIMETER GRADE BEAM TO SLAB AS NOTED ON PLAN		– REFER TO DETAIL SECTION
SL-4	100mm	10M @ 300 O/C EACH WAY TOP 10M HOOKED DOWELS ALONG PERIMETER INTO TO SLAB BELOW DRILL AND EPOXY GROUT MIN 150		

TABLE D.1
READ IN CONJUNCTION WITH DESIGN NOTES SECTION D. CAST-IN-PLACE CONCRETE

CONTROLLED CONCRETE

CONCRETE LOCATION	MAX. ASG SIZE	28-DAY STRENGHT	EXPOSURE CLASS	AIR CONTENT	CEMENT TYPE
BASE SLABS / PIERS	20mm	35MPa	S-1	4-7%	HS
GRADE BEAMS	20mm	35MPa	S-1	4-7%	HS
STRUCTURAL SLABS	20mm	35MPa	C-1	4-7%	GU
FOUNDATION	20mm	35MPa	S-1	4-7%	HS
SIDEWALK EXTERIOR / SLAB ON GRADE	20mm	35MPa	C-2	4-7%	GU
EXTERIOR HOUSEKEEPING PADS	20mm	35MPa	C-1	4-7%	GU
INTERIOR HOUSEKEEPING PADS	20mm	35MPa	C-1	4-7%	GU
CONCRETE CURBS	20mm	35MPa	C-1	4-7%	GU
MASONRY FILL	10-14mm	20MPa	N	-%	GU

TABLE D.2
READ IN CONJUNCTION WITH DESIGN NOTES SECTION D. CAST-IN-PLACE CONCRETE

CONCRETE COVER TO REINFORCEMENT

PILES / PIERS / CAISSONS	75mm
BASE SLAB / PADS / FOOTINGS AND RETAINING WALLS - BOTTOM (AND SIDES)	50mm
BASE SLAB / PADS / FOOTINGS AND RETAINING WALLS - TOP	50mm
STRUCTURAL SLABS - TOP	50mm
STRUCTURAL SLABS - BOTTOM	50mm
SLABS EXPOSED TO DE-ICING SALTS - TOP	50mm
GRADE BEAM TO STIRRUPS	50mm
CURBS - TOP (AND SIDES)	40mm

BAR PLACING ORDER:		SLAB SPAN DIRECTION LEGEND
MAIN REINF. = SOLID FILLED ARROW DIRECTION ON PLAN	TOP UPPER LAYER BOTTOM LOWER LAYER	MAIN REINF. DIRECTION — SLAB TAG S1 — ONE WAY / TWO WAY SLAB
BASE SLAB / PADS / FOOTINGS AND RETAINING WALLS - TOP	TOP UPPER LAYER BOTTOM LOWER LAYER	

TABLE D.3
READ IN CONJUNCTION WITH DESIGN NOTES SECTION D. CAST-IN-PLACE CONCRETE

EMBEDMENT OF DOWELS

BAR DESIGNATION	REINFORCEMENT GRADE (MPa)	COMPRESSION EMBEDMENT (BASED ON CONCRETE STRENGTH MPa)			REGULAR TENSION EMBEDMENT (BASED ON CONCRETE STRENGTH MPa) (SEE NOTE 1)				
		20 MPa	25 MPa	30 MPa AND OVER	20 MPa	25 MPa	30 MPa	35 MPa	40 MPa
10M	400	250	225	200	325	300	300	300	300
15M	400	350	300	275	490	440	400	380	380
20M	400	430	385	350	650	580	530	490	450
25M	400	540	480	440	1010	900	825	760	710
30M	400	645	580	530	1210	1080	990	910	840
35M	400	760	680	620	1690	1520	1400	1270	1200

NOTE 1: TOP EMBEDMENT VALUES ARE 1.3 TIMES REGULAR EMBEDMENT VALUES. TOP EMBEDMENT APPLIES TO HORIZONTAL REINFORCEMENT CAST WITHIN 300 mm OR MORE OF CONCRETE BELOW THE BAR.
NOTE 2: FOR EPOXY REINFORCEMENT INCREASE THESE LENGTHS BY 1.5. INCREASE THESE LENGTHS BY 1.7 FOR EPOXY COATED TOP REINFORCEMENT.

TABLE D.4
READ IN CONJUNCTION WITH DESIGN NOTES SECTION D. CAST-IN-PLACE CONCRETE

REINFORCEMENT SPLICES (UNLESS NOTED OTHERWISE)

BAR DESIGNATION	REINFORCEMENT GRADE (MPa)	COMPRESSION SPLICE	REGULAR TENSION SPLICE (CLASS B) (BASED ON CONCRETE STRENGTH MPa) (SEE NOTE 1)				
			20 MPa	25 MPa	30 MPa	35 MPa	40 MPa
10M	400	330	490	430	400	390	390
15M	400	470	690	610	570	520	480
20M	400	570	840	740	690	640	590
25M	400	740	1350	1180	1090	1020	950
30M	400	880	1600	1400	1290	1210	1130
35M	400	1050	1910	1680	1540	1440	1350

NOTE 1: TOP BAR TENSION SPLICES ARE 1.3 TIMES REGULAR SPLICES. TOP SPLICE LENGTHS APPLY TO HORIZONTAL REINFORCEMENT CAST WITHIN 300 mm OR MORE OF CONCRETE BELOW THE BAR.
NOTE 2: FOR EPOXY REINFORCEMENT INCREASE THESE LENGTHS BY 1.5. INCREASE THESE LENGTHS BY 1.7 FOR EPOXY COATED TOP REINFORCEMENT.

LOCATION APPROVED
UNDERGROUND STRUCTURES

SUPV. U/G STRUCTURES COMMITTEE _____ DATE _____

NOTE:
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. CONFIRMATION OF EXISTENCE AND EXACT LOCATION OF ALL SERVICES MUST BE OBTAINED FROM THE INDIVIDUAL UTILITIES BEFORE PROCEEDING WITH CONSTRUCTION.

B.M.
ELEV.

NO.	REVISIONS	YY.MM.DD.	BY
2	ISSUED FOR TENDER	15.12.23	M.H.
1	ISSUED FOR 95% REVIEW	15.12.04	M.H.

Stantec
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Tel. 204.489.5900 Fax. 204.453.9012 www.stantec.com

DESIGNED BY	B.W.	CHECKED BY	B.F.
DRAWN BY	V.J.F.	APPROVED BY	C.L.D.
HOR. SCALE:	AS. NOTED	RELEASED FOR CONSTRUCTION:	
VERTICAL:			
DATE	2015.11.05	DATE	

ENGINEER'S SEAL

CONSULTANT DRAWING NO.
S-001

Winnipeg

THE CITY OF WINNIPEG
PLANNING, PROPERTY & DEVELOPMENT

ST. BONIFACE INDUSTRIAL PARK - PHASE 2

WASTEWATER PUMPING STATION

GENERAL NOTES

SHEET 1 OF 1
CAD FILE DRAWING NUMBER
09351S-101-846.DWG
CITY DRAWING NUMBER
I-02151-S0101-001

PLOT DATE: 2016 01 08

BID OPPORTUNITY: 983-2015

FILE PATH: V:\1168\active\116809351\0300_drawing\0302_sheet_files\03_structural\phase_2\
FILE NAME: 09351s-101-847.dwg