841mm x 594mm/SCALE: 1:1

GENERAL

1. WITH THE EXCEPTION OF THE STRUCTURAL FOUNDATIONS AND MAIN FLOOR FRAMING WHICH ARE SPECIFIED, THIS PROJECT SHALL BE CONSIDERED A DESIGN/BUILD CONTRACT. AS SUCH THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE DESIGN OF ALL OTHER BUILDING COMPONENTS AND SHALL BE RESPONSIBLE FOR OBTAINING THE BUILDING PERMIT.
2. TRANSPORT CANADA AND ENVIRONMENTAL APPROVALS HAVE BEEN APPLIED FOR AND ARE NOT THE RESPONSIBILITY OF THE CONTRACTOR.

EXCAVATION, GRADING AND GRANULAR FILL

1. EXISTING AND FINAL GRADES ARE AS NOTED ON THE SITE PLAN. THE SITE SHALL BE EXCAVATED AND GRADED TO SUIT THESE FINAL GRADES WITH PROVISION FOR 300mm OF COMPACTED GRANULAR FILL. THE SUBGRADE SHALL BE PROOF ROLLED. THE GRANULAR BASE SHALL BE 'A' BASE COMPACTED TO 98% STANDARD PROCTOR DRY DENSITY, COMPACTED IN TWO 150mm LIFTS. EXCAVATED MATERIAL SHALL BE DISPOSED OF ON THE PROPERTY TO THE SOUTH OF THE BUILDING SITE. DISPOSED MATERIAL SHALL BE GRADED LEVEL.

SECURITY SYSTEM

1. THE SECURITY SYSTEM SHALL PROVIDE FOR ALARMS AT ALL DOORS AND WINDOWS AND INTERIOR MOTION DETECTORS. KEYED ACCESS IS ACCEPTABLE. MONITORING SHALL BE INTERFACED WITH THE CITY OF WINNIPEG'S CENTRAL CONTROL. THE BUILDING IS UNHEATED, HEAT REQUIRED BY THE CONTROLLER SHALL BE SELF CONTAINED ELECTRIC HEAT.

BUILDING NOTES

STEEL DOORS AND FRAMES

1. FABRICATE STEEL DOORS AND FRAMES IN ACCORDANCE WITH THE CANADIAN STEEL DOOR AND FRAME MANUFACTURER'S ASSOCIATION "CANADIAN MANUFACTURING SPECIFICATIONS FOR STEEL DOORS AND FRAMES" LATEST VERSION.
2. DOORS TO BE OF 0.05" (18 GA.) ZINC WIPED SHEET STEEL, 45mm [1 3/4"] THICK, WELDED TYPE, REINFORCED FOR HARDWARE. DOOR CORES TO BE RESIN IMPREGNATED KRAFT HONEYCOMB.
3. FRAMES TO BE OF 0.06" (16 GA.) ZINC WIPED SHEET STEEL, WELDED TYPE, REINFORCED FOR HARDWARE AND CONFIGURATION. PROVIDE 3 NEOPRENE BUMPERS PER DOOR LEAF.
4. INSTALL ALL FRAMES/DOORS PLUMB AND SQUARE. PACK EXTERIOR FRAMES WITH BATT INSULATION. EXTERIOR FRAMES SHALL BE SEALED TO BUILDING CLADDING ON EXTERIOR SIDE.
5. HARDWARE TO BE HEAVY DUTY COMMERCIAL GRADE TO SUIT APPLICATION AND CONTRACT ADMINISTRATOR'S REQUIREMENTS. PROVIDE LOCK CYLINDERS TO MATCH EXISTING SECURITY SYSTEM AND KEY TO CONTRACT ADMINISTRATOR'S REQUIREMENTS.
6. HARDWARE TO BE INGERSOLL–RAND OR APPROVED EQUIVALENT:
   - –HINGES: STANLEY LIFESPAN
   - –EXIT DEVICES: VON DUPRIN 22 SERIES
   - –LATCH/LOCKSETS: SCHLAGE D SERIES
   - –CLOSERS: LCN 1460 SERIES

SECTIONAL OVERHEAD DOORS

1. SECTIONAL OVERHEAD DOORS TO BE UNINSULATED PREFINISHED STEEL CLAD UNIT. ACCEPTABLE PRODUCT: SECTIONAL STEEL DOOR SERIES 420 BY OVERHEAD DOOR CORPORATION OR EQUIVALENT.
2. PANELS TO HAVE A NOMINAL THICKNESS OF 50mm, CLAD WITH 20 GA. PREFINISHED GALVANIZED STEEL. END STILES TO BE 16 GA. GALV. STEEL. HORIZONTAL PANEL JOINTS TO BE SHIP–LAP DESIGN WITH ROUNDED WATER CHANNELS FOR POSITIVE DRAINAGE TO EXTERIOR. PANEL FINISH TO BE 2 COAT BAKED–ON POLYESTER, WHITE, INTERIOR AND EXTERIOR.
3. LOCK TO BE INSIDE MOUNTED, ADJUSTABLE KEEPER, SPRING ACTIVATED LATCH BAR WITH FEATURE TO KEEP IN LOCKED OR RETRACTED POSITION, ELECTRONICALLY INTERLOCKED WITH OPENER.
4. SEAL ALL JOINTS WITH CONTINUOUS EPDM TYPE WEATHERSTRIP: BULB TYPE STRIP ALONG BOTTOM AND FLAP TYPE ALONG JAMBS AND HEAD.
5. HINGES, AND OTHER HARDWARE TO BE HOT–DIPPED GALVANIZED STEEL. BALL BEARING ROLLERS TO BE FULL FLOATING WITH HARDENED STEEL RACES AND SHALL BE SIZED TO SUIT DESIGN LIMITATIONS OF DOOR. BALANCE DOOR WITH 100,000 CYCLE TORSION SPRING AND PUSHER SPRINGS TO MAINTAIN TENSION ON CALBES. 3" TRACK.

ELECTRIC OVERHEAD DOOR OPERATORS

1. WALL MOUNTED HEAVY DUTY V–BELT DRIVE JACKSHAFT TYPE ELECTRIC DOOR OPERATOR WITH A SELF–ENGAGING HOIST AND MECHANICAL BRAKE, C/W ALL NECESSARY DRIVING HARDWARE AND CONTROL ACCESSORIES REQUIRED FOR PROPER OPERATION.
2. MOTOR TO BE RATED FOR APPLICATION COMPLETE WITH HIGH STARTING TORQUE, CONTINUOUS DUTY MOTOR, ODP, C/W A CURRENT SENSING DEVICE WITH MANUAL RESET. ALL ELECTRICAL COMPONENTS TO BE IN A NEMA 1 ENCLOSURE.
3. CONTROL STATION TO BE STANDARD, THREE BUTTON OPEN–CLOSE–STOP, CONTROL FOR ELECTRIC OPERATOR; 24 VOLT CIRCUIT, SURFACE MOUNTED; HOLD OPEN TIMER. MOUNT BESIDE OVERHEAD DOORS.
4. EMERGENCY OPERATION: BY A SELF–ENGAGING HOIST (REQUIRING NO FLOOR DISCONNECT TO OPERATE) FOR MANUAL CHAIN OPERATION. OPERATOR TO BE EQUIPPED WITH LIMIT SWITCHES. LIMIT SWITCHES TO REMAIN IN TIME WHEN EMERGENCY OPERATION OR AFTER THE MOTOR HAS BEEN REMOVED.
5. CONTROL AND SAFETY ACCESSORIES TO BE SUPPLIED FOR EACH OVERHEAD DOOR: ONE THREE–PUSH–BUTTON STATION, PNEUMATIC SENSING EDGE AND PHOTO SAFETY SENSOR.
6. ACTIVATION OF SAFETY DEVICES WILL REVERSE THE DOOR DURING CLOSING. SEQUENCE TO BE ADJUSTABLE IN THE FIELD TO MOMENTARY CONTACT TO OPEN/CLOSE/STOP.
7. ACCEPTABLE PRODUCT: MANARAS

EXTERIOR LIGHTING

1. GENERAL AREA EXTERIOR FLOODLIGHTING TO BE MOUNTED ON BUILDING AND DESIGNED TO ILLUMINATE PARKING AREA EAST AND SOUTH OF BUILDING AND TRUCK TURNAROUND AREA WEST OF BUILDING.
2. EXTERIOR LIGHTING TO BE MOUNTED ON BUILDING TO ILLUMINATE DOOR ENTRANCES.

STRUCTURAL NOTES

FOUNDATIONS (DRIVEN PRECAST CONCRETE PILES)

1. FOUNDATIONS SHALL BE DRIVEN PRECAST CONCRETE PILES AS SHOWN ON DRAWINGS.
2. DRIVEN PRECAST CONCRETE PILES SHALL BE DRIVEN TO REFUSAL TO DEVELOPE AN END BEARING CAPACITY OF 445 kN [100 kips]. THE ESTIMATED DEPTH TO REFUSAL IS 16m BELOW EXISTING GRADE.
3. FABRICATE PRECAST PILES WITH CONCRETE OF 35 MPa MINIMUM 28 DAY COMPRESSIVE STRENGTH USING TYPE 50 SULPHATE RESISTANT CEMENT, IN ACCORDANCE WITH CAN3–A23.1 AND CAN3–A23.3 IN A PLANT CERTIFIED UNDER CSA A251.
4. THE CONCTRACTOR SHALL BE RESPONSIBLE TO VERIFY THE EXISTENCE AND LOCATION OF ALL UNDERGROUND SERVICES IN PILING AREA WHETHER SHOWN OR NOT. EXPOSE ALL SERVICES CLOSE TO PILING AS REQUIRED. CONDITION OF NEARBY STRUCTURES (WITHIN 31m [100'] OF SITE), SHALL BE DOCUMENTED VERBALLY AND/OR PHOTOGRACHICALLY PRIOR TO DRIVING PILES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR REPAIR OF ANY DAMAGE RESULTING FROM PILING OPERATIONS.
5. PILES SHALL NOT BE MORE THAN 50mm OUT OF POSITION LATERALLY AT THE TOP AND NOT MORE THAN 2% OUT OF PLUMB.
6. SPLIT OR SHATTERED PILES SHALL BE REJECTED.
7. DO NOT SPLICE PILES WITHOUT APPROVAL OF THE DESIGN ENGINEER.
8. PRE–BORE ALL PILES 4.6m [15'–0"].
9. RESET PILES LIFTED DURING DRIVING OF ADJACENT PILES.
10. CUT–OF PILES NEAT AND SQUARE AT ELEVATIONS INDICATED. PRESTRESSING STRANDS TO EXTEND 450mm MINIMUM ABOVE CUT–OFF ELEVATION FOR EMBEDMENT INTO STRUCTURAL COMPONENTS ABOVE.

CONCRETE

1. CONCRETE MATERIALS AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH CAN/CSA–A23.1, A23.3 (LATEST). SEE BELOW FOR MIX REQUIREMENTS.
2. REINFORCING STEEL SHALL MEET THE REQUIREMENTS OF CSA G30.12–M88. GRADE, 300 MPa FOR 10M BARS, 400 MPa FOR 15M AND LARGER.

PILECAPS	28 DAY COMP. STRENGTH	35 MPa
	CEMENT	TYPE 50
	W/C RATIO	0.45
	AGGREGATE SIZE (MAX.)	20mm
	ENTRAINED AIR	4%–6%
	SLUMP (MAX.)	90mm (±10mm)
GRADE BEAMS	28 DAY COMP. STRENGTH	30 MPa
	CEMENT	TYPE 10
	W/C RATIO	0.45
	AGGREGATE SIZE (MAX.)	20mm
	ENTRAINED AIR	4%–6%
	SLUMP (MAX.)	90mm (±10mm)

REINFORCING STEEL

1. REINFORCING STEEL TO BE NEW DEFORMED BILLET STEEL BARS CONFORMING TO CAN/CSA G30.18–M92. GRADES TO BE; 400 MPa FOR 15M BARS AND LARGER; 300 MPa FOR 10M BARS.
2. WELDED STEEL WIRE FABRIC SHALL CONFORM TO CAN/CSA G30.5–M1983. 400 MPa MINIMUM GRADE IN FLAT SHEETS ONLY UNLESS APPROVED OTHERWISE.
3. SUBMIT SHOP DRAWINGS WHICH CLEARLY INDICATE BAR SIZES, SPACINGS, LOCATIONS & QUANTITIES OF REINFORCING STEEL, BENDING & CUTTING SCHEDULES, SUPPORTING & SPACING DEVICES, ETC. FOR REVIEW PRIOR TO FABRICATION. DETAIL, FABRICATE AND PLACE REINFORCING IN ACCORDANCE CSA A23.1, CSA A23.3 AND ACI 315–80 "MANUAL OF STANDARD PRACTICE FOR DETAILING REINFORCED CONCRETE STRUCTURES" EXCEPT AS NOTED. LAP STEEL 36 BAR DIAMETERS (MINIMUM) UNLESS NOTED OTHERWISE.
4. REINFORCING STEEL SHALL BE CLEAN, FREE OF RUST, DIRT, LOOSE SCALE, OIL, GREASE OR ANY OTHER MATERIAL WHICH WOULD REDUCE BOND WITH THE CONCRETE.

PRECAST CONCRETE HOLLOW CORE SLABS

1. THE MANUFACTURE, HANDLING AND ERECTION OF PRECAST ELEMENTS TO BE IN ACCORDANCE WITH CSA CAN3–A23:4–M (LATEST) BY A MANUFACTURER CERTIFIED ACCORDING TO CSA STANDARD A251–1971.
2. COMPLETE STRUCTURAL, HANDLING AND CONNECTION DESIGN SHALL BE CARRIED OUT UNDER THE DIRECT SUPERVISION OF A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA.
3. DRAWINGS SHOWING ALL SIZES AND DIMENSIONS, POSITION AND SPACING OF REINFORCING, OPENINGS, CONNECTION DETAILS, LAYOUT PLAN, FINISHES, LIFTING DEVICES, ALL INSERTS, ESTIMATED CAMBER, MEMBERS IDENTIFICATION MARKS, AND ALL OTHER RELEVANT INFORMATION SHOWING IMMEDIATE ADJACENT MATERIALS FOR PROPER COORDINATION SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW PRIOR TO FABRICATION.
4. ALL SHOP DRAWINGS SHALL BE SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA AND SUBMITTED FOR REVIEW PRIOR TO FABRICATION.
5. SLABS SHALL HAVE SIMILAR CAMBER WHEN PLACED TOGETHER. DIFFERENTIAL CAMBER BETWEEN ADJACENT PANELS EXCEEDING 6mm (1/4") IS NOT ACCEPTABLE.
6. GROUT STRENGTH SHALL BE 35 MPa @ 28 DAYS. TOPPING STRENGTH SHALL BE 25 MPa MINIMUM (SEE CONCRETE NOTES)
7. GROUTING OF PRECAST PLANKS SHALL BE THE RESPONSIBILITY OF THIS SUBTRADE.
8. HOLLOW CORE SLABS TO HAVE A MINIMUM COMPRESSIVE STRENGTH OF 40 MPa AND SHALL BE REINFORCED AS PER C.S.A G279.
9. ERECTION SHALL BE CARRIED OUT BY EXPERIENCED PRECAST ERECTORS UNDER DIRECT SUPERVISION PROVIDED BY THE PRECAST SUPPLIER. FINAL CERTIFICATION SHALL BE PROVIDED BY THE PRECAST SUPPLIER.
10. HOLLOW CORE SLABS SHALL BE DESIGNED FOR LOADS AS NOTED.

CONCRETE TOPPING

1. APPLY CONCRETE TOPPING OVER CONCRETE BASE SLAB TO CAN3–A23.1–M77, 25 MPa MINIMUM COMPRESSIVE STRENGTH. CONCRETE SHALL BE SAMPLED AND TESTED BY AN APPROVED TESTING AGENCY.
2. THE CONCRETE BASE SLAB SHALL BE CLEANED OF DIRT, DUST, GREASE, OIL, EFFLORESCENCE OR OTHER FOREIGN MATTER. PRECAST CONCRETE SLABS MUST BE THOROUGHLY CLEANED BY LIGHT PRESSURE WATER WASH.
3. TOPPING MIX SHALL BE REINFORCED WITH WELDED WIRE FABRIC 152x152 MW25.8xMW25.8 (6x6x4/4) PLACED IN SHEETS WITH A MINIMUM TWO BARS OVER LAPPING.
4. ALL TOPPING AREA SHALL BE POURED WITH AS STIFF A MIX AS USABLE. WATER CEMENT RATIO SHALL NOT EXCEED 0.45, USE SUPERPLASTICIZER TO INCREASE WORKABILITY. SPECIAL CARE SHALL BE TAKEN AT HOLLOWCORE JOINTS TO ENSURE ADEQUATE BOND AND PROPER CURING OF TOPPING TO ELIMINATE CRACKING AT HOLLOWCORE JOINTS.
5. PRECAST SLABS MUST BE THOROUGHLY SOAKED WITH WATER FOR 24 TO 48 HOURS BEFORE TOPPING IS PLACED.
6. SINCE DRYING SHRINKAGE MUST BE KEPT TO A MINIMUM, A CURING MEMBRANE SHALL BE LAID DOWN AS SOON AS POSSIBLE AFTER FINISHING TROWELLING. IN ADDITION THE FLOOR AREA SHALL BE PROTECTED FROM HEAT AND DRYING BY COVERING WITH NON STAINING TARPS.
7. NO BUMPS OR HOLLOWS WILL BE ALLOWED. FINAL TOPPING SHALL BE UNIFORM TO WITHIN 3mm AS MEASURED WITH A 3 METER STRAIGHT EDGE. ANY RIDGES BETWEEN SEGMENTS SHALL BE GROUND SMOOTH WITH HOLLOWS FILLED WITH AN APPROVED LEVELING COMPOUND.
8. TOPPING TO BE FINISHED TO A ROUGH TROWEL FINISH.

STRUCTURAL AND MISCELLANEOUS STEEL

1. STRUCTURAL AND MISCELLANEOUS STEEL FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH CAN/CSA–S16.1–M89.
2. STRUCTURAL STEEL SHALL MEET THE REQUIREMENTS OF CAN/CSA–G40.20/G40.21–M92.

ROLLED SHAPES & PLATES	CSA G40.21–300W
HSS SECTIONS	CSA G40.21–350W
STANDARD PIPE (HANDRAIL)	ASTM A53
COLD FORMED STEEL	CSA S136–94
ANCHOR BOLTS (CALV.)	ASTM A307M
BOLTS, NUTS & WASHERS	ASTM A325M
WELDING ELECTRODES	CSA W48.1 M1980

3. WELDING SHALL BE IN ACCORDANCE WITH CSA W59–M1989, BY WELDERS CERTIFIED AND QUALIFIED IN ACCORDANCE WITH CSA W47.1–1983. ALL WELDS TO BE 1/4" UNLESS NOTED OTHERWISE.
4. FIELD CONNECTIONS SHALL BE BOLTED 3/4" DIAMETER A325 FRICTION TYPE UNLESS NOTED OTHERWISE. BOLTS SHALL BE TORQUED IN ACCORDANCE WITH CAN/CSA S16.1–M89.

STRUCTURAL STEEL GRATING

1. STEEL GRATING AND GRATING STAIR TREADS TO BE TYPE 19–4 STANDARD FLOWFORGE STEEL GRATING BY FISHER & LUDLOW.
2. BEARING BARS TO BE SERRATED, 38mm DEEP X 4.8mm WIDE, SPACED AT 30mm CENTERS, UNLESS NOTED OTHERWISE.

APEGM
Certificate of Authorization
KGS Group
No. 245 Expiry: April 30, 2004

NO.	REVISIONS	DATE	BY
0	ISSUED FOR TENDER	NOV.14/05	RJL

B.M. ELEV.

KGS GROUP *CONSULTING ENGINEERS & PROJECT MANAGERS* WINNIPEG THUNDER BAY

DESIGNED BY	RJL	CHECKED BY	
DRAWN BY	SNH	APPROVED BY	
HOR. SCALE / VERTICAL	AS NOTED	RELEASED FOR CONSTRUCTION	
DATE	NOV. 2005	DATE	

PROVINCE OF MANITOBA — R.J. LONG — REGISTERED PROFESSIONAL ENGINEER

CONSULTANT DRAWING NO.
05–0107–12–S2

Winnipeg

THE CITY OF WINNIPEG
PLANNING PROPERTY AND DEVELOPMENT
* SERVICES DEPARTMENT

CHEMICAL STORAGE WAREHOUSE
NOTES

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CAD FILE DRAWING NUMBER	05–107–12–S–02–r0.dwg
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