SHEET: COW-A1 (05/2005)

GENERAL NOTES

1. READ THE STRUCTURAL DRAWINGS IN CONJUNCTION WITH ALL OTHER PERTINENT CONTRACT DOCUMENTS. IN THE EVENT OF A CONFLICT, GENERAL CONDITIONS SPECIFIES ORDER OF PRECEDENCE.
2. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE. THE CONTRACTOR SHALL VERIFY DIMENSIONS BEFORE BEGINNING CONSTRUCTION AND REPORT DISCREPANCIES TO THE CONTRACT ADMINISTRATOR BEFORE PROCEEDING WITH THE WORK.
3. THE DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE NATIONAL BUILDING CODE OF CANADA 1995, ITS SUPPLEMENTS AND THE LATEST EDITIONS (UNLESS OTHERWISE NOTED) OF REFERENCED CODES AND STANDARDS THEREIN.
4. REFER TO THE ARCHITECTURAL, PROCESS, MECHANICAL AND ELECTRICAL DRAWINGS FOR LOCATIONS AND DIMENSIONS OF OPENINGS, SLEEVES AND OTHER BUILDING COMPONENTS NOT SHOWN ON THE STRUCTURAL DRAWINGS. REPORT DISCREPANCIES TO THE CONTRACT ADMINISTRATOR BEFORE PROCEEDING WITH CONSTRUCTION

DESIGN LOADS

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1. LOADS SHALL CONFORM TO THE NATIONAL BUILIDING CODE OF CANADA 1995, THE MANITOBA BUILDING CODE, AND SUPPLEMENTS.
2. DEAD LOADS: AS INDICATED ON CORRESPONDING DRAWINGS.
3. LIVE LOADS: AS INDICATED ON CORRESPONDING DRAWINGS.
4. WIND LOADS: q (1/50)=0.45 KPa
5. ADDITIONAL DESIGN LOADS FOR EQUIPMENT ARE INDICATED ON CORRESPONDING DRAWINGS.
6. CONTRACTOR TO VERIFY FINAL EQUIPMENT WITH CONTRACT AND REPORT DISCREPANCIES AND OBTAIN APPROVAL FROM THE ADMINISTRATOR PRIOR TO PROCEEDING WITH CONSTRUCTION.

FOUNDATION NOTES:

1. ALL FOUNDATION CONSTRUCTION SHALL BE PERFORMED WITH REFERENCE TO THE RECOMMENDATIONS GIVEN IN THE GEOTECHNICAL INFORMATION AVAILABLE FOR THE SITE.
2. FOUNDATIONS ARE DESIGNED IN COMBINATION AS DRIVEN, END BEARING, PRESTRESSED PRECAST CONCRETE PILES.
3. PRECAST PILE CUT-OFF ELEVATIONS SHALL BE AS SHOWN ON THE DRAWINGS. A MINIMUM OF 450 mm OF STRAND LENGTHS SHALL BE EXPOSED FOLLOWING THE PILE CUT-OFF.
4. PRECAST PILE NOTES:
   - .1) PRECAST PRESTRESSED CONC PILES DESIGNED AS DRIVEN, END BEARING WITH THE FOLLOWING DESIGN CAPACITY:
     - .1 300MM HEX – ALLOWABLE LOAD CAPACITY = 445 KN
     - .2 350MM HEX – ALLOWABLE LOAD CAPACITY = 625 KN
     - .3 400MM HEX – ALLOWABLE LOAD CAPACITY = 800 KN
   - .2) SEE SPECS. FOR PREBORING REQUIREMENTS.

EXCAVATION, BACKFILLING AND COMPACTION NOTES

1. AN EXCAVATION PLAN SHALL BE PREPARED, SEALED AND SIGNED BY A QUALIFIED PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA. SUBMIT EXCAVATION PLAN FOR REVIEW. VERIFY LOCATION OF ALL UNDERGROUND SERVICES PRIOR TO COMMENCING EXCAVATION AND BE RESPONSIBLE FOR DISRUPTIONS.
2. EXCAVATE TO LINES AND LEVELS INDICATED IN THE CONSTRUCTION SEQUENCE AND DRAWINGS NECESSARY TO PROPERLY COMPLETE THE WORK.
3. CONSTRUCTION METHODS REQUIRING TEMPORARY SHORING OR BRACING. SHALL BE DESIGNED, SEALED AND SIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA. SUBMIT SHORING PLAN AND DETAILS FOR REVIEW.

CONCRETE NOTES

1. PROVIDE CONCRETE AND PERFORM WORK TO CSA A23.1-00, TEST CONCRETE TO CSA A23.2-00. THE CONTRACTOR SHALL HAVE COPIES OF THESE STANDARD ON SITE AT ALL TIMES.
2. CONCRETE PERFORMANCE REQUIREMENTS:

TYPE	LOCATION	28 DAY STRENGTH fc' (MPa)	CEMENT TYPE	AGGREG. MAX (mm)	MAX SLUMP (mm)	TOTAL AIR %	MAX W/C RATIO	EXPOSURE CLASS
1)	CONCRETE IN CONTACT W/SOIL	35	50	20	80	4-7	0.40	S-1
2)	STRUCTURAL CONCRETE NOT IN CONTACT W/ SOIL	35	10	20	80	4-7	0.40	N
3)	MISCELLANEOUS	35	10	20	80	4-7	0.40	N
4)	LEAN MIX FILL	10	50	20	100	N/A	0.55	–

3. SPECIFIED SLUMPS ARE PRIOR TO THE ADDITION OF ANY ACCEPTED PLASTICIZING ADMIXTURE. WHEN CONCRETE IS PLACED BY PUMPING, THE LISTED SLUMPS SHALL BE AT DISCHARGE.
4. ALL CONCRETE SHALL BE NORMAL WEIGHT 2400 KG/CUBIC METER UNLESS NOTED.
5. GROUT: NON-SHRINK, NON-METALLIC WITH MINIMUM STRENGTH 35MPa AT 28 DAYS.
6. VOID FORMS: PROVIDE VOID FORMS UNDER SLABS, GRADE BEAMS, WALLS AND PILE CAPS AS SHOWN ON DRAWINGS, TO ACCOMODATE FOR 200mm SOIL SWELLING, AS PER GEOTECHNICAL INFORMATION.
7. FORMWORK AND FALSEWORK DESIGN SHALL BE COMPLETED BY A PROFESSIONAL ENGINEER REGISTERED IN THE PROVINCE OF MANITOBA. SUBMIT TO CONTRACT ADMINISTRATOR FOR REVIEW.
8. PROVIDE 20mm CHAMFER ON ALL EXPOSED CONCRETE CORNERS.

PRECAST CONCRETE NOTES

1. DESIGN, FABRICATION AND ERECTION TO CSA A23.4 AND PCI DESIGN HANDBOOK. DESIGN LOADS AS SHOWN ON DRAWINGS.
2. THE MANUFACTURER OF PRECAST CONCRETE UNITS SHALL BE CERTIFIED IN ACCORDANCE WITH CSA A251.
3. GROUT FOR HOLLOW CORE SHALL HAVE A MINIMUM 28 DAY STRENGTH OF 35 MPa.
4. PRESTRESSING TENDONS SHALL CONFORM TO CSA G279.

REINFORCING STEEL NOTES

1. DEFORMED BARS CONFORMING TO CSA-G30.18 GRADE 400 PLAIN FINISH.
2. REINFORCING WORK SHALL BE IN ACCORDANCE WITH CSA-23.1-00 AND CSA-23.3.
3. REINFORCING SHALL BE DETAILED IN ACCORDANCE WITH THE LATEST REINFORCING STEEL INSTITUTE OF CANADA DETAILING MANUAL OF STANDARD PRACTICE.

MASONRY NOTES

1. ALL MASONRY WORK SHALL CONFORM TO CSA S304.1, A371 AND TO DETAILS SHOWN ON DRAWINGS.
2. MASONRY BLOCK UNITS SHALL CONFORM TO CSA A165. CLASSIFICATION H/15/C/M (TO BE CHECKED WITH ARCH) WITH A MINIMUM UNIT STRENGTH OF 15 MPa, UNLESS NOTED OTHERWISE.
3. ALL MORTAR SHALL CONFORM TO CSA A179 AND SHALL BE TYPE 'S' MORTAR WITH MINIMUM STRENGTH OF 12 MPa AT 28 DAYS.
4. ALL LINTELS, BOND BEAMS, AND PILASTERS SHALL BE FILLED WITH CONCRETE HAVING A MINIMUM COMPRESSIVE STRENGTH OF 25 MPa AND REINFORCED AS SHOWN.
5. PROVIDE DOWELS FROM CONCRETE BEAMS OR WALLS TO MATCH MASONRY REINFORCING.
6. HORIZONTAL JOINT REINFORCING SHALL CONFORM TO CSA A371 AND ASTM A82 AND SHALL BE INSTALLED AT EVERY SECOND JOINT AND SHALL BE A.S.W.G. NO. 9 TRUSS TYPE WIRE REINFORCING WITH DEFORMATIONS, SPLICES LAPPED MINIMUM 200mm AND STAGGERED MINIMUM 800mm FROM COURSE TO COURSE.
7. CONNECTORS SHALL CONFORM TO CSA A370 AND CSA S304.1; SLOTTED BLOCK TIE TYPE 1 C/W INSULATION CLIP BY FERO CORP.
8. GROUTING OF CORES TO BE 25 MPa.

STEEL DECKING NOTES

1. DESIGN, FABRICATE AND INSTALL STEEL DECK TO CSA-S136 AND THE CANADIAN SHEET BUILDING INSTITUTE STANDARDS.
2. DECKING PROFILE: 38mm DEEP, MINIMUM 0.76mm (22Ga).
3. WELD DECK TO SUPPORTING STEEL WITH 20mm DIAMETER INFUSION WELDS USING WELD WASHERS WHERE NECESSARY; TRANSVERSE, LONGITUDINAL, AND PERIMETER WELDS @ 300 o/c. SIDE LAPS FASTENED BY BUTTON PUNCHING @ 600 o/c.

ALUMINUM FABRICATIONS

1. DESIGN, FABRICATION AND INSTALLATION IN ACCORDANCE WITH CSA S157.
2. PERFORM WELDING OF ALUMINUM IN ACCORDANCE WITH REQUIREMENTS OF CSA W59.2.
3. STRUCTURAL ALUMINUM: CONFORMING TO ALUMINUM ASSOCIATION ALLOY AND TEMPER DESIGNATION 6061-T6 OR 6351-T6.
4. ALUMINUM GRATING: STYLE 30-102M AS MAUNFACTURED BY FISHER & LUDLOW; ALLOY 6063-T6 FOR BEARING BARS AND ALLOY 6063-T5 FOR CROSS BARS.
5. BOLTS AND ANCHOR BOLTS: CONFORMING TO STAINLESS STEEL C/W ISOLATION WASHERS.
6. BITUMINOUS PAINT: MPI (MASTER PAINT INSTITUTE) EXT. 5.5D, WITHOUT THINNER.
7. ISOLATE ALUMINUM FROM FOLLOWING COMPONENTS, BY MEANS OF BITUMINOUS PAINT:
   - .1) DISSIMILAR METALS EXCEPT STAINLESS STEEL, ZINC, OR WHITE BRONZE OF SMALL AREA.
   - .2) CONCRETE, MORTAR AND MASONRY.

STEEL FABRICATIONS

1. FABRICATE AND ERECT STRUCTURAL STEEL TO CSA-S16.1.
2. STRUCTURAL STEEL WIDE FLANGE SECTIONS: CONFORMING TO CSA G40.21, TYPE W WITH MINIMUM YIELD STRENGTH OF 350 MPa.
3. MISCELLANEOUS STEEL: TO CAN/CSA G40.21; TYPE W WITH A MINIMUM YIELD STRENGTH OF 300 MPa.
4. HOLLOW STRUCTURAL SECTIONS: CONFORMING TO CSA G40.21, TYPE W, MINIMUM YIELD STRENGTH OF 350 MPa, CLASS C.
5. WELDING MATERIALS: CONFORMING TO CSA W59. BY FABRICATORS CERTIFIED BY THE CANADIAN WELDING BUREAU TO THE REQUIRMENTS OF CSA-W47.1, DIVISION 2.
6. GALVANIZING CONFORMING TO CSA G164.
7. CLEAN ALL STEEL PRIOR TO PRIMING TO SSPC SURFACE PREPARATION SPECIFICATION NO. 7 "BRUSH-OFF BLAST CLEANING".
8. PRIME STEEL SURFACES WITH ONE COAT OF PRIMER TO CISC/CPMA 2-75.

STANDARD ABBREVIATIONS:

ADDITIONAL	ADDL	HOLLOW STRUCTURAL STEEL	HSS
AT	@	HEIGHT	HT
ANCHOR BOLT	A. BOLT	INSIDE FACE	I.F.
ALTERNATE	ALTER.	INSIDE DIAMETER	I.D.
ALUMINUM	ALUM	INSULATION	INSUL
APPROXIMATE	APPROX	INTERIOR	INT
ARCHITECTURAL	ARCH	JUNCTION	JCT
AVERAGE	AVG.	KILONEWTON	kN
BALANCE	BAL	LOCATION	LOC'N
BOTTOM	BOT	LONG	LG
BOTTOM LOWER LAYER	BLL	LONG LEG HORIZONTAL	LLH
BOTTOM UPPER LAYER	BUL	LONG LEG VERTICAL	LLV
BETWEEN	BETW	LIVE LOAD	L.L.
BUILDING	BLDG	LONGITUDE	LONG
BENCH MARK	B.M.	MATERIAL	MATL
BEARING	BRG	MAXIMUM	MAX
BY (Between dims)	x (lower case)	MECHANICAL	MECH
CLEAR COVER	CL.	MEZZANINE	MEZZ
CENTERLINE	℄	MINIMUM	MIN
CENTER TO CENTER	C/C	MISCELLANEOUS	MISC
CAST IN PLACE	C.I.P.	MARK	MK.
CONSTRUCTION JOINT	C.J.	MILLIMETER	mm
CONCRETE MASONARY UNIT	C.M.U	METER	M
COMPLETE WITH	C/W	NEAR SIDE	N.S.
CATCH BASIN	C.B.	NELSON STUD	N.STUD
CIRCULAR	CIRC	NUMBER	No.
CORRUGATED METAL PIPE	C.M.P.	NOT TO SCALE	N.T.S.
COLUMN	COL	ON CENTER	o/c (lower case)
CONCRETE	CONC	OUTSIDE FACE	O.F.
CONSTRUCTION	CONSTR	OUT TO OUT	O/O
CONTINUOUS	CONT	OUTSIDE DIAMETER	O.D.
CONCRETE PIPE	C.P.	OPENING	OPNG
DIMENSION	DIM	OPPOSITE	OPP
DEAD LOAD	D.L.	ORIGINAL	ORIG
DOWN	DN.	OPEN WEB STEEL JOIST	OWSJ
DRAWING	DWG	PERIMETER	PERIM
DOWEL	DWL	PERPENDICULAR	PERP
DIAMETER	DIA	PLATE	PL.
DEGREE	°	PRECAST	P/C
EACH FACE	E.F.	PRELIMINARY	PRELIM.
EACH END	E.E.	PROJECTION	PROJ
EACH SIDE	E.S.	RADIUS	R or RAD
EXPANSION JOINT	E.J.	REINFORCE WITH	R/W
EACH WAY	E.W.	REINFORCING	REINF
ELECTRICAL	ELECT	REQUIRED	REQD
ELEVATION	EL.	REVISION	REV.
EQUAL	EQ	ROOF DRAIN	R.D.
EQUAL SPACE	EQ SP	RETAINING WALL	R.W.
EXCAVATION	EXC	SECTION	SECT.
EXISTING	EXIST	SHEET	SHT
EXPANSION	EXP.	SIMILAR	SIM
EXTERIOR	EXT	SKETCH	SK.
FAR SIDE	F.S.	SPECIFICATION	SPEC
FACE TO FACE	F/F	STAINLESS STEEL	S.S.
FACE OF CONCRETE	F.O.C.	STANDARD	STD
FOUNDATION	FDN	STIFFENER	STIFF
FOOTING	FTG	STIRRUP	STIRR
FULL TENSION SPLICE	F.T.S.	STRUCTURAL	STRUCT
GRID LINE	℄	SYMMETRICAL	SYM
GALVANIZE	GALV	TOP LOWER LAYER	TLL
GAUGE	GA	TOP OF	T.O.
GRANULAR BASE	G.B.	TOP UPPER LAYER	TUL
GRANULAR BACK FILL	GBFL.	TANGENT	TAN
GUARD RAIL	G.R.	TYPICAL	TYP
GRANULAR	GRAN.	UNLESS NOTED OTHERWISE	U/N
GRAVEL	GRL.	UNDERSIDE	U/S
HANGER	HGR	VERTICAL	VERT
HORIZONTAL	HORIZ	WIND LOAD	W.L.
HOLLOWCORE	H/C	WORK POINT	W.P.

APEGM
Certificate of Authorization
Earth Tech Canada Inc.
No. 730 Expiry: April 30, 2007

B.M.
ELEV.

NO.	REVISIONS	DATE	BY
01	498-2006 ADDENDUM 2	06/09/22	KK
00	ISSUED FOR TENDER	06/08/28	KK

CH2MHILL Fredericksen Cooper ARCHITECTS — EarthTech, A Tyco International Ltd. Company

DESIGNED BY	AP	CHECKED BY	MK
DRAWN BY	KK	APPROVED BY	AHL
SCALE:	AS SHOWN	RELEASED FOR CONSTRUCTION BY:	R. SOROKOWSKI
DATE	2006/06/16	DATE	2006/08/30

ENGINEER'S SEAL
ORIGINAL SIGNED BY
A. POCHANART
2006/08/30

CONSULTANT DRAWING NO.
WG-S0001

Winnipeg
THE CITY OF WINNIPEG
WATER AND WASTE DEPARTMENT
ENGINEERING DIVISION

WATER TREATMENT PLANT
STANDBY POWER GENERATOR

CITY FILE NUMBER
SHEET OF

STRUCTURAL
GENERAL NOTES

CITY DRAWING NUMBER
1-0601G-A-S0001-001-01D

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