

**1.1. GENERAL CONDITIONS**

.1 SUPPLY ALL LABOUR, EQUIPMENT, AND MATERIALS NECESSARY TO INSTALL, COMPLETE AND OPERATIONAL, THE ELECTRICAL SYSTEMS DESCRIBED HEREIN AND SHOWN ON THE DRAWINGS. THE REQUIREMENTS OF THIS SECTION ARE IN ADDITION TO THOSE CONTAINED IN THE GENERAL CONDITIONS AND OTHER PORTIONS OF THE CONTRACT DOCUMENTS.

**1.2 DRAWINGS & SPECIFICATIONS**

.1 IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO PROVIDE FOR AN ELECTRICAL INSTALLATION COMPLETE AND IN OPERATING CONDITION. THE RESPONSIBILITY FOR SUPPLYING AND INSTALLING ALL MATERIAL NECESSARY TO ACCOMPLISH THIS, EXCEPT WHERE SPECIFICALLY NOTED THAT SUCH WORK OR MATERIALS IS NOT INCLUDED, SHALL BE PART OF THIS SECTION.

**1.3 LOCAL RULES AND COSTS**

.1 THE COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE CANADIAN ELECTRICAL CODE AND THE BY-LAWS OF THE PROVINCE AND MUNICIPAL ELECTRICAL ENERGY INSPECTION DEPARTMENT WHOSE AUTHORITY COVERS THE AREA IN WHICH THE WORK IS BEING DONE.

.2 OBTAIN AND PAY FOR ALL PERMITS AND LICENSES REQUIRED TO EXECUTE THE WORK.

**1.4 CO-ORDINATION OF WORK**

.1 CO-ORDINATE WITH OTHER TRADES ON THE LOCATION OF EQUIPMENT SUPPLIED BY OTHERS PRIOR TO THE INSTALLATION OF CONDUIT, OUTLETS, ETC. WHERE ELECTRICAL EQUIPMENT IS BEING BUILT-IN, SUPPLY THE EQUIPMENT OR NECESSARY DIMENSION TO THE OTHER TRADES.

**1.5 MATERIALS**

.1 ALL MATERIALS SUPPLIED SHALL BE NEW (OR AS NOTED) AND OF THE QUALITY INDICATED IN THE SPECIFICATIONS AND SHALL CONFORM TO THE STANDARDS OF THE C.S.A. AND THE U.L.C. AND APPROVED BY THESE AGENCIES WHERE APPLICABLE.

.2 IN THE EVENT THAT A MATERIAL SPECIFIED DOES INDICATE C.S.A.,U.L.C.OR EQUAL APPROVAL, CONTRACTOR IS TO OBTAIN THE APPROVAL OF THE LOCAL INSPECTION AUTHORITY, PAY ALL CHARGES LEVIED BY THE INSPECTION AUTHORITY AND MAKE ANY MODIFICATIONS REQUIRED, AT NO ADDITIONAL EXPENSE.

**1.6 LOCATING EQUIPMENT**

.1 MATERIALS AND LABOUR SHALL BE PROVIDED FOR OUTLETS MOVED WITHIN 10' OR 3.0m FROM THE LOCATION SHOWN ON THE PLANS PRIOR TO ROUGH-IN AT NO EXTRA CHARGE TO THE CONTRACT.

.2 PUSHBUTTONS SHALL BE MOUNTED 9" OR 225mm OR 36" OR 900mm TO CENTER ABOVE FINISHED FLOOR.

**1.7 WARRANTY**

.1 REFER TO FRONT END GENERAL SECTIONS FOR DETAILS.

**1.8 AS BUILT DRAWINGS**

.1 REFER TO FRONT END GENERAL SECTIONS FOR DETAILS.

**1.9 BREAKERS**

.1 ALL BREAKERS SHALL BE NEW (OR AS NOTED) AND TO MATCH THE EXISTING PANEL AND INTERRUPTING CAPACITY. INCLUDED SHALL BE ALL MOUNTING HARDWARE AND FILLER PLATES FOR A COMPLETE INSTALLATION. ALL BREAKER SIZES MUST BE CONFIRMED AND PROVIDED TO MATCH THE PIECE OF EQUIPMENT IT SUPPLIES. ALLOW TO PROVIDE A BREAKER TO BE TWO SIZES FROM THE INDICATED UNITS ON THE DRAWINGS.

**1.10 PANELS AND EQUIPMENT**

.1 PROVIDE ACCURATE MACHINE PRINTED DIRECTORIES FOR ALL EQUIPMENT. EXISTING DIRECTORIES TO REMAIN BEHIND NEW ONES.

.2 EQUIPMENT TO BE OF SAME MANUFACTURER THROUGHOUT. PROVIDE ALL NECESSARY HARDWARE AND COVER PLATES FOR COMPLETE INSTALLATION. FULL SIZE BREAKERS, BOLT ON ONLY. BUSS TO BE FULL RATED COPPER WITH ANTI OXIDE COATING. PROVIDE A S.C/COORDINATION STUDY TO ENSURE ALL EQUIPMENT IS RATED AND SUPPLIED TO COORDINATE WITH ALL POSSIBLE FAULT CONDITIONS PRESENT AT SITE WITH UTILITY AND STANDBY POWER GENERATION SUPPLY.

**1.11 GROUNDING SYSTEM**

.1 GROUNDING SYSTEM SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF CANADIAN ELECTRICAL CODE. ENSURE GROUND RESISTANCE IS SUITABLE FOR GRID LOCATION.

.2 PROVIDE GROUNDING TO ALL RACEWAYS, AND EQUIPMENT TO C.E.C.

**1.12 DISCONNECT SWITCHES**

.1 SUPPLY AND INSTALL DISCONNECT SWITCHES AS INDICATED AND AS REQUIRED BY CODE. INCLUDE W/P FOR EXTERIOR LOCATIONS.

**1.13 AUXILLARY EQUIPMENT**

.1 PROVIDE WIRING, CONTROL TRANSFORMERS AND AUXILIARY CONTACTS AS REQUIRED FOR CONTROL CONNECTIONS. CO-ORDINATE ALL INTERLOCKS AND CONNECTIONS WITH EQUIPMENT.

**1.14 WIRING METHODS**

.1 ALL WIRING SHALL BE COPPER IN PVC OR TECK CABLE UNLESS INDICATED OTHERWISE.

.2 CIRCUIT WIRING TO BE MINIMUM #12 AWG RW90 UNLESS OTHERWISE INDICATED. WHERE WIRE SIZE IS NOT SHOWN, AMPACITY MUST MATCH OR EXCEED THAT OF PROTECTIVE DEVICE AND ANY ALLOWANCE FOR VOLTAGE DROP IS TO BE APPLIED. CABLE TO BE UPSIZED AS NECESSARY.

**1.15 INSTALLATION**

.1 INSTALL WIRING CONTINUOUSLY WITHIN RACEWAYS. SPLICES WILL BE PERMITTED ONLY AT OUTLETS AND JUNCTION BOXES. ADEQUATE CABLE SHALL BE PROVIDED TO PERMIT PROPER CONNECTION OF ALL EQUIPMENT.

.2 ALL WIRING TO RUN CONCEALED IN CEILING, WALLS OR FLOORS WHEREVER POSSIBLE. ANY EXPOSED CONDUITS OR CABLES SHALL BE RUN PARALLEL TO OR AT RIGHT ANGLES TO BUILDING LINES AND IN A NEAT MANNER.

.3 INSTALL PULL BOXES AS REQUIRED BY THE CANADIAN ELECTRICAL CODE. PULL BOXES SHALL BE LOCATED IN INCONSPICUOUS SPACES. PROVIDE RATED ACCESS DOORS AS REQUIRED.

.4 PROVIDE ALL MOUNTING BRACKETS, STRAPS AND SUPPORTS TO SECURE ELECTRICAL DEVICES IN ACCORDANCE TO SPECIFICATIONS AND C.E.C REQUIREMENTS.

**1.16 WIRING DEVICES**

.1 RECEPTACLES SHALL BE SPEC COMMERCIAL GRADE, NYLON FACE, 15A, FINISH TO BE WHITE UNLESS OTHERWISE NOTED.

.2 WIRING DEVICES AND COVER PLATES SHALL BE ONE MANUFACTURER. ALL COVER PLATES SHALL BE W/P. UNLESS OTHERWISE NOTED.

**1.17 LIGHTING**

.1 SUPPLY AND INSTALL ALL LUMINARIES AND LAMPS AS INDICATED ON THE LUMINARIE SCHEDULE EXCEPT AS NOTED OTHERWISE. ALL SUPPORTS AND WIRING TO MAKE THE LIGHTING SYSTEM OPERATIONAL IS TO BE SUPPLIED AND INSTALLED. FIXTURES ARE TO BE INDEPENDANTLY SUPPORTED FROM THE CEILING BY FASTENING TO THE BUILDING STRUCTURE.

**1.18 LABELS**

.1 PROVIDE AND INSTALL ADHESIVE LAMACOID LABELS TO IDENTIFY CIRCUITING AND MAJOR EQUIPMENT.

**1.19 MISCELLANEOUS EQUIPMENT**

.1 PROVIDE WIRING, CONNECTIONS, STARTERS, DISCONNECTS AND CONTROLS FOR ANY EQUIPMENT SUPPLIED AND INSTALLED BY OTHERS.

.2 ALL CONTROL WIRING WILL BE BY THE ELECTRICAL SUBCONTRACTOR UNLESS OTHERWISE NOTED. WHERE 120V POWER IS REQUIRED FOR MECHANICAL EQUIPMENT, WIRING AND CONNECTIONS ARE TO BE PROVIDED BY THE ELECTRICAL SUBCONTRACTOR.

**1.20 COORDINATION AND SUPPLY OF WORK ON EXISTING EQUIPMENT**

.1 WHERE EXISTING SERVICES SUCH AS ELECTRICAL POWER, ETC. ARE REQUIRED TO BE DISRUPTED AND/OR SHUT DOWN, CO-ORDINATE THE SHUTDOWNS AND CARRY OUT THE WORK AT AN ACCEPTABLE TIME TO THE CONTRACT ADMINISTRATOR. CAREFULLY SCHEDULE ALL DISRUPTION AND/OR SHUT-DOWNS AND ENSURE THAT THE DURATION OF SAME IS KEPT TO THE ABSOLUTE MINIMUM. SUBMIT FOR APPROVAL A WRITTEN, CONCISE SCHEDULE OF EACH DISRUPTION AT LEAST 120 HOURS IN ADVANCE OF PERFORMING WORK AND OBTAIN CONTRACT ADMINISTRATOR'S WRITTEN CONSENT PRIOR TO IMPLEMENTING.

.2 SHOULD ANY TEMPORARY CONNECTIONS BE REQUIRED, SUPPLY AND INSTALL ALL NECESSARY MATERIAL AND EQUIPMENT AND PROVIDE ALL LABOUR AT NO EXTRA COST. SHOULD ANY EXISTING SYSTEM BE DAMAGED, MAKE FULL REPAIRS WITHOUT EXTRA COST, AND TO THE SATISFACTION OF THE CITY AND CONTRACT ADMINISTRATOR.

**1.21 SITE REVIEW**

.1 CONTACT THE CONTRACT ADMINISTRATOR FOR SITE REVIEW AT THE FOLLOWING STAGES OF CONSTRUCTION:  
 - INSTALLATION OF MAJOR CONDUIT RUNS  
 - SUBSTANTIAL PERFORMANCE  
 - COMPLETION OF DEFICIENCIES (IF REQUIRED)  
 NOTE: ALL REVIEWS ARE AT THE DISCRETION OF THE CONTRACT ADMINISTRATOR.

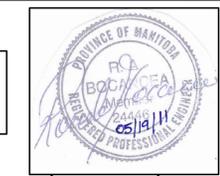
.2 PROVIDE FIVE (5) WORKING DAYS NOTICE FOR ALL REVIEWS.

**1.22 SUBSTANTIAL PERFORMANCE**

.1 BEFORE REQUESTING A SUBSTANTIAL PERFORMANCE REVIEW, THE FOLLOWING ARE AMONG ITEMS THAT MUST BE COMPLETE:  
 - ALL ELECTRICAL DEVICES SHALL BE INSTALLED AND ALL ELECTRICAL FEEDS AND TERMINATIONS SHALL BE COMPLETE AND MADE SAFE.  
 - ALL OUTLETS MUST HAVE COVER PLATES INSTALLED.  
 - ALL ELECTRICAL EQUIPMENT MUST HAVE COVERS AND/OR DOORS INSTALLED COMPLETE.



NO.	REVISION/DESCRIPTION	BY	DATE
3	RE-ISSUED FOR TENDER	KO	11.19.05
2	ISSUED FOR TENDER	KO	11.06.05
1	ISSUED FOR REVIEW	KO	11.04.05



DRAWN BY	CHECKED BY	APPROVED
KOLO	KO	KO

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

PROJECT  
 SEVEN OAKS POOL  
 PUMP REPLACEMENT

444 ADSUM DRIVE

SHEET TITLE  
 ELECTRICAL SPECIFICATION

SCALE	PROJECT NO.	SHEET NO.
AS NOTED	436-2011	E-2