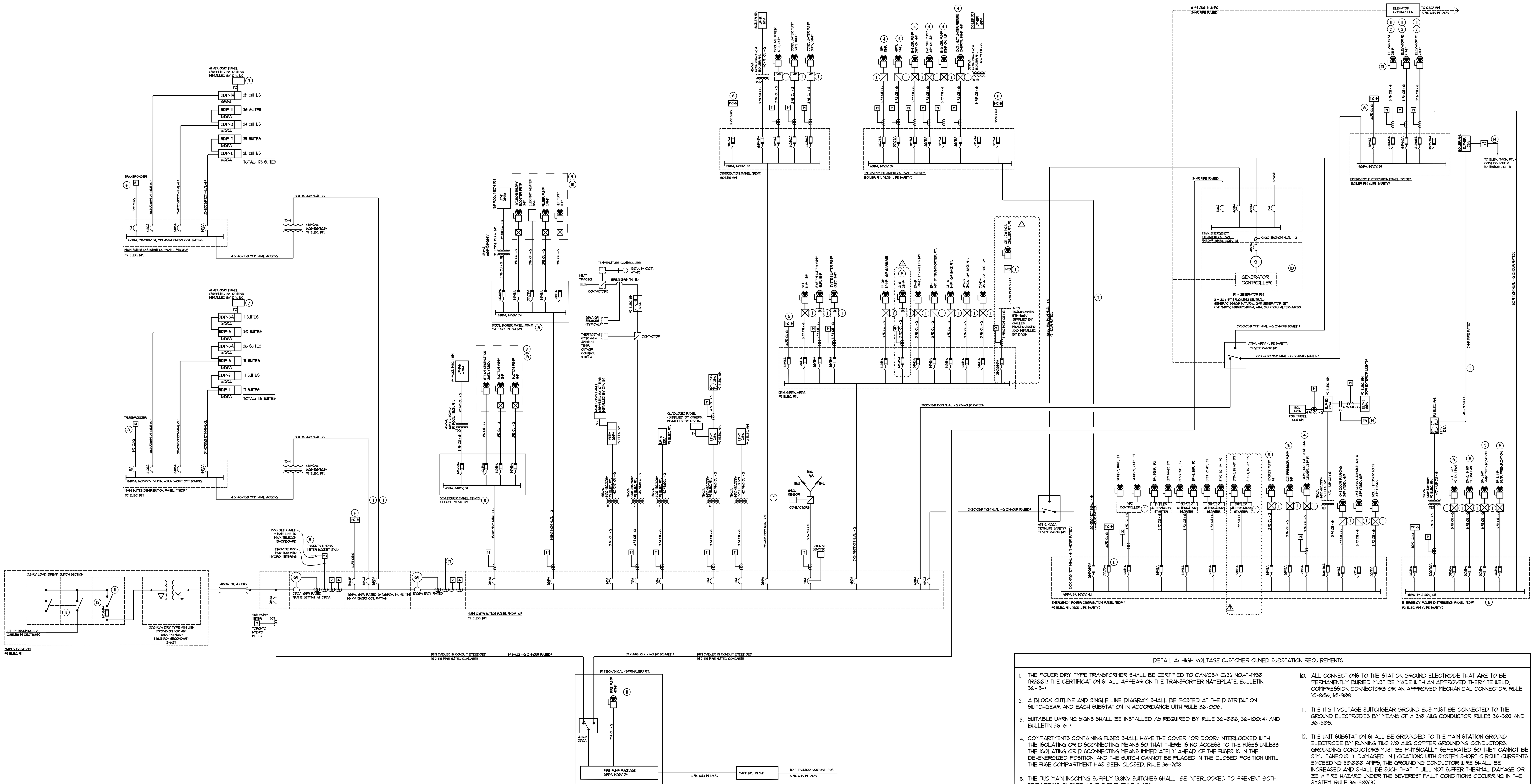

GENERAL NOTES

1. ALL 600 & 120/208V PANEL BOARDS AND SWITCHBOARDS SHALL HAVE INTERRUPTING CAPACITY SIZED AS PER RESULTS OF SHORT STUDY.
2. ALL EMERGENCY FEEDERS TO BE ENCASED IN CONCRETE OF SUFFICIENT DEPTH TO PROVIDE FOR 2 HOUR FIRE SEPARATION.
3. BREAKERS (2), TO BE FACTORY INSTALLED & LINESIDE WIRED BY GENERATOR MANUFACTURER.
4. ALL CONDUCTOR SIZES BASED ON RW90 COPPER , SPECIFIED. ALUMINUM CABLES MAY BE USED (NUAL AC90) FOR FEEDERS WITH AMPACITY LARGER THAN 100A, THE CONTRACTOR SHALL SIZE EQUIVALENT AL CABLES AS PER THE ELECTRICAL CODE.
5. ALL CLASS 'R' FUSE HOLDERS USED ON CIRCUIT IN EXCESS OF 10kA OF AVAILABLE FAULT CURRENT SHALL BE EQUIPPED WITH FUSE REJECTERS TO PREVENT NON CLASS 'R' FUSES FROM BEING INSTALLED. RULE 14-012
6. PROVIDE GROUND WIRE FOR ALL FEEDER CIRCUITS AS REQUIRED BY THE CODE.
7. GROUNDING & BONDING CONDUCTOR SHALL BE SIZED AS PER TABLE 16 & 17 OF THE 2002 ONTARIO ELECTRICAL SAFETY CODE.
8. UNLESS DESIGNATED AS 'NUAL', ALL OTHER CABLES ARE COPPER. ALUMINUM CONDUCTORS CAN ONLY BE USED AS FEEDERS FEEDING WITH OVER 100A AMPACITY THEY SHALL NOT BE USED AS FINAL CONNECTION TO EQUIPMENT.
9. CONTRACTOR TO PROVIDE ALTERNATE QUOTE FOR FUSED SWITCHBOARD INSTEAD OF CIRCUIT BREAKER BASED SWITCHBOARDS PROVIDED SPACE IS SUFFICIENT.
10. FEEDERS TO BE SIZED TO ALLOW FOR VOLTAGE DROP ALLOWED PER ESA.
11. QUADLOGIC PANELS (TRANSPONDERS AND MC-5s) TO BE SUPPLIED BY PROVIDENT ENERGY MANAGEMENT, INSTALLED BY DIV.16
12. ALL FUSES INDICATED ARE TIME DELAY TYPE.
13. A BLOCK OUTLINE AND SINGLE LINE DIAGRAM SHALL BE POSTED AT THE DISTRIBUTION SWITCHGEAR AND EACH UNIT SUBSTATION IN ACCORDANCE WITH RULE 36-006.
14. THE FIRE PUMP TRANSFER SWITCH SHALL BE APPROVED FOR FIRE PUMP SERVICE. RULE 32-208(1)(c)
15. THE 1500KVA DRY TRANSFORMER SHALL BE CERTIFIED TO CAN/CSA C22.2 No.47-M90 (R2001). THE CERTIFICATION SHALL APPEAR ON THE TRANSFORMER NAMEPLATE. BULLETIN 36-15-4
16. 1/C - SINGLE CONDUCTOR CABLES TO RUN WITH 1 CABLE DIA. SEPARATION AND SUPPORTED BY INSTRUCT OR TRAY AS PER ESA. 3C OR 4C - 3 OR 4-CONDUCTOR CABLES (ACWU WHEN EMBEDDED CONFIRM WITH MANUF. REQUIREMENTS). 3Ø ** - SINGLE CONDUCTOR CABLES RUN WITHIN EMT/ENT CONDUITS.
17. ALL CABLES CONNECTING EQUIPMENT TO EMERGENCY POWER SHALL BE FIRE RATED 2-HR OR ENCLOSED IN ON A ULC APPROVED 2-HR FIRE RESISTANT ENCLOSURE
18. CONTRACTOR SHALL PROVIDE SHORT CIRCUIT STUDY AND RELAY COORDINATION STUDY WITH EQUIPMENT SUPPLIED, TO ENSURE THAT ALL POWER DISTRIBUTION DEVICES CAN WITHSTAND SHORT CIRCUIT CURRENTS AND ARE PROPERLY COORDINATED.
19. GENERAL NEUTRAL SHALL BE FLOATING (NOT CONNECTED TO THE FRAME GROUND). ALL POWER, CONTROLS AND COMMUNICATION CONDUCTORS SHALL BE PROTECTED AGAINST FIRE EXPOSURE AS PER O.B.C. RULE 46-202 AND RULE 42-202(3) OESC 2012.

KEY NOTES:

(1) STARTERS AND VFD STARTERS TO BE SUPPLIED BY MECHANICAL CONTRACTOR.

(2) INTERLOCK BETWEEN ATS/GENERATOR AND ELEVATORS: ELECTRICAL CONTRACTOR TO PROVIDE NECESSARY WIRING AND DRY CONTACTS AT ATS/GENERATRS. ELEVATOR STOP/START SEQUENCING DUE TO FIRE ALARM ACTIVATION AND/OR POWER OUTAGE SHALL BE BY ELEVATOR VENDOR,

(3) ELECTRICAL CONTRACTOR TO PROVIDE 4-CONDUCTOR RS-485 CABLE (BELDEN 9842,BELDEN 3087A OR DELCO 43902) IN 1 IN. EMT CONDUIT. THE CONDUITS FOR CT'S TO BE RIG IN CONDUIT.

(4) ALL LOADS DESIGNATED SHALL BE INTERLOCKED WITH THE FIRE PUMP, I.E. WHEN THERE IS A POWER OUTAGE AND THE FIRE PUMP STARTS, ALL THESE LOADS SHALL STOP RUNNING.

(5) PROVIDE HYDRO METER BASE CUTLAR HAMMER (EATON) TSU-13 IN 12"x12" ELEC. BOX± C/W 1/2" EMT. PROVIDE 1-1/2" EMT TO UTILITY COMPARTMENT OF MAIN SWITCHBOARD.

(6) EXTRA 15A, 3P BREAKER FOR METERING.

(7) MAIN FEEDERS TO TOWER ELEV. MACH. RM. SWITCHBOARDS/EQUIPMENT SHALL BE RUN IN ELECTRICAL SHAFT.

(8) THE SWIMMING POOL CONTRACTOR SHALL PROVIDE ALL THE ELECTRICAL EQUIPMENT THAT PERTAINS TO THE SWIMMING POOL WIRING OF 600 VOLT LOADS TO A 200AMP, 600 VOLT, 3 PHASE SPLITTER SUPPLIED AND INSTALLED BY DIV. 16. SIMILARLY, DIV. 16 CONTRACTOR SHALL CONNECT ALL 120V LOADS TO THE PANEL LP-P AND LP-PG, WHETHER THESE LOADS ARE SHOWN ON OUR DRAWINGS OR NOT.

(9) CONNECT AUX CONTACT TO CACF MANUAL START/STOP SWITCH FOR FIREFIGHTERS.

(10) GENERATOR SILENCER SHALL BE HOSPITAL GRADE PLUS "HOCKEY PUCK" AND RECTANGULAR SHAPE. CONTRACTOR TO FABRICATE SILENCER AFTER SITE MEASUREMENT.

(11) * - SIZE PENDING ON EQUIPMENT SHOP DRAWING DATA.

(12) THE TWO MAIN INCOMING SUPPLY SWITCHES SHALL BE INTERLOCKED TO PREVENT BOTH FROM BEING CLOSED AT ONE TIME .

(13) ONLY ONE ELEVATOR WILL BE OPERATIONAL ON EMERGENCY POWER AT A TIME

(14) TORK DZS200BP ELECTRIC 1-CHANNEL ASTRONOMICAL TIME CLOCK C/W SEASONAL, HOLIDAY AND EARTH HOUR OVER-RIDE.

(15) 15A, 3P BREAKER FOR TRANPANDER/CCU.

(16) DIV. 16 SHALL SUBMIT SINGLE LINE DIAGRAM, SWITCH GEAR AND SWITCH BOARD SHOP DRAWINGS AS WELL AS SUBSTATION ELECTRICAL LAYOUT AND TORONTO HYDRO FOR APPROVAL PRIOR TO ORDERING FABRICATION OF EQUIPMENTS.

(17) ROUGH-IN ONLY' THIS IS AT THE OPTION OF TORONTO HYDRO AND PROVIDENT ENERGY MANAGEMENT.

(18) SIZE OF BREAKER SHALL NOT BE LESS THAN THE OVERCURRENT PROTECTION THAT IS PROVIDED INTEGRAL WITH THE FIRE PUMP CONTROLLER (OESC-25TH EDITION-2012 SECTION 32-206(5)).

(19) ELECTRICAL CONTRACTOR TO CONFIRM WITH EQUIPMENT SHOP DRAWINGS PRIOR TO FINAL INSTALLATION OF WIRING AND CONDUITS TO THE POOL EQUIPMENT.

DETAIL A: HIGH VOLTAGE CUSTOMER OWNED SUBSTATION REQUIREMENTS

1. THE POWER DRY TYPE TRANSFORMER SHALL BE CERTIFIED TO CAN/CSA C22.2 NO.47-M90 (R2001). THE CERTIFICATION SHALL APPEAR ON THE TRANSFORMER NAMEPLATE. BULLETIN 36-15-*
2. A BLOCK OUTLINE AND SINGLE LINE DIAGRAM SHALL BE POSTED AT THE DISTRIBUTION SWITCHGEAR AND EACH SUBSTATION IN ACCORDANCE WITH RULE 36-006.
3. SUITABLE WARNING SIGNS SHALL BE INSTALLED AS REQUIRED BY RULE 36-006, 36-100(4) AND BULLETIN 36-6-*.
4. COMPARTMENTS CONTAINING FUSES SHALL HAVE THE COVER (OR DOOR) INTERLOCKED WITH THE ISOLATING OR DISCONNECTING MEANS SO THAT THERE IS NO ACCESS TO THE FUSES UNLESS THE ISOLATING OR DISCONNECTING MEANS IMMEDIATELY AHEAD OF THE FUSES IS IN THE DE-ENERGIZED POSITION, AND THE SWITCH CANNOT BE PLACED IN THE CLOSED POSITION UNTIL THE FUSE COMPARTMENT HAS BEEN CLOSED. RULE 36-208
5. THE TWO MAIN INCOMING SUPPLY 13.8KV SWITCHES SHALL BE INTERLOCKED TO PREVENT BOTH FROM BEING CLOSED AT ONE TIME. RULE 6-106
6. THE NEUTRAL ON THE 27.6/16KV SYSTEM SHALL BE BROUGHT INTO THE CUSTOMER-OWNED SUBSTATION AND CONNECTED TO THE STATION GROUND GRID. RULE 36-308(5).
7. THE PRIMARY "HO" CONNECTION OF THE HIGH VOLTAGE TRANSFORMER SHALL BE CONNECTED TO THE LDC SYSTEM NEUTRAL, WHEN REQUIRED BY THE LDC. RULE 2-034, RULE 75-004
8. THE LOW VOLTAGE NEUTRAL "XO" OF THE TRANSFORMER SHALL BE GROUNDED TO THE STATION ELECTRODE WITH A 2/0 AWG COPPED CONDUCTOR. RULES 10-106, 10-204 AND 10-500.
9. THE BOND CONDUCTOR INSTALLED BETWEEN THE TRANSFORMER ENCLOSURE/GROUND BUS AND THE SECONDARY DISTRIBUTION SHALL BE A MINIMUM 350KCMIL COPPER CONDUCTOR OR EQUIVALENT. TABLE 16, RULE 10-500, AND RULE 10-814
10. ALL CONNECTIONS TO THE STATION GROUND ELECTRODE THAT ARE TO BE PERMANENTLY BURIED MUST BE MADE WITH AN APPROVED THERMITE WELD, COMPRESSION CONNECTORS OR AN APPROVED MECHANICAL CONNECTOR. RULE 10-806, 10-908.
11. THE HIGH VOLTAGE SWITCHGEAR GROUND BUS MUST BE CONNECTED TO THE GROUND ELECTRODES BY MEANS OF A 2/0 AWG CONDUCTOR. RULES 36-302 AND 36-308.
12. THE UNIT SUBSTATION SHALL BE GROUNDED TO THE MAIN STATION GROUND ELECTRODE BY RUNNING TWO 2/0 AWG COPPER GROUNDING CONDUCTORS. GROUNDING CONDUCTORS MUST BE PHYSICALLY SEPERATED SO THEY CANNOT BE SIMULTANEOUSLY DAMAGED. IN LOCATIONS WITH SYSTEM SHORT CIRCUIT CURRENTS EXCEEDING 30,000 AMPS, THE GROUNDING CONDUCTOR WIRE SHALL BE INCREASED AND SHALL BE SUCH THAT IT WILL NOT SUFFER THERMAL DAMAGE OR BE A FIRE HAZARD UNDER THE SEVEREST FAULT CONDITIONS OCCURRING IN THE SYSTEM. RULE 36-302(3)
13. RULE 6-206 AND BULLETIN 6-1-* REQUIRE THE CUSTOMER'S SERVICE EQUIPMENT BE INSTALLED WITHIN 7.5M FROM WHERE THE CUSTOMER'S SERVICE CONDUCTORS ENTER THE NON-COMBUSTIBLE BUILDING. PLEASE ENSURE THE SERVICE CONDUCTOR LENGTH IS LIMITED TO A MAXIMUM LENGTH OF 7.5M INSIDE BUILDINGS, OR THAT ADDITIONAL PROTECTION IS INSTALLED AS DETAILED IN BULLETIN 6-1-* AND RULE 6-208.
14. THE LOAD BREAK SWITCHES SHALL BE VISIBLE TO THE OPERATIONS AS PER TORONTO HYDRO STANDARDS.

ELECTRICAL LEGEND

LIGHTING

	FLUORESCENT LIGHT FIXTURE, TYPE AS INDICATED
	NIGHT LIGHT OR LIGHT CONNECTED TO EMERGENCY POWER
	CEILING MOUNTED/WALL MOUNTED LIGHT FIXTURE, INSCRIBED LETTER DENOTES TYPE
	POLE MOUNTED LIGHT FIXTURE, INSCRIBED LETTER DENOTES TYPE
	CAPPED CEILING LIGHT OUTLET
	TRACK LIGHT
	STRIP LIGHT
	UNDER CABINET FLUORESCENT LIGHT FIXTURE
	CEILING MOUNTED/WALL MOUNTED EXIT SIGN
	SINGLE/DUAL EMERGENCY LAMP REMOTE HEAD
	EMERGENCY BATTERY PACK
PP	OCCUPANCY SENSOR POWER PACKS
$/$/$ $3, $4, $P, $D	SINGLE/TWO/THREE POLE, SINGLE/TWO/THREE THROW TOGGLE SWITCH RESPECTIVELY, ('3','4','P','D' DENOTES 3-WAY,4-WAY,PILOT LIGHT, DIMMER SWITCHED LIGHT RESPECTIVELY)
	MASTER LIGHTING SHUT-OFF SWITCH
	SENSOR WALL SWITCH PIR, SELF POWERED
	OCCUPANCY SENSOR, CEILING MOUNTED

POWER

	REGULAR DUPLEX RECEPTACLE
	DUPLEX RECEPTACLE, GROUND FAULT INTERRUPT
	5-20R T-SLOT DUPLEX RECEPTACLE
	SINGLE RECEPTACLE, TYPE AND CONFIGURATION AS SPECIFIED FOR DRYER
	CONNECTION FOR OVEN/COOKTOP
	ABOVE COUNTER DEVICE
	CEILING MOUNTED DEVICES
	FLOOR MOUNTED DEVICES
	DISCONNECT SWITCH, NON-FUSED
	DISCONNECT SWITCH, FUSED
	COMBINATION STARTER
	FRACTIONAL MOTOR/FAN DIRECT CONNECTION
	DIRECT CONNECTION, SINGLE PHASE
	DIRECT CONNECTION, THREE PHASE
	THERMOSTAT
DS	DRYER SENSOR
	HEAT TRACE
	ELECTRICAL HEATER
EP / SP	ELECTRICAL PANEL / SECURITY PANEL

TELECOMMUNICATION

	TV/CABLE OUTLET
	TELEPHONE OUTLET
MP	TELEPHONE/TV CABLE (MULTI-PORT OUTLET)
	DATA OUTLET
	DATA/TELEPHONE OUTLET
CB	IN SUITE TELECOMM. BOX C/W RECEPTACLE
WFI	WIFI LOCATION
VIC	VIDEO INTERCOM
RR	RADIO RECEIVER

SECURITY

IC / ENT	INTERCOM / ENTERPHONE
ICV	INTERCOM WITH CAMERA
PB / PAR	PANIC BUTTON / PANIC INTERCOM STATION
CR	CARD READER
ARCA / RR	AUTOMATIC RELEASE CARD ACCESS/RADIO RECEIVER
ES	ELECTRIC STRIKE
ML	MAGLOCK
DC / WC	DOOR CONTACT / WINDOW CONTACT
GB	GLASS BREAK DETECTOR
DO	AUTOMATIC DOOR OPERATOR
MD	MOTION DETECTOR
	PUSH BUTTON
	SECURITY CAMERA

LIFE SAFETY

	FIRE ALARM SMOKE DETECTOR
A	SMOKE ALARM
D	FIRE ALARM DUCT TYPE SMOKE DETECTOR
	FIRE ALARM HEAT DETECTOR
H	FIXED TEMP. 88 °C DEGREE HEAT DETECTOR
M	MOISTURE PROOF HEAT DETECTOR
	CO ALARM
A	COMBINATION SMOKE & CO ALARM
CO / NO	CO SENSOR / NO SENSOR
	FIRE ALARM MANUAL PULL STATION
H	FIREFIGHTER'S HANDSET
	FIRE ALARM SPEAKER/STROBE, WALL MTD.
	FIRE ALARM SPEAKER, WALL MTD.
	FIRE ALARM SPEAKER/STROBE CEILING MTD.
	FIRE ALARM SPEAKER, CEILING MTD.
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL

REVISIONS

DATE	NO.	DESCRIPTION	BY
05/15/15	7	ISSUED FOR S.I. #E-4	S.T.
03/27/15	6	ISSUED FOR SECURITY TENDER	S.T.
01/28/15	5	ISSUED FOR S.I. #E-1	S.T.
10/31/14	4	RE-ISSUED FOR TENDER	S.T.
09/23/14	3	ISSUED FOR TENDER	S.T.
07/10/14	2	RE-ISSUED FOR PERMIT	S.T.
05/30/14	1	ISSUED FOR PERMIT	S.T.

MARK VOID ALL PRINTS DATED PREVIOUS TO FINAL DATE ABOVE

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DRAWING TITLE:
SINGLE LINE DIAGRAM

PROJECT TITLE:
ALEXANDRA PARK

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DRAWN BY:	CHECKED BY:	SCALE:
S.O.	S.T.	
DATE: FEB, 13	PROJECT NUMBER: 1313	DRAWING NUMBER: E-30 OF

Drawing name: \\CADSERVER\Current Dwg\13\1313 - Alexandra Park\DIV16\1313E- 30 (SLD).dwg Plotted: May 15, 2015 - 2:09pm