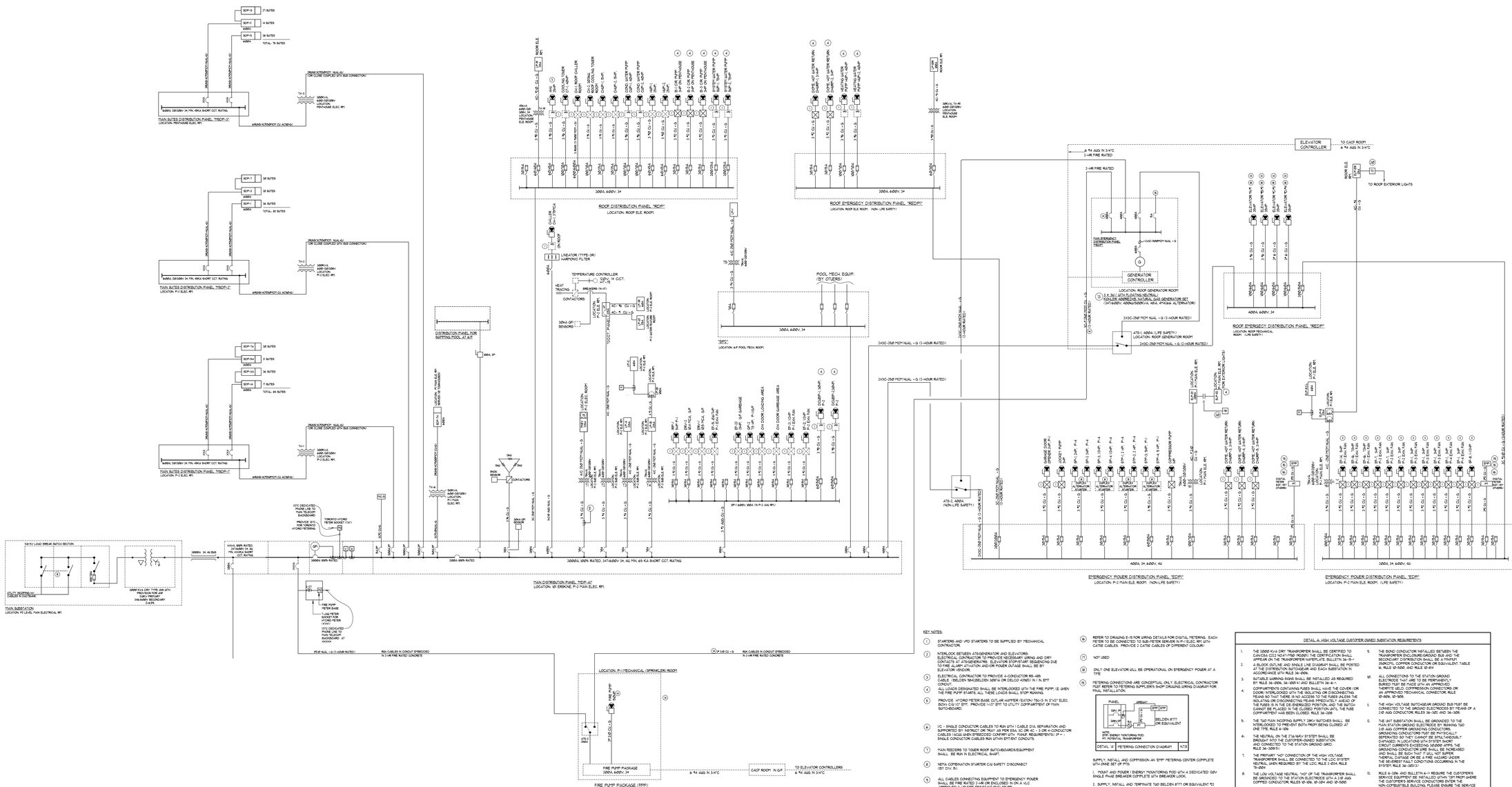

KEY NOTES:

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/GENERATORS. ELEVATOR SHUTDOWN 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 9842BELDEN 3089A OR DELCO 4398) IN 1 IN EMT CONDUIT.
4. ALL LOADS DESIGNATED SHALL BE INTERLOCKED WITH THE FIRE PUMP. I.E. WHEN THE FIRE PUMP STARTS ALL THESE LOADS SHALL STOP RUNNING.
5. PROVIDE HYDRO METER BASE CUTLAR HAMMER (EATON) TBU-13 IN 1"x10' ELEC. BOX C/U 1" EMT. PROVIDE 1-1/2" EMT TO UTILITY COMPARTMENT OF MAIN SWITCHBOARD.
6. 1C - SINGLE CONDUCTOR CABLES TO RUN WITH CABLE DUE SEPARATION AND SUPPORTED BY INSTRUCT OR TRAY AS PER ESA. 3C OR 4C - 3 OR 4-CONDUCTOR CABLES (AC6) (AMI) STRIPPED COPPER WITH FRANK REQUIREMENTS) 2" - - SINGLE CONDUCTOR CABLES RUN WITHIN EMT/EMT CONDUITS.
7. MAIN FEEDERS TO TOWER ROOF SWITCHBOARDS/EQUIPMENT SHALL BE RUN IN ELECTRICAL SHAFT.
8. NEMA COMBINATION STARTER C/U SAFETY DISCONNECT (BY DIV. 15)
9. ALL CABLES CONNECTING EQUIPMENT TO EMERGENCY POWER SHALL BE MINERAL INSULATED (MI) OR ENCLOSED IN ON A VLC APPROVED 2-HR FIRE RESISTANT ENCLOSURE.
10. NOT USED
11. CONNECT AUX CONTACT TO CAGE MANUAL START/STOP SWITCH FOR FIREFIGHTERS.
12. CONTRACTOR SHALL PROVIDE SHORT CIRCUIT STUDY AND RELAY COORDINATION STUDY (BY EQUIPMENT SUPPLIER) TO ENSURE THAT ALL POWER DISTRIBUTION DEVICES COORDINATED SHORT CIRCUIT CURRENTS AND ARE PROPERLY COORDINATED.
13. GENERATOR SILENCER SHALL BE HOSPITAL GRADE "HOCKEY PUCK" AND RECTANGULAR SHAPE. CONTRACTOR TO FABRICATE SILENCER AFTER SITE MEASUREMENT.
14. * - SIZE PENDING ON EQUIPMENT SHOP DRAWING DATA.
15. REFER TO DRAWING E-7 FOR WIRING DETAILS FOR DIGITAL METERING. EACH METER TO BE CONNECTED TO SUB-METER SERVER IN P-1 ELEC. RM. WITH CAT6 CABLES. PROVIDE 2 CAT6E CABLES OF DIFFERENT COLOUR.
16. NOT USED
17. ONLY ONE ELEVATOR WILL BE OPERATIONAL ON EMERGENCY POWER AT A TIME.
18. METERING CONNECTIONS ARE CONCEPTUAL ONLY. ELECTRICAL CONTRACTOR MUST REFER TO METERING SUPPLIER'S SHOP DRAWING WIRING DIAGRAM FOR FINAL INSTALLATION.

DETAIL 4 METERING CONNECTION DIAGRAM NTS

SUPPLY, INSTALL AND COMMISSION AN STPP METERING CENTER COMPLETE WITH ONE SET OF PTS.

1. MOUNT AND POWER (ENERGY MONITORING POD WITH A DEDICATED 120V SINGLE PHASE BREAKER COMPLETE WITH BREAKER LOCK.

2. SUPPLY, INSTALL AND TERMINATE TWO BELDEN 8771 OR EQUIVALENT #22 AWG (7) TWISTED PAIR INDIVIDUALLY SHIELDED CABLE BETWEEN THE STPP AND AN EXISTING IN ORDER TO TIE IN TO NETWORK.

3. MOUNT POTENTIAL TRANSFORMERS FACTORY MOUNTED IN ENCLOSURE AND CONNECT TO THE SERVICE TO BE METERED VIA A DEDICATED 3 POLE BREAKER COMPLETE WITH BREAKER LOCK OR FUSED DISCONNECT.

4. SUPPLY, INSTALL AND TERMINATE A BELDEN 8771 OR EQUIVALENT #22 AWG (7) TWISTED PAIR INDIVIDUALLY SHIELDED CABLE BETWEEN THE PT'S TO THE CARMA ENERGY MONITORING POD.

19. TORK D2500EMP ELECTRIC 1-CHANNEL ASTRONOMICAL TYPE CLOCK C/U SEASONAL HOLIDAY AND EARTH HOUR OVER-RIDE.
20. GENERAL MATERIAL SHALL BE FLOATING (NOT CONNECTED TO THE PRIMARY GROUND) ALL POWER CONTROLS AND COMMUNICATION CONDUCTORS SHALL BE PROTECTED AGAINST FIRE EXPOSURE AS PER OBC, RULE 46-200 AND RULE 42-2013 / OESC 1202.
21. THE CONDUITS FOR CTS TO BE RIGID CONDUIT.

DETAIL A - HIGH VOLTAGE CUSTOMER-OWNED SUBSTATION REQUIREMENTS

1. THE 3000 KVA DRY TRANSFORMER SHALL BE CERTIFIED TO CAN/CSA C22.2 NO.47-M90 (REQ2011). THE CERTIFICATION SHALL APPEAR ON THE TRANSFORMER NAMEPLATE. BULLETIN 36-B-1
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. 36-006(4) AND BULLETIN 36-B-1.
4. COMPARTMENTS CONTAINING FUSES SHALL HAVE THE COVER (OR DOOR) INTERLOCKED WITH THE SWITCH SO THAT OPENING THE TRANS NO 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 36-006
5. THE TWO MAIN INCOMING SUPPLY 28KV SWITCHES SHALL BE INTERLOCKED TO PREVENT BOTH FROM BEING CLOSED AT ONE TIME. RULE 6-108
6. THE NEUTRAL ON THE 27.6KV SYSTEM SHALL BE BROUGHT INTO THE CUSTOMER-OWNED SUBSTATION AND CONNECTED TO THE STATION GROUND GRID. RULE 36-308(5)
7. THE PRIMARY NOT CONNECTION OF THE HIGH VOLTAGE TRANSFORMER SHALL BE CONNECTED TO THE LOC SYSTEM NEUTRAL WHEN REQUIRED BY THE LOC. RULE 2-004 RULE 75-004
8. THE LOW VOLTAGE NEUTRAL "XO" OF THE TRANSFORMER SHALL BE GROUNDED TO THE STATION ELECTRODE WITH A 1/0 AWG COPPED CONDUCTOR. RULES 10-906, 10-1204 AND 10-1000.
9. THE BOND CONDUCTOR INSTALLED BETWEEN THE TRANSFORMER ENCLOSURE/GROUND BUS AND THE SECONDARY DISTRIBUTION SHALL BE A MINIMUM 1/0 AWG COPPER OR ALUMINUM OR EQUIVALENT. TABLE 16, RULE 10-1000 AND RULE 10-814.
10. ALL CONNECTIONS TO THE STATION GROUND ELECTRODE THAT ARE TO BE PERMANENTLY BURIED MUST BE MADE USING AN APPROVED THERMITE WELD COMPRESSION CONNECTIONS OR OTHER APPROVED MECHANICAL CONNECTOR. RULE 10-806, 10-1000
11. THE HIGH VOLTAGE SWITCHGEAR GROUND BUS MUST BE CONNECTED TO THE GROUND ELECTRODES BY MEANS OF A 2/0 AWG CONDUCTOR. RULES 36-300 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 BY ANY SINGLE EVENT. WHERE SHORT CIRCUIT CURRENTS EXCEEDING 100000 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 36-300(3)
13. RULE 8-306 AND BULLETIN 8-9 REQUIRE THE CUSTOMER'S SERVICE EQUIPMENT BE INSTALLED WITHIN 13M FROM WHERE THE CUSTOMER'S SERVICE CONDUCTORS ENTER THE NON-COMBUSTIBLE BUILDING. PLEASE ENSURE THE SERVICE CONDUCTOR LENGTH IS WITHIN THE ALLOWABLE LENGTH OR THAT THE SERVICE EQUIPMENT IS INSTALLED WITHIN 13M. THE SERVICE EQUIPMENT IS INSTALLED AS DETAILED IN BULLETIN 8-9 / AND RULE 8-306.

ELECTRICAL LEGEND

LIGHTING

- FLUORESCENT LIGHT FIXTURE, TYPE AS INDICATED.
- NIGHT LIGHT OR LIGHT CONNECTED TO EMERGENCY POWER
- CEILING MOUNTED/WALL MOUNTED LIGHT FIXTURE, INDICATED LETTER DENOTES TYPE
- POLE MOUNTED LIGHT FIXTURE INDICATED 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
- OCCUPANCY SENSOR POWER PACKS
- S/S/S S3, S4, S5, S6 — SINGLE/TWO/THREE POLE, SINGLE/TWO/THREE THROW TOGGLE SWITCH RESPECTIVELY. ('3','4','5' DENOTES 3-WAY,4-WAY,PILOT LIGHT, DIFFER 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
- DRYER SENSOR
- HEAT TRACE
- CH1000 — ELECTRICAL HEATER
- ELECTRICAL PANEL / SECURITY PANEL

TELECOMMUNICATION

- TV/CABLE OUTLET
- TELEPHONE OUTLET
- TELEPHONE/TV CABLE (MULTI-PORT OUTLET)
- DATA OUTLET
- DATA/TELEPHONE OUTLET
- CD — IN SUITE TELECOMM. BOX C/U RECEPTACLE
- GPS — GPS LOCATION
- PA / VC — PA/MC SPEAKER / VOLUME CONTROL
- RR — RADIO RECEIVER

SECURITY

- C / INT — INTERCOM / ENTERPHONE
- CC — INTERCOM WITH CAMERA
- PB / PAB — PANIC BUTTON / PANIC INTERCOM STATION
- CR — CARD READER
- ARCU / ER — AUTOMATIC RELEASE CARD ACCESS/RADIO RECEIVER
- ES — ELECTRIC STRIKE
- ML — MAGLOCK
- DC / MC — DOOR CONTACT / WINDOW CONTACT
- DO — AUTOMATIC DOOR OPERATOR
- MD — MOTION DETECTOR
- PB — PUSH BUTTON
- SC — SECURITY CAMERA

LIFE SAFETY

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

05/30/14	ISSUED FOR PERMIT	ST
DATE	NO. DESCRIPTION	BY

MARK VOID ALL PRINTS DATED PREVIOUS TO FINAL DATE ABOVE

REVISIONS

CONTRACTOR MUST CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS ON THE JOB AND REPORT DISCREPANCIES TO THE ENGINEERS BEFORE PROCEEDING WITH THE WORK. DRAWINGS TO BE RETURNED UPON COMPLETION OF THE ENGINEERING AND NOT BE RETAINED UPON COMPLETION OF THE WORK.

DRAWINGS ARE NOT TO BE SCALED

NOVA TREND ENGINEERING GROUP LTD.

LICENSED PROFESSIONAL ENGINEER 05/30/14 S.T.P. TAM

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DRAWING TITLE
SINGLE LINE DIAGRAM

PROJECT TITLE
ALEXANDRA PARK
XXX
TORONTO ONTARIO

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\1313\1313 - Alexandra Park\E30\1313-E- 30 SLD .dwg Plotted: May 29, 2014 - 5:22pm