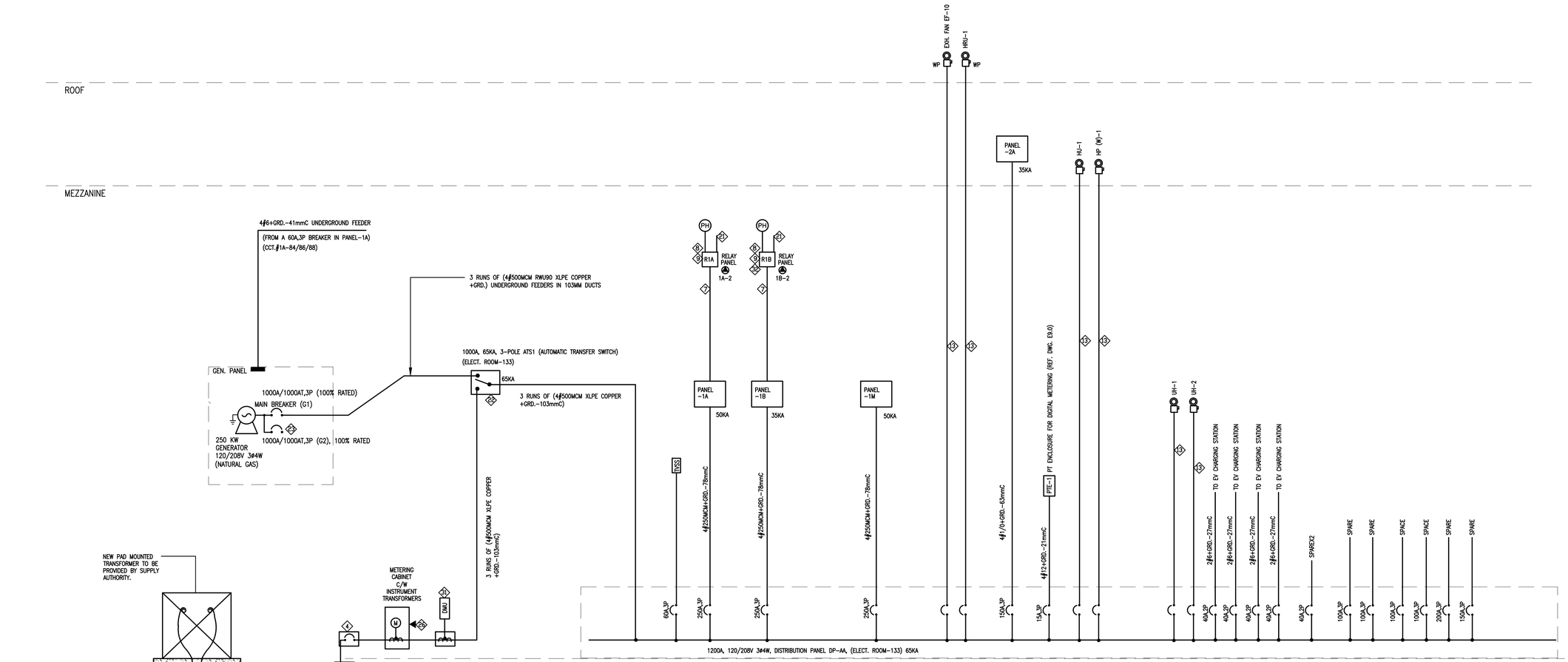


1 / E4.0 SINGLE LINE DIAGRAM
N.T.S.

## DRAWING NOTES :

1. ALL THE OVER CURRENT DEVICES SHALL BE MARKED IN A CONSPICUOUS AND LEGIBLE MANNER TO INDICATE THAT THEY MUST ONLY BE REPLACED WITH COMPONENTS OF THE SAME TYPE AND RATING.
2. VERIFY INTERRUPTING CAPACITY OF ALL EQUIPMENT WITH CO-ORDINATION STUDY PRIOR TO MANUFACTURING.
3. REFER TO HYDRO STANDARDS & DETAILS PROVIDED IN THE SPECS. FOR MORE INFORMATION AND COMPLY ACCORDINGLY.
4. 208V, 1000A/1000AT,3P, 100% RATED MAIN BREAKER C/W ENCLOSURE (65KA).
5. COORDINATE WITH LOCAL HYDRO FOR EXACT SCOPE OF WORK AND REQUIREMENT AND COMPLY ACCORDINGLY. PROVIDE ALL NECESSARY MATERIAL AND LABOR FOR FULLY OPERATIONAL SYSTEM.
6. PROVIDE PHOTOCELL LOCATED ON THE ROOF ON NORTH SIDE OF THE BUILDING AND CONNECT TO LIGHTING CONTROL SYSTEM.
7. PROVIDE SUITABLE CONDUIT SIZE FOR CIRCUITING WIRES WITH A MAXIMUM OF 40% CONDUIT FILL.
8. PROVIDE LOW VOLTAGE RELAY PANEL FOR EXTERIOR/INTERIOR LIGHTING C/W STEP DOWN TRANSFORMER. RELAY PANELS SHALL BE LOCATED ADJACENT TO RELAVANT LIGHTING PANEL.
9. PROVIDE ALL NECESSARY CONDUIT, WIRING, BACKBOXES ETC. FOR LIGHTING CONTROL FOR FULLY OPERATIONAL SYSTEM.
10. MAIN SWITCHBOARD & DISTRIBUTION PANELS SHALL HAVE 25% SPACE PROVISION AS A MINIMUM.
11. ALL FEEDERS SHALL BE MINIMUM 90OXLPE COPPER CABLES.
12. ALL BREAKERS OF 400A AND ABOVE SHALL HAVE ELECTRONIC TRIP SETTINGS.
13. REFER TO MECH. EQUIPMENT WIRING SCHEDULE FOR BREAKER/FEEDER/CONDUIT SIZES.
14. CONTRACTOR SHALL PERFORM VOLTAGE DROP CALCULATIONS FOR ALL BRANCH CIRCUITS AND SHALL MAINTAIN VOLTAGE DROP WITHIN PERMISSIBLE LIMITS (for both lighting as well as power circuits) AS PER OESC REQUIREMENTS AND PROVIDE PROPER WIRE SIZES ACCORDINGLY PRIOR TO COMMENCING OF ROUGH-IN INSTALLATION. THE VOLTAGE DROP CALCULATIONS SHALL BE BASED ON MAXIMUM CIRCUIT AMPACITY.
15. PROVIDE LOCK-ON BREAKERS FOR CIRCUITS FEEDING EXIT LIGHTS, EMERGENCY INVERTER UNITS, FIRE ALARM PANEL, SERVER ROOMS, PA SYSTEM, MECHANICAL CONTROLS.
16. REFER TO FLOOR PLANS FOR TYPE OF DISCONNECT SWITCHES I.E. WEATHER PROOF, NON-FUSED, FUSED ETC.

## DRAWING NOTES (CONTD.)

17. ALL POWER EQUIPMENT/PANELS/RELAY PANELS SHALL BE OF SPRINKLER PROOF DESIGN.
18. AT EACH DISTRIBUTION POINT, CIRCUIT BREAKERS, FUSES AND SWITCHES SHALL BE MARKED, ADJACENT THERETO, IN A CONSPICUOUS MANNER TO INDICATE WHICH INSTALLATION OR PORTION OF INSTALLATION THEY PROTECT OR CONTROL AND THE MAXIMUM RATING OF OVERCURRENT DEVICE THAT IS PERMITTED AS PER RULE 2-100(3) OF OESC.
19. KA RATING OF THE EQUIPMENT SHALL BE AS SHOWN ON THE DWG.
20. THE AUTOMATIC TRANSFER SWITCH-ATS1 SHALL BE 3-POLE SWITCH AND THE GENERATOR NEUTRAL SHALL BE INTERCONNECTED TO THE BUILDING NEUTRAL. THE GENERATOR MUST HAVE A FLOATING NEUTRAL AS DETAILED IN BULLETIN 10-10, RULE 2-100, RULE 10-210, RULE 10-212 OF THE OESC CODE.
21. TO LIGHTING LOADS
22. PROVIDE FOLLOWING FEEDERS FROM THE ATS-1 TO GENERATOR CONTROLLER:
    2#12+GRD.-27mmC FOR START OPTION.
    3#12+GRD.-27mmC FOR VOLTAGE SENSING.
    1-27MM CONDUIT C/W WIRING TO GENERATOR FOR TRIPPING LOAD TESTING BREAKER-G2
    CO-ORDINATE WITH SYSTEM SUPPLIER FOR EXACT POINTS OF TERMINATIONS.
23. GENERATOR BREAKER-G2 C/W TRIP UNIT FOR LOAD TEST. PROVIDE TRIP SIGNAL C/W CONDUITS & WIRING FROM AUTOMATIC TRANSFER SWITCH ATS1 SO AS TO TRIP THIS BREAKER BEFORE THE ATS1 IS AUTOMATICALLY TRANSFERRED TO GENERATOR POWER UPON LOSS OF HYDRO POWER. ACCORDINGLY, PROVIDE TRIP SIGNAL TO THIS BREAKER FROM THE ATS1 FROM PRE-TRANSFER CONTACT ON HYDRO POWER SIDE.
24. WHERE ADJUSTABLE TRIP BREAKERS ARE INSTALLED, PERMANENT LABELS SHALL BE ATTACHED TO THE SWITCHGEAR OR PANEL BOARD TO CLEARLY INDICATE FOR EACH ADJUSTABLE TRIP BREAKER THE MAXIMUM PERMISSIBLE TRIP SETTING FOR THE INSTALLATION (BOTH IN AMPERES AND IN TERMS OF THE SCALE/READ-OUT) (RULE 2-100), AND IF THE AMPERE RATING OF THE BREAKER CAN BE CHANGED WITHOUT REMOVING THE TRIP UNIT, THE MEANS OF ADJUSTMENT SHALL BE FACTORY SEALED OR BEHIND SEALED COVERS.

## DRAWING NOTES (CONTD.):

25. ELECTRICAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR LAYOUT OF ELECTRICAL EQUIPMENT IN ELECTRICAL ROOMS (OR WHEREVER ELECTRICAL PANELS ARE LOCATED) SO AS TO ADJUST ALL THE ELECTRICAL EQUIPMENT IN ELECTRICAL ROOMS/RESPECTIVE ROOMS AS PER DRAWINGS AND TO HAVE CLEARANCES IN FRONT OF ALL ELECTRICAL EQUIPMENT AS PER APPLICABLE CODES (1.0M IN FRONT OF PANELS OF RATINGS LESS THAN 1200A AND 1.5M IN FRONT OF PANELS OF RATINGS 1200A & ABOVE). ALL TRANSFORMERS UPTO RATINGS OF 75KVA SHOULD BE LOCATED AT HIGH LEVEL FOR MAXIMUM UTILIZATION OF THE AVAILABLE SPACES IN ELECTRICAL ROOMS. THEREFORE ELECTRICAL CONTRACTOR SHALL VERIFY DIMENSIONS OF THE ELECTRICAL ROOMS & DOOR OPENINGS (SO AS TO CHECK THAT THE ELECTRICAL EQUIPMENT CAN PASS THROUGH THE RESPECTIVE DOOR/DOORS) AND THE ELECTRICAL EQUIPMENT/PANELS WITH VARIOUS SUPPLIERS/MANUFACTURERS PRIOR TO ORDERING AND ORDER ELECTRICAL EQUIPMENT/PANELS ACCORDINGLY AND SHALL ORDER CUSTOM MADE EQUIPMENT, IF NEED BE. NO EXTRA ALLOWANCE, WHATSOEVER SHALL BE ADMISSIBLE ON THIS ACCOUNT AT A LATER DATE. HOWEVER, ELECTRICAL CONTRACTOR CAN RE-ADJUST THE LOCATION OF VARIOUS EQUIPMENT IN ELECTRICAL ROOM/RESPECTIVE ROOMS TO ACHIEVE VARIOUS CLEARANCES REQUIRED.
26. PROVIDE DEDICATED TELEPHONE LINE FOR METERING.
27. PROVIDE 1" CONDUITS C/W COMMUNICATION CABLES (AS RECOMMENDED BY SUPPLIER/MANUFACTURER) BETWEEN LOW VOLTAGE LIGHTING RELAY PANELS-R1A & R1B FOR INTERFACE PURPOSES. PROVIDE ALL NECESSARY MATERIAL & LABOUR AS RECOMMENDED BY SYSTEM MANUFACTURER FOR A FULLY OPERATIONAL SYSTEM. ALSO PROVIDE 1" CONDUIT FROM RELAY 'R1A' UPTO BMS SYSTEM.
28. ALL BREAKER OF RATING MORE THAN 250A SHALL BE C/W ELECTRONIC TRIP UNIT FULLY ADJUSTABLE IN TIME & CURRENT INCLUDING THE FOLLOWING:
    -LONG TIME DELAY
    -LONG TIME PICK UP
    -SHORT TIME DELAY
    -SHORT TIME PICK UP
    -INSTANTANEOUS TIME DELAY
    -INSTANTANEOUS TIME PICK UP
29. ALL 600V, 3-PH. BREAKERS OF RATING 1000A & ABOVE SHALL HAVE GFI PROTECTION.
30. ALL 208V, 3-PH. BREAKERS OF RATING 2000A & ABOVE SHALL HAVE GFI PROTECTION.
31. ELECTRICAL DIGITAL METERING SYSTEM, REFER SPECIFICATIONS FOR MORE INFORMATION.
32. PROVIDE A CAUTION NOTE ON THIS RELAY PANEL SAYING POWER TO THIS RELAY PANEL COMES FROM TWO PANELS (PANEL-1B & PANEL-2A).

## DRAWING NOTES (CONTD.):

### ISSUE OR REVISION

| NO. | ISSUED FOR | DATE (M.D.Y) |
|---|---|---|
| 1 | DESIGN DEVELOPMENT FOR COSTING | 07.07.22 |
| 2 | ISSUED FOR PERMIT | 09.07.23 |
| 3 | ISSUED FOR REVIEW | 02.13.24 |
| 4 | ISSUED FOR TENDER | 04.15.24 |

PROJECT :
# CITY OF VAUGHAN FIRE STATION 7-12
9541 WESTON ROAD, VAUGHAN

CLIENT

THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO COMMENCEMENT OF THE WORK. ANY DISCREPANCIES ARE TO BE REPORTED TO THE CONSULTANT.

MEP
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PROFESSIONAL SEAL
REGISTERED PROFESSIONAL ENGINEER D. JAIN APR.15'24 PROVINCE OF ONTARIO
21-237

DWG TITLE
SINGLE LINE DIAGRAM

ORIENTATION
TRUE NORTH
CONSTRUCTION NORTH

DATE

SCALE N.T.S.
DRAWN BY CV
CHECKED BY RH

DWG STATUS :

PROJECT No.

DRAWING No. E4.0
REVISION