

1. GENERAL

1. THE WORK, AS COVERED BY THESE SPECIFICATIONS AND PLANS, IS INTENDED TO COMPLY WITH THE LATEST RULES AND REGULATIONS OF THE INSPECTION AUTHORITIES, APPLICABLE CODES AND BYLAWS. THE ACCOMPANYING DOCUMENTS DO NOT DETAIL EVERY ITEM REQUIRED, BUT ARE INTENDED TO PROVIDE GUIDELINES TO THE CONTRACTOR, SO THAT THEY MAY COMPLETE THE REQUIRED SCOPE OF WORK. ALL CHANGES AND ALTERATIONS TO THE CONTRACTOR'S WORK REQUIRED BY AN AUTHORIZED INSPECTOR OR ANY AUTHORITY HAVING JURISDICTION IS TO BE CARRIED OUT AT NO EXPENSE TO THE OWNER. IF THE CONTRACT DOCUMENTS ARE SPECIFICALLY AT VARIANCE WITH A GOVERNMENT REGULATION, THE CONTRACTOR IS TO NOTIFY THE ENGINEER BEFORE INSTALLATION.
2. THE CONTRACTOR WILL MAINTAIN NECESSARY INSURANCE COVERAGE TO COVER THIS CONTRACT, BE RESPONSIBLE FOR LAYING OUT THEIR WORK AND THE COORDINATION OF THEIR WORK WITH THE WORK OF OTHER TRADES.
3. PERSONNEL AND EQUIPMENT PROTECTION: ENSURE THAT ALL PRECAUTIONS ARE TAKEN TO PROTECT ALL PERSONNEL FROM HAZARDS DURING THE WORK. PROTECT ALL EQUIPMENT FROM DAMAGE FROM ANY CAUSE, INCLUDING WEATHER.
4. MATERIALS AND EQUIPMENT: USE ONLY NEW MATERIALS, FULLY CSA CERTIFIED FOR USE AS INSTALLED AND THAT MEET THIS SPECIFICATION IN ALL RESPECTS.
5. STRICTLY FIRST-CLASS WORKMANSHIP BY EXPERIENCED WORKERS WILL BE RIGIDLY INSISTED UPON IN EVERY DETAIL.
6. QUALIFICATIONS: TRADE WORKERS FOR THIS CONTRACT WILL BE QUALIFIED AS EITHER A REGISTERED JOURNEYMAN OR ELECTRICAL APPRENTICE WITHIN THE JURISDICTION GOVERNING THIS SITE. RATIO OF APPRENTICE TO JOURNEYMAN WILL MEET GOVERNING AUTHORITY STANDARDS. THE CONTRACTOR MAY BE REQUIRED TO LIST NAMES AND QUALIFICATIONS OF SUPERVISORY PERSONNEL ON TENDER FORM.

7. GROUNDING AND BONDING:
 1. BOND ALL EQUIPMENT WITH APPROVED FITTINGS AND BONDING CONDUCTORS OF AMPLE CAPACITY AS REQUIRED BY THE LATEST EDITION OF THE ONTARIO ELECTRICAL SAFETY CODE. ALL BONDING CONDUCTORS TO BE GREEN INSULATION AND INSTALLED IN CONDUIT.

8. MANUFACTURER'S INSTRUCTIONS REGARDING THE HANDLING, INSTALLATION AND TESTING OF EQUIPMENT SPECIFIED HEREIN TO BE CONSIDERED PART OF THIS SPECIFICATION.

9. COORDINATE ALL LOCATIONS AND PROVIDE ALL SLEEVES/ CORE DRILLING/ SAWCUTTINGS AS REQUIRED TO COMPLETE THE INTENDED SCOPE OF WORK. CONFIRM BASE BUILDING REQUIREMENTS AND LIMITATIONS WITH BUILDING MANAGEMENT REPRESENTATIVE FOR EACH INTENDED LOCATION. WHERE NO BASE BUILDING REQUIREMENTS EXIST, PROVIDE A SCAN OF INTENDED CORE DRILL AREA TO AVOID CUTTING OF REBAR AND BURIED CONDUITS. OBTAIN OWNER'S APPROVAL PRIOR TO PROCEEDING. ALL CORE DRILLING TO BE COMPLETED OUTSIDE OF NORMAL WORKING HOURS. PROVIDE 72-HOURS WRITTEN NOTICE TO OWNER OF THE INTENDED TIME OF OPERATION FOR THEIR COORDINATION PURPOSES. IT IS THE RESPONSIBILITY OF THIS DIVISION TO CARRY OUT ALL REQUIRED CUTTING AND PATCHING FOR COMPLETION OF THIS PORTION OF THE CONTRACT. SURFACES TO BE RETURNED TO ORIGINAL CONDITION. (PAINT FINISH/COLOUR TO MATCH EXISTING), REFER TO ARCHITECTURAL FOR UPDATED COLOURS/FINISH IN MODIFIED AREAS.
10. PHASE WORK IN ACCORDANCE WITH DIVISIONS 1. PROVIDE CONSULTANT WITH MATERIAL DELIVERY SCHEDULE WITHIN 3 WEEKS OF EXECUTING THE AGREEMENT.

2. DOCUMENTS

1. THE MECHANICAL DRAWINGS AND SPECIFICATIONS AND THE DOCUMENTS PROVIDED BY THE DESIGNER OR ARCHITECT ARE TO BE READ IN CONJUNCTION WITH THIS SET OF DOCUMENTS. THE GENERAL AND ELECTRICAL CONTRACTORS WILL BE FULLY RESPONSIBLE FOR COMPLIANCE WITH ALL RELATED DOCUMENTS OF THESE DISCIPLINES AND THE INSTRUCTIONS RELATED TO THE ELECTRICAL PORTION OF THE SCOPE OF WORK FOR THIS CONTRACT. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO DEFINE THE SUBCONTRACTORS' RESPONSIBILITIES UNDER THIS CONTRACT. EXTRAS FOR SUBCONTRACTORS' DIFFERENCE OF OPINION REGARDING RESPONSIBILITY WILL NOT BE CONSIDERED.
2. REFER TO OTHER DIVISIONS TO ENSURE FULL COORDINATION.
3. COORDINATE ALL WORK WITH OTHER TRADES.

4. TERMINOLOGY:
 1. INSPECTION AUTHORITY (ESA): ELECTRICAL SAFETY AUTHORITY.
 2. DIVISION 26: THIS CONTRACTOR.
 3. REVIEWED: REVIEWED IN WRITING BY THE ENGINEER.
 4. PROVIDE: SUPPLY, INSTALL, WIRE, CONNECT AND COMMISSION FOR A COMPLETE AND PROPER INSTALLATION.
 5. TYPICAL: TYPICAL FOR ALL LIKE EQUIPMENT.

3. DRAWINGS AND MEASUREMENTS

1. DRAWINGS DO NOT INDICATE EXACT ARCHITECTURAL, STRUCTURAL OR MECHANICAL FEATURES. EXAMINE DRAWINGS PRIOR TO LAYING OUT, FABRICATING AND INSTALLING WORK TO ENSURE NO INTERFERENCES EXIST. REPORT CONFLICT WITH WORK TO CONSULTANT BEFORE PROCEEDING.
2. DRAWINGS SHOW GENERAL DESIGN AND ARRANGEMENT OF LIGHTING, POWER AND COMMUNICATION SYSTEM INSTALLATION AND ARE DIAGRAMATIC IN SOME DETAILS. COORDINATE WITH ALL TRADES FOR COMPLETE OPERATIONAL SYSTEM.

4. EXAMINATION

1. EXAMINE SITE AND LOCAL CONDITIONS AFFECTING WORK UNDER THIS DIVISION TO ENSURE THAT WORK UNDER THIS DIVISION CAN BE SATISFACTORILY CARRIED OUT WITHOUT CHANGES TO DRAWINGS. NO ALLOWANCES WILL BE MADE LATER FOR ANY EXPENSE INCURRED THROUGH FAILURE TO MAKE THIS EXAMINATION. START OF WORK WILL BE DEEMED EVIDENCE OF, ACCEPTANCE OF, AND SATISFACTION WITH, EXISTING CONDITIONS.
2. THIS PROJECT INVOLVES RENOVATIONS TO AN EXISTING BUILDING. EXAMINE THE SITE AND MAKE ALLOWANCE FOR ALL LOCAL CONDITIONS AFFECTING WORK UNDER THIS CONTRACT PRIOR TO SUBMITTING FINAL PRICE.

5. PERMITS AND FEES

1. GIVE ALL NOTICES, OBTAIN ALL PERMITS AND PAY ALL FEES AND INSPECTION COSTS AND DELIVER TO THE ENGINEER FINAL CERTIFICATES OF INSPECTION AND APPROVAL THAT ARE ISSUED BY AUTHORITIES HAVING JURISDICTION OVER WORK, AS EVIDENCE THAT WORK INSTALLED CONFORMS WITH LAWS AND REGULATIONS OF ALL GOVERNING AUTHORITIES, BEFORE FINAL CERTIFICATE OF PAYMENT MAY BE CONSIDERED DUE. NOTIFY INSPECTION AUTHORITIES IN SUFFICIENT TIME FOR THEM TO INSPECT WORK.

6. CODES AND BY-LAWS

1. COMPLY WITH ALL CODES AND BY-LAWS RELATING TO INSTALLATION AND EQUIPMENT. PROVIDE CERTIFICATES TO VERIFY THAT WORK INSTALLED CONFORMS TO THE LAWS AND REGULATION.

7. CLEANING

1. DURING THE COURSE OF CONSTRUCTION AND UPON COMPLETION, REMOVE ALL RUBBISH AND WASTE RESULTING FROM THIS WORK, TO THE SATISFACTION OF THE ENGINEER. CHECK, CLEAN AND REPAINT ALL ELECTRICAL EQUIPMENT WHERE NECESSARY AND LEAVE IN A FIRST-CLASS CONDITION.

8. CUTTING AND PATCHING

1. ALL CUTTING AND PATCHING REQUIRED TO PERFORM WORK TO BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR. ELECTRICAL CONTRACTOR TO IDENTIFY LOCATIONS FOR ALL REQUIRED OPENINGS SUCH AS, BUT NOT LIMITED TO, CONDUITS, RECEPTACLES, WIREWAY, ETC., AND COORDINATE ALL OPENING WITH THE OTHER TRADES.

9. WARRANTY

1. PROVIDE A TWELVE (12) MONTH WRITTEN GUARANTEE COVERING ALL EQUIPMENT INSTALLED AND ALL OF CONTRACTOR'S WORKMANSHIP, EFFECTIVE FROM THE DATE OF FINAL ACCEPTANCE BY THE ENGINEER. GUARANTEE TO BE INCLUDED IN MAINTENANCE MANUAL.

10. EQUIPMENT SUBSTITUTION

1. ALL EQUIPMENT SUPPLIED WILL BE EXACTLY AS SPECIFIED HEREIN. SUBSTITUTIONS OR ALTERNATES TO THAT SPECIFIED WILL NOT BE ACCEPTED AFTER THE CLOSING OF TENDERS. SUBSTITUTION OR ALTERNATES MUST BE SUBMITTED PRIOR TO TENDER CLOSING AND MUST BE APPROVED BY THE ENGINEER AND OWNER. SUBSTITUTE OR EQUIVALENT EQUIPMENT MAY BE SUBMITTED FOR APPROVAL

BUT ONLY DURING THE TENDER PERIOD.

2. AFTER TENDER CLOSES, NO SUBSTITUTE OR EQUIVALENT EQUIPMENT WILL BE APPROVED. ALL EQUIVALENCY DECISIONS MADE BY THE ENGINEER WILL BE FINAL. THE BURDEN OF PROOF OF EQUIVALENT PRODUCTS BOTH IN TERMS OF PERFORMANCE AND QUALITY WILL BE ON THE CONTRACTOR.

11. EQUIPMENT IDENTIFICATION - USING LAMACOID PLATES

1. ALL TERMINAL CABINETS, PANELBOARDS, DISCONNECT SWITCHES, MAGNETIC MOTOR STARTERS, CONTACTORS AND TRANSFORMERS, OR OTHER SIMILAR EQUIPMENT FURNISHED IN THIS SPECIFICATION, TO BE PROVIDED WITH ENGRAVED LAMACOID NAMEPLATES IDENTIFYING EQUIPMENT NAME AND PANEL CIRCUIT(S), AND IN SOME CASES, THE VOLTAGE.

2. LAMACOIDS TO BE 3 MM THICK PLASTIC ENGRAVING SHEETS, MECHANICALLY ATTACHED WITH SELF-TAPPING SCREWS, SIZE AS INDICATED, OR INDUSTRIAL ADHESIVE. DO NOT USE SCREWS ON EXTERIOR ELECTRICAL COMPONENTS. USE BLACK LETTERING ON WHITE BACKGROUND FOR NORMAL POWER, BLACK LETTERING ON YELLOW BACKGROUND FOR EMERGENCY POWER AND WHITE LETTERING ON BLUE BACKGROUND FOR UPS POWER.

3. NAMEPLATES SIZES:

LETTER HEIGHT	LINE 1	LINE 2	LINE 3
SIZE 1	20 X 50 MM	3 MM	3 MM
SIZE 2	20 X 75 MM	5 MM	5 MM
SIZE 3	50 X 75 MM	10 MM	10 MM
SIZE 4	50 X 100 MM	10 MM	5 MM

4. DISTRIBUTION PANELS, PANELBOARDS, TERMINAL CABINETS AND MOTOR CONTROL CENTRES: THE MAIN IDENTIFICATION TAG TO INDICATE - EQUIPMENT NAME (10 MM HIGH), VOLTAGE (5 MM) AND WHERE FED FROM (5 MM). USE SIZE 4 NAMEPLATE.

5. BREAKERS IN DISTRIBUTION PANELS: INSTALL A LAMACOID PLATE BESIDE EACH BREAKER TO INDICATE EQUIPMENT OR PANEL CONTROLLED. USE SIZE 2 NAMEPLATE.

6. DISCONNECT SWITCHES, MAGNETIC MOTOR STARTERS AND CONTACTORS: INDICATE EQUIPMENT NAME (10 MM HIGH), VOLTAGE (5 MM) AND PANEL CIRCUITS (5 MM). USE SIZE 3 NAMEPLATE.

7. MANUAL MOTOR STARTERS: INDICATE EQUIPMENT NAME AND PANEL CIRCUIT. USE SIZE 1 NAMEPLATE.

8. LAMACOIDS FOR EQUIPMENT RELATED TO FIRE ALARM (LIFE SAFETY) TO BE RED.

12. EQUIPMENT IDENTIFICATION USING P-TOUCH LABELS

1. ALL JUNCTION BOXES, PULL BOXES AND OUTLET BOXES, EXIT AND LIGHTING FIXTURES, AND OTHER SIMILAR DEVICES FURNISHED IN THIS SPECIFICATION TO BE PROVIDED WITH 12 MM P-TOUCH STYLE EMBOSSED PLASTIC LABELS AND 5 MM HIGH LETTERING, AS FOLLOWS:
 1. LABEL WILL INDICATE PANEL AND CIRCUIT NUMBER;
 2. USE BLACK LETTERING ON WHITE BACKGROUND FOR NORMAL POWER;
 3. USE BLACK LETTERING ON YELLOW BACKGROUND FOR EMERGENCY POWER;
 4. USE BLACK ON BLUE BACKGROUND FOR UPS POWER;
 5. USE RED LETTERING ON WHITE BACKGROUND FOR FIRE ALARM;
 6. IF A RECEPTACLE IS A DEDICATED OUTLET, INDICATE DEDICATED AT DEVICE.

13. PANELBOARD DIRECTORY REQUIREMENTS

1. FOR NEW OR MODIFIED PANELBOARDS, PROVIDE UPDATED PANEL DIRECTORY(IES) UPON COMPLETION OF CONTRACT PRINTED IN PANELBOARD. ALL PANELBOARDS MODIFIED AND/OR ADDED TO UNDER THIS CONTRACT ARE TO BE UPDATED AND PROVIDED WITH NEW AND/OR REVISED PANEL DIRECTORIES.

14. FIREPROOFING

1. WHERE CABLES OR CONDUITS PASS THROUGH FLOORS AND FIRE RATED WALLS, PACK SPACE BETWEEN CABLES OR CONDUITS AND SLEEVE OR OPENING WITH T&B FLAME-SAFE FIRESTOP MATERIAL OR 3M CP25 OR 303.

15. RECORD DRAWINGS

1. MAINTAIN A WORKING SET OF WHITE PRINTS ON-SITE FOR THE PURPOSE OF RECORDING ALL CHANGES ON A DAILY BASIS. AT THE END OF CONSTRUCTION, TURN OVER THIS SET AS "RECORD DRAWINGS". THE SET IS TO INCLUDE ALL CHANGES TO THE CONTRACT, INCLUDING ANY ADDENDA, CIRCUIT NUMBERS FOR ALL AFFECTED CIRCUITS, CHANGE ORDER AND SUPPLEMENTAL INSTRUCTIONS AND UPDATED PANEL SCHEDULES TO REFLECT RECORD CIRCUITRY. DRAWINGS ARE TO BE SUBMITTED WITH MAINTENANCE MANUALS UPON COMPLETION OF THE PROJECT AND PRIOR TO FINAL PAYMENT.
2. ALL RECORD DRAWINGS SHALL HAVE COMPLETE PANEL AND CIRCUIT IDENTIFICATION FOR ALL DEVICES, LIGHT FIXTURES, JUNCTION BOXES, ETC. EXAMPLE: RP-BCL-34; ABBREVIATIONS WILL NOT BE ACCEPTED.

16. OPERATION AND MAINTENANCE MANUALS

1. PROVIDE THREE (3) SETS OF MAINTENANCE MANUALS UPON FINAL ACCEPTANCE BY THE ENGINEER. MANUALS TO BE IN THE FORM OF 3-RING BINDERS, SUITABLY SIZED FOR THE INFORMATION TO BE INCLUDED. MANUAL TO INCLUDE COVER PAGE LISTING PROJECT NAMES, J.L. RICHARDS & ASSOCIATES LIMITED'S NAME AND ADDRESS AND ELECTRICAL CONTRACTOR'S NAME, ADDRESS AND TELEPHONE NUMBER; SECOND PAGE INDEX; INCLUDE COPY OF ALL SHOP DRAWINGS, TESTING RESULTS, CERTIFICATES, APPLICABLE WARRANTIES AND A PRINTED COPY OF FINAL PANEL SCHEDULES. ON LAST PAGE, FURNISH CONTRACTOR'S GUARANTEE.

17. ELECTRICAL SYSTEM SUPPORT ANCHORAGE AND SEISMIC RESTRAINT

1. PROVIDE SUPPORT, ANCHORAGE AND RESTRAINT OF ELECTRICAL DISTRIBUTION SYSTEMS AND EQUIPMENT, DESIGNED AND CONSTRUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE FOLLOWING STANDARD:
 1. ONTARIO BUILDING CODE.
2. PROVIDE CERTIFICATION REGARDING THE DESIGN OF THE ELECTRICAL SYSTEM SUPPORT, ANCHORAGE AND RESTRAINT SYSTEM BY A STRUCTURAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO. THE CONSTRUCTION OF THE SUPPORT, ANCHORAGE AND RESTRAINT SYSTEM IS TO BE REVIEWED AND CERTIFIED BY THE STRUCTURAL ENGINEER.
3. COORDINATE ELECTRICAL SYSTEM SUPPORT, ANCHORAGE AND RESTRAINT SYSTEM WITH THE REQUIREMENTS AND CONSTRAINTS OF THE STRUCTURE, VIBRATION ISOLATION SYSTEMS AND THE SUPPORT, ANCHORAGE AND RESTRAINT SYSTEMS FOR ELECTRICAL AND ARCHITECTURAL COMPONENTS OF THE BUILDING.

18. DEMOLITION

1. CONTRACTOR TO NOTE THAT ALL DEVICES TO BE DEMOLISHED (REMOVED) MAY NOT BE IDENTIFIED ON DRAWINGS. CONTRACTOR IS TO REVIEW SITE FOR THE DEMOLITION AREAS TO ENSURE ALL DEMOLITION ITEMS CAN BE SATISFACTORILY REMOVED UNDER THIS CONTRACT.
2. COORDINATE WITH BUILDING MANAGEMENT FOR ANY/ALL SYSTEM SHUTDOWNS DURING THE DEMOLITION OR CONSTRUCTION PHASE OF CONTRACT FOR COORDINATION PURPOSES. ALLOW FOR ALL REQUIRED SHUTDOWNS TO BE PERFORMED OUTSIDE OF NORMAL WORKING HOURS. SHUTDOWN OF SYSTEM TO BE RE-ENERGIZED AND FULLY OPERATIONAL AT THE END OF SAME DAY'S WORK SHIFT.
3. PROVIDE ALL TEMPORARY SERVICES THROUGHOUT DEMOLITION AND CONSTRUCTION OF CONTRACT AREA. THESE TEMPORARY SERVICES INCLUDE POWER, LIGHTING AND FIRE ALARM COVERAGE WHERE REQUIRED. TEMPORARY SERVICE WILL MEET ALL GOVERNMENT AUTHORITIES' REQUIREMENTS, WHERE TEMPORARY FIRE ALARM DEVICES ARE REQUIRED, THE CONTRACTOR WILL INCLUDE THE COST OF VERIFICATION OF THE TEMPORARY DEVICES UPON INSTALLATION AND REMOVAL OF THESE TEMPORARY SERVICES.
4. ALL TEMPORARY SYSTEMS ARE TO BE REMOVED AT THE END OF THE CONTRACT.

5. WHERE EXISTING EQUIPMENT IS TO BE REMOVED, THE DEVICE, DEVICE BOX, RACEWAY AND WIRING BACK TO THE PANEL TO BE REMOVED, UNLESS OTHERWISE NOTED. REUSE EXISTING BREAKERS FOR NEW CIRCUITING, PLACE ALL FREED UP BREAKERS IN 'OFF' POSITION. MODIFY DIRECTORY CARD ON PANEL TO SUIT.

6. WHERE EXISTING EQUIPMENT IS TO BE RELOCATED, EXTEND EXISTING FEEDERS AND BRANCH CIRCUITS AS REQUIRED. PROVIDE JUNCTION BOXES AT CEILING LEVEL FOR BRANCH CIRCUIT WIRING EXTENSION COMPLETE WITH TERMINAL BLOCKS AND CIRCUIT NUMBER IDENTIFICATION.

7. EQUIPMENT SHOWN AS "EXISTING TO REMAIN", TO BE VERIFIED WITHIN FIVE (5) DAYS FOLLOWING START OF DEMOLITION. ELECTRICAL CONTRACTOR TO CONTACT CONSULTANT IN EVENT OF MALFUNCTIONING EQUIPMENT. ALL EQUIPMENT SHOWN AS "EXISTING TO REMAIN" MUST BE FUNCTIONAL BY END OF CONSTRUCTION PERIOD.

8. MAINTAIN ALL CIRCUITS TO ALL DEVICES AND EQUIPMENT OUTSIDE CONTRACT AREA. WHERE CIRCUITS AFFEKT OUTSIDE CONTRACT AREA FOR PANELS BEING RELOCATED, SCHEDULE SHUTDOWN WITH BUILDING OWNER AND TENANT. SHUTDOWN TO BE AFTER HOURS. WHERE A SYSTEM HAS BEEN ACCIDENTALLY CUT OFF, NOTIFY ENGINEER AND OWNER, AND REINSTATE IMMEDIATELY.

9. REMOVE OR RELOCATE LIGHT FIXTURES AS INDICATED. WHERE FIXTURES ARE TO BE RELOCATED, EXTEND WIRING AS REQUIRED, SAME AS EXISTING FROM EXISTING CIRCUIT TO NEW LOCATION.

10. DISCONNECT AND REMOVE ALL ELECTRICAL DEVICES IN WALLS AND/OR CEILINGS SHOWN TO BE DEMOLISHED. REMOVE ALL RELATED CONDUIT AND RACEWAY BACK TO SOURCE. WHERE POSSIBLE REUSE EXISTING CIRCUITS FOR NEW LAYOUT.

11. WHERE DEVICES TO BE REMOVED ARE LOCATED IN PARTITIONS TO REMAIN, REMOVE DEVICE AND WIRING BACK TO LAST DEVICE/EQUIPMENT TO REMAIN. ABANDON RECESSED BACKBOXES AND CONDUIT. PROVIDE A SUITABLY SIZED BLANK COVER PLATE, COLOUR AND MATERIAL TO MATCH TENANT STANDARD AS REQUIRED, UNLESS OTHERWISE NOTED.

12. ENSURE INTEGRITY OF ALL EXISTING EQUIPMENT AND DEVICES TO REMAIN IS MAINTAINED. RECONNECT ANY EQUIPMENT/DEVICE INADVERTENTLY DISCONNECTED.

13. REMOVE ALL TELEPHONE/DATA CONDUITS BACK TO SOURCE AS SHOWN ON DRAWINGS. CONTRACTOR TO COORDINATE WITH OWNER'S RETAINED COMMUNICATIONS CONTRACTOR (CommNet) FOR REMOVAL OR RELOCATION OF I.T. EQUIPMENT AND WIRING.

14. ALL EQUIPMENT TO BE REUSED TO BE CLEANED OF DUST, PLASTER, PAINT, ETC., TO THE SATISFACTION OF THE ENGINEER. PROVIDE ADEQUATE STORAGE FOR ALL EQUIPMENT TO BE REUSED IN THE NEW LAYOUT.

15. IDENTIFY ANY/ALL EXISTING LOADS TO REMAIN ON PANEL DETAILS. UPDATE AFFECTED PANEL SCHEDULES ACCORDINGLY.

16. TURN OVER REMOVED FUNCTIONAL EQUIPMENT/DEVICES TO OWNER (AS DIRECTED ON-SITE BY OWNER. OBTAIN SIGNED RECEIPT FROM OWNER.

17. REMOVE AND PROVIDE TEMPORARY SUPPORT TO ANY EXISTING DEVICES INSTALLED IN CEILING TILES OR ANYWHERE ELSE IN THE CONTRACT AREA. REINSTALL DEVICES IN NEW CEILING TILES. DO NOT DISCONNECT THESE DEVICES PERMANENTLY. TEMPORARY DISCONNECTION FOR REMOVAL ONLY WITH OWNER'S PERMISSION. COIL WIRE AND SUPPORT DEVICE IN CEILING SPACE FOR REINSTALLATION BY ELECTRICAL CONTRACTOR.

19. WIRE AND CABLE

1. ALL WIRING TO BE COPPER, MINIMUM SIZE #12 AWG CONDUCTORS, STRANDED, EXCEPT WHERE NOTED OTHERWISE. INSULATION OF CHEMICALLY CROSS-LINKED THERMOSETTING POLYETHYLENE MATERIAL RATED RW90.

2. SIZE #12 AWG IS ACCEPTABLE FOR ARMoured CABLE (AC90) WITHIN PARTITIONS FROM BRANCH CIRCUIT JUNCTION BOX TO LOCAL DEVICE (RECEPTACLES AND SWITCHES).

3. SIZE #14 AWG RW90 IS ACCEPTABLE FOR CONTROL WIRING.

4. WIRING TO BE SIZED FOR A MAXIMUM VOLTAGE DROP NOT TO EXCEED 3%.

5. ARMoured CABLE (AC90) CAN BE USED IN ALL T-BAR CEILINGS AND INTERIOR PARTITIONS. MAXIMUM CONTINUOUS LENGTH - 3000 MM. AC90 SHALL NOT BE USED FOR LONG BRANCH WIRING RUNS IN THE CEILING SPACE ABOVE AND BEYOND THIS LENGTH.

6. PROVIDE DEDICATED NEUTRALS FOR ALL RECEPTACLE CIRCUITS. NEUTRALS TO BE IDENTIFIED AT PANEL FOR RELATED CIRCUIT(S).

7. PROVIDE A GREEN INSULATED BONDING CONDUCTOR IN ALL INSTALLED CONDUIT, MINIMUM SIZE #12 AWG. SIZE CONDUCTOR AS PER THE LATEST EDITION OF THE ONTARIO ELECTRICAL SAFETY CODE.

20. WIRING IDENTIFICATION

1. PROVIDE PHASE IDENTIFICATION MARKINGS ON BOTH ENDS OF PHASE CONDUCTORS OF FEEDERS. ARRANGE UNIFORM PHASE-TO-MAIN LUG CONNECTION ON ALL EQUIPMENT, I.E. PANELBOARD, STARTER, DISCONNECT SWITCHES.
2. PROVIDE NUMBERED TAPE MARKINGS ON ALL BRANCH CONDUCTORS, INCLUDING NEUTRALS. WHERE COMMON NEUTRALS ARE USED, IDENTIFY BRANCH CIRCUIT NUMBERS.

THE FOLLOWING COLOUR CODING OF CONDUCTOR INSULATION IS TO BE STRICTLY ADHERED TO:

120/208 V SYSTEM

PHASE A	-	RED
PHASE B	-	BLACK
PHASE C	-	BLUE
NEUTRAL	-	WHITE
GROUND	-	GREEN

4. AT ALL JUNCTION BOXES, SPLITTERS, CABINETS AND OUTLET BOXES, MAINTAIN IDENTIFICATION SYSTEM.

21. CONDUITS AND FITTINGS

1. MINIMUM SIZE OF ALL CONDUITS TO BE 21 MM.
2. USE RIGID GALVANIZED STEEL CONDUIT, SIZE AS INDICATED. USE WHERE SUBJECT TO MECHANICAL INJURY.
3. USE EMT:
 1. FOR ALL WORK EXCEPT WHERE SPECIFIED OTHERWISE.
 2. IN ALL DRYWALL CEILINGS AND MASONRY WALLS.
 3. IN CEILING TO CARRY UP TO A MAXIMUM OF SIX (6) CIRCUITS FOR RUNS BACK TO THE PANEL. SIZE CONDUIT AS INDICATED AND/OR AS PER ELECTRICAL SAFETY CODE, TAKING INTO CONSIDERATION CONDUIT FILL AND VOLTAGE DROP OF CONDUCTORS.
 4. FITTINGS TO BE SET SCREW TYPE, ZINC-COATED STEEL CONNECTORS AND COUPLINGS. DIE CAST CONNECTORS AND COUPLINGS WILL NOT BE ACCEPTABLE.
4. USE LIQUIDTIGHT, METAL FLEXIBLE CONDUIT FOR FINAL CONNECTION TO EQUIPMENT IN DAMP, WET OR CORROSIVE LOCATIONS, TO ALL MOTORS, TRANSFORMERS, KITCHEN EQUIPMENT AND ANY OTHER VIBRATING EQUIPMENT.
5. PROVIDE A PULL CORD, POLYPROPYLENE, IN ALL EMPTY CONDUITS.

22. CONDUIT IDENTIFICATION

1. COLOUR CODE ALL CONDUITS.
2. CODING TO BE LOCATED ON ALL CONDUITS AND CABLE EXPOSED AFTER COMPLETION OF BUILDING AND IN SUSPENDED REMOVABLE CEILINGS.
3. CODING TO BE PLASTIC TAPE OR PAINT AT ALL POINTS WHERE CONDUIT OR CABLE ENTERS WALL, CEILING OR FLOOR AND AT 15 M INTERVALS, UNLESS OTHERWISE NOTED.
4. COLOURS TO BE 21 MM WIDE PRIME COLOUR AND 16 MM WIDE AUXILIARY COLOUR:

	PRIME*	AUXILIARY*
UP TO 250 V	YELLOW	
UP TO 600 V	YELLOW	GREEN
FIRE ALARM	RED (ALL RACEWAYS TO BE FACTORY PAINTED)	
COMMUNICATIONS	BLUE	

23. CONDUIT INSTALLATION

1. INSTALL CONDUITS TO CONSERVE HEADROOM IN EXPOSED LOCATIONS WITH MINIMUM INTERFERENCE IN SPACES THROUGH WHICH CONDUITS PASS. CONCEAL CONDUITS AND WIRING EXCEPT IN MECHANICAL AND ELECTRICAL SERVICE ROOMS AND UNFINISHED/OPEN CEILING AREAS.
2. RUN CONDUITS PARALLEL OR PERPENDICULAR TO BUILDING LINES.
3. LOCATE CONDUITS NOT LESS THAN 150 MM PARALLEL TO STEAM OR HOT WATER LINES WITH A MINIMUM OF 50 MM AT CROSSOVERS.
4. LOCATE CONDUITS BEHIND INFRARED OR GAS-FIRED HEATERS WITH 1500 MM CLEARANCE.
5. CONDUITS TO RUN IN FLANGED PORTION OF STRUCTURAL STEEL.
6. GROUP CONDUITS WHEREVER POSSIBLE ON SURFACE OR, IF NECESSARY, ON SUSPENDED CHANNELS.
7. HORIZONTAL RUNS ARE NOT PERMITTED IN MASONRY WALLS OR TERRAZZO AND CONCRETE TOPPINGS.
8. USE ONE-HOLE STEEL STRAPS TO SECURE SURFACE CONDUITS 50 MM AND SMALLER, AND TWO-HOLE STEEL STRAPS FOR CONDUITS LARGER THAN 50 MM.
9. USE BEAM CLAMPS TO SECURE CONDUITS TO EXPOSED STEELWORK AND CHANNEL TYPE SUPPORTS

FOR TWO OR MORE CONDUITS AT 1828 MM ON CENTRES. SIX (6) MM DIAMETER THREADED RODS (MINIMUM) TO SUPPORT SUSPENDED CHANNELS. ALL SUPPORTS MUST COMPLY WITH ONTARIO BUILDING CODE SEISMIC RESTRAINT REQUIREMENTS.

10. PAINT CONDUIT TO MATCH WALL COLOUR IN VISIBLE LOCATIONS WHEN SURFACE MOUNTED (I.E., CORRIDORS, SERVERY, CAFETERIA, ETC.). REFER TO ARCHITECTURAL FOR DETAILS.

24. JUNCTION AND PULL BOXES

1. PROVIDE JUNCTION AND PULL BOXES TO MEET REQUIREMENTS OF THE ONTARIO ELECTRICAL SAFETY CODE FOR NUMBER OF CONDUCTORS AND CONDUIT SIZES AS A MINIMUM OR AS INDICATED.

2. PROVIDE PULL BOXES IN CONDUIT RUNS 30 METRES OR LONGER. ONE BOX REQUIRED FOR EVERY 30 METRES OF LENGTH MINIMUM.

3. ALL BOXES TO BE IDENTIFIED FOR PANEL AND CIRCUITS.

25. OUTLET BOXES

1. SURFACE MOUNT:
 1. CAST FS FERALLOY BOXES WITH FACTORY THREADED HUBS AND MOUNTING FEET, COMPLETE WITH APPROPRIATE COVER PLATE TO SUIT BOX.

2. FLUSH MOUNT:
 1. 100 MM SQUARE DEEP OUTLET BOXES WITH EXTENSION AND PLASTER RINGS FOR FLUSH MOUNTING DEVICES IN FINISHED WALLS. PLASTER RING TO SUIT FINISH, OR
 2. DEEP DEVICE BOX. SECTIONAL COMPLETE WITH WRAPAROUND BRACKET FOR STEEL STUDS AND WITH INTEGRAL SUPPORT BRACKET. BOX SIZE (CAPACITY) TO SUIT NUMBER OF CONDUCTORS TO MEET ELECTRICAL SAFETY CODE.
3. USE ELECTROGALVANIZED STEEL MASONRY SINGLE AND MULTI-GANG BOXES FOR DEVICES FLUSH MOUNTED IN EXPOSED BLOCK WALLS.

4. ALL BOXES TO BE IDENTIFIED FOR PANEL AND CIRCUIT(S).

26. COVER PLATES

1. PROVIDE COVER PLATES FOR ALL WIRING DEVICES.
2. SHEET STEEL UTILITY BOX COVER FOR WIRING DEVICES INSTALLED IN SURFACE MOUNTED UTILITY BOXES.
3. SHEET METAL COVER PLATES FOR WIRING DEVICES MOUNTED IN SURFACE MOUNTED FS TYPE CONDUIT BOXES.
4. STAINLESS STEEL 1 MM THICK COVER PLATES, FOR ALL WIRING DEVICES MOUNTED IN A FLUSH MOUNTED OUTLET BOX.
5. COLOURS TO MATCH LOCAL DEVICES SPECIFIED.
6. WEATHERPROOF COVER PLATES FOR GFI RECEPTACLES TO BE P&S 1591-WP.
7. BLANK PLATES - FINISH TO MATCH OTHER PLATES IN AREA FOR BOXES WITHOUT WIRING DEVICES.

27. LOCAL DEVICES

1. LINE VOLTAGE TOGGLE SWITCHES TO BE RATED 20 A, 120 V, HEAVY DUTY INDUSTRIAL GRADE. COLOUR TO BE CONFIRMED. ACCEPTABLE MANUFACTURERS ARE :
 1. PASS & SEYMOUR;
 2. HUBBELL;
 3. EATON;
 4. LEVITON.

2. LINE VOLTAGE THREE-WAY TOGGLE SWITCH TO BE RATED 20 A, 120 V. HEAVY DUTY INDUSTRIAL GRADE. COLOUR TO BE CONFIRMED. ACCEPTABLE MANUFACTURERS ARE:
 1. PASS & SEYMOUR;
 2. HUBBELL;
 3. EATON;
 4. LEVITON.

3. LINE VOLTAGE CEILING SENSORS TO BE PASSIVE INFRARED AND RATED FOR 120 V, 1500 W, WITH 360 DEGREE MOTION COVERAGE. COLOUR TO BE WHITE. MODEL TO BE WATTSTOPPER CI-355 OR EQUIVALENT.

4. LINE VOLTAGE COMBINED WALL SWITCH AND OCCUPANCY SENSORS TO BE PASSIVE INFRARED WITH MANUAL-ON OPERATION AND OPTIONAL NEUTRAL CONNECTION TO SUIT APPLICATION. RATED FOR 120 V, 1000 W AND WHITE IN COLOUR. MODEL TO BE WATTSTOPPER-PW-301 OR EQUIVALENT.

5. DUPLEX RECEPTACLES TO BE NEMA 5-20R, 20 A, 120 V, T-SLOT, HEAVY DUTY INDUSTRIAL GRADE. COLOUR TO BE WHITE AND FED WITH A 20 A BREAKER. ACCEPTABLE MANUFACTURERS ARE:
 1. PASS & SEYMOUR;
 2. HUBBELL;
 3. EATON;
 4. LEVITON.

6. DUPLEX GFCI RECEPTACLE TO BE 20 A, 120 V, T-SLOT, HEAVY DUTY INDUSTRIAL GRADE. COLOUR TO BE WHITE AND FED WITH A 20 A BREAKER.

7. POP-UP COUNTER TOP RECEPTACLES TO BE NEMA 5-20R, 20A, 120V, T-SLOT, HEAVY DUTY INDUSTRIAL GRADE CW TWO (2) USB PORTS. COLOUR TO BE BLACK AND FED WITH A 20A BREAKER. ACCEPTABLE MANUFACTURERS ARE:
 1. LEGRAND
 2. HUBBLE
 3. LEVITON

8. SPECIAL RECEPTACLES - REFER TO NEMA RATING ON DRAWINGS.

- <

3. PROVIDE BLANK COVER PLATES FOR UNUSED BOXES.

31. DISTRIBUTION

1. PANELBOARDS

- EXISTING PANELBOARDS TO REMAIN UNLESS NOTED OTHERWISE.
- PROVIDE NEW BREAKERS IN EXISTING PANELBOARDS AS REQUIRED AND AS DETAILED IN PANEL SCHEDULES. BREAKERS TO HAVE SAME INTERRUPTING CAPACITY AS EXISTING.
- WHERE CHANGES ARE MADE TO EXISTING PANELBOARD CIRCUITS, UPDATE LEGEND TO SUIT. PROVIDE TYPED DIRECTORY FOR PANELBOARD LEGEND. (REFER TO ITEM 1.13.)
- PROVIDE LAMACOID PANELBOARD LABELS, SIZE 7 BLACK WITH WHITE LETTERS, FOR ALL AFFECTED PANELBOARDS.
- ALL CIRCUITS SHOWN ON DRAWINGS ARE FOR QUANTITY PURPOSES ONLY. VERIFY CIRCUIT AVAILABILITY ON-SITE.
- PROVIDE LOCK-ON DEVICES FOR BREAKERS FOR ALL CIRCUITS, EXIT LIGHTING, NIGHT LIGHTING, STAIRWAY LIGHTING, REFRIGERATORS, FREEZERS, FIRE ALARM, DOOR SUPERVISORY AND INTERCOM.
- ACCEPTABLE MANUFACTURERS ARE TO MATCH EXISTING PANELBOARD MANUFACTURER.

33. DISCONNECT SWITCHES

- PROVIDE FUSIBLE AND NON-FUSIBLE DISCONNECT SWITCHES AS INDICATED.
- FOR ENCLOSED SWITCHES WITH RATINGS UP TO 600 A, PROVIDE ONLY THOSE BEARING "CERTIFIED ENCLOSED SWITCH" LABEL.
- PROVIDE NAMEPLATE - SIZE 5.
- FUSE HOLDERS IN EACH SWITCH TO BE SUITABLE, WITHOUT ADAPTERS, FOR TYPE OF FUSE INDICATED.

6. FUSES:

- FUSES TO BE CLASS J, 0-600 A, 600 V, TIME DELAY TYPE JHC.
- ALL FUSES TO BE PRODUCT OF ONE MANUFACTURER.
- ACCEPTABLE MANUFACTURERS ARE:
 - GOULD SHAWMUT TYPE CJ.
 - SEIMENS TYPE J.

34. LIGHTING

- ALL EXISTING AND RELOCATED FIXTURES TO BE CLEANED (REFLECTOR AND LENS) AND RELAMPED. REPLACE ANY CRACKED OR BROKEN LENSES.
- REUSE EXISTING CIRCUITS FOR NEW AND RELOCATED FIXTURES, UNLESS OTHERWISE NOTED.
- PROVIDE FIXTURE COMPLETE WITH ASSOCIATED EQUIPMENT AS SHOWN IN FIXTURE SCHEDULE AND/OR AS INDICATED ON DRAWING.
- ALL FIXTURES IN T-BAR CEILINGS TO HAVE MINIMUM 1500 MM OF EXTRA WIRING FOR POSSIBLE FUTURE RELOCATION OF ONE CEILING TILE SPACE.
- ALL FIXTURE LOCATIONS IN THE DINING AREA TO BE REVIEWED PRIOR TO DEMOLITION TO ENSURE EACH NORTHEAST TO SOUTHWEST ROW IS PERFECTLY ALIGNED.
- ANY FIXTURES NOT REUSED TO BE DISPOSED OF IN AN APPROPRIATE MANNER. BY DIV. 26.
- ELECTRICAL CONTRACTOR TO PROVIDE IDENTIFICATION ON ALL LIGHTING FIXTURE BACK BOX USING P-TOUCH COLOUR TO MATCH EXISTING FIXTURES. IDENTIFICATION TO IDENTIFY PANEL AND CIRCUIT. P-TOUCH LABELS TO BE VISIBLE FROM THE GROUND. WHERE CONTRACTOR IS UNSURE OF PLACEMENT LOCATIONS, COORDINATE WITH OWNER FOR LOCATION.

8. LED LAMPS:

- THE LUMINAIRE SHALL HAVE A MINIMUM EFFICIENCY OF 85 LUMEN/WATT AS REPORTED BY AN LM-79 REPORT FOR EACH LUMINAIRE WATTAGE AND PHOTOMETRIC DISTRIBUTION CONSIDERED.
- ALL PHOTOMETRICS WILL BE MEASURED BY THE IESNA LM-79-08 STANDARD AND FORMATTED PER IESNA LM-63-02 AS AN ELECTRONIC FILE.
- LUMEN DEPRECIATION SHALL NOT DECREASE BY MORE THAN 30% OVER THE EXPECTED OPERATING LIFE OF A MINIMUM OF 80,000 HRS @ 25 DEGREES CELSIUS. THE MEASUREMENTS SHALL BE CALIBRATED TO STANDARD PHOTOPIC CALIBRATIONS. THE LED DEVICE MANUFACTURER SHALL HAVE TESTED THE LUMEN MAINTENANCE CHARACTERISTICS OF THE LED PACKAGE IN ACCORDANCE WITH THE GUIDELINES OF IESNA LM-80-08 "APPROVED METHOD OF LUMEN MAINTENANCE TESTING OF LED LIGHT SOURCE". A COPY OF THE MANUFACTURER'S LM-80 REPORTS SHALL BE SUBMITTED FOR REVIEW, ACCOMPANIED BY THE LUMEN DEPRECIATION ESTIMATES FOR 10, 15 AND 25 DEGREES CELSIUS LUMINAIRE AMBIENT OPERATING TEMPERATURES.
- LIGHT COLOUR QUALITY: THE LUMINAIRE SHALL HAVE A CORRELATED COLOUR TEMPERATURE (CCT) RANGE OF 3,500K TO 4,500K. THE COLOUR RENDITION INDES (CRI) SHALL BE 80 OR GREATER. BINNING OF LEDS SHALL CONFORM TO ANSI/G. NEMA SSL 3-2010. REFER TO LIGHT FIXTURE SCHEDULE FOR DETAILS.

9. LED DRIVERS:

- POWER CONSUMPTION: MAXIMUM POWER CONSUMPTION ALLOWED FOR THE LUMINAIRE SHALL BE DETERMINED BY APPLICATION. THE LUMINAIRE SHALL NOT CONSUME POWER IN THE OFF STATE.
- OPERATION VOLTAGE: THE LUMINAIRE SHALL OPERATE FROM A 60 HZ AC LINE OVER VOLTAGE RANGING FROM 108 VAC TO 305 VAC. THE FLUCTUATIONS OF LINE VOLTAGE SHALL HAVE NO VISIBLE EFFECT ON THE LUMINOUS OUTPUT.
- POWER FACTOR: THE LUMINAIRE SHALL HAVE A POWER FACTOR OF 0.90 OR GREATER.
- THD: THE TOTAL HARMONIC DISTORTION (CURRENT AND VOLTAGE) INDUCED INTO AN AC POWER LINE BY A LUMINAIRE SHALL NOT EXCEED 20 PERCENT OVER ENTIRE LOAD RANGE 0-100%.
- SURGE SUPPRESSION: THE LUMINAIRE ON-BOARD CIRCUITRY SHALL INCLUDE SURGE PROTECTION DEVICES (SPD) TO WITHSTAND HIGH REPETITION NOISE TRANSIENTS AS A RESULT OF UTILITY LINE SWITCHING, NEARBY LIGHTING STRIKES, AND OTHER INTERFERENCE. THE SPD SHALL PROTECT THE LUMINAIRE FROM DAMAGE AND FAILURE FOR COMMON MODE TRANSIENT PEAK VOLTAGES UP TO 1.0 KV (MINIMUM) AND TRANSIENT PEAK CURRENT UP TO 5 KA (MINIMUM). SPD PERFORMANCE SHALL BE TESTED PER THE PROCEDURES IN ANSI/IEEE C62.41-1992 (OR CURRENT EDITION) FOR CATEGORY C (STANDARD). THE SPD SHALL FAIL IN SUCH A WAY AS THE LUMINAIRE WILL NO LONGER OPERATE. THE SPD SHALL BE FIELD REPLACEABLE.
- THE POWER SUPPLY DRIVER ENCLOSURE SHALL BE SEALED TO PROTECT AGAINST THE ENTRY OF DUST AND WATER. THIS AREA SHOULD BE SEALED TO MINIMUM INGRESS PROTECTIVE LEVEL 65 (IP65).
- RF INTERFERENCE: LED DRIVERS MUST MEET CLASS A EMISSION LIMITS REFERRED TO IN FEDERAL COMMUNICATIONS COMMISSION (FCC) TITLE 47, SUBPART B, SECTION 15 REGULATIONS CONCERNING THE EMISSION OF ELECTRONIC NOISE.
- THE TOTAL CURRENT HARMONIC DISTORTION OF POWER SUPPLY DRIVER INDUCED INTO AN AC POWER LINE SHALL NOT EXCEED 20%.
- LIGHT FIXTURE FINISH AND CONSTRUCTION TO MEET UL LISTINGS AND CSA CERTIFICATIONS RELATED TO INTENDED INSTALLATION.
- CONTRACTOR SHALL PROVIDE ALL REQUIRED EQUIPMENT AND APURTENENCES INCLUDING, BUT NOT LIMITED TO, STEP DOWN TRANSFORMER, SUSPENSION SYSTEM, JUNCTION BOXES, UNISTRUT AND LOW VOLTAGE CABLING TO ENSURE A COMPLETE AND OPERATIONAL LIGHTING SYSTEM.

35. EMERGENCY LIGHTING AND EXIT SIGNS

- BATTERY UNITS: PROVIDE NEW EMERGENCY BATTERY UNIT. PROVIDE ADDITIONAL HEADS AS INDICATED.
- EMERGENCY BATTERY UNIT TO BE SEALED LEAD ACID, LONG-LIFE (10 YEARS), SUITABLE FOR 120 VAC SUPPLY AND 12 VDC OUTPUT WITH SUFFICIENT CAPACITY TO PROVIDE 91% VOLTAGE AFTER 30 MINUTES OPERATION WITH CONNECTED LOAD PLUS 50 WATTS.
- BATTERY TO CARRY 10-YEAR PRORATED WARRANTY IN ADDITION TO THE TWELVE (12) MONTH GUARANTEE.
- PROVIDE METAL SHELF FASTENED TO WALL FOR BATTERY UNIT TO SIT ON OR INSTALL ACCORDING TO MANUFACTURER'S INSTRUCTIONS
- PROVIDE AUTO-TEST FEATURE.
- REMOTE HEADS TO CONSIST OF TWO (2) 5 W SEALED BEAM, LED MINI-LAMP WITH FULLY ADJUSTABLE MOUNTING SWIVEL AND 100 MM DIAMETER OUTLET BOX ON A SINGLE CANOPY. SINGLE HEAD NOT ACCEPTABLE.
- USE #10 AWG WIRE FOR REMOTE HEADS AND WIRE A MAXIMUM OF FOUR (4) HEADS ON EACH 12 VDC BRANCH CIRCUIT FROM BATTERY UNIT.
- USE #12 AWG WIRE FOR 120 VAC INPUT CIRCUIT. DEDICATED DUPLEX RECEPTACLE REQUIRED FOR BATTERY UNIT TO PLUG INTO.
- ALL FINISHES TO BE [WHITE] [IVORY] [MATCH EXISTING].
- ACCEPTABLE MANUFACTURERS ARE:
 - DUAL-LITE;
 - LUMACELL;
 - EMERGH-LITE;
 - EXIDE.

36. FIRE ALARM

- CONTRACTOR TO RETAIN THE SERVICES OF OWNER'S FIRE ALARM CONTRACTOR, SIEMENS, TO PROVIDE MODIFICATIONS TO EXISTING FIRE ALARMS SYSTEM AS REQUIRED. CONTRACTOR TO CARRY ALL COSTS ASSOCIATED WITH FIRE ALARM SYSTEM MODIFICATION AND VERIFICATION IN ORDER TO PROVIDE A COMPLETE AND OPERATIONAL SYSTEM.
- INSTALL NEW OR RELOCATED DEVICES AS INDICATED ON DRAWING. ULC APPROVED EQUIPMENT COMPLETE WITH BACKBOX TO MATCH EXISTING.
- FOR FIRE ALARM DEVICES THAT ARE NEWLY INSTALLED OR RELOCATED, INCLUDING NEW SUPERVISORY CIRCUITS, MANUFACTURER TO VERIFY AND PROVIDE A CERTIFICATE UPON COMPLETION. ALL TESTING AND VERIFICATION TO BE PERFORMED AFTER NORMAL WORKING HOURS OR ON WEEKENDS. COORDINATE WITH OWNER. NOTIFY ENGINEER A MINIMUM OF 48 HOURS IN ADVANCE. ALL REQUIRED PARTIES TO BE PRESENT AT TIME OF VERIFICATION. SIGNALLING CIRCUIT CONDUIT AND WIRE TO BE IN A SEPARATE RACEWAY FROM THE INITIATING DEVICES CIRCUIT AND AS PER CODE.
- WIRE NEW HORNS/BELLS/STROBES WITH #14 SOLID 105°C, 300 V, CSA TYPE FAS FIRE ALARM CABLE.
- WIRE NEW ALARM INITIATING CIRCUITS FOR MANUAL STATIONS/HEAT DETECTORS/SMOKE DETECTORS/SUPERVISORY SWITCHES WITH #16 SOLID 105°C, 300 V, CSA TYPE FAS FIRE ALARM CABLE.
- INSTALLATION WILL BE IN ACCORDANCE WITH CAN/ULC-S524-M06 (OR THE LATEST EDITION); INSPECTION - CAN/ULC-S536-04 (OR THE LATEST EDITION); AND VERIFICATION - CAN/ULC-S537-04 (OR THE LATEST EDITION).
- MAKE PROVISIONS FOR A LEASED TELEPHONE LINE FOR MONITORING BY APPROPRIATE LOCAL AUTHORITIES.
- DEVICES TO MATCH EXISTING MANUFACTURER AT SITE FOR:
 - PANELS;
 - PULL STATIONS;
 - HEAT DETECTORS;
 - SMOKE DETECTORS;
 - FIRE ALARM HORN/STROBES;
 - FIRE ALARM MINI-HORN/STROBES;
 - ALL OTHER DEVICES AS REQUIRED TO MAKE SYSTEM OPERATIONAL, E.G., CONTROL MODULES, ADDRESSABLE MODULES, ETC.
- PROVIDE REQUIRED CONNECTIONS TO ADDRESSABLE MAIN FIRE ALARM CONTROL PANEL (FACP) FOR NEW ZONES, AS REQUIRED.
- PROVIDE NEW FACP AND ALL REMOTE ANNUNCIATORS WITH NEW FIRE ALARM ZONES, AS REQUIRED.
- PROVIDE UPDATED FIRE ALARM PASSIVE GRAPHIC.
- WHERE DEVICES ARE REMOVED FROM EXISTING INSTALLATIONS AND NEED TO BE OPERATIONAL DURING CONSTRUCTION, THE CONTRACTOR SHALL ALLOW FOR VERIFICATION OF FIRE ALARM SYSTEM FOR CONSTRUCTION STAGE AND FINAL INSTALLATION STAGE.
- ALLOW FOR TESTING AND VERIFICATION OF TEMPORARY INSTALLATION IF REQUIRED.
- WHERE RELOCATION OF DEVICES IS REQUIRED, ZONE AND CIRCUIT WIRING SHALL BE REPLACED BACK TO PREVIOUS DEVICE TO AVOID JOINTS IN FIRE ALARM WIRING. ON LOOP CONNECTIONS THIS MAY REQUIRE REPLACING WIRING BACK TO DEVICES IN CIRCUIT.
- SPLICES NOT ACCEPTABLE. WHERE WIRING IS TO BE MODIFIED/EXTENDED, CONTRACTOR TO PROVIDE NEW WIRING FROM CLOSEST FIRE ALARM DEVICE ON THE SAME LOOP.
- ZONE ISOLATION MODULE NOT SHOWN ON DRAWING FOR CLARITY PURPOSES. CONTRACTOR TO INCLUDE FOR ALL REQUIRED ZONE ISOLATION MODULES TO MEET THE INTENT OF THE DRAWINGS AND THE LATEST EDITION OF CAN/ULC-S524.

37. MOTOR STARTERS

- PROVIDE MOTOR STARTERS OF THE TYPE, STYLE AND SIZE, AS INDICATED ON DRAWING, COMPLETE WITH ALL AUXILIARY CONTROL DEVICES.
- ALL NEW MOTOR STARTERS TO MATCH EXISTING AT SITE.
- ENCLOSURE TYPE NEMA 1 - UNLESS OTHERWISE NOTED ON DRAWINGS.
- MAGNETIC MOTOR STARTERS TO BE NEMA/EEMAC RATED.
- PROVIDE AND INSTALL WIRING DIAGRAM IN EACH STARTER.
- PROVIDE SIZE 3 LAMACOID PLATE FOR IDENTIFICATION OF STARTER.

41. SHOP DRAWINGS

- SUBMIT ELECTRONIC (PDF) FILES OF REQUIRED SHOP DRAWINGS / DATA SHEETS FOR EQUIPMENT SPECIFIED UNDER THIS CONTRACT FOR ENGINEER'S REVIEW PRIOR TO PLACING PURCHASE ORDERS.
- PROPOSED ALTERNATE PRODUCTS TO THAT SPECIFIED REQUIRES SUBMISSION OF SHOP DRAWINGS FOUR (4) WORKING DAYS PRIOR TO TENDER CLOSING FOR CONSIDERATION. REVIEWED SHOP DRAWINGS BY THE ENGINEER WILL BE CONSIDERED AS ACCEPTANCE OF ALTERNATE. NO CONSIDERATION WILL BE GIVEN TO AN ALTERNATE PRODUCT WITH LESS TIME GIVEN FOR EVALUATION.
- ALL EXTRA COSTS ASSOCIATED WITH AN ALTERNATE PRODUCT THAT IS SPECIFIED IS THE RESPONSIBILITY OF THIS CONTRACTOR. NO EXTRAS FOR INSTALLATION OF AN ALTERNATE PRODUCT WILL BE CONSIDERED.
- TEMPORARY OR TRIAL USAGE IS ALLOWED WITH AN ALTERNATE PRODUCT THAT IS SPECIFIED IS THE RESPONSIBILITY OF THIS CONTRACTOR. NO EXTRAS FOR INSTALLATION OF AN ALTERNATE PRODUCT WILL BE CONSIDERED.
- SHOP DRAWINGS REQUIRED FOR:
 - LIGHTING FIXTURES.
 - EMERGENCY BATTERY UNIT AND REMOTE HEADS.
 - PROGRAMMABLE DIMMING SYSTEMS/LIGHTING CONTROL PANEL.
 - WIRING DEVICES.
 - FIRE ALARM DEVICES [ONLY REQUIRED IF NEW].
 - DISCONNECTS.
 - MAGNETIC STARTERS.

42. TESTING

- TEST ALL SYSTEM EQUIPMENT AND DEVICES AS REQUIRED BY THESE SPECIFICATIONS OR GOVERNING AUTHORITIES. COORDINATE TIME FOR TESTING WITH OWNER'S REPRESENTATIVE, AUTHORITIES AND ENGINEER AS REQUIRED. NOTICE IS REQUIRED TO BE GIVEN, IN WRITING, 48 HOURS IN ADVANCE OF ANY TESTING, TO ALL PARTIES CONCERNED. ALLOW FOR FIRE ALARM TESTING TO BE COMPLETED OUTSIDE OF NORMAL WORKING HOURS.
- PROVIDE ALL TESTING EQUIPMENT, METERS, ETC., AND PERSONNEL AS REQUIRED TO COMPLETE TESTING. TURN OVER TEST RESULTS AT THE END OF THE CONTRACT.
- SYSTEMS REQUIRING TESTING FOR PROPER OPERATION INCLUDE:
 - POWER SYSTEMS - PHASING VOLTAGE, LOAD BALANCING, BONDING.
 - LIGHTING SYSTEMS - FIXTURES AND RELATED CONTROLS.
 - MOTOR AND MOTOR CONTROL AND SEQUENCE OF OPERATION WHERE APPLICABLE. CORRECT OVERLOAD SETTINGS AT MOTOR STARTERS.
 - NEW OR RELOCATED FIRE ALARM DEVICES AND ALL AFFECTED FIRE ALARM ZONES/ CIRCUITS UNDER THIS CONTRACT. REFER TO SPECIFICATION NOTE 36.
 - ANY PROPRIETARY SYSTEM INSTALLED BY THIS CONTRACTOR UNDER THIS CONTRACT.
 - MEASURE PHASE CURRENT TO PANELBOARDS WITH NORMAL LOADS, I.E., LIGHTING, ETC., OPERATING AT TIME OF ACCEPTANCE. ADJUST BRANCH CIRCUIT CONNECTIONS AS REQUIRED TO OBTAIN BEST BALANCE OF CURRENT BETWEEN PHASES AND RECORD CHANGES. MEASURE PHASE VOLTAGES AT LOADS AND ADJUST TRANSFORMER TAPS TO WITHIN 2% OF THE RATED VOLTAGE OF EQUIPMENT. AT COMPLETION OF WORK, SUBMIT REPORT LISTING PHASE AND NEUTRAL CURRENTS ON PANELBOARDS AND DRY-CORE TRANSFORMERS OPERATING UNDER NORMAL LOAD. STATE HOUR AND DATE THAT EACH LOAD WAS MEASURED AND VOLTAGE AT TIME OF TEST.
 - PROVIDE INSULATION RESISTANCE TEST FOR ALL FEEDERS AND EQUIPMENT TO ENSURE THEY ARE CONTINUOUS AND FREE FROM SHORT CIRCUITS AND GROUNDS. INDICATE IN REPORT RESULT OF EACH TEST.

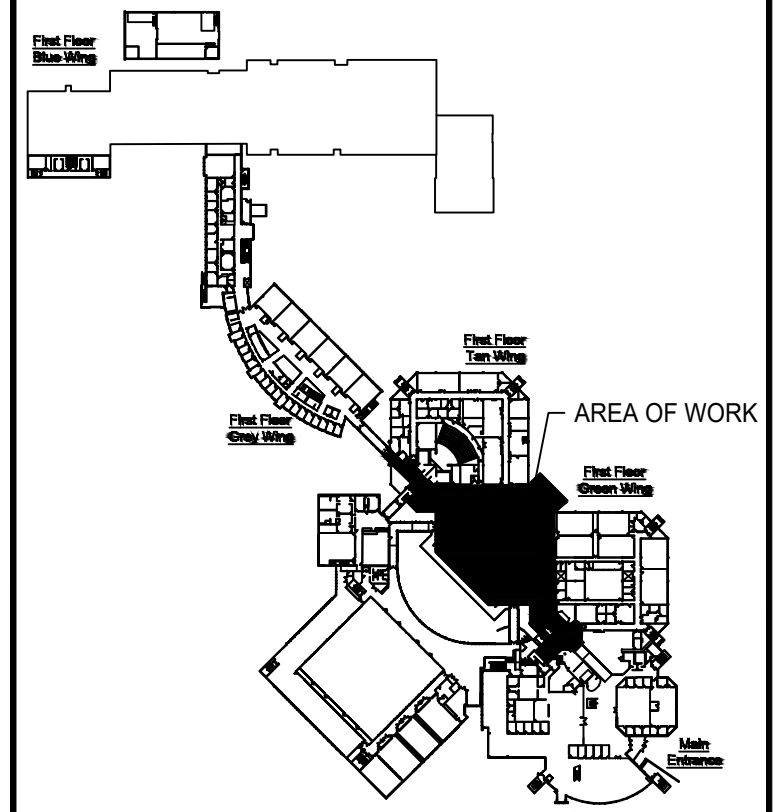
43. COMMISSIONING

- PLAN, ORGANIZE AND IMPLEMENT A COMMISSIONING PLAN (INCLUDING A COMMISSIONING SCHEDULE)

FOR ALL ELECTRICAL AND RELATED MECHANICAL SYSTEMS. PLAN SHALL INCLUDE AS A MINIMUM THE FOLLOWING:

- INSTALLATION CHECKLIST.
- START-UP CHECKLIST.
- VERIFICATION SHEETS.
- INTERGRATED TESTING SHEETS.
- SUPPLY COMPLETE INSTRUCTIONS AND INFORMATION RELATING TO OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND SYSTEMS. DELIVER A SYSTEM THAT PERFORMS IN ACCORDANCE WITH CONTRACT DOCUMENTS AND EQUIPMENT MANUFACTURER'S REQUIREMENTS.
- CONSULTANT TO BE PRESENT FOR ALL COMMISSIONING ACTIVITIES. SUBMIT PROPOSED COMMISSIONING PLAN TO CONSULTANT THREE (3) WEEKS PRIOR TO FIRST PLANNED ACTIVITY.
- CONTRACTOR TO PROVIDE THE FOLLOWING DOCUMENTATIONS TO ENGINEER FOR THEIR APPROVAL PRIOR TO CLOSING OF THE PROJECT:
 - SUBMIT A COPY OF ELECTRICAL SAFETY AUTHORITY'S FINAL INSPECTION CERTIFICATE.
 - SUBMIT CERTIFICATION OF DESIGN OF ELCTERICAL SYSTEM SUPPORT ANCHORAGE AND RESTRAINT BY A STRUCTURAL ENGINEER AS PER (1.26).
 - TURN OVER TO OWNER AND OBTAIN SIGNED RECEIPTS FOR THE FOLLOWING ITEMS. SUBMIT COPY OF RECEIPT TO CONSULTANT:
 - ALL MAINTENANCE MATERIALS.
 - TAGGED KEYS FOR ALL EQUIPMENT SUPPLIED WITH LOCKS.
 - FUSES: MINIMUM OF SIX (6) FOR EACH TYPE AND SIZE.
 - ANY UNUSED MATERIAL AS A RESULT OF SITE CONDITIONS, DELETIONS, ECT. AND ANY ITEMS UNDER DEMOLITION DRAWINGS WHERE NOTED.
 - SUBMIT RECORD DRAWINGS FOR REVIEW BY CONSULTANT AS PER (1.15).
 - FOR EACH OF THE FOLLOWING SYSTEMS, SUBMIT A LETTER OR CERTIFICATE FROM MANUFACTURER INDICATING SYSTEM HAS BEEN INSTALLED TO THEIR SATISFACTION AND WHERE APPLICABLE, INDICATE THAT OWNER'S PERSONNEL HAS BEEN TRAINED IN ITS OPERATION AND MAINTENANCE.
 - LOW VOLTAGE SWITCHING AND DIMMING CONTROL.
 - FIRE ALARM SYSTEM.
 - PUBLIC ADDRESS SYSTEM.
 - SUBMIT COPIES OF FIRE ALARM VERIFICATION REPORTS TO ENGINEER FOR REVIEW.
 - SUBMIT TO CONSULTANT AT COMPLETION OF WORK, A WRITTEN REPORT CONTAINING ALL PHASE AND NEUTRAL CURRENTS AND VOLTAGES FOR PANELBOARDS, PRIMARY AND SECONDARY OF TRANSFORMERS, AND MOTOR CONTROL CENTERS OPERATING UNDER NORMAL LOAD. STATE HOUR AND DATE WHEN EACH LOAD WAS MEASURED AS INDICATED IN SECTION (23.3.7).
 - SUBMIT LETTER OF WARRANTY/ GUARENTEE PERTAINING TO THIS PROJECT. IDENTIFY ITEMS THAT EXTEND BEYOND THE ONE YEAR WARRANTY.
 - SUBMIT INSULATION RESISTANCE TEST REPORTS FOR ALL FEEDERS AND EQUIPMENT INDICATING THAT THEY ARE CONTINUOUS AND FREE FROM SHORT CIRCUITS AND GROUNDS. INDICATE IN REPORT RESULT OF EACH TEST.
 - ON COMPLETION OF WORK AND PRIOR TO FINAL INSPECTION, SUBMIT RECORD DRAWINGS TO CONSULTANT.

END OF SPECIFICATIONS



KEY PLAN



3	ISSUED FOR TENDER	17/04/2019
2	ISSUED FOR CLIENT REVIEW	16/04/2019
1	ISSUED FOR CLIENT REVIEW	12/04/2019

No.	ISSUE / REVISION	DD/MM/YY
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VERIFY SHEET SIZE AND SCALES. BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING.

SCALE: NTS

CLIENT:

CONSULTANT: www.jlrichards.ca

CONSULTANT:

PROFESSIONAL STAMP

PROJECT NORTH

PROJECT:

ST. LAWRENCE COLLEGE CAFETERIA RENOVATION

100 PORTSMOUTH AVENUE, KINGSTON, ONTARIO

DRAWING:

SPECIFICATIONS 2 OF 2

DESIGN: BM	DRAWING #:
DRAWN: HV	E1
CHECKED: HM	
JLR #: 28389	

POWER SYSTEMS	
	120V, 20A, 1Ø GROUND FAULT INTERRUPTER RECEPTACLE
	120V, 20A, 1Ø QUAD RECEPTACLE
	120V, 20A, 1Ø DEDICATED RECEPTACLE
	120V, 20A, 1Ø RECEPTACLE
	120V, 20A, 1Ø COUNTER-TOP RECEPTACLE c/w 2 USB CHARGING CONNECTIONS
	NEMA 6-15R - 15A, 2Ø8V, 1Ø DEDICATED RECEPTACLE
	JUNCTION BOX
	SINGLE PHASE DIRECT MOTOR CONNECTION. REFER TO MSCL FOR SIZE AND ADDITIONAL DEVICES AND EQUIPMENT.
	THREE PHASE DIRECT MOTOR CONNECTION. REFER TO MSCL FOR SIZE AND ADDITIONAL DEVICES AND EQUIPMENT.
	EQUIPMENT LABEL REFER TO MSCL FOR SCOPE, ACCESSORIES AND DETAILS
	ELECTRICAL PANEL AS INDICATED
	TRANSFORMER AS INDICATED
	MOTOR RATED SWITCH
	LOW VOLTAGE CONTROL SWITCH
	SWITCH
	ELECTRICAL DISCONNECT
	120V MOTORIZED DAMPER
	MAINTAINED EMERGENCY STOP BUTTON
	HARDWIRED EQUIPMENT. REFER TO DRAWING FOR DETAILS.
	EQUIPMENT LABEL REFER TO PITA PIT AND PAPA JOHNS EQUIPMENT LIST FOR DETAILS

FIRE PROTECTION	
	HEAT DETECTOR
	SMOKE DETECTOR
	COMBINATION SMOKE DETECTOR / HEAT DETECTOR
	FIRE ALARM PULL STATION
	FIRE ALARM SPEAKER
	FIRE ALARM SPEAKER / STROBE WALL MOUNT
	ZONE ISOLATION MODULE
	ZONE ADDRESSABLE INPUT MODULE
	END OF LINE
	FIRE ALARM CONTROL PANEL
	FIRE ALARM ANNUNCIATOR PANEL

TELECOMMUNICATIONS SYSTEMS	
	RECESSED COMMUNICATIONS/DATA OUTLET c/w CONDUIT AND PULL CORD ROUTED TO NEAREST IT ROOM. #D REFERS TO THE NUMBER OF DATA DROPS. SIZE CONDUIT TO SUIT NUMBER OF DROPS
	RECESSED COMMUNICATIONS/DATA OUTLET SITUATED IN CEILING SPACE c/w 21mm CONDUIT AND PULL CORD ROUTED TO CABLE TRAY SYSTEM.
	AUDIO CONNECTION OUTLET

LIGHTING SYSTEMS	
	UNIVERSAL MOUNT WALL, CEILING OR END. EXTRUDING LED RUNNING MAN. SEE PICTOGRAM SCHEDULE ON THIS DRAWING.
	LED LIGHT FIXTURE. TYPE "X" AS INDICATED. REFER TO LUMINAIRE SCHEDULE FOR DETAILS.
	610mm x 1220mm RECESSED VOLUMETRIC LED LIGHT FIXTURE. TYPE "X" AS INDICATED. REFER TO LUMINAIRE SCHEDULE FOR DETAILS.
	UN-SWITCHED EMERGENCY POWER FIXTURE (NIGHT LIGHT)
	300mm x 1220 / 2440mm STRIP LED LIGHT FIXTURE. TYPE "X" AS INDICATED. REFER TO LUMINAIRE SCHEDULE FOR DETAILS.
	EXTERIOR WALL OR POLE MOUNTED LED LIGHT FIXTURE. TYPE "X" AS INDICATED. REFER TO LUMINAIRE SCHEDULE FOR DETAILS.
	EMERGENCY LIGHT DOUBLE HEADS c/w INTEGRAL BATTERY UNIT
	DOUBLE EMERGENCY LIGHT HEAD. REMOTE FROM BATTERY UNIT

ABBREVIATIONS	
A.F.F.	ABOVE FINISHED FLOOR
A.F.G.	ABOVE FINISHED GRADE
CL	CEILING MOUNTED DEVICE
DTT	DRY TYPE TRANSFORMER
FM	FLOOR MOUNT
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND CONDUCTOR
JB	JUNCTION BOX
MH	MOUNTING HEIGHT
NIC	NOT IN CONTRACT
NL	NIGHT LIGHTING
N.T.S.	NOT TO SCALE
O/C	OVER COUNTER
PNL	PANEL
TL	TWIST LOCK
U/C	UNDER COUNTER
WF	WATER FOUNTAIN RECEPTACLE MOUNTED AT 400mm A.F.F.
WP	WEATHER PROOF

HOUSE SYSTEMS WIRING SCHEDULE COPPER CONDUCTORS IN A RACEWAY		
MAXIMUM CIRCUIT AMPERAGE	SINGLE PHASE CIRCUIT	THREE PHASE CIRCUIT
15 AMP	2C-#12 AWG in 21 mm CONDUIT	2C-#12 AWG in 21 mm CONDUIT
20 AMP	2C-#12 AWG in 21 mm CONDUIT	3C-#12 AWG in 21 mm CONDUIT
30 AMP	2C-#10 AWG in 21 mm CONDUIT	3C-#10 AWG in 21 mm CONDUIT
40 AMP	2C-#8 AWG in 27 mm CONDUIT	3C-#8 AWG in 27 mm CONDUIT
50 AMP	2C-#6 AWG in 35 mm CONDUIT	3C-#6 AWG in 35 mm CONDUIT
60 AMP	2C-#6 AWG in 35 mm CONDUIT	3C-#6 AWG in 35 mm CONDUIT
70 AMP	2C-#4 AWG in 35 mm CONDUIT	3C-#4 AWG in 35 mm CONDUIT
80 AMP	2C-#4 AWG in 35 mm CONDUIT	3C-#4 AWG in 35 mm CONDUIT
90 AMP	2C-#3 AWG in 41 mm CONDUIT	3C-#3 AWG in 41 mm CONDUIT
100 AMP	2C-#3 AWG in 41 mm CONDUIT	3C-#3 AWG in 41 mm CONDUIT

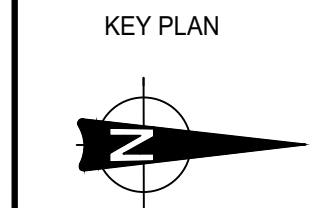
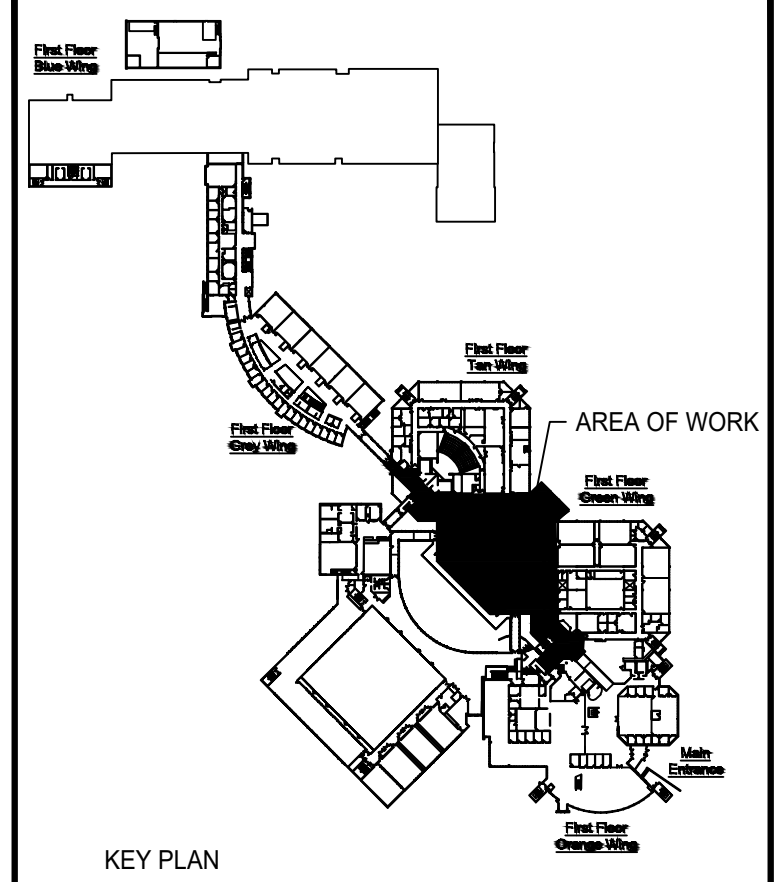
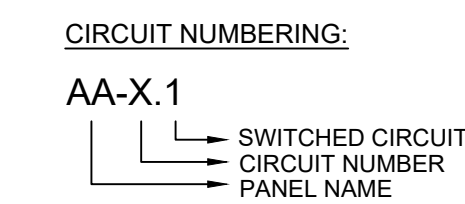
LUMINAIRE SCHEDULE			
TYPE:	SPECIFIED PRODUCT:	LAMP TYPE:	FIXTURE MOUNTING HEIGHT: (UNLESS OTHERWISE NOTED)
"F2"	WHITE CYLINDER PENDANT, 152MM DIAMETER, 457MM HEIGHT LUMENPULSE: F2-LACYM-A-PSF-MWH-M-D-120-18-JL20-40K-CR80-W-DA1-NA-MWH-b-MWH	LED	3350MM A.F.F.
"P"	609MM x 70MM x 64MM, DIFFUSED ILLUMINATION WITH HIGH EFFICIENCY OPAL INSERT, 100% DIRECT, INTEGRAL DRIVER CANOPY, 3 POINT SUSPENSION MOUNTING EDISON LIGHTING GROUP: ED RING+24INCH-50WLED-DL-120V-SS/3POINT-WH-40K FINELITE: HP-4C-D-P-2-S-840-F-96-120-SC-FC-10%-FA100-C4-SW OR APPROVED EQUIVALENT	LED	3050MM A.F.F.
"P1"	609MM x 70MM x 64MM, DIFFUSED ILLUMINATION WITH HIGH EFFICIENCY OPAL INSERT, 70% DIRECT, 30% INDIRECT, INTEGRAL DRIVER CANOPY, 3 POINT SUSPENSION MOUNTING EDISON LIGHTING GROUP: ED RING+24INCH-50WLED-UD-120V-SS/3POINT-WH-40K FINELITE: HP-4C-D-P-2-S-840-F-96-120-SC-FC-10%-FA100-C4-SW OR APPROVED EQUIVALENT	LED	3050MM A.F.F.
"TR"	8' TRACK LIGHTING DOWN ROD MOUNTED LITELINE: DA3110-40-38-80-BK (FIXTURE) RODR8224-BK (ROD) LEC6270-BK (WIRE COVER) CREE: S-CT-RLGR-50W-P20-120B-BK OR APPROVED EQUIVALENT	PAR20 BASE LED LAMP	2600MM A.F.F.
"B"	RED GLASS PENDANT BRUCK: ALEXANDER 223-962-MC-MP TECH LIGHTING 700-MP-FIR-R-C-LED5930 OR APPROVED EQUIVALENT	LED	900MM A.F.F.
"D"	24IN DRUM STEM MOUNTED EDISON LIGHTING GROUP: ED DRUM+24INCH-50WLED-120V-DL-SM***-WH-40K LUMENWERK: SHES-24-ST-90-4000mm-40-120-D1-IDB-1-W-NG OR APPROVED EQUIVALENT	LED	2700MM A.F.F.
"C"	EXISTING TASK LIGHTING		
"E"	1X4 SHALLOW SUSPENDED MOUNT H. E. WILLIAMS: PTS-14-L45/840-RA-DIM-UNV	LED	2700MM A.F.F.
"EBU"	120V EMERGENCY LIGHTING 12 VOLT BATTERY PACK C/W INTEGRAL AND REMOTE HEADS. SEALED LONG LIFE (10 YEARS) BATTERY SIZED TO MAINTAIN LOAD FOR 1/2 HOUR MINIMUM. THOMAS AND BETTS: READY-LITE LX SERIES OR APPROVED EQUIVALENT		
"A"	2X4 LED TROFFER H. E. WILLIAMS: 50-G-S-24-L59/840-F-AF12125-TG-WET-DIM-UNV	LED	2700MM A.F.F.
"G"	EXISTING TROFFER LIGHTING		
"H"	EXISTING SKYLIGHT LIGHTING		

GENERAL NOTES:

GENERAL NOTES APPLY TO ALL ELECTRICAL DRAWINGS

- REFER TO ARCHITECTURAL REGARDING PROJECT/CONSTRUCTION PHASING.
- REFER TO ARCHITECTURAL AND MECHANICAL FOR FURNITURE AND EQUIPMENT REMOVALS, RELOCATIONS, AND MODIFICATIONS.
- REFER TO APPENDIX A FOR EQUIPMENT CUTSHEETS OF PRE-PURCHASED EQUIPMENT BY OWNER.
- ELECTRICAL DESIGN IN ACCORDANCE WITH THE ONTARIO BUILDING CODE 2012 AND ONTARIO ELECTRICAL SAFETY CODE 2018.
- PERFORM ALL WORK TO THE REQUIREMENTS OF THE ONTARIO BUILDING CODE 2012 AND ONTARIO ELECTRICAL SAFETY CODE 2018. OBSERVE ALL LOCAL AND PROVINCIAL REGULATORY REQUIREMENTS AND EXECUTE ALL WORK TO THE REQUIREMENTS OF THE APPLICABLE CSA STANDARDS. ALL WORKMANSHIP TO BE REPRESENTATIVE OF THE HIGHEST INDUSTRY STANDARD.
- COMPLY WITH ALL REQUIREMENTS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT.
- COMPLY WITH LOCAL, PROVINCIAL AND FEDERAL ENVIRONMENT REGULATIONS WHEN PERFORMING ALL WORK.
- READ THESE DRAWINGS IN CONJUNCTION WITH ARCHITECTURAL AND MECHANICAL DRAWINGS. COORDINATE THE REQUIREMENTS OF THESE TRADES/PACKAGES WITH THE ELECTRICAL WORK. IN THE CASE OF DISCREPANCIES, NOTIFY THE CONSULTANT IMMEDIATELY FOR CLARIFICATION.
- IT IS THE INTENT OF THIS CONTRACT TO PROVIDE FINISHED WORK. ITEMS THAT ARE CLEARLY REQUIRED TO PROVIDE A FINISHED INSTALLATION ARE INCLUDED IN THE SCOPE WHETHER SPECIFICALLY NOTED OR NOT.
- COORDINATE ALL CORING WITH STRUCTURAL. X-RAY CONCRETE/BLOCK WALLS PRIOR TO CORING. ENSURE NO STRUCTURAL STEEL IS DAMAGED.
- NEW CORES:
 - LOCATION OF REINFORCING STEEL IN EXISTING CONCRETE SLAB IS TO BE LOCATED BY RADAR IMAGING OR OTHER SIMILAR METHODS PRIOR TO CORING NEW HOLES THROUGH THE SLAB. ADJUST CORE LOCATION TO MINIMIZE IMPACT ON EXISTING REINFORCING STEEL. DO NOT CORE THROUGH EXISTING REINFORCING STEEL.
- EXISTING CORES TO BE PATCHED:
 - SURFACE OF EXPOSED CONCRETE TO BE ABRASIVELY ROUGHENED TO CREATE UNEVEN SURFACE. EXPOSE AGGREGATE TO 5MM AMPLITUDE. ALL DEBRIS AND LOOSE MATERIAL IS TO BE CLEANED FROM THE SURFACE.
 - APPLY BONDING AGENT TO PREPARED SURFACE PRIOR TO PLACING NEW CONCRETE. FOLLOW MANUFACTURER'S RECOMMENDATIONS FOR APPLICATION.
 - FILL EXISTING CORE WITH NON-SHRINK GROUT INTENDED FOR THE SPECIFIC APPLICATION.

LINE TYPES	
	NEW WORK
	DEMOLITION
	EXISTING



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SCALE: NTS

CLIENT:

St. Lawrence College

CONSULTANT:

J.L. Richards
ENGINEERS - ARCHITECTS - PLANNERS

CONSULTANT:

PROFESSIONAL STAMP

PROJECT NORTH

PROJECT:

ST. LAWRENCE COLLEGE CAFETERIA RENOVATION

100 PORTSMOUTH AVENUE, KINGSTON, ONTARIO

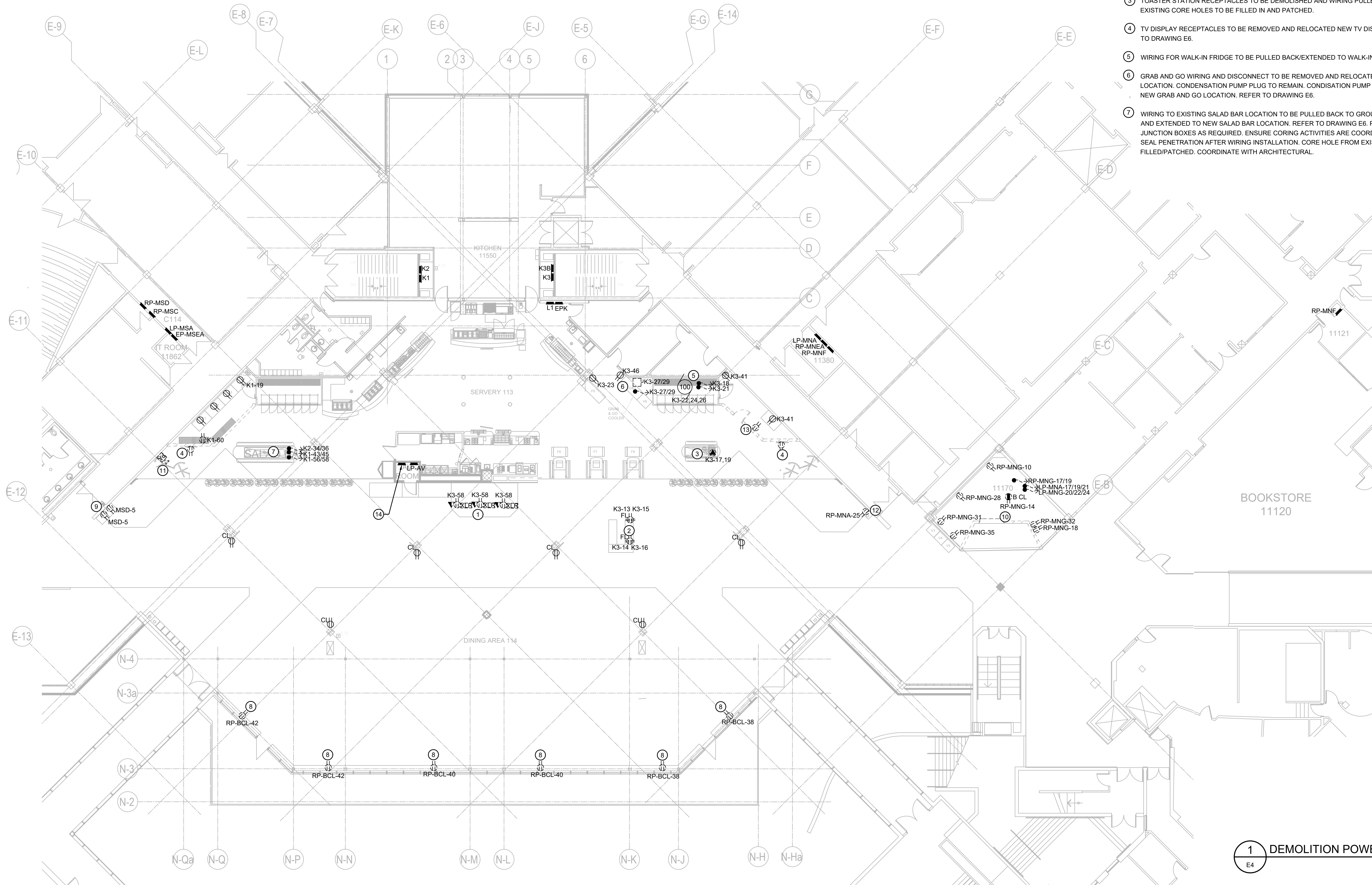
DRAWING:

LEGEND, DRAWING LIST, AND LUMINAIRE SCHEDULE

DESIGN: BM	DRAWING #:
DRAWN: HV	E2
CHECKED: HM	
JLR # 28389	

DRAWING NOTES:

- 1 AUDIO SYSTEM STAGE XLR PORTS, RECEPTACLES AND STAGE TELECOMMUNICATION TO BE DEMOLISHED. XLR WIRING TO BE PULLED BACK/EXTENDED TO NEW LOCATION. REFER TO DRAWING E6. TELECOMMUNICATIONS RECEPTACLE WIRING TO BE PULLED BACK TO SOURCE.
- 2 MICROWAVE STATION FLOOR MOUNT RECEPTACLES TO BE REMOVED AND RELOCATED TO NEW MICROWAVE STATION LOCATION. REFER TO DRAWING E6. ENSURE CORING ACTIVITIES ARE COORDINATED WITH THE OWNER. SEAL PENETRATION AFTER WIRING INSTALLATION. CORE HOLE FROM EXISTING WIRING TO BE FILLED/PATCHED. COORDINATE WITH ARCHITECTURAL.
- 3 TOASTER STATION RECEPTACLES TO BE DEMOLISHED AND WIRING PULLED BACK TO SOURCE. EXISTING CORE HOLES TO BE FILLED IN AND PATCHED.
- 4 TV DISPLAY RECEPTACLES TO BE REMOVED AND RELOCATED NEW TV DISPLAY LOCATION. REFER TO DRAWING E6.
- 5 WIRING FOR WALK-IN FRIDGE TO BE PULLED BACK/EXTENDED TO WALK-IN FRIDGE NEW LOCATION.
- 6 GRAB AND GO WIRING AND DISCONNECT TO BE REMOVED AND RELOCATED TO GRAB AND GO NEW LOCATION. CONDENSATION PUMP PLUG TO REMAIN. CONDENSATION PUMP TO BE PLUGGED IN AT NEW GRAB AND GO LOCATION. REFER TO DRAWING E6.
- 7 WIRING TO EXISTING SALAD BAR LOCATION TO BE PULLED BACK TO GROUND FLOOR CEILING SPACE AND EXTENDED TO NEW SALAD BAR LOCATION. REFER TO DRAWING E6. PROVIDE ADDITIONAL JUNCTION BOXES AS REQUIRED. ENSURE CORING ACTIVITIES ARE COORDINATED WITH THE OWNER. SEAL PENETRATION AFTER WIRING INSTALLATION. CORE HOLE FROM EXISTING WIRING TO BE FILLED/PATCHED. COORDINATE WITH ARCHITECTURAL.
- 8 RECEPTACLE TO BE DEMOLISHED. WIRING TO REMAIN IN PLACE/EXTENDED FOR NEW RECEPTACLES. REFER TO DRAWING E6.
- 9 DEMOLISH VENDING MACHINE RECEPTACLES. PULL BACK/EXTEND WIRING TO NEW VENDING MACHINE LOCATION. REFER TO DRAWING E6.
- 10 REMOVE AND RELOCATE VENDOR (PAPA JOHNS) EQUIPMENT POWER TO NEW LOCATION. REFER TO DRAWING E8.
- 11 REMOVE AND RELOCATE EXISTING P/A SPEAKER TO SUIT NEW VENDOR (PITA PIT) EQUIPMENT INSTALLATION. REFER TO DRAWING E8 FOR DETAILS.
- 12 REMOVE AND RELOCATE WATER FOUNTAIN RECEPTACLE TO NEW WATER FOUNTAIN LOCATION. REFER TO DRAWING E6.
- 13 REMOVE FRIDGE RECEPTACLE AND RELOCATE TO NEW LOCATION ON NEW WALL OF VENDOR (PAPA JOHNS) STORAGE. REFER TO E8 FOR DETAILS.
- 14 EXISTING LINE VOLTAGE DIMMING PANEL IS LOCATED BELOW LP-AV. REFER TO DETAIL 2/E12.



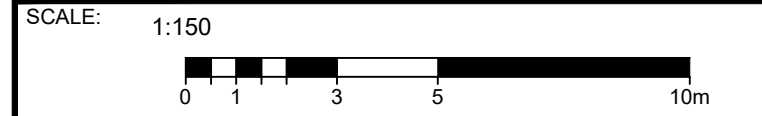
1 DEMOLITION POWER PLAN
SCALE: 1:150

- 8 RECEPTACLE TO BE DEMOLISHED. WIRING TO REMAIN IN PLACE/EXTENDED FOR NEW RECEPTACLES. REFER TO DRAWING E6.
- 9 DEMOLISH VENDING MACHINE RECEPTACLES. PULL BACK/EXTEND WIRING TO NEW VENDING MACHINE LOCATION. REFER TO DRAWING E6.
- 10 REMOVE AND RELOCATE VENDOR (PAPA JOHNS) EQUIPMENT POWER TO NEW LOCATION. REFER TO DRAWING E8.
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- 14 EXISTING LINE VOLTAGE DIMMING PANEL IS LOCATED BELOW LP-AV. REFER TO DETAIL 2/E12.

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ENGINEERS - ARCHITECTS - PLANNERS

CONSULTANT:

PROFESSIONAL STAMP

PROJECT:

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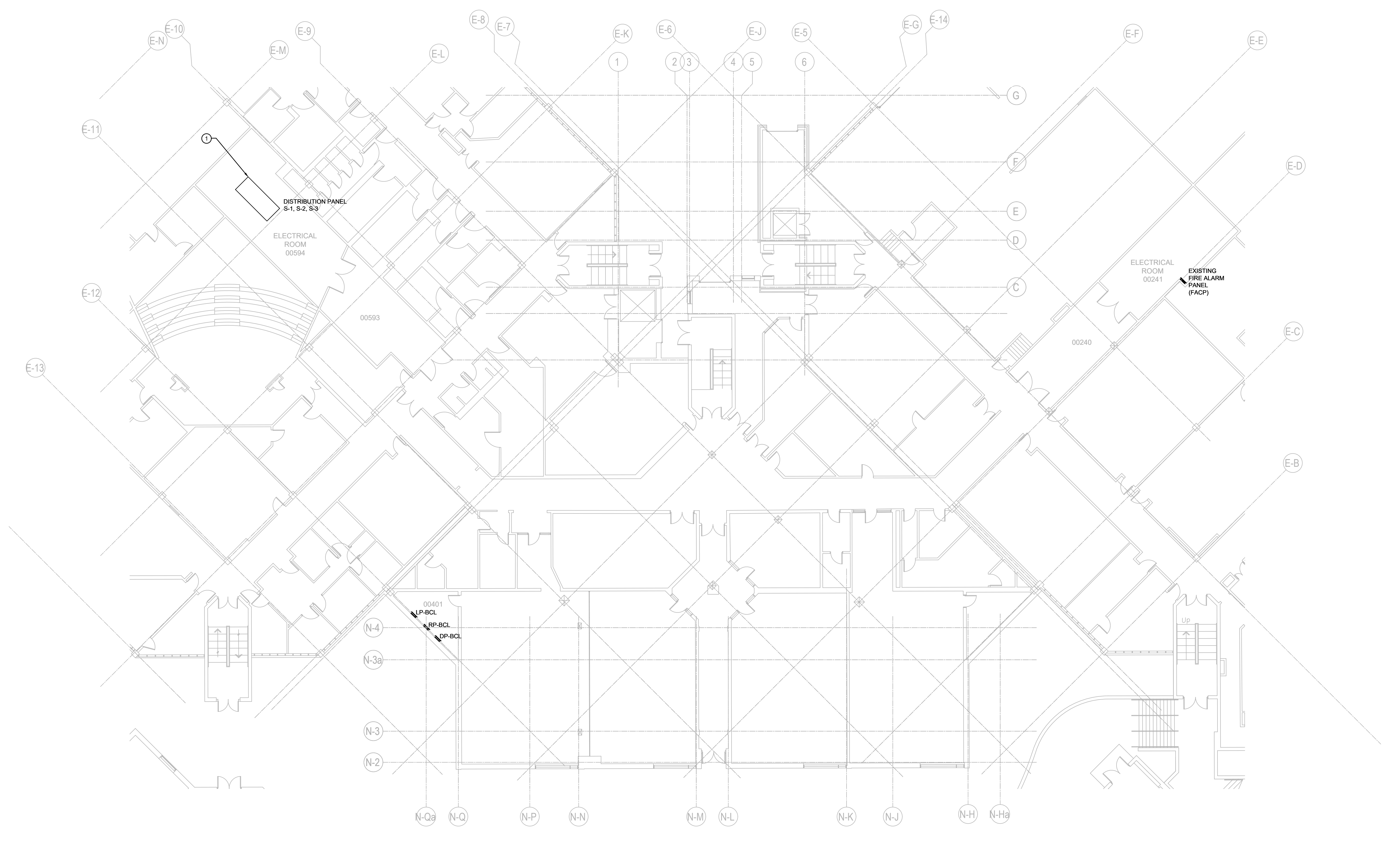
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DRAWING:

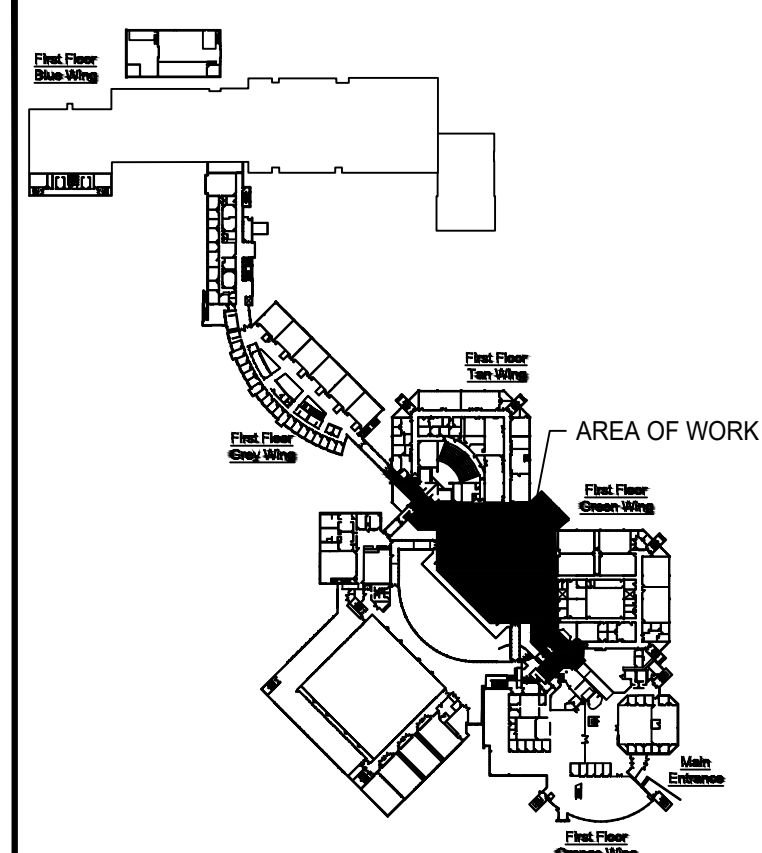
DEMOLITION POWER PLAN

DESIGN: BM	DRAWING #:
DRAWN: HV	E4
CHECKED: HM	
JLR #: 28389	

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1 GROUND FLOOR PLAN
E5 SCALE: 1:150



KEY PLAN



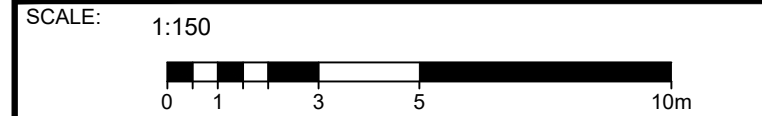
DRAWING NOTES:

- 1 BONDING WIRE TO BE PULLED FROM DP S-1 TO PANELS IN C114. REFER TO 4/E12 FOR DETAILS.

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LICENSED PROFESSIONAL ENGINEER
APR 17, 2019
B. J. M. MCGURIN
100182700
PROVINCE OF ONTARIO

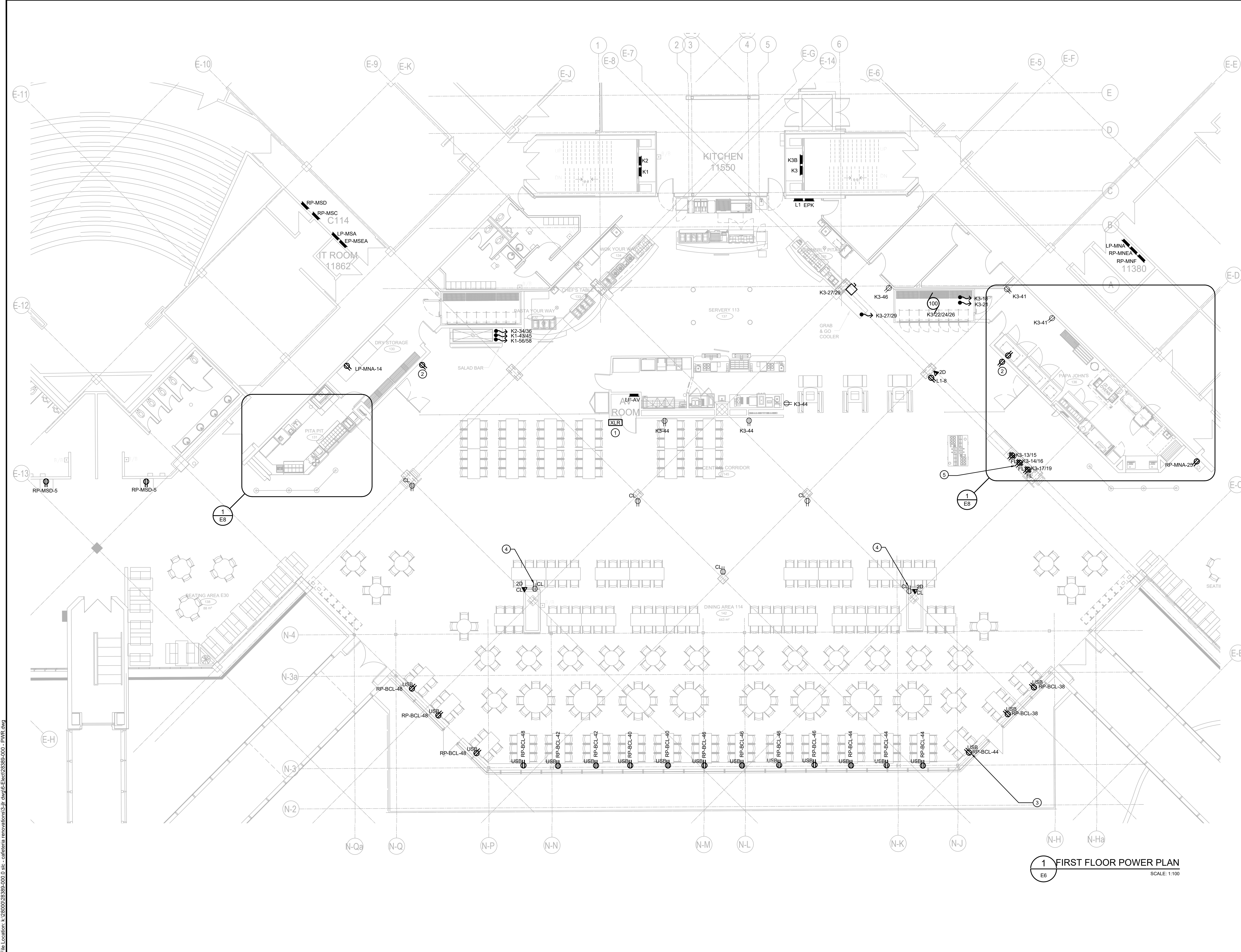
PROJECT NORTH

PROJECT:
ST. LAWRENCE COLLEGE CAFETERIA RENOVATION
100 PORTSMOUTH AVENUE, KINGSTON, ONTARIO

DRAWING:
GROUND FLOOR POWER PLAN

DESIGN: BM	DRAWING #:
DRAWN: HV	E5
CHECKED: HM	
JLR #: 28389	

PLOT DATE: Wednesday, April 17, 2019 4:04:47 PM

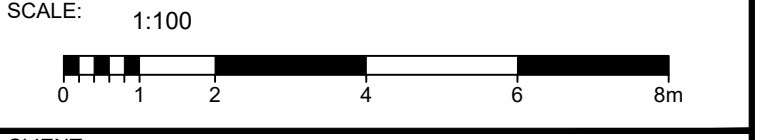


DRAWING NOTES:

- ① AUDIO SYSTEM STAGE XLR WIRING REMOVED FROM STAGE TO BE EXTENDED TO NEW LOCATION. A 6 CHANNEL XLR PLUG TO BE INSTALLED RECESSED ON EXTERIOR OF AV ROOM.
- ② NEW LOCATION OF TV DISPLAY RECEPTACLES. REFER TO ARCHITECTURAL DRAWINGS FOR TV MOUNTING HEIGHTS. (TYPICAL)
- ③ COORDINATE EXACT RECEPTACLE FEEDERS ROUTING FROM GROUND FLOOR ELECTRICAL ROOM UP TO FIRST FLOOR RECEPTACLES ON SITE. WIRING BETWEEN RECEPTACLES TO BE ROUTED/CONCEALED CASEWORK. COORDINATE WITH ARCHITECTURAL FOR THE INSTALLATION OF COUNTER TOP RECEPTACLES WITHIN SILL TOP. EXISTING SILL WILL NEED TO BE REMOVED IN ORDER TO RUN WIRING AND INSTALL RECEPTACLES. (TYPICAL)
- ④ COORDINATE WITH ARCHITECTURAL FOR POWERING NEW ELECTRONIC DISPLAY SCREEN FROM EXISTING CEILING MOUNTED RECEPTACLE. POWER WIRING AND DATA CABLE/CONDUIT TO BE CONCEALED BEHIND CEMENT BOARD BETWEEN ELECTRONIC DISPLAY AND CEILING MOUNTED RECEPTACLE/DATA DROP. REFER TO 6/A130, 8/A130, AND A200 FOR DETAILS.
- ⑤ RELOCATED MICROWAVE FLOOR RECEPTACLE FEEDS REFER TO 5/A130 & 4/A200 FOR ADDITIONAL DETAILS.

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CONSULTANT:

PROFESSIONAL STAMP 	PROJECT NORTH
------------------------	---------------

PROJECT:
ST. LAWRENCE COLLEGE CAFETERIA RENOVATION
 100 PORTSMOUTH AVENUE, KINGSTON, ONTARIO

DRAWING:
FIRST FLOOR POWER PLAN

DESIGN: BM	DRAWING #:
DRAWN: HV	E6
CHECKED: HM	
J.L.R.#: 28389	

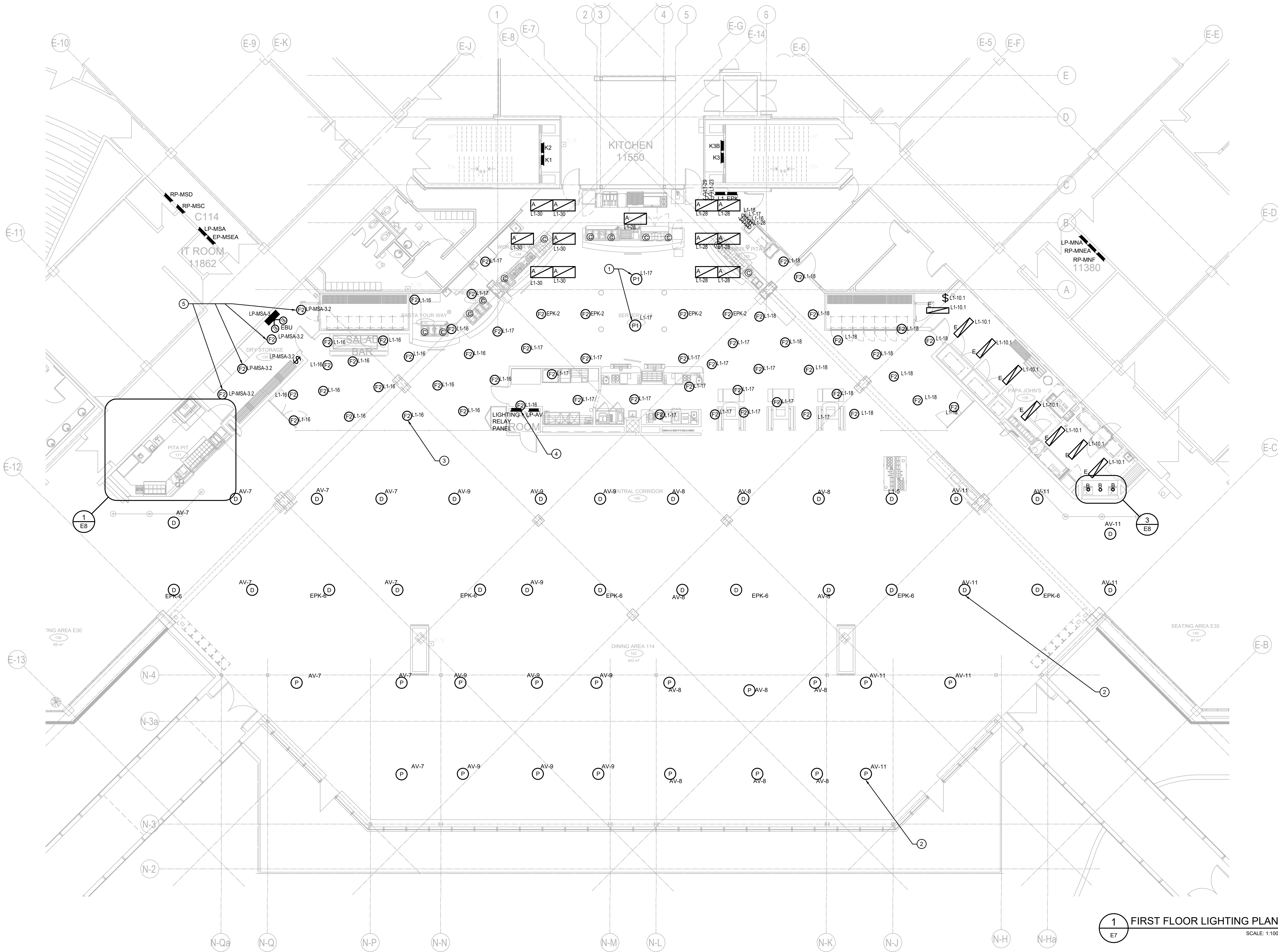
1 FIRST FLOOR POWER PLAN
 SCALE: 1:100

DRAWING NOTES:

- ① SUSPENDED AT 3050MM A.F.F.
- ② CONTRACTOR TO ALLOW FOR ADDITIONAL CONDUIT/WIRING/JUNCTION BOXES. FOR MINOR FIXTURE RELOCATION TO AVOID DUCTWORK AND SPRINKLER OBSTRUCTIONS TO ENSURE EACH NORTHWEST TO SOUTHWEST ROW OF LIGHT FIXTURES IS IN A STRAIGHT LINE. REVIEW EXISTING LIGHT FIXTURE LOCATIONS AT MANDATORY SITE VISIT DURING TENDER PERIOD. (TYPICAL)
- ③ CONTRACTOR TO ALLOW FOR ADDITIONAL CONDUIT/WIRING/JUNCTION BOXES FOR MINOR FIXTURE RELOCATION TO AVOID DUCTWORK AND SPRINKLER OBSTRUCTIONS. (TYPICAL)
- ④ LOW VOLTAGE LIGHTING PANEL TO BE MOUNTED UNDER LP-AV. REFER TO DRAWING 3/E12.
- ⑤ RE-CIRCUIT EXISTING LIGHT FIXTURES FROM NEW CIRCUIT AS INDICATED.

GENERAL NOTES:

A. COORDINATE NEW LIGHT FIXTURE INSTALLATION LOCATIONS PRIOR TO DEMOLITION OF EXISTING LIGHT FIXTURES.

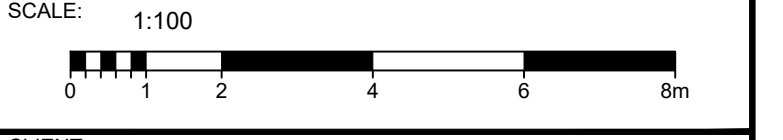


1 FIRST FLOOR LIGHTING PLAN
SCALE: 1:100

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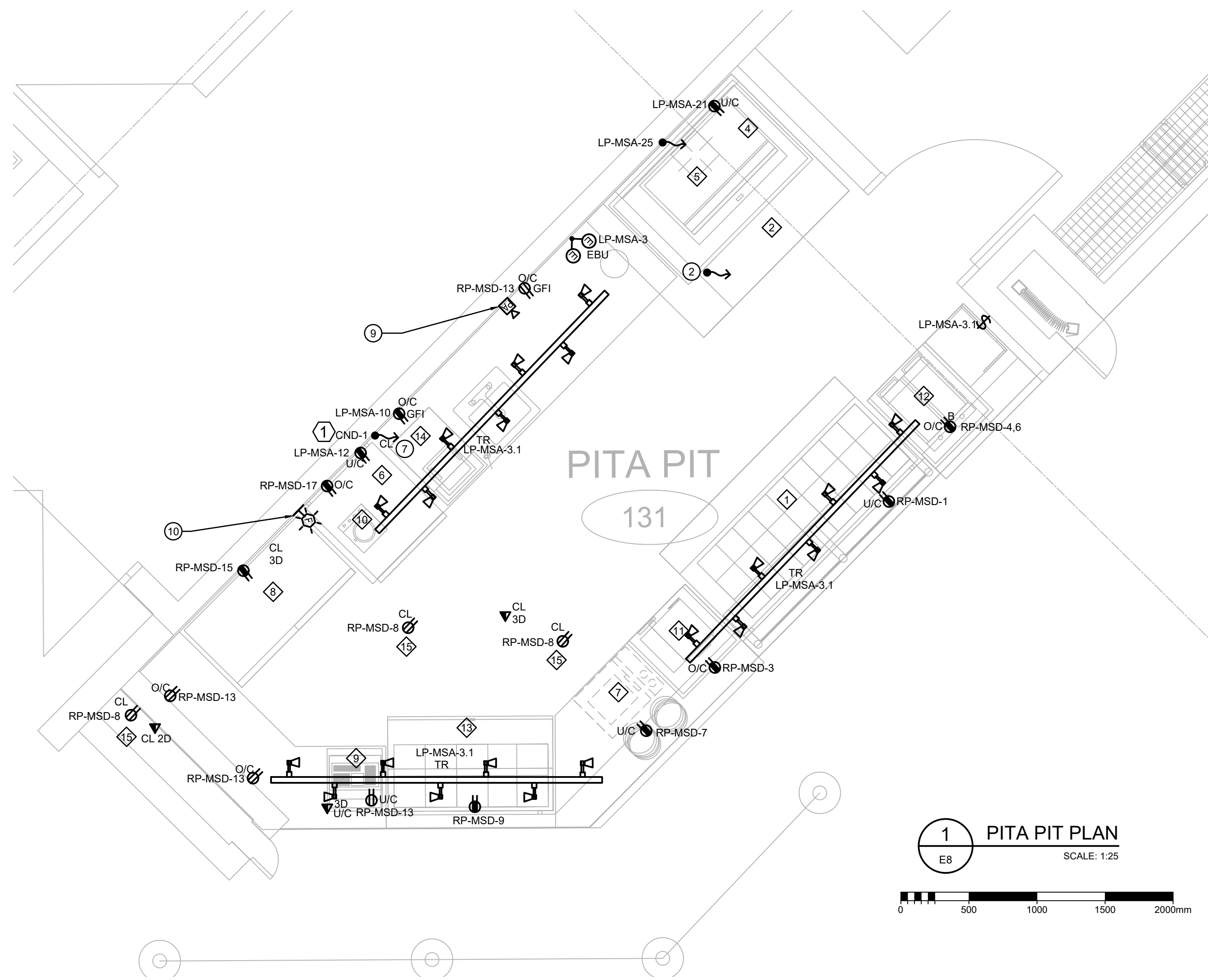
PROFESSIONAL STAMP

 PROJECT NORTH

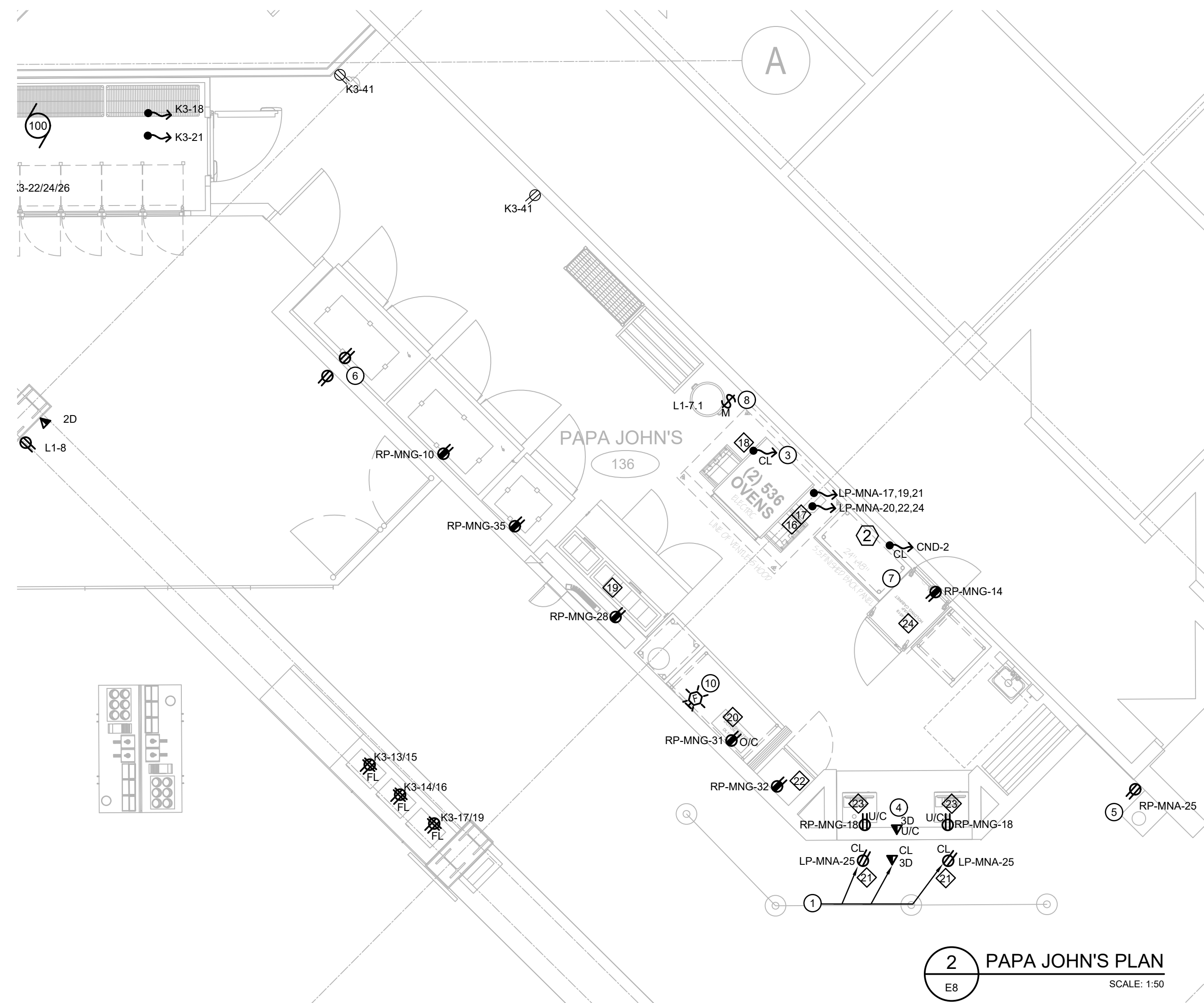
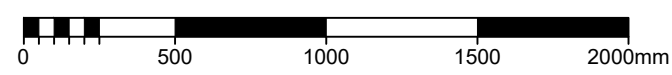
PROJECT:
ST. LAWRENCE COLLEGE CAFETERIA RENOVATION
100 PORTSMOUTH AVENUE, KINGSTON, ONTARIO

DRAWING:
FIRST FLOOR LIGHTING PLAN

DESIGN: BM	DRAWING #:
DRAWN: HV	E7
CHECKED: HM	
J.L.R.#: 28389	



1 PITA PIT PLAN
SCALE: 1:25

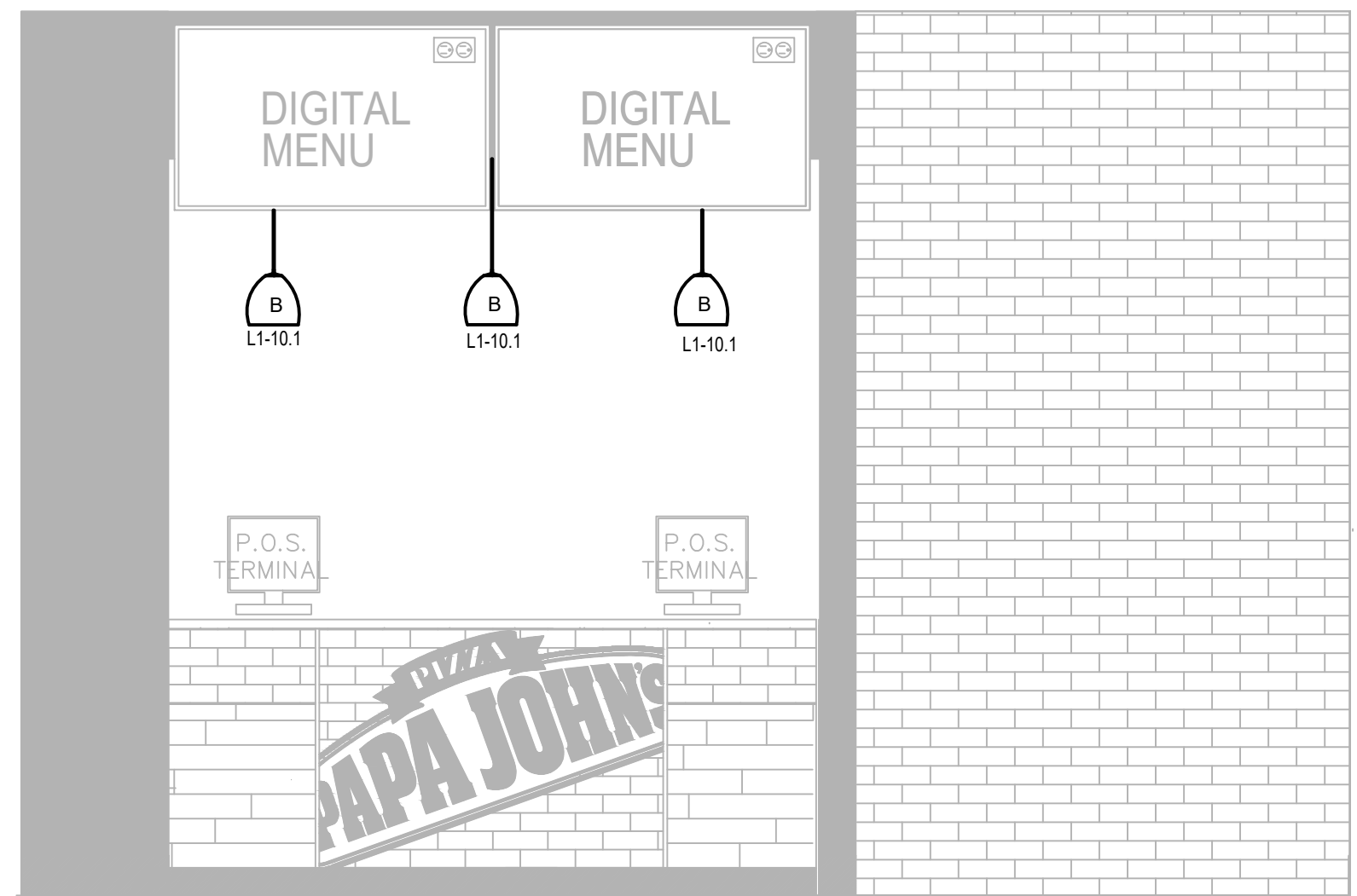


2 PAPA JOHN'S PLAN
SCALE: 1:50

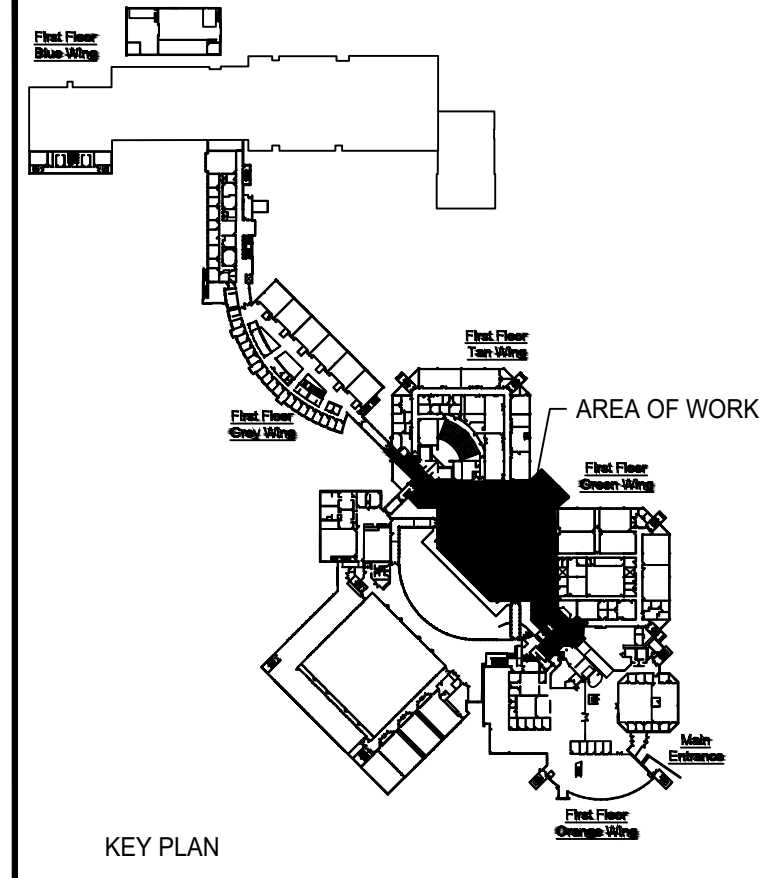
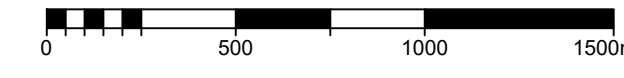


DRAWING NOTES:

- 1 DUPLEX RECEPTACLES AND DATA PORT TO BE MOUNTED IN FRONT FACE OF BULKHEAD FACING QUEUING AREA.
- 2 PITA PIT EXHAUST HOOD. REFER TO 1/E12 FOR DETAILS.
- 3 PAPA JOHN'S EXHAUST HOOD. REFER TO 5/E12 FOR DETAILS
- 4 DATA DROPS TO BE HOME RUN TO NEAREST IT ROOM. REFER TO E6.
- 5 NEW LOCATION FOR RELOCATED WATER FOUNTAIN. EXTEND CONDUIT/WIRING FROM EXISTING LOCATION TO SUIT.
- 6 RELOCATED FRIDGE RECEPTACLE NEW LOCATION.
- 7 AIR CONDITIONERS WIRED TO CONDENSERS ON ROOFTOP. REFER TO E9 FOR DETAILS.
- 8 PAPA JOHN'S GENERAL EXHAUST FAN ON/OFF SWITCH.
- 9 RELOCATED P/A SPEAKER.
- 10 EXTEND F/A WIRING TO NEW SPEAKER/STROBE FROM NEAREST EXISTING ADDRESSABLE DEVICE.



3 PAPA JOHN'S PENDANT LIGHTING
SCALE: 1:20



KEY PLAN



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SCALE: AS INDICATED

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CONSULTANT:

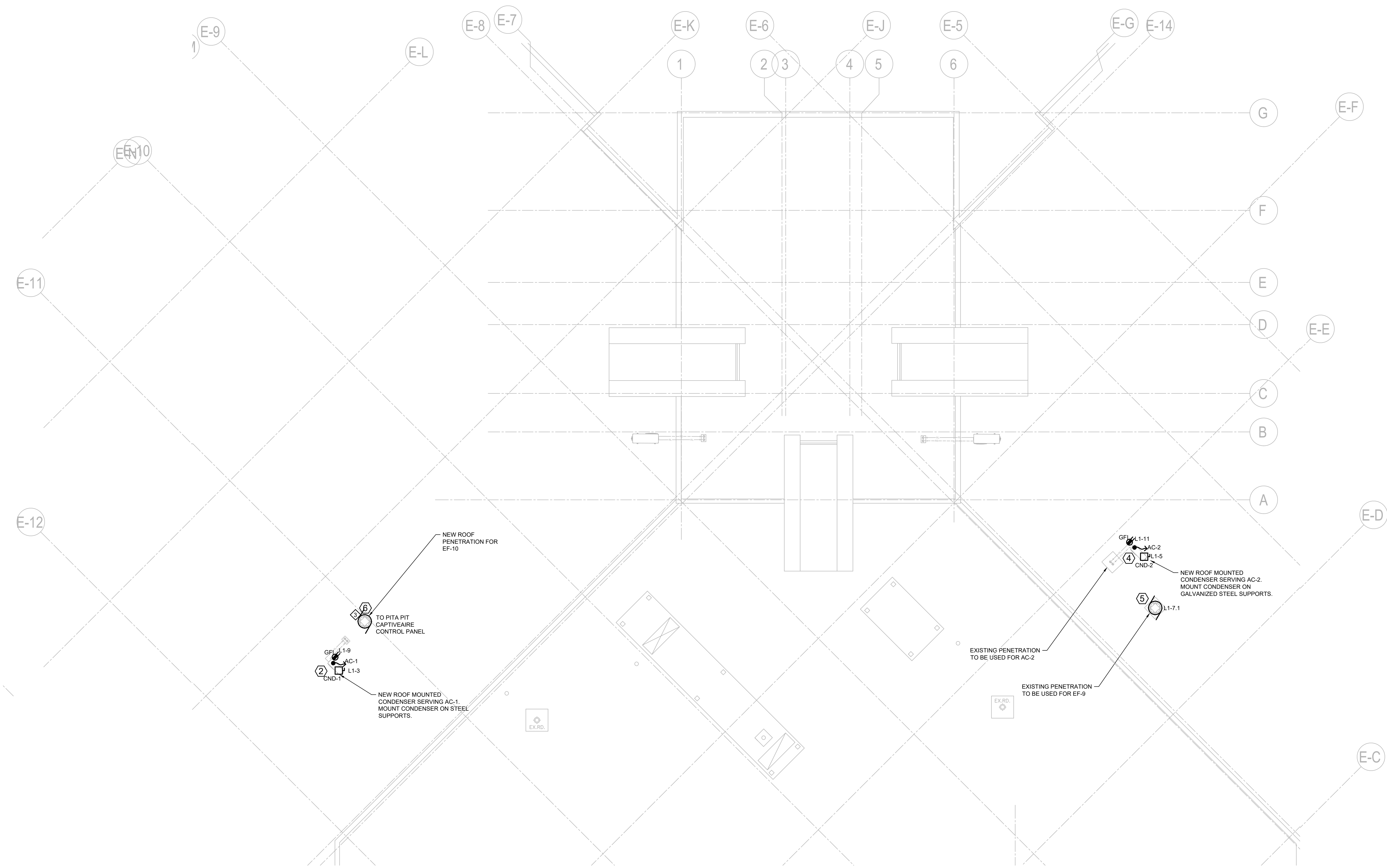
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PROJECT:
ST. LAWRENCE COLLEGE CAFETERIA RENOVATION
100 PORTSMOUTH AVENUE, KINGSTON, ONTARIO

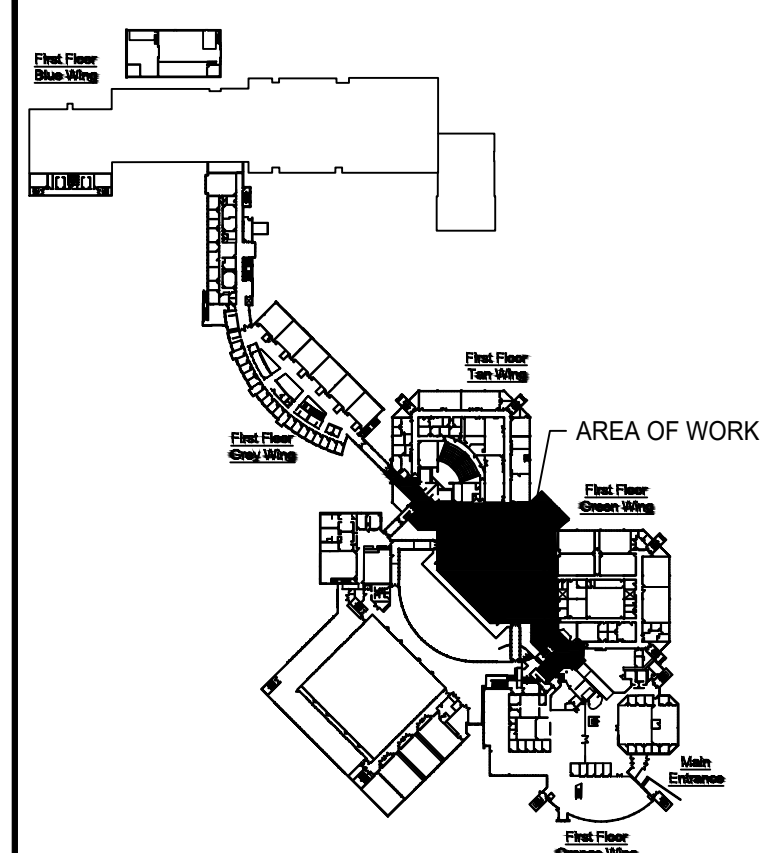
DRAWING:
FIRST FLOOR PLAN

DESIGN: BM	DRAWING #: E8
DRAWN: HV	
CHECKED: HM	
JLR # : 28389	

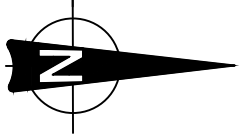
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1
E9
ROOFTOP PLAN
SCALE: 1:50_XREF



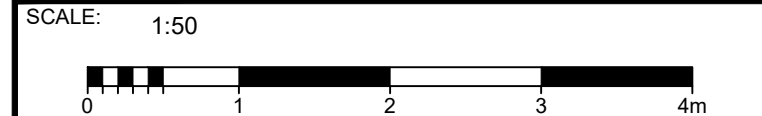
KEY PLAN



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1	ISSUED FOR CLIENT REVIEW	12/04/2019

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VERIFY SHEET SIZE AND SCALES. BAR TO THE RIGHT IS 25mm IF THIS IS A FULL SIZE DRAWING.



CLIENT:
St. Lawrence College

CONSULTANT:
J.L. Richards
ENGINEERS - ARCHITECTS - PLANNERS

CONSULTANT:

PROFESSIONAL STAMP 	PROJECT NORTH
------------------------	-------------------

PROJECT:
ST. LAWRENCE COLLEGE CAFETERIA RENOVATION
100 PORTSMOUTH AVENUE, KINGSTON, ONTARIO

DRAWING:
ROOFTOP ELECTRICAL PLAN

DESIGN: BM	DRAWING #:
DRAWN: HV	E9
CHECKED: HM	
JLR #: 28389	

PLOT DATE: Wednesday, April 17, 2019 4:05:21 PM

L1
120/208 VOLT, 3PH, 4W
225 AMP MAINS
SURFACE MOUNTED
100A FUSED DISCONNECT

LOAD	DESCRIPTION	BKR	CCT	CCT	BKR	DESCRIPTION	LOAD
	PITA PIT AC-1	25A, 1P	1	2	20A, 2P	BELL TOASTER - DELI BAR	
	PAPA JOHNS AC-2	25A, 1P	3	4	15A, 1P	EM LIGHTS - KITCHEN	
	PAPA JOHNS EF-9	15A, 1P	7	8	15A, 1P	EM LIGHTS - CORRIDOR 118	
	PITA PIT ROOFTOP AC RECEPT	20A, 1P	9	10	15A, 1P	EM LIGHTS - MAIN DINING HALL	
	PAPA JOHNS ROOFTOP AC RECEPT	20A, 2P	11	12	15A, 1P	SPACE	
	SPARE	15A, 1P	13	14	15A, 1P	SPACE	
	C-118	10A, 2P	15	16	15A, 1P	SPACE	
	CENTRAL SERVERY	15A, 1P	17	18	15A, 1P	SPACE	
	DRY STORAGE & JANITORS OFFICE	15A, 1P	19	20	15A, 1P	SPACE	
	DISHWASHING	20A, 1P	21	22	15A, 1P	SPACE	
	FLOODLIGHTS - SERVERY SKYLIGHT	15A, 1P	23	24	15A, 1P	SPACE	
	RECEIVING 002	15A, 1P	25	26	15A, 1P	SPACE	
	RECEIVING 002	15A, 1P	27	28	15A, 1P	SPACE	
	SPACE	15A, 1P	29	30	15A, 1P	SPACE	
	HOODLIGHTS - KITCHEN	15A, 1P	31	32	15A, 1P	SPACE	
	HOODLIGHTS - SERVERY	15A, 1P	33	34	15A, 1P	SPACE	
	SPARE	15A, 1P	35	36	15A, 1P	SPACE	
	CONTACTOR FOR DINING RM LIGHTS	15A, 2P	37	38	15A, 1P	SPACE	
	SPACE	15A, 1P	39	40	15A, 1P	SPACE	
	SPACE	15A, 1P	41	42	15A, 1P	SPACE	

TOTAL CONNECTED LOAD: 0 WATTS
PHASE LOAD TO BE FILLED IN BY CONTRACTOR:
LOAD PHASE A: _____ LOAD PHASE B: _____ LOAD PHASE C: _____

REMARKS
1. ALL LOADS ARE IN WATTS, UNLESS OTHERWISE NOTED.
2. † DEDICATED NEUTRAL
3. * GFI
4. ■ LOCKED
5. ▲ ARC FAULT CIRCUIT INTERRUPTER
6. ● SHUNT TRIP

K3
120/208 VOLT, 3PH, 4W
400 AMP MAINS
SURFACE MOUNTED
100A FUSED DISCONNECT

LOAD	DESCRIPTION	BKR	CCT	CCT	BKR	DESCRIPTION	LOAD
	SPARE	30A, 2P	1	2	15A, 2P	ESPRESSO	
	TIM HORTONS - SERVERY EAST WALL	20A, 2P	3	4	20A, 2P	TIM HORTONS - ICE CAPP MACHINE	
	UTILITY RECEPT. EAST WALL SERVERY	15A, 1P	9	10	15A, 1P	CASH REGISTER #1	
	CASH REGISTER #2	15A, 1P	11	12	15A, 1P	CASH REGISTER #3	
	CONDIMENT STATION MICROWAVE	15A, 1P	13	14	15A, 1P	CONDIMENT STATION MICROWAVE	
	CONDIMENT STATION MICROWAVE	15A, 1P	15	16	15A, 1P	CONDIMENT STATION MICROWAVE	
	CONVEYOR TOASTER	20A, 2P	17	18	15A, 1P	CONDIMENT STATION MICROWAVE	
	WALK-IN BEVERAGE COOLER EVAP	15A, 1P	21	22	15A, 3P	CONDIMENT STATION MICROWAVE	
	GRAB & GO CONDENSATION PUMP	20A, 1P	23	24	15A, 3P	CONDIMENT STATION MICROWAVE	
	PIZZA MERCHANDISER	20A, 1P	25	26	15A, 3P	CONDIMENT STATION MICROWAVE	
	OPEN REFRIGERATOR DISPLAY CASE	20A, 2P	27	28	15A, 3P	CONDIMENT STATION MICROWAVE	
	OPEN REFRIGERATOR DISPLAY CASE	20A, 2P	29	30	15A, 3P	CONDIMENT STATION MICROWAVE	
	LIGHT COVER ITEM 102	15A, 1P	31	32	15A, 3P	CONDIMENT STATION MICROWAVE	
	REFRIGERATED SANDWICH UNIT (102)	15A, 1P	33	34	15A, 3P	CONDIMENT STATION MICROWAVE	
	COUNTER RECEPT. NORTH WALL	15A, 1P	35	36	15A, 3P	CONDIMENT STATION MICROWAVE	
	MICROWAVE SERVERY NORTH WALL	15A, 1P	37	38	15A, 3P	CONDIMENT STATION MICROWAVE	
	SPARE	20A, 1P	39	40	15A, 3P	CONDIMENT STATION MICROWAVE	
	WALL RECEPT	15A, 1P	41	42	15A, 3P	CONDIMENT STATION MICROWAVE	
	MENU BOARD RECEPTS	15A, 1P	43	44	15A, 3P	CONDIMENT STATION MICROWAVE	
	RECEPT. FOOD SERVICE	15A, 1P	45	46	15A, 3P	CONDIMENT STATION MICROWAVE	
	WALL RECEPT	15A, 1P	47	48	15A, 3P	CONDIMENT STATION MICROWAVE	
	SPARE	15A, 1P	49	50	15A, 3P	CONDIMENT STATION MICROWAVE	
	AUDIO VISUAL RECEPT. CAFE CEILING	15A, 1P	51	52	15A, 3P	CONDIMENT STATION MICROWAVE	
	AUDIO VISUAL RECEPT. CAFE CEILING	15A, 1P	53	54	15A, 3P	CONDIMENT STATION MICROWAVE	
	AUDIO VISUAL RECEPT. CAFE CEILING	15A, 1P	55	56	15A, 3P	CONDIMENT STATION MICROWAVE	
	AUDIO VISUAL RECEPT. CAFE CEILING	15A, 1P	57	58	15A, 3P	CONDIMENT STATION MICROWAVE	
	AUDIO VISUAL RECEPT. CAFE CEILING	15A, 1P	59	60	15A, 3P	CONDIMENT STATION MICROWAVE	
	AUDIO VISUAL RECEPT. CAFE CEILING	15A, 1P	61	62	15A, 3P	CONDIMENT STATION MICROWAVE	
	SPARE	15A, 1P	63	64	15A, 3P	CONDIMENT STATION MICROWAVE	
	TIMS	30A, 2P	65	66	15A, 3P	CONDIMENT STATION MICROWAVE	
	SOUP KETTLE	20A, 2P	67	68	15A, 3P	CONDIMENT STATION MICROWAVE	
	SPACE	15A, 1P	69	70	15A, 3P	CONDIMENT STATION MICROWAVE	
	SPACE	15A, 1P	71	72	15A, 3P	CONDIMENT STATION MICROWAVE	

TOTAL CONNECTED LOAD: 0 WATTS
PHASE LOAD TO BE FILLED IN BY CONTRACTOR:
LOAD PHASE A: _____ LOAD PHASE B: _____ LOAD PHASE C: _____

REMARKS
1. ALL LOADS ARE IN WATTS, UNLESS OTHERWISE NOTED.
2. † DEDICATED NEUTRAL
3. * GFI
4. ■ LOCKED
5. ▲ ARC FAULT CIRCUIT INTERRUPTER
6. ● SHUNT TRIP

LP-MSA
120/208 VOLT, 3PH, 4W
225 AMP MAINS
SURFACE MOUNTED
100A FUSED DISCONNECT

LOAD	DESCRIPTION	BKR	CCT	CCT	BKR	DESCRIPTION	LOAD
	SPARE	20A, 1P	1	2	20A, 1P	RM 11830 - 4' FLUR (N13)	
	PITA PIT LIGHTING	15A, 1P	3	4	20A, 1P	S-227	
	SPARE	20A, 1P	5	6	20A, 1P	S-258	
	PROJECTION - 240	20A, 1P	7	8	20A, 1P	RM 11847 - 4' FLUR (118)	
	RM 11830 - 4' FLUR (N6)	20A, 1P	9	10	20A, 1P	PITA PIT YOGURT MACHINE	
	S-260	20A, 1P	11	12	20A, 1P	PITA PIT SMOOTHIE COOLER	
	LOUNGE RECEPT	20A, 1P	13	14	20A, 1P	DRY STORAGE FRIDGE	
	RM 11830 - 4' FLUR (N14)	20A, 2P	15	16	15A, 1P	RM 11850 - 5' 4' FLUR (N5)	
	SPARE	15A, 1P	17	18	15A, 1P	RM 11850 - 5' 4' FLUR (N6) OFFICE LIGHT	
	SPARE	15A, 1P	19	20	20A, 1P	S-250	
	PITA PIT CHEFS BASE	20A, 1P	21	22	15A, 1P	TENDING MACHINE	
	PITA PIT CHEFS BASE SHUNT TRIP	20A, 1P	23	24	15A, 1P	SPARE	
	PITA PIT GRIDDLE	20A, 1P	25	26	15A, 2P	SPARE	
	PITA PIT GRIDDLE SHUNT TRIP	20A, 1P	27	28	15A, 1P	SPARE	
	PITA PIT HOOD FAN CONTROL	15A, 1P	29	30	15A, 1P	SPARE	
	PITA PIT HOOD EXHAUST FAN	15A, 1P	31	32	15A, 1P	SPARE	
	C-113 - W REGR	15A, 1P	33	34	15A, 1P	SPARE	
	SPARE	15A, 1P	35	36	15A, 1P	SPARE	
	SPARE	15A, 1P	37	38	15A, 1P	SPARE	
	SPLIT - MALL MICROWAVE	15A, 2P	39	40	15A, 1P	C-P&P S-217	
	SPACE	15A, 1P	41	42	15A, 1P	C-115-GF RECESSED (X28)	

TOTAL CONNECTED LOAD: 0 WATTS
PHASE LOAD TO BE FILLED IN BY CONTRACTOR:
LOAD PHASE A: _____ LOAD PHASE B: _____ LOAD PHASE C: _____

REMARKS
1. ALL LOADS ARE IN WATTS, UNLESS OTHERWISE NOTED.
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3. * GFI
4. ■ LOCKED
5. ▲ ARC FAULT CIRCUIT INTERRUPTER
6. ● SHUNT TRIP

EM-K
120/208 VOLT, 3PH, 4W
225 AMP MAINS
SURFACE MOUNTED
100A FUSED DISCONNECT

LOAD	DESCRIPTION	BKR	CCT	CCT	BKR	DESCRIPTION	LOAD
	EM LIGHTS - RECEIVING AREA	15A, 1P	1	2	15A, 1P	EM LIGHTS - KITCHEN	
	EM LIGHTS - KITCHEN	15A, 1P	3	4	15A, 1P	EM LIGHTS - CORRIDOR 118	
	EM LIGHTS - BASEMENT	15A, 1P	5	6	15A, 1P	EM LIGHTS - MAIN DINING HALL	
	SPACE	15A, 1P	7	8	15A, 1P	SPACE	
	SPACE	15A, 1P	9	10	15A, 1P	SPACE	
	SPACE	15A, 1P	11	12	15A, 1P	SPACE	
	SPACE	15A, 1P	13	14	15A, 1P	SPACE	
	SPACE	15A, 1P	15	16	15A, 1P	SPACE	
	SPACE	15A, 1P	17	18	15A, 1P	SPACE	
	SPACE	15A, 1P	19	20	15A, 1P	SPACE	
	SPACE	15A, 1P	21	22	15A, 1P	SPACE	
	SPACE	15A, 1P	23	24	15A, 1P	SPACE	
	SPACE	15A, 1P	25	26	15A, 1P	SPACE	
	SPACE	15A, 1P	27	28	15A, 1P	SPACE	
	SPACE	15A, 1P	29	30	15A, 1P	SPACE	

TOTAL CONNECTED LOAD: 0 WATTS
PHASE LOAD TO BE FILLED IN BY CONTRACTOR:
LOAD PHASE A: _____ LOAD PHASE B: _____ LOAD PHASE C: _____

REMARKS
1. ALL LOADS ARE IN WATTS, UNLESS OTHERWISE NOTED.
2. † DEDICATED NEUTRAL
3. * GFI
4. ■ LOCKED
5. ▲ ARC FAULT CIRCUIT INTERRUPTER
6. ● SHUNT TRIP

LP-MNA
120/208 VOLT, 3PH, 4W
225 AMP MAINS
SURFACE MOUNTED
100A FUSED DISCONNECT

LOAD	DESCRIPTION	BKR	CCT	CCT	BKR	DESCRIPTION	LOAD
	C107, C108, C109	20A, 1P	1	2	20A, 1P	SPARE	
	RM 11430	20A, 1P	3	4	20A, 1P	SPARE	
	SPARE	20A, 1P	5	6	20A, 1P	RM 11440, 114430, 11380	
	RM 11400	20A, 1P	7	8	20A, 1P	RM 11375	
	RM 11400	20A, 1P	9	10	20A, 1P	SPARE	
	SPARE	20A, 1P	11	12	20A, 1P	RM 11450	
	RM 11300	20A, 1P	13	14	30A, 3P	C-STORE ROOF TEMP	
	RM 11310	20A, 2P	15	16	30A, 3P	C-STORE ROOF TEMP	
	PAPA JOHNS PIZZA OVENS	50A, 3P	17	18	50A, 3P	PAPA JOHNS PIZZA OVENS	
	SPARE	15A, 1P	19	20	15A, 1P	SPARE	
	PAPA JOHNS TV DISPLAYS	15A, 1P	21	22	15A, 2P	RM 11370 - SPLIT REC.	
	SPARE	15A, 1P	23	24	15A, 1P	SPARE	
	SPARE	15A, 1P	25	26	15A, 1P	SPARE	
	SPARE	15A, 1P	27	28	15A, 1P	SPARE	
	SPARE	15A, 1P	29	30	15A, 1P	SPARE	
	SPARE	15A, 1P	31	32	15A, 1P	USB RECEPT	
	SPARE	15A, 1P	33	34	15A, 1P	USB RECEPT	
	YENDING MACHINE BY PAPA JOHNS	15A, 1P	35	36	15A, 1P	USB RECEPT	
	YENDING MACHINE BY PAPA JOHNS	15A, 1P	37	38	15A, 1P	USB RECEPT	
	SPARE	15A, 1P	39	40	15A, 1P	RM 11370 - REC.	
	SPARE	15A, 1P	41	42	15A, 1P	SPARE	

TOTAL CONNECTED LOAD: 0 WATTS
PHASE LOAD TO BE FILLED IN BY CONTRACTOR:
LOAD PHASE A: _____ LOAD PHASE B: _____ LOAD PHASE C: _____

REMARKS
1. ALL LOADS ARE IN WATTS, UNLESS OTHERWISE NOTED.
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3. * GFI
4. ■ LOCKED
5. ▲ ARC FAULT CIRCUIT INTERRUPTER
6. ● SHUNT TRIP

RP-MSD
120/208 VOLT, 3PH, 4W
225 AMP MAINS
SURFACE MOUNTED
100A FUSED DISCONNECT

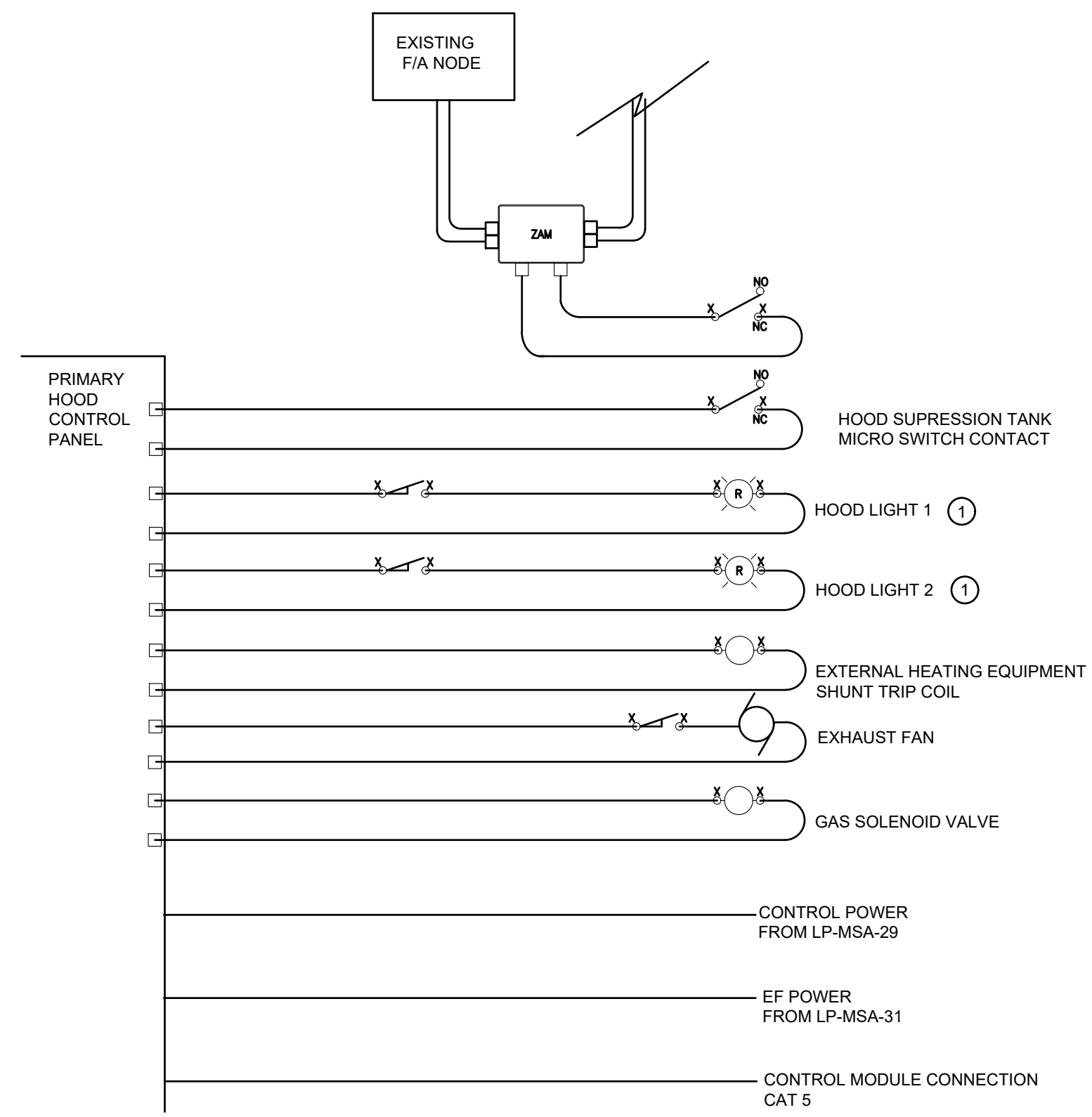
LOAD	DESCRIPTION	BKR	CCT	CCT	BKR	DESCRIPTION	LOAD
	PITA PIT PITA STATION	20A, 1P	1	2	15A, 1P	MOTORIZED SCREEN	
	PITA PIT STEAMER	20A, 1P	3	4	15A, 2P	PITA PIT TOASTER	
	SPARE	15A, 1P	5	6	15A, 1P	SPARE	
	PITA PIT MICROWAVE	20A, 1P	7	8	15A, 1P	PITA PIT MENU DISPLAY	
	PITA PIT FRUIT FREEZER	20A, 1P	9	10	15A, 1P	SPARE	
	COUNTER RM 327	20A, 1P	11	12	15A, 1P	CASH REGISTER	
	PITA PIT COUNTER/POS RECEPT	20A, 1P	13	14	15A, 1P	COFFEE MACHINE	
	PITA PIT BEVERAGE COOLER	20A, 1P	15	16	15A, 1P	SPARE	
	PITA PIT BLENDER	20A, 1P	17	18	15A, 1P	NEW THEATRE LIGHTS	
	SPARE	20A, 1P	19	20	20A, 1P	NEW THEATRE LIGHTS	
	PRINTER RM 1571	15A, 1P	21	22	15A, 1P	NEW THEATRE LIGHTS	
	SPARE	15A, 1P	23	24	15A, 1P	COFFEE MACHINE	
	SPARE	15A, 1P	25	26	20A, 1P	COFFEE MACHINE	
	CAFETERIA LOUNGE COUNTER	15A, 1P	27	28	15A, 1P	SPARE	
	CAFETERIA LOUNGE SPLIT RECEPT	15A, 2P	29	30	15A, 1P	SPARE	
	SPARE	15A, 1P	31	32	15A, 1P	SPARE	
	SPARE	15A, 1P	33	34	15A, 1P	SPARE	
	SPARE	15A, 1P	35	36	15A, 1P	SPARE	
	SPARE	15A, 1P	37	38	15A, 1P	SPARE	
	JOHNSON CONTROL PANEL	15A, 1P	39	40	15A, 1P	C-P&P S-217	
	PLUG S-217	15A, 1P	41	42	15A, 1P	C-115-GF RECESSED (X28)	

TOTAL CONNECTED LOAD: 0 WATTS
PHASE LOAD TO BE FILLED IN BY CONTRACTOR:
LOAD PHASE A: _____ LOAD PHASE B: _____ LOAD PHASE C: _____

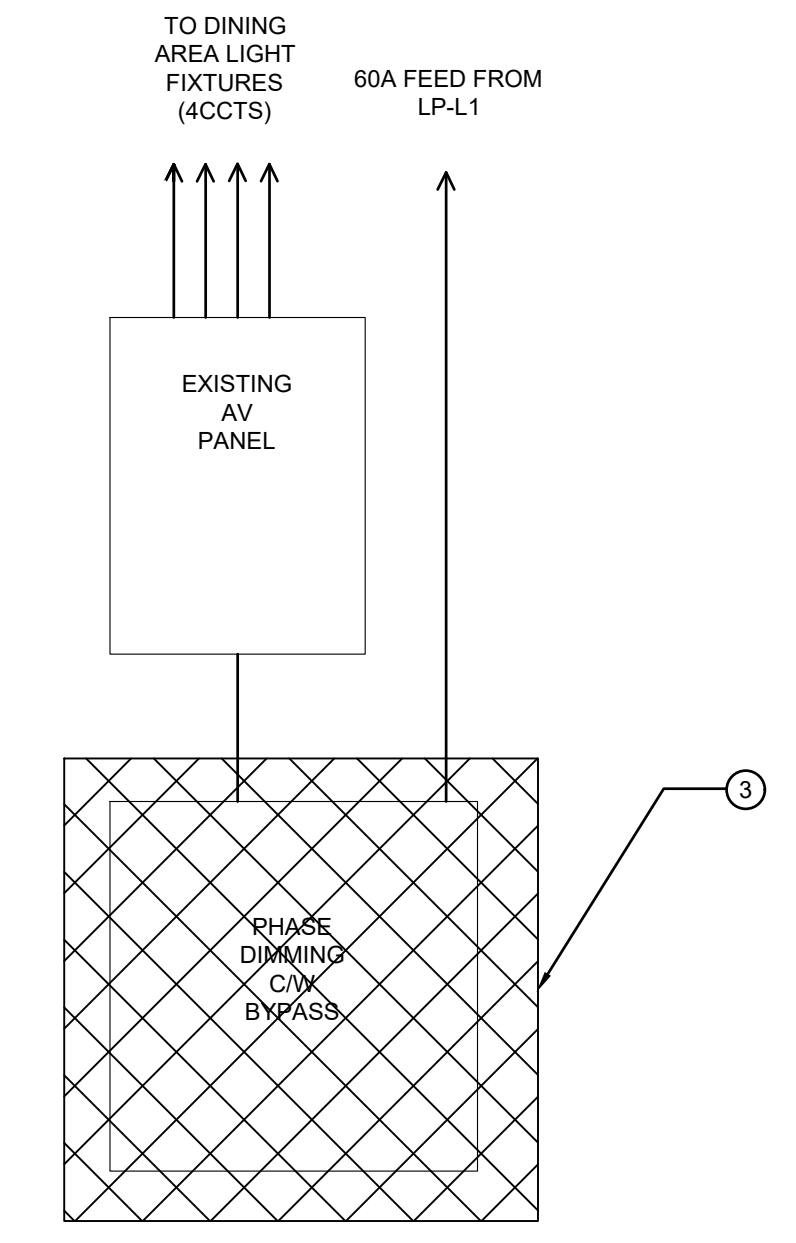
REMARKS
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3. * GFI
4. ■ LOCKED
5. ▲ ARC FAULT CIRCUIT INTERRUPTER
6. ● SHUNT TRIP

RP-MNG
120/208 VOLT, 3PH, 4W
225 AMP MAINS
SURFACE MOUNTED
100A FUSED DISCONNECT

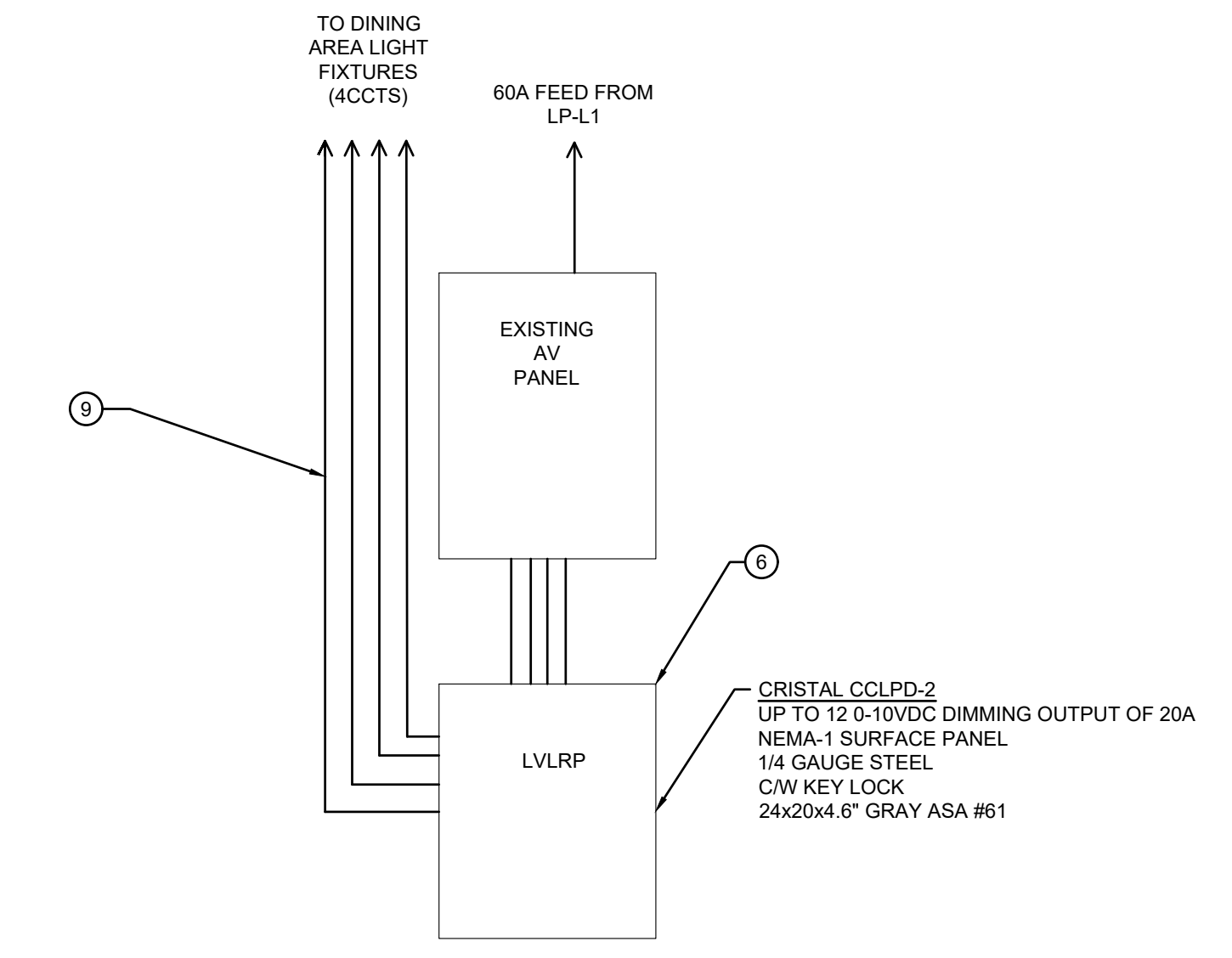
LOAD	DESCRIPTION	BKR	CCT	CCT	BKR	DESCRIPTION	LOAD
	RM 11220 JEFFY POLE	15A, 1P	1	2	20A, 2P	RM 11170 - S(COFFEE MACHINE)	
	RM 11230, 11180	15A, 1P	3	4	15A, 1P	RM 11210	
	COUNTER RECEPTACLE	15A, 1P	5	6	15A, 1P	RM 11210	
	COUNTER RECEPTACLE	15A, 1P	7	8	15A, 1P	ATM	
	RECEPTACLE UNDER MIRROR	15A, 1P	9	10	20A, 1P	RM 11170 - W DOUBLE FRIDGE	
	RM 11170 - COMPUTER	15A, 1P	11	12	15A, 1P	RM 11170 - W DOUBLE FRIDGE	
	RM 11230 - HAND DRYER MENS	15A, 2P	13	14	20A, 1P	RM 11170 S PIZZA WARMER	
	PAPA JOHNS HOOD FAN	20A, 2P	17	18	15A, 1P	HALL LIGHTS	
	SPARE	15A, 1P	19	20	20A, 1P	RM 11170 - CASH	
	RM 11240 - HAND DRYER WOMENS	15A, 1P	21	22	30A, 2		



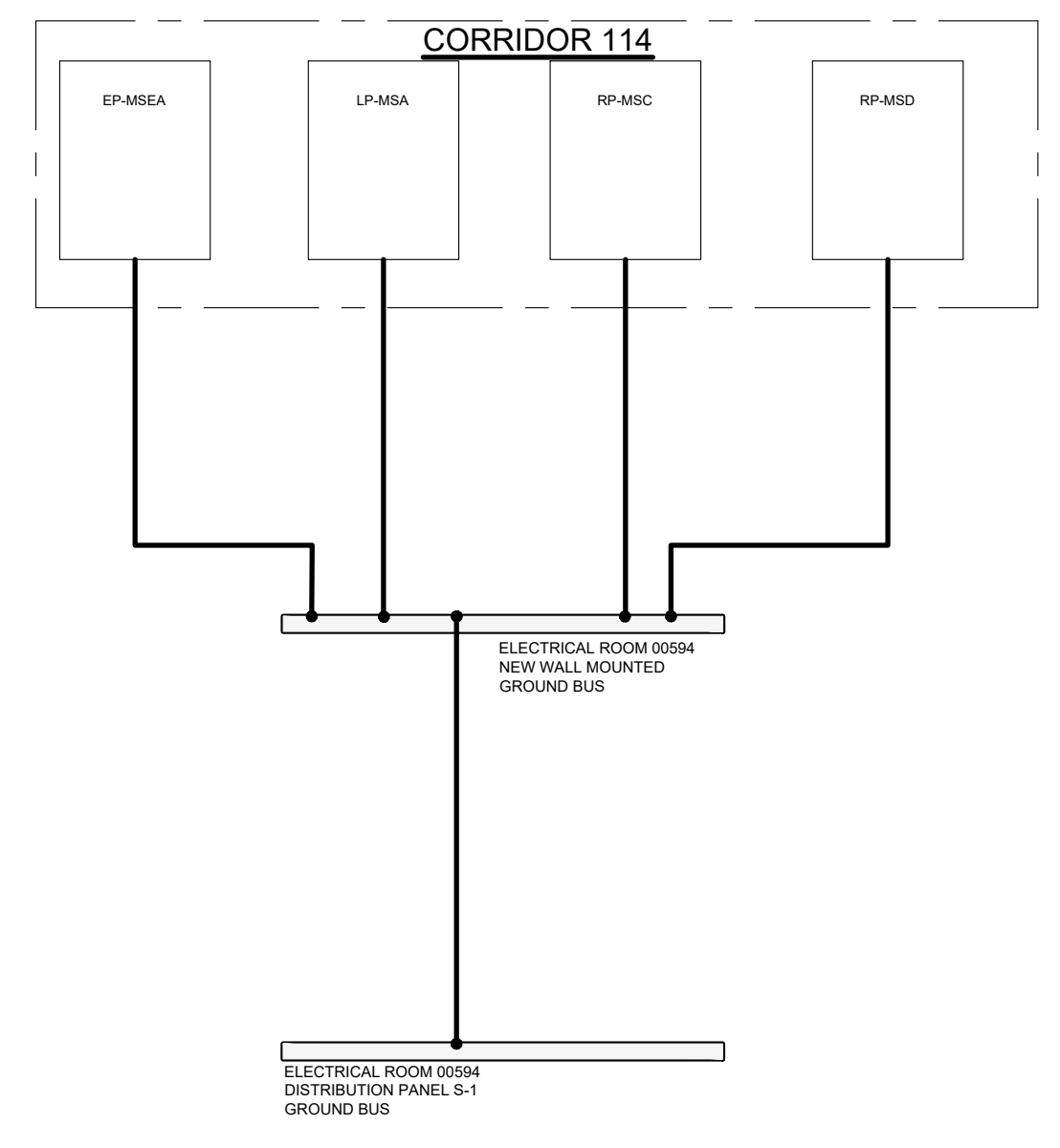
1 PITA PIT HOOD WIRING SCHEMATIC
E12 SCALE: N.T.S.



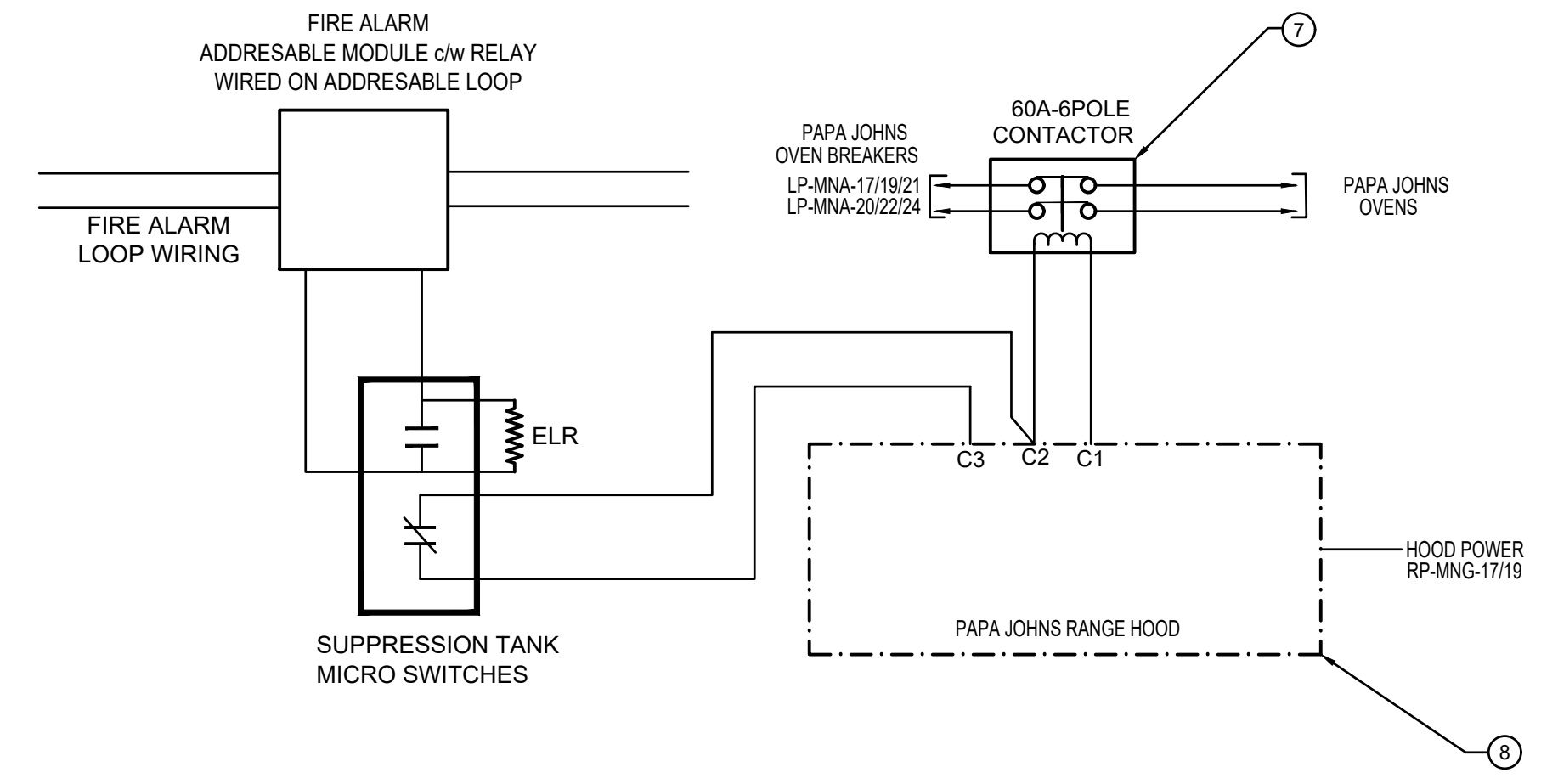
2 DINING AREA EXISTING LIGHTING CONTROL
E12 SCALE: N.T.S.



3 DINING AREA NEW LIGHTING CONTROL
E12 SCALE: N.T.S.



4 COORIDOR 114 PANEL BONDING PLAN
E12 SCALE: N.T.S.



5 PAPA JOHNS HOOD AND FIRE SUPPRESSION WIRING DETAIL
E12 SCALE: N.T.S.

GENERAL NOTES:

A. ENSURE ALL KITCHEN HOOD INSTALLATIONS CONFORM TO THE REQUIREMENTS OF NFPA 96.

B. WHEN THE PITA PIT KITCHEN HOOD FIRE SUPPRESSION IS ACTIVATED THE FOLLOWING SEQUENCE OF OPERATION SHALL OCCUR:

- EXHAUST FAN ON
- ELECTRICAL DEVICES UNDER HOOD OFF
- GAS SUPPLY OFF

- DRAWING NOTES:**
- WIRE TO JUNCTION BOX ON TOP OF HOOD.
 - MICRO SWITCH CONTACT MAY BE ACTIVATED BY MANUAL PULL STATION OR AUTOMATICALLY.
 - CONTRACTOR TO REMOVE EXISTING PHASE DIMMING EQUIPMENT C/W ASSOCIATED APPURTENANCES. EXISTING 60A FEED TO BE PULLED BACK AND EXTENDED DIRECTLY TO LP-AV AS REQUIRED.
 - PROVIDE BONDING CONDUCTORS TO ALL PANELS AS PER THE ONTARIO ELECTRICAL SAFETY CODE. CONTRACTOR TO USE SPARE CONDUITS FROM ROOM 00593 THAT EXTEND UP INTO RESPECTIVE PANELS.
 - FOR ADDITIONAL DETAILS ON HOOD WIRING REFER TO SHOP DRAWINGS AND OPERATIONS MANUALS.
 - CONTRACTOR TO COORDINATE WITH SLC BUILDING AUTOMATION CONTRACTOR FOR INTEGRATION OF LOW VOLTAGE LIGHTING PANEL FOR ON/OFF CONTROL BASED ON SCHEDULE.
 - CONTRACTOR TO PROVIDE 6-POLE CONTACTOR, JUNCTION BOXES AND CONDUIT/WIRING FOR PAPA JOHNS HOOD CONNECTIONS.
 - FOR ADDITIONAL WIRING DETAILS REFER TO EQUIPMENT OPERATIONAL & SERVICE MANUAL.
 - PROVIDE CONDUIT AND WIRE FROM LVRCF AS REQUIRED TO INTERCEPT EXISTING BRANCH CIRCUITS FOR DINING ROOM LIGHTING.

3	ISSUED FOR TENDER	17/04/2019
2	ISSUED FOR CLIENT REVIEW	16/04/2019
1	ISSUED FOR CLIENT REVIEW	12/04/2019
No.	ISSUE / REVISION	DD/MM/YY

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SCALE: N.T.S.

CLIENT:

St. Lawrence College

CONSULTANT:

J.L. Richards
ENGINEERS - ARCHITECTS - PLANNERS

CONSULTANT:

PROFESSIONAL STAMP

PROJECT NORTH

LICENSED PROFESSIONAL ENGINEER
APR 17, 2019
B.J.M. MCGURIN
100182700
PROVINCE OF ONTARIO

PROJECT:

ST. LAWRENCE COLLEGE CAFETERIA RENOVATION

100 PORTSMOUTH AVENUE, KINGSTON, ONTARIO

DRAWING:

DETAILS

DESIGN:	BM	DRAWING #:	E12
DRAWN:	HV		
CHECKED:	HM		
JLR #:	28389		