The following changes in the tender documents are effective immediately. This addendum will form part of the contract documents.

SPECIFICATIONS

1. SECTION 26 05 00- COMMON WORK RESULTS FOR ELECTRICAL

.1 PART 1 - GENERAL, Add the following:

1.6 COORDINATION STUDY

.1 The work of the Coordination Study shall include:
- .1 Liaison with the local Utility for information on relays and other protective devices, and system and substation capacities which affect the coordination of this system for both primary and any standby feeders.
- .2 Liaison with distribution equipment and switchgear manufacturers to obtain actual trip curves of existing and proposed protective devices for new & existing equipment.
- .3 Sending a trained and qualified representative on site to gather data on existing equipment within the scope of the study; such as transformers, cables, and lengths, breakers, fuses, and all adjustable protective device settings. The information gathered will include the method of installation where such installation impacts upon the Study (e.g. method of cable installation reflecting upon the allowable ampacity of the cable).
- .4 Recommendations shall be included, listing all deficiencies within the scope of the study and proposing methods of correction for each deficiency.

.2 The Coordination Study report shall include the following:
- .1 Each Time-Current graph shall be printed in colour. The selected colours will allow the end-user to easily discriminate between different device curves, especially on complicated graphs where devices overlap.
- .2 The Time-Current curves shall be drawn on special log-log graphs with time coordinate range of 0.01 to 1,000 seconds and current coordinate ranges of 4

orders. Separate graphs are to be provided for phase and ground protection for each portion of the system. The entire distribution system shall be subdivided into portions so that the curve for each device clearly shows its relationship to associated upstream and downstream devices. The coordination study should separate the emergency power from the normal power distributions. Each graph for a portion of the system shall include/show the following:

.1 The portion of the distribution system represented by the devices on the graph shall be represented by a single line diagram drawn in the corner of the Time-Current coordination graph.

.2 Each device curve shall end at the 3 phase symmetrical fault level calculated for that bus.

.3 Cable, Bus, or Conductor damage curves shall be shown where appropriate. All Transformer inrush, damage and overload curves shall be shown.

.4 Motor starting curves and protective devices shall be shown for all motors larger than 75 HP.

.5 On the graphs, or on the same page as the graph, all protective device curves within the scope of the graph shall be shown with the following information:

.1 Relay curves with text indicating; Manufacturer, Type, Current Transformer size, Tap or Pickup setting, Time Dial settings, and curve type.

.2 Fuse curves with average melting curve for low voltage fuses and minimum melt and total clearing for high voltage fuses with text indicating; Manufacturer, Type, Ampacity, Voltage, and Speed.

.3 Static-Trip Breaker curves with text indicating; Breaker and Trip Unit Manufacturer and type, Current Transformer and Sensor Type, and all trip unit settings.

.4 Thermal-Magnetic Breaker curves with text indicating; Breaker type, Trip rating, and instantaneous trip settings.

.3 Include tables within the Study that clearly list all protective devices within the scope of the study and all associated information. These tables are to be based on settings established and noted in the coordination curves. The tables shall be logically arranged and grouped to effectively present the following information. The tables shall include:
- .1 Relays; including manufacturer, type, curve, CT, and all protective settings.
- .2 Transformers; including size, type, manufacturer, configuration, voltage, and impedance.
- .3 Fuses; including manufacturer, type, ampacity, voltage, speed.
- .4 Static Trip Units; including manufacturer, type, CT, sensor or plug, all protective settings.
- .5 Thermal-Magnetic Trip Units; including manufacturer, rating, and instantaneous setting.
- .6 Motor Protectors (Overloads); include manufacturer, type, rating, all protective settings.
- .7 All protective devices shall be listed with clear descriptive text to identify their place within the distribution system.
- .8 All protective devices shall have a reference to the Time-Current graph where they are shown.

.4 The tables shall list all existing and recommended settings of all protective devices within the scope of the study. This will allow the end-user to identify and plan for required changes to protective device settings, and to determine which settings have been implemented and modified.

1.7 SHORT CIRCUIT/ DEVICE EVALUATION

.1 The work of the Short Circuit study shall include:
- .1 Evaluation and documentation of three phase single phase & ground fault short STUDY circuit fault levels at all distribution busses, motor control centres and main panel board locations within the scope listed above.

.2 The output of the short circuit study shall be a printed tabulation of asymmetrical and symmetrical RMS short circuit current values for both

interrupting duty and momentary duty, including X/R ratios.

.3 All significant sources and impedances shall be evaluated, including but not limited to, Utility and Emergency Sources, motors, cables and their lengths, transformers, reactors, and any other devices impacting upon the available short circuit.

.2 The work of the device evaluation study shall include:

.1 All pertinent interrupting devices within the scope of the job shall be listed with its interrupting rating or its series interrupting rating as applicable.

.2 A cross reference in table form shall be provided whether the protective devices at each bus are appropriate for the available fault current at each bus.

.2 PART 3 - EXECUTION, Add the following:

3.9 FIELD ADJUSTMENT

.1 Adjust relay and protective device settings according to the recommended settings table provided by the coordination study. Field adjustments to be completed by the engineering service division of the equipment manufacturer under the Startup and Acceptance Testing contract portion.

.2 Make minor modifications to equipment as required to accomplish conformance with short circuit and protective device coordination studies.

.3 Notify Owner in writing of any required major equipment modifications.

2. SECTION 26 09 43- NETWORK LIGHTING CONTROLS

.1 Item 2.4.5, revise as follows:

.5 Low voltage cables: one end prepared for field installation with locknutless box connector and 150 mm tails with mini-quick connector prepared for connection to low voltage switch kit or occupancy sensors kit. Other end complete with mini quick-connector for connection to the **LIC** enclosure control ports.

.2 Item 3.1.20, revise as follows:

.20 The contractor shall run all networked LIC module cable plant and open office area zone switch cable plant to the existing lighting control panel located on the **1st** floor east electrical room. These cables shall be run to the second floor lighting control panel via an existing dual conduit riser located in the 1st floor East electrical room. Termination of all cables and conductors in the lighting control panel shall be done by others.

3. SECTION 26 50 00- LIGHTING - APPENDIX LUMINAIRE DESCRIPTION

.1 Type 1, revise as follows:

Dimensions: 1219 mm long. **Join fixtures where shown on the drawings.**

Housing: One piece aluminum construction **c/w sculpted end caps**.

Mounting: Suspended from T-Bar ceiling with underside of fixture at 2180 mm above finished floor even with top of door frame. Make necessary adjustment on site to meet this requirement. **Suspension height to be adjustable on site.**

Ballast: Dimming ballast **(analogue 0-10V)** for T5HO lamps**. Fixtures located in closed offices will be dimmed via a single scene wall dimmer.**

Remarks: 5 wire power/control cord (30”) white colour suspension kit. 5 wire cord shall terminate in J-box c/w caddy clip for T-bar mounting with modular connector compatible with connection requirements to LIC modules in ceiling. Entire cord assembly/J-box shall be factory assembled and connected for field installation without disconnecting for reconnecting wiring terminations. Cord assembly shall pass through the respective canopy cover. Entire cord assembly, canopy, J-box, receptacle shall be completely factory assembled to the fixture housing such that the contractor has no wiring termination requirements on site. The contractor to be able to simply physically mount the fixture to the T-bar ceiling and plug in the power source for energizing. Entire fixture/cord assembly shall be such that the complete assembly can be relocated within T-bar grid system without any wiring changes. Tie rap cord to suspension cable at location along the cable. Maximum weight: 15 lbs. Minimum efficiency of 85%. **Fixture to be shipped as a complete assembly include all cables and connectors.**

.2 Type 2, Add the following:

Remarks: **1. This fixture shall be dimmed via a multi-scene dimmer switch. Refer to drawings for typical details on modular plug-in cable connections to dimmer switches and wall washers.**

.2 Each wall washer shall come with factory installed plug and receptacles to accommodate dimming control.

4. <u>SECTION 28 31 00.02 - MULTIPLEX FIRE ALARM AND VOICE COMMUNICATION SYSTEMS</u>

.1 Item 2.1.1, revise as follows:

.1 The existing system consists of a Siemens, model MXLV, 2 stage fire/voice communications system. All materials must be selected to ensure, compatibility with existing fire alarm system. All work shall be performed by Chubb Edwards, the maintenance contractor.