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Addenda No. 2

Owner: Correctional services Canada
Project: Switchgear replacement – Drummond establishment
File No.: SCCG4-00216812
Date: April 1st 2015

Please acknowledge receipt of this addenda by listing it on page 1 of the tender form; omission may be cause for rejection.

This addenda is comprised of 2 pages, 17 photos and 7 pages (devis)

This addenda is an integral part of the tender document and modifies it as follows:

1. PLANS E-02 AND E-03 OF 3 (NO DRAWING EMMITED)

- The height of the cabinet over the section n° 1 is 552 mm.

2. SUPPLEMENTARY INSTRUCTIONS

- For the temporary electrical power from the 500 kW generator, supply and install a 600 A 3Ø 4W repartition box, two 200A disconnect c/w 200A fuses for T1000 transformer and CCC PP-1000. Distance from the generator location and load to be connected, is about 70 m. Supply the electrical wire from the generator to the load.
- Circuit breaker settings must be factory done before installation work.
- If required, to keep the 1m free space in front of the main breaker once it is draw-out, replace the existing wall cabinet for Hydro-Quebec measuring unit by one of 750 mm x 750 mm x 250 mm. Place the left side of the new cabinet at the same place the existing one was.

3. PHOTOS

- Photos of the existing installation are attached with this addenda.

4. DEVIS

- Section 01 11 00 :
 - Addition of the point 1.3.1.5.

- Section 26 23 00 :
 - Addition of the articles 1.7 to 1.9 and 2.13.
 - Modification of article 3.5.

- Section 26 28 16.01
 - Modification of article 2.3.3.

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Enclosed 17 photos and 7 pages (devis)

PART 1 GENERAL

1.1 REFERENCES

- .1 National Building Code of Canada (NBC) 2010, including all amendments up to the date of bid closing.

1.2 RELATED REQUIREMENTS

- .1 Section 01 35 13 Project procedures in compliance with Correctional Service Canada security requirements.

1.3 DESCRIPTION OF THE WORK

- .1 The project includes the following work. The list below is not necessarily exhaustive and in no way releases the Contractor from the obligation of carrying out the project in its entirety according to generally accepted practices as well as the intentions and general principles as described in these specifications and drawings.
 - .1 4000A Switch gear replacement.
 - .2 Installation of a remote control for five breakers.
 - .3 Calibrate the new circuit breaker and protection relays.
 - .4 Provide temporary power for the identified loads.
 - .5 Coordinate work done by Hydro-Québec and payment of applicable fees.

1.4 SITE INSPECTION BY BIDDERS

- .1 For security reasons at the penitentiary, the site inspection shall be conducted at a set time that will be specified in the tender documents. The meeting place will be the main entrance of the institution concerned. **The site inspection is mandatory.**
- .2 The Contractor shall examine the site and conditions that could have an impact on the work prior to submitting his proposal. Submitting a bid indicates that the bidder accepts the terms and conditions of the solicitation and agrees to be bound by them.

1.5 SECURITY SCREENING

- .1 All workers shall undergo security screening in order to be granted a security classification as required by the Correctional Service of Canada and Public Works and Government Services Canada.
- .2 Section 01 35 13 provides a detailed description of the procedures involved in the security screening.

1.4 CLOSEOUT SUBMITTALS

- .1 Operation and Maintenance Data: submit operation and maintenance data for low voltage switchgear and components for incorporation into manual.

1.5 WARRANTY

- .1 Provide a valid manufacturer's warranty for a period of 18 month after delivery or 12 month after start up whichever comes first.

1.6 DELIVERY, STORAGE AND HANDLING

- .1 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.
- .2 Storage and Handling Requirements:
 - .1 Store materials indoors in dry location and in accordance with manufacturer's recommendations, in a clean and dry, well-ventilated area.
 - .2 Store and protect low voltage switchgear from nicks, scratches, and blemishes.
 - .3 Replace defective or damaged materials with new.
- .3 Packaging Waste Management: remove packaging materials and dispose of them in the location designated by the representative of the institution.

① 1.7 FACTORY QUALITY CONTROLE

- .1 The representative of the CSC or the engineer can require to assist to the final factory testing.
- .2 When the factory installation of the switchgear is completed, inform the CSC representative or the engineer 7 day before the factory testing date.
- .3 Supply five copy of the factory testing results, certified by the engineer of the factory, or by independent testing laboratory approved by the representative of the CSC.

1.8 PROTECTION COORDINATION STUDY

- .1 Supply a protection coordination study for all circuit breakers include in the switchgear. Include the time/current curve for each type of circuit breaker.

1.9 WORKS INSPECTION

- .1 During the installation of the switchgear, inspect constantly the work done. Supply an inspection rapport including the following information, this list is not limitative:
 - .1 Verified work;

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- .2 Switchgear physical installation work;
 - .3 Electrical connection to the power source;
 - .4 Electrical connection to the load side of circuit breaker;
 - .5 Verification of the mechanical solidity and electrical continuity of factory made connections;
 - .6 Ground connection;
 - .7 Verification of amperage and settings of circuit breaker to insure the proper protections.

PART 2 PRODUCTS

2.1 MATERIALS

- .1 Switchgear assembly must be built in accordance to CSA C22.2 No.31 and EEMAC G8-2. Switchgear must be SIMENS FC II or approved equivalent.

2.2 RATING

- .1 Secondary switchgear: 600 V, 4000 A, 3 phases, 4 wire, 60 Hz, minimum short circuit capacity 65000 A (rms symmetrical).

2.3 ENCLOSURE

- .1 Switchgear must be built in gray ASA 61color and in a EEMAC 1 type casing.
- .2 Switchgear must be built of vertical section bolted together to form a rigid assembly. Sides, top and back must be covered with bolted removable steel plates of proper caliber.
- .3 Each section must have name plate in steel with:
 - .1 Manufacturer's name
 - .2 System's voltage
 - .3 Rated ampere
 - .4 Type
 - .5 Manufacturer's PO # and date
- .4 Each section must have CSA marking and sticker showing short-circuit rating.
- .5 Main incoming section must have 4000A rating and include 3 sections:
 - .1 One section with:
 - .1 Main air circuit breaker, 4000A type Siemens WL, draw out with calibration sheet of 3200A and Hydro-Quebec measuring compartment.

- .7 VA Reading
- .8 total harmonic distortion reading
- .9 Power factor
- .10 Energy consumption meter

2.9 INSTRUMENT TRANSFORMERS

- .1 PT's: CAN3-C13, dry type, indoor.
- .2 PT's with separated fuse holder.
- .3 CT'S: Can3-C13-M86, Dry type, indoor.

2.10 POWER SUPPLY AUTHORITY METERING

- .1 Arrange with authority having jurisdiction for supply of mounting accessories and wiring for metering as follows:
 - .1 Use existing equipment.

2.11 FINISHES

- .1 Apply finishes.
 - .1 Cubicle exteriors gray.
 - .2 Cubicle interiors gray.

2.12 EQUIPMENT IDENTIFICATION

- .1 Nameplates:
 - .1 25 x 100 mm, 3 lines, 6 mm high letter.
 - .2 Complete switchgear labelled: voltage, system configuration and main bus ampacity.
 - .3 Main cubicle labelled: "Main Breaker".
 - .4 Distribution units labelled: "Load description and ampacity".

① 2.13 FACTORY ASSEMBLY

- .1 Completely assemble and pre-wire the switchgear.
- .2 Power the switchgear and verify the phase rotation of each load circuit.
- .3 Verify secondary measure instruments.

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- .4 Adjust protection settings as close as possible of the existing switchgear setting.
 - .5 At the end of the tests, prepare the switchgear for shipping in one or more sections, place necessary junction materials with the sections.

PART 3 EXECUTION

3.1 EXAMINATION

- .1 Verification of Conditions: verify that conditions of substrate previously installed under other Sections or Contracts are acceptable for low voltage switchgear installation in accordance with manufacturer's written instructions.
 - .1 Visually inspect substrate in presence of Departmental Representative and Consultant.
 - .2 Inform Departmental Representative and Consultant of unacceptable conditions immediately upon discovery.
 - .3 Proceed with installation only after unacceptable conditions have been remedied and after receipt of written approval to proceed from Departmental Representative and Consultant.

3.2 INSTALLATION

- .1 Locate switchgear assembly as indicated and bolt to floor.
- .2 Connect main secondary power supply to main bus.
- .3 Connect load side of breakers in distribution cubicles to distribution feeders.
- .4 Check factory made connections for mechanical security and electrical continuity.
- .5 Run one grounding conductor 4/0 AWG bare copper in 25 mm conduit from ground bus to ground.
- .6 Check trip unit settings against co-ordination study to ensure proper working and protection of components.

3.3 CLEANING

- .1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.
- .2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.
- .3 Waste Management: separate waste materials for disposal in accordance with SCC representative.

3.4 PROTECTION

- .1 Protect installed products and components from damage during construction.
- .2 Repair damage to adjacent materials caused by low voltage switchgear installation.

① 3.5 START-UP AND TESTS

- .1 Start-up must be done by a qualified manufacturer's technician or approved by manufacturer.
- .2 Place all switchgear circuit breaker and switches in « open » position
- .3 Verify all circuit breaker settings to insure the proper settings.
- .4 Verify long delay, short delay, instantaneous and ground fault settings of the circuit breaker, in conformity with the coordination protection study value.
- .5 Place the main circuit breaker in « close » position following the manufacturer instructions.
- .6 Verify electrical resistivity of contact junction.
- .7 Verify with calibrated measure instrument if voltage value are normal and equal on each phases. Verify and adjust the voltage measurement instruments on the switchgear.
- .8 Place all circuit breaker in « closed » position.
- .9 Verify voltage on switchgear measurement instruments for each phases.
- .10 Measure amperage on each phases with a calibrated and approved for that purpose instrument. Verify the amperage measuring unit on the switchgear. Verify the phases balancing.
- .11 Manually operate, two time, each loading mechanical operating system to ensure the mechanism work properly.
- .12 Electrically operate, two time, the opening mechanism and closing mechanism of each circuit breaker.
- .13 Verify each accessory on each circuit breaker.
- .14 Draw out every draw able equipment to ensure proper operation and alignment of the mechanism.
- .15 Verify each load circuit of the switchgear.
- .16 Give the CSC representative the test rapport.

This list is not limitative, all tests required must be added to this list.

END OF SECTION

- .9 Ready to close indicator signifying that all conditions are met to close the breaker (load of the spring, interlock, etc...).
- .10 Handle on circuit breaker to put the breaker in position in/test/out.
- .6 In addition, the Main Breaker must have a measuring module that includes the following feature:
 - .1 Phase lost protection.
 - .7 Current sensors of the breaker must be of Rogowski type.
 - .8 Breaker conception must allow on site addition of modules like "Shunt trip", Closing coil, reload coil, etc.
 - .9 Trip unit must be ETU745 type and include a LCD display.
 - .10 Trip unit must allow on site addition of input/output modules, zone selected interlock (ZSI) without having to draw out the breaker.

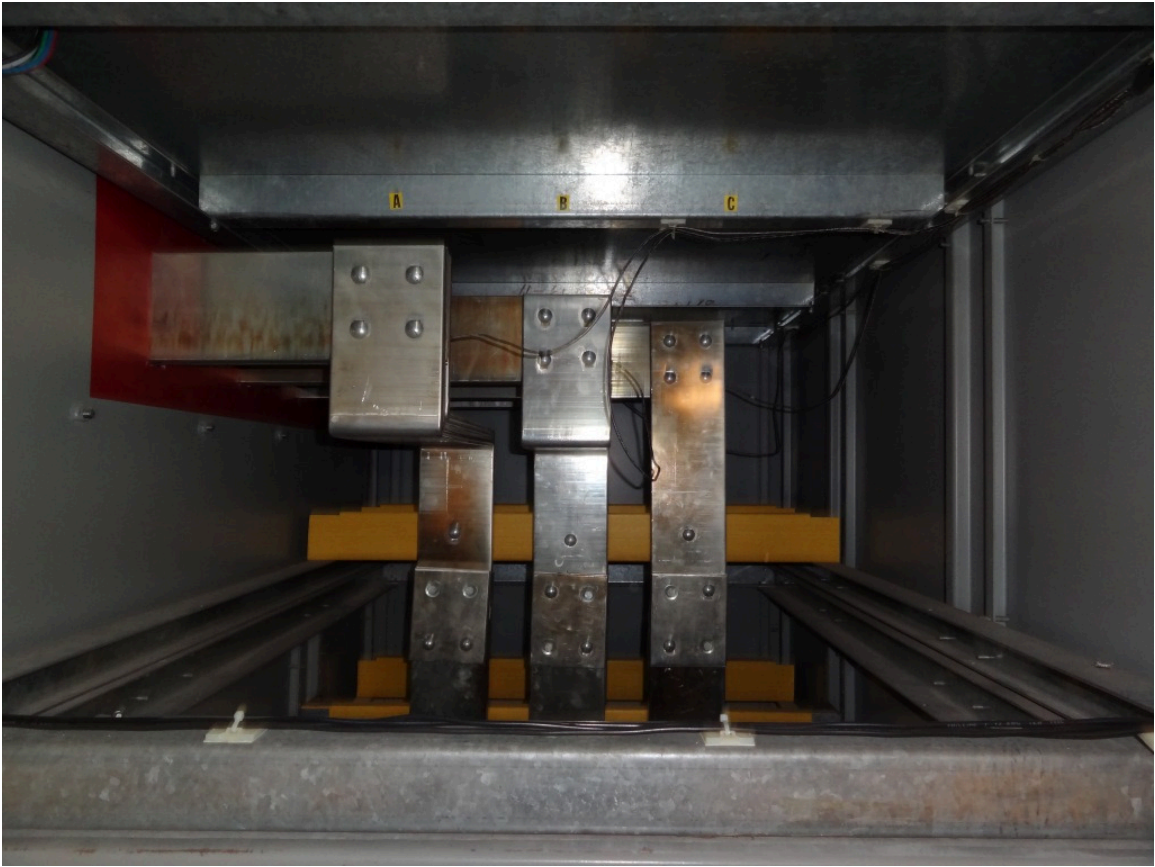
2.2 OPTIONAL FEATURES

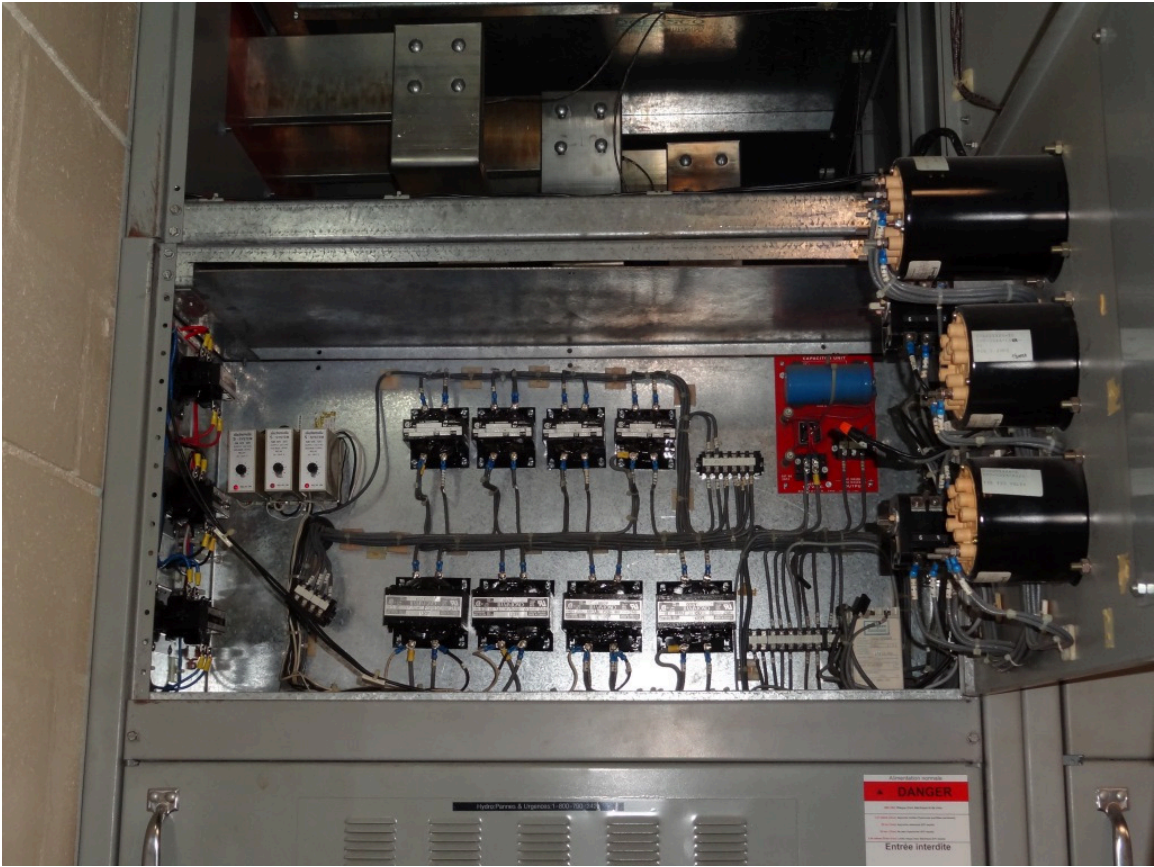
- .1 Supply, install and connect a steel NEMA 12 box, painted grey, with locking mechanism, to receive the pushbuttons and lights for the remote operation of the circuit breakers. Minimum box dimensions 406mm (W) x 406 mm (H) x 152 mm (D), wall mount with simple door. Install according to placement shown on drawing E-01.
- .2 Supply, install and connect the pushbuttons and lights, industrial grade 22.5 mm Ø. For each circuit breaker, supply one (1) red pushbutton (open), one (1) green pushbutton (close), one (1) red light (opened) and one (1) green light (closed). Installation according to detail on drawing E-01. Leave minimum 80 mm vertical spacing (center-center) between the pushbuttons and/or the lights. Leave minimum 12.5 mm spacing between the edge of the panel and the pushbuttons and/or lights. Identify with lamicaid nameplates the function of each pushbutton (open or close), the light (circuit breaker state: opened or closed) and the name of the circuit breaker operated as shown in the detail on drawing E-01.

2.3 SETTINGS

- .1 Calibrate new circuit breakers to obtain TCC curves as similar as possible to TCC curves of existing circuit breakers.
- .2 Ensure coordination between protective devices.
- .3 Coordinate with Hydro-Quebec to produce a coordination study.

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BUS DUCT
XL-UNIVERSAL

CAT. NO. **U516-CVF** **78558-01**
NO. DE CAT.

SYSTEM **3PH** **4W** VOLTS 600 OR LESS
SYSTÈME **3PH** **4W** VOLTS 600 OU MOINS

BUS BAR POSITION POSITION DE BARRES OMNIBUS	AMPERE RATING AMPÉRAGE NOMINALE	
	PHASE	NEUTRAL NEUTRE
EDGEWISE III OR RISER DE CÔTÉ III OU COLONNE MONTANTE	1600	FC
FLATWISE* À PLAT	1600	FC

SUITABLE FOR VERTICAL RISER APPROVED FOR 10 FT. SUPPORT SPACING / ADAPTÉ À COLONNE MONTANTE VERTICALE APPROUVÉ POUR 10 PIEDS ÉCARTEMENT DU SUPPORT.

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