



463-2022 ADDENDUM 5

NEWPCC PRIMARY CLARIFICATION UPGRADE PROJECT

URGENT

PLEASE FORWARD THIS DOCUMENT TO WHOEVER IS IN POSSESSION OF THE BID/PROPOSAL

ISSUED: November 23, 2023
BY: Matt Kowalski
TELEPHONE NO. 204-477-5381

THIS ADDENDUM SHALL BE INCORPORATED INTO THE BID/PROPOSAL AND SHALL FORM A PART OF THE CONTRACT DOCUMENTS

Template Version: Add 2021-03-05

Please note the following and attached changes, corrections, additions, deletions, information and/or instructions in connection with the Bid/Proposal, and be governed accordingly. Failure to acknowledge receipt of this Addendum in Paragraph 10 of Form A: Bid/Proposal may render your Bid/Proposal non-responsive.

FORM B: PRICES

Replace: 463-2022 Addendum 3 Form B: Prices with 463-2022 Addendum 5 - Form B: Prices. The following is a summary of changes incorporated in the replacement Bid/Proposal Submission:

Form B(R4): Size of hydronic piping was revised to 75mm.

Line item 3.0 was revised, line items 3.1 and 3.2 were added.

PART B – BIDDING PROCEDURES

Revise: B2.1 to read: The Submission Deadline is 12:00 noon Winnipeg time, **November 28**, 2023.

NMS Specifications

Section 21 05 01 Common Work Results for Mechanical

Revise: 1.18.5.4 to read: Air Handling Units - Indoor or Outdoor Pre-manufactured

Trane, Engineered Air, McQuay, Haakon, Scott Springfield, **Daikin**, **Solution Air**, **Bousquet**

Revise: 1.18.5.5 to read: Air Separators, Relief Valves

Armstrong, Bell & Gossett, Taco, Wheatley, **Spirotherm**

Revise: 1.18.5.21 to read: Dampers - Smoke-Fire Combination

Ruskin, Controlled Air, Prefco, **Greenheck**

Revise: 1.18.5.37 to read: Heat Exchangers

Plate Bell & Gossett, Alpha Laval, Tranter, Armstrong, APV, **Taco**, **SEC Heat Exchangers**

Revise: 1.18.5.41 to read: Maku-up air units

Engineered Air, McQuay, Reznor, **Daikin/Haakon**

- Revise: 1.18.5.50 to read: Pumps - In-Line Circulators
Armstrong, B & G, Taco, Grundfos, **Wilo**
- Revise: 1.18.5.51 to read: Pumps - Vertical In-Line and Base Mounted
Armstrong, B & G, Taco, Leitch, Grundfos, **Wilo**
- Revise: 1.18.5.56 to read: Tank – Diaphragm/Bladder Type Expansion
Amtrol, Hamlet and Garneau Inc., **Bell & Gossett, Taco, Wessels (Wilo), Armstrong**
- Revise: 1.18.5.59 to read: Unit Heaters - Cabinet
Rittling, Trane, Engineered Air, Rosemex, Daikin, **Sigma, Vulcan**
- Revise: 1.18.5.61 to read: Unit Heaters - HW
Engineered Air, Trane, Rosemex, Daikin, Rittling, **Sigma, Vulcan**

Section 22 10 10 Plumbing Pumps

- Revise: 2.2.11 to read: Acceptable product:
.1 Barnes Grinder Pump.

Section 22 15 00 Compressed Air Systems

Add 463-2023_Addendum_5_NMS Format Specification-Section 22 15 00

Section 23 21 14 Hydronic Specialties

- Revise: 2.10.4 to read: Acceptable Manufactures:
.1 Axiom Industries Ltd.
.2 A&F Machine Products Co
.3 Armstrong.
.4 Bell and Gossett.
.5 Wessels (Wilo)
.6 Or approved equivalent.

Section 23 73 11 – Air Handling And Condensing Units – Split

- Delete: 2.1.11.1.2
- Revise: 2.2.11 to read: Unit to have a minimum of **two (2)** compressors.
- Add: 2.2.12: Coil and Tubing Finishes
.1 Corrosion Protection: Baked on phenolic coating suitable for three thousand (3000) hours salt spray per ASTM-B117.

.2 No exposed copper.

.3 Acceptable Products:

.1 Heresite P413.

.2 Or approved equivalent.

Section 23 74 00 – Packaged Make-Up Air Units

Revise: 2.1.2.7.2 to read: **All units shall be internally insulated with 50 mm (2”) thick, 24 kg/m³ (1½ lb/ft³) density insulation.**

Section 23 82 39 – Hydronic Heating Units

Delete: 2.2.9

Delete: 2.3.3

Section 26 05 81 – Automation – Process Measurement Devices

Revise: 2.4.4.2 to read: Inverter duty rated: Motors for operation on variable frequency drives shall meet performance standards in NEMA MG 1, Part 31. Enclosures shall be equal to those furnished for severe duty or explosion proof motors. **Motor shaft shall be insulated.** Internal service factor shall be 1.15 that of the nameplate. Ventilation system shall be designed for maximum heat transfer. Stator laminations shall be stagger-stacked and stamped from high grade electrical steel to minimize eddy-current losses and heat build-up caused by inverter induced harmonics. Rotors shall be configured to minimize skin-effect heating.

Section 26 12 19 – Pad-Mounted Medium Voltage (Mv) Transformers

Revise: 2.1 to read: Acceptable Manufacturers

.1 Pioneer Transformer.

.2 Hammond Power.

.3 Partner Technologies Incorporated (PTI).

.4 Schneider.

.5 ABB.

.6 Eaton (Cooper Power Systems).

.7 Stein Industries Inc.

.8 Carte International.

.9 Village Enterprises Ltd. (VEL).

.10 Delta Star Inc.

.11 Dealim

.12 CES Transformers

Section 40 05 15 Process Pipe Joints And Equipment Connections

Revise: 2.11.7.1 to read: **George Fischer Waga Multi /joint 3000 Plus series**

Revise: 2.12.6 to read: Acceptable Manufacturer:

.1 George Fischer Waga Multi /joint 3000 Plus series

Section 40 05 25 Valve Schedule

Replace Section 40 05 25 with 463-2023_Addendum_5_NMS Format Specification-Section 40 05 25_R1

Section 40 91 01 – Automation – Process Measurement Devices (Addendum 3)

Revise: 2.12.6 to read: Manufacturer and model:

.1 Flygt ENM-10.

.2 SJE Megamaster.

.3 Or approved equal in accordance with B7.

Section 41 22 13 Overhead and Monorail Trolleys

Revise: 1.4.2 to read: Acceptable Suppliers:

.1 Century Cranes.

.2 Kone Cranes.

.3 Acculift.

.4 Pydee Engineering.

.5 GH.

.6 Or, approved equal in accordance with B7.

Revise: 1.6.9 to read: Type of Control:

.1 Pendant mounted to wall. Pendant shall be mounted 1.2 m above the floor.

.2 or two IKore radio transmitters with a wall mount holder.

Revise: 2.7.1 to read: The runways shall consist of standard structural steel shapes, included **as part of the building structure installations.**

Section 43 20 10 Process Pumps - General Requirements

- Revise: 2.9 to read: **Horizontal and Pedestal Chopper Pumps Spare Parts**
- .1 Provide (1) spare mechanical seal or packing kit (as applicable) and one (1) set of pump bearings.**
 - .2 For each size of seal water connection, one rotameter.**
 - .3 Provide a single impeller, wear plate, suction ring (if replaceable), one pump shaft, and nut.**

Section 43 21 39 – Submersible Pumps

- Revise: 2.3.1 to read: The following manufacturers are listed as Acceptable Manufacturers for the supply of submersible pumps in compliance with the Specifications and Drawings:
- .1 KSB.
 - .2 Flygt.
 - .3 Grundfos.
 - .4 Sulzer.
 - .5 Barnes.**
 - .6 Approved alternative.

DRAWINGS

- Add: 463-2022_Addendum 5_Drawing 1-0101-MGAD-PD01_R00
- Replace: 463-2022 Drawing 1-0101-MSCH-P601 R00 with 463-2022 Addendum 5 – Drawing 1-0101-MSCH-P601_R01
- Replace: 463-2022 Drawing 1-0101-MGAD-P602 R00 with 463-2022 Addendum 5 – Drawing 1-0101-MGAD-P602_R01
- Replace: 463-2022 Drawing 1-0101-MGAD-P603 R00 with 463-2022 Addendum 5 – Drawing 1-0101-MGAD-P603_R01
- Replace: 463-2022 Drawing 1-0101-MGAD-P604 R00 with 463-2022 Addendum 5 – Drawing 1-0101-MGAD-P604_R01
- Replace: 463-2022 Drawing 1-0101-ECBD-P701R00 with 463-2022 Addendum 5 – Drawing 1-0101-ECBD-P701_R01
- Replace: 463-2022 Drawing 1-0101-EGAD-P003 R00 with 463-2022 Addendum 5 – Drawing 1-0101-EGAD-P003_R01
- Replace: 463-2022 Drawing 1-0101-EGRD-A001 R00 with 463-2022 Addendum 5 – Drawing 1-0101-EGRD-A001_R01

APPENDICES

- Add: 463-2022_Addendum 5-Appendix_L_MCC Photographs
- Add: 463-2022_Addendum 5-Appendix_M_Geotechnical Report_Addendum

QUESTIONS AND ANSWERS

- Q1: In reference to specification 40 05 25 and drawing P1-D101A: The Valve Schedule shows the size of valve XV-P33131(P3-X602, SCP) as 100mm, but the floor plan shows the size of the pipe where it needs to be installed as 200mm. Please clarify.
- A1: Revise the size of XV-P33131 to 200 mm.
- Q2: In reference to specification 40 05 25 and drawing P3-X602: Valve HV-P3310-A(SCP) as shown on P3-X602 does not appear on the Valve Schedule. Please add.
- A2: The valve has been added.
- Q3: In reference to specification 40 05 25 and drawing P3-X602: Valve XV-P32119(FSW) as shown on P3-X602 (upper left quadrant of drawing) does not appear on the Valve Schedule. Please add.
- A3: The valve has been added. Revised Valve schedule is attached.
- Q4: In reference to drawing P3-X607: Can you confirm that the instruments PG P35011 & PG P35021 in the discharge of the submersible pumps are pressure gauges and not in-line pressure sensors?
- A4: PG P35011 & PG P35021 are pressure gauges.
- Q5: We couldn't find the new FSW piping layout (tie-in from distribution to the scum tanks/pumps/SCP piping) within the floor plans of the existing control chamber, scum tanks and new SCP pipe system. For comparison, the new scum dewatering building has a mechanical series dwg set (MGAD) that shows this FSW main piping layout. Please advise if we missed something.
- A5: A detailed FSW piping layout in the primary control building basement is not available. A diagram of the existing layout is shown on 1-0101P-A0086.
- Q6: In reference to drawing P3-X605: Please confirm all of the items including piping, valves, pipe specialties, etc. inside the "Vendor Supply Package" rectangle are supplied by The City. If not, please mark which items specifically are not supplied by The City (piping, pipe specialties, valves, instruments...etc).
- A6: All items inside the "Vendor Supply Package" are supplied by the vendor. Contractor is responsible for installation and all tie-ins.
- Q7: In reference to drawing P3-X605: Please indicate which items inside the "Vendor Supply Package" rectangle require field assembly.
- A7: Refer to Addendum 3 Appendix E.

- Q8: In reference to drawing A0-D005 detail 1 and specifications 40 05 15 & 33 44 00: Please confirm if the stainless steel yard pipes are to have the flexible couplings specified in 40 05 15 item 2.11 or George Fischer Waga Multi /joint 3000 Plus series specified in 33 44 00 2.1.4.
- A8: Use George Fischer Waga Multi /joint 3000 Plus series
- Q9: In reference to specifications 40 05 15 & 33 44 00: Please confirm if the HDPE yard pipes are to have sleeve type couplings as specified in 40 05 15 item 2.12 or George Fischer Waga Multi /joint 3000 Plus series specified in 33 44 00 2.1.4.
- A9: Use George Fischer Waga Multi /joint 3000 Plus series
- Q10: In reference to drawing A0-D005: Please confirm a quantity of 2 each sleeve type couplings at each building mechanical connection are required (for non-stainless yard pipes) as shown in detail 1 on A0-D005.
- A10: Use George Fischer Waga Multi /joint 3000 Plus series
- Q11: In reference to specification 41 22 13: Item 1.6.10 states that the size of monorail beams shall be specified and supplied by crane supplier. None of the approved crane suppliers specified that are bidding provide this service. Please provide the monorail beam size or remove the requirement that that size is specified by the crane supplier and supplied by the crane supplier.
- A11: A complete solution from a crane supplier is required.
- Q12: Tender form (Rev 2) items 2.21 and 2.22 indicate 100mm Hydronic Piping. Drawing 1-0101-CUTY-Y012 indicates 75mm. Please correct either the tender form or the drawings.
- A12: The hydronic piping is 75 mm. From B was revised.
- Q13: Can more information be provided for the tie ins to existing potable water, flushing water, hot water supply and return?
- 1) What are the sizes and material types we are tying into for each of the 4 lines?
 - 2) Please provide drawing 1-0101PA_P3-M101 referenced in the notes
 - 3) Note 6 of the general drawing notes and note 4 of the general notes calls for removal of " un-used existing hydronic piping". It is un clear how much piping will need to be removed?
- A13: The drawing 1-0101PA-P3-M102 is actually supposed to be 1-0101-MGAD-P602. In addition, Notes 1, 2 & 3 on 1-0101-MGAD-P602 should be referring to 1-0101-MGAD-P601 not P1-M101. Based on existing available information the hot water main size is 6". The existing DCW is 6". The main FSW pipe is 6". Exact material is unknown but is most likely CRS, schedule 40 (cannot confirm).
- Q14: Is the supply of the vendor equipment shown on PPID-P001 to be supplied by the owner or by the contractor?
- A14: The equipment is to be supplied by the contractor.

- Q15: Please provide specification for the Air Compressors, receivers, dryers, and Oil separators.
- A15: Please see attached.
- Q16: Please provide photos of the interior of the existing equipment of MCC-P0731 (MCC-1P), MCC-P0731 (MCC-1P), CP-P8001 Primary Clarifier Control Panel, and NP-P9000 Primary Clarification Network Patch Panel. We will need these photos for planning and estimating the modifications required to be completed as per the drawings.
- A16: Please see attached.
- Q17: Please confirm and/or provide a drawing for major mechanical equipment, specifically ERV's, MUA's, and AHU's as suppliers will require to build and price based on access locations, coil placement etc. Note equipment schedule is provided indicating make and model, will just require drawing guideline.
- A17: Separate drawings will not be provided. The dimension are as follows:
ERV DIM ON THE MODEL 5867L x 1448W x 2692H
AHU – 2286L x 737W x 711H
MAU – 2007L x 700W x 711H
- Q18: Ref Drwg 1-0101-EGAD-P004. Are MCP-3310 & MCP-3320 feeding the (4) motors beside each Motor Control Panel? There does not appear to be any wiring info except for (1) monorail feed from P7004-24,26,28. Where do the motors get fed from? Please provide MCP single line if wiring is required. Looking at Addendum #2 "PRE PURCHASED EQUIPMENT" There looks to only be one power panel. Where is this located? One control panel that comes with this package is not located on any layout drawing. Some instruments are missing from the layout drawing. Please clarify Electrical Rotary Press scope of work for electrical contractor.
- A18: Refer to 1-0101-ESLD-P708 and P709 for power feeds to MCP-P3310/P3320. Also refer to Spec section 01 11 00 (1.1 and 1.5) and 01 65 00 05 clarify Dewatering Rotary Press and Polymer Dosing system installation, included but not limited to power and instrumentation cabling between MCPs and the press, installation, and testing.
- Q19: Ref Luminaire Schedule (Drwg – 1-0101-ESCH-P706) What drawings show the locations of type C & G luminaires?
- A19: C and G Luminaires are provided as alternatives for contractor to consider.
- Q20: (Ref Drwg 1-0101-ESLD-P708 & 1-0101-ESLD-P709) The below disconnects, pumps & valves are not show on any layout drawing. Please clarify if these are future or to be included with this tender, if so where are they located? P-P3320, XV-P33144, FV-P33122, XV-PP3124, P-P5200, FV-P33131, FV-P33112 & FV-33121.
- A20: All disconnect shown on 1-0101-ESLD-P708 & 1-0101-ESLD-P709 shall be supplied and installed per spec section 26 28 23 and City of Winnipeg Electrical design guide section 7.9. Not all disconnects are shown on the location plan drawings due to restricted spacing, disconnects shall be installed adjacent to the equipment and in compliance with code requirements.

- Q21: Ref Drwg 1-0101-AILD-P640 – Pumps P6630 & P6640 appear to be speed controlled. Should these pumps have VFD's or should they remain as FVNR's?
- A21: Glycol pumps are Vertical In-Line Circulators sensorless flow control type, the flow (Speed) is controlled locally within pump circuit. Refer to Spec section 23 21 23 2.2.
- Q22: Ref 'FIRE ALARM AND SECURITY PLAN' – Security door design appears to be incomplete. Please clarify if card reader & electric lock are the only components needed or if other components are desired. Does the access control panel need to be tied in to the main network or is this a stand-alone system?
- A22: Refer to addendum 3 for further clarification.
- Q23: Ref Drwg (1-0101-ESCY-P001) - Is the public address system to be included with this tender? Where are the speakers to be located and what types in each area? Please clarify wiring requirements, this appears to be daisy chained and 70V with 30Watts each on a cat6 cable?
- A23: The public address is part of the tender, the are indicated on drawing 1-0101-ESCY-P001, the location of public addresses to be determined by the contractor for each process area. Refer to area classification drawing 1-0101-EHLC-P003 for type selection.
- Q24: Ref Drwg (1-0101-PPID-P001) – PSL-P01103 & PSL-P01203 pressure switches show a digital input signal. These do not show up on any instrument loop drawing & the instrument index. Please clarify if these are included in the scope of work & who is to supply.
- A24: Refer to Loop Drawing 1-0101-AILD-P318 and wiring diagrams 1-0101-AWDG-P836.
- Q25: Ref Instrument Index – Who is to supply the PG & TG shown on Page 3 of 3? Should FIT-P35022 on the instrument index read FIT-P35002?
- A25: PGs ang TGs are supplied and installed by the contractor. FIT-P35022 is the correct tagging for “PROCESS DRAIN TO CONTROL CHAMBER INNER RING VLLVE”
- Q26: Ref Drwg (1-0101-PPID-P302) – Valve XV-P33121 is not shown on any instrument loop drawing. Please clarify.
- A26: Valve communication is modbus and it is shown on Profibus segment drawing 1-0101-AIFS-P004. The valve is shown in the instrument list.
- Q27: In reference to Drawing P3-M103: The floor drain D-1 near gridline D-5 doesn't have sanitary piping in the floor beneath. Please advise if we missed something.
- A27: Refer to revised drawings.
- Q28: In reference to Drawings P3-M101 & P3-M103: Floor drains are shown in the lower level and second floor plumbing plans but there are no trap primers in each level. Please advise.
- A28: Refer to trap primer dwg P3-M102 note 19. All traps to be primed.

- Q29: Is there a Valve Schedule for the domestic water & hydronic systems similar to the one for the process system (Section 40 05 25)? The plumbing & hydronic P&IDs show these valves with specific tags which infers a valve schedule for these pipe systems...but nothing is provided.
- A29: No valve schedule for HVAC or plumbing will be provided. Valve schedules are not a requirement of drawings in the WSTP Building Mechanical Design Guidelines.
- Q30: In reference to Drawing P3-M102: Hydronic unit heater UH-P-6655 is shown with 32mm GS/GR piping but the hydronic P&ID plan (P3-M503) shows this piping with 20mm size. Please clarify.
- A30: Revise to 32 \varnothing .
- Q31: In reference to Drawing P3-M102: Hydronic unit heater UH-P-6656 is shown without the GS/GR piping. Please advise.
- A31: Dwg P3-M103 is showing the lines but the drops to the heater were not shown. Please assume that UH-P-6656 has the GS/GR piping.
- Q32: In reference to Drawing P3-M103: The hydronic piping along gridline 6 serving three heaters seems to come out of nowhere. Please clarify.
- A32: Refer to revised drawings.
- Q33: In reference to Drawing 1-0101-MPID-P901: There are Access Controllers shows as (SCY) on the Instruments drawings. Are these to be supplied and installed by the Contractor? Are there specs for this that show wiring requirements?
- A33: Refer to Addendum 2 A17: and Addendum 3 A59:
- Q34: Are there Specifications on Fire Alarm devices & Panel? Make, Model?
- A34: Refer to Addendum 2 A16
- Q35: Can Rigid Galvanized Conduit & Teck 90 cable be used for the following systems?
- a. Lighting
 - b. Receptacles
 - c. Motor Disconnect Switches
 - d. Motor wiring
 - e. PA system
 - f. Fire Alarm System
 - g. Gas Detection system
 - h. Camera system

i. Door Access and Security System

- A35: Cables routing are specified on the design drawings, Loops, wiring diagrams, cable trays, schematic diagrams, specs, etc. contractor to follow design document for cable routing.
- Q36: 44 31 00 2.7.5 provides some details about the requirements for a control panel for the Skid Mounted Carbon Adsorption Odour Control System. Should we also be following the Programmable Logic Control specification (40 94 43) and the Control Panels specification (40 95 13) for the supply of the control panel for Skid Mounted Carbon Adsorption Odour Control system? We can do it, however, it will be very costly for such a small odour control system.
- A36: Please follow the specifications.
- Q37: Some of the new pumps and piping shown in the existing plant areas are shown being installed in the same location as piping and pumps being demolished. Can more information be provided as to how the plant will remain operational during demolishing and replacement of existing pumps and piping?
- 1) We will need to know how long each clarifier can be down for tie-ins?
 - 2) How long can clarifier 4 and 5 can be shutdown together?
 - 3) What is the duration of time each recirc pump can be down?
 - 4) Please advise durations contractor will be given to make piping tie ins?
 - 5) Please advise what existing equipment and piping if any can be removed without disrupting the operation of the plant?
 - 6) Please advise what the down time per scum tank?
 - 7)What is the duration 1A and 1B can be down together?
- A37: Primary Clarifiers 4 and 5 are usually taken offline during winter months for several months, and all tie-ins can be done during that time. Clarifiers 1-3 are in operation all year round; however they can be taken offline separately for a few days at a time. Note that the planned work is only expected to impact existing scum system. The contractor is expected to work together with the City and contract administrator to schedule and sequence all work. It is expected to be possible to stop scum wasting for maximum 5 days at a time in order to complete the necessary tie-ins.
- Q38: Please provide more information on the MCP's in the electrical room, who is to supply & where are they fed from?
- A38: MCPs are part of De Watering press package, see spec section 01 65 00 .05. MCP power and wiring connections are shown in design drawings (Panel board schedules, MCC, Network). Please refer to addendum 5 drawings, 1-0101-ECBD-P701 and 1-0101-EGAD-P003. MCP-P3110 tag is revised to MCP-P3310 and MCP-P3220 tag is revised to MCP-P3320.
- Q39: Ref Lighting Controls to PLC – Please clarify how the interconnection is intended to work from the 4-button Leviton switch (which doesn't have AUX contacts) to the PLC.
- A39: Provide additional relay as needed for the interconnection (status input) to PLC.

- Q40: Ref Drwg 1-0101-EDTL-A003, note 1 – “ALL STRUCTURAL SUPPORTS WILL BE DESIGNED BY A STRUCTURAL ENGINEER.” Will this engineering be provided or is the EC to carry this engineering cost?
- A40: EC to carry engineering cost, refer to spec section 26 05 34 1.3 .4 for more details.
- Q41: Addendum #3 includes a lightning protection scheme. Typically, this goes down to a perimeter ground around the building. Is there a perimeter grounding that goes around the building? None are shown on the drawings. Please provide a drawing for the perimeter grounding and what columns are required to be grounded, location of ground rods & access well locations if applicable.
- A41: Refer to spec section 26 05 28 for grounding requirements. Further grounding details are provided in addendum 5 drawing 1-0101-EGRD-A001.
- Q42: Section 26 05 28 3.1.6 states to ground all building columns, steel, metal siding and there are details (1-0101-EDTL-A004 detail #4) regarding these. The problem is the details state size as indicated on the drawings, which the drawings show no ground. Please clarify.
- A42: Refer to drawings 1-0101-ECTR-A004 and 1-0101-EGRD-A001 for details. Further grounding details are provided in addendum 5 drawing 1-0101-EGRD-A001.
- Q43: Detail #6 on drawing 1-0101-EDTL-A006 states to cad weld to the hand railings. As most of the hand railings are aluminum, how is this to be done? There are galvanized hand railings in the mechanical room, so are we to grind off the galvanizing so we can cad weld these? Detail #1 on drawing shows equipment grounding tails, sized as per the drawings. The drawings show no ground wire size so does that mean we are not required to ground equipment with ground tails? Please clarify.
- A43: AECOM answer: Drawing 1-0101-EDTL-A006 is detail drawings to provide installation details, contractor to follow the details as applicable. Ground wiring sizes are provided in spec section 26 05 28. Provide equipment bonding and grounding based on specifications and code requirements.
- Q44: The spec section 26 05 28 item 3.5.3.3 states to ground duct systems. As this is under the heading “Facility Distribution Equipment” is this referring to bus ducts? Or arc chute ducts? Or does this mean to HVAC ducts? (which isn’t distribution equipment). Please Clarify
- A44: Duct system is not applicable.
- Q45: There are numerous other metal items that could require grounding if all metal is to be grounded. Items such as;
- Aluminum checker plate
 - Monorails
 - Bollards
 - Staircases
 - Piping systems
 - Misc steel supports
 - Bin covers & bins

All of these things can really add up in cost.

Please clarify what steel needs to be grounded.

A45: Provide grounding as specified in contract documents. Please see following drawings for requirement.

1-0101-EDTL-A002

1-0101-EDTL-A003

1-0101-EDTL-A004

1-0101-EDTL-A006

1-0101-ECTR-A002

Refer to spec section 26 05 26 3. Execution for additional details.

Q46: Specification Section 26 12 19 Pad Mounted Medium Voltage (MV) Transformers All approved manufactures cannot meet the 'dated specification' on the current limiting draw out & bay O net fuses that are not available for 4160 Volt primary, as there is upstream protection at the switchgear SGR-E7210 & SGR-E7220. Please clarify.

.2 Draw-out dry well mounted current-limiting fuses. Loose supply one spare complete set of fuses for the client (minimum 3 fuses).

.3 Bay-O-Net style fuse may only be used in two-fuse protection schemes where a current-limit backup/main fuse is utilized. The high-level faults are cleared by the current-limiting backup/main fuse, whilst the secondary faults and overload currents are cleared by the Bay-O-Net fuse for internal equipment protection.

A46: Contractor to comply with spec section 26 12 19 to provide transformer protection as listed in the spec.

Q47: Lightning protection Question. There is a requirement for a risk assessment with a statistical or statutory meteorological data consultation to make a proper determination of the protection level required. We do not do this type of work unfortunately. Now that the project has transitioned to the pricing stage, is the risk assessment still required?

A47: The risk assessment is a requirement to be considered during the design of lightning system.

Q48: The specifications list a number of different lightning protection materials, some of which do not meet the listed installation standards (e.g. insulated conductors, buried aluminum conductors, electrical conductors). To be compliant with the listed standards (CSA B72:20, NFPA 780), typical lightning protection system installations are made up of the following: Class I, UL for Canada listed, lightning protection materials are installed on the rooftop using mechanical connections and Class I, UL for Canada listed, copper lightning protection materials are installed for the down conductors and for the grounding system. Please let us know if this typical installation method will be permitted.

A48: The design shall be compliant with CSA B72 requirement. It is contractor responsibility to provide lightning design drawings stamped and signed by professional engineer registered or licensed in Manitoba.

Q49: We are unable to source tinned copper ground rods. Are copper-plated steel ground rods suitable for the grounding?

A49: Refer to spec section 26 05 28 2.4, Vertical Rod Electrodes shall be copper clad steel.

Q50: "Submit all pre-design and finalized installation ground continuity and all ground resistance system test results".
Is this a request for soil resistivity testing prior to the installation of the grounding and a ground resistance testing after installation of the grounding?

A50: Refer to spec section 26 05 28 2.4, Vertical Rod Electrodes shall be copper clad steel.

Q51: Are bitumastic paint for buried ground connections required on this project?

A51: Yes, according to Section 26 05 28 Clause 3.2.5.

Q52: The Use Of Grooved Clamps On Stainless Fitting & Pipe. Can We Use Epoxy Coated Grooved Clamps Instead Of Stainless 316 Clamps?

A52: No.

Q53: With the current tender form, Caisson unit pricing will be greatly inflated to account for the fact that additional pile length may be needed in rock to reach sound rock (pending socket inspections), and this drilling in rock is significantly more expensive than the shaft portion through overburden/ clay. Therefore, bidders need to inflate their caisson unit price to account for some degree of this occurring (risk money) which greatly drives up the total Caisson cost/ Bid.

Similarly, to the rock socketing, bidders will need to inflate their Caisson unit price for the risk/ possibility of permanent sleeving outside the weathered rock zone (again driving up the City's cost of bids received).

To reduce the City's costs, please consider adding/ revising the following items to the tender form:

- a. Revise Item 3: Supply and Installation of Rock-Socketed Caissons SHAFTS – 1093lm
- b. Add Item 3.1: Supply and Installation of Rock-Socketed Caissons ROCK SOCKET – 96lm
- c. Add Item 3.4: Permanent Caisson Sleeving – 110lm

The above structure will help ensure that the City receives the most aggressive and competitive unit rates from all bidders, and only ends up paying for work that is actually end up being needed on site.

A53: From B Prices was revised accordingly.

Q54: In reference to control panels on package equipment/skids that are "plug and play/turnkey" solutions, do we need to adhere to "Standardized Control System And Motor Control Equipment" clause of the tender.

A54: No, the control panels that are "plug and play" systems do not need to be part of the standardized goods, e.g., bin covers, odour control etc

- Q55: In reference to Section 31 63 19.11 Item 6.2 Sonic Echo and/or Impulse (Shock Test) Method: Please verify the ASTM standard for the tests.
- A55: See Question 56.
- Q56: In reference to 31 63 19.11 Item 6.2 Sonic Echo and/or Impulse (Shock Test) Method: Is the Pulse Echo Method (PEM) of Testing listed in ASTM D5882 satisfactory using the Pile Integrity Testing equipment (model PIT-QV) from Pile Dynamics Inc? The PEM data is measured as a function of time and the time domain record is evaluated for pile integrity.
- A56: The requirement is provided in section 6.6 of the Geotech. report in accordance with ASTM D5882 and also in item 1.3 in spec. section 31 63 19.11. Any equipment that satisfy the requirement of the standard is acceptable.
- Q57: In reference to drawing 1-0101-SAAA-A002: The drawing specifies a geotechnical resistance factor = 0.40. Please verify if a static load test is still required given this information. A static load test costs hundreds of thousands of dollars.
- A57: The geotechnical resistant factor is 0.4 without a static load test but can be increased to 0.6 once the static test is carried out to confirm the geotechnical design parameters used. Reference item 5.1 in spec. section 31 63 19.11.
- Q58: We previously asked if steel columns require intumescent/ fireproofing and the answer was no (Addendum 3, Q50, A50). Please confirm that steel columns passing through fire-rated wall assemblies do not require intumescent. Note that several fire-rated walls have steel columns in them (example wall between Stair 2 and Dewatering)
- A58: All interior HSS columns along fire separations at gridline 'F' require fireproofing. Column F-2, F-4.5, & F-5.5
- Q59: In reference to drawings 1-0101-BGAD-P008-003 & 1-0101-BGAD-P001 (Life Safety Plan): The code Analysis table indicates that the electrical Room should have a 1Hr fire rating. Drawing 1-0101-BGAD-P008-003 indicates floor assembly of "F2" in the electrical room which only has a 45min rating. Please confirm if a 1hr fire rating is required for the electrical room floor.
- A59: The 1 hour FRR requirement for the electrical room must continue into the floor and ceiling at the electrical room only.
- Q60: In reference to drawings 1-0101- SGAD-P003 & 1-0101-SGAD-P002: in stairwell 2 on the main floor entrance on gridline 6, if you walked in and looked up there are 3 - W410X46 steel beams holding the ceiling of the electrical room. They run from the W530X66 on gridline 6 between Gridlines H and K to the rated wall of the stairwell between gridlines 5 and 6. Does this steel require Intumescent coating and if so what rating 1 or 2 hour?
- A60: 1 hour rating is required with intumescent coating.
- Q61: In reference to drawing 1-0101-SGAD-P003: Do the following beams carrying the 2nd floor entrance of stairwell 2 require Intumescent coating and if so what rating 1 or 2 hours:
- a. W530X66 on gridline 6 from gridline F to D
 - b. W530X85 on gridline 5.5 from Gridline F to C

c. W610X85 on gridline C running from gridline 4 to 6

A61: Yes, to all. 1 hour rating required.

Q62: In reference to drawing 1-0101-SGAD-P003: Do the following columns carrying the 2nd floor entrance of stairwell 2 require Intumescent coating and if so what rating 1 or 2 hours:

a. HSS305X305X9.5 at gridlines C and 6

b. HSS305X305X9.5 at gridlines C and 4

c. HSS305X305X9.5 at gridlines D and 6

A62: Yes, to all. 1 hour rating required.

Q63: The geotechnical report provided has no recommendations for rock sockets, just CIP friction piles in the clay. The test hole log (1 only) stops at 20.2 m in glacial till, bedrock not proven.

Please provide the design parameters used for the piles to be installed and proven out with a load test.

A63: The addendum to the original geotechnical report is attached.

Q64: The Room Finish Schedule on drawing 1-0101-BSCH-P001 states the floor finish as "Sealer" as sealer in room 105 (Janitor). Spec 09 97 23 states Formula 10 on all concrete floors except the Chemical room. Please confirm if the janitor room floor finish is Sealer or Formula 10.

A64: The janitor room floor is Formula 10.

Q65: The Room Finish Schedule on drawing 1-0101-BSCH-P001 states the floor finish as "Sealer" as sealer in rooms 104 (Stair 2) and 203 (Stair 2). Spec 09 97 23 states Formula 10 on all concrete floors except the Chemical room. Please confirm if the Stair 2 floor finish is Sealer or Formula 10.

A65: The stair 2 floor is Formula 10.

Q66: In reference to Drawing 1-0101-SGAD-P017: Section 1 indicates the Lower Level Stringer will be "GALV. C310x45 STRINGER". In the notes at the bottom of the page it reads "ALL STAIR FRAMING, STRINGERS, GRATING, TREADS ALUMINUM." Please confirm that all framing, stringers, grating and treads for Stair 1 are aluminum, not galvanized.

A66: All framing stringers, grating, and treads for Stair 1 are aluminum.

Q67: Regarding addendum 3 Q32, A32: Temporary power demand required from the existing primary clarifiers building would be a maximum of 60A, 3-Ph, 600V. If less than this is available, please specify what could be made available.

A67: The available power is one 600 Volt 60Amp.

- Q68: On drawing 1-0101-EWDG-P001. It shows NGR- 7011 and NGR-7012. Where are these 2 NGR units to be located? Beside the Transformers?
- A68: The provision and spec for NGR location is mounted on the transformers. (26 12 19 2.3)