



976-2016 ADDENDUM 5

SOUTH END SEWAGE TREATMENT PLANT (SEWPCC) UPGRADING / EXPANSION PROJECT - CONTRACT 4 – SITEWIDE MECHANICAL, ELECTRICAL, CONCRETE AND SITE WORKS

URGENT

**PLEASE FORWARD THIS DOCUMENT TO
WHOEVER IS IN POSSESSION OF THE BID
OPPORTUNITY**

ISSUED: July 17, 2017
BY: Barry Williamson, P.Eng.
TELEPHONE NO. (204) 488-2214 x 73059

**THIS ADDENDUM SHALL BE INCORPORATED
INTO THE BID OPPORTUNITY AND SHALL
FORM A PART OF THE CONTRACT
DOCUMENTS**

Template Version: A20150806

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

PART A – BID SUBMISSION

Replace: 976-2016 Addendum 4 - Bid Submission with 976-2016 Addendum 5 – Bid Submission. The following is a summary of changes incorporated in the replacement Bid Submission

Form B (R3): Revised Items 3.3, 13.7, 13.8, 13.62

Form B (R3): Add Items 2.6, 2.7, 5.21, 8.12, 10.16, 13.1a, 13.1b, 13.1c, 13.2a, 13.2b, 13.2c, 13.2d, 13.2e, 13.2f, 13.2g

Page numbering on some forms may be changed as a result.

PART E - SPECIFICATIONS

Revise

- E21.6 to read: Supply and installation of sod shall be at the Contract unit prices per square metre for placement of sod based upon the respective pay items as follows:
 - (a) Placement of sod over granular surfaced areas – Item 13.45;
 - (b) Placement of sod over non-granular surfaced areas – Item 13.46;
 and shall include the cost for topsoil as per E21.4 and E21.5, and all labour, equipment and materials necessary to perform the work in accordance with the specification.
- E21.7 to read: The unit prices shall cover sod and topsoil placement regardless of width of sod placed.

DIVISION 08 – OPENINGS

SECTION 08 71 00 DOOR HARDWARE

Revise

2.2 C to read:

Types and Manufacturers:

No.	Type Description	LCN	Sargent	Norton
C1	Regular arm	4010 Series	350 Series	7500
C2	Parallel arm	4110 Series	350-P Series	PR7500
C3	Regular arm with hold-open	4010H Series	350-H Series	7500IT
C4	Parallel arm with integral stop	4110 Cush-N-Stop Series	350-PS Series	CLP7500
C5	Parallel arm with hold-open	4110H Series	350-PH Series	PR7500H
C6	Parallel arm with integral stop and hold-open	4110H Cush-N-Stop Series	350-PSH Series	CLP-7500
C11	Parallel arm closer,	4110 Series	350-P Series	PR7500
	Electromagnetic door holder releases	Refer to Section 28 31 02 Multiplex Fire Alarm System, Item 2.25 – Ancillary Devices.		

DIVISION 09 – FINISHES

SECTION 09 62 00 SPECIAL FLOORING

Revise

2.1 to read:

GENERAL

- A. DecoFlex 6mm Products specified are based on products by Sika Canada.
- B. MER I with 40/60 broadcast into 3555. Top coated with GP4409 by Sherwin Williams.
- C. StonGard MD, 3 mm Decorative quartz, slip resistant broadcast system by Stonhard.
- D. Approved equal in accordance with B8 products may be submitted for Contract Administrator’s approval providing the submitted products meet or exceed criteria of the products specified.

DIVISION 21 – FIRE SUPPRESSION

SECTION 21 05 17 SLEEVES AND SLEEVE SEALS FOR FIRE SUPPRESSION PIPING

Revise

3.1 D.3. to read: Seal annular space between sleeve and piping or piping insulation; use joint sealants appropriate for size, depth, and location of joint.

Delete:

SECTION 21 05 48 VIBRATION AND SEISMIC CONTROLS FOR FIRE-SUPPRESSION PIPING AND EQUIPMENT

SECTION 21 13 13 WET-PIPE SPRINKLER SYSTEMS

Delete:

2.1 F. Seismic Performance: Sprinkler piping shall withstand the effects of earthquake motions determined according to NFPA 13 and ASCE/SEI 7.

3.3 P. Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Section 21 05 18, Escutcheons for Fire-Suppression Piping.

Revise

3.3 C. to read: Use listed fittings to make changes in direction, branch takeoffs from mains, and reductions in pipe sizes.

3.3 D. to read: Install unions adjacent to each valve in pipes NPS 2 and smaller.

3.3 E. to read: Install flanges, flange adapters, or couplings for grooved-end piping on valves, apparatus, and equipment having NPS 2-1/2 and larger end connections.

3.3 F. to read: Install Inspector's Combination Drain/Test Connections in sprinkler system piping, complete with shutoff valve, and sized and located according to NFPA 13.

3.3 G. to read: Install sprinkler piping with drains for complete system drainage.

3.3 H. to read: Install automatic (ball drip) drain valve at each check valve for fire-department connection, to drain piping between fire-department connection and check valve. Install drain piping to and spill over floor drain or to outside building.

3.3 I. to read: Install alarm devices in piping systems.

3.3 J. to read: Install hangers and supports for sprinkler system piping according to NFPA 13. Comply with requirements for hanger materials in NFPA 13.

3.3 K. to read: Install pressure gages on riser or feed main, at each sprinkler test connection. Include pressure gages with connection not less than NPS 1/4 and with soft-metal seated globe valve, arranged for draining pipe between gage and valve.

- Install gages to permit removal, and install where they are not subject to freezing.
- 3.3 L. to read: Fill sprinkler system piping with water.
- 3.3 M. to read: Install sleeves for piping penetrations of walls, ceilings, and floors. Comply with requirements for sleeves specified in Section 21 05 17, Sleeves and Sleeve Seals for Fire-Suppression Piping.
- 3.3 N. to read: Install sleeve seals for piping penetrations of concrete walls and slabs. Comply with requirements for sleeve seals specified in Section 21 05 17, Sleeves and Sleeve Seals for Fire- Suppression Piping.
- 3.3 O. to read: Install escutcheons for piping penetrations of walls, ceilings, and floors. Comply with requirements for escutcheons specified in Section 21 05 18, Escutcheons for Fire-Suppression Piping.

DIVISION 23 – HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

Delete:

SECTION 23 05 48 VIBRATION ISOLATION FOR HVAC

SECTION 23 31 13 METAL DUCTS AND ACCESSORIES

Revise

- 1.1 A.7. to read: Sheet Metal and Air Conditioning Contractors' National Association (SMACNA):
- a. Duct Construction Standards.
 - b. Fibrous Glass Duct Construction Standards.
 - c. Fire, Smoke, and Radiation Damper Installation Guide for HVAC Systems.
 - d. HVAC Air Duct Leakage Test Manual.
- 1.3 A. to read: Action Submittals:
1. Product Data:
 - a. Rectangular and Rigid Round Ductwork:
 - 1) Schedules of duct systems, materials, joints, sealing, gage and reinforcement.
 - 2) SMACNA Figure Numbers for each shop fabricated item.
 - 3) Reinforcing details and spacing.
 - 4) Seam and joint construction details.
 - 5) Hangers and supports, including methods for building attachment, vibration isolation, and duct attachment.
 - b. Ductwork Accessories:
 - 1) Manufacturer's product data including catalog sheets, diagrams, standard schematic drawings, installation instructions and

details, details of materials, construction, dimensions of individual components, and finishes, including the following items:

- a) Fittings and volume control damper installation (both manual and automatic) details.
- b) Sealing materials.
- c) Dampers; include leakage, pressure drop, and maximum back pressure data.
- d) Duct-mounted access panels and doors.
- e) Flexible ducts.
- f) Sheet metal fasteners.

2. Duct Fabrication Drawings:

- a. Drawn after actual job measurements are obtained.
- b. Drawn to a scale not smaller than 6 mm equals 300 mm, on drawing sheets same size as Contract Drawings.
- c. Include the following features:
 - 1) Fabrication, assembly, and installation details including plans, elevations, sections, details of components, and attachments to other work.
 - 2) Duct layout, indicating pressure classifications, and sizes in plan view.
 - 3) Duct material and thickness.
 - 4) Fittings and volume control damper installation (both manual and automatic) details.
 - 5) Reinforcing details and spacing.
 - 6) Seam and joint construction details.
 - 7) Penetrations through fire-rated and other partitions.
 - 8) Duct accessories and control devices such as automatic dampers, airflow monitors, terminal units, smoke detectors, regulators, air distribution devices, etc.
 - 9) Hangers and supports, including methods for building attachment, vibration isolation, and duct attachment.
 - 10) Fire and smoke damper installations, including sleeves and duct-mounted access door and panel installation.
 - 11) Coordination with ceiling suspension members.
 - 12) Spatial coordination with other systems installed in same space with duct systems.

- 13) Coordination of ceiling- and wall-mounted access doors and panels required for access to dampers and other operating devices.
- 14) Coordination with ceiling-mounted lighting fixtures, air outlets, and inlets.
- 15) Coordination of ductwork with sprinkler piping and other mechanical and electrical services, and equipment installed under Division 23, Heating, Ventilating, and Air-Conditioning (HVAC), Division 40, Process Integration, and Division 26, Electrical.

1.3 B. to read: Informational Submittals:

- 1. Sound Attenuators Certified Test Data:
 - a. Dynamic insertion loss.
 - b. Self-noise power levels.
 - c. Static pressure loss.
 - d. Dimensions and weights.
- 2. Record Drawings: Include duct systems routing, fittings details, and installed accessories and devices.

SECTION 23 31 13.03 MOTORIZED DAMPER SCHEDULE

Delete:

XV-R6011	XV-R6021
ODOUR DUCTWORK	ODOUR DUCTWORK
BIOREACTORS	BIOREACTORS
EF-R601 INLET	EF-R602 INLET
PBD	PBD
316 SST	316 SST
7196	7196
950	950
950	950
CLOSED	CLOSED
1	1
TP, SP,LT, EXP	TP, SP, LT, EXP
IQ3	IQ3
575	575
AWV	AWV
ROTORK	ROTORK

SECTION 23 34 00 HVAC FANS

Revise

- 1.3 B.4. to read: Test reports.
- 1.3 B.5. to read: Operation and maintenance data in conformance with Section 01 78 23, Operation and Maintenance Data. Include as-built version of equipment schedules.
- 2.24 B. to read: Wind performance in accordance with building code. Provide structural drawings sealing by a Professional Engineer licensed in Manitoba.

Delete:

- 1.3 B.6. Operation and maintenance data in conformance with Section 01 78 23, Operation and Maintenance Data. Include as-built version of equipment schedules.

SECTION 23 51 01 GENERATOR EXHAUST SYSTEM AND STACK

Delete

- 1.4 A.3. Seismic restraints shall conform to requirements of latest edition of SMACNA Seismic Restraint Manual.

SECTION 23 77 00 AIR HANDLING UNITS

Delete

- 1.1 A.4.e. HVAC Applications chapter in "Seismic Restraint Design."

Revise

- 3.1 H. to read: Equipment Restraints:
1. Restrain equipment against wind loads as required by Code.
 2. Refer Section 23 05 48, Vibration Isolation for HVAC.

SECTION 23 81 00 TERMINAL HEATING AND COOLING UNITS

Delete

- 1.1 A.4.c. HVAC Applications chapter in Seismic Restraint Design.

DIVISION 26 – ELECTRICAL

SECTION 26 24 19

MOTOR CONTROL CENTRE

Revise:

- 3.1.D to read: Testing shall be designed to verify system operation and integration with the Process Control System and shall include these verifications as a minimum:
1. I/O addressing
 2. Correct device operation by I/O address
 3. Host Communications
 4. Control Network Interface

Add:

- 3.1.E The factory tests shall be conducted with the connection to the control system in its final configuration for each specific device. Coordinate with the Systems Integrator as required.
- 3.1.F The factory tests shall be conducted with devices programmed with the specific parameters for their final application (e.g. motor nameplate data, specific process requirements, etc.).
- 3.3.D Factory tested parameters shall be confirmed prior to energization at site.

SECTION 26 29 10

MOTOR STARTER TO 600 V

Add:

- 1.3.D Motor Starter Parameter List as per Section 3.3 C.
- 3.3.C Motor Starter Parameter List
- 3.3.C.1 Create and maintain a Motor Starter Parameter List which includes all motor starters. The list shall contain all relevant parameters for motor operation including, but not limited to, all parameters that are different than factory defaults.
- 3.3.C.2 The list is to be submitted to the Contract Administrator prior to factory testing.
- 3.3.C.3 The list is to be update during construction and submitted to the Contract Administrator upon completion of commissioning.

DIVISION 35 – FABRICATED SLIDE GATES AND STOP LOGS

SECTION 35 20 13.25 SUPPLEMENT 1 STOP LOG SCHEDULE

Revise:

Supplement 1
 Stop Log
 Schedule Area S –
 Secondary
 Clarifiers to read:

Location / Description	Tag Number	P&ID Number	Frame Mounting Style [Note 1]	Channel Width (mm)	Channel Invert Elevation (m)	Top of Channel Elevation (m)	High Water Elevation (m)	Design Seating Head (m)	Number of Frames Required	Number of Stop Logs Required [Note 2, 3]	Stop Log Material	Number of Lifting Devices Required	Remarks
AREA S - SECONDARY CLARIFIERS													
Clarifier 4 ML Inlet	SL-S100S	1-0102-PPID-S101	A	1700	231.039	233.470	232.850	1.9	1	1 set	Aluminum	-	With surface mount bottom
Clarifier 5 ML Inlet	SL-S100N	1-0102-PPID-S101	C	1700	231.039	233.470	232.850	1.9	1	1 set	Aluminum	-	With surface mount bottom
Mixed Liquor Channel	SL-S100O	1-0102-PPID-S101	C	1382	231.039	233.470	232.850	1.9	1	1 set	Aluminum	-	With surface mount bottom
Mixed Liquor Channel	SL-S100P	1-0102-PPID-S101	C	1700	231.039	233.470	232.850	1.9	1	1 set	Aluminum	-	With surface mount bottom
Mixed Liquor Channel	SL-S100R	1-0102-PPID-S101	C	1382	231.039	233.470	232.850	1.9	1	1 set	Aluminum	-	With surface mount bottom

DIVISION 40 – PROCESS INTEGRATION

SECTION 40 27 02 PROCESS VALVES AND OPERATORS

Revise

- 2.5 C.6. to read: Type V307 or V308 Stainless Steel Ball Valves:
- a. Three-piece, full port, NPT threaded ends for diameter 50 mm and smaller, flanged for ends for larger diameter, ASTM A276 GR 316 or ASTM A351/A351M GR CF8M stainless steel body and end pieces, Type 316 stainless steel ball, reinforced PTFE seats, PTFE packing, blowout proof stainless steel stem, stainless steel lever operator with vinyl grip, rated 6900 kPa WOG/CWP, 1035 kPa SWP.
 - b. Manufacturers and Products:
 - 1) Trueline
 - 2) Conbraco Apollo
 - 3) Nibco
 - 4) Velan

5) Bray/Flow-Tek

6) Crane

2.5 C.7. to read: Type V311 Stainless Steel Ball Valve, 12 mm to 50 mm, for Digester Gas Service:

- a. Top entry, regular port, floating ball, NPT threaded ends, ASME Class 600, rated 8275 kPa at 38 degrees C, Type 316 stainless steel, body, ball and stem, reinforced PTFE seats with both seats in tension or spring loaded to provide leak tight seal at both low and high pressures, blowout-proof stem with reinforced PTFE stem seal, lever operator, CGA/CSA and ULC or cUL approved and conforming to the requirements of CSA B149.6 and CGA-3.16.
- b. Manufacturers and Products:
 - 1) Velan; TE-600 Memoryseal.
 - 2) Or approved equal in accordance with B8.

2.5 C.8. to read: Type V315 Ductile Iron Ball Valve, 50 mm to 250 mm, for General Water Service:

- a. Face to face flange ball valve mounted. The valves shall be class 300 with a rated working pressure of at least 2070 kPa WOG, 1035 kPa SWP.
- b. The valve shall consist of a solid stainless steel ball. The valve shall be a bidirectional tight shutoff designed for tight shut off in accordance with MSS-SP-72.
- c. The valve body shall be ductile iron with exterior and interior epoxy coating.
- d. Seat and seat body shall be PTFE. The stem seal shall be PTFE.
- e. Valves shall be equipped with locking handles. Lockable in full open and closed positions. Adjustable length/removal handles.
- f. Manufacturers and Products:
 - 1) American Valve; Model 4000D.
 - 2) Trueline
 - 3) Kitz

2.5 C.9. to read: Type V321, Three-Way Stainless Steel Ball Valve, 50 mm and Smaller:

- a. Three-way, 90-degree L-port, NPT threaded ends, ASTM A351/A351M GR CF8M stainless steel body and end pieces, Type 316 stainless steel ball and stem, actuator-ready ISO 5211 mounting pad, reinforced PTFE seats, PTFE packing, adjustable packing gland, blowout proof stem, rated 5500 kPa WOG.
- b. Manufacturers and Products:
 - 1) Bray/Flow-Tek; MPT130
 - 2) Burkert; 2651
 - 3) Marwin Valve; 3-L/T-2100

4) Trueline; B924L

2.5 C.10. to read: Type V330 PVC Ball Valve, 50 mm and Smaller:

- a. Rated minimum 1035 kPa at 22.8 degrees C, with ASTM D1784, Type I, Grade 1 polyvinyl chloride body, ball, and stem, end entry, double union design, solvent-weld socket ends, PTFE seat, Viton or Teflon O-ring stem seals, to block flow in both directions.
- b. On sodium hypochlorite service, provide pressure relief hole drilled on low pressure side of ball.
- c. Manufacturers and Products:
 - 1) Chemline; Type 21
 - 2) Hayward; TB Series, TBZ Series
 - 3) Nibco-Chemtrol; Model D

Delete:

2.5 C.11. Type V330 PVC Ball Valve, 50 mm and Smaller:

- a. Rated minimum 1035 kPa at 22.8 degrees C, with ASTM D1784, Type I, Grade 1 polyvinyl chloride body, ball, and stem, end entry, double union design, solvent-weld socket ends, PTFE seat, Viton or Teflon O-ring stem seals, to block flow in both directions.
- b. On sodium hypochlorite service, provide pressure relief hole drilled on low pressure side of ball.
- c. Manufacturers and Products:
 - 1) Chemline; Type 21
 - 2) Hayward; TB Series, TBZ Series
 - 3) Nibco-Chemtrol; Model D

Add to:

2.5 D.3.d. 3) Milliken 170M/171M

2.5 D.4.e. 3) Milliken 170M/171M

2.5 E.2.d. 5) Flomatic Azure

2.5 E.5.b. 8) Jamesbury 815L

40 27 02 SUPPLEMENT

MANUAL VALVE SCHEDULE (75 MM AND LARGER)

AREA K – HIGH RATE CLARIFIERS

Delete:

Location/ Description	Tag Number	P&ID Number	Valve Type	Valve Type Number	Size (mm)	Commodity Code	Commodity	Remarks
Glycol Supply to AHU-K620	HV-K620A	1-0102-PPID-K602	Balancing	V472	65	GS	Glycol Supply	
Glycol Return from AHU-K620	HV-K620B	1-0102-PPID-K602	Balancing	V472	65	GR	Glycol Return	
Glycol Supply to AHU-K620	HV-K620C	1-0102-PPID-K602	Ball	V315	65	GS	Glycol Supply	
Glycol Return from AHU-K620	HV-K620D	1-0102-PPID-K602	Ball	V315	65	GR	Glycol Return	
Glycol Supply to AHU-K630	HV-K630A	1-0102-PPID-K603	Balancing	V472	65	GS	Glycol Supply	
Glycol Return from AHU-K630	HV-K630B	1-0102-PPID-K603	Balancing	V472	65	GR	Glycol Return	
Glycol Supply to AHU-K630	HV-K630C	1-0102-PPID-K603	Ball	V315	65	GS	Glycol Supply	
Glycol Return from AHU-K630	HV-K630D	1-0102-PPID-K603	Ball	V315	65	GR	Glycol Return	
Glycol Supply to AHU-K640	HV-K640A	1-0102-PPID-K604	Balancing	V472	38	GS	Glycol Supply	
Glycol Return from AHU-K640	HV-K640B	1-0102-PPID-K604	Balancing	V472	38	GR	Glycol Return	
Glycol Supply to AHU-K640	HV-K640C	1-0102-PPID-K604	Ball	V315	38	GS	Glycol Supply	
Glycol Return from AHU-K640	HV-K640D	1-0102-PPID-K604	Ball	V315	38	GR	Glycol Return	

40 27 02 SUPPLEMENT

MANUAL VALVE SCHEDULE (LESS THAN 75 MM)

Revise:

Service / Description	Valve Type	Valve Type Number	Size (mm)	Commodity Code	Commodity	Piping Material	Remarks
Ball valves on glycol service	Ball	V300	≤ 65	GS	Glycol Supply	CS	

to read:

Service / Description	Valve Type	Valve Type Number	Size (mm)	Commodity Code	Commodity	Piping Material	Remarks
Ball valves on hydronic heating service	Ball	V300	< 50	GS	Glycol Supply	CS	
Ball valves on hydronic heating service	Ball	V300	< 50	GR	Glycol Return	CS	

Ball valves on hydronic heating service	Ball	V300	< 50	HWS	Hot Water Supply	CS	
Ball valves on hydronic heating service	Ball	V300	< 50	HWR	Hot Water Return	CS	

Add to:

40 27 02 SUPPLEMENT

MANUAL VALVE SCHEDULE (LESS THAN 75 MM)

Service / Description	Valve Type	Valve Type Number	Size (mm)	Commodity Code	Commodity	Piping Material	Remarks
Ball valves on hydronic heating service	Ball	V315	≥ 50 and < 75	GS	Glycol Supply	CS	
Ball valves on hydronic heating service	Ball	V315	≥ 50 and < 75	GR	Glycol Return	CS	
Ball valves on hydronic heating service	Ball	V315	≥ 50 and < 75	HWS	Hot Water Supply	CS	
Ball valves on hydronic heating service	Ball	V315	≥ 50 and < 75	HWR	Hot Water Return	CS	
Balancing valves on hydronic heating service	Balancing	V470	≤ 65	GS	Glycol Supply	GS	
Balancing valves on hydronic heating service	Balancing	V470	≤ 65	GR	Glycol Return	CS	
Balancing valves on hydronic heating service	Balancing	V470	≤ 65	HWS	Hot Water Supply	CS	
Balancing valves on hydronic heating service	Balancing	V470	≤ 65	HWR	Hot Water Return	CS	

SECTION 40 95 13

CONTROL PANELS

Revise

2.6 O.3.A. to read: Phoenix Contact PLC-RSC Series or Weidmuller Termseries

2.6 O.4.a.11) to read: Standard of acceptance: Phoenix Contact 2966281 or Weidmuller
 1123170000

2.5 O.4.b.10) to read: Standard of acceptance: Phoenix Contact 2966171 or Weidmuller
 1123000000

2.5 O.4.c.11) to read: Standard of acceptance: Phoenix Contact 2966278 or Weidmuller
 1123000000

SECTION 40 99 91 FAT AND SIFT PROCEDURES

Add:

- 3.3 Motor Testing
- 3.3.A The factory tests of the MCC shall be conducted with the connection to the control system in its final configuration for each specific device. Coordinate with the MCC Vendor as required.

DIVISION 43 – PROCESS GAS AND LIQUID HANDLING, PURIFICATION AND STORAGE EQUIPMENT

SECTION 43 11 15.15 GEARLESS TURBO BLOWERS

Add to:

- 2.1 A.
 - 2) AERZEN Canada
 - 3) Lone Star (Turbomax) Blowers

Revise:

CH2M HILL

Equipment Data

Sheet D to read: Blower continuous duty design rating at specified Summer and Winter
 Conditions:

Operating Design Points	1	2	3	4	5
Total Flow Rate to the System (Nm³/min)	338.5	428.5	465.3	567.2	719
Numbers of Blowers Operating	2 - 3	3	3-4	4-5	5
Maximum System Wire to Air Power (kW)	620	790	840	1050	1320
Maximum System Wire to Air Power per blower (kW)	206.7 - 310	263.33	210 - 280	210 – 262.5	264

[depending on the number of blowers operating noted above]					
--	--	--	--	--	--

SECTION 43 21 13.19 NON-CLOG DRY-PIT CENTRIFUGAL PUMPS

Revise

- 1.5.D.6 to read: Provide critical speed map demonstrating that a critical speed does not occur below 1.15 times maximum rated speed of pump and motor, and does not occur between 0.85 times blade pass frequency associated with minimum operating speed and 1.15 times blade pass frequency associated with maximum operating speed.
- 1.5.E.6.a to read: No critical speeds occur between 0.85 times minimum operating speed and 1.15 times maximum rated speed of pump and motor.
- 1.5.E.6.b to read: No critical speed associated with mechanical running speed (one times shaft speed) excitation frequency occurs below 1.15 times maximum rated speed.
- 1.5.E.7.a to read: Perform forced response analysis for all critical speeds determined to occur below 1.15 times maximum rated operating speed.
- 1.5.F.7 to read: Confirm that minimum structural natural frequency of complete pump and motor assembly is at least 1.15 times maximum rated speed of pump and motor, and does not occur between 0.85 times blade pass frequency associated with minimum operating speed and 1.15 times blade pass frequency associated with maximum operating speed.

DIVISION 46 – WATER AND WASTEWATER EQUIPMENT

SECTION 46 21 11 SCREENING EQUIPMENT

Revise

- 1.4 A. to read: The equipment shall be warrantied to be free from defects in workmanship, design, and material as specified in D34. Any defects discovered during the warranty period shall be replaced or repaired at no cost to the City. Duties and obligations for correction or removal and replacement of defective work shall be as specified in General Conditions.

SECTION 46 66 20 UV DISINFECTION SYSTEM

Revise

- 2.2 D. to read: Each component shall be sized to hydraulically accommodate 112,500 m³/d per channel with the headlosses less than or equal to those specified in Clause 2.4.D.
- 2.4 E. to read: The proposed UV system shall be validated in accordance with the NWRI Guidelines using a bracketed approach using two organisms that span the UV inactivation kinetics of the target organism (i.e. E. coli). The validation testing shall clearly indicate the system's ability to deliver the minimum bioassay dose of 24 mJ/cm² over a range of UVT and flows, which shall include the design UVT as well as the minimum, average and peak day flows. The validation testing shall be conducted by a third party and paid for by the Contractor.
- 2.5 C. to read: The power consumption per lamp (including ballast losses) and total system power consumption shall not exceed the guaranteed power consumption for the required UV dosage under design conditions. Design conditions are as defined in Clause 2.4.D at average day flow, maximum TSS, and maximum cBOD₅.

APPENDICES

- Replace: 976-2016 Appendix-C-Site Delineation and Snow Removal Plan with 976-2016 Appendix-C-Site Delineation and Snow Removal Plan_R01
- Replace: 976-2016 Appendix-U-Cable List_R01 with 976-2016 Appendix-U-Cable List_R02
- Replace: 976-2016 Appendix-V-Automation Equipment List with 976-2016 Appendix-V-Automation Equipment List_R01

Appendix O: Functional Requirement Specifications

- | | | |
|---|------|--|
| Replace: Document No. A-0102-AFRS-A006: HVAC and Miscellaneous Sample Systems | with | Document No. A-0102-AFRS-A006_R01: HVAC and Miscellaneous Sample Systems |
| Replace: Document No. A-0102-AFRS-G002: Headworks – Pre-treatment | with | Document No. A-0102-AFRS-G002_R01: Headworks – Pre-treatment |
| Replace: Document No. A-0102-AFRS-K001: High Rate Clarification | with | Document No. A-0102-AFRS-K001_R01: High Rate Clarification |

DRAWINGS

A – General

- | | | |
|--|------|---|
| Replace: 976-2016_Addendum_2-Drawing_1-0102-EDTL-A002_Sht001-R01.pdf | with | 976-2016_Addendum_5-Drawing_1-0102-EDTL-A002_Sht001-R02.pdf |
| 976-2016_Drawing_1-0102-MDTL-A012-R00.pdf | with | 976-2016_Addendum_5-Drawing_1-0102-MDTL-A012-R01.pdf |
| 976-2016_Drawing_1-0102-CGAD-A003-008-R00.pdf | with | 976-2016_Addendum_5_Drawing_1-0102-CGAD-A003-008-R01.pdf |

G – Headworks

Replace:	976-2016_Drawing_1-0102-ACBD-G081_Sht001-R00.pdf	with	976-2016_Addendum_5-Drawing_1-0102-ACBD-G081_Sht001-R01.pdf
Replace:	976-2016_Addendum_4-Drawing_1-0102-BAAA-G001-R01.pdf	with	976-2016_Addendum_5-Drawing_1-0102-BAAA-G001-R02.pdf
Replace:	976-2016_Drawing_1-0102-BAAA-G002-R00.pdf	with	976-2016_Addendum_5-Drawing_1-0102-BAAA-G002-R01.pdf
Replace:	976-2016_Addendum_4-Drawing_1-0102-BGAD-G022-R01.pdf	with	976-2016_Addendum_5-Drawing_1-0102-BGAD-G022-R02.pdf
Replace:	976-2016_Drawing_1-0102-BGAD-G029-R00.pdf	with	976-2016_Addendum_5-Drawing_1-0102-BGAD-G029-R01.pdf

K – High Rate Clarification Building

Replace:	976-2016_Drawing_1-0102-BAAA-K002-R00.pdf	with	976-2016_Addendum_5-Drawing_1-0102-BAAA-K002-R01.pdf
Replace:	976-2016_Drawing_1-0102-BGAD-K002-R00.pdf	with	976-2016_Addendum_5-Drawing_1-0102-BGAD-K002-R01.pdf
Replace:	976-2016_Drawing_1-0102-BSCH-K002-R00.pdf	with	976-2016_Addendum_5-Drawing_1-0102-BSCH-K002-R01.pdf

R – BNR Facility (Bioreactors & Blower Bldg)

Replace:	976-2016_Addendum_4-Drawing_1-0102-BDTL-R004-R01.pdf	with	976-2016_Addendum_5-Drawing_1-0102-BDTL-R004-R02.pdf
Replace:	976-2016_Addendum_4-Drawing_1-0102-BDTL-R006-R01.pdf	with	976-2016_Addendum_5-Drawing_1-0102-BDTL-R006-R02.pdf
Replace:	976-2016_Addendum_4-Drawing_1-0102-BGAD-R009-R01.pdf	with	976-2016_Addendum_5-Drawing_1-0102-BGAD-R009-R02.pdf
Replace:	976-2016_Addendum_4-Drawing_1-0102-BGAD-R010-R01.pdf	with	976-2016_Addendum_5-Drawing_1-0102-BGAD-R010-R02.pdf
Replace:	976-2016_Addendum_4-Drawing_1-0102-BGAD-R011-R01.pdf	with	976-2016_Addendum_5-Drawing_1-0102-BGAD-R011-R02.pdf
Replace:	976-2016_Drawing_1-0102-EFAS-R002_Sht001-R00.pdf	with	976-2016_Addendum_5-Drawing_1-0102-EFAS-R002_Sht001-R01.pdf
Replace:	976-2016_Drawing_1-0102-EFAS-R003_Sht001-R00.pdf	with	976-2016_Addendum_5-Drawing_1-0102-EFAS-R003_Sht001-R01.pdf

S - Secondary Clarifiers

Replace:	976-2016_Drawing_1-0102-BDTL-S007-R00.pdf	with	976-2016_Addendum_5-Drawing_1-0102-BDTL-S007-R01.pdf
Replace:	976-2016_Drawing_1-0102-EFAS-S002_Sht001-R00.pdf	with	976-2016_Addendum_5-Drawing_1-0102-EFAS-S002_Sht001-R01.pdf
Replace:	976-2016_Drawing_1-0102-EFAS-S003_Sht001-R00.pdf	with	976-2016_Addendum_5-Drawing_1-0102-EFAS-S003_Sht001-R01.pdf

Replace: 976-2016_Drawing_1-0102-EGAD-S003_Sht01-R00.pdf with 976-2016_Addendum_5-Drawing_1-0102-EGAD-S003_Sht01-R01.pdf

U – UV Disinfection Building

Replace: 976-2016_Drawing_1-0102-EFAS-U001_Sht001-R00.pdf with 976-2016_Addendum_5-Drawing_1-0102-EFAS-U001_Sht001-R01.pdf

976-2016_Drawing_1-0102-EFAS-U002_Sht001-R00.pdf 976-2016_Addendum_5-Drawing_1-0102-EFAS-U002_Sht001-R01.pdf

QUESTIONS AND ANSWERS

- Q1: Section 01 79 00 Item 1.6 provides a schedule of required training days per shift for individual equipment items. Are these days in addition to the training requirements in the individual equipment sections referenced? The individual equipment sections have different requirements from this chart and do not require per shift amounts of training. Please clarify the training requirements referenced in this chart.
- A1: The table provided in 1.6.A of Section 01 79 00 is intended to summarize the training requirements listed in the individual Sections, and are not in addition to the training requirements of the individual Sections. The number of training hours or days listed in the table and in the individual equipment specification Sections are the minimum per-shift requirements, as per 01 79 00, 1.1 E. If there are instances where the individual equipment Specifications conflict with the table in Section 01 79 00, assume the most onerous requirement will apply.
- Q2: For the actuators on XV-R6011 and XV-R6021 I received the following email for my supplier of the Rotork/Schischek actuators regarding the schedule:
The factory has come back advising that the IQT Pro ex-proof rate actuator requires external 24v supply for fail close function, which I suspect is not going to be satisfactory. No spring return available on any IQ series. Not to mentioned that the smallest sized IQT actuator has torque rating of 125 NM (1106 in-lbs) so way oversized for the 80 in-lbs (torque requirements of XV-R6011 and XV-R6021). And the CVA series is not available in 575 VAC 3-phase.
They are asking if there is a reason for the 3-phase 575VAC and if it is the only available voltage, or if 120VAC is available? In which case they could offer the Schischek actuator (w/spring return) for these two tags as well. Can you confirm on this as that would seem to make the most sense and not sure why just these 2 tags are called up with IQ series unless its due to the 3-phase voltage.
Let me know if we are able to quote these two units with Schischek actuators instead or how you would like to proceed regarding this matter.
- A2: Please see the valve schedule in 40 27 02 for these valves. The valve schedule you had attached have been corrected in this addendum to show "fail last".
- Q3: What is the maximum flow rate per channel for the channels influent to the existing grit building.

- A3: The design maximum flow rate to Grit Tanks 1&2 is 220 ML/d, and the design maximum flow rate to Grit Tanks 3&4 is 200 ML/d.
- Q4: See drawing 1-0102-SGAD-U006. How are the new concrete liner walls secured to the existing walls? Are they dowelled or other? Please provide a detail.
- A4: No dowels are anticipated at this time. Prepare surface as required for bonded concrete topping per specifications.
- Q5: Is the 175mm aluminum-faced insulation specified at type C1 walls in the blower and HRC buildings to be installed as part of Contract 4?
- A5: Shall be in contract 4 (Bid Op 976-2016).
- Q6: Please confirm that the perimeter insulation at the blower and HRC buildings (and under-slab insulation shown at the blower building) will be installed as part of Contract 3.
- A6: Perimeter insulation of the BNR and blower building will be done in 899-2015. Under slab insulation in the blower building will be done in 899-2015.
- Q7: Drawing 1-0102-SGAD-T003 shows "SST CHKD PL COVER (0554-003) Type C." Detail 0554-003 on Drawing 1-0102-SDTL-A008 shows embedded anchors for the hatch. Given that the roof is existing concrete, how should the hatch be installed?
- A7: Demolition of the existing covers will require partial removal of the concrete curb. The curb shall be repaired in conjunction with installation of new cover.
- Q8: See Section A of drawing 1-0102-SGAD-D004. Dowels appear to be shown on the vertical and horizontal surfaces of the benching, but not on Section B or on detail 0330- 078. Are the dowels required and if so, what is the spacing of these dowels?
- A8: Yes, dowels are required. Size and spacing to match what is shown on Section A.
- Q9: See drawing 1-0102-SGAD-T001. Note 3 reads "For the existing oxygen reactor tank (between gridline C1 and B1) and new humidifier room repair all interior exposed concrete as per spec 03 01 32 and 03 01 33". No oxygen reactor tank is shown between gridline C1 and B1. Please clarify.
- A9: The existing tank just north of the Biofilters is the existing oxygen reactor tank noted. It is actually from gridlines A1 to C1 and can be better seen on SEP-339.
- Q10: See drawings 1-0102-SGAD-S035 AND 1-0102-SGAD-S036 regarding the cable trench with the secondary clarifiers. There is a note specifying top of curb and removable covers EL 230.462 UNO. All details corresponding

with this note on DWG 1-0102- SGAD-036 have the elevation listed as 231.462. Please clarify which elevation is correct.

- A10: There is a portion of the cable trench which is sloping. The portion with variable elevation is closest to the pump room. See Section A on S036.
- Q11: See Appendix C Site Delineation and Snow Removal. The North side laydown area designated for contract 976-2016 is currently occupied by others. Will this area be fully available to the Contract 4 Contractor by award of Contract 4? Also, will the fencing surrounding this laydown area remain in place?
- A11: Appendix C will be updated to show this area will not be available until March 2018. The fencing will remain until there is only one prime contractor on site. After that, the temporary fencing may be removed.
- Q12: General Conditions C12 Measurement and Payment; In lieu of Builders Lien Holdback retention, would the City of Winnipeg consider a 7.5% On-Demand Security Bond or Letter of Credit in lieu of retention?
- A12: No.
- Q13: General Conditions C12 Measurement and Payment; As per supplemental conditions D34 Warranty: Portions of the work will be used for its intended purpose prior to Substantial or Total performance of the Work and the warranty period will commence upon acceptance of the work by the City of Winnipeg and the Contract Administrator. Once these areas have been accepted, operating and used for its intended purposes, will the City of Winnipeg grant partial release of the Builders Lien Holdback associated with these areas?
- A13: No.
- Q14: General Conditions C12 Measurement and Payment; What are the City of Winnipeg Payment Terms following the approved progress estimate and associated invoice by the Contract Administrator? General Conditions C12 and Supplemental Conditions D32 do not indicate any timelines for payment.
- A14: The City shall endeavour to make payment in Canadian funds to the Contractor within thirty (30) Calendar Days after receipt and approval of the Contractor's invoice.
- Q15: Supplemental Conditions - D32. Payment; a. Please indicate the purpose of withholding 3% value of the total contract price until Total Performance is achieved. The project already includes a 50% Performance bond which will be retained by the City of Winnipeg and valid through the Warranty Period. As per the Builders Lien requests above, will the City of Winnipeg grant release of the remaining 3% upon completion and acceptance of the work per the D34.3 Warranty conditions (a) to (n)?
- A15: Withholding 3% of the contract price is to encourage the Contractor to complete the Work expeditiously and in an acceptable manner between the time of receiving Substantial Performance to Total Performance. Release of the remaining 3% will occur when Total Performance is issued.

- Q16: See General Notes drawing 1-0102-SGAD-Y001 Sht 001. The note under Facilities Sitework (Duct Bank), note 5. Reads "Backfill sides and top of duct bank with 150mm Type 2 fill". Specific note 5 on Drawing 1-0102-SGAD-A002 Sheet 001 reads "For top of concrete duct bank backfill details refer to drawing 1-0102-EDTL-A002 Sheet 001. This drawing indicates stabilized fill or lean concrete fill to the sides of the duct bank. This is a contradiction. Please clarify.
- A16: Please use Type 2 backfill. This has been clarified via this addendum.
- Q17: See drawing 1-0102-SGAD-R009. Note 3 reads that, "Provide anti-slip traffic topping finish to all Bioreactor concrete roof surfaces". There is also a note pointing to the roof that reads the same. The building sections, however, do not indicate any traffic topping. Is this traffic topping to be included in Contract 4? If yes, does it apply to the precast roof, cast-in-place concrete roof, or both?
- A17: Yes, the traffic topping is included in Contract 4. This applies to the concrete surfaces on the roof of the bioreactor tanks. This does not apply to the roof of the Blower Building east of Grid 9r.
- Q18: There is no pay item in Form B: Prices for the asbestos abatement in the Service Building, however Appendix M – 2015 Asbestos Bulk Sampling Report references asbestos abatement in Service Building. Please advise where this item is to be entered on Form B: Prices.
- A18: Pay item have been added via this addendum.
- Q19: There is a pay item in Form B: Prices for the asbestos abatement in Facility Area T – Biofilter / Odour Control, however there is no reference in the Appendix M – 2015 Asbestos Bulk Sampling Report for abatement in this area. Please provide more details for abatement scope of work in Facility Area T.
- A19: Pay item have been added via this addendum.
- Q20: There are no pay items in Form B: Prices for the structural demolition in the Headworks area, Primary Clarifiers and Secondary Clarifiers, however there are references for the demolition scope in the structural and architectural drawings Please advise where these demolition scopes are to be entered on Form B: Prices.
- A20: Pay item have been added via this addendum.
- Q21: Drawing 1-0102-CUTY-Y001 shows Gas Line Service Connection alignment between HRC and Chemical / Electrical Building. There is no pay item for this scope on Form B: Prices. Please advise where this item is to be entered on Form B: Prices.
- A21: 3.6

- Q22: Drawing number 1-0102-CRSW-A002 Sheet 003 refers to “2.4m tall chain link fences and gates (coordinate with electrical drawings)”. Drawing 1-0102-EGRD-C002 also shows this fence. There is not a line item for this fencing work in the bid submission Form B: Prices. Please advise where this item is to be entered on Form B: Prices.
- A22: 3.7
- Q23: Drawing number 1-0102-CGAD-A003 Sheet 008 calls to “remove existing asphalt pavement” and “remove & replace existing concrete barrier curb with new 200 tall concrete barrier curbs”. There are not any line items for this work in the bid submission. Please advise where this item is to be entered on Form B: Prices.
- A23: Pay item added for planing of existing asphalt pavement in Addendum 3. On Bid Submission (Addendum 3), item 13.71 "Planing of Pavement, 1 – 50mm depth, asphalt surface". Concrete curb renewal for barrier curb is in items 13.34 through 13.37 in Bid Submission Addendum 3. Pay items names were revised in Addendum 4 to reflect that they are renewals of 200mm tall curb.
- Q24: Drawing number 1-0102-CGAD-A003 Sheet 008 calls to “plug and abandon existing sewer under footprint of new grit & screenings buildings”. There is not a line item for this scope of work in the bid submission Form B: Prices. Please advise where this item is to be entered on Form B: Prices.
- A24: 5.11
- Q25: There are pay items for precast concrete piles in several places on Form B: Prices, but no unit price for the piles to the duct banks or substation. Please advise where the piles for the Substation and Duct Banks are to be entered on Form B: Prices.
- A25: Pay items have been added via this addendum.
- Q26: The site drawings show over 100 bollards. Several more show up on the building drawings. For example, there appear to be 20 bollards surrounding the Chemical/Electrical building on drawing 1-0102-BGAD-C002. Are these bollards incidental to the building concrete or are they included in the 55 that are on Form B: Prices under the Area Y Yard section? If they are incidental, how do we determine which are carried in sitework and which are incidental?
- A26: Please assume they are included in the approximate quantity shown on Form B. Form B is revised via this addendum to show an approximate quantity of 90 bollards.
- Q27: Drawing No: 1-0102-BGAD-BD50-Sheet 001 refers to “removing of full height CMU wall, removing of motorized damper and installing aluminum faced insulated blank-off panel, closing off unused exposed holes for pipe penetration with concrete infill and installing tyndal stone”. There is no pay item for these in the bud submission Form B: Prices. Please advise where this item is to be entered on Form B: Prices.
- A27: Pay item for demolition has been added via this addendum.

Q28: The typical joint sealant on backer rod as noted on Drawing 1-0102-BGAD-G003 is shown as part of the Contract 4 scope of work, please confirm that this is the case and that it will not be installed as part of Contract 3.

A28: All joint sealant and caulking work shall be in Contract 4 (Bid Op 976-2016).