SECTION 01 11 00

SUMMARY OF WORK

PART 1 GENERAL

1.1 SUMMARY

A. This section outlines in general the work to be done under the Contract at the South End Sewage Treatment Plant (SEWPCC).

B. Recognize that the Work is an expansion of an existing wastewater treatment plant that must be kept in continuous uninterrupted operation. Plan and schedule the Work consistent with specified operational constraints and with the objective of uninterrupted operation of the existing plant.

C. Construct and test foundations, structures, tanks, and other facilities shown on the Contract Drawings and specified herein.

D. Supervise, organize, coordinate and direct construction operations of Sub-trades and Suppliers.

E. In addition to constructing the works shown on the Drawings, design, construct, and maintain, unless otherwise specified or shown on the Contract drawings, temporary works and facilities required for the construction of the works. Remove temporary works and facilities when construction is completed unless otherwise requested. Temporary works and facilities include, but are not limited to the following:

1. Excavation dewatering systems
2. Groundwater depressurization
3. Formwork for concrete
4. Falsework and bracing for formwork or for other parts of the works while under construction
5. Bracing and shoring for partially completed masonry, steelwork, precast concrete, or other assembly
6. Scaffolding
7. Electrical, instrumentation, and water services
8. Snow removal
9. Blind flanges, valves, plugs necessary for water leak testing of tanks
10. Temporary Contractor trailers, including servicing (sewer, water, power, communications)
11. Temporary vehicular access and parking development, maintenance, and restoration
12. Erosion control measures
13. Ramps and railings for access to facility exit doors impacted by the Work as shown on the Drawings
14. Dewatering of excavations
15. Traffic control and signs

1.2 WORK COVERED BY CONTRACT DOCUMENTS

A. The completed Work will provide the City with concrete tanks and superstructures complete with necessary concrete encased piping for the Bioreactors, Blower Building, Secondary Clarifiers, by-pass pipe and chambers, and other miscellaneous areas, ready for future fit up (by others) of mechanical and electrical equipment and architectural works.

B. The Contract includes but is not limited to the following work:

1. Localized excavation as necessary in the Bioreactor area, Blower Building, and Secondary Clarifiers building areas to accommodate drain pipe, process pipe, bedding, and void form.
2. Backfill and rough grading for the Secondary Clarifiers 4 & 5, Bioreactors, and Blower Building. Backfill elevation for north and west of Secondary Clarifiers 4 & 5 shall be to 231.637. Backfill elevation for south of Secondary Clarifiers 4 & 5 shall be to 233.277. Backfill elevation for Bioreactors/Blower Building shall be to 232.400. Backfill elevation for the area between existing HPO Reactors and new Bioreactors tanks shall be to 232.600. See Appendix E – 899-2015 Sketch No 1 Backfill Limits.
3. Supply and Install precast concrete piles in the Bioreactor and Blower Building areas.
4. Cut-off of existing piles in areas requiring localized excavation, including BNR piles 439A, 439C, 466, 467 and Secondary Clarifier piles 1, 2, 3, 214, 215, and 216 located in the centres of each Clarifier.
5. Supply and Install Bioreactors concrete structures
6. Supply and Install Blower Building concrete structure
7. Supply and Install Secondary Clarifiers concrete structure
8. Supply and Install precast double ‘T’ Blower Building roof.
9. Supply and Install grating, checker plate hatches/covers and handrails as shown on the drawings
10. Supply and Install piping embeds and all concrete openings as shown on the drawings
11. Supply and Install concrete encased piping
12. For roof membranes, Supply and Install the vapour retardant only as per clause 2.1.F in Specification 07 52 16 – SBS Modified Bituminous Membrane Roofing. Extend vapour retardant 400mm up sides of temporary wood blocking around openings, and 400mm down exterior concrete wall around building perimeter.
13. Installation of City Supplied Slide and Flap Gates in the land drainage system as shown on the drawings.
14. Installation of block-outs for gates and stop-logs as shown on the drawings
15. Removal of shoring to facilitate construction of Bioreactors, Blower Building, Secondary Clarifiers, By-pass and Chambers and other miscellaneous structures. Shoring shall be removed as backfilling is completed and as approved by the Contract Administrator.
16. Supply and Install heating and hording as necessary in performing the Work, including frost removal at locations requiring localized excavation and or concrete work

17. Provide survey layout of the Work and periodic survey monitoring of existing shoring and structures for movement
18. Water leak testing and backfill of Bioreactors, Blower building, Secondary Clarifiers, by-pass and chambers, other miscellaneous structures including all water retaining tanks and channels.
19. Supply and Install 2 (two) temporary generators (duty / standby) to power the deep well dewatering pumps (supplied by others)
20. Provide groundwater monitoring and operations services during the dates specified in the Contract
21. Dewatering of Bid Op 899-2015 work areas during construction as per specification 31 23 19 Dewatering and monitoring. Maintain existing roads used during construction and leave these roads in as good a condition as they were prior to site work
22. Provide miscellaneous road maintenance during the performance of the work to maintain 24/7 access for operations staff and sludge haul trucks
23. Submittal of all documentation including shop drawings, as-builts complete with survey in UTM (Northing, Easting, Elevation) coordinates, manuals, and other specific documentation as detailed by the Contract documents and required by the Contract Administrator.
24. Supply and Install temporary covers for roof and floor openings in the areas of the Work. Covers shall address safety hazards and water ingress. Supply and Install barriers and signage as required to make the areas safe. Temporary covers, signage, and barriers shall remain in place at the completion of the Work.
25. Maintain new and existing material stock piles
26. Environmental protection during the construction period
27. Supply of all materials, equipment, tools, implements, and labour necessary to perform the Work
28. Cleaning up on completion of the Work
29. Warranty.

C. Some Contract Drawings show items that are not included in the Work. The following table shall be read in conjunction with the Contract Drawings and is part of the Work. Items included in the Work may only be identified once and may not be identified in all drawings where the Work appears.

Drawing Reference	**Description of Work**
1-0102-CUTY-Y001 SHT-001	Supply and Install 2100 dia. Concrete by-pass and chambers as shown on the drawings.
1-0102-CUTY-Y001 SHT-002	Supply and Install 2100 dia. Concrete by-pass and chambers as shown on the drawings. Electrical duct bank is by others.
1-0102-CUTY-Y001 SHT-003	Supply and Install 2100 dia. Concrete by-pass and chambers as shown on the drawings. By-pass east of Chamber No. 10 is by others.
1-0102-CUTY-Y003 SHT-001	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-CUTY-Y004	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.

Drawing Reference	Description of Work
1-0102-CGAD-R001	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-CGAD-S001	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SDTL-A001	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SFDW-R001	Supply and Install piles as shown in the clouded area of the drawing. All existing piles locations and elevations to be verified by Contractor.
1-0102-SFDW-R002	Supply and Install piles as shown in the clouded area of the drawing. All existing piles locations and elevations to be verified by Contractor.
1-0102-SFDW-R003	Supply and Install piles as shown in the clouded area of the drawing. All existing piles locations and elevations to be verified by Contractor.
1-0102-SFDW-R004	Supply and Install piles as shown in the clouded area of the drawing. All existing piles locations and elevations to be verified by Contractor.
1-0102-SFDW-R005	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SFDW-R006	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R001	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R002	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Supply and Install of Concrete equipment pads by others. Supply and Install of ladders by others.
1-0102-SGAD-R003	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others. Supply and Install of ladders by others.
1-0102-SGAD-R004	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Supply and Install of ladders by others.
1-0102-SGAD-R005	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R006	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Supply and Install of ladders by others.
1-0102-SGAD-R007	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Supply and Install of ladders by others.
1-0102-SGAD-R008	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Supply and Install of ladders by others.

Drawing Reference	Description of Work
1-0102-SGAD-R009	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R010	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R011	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R012	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R013	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others.
1-0102-SGAD-R014	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R015	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R016	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R017	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R018	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R019	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R020	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R021	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Supply and Install of ladders by others.
1-0102-SGAD-R022	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Supply and Install of ladders by OTHERS. Concrete equipment pads are by others.
1-0102-SGAD-R023	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others.
1-0102-SGAD-R024	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others.
1-0102-SGAD-R025	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others. Supply and Install of ladders by others.
1-0102-SGAD-R026	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R027	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R028	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.

Drawing Reference	Description of Work
1-0102-SGAD-R029	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others.
1-0102-SGAD-R030	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others.
1-0102-SGAD-R031	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R032	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R033	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others.
1-0102-SGAD-R034	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Supply and Install of ladders by others.
1-0102-SGAD-R035	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Supply and Install of ladders by others.
1-0102-SGAD-R036	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-R037	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others.
1-0102-SGAD-R038	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SDTL-R001	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-R002	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-R003	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-R004	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-R005	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-R006	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-R007	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SSCH-R001	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-S001	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others.

Drawing Reference	Description of Work
1-0102-SGAD-S002	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. 50mm concrete topping by others.
1-0102-SGAD-S003	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. 50mm concrete topping by others. Concrete equipment pads are by others.
1-0102-SGAD-S004	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others.
1-0102-SGAD-S005	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others.
1-0102-SGAD-S006	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others.
1-0102-SGAD-S007	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. FRP covers by others. Confirm FRP cover details with Contract Administrator prior to construction of launder.
1-0102-SGAD-S008	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. FRP covers by OTHERS. Confirm FRP cover details with Contract Administrator prior to construction of launder.
1-0102-SGAD-S009	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Precast concrete electrical trench by others.
1-0102-SGAD-S010	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-S011	Overall Plan: See referenced plans and sections for description of work.
1-0102-SGAD-S012	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Metal walkway bridge is by others.
1-0102-SGAD-S013	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Metal walkway bridge is by others.
1-0102-SGAD-S014	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. CMU walls are by others. Precast concrete electrical trench by others. Walkway B west of Gridline 1s by others. Concrete equipment pads are by others.
1-0102-SGAD-S015	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others.
1-0102-SGAD-S016	Overall Plan: See referenced plans and sections for description of work.
1-0102-SGAD-S017	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. CMU walls are by others.
1-0102-SGAD-S018	All Work as shown on the drawing is to be Supplied and

Drawing Reference	Description of Work
	Installed in Bid Op 899-2015. CMU walls are by others.
1-0102-SGAD-S019	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete topping by others.
1-0102-SGAD-S020	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete topping by others.
1-0102-SGAD-S021	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others. 300mm thick geofoam, 300mm earth cover, and PVC sheet per Note 5 is by others.
1-0102-SGAD-S022	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads and concrete pipe supports are by others. 300mm thick geofoam, 300mm earth cover, and PVC sheet per Note 5 is by others.
1-0102-SGAD-S023	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. 300mm thick geofoam, 300mm earth cover, and PVC sheet is by others.
1-0102-SGAD-S024	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Walkway B west of Gridline 1s by others.
1-0102-SGAD-S025	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-S026	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-S027	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others. 300mm thick geofoam, 300mm earth cover, and PVC sheet per Note 1 is by others.
1-0102-SGAD-S028	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others. 300mm thick geofoam, 300mm earth cover, and PVC sheet per Note 5 is by others.
1-0102-SGAD-S029	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. 300mm thick geofoam, 300mm earth cover, and PVC sheet per Note 5 is by others.
1-0102-SGAD-S030	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015. Concrete equipment pads are by others. 300mm thick geofoam, 300mm earth cover, and PVC sheet per Note 5 is by others.
1-0102-SGAD-S031	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-S032	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-S033	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SGAD-S050	Removal of existing drop shaft between gridlines 3 and 4 and north of gridline A shall be part of the Work. Demolition work shown at gridline 10 between gridlines A and B

Drawing Reference	Description of Work
	is by others.
1-0102-SGAD-S051	Removal of existing stair and landing, including burn back exposed rebar 25mm and dry pack with non-shrink grout, shall be part of the Work. Demolition shown north of gridline A between gridlines 7 and 8 shall be part of the Work. Demolition shown on gridline A between gridline 3 and 4 is by others.
1-0102-SGAD-S052	For information. Demolition is by others.
1-0102-SGAD-S053	Demolition near gridline A and 8, Plan at Effluent Conduit, shall be part of the Work. Demolition near gridline A and 4, Plan at Stop Gates, is by others.
1-0102-SGAD-S054	Demolition shown in section 7, near gridline 10 between elevations 231.036 and 233.477, shall be part of the Work. Demolition shown in section 1, near gridline A and near elevation 232.277, is by others.
1-0102-SDTL-S001	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
1-0102-SSCH-S001	All Work as shown on the drawing is to be Supplied and Installed in Bid Op 899-2015.
SEP-334	All Work as shown in the clouded area of the drawing is to be Supplied and Installed in Bid Op 899-2015.
SEP-339	Perform required demolition for installation of walkway connecting roof of Bioreactors to roof of Biofilters. Demolition of channel connections is by others.
1-0102-SDTL-A002	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-A003	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-A004	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-A005	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-A006	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-A007	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-A008	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-A009	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-A010	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-A011	Standard details for applicable work as shown on the drawings and as detailed in the specifications.

Drawing Reference	Description of Work
1-0102-SDTL-A012	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-A013	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-A014	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-A016	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-SDTL-A017	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-PDTL-A001	Legends for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-PGAD-R001	Overall Plan: See referenced plans and sections for description of work.
1-0102-PGAD-R002	Supply and Install: • 900-ML-SS01 from east of gridline 3r to tank TK-R103 • Embeds in WAS Sump TK-R300 • Embedded pipe for WAS Sump Mixing Pump • 900 dia access hatch between tanks TK-R101 and TK-R102 located on gridline Cr • 900 dia access hatch between tanks TK-R102 and TK-R103 located on gridline Dr • 900 dia access manway between tank TK-R103 and Pipe gallery on gridline 7r • Embeds along gridline 7r • Concrete encased 250-PD-SS01 Pipe in Pipe gallery 8 and north of Ar Concrete encased 250-PD-SS01 north of gridline FrAll mixers, manual slide gates, pumps, aeration piping, and IFAS cylindrical sieves is by others.
1-0102-PGAD-R003	Supply and Install: • 900-ML-SS01 from east of gridline 3r to tank TK-R113 • 900 dia access hatch between tanks TK-R111 and TK-R112 located on gridline Hr • 900 dia access hatch between tanks TK-R112 and TK-R113 located on gridline Jr • 900 dia access manway between tank TK-R113 and Pipe gallery on gridline 7r • Embeds along gridline 7r • Concrete encased 250-PD-SS01 Pipe in Pipe gallery 8A between gridlines 7r and 9r • Concrete encased 250-PD-SS01 north of gridline Lr All mixers, manual slide gates, pumps, and aeration piping is by others.
1-0102-PGAD-R004	Supply and Install: • 900-ML-SS01 from east of gridline 3r to tank TK-R123

Drawing Reference	Description of Work
	• 900 dia access hatch between tanks TK-R121 and TK-R122 located on gridline Mr • 900 dia access hatch between tanks TK-R122 and TK-R123 located on gridline Nr • 900 dia access manway between tank TK-R123 and Pipe gallery on gridline 7r • Embeds along gridline 7r • Concrete Encased 250-PD-SS01 Pipe in Pipe gallery 8 between gridlines 7r and 9r • Concrete encased 250-PD-SS01 north of gridline Qr All mixers, manual slide gates, pumps, and aeration piping is by others.
1-0102-PGAD-R005	Overall Plan: See referenced plans and sections for description of work.
1-0102-PGAD-R006	Supply and Install: • Encased 150-SC-SS01 Scum Pipe on exterior from existing system to new WAS Sump located left gridline 1r and north of gridline Ar. • 150-SC-SS01 embeds and pipe along gridline Ar west of gridline 3r • 150-WAS-SS01, 250-WAS-SS01 Embeds in WAS Sump TK-R300 • 100-FSW-SS01 embed near gridline Br and east of 4r • 50-VTA-SS01 embeds near gridline Br and west of 7r • 350-PE-SS01 embeds between gridline 7r and 8r north of Cr • 600-RAS-SS01 and 250-WAS-SS01 embeds between gridline 8r and 9r north of Cr • 750-RAS-SS01 embeds between gridline 8r and 9r south of BrOF embeds near gridline 8r, between Er and Fr All scum transfer grating, sieves in IFAS zone, slide gates, aeration manifolds are by others.
1-0102-PGAD-R007	Supply and Install: • 350-PE-SS01 embeds between gridline 7r and 8r south of Gr • 600-RAS-SS01 embeds between gridline 8r and 9r north of Hr • OF embeds near gridline 8r, between Jr and K All scum transfer grating, sieves in IFAS zone, slide gates, aeration manifolds are by others.
1-0102-PGAD-R008	Supply and Install: • 350-PE-SS01 embeds between gridline 7r and 8r north of Mr • 600-RAS-SS01 embeds between gridline 8r and 9r north of Mr

Drawing Reference	Description of Work
	• 250-WAS-SS01 embeds between gridline 8r and 9r north of Qr • 50-PD-SS01 embeds between gridline 7r and 8r north of Qr • OF embeds between near gridline 8r between Nr and Pr All scum transfer grating, sieves in IFAS zone, slide gates, aeration manifolds are by others.
1-0102-PGAD-R009	Overall Plan: See referenced plans and sections for description of work.
1-0102-PGAD-R010	Supply and Install: • Confined space entry davit embeds All scum transfer grating, sieves in IFAS zone, slide gates, aeration manifolds, coarse bubble are by others.
1-0102-PGAD-R011	All scum transfer grating, sieves in IFAS zone, slide gates, aeration manifolds, coarse bubble are by others.
1-0102-PGAD-R012	All scum transfer grating, sieves in IFAS zone, slide gates, aeration manifolds, coarse bubble are by others.
1-0102-PGAD-R013	Supply and Install: • ALP embeds to air plenum near gridline 12r • ALP embeds along gridline 8r.
1-0102-PGAD-R014	section A Supply and Install: • Encased 150-SC-SS01 Scum Pipe on exterior from existing system to new WAS Sump • 150-SC-SS01 embeds west of 3r below EL. 234.400 (2 places) • Level transmitter embed west of 1r at EL 234.400 • Embeds for 150-WAS-SS01 in Sump TK-R300 between 4r and 5r • 150-WAS-SS01, 200-WAS-SS01 located between gridlines 4r and 5r. • Embed for 50-PD-SS01 located between gridlines 4r and 5r. • Embed for LIT-R3002-1 and LIT-R3002-2 located between gridlines 4r and 5r. • Concrete 250-PD-SS01encased pipe between 6r and 8r section A1 Supply and Install • 100-FSW-SS01 embeds near gridline 4r including the vertical section of the pipe inside the channel • Three 75 mm diameter stainless steel sleeves for the 25-FC-PV03 pipes WAS embed near gridline 4r

Drawing Reference	Description of Work
	section B Supply and Install: • 900-ML-SS01 from gridline 3r to 6r • 350-PE-SS01, 600-RAS-SS01, embeds along gridline 7r • 250-PD-SS01 with valve between gridlines 7r and 8r600-RAS-SS01, 350-PE-SS01 embeds between gridlines 7r and 9r at EL. 232.105 • 750-RAS-SS01 embed between gridlines 8r and 9r • Concrete encased 250-PD-SS01 between gridlines 7r and 9r • LT embed pipe between gridline 4r and 5r, at EL 234.400. All gates, mixers, actuators, pumps, valves are by others.
1-0102-PGAD-R015	section C Supply and Install: • 350-RAS-SS01 embed near gridlines 8r, and elevation 233.300 • Embedded 250-PD-SS01 process drain between gridlines 9r and 7r and concrete encased to near gridline 1r • 900 dia access manway along gridline 7r • LT embed pipe between gridline 4r and 5r, at EL 234.400. section D Supply and Install: • 900-ML-SS01 from gridline 5r to 6r • 900 dia access hatch between gridlines 6r and 7r • 100-FSF embeds along gridline 7r • 350-RAS-SS01 embed near gridlines 8r, and elevation 233.300 • Concrete encased 250-PD-SS01 between gridlines 9r and 7r • 250-PD-SS01 with valve between gridlines 7r and 8r
1-0102-PGAD-R016	section E Supply and Install: • 900-ML-SS01 from gridline 3r to 6r • 900 dia access hatch between tanks • 75-FSF-SS01, 250-PD-SS01 embeds along gridline 7r • ALP embeds between 9r and 10r at EL. 232.105 • Embedded 250-PD-SS01 process drain between gridlines 9r and 7r • ALP embeds to air plenum near gridline 12r section F Supply and Install: • 250-WAS-SS01 floor embed between 8r and 9r

Drawing Reference	Description of Work
	• Embedded process drain between gridlines 8r and 7r • 250-PD-SS01 Wall embeds along gridline 7r and concrete encased to near gridline 4r • 900 dia accesss hatch along gridline 7r • LT embed pipe between gridlines 4r, 5rat elevation 234.400 • ALP embed between right of gridlines 2r at 234.400
1-0102-PGAD-R017	section G Supply and Install: • All ALP embeds to air intake plenum section H section J Supply and Install: • ALP floor embeds at elevation 232.650 All pipe and blowers is by others.
1-0102-PGAD-R018	section J (Part A and B) Supply and Install • Concrete encased 250-PD SS01 between gridline Rr and Ar • All 250-WAS-SS01, 350-PE-SS01, 600-RAS-SS01, 200-PD-SS01 embeds at EL. 232.105 All piping, valves, instrumentation is by others.
1-0102-PGAD-R019	section K (Part A and B) For information, See other drawings for scope of work.
1-0102-PGAD-R020	section L (Part A and B) For information, See other drawings for scope of work.
1-0102-PGAD-R021	section M (Part 1 and part 2) For information, See other drawings for scope of work.
1-0102-PGAD-R022	section N For information, See other drawings for scope of work.
1-0102-PGAD-R023	section P For information, See other drawings for scope of work.
1-0102-PGAD-R024	section Q For information, See other drawings for scope of work.
1-0102-PGAD-S001	Overall Plan: See referenced plans and sections for description of work.
1-0102-PGAD-S002	All pumps, piping, valve are by others. Supply and Install 150-FE-SS01 and 200-FE-SS01 located at gridline 1s.
1-0102-PGAD-S003	Supply and Install: • Concrete encased 900-ML-SS01, 350-RAS-SS01, 600-RAS-SS01, • Concrete encased 300-PD-SS01 and pipe embed in

Drawing Reference	Description of Work
	clarifier wall including interconnecting pipe spool with valve HV-S150C and flexible coupling. • 250-SC-SS01 embeds located at gridlines Bs in tank TK-S140 and TK-S150
1-0102-PGAD-S004	Supply and Install: • Concrete encased 900-ML-SS01, 350-RAS-SS01, 600-RAS-SS01 • Concrete encased 300-PD-SS01 and pipe embed in clarifier wall including interconnecting pipe spool with valve HV-S140C and flexible coupling. • • 300-PD-SS01 encased and complete connection to existing process drain through a Tee between gridline 9s and 10s • 300-PD-SS01 encased and complete connection to existing process drain between gridline 9s and 10s
1-0102-PGAD-S005	Supply and Install: • Concrete encased 600-RAS-SS01, 350-RAS-SS01, 300-PD-SS01 All piping is by others.
1-0102-PGAD-S006	Overall Plan: See referenced plans and sections for description of work.
1-0102-PGAD-S007	Supply and Install: • 900-ML-SS01 embeds north of Ds near gridlines 6s and 10s • 400-PD-SS01 within the mixed liquor channel including the wall embed located gridline Fs. • Stop logs SL-S140A and SL-150B • Manual slide Gates SG-S150A and SG-S140A All other manual slide gates, stop logs, and piping is by others.
1-0102-PGAD-S008	Overall Plan: See referenced plans and sections for description of work.
1-0102-PGAD-S009	For information. Slide gates, and clarifier bridge, mechanism and feedwell is by others.
1-0102-PGAD-S010	Supply and Install: • Concrete encased 900-ML-SS01, 600-RAS-SS01. All clarifier lighting, scum through and mechanism is by others.
1-0102-PGAD-S011	section C Supply and Install: • 400-PD-SS01 within the mixed liquor channel and embeds at gridline Fs and EL. 232.601 section B Supply and Install • 250-SC-SS01, 100-SC-SS01, 150-SC-SS01, 100-VENT-SS01 embeds at scum tank V-S315

Drawing Reference	Description of Work
	• 750 manway at scum tank V-S315 • Concrete encased 300-PD-SS01 All gates, pumps, piping, valves are by others.
1-0102-PGAD-S012	section D Supply and Install: • Concrete encased 900-ML-SS01, 600-RAS-SS01, 300-RAS-SS01 Walkway bridge and clarifier mechanism is by others.
1-0102-PGAD-S013	For information, all piping is by others.
1-0102-PGAD-S014	section F Supply and Install: • Concrete encased 900-ML-SS01 • 1050x900 concentric reducer embed complete with blind flange. Align with 900-ML-SS01 and demonstrate alignment to contract administrator using high precision tools. section G Supply and Install: • Concrete encased 900-ML-SS01 • 1050x900 concentric reducer embed complete with blind flange. Align with 900-ML-SS01 and demonstrate alignment to contract administrator using high precision tools. All stop logs, valves, flow elements, launder covers, effluent launders are by others.
1-0102-PDTL-A004	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-MDTL-A001 SHT-001	Legends for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-MDTL-A001 SHT-002	Legends for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-MGAD-R501	Overall Plan: See referenced plans and sections for description of work.
1-0102-MGAD-R502	Supply and Install all (gutter drains, funnel drains, cleanouts, floor drains) drains and encased piping as shown on the drawing including trap primer lines.
1-0102-MGAD-R503	Supply and Install all (gutter drains, funnel drains, cleanouts, floor drains) drains and encased piping as shown on the drawing including trap primer lines.
1-0102-MGAD-R504	Supply and Install all (gutter drains, funnel drains, cleanouts, floor drains) drains and encased piping as shown on the drawing including trap primer lines. Piping not encased in concrete and Sump Pumps is by others.
1-0102-MGAD-R505	Supply and Install all (gutter drains, funnel drains, cleanouts,

Drawing Reference	Description of Work
	floor drains) drains and encased piping as shown on the drawing including trap primer lines. Piping not encased in concrete is by others.
1-0102-MGAD-R506	Overall Plan: See referenced plans and sections for description of work.
1-0102-MGAD-R507	Supply and Install: • All (gutter drains, funnel drains, cleanouts, floor drains) drains and encased piping as shown on the drawing including trap primers lines. • Horizontal section of Rain water leader piping (RW) encased in concrete from roof drain to exterior located between on gridline 12r between gridline Hr and Jr. Washroom fixtures, janitor room fixtures, 100-VTA-CI01 not encased in concrete is by others.
1-0102-MGAD-R508	Supply and Install: • All (gutter drains, funnel drains, cleanouts, floor drains) drains and encased piping as shown on the drawing including trap primer lines • Horizontal section of Rain water leader piping (RW) encased in concrete from roof drain to exterior located on gridline 12r and left of Mr Equipment pads are by others.
1-0102-MGAD-R509	Supply and Install: • All roof drains (RD and OD) and encased piping as shown on the drawing • Provide covers for roof drains to prevent water from entering the building
1-0102-MGAD-R602	For information, HVAC ducting and heaters shown on the drawing are by others.
1-0102-MGAD-R603	Supply and Install: • Fire dampers FD-R610-3 and FD-R611-1 HVAC ducting and equipment shown on the drawing are by others.
1-0102-MGAD-R604	Supply and Install: • Fire damper FD-R610-2 HVAC ducting and equipment shown on the drawing are by others.
1-0102-MGAD-R605	For information. Blockout for SA duct near gridline 10r between gridlines Lr and Mr. HVAC ducting and equipment shown on the drawing is by others.
1-0102-MGAD-R606	Supply and Install: • Fire damper FD-R612-1
1-0102-MGAD-R607	Overall Plan: See referenced plans and sections for description of work.
1-0102-MGAD-R608	For information, NG piping shown is by others.

Drawing Reference	Description of Work
1-0102-MGAD-R609	Supply and Install: • Fire dampers FD-R610-1, FD-R620-1, FD-R620-2, FD-R640-1, FD-R640-2, FD-R640-3, FD-R652-1, FD-R653-2 For information: • Blockouts along gridline 9r for EA, EF, and SA (3 places) • Blockouts SA and EA (6 places) in area between gridlines Hr, Jr, 9r, and 12r. • Blockouts for SA and RA between gridlines Kr and Lr (2 places) • Blockouts for SA south of Lr (2 places) • Blockout for SA near gridline 10r, south of gridline Lr • Blockout for intake louvres near gridlines Lr and 12r HVAC ducting and equipment shown on the drawing is by others.
1-0102-MGAD-R610	Supply and Install: • Fire dampers FD-R610-1, FD-R620-1, FD-R620-2 For information, • Blockouts for SA, RA between gridlines Lr and Mr (2 places) • Blockouts along gridline 9r for EF, and EA (4 places) • Blockout for EA between gridlines 11r, 12r, Pr and Qr. • Blockout for Back Draft Damper near gridline Pr and Mr, West of gridline 12r (2 places). • Blockout for intake louvres along gridlines 12r • Blockouts for SR to air intake plenum west of gridline 12r HVAC ducting and equipment shown on the drawing is by others.
1-102-MGAD-R611	For information, coordinate opening locations with the Contract Administrator.
1-102-MGAD-R612	Supply and Install: • Fire damper FD-R610-1 For information, • Blockouts for Exhaust Louvers gridline 9r • Blockout for SA between gridlines 9r and 10r • Blockouts in double tee roof HVAC ducting and equipment shown on the drawing is by others.

Drawing Reference	Description of Work
1-102-MGAD-R613	Supply and Install: • Fire dampers FD-R620-1, FD-R620-2 • For information,Blockout for SA between gridlines Lr and Mr • Blockouts for SA and RA north of gridline Lr • Blockouts for SA and RA between gridlines Lr and Mr • Blockouts in double tee roof HVAC ducting and equipment shown on the drawing is by others.
1-0102-MGAD-R621	Overall Plan: See referenced plans and sections for description of work.
1-0102-MGAD-R622	Supply and Install • Embeds for FOA (9 places) All piping, gates and mixer are by others.
1-0102-MGAD-S501	Overall Plan: See referenced plans and sections for description of work.
1-0102-MGAD-S502	Supply and Install • All (gutter drains, funnel drains, cleanouts, floor drains) drains and encased piping as shown on the drawing including trap primer lines. • Wall sleeves for SPD pipe near gridline 4s (2 places). • Wall sleeve for SPD at gridline 5s. Sump pumps and piping is by others.
1-0102-MGAD-S503	Supply and Install • All (gutter drains, funnel drains, cleanouts, floor drains) drains and encased piping as shown on the drawing including trap primer lines. • Embeds for SPD (2 places) into the mixed liquor channel. • Embeds for sump pit. Sump pumps and piping is by others.
1-0102-MGAD-S504	Supply and Install • All (gutter drains, funnel drains, cleanouts, floor drains) drains and encased piping as shown on the drawing. Sump pumps and piping is by others.
1-0102-MGAD-S505	Supply and Install • Concrete encased 100-RW-CI01 between gridline 6s and 8s. • Rain water leader piping (RW) from roof drain to exterior located between gridline 2s and 3s and gridline Gs. • All (gutter drains, funnel drains, cleanouts, floor drains) drains and encased piping as shown on the drawing including trap primer lines.

Drawing Reference	Description of Work
1-0102-MGAD-S506	Supply and Install • All roof drains and drain pipes encased in concrete • Provide covers for roof drains to prevent water from entering the building
1-0102-MGAD-S601	Overall Plan: See referenced plans and sections for description of work.
1-0102-MGAD-S602	Supply and Install: • Fire dampers FD-R630-1, FD-S640-1, FD-S640-2, FD-S650-1, FD-S650-3, FD-S650-7 • For information:Wall Blockouts for SA and EA on gridlines Ds and Fs, between 3s and 4s (3 places) • Wall Blockouts for SA, RA, TG on gridline 5s, between Cs and Ds. HVAC ducting and equipment shown on the drawing is by others.
1-0102-MGAD-S603	For information. HVAC ducting and equipment shown on the drawing is by others.
1-0102-MGAD-S604	Supply and Install: • Fire dampers FD-S650-4, FD-S650-5 For information. Wall blockout for SA near gridlines 9s, between Cs and Ds
1-0102-MGAD-S605	Overall Plan: See referenced plans and sections for description of work.
1-0102-MGAD-S606	Supply and Install: • Fire dampers FD-S650-2, FD-S650-6, FD-S651-1 For information: • Wall blockout for SA and EA along gridline Fs, between 3s and 4s. • Wall blockout for SA near gridline 5s and Es HVAC ducting and equipment shown on the drawing is by others.
1-0102-MGAD-S607	Supply and Install: • Fire dampers FD-S640-3, FD-S640-5 For information: • Wall blockout for EA near gridline Es and 6s • Wall blockout for SA near gridline Ds, between 7s and 8s • Wall blockout for EF at gridline 8s, between Cs and Ds • Wall blockouts for RA and SA near gridline Ds, between 6s and 7s HVAC ducting and equipment shown on the drawing is by others.
1-0102-MGAD-S608	• For information:Floor blockout for SA near gridline 9s and Ds HVAC ducting and equipment shown on the drawing is by others.

Drawing Reference	Description of Work
1-0102-MGAD-S610	Overall Plan: See referenced plans and sections for description of work.
1-0102-MGAD-S611	For information.
1-0102-MGAD-S612	For information.
1-0102-MDTL-A002	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-MDTL-A003	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-MDTL-A008	Standard details for applicable work as shown on the drawings and as detailed in the specifications.
1-0102-ECBD-R005	The Contractor shall provide: • Concrete duct bank into into SGR-R701 and SGR-R702 complete with cover over top of the trench. Cover to seal off the entire concrete duct (to prevent dust and debris from entering the duct), and shall be rigid to allow for the safe support of personnel and equipment. Cover to be removable.
1-0102-ECRT-R001	The Contractor shall provide: • Concrete trench from the exterior wall into the switchgear concrete pad (for future installation of the main service cabling). • Metal cover overtop of trench (inside the building). • Roxtec wall seals for entry of the main service power cables in accordance with 1-0102-ECRT-R002 Detail 1. Note that this installation requires 2 complete Roxtec cable seal assemblies (ie/ 2 times the requirements shown on Detail 1). Ensure a complete and sealed wall system to prevent water ingress. The installation must be reviewed and certified by a Roxtec factory representative.
1-0102-ECRT-R002	The Contractor shall provide: • Wall penetration and Roxtec wall seals in accordance with 1-0102-ECRT-R002 detail 1. Ensure a complete and sealed wall system to prevent water ingress.
1-0102-ECTR-R001 SHT-001	The Contractor shall provide: • Exterior wall penetration Blockouts along gridline 9r (4 places). Provide wall penetration, and temporarily seal to prevent ingress of moisture. A Roxtec cable seal system will be installed in these wall penetration by others. Size the penetration according to the drawings, to allow for the Roxtec seal. • Blockouts between gridlines Hr, Mr, 10r and 12r (5 places) for wall penetration through to the mechanical room, automation room. • Blockouts for floor penetrations in the Electrical Room R-105 (1 place for tray, 1 place for conduits) and the

Drawing Reference	Description of Work
	Automation Room R109 (1 place) for penetrations to the Galleries below. All cable tray is by others.
1-0102-ECTR-R001 SHT-002	The Contractor shall provide: • Blockouts between gridlines Lr, Mr, 10r and 11r (2 places) for penetrations through the mechanical room. All cable tray is by others.
1-0102-ECTR-R001 SHT-003	For Information: • Blockouts between gridline Kr and Lr (2 trays) through the electrical room wall. All cable tray is by others.
1-0102-ECTR-R001 SHT-004	The Contractor shall provide: • Blockouts between gridline Lr and Mr (2 trays) through the mechanical room wall. All cable tray is by others.
1-0102- ECTR -R002 SHT-001	For Information. All cable tray is by others.
1-0102-ECTR-R002 SHT-002	The Contractor shall provide: • Blockouts between gridlines 9r, 10r, Hr and Lr (Vertical penetrations 2 places – 1 in the electrical room, 1 in the automation room). Note that there is a second penetration through the electrical room floor required for conduits adjacent to MCC-R710. • Blockout between gridlines 7r, 9r and Er, Fr – 2 tray penetrations through the pipe gallery walls (between Pipe Gallery 2 and Pipe Gallery 3). All cable tray is by others.
1-0102-ECTR -R002 SHT-003	For Information. All cable tray is by others.
1-0102-ECTR-R002 SHT-004	The Contractor shall provide: Blockout between gridline 6r, 7r and Ar, Br for 2 tray penetrations through the pipe gallery walls. All cable tray is by others.
1-0102-ECTR-R003 SHT-002	For Information. All cable tray is by others.
1-0102-ECTR-R004 SHT-001	This drawing is included for coordination purposes, and indicates the cable tray sections for coordination of the wall penetrations. The penetrations through the walls to allow for cable tray to pass shall be pre-fabricated / formed and included as part of this contract.
1-0102-ECTR-R004 SHT-002	This drawing is included for coordination purposes, and indicates the cable tray sections for coordination of the wall penetrations. The penetrations through the walls to allow for cable tray to pass shall be pre-fabricated / formed and included as part of this contract.

Drawing Reference	Description of Work
1-0102-EGAD-R001 SHT-001	The Contractor shall provide: • Penetrations through the electrical room floor for vertical cable tray and wiring runs. • Penetrations through the electrical room walls for cable tray runs. • Concrete trench and wall penetration and Roxtec seal for interior portion of the main service cables into SGR-R701 and SGR-R702. Portions of the duct bank exterior to the building (except for the Roxtec system – which is included in C3) will be by others.
1-0102-EGAD-R003 SHT-001, 002, 003	The Contractor shall : • Supply and install the Ufer ground system, wherever as shown on drawings, as part of the concrete work. Make electrical connections to the rebar re-enforcing steel, provide pigtail conductors for future connections to perimeter ground rod / conductors.
1-0102-EGRD-R002 SHT-001, 002	The Contractor shall : • Supply and install the Ufer ground system, wherever as shown on drawings, as part of the concrete work. Make electrical connections to the rebar re-enforcing steel, provide pigtail conductors for future connections to perimeter ground rod / conductors. • Provide ground cables routed internal to concrete, wherever as shown on drawings, for connection of structural steel members to perimeter ground. Provide pigtail conductors for future connections, when structural steel members and perimeter ground rods / conductors are installed.
1-0102-ECRT-S002 SHT-001	The Contractor shall provide: • Roxtec wall seals for entry of the main service power cables in accordance with 1-0102-ECRT-S002 and 1-0102-ECRT-S003 Detail 1. Note that this installation requires 2 complete Roxtec cable seal assemblies (ie/ 2 times the requirements shown on Detail 1). Ensure a complete and sealed wall system to prevent water ingress. The installation must be reviewed and certified by a Roxtec factory representative. • Service ground cables and conduits into the electrical room. Provide ground cables into the electrical room, and route cables to the destination, and allow for a minimum of 4 meters of slack (coiled up).

Drawing Reference	Description of Work
1-0102-ECRT-S003 SHT-001	The Contractor shall provide: • Roxtec wall seals for entry of the main service power cables in accordance with 1-0102-ECRT-S002 and 1-0102-ECRT-S003 section C and Detail 1. Ensure a complete and sealed wall system to prevent water ingress. • Penetrations through the concrete floor of the electrical room for entry of main service cables into MCC-S740 and MCC-S730.
1-0102-ECTR-S002 SHT-001	The Contractor shall provide: • Blockouts along gridline Es (Mechanical room penetrations) and near Fs, 4s (Sump Pump Area) All cable tray is by others.
1-0102-ECTR-S002 SHT-002	The Contractor shall provide: • Blockouts along gridline Ds and Es (Pump Room penetration), and between Es and Fs (Gallery 3 and Service Tunnel penetration). • Two Blockouts in the Pump Room for vertical riser between the basement and the ground floor. All cable tray is by others.
1-0102-ECTR-S003 SHT-001	The Contractor shall provide: • Blockouts along gridline 1s for cable penetrations (2 trays). All cable tray is by others.
1-0102-ECTR-S003 SHT-002	The Contractor shall provide: • Blockouts along gridline Es and Ds for penetrations into the electrical room. • Two Blockouts in the Pump Room for vertical riser between the basement and the ground floor. • Blockout adjacent to gridline 6s – 2 tray penetrations through the pipe walkway / clarifier wall. • Materials and labor to relocate any existing electrical equipment which interferes with the penetrations through the existing walls. All cable tray is by others.
1-0102-ECTR-S004	This drawing is included for coordination purposes, and indicates the cable tray sections for coordination of the wall penetrations. The penetrations through the walls to allow for cable tray to pass shall be pre-fabricated / formed and included as part of this contract.
1-0102-EGAD-S002	The Contractor shall provide: • Penetrations through the electrical room floor for vertical cable tray runs down into the pump room. • Prefabricated penetrations into the bottom of the MCCs to allow for cables to be brought into the MCCs from the bottom. Provide steel (rebar) reinforcing around the

Drawing Reference	Description of Work
	penetrations. • Penetrations through the electrical room walls for cable tray runs. • All cable tray is by others. • Electrical distribution equipment (MCCs, panels, transformers, etc) will be installed in the future under a separate contract.
1-0102-EGRD-S002 SHT-001	The Contractor shall provide: • All materials and labor for a complete grounding installation as described on these drawings. This includes but is not limited to perimeter ground cables, ufer ground, ground rods, etc. • Provide ground cables, lengths coiled up for connection of steel members. Grounding connections to be made in the future, when the steel members are installed. • Provide ground cables for grounding of the building steel cladding, at intervals indicated on the drawings.
1-0102-EGRD-S002 SHT-002	The Contractor shall provide: • All materials and labor for a complete grounding installation as described on these drawings. This includes but is not limited to perimeter ground cables, ufer ground, ground rods, etc. • Provide ground cables, lengths coiled up for connection of steel members. Grounding connections to be made in the future, when the steel members are installed. • Provide ground cables for grounding of the building steel cladding, at intervals indicated on the drawings.
1-0102-EGRD-S002 SHT-003	The Contractor shall provide: • All materials and labor for a complete grounding installation as described on these drawings. This includes but is not limited to perimeter ground cables, ufer ground, ground rods, etc. • Provide ground cables, lengths coiled up for connection of steel members. Grounding connections to be made in the future, when the steel members are installed.
1-0102-EGRD-A003	The Contractor shall : • Detail C – Supply and install the Ufer ground system as part of the concrete work. Make electrical connections to the rebar re-enforcing steel, provide pigtail conductors for future connections to perimeter ground rod / conductors.
1-0102-ADTL-R001 SHT-001	For Information. Perforated pipe in IFAS tank by mechanical.
1-0102-ADTL-R001 SHT-002	• Detail A - Provide embedded pipe as shown on the drawings and as detailed in the specifications. • Detail B - Provide embedded pipe as shown on the drawings and as detailed in the specifications.

Drawing Reference	Description of Work
1-0102-ADTL-R002	For Information. Only checkerplate cover is part of contract. See structural drawings for details.
1-0102-ADTL-R003	• Detail A - Provide embedded pipe for level transmitters as shown on the drawings and as detailed in the specifications. • Detail B - Perforated pipe in IFAS tank by mechanical.
1-0102-AGAD-R004	For Information. Notes on the drawing specify the type of installation required for applicable instrument locations.
1-0102-AGAD-A007	For Information. Notes on the drawing specify the type of installation required for applicable instrument locations.
1-0102-AGAD-A008	For Information. Notes on the drawing specify the type of installation required for applicable instrument locations.
1-0102-AGAD-A009	For Information. Notes on the drawing specify the type of installation required for applicable instrument locations.
1-0102-ADTL-A005	• Detail A – Not applicable. • Detail B - Provide embedded pipe for level transmitters as shown on the drawings and as detailed in the specifications. • Detail C - Provide embedded pipe for level transmitters as shown on the drawings and as detailed in the specifications.

1.3 EQUIPMENT, MATERIAL, AND SERVICES PROVIDED BY THE CITY

A. The Contract Documents allow for an area on-site for the Contractor's use. The boundary limits must be strictly adhered to in order to minimize the impact to the natural conditions. If additional space is required, obtain agreement in writing from the Contract Administrator.

B. The supply and cost of electricity, telephone, gas, or other utilities, whether temporary or permanent, used for heating, lighting, power tools, testing, or other construction related purposes, fencing, security, and conveniences, will be the responsibility of the Contractor. No electrical connections will be provided by the City.

1.4 CONTRACT DRAWINGS

A. The Drawings are prepared in SI metric units.

B. Contract Drawings have been divided into General, Demolition, Civil, Structural, Architectural, Process Mechanical, Plumbing, and Electrical and laid out in ascending numerical order by facility. Read the Drawings as a whole, since details applicable to one section may appear on the Drawings of another section or sections.

C. Additional drawings showing details in accordance with which the Work is to be constructed may be supplied from time to time by the Contract Administrator. Such drawings are for the information of and assistance to the Contractor and will not become

a basis for extra payment. The Contract Administrator may supply drawings covering additional work. These will be identified as additional work.

1.5 CONTRACT SPECIFICATIONS

A. The Contract Specifications are divided into divisions. Read the Specifications as a whole as details applicable to one division may appear in another division or divisions.

B. Coordinate and be responsible for the work, acts, and omissions done by Subcontractors.

1.6 WORK COMPLIANCE

A. Provide Work conforming to the lines, levels and grades specified or shown on the Contract Drawings.

B. Build Work in a thoroughly substantial and workmanlike manner, in accordance with the Contract Drawings and Specifications, subject to such modifications and additions as may be deemed necessary during its execution. In no case will payment be made for Work in excess of the requirements of the Drawings and Specifications, unless approved in writing by Contract Administrator.

1.7 ENGINEER DESIGN

A. Where specifications require work to be designed by an engineer, engage an engineer licensed in the Province of Manitoba to design such work.

1.8 EXAMINATION OF EXISTING CONDITIONS

A. The Contractor's attention is directed to the difficulty of work involved in the excavation near existing structures, tie-in to existing structures, and the construction on and around existing piles that were installed by others. The contract documents indicate the extent of work. However, it is the Contractor's responsibility to examine on site during the time of tendering the proposed Work to develop a full appreciation of the scope of work.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 01 31 13

PROJECT COORDINATION

PART 1 GENERAL

1.1 RELATED WORK AT SITE

A. General:
   1. Other work that is either directly or indirectly related to scheduled performance of the Work under these Contract Documents, listed henceforth, is anticipated to be performed at site by others.
   2. Coordinate the Work of these Contract Documents with work of others as specified in General Conditions.
   3. Include sequencing constraints specified herein in scheduling the Work.

1.2 CITY SUPPLIED PRODUCTS

A. Refer to section 01 64 00, City Supplied Products

1.3 UTILITY NOTIFICATION AND COORDINATION

A. Coordinate the Work with various utilities within the construction limits. Notify applicable utilities prior to commencing Work, if damage occurs, or if conflicts or emergencies arise during Work.
   1. Manitoba Hydro (electrical and natural gas):
   2. MTS (telephone):
   3. South End Water Pollution Control Centre:
      a. Contact Person: Ron Hahlweg
      b. Telephone: 204.986.6159

B. The Contractor shall plan and coordinate the Work knowing that Seniuk Road has spring road restrictions as defined by Manitoba Infrastructure and Transportation.

1.4 PROJECT MILESTONES

A. General: Include project milestones in sufficient detail to allow the Contract Administrator to coordinate planning of future contracts as a part of the construction schedule required under section 01 32 00, Construction Progress Documentation

1.5 FACILITY OPERATIONS

A. Continuous performance and operation of the SEWPCC is of critical importance. Schedule and conduct activities to enable the SEWPCC to operate continuously, unless otherwise specified. In the event of conflict between construction activities and SEWPCC operations, SEWPCC operations have priority unless otherwise specified.

B. Perform Work continuously during critical connections and changeovers, and as required to prevent interruption of SEWPCC operations.

C. When necessary, plan, design, and provide various temporary services, utilities, connections, temporary piping and heating, access, and similar items to maintain continuous operations of the SEWPCC at no extra cost to the City.

D. Do not close lines, open or close valves, or take other action which would affect the operation of existing systems, except as specifically required by the Contract Documents and after authorization from the Contract Administrator. Such authorization will be considered within fourteen (14) days after receipt of Contractor's written request.

E. For construction constraints and suggested sequence of construction, refer to section 01 52 10, Construction Sequencing.

F. Install and maintain temporary connections required to keep the SEWPCC operations on line. Sequences other than those specified will be considered upon written request to Contract Administrator, provided they afford equivalent continuity of operations.

G. Do not proceed with Work affecting the SEWPCC operation without obtaining Contract Administrators advance approval of the need for and duration of such Work and in accordance with E9.

H. Relocation of Existing Facilities:
1. During construction, it is expected that relocations of Work will be necessary.
2. Provide complete relocation of existing structures and underground utilities, including piping, equipment, structures, electrical conduit wiring, and other necessary items.
3. Use only new materials for relocated systems. Match materials of existing systems, unless otherwise shown or specified.
4. Perform relocations to minimize downtime of existing facilities.
5. Install new portions of existing facilities in their relocated position prior to removal of existing facilities, unless otherwise accepted by Contract Administrator.

1.6 ADJACENT FACILITIES AND PROPERTIES

A. Examination:
1. After effective date of the agreement and before Work at site is started, Contractor, Contract Administrator, The City and affected property owners and utility owners shall make a thorough examination of pre-existing conditions including existing buildings, structures, and other improvements in vicinity of Work, as applicable, which could be damaged by construction operations.
2. Periodic reexamination shall be jointly performed to include, but not limited to, cracks in structures, settlement, leakage, and similar conditions.

B. Documentation:
1. Record and submit documentation of observations made on examination inspections in accordance with paragraph CONSTRUCTION PHOTOGRAPHS.

2. Upon receipt, the Contract Administrator will review, sign, and return one record copy of documentation to Contractor to be kept on file in field office.
3. Such documentation shall be used as indisputable evidence in ascertaining whether and to what extent damage occurred as a result of Contractor's operations, and is for the protection of adjacent property owners, Contractor, and The City.

1.7 CONSTRUCTION PHOTOGRAPHS

A. The Contractor must photographically document all phases of the project including preconstruction, construction progress, and post-construction and submit to the Contract Administrator

B. Preconstruction and Post-construction:
1. After effective date of the agreement and before Work at site is started, and again upon issuance of Substantial Performance, take a minimum of 48 pictures of construction site and property adjacent to perimeter of construction site.
2. Particular emphasis shall be directed to structures both inside and outside the site.
3. Format: Digital, minimum resolution of 1152 by 864pixels and 24 bit, millions of color.

C. Digital Images:
1. Archive using a commercially available photograph management system.
2. Label each storage media with Project and The City's name, and week and year images were produced.

1.8 REFERENCE POINTS AND SURVEYS

A. Contractor's Responsibilities:
1. Provide additional survey and layout required to layout the Work.
2. Check and establish exact location of existing facilities prior to construction of new facilities and any connections thereto.
3. In event of discrepancy in data shown on the Drawings, request clarification before proceeding with Work.
4. Maintain complete accurate log of survey Work as it progresses as a record document.
5. On request of Contract Administrator, submit documentation.
6. Provide competent employee(s), tools, total station equipment, stakes, and other equipment and materials to:
   a. Establish control points, lines, and easement boundaries.
   b. Check layout, survey, and measurement Work.
   c. Measure quantities for payment purposes.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 SALVAGE OF MATERIALS

A. Materials to be salvaged include:
   1. Tyndal Stone

B. Salvage materials for The City's use.
   1. Remove material with extreme care so as not to damage for future use.
   2. Store materials where instructed by Contract Administrator onsite.

3.2 CUTTING, FITTING, AND PATCHING

A. Cut, fit, adjust, or patch Work and work of others, including excavation and backfill as required, to make Work complete.

B. Restore existing work, underground utilities, and surfaces that are to remain in completed Work including concrete-embedded piping, conduit, and other utilities as specified and as shown.

C. Make restorations with new materials and appropriate methods as specified for new Work of similar nature; if not specified, use recommended practice of manufacturer or appropriate trade association.

D. Fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces and fill voids.

END OF SECTION

SECTION 01 31 19

PROJECT MEETINGS

PART 1 GENERAL

1.1 GENERAL

A. The Contract Administrator will schedule meetings throughout progress of the Work, prepare meeting agenda with regular participant input and distribute with written notice of each meeting, preside at meetings, record minutes to include significant proceedings and decisions, and reproduce and distribute copies of minutes within 5 business days after each meeting to participants and parties affected by meeting decisions.

B. The location of the meetings shall be at the South End Water Pollution Control Centre (SEWPCC).

1.2 PRECONSTRUCTION MEETING

A. Contractor shall be prepared to discuss the following subjects, as a minimum:
1. Required schedules.
2. Status of Bonds and insurance.
3. Sequencing of critical path work items.
4. Progress payment procedures.
5. Project changes and clarification procedures.
6. Requirements for use of site, access, site signs, office and storage areas, security, utilities, hoarding and temporary facilities.
7. Major product delivery and priorities.
8. Contractor’s safety plan and representative.
9. Contractor’s environmental management plan
10. Required Submittals.
11. Quality Control Plan.
12. Permits obtained by The City.
13. Permits obtained by the Contractor.

B. The Preconstruction Meeting shall take place no later than ten (10) Working Days after the issuance of the notice to commence and shall be held at the SEWPCC.

C. Attendees will include:
1. City representatives.
2. Contractor’s office representative.
3. Contractor’s resident superintendent.
4. Contractor’s quality control representative.
5. Subcontractors’ representatives whom Contractor may desire or Contract Administrator may request to attend.
6. Contract Administrator’s representatives.
7. Others as appropriate.

1.3 PRELIMINARY SCHEDULES REVIEW MEETING

A. As set forth in section 01 32 00, Construction Progress Documentation.

1.4 PROGRESS MEETINGS

A. Contract Administrator will schedule regular progress meetings at site, conducted weekly or Bi-weekly to review the following:
   1. Health and safety issues
   2. Review of any comments on the previous meeting summaries,
   3. Review of the progress of the Work including comments regarding the progress schedule
   4. Schedule and status of Shop Drawing and Sample submittals
   5. Status of Contractor-issued requests for information
   6. Status of Contract Administrator-issued requests for quotation
   7. Status of change orders
   8. Status of Contractor claims
   9. Status of Payment Certificates
   10. Other matters needing discussion and resolution

B. Attendees will include:
   1. City's representative
   2. Contractor, Subcontractors, and suppliers, as appropriate.
   3. Contractor Administrator
   4. Others as appropriate.

1.5 QUALITY CONTROL AND COORDINATION MEETINGS

A. Scheduled by the Contract Administrator with the Progress Meetings and as necessary to review test and inspection reports, and other matters relating to quality control of the Work and work of other contractors.

B. Attendees will include:
   1. Contractor's Project Manager and Site Superintendent.
   2. Contractor's designated quality control representative.
   3. Subcontractors and suppliers, as necessary.
   4. Contract Administrator representatives.

1.6 HEALTH AND SAFETY MEETINGS

A. Health and safety meeting shall be conducted with the Preconstruction Meeting and with subsequent Progress Meetings at the Site, to review health and safety on the Site.

B. Attendees will include:
   1. Contractor's Project Manager and Site Supervisor.
   2. Contractor's Health and Safety Manager.
   3. City's Representatives.
   4. Contract Administrator.

1.7 PREINSTALLATION MEETINGS

A. When required in individual Specification sections, convene at Site prior to commencing the Work of that section.

B. Require attendance of entities directly affecting, or affected by, the Work of that section.

C. Notify Contract Administrator 5 days in advance of meeting date.

D. Provide suggested agenda to Contract Administrator to include reviewing conditions of installation, preparation and installation or application procedures, and coordination with related Work and work of others.

1.8 OTHER MEETINGS

A. In accordance with Contract Documents and as may be required by the Contractor Administrator.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 01 32 00

CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 GENERAL

1.1 SUBMITTALS

A. Informational Submittals:
   1. Preliminary Work Schedule: Submit at the preconstruction meeting.
   2. Detailed Work Schedule:
      a. Submit initial detailed work schedule as per D16.
      b. Submit an updated work schedule at each update, in accordance with Article DETAILED WORK SCHEDULE.
   3. Submit with each work schedule submission:
      a. Contractor's certification that work schedule submission is actual schedule being utilized for execution of the Work.
      b. Work Schedule: Six legible copies.
      c. Narrative Progress Report: Same number of copies as specified for work schedule.
   4. Prior to final payment, submit a final updated work schedule.

1.2 PRELIMINARY WORK SCHEDULE

A. In addition to basic requirements outlined in D16, Detailed Work Schedule, show a detailed schedule, beginning with Notice to Proceed, for minimum duration of 120 days, and a summary of balance of Project through Completion.

B. Show activities including, but not limited to the following:
   1. Notice to Proceed.
   2. Mobilization.
   3. Permits.
   4. Submittals, with review time. Contractor may use schedule of Shop Drawings and Samples specified in section 01 33 00, Submittal Procedures
   5. Early procurement activities for long lead equipment and materials.
   6. Initial site work, including equipment mobilization, material delivery, and Contractor trailer installation
   7. Earthwork and Pile installation
   8. Forming, pipe installation, concrete pours
   9. Specified Work sequences and construction constraints.
   10. Contract milestone and Completion Dates.
   11. Project close-out summary.
   12. Demobilization summary.

C. Format: In accordance with Article WORK SCHEDULE - CRITICAL PATH NETWORK.

1.3 DETAILED WORK SCHEDULE

A. In addition to requirements of D16, Detailed Work Schedule, submit detailed work schedule beginning with Notice to Proceed and continuing through to Completion.

B. Show the duration and sequences of activities required for performance of the Work reflecting means and methods chosen by Contractor.

C. When accepted by the Contract Administrator, detailed work schedule will replace preliminary work schedule and become baseline schedule. Update detailed work schedule for the meetings and as part of progress payment process. Failure to do so may cause the Contract Administrator to withhold all or part of the monthly progress payment until the progress schedule is updated in a manner acceptable to the Contract Administrator.

D. Subsequent revisions will be considered as updated progress schedules.

E. Format: In accordance with Article WORK SCHEDULE - CRITICAL PATH NETWORK.

F. Update bi-weekly to reflect actual progress and occurrences to date, including weather delays.

1.4 WORK SCHEDULE – CRITICAL PATH NETWORK

A. General: Comprehensive computer-generated schedule using CPM, generally as outlined in Associated General Contractors of America (AGC) Publication No. 1107.1, “Construction Planning and Scheduling, latest edition. If a conflict occurs between the AGC publication and this specification, this specification shall govern.

B. Contents:
1. Schedule shall begin with the date of Notice to Proceed and conclude with the date of Total Performance.
2. Identify work calendar basis using days as a unit of measure.
3. Show complete interdependence and sequence of construction and Project-related activities reasonably required to complete the Work.
4. Identify the work of separate stages and other logically grouped activities, and clearly identify critical path of activities.
5. Reflect sequences of the Work, restraints, delivery windows, review times, contract times and project milestones set forth in the Contract and section 01 31 13, Project Coordination
6. Include as applicable, at a minimum:
    a. Obtaining permits, submittals for early product procurement, and long lead time items.
    b. Mobilization and other preliminary activities.
    c. Initial site work.
    d. Specified work sequences, constraints, and milestones, including Substantial Performance date(s).
    e. Subcontract work.
    f. Material fabrication and delivery dates.

g. Sitework.
h. Pile delivery and installation work.
i. Concrete forming and pouring
j. Electrical, mechanical work.
k. Project closeout and cleanup.
l. Demobilization.

7. Activity duration for Submittal review shall not be less than review time specified unless clearly identified and prior written acceptance has been obtained from the Contract Administrator.

C. Network Graphical Display:
1. Plot or print on paper not greater than 30 inches by 42 inches or smaller than 22 inches by 34 inches, unless otherwise approved.
2. Title Block: Show name of Project, Owner, date submitted, revision or update number, and the name of the scheduler. Updated schedules shall indicate data date.
3. Identify horizontally across top of schedule the time frame by year, month, and day.
4. Identify each activity with a unique number and a brief description of the Work associated with that activity.
5. Indicate the critical path.
6. Show, at a minimum, the controlling relationships between activities.
7. Plot activities on a time-scaled basis, with the length of each activity proportional to the current estimate of the duration.
8. Plot activities on an early start basis unless otherwise requested by the Contract Administrator.
9. Provide a legend to describe standard and special symbols used.

D. Schedule Report:
1. On 8-1/2-inch by 11-inch white paper, unless otherwise approved.
2. List information for each activity in tabular format, including , at a minimum:
a. Activity identification number.
b. Activity description.
c. Original duration.
d. Remaining duration.
e. Early start date (actual start on updated progress schedules).
f. Early finish date (actual finish on updated progress schedules).
g. Late start date.
h. Late finish date.
i. Total float.

1.5 PROGRESS OF THE WORK

A. Updated work schedule shall reflect:
1. Progress of Work to within 5 working days prior to submission.
2. Approved changes in Work scope and activities modified since submission.
3. Delays in submittals or resubmittals, deliveries, or Work.
4. Adjusted or modified sequences of Work.
5. Other identifiable changes.

6. Revised projections of progress and completion.
7. Report of changed logic.

B. Produce detailed sub-schedule's during the Work, upon request of the Contract Administrator, to further define critical portions of the Work such as facility shutdowns.

C. If Contractor fails to complete activity by its latest scheduled completion date and this failure is anticipated to extend contract times (or milestones), Contractor shall, within 7 days of such failure, submit a written statement as to how Contractor intends to correct nonperformance and return to acceptable current progress schedule. Actions by Contractor to complete the Work within contract times (or milestones) will not be justification for adjustment to contract price or contract times.

D. The Contract Administrator may order Contractor to increase plant, equipment, labour force, or working hours if Contractor fails to:
1. Complete a milestone activity by its completion date.
2. Satisfactorily execute Work as necessary to prevent delay to overall completion of the Work, at no additional cost to The City.

1.6 NARRATIVE PROGRESS REPORT

A. Format:
1. Organize same as progress schedule.
2. Identify, on a cover letter, reporting period, date submitted, and name of author of report.

B. Contents:
1. Number of days worked over the period, work force on hand, construction equipment on hand (including utility vehicles such as pickup trucks, maintenance vehicles, stake trucks).
2. General progress of Work, including a listing of activities started and completed over the reporting period, mobilization/demobilization of subcontractors, and major milestones achieved.
3. Contractor's plan for management of site (e.g., lay down and staging areas, construction traffic), utilization of construction equipment, buildup of trade labour, and identification of potential Contract changes.
4. Identification of new activities and sequences as a result of executed Contract changes.
5. Documentation of weather conditions over the reporting period, and any resulting impacts to the work.
6. Description of actual or potential delays, including related causes, and the steps taken or anticipated to mitigate their impact.
7. Changes to activity logic.
8. Changes to the critical path.
9. Identification of, and accompanying reason for, any activities added or deleted since the last report.
10. Steps taken to recover the schedule from Contractor-caused delays.

1.7 SCHEDULE ACCEPTANCE

A. Contract Administrator's acceptance will demonstrate agreement that:
   1. Proposed schedule is accepted with respect to:
      a. Contract times, including Completion and all intermediate milestones are within the specified times.
      b. Specified Work sequences and constraints are shown as specified.
      c. Access restrictions are accurately reflected.
      d. Submittal review times are as specified.
   2. In all other respects, Contract Administrator's acceptance of Contractor's schedule indicates that, in Contract Administrator's judgement, schedule represents reasonable plan for constructing Work in accordance with the Contract Documents. Contract Administrator's review will not make any change in Contract requirements. Lack of comment on any aspect of schedule that is not in accordance with the Contract Documents will not thereby indicate acceptance of that change, unless Contractor has explicitly called the nonconformance to Contract Administrator's attention in submittal. Schedule remains Contractor's responsibility and Contractor retains responsibility for performing all activities, for activity durations, and for activity sequences required to construct Work in accordance with the Contract Documents.

B. Unacceptable Preliminary Work Schedule:
   1. Make requested corrections; resubmit within 10 days.
   2. Until acceptable to Contract Administrator as baseline work schedule, continue review and revision process, during which time Contractor shall update schedule on a monthly basis to reflect actual progress and occurrences to date.

C. Unacceptable Detailed Work Schedule:
   1. Make requested corrections; resubmit within 10 days.
   2. Until acceptable to Contract Administrator as baseline work schedule, continue review and revision process.

D. Narrative Report: All changes to activity duration and sequences, including addition or deletion of activities subsequent to Contract Administrator's acceptance of baseline work schedule, shall be delineated in Narrative Report current with proposed updated work schedule.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 GENERAL

1.1 DEFINITIONS

A. Submittal: Written and graphic information submitted by Contractor, that requires Contract Administrator's review. Submittals not meeting conditions of the Contract will be returned.

B. Shop Drawings: Custom drawings, product data, diagrams, illustrations, schedules, performance charts, brochures and other data, which are to be provided by the Contractor to illustrate details of a portion of the Work.

1.2 SUBMITTAL PROCEDURES

A. Direct submittals to Contract Administrator.

B. The Contractor will be required to follow the City's procedures regarding submittals of electronic files in the City Document Management System (DMS), transmission of electronic submittals and identification of project specific documents and equipment at no cost to the City. Submittals shall follow the Winnipeg Sewage Treatment Program (WSTP) Project Document Numbering Standard. A copy of the numbering standard will be provided to the Contractor.

C. Electronic Submittals: Submittals made in electronic format shall be as follows:
   1. Each submittal shall be electronic files in Adobe Acrobat Portable Document Format (PDF) and native files (e.g. Word, Excel, AutoCad, etc.). Use latest version available at time of execution of the Contract.
   2. Electronic files that contain more than 10 pages in PDF format shall contain internal book marking from index page to major sections of document.
   3. PDF files shall be set to open "Bookmarks and Page" view.
   4. Add general information to each PDF file, including title, subject, author, and keywords.
   5. PDF files shall be set up to print legibly on paper sizes 8.5 inches by 11 inches, or 11 inches by 17 inches, or 22 inches by 34 inches. No other paper sizes will be accepted.
   6. Submit new electronic files for each resubmittal.
   7. Include copy of Transmittal of Contractor's Submittal form, located at end of section, with each electronic file.
   8. Contract Administrator will reject submittals that are not accompanied by an electronic copy.
   9. Provide Contract Administrator with authorization to reproduce and distribute each file as many times as necessary for Project documentation.

D. Schedule of Submittals: Prepare a table listing all anticipated submittals required to complete the Work.
   1. Show for each specification section, at a minimum, the following:
      a. Specification section number.
      b. Total number of submittals for each specification section.
      c. Identify each submittal by its submittal number in accordance with the numbering and tracking system as specified under Clause 1.2E, Transmittal of Submittal.
      d. Identify each submittal by its name or title.
      e. Identify the estimated date of submission to the Contract Administrator.
      f. State the submittal revision number and status for each submittal.
   2. On a monthly basis, submit an updated Schedule of Submittals to the Contract Administrator if changes have occurred.

E. Transmittal of Submittal:
   1. Contractor shall:
      a. Review each submittal prior to submission and check for compliance with the Contract.
      b. Stamp each submittal with uniform approval stamp before submitting to Contract Administrator.
         1) Stamp to include Project name, submittal number, Specification number, Contractor's reviewer name, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract.
         2) Contract Administrator will not review submittals that do not bear Contractor's approval stamp, and will return them without action.
         3) Contract Administrator will not review submittals received directly from a Subcontractor and will return them without action.
   2. Complete, sign, and transmit with each submittal package, one Transmittal of Contractor's Submittal form attached at end of this section.
   3. Identify each submittal with the following:
      a. Numbering and Tracking System:
         1) Sequentially number each submittal.
         2) Resubmission of submittal shall have original number with sequential alphabetic suffix.
      b. Specification section and paragraph to which submittal applies.
      c. Project title and Bid Opportunity number.
      d. Date of transmittal.
      e. Name of Contractor.
   4. Identify and describe each deviation or variation from the Contract.

F. Format:
   1. Do not base Shop Drawings on reproductions of contract documents.

2. Package submittal information by individual Specification section. Do not combine different Specification sections together in submittal package, unless otherwise directed in Specification.
3. Present in a clear and thorough manner and in sufficient detail to show kind, size, arrangement, and function of components, materials, and devices, and compliance with the Contract.
4. Index with labeled tab dividers in orderly manner.

G. Timeliness:
1. Schedule and submit in accordance with schedule of submittals, and requirements of individual Specification sections.
2. Submit Shop Drawings and Samples well in advance of scheduled delivery date for associated equipment or material and in an orderly sequence so as to cause no delay in the Work.
3. Failure to submit Shop Drawings and Samples in ample time is not to be considered sufficient reason for an extension of the schedule outlined in the Supplemental Conditions and no claim for extension by reason of such default will be allowed.

H. Processing Time:
1. Time for review shall commence on Contract Administrator's receipt of submittal.
2. Contract Administrator will act upon Contractor's submittal and transmit response to Contractor not later than 10 Working Days after receipt.
3. Resubmittals will be subject to same review time.

I. Resubmittals:
1. Clearly identify each correction or change made and include revision date.
2. No adjustment of the schedule outlined in the Supplemental Conditions or Contract Price will be allowed due to delays in progress of Work caused by rejection and subsequent resubmittals.

J. Incomplete Submittals:
1. Contract Administrator will return entire submittal for Contractor's revision if preliminary review deems it incomplete.
2. When any of the following are missing, submittal will be deemed incomplete:
   a. Contractor's review stamp, completed and signed.
   b. Transmittal of Contractor's Submittal, completed and signed.
   c. Insufficient number of copies.
   d. All requested information is not provided.
   e. Submittals missing Professional Engineer's seal and signature, where it is required.

K. Submittals not required by the Contract:
1. Will not be reviewed and will be returned stamped RECEIVED FOR INFORMATION.
2. Contract Administrator will keep one copy and return all remaining copies to Contractor.

L. Submittal Disposition: Contract Administrator will review, mark, and stamp as appropriate, and distribute marked-up copies or submittal review comment forms as noted:
   1. NO EXCEPTIONS TAKEN (NET):
      a. Contractor may incorporate product(s) or implement Work covered by submittal.
      b. Distribution:
         1) One copy furnished to The City.
         2) One copy retained in Contract Administrator's file.
         3) Remaining copies returned to Contractor appropriately annotated.
   2. EXCEPTIONS NOTED (EN):
      a. Contractor may incorporate product(s) or implement Work covered by submittal, in accordance with Contract Administrator's notations.
      b. Distribution:
         1) One copy furnished to The City.
         2) One copy retained in Contract Administrator's file.
         3) Remaining copies returned to Contractor appropriately annotated.
   3. EXCEPTIONS NOTED - RESUBMIT (ENR):
      a. Make corrections or obtain missing portions, and resubmit.
      b. Contractor may not incorporate product(s) or implement Work covered by submittal, except portions where indicated Contractor may begin to incorporate product(s) or implement Work covered by the submittal in accordance with the Contract Administrator's notations.
      c. Distribution:
         1) One copy furnished to The City.
         2) One copy retained in Contract Administrator's file.
         3) Remaining copies returned to Contractor appropriately annotated.

M. Do not revise submittals after they have been reviewed and stamped NO EXCEPTIONS TAKEN or EXCEPTIONS NOTED.

1.3 SUBMITTALS

A. General:
   1. Copies: Submit one electronic copy to Contract Administrator. Method of electronic submission to be coordinated with Contract Administrator after execution of the Contract. Submit hard copies only where specifically required under individual Specification sections.
   2. Prepare and submit Submittals required by individual Specification sections.
   3. Contract Administrator will review Submittals for general conformance with design concept and intent, and general compliance with the Contract.
   4. Contract Administrator's review does not relieve Contractor from compliance with requirements of the Contract or from errors in submittals or Contractor's design.

5. Contractor is responsible for confirmation of dimensions at jobsite; fabrication processes; means, methods, techniques, sequences and procedures of construction; coordination of work of all trades; and performance of Work in safe and satisfactory manner.
6. At Contract Administrator's option, Contract Administrator's review comments and review stamp will be placed either directly on submitted copies of submittals or on separate submittal review comment form.
7. Where work is to be designed by Contractor, comply with applicable codes and furnish submittals signed and sealed by professional engineer licensed in Province of Manitoba, as required by Specifications. If requested, calculations shall be submitted for review. Calculations shall also be signed and sealed by a Professional Engineer registered in the Province of Manitoba.

B. Project Status Report:
1. Submit a typewritten status report at the end of each month to the Contract Administrator as per section 01 32 00, Clause 1.6 Narrative Progress Report.

C. Shop Drawings:
1. Arrange for the preparation of clearly identified Shop Drawings as specified or as the Contract Administrator may reasonably request.
2. Note compliance or deviation from Specifications with full explanation for any deviations.
3. Copies: eight (8) hard copies and one (1) electronic copy.
4. Identify and Indicate:
   a. Applicable Contract Drawing and Detail number, products, units and assemblies, and system or equipment identification or tag numbers.
   b. Equipment and Component Title: Identical to title shown on Drawings.
   c. Critical field dimensions and relationships to other critical features of Work. Note dimensions established by field measurement.
   d. Project-specific information drawn accurately to scale. .
5. Contractor's standard schematic drawings and diagrams as follows:
   a. Modify to delete information that is not applicable to the Work.
   b. Supplement standard information to provide information specifically applicable to the Work.
6. Product Data: Provide as specified in individual Specifications.
7. Units: Submit all Shop Drawings in SI metric units.

D. Samples:
1. Copies: Two, unless otherwise specified in individual Specifications.
2. Preparation: Mount, display, or package Samples in manner specified to facilitate review of quality. Attach label on unexposed side that includes the following:
   a. Contractor name.
   b. Model number.
   c. Material.
   d. Sample source.
3. Contractor Color Chart: Units or sections of units showing full range of colors, textures, and patterns available.

4. Full-size Samples:
    a. Size as indicated in individual Specification section.
    b. Prepared from same materials to be used for the Work.
    c. Cured and finished in manner specified.
    d. Physically identical with product proposed for use.
5. Make Contract Administrator required changes in samples consistent with the Contract.
6. Do not use materials in Work which are in any way inferior to Samples submitted and reviewed. Match accepted samples.
7. Review of samples notwithstanding, materials that are unsound or imperfect when delivered to site will be rejected.

E. Contractor - Design Data:
1. Written and graphic information.
2. List of assumptions.
3. List of performance and design criteria.
4. Summary of loads or load diagram, if applicable.
5. Calculations.
6. List of applicable codes and regulations.
7. Name and version of software.
8. Information requested in individual Specification section.
9. Seal and signature of professional engineer licensed in the Province of Manitoba.

F. Contractor's Instructions: Written or published information that documents Contractor's recommendations, guidelines, and procedures in accordance with individual Specification sections.

G. Quality Control Documentation: As required in section 01 45 16.13, Quality Control.

H. Statement of Qualification: Evidence of qualification, certification, or registration as required in the Contract to verify qualifications of engineers, materials testing laboratories, specialty Subcontractors, trades, Specialists, consultants, and other professionals.

I. Submittals Required by Laws, Regulations, and Governing Agencies:
1. Submit promptly notifications, reports, certifications, payrolls, and otherwise as may be required, directly to the applicable federal, provincial, or local governing agency or their representative.
2. Transmit to Contract Administrator for The City's records one copy of correspondence and transmittals (to include enclosures and attachments) between Contractor and governing agency.

J. As-Built Documents: In accordance with section 01 77 00, Closeout Procedures.

K. Shop Drawings for Temporary Works:
1. Submit for review shop drawings of temporary works which:
    a. Control the dimensions and locations of any part of the structures to be constructed under the contract.

b. Impose loads on parts of the works which are still under construction or on existing structures.

2. Submit eight (8) copies of shop drawings for temporary works for review. Payment will not be made for work started or completed without the required drawing review. Submit shop drawings well in advance of the time when they are required for construction. Coordinate shop drawings prepared by different trades so that information is available to prevent conflict or errors where the work of one trade affects the work of another.
3. Of the eight (8) copies submitted, two (2) will be returned to the Contractor after review.
4. Shop drawings will be reviewed for general conformity with the required arrangement and dimensions of the permanent structures and for general conformity with the specifications.
5. If resubmittal is requested, discuss the comments made and resolve all issued raised by them, then resubmit the shop drawings amended accordingly.
6. Do not begin construction of temporary works until after the completion of review of the shop drawings.
7. Review of the Contractor's drawings does not relieve the Contractor of the responsibility for the results arising from errors or emissions of design or from the use or abuse of the temporary work.
8. Keep one (1) copy of each stamped, reviewed shop drawing at the site of the work for reference during the time the construction work is in progress.
9. Make no change in drawings after they have been reviewed.
10. Submit shop drawings in SI metric units.

L. Test, Evaluation, and Inspection Reports:
1. General: Shall contain signature of person responsible for test or report.
2. Pile Manufacturer:
   a. Identification of product and Specification section, type of inspection or test with referenced standard or code.
   b. Date of test, Project title and number, and name and signature of authorized person.
      1) Date of test shall be communicated to the Contract Administrator at least ten (10) working days in advance of the test.
   c. Test results.
   d. If test or inspection deems material or equipment not in compliance with the Contract, identify corrective action necessary to bring into compliance.
   e. Provide interpretation of test results, when requested by Contract Administrator.
   f. Other items as identified in individual Specification sections.
3. Field: As a minimum, include the following:
   a. Project title and number.
   b. Date and time.
   c. Record of temperature and weather conditions.
   d. Identification of product and Specification section.
   e. Type and location of test, sample, or inspection, including referenced standard or code.

f. Date issued, testing laboratory name, address, and telephone number, and name and signature of laboratory inspector.
g. If test or inspection deems material or equipment not in compliance with the Contract, identify corrective action necessary to bring into compliance.
h. Provide interpretation of test results, when requested by Contract Administrator.
i. Other items as identified in individual Specification sections.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 SUPPLEMENTS

A. The supplements listed below, following “End of Section”, are part of this Specification.
1. Forms: Transmittal of Contractor’s Submittal

END OF SECTION

Winnipeg

ch2m

TRANSMITTAL OF CONTRACTOR'S SUBMITTAL
(ATTACH TO EACH SUBMITTAL)

DATE: _____

TO: _____

_____

FROM: _____
Contractor

_____

_____

_____

Submittal No.: _____

☐ New Submittal ☐ Resubmittal

Project: South End Sewage Treatment Plant (SEWPCC) Upgrading / Expansion Project – Contract 3 – Bioreactors, Blower Building, and Secondary Clarifiers Structural Concrete and Miscellaneous Work

Project No.: Bid Op. No. 899-2015 _____

Specification section No.: _____
(Cover only one section with each transmittal)

Schedule Date of Submittal:

_____

SUBMITTAL TYPE:	☐ Shop Drawing	☐ Sample	☐ Informational

The following items are hereby submitted:

Number of Copies	Description of Item Submitted (Type, Size, Model Number, Etc.)	Spec. and Para. No.	Drawing or Brochure Number	Contains Variation to Contract	
				No	Yes

Contractor hereby certifies that (i) Contractor has complied with the requirements of the Contract in preparation, review, and submission of designated Submittal and (ii) the Submittal is complete and in accordance with the Contract and requirements of laws and regulations and governing agencies.

By: _____
Contractor (Authorized Signature)

SECTION 01 35 13

SPECIAL PROJECT PROCEDURES

PART 1 GENERAL

1.1 ALTERATIONS TO EXISTING FACILITIES

A. Modify and connect to existing facilities as specified and as shown on the Drawings.

B. Obstruction of existing building exits shall be coordinated with and approved by the Contract Administrator. See Drawings for approved exit obstructions and requirements to maintain pedestrian access.

C. Make good and refinish all areas affected by work.

D. All areas to be cleaned to the condition of the area prior to the work being done.

E. For electrical work in existing facilities, refer to Division 26 and the Drawings.

1.2 HEALTH AND SAFETY PROCEDURES AND REQUIRMENTS

A. Refer to section 01 35 29.01, Health and Safety

1.3 MONITORING GROUNDWATER LEVELS

A. Refer to section 31 23 19.01, Dewatering for detailed procedures.

B. Refer to CW 2030 for maintaining excavations free of water for the duration of the work.

1.4 MONITORING EXISTING STRUCTURES FOR ELEVATIONS AND LATERAL MOVEMENT

A. Pre-work elevations have been established around the site for monitoring the movement of existing structures. Prior to commencing Work, the Contractor shall survey the existing benchmarks located on the existing buildings and shoring within the area of the work to establish a baseline of the existing conditions. Monitor for changes in elevation and lateral movement and report to the Contract Administrator weekly. If movement is identified, report to the Contractor Administrator immediately. Establish and refer elevations to an existing bench mark established on the site.

B. Engage a qualified survey technician to record the initial elevations and datum alignment and monitor elevation changes and changes in lateral position.

1.5 PRECONSTRUCTION SURVEY

A. Carry out a preconstruction survey at a minimum of the existing facility site and the buildings that are likely to be affected by construction activities, such as pile driving and

dewatering. Note any identified structural cracks to the Contract Administrator for review and record.

B. Undertake a survey of existing surface finish condition and elevations of existing structures. Document findings with photographs and in writing to the Contract Administrator prior to commencing construction.

C. Be responsible for repairing damage due to construction activities.

D. Submit a labeled three (3) ring binder and digital PDF version with documentation, photographs, and comments.

E. Be responsible to establish the degree and level of detail for the preconstruction survey that will be required.

F. Provide minimum of 48 hours notice to the Contract Administrator before conducting a preconstruction survey.

1.6 DISPOSAL OF MATERIAL OFF-SITE

A. Material designated to be removed from the Site must be promptly removed.

B. Make necessary arrangements for environmentally safe transportation and ultimate disposal in compliance with all applicable Regulations and Guidelines at no cost to The City, unless noted otherwise.

C. Remove unwanted material, as classified by the Contract Administrator, from the site and dispose of same at acceptable sites outside of the worksite.

1.7 ENVIRONMENTAL CONSIDERATIONS DURING CONSTRUCTION

A. Perform the Work in accordance with construction and restoration guidelines established by Manitoba Conservation.

B. The City’s Environmental Preservation and Compliance Statement shall be included in the environmental protection requirements. A copy is included in Appendix D.

C. Equipment Fueling:
1. Designate an area within the working limits, a minimum of 30 metres away form open water courses, to be used exclusively for fueling construction equipment.
2. Submit for review a plan for the interception and rapid clean up of fuel spills should they occur.
3. Maintain the apparatus for cleaning up fuel spills on site.

D. Cleaning Equipment:
1. Keep construction equipment clean so that no debris is deposited on the plant roadways or any public roadway.
2. Contain construction debris in a designated area within the working limits.
3. Dispose of debris off-site as specified.

E. Noise Control:
1. Use only vehicles and equipment equipped with effective muffling devices. Provide noise barriers on stationary engines and compressors.
2. Comply with The City of Winnipeg Neighbourhood Liveability By-law No.1/2008.
3. Consider noise attenuation measures in the approach and submissions for pile driving and other noise generating activities.

F. Dust Control:
1. Control dust on the site at times by suitable means.
2. Submit dust control plan detailing proposed methods to control dust on site to the Contract Administrator.

G. Containing Surface Runoff:
1. Intercept surface runoff within the working limits and divert into the existing ditches at the site or suitable discharge location.

H. Tree Protection:
1. Protect trees on site within and adjacent to the working limits by placing and maintaining snow fencing around each tree at the "drip line". Do not pile excavated material around the base of existing trees. Remove material accidentally placed adjacent to trees.
2. Remove only those trees that have been so designated and are indicated on the drawings to be removed. Review and confirm trees proposed to be removed with the Contract Administrator prior to removal.

1.8 MAINTAINING EXISTING ROAD AND PARKING AREAS

A. Be responsible for maintaining existing access to sludge storage bay, UV building, sampling building, and parking areas throughout the work of this Contract in accordance with E5.3 to E5.12 inclusive.

1.9 LEAKAGE TESTS - TANKS

A. Perform leakage test in accordance with ACI 350.1 Tightness Testing of Environmental Engineering Concrete Structures and Commentary ACI 350.1R, Hydrostatic Test for Open or Covered Tanks, test HST-100, and as supplemented and amended below.

B. Provide all temporary blind flanges, valves, or plugs as required to perform the leakage tests.

C. Phase 1 Testing:
1. Unless otherwise noted, perform testing before backfill has been placed against walls, and before waterproofing, dampproofing, gasproofing, masonry, or other veneers covering the surface of the structure have been installed, test hydraulic structures for leakage by filling with water to the maximum water level shown on the Drawings, or 25 mm below the overflow level.
2. Ensure that roof diaphragms, cross walls, and lateral support systems of the permanent hydraulic structures are in place before carrying out the leakage test.

3. Minimum temperature during the leakage test is 5 degrees C to ensure no freezing of water takes place. During filling, monitor outlets for watertightness and the underdrain discharge line for any increase in flow. Inspect fittings and joints for leakage.
4. The structure will be considered to have failed the leakage test if water is observed flowing from the structure, or if moisture, other than from precipitation or condensation, can be transferred to a dry hand from the exterior surfaces of the hydraulic structure.
5. Repair defects to stop visible leakage.
6. Repeat Phase 1 testing and repair procedures until visible leakage is stopped.

D. Phase 2 Testing
1. After Phase 1 testing is complete, keep each hydraulic structure filled with water for three days prior to beginning the leakage test, to allow for absorption stabilization.
2. Avoid the start of test measurements, if the weather pattern is predicted to change substantially over 72 hours.
3. Test each hydraulic structure separately for a period of 72 hours. At the start of each test, record the water temperature 450 mm below the water surface and measure the height of the water surface at four representative locations.
4. Evaporation and Precipitation:
   a. At the start of the test, place a partially filled, calibrated, transparent, floating, open container in the hydraulic structure for evaporation and precipitation measurement.
   b. Provide sufficient freeboard on the container to accommodate precipitation. Place the container away from the sides of the structure.
   c. Record the water level in the container at the start of the test.
5. Record the level of the water surface in the hydraulic structure and the evaporation and precipitation container at 24-hour intervals. Record the water temperature at 24-hour intervals. Take measurements at the location of the original readings. Inspect the exterior of the hydraulic structure daily for leakage.
6. Based on the measured drop in water level, compute the leakage rate, corrected for evaporation and precipitation and temperature as applicable. The total leakage from any hydraulic structure must not exceed 0.1 percent of the volume of the contained liquid over a 24-hour period.
7. Structure(s) meeting the above criteria shall be considered to pass the leakage test.
8. If leakage exceeds the amount specified, empty the structure and carefully examine to determine the cause of leakage.
9. Repair defects to stop leakage.
10. Carry out Phase 2 testing and repair procedures until specified leakage limits are met.

E. No extra payments will be made for leakage tests or for repair work required to render structures leakproof.

F. After the structure has passed the leakage test (Phase 1 and Phase 2), waterproofing, dampproofing, gasproofing, and masonry or other veneers may be installed.

G. Submit proposed schedule and sequence of leakage testing with details of the test including test liquid level or water pressure for each hydraulic structure of the facility constructed under this contract.

1. Sequence of leakage testing for Bioreactors is as follows:
   a. Construct Bioreactor tanks to full height from expansion joint west of gridline 5r to gridline 9r. Block west ends of Anaerobic Zone Channel and Anoxic Zone Channel. Block openings in IFAS Distribution Channel along gridline 5r. Leakage test Pre-anoxic Zone, Anaerobic Zone, and Anoxic Zone, one train at a time.
   b. Construct remainder of Bioreactor tanks up to underside of Mixed Liquor Channel. Install temporary plates across expansion joints in Aerobic IFAS Zones. Leakage test to liquid height of 4.0 m, one train at a time. Note that temporary plates are only designed to hold 4.0 m of water.
   c. Leakage test WAS Sump to average liquid height of 2.0 m.
   d. Backfill up to underside of Mixed Liquor Channel around entire facility. Construct remainder of Bioreactor tanks up to full height. Block openings into Mixed Liquor Channel. Leakage test Aerobic IFAS Zones, one train at a time to maximum water level.
   e. Block opening from channels to WAS Sump. Leakage test all channels.
   f. Leakage test WAS Sump to maximum water level.

H. Provide minimum of 48 hours notice to the Contract Administrator before commencing leakage testing.

1.10 PROTECTION OF EXISTING STRUCTURES AND PROPERTY

A. The Contractor will be held fully responsible by the City for any damage to utilities, properties, shoring, buildings, homes or structures adjacent to or in the general area of the work, through settlement of ground, vibration or shock resulting from any cause relating to the work carried out under this Contract. Make good and repair such damage at own expense.

B. Control of Vibrations:

1. Control vibration levels during construction to prevent damage to concrete work, existing structures, equipment, and utilities.
2. For existing structures, pipelines, and utilities, control vibration producing equipment to a maximum peak particular velocity to 50 mm/sec.
3. Control use of vibration producing construction techniques or equipment so that the ground adjacent to concrete has a resultant peak particle velocity (P.P.V.) not exceeding the following limits:

Age of Concrete (Hours)	Maximum Permissible Resultant P.P.V. (mm/s)
Less than 4	50
4 to 60	10
Over 60	50

4. The City will retain the services of an inspection agency to monitor vibration effects.

5. The Contract Administrator reserves the right to require additional restrictive limits for vibration control if recommended by the inspection agency.

C. Sustain in their places and protect from direct or indirect injury, water and gas mains, public and private sewers and drains, conduits, cables, service pipes, poles, sidewalks, curbs, embankments, structures, equipment and other property in the vicinity of the work.

D. Sustain and support structures that are uncovered, weakened, endangered, or threatened.

E. Prevent dust and dirt from entering existing buildings or areas where equipment is stored or is operating.

F. Prevent dust, water, or other deleterious substances from entering areas with existing electrical, heating ventilating, pumping, and other equipment.

1.11 PROTECTION OF EXISTING AND NEW STRUCTURES

A. Be responsible for damage to utilities, property, shoring, buildings, or structures adjacent to or in the general area of the Works, through settlement of ground, vibration, shock, or changes to groundwater level resulting from any cause related to the Work carried out under this Contract. Make good and repair such damage at own expense.

B. Unless noted otherwise, loads from construction activities will not be permitted on existing structures, unless a complete assessment is carried out and an assessment report sealed and signed by a Professional Engineer licenced in the province of Manitoba is submitted and acceptable to the Contract Administrator.

C. Where construction activities may impose loads onto existing structure, including but not limited to tower and mobile construction cranes, review structure for adequacy and provide protective measures as may be required to not cause damage to existing structure.

D. Retain a professional engineer licenced in the province of Manitoba to assess and report on adequacy of existing structures, and design of protective measures. Submit report and design of protective measures bearing seal and signature of responsible Professional Engineer for information. Report and design of protective measures will be reviewed by Contract Administrator for general arrangement and conformance with contract documents and possible interferences.

1.12 PROTECTION AGAINST FLOTATION

A. Control groundwater level to prevent damage to any pipe or structure due to water pressure during and after construction and until the completed works are accepted.

B. Depressurization wells have been installed under Bid Op.333-2014 to control groundwater levels between the elevations of 224.5 and 226.0. As defined in these documents, the Contractor shall monitor the groundwater levels and operate the depressurization wells as necessary to maintain the specified groundwater elevations, to protect existing excavations from basal heave, and as directed by the Contract Administrator.

C. Also refer to section 31 23 19.01, Dewatering for additional requirements.

1.13 SMOKING IN DESIGNATED AREAS

A. Smoking is not permitted on site except in designated smoking areas.

1.14 WORKING HOURS

A. General:
1. The Work specified hereinafter will take place at the South End Water Pollution Control Centre, located at 100 Ed Spencer Drive, Winnipeg, MB, R2N 4G3. Access to the facility will be between 7:45 am and 3:45 pm, Monday to Friday. Inform the Contract Administrator at least 24 hours in advance where the Contractor intends to carry work outside of normal working hours.
2. Construction hours are not limited to plant operating hours; however, except as specified in subparagraph below, limit hours of operation to between 0700 and 1900 hours. Extended working hours may be permitted upon request from the Contractor and approved by the Contract Administrator.
3. Weekend work will be permitted when necessary to achieve the contract milestone dates. Night work during the weekdays beyond 1900 hours will be permitted upon approval of the Contract Administrator . Refer to General Conditions for further details.

B. Special Conditions, Shutdowns, or Tie-ins to Existing Plant
1. Any required temporary shutdowns of services to the SEWPCC, tie- ins between the existing plant and new construction, or any other activity affecting normal plant operation to accommodate completion of the Work shall be planned well in advance and limited in duration and subject to the following conditions:
a. Any Work requiring temporary shutdown of plant operations to complete shall be coordinated through the Contract Administrator and the operators of the SEWPCC a minimum of 2 (two) weeks in advance of the planned Work.
b. Temporary shutdowns shall be no greater than 6 hours in duration in any given twenty-four (24) hour period.
c. Temporary shutdowns for service tie-ins shall be scheduled during non-peak plant operation hours, scheduled to begin at 0300 hours (or later when approved by the Contract Administrator) with normal plant operations scheduled to resume no later than 0900 hours.
2. Submit a detailed work plan and schedule as detailed in section 01 33 00, Submittal Procedures.
3. All temporary works, including but not limited to structures, equipment, construction consumables, fluids, energy, special pumping and conveying of deviated flows etc. required for the execution of Tie Ins are included in Contractor’s scope.
4. Costs shall be incidental to the Work. No additional payment will be made to the Contractor.

1.15 FACILITY OPERATION REQUIREMENTS

A. The facilities related to the Work are critical to the treatment of wastewater for The City of Winnipeg. Under no condition shall equipment or power be shut down without prior permission of the Contract Administrator. Similarly, coordination and approval are required prior to returning the equipment back into service. The Contractor is responsible for preparing shutdown schedules in conjunction with the Contract Administrator and The City. The Contractor shall work within the schedule and any procedures given, and shall advise the Contract Administrator of any issues or concerns, prior to performing the Work.

B. The Work shall be scheduled and performed such that there is minimal disturbance to SEWPCC plant operation.

C. Hot work shall end no less than one (1) hour prior to end of shift and area inspected prior to daily departure by the Contractor's site supervisor and / or tradesman.

D. Some of the work will require shutdown of equipment. All equipment shutdown requirements require 14 days notice. Coordinate the work to minimize the amount of time that equipment shutdown will be required. In addition, the Contractor shall be flexible to work around specific City operational requirements. Specific requirements that the Contractor is required to adhere to include:
   1. All equipment will be isolated by the City personnel.
   2. Any electrical shutdowns affecting more than one branch circuit must be less than two hours in duration. Any longer shutdown which may be required must be coordinated with the Contract Administrator.
   3. In case of accidental equipment shutdown, the Contractor must notify SEWPCC staff immediately for their corrective action. Under no circumstances shall the Contractor start or restart equipment.
   4. Other process and safety requirements, as identified by the City or Contract Administrator.

E. It is possible that equipment failure within the SEWPCC, or another unforeseen condition, could cause an event where construction must be stopped immediately and equipment brought back online. The City, upon their sole discretion, may delay or stop the Work at any time, require the Contractor to return all or equipment into service as soon as possible, and reschedule the Work.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 01 35 29.01

HEALTH AND SAFETY

PART 1 GENERAL

1.1 REFERENCES

A. Manitoba Workplace Safety and Health Act and associated regulations.

B. Applicable National Fire Protection Association Codes and Standards.

C. City of Winnipeg Contractor Safety Health and Environment Orientation Plan - CD-PM-PC-03 (Appended to this section)

1.2 CONSTRUCTION – SAFETY MEASURES

A. The Contractor shall be designated as the “Prime Contractor” as defined by the Manitoba Workplace Safety and Health Act.

B. Observe and enforce all construction safety measures required by code, Workers' Compensation Board, Manitoba Workplace Safety and Health, and all applicable statutes. Appoint a suitably qualified employee who has sole responsibility on-site on behalf of the Contractor, for compliance with the requirements and so advise The City in writing with copy to the Contract Administrator.

C. In case of an emergency, the Contractor shall immediately contact the shift operator at 204-479-5299 (7:00 AM to 4:30 PM) or the North End Water Pollution Control Centre Central Control Contact Number 204-986-4798 (4:30 PM to 7:00 AM). Secondary emergency contact number is 204-794-4468.

D. Meet or exceed the latest revision of all local, federal, provincial laws, regulations, standards, and industry best practices relating to health and safety.

E. Be solely responsible for safety of the Work under this Contract and for complying with and ensuring that every person on the Site complies with the requirements contained within the Contract documents and regulatory requirements.

F. Perform the Work, or ensure that it is performed, in a manner to avoid risk of injury, security or damage to persons or property, adjacent property, or environment.

G. Perform a health and safety pre-qualification of all lower-tiered subcontractors prior to contract award and only accept lower-tiered subcontractors that have demonstrated an ability to comply with health and safety requirements and are below industry average for incidents.

H. Provide safe access, egress, and equipment in accordance with Occupational Health and Safety Regulations for entry into all areas by employees, subcontractors, The City, and

Contract Administrator or representative. Where hazardous areas or confined space entry exists, implement procedures defined by the latest revision of the applicable regulations.

I. Designate a qualified safety representative at the Project site with responsibility for preventing accidents and implementing and supervising the safety plan and other safety programs. The safety representative shall attend all project safety meetings, participate fully in all activities outlined in the safety plan and shall devote whatever time is necessary to perform such duties properly. Contractor's safety representative shall provide the Contract Administrator with requested information and shall have the authority to immediately correct safety deficiencies.

J. Prior to the commencement of the Work, review and become fully familiarized with all local, provincial, and federal regulatory requirements and the following documentation:
1. South End Water Pollution Control Centre site safety rules, emergency evacuation, spill response procedures, permits, and other applicable procedures.
2. Contract documents.

K. In event of a conflict between any provisions of the various regulatory requirements, the most stringent provision shall govern.

L. Ensure that all employees and subcontractors are competent, as prescribed by the applicable legislation, in performing the Work and have been trained accordingly.

M. Prior to commencement of any Work, throughout the Work as required, and at the Contract Adminstrator's request, make the following documentation available:
1. A copy of the Contractor's project specific Health and Safety Plan.
2. Emergency response and evacuation procedures, including local contact names and numbers.
3. Procedures in the event of a spill including local contact names and numbers.
4. Training and orientation training records of employees or subcontractors.
5. Applicable Material Safety Data Sheets.

N. Provide and maintain first aid, hygiene, washrooms, potable water, and fire prevention equipment, at the Site in accordance with the applicable regulatory requirements.

O. Establish, maintain, and mark clear paths of access and egress for routine and emergency personnel and vehicles.

P. Erect signage acceptable to the Contract Administrator at all entry points to the Site identifying the name, address, and telephone number of the Contractor and to advise personnel and visitors entering the Site of the requirements respecting entry.

Q. Ensure adequate coordination and communication between all parties on site in regards to safety.

R. In addition to Manitoba Workplace Health and Safety Act and applicable regulations reporting requirements, report all incidents, near misses, spills, environmental damage, and property damage to the Contract Administrator immediately. An incident

investigation must be conducted and a copy of the complete report provided to the Contract Administrator within 24 hours.

S. Provide a copy of all Ministry of Labour inspection reports, orders, and charges to the Contract Administrator immediately.

1.3 SPECIAL PROTECTION AND PRECAUTIONS

A. Comply with the South End Water Pollution Control Centre Health and Safety Procedures where necessary. The City will provide the Contractor with facility orientation materials to use when orienting his own and subcontractors employees.

1.4 WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM

A. Comply with applicable health and safety regulatory requirements, including but not limited to Workplace Hazardous Materials Information System (WHMIS) regulations.

B. Maintain a copy of the current Material Safety Data Sheets (MSDSs) for all hazardous chemicals or substances brought onsite by Contractor or any lower-tiered subcontractors.

C. If such materials or substances are part of any item requiring a shop drawing or other submittal, provide the MSDS with the submittal.

D. Provide and maintain a copy of MSDSs to the Contract Administrator.

1.5 MATERIAL HANDLING

A. Store, stack, place, remove, and handle materials on Site in a stable and secure manner so as not to endanger the safety of personnel or cause damage to property.

B. Secure materials which, by virtue of their configuration or weight, cannot be stored or stacked in a secure and stable manner, against tipping, collapse, or falling by use of appropriate bracing systems, structures, or equipment.

C. Ensure that vehicles, construction machinery, and materials handling equipment are only operated on the Project by persons suitably qualified to do so.

1.6 CITY’S HEALTH AND SAFETY AUDITOR

A. The Contractor acknowledges that The City may employ the services of an occupational health and safety auditor, an environmental inspector, or other authorized inspector knowledgeable in the local statutes, laws, or by laws for the purpose of conducting inspections of the Site.

B. Grant the auditor, inspector, or any other inspector full and unimpeded access to the Site, at all times, and immediately comply with any direction issued by the auditor, inspector, The City, or any other inspector.

C. This provision does not change the Contractor's role and responsibilities as Contractor. The auditor is The City's method for ensuring due diligence is exercised.

D. The Contractor's health and safety representative shall accompany the safety auditor on Site visits where requested.

E. The safety auditor will report any observations made during inspections and audits and assign these to the Contractor. The Contractor will be granted access to these documents. It will be the responsibility of the Contractor to review these documents and take whatever action is necessary to fulfill its responsibility as the Contractor.

1.7 WORK IN HAZARDOUS AREAS

A. Hazardous Areas Classification in Existing Structures:
   1. The following areas in existing structures at the South End Water Pollution Control Centre for the purpose of this Contract are considered to be hazardous areas and classified as Class I Division 1 Group D locations per CSA C22.1, Canadian Electrical Code:
      a. Grit Building.

1.8 EXPLOSION-PROOF CONSTRUCTION

A. Certain areas may be designated on the Drawings as "explosion proof", "hazardous", or may be classified under CSA C22.1, Canadian Electrical Code. Where areas have such designation, provide explosion proof electrical equipment which meets the requirements of CSA C22.1, Canadian Electrical Code.

B. Temporary structures such as fabrication shops, storage areas, and offices will not be permitted within existing facility structures unless approved by the Contract Administrator and The City.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

Winnipeg Sewage Treatment Program
Integrated Management System

Contractor Safety Health and Environment Orientation Plan

DOCUMENT NUMBER: CD-PM-PC-03

Rev	Prepared by	Reviewed by	Date	Approved by	Date
	B. Willemsen		13/07/25		

Table of Contents

1. Introduction 3
2. Site Orientations 3
2.1 General 3
2.2 Hazards 3
2.3 Personal Protective Equipment (PPE) 4
2.4 Codes of Practice 4
2.5 Safety Equipment 4
2.6 Emergency Procedures 5
2.7 Access Control 5
2.8 Permitting 5
2.9 Environmental 5
2.10 Definitions 6

1. INTRODUCTION

The Contractor Safety, Health and Environment Orientation Plan shall be regarded as the minimum standard that all contractors and their employees must be oriented with, prior to working on a WSTP project site.

The purpose of the Contractor Safety, Health and Environment Orientation Plan is to:

(a) Present an overview of the facilities and its known hazards;

(b) Identify environmental preservation and compliance requirements; and

(c) Provide relevant safe work procedures for existing plant works.

The Contractor Safety, Health and Environment Orientation Plan will be reviewed by the WSTP Program Team at least annually to adjust for changing conditions

Contractors have the same obligations to their employees as any other employer in

Manitoba. Where safety issues arise concerning contractor employees a safety concern will always be taken to the supervisor of the employees involved.

It is the right of the City of Winnipeg to require the contractor to resolve any safety issue raised to the City's satisfaction before work continues. This decision belongs to the city's Project Manager responsible for the project with support from any safety resource needed.[1]

Contractors can review the City of Winnipeg Workplace Safety & Health Program for Contractors at http://winnipeg.ca/matmgt/Safety/

2. SITE ORIENTATIONS

2.1 General

Before contract work begins, site specific known hazards and controls, safe work and emergency procedures, access control and reporting requirements will be communicated as minimum requirements to the contractor and his employees by plant operations or contract administrators in consultation with departmental safety resources as needed.

In addition, contractors working within the plant shall undergo a Safety Walkthrough of applicable plant areas with designated Plant Operations personnel to receive area specific safety orientation. The purpose of the walkthrough is to familiarize the workers with hazards specific to the work area.

All contractor employees must sign-off acknowledging receipt and understanding of orientation information provided by City of Winnipeg Water and Waste Department.

2.2 Hazards

Contractors and their employees must become familiar with hazards in the plant areas they are working in and in addition shall complete their own risk assessments prior to undertaking the work.

The following listing although not exhaustive identifies hazards that contractors can expect to encounter while performing works within the wastewater treatment plants. Contractors and their employees must observe and obey all signage posted within the wastewater treatment plant.

[1] Organizational Safety Code of Practice COW

(a) Open Tank areas- be aware of potential for slips , trips and falls due to wash down hoses or wet floors, know where the life safety floatation devices are located;

(b) Automatic Controls- be aware that equipment can start and stop automatically and as such stay clear of equipment;

(c) Excessive Noise-be aware of areas within the plant that have the potential to generate loud noise necessitating the use of hearing protection;

(d) Hazardous Atmospheres-fixed gas detectors with strobe lights are mounted in various areas of the plant. Contractors shall also monitor for H2S & LEL gases through use of personal detectors in these designated areas and confined spaces. If detectors or strobe lights go into alarm, contractors shall leave the area, notify the lead operator of the alarm and obtain clearance from the lead operator prior to re-entry into the work area;

(e) Biological Hazards- Personal Hygiene through frequent hand washing after working in process areas will help prevent spread of germs. Minor cuts and scrapes should be attended to immediately to prevent infection from occurring. Do not drink water from hoses or taps in the plant;

(f) Confined Spaces-Be aware of the locations of confined spaces within the plant;

(g) Arc Flash- be aware of the location of high voltage equipment;

(h) Working from Heights- be aware of fall protection requirements when working above stipulated heights; and

(i) Hazardous Materials- be aware of WHMIS relative to the worksite.

2.3 Personal Protective Equipment (PPE)

The following PPE minimum requirements shall be adhered to by contractors when working at the wastewater treatment plants.

(a) Approved safety footwear;

(b) Safety Glasses;

(c) Hard Hats;

(d) High Visibility vests;

(e) Hearing Protection in designated areas; and

(f) Personal locks for Lockout Tag out of equipment.

2.4 Codes of Practice

Contractors shall comply with The Workplace Safety and Health Act W210 , Manitoba Regulations 217/2006 and utilize the following Codes of Practice and Guidelines as minimum requirements. It is Contractors responsibility to ensure the most recent Code of Practice or Guideline is being utilized.

(a) Code of Practice for Confined Space Entry (Nov 2006).

(b) Guideline for Fall Protection (July 2008).

(c) Water and Waste Department Lockout Tag Out Procedure

2.5 Safety Equipment

Contractors shall provide their own critical safety equipment including but not limited to: personal LEL detectors, self- retracting lanyards, portable man hoists, fire extinguishers, portable eyewash units, first aid kits etc. Use of City owned safety equipment by contractor personnel is not permitted.

2.6 Emergency Procedures

Contractors working within the plant must have emergency procedures in place to deal with situations that could arise as a result of their own work activities. Lists containing the names and contact numbers of project and emergency respondents should be conspicuously posted around the work areas.

Contractors working within the plant's various areas shall take note of where the emergency exit locations are located. If and when a Fire Alarm sounds, immediately evacuate to a designated muster point. The Contractor is accountable for his own staff and must report to the Wastewater Treatment Plant's Chief Fire Warden with confirmation that Contractor workers have vacated the plant..

2.7 Access Control

Access to the work site will be the designated plant entry point door identified during the orientation.

The Contractor will take all steps reasonable to ensure that any visitor to the construction site receives appropriate orientation and supervision to ensure that they are not put at risk.

2.8 Permitting

Control of construction and installation work at an operating plant requires clear, concise and documented communication among contractors, contract administrators and plant operators. Contractors shall prepare and utilize the following permits as applicable and obtain necessary sign-offs prior to undertaking the associated work.

(a) Hot Work permit; and

(b) Confined Space Entry permit.

The above listed Permit templates, when required, will be provided to Contractor during the site orientation.

2.9 Environmental

The Worksite is part of the City of Winnipeg Wastewater System. Safe handling and storage of fuel, oils, and chemicals shall be of the highest priority and care. Contractors shall review and understand the City of Winnipeg Environmental Management Policy , associated Preservation and Compliance documentation and Environmental Accident Reporting Regulation Any spill or release shall be immediately reported to the Contract Administrator.

The Contract Administrator shall immediately notify the City of such spills in accordance with established City of Winnipeg protocols and monitor the Contractors containment and remediation actions. The Contract Administrator shall obtain copies of Contractors incident report and investigation.

2.10 Definitions

City of Winnipeg

Refers to The City of Winnipeg, as continued under, The City of Winnipeg Act, Statutes of Manitoba 1989-90, C-10, and any subsequent amendments thereto.

H2S Hydrogen Sulfide

LEL Lower Explosive Limit

LOTO Lockout Tag Out Procedure

PPE – Personal Protective Equipment

To be worn at all times while on the worksite or adjacent areas where work is being undertaken.

WSTP Program Team

Team comprised of both Veolia and City of Winnipeg personnel

Project

The location or locations at which the Work is to be performed, including rights of way, leases and temporary working spaces, and in Definitions (Act W.210), page 2.

Workplace Safety and Health Act W.210, MR217/2006

Governing Health and Safety in the province of Manitoba or those regulations that are in effect at the time of the work.

WSTP Winnipeg Sewage Treatment Program

SECTION 01 41 00

REGULATORY REQUIREMENTS

PART 1 GENERAL

1.1 SUBMITTALS

A. Quality Control Submittals: Submit certificates from inspecting authorities for electrical work, pressure piping, and gas piping among others.

1.2 APPLICABLE CODES

A. Comply with the latest edition of the codes and standards referenced in Contract Documents and following statutes and codes and all amendments thereto:
1. The Manitoba Nuisance Act
2. The Public Health Act
3. The Manitoba Building Code Act and Regulations.
4. National Building Code of Canada.
5. Occupational Health and Safety Act and Regulations for Construction Projects, covering safety, hazardous materials, and Workplace Hazardous Material Information.
6. Manitoba Plumbing Code.
7. Canadian Environmental Protection Act
8. Canadian Electrical Code.
9. Manitoba Workplace Safety and Health Act

B. For purposes of the Manitoba Workplace Safety and Health Act, the Contractor will be designated the “Prime Contractor” and assumes the responsibility of the Prime Contractor as set out in the Act and its regulations.

1.3 PERMITS, APPROVALS, AND LICENCES

A. The City will obtain and pay only for the following permits and approvals:
1. Excavation Permit
2. Building Permit (for foundations)

B. A copy of each approval or permit will be available at Contract Administrator’s office for review. Contractor shall examine the approvals and permits and conform to the requirements contained therein and such requirements are hereby made a part of these Contract documents as fully and completely as though the same were set forth herein. Failure to examine the approvals and permits will not relieve Contractor from compliance with the requirements stated therein.

C. Apply for, obtain, and pay for all other permits, approvals, licenses, and governmental inspections required for the performance of the Work.

D. The Contract Administrator will provide Contractor with a clean set of Drawings and Specifications, as necessary, for each application.

E. Arrange for all other regular inspections and final inspections required.

F. The Contractor shall be solely responsible, without limitations, for any delays arising from the Contractor's failure to plan for the required inspections and to ascertain the availability of the Permit/Approval/Licensing Inspectors to complete the required inspections for the Works under this Contract. The related costs and expenses incurred by the Contractor shall be borne by the Contractor, with no change in the Contract Price and/or Contract Time.

1.4 NOISE CONTROL ON-SITE

A. Abide by all local ordinances. Adjust hours of operation accordingly.

B. All plant and equipment supplied by the Contractor for use on the Work shall be effectively "sound-reduced" by means of silencers, mufflers, acoustic linings or shields or acoustic sheds or screens to a level of 85 decibels (dBA) measured outside the nearest occupied property or to the satisfaction of the Contract Administrator.

1.5 DUST CONTROL

A. Perform dust control measures to minimize dust generation.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 01 43 33

CONTRACTOR FIELD SERVICES

PART 1 GENERAL

1.1 REQUIRED FIELD SERVICES

A. As part of complete Work, the Contractor shall provide field engineering services to measure quantities, layout the Work, confirm subsurface conditions, commission mechanical and electrical Work, and record as-built conditions.

1.2 SURVEY REFERENCE POINTS

A. Existing base horizontal and vertical control points are designated on Drawings.

B. Locate, confirm, and protect control points. Preserve permanent reference points during construction.

C. Make no changes or relocations without prior written notice to the Contract Administrator.

D. Report to the Contract Administrator when a reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.

E. Require Manitoba Land Surveyor to replace control points in accordance with the original survey control.

1.3 SURVEY REQUIREMENTS

A. Establish lines and levels; locate and lay out by instrumentation (GPS, Total Station, etc.)

B. Stake for excavation, grading, and backfill.

C. Establish pipe invert and centerline elevations

1.4 COMMISSIONING REQUIREMENTS

A. All newly installed or relocated piping shall be tested and commissioned in accordance with the City of Winnipeg Standard Construction Specifications and to the satification of the Contract Administrator.

B. Testing and commissioning of all piping systems shall be witnessed and accepted by the Contract Administrator prior to backfilling or concealment.

C. All newly installed or relocated electrical systems shall be tested and commissioned in accordance with the Canadian Electrical Code (latest edition) and to the satisfaction of the Contract Administrator.

D. Testing and commissioning of all electrical systems shall be witnessed and accepted by the Contract Administrator prior to backfilling or concelement.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 01 45 16.13

CONTRACTOR QUALITY CONTROL

PART 1 GENERAL

1.1 INSPECTION

A. Allow Contract Administrator access to Work. If part of Work is in preparation at locations other than place of Work, allow access to such Work whenever it is in progress.

B. Give timely notice requesting inspection if Work is designated for special tests, inspections or approvals by Contract Administrator instructions.

C. If Contractor covers or permits to be covered Work that has been designated for special tests, inspections or approvals before such is made, uncover such Work, have inspections or tests satisfactorily completed and make good such Work.

D. Contractor Administrator may order part of Work to be examined if Work is suspected to be not in accordance with Contract Documents. If, upon examination such work is found not in accordance with Contract Documents, correct such Work and pay cost of examination and correction. If such Work is found in accordance with the Contract Documents, the City shall pay cost of examination and replacement if necessary.

1.2 QUALITY CONTROL

A. The City will provide services of an inspection company to perform the following routine quality control services, at no cost to the Contractor:
   1. Compaction of backfill.
   2. Pile installation
   3. Cast in place concrete
   4. Subgrade examination for load bearing capability if required.

B. The City's tests do not relieve Contractor of his own quality control.

C. The Contract Administrator may request samples at any reasonable time.

D. Additional testing required proving the adequacy of construction shall be at Contractor's expense, where the routine test shows the construction to be inadequate or where Contractor's materials and procedures have not been as specified or when work has proceeded without observation.

E. Such additional testing or retesting will be performed by a testing agency approved by the Contract Administrator.

1.3 PROCEDURES

A. Notify Contract Administrator in advance of requirement for tests, in order that attendance arrangements can be made.

B. Submit samples and/or materials required for testing, as specifically requested in specifications. Submit with reasonable promptness and in orderly sequence to not cause delays in Work.

C. Provide labour and facilities to obtain and handle samples and materials on site. Provide sufficient space to store and cure test samples.

1.4 REJECTED WORK

A. Remove defective Work, whether result of poor workmanship, use of defective products or damage and whether incorporated in Work or not, which has been rejected by the Contract Administrator as failing to conform to Contract Documents. Replace or re-execute in accordance with Contract Documents.

B. Make good other Contractor's work damaged by such removals or replacements promptly.

1.5 REPORTS

A. Submit one electronic (PDF) copy of inspection and test reports to Contract Administrator.

1.6 TESTS AND MIX DESIGNS

A. Furnish test results and mix designs as requested.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION (Not Used)

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.1 SUBMITTALS

A. Informational Submittals:
   1. Copies of permits and approvals for construction as required by Laws and Regulations and governing agencies.
   2. Temporary Utility Submittals:
      a. Electric power supply and distribution plans.
   3. Temporary Construction Submittals:
      a. Contractor's field office, storage yard, and storage building plans, including gravel surfaced area.
      b. Staging area location plan.
      c. Traffic Control and Routing Plans: As specified herein, and proposed revisions thereto.
      d. Plan for maintenance of existing plant operations.
   4. Temporary Control Submittals:
      a. Noise control plan.
      b. Plan for disposal of waste materials and intended haul routes.
      c. Plan for sediment control and storm water management.
      d. Plan for dewatering and drainage.

1.2 MOBILIZATION

A. Mobilization shall include, but not be limited to, these principal items:
   1. Obtaining required permits that are not obtained by The City.
   2. Moving Contractor's field office and equipment required for the Work onto site.
   3. Installing temporary construction power, wiring, and lighting facilities.
   4. Providing temporary onsite communication facilities, including telephones.
   5. Providing onsite sanitary facilities and potable water facilities as specified and as required by governing agencies.
   6. Providing sedimentation and erosion control measures, including silt fencing and straw bale flow checks and the maintenance and repair (if necessary) of these facilities.
   7. Temporary measures for affected existing building entrances, including ramps, railings, temporary closures and associated signage, door relocations as shown on the Drawings and as directed by the Contract Administrator.
   8. Having Contractor's superintendent at site full time.

B. Use area designated for Contractor's temporary facilities as shown on Drawings.

1.3 ACCESS TO SITE

A. The Contractor will not be given keys for the existing facilities and will organize access with the Contract Administrator.

1.4 CONTRACTOR'S OFFICE

A. Accommodation for the Contractor's office, plant, tools, equipment, and materials (including fuel) shall be the responsibility of the Contractor. Such accommodation at the Site shall be located after consultation with the Contract Administrator. The Contractor shall be responsible for the protection of its plant, tools, equipment, and materials stored on-site. Materials stored on the City's premises shall be neatly stacked and protected from the weather.

B. The Contractor shall confine their activities to the minimum area necessary for undertaking and completing the Work. Material and equipment storage areas shall be at locations acceptable to the Contract Administrator.

C. The Contractor's construction activities shall not encroach or enter onto private property without written consent from the owner of the property concerned. The Contractor shall provide the Contract Administrator with a copy of the written agreement with the property owner."he Contractor will not be given keys for the existing facilities and will organize access with the Contract Administrator.

1.5 SITE SECURITY

A. The City will not provide security forces to the plant Site. Contractor is responsible for all material and equipment stored on the site.

1.6 SCAFFOLDING

A. Provide and maintain adequate scaffolding as required. Scaffolding is to be rigid, secure, and constructed to ensure adequate safety for workers. Erect without damage to the building or finishes.

B. Scaffolding in accordance with CAN/CSA-S269.2.

1.7 GUARD RAILS AND BARRICADES

A. Supply and Install secure, rigid guard rails and barricades around deep excavations, open shafts, open stair wells, open edges of floors and roofs, and any other fall hazards.

B. Provide as required by governing authorities.

1.8 FIRST AID ROOM

A. The Contractor shall provide and maintain on the site in a clean orderly condition, a completely equipped first aid room readily accessible at all times to everyone on the job site in accordance with Manitoba Workplace Safety and Health Act W210/MR217.

B. Designate properly instructed employees to be in charge of first aid. At least one such employee shall always be available on site while work is in progress.

C. Conspicuously post a telephone list for summoning aid, such as doctors, ambulance, and rescue squads.

1.9 PROTECTION OF WORK AND PROPERTY

A. Comply with The City'srequirements and all other applicable health and safety rules for contractors while working on The City's property.

B. Traffic Control Plan:
1. Prepare and submit a traffic control plan to be reviewed and accepted by the Contract Administrator. Changes to this plan shall be made only by written approval of the Contract Administrator.

C. The Contractor shall be responsible for snow clearance operations for:
1. Their designated access roads, parking, staging and laydown areas as shown on the Contract Drawings in Appendix C.
2. All temporary roads within the Site as shown on the drawing in Appendix C.

PART 2 PRODUCTS

2.1 CONTRACTOR SIGNAGE

A. Contractor shall obtain Contract Administrator approval for installation and location of Contractor signage.

PART 3 EXECUTION

3.1 TEMPORARY UTILITIES

A. Power:
1. Power requriements for this Contract shall be the responsibility of the Contractor. Supply and install all temporary electric power service, metering equipment, and pay all costs for the electric power used during the Work period.
2. The City will not be responsible, or entertain any claims, for the delay of Work resulting from power interruptions to the Site or loss of utility supply.
3. The Contractor shall provide their own source of power (propane or other) for heating their construction trailers. Temporary electricity from the City is not available.

B. Lighting:
1. Provide temporary lighting to meet all applicable safety requirements to allow erection, application, or installation of materials and equipment, and observation or inspection of the Work.

2. The Contractor shall secure all temporary lighting and wiring from damage, falling or tripping hazards.

C. Water:
1. Hydrant Water:
a. Is available from nearby hydrants. Secure written permission for connection and use from The City and meet requirements for use. Notify fire department before obtaining water from fire hydrants.
b. Use only special hydrant-operating wrenches to open hydrants. Make certain that hydrant valve is open full, since cracking the valve causes damage to the hydrant. Repair damaged hydrants and notify appropriate agency as quickly as possible. Hydrants shall be completely accessible to fire department at all times.
2. Provide temporary facilities and piping required to bring water to point of use, and remove when no longer needed. Install an acceptable metering device and pay for water used at The City's current rate.
3. The Contractor shall provide hoses as required. The Contractor shall repair any damage caused during use of existing water outlets.

D. Sanitary and Personnel Facilities:
1. Provide and maintain facilities for Contractor's employees and Subcontractors, in accordance with Manitoba Workplace Safety and Health Act W210/MR217. Service, clean, and maintain facilities and enclosures.
2. Use of The City's existing sanitary facilities by construction personnel will not be allowed.

E. Communication Services:
1. Contractor: Provide onsite telephone service for the sole use of the Contractor during construction. Pay costs of installation and monthly bills. Contractor shall reinstate service outages resulting from construction activities within one business day.

F. Fire Protection: Furnish and maintain on site adequate firefighting equipment capable of extinguishing incipient fires. Comply with applicable parts of National Fire Prevention Standard for Safeguarding Building Construction Operations (NFPA No. 241).

3.2 PROTECTION OF WORK AND PROPERTY

A. General:
1. Perform Work within right-of-way and easements in a systematic manner that minimizes inconvenience to property owners and the public.
2. No residence or business shall be cut off from vehicular traffic unless special arrangements have been made.
3. Schedule the Work so construction will not interfere with irrigation of cultivated lands . Construction may proceed during irrigation season, provided Contractor constructs temporary irrigation ditches, turnouts, and miscellaneous structures acceptable to property owners.
4. Maintain in continuous service all existing gas pipelines, underground power, telephone or communication cable, water mains, irrigation lines, sewers, poles

and overhead power, and all other utilities encountered along line of the Work, unless other arrangements satisfactory to owners of said utilities have been made.

5. Where completion of the Work requires temporary or permanent removal and/or relocation of existing utility, coordinate all activities with owner of said utility and perform all work to their satisfaction.
6. Protect, shore, brace, support, and maintain underground pipes, conduits, drains, and other underground utility construction uncovered or otherwise affected by construction operations.
7. Keep fire hydrants and water control valves free from obstruction and available for use at all times.
8. In areas where Contractor's operations are adjacent to or near a utility, such as gas, telephone, television, electric power, water, sewer, or irrigation system, and such operations may cause damage or inconvenience, suspend operations until arrangements necessary for protection have been made by Contractor.
9. Notify property owners and utility offices that may be affected by construction operation at least 2 days in advance.
    a. Before exposing a utility, obtain utility owner's permission. Should service of utility be interrupted due to Contractor's operation, notify proper authority immediately. Cooperate with said authority in restoring service as promptly as possible and bear costs incurred.
10. Do not impair operation of existing sewer system. Prevent construction material, pavement, concrete, earth, volatile and corrosive wastes, and other debris from entering sewers, pump stations, or other sewer structures.
11. Maintain original site drainage wherever possible.
12. Prevent dust and dirt from entering existing buildings or areas where equipment is stored or is operating. Prevent dust, water or other deleterious substances from entering areas with existing electrical, heating ventilating, pumping, and other equipment.

B. Equipment Fueling: Designate area within working limits to be used exclusively for fueling construction equipment. Maintain apparatus on site for cleanup of fuel spills.

C. Equipment Cleaning: Keep construction equipment clean so that no debris is deposited on plant roadways or any public roadway. Contain construction debris in designated area within working limits. Dispose of debris off-site as specified.

D. Trees and Plantings:
1. Protect from damage and preserve trees, shrubs, and other plants outside limits of the Work and within limits of the Work, which are designated on the Drawings to remain undisturbed.
    a. Where practical, tunnel beneath trees when on or near line of trench.
    b. Employ hand excavation as necessary to prevent tree injury.
    c. Do not stockpile materials or permit traffic within drip lines of trees.
    d. Provide and maintain temporary barricades around trees.
    e. No trees, except those specifically shown on Drawings are to be removed, shall be removed without written approval of the Contract Administrator
    f. Dispose of removed trees in a legal manner off the site.

2. In event of damage to bark, trunks, limbs, or roots of plants that are not designated for removal, treat damage by corrective pruning, bark tracing, application of a heavy coating of tree paint, and other accepted horticultural and tree surgery practices.
3. Replace each plant that dies as a result of construction activities.

E. Waterways:
1. Keep ditches, culverts, and natural drainages continuously free of construction materials and debris.

F. Dewatering:
1. In accordance with requirements of section 31 23 19.01, Dewatering construct, maintain, and operate sumps, pumps, or other temporary diversion and protection works. Furnish materials required, install, maintain, and operate necessary pumping and other equipment for the environmentally safe removal and disposal of water from the various parts of the Work. Maintain foundations and parts of the Work free from water.

3.3 TEMPORARY CONTROLS

A. Air Pollution Control:
1. Minimize air pollution from construction operations.
2. Burning:
   a. Of waste materials, rubbish, or other debris will not be permitted on or adjacent to site.
3. Conduct operations of dumping rock and of carrying rock away in trucks to cause a minimum of dust. Give unpaved streets, roads, detours, or haul roads used in construction area a dust-preventive treatment or periodically water to prevent dust. Strictly adhere to applicable environmental regulations for dust prevention.
4. Provide and maintain temporary dust-tight partitions, bulkheads, or other protective devices during construction to permit normal operation of existing facilities. Construct partitions of plywood, insulating board, plastic sheets, or similar material. Construct partitions in such a manner that dust and dirt from demolition and cutting will not enter other parts of existing building or facilities. Remove temporary partitions as soon as need no longer exists.

B. Water Pollution Control:
1. Divert sanitary sewage and nonstorm waste flow interfering with construction and requiring diversion to sanitary sewers. Do not cause or permit action to occur which would cause an overflow to existing waterway.
2. Prior to commencing excavation and construction, obtain Contract Administrators agreement with detailed plans showing procedures intended to handle and dispose of sewage, groundwater, and stormwater flow, including dewatering pump discharges.
3. Do not dispose of volatile wastes such as mineral spirits, oil, chemicals, or paint thinner in storm or sanitary drains. Disposal of wastes into streams or waterways is prohibited. Provide acceptable containers for collection and disposal of waste materials, debris, and rubbish.

C. Erosion, Sediment, and Flood Control:
   1. Provide, maintain, and operate temporary facilities to control erosion and sediment releases, and to protect the Work and existing facilities from flooding during construction period.
   2. Contractor shall take steps to prevent sediments from disturbed surfaces being transported by surface runoff to existing creeks, rivers or storm drainage systems.
   3. Silt fences, straw bales and rock flow check dams shall be placed and maintained in place. Any sediment collected shall be disposed of off-site. Silt fences and straw bales shall be repaired or replaced as needed during Work and shall be removed when new surfaces have been placed and stabilized.

3.4 ACCESS ROADS

A. Construct access roads as necessary to access the Work.

B. Maintain drainage ways. Install and maintain culverts to allow water to flow beneath access roads. Provide corrosion-resistant culvert pipe of adequate strength to resist construction loads.

C. Provide gravel, crushed rock, or other stabilization material to permit access to the Work by all motor vehicles at all times.

D. Maintain road grade and crown to eliminate potholes, rutting, and other irregularities that restrict access.

E. Upon completion of construction, leave access roads in condition suitable for future use by the City. Replace damaged or broken culverts with new culvert pipe of same diameter and material.

F. Control dust on Site at all times.

3.5 PARKING AREAS

A. Control vehicular parking to preclude interference with public traffic or parking, access by emergency vehicles, The City’s operations, or construction operations.

B. Contractor shall park in area designated by the Contract Administrator. No employee or equipment parking will be permitted on the City’s / Contract Administrator’s parking areas.

C. Upon completion of construction, leave parking areas in condition suitable for future use by The City.

3.6 VEHICULAR TRAFFIC

A. Conduct the Work to interfere as little as possible with public travel, whether vehicular or pedestrian.

B. Provide snow removal as required to perform the work of the Contract. Perform snow removal promptly and efficiently by means of suitable equipment whenever necessary for safety, and as may be directed by the Contract Administrator.

END OF SECTION

SECTION 01 52 10

CONSTRUCTION SEQUENCING

PART 1 GENERAL

1.1 SUBMITTALS

A. The Contractor shall incorporate the specified sequence of construction into their progress schedule. The Contractor may propose an alternative sequence of construction to accelerate the construction schedule for review and approval by the Contract Administrator

1.2 INTENT

A. This section includes construction sequencing constraints and a suggested sequence of construction that will satisfy the constraints required in the prosecution of the Work.

B. The suggested sequence of construction described herein is general in nature and illustrates the design intent with respect to prosecution of the Work. Prepare and submit a proposed sequence of construction for review by the City and Contract Administrator. This review will serve to satisfy the City and Contract Administrator that all mandatory construction sequencing constraints have been properly addressed by Contractor in the proposed sequence of construction but shall in no way absolve Contractor of complete responsibility for prosecution of the Work in accordance with the requirements of the Contract documents.

C. The suggested sequence of construction described herein outlines the intent of the design with respect to the general progress of Work. The descriptions of construction activities as outlined in this section are not intended to be comprehensive or all-inclusive. Many other construction activities and work components, although not specifically noted in this section, are integral parts of the Work and shall be scheduled and completed by Contractor in accordance with the Contract documents.

D. The broad grouping of parts of the Work under phases, stages, or similar divisions in the suggested sequence of construction is intended to illustrate the general sequence for prosecution of the Work as envisioned by Contract Administrator. Such grouping shall in no way absolve Contractor of complete responsibility for the construction means, methods, techniques, sequences, and procedures of construction, or the safety precautions and programs incidental thereto.

1.3 COORDINATION

A. The facility will be maintained in continuous operation without interruption throughout the duration of the Contract. Cooperate with the City and do not interfere unnecessarily with the day-to-day operations of the facility. At all times provide the City with unhindered access to all portions of the facility that are in operation.

B. Coordinate the requirements of this section with the other requirements of the Contract documents.

1.4 SERVICES PROVIDED BY CONTRACTOR

A. Provide all necessary temporary power, pumping facilities, pipes, valves, fittings, diversions, and as required during construction, water leakage testing, and changeover of flows from one pipe, or sewer to another.

B. In general, place into service all piping, sewers, electrical connections and similar facilities before removing any existing parallel facilities from service.

C. In general, the City will remove from service and empty process units, tanks, sewers, channels, pipelines, and similar facilities only once, unless otherwise specified.

1.5 SUGGESTED SEQUENCE OF CONSTRUCTION

A. The suggested sequence of construction described herein is based on Contract Administrator's knowledge of the design components of the Project and not on experience in the construction of such Work. Contract Administrator assumes no responsibility for the time required to construct the Work following the suggested sequence of construction.

B. It has been assumed that the construction of the Bioreactors and Secondary Clarifiers would occur concurrently in order to comply with the specified Substantial and Total Performance dates.

C. Contractor may on his own initiative submit an alternate proposed sequence of construction to Contract Administrator for review. Such review shall in no way make Contract Administrator responsible for the time or costs required to construct the Work following Contractor's alternate sequence of construction.

D. For tie-ins to existing process units that require interruption to, or temporary shutdown of, processes or equipment, carefully plan and sequence such tie-ins well in advance for approval by the City.

E. Incorporate the construction constraints and sequence of construction in the Progress Schedules required in section 01 32 00, Construction Progress Documentation

F. Construct the Work in stages to allow for the City's continuous occupancy and uninterrupted operation and maintenance of the existing facilities during construction. Be responsible for all temporary connections required to maintain the City's operations. Unless specifically indicated otherwise, new systems or subsystems, as appropriate, must be placed into service before existing systems are taken out of service and made available for use by Contractor.

G. Include in the sequence of construction and Progress Schedule operations requiring actions by the City, such as the redirection of flows, isolation or draining of tanks, channels, and pipelines, and short-term process and power outages. Submit written

request for such scheduled operations to Contract Administrator a minimum of 14 days in advance, for consideration by The City and Contract Administrator, describing the reasons for, anticipated duration of, and areas affected by any process and power outages. Provide temporary means as required to maintain utilities such as power, gas, fuel oil, air, and water as appropriate to critical facility components if requested by The City and Contract Administrator.

H. For operations requiring action by the City, allow a reasonable time period in the Progress Schedule (minimum of 4 days unless noted otherwise) for the City to drain individual tanks or channels before making them available to Contractor.

I. Perform the work continuously and expeditiously during process and power outages, critical connections and changeovers, and as required to minimize interruption of the City's operations.

J. Coordinate the proposed work with the City and Contract Administrator prior to unit process shutdowns. Under no circumstance stop the work at the end of a normal working day if such action may cause a cessation of any facility operating process. In such cases, remain on site until the necessary work is complete.

K. Do not open or close valves, isolate pipes or channels, or take any other action that may affect the operation of new or existing facilities without written approval from the City or Contract Administrator. Give the City and Contract Administrator at least 14 days written notice of any activities that may affect the operations of the facilities.

L. Carefully examine the existing utility services at the Site to determine the difficulty of the work and the number and type of pipelines and cables required to be re-routed or protected from damage during construction of the work.

1.6 MONITORING AND EMERGENCY RESPONSE

A. Have the necessary resources, materials, personnel, and equipment readily available to provide continuous 24 hour per day, 7 day per week monitoring and emergency repair of sheeting, shoring, and other such temporary systems that are used to maintain plant operations where, in the opinion of The City or Contract Administrator, the failure of such temporary systems could adversely impact plant operations.

1.7 ELECTRICAL AND TEMPORARY POWER

A. To minimize the duration of shutdowns and keep the facility in continuous operation, maintain, to the maximum extent possible, existing electrical systems in operation while new electrical components are installed, or the existing systems are modified or replaced as required for the final electrical system configuration. Where this is not possible, provide temporary power in the form of overhead lines or portable generators at no additional cost to the City.

B. Prior to commencement of the Work, provide and check all necessary temporary services required to ensure that the existing facility will operate in an uninterrupted fashion during the construction period. Make connections on an individual, rather than group, basis in

order to minimize shutdowns. Prior to proceeding, provide a schedule with a written description of each operation for Contract Administrator's review.

1.8 FIRE PROTECTION

A. Do not introduce combustibles into any facility until full fire protection is in service.

B. Maintain existing fire protection systems, fire walls, fire doors, and other separations in service as long as possible. Notify Contract Administrator and The City in writing a minimum 14 days prior to disrupting or dismantling existing fire protection services.

C. Place new fire protection systems in service as soon as possible and notify Contract Administrator upon completion of new fire protection services.

D. Provide adequate supplementary fire protection facilities including but not limited to ample hand-operated 15 to 20 pound multipurpose dry chemical extinguishers in each facility. Provide temporary hose lines in areas where construction is in progress until the permanent fire protection is placed into service. Do not block hydrant hose connections and other fire fighting equipment by construction equipment and make readily accessible at all times.

E. Dispose of all combustible rubbish promptly and safely. Prompt disposal is particularly needed for material subject to spontaneous ignition such as oily waste and paint rags.

F. Monitor and control probable ignition sources as necessary to prevent the threat of fire.

G. Minimize hot work including but not limited to operations involving open flames, heat, or sparks such as brazing, cutting, grinding, soldering, and torching. If there is a practical and safer way to do the work without hot work, the alternative method shall be used.

H. Hot work shall end no less than one (1) hour prior to end of shift and area inspected prior to daily departure by the Contractor's site supervisor and / or tradesman.

PART 2 PRODUCTS

2.1 GENERAL

A. Unless specifically stated otherwise, provide all labour, materials, and equipment necessary to accomplish the work of this section.

PART 3 EXECUTION

3.1 CONSTRAINTS

A. Schedule and complete connections to existing services within the following time constraints:
   1. Shutdowns and the associated connection work shall be scheduled to begin at 0300 hours and normal plant operation will be scheduled to resume no later than 0900 hours.

B. Seniuk Road is subject to seasonal road restrictions as defined by Manitoba Infrastructure and Transportion (MIT). Contractor shall coordinate the Work and or obtain approvals from MIT to allow the Contractor to haul normal weights during restriction periods to minimize delay or disruption in the performance of the Work.

C. Contractor shall maintain safe access to the Site for at all times.

END OF SECTION

SECTION 01 61 00

COMMON PRODUCT REQUIREMENTS

PART 1 GENERAL

1.1 REFERENCES

A. National Building Code 2010 with Manitboba amendments

1.2 DEFINITIONS

A. Products:
   1. New items for incorporation in the Work, whether purchased by Contractor or the City for the Project, or taken from previously purchased stock and may also include existing materials or components required for reuse.
   2. Includes the terms material, equipment, machinery, components, subsystem, system, hardware, software, and terms of similar intent and is not intended to change meaning of such other terms used in Contract Documents, as those terms are self-explanatory and have well recognized meanings in construction industry.
   3. Items identified by manufacturer's product name, including make or model designation, indicated in manufacturer's published product literature, that is current as of the date of the Contract Documents.

1.3 PREPARATION FOR SHIPMENT

A. Package products to facilitate handling and protect from damage during shipping, handling, and storage. Mark or tag outside of each package or crate to indicate its purchase order number, bill of lading number, contents by name, name of Project and Contractor, equipment number, and approximate weight. Include complete packing list and bill of materials with each shipment.

B. Factory Test Results: Reviewed and accepted by Contract Administrator before product shipment as required in individual Specification sections.

1.4 DELIVERY AND INSPECTION

A. Deliver products in accordance with accepted current progress schedule and coordinate to avoid conflict with the Work and conditions at site.

B. Deliver products in undamaged condition, in manufacturer's original container or packaging, with identifying labels intact and legible. Include on label, date of manufacture and shelf life, where applicable. Include ULC labels on products so specified.

C. Unload products in accordance with manufacturer's instructions for unloading or as specified. Record receipt of products at site. Inspect for completeness and evidence of damage during shipment.

D. Remove damaged products from site and expedite delivery of identical new undamaged products, and remedy incomplete or lost products to provide that specified, so as not to delay progress of the Work.

1.5 HANDLING, STORAGE, AND PROTECTION

A. Handle and store products in accordance with manufacturer's written instructions and in a manner to prevent damage. Store in approved storage yards or sheds provided in accordance with section 01 50 00, Temporary Facilities and Controls. Provide manufacturer's recommended maintenance during storage, installation, and until products are accepted for use by The City.

B. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration. Keep running account of products in storage to facilitate inspection and to estimate progress payments for products delivered, but not installed in the Work.

C. Store electrical, instrumentation, and control products, and equipment with bearings in weather-tight structures maintained above 15 degrees C. Protect electrical, instrumentation, and control products, and insulation against moisture, water, and dust damage. Connect and operate continuously all space heaters furnished in electrical equipment.

D. Store fabricated products above ground on blocking or skids, and prevent soiling or staining. Store loose granular materials in well-drained area on solid surface to prevent mixing with foreign matter. Cover products that are subject to deterioration with impervious sheet coverings; provide adequate ventilation to avoid condensation.

E. Store finished products that are ready for installation in dry and well-ventilated areas. Do not subject to extreme changes in temperature or humidity.

1.6 QUALITY

A. Products, materials, equipment and articles incorporated in Work shall be new, not damaged or defective, and of best quality for purpose intended. If requested, furnish evidence as to type, source and quality of products provided.

B. Defective products, whenever identified prior to completion of Work, will be rejected, regardless of previous inspections. Inspection does not relieve responsibility, but is precaution against oversight or error. Remove and replace defective products at own expense and be responsible for delays and expenses caused by rejection. Should disputes arise as to quality or fitness of products, decision rests strictly with the Contract Administrator based upon requirements of Contract Documents.

C. Unless otherwise indicated in specifications, maintain uniformity of manufacture for any particular or like item throughout building.

D. Permanent labels, trademarks and nameplates on products are not acceptable in prominent locations, except where required for operating instructions, or when located in mechanical or electrical rooms.

1.7 METRIC PROJECT

A. Unless otherwise noted, this project has been designed and is to be constructed in the International System (SI) of Units metric system of measurements.

B. During construction, when specified metric elements are unattainable at the time they are required to meet the construction schedule, the Contractor shall notify the Contract Administrator in writing and suggest alternative substitutions. Costs due to these substitutions shall be borne by the Contractor.

1.8 MANUFACTURER'S INSTRUCTIONS

A. Unless otherwise indicated in specifications, install or erect products in accordance with manufacturer's instructions. Do not rely on labels or enclosures provided with products. Obtain written instructions directly from manufacturers.

B. Notify the Contract Administrator in writing, of conflicts between specifications and manufacturer's instructions, so that the Contract Administrator will establish the course of action.

C. Improper installation or erection of products, due to failure in complying with these requirements, authorizes the Contract Administrator to require removal and re-installation at no increase in Contract Price or Contract Time.

PART 2 PRODUCTS

2.1 GENERAL

A. Provide manufacturer's standard materials suitable for service conditions, unless otherwise specified in the individual Specifications.

B. Where product specifications include a named manufacturer, with or without model number, and also include performance requirements, named manufacturer's products must meet the performance specifications.

C. Like items of products furnished and installed in the Work shall be end products of one manufacturer and of the same series or family of models to achieve standardization for appearance, operation and maintenance, spare parts and replacement, manufacturer's services, and implement same or similar process instrumentation and control functions in same or similar manner.

D. Do not use materials and equipment removed from existing premises, except as specifically permitted by Contract documents.

E. Provide interchangeable components of the same manufacturer, for similar components, unless otherwise specified.

F. Provide materials and equipment listed by ULC wherever standards have been established by that agency.

2.2 FABRICATION AND MANUFACTURE

A. General:
1. Two or more items of the same type shall be identical, by the same manufacturer, and interchangeable.
2. Design structural members for anticipated shock and vibratory loads.
3. Modify standard products as necessary to meet performance Specifications.

2.3 SOURCE QUALITY CONTROL

A. Where Specifications call for factory testing to be witnessed by Contract Administrator, notify Contract Administrator not less than 14 days prior to scheduled test date, unless otherwise specified.

B. Calibration Instruments: Bear the seal of a reputable laboratory certifying instrument has been calibrated within the previous 12 months to a standard endorsed by the National Institute of Standards and Technology (NIST).

C. Factory Tests: Perform in accordance with accepted test procedures and document successful completion.

PART 3 EXECUTION

3.1 WORKMANSHIP

A. Ensure Quality of Work is of highest standard, executed by workers experienced and skilled in respective duties for which they are employed. Immediately notify the Contract Administrator if required Work is such as to make it impractical to produce required results.

B. Do not employ anyone unskilled in their required duties. The Contract Administrator reserves the right to require dismissal from site, workers deemed incompetent or careless.

C. Decisions as to standard or fitness of Quality of Work in cases of dispute rest solely with the Contract Administrator, whose decision is final.

3.2 INSPECTION

A. Inspect materials and equipment for signs of pitting, rust decay, or other deleterious effects of storage. Do not install material or equipment showing such effects. Remove damaged material or equipment from the site and expedite delivery of identical new material or equipment. Delays to the Work resulting from material or equipment damage

that necessitates procurement of new products will be considered delays within Contractor's control.

END OF SECTION

SECTION 01 64 00

CITY-SUPPLIED PRODUCTS

PART 1 GENERAL

1.1 CITY-SUPPLIED PRODUCTS

A. Item Description: Slide and Flap Gates and hardware.

1.2 UNLOADING, STORAGE AND MAINTENANCE

A. Contractor shall have complete responsibility for loading, transport and unloading the City-supplied products. Load, transport and unload products in accordance with the City supplied instructions, or as specified the manufacturer.

B. Slide and Flap gates are located on-site and completion of Form 100.

1.3 SCHEDULING AND SEQUENCING

A. Include sequencing constraints specified herein as part of progress schedule.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 INSTALLATION

A. Install products in conformance with the City supplied shop drawings and installation instructions and as shown on the drawings.

B. In cooperation with the Supply Contractor, the Contractor shall complete Form 101 – Certificate of Readiness to Install and Form 102 – Certificate of Satisfactory Installation. Examples of these Forms are appended as supplements to this section.

END OF SECTION

Form 100
CERTIFICATE OF EQUIPMENT DELIVERY

We certify that the equipment listed below has been delivered into the care and custody of the Installation Contractor. The equipment has been found to be in satisfactory condition. There is no visible evidence of exterior damage or defects.

Project: SEWPCC Upgrading/Expansion Project
Equipment Description:
Equipment Supply Bid Opp. No.: 333-2014
Equipment Install Bid Opp. No.: 899-2015
Equipment Tag No.:
Specification Reference:

Print Name Signature Date
(Authorized Representative of Supply Contractor)

Print Name Signature Date
(Authorized Representative of Installation Contractor)

Print Name Signature Date
(Authorized Representative of Contract Administrator)

Form 101
CERTIFICATE OF READINESS TO INSTALL

We have familiarized the installing contractor of the specific requirements related to the equipment listed below and am satisfied that the installing contractor understands the required installation procedures.

Project: SEWPCC Upgrading/Expansion Project
Equipment Description:
Equipment Supply Bid Opp. No.: 333-2014
Equipment Install Bid Opp. No.: 899-2015
Equipment Tag No.:
Specification Reference:

Print Name Signature Date
(Authorized Representative of Supply Contractor)

We certify that we have received satisfactory installation instructions from the equipment manufacturer/vendor.

Print Name Signature Date
(Authorized Representative of Installation Contractor)

Form 102
CERTIFICATE OF SATISFACTORY INSTALLATION

We have completed our checks and inspection of the installation of our equipment as listed below and confirm that it is satisfactory and that any defects have been remedied except any as noted below.

Project: SEWPCC Upgrading/Expansion Project
Equipment Description:
Equipment Supply Bid Opp. No.: 333-2014
Equipment Install Bid Opp. No.: 899-2015
Equipment Tag No.:
Specification Reference:
Outstanding Defects:

Print Name Signature Date
(Authorized Representative of Supply Contractor)

Print Name Signature Date
(Authorized Representative of Installation Contractor)

END OF SECTION

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 GENERAL

1.1 SUBMITTALS

A. Informational Submittals:
   1. Submit prior to application for final payment.
      a. As-Built Documents: As required in General Conditions.
      b. Approved Shop Drawings and Samples: As required in the General Conditions.
      c. Releases or Waivers of Liens and Claims: As required in General Conditions.

1.2 AS-BUILT DOCUMENTS

A. Quality Assurance:
   1. Furnish qualified and experienced person, whose duty and responsibility shall be to maintain as-built documents.
   2. Accuracy of Records:
      a. Coordinate changes within as-built documents, making legible and accurate entries on each sheet of Drawings and other documents where such entry is required to show change.
      b. Purpose of Project as-built documents is to document factual information regarding aspects of the Work, both concealed and visible, to enable future modification of the Work to proceed without lengthy and expensive site measurement, investigation, and examination.
   3. Make entries within 24 hours after receipt of information that a change in the Work has occurred.
   4. Prior to submitting each request for progress payment, request Contract Administrator's review and approval of current status of as-built documents. Failure to properly maintain, update, and submit as-built documents may result in a deferral by the Contract Administrator to recommend whole or any part of Contractor's Application for Payment, either partial or final.

PART 2 PRODUCTS (Not Used)

PART 3 EXECUTION

3.1 MAINTENANCE OF AS-BUILT DOCUMENTS

A. General:
1. Promptly following commencement, secure from Contract Administrator at no cost to Contractor, five complete sets of Contract Documents. Drawings will be full size.
2. Delete Contract Administrator title block and seal from all documents.
3. Label or stamp each as-built document with title, “AS-BUILT DOCUMENTS,” in neat large printed letters.
4. Record information concurrently with construction progress and within 24 hours after receipt of information that change has occurred. Do not cover or conceal Work until required information is recorded.

B. Preservation:
1. Maintain documents in a clean, dry, legible condition and in good order. Do not use as-built documents for construction purposes.
2. Make documents and Samples available at all times for observation by Contract Administrator.

C. Making Entries on Drawings:
1. Using an erasable colored pencil (not ink or indelible pencil), clearly describe change by graphic line and note as required.
   a. Colour Coding:
      1) Green when showing information deleted from Drawings.
      2) Red when showing information added to Drawings.
      3) Blue and circled in blue to show notes.
2. Date entries.
3. Call attention to entry by “cloud” drawn around area or areas affected.
4. Legibly mark to record actual changes made during construction, including, but not limited to:
   a. Depths of various elements of foundation in relation to finished first floor data if not shown or where depth differs from that shown.
   b. Horizontal and vertical locations of existing and new Underground Facilities and appurtenances, and other underground structures, equipment, or Work. Reference to at least two measurements to permanent surface improvements.
   c. Location of internal utilities and appurtenances concealed in the construction referenced to visible and accessible features of the structure.
   d. Locate existing facilities, piping, equipment, and items critical to the interface between existing physical conditions or construction and new construction.
   e. Changes made by Addenda and Field Orders, Work Change Directive, Change Order, Written Amendment, and Contract Administrator’s written interpretation and clarification using consistent symbols for each and showing appropriate document tracking number.

5. Dimensions on Schematic Layouts: Show on as-built drawings, by dimension, the centerline of each run of items such as are described in previous subparagraph above.
   a. Clearly identify the item by accurate note such as “cast iron drain,” “galv. water,” and the like.
   b. Show, by symbol or note, vertical location of item (“under slab,” “in ceiling plenum,” “exposed,” and the like).
   c. Make identification so descriptive that it may be related reliably to Specifications.

3.2 FINAL CLEANING

A. At completion of the Work or of a part thereof and immediately prior to Contractor’s request for Certificate of Substantial Performance; or if no certificate is issued, immediately prior to Contractor’s notice of completion, clean entire site or parts thereof, as applicable.
   1. Leave the Work and adjacent areas affected in a cleaned condition satisfactory to the City and Contract Administrator.
   2. Broom clean exterior paved driveways and parking areas.
   3. Hose clean sidewalks, loading areas, and others contiguous with principal structures.
   4. Rake clean all other surfaces.
   5. Remove snow and ice from access to buildings.
   6. Leave water courses, gutters, and ditches open and clean.
   7. Clean all new tanks and buildings to the satisfaction of the Contract Adminstrator.

END OF SECTION