



January 30, 2023

Client File No.: 1071.0
Our File Nos.: S-1146, EMS
020-17-08-11-00
020-17-08-11-0N

Environment, Climate and Parks
Environmental Stewardship Division
Environmental Approvals Branch
1007 Century Street
Winnipeg, MB R3H 0W4

Attention: James Capotosto, A/Director

**RE: INTERIM PHOSPHOROUS REMOVAL QUARTERLY REPORT FOR OCTOBER,
NOVEMBER, DECEMBER 2022**

The City of Winnipeg (City) is submitting the Interim Phosphorous Quarterly Report for the months of October, November, and December 2022 in accordance with the conditional approval of the Notice of Alteration for the North End Sewage Treatment Plant (NEWPCC).

October

The construction phase was initiated with onsite meetings with the contractor, Trotter and Morton. The contractor has mobilized to site and reviewed and updated the construction schedule to reflect the new start date. The City also completed an archeological assessment of the site. It was deemed to have a low heritage impact and a protocol has been established in case archeological artifacts are discovered.

November

The subcontractors were brought to site to set up trailers and equipment. Appropriate safety orientations were held and onsite works started with tree and bush scrub removal from the construction area. Construction documentation was submitted for review. This included the Safe Work Plan, the Quality Management Plan, equipment lists and shop drawings. The consultant, KGS, began reviewing the submissions.

December

Vibration monitors were installed to prepare for foundation piling. Photographic surveys were also completed. Earthworks and leveling were started for drainage control around the new buildings and the railbed. The existing electrical ground grid was exposed with hydro vacuuming and appropriate modifications/installations were made by electricians for the new ground grid.

The estimated phosphorous concentrations throughout the various phases of the NEWPCC Upgrade were based on preliminary AECOM studies and are shown in Table 1.

Changes from last reporting period:

- The start of Stage 3 was updated from August 2023 to October 2023 to reflect the award date of the construction contract.

Table 1. Estimated phosphorous concentrations through various phases of the NEWPCC Upgrade

Phase	Period	Estimated total phosphorous concentration in NEWPCC Final Effluent
Stage 1: Phosphorous reduction with existing infrastructure	Until August 2021	Approximately 4.0 to 4.5 mg/L on average
Stage 2: Maximized phosphorous reduction through optimization with existing infrastructure	August 2021 to September 2023	Approximately 3.5 mg/L on average
Stage 3: Interim phosphorous reduction through additional infrastructure as approved on May 28, 2021	October 2023 to December 2030	Approximately 2.5 to 3.0 mg/L on average (phosphorous levels may increase as City growth consumes sludge processing capacity)
Stage 4: Enhanced interim phosphorous reduction to as low as the 1.0 mg/L effluent phosphorous limit upon commissioning of the biosolids facility	January 2031 to January 2032	1 mg/L – beyond January 2032, 1 mg/L is dependant on the sludge loading levels. This assumes the maximum sludge generating scenario.
Stage 5: Ongoing phosphorous removal meeting the 1.0 mg/L effluent phosphorous limit upon commissioning of the biological nutrient removal facility	Dependent on constructability review and funding for NEWPCC Nutrient Removal Facility	1 mg/L

Optimizing with the various dosing points may improve removal rates and the reduce concentrations listed in Table 1. This will be determined during full scale testing.

Phosphorous concentrations in the final effluent are reported in the NEWPCC's monthly compliance reports and can be found online: <https://winnipeg.ca/waterandwaste/sewage/compliance.stm>.

The overall schedule for the Interim Phosphorous Removal project is shown in Table 2.



Table 2. Schedule for Interim Phosphorous Removal

Deliverable	Description	Contractual Dates	% Previously Reported in Q3 2022	% Currently Complete (End of Q4 2022)	Originally Projected Date	Revised or Completed Date	Work Remaining
Consultant RFP	Draft, review, post for tender	N/A	100%	100%	July 2021	July 31, 2021	Complete
	Evaluation, Admin Report, Approvals, Award	N/A	100%	100%	September 30, 2021	September 28, 2021	Complete
Preliminary Design (PD)	PD plus reviews and approval by WWD	February 3, 2022	100%	100%	March 31, 2022	February 2, 2022	Complete
Detailed Design (DD)	DD plus reviews and approval by WWD	May 18, 2022	100%	100%	June 30, 2022	May 18, 2022	Complete
Construction Tender	Draft, review, post for tender	May 26	100%	100%	June 30, 2022	June 13, 2022	Complete
	Tender posting period	May 26, 2022 to June 23, 2022	100%	100%	June 30, 2022	June 13, 2022 to July 22, 2022	Complete
	Award Recommendation, Admin Report, Approvals, Award	July 15, 2022	100%	100%	June 30, 2022	September 22, 2022	Complete
Construction and Commissioning	Substantial Performance	July 20, 2023	0%	10%	June 30, 2023	October 9, 2023	Ongoing
	Total Performance	August 31, 2023	0%	0%	September 30, 2023	December 5, 2023	
	Warranty Period	August 31, 2024	0%	0%	December 31, 2024	December 6, 2024	
Full Scale Testing and Implementation	Process review, dosing estimates, trouble shooting, optimization	August 31, 2024	0%	0%	December 31, 2024	December 31, 2024	
Closeout	Certificate of Acceptance	September 2, 2024	0%	0%	December 31, 2024	December 9, 2024	



Phosphorous Optimization

The NEWPCC Operators have maximized ferric dosing to the sequencing batch reactors (SBRs) and digesters based on the existing ferric chloride pumping capacity. The average SBR effluent phosphorous load for Q4 2022 is 34.3 kg/day which corresponds with an average effluent concentration of 15.2 mg/L.

The SBRs are performing better than intended in their original design and are below the licence limit of 119 kg/d specified in Clause 27 of the NEWPCC Licence No. 2684RRR.

Should you have any questions on this report, please contact Michelle Paetkau at 204-986-4904 or by email at mpaetkau@winnipeg.ca.

Sincerely,

Cynthia Wiebe P. Eng., CAMP
Manager of Engineering Services

Attachment

MP/dr

- c: Siobhan Burland Ross, M. Eng., P. Eng., Manitoba Conservation and Climate (email)
- Yvonne Hawryliuk, MSc, Manitoba Conservation and Climate (email)
- T. Shanks, M. Eng., P. Eng., Water and Waste Department (email)
- M. Paetkau, P. Eng., Water and Waste Department (email)
- C. Carrol; P. Eng., Water and Waste Department (email)
- R. Grosselle, Water and Waste Department (email)
- C. Javra, P. Eng., Water and Waste Department (email)