



**REPORT TO CORE AREA WASTEWATER TREATMENT PROJECT BOARD
MEETING OF THURSDAY, JANUARY 9, 2020**

SUBJECT Wastewater Treatment Project November 2019 Monthly Report

ISSUE

To provide the Core Area Wastewater Treatment Project Board with the Wastewater Treatment Project November 2019 Monthly Report.

BACKGROUND

On May 25, 2016 the Regional Board of the CRD:

- i) Adopted by resolution the Core Area Wastewater Treatment Project Board Terms of Reference (Project Board Terms of Reference) for the purposes of establishing principles governing the Core Area Wastewater Treatment Project (the Wastewater Treatment Project or the WTP);
- ii) Established the Core Area Wastewater Treatment Project Board (Project Board) under Bylaw 4109 (the CRD Core Area Wastewater Treatment Board Bylaw No. 1, 2016) for the purposes of administering the Core Area Wastewater Treatment Project; and
- iii) Delegated certain of its powers, duties and functions to the Project Board under Bylaw 4110 (the CRD Core Area Wastewater Treatment Project Board Delegation Bylaw No. 1, 2016).

On September 14, 2016 the Regional Board of the CRD:

- i) Received the final report of the Project Board with respect to its recommendation for the CAWTP, dated September 7, 2016 (the Final Report); and
- ii) Approved the business case attached as Appendix 1 (the Business Case) to the Final Report.

DISCUSSION

The Core Area Wastewater Treatment Project Board (the Project Board) Terms of Reference requires, amongst other things: that the Project Board provide the CRD Board with monthly progress reports and a comprehensive quarterly report on the Project.

The Monthly report for the period of November 2019 is attached as Appendix A.

RECOMMENDATION

That the Core Area Wastewater Treatment Project Board approve the following resolution:

RESOLVED that:

The Staff Report, 'Wastewater Treatment Project November 2019 Monthly Report', be received for information and forwarded to the Core Area Liquid Waste Management Committee and CRD Board for information.



Elizabeth Scott, Deputy Project Director
Wastewater Treatment Project



Dave Clancy, Project Director
Wastewater Treatment Project
Concurrence

Attachments: 1

Appendix A: Wastewater Treatment Project November 2019 Monthly Report

ES:er



**Wastewater
Treatment Project**
Treated for a cleaner future

CRD Wastewater Treatment Project

Monthly Report

Reporting Period: November 2019

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1 Executive Summary

1.1 Introduction

This monthly report covers the reporting period of November 2019 and outlines the progress made on the Wastewater Treatment Project over this time.

The Wastewater Treatment Project (the “Project”) includes three main Project Components (the “Project Components”): the McLoughlin Point Wastewater Treatment Plant (the “McLoughlin Point WWTP”), the Residuals Treatment Facility (the “RTF”) and the Conveyance System (which includes upgrades to the conveyance network including the construction of pump stations and pipes). The Project scope is being delivered through a number of contracts with a variety of contracting strategies.

Overall the Wastewater Treatment Project progressed as planned with no changes to the construction/commissioning start and completion dates.

The McLoughlin Point WWTP Project Component is continuing with Harbour Resource Partners (“HRP” as the Design-Build Contractor for the McLoughlin Point WWTP) progressing construction including: progressing concrete work in the Process Building, receiving delivery of large process equipment, progressing O&M Building exterior walls and interior finishes, and progressing off-site utility installation.

The RTF Project Component is continuing with Hartland Resource Management Group (“HRMG” as the Design-Build-Finance-Operate Maintain contractor for the RTF) progressing construction activities including: completion of the Digested Solids Storage Tank; commencement of the foundation work and starter panels for digester 3; completion of structural steel erection and commencement of process piping, electrical, masonry and heating, ventilation, and air conditioning (HVAC) in the Digester building; completion of structural steel and commencement of roofing at the Water pump house and the Equalization building; and commence slope stabilization work at the south slope.

The Conveyance System is being delivered through eight construction contracts: two design-build contracts and six design-bid-build contracts.

The two design-build Conveyance System contracts progressed over the reporting period as follows:

- Clover Point Pump Station: Kenaidan Contracting Limited (“Kenaidan” as the Design-Build Contractor) progressed construction activities over the reporting period including: forming of curved retaining wall; installation of surge relief and domestic water piping; installation of lower sanitary and storm pump discharge spools; and continued installation of sanitary forcemain and pigging chamber.
- Macaulay Point Pump Station and Forcemain: Kenaidan Contracting Limited (“Kenaidan” as the Design-Build Contractor) progressed construction activities over the reporting period including: commenced installation of cross laminated timber panels, installation of sanitary pipe, and backfilling around building exterior; and completed installation of approximately 10m of forcemain (total of 700m installed to November 30, 2019).

The design-bid-build Conveyance System contracts progressed over the reporting period, as follows:

- Clover Forcemain: Windley Contracting Ltd. (“Windley” as the Construction Contractor) continued construction activities including: completion of final tie-in to the Harbour Crossing pipe in transition chamber; completion of watermain lining; and ongoing cycle track paving, landscaping and road restoration.
- Residual Solids Conveyance Line (“RSCL”): the RSCL is being delivered through three construction contracts, with work progressing as follows:
 - RSCL 100 Residual Solids Pipes: Don Mann Excavating Ltd. (“Don Mann” as the Construction Contractor for the Residual Solids Pipes) continued construction activities including installation of approximately 730m of pipes.
 - RSCL 200 Residual Solids Pump Stations: Knappett Projects Inc. (“Knappett” as the Construction Contractor for the Residual Solids Pump Stations) continued construction activities at all three pump stations including: erection of scaffolding at the Admirals Bridge; watermain installation at Pump Station 1; and completed installation of watermain at Hartland.
- NAC Constructors Ltd. (as the Construction Contractor for the Arbutus Attenuation Tank) has continued construction activities with a focus on civil excavation and structural secant pile construction works. Ongoing activities also include maintaining the dewatering system; completing bypass pumping for tie-in works during construction; commenced installation of permanent yard piping and manholes; and decommissioned existing overflow system infrastructure within tank footprint.
- The Project Team, with Stantec (as the design consultant for the Trent Forcemain) selected the tenderer, in accordance with the Invitation to Tender, and initiated contract award.

























1.2 Dashboard

Table 1 indicates the high level status of the Project and each Project Component with regards to the six Key Performance Indicators (“KPI”) that were defined within the Project Charter.





There were no changes made to the KPIs over the reporting period. The safety KPI for the Project and the conveyance system remains yellow. Over the reporting period one recordable safety incident occurred and the total recordable incident frequency increased from 1.2 at the end of the last reporting period to 1.6. The Project Team continues to work with, and ensure that all of the prime contract partners maintain safety as their number one priority.

The cost KPI for the Project overall and the conveyance system remained red over the reporting period, and are expected to remain red for the duration of the Project, primarily as a result of inflation in the Vancouver Island construction market. Based on the value of the contracts awarded to-date and the refreshed cost estimate for the scope remaining to be procured, the Project Team has forecast the cost to complete to Project at \$775M, or \$10M over the Project’s control budget. The CRD Board has approved an increase in the Project’s budget by \$10M to \$775M.

Table 1- Executive Summary Dashboard

Key Performance Indicators		Project Overall	WWTP	RTF	Conveyance System	Comments
Safety	Deliver the Project safely with zero fatalities and a total recordable incident frequency (TRIF) of no more than 1*.					One recordable incident occurred over the period. Site inspections are ongoing.
Environment	Protect the environment by meeting all legislated environmental requirements and optimizing opportunities for resource recovery and greenhouse gas reduction.					There were no environmental incidents in the period
Regulatory Requirements	Deliver the Project such that the Core Area complies with provincial and federal wastewater regulations.					No regulatory issues.
Stakeholders	Continue to build and maintain positive relationships with First Nations, local governments, communities, and other stakeholders.					Engagement activities were ongoing over the reporting period. Significant efforts were made to provide accurate and timely information to stakeholders.
Schedule	Deliver the Project by December 31, 2020.					No schedule issues.
Cost	Deliver the Project within the Control Budget (\$765 million).					Based on the value of the contracts awarded to-date and a refreshed cost estimate for the scope remaining to be procured, the Project Team has forecast the cost to complete the Project at \$775M, or \$10M over the Project's Control Budget. This is primarily as a result of inflation in the Vancouver Island construction market. The CRD Board have approved an increase in the Project's budget by \$10M, to \$775M.

* A TRIF of no more than 1 means that there is 1 or fewer recordable incidents (being a work-related injury or illness that requires medical treatment beyond first aid or causes death, days away from work, restricted work or transfer to another job, or loss of consciousness) for every 200,000 person-hours of work

Status	Description
	KPI unlikely to be met
	KPI at risk unless correction action is taken
	KPI at risk but corrective action has been identified/is being implemented
	Good progress against KPI

2 Wastewater Treatment Project Progress

2.1 Safety

Safety information for the reporting period and cumulative for the Project from January 1, 2017 is summarized in Table 3.

Site safety tours and weekly safety inspections were carried out by Project Management Office (“PMO”) construction and safety personnel over the reporting period at all active worksites: Macaulay Point Pump Station, Clover Point Pump Station, McLoughlin Point WWTP, RTF, Clover Forcemain, Residuals Solids Pump Stations & Bridge Crossing, Residuals Solids Forcemain and Arbutus Attenuation Tank.

Over the reporting period 12 safety incidents occurred in total, comprising: one lost time recordable, two medical aid and nine report-only incidents, as summarized in Table 2.

Table 2: Safety Incidents over the Reporting Period

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
November 1, 2019	McLoughlin Pt WWTP	Medical Aid (Modified Duty)	Worker rolled ankles while descending stairs.	While trying to take the weight off of his right ankle the worker ended up rolling his left ankle as well.	Worker has been placed on modified duty until ankles are completely healed Tool- box talk reminding workers to use handrail while ascending and descending stairs.
November 4, 2019	RSCL200	Report Only	Worker was observed smoking on the Hartland Site.	This is in contravention to site safety rules at the landfill. The worker was removed from site.	Tool-box talk with crew reviewed the landfill site rules and reinforced compliance with all including the smoking policy.
November 5, 2019	RSCL200	Report Only	Low voltage electrical conduit struck while excavating.	Conduit was not identified on any as-built drawings. The electrical conduit was damaged and repairs undertaken by CRD Hartland staff. There were no injuries to any personnel.	Utility locates documents updated to reflect the conduit.
November 7, 2019	RTF	Report Only	Scissor lift working in a congested area struck a cable tray while lowering.	Scissor lift was removed from service for inspection and repair.	Any further work requiring a scissor lift in that area will require a spotter present at all times.
November 8, 2019	McLoughlin Pt WWTP	Report Only	Worker while climbing a ladder experienced discomfort in their hip.	Worker reported to Medical aid for an assessment but no treatment rendered.	Worker was reminded to be aware of their surroundings.
November 12, 2019	RSCL200	Medical Aid	Employee injured hand while installing rebar.	Employee was assessed on site by the First Aid Attendant and sent to hospital where he received 3 stitches.	Tool-box talk held to remind crew to wear gloves, be mindful of hand positioning and the use of the proper equipment for the task.
November 19, 2019	RTF	Report Only	While moving a telescopic lift the operator struck a job box.	Minor damage to job box, no injuries to workers.	Tool-box talk to remind crews to use a spotter when moving equipment in congested areas.

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
November 25, 2019	RTF	Report Only	Excavator contacted an overhead telecommunication line.	Shaw was contacted and line reinstated.	Tool-box talk discussed working in close proximity to utilities.
November 27, 2019	McLoughlin Pt WWTP	Lost Time Recordable	While dislodging a chain on an excavator a worker's hardhat was contacted by the bucket.	Worker stated he was fine and continued to work. After leaving the work place he attended a hospital where he was assessed by a doctor. He has not returned to work.	Tool-box talk regarding the operations of equipment when workers are in close proximity. Excavator was inspected to ensure proper operations of controls.
November 28, 2019	RSCL200	Report Only	Careless driving by a subcontractor.	A worker was witnessed overtaking on a double solid line in a dangerous manner on Hartland Ave.	Worker was spoken to in the morning before the start of their shift and given a verbal warning.
November 29, 2019	Clover Forcemain	Report Only	A Traffic Control Person was struck on Dallas Road by a work van that proceeded to drive through a controlled stop.	TCP sustained minor bruising but did not need medical attention.	Tool-box talk reviewing safe traffic control practices and staffing assignments at busy intersections was held.
November 29, 2019	RSCL	Report Only	Telus overhead service line was struck by an excavator.	Excavator was equipped with an overhead skylight however visor was stuck closed at the time restricting operator's vision.	Crew will ensure that low overhead lines are marked with surveyor tape. Machine was returned to the yard where the skylight was inspected and repaired.

Key safety activities conducted during November included:

- bi-weekly project update meetings with prime contractors: Kenaidan, Windley, Don Mann, HRP, Knappett and NAC;
- weekly project update meetings with prime contractor HRMG;
- participated in IWS's Safety Day;
- monthly Incident Investigation reviews;
- reviewed site specific safety plans and high risk tasks;
- daily site safety audits during work at Colquitz creek;
- WTP Safety Manager and/or Construction Manager conducting regular site inspections at all active Project work sites;
- circulated a Safety Notice Recall for Self-Retracting Lifelines (SRL's);
- circulated a Safety Notice Recall for defective Crosby Shackles; and
- "Shift into Winter" program completed by WTP staff that are using CRD vehicles.

Table 3: WTP Safety Information

	Reporting Period (November 2019)	Project Totals
Person Hours		
PMO	3 357	124 498
Project Contractor	102 290	1 265 299
Total Person Hours	105 647	1 389 797
PMO	31	
Project Contractors (& Project Consultants) working on Project Sites	588	
Total Number of Employees	619	
Near Miss Reports	0	36
High Potential Near Miss Reports	0	5
Report Only	9	110
First Aid	0	31
Medical Aid	2	5
Medical Aid (Modified Duty)	0	2
Lost Time	1	4
Total Recordable Incidents	3	11
		Project Frequency (from January 1, 2017)
First Aid Frequency		4.5
Medical Aid Frequency		1.0
Lost time Frequency		0.6
Total Recordable Incident Rate		1.6

2.2 Environment and Regulatory Management

Environmental and regulatory activities continued over the reporting period relating to both the planning and permitting of upcoming work and the execution of current work.

2.2.1 Environment

Environmental work progressed as planned over the reporting period. The focus was on environmental monitoring of construction activities.

Key environmental management activities completed in November included:

- McElhanney Consulting Services (as the qualified environmental professional for Knappett, Don Mann and NAC Constructors Ltd. – being the Construction Contractor for the Residual Solids Pump Stations, the Residual Solids Pipes, and the Arbutus Attenuation Tank, respectively) completed environmental monitoring and inspections at numerous sites over the course of the reporting period. Generally, any environmental risks that were identified by them were corrected at the time of the inspection; and

2.2.2 Regulatory Management

During the reporting period, the Project Team continued to monitor the advancement of construction-related regulatory approvals and supported or led the advancement of permit applications.

Key permitting activities for November included:

- The CRD, Lorax Environmental Services (Lorax, the CRD's dispersion modelling consultant), Stantec and HRP met with BC Ministry of Environment and Climate Change Strategy (ENV) to review the results of the marine outfall dispersion modelling. The review resulted in a series of technical questions from ENV about the model and underlying assumptions.

The status of key Project permits are summarized in Table 4. The table is not a list of all required Project permits, but rather a summary of the status of key Project permits. There were no updates made to the table from that presented in the Project's October 2019 Monthly Report.

Table 4- Key Permits Status

<i>Permit/Licence</i>	<i>Anticipated Date</i>	<i>Status</i>	<i>Party Responsible for Obtaining Permitting</i>
McLoughlin Point WWTP			
Municipal Wastewater Regulation ("MWR") Registration	Q1 2020	Submitted September 2019	CRD
McLoughlin Point Harbour Crossing			
Transport Canada Lease	Following completion of construction	On Track	HRP
McLoughlin Point Outfall			
Transport Canada Lease	Following completion of construction	On Track	HRP
Residuals Treatment Facility			
Operational Certificate	Prior to start of RTF operations	Submitted May 2019	HRMG

2.3 First Nations

First Nations communication and engagement was ongoing over the reporting period. Meetings with the Esquimalt and Songhees' liaisons continued, with a focus on the development of interpretive signage for installation at several locations and the procurement of Indigenous art for installation at Clover Point, Macaulay Point and McLoughlin Point.

Millennia Research (as the Project's archaeological advisor) continued archaeological monitoring of excavations at Clover Point and along the RSCL route with members of local First Nations.

Representatives of the Project Team and the Capital Regional District have been meeting with the WSÁNEĆ Leadership Council to discuss the construction and operation of Wastewater Treatment Project components in WSÁNEĆ Territory. Over the reporting period (November 2019) the CRD and the WSÁNEĆ Leadership Council scheduled a signing ceremony (to be held in December) for a Memorandum of Understanding that will provide \$400,000 of capacity funding and allow this productive engagement to continue. This is an important step in furthering the important relationship between the CRD and the WSÁNEĆ Nation, and is a positive step toward re-establishing WSÁNEĆ decision-making in the region and implementing the recommendations of the CRD's Special Task Force on First Nations Relations. In addition

to providing capacity funding, the Memorandum of Understanding commits the CRD to move toward a negotiated agreement that considers the Project's presence within W̱SÁNEĆ territory, and engage in further discussions towards an agreement involving the broader relationship between CRD and the W̱SÁNEĆ Nations that takes into consideration CRD's operations within W̱SÁNEĆ territory and the recommendations of CRD's First Nations Task Force Final Report as adopted by the Board of the CRD.

2.4 Stakeholder Engagement

The Project maintained its ongoing two-way Communications and Engagement Plan to provide Project information to stakeholders, communities and the public and to respond to public inquiries. The key focus of the communications and engagement activities over the period was to keep residents and stakeholders informed of Project plans, progress and construction information, and to receive and respond to questions and concerns raised by the community. A variety of communications tools and engagement activities were utilized to support the implementation of the plan, including stakeholder meetings, Project website updates and notifications of construction through notices and a public inquiry program, among other methods.

Construction Communications

Two construction notices and a traffic advisory were issued to stakeholders in the reporting period:

- Residual Solids Conveyance Line: Admirals Bridge Work (November 15, 2019) (Appendix A);
- Arbutus Attenuation Tank: Overnight Bypass Pumping (November 19, 2019) (Appendix B); and
- Traffic Advisory: 24-Hour Single Lane Traffic on Interurban Road (November 19, 2019) (Appendix C).

The Project Team hand-delivered the two construction notices in the communities around the respective construction sites: Residual Solids Conveyance Line (79 residences in proximity to the Admirals Bridge) and Arbutus Attenuation Tank (53 residences near Haro Woods). These notices were also circulated to stakeholders via email. The traffic advisory (Appendix C) regarding 24-hour single lane traffic on Interurban Road was issued to local media outlets in the region. As well, a letter regarding construction updates for Peters Street was delivered to 16 residences in Esquimalt.

Project Website

Over the reporting period, the Project website, wastewaterproject.ca, was updated with information about the Project. Two construction notices, one traffic advisory and an updated information sheet were posted. The photo gallery section was updated with additional photos. A map showing the progress of construction along the Residual Solids Conveyance Line (Appendix D) was updated regularly.

The CRD's Twitter account was used to provide Project information to the public, including notifications about construction along the RSCL route and a road closure at Clover Point. A Facebook update regarding anticipated traffic delays along Interurban Road was posted.

Community Meetings

Over the reporting period the Project Team held meetings with the following community groups and representatives, and municipality representatives:

- City of Victoria Technical Working Group;
- Department of National Defence;
- District of Saanich Technical Working Group;
- Environment and Climate Change Canada (the Federal Government's Department of Environment) McLoughlin Point WWTP Tour;
- EOCP (Environmental Operators Certification Program) McLoughlin Point WWTP Tour; and
- Township of Esquimalt Liaison Committee.

Public Inquiries

Table 5 – Project Inquiries- November 2019

Inquiry Source	Contacts for November
Information phone line inquiries	27
Email inquiries responded to	16

Key themes of the public inquiries were as follows:

- questions about traffic management and delays on Interurban and Willis Point roads; and
- concerns regarding noise, gravel, trucks and other construction impacts.

2.5 Resolutions from Other Governments

There were no resolutions related to the Project passed by other governments during the reporting period.

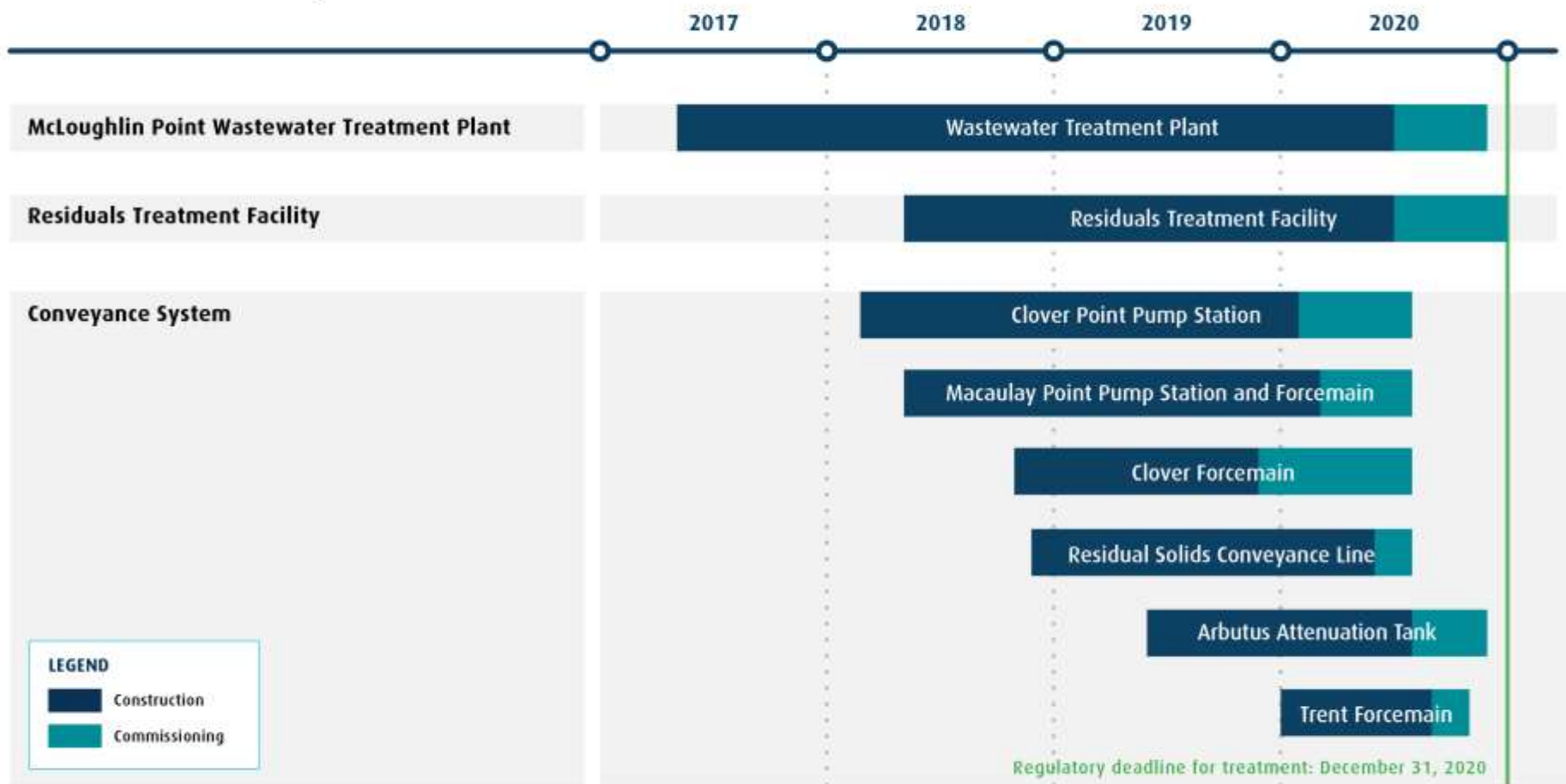
2.6 Schedule

Overall the Project's scheduled activities progressed as planned during the period. All major and key interface milestones were on target to be completed as per the schedule. Progress over the reporting period is summarised in section 2.9.

Figure 1 shows the high-level Project schedule. This schedule is unchanged from that shown in the October 2019 Monthly Report, but remains subject to optimization as the Project progresses.

The Project remains on-schedule to meet the provincial and federal regulations for treatment for the Core Area's wastewater by December 31, 2020.

Figure 1- High-Level Project Schedule

Wastewater Treatment Project Schedule***Construction + Commissioning**

*Schedule subject to updates as Project planning progresses.

2.6.1 30 day look ahead

Key activities and milestones for the next 30 days (December) are outlined below by function.

Safety

- host Prime Contractor Safety Coordination Meeting focusing on the upcoming holiday and resuming work in the New Year;
- attend CRD corporate occupational health and safety coordination committee meeting
- attend weekly and bi-weekly prime contractor progress meetings;
- office/site inspections with contractors and CRD corporate at all active sites;
- review of any site specific safety plans or high risk tasks;
- review prime contractor document submissions;
- WTP Safety Manager and/or Construction Manager will conduct regular site inspections at all active Project work sites; and
- incident reporting review with prime contractors at active work locations.

Environment and Regulatory Management

- CRD and HRMG to meet with ENV to discuss ENV review of Operational Certificate application for the Residuals Treatment Facility.

First Nations

- Ongoing engagement with First Nations; and
- Participated in the signing ceremony for a Memorandum of Understanding with the WSÁNEĆ Leadership Council (see Section 2.3).

Stakeholder Engagement

- ongoing construction communications with stakeholders;
- distribution of Project Update #8; and
- ongoing community liaison meetings.

Cost Management and Forecast

- prepare cost reports;
- monitor schedule;
- prepare for fiscal year end; and
- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

Construction

McLoughlin Point

- completion of major concrete works, dirty back wash piping systems and residual solids storage tank piping systems;
- pump and piping install above dirty back wash tank;
- installation of fine screen room structural steel;
- continue Densadeg installation;
- commence plate settler tank cover installation;
- completion of Moving Bed Biofilm Reactor(MBBR) #2 concrete work;
- commence concrete work in MBBR #1;
- continue Biological Aerated Filter (BAF) equipment installation;
- progress BAF monoflor installation work;

- continue cable tray and cable pulls in BAF gallery;
- continue envelope work on the penthouse buildings;
- progress south BAF structural tie-in work;
- continue disk filter channel walls;
- continue lower level equipment layout and set activities;
- complete masonry walls throughout Operations and Maintenance (O&M) building;
- continue glazing installation on main floor;
- installation of HVAC and plumbing continues throughout the facility;
- commence interior steel stud installation on main level;
- commence installation of roofing membrane;
- continue fire stopping where possible;
- complete installation of pig receiving piping system; and
- continue installation of plant inlet piping and plant bypass piping.

Clover Point Pump Station

- commence installation of new discharge piping;
- commence removal of four existing pumps and header;
- install pig launching chamber;
- complete installation of 1500mm gravity sewer;
- complete tie-in to new inlet channel;
- install doors and louvres;
- complete termination of power cables and instrumentation and control cables; and
- tie into BC Hydro.

Macaulay Point Pump Station

- install incoming 1800 diameter sanitary line;
- install epoxy lining in wet well;
- continue to install cross laminated timber panels (CLT) for walls and roof;
- continue installation of building envelope;
- install slide gates to influent channel;
- install exhaust and air supply ducting in odour control, bin room, screen room, and vestibule;
- install bin room bridge crane, odour control room jib crane and pump room jib crane;
- install substation/transformer;
- commence installation of motor control centre, variable frequency drives, low voltage main switchgear and programmable logic controller;
- install cable tray and cabling throughout; and
- complete the remaining 60 meters of Macaulay forcemain on Vaughan Street to the pump station.

Residuals Treatment Facility

- complete piping and nozzle installation in Digester 2;
- continue tank erection for Digester 3;
- continue cladding, roofing, electrical, piping, and sprinkler work at Digester Building;
- continue piping installation in the Digested Sludge Storage Tank;
- continue construction of Operations Building;
- continue piping installation at Other Municipal Solids Receiving Facility;
- continue electrical cable tray; setting electrical equipment, process piping, HVAC, cabling, sprinklers, OH doors, steel stud & drywall at the Residuals Handling Building;

- continue roofing, building systems, equipment and electrical installation and process piping at the Dryer Building;
- commence cladding at Equalization Building, and Water Pump House; and
- continue equipment installation at Odour Control Area.

Clover Forcemain

- continue with road restoration;
- continue with cycle track construction;
- install curb and gutter at Niagara Street; and
- install curb and gutter on Dallas Road between Government Street and Lewis Street.

Residual Solids Conveyance Line (RSCL 100)

- install RSCL on Tillicum Road from Selkirk Ave to Tillicum Bridge;
- install RSCL on Interurban Road from Grange Road to Charlton Road;
- continue RSCL on Grange Road south of Burnside Road;
- continue installation of drain valves and line valves; and
- continue with road restoration.

Residual Solids Pump Stations and Bridge Crossings (RSCL 200)

- commence installation of RSCL from Marigold Road to Grange Road;
- continue with installation of pipe hangers and pipes at Tillicum Bridge;
- layout pipe hanger locations on Admirals Bridge;
- complete retaining wall at Pump Station 2;
- install wet well at Pump Station 1; and
- continue reservoir construction and watermain installation at Hartland site.

Arbutus Attenuation Tank (AAT)

- complete bypass pumping in order to install two tie-ins on the East Coast Interceptor and one connection on the Finnerty outfall systems;
- continue drilling operation for secant piles;
- continue concrete pour operations for reinforced and plain secant piles;
- decommission and remove existing piping, overflow chamber, and electrical kiosk located within AAT tank footprint;
- complete excavation within the eastern section of the AAT tank footprint to facilitate secant piling; and
- mobilize second drill rig for secant pile installation.

Procurement

Trent Forcemain

- contract execution.

2.6.2 60 day look ahead

Key activities and milestones for the next 60 days (January) are outlined below by function.

Safety

- host Prime Contractor Safety Coordination Meeting;
- attend weekly and bi-weekly prime contractor progress meetings;
- prime contractor project safety meeting with Project safety representatives;
- office/site inspections with contractors and CRD corporate at all active sites;
- prime contractor project safety meeting with Project safety representatives;
- review of any site specific safety plans or high risk tasks;
- review prime contractor document submissions;
- WTP Safety Manager and/or Construction Manager will conduct regular site inspections at all active Project work sites;
- incident reporting review with prime contractors at active work locations;
- conduct Quality Safety Assurance Audits on Arbutus Attenuation Tank and Residuals Solids Pump Stations and Bridge Crossing Prime Contractors.

Environment and Regulatory Management

- CRD, Stantec and HRP to meet with ENV to discuss ENV review of the Environmental Impact Studies that form the basis of the MWR Registration application.

First Nations

- Award contract for Indigenous art for installation at Clover Point.

Stakeholder Engagement

- ongoing construction communications with stakeholders; and
- ongoing community liaison meetings.

Cost Management and Forecast

- prepare cost reports;
- monitor schedule;
- fiscal year end close; and
- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

Construction

McLoughlin Point

- commence demobilisation of both tower cranes;
- complete balance of tsunami wall and planter wall 6;
- commence odour control envelope curtain wall and exterior brick;
- continue installing cable tray, cable pulls and terminations throughout;
- hydrotest fine screen channels;
- install Suez walkways and equipment;
- continue with process mechanical equipment installation in Densadeg 1, 2, and 3;
- install influent and effluent slide gates complete MBBR channel walls and influent and effluent suspended slabs;
- install lateral diffusers in BAF tanks 1 through 6;
- continue building envelope at electrical room, blower room, and heat recovery room;

- continue construction of tertiary concrete walls;
- continue interior fit out of O&M building; and
- complete installation of plant inlet piping and plant bypass piping.

Clover Point Pump Station

- backfill structure;
- complete installation of pig launching chamber;
- complete 1500mm tie-in to new inlet channel;
- reinstate seawall walkway;
- complete north retaining walls;
- pressure test process piping in pump room;
- BC Hydro energize sub-station; and
- commence functional testing of odour control system, air handling unit, storm pumps and sewage pumps.

Macaulay Point Pump Station

- continue to backfill structure;
- form and pour transformer and fuel tank pad;
- install chain link fence at transformer containment area;
- form and pour slab and walls for diversion chamber;
- continue installation of CLT panels;
- install platforms, grating and metal stairs in bin room;
- install epoxy liner in wet well;
- install insulation and vapour barrier;
- install potable and non-potable pipes and plumbing fixtures;
- install discharge piping;
- install air supply and exhaust ducting to bin room;
- reinstate concrete curbs and pressure test forcemain;
- install jib crane in odour control room; and
- continue installation of cable tray and motor control centres, variable frequency drives and programmable logic control.

Residuals Treatment Facility

- commence hydro testing at Digester 1;
- complete Digester 2 ready for hydro testing;
- continue tank erection for Digester 3;
- continue electrical, piping, and sprinkler work at the Digester Building;
- complete piping installation in the Digested Sludge Storage Tank;
- complete structure and commence cladding construction of Operations Building;
- continue piping installation at Other Municipal Solids Receiving Facility;
- continue electrical cable tray; setting electrical equipment, process piping, HVAC, cabling, sprinklers, overhead doors, steel stud & drywall at the Residuals Handling Building;
- continue roofing, building systems, equipment and electrical installation and process piping at the Dryer Building;
- commence installation of process equipment and electrical at Equalization Building;
- commence installation of process equipment and electrical at the Water Pump House; and
- continue equipment installation at Odour Control Area.

Clover Forcemain

- continue road/cycle track construction in areas 2, 4, and 6;
- commence upgrades to Montreal St; and
- Dallas Rd restoration between Government St and Douglas St.

Residual Solids Conveyance Line (RSCL100)

- continue RSCL on Tillicum Rd to Tillicum Bridge;
- continue RSCL on Tillicum Rd from Gorge Rd to Vincent Ave.;
- continue RSCL installation on Interurban Rd from Chesterfield Rd to Roy Rd;
- continue road restoration; and
- commence installation of the MOTI highway 1 crossing.

Residual Solids Pump Stations and Bridge Crossings (RSCL 200)

- continue installation of CRL in Interurban Rd from Marigold Rd to Grange Rd;
- continue installation of supports and piping on Tillicum Bridge;
- commence installation of hangers and piping on Admirals Bridge;
- commence installation of submersible sewage pump, equipment pads, kiosk and odour control at Pump Station 4;
- commence installation of submersible sewage pump, water service, underground electrical at Pump Station 3;
- continue with substructure construction at Pump Station 2;
- complete Hartland water system improvements watermain; and
- continue Hartland water system improvements reservoir construction.

Arbutus Attenuation Tank (AAT)

- completion of drilling operation for secant piles;
- completion of concrete pour operations for reinforced and plain secant piles; and
- initiate formwork / reinforcement for ring beam, western end of tank footprint.

Procurement

Trent Forcemain

- Project kick off with successful Contractor.

2.7 Cost Management and Forecast

The monthly cost report for November is attached as Appendix E. The cost report summarizes Project expenditures and commitments by the three Project Components and the major cost centres common to the Project Components.

The Project Team has been reporting budget pressures through its monthly reports to the Project Board (and CRD Board) since September 2017, and these pressures steadily increased as each conveyance contract was awarded. The Project Team forecasts that the Project can be completed at a total cost of \$775M, or \$10M (1.3%) over the Project's control budget. In May 2019 the Project Board sought and received the CRD Board's approval to increase the Project's budget by \$10M to \$775M, and on August 14, 2019, the associated amendment to the 2019-2023 Financial Plan was approved.

2.7.1 Commitments

Commitments were made over the reporting period in furtherance of delivering the Project. The net commitments made during the reporting period resulted in an increase in committed costs of \$12.5 million. The significant commitments made in the reporting period were related to the Trent Forcemain contract (the award of which was initiated over the reporting period), and the remediation of contamination at the McLoughlin Point site, as outlined below.

The McLoughlin Point site on which the Wastewater Treatment Plant is being constructed contains contaminated materials, as a result of its previous use as an oil tank farm. Harbour Resource Partners, the contractor building the Wastewater Treatment Plant, are remediating the site to provincial standards. Remediation work has been ongoing since HRP commenced the excavation of contaminated soils at the site, and over the reporting period a payment of \$6.5M was made to HRP related to the remediation of contamination at the McLoughlin Point site. The extent of contamination on-site is now known, and the delineation of contamination off-site is close to complete. Further payments to HRP will be required associated with:

- remediating contamination that has migrated onto DND lands; and
- completing remediation of the site and obtaining a Certificate of Compliance.

2.7.2 Expenses and Invoicing

The Project expenditures for the reporting period were as expected and were within the budget allocations for each of the budget areas. The main Project expenditures incurred over the reporting period were associated with construction activities and project management office-related costs.

2.7.3 Contingency and Program Reserves

Contingency draws totalling \$6.5 million were made over the reporting period, as summarised in Table 6. The draws were partially-offset by a \$1.6 million reallocation from budget to contingency over the reporting period, resulting in a net decrease in contingency of \$4.9 million. The draws to-date and remaining contingency and program reserve balances are summarized in Table 6.

Table 6- Contingency and Program Reserve Draw-Down Table

WTP Contingency and Program Reserve Draws and Reallocations	Draw Date	\$ Amount
Contingency and Program Reserve (in Control Budget)		\$ 69,318,051
Contingency and Program Reserve Draws to October 31, 2019		\$ (56,938,716)
Contingency and Program Reserve addition (May 2019)		\$ 10,000,000
Contingency and Program Reserve balance as at October 31, 2019		\$ 22,379,335
SCADA plan for CRD operational requirements	Nov-19	\$ (143,420)
Remediation of Contaminated Soils on DND Lands	Nov-19	\$ (316,097)
McLoughlin Point Contaminated Site Remediation	Nov-19	\$ (5,968,000)
WWTP Total Draw/Increase		\$ (6,427,517)
RTF Total Draw		\$ -
Macaulay Pump Station - Radio Telemetry Equipment	Nov-19	\$ (4,320)
Clover Pump Station - Radio Telemetry Equipment	Nov-19	\$ (7,544)
Clover Pump Station - Additional Rock Removal Quantities	Nov-19	\$ (39,061)
Conveyance Total Draw		\$ (50,925)
PMO Total Draw		\$ -
BC Hydro Total Draw		\$ -
WTP Program Reserve Draw		\$ -
Contingency and Program Reserve additions in the reporting period (reallocation from budget)		\$ 1,600,000
Contingency and Program Reserve draws in the reporting period		\$ (6,478,443)
Contingency and Program Reserve balance as at November 30, 2019		\$ 17,500,892

2.7.4 Project Funding

The federal and provincial governments are assisting the Capital Regional District in funding the Project.

The Government of British Columbia will provide \$248 million towards the three components of the Project, while the Government of Canada is contributing:

- \$120 million through the Building Canada Fund Major infrastructure Component towards the McLoughlin Point WWTP;
- \$50 million through the Green Infrastructure Fund towards the conveyance system; and
- up to \$41 million towards the RTF through the P3 Canada Fund.

The Project Team has applied to the Federation of Canadian Municipalities (FCM) for additional funding and has executed a grant agreement for the contribution of up to \$346,900 towards the delineation of the contamination and remediation and risk assessment for the McLoughlin Point Wastewater Treatment Plant.

The status of funding claims is summarised in Table 7. Note that the timing for the provision of Government of British Columbia and Government of Canada's funding differs by funding source.

The Project Team will submit claims to the funding partners in accordance with the relevant funding agreements. In accordance with the funding agreements, funding from the P3 Canada Fund and the majority of the funding from the Government of British Columbia cannot be claimed until relevant Project components are substantially complete, which is scheduled to occur in 2020.

Table 7- Project Funding Status

Funding Source	Maximum Contribution	Funding Received in the Reporting Period	Funding Received to Date
Government of Canada (Building Canada Fund)	\$120M	-	\$83.4M
Government of Canada (Green Infrastructure Fund)	\$50M	\$3.7M	\$31.4M
Government of Canada (P3 Canada Fund)	\$41M	-	-
Government of British Columbia	\$248M	-	-
Federation of Canadian Municipalities	\$346K	-	-
TOTAL	\$459.3M	\$3.7M	\$114.8M

2.8 Key Risks and issues

The Project Team actively identified and managed Project risks over the reporting period. Table 8 summarizes the highest level risks that were actively managed over the reporting period, as well as the mitigation steps identified and/or undertaken over the reporting period.

The changes to the active risks summary from that presented in the Project's October 2019 Monthly Report:

- The risk level of unexpected contaminated soil conditions during excavation was reduced to low as the extent of contamination at the McLoughlin Point site is now known, and the delineation of contamination off-site is close to complete; and
- The following risks were closed due to the initiation of contract award for the last conveyance contract (for the Trent Forcemain):
 - Unexpected geotechnical conditions results in higher procurement and/or construction costs;
 - Due to high cost escalation (inflation) Conveyance works contracts' amount higher than budgeted; and
 - Engineering design development results in increases to the estimated construction cost.

Table 8- Project Active Risks Summary

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
Project				
Misalignment between First Nations' interests and the implementation of the Project.	The assessed risk level reflects the Project Team's priority of establishing strong and effective relationships with First Nations interfacing with, or interested in, the Project.	First Nations engagement activities remained ongoing over the reporting period (see section 2.3 for further details).	M	No change
Divergent interests between multiple parties and governance bodies whose co-operation is required to successfully deliver the Project.	The assessed risk level reflects the Project Team's priority of establishing strong and effective relationships with municipal, provincial and federal government departments.	The Project Team continued engagement with municipal, provincial and federal government departments throughout the reporting period.	L	No change
Misalignment between Project objectives/scope and stakeholder expectations.	The assessed risk level reflects the Project Team's priority of establishing strong and effective community stakeholder engagement.	Community engagement activities were ongoing over the reporting period (see section 2.4 for further details).	L	No change
Lack of integration between Project Components.	Planning challenges and system integration between the McLoughlin point WWTP, RTF and Conveyance System components of the Project results in schedule delays and/or additional Project costs.	Physical and schedule interfaces are clearly delineated in all construction contracts along with the requirement for commissioning and control plans. The Project Team is using a single Owner's engineer (Stantec) to develop the indicative design for all critical project components with significant interfaces. Commissioning and control plans are under development	L	No change
Senior government funds issue delayed.	The assessed risk level reflects the Project Team's priority of ensuring Project funding commitments are honoured.	Responsibility for meeting funding commitments has been assigned and is being monitored.	L	No change

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
Downstream works delays.	Delay from conveyance projects delay delivery of wastewater to WWTP.	Schedule has sufficient time allowance to ensure conveyance elements complete prior to requirement. Contractor agreements will include terms that require the contractor to recover schedule delays and/or allow for CRD acceleration.	M	No change
Upstream works delays.	Delay of the delivery of residual solids to the RTF.	Contract with HRP (as the Design-Build Contractor for the McLoughlin Point WWTP) includes terms that require the contractor to recover schedule delays and/or allow for CRD acceleration. Liquidated damages for late delivery in HRP contract.	L	No change
Municipal Wastewater Regulation (MWR) Registration is not achieved or is delayed.	A delay to achieving MWR Registration of the wastewater treatment system would mean that the CRD could not discharge treated effluent, and therefore would not be able to commission the WWTP or RTF.	The Project Team (with HRP and Stantec representatives) have been meeting regularly with Ministry of Environment representatives since September 2017 to review the MWR Registration application requirements and the Project's schedule, in order to mitigate the risk of an incomplete application and/or schedule delays in the registration. A work plan and schedule have been developed and the Project Team, MOE and relevant contractors will continue to meet regularly to track progress and discuss issues. MWR Registration application submitted to the Ministry of Environment in September 2019. The Ministry will consult with First Nations as part of their approval process. The Ministry of Environment considers the Wastewater Treatment Project to be a priority and is committed to approving the MWR Registration in time for commissioning. Additionally, the Ministry of Environment will specifically address water quality during commissioning in the approval.	M	No change

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
Public directly contacting contractors at sites.	Direct contact between the public and contractors could expose both parties to worksite hazards and potential injuries.	Communications and engagement plan and coverage of communications in contractor orientations.	M	No change
Change in law.	A change in law impacts the scope, cost or schedule of the Project.	Keep apprised of proposed modifications to relevant regulations so as to do the following as appropriate: submit comments on proposed modifications; and/or consider including anticipated modifications in contracts.	M	No change
Labour - availability and/or cost escalation.	There is insufficient labour available to construct the Project, and/or there is significant labour cost.	The Project Team will, through the use of competitive selection processes for all construction contracts, ensure that all Project contractors have appropriate experience and therefore understand labour risk.	M	No change
Disagreement on contractual obligations of the construction contractors.	There is a disagreement between the Project Team and a contractor regarding the performance of their contractual obligations.	The Project Team takes a proactive management approach to the resolution of any changes, claims and disputes that arise, working expeditiously to achieve resolution with the goal of minimizing any impacts to budget and schedule while ensuring adherence to the terms of the construction contracts.	M	No change
McLoughlin Point Wastewater Treatment Plant				

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
Unexpected contaminated soil conditions during excavation.	Site has more contaminated soils than initial assessment.	CRD and HRP (as the Design-Build Contractor for the McLoughlin Point WWTP) are working collaboratively to minimize the costs associated with remediating the McLoughlin Point site while ensuring that contaminated materials are removed and disposed of in accordance with all applicable legislation.	L	The risk level was reduced from high to low as the extent of contamination at the McLoughlin Point site is now known, and the delineation of contamination off-site is close to complete.
Conveyance				
Unexpected geotechnical conditions results in higher procurement and/or construction costs.	Geotechnical conditions result in redesign and/or higher construction cost than budgeted.	Ensure adequate investigations to manage the risk of unexpected geotechnical conditions: comprehensive geotechnical investigations have been undertaken for the Clover Forcemain, Macaulay Point Pump Station and Forcemain, and RSCL. This geotechnical information has been provided to procurement participants. Geotechnical investigations have been undertaken for the Trent Forcemain as part of the detailed design process.	C	The risk was closed due to the initiation of contract award for the last conveyance contract (for the Trent Forcemain).
Due to high cost escalation (inflation) Conveyance works contracts' amount higher than budgeted.	Cost of conveyance contracts higher than estimated and budgeted.	There is only one conveyance contract remaining to be procured (the Trent Forcemain). It will be competitively-procured, as has been done for all of the construction contracts. The Project Team will continue to undertake value engineering through the detailed design stage with the aim of minimizing costs to CRD's residents and businesses (life cycle costs) and providing value for money, and in order to identify any opportunities where savings could be realized to partially-offset escalation.	C	The risk was closed due to the initiation of contract award for the last conveyance contract (for the Trent Forcemain).

Risk Event	Description of Risk Event	Risk mitigation activities undertaken or planned in the reporting period	Assessed risk level	Trend in risk level from previous reporting period
Engineering design development results in increases to the estimated construction cost.	Conveyance contract amounts higher than budget due to design development (through indicative and detailed design phases).	There is only one conveyance contract remaining to be procured (the Trent Forcemain), for which the Project Team recently refreshed the cost estimate. The Project Team will continue to undertake value engineering through the detailed design stage with the aim of minimizing costs to CRD's residents and businesses (life cycle costs) and providing value for money.	C	The risk was closed due to the initiation of contract award for the last conveyance contract (for the Trent Forcemain).

Risk Level Key - Assessed risk level (based on likelihood and potential impact)			
Low	Medium	High	Closed
L	M	H	C

2.9 Status (Engineering, Procurement and Construction)

2.9.1 Wastewater Treatment Plant (McLoughlin Point WWTP)

The McLoughlin Point WWTP Project Component is continuing with Harbour Resource Partners (“HRP” as the Design-Build Contractor for the McLoughlin Point WWTP) progressing construction including: progressing concrete work in the Process Building, receiving delivery of large process equipment, progressing O&M Building exterior walls and interior finishes, and progressing off-site utility installation and ongoing installation of plant inlet piping and plant by-pass piping.

Construction

Key construction activities in progress or completed by HRP were as follows:

- Primary treatment area.
 - west entry structure nearing completion;
 - north pump room influent boxes complete;
 - odour control walls complete;
 - Densadeg shotcrete sloping is complete;
 - HDPE liner welding nearing completion;
 - fine screen room suspended slab complete;
 - fine screens set in place, influent and effluent gates set;
 - Lamella 1 installed;
 - Lamella 2 construction complete;
 - secondary odour control tanks set in place;
 - dirty backwash tank piping and equipment installation continues; and
 - sludge storage tank piping and equipment installation continues.
- Secondary treatment area.
 - Moving Bed Biofilm Reactor #2 concrete in progress;
 - continued installation of pipe rack 2 in the BAF gallery;
 - BAF scouring air distributions systems continue;
 - electricians continue to progress in the BAF gallery;
 - blowers set on final housekeeping pads;
 - cable tray and supports continue in all three penthouse structures;
 - motor control centre installation ongoing in the electrical building;
 - HVAC units set on the penthouse roofs; and
 - penthouse building envelopes in progress.
- Tertiary treatment area.
 - clean water tank slab poured;
 - disk filter slab poured, commencing on upper channels walls;
 - baffle slabs in progress;
 - lower level 1 pumps and mechanical piping install continues; and
 - commenced HVAC and electrical work.
- O&M building
 - masonry block wall continues;
 - HVAC and plumbing continues throughout the building;
 - electrical trade continues good progress through the O&M; and
 - glazing contractor continues on the lower level.

- Off-Site Utilities
 - continued progress on underground utility work along Victoria View Road and Patricia Street;
 - continued progress on plant by-pass pipe installation (phase 3 underway); and
 - continued progress on raw influent piping, valves and pig receiving piping.

Photographs of construction progress over the month of November at McLoughlin Point are shown in Figures 2-6.



Figure 2– McLoughlin Point Wastewater Treatment Plant- Installation of pig receiver station, piping and valves.



Figure 3– McLoughlin Point Wastewater Treatment Plant- Setting of Secondary Chemical Tanks.

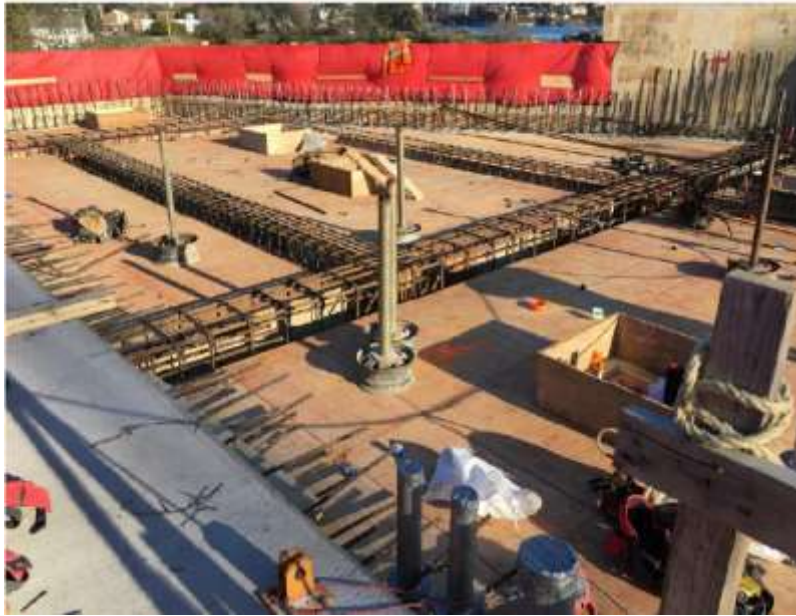


Figure 4– McLoughlin Point Wastewater Treatment Plant- Installing reinforcing steel for Odour Control Roof.



Figure 5– McLoughlin Point Wastewater Treatment Plant-Setting secondary odour control tanks.



Figure 6– McLoughlin Point Wastewater Treatment Plant- Decking Odour control roof slab soffit.

2.9.2 Residuals Treatment Facility

The RTF Project Component is continuing with Hartland Resource Management Group (“HRMG” as the Design-Build-Finance-Operate Maintain contractor for the RTF) progressing construction activities including: completion of the Digested Solids Storage Tank; commencement of the foundation work and starter panels for digester 3; completion of structural steel erection and commencement of process piping, electrical, masonry and HVAC in the Digester building; completion of structural steel and commencement of roofing at the Water pump house and the Equalization building; and commence slope stabilization work at the south slope.

Construction

Key construction activities in progress or completed by HRMG during the reporting period included:

- nearing construction completion of Digester 1;
- piping installation at Digester 2;
- commenced foundation work and starter panels for Digester 3;
- completed tank erection at Digested Solids Storage Tank;
- completed structure erection and commenced process piping, electrical, masonry and HVAC at Digester Building;
- continued cladding, electrical, process piping and started HVAC, and sprinklers at the Residuals Handling Building;
- completed masonry and continued equipment installation, piping, electrical and fire suppression at the Dryer Building;
- nearing completion of Residuals Effluent Tank;
- nearing completion of Residuals Solids Tanks 1 and 2;
- commenced construction of Water Storage Tank;
- completed structural steel erection and commenced roofing and sprinklers at the Equalization Building;
- completed structural steel erection and commenced roofing and sprinklers at the Water Pump House;
- continued foundation work at the Operations Building; and
- commenced slope stabilization work at the south slope.

Photographs of construction progress over the month of November at the Residuals Treatment Facility are shown in Figures 7-10.



Figure 7– Residuals Treatment Facility- Installation of bolted steel roof panels on water storage tank.



Figure 8– Residuals Treatment Facility- Glass lined and coated ductile iron process piping being installed in effluent tank.



Figure 9– Residuals Treatment Facility- Installation of stainless steel process piping ongoing in Residuals Handling Building.



Figure 10– Residuals Treatment Facility- Installation of insulated metal cladding panels on south side of Dryer Building.

2.9.3 Conveyance System

2.9.3.1 Clover Point Pump Station

Kenaidan Contracting Limited (“Kenaidan” as the Design-Build Contractor) progressed construction activities over the reporting period including:

- sanitary and storm wet wells benching completed;
- forming of curved retaining wall ongoing;
- masonry block walls installed at odour control and screen room;
- knife gate and check valve installation is ongoing;
- installed surge relief and domestic water piping;
- forcemain discharge bend installed;
- sanitary and storm pump discharge spools installed;
- lower and upper pump room ducting installed;
- grounding, cable pulls and terminations continued throughout; and
- continued installation of sanitary forcemain and pigging chamber.

Photographs of construction progress over the month of November at Clover Point are shown in Figures 11-14.



Figure 11–Clover Point Pump Station- Excavation for forcemain installation.



Figure 12–Clover Point Pump Station- Upper pump room.



Figure 13–Clover Point Pump Station- Formwork and rebar for curved retaining wall.



Figure 14- Clover Pump Station - Installation of suction spools.

2.9.3.2 Macaulay Point Pump Station and Forcemain

Kenaidan Contracting Limited (“Kenaidan” as the Design-Build Contractor) progressed construction activities over the reporting period including:

- installed concrete curbs;
- commenced installation of Cross Laminated Timber (CLT) panels;
- commenced back filling around building exterior;
- commenced installation of 1800 mm sanitary pipe;
- lowered existing vent pipe from diversion chamber to pump station; and
- Macaulay forcemain progressed along View Point Street, providing for a total installed length to the end of November of 700m.

Photographs of construction progress over the month of November at Macaulay Point are shown in Figures 15-16.



Figure 15–Macaulay Point Pump Station- Installation of cross laminated timber panels.



Figure 16–Macaulay Point Pump Station- 1350 mm forcemain installation along View Point Street.

2.9.3.3 Clover Forcemain (CFM)

Windley Contracting Ltd. (“Windley” as the Construction Contractor) continued construction activities including:

- cycle track paving and landscaping is ongoing;
- road restoration is ongoing;
- final tie-in to the Harbour Crossing pipe in the transition chamber is complete;
- electrical lighting installation ongoing; and
- watermain lining is complete.

Photographs of construction progress over the month of November on the Clover Forcemain are shown in Figures 17-20.



Figure 17–Clover Forcemain- Final tie-in to the Harbour Crossing pipe in the transition chamber.



Figure 18–Clover Forcemain- Cycle track paving.



Figure 19–Clover Forcemain– Cycle track and road restoration between Douglas Street and Government Street.



Figure 20–Clover Forcemain- Electrical conduit installation for lighting on Dallas Road.

2.9.3.4 Residual Solids Conveyance Line

The RSCL is being delivered through three construction contracts:

- RSCL 100 Residual Solids Pipes;
- RSCL 200 Residual Solids Pump Stations; and
- RSCL 300 Saanich Infrastructure Improvements.

RSCL 100 Residual Solids Pipes: Don Mann Excavating Ltd. ("Don Mann" as the Construction Contractor for the Residual Solids Pipes) continued construction activities including installation of approximately 730m of pipes at the following locations:

- Arm and Craigflower Streets;
- Grange Road south of Burnside Road and Interurban Road north from Grange Road to Chesterfield Road; and
- Interurban Road south from Courtland Ave to Prillaman Ave and Charlton Road to North Road.

Photographs of construction progress over the month of November on the Residual Solids Conveyance Line are shown in Figures 21-24.



Figure 21–Residual Solids Conveyance Line- Pipe installation at Arm Street.



Figure 22–Residual Solids Conveyance Line- Line valve installation at Grange Road.



Figure 23–Residual Solids Conveyance Line- Ductile iron pipe installation on Interurban Rd near North Road.



Figure 24–Residual Solids Conveyance Line- Curb replacement on Interurban Road near Goward Road.

RSCL 200 Residual Solids Pump Stations: Knappett Projects Inc. (“Knappett” as the Construction Contractor for the Residual Solids Pump Stations) continued construction activities at all three pump stations including:

- erection of scaffolding at Admirals Bridge;
- installation and backfilling of the Hartland watermain from the north end to the reservoir;
- Marigold Valve Chamber was excavated down to subgrade;
- Installation of the RTF chamber at Willis Point Road.
- RSCL pipe installed up to the HRMG tie in;
- watermain installed at Pump Station 1, tie in completed;
- rock breaking for the wet well is ongoing and nearly completed;
- Pump Station 2 footings and retaining walls were formed and poured and. leaks in the wet well were repaired; and
- Pump Station 3 wet well barrel replaced to rectify cracking.
- poured pad for the kiosk at Pump Station 3;
- completion of the valve chamber; and
- completed installation of watermain at Hartland.

Photographs of construction progress over the month of November on the Residual Solids Pump Stations are shown in Figures 25-27.



Figure 25–Residual Solids Pump Stations and Bridge Crossings – Pump Station 4 – grinding kiosk slab to level.



Figure 26 –Residual Solids Pump Stations and Bridge Crossings- Placing concrete in Pump Station 3 South East retaining wall footing.



Figure 27–Residual Solids Pump Stations and Bridge Crossings – Backfilled cleanout on Willis Point Road.

2.9.3.5 Arbutus Attenuation Tank

NAC Constructors Ltd. (as the Construction Contractor for the Arbutus Attenuation Tank) has continued construction activities, including:

- ongoing drilling of secant piles around the perimeter of the tank;
- continue concrete pour operations for reinforced and plain secant piles;
- complete installation of temporary bypass system;
- commence installation of permanent yard piping and manholes;
- decommission existing overflow system infrastructure within tank footprint; and
- excavation of remainder of tank footprint to facilitate additional secant pile construction.

Photographs of construction progress over the month of November at the Arbutus Attenuation Tank are shown in Figures 28-29.



Figure 28–Arbutus Attenuation Tank- Ongoing secant pile wall drilling and installation.



Figure 29– Arbutus Attenuation Tank –Bypass pumping delivery header.

2.9.3.6 Trent Forcemain

The Project Team, with Stantec (as the design consultant for the Trent Forcemain) selected the tenderer, in accordance with the Invitation to Tender, and initiated contract award.

Appendix A– Residual Solids Conveyance Line: Admirals Bridge Work (November 15, 2019)

November 15, 2019

Residual Solids Conveyance Line: Admirals Bridge Work

As part of the Wastewater Treatment Project, a pipe will be installed under Admirals Bridge. This work is anticipated to start on November 18 and take approximately 6-8 weeks to complete.

What to Expect

- Scaffolding will be erected on the side of the bridge and a pipe will be installed under the bridge.
- Noise associated with this work includes construction machinery, drilling and hammering, and truck back-up beepers.

Traffic Impacts

- Two-way traffic will be maintained for the majority of the work. However, occasional single lane alternating traffic may be required.
- The northbound-turn lane from Admirals Road onto Esson Road will be used as a through lane for eastbound traffic.
- Eastbound bike lane will be closed and cyclists will be asked to take the lane.
- South sidewalk will be closed with a detour and signage in place.
- The crosswalk west of the bridge will remain open and pedestrian access will be maintained on the north side of Admirals Bridge.

Work Hours

- Monday to Friday from 7:00 a.m. to 7:00 p.m.



Any questions about the work, please contact the Project Team.



24/7 Phone Line
1.844.815.6132



Email
wastewater@crd.bc.ca



Website
wastewaterproject.ca

Appendix B– Arbutus Attenuation Tank: Overnight Bypass Pumping (November 19, 2019)



November 19, 2019

Arbutus Attenuation Tank: Overnight Bypass Pumping

Construction of the Arbutus Attenuation Tank requires temporary bypass pumping overnight. This work is scheduled to begin Tuesday, November 19 and is anticipated to be complete by the end of the week.

What to Expect

- A temporary bypass pumping system has been installed next to the site.
- Noise associated with construction will be ongoing overnight. Diesel-powered pumping units will be in operation and are equipped with acoustic enclosures to reduce noise.
- Flood lights will be used to safely illuminate the work area.
- Temporary closure of trail sections in Haro Woods.

Work Hours

- Construction is required overnight.
- Once this work is complete, normal work hours will resume Monday to Saturday from 7:00 a.m. to 7:00 p.m.

Background

The Arbutus Attenuation Tank will be an underground concrete tank that will temporarily store wastewater flows during high volume storm events to reduce the number of sewage outflows. The Tank is located on CRD-owned land in Haro Woods that was already partially cleared and previously disturbed during the construction of existing sewers. Once construction is complete, the site will be planted with vegetation appropriate for the local woodland setting.

About the Wastewater Treatment Project

The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations by the end of 2020.

Any questions about the work, please contact the Project Team.



24/7 Phone Line
1.844.815.6132



Email
wastewater@crd.bc.ca



Website
wastewaterproject.ca

Appendix C– Traffic Advisory: 24-Hour Single Lane Traffic on Interurban Road (November 19, 2019)



Making a difference...together

Traffic Advisory

For Immediate Release

November 19, 2019

24-Hour Single Lane Traffic on Interurban Road

Saanich, BC- This week, single lane alternating traffic will be required 24 hours a day on Interurban Road between Charlton and North roads due to construction for the Wastewater Treatment Project. This work will take approximately one week to complete.

Multiple crews continue to work on Interurban during the day, currently near the intersections of Quayle, Grange and Marigold.

Please expect delays, especially during the morning and afternoon commute. We appreciate your patience as the work is being completed.

For more information about the Wastewater Treatment Project, please visit wastewaterproject.ca and follow us on Twitter [@crd_bc](https://twitter.com/crd_bc). For updates on alerts, please visit www.crd.bc.ca/alerts.

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For media inquiries, please contact:

Andy Orr, Senior Manager

CRD Corporate Communications

Tel: 250.360.3229

Cell: 250.216.5492

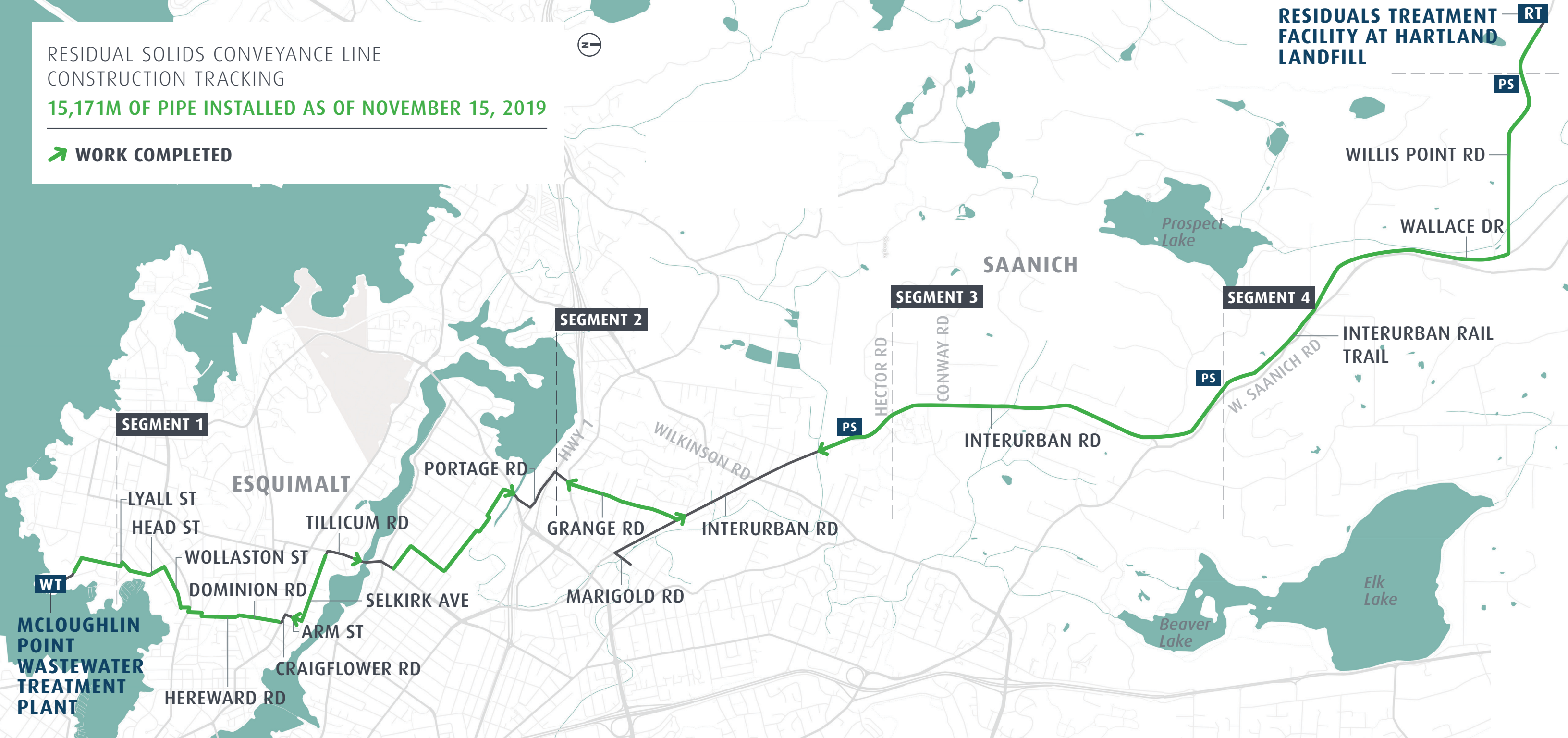


Appendix D– Residual Solids Conveyance Line Map (November 15, 2019)

RESIDUAL SOLIDS CONVEYANCE LINE
CONSTRUCTION TRACKING

15,171M OF PIPE INSTALLED AS OF NOVEMBER 15, 2019

➔ WORK COMPLETED



Appendix E– Monthly Cost Report (November)

MONTHLY COST REPORT as at November 30, 2019														
Description	BUDGET		COST EXPENDED					COMMITMENTS			FORECAST		VARIANCE	
	Control Budget	Allocated Budget	Expended to October 31, 2019	Expended over reporting period (November 2019)	Expended to November 30, 2019	Expended to November 30, 2019 as a % of Allocated Budget	Remaining (Unexpended) Allocated Budget at November 30, 2019	Total Commitment at November 30, 2019	Unexpended Commitment at November 30, 2019	Uncommitted Allocated Budget at November 30, 2019	Forecast to Complete	Forecast at Completion	Variance at Completion \$	Variance at Completion as a % of Allocated Budget
McLoughlin Point Wastewater Treatment Plant	331.4	328.1	250.3	11.7	262.0	80%	66.1	319.1	57.1	9.0	66.1	328.1	-	0%
Construction	306.7	318.8	249.7	11.7	261.3	82%	57.5	318.4	57.1	0.5	57.5	318.8	-	0%
Contingency	14.9	2.4	-	-	-	0%	2.4	-	-	2.4	2.4	2.4	-	0%
Financing	9.8	6.9	0.7	0.0	0.7	10%	6.2	0.7	-	6.2	6.2	6.9	-	0%
Residuals Treatment Facility	159.4	138.8	8.5	0.3	8.8	6%	130.1	137.8	129.1	1.0	130.1	138.8	-	0%
Construction	145.4	137.8	8.5	0.3	8.7	6%	129.1	137.8	129.1	0.0	129.1	137.8	-	0%
Contingency	12.3	0.2	-	-	-	0%	0.2	-	-	0.2	0.2	0.2	-	0%
Financing	1.7	0.8	0.0	0.0	0.0	4%	0.8	0.0	0.0	0.8	0.8	0.8	-	0%
Conveyance System	158.1	216.9	121.6	8.0	129.7	60%	87.2	192.7	63.1	24.1	87.2	216.9	-	0%
Macaulay Point Pump Station	25.4	30.6	18.9	1.1	20.0	65%	10.7	30.6	10.7	-	10.7	30.6	-	0%
Macaulay Forcemain	5.6	7.4	5.6	0.5	6.0	81%	1.4	7.4	1.4	-	1.4	7.4	-	0%
Craigflower Pump Station	12.5	12.4	12.4	0.0	12.4	100%	0.0	12.4	0.0	0.0	0.0	12.4	-	0%
Clover Point Pump Station	23.7	27.5	22.6	1.0	23.6	86%	3.9	27.5	3.9	-	3.9	27.5	-	0%
Currie Pump Station^	2.8	0.1	0.1	-	0.1	100%	-	0.1	-	-	-	0.1	-	0%
Arbutus Attenuation Tank	14.2	24.6	7.5	1.6	9.1	37%	15.5	23.1	14.0	1.5	15.5	24.6	-	0%
Clover Forcemain	14.6	32.5	24.9	1.3	26.2	81%	6.3	32.1	6.0	0.3	6.3	32.5	-	0%
Currie Forcemain^	3.3	0.2	0.2	-	0.2	100%	-	0.2	-	-	-	0.2	-	0%
Trent Forcemain	9.5	11.3	0.2	-	0.2	2%	11.1	7.1	6.8	4.2	11.1	11.3	-	0%
Residual Solids Conveyance Line	19.1	35.8	24.8	1.5	26.3	74%	9.4	34.0	7.7	1.8	9.4	35.8	-	0%
Residual Solids Pump Stations & Bridge Crossings	4.6	19.5	3.7	1.1	4.9	25%	14.6	17.4	12.5	2.1	14.6	19.5	-	0%
Residual Solids Conveyance Line – Highway Crossing	-	0.5	0.3	-	0.3	60%	0.2	0.5	0.2	0.1	0.2	0.5	-	0%
Contingency	16.8	10.4	-	-	-	0%	10.4	-	-	10.4	10.4	10.4	-	0%
Financing	5.8	4.1	0.3	0.0	0.3	8%	3.8	0.3	-	3.8	3.8	4.1	-	0%
Project Management Office ("PMO")	75.9	77.9	48.5	1.0	49.5	64%	28.4	67.1	17.6	10.8	28.4	77.9	-	0%
Professional Services	29.2	41.9	28.5	0.4	28.9	69%	13.0	35.6	6.7	6.3	13.0	41.9	-	0%
Project Board, Project Team & CRD Allocations	34.7	27.9	15.8	0.5	16.3	58%	11.6	26.5	10.2	1.4	11.6	27.9	-	0%
PMO Support	4.8	3.5	2.0	0.0	2.0	57%	1.5	2.7	0.7	0.8	1.5	3.5	-	0%
PMO start-up costs	2.3	2.3	2.3	-	2.3	100%	-	2.3	-	-	-	2.3	-	0%
Contingency	4.8	2.3	-	-	-	0%	2.3	-	-	2.3	2.3	2.3	-	0%
BC Hydro	12.9	4.3	2.0	-	2.0	47%	2.3	2.0	0.0	2.3	2.3	4.3	-	0%
Third Party Commitments	8.1	8.1	3.3	0.1	3.4	42%	4.8	6.8	3.5	1.3	4.8	8.1	-	0%
Program Reserves	19.2	0.9	-	-	-	0%	0.9	-	-	0.9	0.9	0.9	-	0%
Core Area Wastewater Treatment Project	765.0	775.0	434.3	21.1	455.3	59%	319.6	725.6	270.3	49.4	319.6	775.0	-	0%

* Values presented in \$millions, results in minor rounding differences
** Cost report presents approved expenditures
^ Component no longer required, and would not provide any value therefore removed from Project Scope; Costs include Seaterra initiation, planning and design