Wastewater Treatment Project
Treated for a cleaner future

CRD Wastewater Treatment Project

Monthly Report

Reporting Period: February 2020

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1 Executive Summary

1.1 Introduction

This Monthly report covers the reporting period of February 2020 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: installation of Densadeg rake mechanisms in all Densadegs; placement of primary odour control tanks; exterior work on the fine screen building; Moving Bed Bio Reactor (MBBR) 2 process equipment installed; electrical work progressed in the Biological Aerated Filter (BAF) gallery; completion of MBBR #1 concrete work; continued progress on lower level tertiary process piping; Operations and Maintenance (O&M) building stud build out nearing completion and drywall has commenced; progression of heating ventilation air conditioning (HVAC), plumbing and fire suppression work is nearly complete on levels 1 and 2; and level 2 roof parapets have been installed and commenced preparations for roofing package 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: closing up Digester 2 in preparation for hydro testing; installing pipe and supports for Digested Solids Storage Tank (DSST); installed boilers and polymer pumps, and completed drywall and painting in the Residuals Handling Building; completed electrical cable tray installation, and load out structure is in progress in the Residuals Drying Facility; progression of mechanical and electrical work in the Water Pump House and Operations Building; and metal stud wall complete with drywall commencing in the Operations Building.

The Conveyance System is being delivered through seven construction contracts: two design-build contracts and five 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: testing and backfilling of the forcemain; progressing piping of domestic water service, and fire suppression service; installation of exterior retaining walls and pigging chamber waterline fused and bolted.

- Macaulay Point Pump Station: Kenaidan Contracting Limited ("Kenaidan" as the Design-Build Contractor) progressed construction activities over the reporting period including: completion and passing of the pressure test for the forcemain; ongoing backfill around the exterior wall; Cross Laminated Timber roof and parapet have been installed; installation of the HVAC and drain pipes in the screen room; and bridge cranes have been commissioned in the bin and pump rooms.

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: ongoing cycle track paving; road restoration; electrical lighting installation; and landscaping restoration.

- Residual Solids Conveyance Line ("RSCL"): the RSCL is being delivered through two construction contracts, with work progressing as follows:

    - Residual Solids Pipes: Don Mann Excavating Ltd. ("Don Mann" as the Construction Contractor for the Residual Solids Pipes) continued construction activities including: installation of valve chambers; road restoration; and installation of approximately 384 m of pipes.

    - Residual Solids Pump Stations: Knappett Projects Inc. ("Knappett" as the Construction Contractor for the Residual Solids Pump Stations) continued construction activities including: completion of pipe installation along Interurban road; completion of the RTF chamber at Willis Point Road; Pump Station 2 wet well passed leak testing and was damp proofed and partially backfilled; and the Hartland Reservoir slab was poured, formed and the reservoir was fully erected.

- Arbutus Attenuation Tank ("AAT"): NAC Constructors Ltd. (as the Construction Contractor for the Arbutus Attenuation Tank) continued construction activities including civil excavation and structural secant pile construction works; maintaining the dewatering system; on-site steel welding for lateral strut reinforcement; and preparatory works for ring beam construction.

- Trent Forcemain: Jacob Bros. Construction Inc. (as the Construction Contractor for the Trent Forcemain) progressed planning and permitting activities, including submitting construction management plans for the Project Team's review.

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 no recordable safety incidents occurred and the total incident frequency decreased from 1.4 at the end of the last reporting period to 1.3. 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. Other factors that have contributed to budget pressures include: design development to incorporate stakeholder input; geotechnical considerations including removal and disposal of contaminated material; and schedule constraints associated with the requirement to provide wastewater treatment by the regulatory deadline of December 31, 2020.

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. In May 2019 the CRD Board 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*.	🟡	🟢	🟢	🟡	No recordable incidents 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.	🟢	🟢	🟢	🟢	One environmental incident occurred over the period: there was a small release of hydraulic fluid from one of the drill rigs at the Arbutus Attenuation Tank site. The leak was contained in a ditch within the tank excavation, crews cleaned up the leak immediately and no adverse environmental effects resulted from the leak.
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. Other factors that have contributed to budget pressures include: design development to incorporate stakeholder input; geotechnical considerations including removal and disposal of contaminated material; and schedule constraints associated with the requirement to provide wastewater treatment by the regulatory deadline of December 31, 2020. 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: McLoughlin Point WWTP, RTF, Macaulay Point Pump Station, Clover Point Pump Station, Clover Forcemain, Residual Solids Pipes, Residual Solids Pump Stations and Arbutus Attenuation Tank.

Over the reporting period 13 safety incidents occurred in total: comprising: 4 First-aid; 6 Report Only; and 3 Near Miss incidents, as summarized in Table 2.

Table 2: Safety Incidents over the Reporting Period

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
February 4, 2020	Macaulay Point Pump Station	Near Miss	A water leak at a valve during a pressure test sprayed a worker in the trench.	Leak was isolated and no one was injured in the incident.	The valve assembly was repaired.
February 4, 2020	McLoughlin Pt WWTP	First Aid	A worker sustained a hand injury when they lost their balance while using an impact gun.	Worker sustained a small ½" cut on left index finger and reported to First Aid to have the wound treated and bandaged.	Tool-box talk reviewing the proper use of small hand was held.
February 5, 2020	Residual Solids Pipes	First Aid	A worker sustained a hand injury while cutting a hose.	First Aid referred worker to medical aid to have the cut assessed but no further treatment was required other than a bandage.	Tool-Box talk in regards to the safe use of pocket knives and the wearing of appropriate gloves when cutting.
February 5, 2020	RTF	Report Only	A propane heater malfunctioned damaging the exhaust stack on the unit.	No one was injured.	Unit was removed from service and sent in to the rental provider for an inspection and repair
February 10, 2020	Residual Solids Pump Stations	First Aid	A worker while mixing concrete had the product splash up under their protective glasses.	Worker used an emergency eye wash on site and was taken to Victoria General Hospital for further assessment. No further treatment was required and the individual returned to work.	The need for additional PPE was reviewed and Goggles will now be worn whenever mixing concrete to prevent a reoccurrence.
February 12, 2020	McLoughlin Pt WWTP	Report Only	While backing up a truck (without a spotter) the driver struck the corner of a grout mixer.	Minor damage to the mixer was reported but no injuries to the driver.	Tool-box talk was held to reinforce the requirement of having a spotter whenever a vehicle is backing up or moving in a congested area.
February 13, 2020	McLoughlin Pt WWTP	Report Only	When lowering a piece of equipment a workers arm became wedged between the equipment and a steel beam.	Worker sustained small bruise to right foreman. Worker was wearing long sleeves, rain jacket and gloves at the time of the incident.	Tool-box talk to remind workers of good communication when moving equipment and to be aware of your surroundings and potentials for injuries to limbs.

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
February 14, 2020	RTF	Report Only	While moving an aerial platform the operator struck a HVAC duct.	Minor damage to the duct was reported but no injuries to the operator or the aerial platform.	Tool-Box talk with Sub-Contractors in regards to having a spotter while moving equipment inside any building due to congestion
February 20, 2020	McLoughlin Pt WWTP	Near Miss	A Traffic Control Person (TCP) was struck by a vehicles mirror after the driver ignored a stop directions.	Proper signage, personnel, and closures were in place at time of occurrence. No injuries reported.	The company that owned the vehicle was notified of the Safety Incident with the TCP Tool-Box talk with TCP to review proper positioning to limit potential for contact from vehicles that ignore signage or direction.
February 24, 2020	McLoughlin Pt WWTP	Report Only	A worker while carrying construction materials lost their footing and felt pain in back.	Worker reported the incident to First Aid and returned to work.	Tool-box talk and daily safety newsletter issued to remind workers about appropriate lifting and carrying techniques and to be aware of their surroundings on site with uneven areas or slippery conditions while carrying any material
February 24, 2020	Residual Solids Pump Stations	Report Only	While lifting a road plate a worker was in close proximity to the activity.	When the road plate was lowered it skimmed the workers boot. Worker was not injured in the incident	Tool-Box talk to remind workers to stay back a safe distance when road plates are being moved
February 27, 2020	McLoughlin Pt WWTP	First Aid	A worker injured their hand while releasing the leg of a trailer.	Worker received a small laceration and reported to First Aid to have it cleaned and bandaged.	Worker reminded to complete a Field Level Risk Assessment prior to starting any task to identify any hazards that may be present.
February 28, 2020	McLoughlin Pt WWTP	Near Miss	While cutting drywall a worker dropped their knife and it landed next to another worker below.	The knife was self-retracting, however the slider was sticky so the blade was out when the knife fell.	Knife was removed from service and the job site Tool-box talk was held to remind crews to inspect their tools prior to use and remove any defective equipment Control the area with barricade tape to keep other workers out of area if tools or other equipment cannot be 100% controlled

Key safety activities conducted during February 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;
- conduct Quality Safety Assurance Audit on Arbutus Attenuation Tank Prime Contractor;
- attended site Safety Meeting at the CRD Hartland site with the CRD and Prime Contractors;
- monthly incident investigation reviews;

- reviewed site specific safety plans and high risk tasks;
- issued a safety notice regarding lifting equipment;
- WTP Safety Manager and/or Construction Manager conducting regular site inspections at all active Project work sites; and
- reviewing Prime Contractor document submissions for Trent Forcemain.

Table 3: WTP Safety Information

	Reporting Period (February 2020)	Project Totals
Person Hours		
PMO	3 057	134 184
Project Contractor	105 537	1 555 079
Total Person Hours	108 594	1 689 262
PMO	31	
Project Contractors (& Project Consultants) working on Project Sites	587	
Total Number of Employees	618	
Near Miss Reports	3	44
High Potential Near Miss Reports	0	5
Report Only	6	130
First Aid	4	42
Medical Aid	0	5
Medical Aid (Modified Duty)	0	2
Lost Time	0	4
Total Recordable Incidents	0	11
		Project Frequency (from January 1, 2017)
First Aid Frequency		4.9
Medical Aid Frequency		0.8
Lost time Frequency		0.4
Total Recordable Incident Frequency		1.3

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, and responding to BC Ministry of Environment and Climate Change Strategy (ENV) questions on two Environmental Impact Studies (EIS) submitted as part of the MWR Registration application.

Key environmental management activities completed in February included:

- Stantec and the CRD prepared a technical memo addressing a request from ENV for additional information on the EIS that evaluated how the Project would reduce overflows within the core area wastewater system.
- HRP, Stantec and the CRD prepared a technical memo addressing a request from ENV for additional information on the EIS that evaluated how discharges from the McLoughlin Point WWTP would affect the marine environment.

Over the reporting period there was one minor environmental incident:

- On February 13th there was a release of approximately 1 litre from one of the drill rigs at the Arbutus Attenuation Tank site. The leak was contained in a ditch within the tank excavation and absorbent pads were deployed to soak up the hydraulic fluid. The absorbent pads were disposed of at an appropriately licenced facility. No adverse environmental effects resulted from the leak.

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 February included:

- The CRD, HRP and Stantec met with ENV to discuss the results of their review of the two EISs that were prepared as part of the MWR Registration application.

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 January 2020 Monthly Report.

Table 4- Key Permits Status

Permit/Licence	*Anticipated Date*	*Status*	*Party Responsible for Obtaining Perming*
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 and Macaulay Point.

Millennia Research (as the Project's archaeological advisor) continued archaeological monitoring of excavations along the RSCL and Clover Forcemain routes with members of local First Nations. Stantec, as the archaeological adviser for the Trent Forcemain portion of the Project, began preparing for pre-construction archaeological digs in areas of high archaeological potential.

On February 5th, the Chair of the Project Board, along with members of the Project Team and the CRD's First Nations Relations department were hosted by W̱SÁNEĆ Nations at a Burning ceremony at SṈIDȻEŁ (Tod Inlet). The Burning ceremony was in the custom of the W̱SÁNEĆ Peoples and was held in relation to ground disturbing work undertaken and ongoing in the construction of Project components.

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

Three construction notices were issued to stakeholders in the reporting period:

- Trent Forcemain Construction (February 5, 2020) (Appendix A);
- Residual Solids Conveyance Line: Esson and Portage Roads (February 14, 2020) (Appendix B); and
- Macaulay Point Pump Station: Bypass Pumping (February 21, 2020) (Appendix C)

The Project Team hand delivered the three construction notices in the community: the Trent Forcemain construction notice was hand-delivered to 196 residences in the Fairfield area; the Residual Solids Conveyance Line construction notice was hand-delivered to 58 residences in the nearby neighbourhood; and the Macaulay Point Pump Station construction notice was hand-delivered to 15 residences near the construction site. The Trent Forcemain construction notice was also circulated to 399 stakeholders via email. As well, a letter regarding construction updates for paving Peters Street was delivered to 16 residences in Esquimalt (Appendix D).

Project Website

Over the reporting period, the Project website, wastewaterproject.ca, was updated with information about the Project: three construction notices were posted; one information sheet was updated ('About the Wastewater Treatment Process', see Appendix E); the photo gallery section was updated with additional photos; and a map showing the progress of construction along the Residual Solids Conveyance Line (Appendix F) was updated.

The CRD's Twitter account was used to provide Project information to the public, including notifications about overnight construction along the RSCL route, pipe installation and upcoming construction of the Trent Forcemain.

Community Meetings

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

- City of Victoria staff;
- City of Victoria Technical Working Group;
- District of Saanich Technical Working Group; and
- Township of Esquimalt Liaison Committee.

Public Inquiries

Public inquiry numbers from the Project email address and 24/7 information phone line (1 844 815-6132) are noted in Table 5.

Table 5 – Project Inquiries- February 2020

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

Key themes of the public inquiries were as follows:

- Interest in timelines for work on the Trent Forcemain;
- Questions regarding timelines for final restoration along the RSCL; and
- Identification of areas in need of restoration or repair.

2.5 Resolutions from Other Governments

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

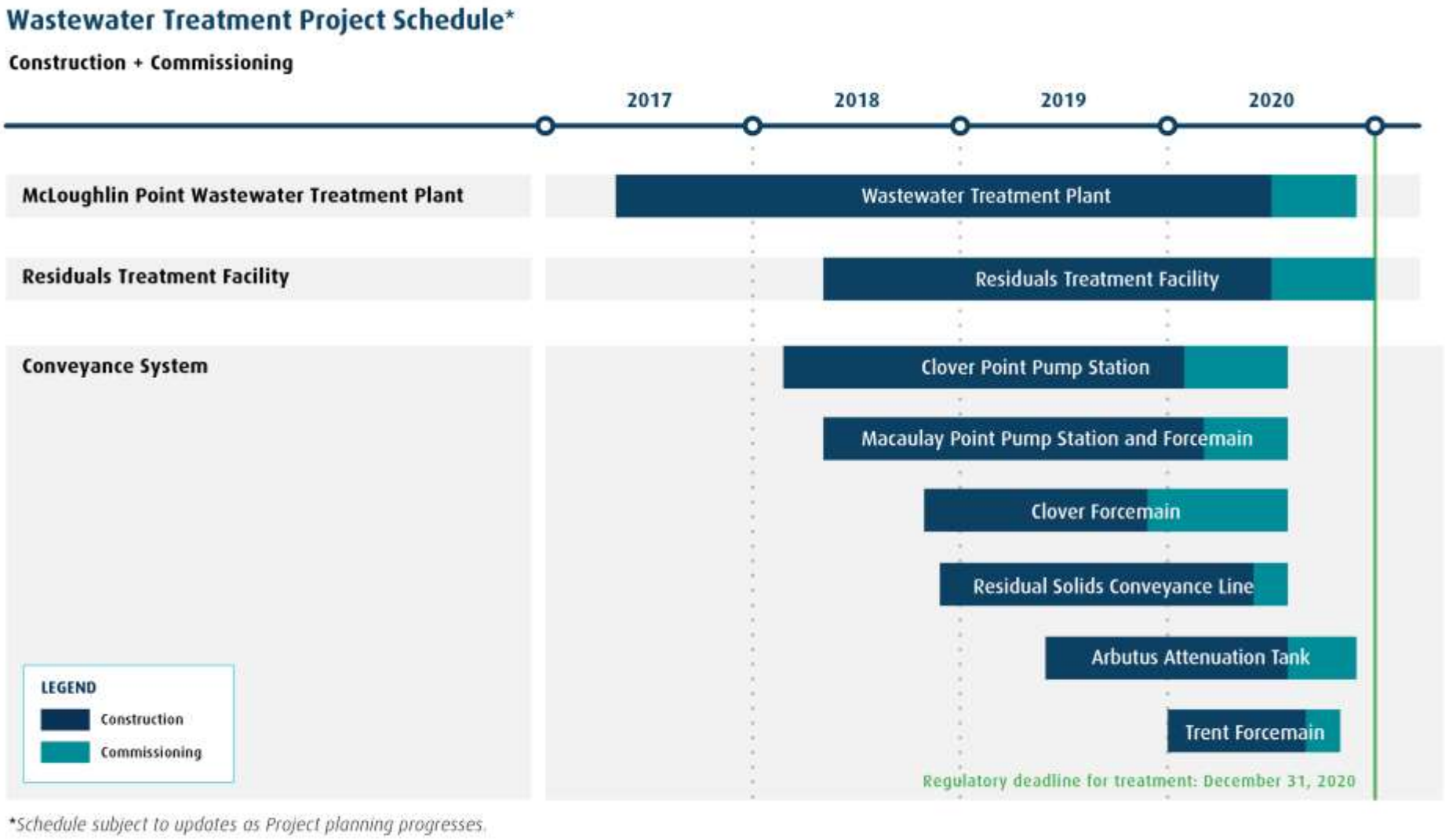
2.6 Schedule

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 summarized in section 2.9.

Figure 1 shows the high-level Project schedule. This schedule has not changed from that shown in the Project's January 2020 Monthly Report, and 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



2.6.1 30 day look ahead

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

Safety

- attend CRD corporate occupational health and safety coordination committee meeting;
- attend weekly and bi-weekly prime contractor progress meetings;
- host Prime Contractor Safety Coordination Meeting with Project safety representatives;
- WTP Safety Manager and/or Construction Manager conducting regular site inspections at all active Project work sites;
- review of any site specific safety plans or high risk tasks;
- send out any new Safety Notices or Incident Notifications to Prime Contractor;
- annual safety orientation with HRP at the McLoughlin Waste Water Treatment project site;
- review new Trent Forcemain 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; and
- complete and conduct close out of Quality Safety Assurance Audit on Arbutus Attenuation Tank Prime Contractor.

Environment and Regulatory Management

- CRD to submit technical memos addressing ENV's questions about the EIS's submitted as part of the MWR Registration application.

First Nations

- Stantec to complete pre-construction archaeological digs along Trent Forcemain alignment with members of Songhees and Esquimalt Nations.

Stakeholder Engagement

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

Cost Management and Forecast

- CRD financial statement audit (inclusive of Wastewater Treatment Project);
- CRD budget approval (inclusive of Wastewater Treatment Project);
- prepare cost reports;
- monitor schedule; and
- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

Construction

McLoughlin Point

- continue construction of remaining tsunami wall sections;
- install roofing, stairs, glazing and HVAC in primary odour control;
- install forced air ducting and dampers throughout;
- install cable and instrumentation and complete terminations to the Motor Control Centres in secondary odour control;
- install walkways and equipment and tank covers in Densadegs 2 & 3;

- install Heating Ventilation and Air Conditioning (HVAC), plumbing and sprinklers in screen room, and north and south pump rooms;
- continue with process mechanical and process electrical installations throughout;
- continue construction of concrete walls, curbs and roof top slab in Tertiary treatment area;
- continue with Operations & Maintenance (O&M) building envelope and installation of electrical and mechanical; and
- continue with installation of fire stopping, insulation, and drywall boarding.

Clover Point Pump Station

- install existing screens in West and East inlet channels;
- demolish existing pumps and check valves;
- form and pour new pipe supports;
- cut openings to sanitary wet well and grit separators;
- relocate existing slide gates;
- install backwash system;
- remove existing generator;
- install new diesel generator;
- install shower masonry in public washroom;
- install HVAC, insulation, roofing membrane and plumbing fixtures in public washroom; and
- install doors and hardware in new pump station.

Macaulay Point Pump Station

- install incoming watermain;
- install primary electrical duct bank and pull cable;
- complete back fill of structure;
- install stairs and walkways in pump room;
- form, rebar and pour diversion chamber base slab and walls;
- continue installation of stained wood cladding;
- install doors and frames;
- install HVAC and plumbing fixtures; and
- reinstate asphalt roads and curbs on Anson Street and Bewdley Avenue.

Residuals Treatment Facility

- complete pneumatic testing and resolve quality deficiencies at Digester 1;
- complete tank erection at Digester 2;
- continue tank erection at Digester 3;
- continue mechanical and electrical installations at the Digester Building;
- prepare for hydro testing at the Digested Sludge Storage Tank;
- prepare for hydro testing at the Water Storage Tank;
- commence hydro testing at Residuals Solids Tanks 1 and 2;
- commence hydro testing at Effluent Storage Tank;
- complete steel stud, cladding and roofing and continue building systems at Operations Building;
- continue electrical cabling and install pumps and headers and receiving hopper at Other Municipal Solids Receiving Facility;
- continue electrical cabling, process equipment and piping, and building systems at the Residuals Handling Building;

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

Clover Forcemain

- continue with Dallas Road reconstruction from St Lawrence Street to Montreal Street;
- continue road/cycle track construction from Dock Street to Olympia Avenue; and
- continue installation of road and cycle track lighting.

Residual Solids Pipes

- continue road restoration and final paving as required;
- continue with pipe installation of Portage Road;
- commence installation of pipe in the MOTI highway crossing; and
- continue with the installation of valve chambers and valves and drains.

Residual Solids Pump Stations

- complete pipe installation on Interurban Road between Grange Road and Marigold Road;
- install leachate connection chamber electrical and test;
- complete pipe installation at Marigold Road crossing at Violet Ave;
- install odour control unit, HVAC, instrumentation and fencing at pump station 3;
- install concrete equipment pads, odour control unit, kiosk, generator, surge tank and fencing at pump station 2;
- install process mechanical, underground electrical, yard piping, submersible sewage pump at pump station 1;
- back fill Marigold control valve chamber and grade site; and
- install kiosk and complete site electrical at Marigold control valve chamber.

Arbutus Attenuation Tank (AAT)

- complete installation of secant piles (reinforced and plain concrete);
- commence excavation and prepping secant piles for ring beam installation;
- continue installation of steel saddles for cross and diagonal strut beams;
- commence installation of cross and diagonal strut beams; and
- commence installation of ring beam (formwork, rebar, pour concrete, testing), start on western third and progress eastward.

Trent Forcemain

- undertake utility pre-locates along forcemain route;
- watermain, storm, and sanitary sewer relocates on Fairfield Road Memorial Crescent;
- pre-construction archaeological test pits; and
- soils sampling program for the delineation of potentially contaminated soils along the forcemain route.

2.6.2 60 day look ahead

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

Safety

- attend CRD corporate occupational health and safety coordination committee meeting;
- host Prime Contractor Safety Coordination Meeting with Project safety representatives;
- attend weekly and bi-weekly prime contractor progress meetings;
- 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; and
- incident reporting review with prime contractors at active work locations.

Environment and Regulatory Management

- CRD anticipates receiving the MWR Registration for the McLoughlin Point WWTP and the Operational Certificate for the Residuals Treatment Facility.

First Nations

- CRD to continue meeting with the First Nation Liaisons.

Stakeholder Engagement

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

Cost Management and Forecast

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

Construction

McLoughlin Point

- continue construction of tsunami walls;
- install stairs, roofing and glazing at odour control;
- continue with electrical, instrumentation and controls throughout;
- install Densadeg 2 and 3 tank covers;
- install polymer system piping, chlorinated water piping and, ferric chloride system piping in Densadeg 2 and 3;
- install natural gas and HVAC in heat recovery room;
- install exhaust fans and unit heaters in tertiary treatment/outfall chamber;
- install elevator in O&M building; and
- install drywall, firestop and painting throughout O&M building

Clover Point Pump Station

- demolish existing pumps and check valves;
- install grit separators;
- install masonry block walls for fuel storage rooms;
- demolish existing Motor Control Center(MCC) and obsolete electrical equipment;
- remove existing generator and install new generator;
- commence installation of split stone face on exterior retaining wall;
- install HVAC, plumbing fixtures and masonry block walls in public washroom; and
- install doors, frames, and hardware to new and existing pump station.

Macaulay Point Pump Station

- backfill and reinstate twin 900mm forcemain;
- grout equipment and structural steel bases;
- form, rebar and pour diversion chamber;
- install stairs and walkways in pump room;
- install wet well maintenance platform;
- install doors and frames and glazing in aluminium doors;
- install plumbing fixtures;
- continue site paving and sidewalks; and
- commence functional start-up of equipment.

Residuals Treatment Facility

- start hydro testing and pneumatic testing at Digester 2;
- complete tank erection and internal piping at Digester 3;
- continue mechanical and electrical installations at the Digester Building;
- commence hydro testing at the Digested Sludge Storage Tank;
- commence hydro testing at the Water Storage Tank;
- commence finishes at Operations Building;
- continue electrical cabling and install pumps and headers and receiving hopper at Other Municipal Solids Receiving Facility;
- continue electrical cabling, process piping, polymer equipment, and building systems at the Residuals Handling Building;
- continue building systems, equipment and electrical installation and process piping at the Dryer Building;
- continue mechanical and electrical work at Equalization Building;
- continue process mechanical and electrical at the Water Pump House; and
- continue equipment installation at Odour Control Area.

Clover Forcemain

- continue road/cycle track;
- complete road restoration Government Road to Douglas Street to Douglas Street; and
- complete additional surface works between Lewis Street to Government Street.

Residual Solids Pipes

- complete MOTI crossing pipe and watermain;
- complete installation of pipe on Portage Road;
- complete installation of line, valves, low point drains and air valves; and
- complete final road restoration.

Residual Solids Pump Stations

- Marigold valve chamber final surface restoration;
- install pipe under Tillicum bridge;
- install pump station 3 instrumentation and controls;
- install fencing and final grading at pump station 3;
- complete pump station 2 odour control and surge tank installation;
- install HVAC and site fencing at pump station 2;
- pump station 2 submersible sewage pump installation;
- install kiosk and generator at pump station 1; and
- complete tie-in of pipe at pump station 3, Willis Point, Pump Station 2, Grange Road, Pump Station 1, and Marigold.

Arbutus Attenuation Tank (AAT)

- complete excavation and prepping secant piles for ring beam installation;
- complete installation of steel saddles for cross and diagonal strut beams;
- complete installation of cross and diagonal strut beams;
- continue installation of ring beam (formwork, rebar, pour concrete, testing), start on western third and progress eastward;
- commence excavation within tank footprint to base slab elevation;
- commence subgrade prep and mud-mat installation;
- prep for and initiate excavation for valve chamber; and
- preparation for rock anchor installation.

Trent Forcemain

- install sanitary sewer and watermain at Fairfield Road;
- install storm sewer at Bushby Street;
- install sanitary sewer at St. Charles Street; and
- install sanitary sewer at Brooke Street.

2.7 Cost Management and Forecast

The monthly cost report for February is shown in Appendix G. The cost report summarizes Project expenditures and commitments by 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 $1.2 million. The significant commitments made in the reporting period comprised the approval of provisional items in construction contracts and contract change orders, and an increased commitment to the Project's archaeological advisor (Millenia Research), required as a result of a greater level of archaeological effort being required than was originally anticipated.

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

Two contingency draws totalling $306,440 were made over the reporting period, to deal with contamination at the McLoughlin Point outfall and on DND lands adjacent to the McLoughlin Point site. 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**
Net Contingency and Program Reserve draws to January 31, 2020		$ (52,887,319)
Contingency and Program Reserve balance as at January 31, 2020		**$ 16,430,732**
Supervening Event: Regulated Site Condition at Outfall	Feb-20	$ (283,234)
Remediation of Contaminated Soils on DND Lands	Feb-20	$ (23,206)
WWTP Total Draw		$ (306,440)
RTF Total Draw		$ -
Return of funds from Craigflower Pumpstation close out	Feb-20	$ 16,005
Conveyance Total Increase		$ 16,005
PMO Total Draw		$ -
BC Hydro Total Draw		$ -
WTP Program Reserve Draw		$ -
Contingency and Program Reserve credits in the reporting period		$ 16,005
Contingency and Program Reserve draws in the reporting period		$ (306,440)
Contingency and Program Reserve balance as at February 29, 2020		**$ 16,140,297**

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	-	$98.0M
Government of Canada (Green Infrastructure Fund)	$50M	$4.9M	$40.7M
Government of Canada (P3 Canada Fund)	$41M	-	-
Government of British Columbia	$248M	-	$62.0M
Federation of Canadian Municipalities	$346K	-	-
TOTAL	**$459.3M**	**$4.9M**	**$200.7M**

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.

There were no changes to the active risks summary from that presented in the Project's January 2020 Monthly Report.

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 has used 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. The MWR Registration application was submitted to the Ministry of Environment in September 2019. The Project Team, MOE and relevant contractors have continued to meet regularly to track progress and discuss issues.	M	No change
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

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
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				
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	No Change

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: installation of Densadeg rake mechanisms in all Densadegs; placement of primary odour control tanks; exterior work on the fine screen building; Moving Bed Bio Reactor (MBBR) #2 process equipment installed; electrical work progressed in the Biological Aerated Filter (BAF) gallery; completion of MBBR #1 concrete work; continued progress on lower level tertiary process piping; Operations and Maintenance (O&M) building stud build out nearing completion and drywall has commenced; progression of heating ventilation air conditioning (HVAC), plumbing and fire suppression work is nearly complete on levels 1 and 2; and level 2 roof parapets have been installed and commenced preparations for roofing package installation.

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

- Primary treatment area:
  - sprinkler, HVAC and process piping systems in progress in north pump room;
  - commenced suction and discharge lines for all three Densadegs;
  - tube settlers set in place for all Densadegs;
  - Densadeg rake mechanism installation underway in all Densadegs;
  - Densadeg launder channel installation commenced in Densadeg 1;
  - reactors for all Densadegs set in place and installation ongoing;
  - primary odour control tanks set in place;
  - coring complete for pipe racks 4, 5, and 6;
  - installation of plate settler tank covers has commenced;
  - Fine screen building has been sheathed and membrane installed;
  - Fine screen building cinder block masonry underway; and
  - Fine screen building roofing underway.

- Secondary treatment area:
  - MBBR #2 process equipment installed;
  - MBBR #1 concrete work complete;
  - south BAF / Tertiary tie-in slab complete, upper channels nearing completion;
  - BAF nozzles and laterals are installed and tested in Cells 10, 8, 6, 4, and 2;
  - BAF gravel is installed in cells 8 and 6;
  - BAF nozzle and lateral installation in cells 1, 3 and 5 are nearing completion;
  - electrical cable tray and cable pulling has commenced between exterior electrical gear and main electrical room;
  - cable tray installation on pipe rack 10 and 11 ongoing;
  - electrical work progressed in the BAF gallery;
  - blower room drywall and paint complete;
  - heat recovery room drywall nearing completion; and
  - penthouse building envelopes continue progressing.

- Tertiary treatment area:
  - continued upper disk filter walls;
  - lower level 1 pumps and mechanical piping install nearing completion;
  - level 2 process piping continues; and
  - level 2 masonry ongoing.

- O&M building:
  - lower level interior stud build-out nearing completion;
  - lower level drywall installation has commenced;
  - HVAC, plumbing and fire suppression trades are nearing completion on level 1;
  - electrical trade is beginning to close out rooms to allow for drywall installation on level 1;
  - level 2 HVAC, plumbing and fire suppression are also progressing;
  - steel stud install on level 2 ongoing;
  - spray foam insulation completed; and
  - level 2 roof parapets were installed and preparing for roofing package installation.

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

Figure 2– McLoughlin Point Wastewater Treatment Plant - installing Lamella Settler 1 roof cover and beams.

Figure 3– McLoughlin Point Wastewater Treatment Plant- Insulating parapet on Operations and Maintenance roof.

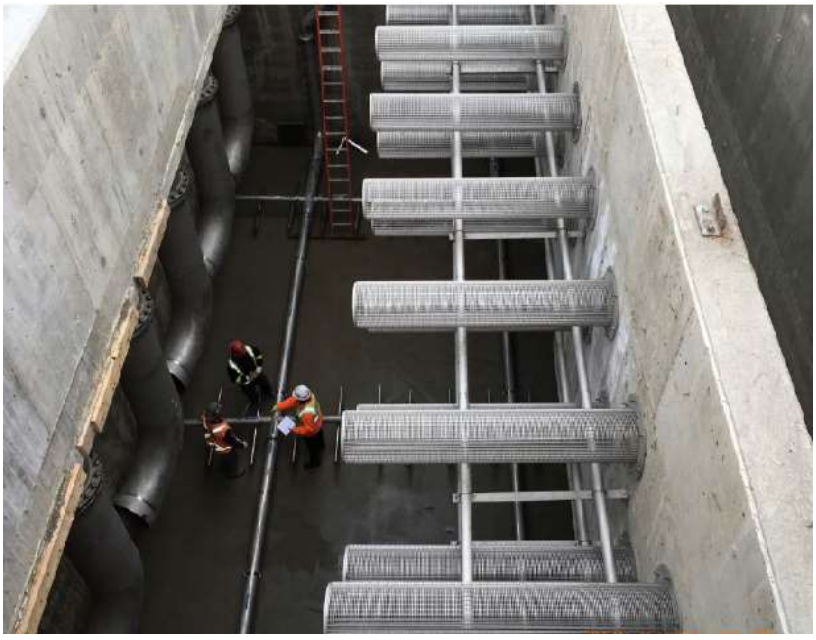


Figure 4– McLoughlin Point Wastewater Treatment Plant- inspecting Moving Bed Bio Reactor #2 aeration.

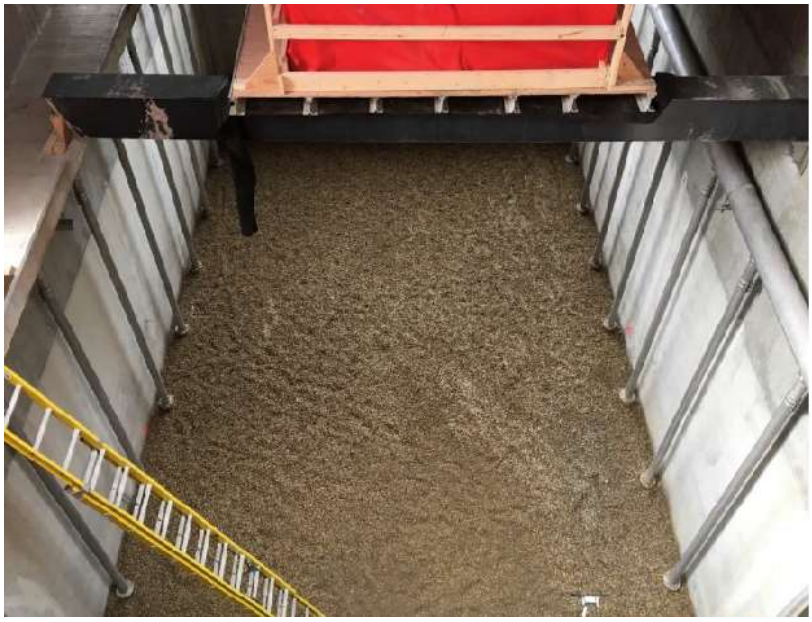


Figure 5– McLoughlin Point Wastewater Treatment Plant- Biologic Aerated Filter cell 8 stage 2 gravel installed.

Figure 6– McLoughlin Point Wastewater Treatment Plant- View to the East from tower crane B.

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: closing up Digester 2 in preparation for hydro testing; installing pipe and supports for Digested Solids Storage Tank (DSST); installed boilers and polymer pumps, and completed drywall and painting in the Residuals Handling Building; completed electrical cable tray installation, and load out structure is in progress in the Residuals Drying Facility; progression of mechanical and electrical work in the Water Pump House and Operations Building; and metal stud wall complete with drywall commencing in the Operations Building.

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

- Digester Area
  - Digester 2 closed up in preparation for hydro testing;
  - continued erection of Digester 3 tank;
  - installed pipe and pipe supports for Digested Solids Storage Tank (DSST); and
  - progressed mechanical and electrical in Digester Building.

- Residuals Handling Building
  - completed drywall and painting;
  - installed boilers and polymer pumps;
  - epoxy flooring installed in chemical room; and
  - electrical work continued in the electrical room.

- Residuals Drying Facility
  - mechanical installation is in progress;
  - electrical cable tray installation was completed with cabling being pulled and terminated;
  - metal stud and drywall is in progress; and
  - load out structure is in progress.

- Residuals Storage & Odour Control and Equalization Building
  - completed metal stud and drywall.

- Water Pump house
  - pump skids installed and building closed up;
  - mechanical and electrical work is in progress; and
  - trickling tower installed on odour control pad.

- Operations Building
  - Metal stud walls completed with drywall commencing; and
  - Mechanical and electrical is in progress.

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

Figure 7– Residuals Treatment Facility- Operations Building installation of stand offs for exterior cladding.

Figure 8– Residuals Treatment Facility- chain link fence enclosure installed around main transformer.

Figure 9− Residuals Treatment Facility- Installation of mechanical equipment at propane storage tank.

Figure 10− Residuals Treatment Facility – Form work and rebar installed for waste gas burner slab.

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: testing and backfilling of the forcemain; progressing piping of domestic water service, and fire suppression service; installation of exterior retaining walls and pigging chamber waterline fused and bolted.

Key construction activities in progress or completed by Kenaidan in February included:

- forcemain bolted, tested and backfilling in progress;
- Upper pump room pipe supports poured;
- pigging chamber water line fused and bolted;
- air intake structure slab poured;
- domestic water service piping in progress;
- fire suppression system piping ongoing;
- installing exterior retaining walls; and
- installing gravity inlet sewer stub out.

Photographs of construction progress over the month of February at Clover Point are shown in Figures 11-13.

Figure 11−Clover Point Pump Station- Roofing membrane installed on public washroom.

Figure 12−Clover Point Pump Station- Gas detection panel terminations

Figure 13- Clover Pump Station – Electrical room.

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: completion and passing of the pressure test for the forcemain; ongoing backfill around the exterior wall; Cross laminated Timber roof and parapet have been installed; installation of the HVAC and drain pipes in the screen room; and bridge cranes have been commissioned in the bin and pump rooms.

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

- pressure test on the Forcemain has completed and passed;
- bypass pumping for coupling installation has been completed;
- cable tray has been installed in the screen room and genset room;
- bridge cranes have been commissioned in the bin room and pump room;
- backfill around exterior wall is ongoing;
- screen room and vortex grating has been installed;
- Cross Laminated Timber roof and parapet have been installed;
- barrier wall and pump room hatch curb have been poured;
- slide gate installation has started in the screen room; and
- HVAC and drain pipes have been installed in the screen room.

Photographs of construction progress over the month of February at Macaulay Point are shown in Figures 14-15.

Figure 14−Macaulay Point Pump Station- Installing insulation on exterior of Cross Laminated Timber structure.

Figure 15−Macaulay Point Pump Station- Cross Laminated Timber electrical room progression.

2.9.3.3 Clover Forcemain (CFM)

Windley Contracting Ltd. (“Windley” as the Construction Contractor) continued construction activities including: ongoing cycle track paving; road restoration; electrical lighting installation and landscaping restoration.

Key construction activities in progress or completed by Windley in February included:

- cycle track/road restoration Lewis Street to Government Street;
- electrical lighting installation Montreal Street to Lewis Street;
- Clover Point storm catch basin installation;
- Camas Curb Extension; and
- landscape restoration.

Photographs of construction progress over the month of February on the Clover Forcemain are shown in Figures 16-19.

Figure 16−Clover Forcemain- Cycle track base prep between Lewis and Douglas Streets.

Figure 17−Clover Forcemain- Curb and gutter restoration between Dock and Oswego streets.

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Figure 18−Clover Forcemain− Road restoration between Niagara and Dock streets.

Figure 19−Clover Forcemain- Landscaping near corner of Cook Street and Dallas Road.

2.9.3.4 Residual Solids Conveyance Line

The RSCL is being delivered through two construction contracts:

- Residual Solids Pipes; and
- Residual Solids Pump Stations

Residual Solids Pipes: Don Mann Excavating Ltd. ("Don Mann" as the Construction Contractor for the Residual Solids Pipes) continued construction activities over the reporting period, including: installation of valve chambers; road restoration; and installation of approximately 384m of pipes at the following locations:

- segment #1 Tillicum Road from Gorge Rd to Tillicum Bridge; installation of line valves, low point drain valves and air valves on Head Street and Tillicum Road;
- segment #2 Interurban Road from Roy Road to North Road: temporary asphalt restoration on Interurban Road south of Wilkinson to North Road;
- segment #3, installation of an air valve on Interurban Trail and a low point drain valve on Interurban Road at Viaduct Ave West, temporary asphalt restoration on Interurban Road at Goward Road; and
- segment #4, final surface restoration on Interurban Trail from Prospect Lake Road to Wallace Drive and Willis Point Road.

Photographs of construction progress over the month of February on the Residual Solids Pipes are shown in Figures 20-23.

Figure 20− Residual Solids Pipes-Installation of line and drain valves on Tillicum Road north of the Tillicum Bridge.

Figure 21−Residual Solids Pipes- installation of pipe on Interurban Road.

Figure 22−Residual Solids Pipes – Pipe installation on Portage Road.

Figure 23−Residual Solids Pipes - Excavation of sidewalk for pipe installation.

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Residual Solids Pump Stations: Knappett Projects Inc. (“Knappett” as the Construction Contractor for the Residual Solids Pump Stations) continued construction activities including: completion of pipe installation along Interurban road; completion of the RTF Chamber at Willis Point Road; Pump Station 2 wet well passed leak testing and was damp proofed and partially backfilled; and Hartland reservoir slab was poured, formed and the reservoir was fully erected.

Key construction activities in progress or completed by Knappett in February included:

- Pump Station 1 wet well was patched. The valve chamber slab was then prepped and poured once the wet well damp proofing had been backfilled;
- Pump Station 2 wet well passed the leak test and was then damp proofed and partially backfilled. The valve chamber, flow meter and line valve manholes were installed;
- Pump Station 3 genset and electrical kiosk were installed, the odour control pad was prepped and Spools were grouted in place in various chambers;
- completion of the RTF Chamber at Willis Point Road;
- completion of pipe installation along Interurban Road;
- Marigold Pump Station walls and roof slab were formed and poured; and
- Hartland Reservoir slab was formed, poured and then the reservoir was fully erected.

Photographs of construction progress over the month of February on the Residual Solids Pump Stations are shown in Figures 24-25.

Figure 24−Residual Solids Pump Stations– Hartland Water System Improvements – Reservoir installation progress.

Figure 25 –Residual Solids Pump Stations - Marigold valve chamber finishing concrete of suspended slab pour.

2.9.3.5 Arbutus Attenuation Tank

NAC Constructors Ltd. (as the Construction Contractor for the Arbutus Attenuation Tank) continued construction activities including: civil excavation and structural secant pile construction works; maintaining the dewatering system; on-site steel welding for lateral strut reinforcement; and preparatory works for ring beam construction.

Key construction activities in progress or completed by NAC Constructors Ltd. in February include:

- Site welding / fabrication including installation of saddles on the secant piles and welding steel plate reinforcement for lateral and cross struts;
- Construction of secant piles, focusing on the eastern section of site; and
- Preparatory work for ring beam installation including securing formwork, reinforcement, localized excavation around secant piles for grade adjustments.

Photographs of construction progress over the month of February at the Arbutus Attenuation Tank are shown in Figure 26.

Figure 26−Arbutus Attenuation Tank- Secant Pile Installation – 2 drill rigs & 1 crane.

2.9.3.6 Trent Forcemain

Jacob Bros. Construction Inc. (as the Construction Contractor for the Trent Forcemain) progressed planning and permitting activities over the reporting period, including submitting construction management plans for the Project Team's review.

Appendix A− Trent Forcemain Construction (February 5, 2020)

Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

February 5, 2020

Trent Forcemain Construction

The Wastewater Treatment Project includes construction of the Trent Forcemain, 1.9km of pipes that will be installed from the intersection of Chandler Avenue and St Charles Street to the Clover Point Pump Station (see map on reverse). This addition will increase the capacity of the wastewater system and reduce wet weather overflows.

The contractor for this component of the Project, Jacob Bros Construction Inc., will begin work the week of February 10 and construction is anticipated to take approximately 10 months to complete.

What to Expect

- A site office and laydown area will be established on Memorial Crescent.
- Existing utilities (storm, sewer, water, gas) will be relocated in preparation for forcemain installation.
- The pipe will be installed in segments.
- A trench will be excavated, the pipe will be installed, and the trench will be backfilled. The surface will be temporarily restored at the end of each work day.
- Rock encountered in the trench will be removed by blasting or mechanical means.
- Final restoration will take place once the pipe has been installed and tested.
- Pipes and equipment will be temporarily stored in the area while this work is completed.
- Noise associated with this work includes excavation machinery and truck back-up beepers.

Work Hours

- Monday to Friday from 7:00 a.m. to 7:00 p.m.
- Saturday from 10:00 a.m. to 7:00 p.m.

Traffic Impacts

- There will be single lane alternating traffic during work hours in the construction zone.
- The northbound lane on Memorial Crescent from Dallas Road to Bushby Street will be closed during construction. Traffic will be diverted to the southbound lane to accommodate two-way traffic (see map on reverse).
- Parking along Memorial Crescent between Bushby Street and Dallas Road will be unavailable for the duration of construction of the Trent Forcemain.
- Traffic control areas will be delineated by cones and signs and controlled by flaggers.
- Parking will be temporarily impacted in the construction zone.

Access

- Vehicle access to residences may be temporarily restricted. Notification will be provided in advance and access to residential driveways will be restored at the end of each work day.
- Emergency services will have access at all times.
- Garbage and recycling services will be picked up as usual.

Thank you for your patience as this work is completed.

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

24/7 Phone Line
1.844.815.6132

Email
wastewater@crd.bc.ca

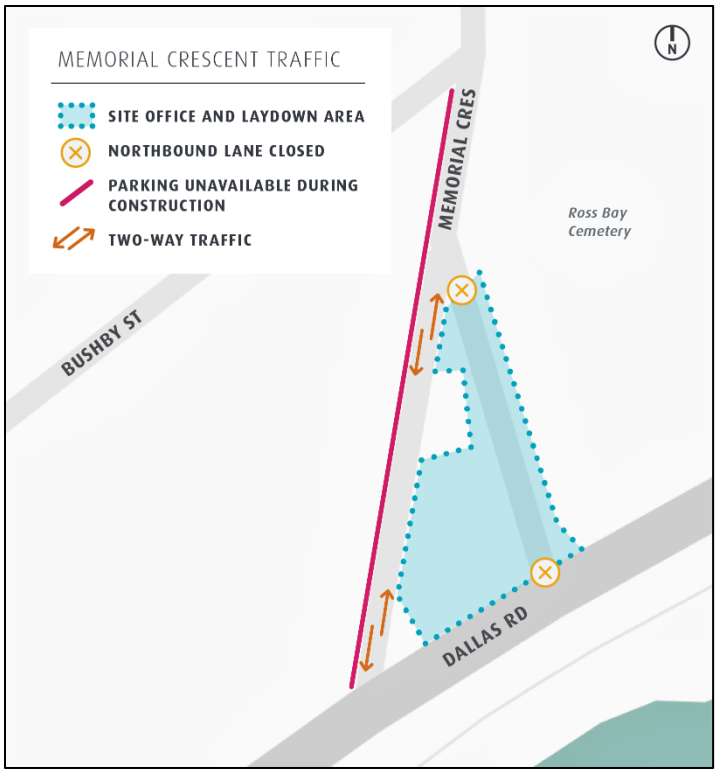
Website
wastewaterproject.ca

Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

Trent Forcemain Route

Memorial Crescent



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 B− Residual Solids Conveyance Line: Esson and Portage Roads (February 14, 2020)

Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

February 14, 2020

Residual Solids Conveyance Line: Esson and Portage Roads

As part of the Wastewater Treatment Project, construction of the Residual Solids Conveyance Line along Esson and Portage roads is anticipated to start the week of February 18 and continue to the end of April. Two crews will be installing pipes: one crew starting at Admirals Road and a second crew starting at the intersection of Portage and Grange roads.

What to Expect

- The pipe will be installed in segments.
- A trench will be excavated, the pipe will be installed, and the trench will be backfilled. The surface will be temporarily restored at the end of each work day.
- Final restoration will take place after the section has been tested and completed.
- Rock encountered in the trench will be removed by blasting or mechanical means.
- A staging area at the intersection of Portage and Grange roads will be set up to feed pipes into the pre-installed casings under the Trans-Canada Highway.
- Noise associated with this work includes excavation machinery and truck back-up beepers.
- Pipes and equipment will be temporarily stored in the area while this work is completed.

Work Hours

- Monday to Friday from 7:00 a.m. to 7:00 p.m.
- Occasional Saturday work may be required from 7:00 a.m. to 7:00 p.m.

Traffic Impacts

- There will be single lane alternating traffic during work hours.
- Traffic control areas will be delineated by cones and signs and controlled by flaggers.
- Parking will be temporarily impacted as construction moves along the route.

Access

- Vehicle access to residences will be temporarily restricted when work is underway and will be reinstated at the end of each work day. Residents will be notified of temporary closures in advance.

Thank you for your patience as this work is completed.

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− Macaulay Point Pump Station: Bypass Pumping (February 21, 2020)

Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

February 21, 2020

Macaulay Point Pump Station: Bypass Pumping

Construction of the Macaulay Point Pump Station requires temporary sewer bypass pumping on Monday, February 24, 2020 to replace a section of the existing sewer pipe to accommodate construction for the new pump station. Once started, this work must be completed and may run past regular working hours.

What to Expect

- Diesel powered generators will be running to provide sewer bypass pumping.
- A small section of the existing sewer pipe will be replaced.
- Bypass pumps will be removed once work is complete.
- Construction equipment will be in operation, including lights and truck back-up beepers.
- Noise associated with construction may occur overnight.

Work Hours

- The work will take place during the day but may take up to 24 hours, proceeding overnight past regular working hours.

Traffic Impacts

- No traffic impacts are expected.

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 D- Peter Street Paving update (February 13, 2020)

Wastewater Treatment Project

February 13, 2020

Dear Resident,

We are writing to notify you that final paving along Peters Street is expected to take place next week, weather permitting.

Peters Street will be closed to vehicles 24 hours/day from Tuesday, February 18 to Friday, February 21 to prepare and pave the road. All vehicles on Peters Street must be relocated by 7 a.m. Tuesday morning. Parking will be available on Gault and Lyall streets.

There will be pedestrian access to all residences and emergency services will have access at all times. Garbage will be picked up as usual.

We appreciate your patience while this work is being completed. Please feel free to contact us at our 24/7 phone line 1-844-815-6132 or email wastewater@crd.bc.ca if you have any questions or if there is anything we can do to assist.

Thank you,

Wastewater Treatment Project Team

Appendix E− About the Wastewater Treatment Process

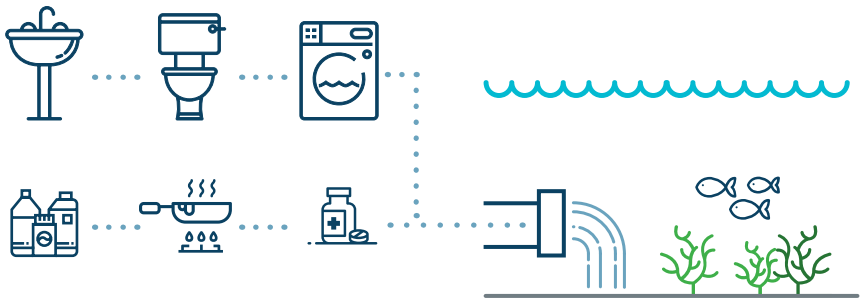
Wastewater Treatment Project
Treated for a cleaner future

Wastewater Treatment Project

Treated for a cleaner future

What is wastewater?

- Wastewater is used water from human activities such as washing dishes, doing laundry, and flushing the toilet.
- Some pollutants in wastewater include industrial and commercial waste, detergents, cooking fats, and prescription drugs.



Why we treat wastewater

- To reduce contaminants prior to releasing the effluent into the environment, helping to protect and maintain healthy waterways.
- If pollutants in wastewater are not removed, they flow directly into the ocean. This can threaten fisheries, wildlife habitat, recreation, quality of life, and public health.

About the system

- Wastewater flows from residences and businesses into a sewer pipe that connects to larger pipes under our streets, which ultimately connect to either the Clover Point Pump Station or the Macaulay Point Pump Station.
- At present, wastewater is screened at these pump stations and then discharged into the Strait of Juan de Fuca without treatment.
- The Wastewater Treatment Project will connect these two pump stations to the McLoughlin Point Wastewater Treatment Plant so that wastewater can be treated to a tertiary level prior to discharge.

Did you know?

In the Core Area:

- There are **seven municipalities** (Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford, and Colwood) and the Esquimalt and Songhees Nations.
- The population is approximately **320,000 people** covering **215km²**.
- There are over **175 pump stations** and **110km** of existing sanitary sewer pipes.
- The McLoughlin Point Wastewater Treatment Plant will treat up to **108,000,000 litres** of wastewater per day, providing capacity to accommodate future population growth.
- Every person produces an average of **185–200 litres** of wastewater per day.
- Wastewater flows are greater on rainy days.

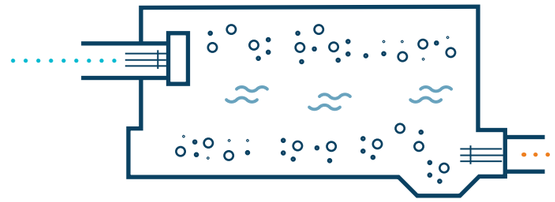
Treatment Process

1 CONVEYANCE SYSTEM

Collects wastewater from across the core area and conveys it to the Clover Point and Macaulay Point pump stations.

Screening
Wastewater is screened (6mm) to remove stones, paper, cloth, plastics and other debris.

Grit Removal
A vortex system uses centrifugal force to keep the organic material suspended while grit settles and is removed.



Pumping
Wastewater will be pumped to the new treatment plant.

The grit and screenings are compacted and trucked to an approved landfill.

Storm Outfalls
Currently, untreated wastewater is discharged out of the Clover Point and Macaulay Point outfalls. Once the Project is built, these outfalls will only be used to discharge storm flows associated with heavy-rain events. To reduce the need to discharge storm flows, a buried underground concrete tank (the Arbutus Attenuation Tank) will be built in Saanich to temporarily store flows during high volume storm events. In addition, core area municipalities have committed to an inflow and infiltration program that will reduce the volume of storm flows that need to be discharged.

2 MCLOUGHLIN POINT WASTEWATER TREATMENT PLANT

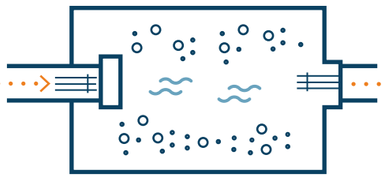
PRIMARY TREATMENT
Is the physical separation of solids from wastewater.

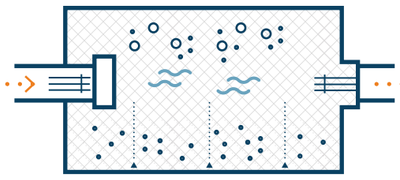
Removing Solids
Heavier solids settle to the bottom and lighter 'scum' floats to the top.

SECONDARY TREATMENT
Is a biological process that removes dissolved and suspended organic compounds in the wastewater.

Fine Screening
Primary effluent will be finely screened (2mm) to remove smaller debris.

Biological Reactors
Wastewater flows through tanks where microorganisms grow. The microorganisms consume organic compounds in the wastewater and reproduce to form cells that result in residual biological solids. Solids are removed and sent to the Residuals Treatment Facility for further treatment. Treated secondary effluent is sent to tertiary treatment.

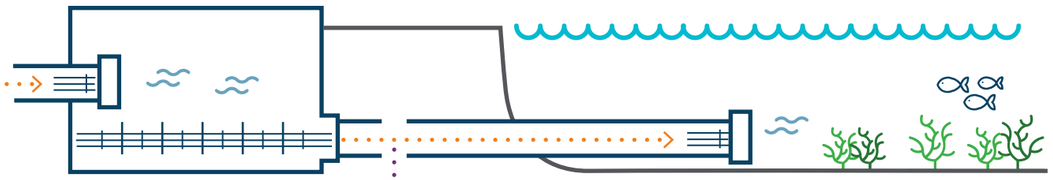




TERTIARY TREATMENT
Is one of the highest levels of treatment, reducing contaminants that remain after the secondary treatment process.

Disc Filter
Wastewater will pass through a fabric disc filter (5-micron), reducing many pharmaceuticals, hormones, microplastics and other contaminants.

OUTFALL
The tertiary-treated effluent will flow through the outfall and discharge into the ocean approximately 2km from shore and 60m deep.

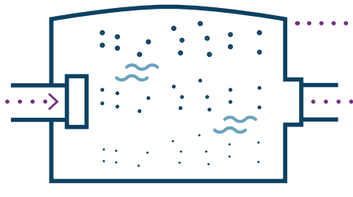


As wastewater moves through the treatment process, residual solids are removed. These solids will be pumped to the Residuals Treatment Facility for further treatment.

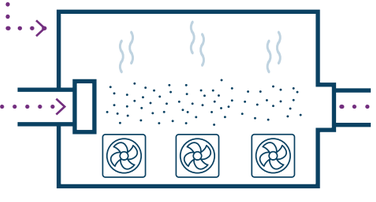
3 RESIDUALS TREATMENT FACILITY

Digestion
The residual solids undergo anaerobic digestion in which microorganisms will break down biodegradable material in the absence of oxygen and produce biogas.

Biogas
Biogas produced during the digestion process will be collected and reused within the facility as fuel for the dryer.



Drying
The residual solids are dewatered and then heated at a very high temperature (220°C).

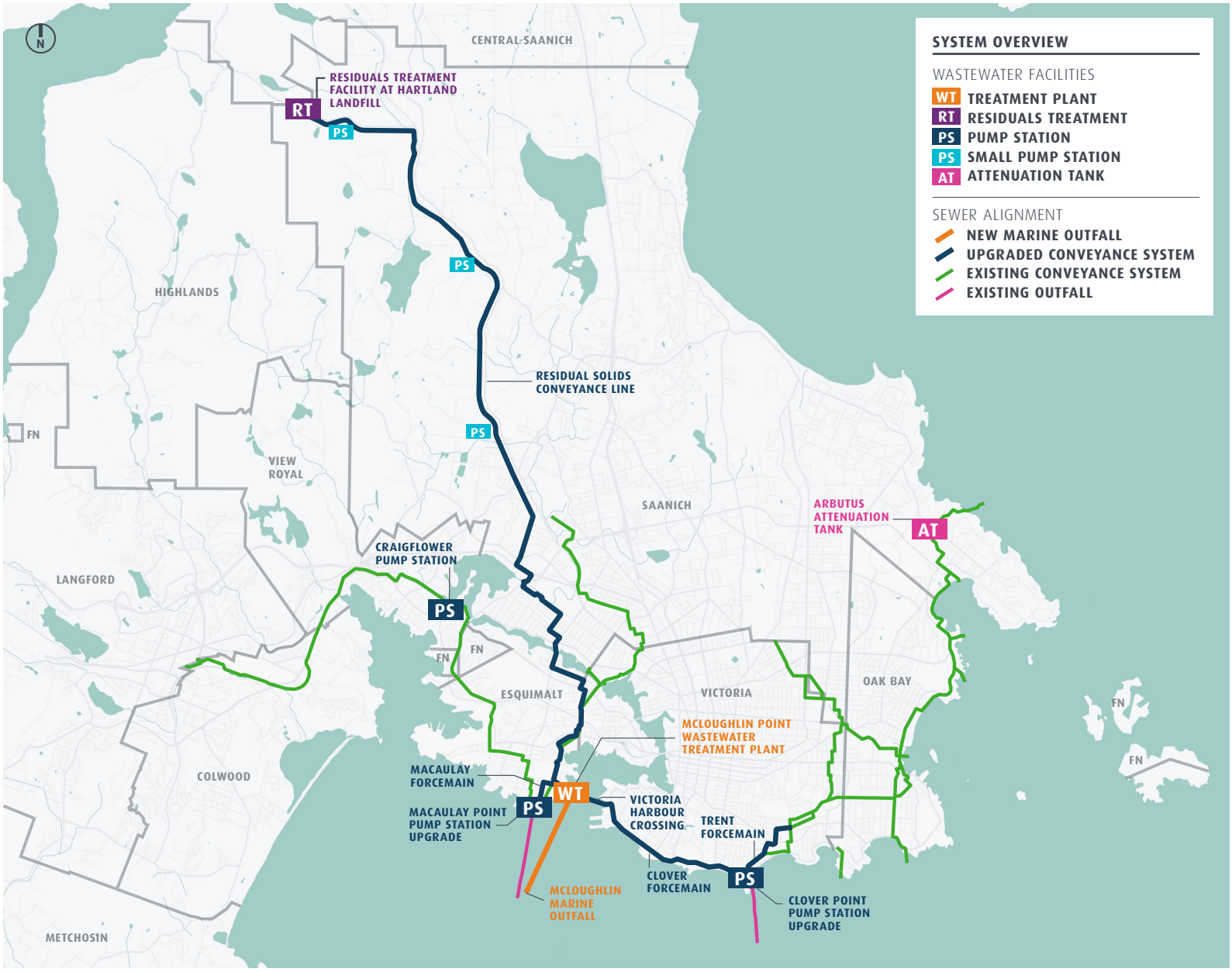


Biosolids
Dried Class A biosolids will be produced that will contain almost no detectable levels of pathogens. These are the highest standard of biosolids and are suitable for beneficial use. The biosolids will be dark, dry granular pellets.

Residual Solids Conveyance Line
Will consist of two pipes and three small pump stations to transport all residual solids to the Residuals Treatment Facility. Liquid removed from the residual solids during the treatment process will be returned to the McLoughlin Point Wastewater Treatment Plant through the conveyance system.

Wastewater Treatment Project Components

The Wastewater Treatment Project is being built to meet the provincial and federal regulations for treatment by December 31, 2020.



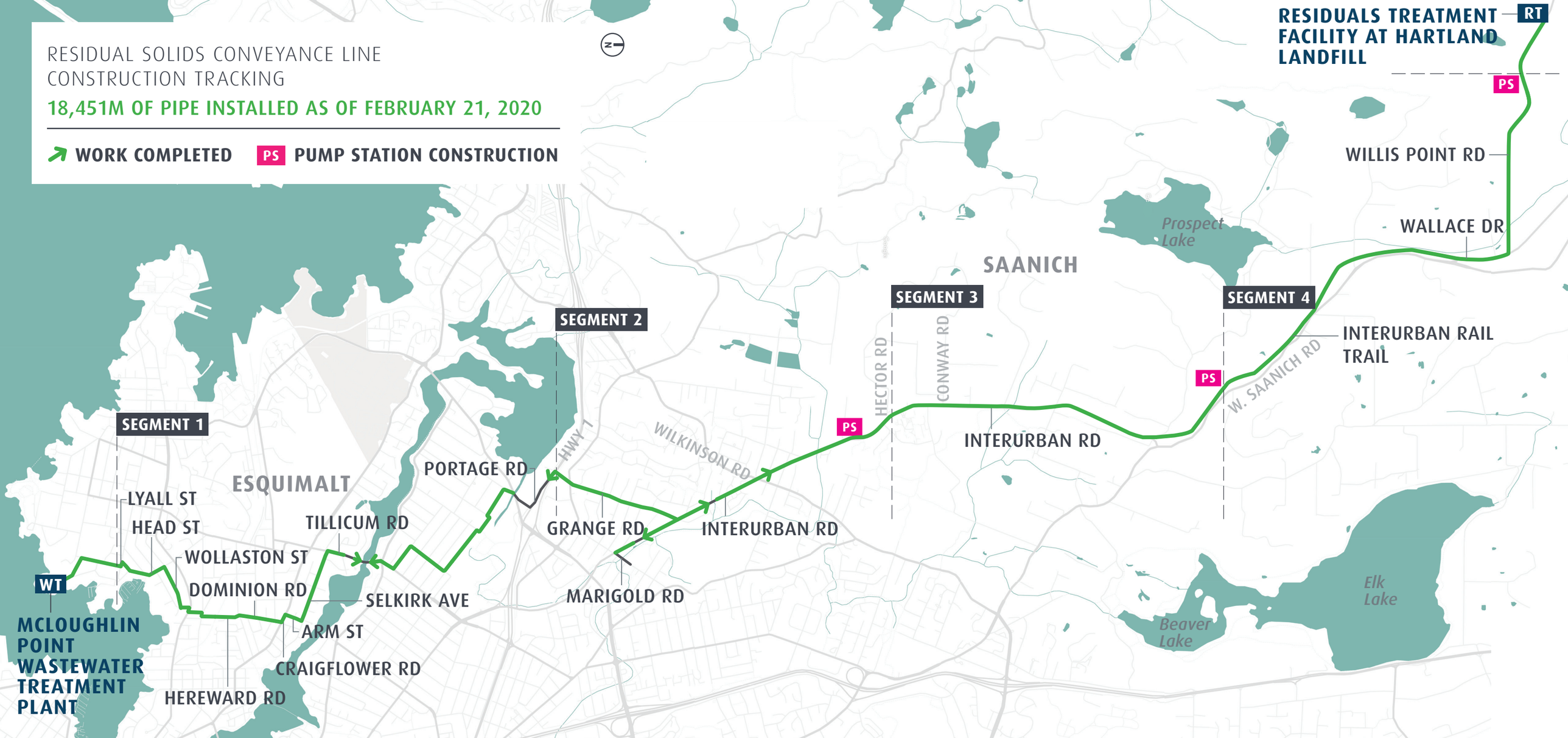
For more information

Website
wastewaterproject.ca

Email
wastewater@crd.bc.ca

24–7 Project information line
1.844.815.6132

Appendix F− Residual Solids Conveyance Line (February 21, 2020)


RESIDUAL SOLIDS CONVEYANCE LINE CONSTRUCTION TRACKING
18,451M OF PIPE INSTALLED AS OF FEBRUARY 21, 2020
WORK COMPLETED
PS PUMP STATION CONSTRUCTION
RESIDUALS TREATMENT FACILITY AT HARTLAND LANDFILL
RT
PS
WILLIS POINT RD
WALLACE DR
Prospect Lake
SAANICH
SEGMENT 3
SEGMENT 4
SEGMENT 2
SEGMENT 1
HECTOR RD
CONWAY RD
INTERURBAN RAIL TRAIL
W. SAANICH RD
INTERURBAN RD
WILKINSON RD
HWY 1
PORTAGE RD
GRANGE RD
MARIGOLD RD
ESQUIMALT
LYALL ST
HEAD ST
TILLICUM RD
WOLLASTON ST
DOMINION RD
SELKIRK AVE
ARM ST
CRAIGFLOWER RD
HEREWARD RD
WT
MCLOUGHLIN POINT WASTEWATER TREATMENT PLANT
Beaver Lake
Elk Lake

Appendix G− Monthly Cost Report (February)

MONTHLY COST REPORT
as at February 29, 2020

Description	BUDGET		COST EXPENDED					COMMITMENTS			FORECAST		VARIANCE	
	Control Budget	Allocated Budget	Expended to Janaury 31, 2020	Expended over reporting period (February 2020)	Expended to February 29, 2020	Expended to February 29, 2020 as a % of Allocated Budget	Remaining (Unexpended) Allocated Budget at February 29, 2020	Total Committment at February 29, 2020	Unexpended Commitment at February 29, 2020	Uncommitted Allocated Budget at February 29, 2020	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**	**272.4**	**5.1**	**277.5**	**85%**	**50.6**	**320.3**	**42.8**	**7.8**	**50.6**	**328.1**	**-**	**0%**
Construction	306.7	320.2	271.8	5.1	276.9	86%	43.3	319.7	42.8	0.5	43.3	320.2	-	0%
Contingency	14.9	1.0	-	-	-	0%	1.0	-	-	1.0	1.0	1.0	-	0%
Financing	9.8	6.9	0.7	-	0.7	9%	6.2	0.7	-	6.2	6.2	6.9	-	0%
Residuals Treatment Facility	**159.4**	**139.7**	**9.8**	**0.5**	**10.3**	**7%**	**129.4**	**138.7**	**128.4**	**1.0**	**129.4**	**139.7**	**-**	**0%**
Construction	145.4	138.7	9.8	0.5	10.3	7%	128.4	138.7	128.4	0.0	128.4	138.7	-	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	4%	0.8	0.0	0.0	0.8	0.8	0.8	-	0%
Conveyance System	**158.1**	**216.0**	**140.0**	**4.9**	**144.9**	**67%**	**71.1**	**194.5**	**49.6**	**21.4**	**71.1**	**216.0**	**-**	**0%**
Macaulay Point Pump Station	25.4	30.8	22.8	1.2	23.9	78%	6.8	30.8	6.8	0.0	6.8	30.8	-	0%
Macaulay Forcemain	5.6	7.4	6.4	0.1	6.5	87%	1.0	7.4	1.0	-	1.0	7.4	-	0%
Craigflower Pump Station	12.5	12.4	12.4	0.0	12.4	100%	-	12.4	-	-	-	12.4	-	0%
Clover Point Pump Station	23.7	27.4	24.0	0.3	24.3	89%	3.1	27.2	3.0	0.2	3.1	27.4	-	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	10.2	0.7	10.9	44%	13.6	23.1	12.1	1.5	13.6	24.6	-	0%
Clover Forcemain	14.6	32.5	27.0	0.4	27.5	85%	5.0	32.2	4.7	0.3	5.0	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	7.9	7.6	3.4	11.1	11.3	-	0%
Residual Solids Conveyance Line	19.1	35.8	29.4	1.2	30.5	85%	5.2	35.8	5.2	0.0	5.2	35.8	-	0%
Residual Solids Pump Stations & Bridge Crossings	4.6	18.6	6.7	1.1	7.7	42%	10.9	16.7	9.0	1.8	10.9	18.6	-	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	-	0.3	8%	3.7	0.3	-	3.7	3.7	4.1	-	0%
Project Management Office ("PMO")	**75.9**	**77.9**	**51.1**	**1.1**	**52.2**	**67%**	**25.7**	**68.4**	**16.2**	**9.5**	**25.7**	**77.9**	**-**	**0%**
Project costs Aug 2016-Dec 2016	2.2	2.2	2.2	-	2.2	100%	-	2.2	-	-	-	2.2	-	0%
Owner's Engineering	17.2	17.3	12.5	0.3	12.8	74%	4.5	17.3	4.5	-	4.5	17.3	-	0%
Conveyance Design	5.0	9.7	7.0	0.0	7.0	72%	2.7	8.0	1.1	1.6	2.7	9.7	-	0%
Advisors & Professional Support	7.0	15.0	9.8	0.0	9.8	65%	5.2	11.1	1.3	3.8	5.2	15.0	-	0%
Project Team & Project Board	31.3	24.5	15.2	0.7	15.9	65%	8.6	23.7	7.8	0.8	8.6	24.5	-	0%
CRD Allocations	3.4	3.4	2.3	0.1	2.4	69%	1.1	3.4	1.1	-	1.1	3.4	-	0%
Office, Supplies & Expenses	3.9	2.5	1.6	0.0	1.6	64%	0.9	2.0	0.5	0.4	0.9	2.5	-	0%
Computer Hardware, Software & Training	1.0	1.1	0.6	0.0	0.6	54%	0.5	0.6	-	0.5	0.5	1.1	-	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**	**3.5**	**0.2**	**3.7**	**45%**	**4.5**	**6.8**	**3.2**	**1.3**	**4.5**	**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**	**478.9**	**11.7**	**490.6**	**63%**	**284.4**	**730.9**	**240.3**	**44.1**	**284.4**	**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