



Wastewater Treatment Project

Treated for a cleaner future

CRD Wastewater Treatment Project

Monthly Report

Reporting Period: July 2019

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1 Executive Summary

1.1 Introduction

This monthly report covers the reporting period of July 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: monthly progress meetings with the independent certifier; marine outfall pipe floated into position and submerged; slab pouring in the Operations and Maintenance building, the heat recovery room and fine screen slab; electrical installation of panels and cabling in the Biological Aerated Filters (BAF) gallery.

The RTF Project Component is continuing with Hartland Resource Management Group (“HRMG” as the Design-Build-Finance-Operate Maintain contractor for the RTF) progressing design and construction activities including: completing the overall 100% design submission, permitting, and vendor selection; completion of Digester 1 erection, completion of formwork for the digester building, completion of structural steel erection at the residuals handling building, commenced equipment steel erection and equipment at the residuals drying facility; continued base preparation for the Water Storage Tank; and commenced base preparation for the Odour Control Facility.

The Conveyance System is anticipated to be 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, design and construction activities over the reporting period including: continued to finalize shop drawing reviews in advance of equipment deliveries; continued to assess outstanding design comments before submitting the final IFC package; received and placed the odour control unit; precast roof beams installed and the roof slab was poured; bridge crane was received and installed; and large bore process piping installation is ongoing.
- Macaulay Point Pump Station and Forcemain: Kenaidan Contracting Limited (“Kenaidan” as the Design-Build Contractor) progressed, design and construction activities over the reporting period including: installation of approximately 165 m (from Munro Street to Bewdley Ave) of forcemain; continued finalizing shop drawing reviews in advance of

equipment deliveries; continued assessment of outstanding design comments before submitting the final IFC package; ongoing forming and pouring of exterior walls and interior slabs; the second lift of concrete for the Vortex Degritter was poured.

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 installation of approximately 380m of forcemain (from South Turner St. to Olympia Avenue) and final water main connection at Dallas Road and Paddington Avenue; and installation of the transition chamber at Ogden Point.
- 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 approx. 2.7 km of RCSL pipes.
 - RSCL 200 Residual Solids Pump Stations (“RCSL 200”): Knappett Projects Inc. (“Knappett” as the Construction Contractor for the Residual Solids Pump Stations) continued construction activities including installation of 150m of pipes on Willis Road; and wet well barrels being delivered and placed.
- Arbutus Attenuation Tank (“ATT”): North American Constructors Ltd. (“NAC” as the Construction contractor for the Arbutus Attenuation Tank) commenced excavation of the tank area to prepare a working pad for the secant piling equipment, performed utility locates and confirmation of existing site services; and completed the dewatering wells and testing.
- Trent Forcemain: Stantec (as the design consultant for the Trent Forcemain) progressed the design process including: submission of the 70% design report and drawings, completion of the geotechnical report.

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 KPI’s over the reporting period. The safety KPI for the project and the conveyance system remains yellow. Over the reporting period 19 safety incidents occurred and the total recordable incident frequency increased from 1.5 at the end of the second quarter, 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 have approved an increase in the Projects budget by \$10M to \$775 M.

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.					Three minor environmental incidents occurred over the period: all were low-volume fluid leaks, (fluid was contained and none entered the environment)
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, RSCL sites and the Arbutus Attenuation Tank site.

19 safety incidents occurred during the month of July: 1 near-miss, 1 medical aid recordable, 3 first-aid, and 14 report-only. The incidents are summarized in Table 2.

Table 2: Safety Incidents over the Reporting Period

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
July 2, 2019	Clover Point PS	First Aid	Worker using a hand blower with a damaged safety guard and sustained hand injury	Worker's finger was bandaged and returned to work	Hand blower was immediately removed from service. Tool-box meeting to discuss proper inspection of tools and equipment prior to use
July 3, 2019	McLoughlin Pt WWTP	Report Only	Operator jarred their back while operating a boom forklift on uneven ground	Report-only as no First Aid treatment was provided.	Tool-box discussion: importance of awareness of surroundings when moving equipment on uneven ground
July 8, 2019	McLoughlin Pt WWTP	First Aid	Worker pinched finger between impact hammer handle and scissor lift rail	Workers finger was bandaged and returned to work.	Tool-box talk on safe work practice when using power tools and attention to task at hand
July 8, 2019	McLoughlin Pt WWTP	Report Only	Worker stepped on a boat and felt aggravation in their ankle.	Ankle was assessed, iced and worker returned to work	Worker reminded to be aware when accessing or egressing a boat
July 9, 2019	Clover Point PS	Medical Aid Recordable	A 4th year apprentice was drilling through wood when the drill bit caught and swung the tool bending two fingers backwards	Worker required Medical Aid. An X-Ray showed a break of the ring finger. Surgery was required to stabilize the bone. Worker returned on a Modified Work Program.	CRD Safety Notice issued to all Prime Contractor regarding the incident and an increase in hand injuries on project sites. Tool-box talk re: proper control and use of power tools Worker mentoring was also performed
July 15, 2019	RC SL200	Near Miss	Excavator operator accidentally knocked a rock which entered the trench striking formwork approximately 6 feet away from one of the workers.	Excavator operator was reminded not to work while any workers are beneath them	Tool-box with crew re: working in close proximity to heavy equipment.
July 15, 2019	RC SL100	Report Only	An operator was observed placing gravel into a trench contacting a worker.	There were no injuries as a result of this contact.	Excavator operator was reminded not to work while any workers are beneath them Employees to follow the instructions of the toolbox talk of no workers working below excavator

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
July 16, 2019	RCSL100	Report Only	A Traffic Control Person (TCP) was observed riding inside the cab of a backhoe seated next to the driver with the door closed.	Passengers are not permitted to ride in heavy equipment as per WorkSafeBC Regulations.	Tool-box talk to bring awareness to crew in regards to transportation of passengers
July 17, 2019	RCSL200	Report Only	A member of the public disobeyed Traffic Control Person and attempted to enter a closed lane in oncoming traffic at excessive speed..	TCP along with Sub Contractor deescalated situation by talking to the member of the public	Tool-Box talk reviewed protocol in dealing with aggressive/dangerous members of the public.
July 19, 2019	RTF	Report Only	Telehandler struck a pipe stub, high visibility marking had worn off making pipe difficult to see.	Pipe stub was repaired Pipe was marked for better visibility	Tool-box talk in regards to using spotter when backing equipment and the proper marking of utilities
July 22, 2019	McLoughlin Pt WWTP	Report Only	Worker sustained a hand injury while trying to remove a wooden brace from a concrete slab.	Injured finger was bandaged and they returned to work.	Tool-box talk on correct hand positioning while using tools
July 23, 2019	AAT	Report Only	Excavator was clearing and grubbing the site and inadvertently struck an existing asbestos manhole.	Manhole had been flagged but operator missed the marking.	Scope of work reviewed with Sub-Contractor to ensure warning signs and directions are followed Area was secured with asbestos warning tape Asbestos material was bagged for disposal Material taken to approved disposal facility
July 24, 2019	RCSL100	Report Only	Worker in a trench on a hot day felt dizzy and sick while climbing out of the trench at the end of the day	First Aid Attendant provided icepacks and water to cool worker and sat worker in the shade. Possible Heat Stress	Tool-box talk with crew re: working in the heat and the signs and symptoms of heat stress
July 24, 2019	McLoughlin Pt WWTP	Report Only	Worker was leaving lunch trailer, top step detached from fasteners when worker stepped on it	Worker slipped, but did not fall	Stair was fixed immediately, all other stairs on staircase checked and refastened Inspection of all other stairs and handrail on site was performed
July 25, 2019	RCSL100	Report Only	Operator driving a water truck struck a hydro pole while reversing	Hydro lines contacted tree branches, creating a fire hazard. Fire Department and Hydro were called as a precaution.	Tool-box talk held and emphasis placed on using a spotter when backing
July 25, 2019	RCSL100	First Aid	A Traffic Control Person tripped over asphalt lip of a trench cut and fell forward	Worker felt pain in ribs and knee was bruised; injuries were assessed by the First Aid Attendant, no first aid was rendered. Worker went to Medical Aid for a further assessment but no further treatment was required	Tool-box talk held to remind workers to access the work area and always be mindful of uneven ground conditions.
July 25, 2019	RCSL100	Report Only	Resident reversed their car into a stationary excavator.	There was minor damage to the car but no injuries.	Tool-box talk held to remind the crew to park in an area as visible as possible.

Date	Work Site	Incident Type	Description	Outcome	Corrective Action Taken
July 25, 2019	McLoughlin Pt WWTP	Report Only	A tug fouled on a log while avoiding a crab trap. This resulted in damage to the tug's stabilizing system	The towline placed extra stress on a control valve causing an air leak	Air valve was replaced Extra caution to be used on the water when towing loads for hidden obstacles that may be encountered
July 29, 2019	RCSL100	Report Only	Water service on Grange Road was struck by an excavator causing a water leak.	Saanich water services called to repair	Locates were in place, water service was not marked

Key safety activities over the period:

- CRD prime contractor safety quality assurance audit with HRMG at the Residuals Treatment Facility;
- safety quality assurance audit with Windley on the Clover Forcemain;
- bi-weekly project update meetings with prime contractors: Kenaidan, Windley, Don Mann, HRP, Knappett and NAC;
- weekly project update meetings with prime contractor HRMG;
- incident investigations review;
- sent out a "Hand Safety" and a "Safety Recall" notice;
- reviewed site specific safety plans and high risk tasks; and
- WTP Safety Manager and/or Construction Manager conducting regular site inspections at all active Project work sites.

Table 3: WTP Safety Information

	Reporting Period (July 2019)	Project Totals
Person Hours		
PMO	3 993	110 377
Project Contractor	96 698	887 505
Total Person Hours	100 691	997 882
PMO	32	
Project Contractors (& Project Consultants) working on Project Sites	529	
Total Number of Employees	561	
Near Miss Reports	1	27
High Potential Near Miss Reports	0	4
Report Only	14	70
First Aid	3	29
Medical Aid	1	3
Medical Aid (Modified Duty)	0	2
Lost Time	0	3
Total Recordable Incidents	1	8
		Project Frequency (from January 1, 2017)
First Aid Frequency		5.8
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.

Key environmental management activities completed in July included:

- McElhanney Consulting Services (as the qualified environmental professional for Knappett, the Construction Contractor for Residual Solids Pump Stations) completed planning related to reducing impacts on fish during construction of the Colquitz River crossing. This included developing fish salvage and water quality monitoring plans;
- McElhanney Consulting Services (as the qualified environmental professional for Don Mann, the Construction Contractor for Residual Solids Pipes) completed reporting on potentially contaminated soils along the RSCL alignment; and

- Lorax Environmental Services (the CRD's dispersion modelling consultant) completed modelling of the predicted effluent plumes from the outfalls at McLoughlin, Clover and Macaulay points. The modelling built on previous work and is being used by HRP (the Design-Build Contractor for the McLoughlin Point WWTP) and Stantec in the Outfall Environmental Impact Study and Overflow Environmental Impact Study that will form the bulk of the MWR Registration.

Over the reporting period, there were three minor environmental incidents:

- On July 17, Don Mann (as the Construction Contractor for the Residual Solids Pipes) had an unsecured jerry can of diesel fuel tip over in the back of a pick-up truck, with some of the fuel leaking out the tail gate. The volume released was less than 5 litres, and was therefore not reportable to authorities. The spill was contained to the gravel surface of Interurban Trail, and spill pads were used to absorb the fuel. The spill pads were disposed of at an appropriate facility. No fuel entered the environment.
- Also on July 17, Windley Contracting (the Construction Contractor for the Clover Forcemain) had hydraulic fluid leak from a dump truck. The volume released was approximately 10 litres, and was therefore not reportable to authorities. The hydraulic fluid was contained to the gravel on the cycle track and was immediately contained and removed from site for disposal at an approved facility. No hydraulic fluid entered the sewer system or environment.
- On July 23, Don Mann had a hydraulic leak from an excavator. The volume released was less than 5 litres, and was therefore not reportable to authorities. The spill was contained to the gravel surface of Interurban Trail, and spill pads and were used to absorb the hydraulic fluid. The spill pads were disposed of at an appropriate facility. No hydraulic fluid entered the environment.

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 July included:

- McElhanney Consulting Services (as the qualified environmental professional for Knappett, the Construction Contractor for Residual Solids Pump Stations) applied for fish salvage permits to allow for the salvage of fish from the Colquitz River prior to construction of the crossing; and
- The CRD, Stantec and HRP continued to complete deliverables for the MWR Registration, for submission to the BC Ministry of Environment and Climate Change Strategy (ENV).

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. The anticipated date for the Municipal Wastewater Regulation Registration was changed from Q4 2019 to Q1 2020 since the Q2 2019 Quarterly 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	On Track	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	On Track	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 McLoughlin Point.

An artist has been selected to build a Chief Chair for the Macaulay point site. The Chief Chair is a decorative bench that honours the memory of Chief Andy Thomas and other Kosampson Chiefs of the Esquimalt Nation.

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

In June the CRD shared a Technical Assessment Report that was prepared by Hartland Resource Management Group (the Design-Build-Finance-Operate-Maintain Contractor for the RTF) with each of the Esquimalt, Malahat, Paquachin, Songhees, Tsartlip, Tseycum and Tsawout Nations, and offered to meet to review: the report findings, any other aspects of the construction and operation of the RTF, or the plan for the beneficial use of the biosolids that will be produced.

In July the WSÁNEĆ Leadership Council accepted the CRD's offer and asked that the CRD present to the WSÁNEĆ Technical Advisory Committee. The meeting is currently being scheduled.

Additionally, the WSÁNEĆ Leadership Council requested a meeting with the CRD to discuss cultural monitoring during construction of the RSCL. This meeting is also in the process of being scheduled.

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 and updates were issued to stakeholders in the reporting period:

- Residual Solids Conveyance Line: Esquimalt Update (July 4, 2019) (Appendix A);
- Clover Forcemain: Dallas Road Temporary Closure (July 9, 2019) (Appendix B); and
- Trent Forcemain: Utility Locating (July 31, 2019) (Appendix C).

The Project Team hand delivered these construction notices in the community: Residual Solids Conveyance Line (250 residences in Esquimalt); Clover Forcemain (172 residences and multiple apartment buildings in James Bay); and Trent Forcemain (168 residences and businesses in the Fairfield community). A letter regarding parking in James Bay was also delivered to 126 local residents in advance of construction work in their neighbourhood.

In addition, one information sheet was posted to the Project's website:

- Esquimalt Summer Truck Route (Appendix D)

As well, Project Update #7 was distributed (Appendix E) in the month of July. This update summarised Project progress and included a description of public amenities to be completed along Dallas Road. The update was posted to the Project website, CRD Twitter account, and distributed by email to more than 730 residents and stakeholders who have signed up to receive Project updates.

Project Website

Over the reporting period, the Project website, wastewaterproject.ca, was updated with information about the Project. Three construction notices and updates, one information sheet and Project Update #7 were posted. The photo gallery section was updated with additional photos. Maps showing the progress of construction along the Clover Forcemain (Appendix F) and the Residual Solids Conveyance Line (Appendix G) were updated regularly. The CRD's Twitter and Facebook accounts were used to provide Project updates on construction activities.

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;
- District of Saanich Staff;
- District of Saanich Technical Working Group;
- Greater Victoria Harbour Authority;
- James Bay Neighbourhood Association;

- Tourism Victoria;
- Township of Esquimalt Liaison Committee; and
- Township of Esquimalt Staff.

Public Inquiries

Table 5 – Project Inquiries- July 2019

Inquiry Source	Contacts for July
Information phone line inquiries	39
Email inquiries responded to	17

Key themes of the public inquiries were as follows:

- Increased traffic on side streets due to Project construction;
- Questions about truck traffic and the Traffic Management Plan in Esquimalt;
- Questions about final restoration and paving; and
- Inquiries about parking options in James Bay.

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 July. 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.

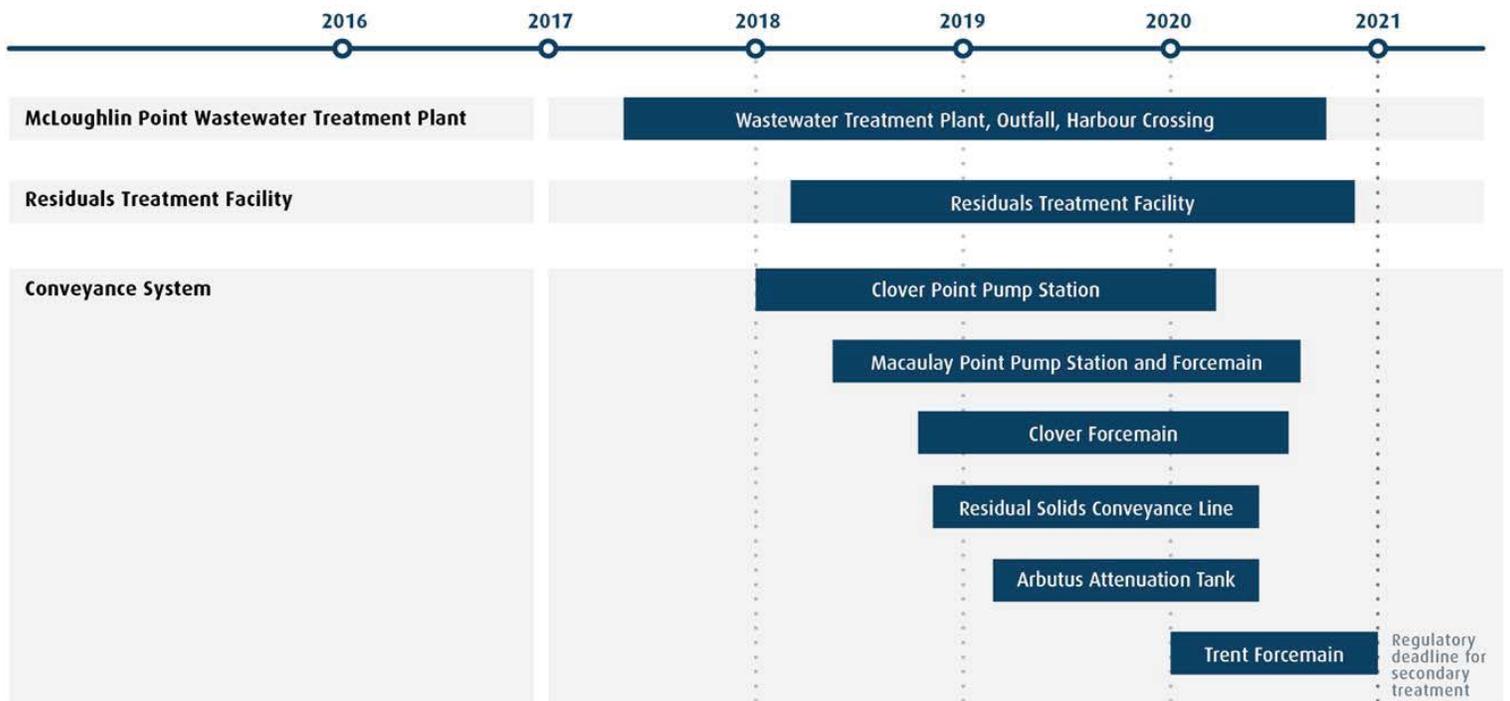
Figure 1 shows the high-level Project schedule. This schedule remains the same as that shown in the Q2 2019 Quarterly Report, however the schedule remains subject to optimization as the Project progresses.

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 (August) are outlined below by function

Safety

- CRD prime contractor safety quality assurance close out audit with the Clover Forcemain Prime Contractor;
- CRD Prime Contractor safety quality assurance audit close out with the Residuals Treatment Facility Prime Contractor;
- 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;
- 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 to submit an application to ENV for MWR Registration of the Project

First Nations

- ongoing meetings with the Esquimalt and Songhees Liaisons; and
- procurement of Indigenous art for placement at Clover Point and McLoughlin Point.

Stakeholder Engagement

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

Cost Management and Forecast

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

Construction

McLoughlin Point

- complete installation of remaining planter and tsunami wall sections;
- install pig receiving chamber;
- continue concrete walls and suspended slabs in all areas;
- install supports for walkways and equipment;
- continue installation of building mechanical exhaust fans and unit heaters;
- install storage tanks in tertiary pump room;
- install electrical room roofing and cladding;
- install electrical room heating, ventilation, and air conditioning (HVAC);
- construct generator, switchgear and transformer foundations;
- install generator;

- construct Operations and Maintenance (O&M) exterior concrete masonry walls;
- install O&M interior steel stud framing;
- commence installation of drywall and suspended ceilings; and
- install anchor protection on marine outfall.

Clover Point Pump Station

- install south exterior retaining walls;
- install concrete pipe supports in pump room;
- install catwalks and stairs in pump room;
- install platform, grating and ladder for wet wells;
- install wet well epoxy liner;
- place sewage pumps;
- install process piping to wet well suction spools;
- install motor control center (MCC), automatic transfer switches (ATS), and switchgear;
- pull electrical cabling; and
- pull instrumentation and controls cabling.

Macaulay Point Pump Station

- continue forming, rebar and pouring walls and suspended slabs;
- continue installation of forcemain;
- install metal platforms, walkways and stairs; and
- install process piping.

Residuals Treatment Facility

- form and pour concrete slab for Water Storage Tank, Odour Control Facility, and Digester Building;
- complete digester 2 erection;
- complete Digested Solids Storage Tank erection;
- install stairs, handrails and commence mechanical piping in the Other Municipal Solids Receiving Building;
- install equipment in the Residuals Handling Building;
- commence installation of cladding, doors and roof at the Residuals Handling Building;
- install stairs and railing in the Residuals Drying Facility;
- place all level 3 and 4 dryer equipment structural steel in the Residuals Drying Facility; and
- commence installation of level 3 and 4 dryer equipment in the Residuals Drying Facility.

Clover Forcemain

- continue installation of forcemain between Douglas Street and Government Street;
- construct cycle track from Clover Point working west;
- commence installation of transition tie-in to under harbour pipe; and
- continue concrete curb and gutter, sidewalks and asphalt road restoration.

Residual Solids Conveyance Line

- continue installation of RSCL on Head Street (between Wollaston and Peters Streets);
- continue installation of RSCL along Interurban Trail;
- continue installation of RSCL along Grange Road (from Burnside to Interurban Roads);
- continue installation of RSCL along Interurban Road towards Goward Road; and
- continue with restoration of asphalt pavement and concrete curb, gutters and sidewalks.

Residual Solids Pump Stations and Bridge Crossings (RCSL 200)

- continue installation of RSCL on Willis Point Road (from RTF site to pump station 2);
- install scaffolding at Tillicum bridge crossing;
- install pipe at Colquitz Creek crossing; and
- continue substructure construction at pump station #1.

Arbutus Attenuation Tank (AAT)

- install dewatering system;
- commence excavation to facilitate secant pile installation;
- mobilize secant pile drilling contractor to site; and
- commence primary and secondary pile drilling.

Engineering

McLoughlin Point WWTP

- submit detailed Training Plan.

Clover Point Pump Station (CPPS)

- finalise Issue for Construction(IFC) submission.

Procurement

Trent Forcemain

- Prepare draft Issued for Tender procurement package.

2.6.2 60 Day look ahead

Key activities and milestones for the next 60 days (September) 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;
- 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; and
- incident reporting review with prime contractors at active work locations.

Environment and Regulatory Management

- CRD to meet with ENV to discuss MWR Registration application and determine if ENV requires any additional information or clarifications.

First Nations

- ongoing meetings with the Esquimalt and Songhees Liaisons; and
- procurement of Indigenous art for placement at Clover Point and McLoughlin Point.

Stakeholder Engagement

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

Cost Management and Forecast

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

Construction

McLoughlin Point

- continue concrete walls and suspended slabs in all areas;
- continue installation of bypass piping;
- continue installation of cable trays;
- install steel supports for walkways and equipment;
- install exhaust fans and unit heaters in secondary treatment;
- install process equipment in BAF area;
- install pipe rack and backwash air piping header in BAF gallery;
- install structural steel and deck in blower and heat recovery rooms;
- install boilers and buffer tank in heat recovery room;
- install Ferric Chloride storage tanks in level one tertiary pump room;
- install programmable logic controllers, interior switchgear, variable frequency drives and Air Conditioning units in the electrical room;
- install doors and miscellaneous metal works in the electrical room;

- install exterior transformers and switchgear; and
- install exterior doors, steel stud framing and construct interior masonry walls.

Clover Point Pump Station

- commence installation of 1200 mm forcemain;
- place storm water pumps;
- install and test bypass pumping system;
- re-instate seawall walkway;
- install screening area bin room walls and suspended slab;
- commence installation of exterior north retaining walls;
- commence installation of check valves, knife gate valves in pump room;
- install air handling unity;
- commence installation of discharge piping; and
- commence installation backwash and surge piping.

Macaulay Point Pump Station

- continue forming, rebar and pouring walls and suspended slabs;
- commence installation of wet well, pump room, and screen room platforms and walkways;
- install discharge header;
- install slide gates in effluent channels;
- continue installation of forcemain at Bewdley Street between Anson St. and Peters St; and
- re-instate asphalt and concrete curbs on Anson Street.

Residuals Treatment Facility

- form and pour concrete slab for digester 3;
- prepare base for Admin Building;
- continue curb installation in Residuals Drying Facility;
- form and pour concrete slab for Water Pump House;
- continue installation of cladding, doors and roof at the Residuals Handling Building; and
- commence erection of residual effluent holding tank and fire/potable water tank.

Clover Forcemain

- paving of the cycle path;
- complete installation of transition tie-in to under harbour crossing pipe;
- clear and grub cycle track at foot of Douglas Road; and
- curb and gutter installation and base course paying from Douglas Road to Clover Point.

Residual Solids Conveyance Line

- continue installation of RSCL at Craigflower Road and Arm Street to Selkirk Ave;
- continue installation of RSCL on Interurban Road between Grange Rd and Roy Rd;
- continue installation of RSCL on Grange Road from Lavender Ave to Interurban Rd; and
- continue installation of RSCL on Interurban Road from Hector Rd. to Camosun College.

Residual Solids Pump Stations and Bridge Crossings (RCSL 200)

- continue installation of RSCL on Interurban Road from Grange Road to Marigold Road;
- commence set up and installation of the Residual Solids Forcemain at the Tillicum Bridge Crossing;
- continue with construction of pump station 2 and 3;
- commence construction of pump station 1; and
- continue with the Hartland reservoir and waterman.

Arbutus Attenuation Tank (AAT)

- continue drilling and installation of secant pile wall
- commence installation of sanitary piping and manholes
- installation of temporary overflow chamber

Engineering

McLoughlin Point WWTP

- finalise Control System Programming Plan.

Residual Solids Conveyance Line (RSCL)

- RSCL 300 Saanich infrastructure improvements: Initiate formal kick off / coordination with District of Saanich.

Procurement

Trent Forcemain

- Issue Invitation to Tender

2.7 Cost Management and Forecast

The monthly cost report for July is attached as Appendix H. 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. Appendix H includes the approved \$10M increase to the current budget.

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 \$3.7M. The significant commitments made in the reporting period were contract change orders and the approval of provisional items in contracts.

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 of \$711,464 were made over the reporting period, as itemized in Table 6. The draws to-date and remaining contingency and program reserve balance 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 June 30, 2019		\$(55,974,491)
Contingency and Program Reserve addition (May 2019)		\$ 10,000,000
Contingency and Program Reserve balance as at June 30, 2019		\$ 23,343,560
McLoughlin WWTP - Cable and Wire Tagging Standard	Jul-19	\$ (19,844)
WWTP Total Draw		\$ (19,844)
RTF Total Draw		\$ -
Macaulay Pump Station - Supply of Mount Transformer with DNP3 Communications	Jul-19	\$ (220,154)
Macaulay Pump Station - Replacement of Inlet Piping	Jul-19	\$ (391,153)
Macaulay Pump Station - Cable and Wire Tagging Standard	Jul-19	\$ (46,471)
Clover Pump Station - Cable and Wire Tagging Standard	Jul-19	\$ (33,842)
Conveyance Total Draw		\$ (691,620)
PMO Total Draw		\$ -
BC Hydro Total Draw		\$ -
WTP Program Reserve Draw		\$ -
Contingency and Program Reserve draws in the reporting period		\$ (711,464)
Total Contingency and Program Reserve Draws to July 31, 2019		\$(56,685,955)
Contingency and Program Reserve balance as at July 31, 2019		\$ 22,632,096

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 Government of British Columbia cannot be claimed until relevant Project components are substantially complete, which is scheduled to occur in 2020. The timing for the receipt of part of the funding from the Government of British Columbia was brought forward over the reporting period, with \$62 million to be paid by March 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	-	\$61.3M
Government of Canada (Green Infrastructure Fund)	\$50M	\$ 1.1M	\$23.2M
Government of Canada (P3 Canada Fund)	\$41M	-	-
Government of British Columbia	\$248M	-	-
Federation of Canadian Municipalities	\$346K	-	-
TOTAL	\$459.3M	\$1.1M	\$84.5M

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 Q2 2019 Quarterly 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 is using a single Owner's engineer (Stantec) to develop the indicative design for all critical project components with significant interfaces.	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.	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.	H	No change
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.	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
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.	M	No Change
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.	M	No change

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

2.9 Status (Engineering, Procurement and Construction)

2.9.1 Wastewater Treatment Plant (McLoughlin Point WWTP)

The WWTP Project Component is continuing with Harbour Resource Partners (“HRP” as the Design-Build Contractor for the McLoughlin Point WWTP) progressing: monthly progress meetings with the independent certifier; marine outfall pipe floated into position and submerged; slab pouring in the Operations and Maintenance building, the heat recovery room and fine screen slab; electrical installation of panels and cabling in the Biological Aerated Filters (BAF) gallery.

Engineering

HRP held monthly progress meetings with the Independent Certifier during the reporting period.

Construction

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

- marine outfall pipe floated into position and submerged;
- heat recovery room slab pour;
- electrical room structural steel erection;
- Biological Aerated Filters (BAF) topping pours commenced;
- BAF Influent and Effluent Channels completed;
- recommenced concrete work in Tertiary;
- Operations and Maintenance building (O&M) 2nd story slab poured;
- electrical installation of panels and cabling in BAF gallery;
- fine screen slab poured;
- primary walls continued all slabs completed;
- bypass piping installed; and
- installation of forcemain pipe in Patricia Way is ongoing.

Photographs of construction progress at McLoughlin Point are shown in Figures 2-6.



Figure 2- McLoughlin Point Wastewater Treatment Plant- Floating the marine outfall into place prior to submerging.



Figure 3- McLoughlin Point Wastewater Treatment Plant- Cable tray hangers in electrical room.

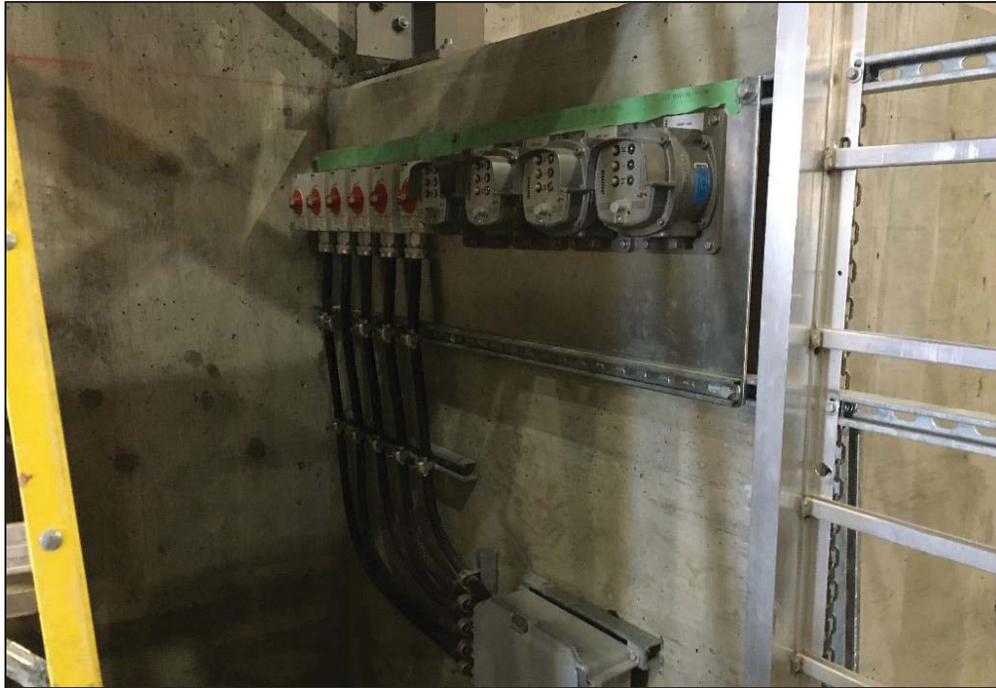


Figure 4- McLoughlin Point Wastewater Treatment Plant- Installed panels and junction boxes in the Biologic Aerated Filters gallery.

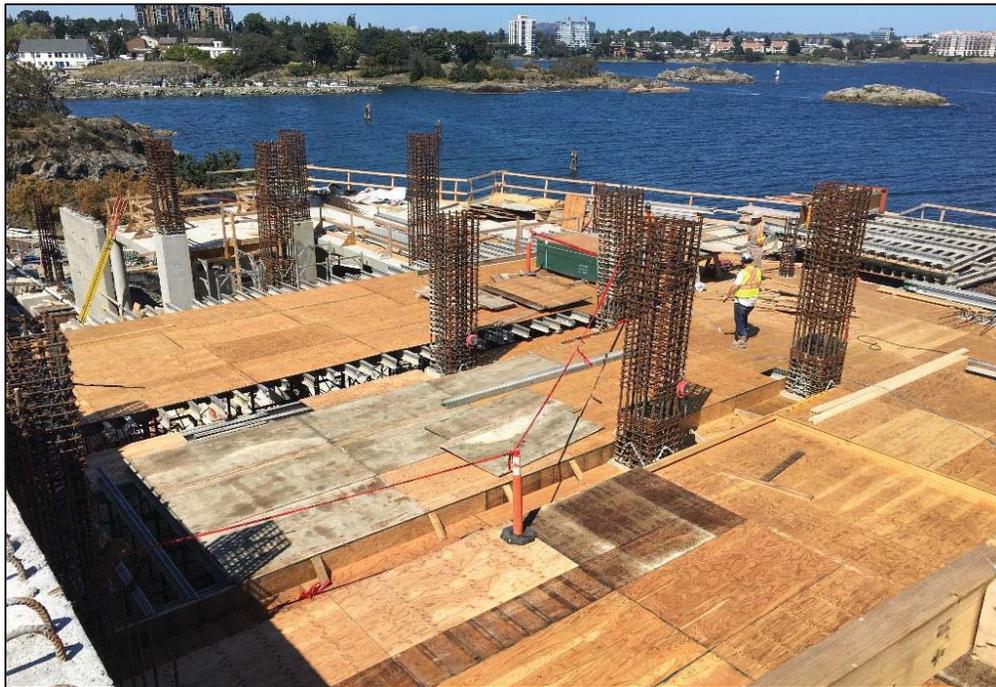


Figure 5- McLoughlin Point Wastewater Treatment Plant- Decking of the operations and maintenance building second story slab soffit.



Figure 6- McLoughlin Point Wastewater Treatment Plant- Forming columns of the third level suspended slab.

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 design and construction activities during the reporting period including: completing the overall 100% design submission, permitting, and vendor selection; completion of Digester 1 erection, completion of formwork for the digester building, completion of structural steel erection at the residuals handling building, commenced equipment steel erection and equipment at the residuals drying facility; continued base preparation for the Water Storage Tank; and commenced base preparation for the Odour Control Facility.

Engineering

HRMG progressed planning and design activities during the reporting period including:

- completion of the final (100%) design submission;
- monthly progress meetings with independent certifier; and
- submitted amended building permit architectural drawings to the District of Saanich.

Construction

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

- completion of digester 1 erection;
- continued erection of digester 2;
- continued erection of Digested Solids Storage Tank;
- completed formwork for the Digester Building base slab;
- continued installation of process mechanical piping in Other Municipal Solids Receiving Facility;

- completed structural steel erection at the Residuals Handling Building;
- commenced equipment installation at the Residuals Handling Building;
- continued equipment steel erection and equipment installation at the Residuals Drying Facility;
- poured concrete foundations for Residuals Effluent Storage Tank and Equalization Building;
- continued reinforcing steel installation for the foundation slab of the Water Storage Tank;
- continued base preparation for the Water Storage Tank; and
- commenced base preparation for the Odour Control Facility.

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



Figure 7- Residuals Treatment Facility- Residual drying facility mechanical equipment installation.



Figure 8– Residuals Treatment Facility- Residual Handling Building structural steel installation: roof bracing installation on-going.



Figure 9– Residuals Treatment Facility- Site photo showing progress on Residuals Handling Building and Dryer Building.



Figure 10– Residuals Treatment Facility- Site photo showing progress of Digester #2, Digester Equipment Building and Digested Solids Storage Tank.

2.9.3 Conveyance System

2.9.3.1 Clover Point Pump Station

Kenaidan Contracting Limited (“Kenaidan” as the Design-Build Contractor) progressed, design and construction activities over the reporting period including: continued to finalize shop drawing reviews in advance of equipment deliveries; continued to assess outstanding design comments before submitting the final Issued For Construction (IFC) package; received and placed the odour control unit; precast roof beams installed and the roof slab was poured; bridge crane was received and installed; and large bore process piping installation is ongoing.

More specifically, key construction activities in progress or completed by Kenaidan over the reporting period were as follows:

- received and placed variable frequency drives, automatic transition switches, motor control centres, and switchgear;
- received and placed the odour control unit on the equipment pad;
- electrical feeder cable conduit installed to the transformer;
- installation of pipe supports and platforms is ongoing;
- concrete finishing, crack injection and sandblasting of the wet wells and channel is ongoing;
- precast roof beams installed and the roof slab was poured;
- bridge crane was received and installed; and
- large bore process piping installation is ongoing in the pump room.

Photographs of construction progress at Clover Point are shown in Figures 11-14.



Figure 11–Clover Point Pump Station- Roof slab concrete pour.



Figure 12–Clover Point Pump Station- Concrete cutting of the passageway into the existing pump station.



Figure 13–Clover Point Pump Station- Upper pump room.



Figure 14–Clover Point Pump Station- Electrical room.

2.9.3.2 Macaulay Point Pump Station and Forcemain

Kenaidan Contracting Limited (“Kenaidan” as the Design-Build Contractor) progressed, design and construction activities over the reporting period including: continued finalizing of shop drawing reviews in advance of equipment deliveries; continued assessment of outstanding design comments before submitting the final IFC package; installation of approximately 165 m (from Munro Street to Bewdley Ave) of forcemain; ongoing forming and pouring of exterior walls and interior slabs; the second lift of concrete for the Vortex Degritter was poured.

More specifically, key construction activities in progress or completed by Kenaidan over the reporting period were as follows:

- forming and pouring of exterior walls and interior slabs is ongoing;
- construction of pump room housekeeping pads is ongoing;
- the second lift of concrete for the Vortex Degritter was poured;
- washroom plumbing installed and tested; and
- forcemain progressed 165m on Anson Street from Munro Street to Bewdley Ave, providing for a total installed length to the end of July of 345m.

Photographs of construction progress at Macaulay Point are shown in Figures 15-17.



Figure 15–Macaulay Point Pump Station- Backfilling and compacting forcemain trench with native material.



Figure 16–Macaulay Point Pump Station- Installing vertical form work around vortex degritter.



Figure 17–Macaulay Point Pump Station- Fusion welding sections of high density polyethylene pipe on Anson Street.

2.9.3.3 Clover Forcemain (CFM)

Windley Contracting Ltd. (“Windley” as the Construction Contractor) continued construction activities including installation of approximately 380m of forcemain (From South Turner St. to Olympia Avenue) and final water main connection at Dallas Road and Paddington Avenue; and installation of the transition chamber at Ogden Point.

More specifically, key construction activities in progress or completed by Windley over the reporting period were as follows:

- advanced the forcemain 380m from South Turner Street to Olympia Ave;
- installed transition chamber at Ogden Point;
- completed final water main connection at Dallas Road and Paddon Avenue including residential service transfers;
- constructed cycle track base from Clover Point; and
- installed air relief chambers #2 and #3.

Photographs of construction progress on the Clover Forcemain are shown in Figures 18-21.



Figure 18–Clover Forcemain- Weld-Neck Flange welded and foundation and lower section of transition chamber installed.



Figure 19–Clover Forcemain- Trenching advanced through Holland Point Park (Yacht Pond)



Figure 20–Clover Forcemain-- Streetlight Base and underground electrical ducting installed (Dallas at Cook St.).



Figure 21–Clover Forcemain-Cycle Track Base Preparation (Clover Point).

2.9.3.4 Residual Solids Conveyance Line

The RCSL is being delivered through three construction contracts:

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

RCSL 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 approx. 2.7 km of pipes at the following locations:

- Segment #1: Wollaston St. to Head St; and Head St. to Dunsmuir Rd;
- Segment #2: Grange Road from Lavender Ave to Violet Ave;
- Segment #3: Interurban Trail from Goward Road working North; and Quayle Road working North towards Goward Road; and
- Segment #4: Interurban trail from Wallace Drive to Hartland Ave.

Photographs of construction progress on the Residual Solids Conveyance Line are shown in Figures 22-25.



Figure 22–Residual Solids Conveyance Line- Backfilling and compaction at Interurban Trail segment 4 between Wallace Drive and Hartland Ave.



Figure 23–Residual Solids Conveyance Line- Prepping for base asphalt in segment 3 Interurban Road between Quayle Road and Goward Road.



Figure 24–Residual Solids Conveyance Line- Ductile iron residual solids forcemain being installed in Segment 2, Grange Road between Violet Ave and Gardenia Court.



Figure 25–Residual Solids Conveyance Line- Installing residual solids forcemain pipe in Segment 1, Head Street at Dunsmuir Road.

RCSL 200 Residual Solids Pump Stations: Knappett Projects Inc. (“Knappett” as the Construction Contractor for the Residual Solids Pump Stations) continued construction activities including installation of 150m of pipes on Willis Road; wet well barrels being delivered; and placed.

Key construction activities by Knappett Projects Inc. in July were as follows:

- wet well barrels were received at pump station #2 and #3;
- wet well barrel placed on concrete pad foundation and anchored and grouted; and
- crusher was mobilized to Hartland landfill site and crushed the blast rock from pump station #3;

Photographs of construction progress on the Residual Solids Pump Stations are shown in Figures 26-28.



Figure 26–Residual Solids Conveyance Line- Placing and finishing non shrink grout around pump station 3 wet well.



Figure 27 –Residual Solids Conveyance Line- Break rock in the trench at Willis Point Road



Figure 28–Residual Solids Conveyance Line- Setting up to fuse high density polyethylene pipe at pump station 2, Interurban Trail.

2.9.3.5 Arbutus Attenuation Tank

NAC Constructors Ltd. (as the Construction Contractor for the Arbutus Attenuation Tank) commenced excavation of the tank area to prepare a working pad for the secant piling equipment, performed utility locates and confirmation of existing site services; and completed the dewatering wells and testing.

Construction

- removed trees in the site trailer compound area;
- set up site trailer compound;
- commenced excavation in tank area to prepare a working pad for the secant piling equipment;
- performed utility locates and confirmation of existing site services;
- mobilized secant drilling contractor to site;
- dewatering system mobilized to site and set up; and
- dewatering wells drilled and dewatering test conducted.

Photographs of construction progress at the Arbutus Attenuation Tank are shown in Figures 29-31.



Figure 29–Arbutus Attenuation Tank- Daylighting existing utilities



Figure 30– Arbutus Attenuation Tank - Drilling dewatering test wells



Figure 31– Arbutus Attenuation Tank- Mobilizing drill rig to site

2.9.3.6 Trent Forcemain

Engineering

Stantec Consulting Ltd. progressed the design process as follows:

- submission of the 70% Design Report and Drawings;
- 70% Design Workshop with representatives of CRD's Integrated Water Services Department;
- 70% Design Workshop with City of Victoria (Underground, Transportation and Parks Departments);
- completion of a Geotechnical Report; and
- submission of draft Supplementary Specifications.

Appendix A- Construction Notice – Residual Solids Conveyance Line: Esquimalt Update (July 4, 2019)

July 4, 2019

UPDATE

Residual Solids Conveyance Line: Esquimalt

Construction of the Residual Solids Conveyance Line has resumed in Esquimalt on the following streets during July and August: Head, Gore, Lyall, and the final section of Wollaston. This work is happening while the summer truck route is in effect (see map on reverse). There is also pipe installation on Anson Street and Bewdley Avenue for the Macaulay Forcemain.

Construction is progressing well with over 40% of the pipes installed. There are multiple crews working along the 19km alignment with pipes also currently being installed in Saanich on Grange Road, Interurban Road, and the Interurban Rail Trail. A regularly updated progress map can be found at wastewaterproject.ca.

What to Expect

- The pipe will be installed in segments.
- A trench will be excavated, the pipes 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 each section has been tested and completed.
- Rock encountered in the trench will be removed by blasting or mechanical means.
- Noise associated with this work includes excavation machinery and truck back-up beepers, and will not exceed the municipal noise bylaws.
- 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 and hours will fall within municipality bylaws.

Traffic Impacts

- There will be single lane alternating traffic in the work zones controlled by flaggers.
- There will be temporary parking impacts when work is being completed. Parking signs will be posted in advance.

Access

- Access to residents and businesses will be temporarily impacted 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.

(See maps on reverse)

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



24/7 Phone Line
1.844.815.6132



Email
wastewater@crd.bc.ca

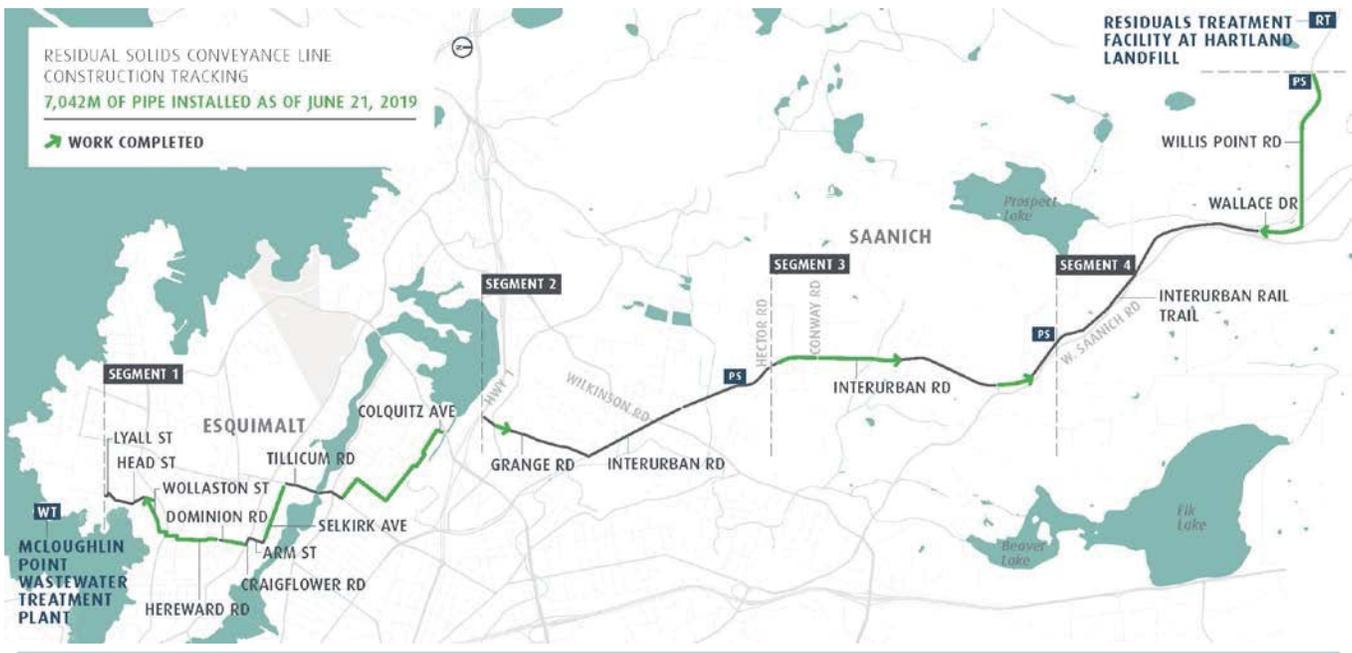


Website
wastewaterproject.ca

Summer Truck Route



RSCL Construction Progress Map



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- Construction Notice - Clover Forcemain: Dallas Road Temporary Closure (July 9, 2019)

July 9, 2019

Clover Forcemain: Dallas Road Temporary Closure

Dallas Road will be closed 24 hours/day from Monday to Friday for pipe installation during July and August in the narrow section between Government and Douglas streets. Due to the alignment of the pipe in the centre of the road, excavation, installation, and backfilling will require a full road closure. A detour along Government and Niagara streets will be in effect. Dallas Road will be open on the weekends.

Vehicle access to properties will be restricted during work hours and traffic control personnel will assist residents with access to their property outside work hours.

The Clover Forcemain is over 80% complete and this is the last section for pipe installation. Construction of the cycle path will begin this summer. All construction activities for the Clover Forcemain including road restoration and construction of public amenities are anticipated to be complete by summer 2020.

What to Expect

- “No parking” zones will be required to accommodate construction and detour traffic. These zones will be limited as much as possible.
- Emergency service vehicles will be given access at all times.
- Pedestrian access will be maintained on the north side of Dallas Road.

Work Hours

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

About the Clover Forcemain

The Wastewater Treatment Project includes construction of a pipe which will transport wastewater from the upgraded Clover Point Pump Station to the McLoughlin Point Wastewater Treatment Plant. This pipe, the Clover Forcemain, will run along Dallas Road from Clover Point to Ogden Point, where it will connect to the cross-harbour undersea pipe.



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- Construction Notice – Trent Forcemain: Utility Locating (July 31, 2019)



July 31, 2019

Trent Forcemain: Utility Locating

The Wastewater Treatment Project includes construction of the Trent Forcemain, a 1.3km extension of an existing pipe from the intersection of Chandler Ave and St Charles Street to the Clover Point Pump Station. This addition to the eastern branch of the CRD's core area conveyance system will increase the capacity of the system and reduce wet weather overflows.

What to Expect

Existing utilities will be located along the proposed alignment to inform the final design and alignment of the Trent Forcemain. This work involves using a mini excavator and hydrovac truck to expose the buried utility (sewer, storm drain, water, gas, etc.) and measure the depth of the pipe. The exposed area will then be backfilled and patched with asphalt. This work is anticipated to begin August 1 and take place during the first two weeks of August.

Work Hours

- Monday to Friday from 7:00 a.m. to 5:00 p.m.

Traffic Impacts

- Expect single lane alternating traffic.
- Traffic control areas will be delineated by cones and signs and controlled by flaggers.

Construction of the Trent Forcemain is anticipated to begin in early 2020 and take approximately one year to complete.

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.

Map on reverse

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



24/7 Phone Line
1.844.815.6132

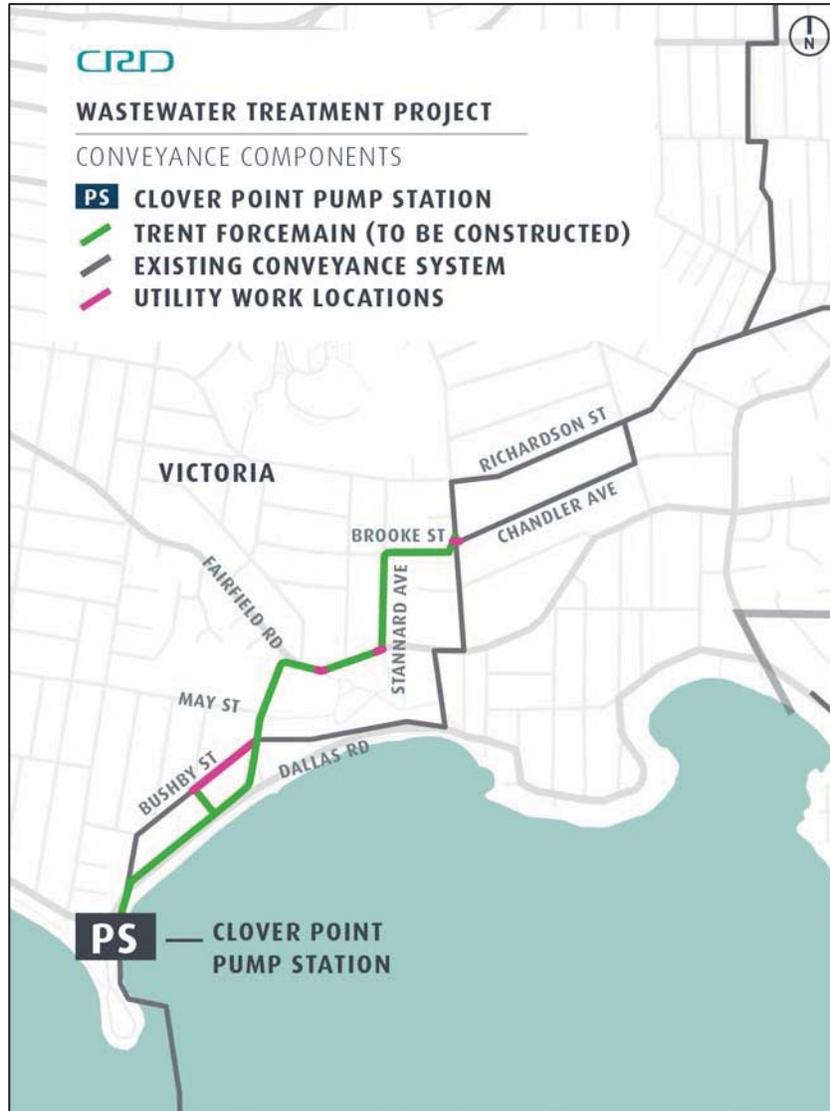


Email
wastewater@crd.bc.ca



Website
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Preliminary design alignment and work locations for the Trent Forcemain



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- Information Sheet: Esquimalt Summer Truck Route



Esquimalt Summer Truck Route



24/7 Phone Line
1.844.815.6132



Email
wastewater@crd.bc.ca



Website
wastewaterproject.ca

Appendix E- Project Update #7

Wastewater Treatment Project

All major components of the Wastewater Treatment Project are under construction and significant progress has been made. With over 550 people working on 22 active construction sites, the Project remains on schedule to be complete by the end of 2020 to meet the federal and provincial regulations for wastewater treatment.

Construction Updates

MCLOUGHLIN POINT WASTEWATER TREATMENT PLANT

The site at McLoughlin Point remains busy with concrete work with about 70% of concrete placed for the structure. Progress is also being made on piping and structural steel. Drilling for the outfall was completed this spring with a micro-tunnel boring machine. The outfall pipe was assembled in Nanoose Bay and will be towed by barge in July and then submerged into the water and put in place. Utility and pipe installation in the roads near McLoughlin Point are also underway.

CLOVER POINT PUMP STATION

The Clover Point Pump Station is being upgraded and expanded. Concrete pouring continues as the foundation for the expansion to the pump station is built up. Equipment for the new section of the pump station is beginning to arrive on site.

RESIDUALS TREATMENT FACILITY

The Residuals Treatment Facility will treat the residual solids from the McLoughlin Point Wastewater Treatment Plant and turn them into Class A biosolids. The site has transformed from an empty gravel lot to a hub of activity. The digesters are beginning to take shape as the roof is raised and the walls built. Foundations are being poured and structural steel erected for the other buildings on site.

ARBUTUS ATTENUATION TANK

Located on CRD land in Haro Woods in Saanich, the Arbutus Attenuation Tank is a 5,000m³ underground tank that will store wastewater flows during storm events. The site was cleared in March and site preparation is currently underway to be followed by excavation. Once construction is complete, the site will be planted with vegetation appropriate for the local woodland setting.



Construction progress at the McLoughlin Point Wastewater Treatment Plant

RESIDUAL SOLIDS CONVEYANCE LINE (RSCL) & PUMP STATIONS

Three small pump stations are being built as part of the Residual Solids Conveyance Line to convey the residual solids from the McLoughlin Point Wastewater Treatment Plant to the Residuals Treatment Facility for treatment. They are located in the road right-of-way at Interurban and Courtland Ave near Camosun College, next to the Interurban Rail Trail near West Saanich Road and Observatory Road, and on Hartland Landfill property on Willis Point Road. Construction began on the RSCL in February and is expected to be complete by next spring.

MACAULAY POINT PUMP STATION & FORCEMAIN

The Macaulay Point Pump Station continues to take shape as concrete pouring continues on site. Concrete is anticipated to be complete by the end of the summer and will be followed by construction of the wood structure above ground. Forcemain installation began in June and is progressing down Anson Street. The pipe is 1350mm in diameter and will convey wastewater from the Macaulay Point Pump Station to the McLoughlin Point Wastewater Treatment Plant for treatment.



Progress at the Residuals Treatment Facility



Installation of the Macaulay Forcemain on Anson Street

CONSTRUCTION SUMMARY



22

active construction sites



550

construction workers



10,773m

pipes laid



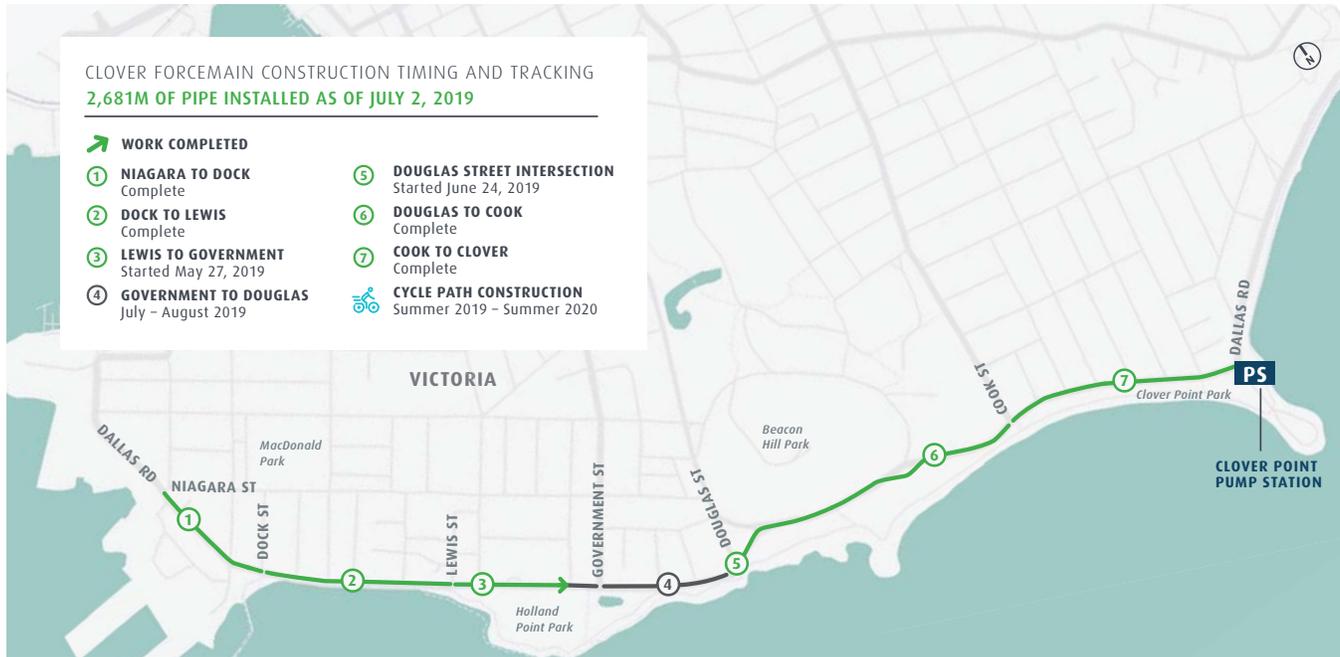
30,248m³

concrete poured

Progress Maps

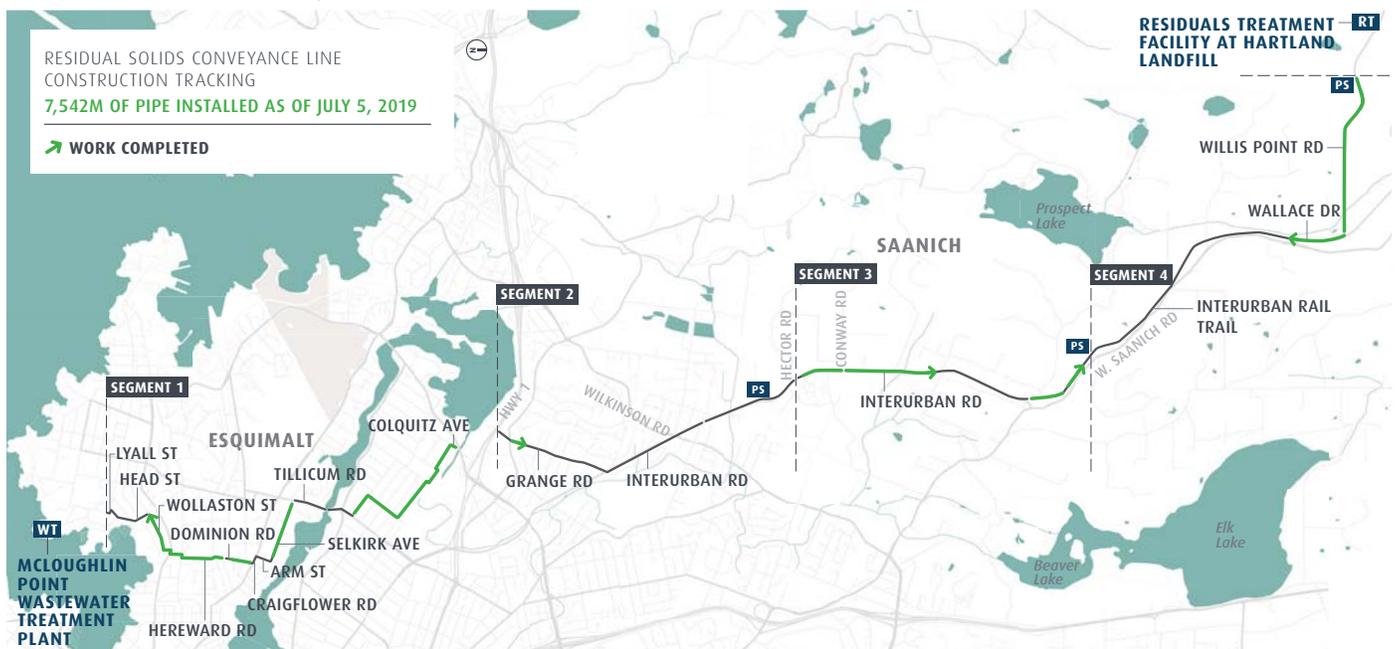
CLOVER FORCEMAIN

On Dallas Road, installation of the Clover Forcemain is progressing ahead of schedule with over 80% of the pipes installed.



RESIDUAL SOLIDS CONVEYANCE LINE

Multiple crews are working on the Residual Solids Conveyance Line with over 40% of the pipes installed.



Dallas Road Amenities

As part of construction of the Clover Forcemain and Clover Point Pump Station, there are a number of public amenities that will be constructed. This includes a two-way protected cycle path from Dock Street to Clover Point. Construction of the cycle path is anticipated to begin over the summer and be complete by summer 2020.

OTHER AMENITIES INCLUDE:



A new crosswalk at Boyd Street, Government Street and Linden Avenue



Public benches



Wayfinding signage



Bike racks

AT CLOVER POINT, NEW AMENITIES INCLUDE:



Public washroom



Bike repair station



Bike racks



Two viewing plazas with benches, drinking fountain and litter receptacle



Artist rendering of the cycle path to be constructed

Summer Traffic Route: Esquimalt

As part of the Traffic Management Plan approved by the Township of Esquimalt, there is an alternate summer route for truck traffic. This is in effect from the first week of July to the last week of August.

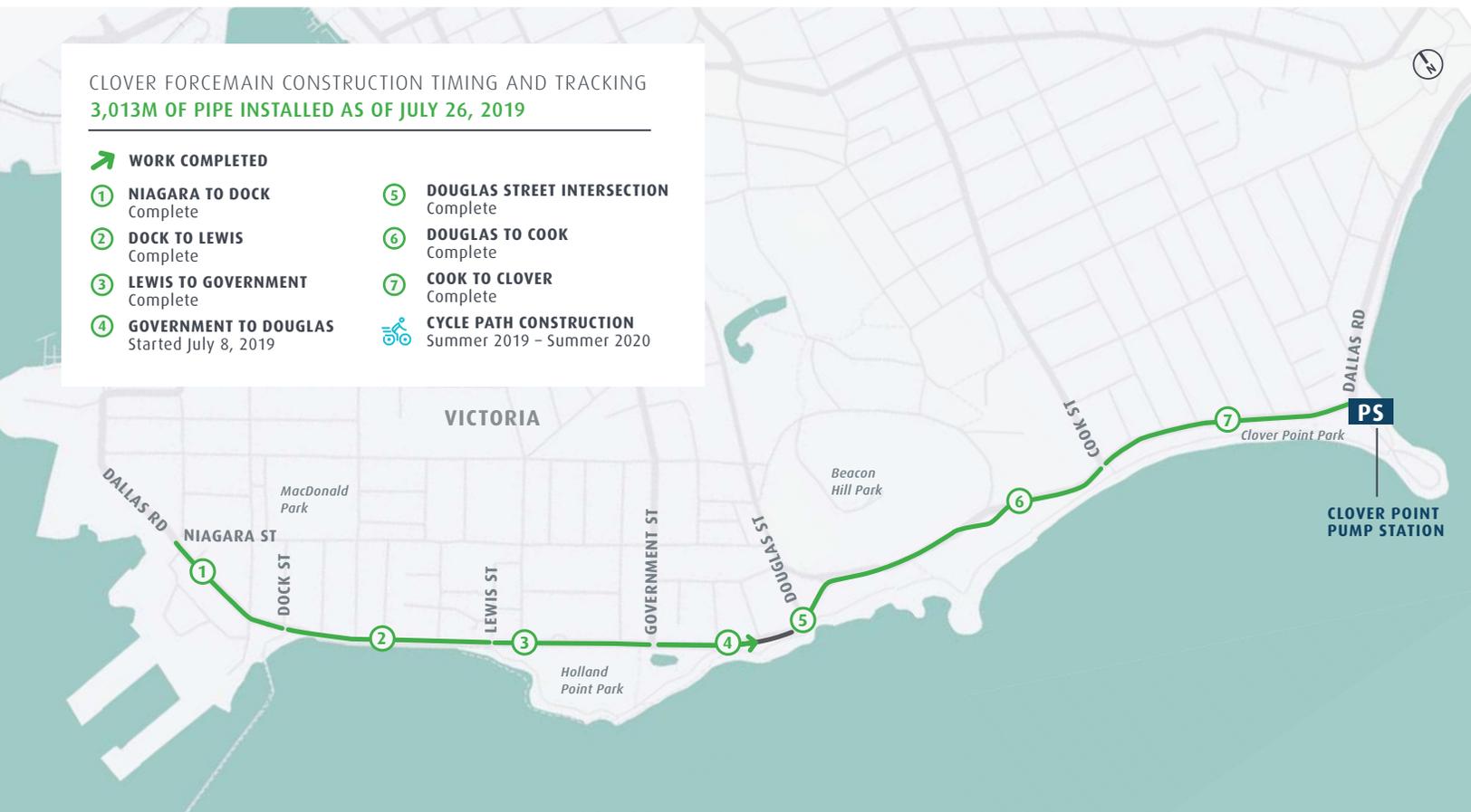


Appendix F- Clover Forcemain Progress Map (July 26, 2019)

CLOVER FORCEMAIN CONSTRUCTION TIMING AND TRACKING
3,013M OF PIPE INSTALLED AS OF JULY 26, 2019

 WORK COMPLETED

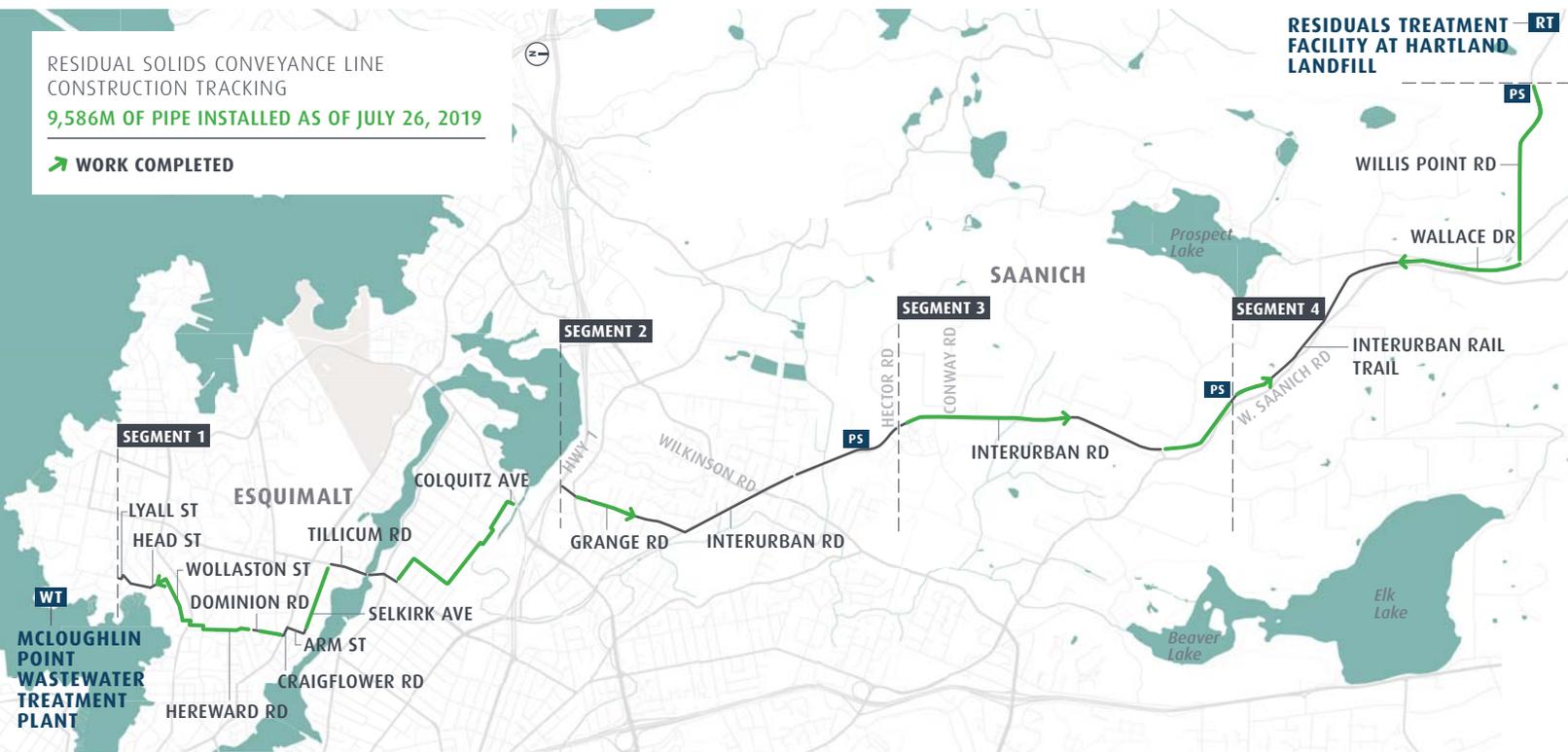
- | | |
|--|---|
|  1 NIAGARA TO DOCK
Complete |  5 DOUGLAS STREET INTERSECTION
Complete |
|  2 DOCK TO LEWIS
Complete |  6 DOUGLAS TO COOK
Complete |
|  3 LEWIS TO GOVERNMENT
Complete |  7 COOK TO CLOVER
Complete |
|  4 GOVERNMENT TO DOUGLAS
Started July 8, 2019 |  CYCLE PATH CONSTRUCTION
Summer 2019 – Summer 2020 |



Appendix G- Residual Solids Conveyance Line Progress Map (July 26, 2019)

RESIDUAL SOLIDS CONVEYANCE LINE
CONSTRUCTION TRACKING
9,586M OF PIPE INSTALLED AS OF JULY 26, 2019

➔ WORK COMPLETED



Appendix H- Monthly Cost Report (July)

ASSET MANAGEMENT COST REPORT
as at July 31, 2019

Project Component	BUDGET		COST EXPENDED					COMMITMENTS			FORECAST		VARIANCE	
	Control Budget	Allocated Budget	Expended to June 30, 2019	Expended over reporting period (July 2019)	Expended to July 31, 2019	Expended to July 31, 2019 as a % of Budget	Remaining (Unexpended) Budget at July 31, 2019	Total Commitment at July 31, 2019	Unexpended Commitment at July 31, 2019	Uncommitted Budget at July 31, 2019	Forecast to Complete	Forecast at Completion	Variance at Completion \$	Variance at Completion as a % of Allocated Budget
McLoughlin Point Wastewater Treatment Plant ^A	378.0	364.6	228.1	13.3	241.4	66%	123.1	343.5	102.0	21.2	123.1	364.6	-	0%
Residuals Treatment Facility ^A	195.0	157.6	18.0	0.4	18.4	12%	139.2	152.7	134.4	4.9	139.2	157.6	-	0%
Conveyance System ^A	192.0	252.8	102.7	15.0	117.7	47%	135.1	212.4	94.7	40.3	135.1	252.8	-	0%
Total Costs	765.0	775.0	348.8	28.7	377.5	49%	397.4	708.6	331.1	66.4	397.4	775.0	-	0%

^A - Including PMO and Common Costs
^{*} Values presented in \$millions, results in minor rounding differences
^{**} Cost report presents approved expenditures