



# Wastewater Treatment Project

Treated for a cleaner future

## CRD Wastewater Treatment Project

### Quarterly Report

---

Reporting Period: January – March 2019

## CONTENTS

|  |           |
|--|-----------|
| <b>1. Executive Summary</b> .....  | <b>4</b>  |
| <b>1.1. Introduction</b> .....   | <b>4</b>  |
| <b>1.2. Dashboard</b> .....  | <b>5</b>  |
| <b>2. Wastewater Treatment Project Progress</b> .....  | <b>8</b>  |
| <b>2.1. Safety</b> .....   | <b>8</b>  |
| <b>2.2. Environment and Regulatory Management</b> .....  | <b>16</b> |
| 2.2.1. Environment .....   | 16        |
| 2.2.2. Regulatory Management .....   | 17        |
| <b>2.3. First Nations</b> .....  | <b>19</b> |
| <b>2.4. Stakeholder Engagement</b> .....   | <b>20</b> |
| <b>2.5. Resolutions from Other Governments</b> .....   | <b>22</b> |
| <b>2.6. Schedule</b> .....   | <b>22</b> |
| 2.6.1. 30 day and 60 day lookahead .....   | 24        |
| <b>2.7. Cost Management and Forecast</b> .....   | <b>28</b> |
| 2.7.1. Commitments .....   | 30        |
| 2.7.2. Expenses and invoicing .....  | 30        |
| 2.7.3. Contingency and Program Reserves .....  | 31        |
| 2.7.4. Project Funding .....   | 32        |
| <b>2.8. Key Risks and Issues</b> .....   | <b>33</b> |
| <b>2.9. Status (Engineering, Procurement and Construction)</b> .....                                 | <b>39</b> |
| 2.9.1. WWTP .....  | 39        |
| 2.9.2. RTF .....   | 44        |
| 2.9.3. Conveyance System .....   | 47        |
| 2.9.3.1. Clover Point Pump Station .....   | 47        |
| 2.9.3.1. Macaulay Point Pump Station and Forcemain .....   | 49        |
| 2.9.3.2. Clover Forcemain (CFM) .....  | 52        |
| 2.9.3.3. Residual Solids Conveyance Line (RSCL) .....  | 54        |
| 2.9.3.4. Arbutus Attenuation Tank .....  | 56        |
| 2.9.3.5. Remainder of Conveyance Component .....   | 56        |
| <b>Appendix A – RSCL: Utility Locating (January 2019)</b> .....                                      | <b>57</b> |
| <b>Appendix B – Clover Forcemain Installation (January 4, 2019)</b> .....                            | <b>58</b> |
| <b>Appendix C – RSCL: Utility Locating (Grange Road) January 18, 2019</b> .....                      | <b>60</b> |
| <b>Appendix D – Macaulay Point Forcemain Installation: Utility Locating (January 28, 2019)</b> ..... | <b>61</b> |
| <b>Appendix E – Clover Forcemain Construction Signage</b> .....                                      | <b>63</b> |
| <b>Appendix F – McLoughlin Point: Peters Street Work (February 1, 2019)</b> .....                    | <b>64</b> |
| <b>Appendix G – Residual Solids Conveyance Line: Pipe Installation (February 2019)</b> .....         | <b>65</b> |
| <b>Appendix H – Residual Solids Conveyance Line: Blasting Information (February 2019)</b> .....      | <b>67</b> |



*Appendix I – Clover Forcemain: Utility Relocates (February 2019) .....68*

*Appendix J – Construction of the Arbutus Attenuation Tank (February 20, 2019) .....69*

*Appendix K – Project Update #6 (February 2019) .....71*

*Appendix L – Clover Forcemain Construction Timing and Tracking.....75*

*Appendix M – Macaulay Forcemain Installation .....76*

*Appendix N – Clover Forcemain Progress Map.....78*

*Appendix O – RSCL Progress Map.....79*

*Appendix P – Asset Management Cost Report .....80*

*Appendix Q – Quarterly Cost Report.....81*

## 1. Executive Summary

### 1.1. Introduction

This quarterly report covers the reporting period of January through March, 2019, and outlines the progress made on the Wastewater Treatment Project over this time.

The Wastewater Treatment Project (the “Project”) includes three main components (the “Project Components”): the McLoughlin Point Wastewater Treatment Plant (the “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 or commissioning start or completion dates.

The WWTP Project Component is continuing with Harbour Resource Partners (“HRP”, as the Design-Build Contractor for the WWTP) progressing: engineering of the WWTP; and construction at McLoughlin Point including: continuing concrete pours for the process building and tertiary building; beginning concrete pours for the operations and maintenance building foundations; preparing for and commencing drilling of the first section of the outfall; commencing off-site utility work on Peters Street; and commencing assembly of the outfall in Nanoose Bay.

The RTF Project Component is continuing with Hartland Resource Management Group (“HRMG” as the Design-Build-Finance-Operate-Maintain Contractor for the RTF) progressing engineering and construction activities over the reporting period including: submitting the early works and overall 90% design submittals; holding the overall 90% design workshop; progressing the early works and overall 100% design submittals; vendor selection progression; receipt of permits; pouring concrete foundations and walls; installation of underground piping; and installation of underslab drain water supply piping.

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 planning, design and construction activities including: participating in a design review workshop; progressing the overall 100% design submittal; pouring and stripping first level wet well walls; removal of waterproofing from existing exterior; forming and pouring concrete walls and channels.
- Macaulay Point Pump Station and Forcemain: Kenaidan Contracting Ltd. (“Kenaidan” as the Design-Build Contractor) progressed: planning, design and construction activities over the reporting period, including: continued development of the final (100%) design submission; completion of blasting activities and rock excavation for the facility and pouring the concrete base slab for the west half of the facility; ongoing drilling and crushing of excess granular material; and digging test pits along the forcemain alignment to confirm existing utility elevations; forming and pouring concrete slabs and walls.

Progress on the design-bid-build Conveyance System contracts over the reporting period included:

- Clover Forcemain: Windley Contracting Ltd. (“Windley” as the Construction Contractor) continued with preconstruction and construction activities including: submission of work plans, shop drawings and permits, completed the geotechnical and soil assessment survey, screening of archaeological material, continued utility relocates and rock blasting, and commenced forcemain installation (from Ogden Point south and easterly, and from Clover Point westerly).
- Residual Solids Conveyance Line (“RSCL”): the RSCL will be delivered through three contracts, with work progressing as follows:
  - Residual Solids Pipes (RSCL100): Don Mann Excavating Ltd. (as the construction contractor for RSCL 100) continued preconstruction activities including: submitting construction work plans and shop drawings, submitting permit applications, continuing to perform utility pre-locates and potholing, and initial soil assessment survey; and commenced installation of the RSCL at four locations;
  - Residual Solids Pumps (RSCL 200): the Project Team with support from Parsons (as the Design Consultant for the RSCL) progressed and concluded the Request for Proposals procurement process, including: responding to inquiries and issuing addenda; receiving proposals from proponents; evaluating the proposals and selecting the preferred proponent; executing the contract with Knappett Projects Inc. (Knappett) and holding the kick-off meeting.
  - Saanich Infrastructure Improvements (RSCL 300): The Project Team will be arranging a detailed design kick-off meeting with Parsons (as the Design Consultant) and the District of Saanich in Q2 of 2019.
- Arbutus Attenuation Tank: the Project Team with support from KWL (as the Design Consultant for the Arbutus Attenuation Tank):
  - progressed the invitation to tender procurement process, including: responding to inquiries and issuing addenda; receiving submissions from tenderers; evaluating the tenders and selecting the tenderer;
  - continued activities to secure the building permit from the District of Saanich; and
  - prepared for and completed clearing and grubbing of the site.
- Remainder of Conveyance Component: over the reporting period the Project Team sought (and received) the Project Board’s approval to refined the Project’s scope, as outlined in section 2.7. In summary three components of the conveyance system were removed from the Project’s scope (being the twinning of the East Coast Interceptor, construction of the Currie Forcemain from the Currie Pump Station to the East Coast Interceptor and upgrades to the Currie Pump Station) as they do not provide a benefit to the CRD’s residents and businesses, and are not required to meet the Project’s goals. As a result of this refinement, only one Project component remains to be procured: the extension of the Trent Forcemain to Clover Point Pump Station.

## 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.

Over the reporting period both the cost KPI and the safety KPI were changed.

The cost KPI for the Project overall was first changed from yellow to orange (in January 2019) and subsequently from orange to red (in February 2019), as a result of ongoing and increasing cost pressures (reported since September 2017, primarily as a result of escalation experienced on the conveyance components of the Project) and the receipt in the reporting period of:

- proposals for the Residual Solids Pump Stations and the Arbutus Attenuation Tank; and
- a refreshed estimate for the four conveyance components remaining to be procured.

The Project Team have undertaken activities to evaluate the sufficiency of the remaining contingency and program reserve to deliver the Project within the Control Budget. The outcome of that evaluation is outlined in section 2.7 of this report and summarized below.

Based on the value of the contracts awarded to-date and the refreshed cost estimate, the Project Team has estimated the cost to complete the Project. The Project Team forecasts that, if the Project were to be constructed with the scope as defined in the Project Board's September 2016 business case, the total cost of the Project would be \$795M, or \$30M (3.9%) over the Project's budget.

The Project Team have engaged Kerr Wood Leidal to develop an updated model of the core area's wastewater system in order to allow the CRD to make informed decisions regarding capital investments required to meet future demands.

As a result of that work, through a separate report the Project team sought (and received) the Project Board's approval to refine the Project's scope and remove three components of the conveyance system as they do not provide a benefit to the CRD's residents and businesses, and are not required to meet the Project's goals. Based on the refined scope of the Project, the Project Team forecast that the Project can be completed at a total cost of \$775M, or \$10M (1.3%) over the Project's control budget.

As the Project Team forecast that the Project's cost will exceed the budget available, the Project Board are seeking the CRD Board's approval to increase the Project's budget.

The safety KPI for the Project overall was changed from green to yellow. Over the reporting period three recordable incidents occurred, increasing the total recordable incident frequency to 1.2. With the increase in workforce and work sites there has been an increase in the number of safety incidents. The Project Team continues to work with and ensure that all of the Prime Contract partners maintain safety as their number one priority. As part of an overall review of the Project the Project Board engaged an independent safety management firm. The firm found that the systems that the Project has in place meet or exceed industry health and safety standards and regulatory requirements, and provided recommendations which the Project Team are implementing.

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*.   |    |    |    |    | With the increase in workforce and work sites there has been an increase in the number of safety incidents. The Project Team continues to work with and ensure that all of the Prime Contract partners maintain safety as their number one priority. As part of an overall review of the Project the Project Board engaged an independent safety management firm. The firm found that the systems that the Project has in place meet or exceed industry health and safety standards and regulatory requirements, and provided recommendations which the Project Team are implementing. |
| 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 reporting period: two in January involving a small volume of vehicle hydraulic fluid leaks (no hydraulic fluid entered the sewer system or environment in either incident) and one in March involving an unplanned release of sediment-laden water into Victoria Harbour.  |
| 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 in 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).   |  |  |  |  | <p>Project expenditures within Control Budget but cost pressures experienced on multiple Conveyance procurements, primarily as a result of inflation in the Vancouver Island construction market.</p> <p>Based on the value of the contracts awarded to-date and the refreshed cost estimate, the Project Team has forecast the cost to complete the Project at \$795M, or \$30M over the Project's budget.</p> <p>The Project Team have engaged Kerr Wood Leidal to develop an updated model of the core area's wastewater system in order to allow the</p>                           |

| Key Performance Indicators |  | Project Overall | WWTP | RTF | Conveyance System | Comments   |
|----------------------------|--|-----------------|------|-----|-------------------|--|
|                            |  |                 |      |     |                   | <p>CRD to make informed decisions regarding capital investments required to meet future demands.</p> <p>As a result of that work, in a separate report the Project team sought and received the Project Board's approval to refine the Project's scope and remove three components of the conveyance system as they do not provide a benefit to the CRD's residents and businesses, and are not required to meet the Project's goals.</p> <p>As the Project Board approved the Project Team's recommendation to refine the scope of the Project, the Project Team forecast that the Project can be completed at a total cost of \$775M, or \$10M over the Project's control budget. The Project Board are seeking the CRD Board's approval to increase the Project's budget.</p> |

\* 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 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 (multiple sites) and RSCL (multiple sites).

Over the reporting period there was a significant increase in the total number of employees (from 322 to 496 ) and active construction sites (from 4 to 14). With the increase in workforce and construction sites we did see an increase in the number of safety incidents reported. Over the

reporting period 41 incidents occurred in total: 13 in January, 9 in February, and 19 in March, comprising: 6 near misses, 26 report onlys, 6 first aids, and three recordable incidents two of which resulted in lost time. Each of the incidents that occurred over the reporting period are summarized in Table 2, with the corrective actions taken.

As part of an overall review of the project the Project Board engaged an independent safety management firm. The safety review was conducted by Allman Safety Consulting Corp. (Allman Safety). Jim Allman of Allman Safety reported his findings directly to the Project Board, which concluded that the Project Team's safety management system meets or exceeds industry health and safety standards and regulatory requirements. The report also made eight recommendations that the Project Team either took immediate action on or are currently in the process of incorporating.

*Table 2 – Safety Incidents over the Reporting Period*

| Date             | Work Site                   | Incident Type          | Description   | Outcome  | Corrective Action Taken  |
|------------------|-----------------------------|------------------------|---|--|--|
| January 3, 2019  | RTF                         | First Aid              | Worker struck by pipe while lifting pipe.   | Assessed by first aider, returned to work  | Toolbox talk – emphasized proper lifting technique.  |
| January 4, 2019  | WWTP                        | First Aid              | Back injury while passing rebar to a coworker.  | Assessed by first aider, returned to work on light duty for the remainder of the day.  | Toolbox talk – emphasized proper lifting techniques.   |
| January 4, 2019  | Clover Point Pump Station   | First Aid              | Foot injury resulting from brace dropped by coworker.   | Assessed by first aider, returned to work.   | Toolbox talk – emphasized control of tools and materials at all times.   |
| January 4, 2019  | RSCL (Interurban Road)      | Report Only            | Utility strike – communication cable contacted with boom of hydro-vac truck while performing utility locates. | Service remained intact and Telus was notified to repair the lines.  | Safety practice reviewed: <ul style="list-style-type: none"> <li>boom must be completely seated prior to vehicle moving; and</li> <li>a spotter is needed when a vehicle is operating in close proximity to overhead lines.</li> </ul> |
| January 9, 2019  | Macaulay Point Pump Station | Recordable Medical Aid | Hand injury while rigging rebar bundles.  | Assessed by first aider, and referred to medical aid. X-ray confirmed a fracture in the finger/knuckle area. Worker placed on modified duties with no lost time. | Toolbox talk – emphasized proper lifting and rigging techniques and the dangers of pinch points and how they can be prevented.   |
| January 10, 2019 | WWTP                        | Report Only            | A worker tripped and fell on uneven ground, causing minor back discomfort.                                    | Assessed by first aider, returned to work afterwards.  | Toolbox talk – emphasized the importance of staying focused on surroundings while working.   |
| January 14, 2019 | RSCL                        | Report Only            | Utility contact resulting in watermain break.   | The roadway was flooded and two nearby adjacent  | Toolbox talk – emphasized the use of effective communication methods between machine   |

| Date             | Work Site                             | Incident Type | Description   | Outcome   | Corrective Action Taken   |
|------------------|---------------------------------------|---------------|---|---|---|
|                  |                                       |               |   | residences were impacted.   | operators and ground-workers when digging in close proximity to underground hazards. Revision to safe work practice.  |
| January 14, 2019 | RSCL (near Lyall and Lampson Streets) | Near Miss     | A supervisor noted road plates had shifted position over the weekend due to ground sluffing and heavy rain. | Reduced ground overlap under the road plates: no injuries or damage occurred.   | The road plates were rotated from their original position to provide more coverage underneath the sides. Inspections will be conducted at the end of each work day to check for cracking and/or ground sloughing. |
| January 19, 2019 | Macaulay Point Pump Station           | Near Miss     | Proximity of offload to worker.   | Load swung while being lowered: no injuries or damage occurred.   | Toolbox talk – safety stand down was held to go over the rigging plan and to ensure all rigging components are used in all rigging activities.  |
| January 23, 2019 | Clover Forcemain                      | Report Only   | Worker reversing a vehicle made contact with another vehicle.   | The incident caused vehicle damage.   | Toolbox talk – emphasized vehicle safety and backing up practices.  |
| January 28, 2019 | WWTP                                  | First Aid     | Worker’s chain slipped, causing worker to make contact with construction structure.                         | Assessed by first aider, returned to work.  | Toolbox talk – emphasized proper use of safety equipment with respect to positioning devices and proper tie-off points.   |
| January 28, 2019 | RTF                                   | First Aid     | Worker sustained a hand injury while stripping forms.   | Assessed by first aider, returned to work.  | Toolbox talk – emphasized proper body positioning while stripping forms.  |
| January 30, 2019 | WWTP                                  | Report Only   | A worker stumbled backwards and then tripped over a pipe, causing minor discomfort.                         | Assessed by first aider, returned to work.  | Toolbox talk – emphasized awareness to one’s surroundings.  |
| February 1, 2019 | WWTP                                  | Report Only   | Hand injury when worker tried to catch a scaffolding pin dropped from above.                                | Worker refused first aid when asked to provide a drug and alcohol test sample per company policy.                                   | Toolbox talk – emphasized proper passing techniques when working at heights.  |
| February 6, 2019 | WWTP                                  | Report Only   | Sawdust blew into worker’s eye.   | Worker flushed eye with an onsite portable eyewash bottle and was able to remove the foreign body. No further treatment was needed. | Toolbox talk – emphasized awareness of the possibility of increase of debris in the air on windy days and wearing the correct safety glasses appropriate for the work conditions.                                 |
| February 8, 2019 | RSCL                                  | Report Only   | Worker rolled ankle on snow-  | No first aid rendered and   | Toolbox talk – emphasized three-point contact when  |

| Date              | Work Site                     | Incident Type        | Description   | Outcome  | Corrective Action Taken  |
|-------------------|-------------------------------|----------------------|---|--|--|
|                   |                               |                      | covered uneven ground when stepping up onto the deck of a truck.  | worker continued regular tasks.  | stepping up onto higher ground.<br>A review was given of safe work practices when stepping up onto equipment.  |
| February 19, 2019 | RSCL (Newbury and Colquitz)   | Near Miss            | A pedestrian walking past the work zone entered the swing radius of an excavator in motion.                         | A crew member spotted the pedestrian and notified the operator to stop work immediately.                   | <ul style="list-style-type: none"> <li>Traffic control personnel were briefed on correct eye and verbal contact with the excavation crew while escorting pedestrians through the work zone;</li> <li>Delineators were reset closer to the east of the road to allow a safer walkway for pedestrians; and</li> <li>Toolbox talk was held with site crew – a review of the incident.</li> </ul>  |
| February 21, 2019 | RTF                           | Report Only          | A delivery driver failed to access the site safely.   | Truck load struck the box of a nearby parked vehicle.  | An orientation was held with the truck driver to ensure compliance with site safety rules.   |
| February 22, 2019 | WWTP                          | Lost Time Recordable | While opening the access/egress safety gate of the ladder the worker lost their footing and fell from the platform. | The worker fell from a height onto a concrete slab, breaking their arm and shoulder blade in the fall.     | <p>WorkSafeBC was notified of the incident under the critical incident reporting requirement and a written order was put in place to install portable scaffold stair systems.</p> <p>The following actions were also taken:</p> <ul style="list-style-type: none"> <li>Any ladders that could not be replaced with a scaffold stair system had the safety gates moved further from the edge of the structure;</li> <li>Tripping hazards near access/egress areas were removed; and</li> <li>Site: was immediately shut down in order to review incident and corrective actions.</li> </ul> |
| February 22, 2019 | WWTP (offsite utilities work) | Report Only          | Prime contractor received a complaint call from a member of the public of damage to their vehicle.                  | The undercarriage of the person's vehicle was scratched while driving over a plate covering an excavation. | Bridging material that had been protecting the temporary waterline was widened to create a more gradual slope for vehicles to drive over.  |
| February 27, 2019 | RSCL                          | Report Only          | A worker while descending from  | A worker that witnessed the  | Three-point contact practices were reviewed with the worker.   |

| Date              | Work Site | Incident Type | Description  | Outcome   | Corrective Action Taken   |
|-------------------|-----------|---------------|--|---|---|
|                   |           |               | the box of their pick-up truck fell backwards onto the ground.           | incident recommended the employee be examined by first aider but the employee refused and continued regular duties the rest of the day. | The use of a step stool was recommended to help access/egress from the back of the truck to reduce the distance to the ground.  |
| February 28, 2019 | RSCL      | Report Only   | Delivery driver in training struck a metal post and chain gate.          | Truck and post sustained minor damage.  | Contact was made with the delivery company to review the incident and the root cause. The safe work practice was reviewed with the new driver for 360 degree vehicle inspections prior to moving a vehicle on an active worksite. |
| March 1, 2019     | RSCL      | Report Only   | Excavator operator struck a manhole cover                                | Contractor repaired manhole cover and casting.  | Tool-box talk to discuss working around existing infrastructure was held.   |
| March 4, 2019     | WWTP      | Report Only   | Shoulder injury while carrying rebar.                                    | Worker reported to First Aid; no treatment was rendered   | Tool-box talk with crews discussed proper lifting and bending techniques  |
| March 5, 2019     | WWTP      | Near Miss     | While a rebar wall was being lowered it shifted due to improper rigging. | No one was injured in the incident; the load was safely lowered into the excavation.  | Tool-box talk discussed the incidents and proper ridding measures.  |
| March 5, 2019     | RSCL      | Report Only   | Excavator contacted an existing utility                                  | Cable and phone company called to repair  | Safety approach modified to ensure a spotter is available when in close proximity to utility lines.   |
| March 5, 2019     | RSCL      | First Aid     | Sawdust in workers eyes  | Worker eyes flushed   | A toolbox talk reviewing proper cutting techniques with a chainsaw was conducted.   |
| March 6, 2019     | RCSL      | Report Only   | Soil packer landed on workers steel toe cap                              | No First Aid treatment was required.  | A Safe Work Practice was developed in regards to loading/unloading of this equipment.   |
| March 6, 2019     | RCSL      | Report Only   | Truck bumper struck a rock while turning                                 | Truck movement around the site was restricted   | Spotter to be used when truck is backing up or turning  |
| March 7, 2019     | RSCL      | Report Only   | Worker shoulder struck by tree limb contacted by an excavator            | Worker did not require First Aid and reported incident as required.   | Safety notice was sent out to all project sites to bring awareness to anyone in close proximity to heavy equipment. Workers are required to be out of the swing radius of any heavy equipment.                                    |
| March 13, 2019    | WWTP      | Near Miss     | Workers entered a marked controlled "Do                                  | Contractor stopped workers and informed them of   | Crossing under Danger tape, ensuring all risks are identified on Field Level Risk   |

| Date           | Work Site                   | Incident Type        | Description  | Outcome   | Corrective Action Taken   |
|----------------|-----------------------------|----------------------|--|---|---|
|                |                             |                      | Not Enter" work area.  | the danger of unauthorized crossing of red danger tape. A Field Level Risk Review of workers card was performed       | Assessment Cards were a topic of discussion at the next safety meeting that was held.   |
| March 14, 2019 | WWTP                        | Near Miss            | A truck came in close proximity to another vehicle   | Truck driver was stopped prior to contact being made.   | Driver was instructed to ensure that a spotter was available when backing up.   |
| March 14, 2019 | Clover Forcemain            | Lost Time Recordable | A Traffic Control Person (TCP) went into a secured area and fell into an open excavation   | Worker received a fractured ankle in the fall.  | WorkSafeBC was called to site to investigate as per WorkSafeBC Regulations. Worksite was released back to Prime Contractor with no orders issued. Safety meeting was held with crew to go over the hazards associated with an open excavation |
| March 19, 2019 | WWTP                        | Report Only          | Excavator contacted an existing storm drain  | Storm drain was repaired.   | Tool-box talk to discuss working in close proximity to buried utilities .   |
| March 20, 2019 | Macaulay Point Pump Station | Report Only          | Worker was struck on the shoulder while stripping panels.  | Worker did not require First Aid.   | Tool-box talk held to review safe handling procedures when stripping forms  |
| March 21, 2019 | Macaulay Point Pump Station | Report Only          | Worker struck back of neck on overhead rebar   | No First Aid treatment was rendered   | Tool-box talk with crew to discuss incident reporting in a timely manner and to be aware of any hazards that may be present in work areas.  |
| March 25, 2019 | Macaulay Point Pump Station | Report Only          | Minor back injury from twising   | Worker reported incident but did not receive First Aid.   | Tool-box talk was held with the crew to review correct body positioning.  |
| March 26, 2019 | RSCL                        | Report Only          | A Traffic Control Person (TCP) was struck by a car driven by a member of the public while re-routing traffic on Wollaston Street | Ambulance and Police were called to attend the scene. TCP stayed at the workplace as they were not seriously injured. | Police followed up on the incident.   |
| March 27, 2019 | RSCL                        | Report Only          | While reversing a CRD vehicle struck parked car.   | Minor damage to the bumper of the vehicle that was struck   | Reminder to conduct a 360 degree walk around a vehicle prior to moving.   |
| March 28, 2019 | RSCL                        | Report Only          | While removing blasted rock excavator struck   | Watermain break   | Toolbox talk reviewing removal of material near buried utilities identified on utility  |

| Date           | Work Site                   | Incident Type | Description                                   | Outcome                              | Corrective Action Taken   |
|----------------|-----------------------------|---------------|---|--------------------------------------|---|
|                |                             |               | an existing utility                           |                                      | locates.  |
| March 28, 2019 | Macaulay Point Pump Station | Report Only   | Hand Injury – pinch, while removing form work | No First Aid treatment was required. | Toolbox talk regarding hands and awareness of pinch points when removing forms. |

Key safety activities conducted during January included:

- bi-weekly project update meetings with prime contractors: Kenaidan, Windley and Don Mann;
- weekly project update meetings with prime contractors: HRP and HRMG;
- incident reporting review with prime contractors at active work locations;
- monthly communication meeting with WTP Safety Manager and CRD Corporate Safety Manager;
- prime contractor monthly safety meeting with CRD;
- reviewed site specific safety plans and high risk tasks;
- WTP Safety Manager and/or Construction Manager conducting regular site inspections at all active Project work sites;
- prime contractor annual safety orientations for CRD Project Team;
- CRD corporate occupational health and safety coordination committee meeting;
- work plan review of safe confined space entry for McLoughlin WWTP site;
- developed prime contractor auditing tool;
- issued Project safety notices to prime contractors;
- updated Project management office first aid assessment for 2019; and
- updated Project management office site specific 2019 safe work plan.

Key safety activities conducted during February included:

- CRD prime contractor safety quality assurance audits;
- bi-weekly project update meetings with prime contractors: Kenaidan, Windley, HRP and Don Mann;
- weekly project update meetings with prime contractor, HRMG;
- safety notices were issued to prime contractors regarding site incidents;
- monthly communication meeting with WTP Safety Manager and CRD Corporate Safety Manager;
- prime contractor monthly safety meeting with CRD;
- submitted monthly safety report to CRD Corporate;
- reviewed site specific safety plans and high risk tasks;
- WTP Safety Manager and/or Construction Manager conducting regular site inspections at all active Project work sites;
- site safety tour with CRD Corporate at McLoughlin WWTP site after occurrence of serious incident;
- CRD corporate occupational health and safety coordination committee meeting; and
- issued Project safety notices to prime contractors.

Key safety activities conducted during March included:

- 2018 safety incidents overview;
- reviewed prime contractor incident investigation reports;
- communication meeting with WTP Safety Manager and CRD Corporate Safety Manager;

- weekly project update meetings with prime contractors: HRP and HRMG;
- bi-weekly project update meetings with prime contractors: Kenaidan, Don Mann and Windley;
- emergency response annual training for WTP office wardens;
- PMO employees participated in the annual emergency response building evacuation test;
- office/site inspections with contractors and CRD Corporate at all active sites;
- prime contractor project safety meeting with all active Project safety representatives;
- reviewed site specific safety plans and high risk tasks;
- Safety Advisory Committee meeting with HRP;
- tower crane fall protection plan review for Macaulay Point Pump Station; and
- WTP Safety Manager and/or Construction Manager conducted regular site inspections at all active Project work sites.

Table 3 – WTP Safety Information

|  | Reporting Period<br>(Q1 2019) | Project Total to-Date<br>(from January 1, 2017)     |
|--|-------------------------------|---|
| <b>Person Hours</b>  |                               |   |
| PMO  | 10,133                        | 95,512  |
| Project Contractor   | 190,726                       | 559,457   |
| <b>Total Person Hours</b>  | <b>200,859</b>                | <b>654,969</b>                                      |
| <b>Total Number Of Employees</b>                                       |                               |   |
| PMO  | 31                            |   |
| Project Contractors (and Project Consultants) working on Project sites | 465                           |   |
| <b>Total Number Of Employees</b>                                       | <b>496</b>                    |   |
| <b>Incident Statistics</b>   |                               |   |
| Near Miss Reports  | 6                             | 18  |
| High Potential Near Miss Reports                                       | 0                             | 3   |
| Report Only  | 26                            | 33  |
| First Aid  | 6                             | 16  |
| Medical Aid  | 0                             | 0   |
| Medical Aid (Modified Duty)  | 1                             | 2   |
| Lost Time  | 2                             | 2   |
| <b>Total Recordable Incidents</b>                                      | <b>3</b>                      | <b>4</b>  |
|  |                               | <b>Project Frequency<br/>(from January 1, 2017)</b> |
| First Aid Frequency  |                               | 4.9   |
| Medical Aid Frequency  |                               | 0.6   |

|                                | Reporting Period<br>(Q1 2019) | Project Total to-Date<br>(from January 1, 2017) |
|--------------------------------|-------------------------------|---|
| Lost Time Frequency            |                               | 0.6   |
| Total Recordable Incident Rate |                               | 1.2   |

## 2.2. Environment and Regulatory Management

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

### 2.2.1. Environment

Environmental work progressed as planned over the reporting period. Work focused on environmental studies, collection of archaeological data, and reviewing contractors' and design consultants' environment-related submittals.

Key environmental management activities in January included:

- Millennia Resources (the Project's Archaeological Advisor) oversaw the screening of archaeological sediments excavated during Clover Forcemain construction. The purpose of the screening is to recover any artifacts that may be present in the sediments; and
- McElhanney Consulting Services (as the Qualified Environmental Professional for Don Mann Excavating, the RSCL100 Construction Contractor) presented the results of their pre-construction environmental investigations to the Project Team. The purpose of the investigations was to characterize soils along the RSCL.

Key environmental management activities completed in February included:

- McElhanney Consulting Services (as the Qualified Environmental Professional for Don Mann Excavating, the Arbutus Attenuation Tank clearing contractor) completed pre-clearing searches for great horned owls. The purpose of the searches was to determine the presence or absence of critical owl habitat and nests in proximity to the work site. The searches located a number of roost trees that were far enough away from the site such that there would be no effects on them and did not locate any nests. Following clearing, environmental monitoring at the site will continue during construction;
- the CRD and Kenaidan (as the design-build contractor for Macaulay Point Pump Station and Forcemain) met with staff from the Department of National Defence (DND) and members of the DND Garden Club to discuss forcemain construction impacts on the Anson Street Community Garden. The group agreed on a plan to temporarily relocate affected garden plots and planned post-construction reinstatement of the affected plots. Kenaidan provided wood chips from nearby tree clearing to the Garden Club; and
- the CRD made a presentation to the Colquitz Coalition at their Annual General Meeting. The Colquitz Coalition is a diverse collection of groups, societies and associations who care about environmental restoration, conservation and stewardship in the Colquitz Watershed. The presentation was focused on the water course crossings associated with the RSCL. The presentation was well received, and the CRD was appreciative of the opportunity to provide information to the Coalition.

Key environmental management activities completed in March included:

- Following clearing of the Arbutus Attenuation Tank site, the CRD provided logs to the Esquimalt and Sognhees Nations for ceremonial use, provided logs and chips to the

District of Saanich for use in Haro Woods, and provided blocks of wood to Arbutus Middle School for use in creating an outdoor learning space; and

- Lorax Environmental Services (the marine dispersion model consultant) began preparation of a dispersion model that simulates flows from the WWTP outfall. The dispersion model will be used to evaluate environmental impacts from outfall discharges on the receiving environment.

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

- On January 11, 2019, Windley Contracting (the Construction Contractor for the Clover Forcemain) had hydraulic fluid leak from a dump truck. The volume released was approximately 20 litres, and was therefore not a high enough volume to be reportable to authorities. The hydraulic fluid was contained to the pavement on Dallas Road and was immediately removed from site for disposal at an approved facility. No hydraulic fluid entered the sewer system or environment.
- On January 22, 2019, HRMG (Design-Build-Finance-Operate-Maintain Contractor for the RTF) had hydraulic fluid leak from a soil compacting roller. The volume released was approximately 40 litres, and was therefore not a high enough volume to be reportable to authorities. The spill was contained to the work area, and spill pads and contaminated soils were removed from site for disposal at an approved facility. No hydraulic fluid entered the sewer system or environment.
- On March 18, 2019, HRP (the Design-Build Contractor for the WWTP) had an unplanned release of sediment-laden water to Victoria Harbour. A pump in the dewatering treatment system stopped working while the outfall microtunneling excavation was being dewatered, causing the influent tank to overflow onto the ground. The spill migrated through the gravel and to the stormwater drainage holes in the planter wall on the west side of the WWTP site where it then drained into the harbour. The release was reported to the BC Emergency Report line, and the Province completed additional notifications based on that report. Water quality samples were taken that day and showed exceedences for turbidity. Samples taken the morning following the release showed a return of turbidity to background levels and no noticeable sediment was observed in the Harbour.

### 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 the reporting period involved supporting Parsons (as the Design Consultant for the RSCL) in the development of permit applications; engaging with municipal, provincial and federal governments in support of obtaining key permits (summarized in Table 4); continuing to advance the MWR Registration; supporting HRMG in the development of an Operational Certificate application; and planning for future permit applications.

Key regulatory activities for January include:

- HRMG (Design-Build-Finance-Operate-Maintain Contractor for the RTF) and the CRD met with the Ministry of Environment and Climate Change Strategy (MOE) to discuss HRMG's Dispersion Modelling Plan. The MOE's approval of the Dispersion Modelling Plan is the first step in the application for an Operational Certificate for the RTF.; and

- Millennia Research (the Project's Archaeological Advisor) submitted a Site Alteration Permit amendment to the Archaeology Branch. The amendment was submitted to reflect new archaeological conditions along the Clover Forcemain alignment, specifically the identification of a new archaeological site. The new archaeological site reflects the discovery of archaeological sediments and artifacts during watermain relocation activities.

In February, key regulatory activities included:

- the CRD received a Building Permit and a Tree Cutting Permit from the District of Saanich for work at the Arbutus Attenuation Tank site; and
- Millennia Research (as the Project's archaeological advisor) and the CRD received a Site Alteration Permit amendment from the Archaeology Branch. The amendment reflects new archaeological conditions along the Clover Forcemain alignment, specifically the identification of a new archaeological site, through the discovery of archaeological sediments and artifacts during watermain relocation activities.

In March, key regulatory activities included:

- Kenaidan (the Design-Build Contractor for the Macaulay Pump Station and Forcemain) submitted an Environmental Effects Determination amendment to DND to allow for the removal of trees along the Macaulay Forcemain route (the Project Team will replace the removed trees at a 2 to 1 ratio, with species and at locations to be determined by DND); and
- The CRD, Stantec and HRP met with the BC Ministry of Environment and Climate Change Strategy (ENV) to review the schedule for completing environmental impact studies and submitting 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.

Updates to Table 4 from that presented in the Project's Q4 2018 Quarterly Report are bolded in the table and are as follows:

- i) related to the McLoughlin Point Outfall – the following permits were removed from the table as they were received in October 2018:
  - Fisheries and Oceans Canada (DFO) *Fisheries Act* Authorization;
  - Transport Canada Facility Alteration Permit; and
  - Transport Canada License (works access).
- ii) related to the Arbutus Attenuation Tank:
  - removed the Notice from the Director to Construct under Section 40(b) of the MWR as it was received in Q4, 2018; and
  - Updated the status of the District of Saanich Building Permit as it was received in February 2019.
- iii) related to the Residuals Treatment Facility:
  - added phased Building Permits: a Development and Building Permit were received in Q4 2018, but as the building permits are being issued in phases some are still outstanding.

Table 4- Key Permits Status

| Permit / Licence  | Anticipated Date                     | Status          | Party Responsible for Obtaining Permit |
|---|--------------------------------------|-----------------|--|
| <i>McLoughlin Point WWTP</i>  |                                      |                 |  |
| Municipal Wastewater Regulation ("MWR") Registration                  | Q4 2019                              | On track        | CRD                                    |
| <i>McLoughlin Point Harbour Crossing</i>                              |                                      |                 |  |
| Transport Canada Lease  | Following completion of construction | On track        | HRP                                    |
| <i>McLoughlin Point Outfall</i>                                       |                                      |                 |  |
| Transport Canada Lease  | Following completion of construction | On track        | HRP                                    |
| <i>ECI/Trent Twinning</i>   |                                      |                 |  |
| Notice from the Director to Construct under Section 40 (b) of the MWR | Q2 2019                              | On track        | Design engineer                        |
| <i>Arbutus Attenuation Tank</i>                                       |                                      |                 |  |
| District of Saanich Building Permit                                   | Q1 2019                              | <b>Received</b> | Kerr Wood Leidal                       |
| <i>Residuals Treatment Facility</i>                                   |                                      |                 |  |
| Operational Certificate   | Prior to start of RTF operations     | On track        | HRMG                                   |
| District of Saanich <b>Phased</b> Building Permits                    | April 2019                           | 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 procurement of Indigenous art for installation at Clover Point and Macaulay Point, and the development of interpretative signs for various locations across the Project.

In January and February Millennia Research (as the Project's Archaeological Advisor) completed archaeological monitoring of excavations along the Clover Forcemain members of the Esquimalt and Songhees Nations. Millennia also screened archaeological soils from those excavations with members of the Esquimalt and Songhees Nations. The screening is a method for recovering artifacts from the archaeological soils.

In February, CRD staff met to discuss future employment opportunities at the McLoughlin Point WWTP. The discussion focussed on training and experience requirements. The CRD's First Nations Engagement Assistant subsequently provided that information to the Songhees and Esquimalt Nation Employment Advisors.

In March, in accordance with the Project's Site Alteration Permit, Millennia Research completed pre-construction data recovery at the location of the RSCL pump station number 2. The pump station is in proximity to a previously recorded archaeological site. The data recovery was completed with support from members of the Songhees and Paquachin Nations. Intact cultural deposits with unique diagnostic artifacts, fauna and dateable material were recovered. These materials are being catalogued and will be deposited at the Royal BC Museum following completion of the Project.

## 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 reporting 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, notifications of construction through notices, and a public inquiry program, among other methods.

### January Overview

In the month of January, four construction notices and updates were issued to stakeholders: Residual Solids Conveyance Line: Utility Locating (January 4, 2019) (Appendix A); Clover Forcemain Installation (January 4, 2019) (Appendix B); Residual Solids Conveyance Line: Utility Locating (Grange Road) (January 28, 2019) (Appendix C); and Macaulay Point Forcemain Installation: Utility Locating (January 28, 2019) (Appendix D).

The Clover Forcemain Installation construction notice was widely circulated to residents in close proximity to the route: more than 600 notices were hand delivered to residents in James Bay and Fairfield. It was also sent by email to more than 450 residents and stakeholders who have signed up to receive Project updates.

With work on the Clover Forcemain beginning near Clover Point, signage (Appendix E) was posted on the fence of the construction laydown area located at Clover Point, and posted at the intersection of Cook Street and Dallas Road, describing the overall work to be undertaken, including work hours and anticipated impacts to the public.

The Project website, [wastewaterproject.ca](http://wastewaterproject.ca), was updated with information about the Project in January. Three construction notices were posted and the photo gallery section was updated with four new images.

The CRD's Twitter account, was used to provide Project updates on construction activities, including blasting notices and pipe installation activities.

The Project Team held meetings with the following community groups and representatives, and municipality representatives:

- BC Transit;
- City of Victoria Mayor;
- Conway-Hector Loop Neighbourhood Association;
- District of Saanich Technical Working Group;
- Grange Road representatives;
- James Bay Neighbourhood Association;
- Times Colonist 10km Run representative;
- Township of Esquimalt Liaison Committee; and
- Township of Esquimalt Mayor.

### February Overview

Five construction notices and updates were issued to stakeholders in February: McLoughlin Point: Peters Street Work (February 1, 2019) (Appendix F); Residual Solids Conveyance Line:

Pipe Installation (February 2019) (Appendix G); Residual Solids Conveyance Line: Blasting Information (February 2019) (Appendix H); Clover Forcemain: Utility Relocates (February 2019) (Appendix I); and Construction of the Arbutus Attenuation Tank (February 20, 2019) (Appendix J).

The Residual Solids Conveyance Line Pipe Installation construction notice was circulated to residents in proximity to the route: 7,972 notices were mailed via Canada Post. It was also sent by email to more than 300 residents and stakeholders who have signed up to receive Project updates.

As well, Project Update #6 was distributed (Appendix K). This newsletter-style document outlines the six components of the Project now under construction and the progress made in 2018. It also outlines upcoming construction activities and ways to find out more about the Project. The update was mailed via Canada Post to 53,718 residents in Victoria, Esquimalt and Saanich, posted to the Project website, and distributed to stakeholders, including municipal Mayors and Councillors, and MLAs.

Throughout the month of February, the Project website, [wastewaterproject.ca](http://wastewaterproject.ca), was updated with information about the Project. Five construction notices and Project Update #6 were posted and the photo gallery section was updated with eight new images. A map (Appendix L) showing the progress of construction along the Clover Forcemain was updated weekly.

The Project Team held meetings with the following community groups and representatives, and municipality representatives:

- City of Victoria Technical Working Group;
- Colquitz Coalition;
- Dallas Road residents;
- District of Saanich Technical Working Group;
- Greater Victoria Harbour Authority;
- PMI-Vancouver Island Chapter & Engineers and Geoscientists BC;
- Township of Esquimalt Liaison Committee;
- Victoria West Community Association; and
- Work Point Garden Club.

### **March Overview**

In the month of March, one construction notice was issued to stakeholders: Macaulay Forcemain Installation (March 8, 2019) (Appendix M). The notice was uploaded to the Project website and it was also hand delivered to 84 residences in the neighbourhood.

Throughout the month of March, the Project website, [wastewaterproject.ca](http://wastewaterproject.ca), was updated with information about the Project. One construction notice was posted and the photo gallery section was updated with eight new images. Maps showing the progress of construction along the Clover Forcemain (Appendix N) and the Residual Solids Conveyance Line (Appendix O) were updated weekly. The Community Questions section was updated with new information.

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;
- Township of Esquimalt Liaison Committee; and
- Township of Esquimalt Mayor.

### **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 - Public Inquiries – January - March, 2019*

| Inquiry Source                   | Contacts for January - March |
|----------------------------------|------------------------------|
| Information phone line inquiries | 112                          |
| Email inquiries responded to     | 47                           |

Key themes of the public inquiries were as follows:

- inquiries about timing of construction of the RSCL and the alignment;
- questions about work that is happening on Dallas Road;
- inquiries about work on Peters Street in Esquimalt involving vehicles and parking options;
- questions about impacts from construction of the Clover Forcemain including dust, lights, noise, and road conditions;
- advising trucks are using incorrect routes;
- inquiries about timing of construction of the Clover Forcemain and the cycle path; and
- questions about vibrations at Cook Street for Clover Forcemain construction.

#### 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

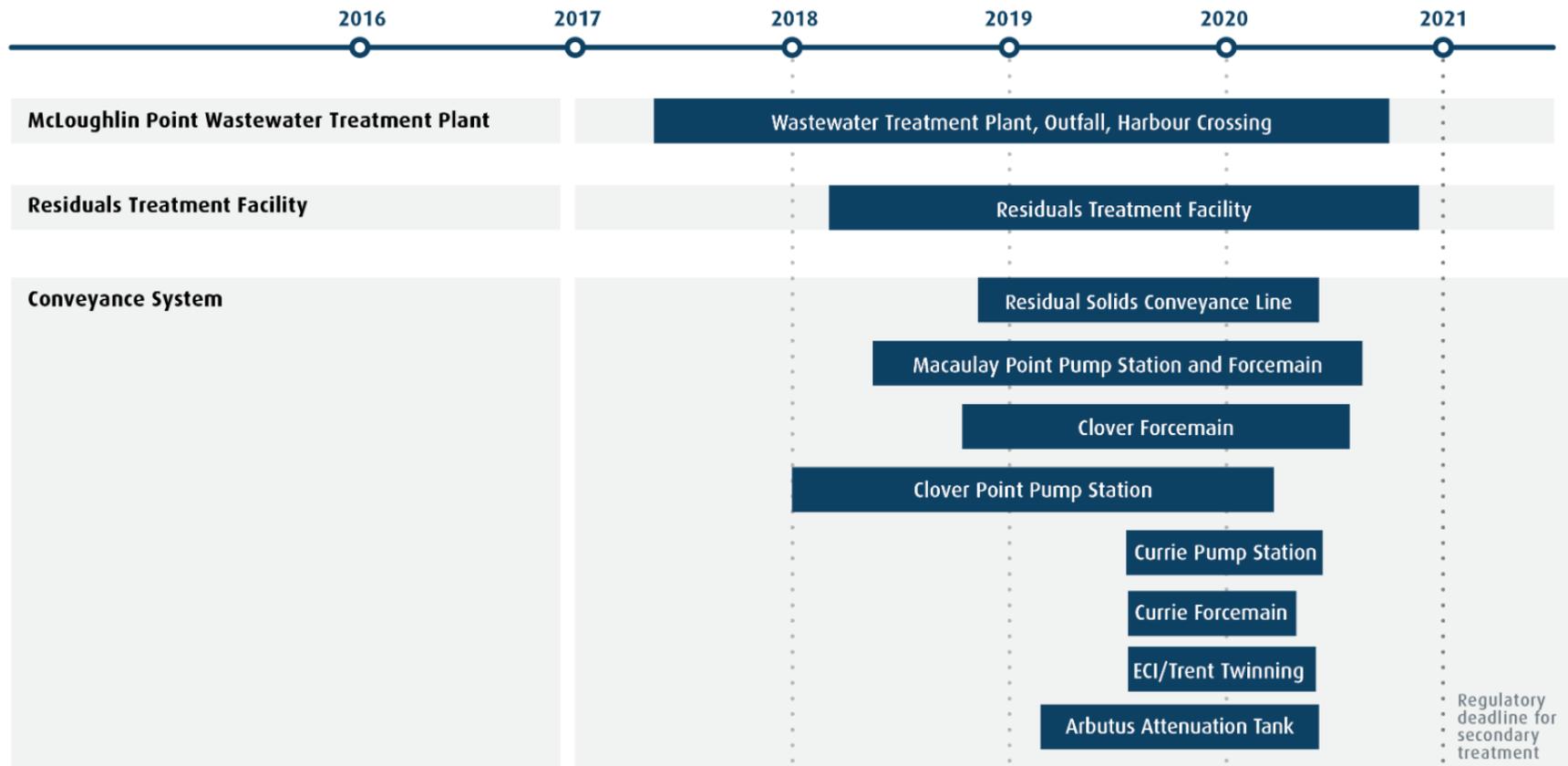
Overall the Project's scheduled activities progressed as planned over the reporting period. All major and key interface milestones were on target to complete as per schedule. Progress over the reporting period is summarised in section 2.9. The Project remains on-schedule to meet the provincial and federal regulations for treatment of the Core Area's wastewater by December 31, 2020.

Figure 1 shows the high-level Project schedule. This schedule remains the same as that shown in the Q4 Quarterly October – December 2018 Report, however the schedule remains subject to optimization as the Project and planning progresses.

Figure 1-High-Level Project Schedule<sup>1</sup>

### Wastewater Treatment Project Schedule\*

**Construction + Commissioning**



\*Schedule subject to updates as Project planning progresses.

<sup>1</sup> The schedule remains subject to optimization.

### 2.6.1. 30 day and 60 day lookahead

#### **Key activities and milestones for the next 30 days (April) are:**

##### **Safety**

- Implement findings from the independent safety management review;
- CRD prime contractor safety quality assurance audits;
- 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;
- issue any project safety notices, and
- incident reporting review with prime contractors at active work locations.

##### **Environment and Regulatory Management**

- continue marine dispersion modelling to be used for environment impact studies required for the MWR Registration.
- audit of environmental management practices on the RSCL and Clover Forcemain with each of the construction contractor's Qualified Environmental Professionals.

##### **First Nations**

- ongoing consultation and engagement with the WSÁNEĆ Leadership Council; and
- meeting with the Esquimalt and Songhees Liaisons and City of Victoria staff to discuss installation of Indigenous themed art at Clover Point.

##### **Stakeholder Engagement**

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

##### **Cost Management and Forecast**

- review findings from the independent Project execution review;
- prepare cost reports;
- monitor schedule; and
- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

##### **Construction**

###### **McLoughlin Point WWTP**

- continue upper biological aerated filter channel walls and commence third level suspended slab;
- install process piping in biological aerated filter (BAF) gallery;
- continue surface runoff/groundwater treatment and discharge;
- commence slab and wall work in primary area;

- form and pour walls, columns and slabs in the operations and maintenance building;
- continue concrete work in the tertiary area;
- commence walls and second level suspended slab in dirty backwash;
- commence third phase piling;
- complete tunneling of outfall tunnel; and
- continue installation of off-site utilities on Peter Street.

#### Clover Point Pump Station

- continue to form and pour walls and columns;
- waterproofing of exterior walls
- form and pour suspended slabs; and
- commence welding of upper reinforcing steel to king piles.

#### Macaulay Point Pump Station and Forcemain

- form and pour interior walls;
- form and pour external walls;
- complete preparation work for installation of the forcemain; and
- commence installation of sanitary forcemain

#### Residuals Treatment Facility

- form and pour suspended slab in other municipal solids receiving facility;
- commence erection of digester #1;
- form and pour digester #2 concrete slab;
- form and pour starter ring concrete for residual solids tanks #1 and #2; and
- backfill other municipal solids receiving facility.

#### Clover Forcemain

- continue with utility relocates on Dallas Road;
- commence restoration of Dallas Road between Saint Lawrence Street and Dock Street.
- continue to install forcemain; and
- continue to perform archaeological screening of excavated soil as required.

#### Residual Solids Conveyance Line (RSCL) – Trans Canada Highway Crossing

- no work planned on the highway crossing in April.

#### Residual Solids Conveyance Line (RSCL100):

- continue installation of RSCL;
- continue locates for existing utilities using ground penetrating radar;
- continue “potholing” to verify and record existing utility locations; and
- commence pavement restoration on completed areas.

#### Arbutus Attenuation Tank:

- no work planned in April.

### **Engineering**

#### McLoughlin Point WWTP

- computerized maintenance management plan (CMMP): final submission;
- training plan: final submission; and
- Residual Solids Pumping Station: 90% design deliverable.

Residuals Treatment Facility:

- overall design: resolution of various 90% design review comments; and
- resubmit early works package 8 (dryer building foundation);
- progress development of final (100%) design.

Clover Point Pump Station

- Kenaidan (the Design-Build Contractor for the Clover Pump Station) to address CRD comments regarding the final (100%) design submissions

Macaulay Point Pump Station and Forcemain

- Kenaidan (the Design-Build Contractor for the Macaulay Pump Station and Forcemain) to address CRD comments regarding the final (100%) design submission.

Residuals Solids Conveyance Line:

- RSCL300: Saanich Infrastructure Improvements: schedule design kick-off meeting with the District of Saanich and the Design Consultant.

Arbutus Attenuation Tank:

- revise design of off-site works (Road Frontage Improvements) to accommodate District of Saanich review comments.

**Procurement**

Arbutus Attenuation Tank:

- execute the contract with selected tenderer.

**Key activities and milestones for the next 60 days (May) are:**

**Safety**

- CRD prime contractor safety quality assurance audits;
- review document submissions from prime contractors;
- monthly prime contractor project safety meeting with all active Project safety representatives;
- review any site specific safety plans or high risk tasks;
- WTP Safety Manager and/or Construction Manager will conduct regular site inspections at all active Project worksites;
- site tours at all active sites; and
- monthly office/site inspections with contractors and CRD Corporate at all active sites.

**Environment and Regulatory Management**

- HRMG to submit a Technical Assessment Report to the Ministry of Environment and Climate Change Strategy in support of the application for an Operational Certificate for the Residuals Treatment Facility; and
- CRD, Stantec and HRP to continue preparation of environmental impact studies in support of the MWR Registration application.

### **First Nations**

- ongoing consultation and engagement with the W̱SÁNEĆ Leadership Council; and
- CRD with the support of Songhees and Esquimalt Liaisons to begin procuring Indigenous themed public art for placement at Macaulay Point, Clover Point and McLoughlin Point.

### **Stakeholder Engagement**

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

### **Cost Management and Forecast**

- implement findings from the independent Project execution review;
- 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 surface runoff/groundwater treatment and discharge;
- commence phase 3 piles in plate settlers, Densadegs and west entrance;
- continue tertiary concrete wall pours;
- continue to form and pour biological aerated filters (BAF) walls and channel boxes;
- complete dirty back wash tank hydrostatic test;
- continue to form and pour odour control walls;
- continue assembly of outfall pipe off site;
- continue to form, rebar and pour walls, columns and slabs for operations and maintenance building;
- continue construction of tertiary base slabs and walls; and
- continue construction of off-site utilities on Peters Street.

#### **Clover Point Pump Station**

- form and pour suspended slabs ; and
- form and pour walls.

#### **Macaulay Point Pump Station**

- continue installation of forcemain on Anson Street; and
- form and pour internal walls, columns and slabs.

### Residuals Treatment Facility

- prep subgrade for site roads;
- residuals solids tanks 1 and 2 main slab pour;
- continue digester #1 tank erection; and
- prep for cure of digester #2 concrete slab cure.

### Clover Forcemain

- continue with utility relocations on Dallas Road;
- install high density polyethylene (HDPE) forcemain in area 12 and area 6;
- continue with curb and gutter, sidewalks and asphalt restoration;
- continue to drill and blast or hydraulically hammer rock if required; and
- perform archaeological screening of excavated soil as required.

### Residual Solids Conveyance Line (RSCL)

- continue installation of residual solids conveyance line; and
- perform restoration to roads and boulevards.

## **Engineering**

### McLoughlin Point WWTP

- Residuals solids pumping station 100% design submission.

### Residuals Treatment Facility

- submission of overall 100% design.

### Clover Point Pump Station:

- finalise the overall 100% design submittal.

### Macaulay Point Pump Station and Forcemain:

- finalise the overall 100% design submittal.

### Residual Solids Conveyance Line (RSCL)

- Saanich Infrastructure Improvements (RSCL 300): commence development of the 30% design submission.

### Arbutus Attenuation Tank

- finalise design for off-site works , i.e. Road Frontage Improvements.

## **Procurement**

### Trent Forcemain

- procure design consultant services to complete detailed design and perform engineer of record duties.

## 2.7. Cost Management and Forecast

The monthly cost report for March and the quarterly cost report are shown in Appendices P and Q, respectively. 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 have steadily increased as each conveyance contract has been awarded. Over the reporting period the cost KPI for the Project overall was first changed from yellow to orange (in January 2019) and subsequently from orange to red (in February 2019), as a result of ongoing and increasing cost pressures (reported since September 2017, primarily as a result of escalation experienced on the conveyance components of the Project) and the receipt in the reporting period of:

- proposals for the Residual Solids Pump Stations and the Arbutus Attenuation Tank; and
- a refreshed estimate for the four conveyance components remaining to be procured.

Given the continued cost pressures, in the first quarter of 2019 the Project Team undertook activities to evaluate the sufficiency of the remaining contingency and program reserve to deliver the Project within the Control Budget. The outcome of that evaluation is summarized in this section.

Significant progress has been made on the Wastewater Treatment Project: the vast majority of the Project is under construction, with only one contract remaining to be procured. The Project is on schedule to 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 regulatory deadline of December 31, 2020.

The Project has experienced cost pressures on every conveyance contract awarded, primarily as a result of escalation in the Vancouver Island construction market, and budget pressures have been reported through the Project's monthly reports since September 2017. The Project Team has awarded seven conveyance contracts to-date. Each contract has been subject to a competitive procurement, with qualified and experienced contractors submitting competitive proposals for the work. However, the total cost of the conveyance contracts awarded to-date has exceeded the amount within the Project's control budget by \$56.5M. Each contract award has therefore required a draw to be made from the Project's contingency, to offset the overages.

The primary reason for the overages is that escalation in the BC construction market has exceeded expectations: there has been a significant increase in the cost of both labour and materials, including high-density polyethylene piping, steel and aluminum. 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.

While the need to treat wastewater by the regulatory deadline of December 31, 2020 has always been known, it has constrained management's ability to mitigate cost pressures. The Project is on-track to meet the regulatory deadline, but additional costs have been incurred in order to maintain progress against schedule.

Given the cost pressures to-date the Project Team engaged Kerr Wood Leidal to refresh the cost estimate for the four conveyance components remaining to be procured. Based on the value of the contracts awarded to-date and the refreshed cost estimate, the Project Team has estimated the cost to complete the Project. The Project Team forecasts that, if the Project were to be constructed with the scope as defined in the Project Board's September 2016 business case, the total cost of the Project would be \$795M, or \$30M (3.9%) over the Project's budget.

The Project Team also engaged Kerr Wood Leidal to develop an updated model of the core area's wastewater system in order to allow the CRD to make informed decisions regarding capital investments required to meet future demands.

As a result of that work, through a separate report the Project team sought (and received) the Project Board's approval to refine the Project's scope and remove three components of the conveyance system as they do not provide a benefit to the CRD's residents and businesses, and are not required to meet the Project's goals.

As the Project Board approved the Project Team's recommendation to refine the scope of the Project, the Project Team forecast that the Project can be completed at a total cost of \$775M, or \$10M (1.3%) over the Project's control budget. Appendices P and Q include this forecast overage.

The Project Board engaged Ernst & Young to make an independent assessment of the sufficiency of the control budget to complete the Project. Ernst & Young have reported their findings directly to the Project Board. Their findings included agreement with the Project Team's estimate to complete the work, and the identification of recommendations.

The Project Team have undertaken value engineering from the start of the Project, and will continue with that approach for the remainder of the Project, with the aim of minimising costs to CRD's residents and businesses (life cycle costs) and providing value for money. The Project Team will also continue to work with CRD staff to review and appropriately-allocate costs between the capital and operating budgets.

As the Project Team forecast that the Project's cost will exceed the budget available, the Project Board are seeking the CRD Board's approval to increase the Project's budget.

### 2.7.1. Commitments

Commitments were made over the reporting period in furtherance of delivering the Project. The commitments made during the reporting period resulted in an increase in committed costs of \$17.9 million. The significant commitments made in the reporting period were:

- construction contract change orders;
- value engineering and recalibrating resource commitments for the Project Team;
- award of the Residual Solids Pump Stations and Bridge Crossing construction contract.

### 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 PMO-related costs.

### 2.7.3. Contingency and Program Reserves

Contingency draws over the reporting period are itemized in Table 6 and outlined herein.

A total of \$91.7k was drawn from Program Reserve, RTF and Conveyance contingency in January, draws were associated with the following:

- a contingency draw was made for the design and construction of a truck pullout on Patricia Way in order to allow BC Hydro to install and maintain power poles and conductors at the corner of Peters Street and Patricia Way; and
- a contingency draw was made for the installation of BC Hydro power to the Saanich Water Improvement reservoir, which is being built to improve the level of water service to the Hartland Landfill site and other properties in the area.

A total of \$22.9 million was drawn from the WWTP contingency in February, draws were made for the following purposes:

- a contingency draw of \$10.5 million was made in anticipation of the awarding of the Arbutus Attenuation Tank Construction Contract;
- a total contingency draw of \$11.5 million was made in anticipation of the awarding of the Residual Solids Pump Stations and Bridget Crossing Construction Contract; and
- a contingency draw of \$300k was made for the scale house foundation and scale pits at Hartland Landfill, to be used in part for the operation of the RTF; and
- a contingency draw of \$610k was made for costs associated with permits and a construction agreement with the District of Saanich.

\$10k was credited to the WWTP contingency and \$23k was drawn from the RTF contingency over the month of March, with the draws credited/made for the following purposes:

- a credit of \$10k was made to the WWTP contingency as a result of a change in a contractor's key personnel; and
- a contingency draw of \$23k was made for the permits associated with Saanich water system improvements.

Table 6 - Contingency and Program Reserve Draw-downs

| WTP Contingency and Program Reserve Draws and Reallocations                       | Draw Date | \$ Amount              |
|---|-----------|------------------------|
| <b>Contingency and Program Reserve (in Control Budget)</b>                        |           | <b>\$ 69,318,051</b>   |
| Contingency and Program Reserve Draws to December 31, 2018                        |           | \$ (29,856,158)        |
| <b>Contingency and Program Reserve balance as at December 31, 2018</b>            |           | <b>\$ 39,461,893</b>   |
| BCHydro Truck Pullout   | Jan-19    | \$ (56,546)            |
| Award the Residual Solids Pump Stations and Bridge Crossing Construction Contract | Feb-19    | \$ (2,000,000)         |
| Administration credit due to change of contractor key personnel                   | Mar-19    | \$ 10,000              |
| <b>WWTP Total Draw</b>  |           | <b>\$ (2,046,546)</b>  |
| BCHydro power connection to Saanich Water Improvement reservoir                   | Jan-19    | (35,181)               |
| Scale House Foundation and Scale Pits   | Feb-19    | (300,000)              |
| Award the Residual Solids Pump Stations and Bridge Crossing Construction Contract | Feb-19    | (3,000,000)            |
| RTF Saanich Water Improvement - Permits   | Mar-19    | (22,998)               |
| <b>RTF Total Draw</b>   |           | <b>\$ (3,358,179)</b>  |
| Award the Arbutus Road Attenuation Tank Construction Contract                     | Feb-19    | \$ (10,470,424)        |
| RSCL Permits and Plans  | Feb-19    | \$ (610,000)           |
| <b>Conveyance Total Draw</b>  |           | <b>\$ (11,080,424)</b> |
|   |           |                        |
| <b>PMO Total Draw</b>   |           | <b>\$ -</b>            |
|   |           |                        |
| <b>BC Hydro Total Draw</b>  |           | <b>\$ -</b>            |
| Award the Residual Solids Pump Stations and Bridge Crossing Construction Contract | Feb-19    | \$ (6,500,000)         |
| <b>WTP Program Reserve Draw</b>   |           | <b>\$ (6,500,000)</b>  |
| <b>Contingency and Program Reserve draws in the reporting period</b>              |           | <b>\$ (22,985,149)</b> |
| <b>Total Contingency and Program Reserve draws to March 31, 2019</b>              |           | <b>\$ (52,841,307)</b> |
| <b>Contingency and Program Reserve balance as at March 31, 2019</b>               |           | <b>\$ 16,476,744</b>   |

#### 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 up to \$248 million towards the three components of the project, while the Government of Canada is contributing:

- up to \$120 million through the Building Canada Fund – Major Infrastructure Component towards the McLoughlin Point Wastewater Treatment Plant;

- up to \$50 million through the Green Infrastructure Fund towards the conveyance system project; and
- up to \$41 million towards the Residuals Treatment Facility through the P3 Canada Fund.

The status of funding claims is summarised in Table 7. Note that the timing for the provision of the 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 Government of British Columbia cannot be claimed until the relevant Project components are substantially complete, which is scheduled to occur in 2020.

Table 7 – Funding Status

| Funding Source                                   | Maximum Contribution | Funding Received in the Reporting Period | Funding Received to Date |
|--|----------------------|--|--------------------------|
| Government of Canada (Building Canada Fund)      | \$120M               | \$2.4M                                   | \$42.8M                  |
| Government of Canada (Green Infrastructure Fund) | \$50M                | \$6.2M                                   | \$18.1M                  |
| Government of Canada (P3 Canada Fund)            | \$41M                | -  | -                        |
| Government of British Columbia                   | \$248M               | -  | -                        |
| <b>TOTAL</b>                                     | <b>\$459M</b>        | <b>\$8.6M</b>                            | <b>\$60.9M</b>           |

## 2.8. Key Risks and Issues

The Project Team actively identified and managed Project risks over the reporting period.

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

The risk ranking of several risks was reduced over the reporting period given the significant progress on the Project, including that all components key to meeting regulatory requirements have been procured or are in the final stages of procurement, and only one contract remains to be procured.

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

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 (based on likelihood and potential impact) | Trend in risk level from previous reporting period |
|--|---|---|--|--|
| <b>Project</b>   |   |   |  |  |
| 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  | Reduced from Medium                                |
| 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  | Reduced from Medium                                |
| Lack of integration between Project Components.  | Planning challenges and system integration between the 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  | Reduced from Medium                                |



| Risk Event  | Description of Risk Event   | Risk mitigation activities undertaken or planned in the reporting period  | Assessed risk level (based on likelihood and potential impact) | Trend in risk level from previous reporting period |
|---|---|---|--|--|
| 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 have been assigned and are being monitored.  | L  | Reduced from Medium                                |
| 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 workplan 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  |



| Risk Event   | Description of Risk Event   | Risk mitigation activities undertaken or planned in the reporting period   | Assessed risk level (based on likelihood and potential impact) | Trend in risk level from previous reporting period |
|--|---|--|--|--|
| Public directly contacting contractors at sites.           | Direct contact between the public and contractors could expose both parties to worksite hazards and potential injuries. | Communications and engagement plan, contractor orientation.  | M  | No change  |
| Change in law.   | A change in law impacts the scope, cost or schedule of the Project.   | Keep apprised of proposed modifications to relevant regulations so as to do the following as appropriate: submit comments on proposed modifications; and/or consider including anticipated modifications in contracts.   | M  | No change  |
| Labour - availability and/or cost escalation.              | There is insufficient labour available to construct the Project, and/or there is significant labour cost.               | The Project Team will, through the use of competitive selection processes for all construction contracts, ensure that all Project contractors have appropriate experience and therefore understand labour risk.  | M  | No change  |
| 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  |



| Risk Event   | Description of Risk Event   | Risk mitigation activities undertaken or planned in the reporting period  | Assessed risk level (based on likelihood and potential impact) | Trend in risk level from previous reporting period            |
|--|---|---|--|---|
| <b>Conveyance</b>  |   |   |  |   |
| 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 are to be undertaken for all remaining conveyance components. | L  | Reduced from Medium   |
| Due to high cost escalation (inflation) Conveyance works contracts' amount higher than budgeted. | Cost of conveyance contracts higher than estimated and budgeted.  | Conveyance contracts will be competitively-procured. The Project Team are reviewing the scope and construction cost estimates for the contracts that haven't yet been awarded in order to identify opportunities where savings could be realized to offset escalation.  | M  | Reduced from High (as only one contract remaining to procure) |
| 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). | Reconfirm construction cost estimates at each stage of the design process. The Project Team are reviewing the scope in order to identify opportunities where savings could be realized to offset any increases during design development. Application of Value Engineering during design development and associated updated cost estimates at discrete design points.   | M  | Reduced from High (as only one contract remaining to procure) |



## 2.9. Status (Engineering, Procurement and Construction)

### 2.9.1. WWTP

The WWTP Project Component is continuing with Harbour Resource Partners (“HRP”, as the Design-Build Contractor for the WWTP) progressing: engineering of the WWTP; and construction at McLoughlin Point including: continuing concrete pours for the process building and tertiary building; beginning concrete pours for the operations and maintenance building foundations; preparing for and commencing drilling of the first section of the outfall; commencing off-site utility work on Peters Street; and commencing assembly of the outfall in Nanoose Bay.

#### **Engineering**

HRP progressed planning and design activities during the reporting period, including: in January, responding to CRD comments on the overall design as issued for construction (IFC), submittal of Construction Package 8 (IFC) – Pig Receiving Station; in February, completion of the overall design as issued for construction (IFC), and completion of construction package 8 issued for construction (IFC) – pig receiving station; and in March, submission of the Hydrogeological Conceptual Model required for the Certificate of Compliance.

#### **Construction**

Key construction activities in progress or completed by HRP during the reporting period were as follows:

##### January:

- seven of 35 biological aerated filter (BAF) walls were poured;
- four dirty backwash walls, three sludge storage tank walls and six walls of the tertiary building were poured;
- continued surface runoff/groundwater treatment and discharge;
- formed and poured columns and walls in the operations and maintenance building lab area;
- second phase piling continued in the west Densadeg;
- primary influent piping was installed and hydro tested; and
- mobilized the micro tunnel boring machine (MTBM).

##### February:

- continued second phase structural piles;
- ongoing biological aerated filter walls and suspended slab work;
- continued surface runoff/groundwater treatment and discharge;
- completed biological aerated filter rock anchors and slab;
- operations and maintenance building walls and columns poured;
- installed and partially encased primary influent piping;
- commenced Peter Street utility work; and
- commenced tunneling with the micro tunnel boring machine.

##### March:

- All interior biological aerated filter walls and biological aerated filter walls and columns completed
- Densadeg No 1 slab poured

- DBW suspended slab poured.
- micro tunnel boring machine tunneling started and ~85m mined in march.
- Primary Influent Piping installed and encased
- Process mechanical work in biological aerated filter gallery commenced with installation of valves
- Phase 2 Caisson work completed in primary area.
- Walls and Columns poured in operations and maintenance building
- Blasting of high spots in breezeway completed in operations and maintenance area
- Peter St Utility work commenced and second segment of utilities commenced

Photographs of construction progress over March at McLoughlin Point WWTP are shown in Figures 2 – 8.



*Figure 2 – McLoughlin Point Wastewater Treatment Plant: Installation of utilities in lab area changing rooms.*

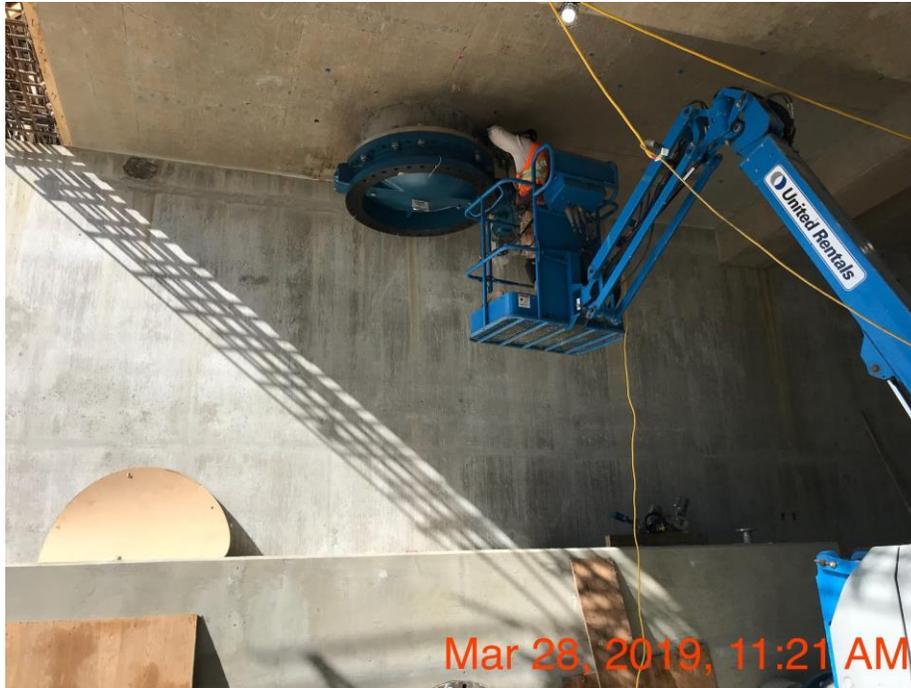


Figure 3 - McLoughlin Point Wastewater Treatment Plant: installing biological aerated filter influent valves.

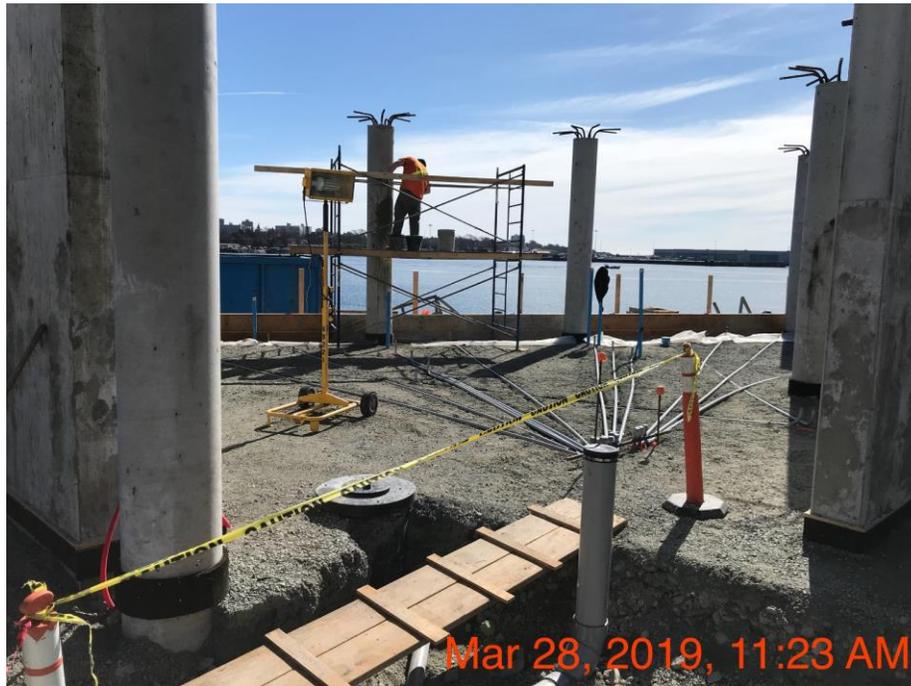


Figure 4 - McLoughlin Point Wastewater Treatment Plant: installation of electrical conduit in Lab area.



Figure 5 - McLoughlin Point Wastewater Treatment Plant: Rub and patch concrete biological aerated filter shear wall.



Figure 6 - McLoughlin Point Wastewater Treatment Plant: Installation of RSCL on Peter St.

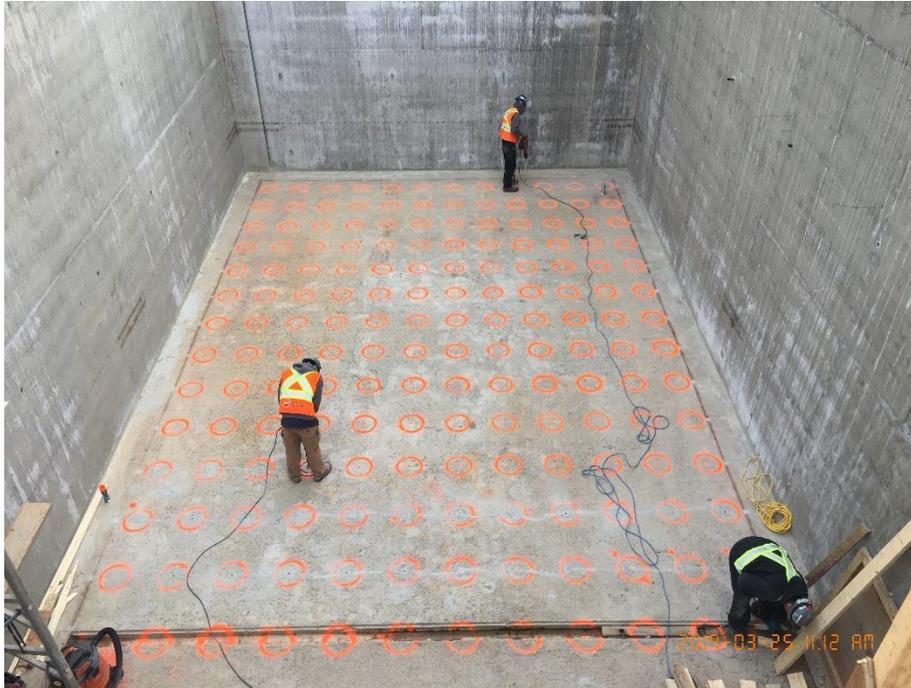


Figure 7 - McLoughlin Point Wastewater Treatment Plant: drilling biological aerated filter cell 2 floor anchors.



Figure 8 - McLoughlin Point Wastewater Treatment Plant: installing drain lines in operations and maintenance building slab.

### 2.9.2. RTF

The RTF Project Component continued scheduled activities with HRMG (as the Design-Build-Finance-Operate-Maintain Contractor for the RTF) progressing: design engineering activities and construction activities over the reporting period, including submission of the overall 90% design; issued for construction (IFC) early works packages; and pouring concrete foundations and walls; installation of underground piping; and installation of underslab drain water supply piping, including installation of each of the following: reinforcing steel in the other municipal solids receiving facility building; sanitary drain and manhole on north and west sides of residual solids tanks; onsite water system, water supply piping, and hydrants located north and east of centrifuge building; condensate line between gas burner and the other municipal solids receiving facility; and process piping at the north side of the centrifuge building

#### **Engineering**

HRMG progressed planning and design activities during the reporting period as follows:

##### January:

- continued work on overall 90% design submittal;
- held monthly progress meeting with independent certifier;
- progressed with vendor selection;
- received foundation permits from the District of Saanich;
- worked with BC Hydro to confirm power requirements to the site; and
- worked with the Ministry of Environment on permitting requirements.

##### February:

- submission of overall 90% design;
- monthly progress meeting with independent certifier;
- progressed with vendor selection;
- issued for construction (IFC) early works packages for the digester facility, other municipal solids receiving facility, water pump house, operations building, and the residuals handling building foundations; and
- worked with the Ministry of Environment on permitting requirements.

##### March:

- overall design: 90% review of design submission and review workshop;
- revisions to early works package 8 (dryer building foundation): resubmittal of final (100% and issued for construction [IFC]) design expected in April;
- continued work on overall 10% design submittal;
- monthly progress meeting with independent certifier;
- progressed with vendor selection;
- worked with Technical Safety BC on registration requirements;
- applied for CRD Waste Discharge Authorization;
- worked with District of Saanich on building permits; and
- applied for Water Supply System Construction Permit with Vancouver Island Health Authority (VIHA).

#### **Construction**

Key construction activities in progress or completed by HRMG during the reporting period were as follows:

January:

- digester #1 perimeter slab was poured and the leveling ring installed and levelled;
- electrical cables pulled between onsite transformer and poles at Willis Point Road;
- installation of RSCL pipes on main access road within the RTF site;
- onsite watermain installed to the dryer building, centrifuge building, administration building, water pump station and water storage tower areas;
- other municipal solids receiving facility slab was poured;
- digester #2 finished base gravels were shaped, compacted and graded in preparation for formwork and reinforcing steel; and
- dryer building underslab drain piping and water service were installed and tested.

February:

- continued with installation of reinforcing steel in the other municipal solids receiving facility building;
- installed sanitary drain and manhole on north and west sides of residual solids tanks;
- onsite water system, water supply piping, and hydrants installed north and east of centrifuge building;
- installed and leveled digester #1 bottom row of bolted steel tank;
- process piping installed at north side of centrifuge building; and
- installed condensate line between waste gas burner and other municipal solids receiving facility.

March:

- erection of formwork for other municipal solids receiving facility East portion walls;
- install Waste Gas Burner condensate line;
- installation of transformer for site power and installation of electrical equipment for temporary/permanent power;
- installation of levelling ring and bottom row of bolted steel tank plates;
- installation of reinforcing steel for digester #1 tank base;
- prepare base gravels for residuals solids tanks #1 and #2;
- installation of water service and process piping under slab for Centrifuge Building;
- pour digester #1 tank slab;
- ditching, grading and cleanup on main access road;
- installation of Centrifuge Building under slab sanitary drain piping;
- backfill and compaction of other municipal solids receiving facility excavation on east and south sides;
- erection of perimeter formwork and installation of reinforcing steel for digester #2; and
- pour digester #2 lower portion of perimeter thickened slab.

Photographs of construction progress over March at the RTF are shown in Figures 9-10.



Figure 9 – Residuals Treatment Facility: digester #1 flooded for curing, and installation of reinforcing steel for first pour on digester #2



Figure 10 – Residuals Treatment Facility: installation of hydro and communications conduits east side of future centrifuge building.

### 2.9.3. Conveyance System

The Conveyance System Project Component progressed as planned over the reporting period.

Construction activities for the two design-build Conveyance System contracts progressed over the reporting period. As of the end of the reporting period, two of the six design-bid-build Conveyance System contracts were in construction, two were in pre-construction and one was in the engineering phase, with the majority of work over the reporting period focused on the contracts summarised in the sub-sections below.

#### 2.9.3.1. Clover Point Pump Station

Kenaidan Contracting Limited (“Kenaidan”, as the Design-Build Contractor) progressed planning, design and construction activities including: participating in a design review workshop; progressing the overall 100% design submittal; pouring and stripping first level wet well walls; removal of waterproofing from existing exterior; forming and pouring concrete walls and channels.

#### **Engineering**

Kenaidan progressed planning and design activities during the reporting period, including: in January, attending a follow up design review meeting with the Project Team to review the remaining outstanding design comments that have not reached resolution; and in February and March progressing a response to address the outstanding comments

#### **Construction**

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

January:

- first level wet well walls poured and stripped;
- ongoing removal of waterproofing from the existing pump station exterior;
- welding dowels to caisson wall king pile beams is ongoing;
- two pump room wall sections poured; and
- wall reinforcing steel and form work complete.

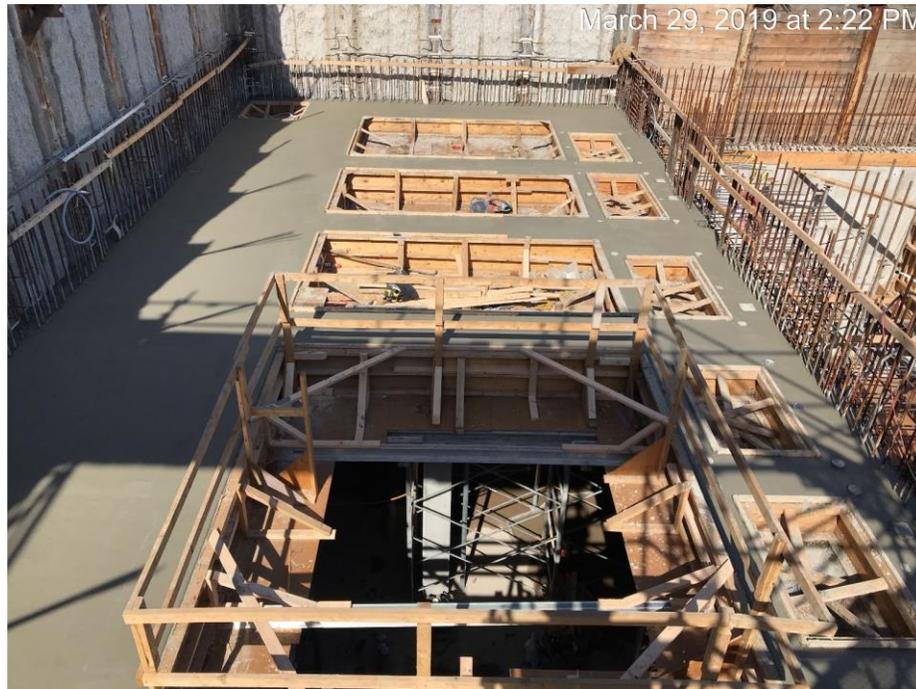
February:

- completed installation of pump room walls;
- commenced installation of walls connecting the new structure to the existing pump station;
- commenced work on the new inlet channel;
- removed the first row of temporary caisson wall anchors; and
- completed pump room and wet well columns.

March:

- continue to form and pour walls and columns;
- commence forming and installing rebar for wet well suspended slab;
- commence concrete finishing of pump room walls;
- form and pour pump room suspended slab; and
- commence welding of upper reinforcing steel to king piles.

Photographs of construction progress at the Clover Point Pump Station during March are shown in Figures 11-13.



*Figure 11 – Clover Point Pump Station: Overview of suspended slab 02 after concrete was poured.*



*Figure 12 – Clover Point Pump Station: Wall 16 bracing being installed..*

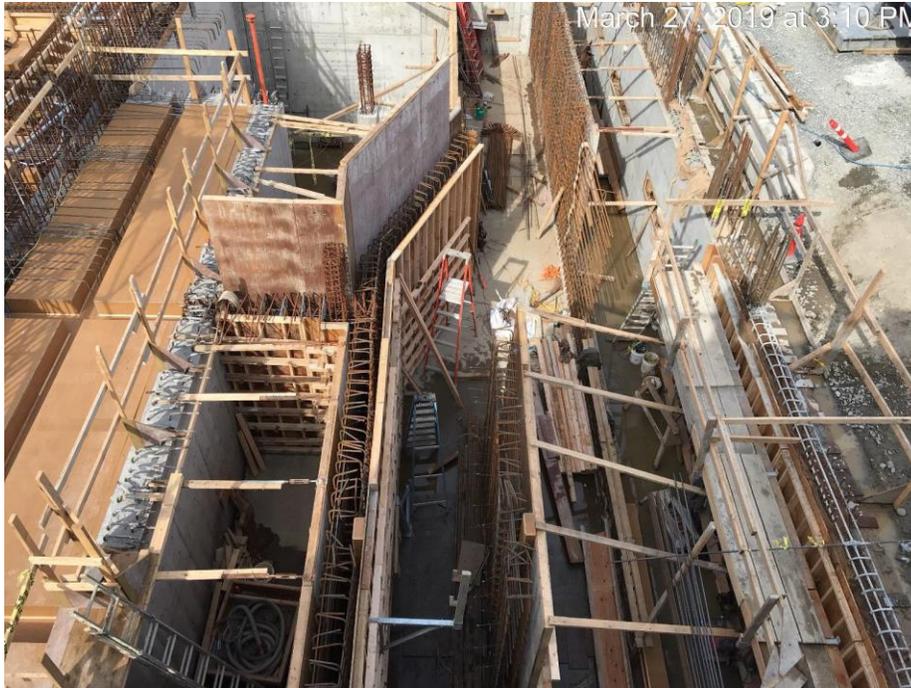


Figure 13 – Clover Point Pump Station: Overview of inlet channel area.

#### 2.9.3.1. Macaulay Point Pump Station and Forcemain

Kenaidan (as the Design-Build Contractor for the Macaulay Point Pump Station and Forcemain) progressed design, engineering and construction activities over the reporting period, including: continued development of the final (100%) design submission; completion of blasting activities and rock excavation for the facility and pouring the concrete base slab for the west half of the facility; ongoing drilling and crushing of excess granular material; and digging test pits along the forcemain alignment to confirm existing utility elevations; forming and pouring concrete slabs and walls.

##### **Engineering**

Kenaidan progressed planning and design activities during the reporting period, including: submitting the final (100%) design submission and obtaining CRD's final review comments, which are being incorporated into the final design submission.

##### **Construction**

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

January:

- completed blasting activities for the facility excavation;
- removal of rock from the excavation to the north laydown is complete;
- ongoing drilling, blasting, rock removal, and continue crushing excess granular material;
- completed concrete pour of the base slab for the west half of the facility; and
- digging test pits along the forcemain alignment to confirm existing utility elevations.

February:

- completed the southeast corner base slab;
- formwork and reinforcing steel installation for the northeast base slab is ongoing;
- formwork and reinforcing steel installation is ongoing for the west side perimeter walls is ongoing;
- digging of test pits along the forcemain alignment to confirm existing utility elevations is complete; and
- continued crushing of granular material in the north laydown.

March:

- form and pour final base slab;
- commence installation of formwork and rebar for interior walls;
- dig test pits along the forcemain alignment to confirm the rock profile;
- complete crushing of excess granular material in the north laydown;
- form and pour external walls; and
- commence preparation work for installation of the forcemain.

Photographs of construction progress at the Macaulay Point Pump Station in March are shown in Figures 14 -16.



Figure 14 – Macaulay Point Pump Station: Installing rebar for the exterior wall pour and installing interior and exterior formwork.



Figure 15 – Macaulay Point Pump Station: View looking SE at site progress.



Figure 16 – Macaulay Point Pump Station: View looking west at overall site progress.

### 2.9.3.2. Clover Forcemain (CFM)

Windley (as the Construction Contractor for the Clover Forcemain) continued with preconstruction and construction activities including: submission of work plans, shop drawings and permits, completed the geotechnical and soil assessment survey, screening of archaeological material, continued utility relocations and rock blasting, and commenced forcemain installation (from Ogden Point south and easterly, and from Clover Point westerly).

#### **Construction**

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

January:

- installed 145 metres of forcemain between St. Lawrence and Montreal Streets;
- installed 350 metres of forcemain between Clover Point and Cambridge Street;
- utility relocations ongoing;
- drilling and blasting between Montreal and Dock Streets completed; and
- screening of archaeological soils ongoing at Rock Bay.

February:

- installed 92 metres of forcemain between St. Lawrence and Montreal Streets;
- installed 270 metres of forcemain between Clover Point and Cook Street;
- utility relocations ongoing; and
- screening of archaeological soils ongoing at Rock Bay.

March:

- continue with utility relocations on Dallas Road;
- installed 181 metres of forcemain between St. Lawrence and Pilot Streets for a total of 418 metres to-date;
- installed 387 metres of forcemain between Clover Point and Camas Circle for a total of 1007 metres to-date;
- continue to perform archaeological screening of excavated soil as required.

Photographs of construction progress at the Clover Forcemain in March are shown in Figures 17-19.



Figure 17 – Clover Forcemain: Dallas Road – Installing forcemain at Dallas Rd. and Montreal St.



Figure 18 – Clover Forcemain: Dallas Road – installing forcemain through Camas Circle



Figure 19 – Clover Forcemain: Dallas Road – Road restoration at St Lawrence and Dallas Rd..

### 2.9.3.3. Residual Solids Conveyance Line (RSCL)

#### **Engineering**

- **RSCL 100 Residual Solids Pipes:** Don Mann (as the construction contractor) continued preconstruction activities including: submitting construction work plans and shop drawings, submitting permit applications, continuing to perform utility pre-locates and potholing, and initial soil assessment survey; and commenced installation of the RSCL at four locations
- **RSCL 200 Residual Solids Pump Stations:** the Project Team with support from Parsons (as the Design Consultant for the RSCL) progressed and concluded the Request for Proposals procurement process, including: responding to inquiries and issuing addenda; receiving proposals from proponents; evaluating the proposals and selecting the preferred proponent; and executing the contract with Knappett Projects Inc. (Knappett) and holding the kick-off meeting.
- **RSCL 300 Saanich Infrastructure Improvements:** the Project Team will be arranging a detailed design kick-off meeting with Parsons (as the Design Consultant) and the District of Saanich in Q2 2019.

#### **Construction**

Photographs of construction progress along the RSCL are shown in Figures 20-21. Key construction activities in progress or completed by Don Mann Excavating in February were as follows:

- Segment #1 – commenced installation of the RSCL at each end of Segment # 1, being: Wollaston St./Dunsmuir Rd. and Colquitz Ave./Newbury Street installing a total of 1,033.5 metres to-date;
- Segment #3 – commenced installation of the RSCL at Interurban Road, installing a total of 345 metres to-date; and
- Segment #4 – commenced installation of the RSCL at Willis Point Road, installing a total of 1,020 metres to-date.



*Figure 20– Residual Solids Conveyance Line: Newbury St – Back and compaction of RSCL*



Figure 21 – Residual Solids Conveyance Line – Willis Point Road – Installing RSCL and CRL

#### 2.9.3.4. Arbutus Attenuation Tank

The Project Team with support from KWL (as the Design Consultant for the Arbutus Attenuation Tank):

- progressed the invitation to tender procurement process, including: responding to inquiries and issuing addenda; receiving submissions from tenderers; evaluating the tenders and selecting the tenderer;
- continued activities to secure the building permit from the District of Saanich; and
- prepared for and completed clearing and grubbing of the site.

#### 2.9.3.5. Remainder of Conveyance Component

Over the reporting period the Project Team sought (and received) the Project Board's approval to refined the Project's scope, as outlined in section 2.7. In summary three components of the conveyance system were removed from the Project's scope (being the twinning of the East Coast Interceptor, construction of the Currie Forcemain from the Currie Pump Station to the East Coast Interceptor and upgrades to the Currie Pump Station) as they do not provide a benefit to the CRD's residents and businesses, and are not required to meet the Project's goals. As a result of this refinement, only one Project component remains to be procured: the extension of the Trent Forcemain to Clover Point Pump Station. The Project Team will procure design consultant services to complete detailed design and perform engineer of record duties.

**Appendix A – RSCL: Utility Locating (January 2019)****Wastewater  
Treatment Project**  
Treated for a cleaner future**Construction Notice**

January 2019

**Residual Solids Conveyance Line: Utility Locating**

As part of construction of the Residual Solids Conveyance Line for the Wastewater Treatment Project, the contractor, Don Mann Excavating, is locating existing utilities along the alignment. This work is being done prior to pipe installation that is expected to begin in February 2019.

**What to Expect**

Existing underground utilities will be exposed to record their location and depth. 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. The work will advance quickly down the road and access to driveways will be maintained by personnel on site.

**Work Hours**

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

**Traffic Impacts**

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

**Background**

The Residual Solids Conveyance Line consists of two pipes and three small pump stations. The first pipe will be 19.3km and will transport residual solids from the McLoughlin Point Wastewater Treatment Plant to the Residuals Treatment Facility at Hartland Landfill for treatment. The second pipe will be 12.4km long and will return the liquid removed during the treatment process to the Marigold Pump Station, from where it will be returned to the McLoughlin Point Wastewater Treatment Plant through the existing conveyance system.

**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.

For more information, please visit [wastewaterproject.ca](http://wastewaterproject.ca).

To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit [wastewaterproject.ca](http://wastewaterproject.ca). To contact the project, please email [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or call 1.844.815.6132.

**Appendix B – Clover Forcemain Installation (January 4, 2019)****Wastewater  
Treatment Project**  
Treated for a cleaner future**Construction Notice****January 4, 2019****Clover Forcemain Installation**

The installation of the pipe along Dallas Road is anticipated to begin January 7, 2019. The contractor, Windley Contracting Ltd., will begin work at each end of the pipe: Niagara Street to Dock Street (Section 1) and Clover Point to Cook Street (Section 7).

**What to Expect**

- The pipe will be installed in segments.
- A 100m-long trench will be excavated and a 100m-long laydown area will be used to fuse the pipe together.
- The pipe will be lowered into the trench, the trench will be backfilled and the surface restored.
- Noise associated with this work includes excavation machinery and truck back-up beepers, and will not exceed the City of Victoria's noise bylaws.

**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 in the work zones of both sections during work hours.
- The section between Niagara and Dock streets will have single lane alternating traffic in the work zone overnight as required.
- Traffic control areas will be delineated by cones and signs and controlled by flaggers.
- A portion of Dallas Road between Niagara and Dock streets will be temporarily closed for one or two days a week during work hours as the pipe is moved into the trench. Detours will be implemented.
- There will be parking impacts on Dallas Road.

**Access**

- Vehicle access to residents and businesses may be temporarily restricted due to the presence of equipment. Residents will be notified in advance.
- One entrance to Ogden Point will remain available at all times.
- Bus stops may be temporarily impacted on Dallas Road between Niagara and Montreal streets. BC Transit will post notifications at the stop.
- Emergency services will have access at all times.

Thank you for your patience as this work is completed.

**(Continued on next page)**

To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit [wastewaterproject.ca](http://wastewaterproject.ca). To contact the project, please email [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or call 1.844.815.6132.

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

Construction Notice

**Sequence of Construction Map**



- |                                       |  |  |                                 |
|---------------------------------------|--|--|---------------------------------|
| ① NIAGARA TO DOCK<br>Winter 2018-2019 | ③ LEWIS TO GOVERNMENT<br>Spring 2019   | ⑤ DOUGLAS STREET INTERSECTION<br>Summer 2019 | ⑦ COOK TO CLOVER<br>Winter 2019 |
| ② DOCK TO LEWIS<br>Winter 2019        | ④ GOVERNMENT TO DOUGLAS<br>Summer 2019 | ⑥ DOUGLAS TO COOK<br>Summer 2019             | --- CYCLE PATH<br>2019-2020     |

**Background**

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.

Construction of the Clover Forcemain, including the cycle path, is anticipated to be complete in summer 2020.

**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.

To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit [wastewaterproject.ca](http://wastewaterproject.ca). To contact the project, please email [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or call 1.844.815.6132.

**Appendix C – RSCL: Utility Locating (Grange Road) January 18, 2019****Wastewater  
Treatment Project**  
Treated for a cleaner future**Construction Notice**

January 2019

**Residual Solids Conveyance Line: Utility Locating**

As part of construction of the Residual Solids Conveyance Line for the Wastewater Treatment Project, the contractor, Don Mann Excavating, is locating existing utilities along the alignment. This work needs to be done prior to pipe installation. The Project Team will provide more information on the modified alignment on Grange Road and construction activities prior to pipe installation beginning.

**What to Expect**

Existing underground utilities will be exposed to record their location and depth. 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. The work will advance quickly down the road and access to driveways will be maintained by personnel on site.

**Work Hours**

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

**Traffic Impacts**

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

**Background**

The Residual Solids Conveyance Line consists of two pipes and three small pump stations. The first pipe will be 19.3km and will transport residual solids from the McLoughlin Point Wastewater Treatment Plant to the Residuals Treatment Facility at Hartland Landfill for treatment. The second pipe will be 12.4km long and will return the liquid removed during the treatment process to the Marigold Pump Station, from where it will be returned to the McLoughlin Point Wastewater Treatment Plant through the existing conveyance system.

**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.

For more information, please visit [wastewaterproject.ca](http://wastewaterproject.ca).

To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit [wastewaterproject.ca](http://wastewaterproject.ca). To contact the project, please email [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or call 1.844.815.6132.

**Appendix D – Macaulay Point Forcemain Installation: Utility Locating (January 28, 2019)****Wastewater  
Treatment Project**  
Treated for a cleaner future**Construction Notice**

January 28, 2019

**Macaulay Point Forcemain Installation: Utility Locating**

The construction of the Macaulay Point Pump Station and Forcemain includes the installation of a pipe that will convey wastewater from the Macaulay Point Pump Station to the McLoughlin Point Wastewater Treatment Plant for treatment. As part of this work, the contractor is locating existing utilities along the alignment for approximately three weeks. This work is being done prior to pipe installation that is expected to begin in March 2019.

**What to Expect**

Existing underground utilities will be exposed to record their location and depth. 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. The work will advance quickly down the road and access to driveways will be maintained by personnel on site.

**Work Hours**

- Monday to Friday from 7:00 a.m. to 7:00 p.m.
- Saturday from 9:00 a.m. to 5:00 p.m.

**Traffic Impacts**

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

**Background**

The new Macaulay Point Pump Station and Forcemain is being built as part of the Wastewater Treatment Project. The existing pump station will be demolished and a new pump station will be constructed to convey wastewater from Colwood, Langford, View Royal, Esquimalt, Saanich and Victoria to the McLoughlin Point Wastewater Treatment Plant for tertiary treatment. The new Macaulay Point Pump Station will continue to provide bypass pumping to the existing outfall during heavy storm events.

**About the Wastewater Treatment Project**

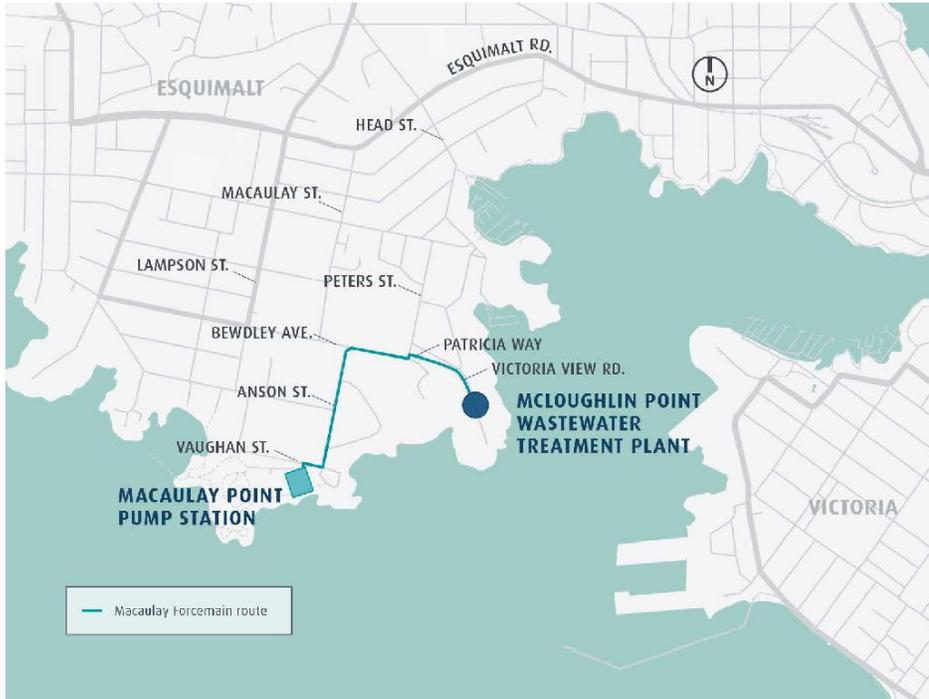
The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations by the end of 2020.

For more information, please visit [wastewaterproject.ca](http://wastewaterproject.ca).

To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit [wastewaterproject.ca](http://wastewaterproject.ca). To contact the project, please email [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or call 1.844.815.6132.

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

**Construction Notice**



To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit [wastewaterproject.ca](http://wastewaterproject.ca). To contact the project, please email [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or call 1.844.815.6132.

## Appendix E – Clover Forcemain Construction Signage



Wastewater  
Treatment Project  
Treated for a cleaner future

### Construction Notice

## Construction of 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, which was completed in April 2018.

#### Work to be Completed

- Archaeological work.
- Relocating existing underground utilities.
- Forcemain installation including excavation of 100m-long trench sections, lowering the fused pipe into the trench, backfilling, and surface restoration.
- Some blasting is expected to be required when rock is encountered in the trench.
- Some trees will need to be removed to accommodate the forcemain and cycle path alignment.
- Public space improvements including a cycle path, new crosswalks, benches, bike racks, wayfinding signage and parking lines.

#### Work Hours

- 7:00 a.m. to 7:00 p.m. Monday to Friday
- 10:00 a.m. to 7:00 p.m. Saturday
- No work is currently planned for Sundays or holidays, but may be required on limited occasions.

#### Traffic Impacts

- Work will be done in segments to minimize impacts to residents.
- There will be single lane alternating traffic.
- There will be parking impacts on Dallas Road.
- Driveway access may be temporarily restricted due to the presence of equipment. Residents will be notified in advance.

Access to Clover Point Park and the pathway along Dallas Road will remain open during construction.

Construction of the Clover Forcemain, including the cycle path, is anticipated to be complete in summer 2020.

#### 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. The Wastewater Treatment Project is being funded by the Government of Canada, the Government of British Columbia and the Capital Regional District.

To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit [wastewaterproject.ca](http://wastewaterproject.ca). To contact the project, please email [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or call 1.844.815.6132.

## Appendix F – McLoughlin Point: Peters Street Work (February 1, 2019)



Wastewater  
Treatment Project  
Treated for a cleaner future

### Construction Notice

February 1, 2019

### McLoughlin Point: Peters Street Work

As part of the construction of the McLoughlin Point Wastewater Treatment Plant, the contractor, Harbour Resource Partners, will be conducting utility work on Peters Street beginning the week of February 4, 2019. This utility work includes installation of two pipes for the Residual Solids Conveyance Line, a new water main and concrete duct banks and vaults for BC Hydro services.

The work will be done in three sections with each section of the road closed while construction is completed. Each section is expected to be closed for approximately three weeks starting with Section 1.

#### What to Expect

- A trench will be excavated, pipes will be lowered into the trench and then backfilled.
- One concrete duct bank and three underground service vaults will be installed.
- The road will be paved and curbs repaired once all three sections are complete.
- Blasting may be required if rock is encountered in the trench.
- Garbage and recycling will be picked up as usual.
- Emergency services will have access at all times.

#### Work Hours

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

#### Traffic Impacts

- Detours will be in place as Peters Street will be closed in sections.
  - During Section 1, the detour will be Gault Crescent.
  - During Section 2 and 3, the detour will be Macaulay Street. Trucks to McLoughlin Point will use Malvern Street and Victoria View Road. Trucks to Macaulay Point will follow the Macaulay Street detour.
- Driveway access will be blocked within each closed section (expected to be approximately 3 weeks). Parking will be available on side streets.
- Pedestrian access to houses will be maintained at all times. Please contact us if you have mobility needs.

#### 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.

For more information, please visit [wastewaterproject.ca](http://wastewaterproject.ca) or call our 24/7 phone line 1.844.815.6132.

(Continued on next page)

To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit [wastewaterproject.ca](http://wastewaterproject.ca). To contact the project, please email [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or call 1.844.815.6132.

## Appendix G – Residual Solids Conveyance Line: Pipe Installation (February 2019)



Wastewater  
Treatment Project  
Treated for a cleaner future

Construction Notice

February 2019

### Residual Solids Conveyance Line: Pipe Installation

Pipe installation for the Residual Solids Conveyance Line is anticipated to begin in February and be complete in spring 2020. The contractor, Don Mann Excavating, will have crews working in four different sections.

#### What to Expect

- The pipe will be installed in segments.
- A trench will be excavated, the pipes will be lowered 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.

#### 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 each municipality's bylaws.
- Night work may be done at busy intersections to limit impacts to traffic.

#### Traffic Impacts

- There will be single lane alternating traffic in the work zones.
- Two-way traffic will be maintained at busy intersections during rush hour.
- Traffic control areas will be delineated by cones and signs and 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 reinstated at the end of each work day. Residents will be notified of temporary closures in advance.
- Bus stops may be temporarily impacted. BC Transit will post notifications at the bus stops.
- Emergency services will have access at all times.

#### Timing

- The construction schedule is dependent on progress and is subject to change. Please visit our website for updated information.
- Construction on the Interurban Rail Trail will take place in summer 2019.

Thank you for your patience as this work is completed.

(Continued on next page)

To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit [wastewaterproject.ca](http://wastewaterproject.ca). To contact the project, please email [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or call 1.844.815.6132.

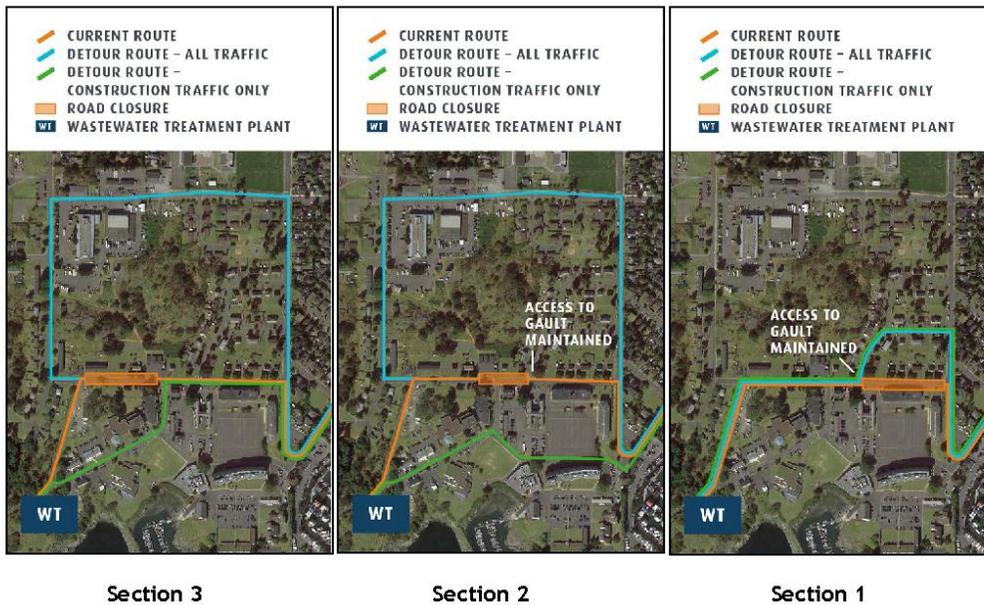
**Wastewater Treatment Project**  
Treated for a cleaner future

**Construction Notice**

**Sections of Work**



**Detour Routes**



To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit [wastewaterproject.ca](http://wastewaterproject.ca). To contact the project, please email [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or call 1.844.815.6132.

**Appendix H – Residual Solids Conveyance Line: Blasting Information (February 2019)**Wastewater  
Treatment Project  
Treated for a cleaner future

Construction Notice

February 2019

**Residual Solids Conveyance Line: Blasting Information**

Construction for the Residual Solids Conveyance Line is currently underway. As part of this work, a trench is excavated to install the pipes. When rock is encountered in the trench, rock hammering or blasting will be required.

**What to Expect**

- Pre- and post-blast surveys will be conducted when blasting is required. Notification will be provided to residences directly.
- Noise and vibrations are expected during this work.
- The energy of the blasts are controlled and monitored.

**Blasting Procedure**

- All blasts will be covered with blasting mats.
- Blasting signs and personnel will be posted at access points on the construction site boundary to prevent entry into the blast area.
- Warning signals will be used as follows:
  - 12 short whistles at one second intervals followed by a two minute pause
  - Blast will be detonated
  - One long whistle signals all is clear
- Each blast is monitored for vibration with a seismic device.
- If you have any questions or concerns about blasting or the Project, please contact the Project Team at [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or 1.844.815.6132.

**Work Hours**

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

**Traffic Impacts**

- Single lane alternating traffic during work hours.
  - Both lanes will be closed for short periods for each blast.
- Traffic control areas will be delineated by cones and signs and controlled by flaggers.

For more information about construction of the Residual Solids Conveyance Line, please visit Current Construction Activities on our website [wastewaterproject.ca](http://wastewaterproject.ca).

**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 First Nations by the end of 2020.

To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit [wastewaterproject.ca](http://wastewaterproject.ca). To contact the project, please email [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or call 1.844.815.6132.

**Appendix I – Clover Forcemain: Utility Relocates (February 2019)****Wastewater  
Treatment Project**  
Treated for a cleaner future**Construction Notice**

February 2019

**Clover Forcemain: Utility Relocates**

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.

The contractor, Windley Contracting Ltd., is conducting utility relocations on Dallas Road from Government Street to Douglas Street and the Douglas Street intersection and will continue for approximately four months. This work is being completed prior to forcemain installation.

**What to Expect**

- Work includes excavation and relocation of storm, sewer and water pipes. The trench will be backfilled as the pipes are installed.
- Blasting will occur if rock is encountered in the trench.
- Noise associated with this work includes excavation machinery and truck back-up beepers and will not exceed the City of Victoria's noise bylaws.

**Work Hours**

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

**Traffic Impacts**

- At times, Dallas Road will be temporarily closed between Government and Douglas during work hours.
- Single lane alternating traffic will generally be maintained during work hours with road plates installed overnight to allow two-way traffic.
- Traffic control areas will be delineated by cones and signs and controlled by flaggers.
- There will be parking impacts on Dallas Road.

**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.

Thank you for your patience as this work is completed.

To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit [wastewaterproject.ca](http://wastewaterproject.ca). To contact the project, please email [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or call 1.844.815.6132.

## Appendix J – Construction of the Arbutus Attenuation Tank (February 20, 2019)

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

**Construction Notice**

February 20, 2019

### Construction of the Arbutus Attenuation Tank

The Wastewater Treatment Project includes construction of the Arbutus Attenuation Tank, an underground concrete tank that will temporarily store wastewater flows during high volume storm events to reduce the number of sewage outflows. Site clearing is anticipated to begin February 21 and take approximately three weeks. This work is taking place now before the bird nesting season begins. Construction of the tank is anticipated to begin later in the spring and will take approximately 14 months to complete.

The Arbutus Attenuation Tank will be located on CRD-owned land in Haro Woods that is already partially cleared and has been previously disturbed during the construction of existing sewers. This site was chosen to minimize impacts to trees. Once construction is complete, the site will be planted with vegetation appropriate for the local woodland setting.

#### What to Expect

- Removal of trees and brush within the construction site and laydown area will be completed by arborists.
- Construction of a temporary laydown area with site offices and facilities that includes the installation of geotextile cloth and clean crushed drained rock to protect the area.
- Excavation and concrete works for the underground tank.
- Connection to the existing conveyance system.
- Temporary construction fencing will be erected around the site during construction. Public access will be restored once construction is complete.

#### Work Hours

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

#### Traffic Impacts

- Work will be contained to the site and there may be minimal traffic impacts.
- Pedestrian access to the trails within the site will be restricted for public safety during construction and restored upon completion.

#### 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 First Nations by the end of 2020.

Thank you for your patience as this work is completed.

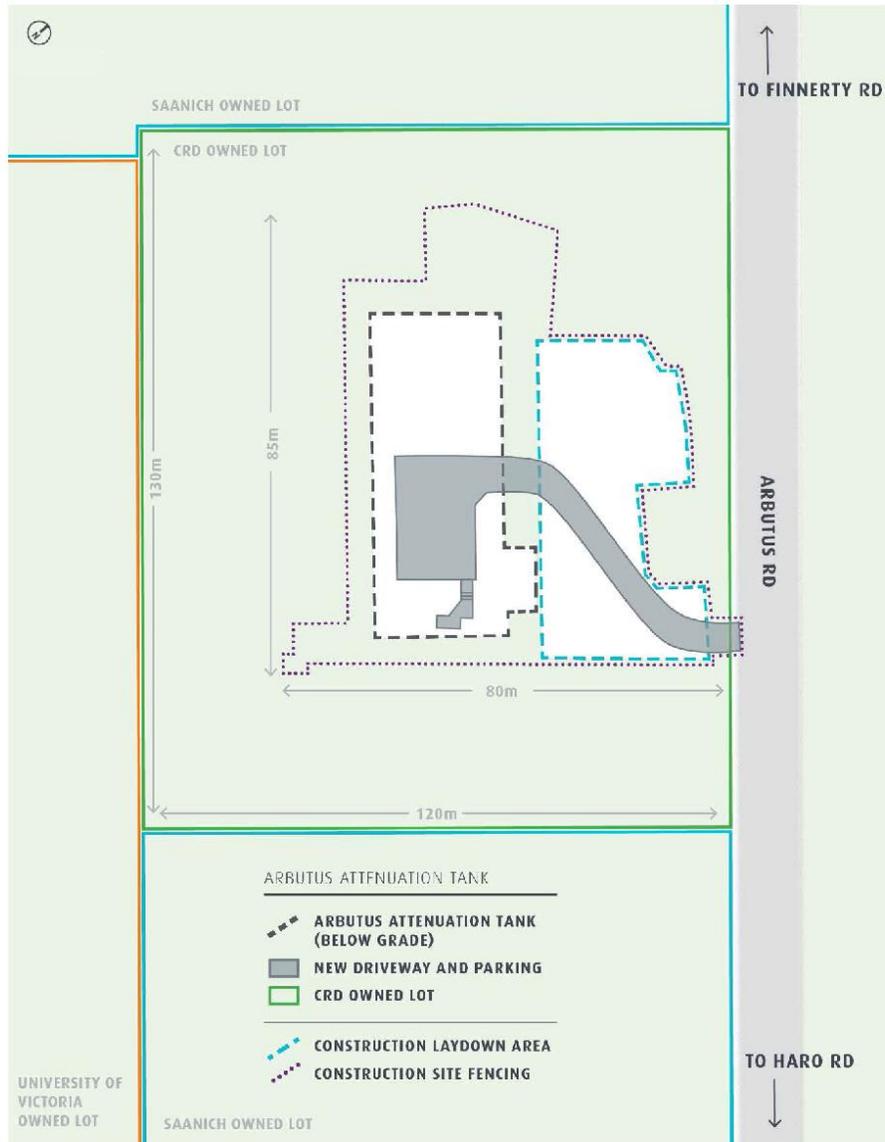


To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit [wastewaterproject.ca](http://wastewaterproject.ca). To contact the project, please email [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or call 1.844.815.6132.

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

**Construction Notice**

**Site Map**



To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit [wastewaterproject.ca](http://wastewaterproject.ca). To contact the project, please email [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or call 1.844.815.6132.

## Appendix K – Project Update #6 (February 2019)



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

**Project Update #6**  
February 2019

## Wastewater Treatment Project

With six components of the Wastewater Treatment Project now under construction, we made significant progress towards our goals in 2018 and are well on track to meet federal and provincial regulations for treatment by the end of 2020. Significant construction activity throughout the region continues in 2019 including pipe installation continuing along Dallas Road for the Clover Forcemain and the beginning of work on the Residual Solids Conveyance Line in Esquimalt, Victoria and Saanich. Our website will be updated throughout construction so that you can find the latest construction updates in the “Current Construction Activities” section.

### Construction Updates

#### DALLAS ROAD CONSTRUCTION

The Project includes the construction of a pipe which will transport wastewater from the Clover Point Pump Station to the McLoughlin Point Wastewater Treatment Plant for tertiary treatment. This pipe (called the Clover Forcemain) will run along Dallas Road from Clover Point to Ogden Point, where it will connect to the recently completed Victoria cross-harbour undersea pipe.

The contract for the Clover Forcemain was awarded to Windley Contracting Ltd., a Vancouver Island-based company. Construction activities on Dallas Road began in October 2018 with archaeological work and utility relocations. The installation of the pipe began in January 2019 at both the Ogden Point and Clover Point ends of the pipe. The pipe is being installed in 100m segments to minimize impacts to residents and the many users of Dallas Road.

#### CLOVER POINT PUMP STATION

The expansion of the Clover Point Pump Station has been under construction since February 2018. Excavation was completed in 2018 with concrete pouring now underway and will continue in 2019 along with installation of pumping equipment.



*The 1.2m diameter Clover Forcemain is being lowered into the trench near Clover Point. There will be single lane alternating traffic on Dallas Road during construction.*



**McLOUGHLIN POINT WASTEWATER TREATMENT PLANT**

Construction at McLoughlin Point began in June 2017. Excavation was completed in 2018 and the site changes daily as concrete pouring continues in 2019 and walls rise above the ground.

**MACAULAY POINT PUMP STATION**

Site preparation for the Macaulay Point Pump Station is complete, and a crane has been erected on site. Concrete pouring will continue for six months and the installation of the forcemain connecting the pump station to the McLoughlin Point Wastewater Treatment Plant will begin this spring.

**RESIDUALS TREATMENT FACILITY**

Site preparation at the Residuals Treatment Facility, including excavation, backfilling and compacting started in 2018. Next steps in 2019 will include pouring concrete for the foundations and work on the structures, as well as procurement of major equipment.

**RESIDUAL SOLIDS CONVEYANCE LINE**

The contract for the Residual Solids Conveyance Line was awarded to local company Don Mann Excavating in November 2018.

Utility location is underway and installation of the pipes began in February with multiple crews working in different locations along the route to complete the work within approximately 18 months. The pipes will be installed in segments, with each segment requiring excavation of the trench, laying the pipe, backfilling, and restoring the surface. There will be single lane alternating traffic in each work zone.



*Construction of concrete walls at the McLoughlin Point Wastewater Treatment Plant*

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. The Project is being built to meet federal and provincial regulations for treatment by December 31, 2020 and is being funded by the Government of Canada, the Government of British Columbia and the CRD.

**Project Update #6**  
February 2019

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

## Engagement Summary

The key focus of communication and engagement activities is to keep residents and stakeholders informed of Project plans, progress, and construction information, as well as to receive and respond to questions raised by the community.

In 2018, the Project Team held nine open houses in Saanich, Esquimalt and Victoria to provide information about construction plans, impacts, and timing and to provide an opportunity for people to meet and ask questions of the Project Team. Construction notices were also hand delivered, emailed and posted to the Project website.

We will continue to update our website. Please check the “Current Construction Activities” section for the latest construction updates. Construction photos are posted at [flickr.com/photos/crdwastewaterproject](https://www.flickr.com/photos/crdwastewaterproject)

We appreciate hearing from you. Please email [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or call us on our 24-7 project information line, **1.844.815.6132**.

**2018 COMMUNITY ENGAGEMENT SUMMARY**

|   |   |   |
|---|---|---|
| <br><b>394</b><br>responses to phone inquiries | <br><b>195</b><br>responses to email inquiries | <br><b>80</b><br>meetings with community associations, municipalities and stakeholders |
| <br><b>9</b><br>public open houses             | <br><b>47</b><br>construction notices          |   |



Public Open House at Cook Street Village Activity Centre.



Construction of a digester at the Residuals Treatment Facility.



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

**Project Update #6**  
February 2019

## Meet a Member of the Project Team

### KELLY OLSEN, SAFETY MANAGER

Kelly Olsen is the Safety Manager for the Wastewater Treatment Project and she reviews the safety plans and practices of the prime contractors at all of the project sites. Conducting site visits and weekly safety inspections is just one aspect of her daily tasks as Kelly also organizes coordination meetings to bring all the teams together.

Safety is the number one priority for the Project. Each meeting for the Project begins with a safety moment, keeping safety at the forefront of everything we do and providing an opportunity to be mindful about the importance of safety. Each site holds Toolbox Talks to review the hazards of the day and the control measures and actions in place to ensure safety is at the top of everyone's mind. Site conditions change daily so this is an important part of each day.

Kelly brings to the Project 30 years of experience in the construction industry as a safety consultant. She also performs external audits for the BC Construction

Safety Association for the Certification of Recognition Program. In her time off, Kelly enjoys her farm and raises and shows Quarter Horses on a competitive level in Canada and the United States. She is also the proud grandmother of two.



*Aerial view of construction progress at the Macaulay Point Pump Station.*

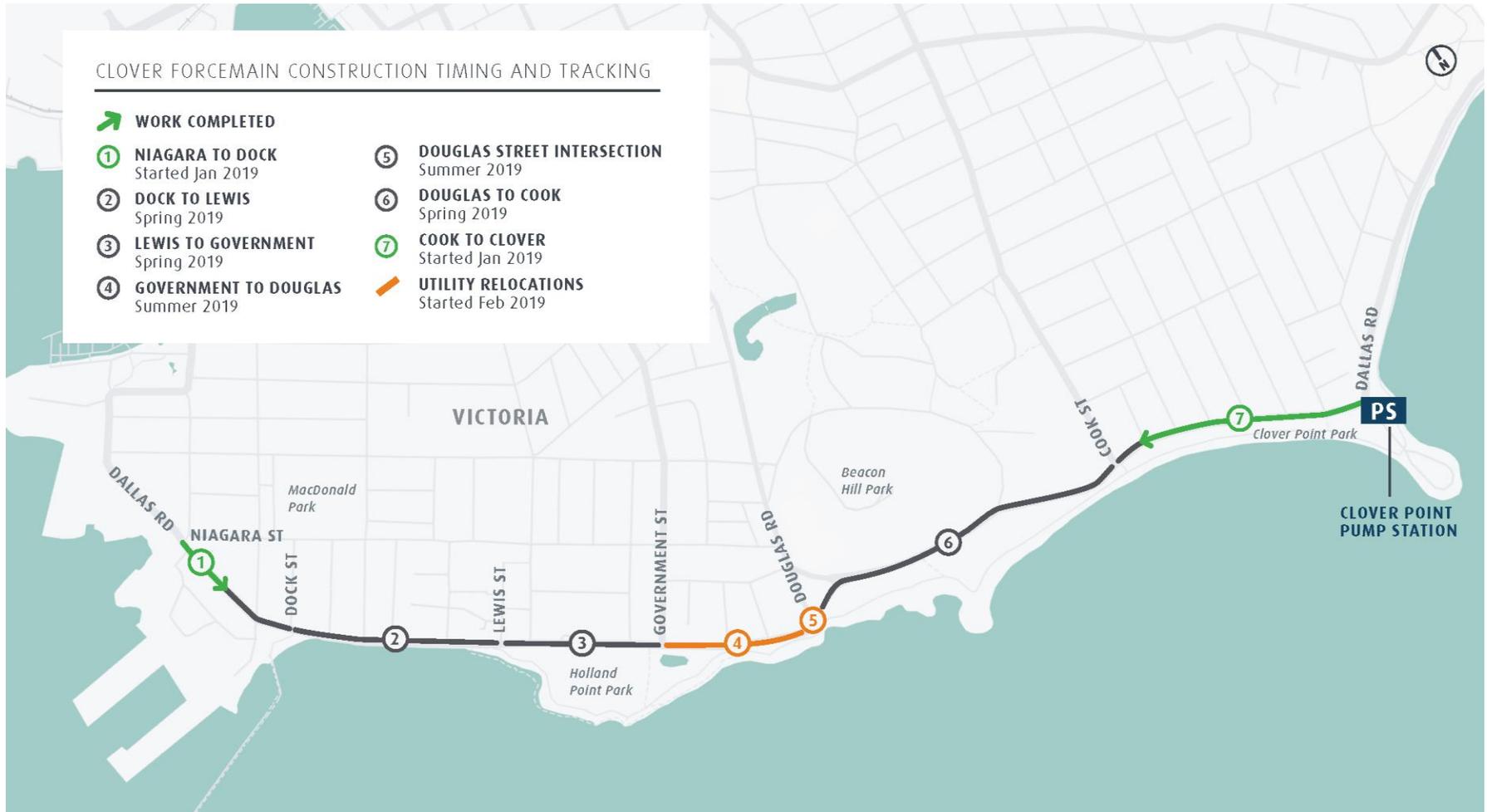
### For More Information

**Website:** [wastewaterproject.ca](http://wastewaterproject.ca)

**Email:** [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca)

**24-7 Project Information Line:** 1.844.815.6132

### Appendix L – Clover Forcemain Construction Timing and Tracking



## Appendix M – Macaulay Forcemain Installation



Wastewater  
Treatment Project  
Treated for a cleaner future

Construction Notice

March 8, 2019

### Macaulay Forcemain Installation

The construction of the Macaulay Point Pump Station and Forcemain includes the installation of a pipe that will convey wastewater from the Macaulay Point Pump Station to the McLoughlin Point Wastewater Treatment Plant for tertiary treatment. Installation of the pipe is anticipated to begin at the end of March 2019 and take approximately 9 months. Work will begin at the pump station and progress towards the treatment plant.

On Anson Street, the pipe will be installed in the boulevard rather than the road to limit impacts to traffic and avoid existing underground utilities resulting in a shorter duration of construction. Fifteen trees on the west side of Anson Street will be removed in mid-March as they are within the alignment of the forcemain. The Project Team will plant thirty trees on Anson Street (at a 2:1 replacement ratio) and work with the Department of National Defence to select the placement and species for the replaced trees. The Project Team is working with the members of the Work Point Community Garden regarding temporary impacts to some garden plots and will restore the affected garden plots once work is completed.

#### What to Expect

- The forcemain will be installed on the following roads: View Point Road, Vaughan Street, Anson Street, Bewdley Avenue, Peters Street, Patricia Way and Victoria View Road (see map on reverse).
- The forcemain will be installed in stages. For each section: a trench will be excavated, the pipe will be lowered into the trench, the trench will be backfilled, and the surface restored.

#### Work Hours

- 7:00 a.m. to 7:00 p.m. Monday to Friday
- 9:00 a.m. to 7:00 p.m. Saturday
- Occasional Sunday work may be required from 9:00 a.m. to 7:00 p.m.

#### Traffic Impacts

- There will be localized single-lane traffic during forcemain construction.
- Traffic control areas will be delineated by cones and signs and controlled by flaggers.

#### Access

- Vehicle access to residences may be temporarily restricted due to the presence of equipment. Residents will be notified in advance.
- Access to residential driveways will be maintained 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.

To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit [wastewaterproject.ca](http://wastewaterproject.ca). To contact the project, please email [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or call 1.844.815.6132.

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

**Construction Notice**

**Macaulay Forcemain Alignment**

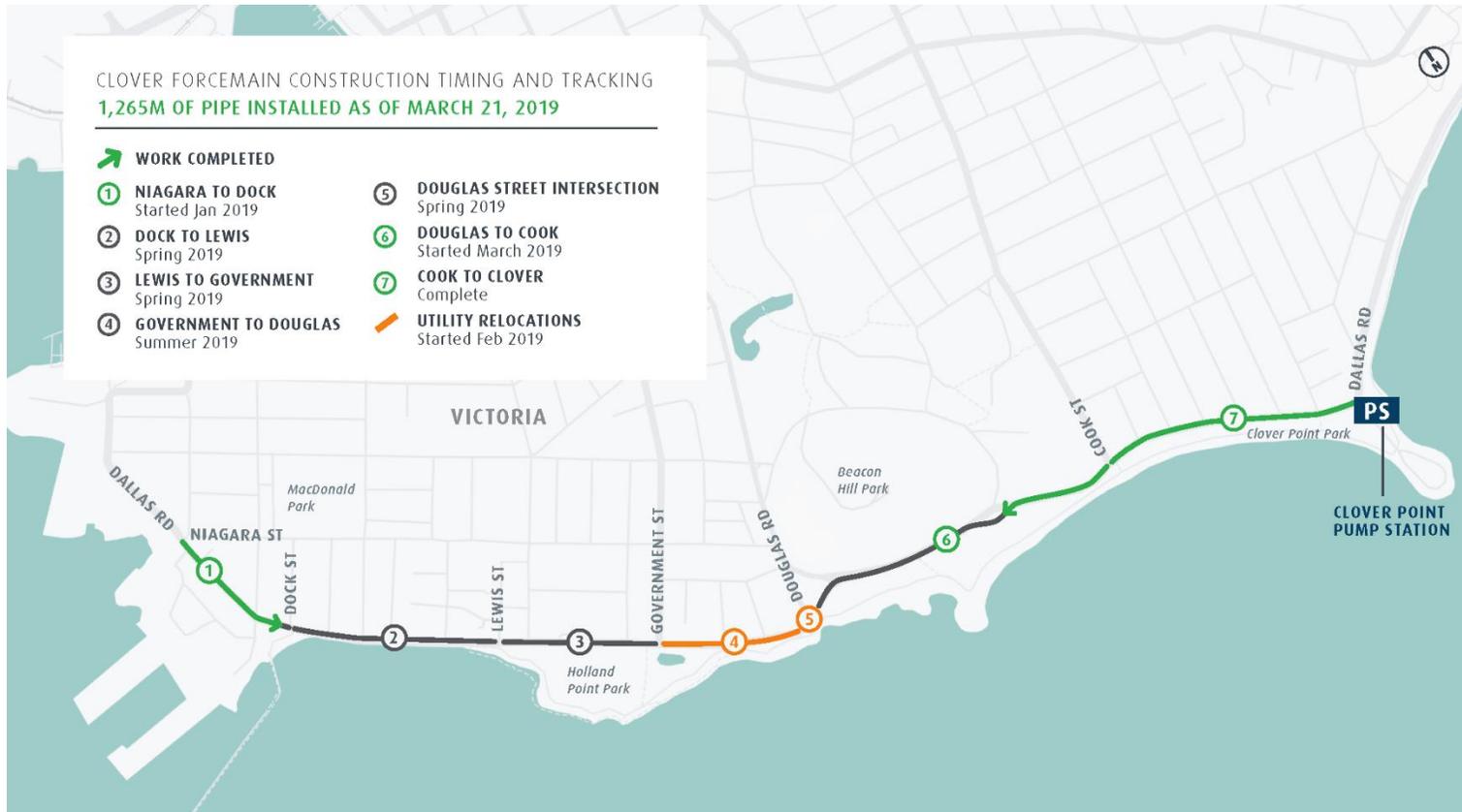


**About the Wastewater Treatment Project**

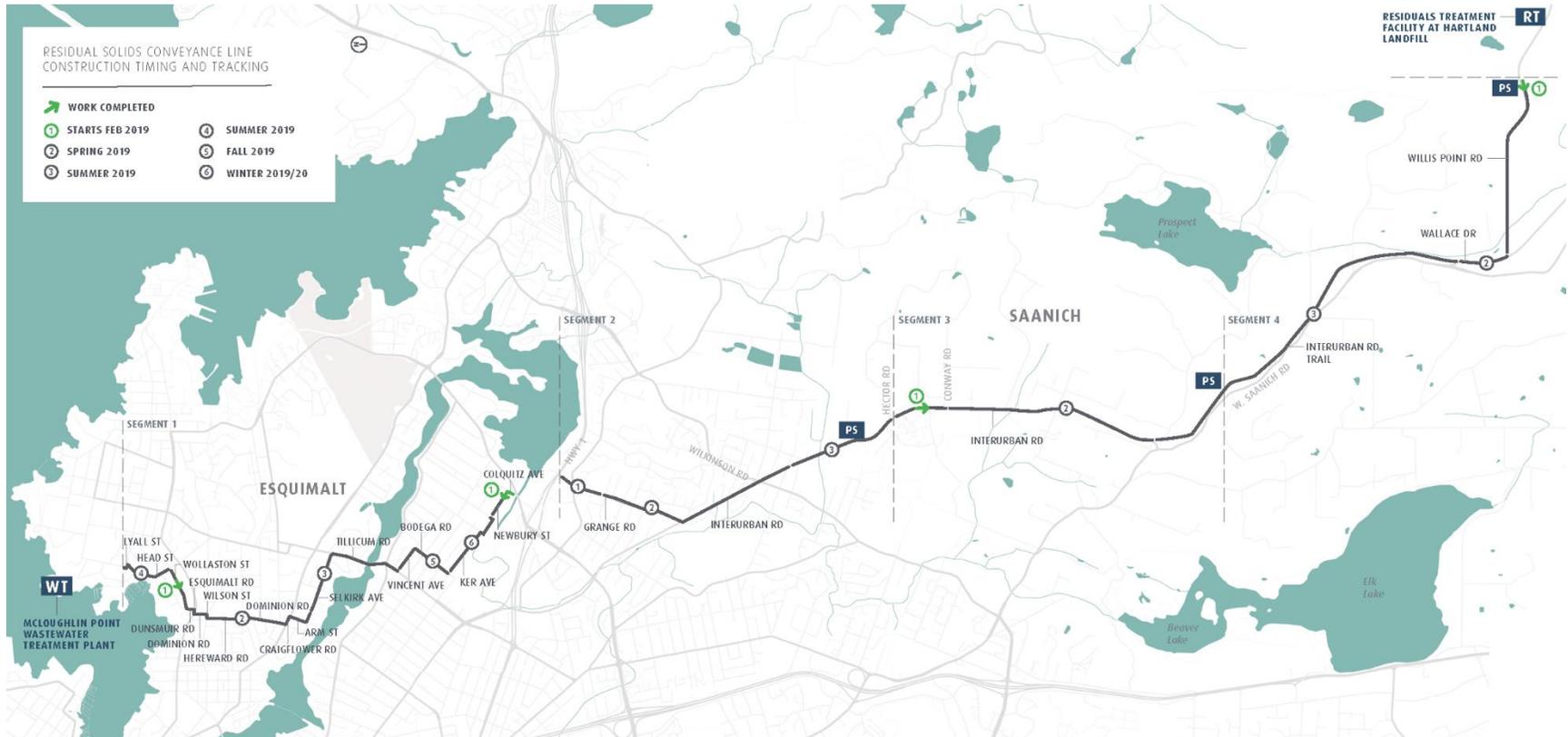
The Wastewater Treatment Project will provide tertiary treatment for wastewater from the core area municipalities of Victoria, Esquimalt, Saanich, Oak Bay, View Royal, Langford and Colwood, and the Esquimalt and Songhees Nations by the end of 2020.

To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit [wastewaterproject.ca](http://wastewaterproject.ca). To contact the project, please email [wastewater@crd.bc.ca](mailto:wastewater@crd.bc.ca) or call 1.844.815.6132.

**Appendix N – Clover Forcemain Progress Map**



**Appendix O – RSCL Progress Map**





**Appendix P – Asset Management Cost Report**

| ASSET MANAGEMENT COST REPORT<br>as at March 31, 2019     |                |                  |                               |   |                            |   |   |                                    |   |                                      |                      |                        |                           |   |
|--|----------------|------------------|-------------------------------|---|----------------------------|---|---|------------------------------------|---|--------------------------------------|----------------------|------------------------|---------------------------|---|
| Project Component  | Control Budget | Allocated Budget | COST EXPENDED                 |   |                            |   |   | COMMITMENTS                        |   |                                      | FORECAST             |                        | VARIANCE                  |   |
|  |                |                  | Expended to February 28, 2019 | Expended over reporting period (March 2019) | Expended to March 31, 2019 | Expended to March 31, 2019 as a % of Budget | Remaining (Unexpended) Budget at March 31, 2019 | Total Commitment at March 31, 2019 | Unexpended Commitment at March 31, 2019 | Uncommitted Budget at March 31, 2019 | Forecast to Complete | Forecast at Completion | Variance at Completion \$ | Variance at Completion as a % of Budget |
| McLoughlin Point Wastewater Treatment Plant <sup>A</sup> | 378.0          | 364.6            | 190.0                         | 8.7   | 198.7                      | 54%   | 165.9   | 343.3                              | 144.6                                   | 21.2                                 | 165.9                | 364.6                  | -                         | 0%                                      |
| Residuals Treatment Facility <sup>A</sup>                | 195.0          | 158.3            | 16.9                          | 0.2   | 17.0                       | 11%   | 141.2   | 150.4                              | 133.4                                   | 7.8                                  | 141.2                | 158.3                  | -                         | 0%                                      |
| Conveyance System <sup>A</sup>                           | 192.0          | 242.1            | 70.8                          | 7.5   | 78.3                       | 32%   | 163.8   | 190.0                              | 111.6                                   | 52.1                                 | 173.8                | 252.1                  | 10.0                      | 4%                                      |
| <b>Total Costs</b>                                       | <b>765.0</b>   | <b>765.0</b>     | <b>277.7</b>                  | <b>16.4</b>                                 | <b>294.0</b>               | <b>38%</b>                                  | <b>470.9</b>                                    | <b>683.7</b>                       | <b>389.6</b>                            | <b>81.1</b>                          | <b>480.9</b>         | <b>775.0</b>           | <b>10.0</b>               | <b>1%</b>                               |

A - Including PMO and Common Costs  
<sup>\*</sup> Values presented in \$millions, results in minor rounding differences  
<sup>\*\*</sup> Cost report presents approved expenditures



**Appendix Q – Quarterly Cost Report**

| WTP QUARTERLY COST REPORT<br>as at March 31, 2019        |                |                  |                               |  |                            |   |   |                                    |   |                                      |                      |                        |                           |   |
|--|----------------|------------------|-------------------------------|--|----------------------------|---|---|------------------------------------|---|--------------------------------------|----------------------|------------------------|---------------------------|---|
| Project Component  | Control Budget | Allocated Budget | COST EXPENDED                 |  |                            |   |   | COMMITMENTS                        |   |                                      | FORECAST             |                        | VARIANCE                  |   |
|  |                |                  | Expended to December 31, 2018 | Expended over reporting period (Q1 2019 Jan - Mar) | Expended to March 31, 2019 | Expended to March 31, 2019 as a % of Budget | Remaining (Unexpended) Budget at March 31, 2019 | Total Commitment at March 31, 2019 | Unexpended Commitment at March 31, 2019 | Uncommitted Budget at March 31, 2019 | Forecast to Complete | Forecast at Completion | Variance at Completion \$ | Variance at Completion as a % of Budget |
| McLoughlin Point Wastewater Treatment Plant <sup>1</sup> | 316.6          | 318.9            | 159.6                         | 21.4   | 181.0                      | 57%   | 137.9   | 312.1                              | 131.0                                   | 6.7                                  | 137.8                | 318.9                  | -                         | 0%                                      |
| Residuals Treatment Facility <sup>1</sup>                | 147.1          | 136.2            | 8.3                           | 0.0  | 8.3                        | 6%  | 127.9   | 135.4                              | 127.1                                   | 0.7                                  | 127.9                | 136.2                  | -                         | 0%                                      |
| Conveyance System <sup>1</sup>                           | 141.2          | 206.8            | 42.2                          | 19.4   | 61.6                       | 30%   | 145.2   | 163.4                              | 101.8                                   | 43.4                                 | 155.2                | 216.8                  | 10.0                      | 5%                                      |
| <b>Project Management Office</b>                         |                |                  |                               |  |                            |   |   |                                    |   |                                      |                      |                        |                           |   |
| Project Management Office ("PMO")                        | 71.1           | 75.6             | 35.7                          | 2.9  | 38.6                       | 51%   | 36.9  | 64.4                               | 25.8                                    | 11.2                                 | 37.0                 | 75.6                   | -                         | 0%                                      |
| <b>Common Costs</b>                                      |                |                  |                               |  |                            |   |   |                                    |   |                                      |                      |                        |                           |   |
| BC Hydro   | 11.6           | 2.9              | 1.5                           | 0.1  | 1.6                        | 53%   | 1.3   | 1.9                                | 0.3                                     | 1.0                                  | 1.3                  | 2.9                    | -                         | 0%                                      |
| Third Party Commitments                                  | 8.1            | 8.1              | 2.6                           | 0.3  | 2.9                        | 36%   | 5.2   | 6.5                                | 3.6                                     | 1.6                                  | 5.2                  | 8.1                    | -                         | 0%                                      |
| Program Reserve and contingencies                        | 69.3           | 16.5             | -                             | -  | -                          | 0%  | 16.5  | -                                  | -                                       | 16.5                                 | 16.5                 | 16.5                   | -                         | 0%                                      |
| <b>Total Costs</b>                                       | <b>765.0</b>   | <b>765.0</b>     | <b>249.9</b>                  | <b>44.1</b>  | <b>294.0</b>               | <b>38%</b>                                  | <b>470.9</b>                                    | <b>683.7</b>                       | <b>389.6</b>                            | <b>81.1</b>                          | <b>480.9</b>         | <b>775.0</b>           | <b>10.0</b>               | <b>1%</b>                               |

<sup>1</sup> - Excluding PMO, Common Costs and  
<sup>\*</sup> Values presented in \$millions, results in minor rounding differences  
<sup>\*\*</sup> Cost report presents approved expenditures