Wastewater Treatment Project
Treated for a cleaner future

CORE AREA WASTEWATER TREATMENT PROJECT BOARD
Notice of a Meeting on **Wednesday, September 26, 2018 at 9:00 a.m.**
Room 488, 4th floor, 625 Fisgard Street, Victoria, BC

Don Fairbairn (Chair)	Brenda Eaton (Vice-Chair)	Dana Hayden	David Howe
Bob Lapham	Colin Smith	Tim Stanley	

AGENDA

1. Approval of Agenda and Statement of No Conflict

   Motion:
   That the Agenda be approved.

2. Safety Minute

3. Approval of the July 26, 2018 Meeting Minutes.

   Motion:
   That the minutes of the July 26, 2018 meeting be approved.

4. Report of the Chair

5. Presentations/Delegations

6. Confirmation of upcoming Project Board Dates

   Motion:
   That the dates remaining in 2018 and the 2019 Project Board dates be confirmed as follows:

Thursday, October 25, 2018	Friday, May 31, 2019
Monday, November 26, 2018	Thursday, June 27, 2019
Thursday, January 31, 2019	Thursday, July 25, 2019
Thursday, February 28, 2019	Monday, September 30, 2019
Thursday, March 28, 2019	Thursday, October 31, 2019
Friday, April 26, 2019	Tuesday, November 26, 2019

7. Project Board Business

   7.1. Staff Report for Information: Wastewater Treatment Project Monthly Report – July 2018

   Motion:
   That the Staff Report, Wastewater Treatment Project Monthly Report – July 2018, be received for information and forwarded to the Core Area Liquid Waste Management Committee and CRD Board for information.

   7.2. Staff Report for Information: Wastewater Treatment Project Monthly Report – August 2018

   Motion:
   That the Staff Report, Wastewater Treatment Project Monthly Report – August 2018, be received for information and forwarded to the Core Area Liquid Waste Management Committee and CRD Board for information.

   7.3. Staff Report for Approval – Project Management Plan (PMP)

To ensure quorum, advise Rachel Mattiuz 250.360.3267 if you are unable to attend.

Motion:
That the Staff Report, Project Management Plan be approved.

8. Correspondence

9. New Business

9.1. Confirmation of upcoming Meeting Dates:

- Next Project Board Meeting: Thursday, October 25, 2018
- Next Core Area Liquid Waste Management Committee Meeting: October 10, 2018

10. Motion to Close the Meeting
Motion:
That the Core Area Wastewater Treatment Project Board meeting be closed in accordance with the Community Charter, **Part 4, Division 3, 90(1) (m)** a matter that, under another enactment, is such that the public may be excluded from the meeting.

11. Adjournment

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Minutes of a Meeting of the Core Area Wastewater Treatment Project Board
Held Thursday, July 26, 2018 in the Boardroom, 625 Fisgard Street, Victoria, BC

Members: D. Fairbairn (Chair); B. Eaton (Vice Chair); D. Hayden; D. Howe; C. Smith; T. Stanley; R. Lapham
CRD Staff: D. Clancy, Project Director, E. Scott, Deputy Project Director; R. Mattiuz (recorder)

The meeting was called to order at 9:00 a.m.

1. Approval of Agenda and Statement of No Conflict
The members stated they had no conflict with the agenda items.

MOVED by T. Stanley, **SECONDED** by D. Hayden,
That the agenda be approved as circulated.

CARRIED

2. Safety Moment
D. Clancy provided the safety moment "Our Hands at Work" relating to the use of gloves on the jobsite as a best practice.

3. Approval of the June 28, 2018 Meeting Minutes

MOVED by B. Eaton, **SECONDED** by R. Lapham,
That the minutes of the June 28, 2018 meeting be approved.

CARRIED

4. Report of the Chair

The Chair reported the following:
- Thank you to B. Eaton for chairing June 28 meeting; and
- acknowledgement of the Project's scope and the participation of all involved.

5. Presentations/Delegations:
There were no presentations or delegations.

6. Project Board Business

6.1. Staff Report for Information: Wastewater Treatment Project Quarter 2 Report – April to June 2018

D. Clancy and E. Scott provided a June update summary presentation and reported on the following:
- safety performance, including two incidents;
- cost management, forecast and budget expenditures;
- changes in the status of key permits;
- construction activities; and
- communications and engagement activities, including information regarding the summer truck traffic route in Esquimalt.

MOVED by C. Smith, **SECONDED** by D. Hayden,
That the Staff Report, Wastewater Treatment Project Quarterly Report – April to June 2018, be received for information and forwarded to the Core Area Liquid Waste Management Committee and CRD Board for information.

CARRIED

6.2. Staff Report for Approval – Revised Communications and Engagement Plan
E. Scott reviewed the revised communications and Engagement Plan, noting the following:

- Plan was revised from that approved by the Project Board last year to account for Project progress;
- the Plan remains live and Staff will bring forwarded updates when and as warranted.

Discussion ensued on the process of communication with local groups (Prospect Lake, Highlands, etc.). It was noted that Staff are planning open house community information meetings. Staff meet with individual community associations at their request when possible.

MOVED by B. Eaton, **SECONDED** by D. Hayden,
That the Staff Report, Revised Communications and Engagement Plan be approved.

CARRIED

7. Correspondence
A letter was received June 18, 2018 from the W̱SÁNEĆ Leadership Council in response to a letter dated April 27, 2018 that the Project Board Chair sent to the Chief of the Tsartlip Nation.

MOVED by R. Lapham, **SECONDED** by D. Howe,
That the correspondence be received for information.

CARRIED

8. New Business

8.1. Confirmation of upcoming Meeting Dates:

- Next Project Board Meeting: Friday, September 28, 2018
- Next Core Area Liquid Waste Management Committee Meeting: October 10, 2018

9. Motion to Close the Meeting

MOVED by B. Eaton, **SECONDED** by D. Howe,
That the Core Area Wastewater Treatment Project Board meeting be closed in accordance with the Community Charter, **Part 4, Division 3, 90(1) (m)** a matter that, under another enactment, is such that the public may be excluded from the meeting.

CARRIED

10. Adjournment

The Project Board moved to closed session at 9:36 a.m.
The Project Board rose from its closed session at 3:00 p.m. without report.
On motion the meeting adjourned August 30, 2018 at 2:30p.m.

_____
CHAIR

_____
RECORDER

Wastewater Treatment Project
Treated for a cleaner future

REPORT TO CORE AREA WASTEWATER TREATMENT PROJECT BOARD
MEETING OF WEDNESDAY, SEPTEMBER 26, 2018

SUBJECT **Wastewater Treatment Project Monthly Report – July 2018**

ISSUE

To Provide the Core Area Wastewater Treatment Project Board with the Monthly Report for July 2018.

BACKGROUND

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

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

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

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

The Business Case established the CAWTP control budget (the Control Budget) of $765 million.

DISCUSSION

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

The monthly report for the period of July 2018 is attached as Appendix A.

RECOMMENDATION

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

RESOLVED that:

The Staff Report, Wastewater Treatment Project Monthly Report – July 2018, be received for information and forwarded to the Core Area Liquid Waste Management Committee and CRD Board for information.

Elizabeth Scott, Deputy Project Director
Wastewater Treatment Project

Dave Clancy, Project Director
Wastewater Treatment Project
Concurrence

Attachments: 1

Appendix A: Wastewater Treatment Project Monthly Report – July 2018

ES:rm

Wastewater Treatment Project

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CRD Wastewater Treatment Project

Monthly Report

Reporting Period: July 2018

Contents

1 Executive Summary

1.1 Introduction

This monthly report covers the reporting period of July 2018 and outlines the progress made on the Wastewater Treatment Project during this time.

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

Overall the Project is progressing as planned with no changes to the construction/commissioning start and completion dates.

The McLoughlin Point WWTP is continuing with Harbour Resource Partners ("HRP" as the Design-Build Contractor for the McLoughlin Point WWTP) progressing engineering of the WWTP and outfall; and site work at McLoughlin Point including continuing: installation of the foundation piles, concrete pours for the tsunami and planter walls and installation of underground piping.

The RTF is continuing with Hartland Resource Management Group ("HRMG" as the Design-Build-Finance-Operate-Maintain Contractor for the RTF) progressing planning and permitting, design engineering activities, and vendor selection. Construction activities over the reporting period included excavation of overburden, drilling and rock blasting.

The Conveyance System is anticipated to be delivered through eight construction contracts: two design-build contracts and six design-bid-build contracts. The Project Team had previously anticipated delivering the conveyance system through two design-build contracts and five design-bid-build contracts, but determined, in June 2018, that it would be beneficial to procure the scope of one of the design-bid-build contracts through three contracts in order to preserve schedule.

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 over the reporting period, including completing the design of several components and progressed construction activities including: complete installation of secant piles, demobilize secant pile contractor, and excavation in preparation for tie-back installation.
- 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 demolition of the existing workshop, utility relocations and other temporary works that are required for construction of the new pump station.

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

- Clover Forcemain: The Request for Proposals closed and the Project Team evaluated the proposals.
- Residual Solids Conveyance Line ("RSCL"): The Project Team originally planned to deliver the RSCL through a single design-bid-build contract, but determined that it would

be beneficial to procure the scope of the RSCL in three contracts in order to preserve schedule, summarized as follows:

- Residual Solids Pipes (RSCL 100): Parsons (as the Design Consultant) completed the final (Request for Proposal ready) design deliverable. The CRD WTP issued the RFP to pre-qualified contractors and held an all-proponents meeting to outline key aspects of the contract to the proponents;
- Residual Solids Pump Stations (RSCL 200): Parsons (as the Design Consultant) held a 50% design workshop with the CRD, and progressed development of the 90% design deliverable. The CRD WTP issued the RFQ to pre-qualify contractors for construction of the Residual Solids Pump Stations; and
- Saanich Infrastructure Improvements (RSCL300): Parsons (as the Design Consultant) progressed the 50% design. The District of Saanich is planning to consult with members of the public affected by the proposed sidewalk improvements prior to the CRD progressing the 90% design deliverable.

- Arbutus Attenuation Tank ("ART"): Kerr Wood Leidal (as the Design Consultant) progressed the final (tender ready) design deliverable as well as certain pre-requisites for the building permit, including the tree survey and re-vegetation plan and the Environmental Management Plan.

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 ("KPIs") that were defined within the Project Charter.

There were no changes made to the dashboard during the reporting period.

Table 1- Executive Summary Dashboard

Key Performance Indicators		Project Overall	WWTP	RTF	Conveyance System	Comments
Safety	Deliver the Project safely with zero fatalities and a total recordable incident frequency (TRIF) of no more than 1*.					No recordable incidents; site inspections ongoing.
Environment	Protect the environment by meeting all legislated environmental requirements and optimizing opportunities for resource recovery and greenhouse gas reduction					No environmental issues.
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).					Project expenditures within Control Budget but cost pressures identified. Corrective action has been identified and is being implemented (see section 2.7 for details).

* 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 2. The total recordable incident frequency (TRIF) for the reporting period, inclusive of Project Contractors and Project Management Office (PMO) staff was zero.

Site safety tours and weekly safety inspections were carried out by PMO construction and safety personnel over the reporting period at all active worksites: Clover Point Pump Station, McLoughlin Point WWTP, RTF, and Macaulay Point Pump Station.

With ongoing construction activities on the Project these inspections continued and site inspections were performed weekly with the relevant prime contractor and CRD representative. Office and site orientations were delivered as required. Over the reporting period there was one report only incident which happened at the RTF site.

On July 26, 2018 an excavator operator for a subcontractor to HRMG (Scansa Construction Ltd.) was clearing a blast area at the RTF site. While moving blasted materials with the excavator, the operator heard a loud bang under his excavator bucket. The operator stopped the task, shut off the machine and reported to the site office. A visual check was performed by the blasting company which determined that one of the blasting caps used for the earlier blasting activity had not detonated. The detonator involved had been intended to operate as a secondary safety measure to ensure the actual charges were fully detonated. This is considered a very rare occurrence and the potential for damage or harm is low.

Corrective action with respect to the incident was taken; after a blast occurs and the area has been inspected and cleared to be safe, the blasting contractor will conduct a walkthrough of the area to see if any blasting caps are visible within the blast rubble. If any caps appear to be intact the blasting contractor will follow their approved procedures to ensure the cap is detonated safely.

Key safety activities conducted during July included:

- regular site tours performed at all active sites;
- daily site visits at Macaulay site to confirm all site safe work plans are being reviewed and followed;
- bi-weekly HRP and CRD management site safety tour at McLoughlin Point site;
- monthly office/site inspections with contractors and CRD Corporate at all active sites;
- monthly communication meeting with WTP Safety Manager and CRD Corporate Safety Manager;
- office safety orientation for new staff;
- safety orientation for CRD WTP staff and hazard assessment review for Macaulay site;
- review safety expectations with new safety representative for HRMG at RTF site;
- demolition activity reviews at Macaulay site;
- HRMG Site Safety Plan, Emergency Response Plan and first aid assessment reviews;
- periodic blasting and rock crushing safety reviews at RTF;
- prime contractor three week lookahead reviews to ensure safety compliance is being addressed with upcoming activities;
- review of HRP's new blasting plan;
- attended HRMG site blasting plan review with the Hartland Landfill's blasting contractor;
- equipment inspection document review;

- incident reporting review with prime contractors at active work locations; and
- inspections, toolbox talk and safe work procedures document review at each active worksite.

Other safety activities conducted over the reporting period included:

- CRD WTP safety orientation provided to Kenaidan at Macaulay site;
- emergency response review with Kenaidan at Macaulay site;
- silica exposure control plan review at Macaulay site; and
- CRD WTP Safety Manager attended CRD Corporate Joint Occupational Health and Safety Committee Meeting to give an overview of safety on active Project sites.

Table 2 – WTP Safety Information

	Reporting Period (July 2018)	Project Total to-Date (from January 1, 2017)
Person Hours		
PMO	4,568	65,514
Project Contractor	17,980	219,540
Total Person Hours	22548	285,053
PMO	37	
Project Contractors working on Project sites	93	
Total Number Of Employees	130	
Near Miss Reports	0	8
High Potential Near Miss Reports	0	2
Report Only	1	3
First Aid	0	2
Medical Aid	0	0
Medical Aid (Modified Duty)	0	0
Lost Time	0	0
Total Recordable Incidents	0	0
	2018 Frequency (from January 1, 2018)	Project Frequency (from January 1, 2017)
First Aid Frequency		1.5
Medical Aid Frequency		0
Lost Time Frequency		0
Total Recordable Incident Rate		0

2.2 Environment and Regulatory Management

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

2.2.1 Environment

Environmental work in July progressed as planned.

Key environmental management activities completed in July included:

- HRMG (as the Design-Build-Finance-Operate-Maintain Contractor for the RTF) completed soil tests in support of soil disposal documentation requirements. Preliminary test results indicate that there may be some heavy metal contamination (due to bedrock qualities, rather than anthropogenic causes). CRD, HRMG and Stantec are working to prepare a plan to characterize soils at the RTF site and mitigate costs associated with disposal of any contaminated material; and
- members of the PMO team accompanied CRD staff to observe marine water quality monitoring activities.

2.2.2 Regulatory Management

In July, 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 HRP (as the Design-Build Contractor for the McLoughlin Point WWTP), Kenaidan (as the Design-Build Contractor for the Macaulay Point Pump Station and Forcemain), and HRMG (as the Design-Build-Finance-Operate-Maintain Contractor for the RTF) in the development of permit applications; engaging with federal and provincial regulators in support of obtaining key permits (summarized in Table 3); and continuing to advance the Municipal Wastewater Regulation (MWR) Registration and planning for future permit applications. HRP (as the Design Build Contractor for the McLoughlin Point WWTP), Stantec and the CRD continued advancing the MWR Registration. The focus of that work is on updating the Marine Environmental Impact Study (EIS) to address BC Ministry of Environment and Climate Change Strategy (ENV) comments.

Key permitting activities for July included:

- HRP received a Notice from the Director to Construct under Section 40 (b) of the MWR authorizing construction of the McLoughlin Outfall;
- HRMG met with District of Saanich to discuss municipal permitting requirements; and
- HRP continued working with federal regulators to obtain outfall-related construction permits, approvals and authorizations.

The status of key Project permits are summarized in Table 3. The table is not a list of all required Project permits, but rather a summary of the status of key Project permits.

Table 3 has been updated since the Project's June Q2 2018 Quarterly Report as follows:

- The status of the following permits have been updated:
    - McLoughlin Point Outfall: Notice from the Director to Construct under section 40(b) of the MWR has been received.
    - Macaulay Point Pump Station:

- Removed Notice from the Director to Construct under section 40(b) of the MWR as it was received in the last reporting period; and
- removed Township of Esquimalt Development Permit as it was received in the last reporting period.

- Clover Forcemain: Removed Notice from the Director to Construct under section 40(b) of the MWR as it was received in the last reporting period.
- Residual Solids Conveyance Line: Removed Notice from the Director to Construct under section 40(b) of the MWR as it was has been received in the last reporting period.

Table 3 - Key Permits Status

Permit / Licence	Anticipated Date	Status	Party Responsible for Obtaining Permit
McLoughlin Point WWTP			
Township of Esquimalt Phased Building Permits (Phase 1 obtained; Phase 2 submitted and anticipated in Q3 2018)	Q3 2018	Phase 2 submitted: under review by Township of Esquimalt On Track	HRP
Municipal Wastewater Regulation ("MWR") Registration	Q4 2019	On track	CRD
McLoughlin Point Harbour Crossing			
Transport Canada Lease	Following completion of construction	On track	HRP
McLoughlin Point Outfall			
Fisheries and Oceans Canada (DFO) *Fisheries Act* Authorization	Q3 2018	Submitted: under review by DFO	HRP
Transport Canada Facility Alteration Permit	Q3 2018	Submitted: under review by Transport Canada	HRP
Transport Canada Licence (works access)	Q3 2018	Submitted: under review by Transport Canada	HRP
Transport Canada Lease	Following completion of construction	On track	HRP
Notice from the Director to Construct under Section 40 (b) of the MWR	Q3 2018	**Received**	HRP
Macaulay Point Pump Station Upgrade			
Township of Esquimalt Building Permit	Q3 2018	On track	Kenaidan
ECI/Trent Twinning			
Notice from the Director to Construct under Section 40 (b) of the MWR	Q4 2018	On track	Design engineer
City of Victoria Licence (works access)	Q1 2019	On track	Design engineer
Arbutus Attenuation Tank			
Notice from the Director to Construct under Section 40 (b) of the MWR	Q3 2018	On track	Kerr Wood Leidal
District of Saanich Building Permit	Q3 2018	On track	Kerr Wood Leidal
Residuals Treatment Facility			
Operational Certificate	Prior to start of RTF operations	On track	HRMG
District of Saanich Development and Building Permits	Q3 2018	On track	HRMG

2.3 First Nations

First Nations communication and engagement was ongoing in July.

In July, the PMO, CRD First Nations Relations Division and the Songhees and Esquimalt Liaisons continued meeting and advancing work in areas of shared interest. This included planning around signage for various Project components and management of archaeological materials during and after construction.

The Esquimalt and Songhees Liaisons sought approval from their respective leadership groups for the movement of archaeological soils from the construction of Clover Forcemain to Clover Point Park. This relocation would require the City of Victoria's approval. Additionally, work to schedule and plan a presentation to Songhees Chief and Council began in July. The presentation will include a Project update and a summary of issues that have been worked on at the biweekly Esquimalt and Songhees Liaison meetings.

On July 19 Project Team members attended an archaeological dig at a property unrelated to the Project but in close proximity to the Clover Forcemain alignment. The archaeological dig was being completed by Millennia Research (the Project's archaeological consultant), and the purpose of the visit was for the PMO team to learn from the dig before archaeological materials are encountered during construction of the Clover Forcemain.

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.

Construction Communications

Construction Notices and Updates:

One construction notice update was issued to stakeholders in the reporting period: Residuals Treatment Facility Update: Blasting Schedule (July 4, 2018) (Appendix A).

As well, signage noting the federal and provincial government funding for the Project was displayed at the Macaulay Point Pump Station and Forcemain site.

Project Website

Throughout the month of July, the Project website, wastewaterproject.ca, was updated with information about the Project. The following items were posted:

- one construction notice;
- an updated Communications and Engagement Plan: The Plan was first developed and then approved in April 2017 to address the stage of the Project at that time, which was at the start of construction. The updated version accounts for progress made on the Project in the fifteen months since the original Communications and Engagement Plan was approved. The Project Team has implemented the Communications and Engagement Plan in support of achieving its stakeholder-related key performance indicator: continue to build and maintain positive relationships with First Nations, local governments, communities and other stakeholders; and
- a new section, Photo Gallery, was created to share photos of construction on the Project sites. The link is located on the main page of the website and the Project Team will continue to add photos over the construction period of the Project.

Community Meetings

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

- City of Victoria staff;
- City of Victoria Technical Working Group;
- Department of National Defence;
- District of Saanich Technical Working Group;
- Greater Victoria Harbour Authority; and
- Township of Esquimalt Liaison Committee.

Public Inquiries

Public inquiry numbers from the Project email address and 24/7 information phone line (1-844-815-6132) are noted in Table 4.

Table 4 - Project Inquiries – July 2018

Inquiry Source	Contacts for July
Information phone line inquiries	12
Email inquiries responded to	3

Key themes of the public inquiries were as follows:

- information about construction at the Clover Point Pump Station; and
- requests for contractor contact information regarding employment.

2.5 Resolutions from Other Governments

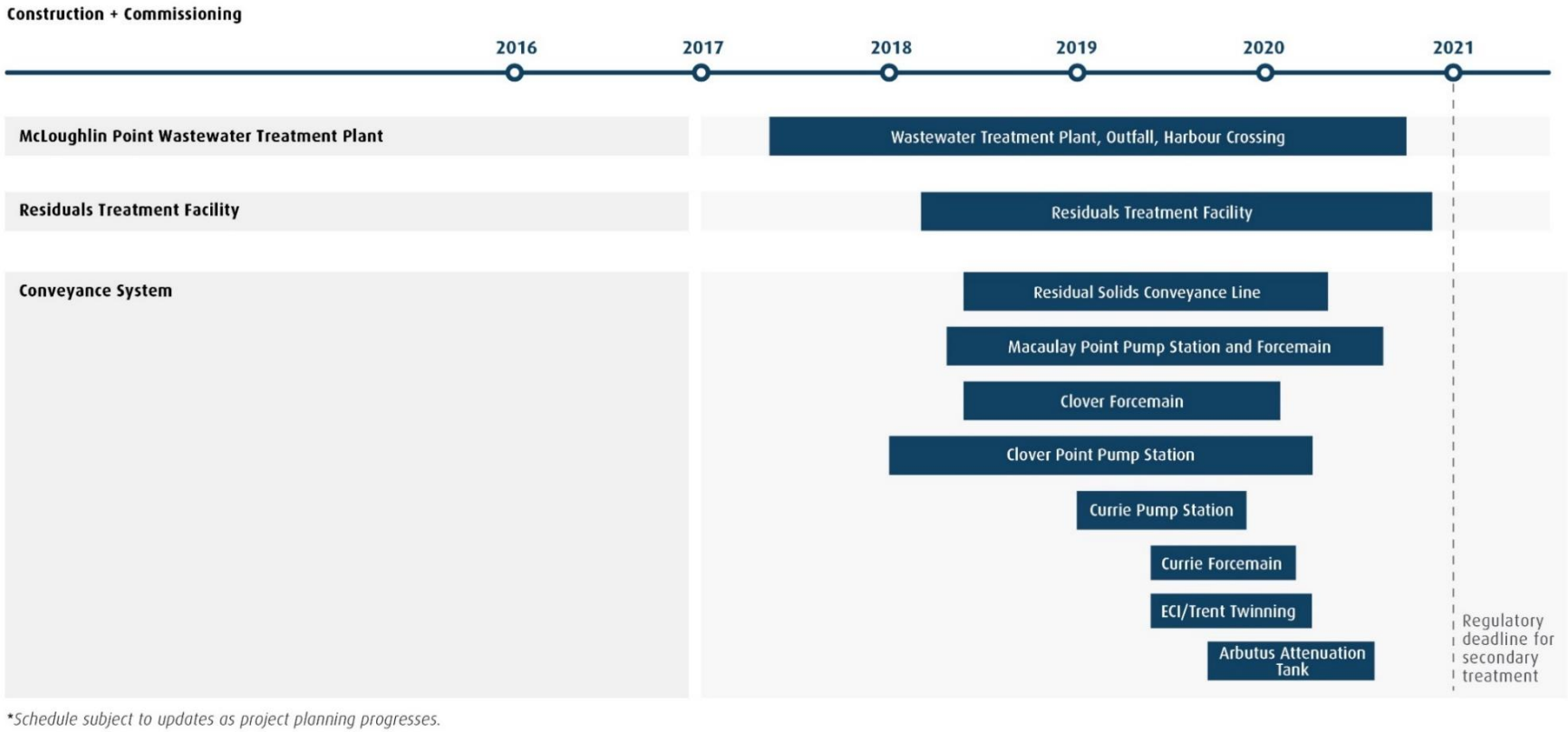
There were no resolutions related to the Project passed by other Governments during the reporting period.

2.6 Schedule

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

Figure 1 shows the high-level Project schedule. This schedule is unchanged from that shown in the previous Project report, however it remains subject to optimization as the Project and planning progresses.

Figure 1-High-Level Project Schedule[1]



*Schedule subject to updates as project planning progresses.

[1] The schedule remains subject to optimization.

2.6.1 30 and 60 day lookahead

Key activities and milestones for the next 30 days (August) are:

Safety

- review document submissions from prime contractors;
- review of 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 work sites;
- development of any required safety documentation;
- monthly office/site inspections with prime contractors and CRD Corporate at all active sites;
- monthly communication meeting with WTP Safety Manager and CRD Corporate Safety Manager;
- traffic management plan reviews for Clover Point Pump Station;
- incident reporting review with prime contractors at active work locations; and
- organize prime contractor monthly safety meetings with CRD.

Environment and Regulatory Management

- HRP anticipates receiving federal outfall related permits, approvals and authorizations; and
- HRMG and CRD to meet to discuss planning of HRMG's Operational Certificate application.

First Nations

- continue advancing the planning of archaeological soils relocation from the construction of the Clover Forcemain.

Stakeholder Engagement

- ongoing construction communications with stakeholders;
- planning and preparations for fall community information meetings; and
- ongoing community liaison meetings.

Cost Management and Forecast

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

Construction

McLoughlin Point

- continue installation of underground process piping in primary and secondary treatment areas;
- place tertiary concrete base slabs #1 and #2;
- continue with tsunami and planter walls; and
- continue surface runoff/groundwater treatment and discharge.

Clover Point Pump Station

- drill and tension top row of tie back and weld king piles; and
- excavate to bottom row of tie back.

Macaulay Point Pump Station

- install temporary duct bank and generator;
- shut down power to plant and switch to temporary power;
- relocate transformer and existing generator;
- excavate for temporary bin room;
- place concrete slab for temporary bin room; and
- commence construction of temporary bin room.

Residuals Treatment Facility

- excavation, drilling and blasting;
- crushing of blast rock and haul to stockpile; and
- load and haul material.

Engineering

McLoughlin Point WWTP:

- construction package 2 deep foundations: 100% and IFC design deliverables;
- construction package 4 yard pipe: IFC design deliverable;
- construction package 5 process building slabs: 100% and IFC design deliverables;
- construction package 6 operations and maintenance (O&M) slabs: IFC design deliverable;
- construction package 7 tertiary area foundation: complete IFC design;
- overall design: 100% design deliverable;
- outfall design: IFC design deliverable;

Residuals Treatment Facility:

- early works package 1 site access road: 100% and IFC design deliverables;
- early works package 2 digester area foundation: 100% and IFC design deliverables;
- early works package 3 municipal receiving solids structural; 100% and IFC design;
- early works package 4 residuals handling foundation: 100% and IFC design;
- early works package 5 water pump house and water tank foundation; 100% and IFC design;
- early works package 6 admin building foundation: 100% and IFC design, and
- overall design: 60% design deliverable.

Clover Point Pump Station:

- early works package 2 – civil/structural: 100% and IFC design submission.
- public realm improvements package: final design submission to City of Victoria.

Macaulay Point Pump Station:

- early works package 1 – demolition, relocations and temporary works: Address remaining CRD comments; and
- early works package 2 – blasting, excavation and foundation: 100% design.

Clover Forcemain: complete and issue IFC submission.

Residuals Solids Conveyance Line:

- RSCL100: Residuals Solids Pipes: commence IFC design deliverable;
- RSCL200: Residual Solids Pumps: progress 90% design deliverable;

Arbutus Attenuation Tank: progress final (100%) design deliverable.

Procurement

Clover Forcemain: meet with preferred proponent.

Residuals Solids Conveyance Line:

- RSCL100: Residuals Solid Pipes:
  - respond to RFP inquiries from proponents and issue addenda, as needed; and
  - receive and evaluate responses to RFP.
- RSCL200: Residuals Solids Pumps:
  - issue Request For Qualifications (RFQ) to pre-qualify construction contractors; and
  - respond to inquiries from respondents, as needed.

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

Safety

- review of any site specific safety plans or high risk tasks;
- document reviews as required;
- attend CRD joint occupational health and safety meeting;
- WTP Safety Manager and/or Construction Manager will conduct regular site inspections at all active Project work sites;
- develop monthly project summary for CRD Corporate Safety Manager in regards to Project activities;
- monthly office/site inspections with contractors and CRD Corporate at all active sites;
- monthly communication meeting with WTP Safety Manager and CRD Corporate Safety Manager;
- periodic blasting safety/silica exposure plan reviews at RTF site;
- traffic management reviews; and
- incident reporting review with prime contractors at active work locations (if applicable).

Environment and Regulatory Management

- HRMG and CRD to meet with ENV to discuss terms of reference for HRMG Operational Certificate application; and
- HRP, Stantec and the CRD to continue advancing the MWR Registration.

First Nations

- PMO to make a presentation to Songhees Chief and Council; and
- Project Board Chair to meet with the W̱SÁNEĆ Leadership Council.

Stakeholder Engagement

- ongoing construction communications with stakeholders;
- community information meeting to provide residents with information about upcoming construction activities and timing for the Clover Forcemain; and
- ongoing community liaison meetings.

Cost Management and Forecast

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

Construction

McLoughlin Point

- complete construction of tsunami and planter walls;
- install underground utilities and drains in operations and maintenance area;
- install underground process piping in primary and secondary treatment areas;
- construct base slab 3 at dirty backwash tank;
- construction base slab at moving bed biofilm reactor (MBBR);
- tertiary wall pours #1 and #2; and
- continue surface runoff/groundwater treatment and discharge.

Clover Point Pump Station

- install tower crane;
- excavate for new pump room area;
- place concrete for base slab in pump room; and
- excavate new storm/sanitary wet well.

Macaulay Point Pump Station

- complete construction of temporary bin room;
- excavate new pump station; and
- drill and blast bedrock at pump station footprint.

Residuals Treatment Facility

- continue excavation, rock crushing and haul to stockpile;
- excavate and install storm water system at area 1;
- excavate potable and firewater lines at area 1; and
- test and backfill potable and firewater lines.

Engineering

- McLoughlin Point WWTP: submit IFC design for the overall WWTP;
- Residuals Treatment Facility: review early works packages and progress 90% design;
- Clover Point Pump Station: submit final (100%) design deliverable for the overall CPS;
- Macaulay Point Pump Station: submit final (100%) design deliverable;
- Residual Solids Conveyance Line:
  - RSCL100: Residual Solids Pipes: finalize IFC design deliverable; and
  - RSCL200: Residual Solids Pumps: submit final (100%) design deliverable.
- Arbutus Attenuation Tank: progress final (100%) design deliverable.

Procurement

Clover Forcemain: negotiate and award contract to preferred proponent.

Residual Solids Conveyance Line:

- RSCL100: Residual Solids Pipes: meet with preferred proponent.
- RSCL200: Residual Solids Pumps:
  - respond to inquiries RSCL package 2 RFQ as needed;
  - received and evaluate RFQ responses and select proponents; and
  - issue request for proposals (RFP) to proponents.

2.7 Cost Management and Forecast

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

We have held constant the status of the cost key performance indicator as yellow, as a result of cost pressures identified in the Project's Q4 2017 Quarterly Report. In order to address these pressures the Project Team in concert with Stantec (as the Owner's Engineer providing technical support for the CRD WTP), are reviewing the scope and construction cost estimates for the remainder of the contracts and identifying opportunities where savings could be realized. With this corrective action our confidence level is still high that we will be able to deliver the Project within the Control 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 $120,556 primarily associated with contract change orders.

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 WWTP construction activities, conveyance construction and PMO-related costs.

2.7.3 Contingency and Program Reserves

Contingency draws of $115,278 were made over the reporting period, as itemized in Table 5. The draws to-date and remaining contingency and program reserve balance are summarized in Table 5. The remaining contingency and program reserve is anticipated to be sufficient to deliver the Project within the Control Budget.

Table 5 - Contingency and Program Reserve Draw-Down Table

WTP Contingency and Program Reserve Draws and Reallocations	Draw Date	$ Amount
Contingency and Program Reserve balance as at July 1, 2018		**$ 69,183,656**
McLoughlin Point Site Remediation: excavation and disposal of contaminated soil (chlorides).	Jul-18	$ (115,278)
WWTP Total Draw		$ (115,278)
RTF Total Draw		$ -
Conveyance Total (Draw)/Reallocation		$ -
PMO Total Draw		$ -
BC Hydro Total Draw		$ -
WTP Program Reserve Draw		$ -
Contingency and Program Reserve balance as at July 31, 2018		**$ 69,068,378**

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 WWTP;
- up to $50 million through the Green Infrastructure Fund towards the conveyance system project; and
- up to $41 million towards the RTF through the P3 Canada Fund.

The status of funding claims is summarised in Table 6. 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 6 – Grant Funding Status

Funding Source	Maximum Contribution	Funding Received in the Reporting Period	Funding Received to Date
Government of Canada (Building Canada Fund)	$120M	$1.7M	$23.2M
Government of Canada (Green Infrastructure Fund)	$50M	-	-
Government of Canada (P3 Canada Fund)	$41M	-	-
Government of British Columbia	$248M	-	-
TOTAL	**$459M**	**$1.7M**	**$23.2M**

2.8 Key Risks and Issues

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

Table 7 summarizes the highest-level risks that were actively managed over the reporting period, as well as the mitigation steps identified and/or undertaken over the reporting period.

There were no changes to the active risks summary during the reporting period.

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

Table 7- 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
Project				
Misalignment between First Nations' interests and the implementation of the Project.	The assessed risk level reflects the Project Team's priority of establishing strong and effective relationships with First Nations interfacing with, or interested in, the Project.	First Nations engagement activities remained ongoing over the reporting period (see section 2.3 for further details).	M	No change
Divergent interests between multiple parties and governance bodies whose co-operation is required to successfully deliver the Project.	The assessed risk level reflects the Project Team's priority of establishing strong and effective relationships with municipal, provincial and federal government departments.	The Project Team continued engagement with municipal, provincial and federal government departments throughout the reporting period.	M	No change
Misalignment between Project objectives/scope and stakeholder expectations.	The assessed risk level reflects the Project Team's priority of establishing strong and effective community stakeholder engagement.	Community engagement activities were ongoing over the reporting period (see section 2.4 for further details).	M	No change
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.	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
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.	M	No change
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
Downstream 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.	M	No change
Provincial or Federal government/agency permit requirements not met.	Project Component required Provincial or Federal permit conditions are not met by Project contractors resulting in delays or work stoppage.	The Project Team maintain a centralized permit compliance register to monitor and manage Project permit condition compliance by Project contractors. Meetings held with Federal and Provincial agencies to fully understand and meet requirements in a timely fashion.	M	No change
Public directly contacting contractors at sites.	Direct contact between the public and contractors could expose both parties to worksite hazards and potential injuries.	Communications and engagement plan, contractor orientation.	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
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; 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
Conveyance				
Unexpected geotechnical conditions results in higher procurement and/or construction costs.	Geotechnical conditions result in redesign and/or higher construction cost than budgeted.	Ensure adequate investigations to manage the risk of unexpected geotechnical conditions: comprehensive geotechnical investigations have been undertaken for the Clover Forcemain, Macaulay Point Pump Station and Forcemain, and RSCL. This geotechnical information has been provided to procurement participants. Geotechnical investigations are to be undertaken for ECI and Currie Forcemain.	M	No change
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 in concert with Stantec 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.	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
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 in concert with Stantec 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 costs estimates at discrete design points.	H	No change

2.9 Status (Engineering, Procurement and Construction)

2.9.1 Wastewater Treatment Plant (WWTP)

The WWTP Project Component is continuing with Harbour Resource Partners ("HRP" as the Design-Build Contractor for the McLoughlin Point WWTP) progressing engineering of the WWTP and outfall; and site work at McLoughlin Point including continuing: installation of the foundation piles, concrete pours for the tsunami and planter walls and installation of underground piping.

Engineering

HRP (as the Design-Build Contractor for the McLoughlin Point WWTP) progressed planning and design activities in July, including:

- construction package 4 yard pipe: 100% design deliverable;
- construction package 5 process building slabs: 90% design deliverable;
- construction package 6 operation and maintenance (O&M) slabs: 100% design deliverable; and
- outfall design: 100% design deliverable.

Construction

Photographs of construction progress at McLoughlin Point are shown in Figures 2 – 8. Key construction activities in progress or completed by HRP (as the Design-Build Contractor for the McLoughlin Point WWTP) in July were as follows:

McLoughlin Point

- continued construction of tsunami and planter walls;
- completed phase 1 pile installation;
- drill and blast in tertiary area for biological aerated filter (BAF) effluent chamber;
- erect concrete placing boom for use on operations and maintenance (O&M) building;
- prefabricate wall gang forms and tertiary slab bulkheads;
- prefabricate formwork for Densadeg cones;
- demobilize pile rig and crane; and
- continued surface runoff/groundwater treatment and discharge.

Figure 2 – Preparing foundation for concrete placing boom.

Figure 3- Preparing dirty back wash area for mud slab.

Figure 4 – Prefab Densadeg cones.

Figure 5 – Prefab wall gang forms for biological aerated filter (BAF) walls.

Figure 6 – Concrete finishing of planter wall #10.

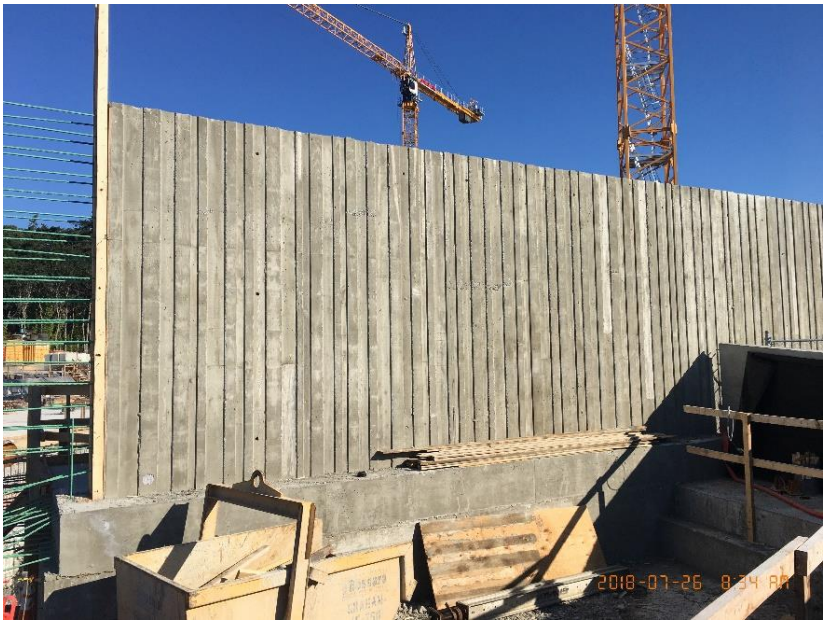


Figure 7 – Tsunami wall stripped surface.

Figure 8 – Installing bulkheads in tertiary slab pour.

2.9.2 Residuals Treatment Facility (RTF)

The RTF Project Component is continuing with Hartland Resource Management Group ("HRMG" as the Design-Build-Finance-Operate-Maintain Contractor for the RTF) progressing planning and permitting, design engineering activities, and vendor selection. Construction activities over the reporting period included drilling and rock blasting.

Engineering

HRMG progressed planning and design activities in July, including:

- continued design development and working toward 60% design submission in August;
- prepared and submitted various project plans and submittals;
- submitted final baseline schedule;
- progressed with vendor selection;
- finalized independent certifier contract;
- worked with BC Hydro to confirm power requirements to the site; and
- worked with District of Saanich on permitting requirements.

Construction

Photographs of construction progress at the Residuals Treatment Facility are shown in Figures 9 to 12. Activities on site include:

- drilling, rock blasting and excavation;
- classifying and stockpiling excavated material;
- coordinated blasting activities with Hartland Landfill blasting contractors and operations staff;
- crush aggregate and stockpile;
- set up and complete the HRMG office complex;
- place crushed 50mm minus aggregate around the site office complex and laydown area to assist with dust control; and
- excavate upper Hartland access road and stockpile material for future use.

Figure 9 – Loading drill holes for a blast.

Figure 10 – Drilling holes for a blast

Figure 11 – Excavating and loading blast rock.

Figure 12 – Stripping and hauling at upper Hartland access road.

2.9.3 Conveyance System

Clover Point Pump Station

Kenaidan Contracting Limited ("Kenaidan", as the Design-Build Contractor) progressed planning, design and construction activities over the reporting period, as follows:

Engineering

Kenaidan progressed planning and design activities in July, including Caisson Work Package (100%) – revision 3 submitted.

Construction

Photographs of construction progress at Clover Point Pump Station are shown in Figures 13 to 17. Key construction activities in progress or completed by Kenaidan in July were as follows:

- completed installation of secant piles;
- demobilized secant pile contractor;
- install flagging on powerlines feeding the office complex to alert paragliders of hazard;
- stockpile construction debris encountered while excavating for the tie-back installation;
- excavate to elevation seven meters in preparation for tie back installation;
- mobilize tie back contractor;
- commenced installation of tie backs; and
- conduct performance test on tie-back 1-A.

Figure 13 – Drilling pile #28.

Figure 14 – Flagging and signage place on overhead power lines.

Figure 15 – Installation of dewatering and filtration system.

Figure 16 – Demobilizing crawler crane.

Figure 17 – Conducting performance test on tie back 1-A.

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, as follows:

Engineering

Kenaidan completed the following engineering activities:

- 90% early works 2 design submission;
- 90% complete design deliverable and workshop; and
- 90% HAZOP review meeting.

Construction

Photographs of construction progress at Macaulay Point Pump Station and Forcemain are shown in Figures 18 to 20. Key construction activities in progress or completed by Kenaidan in July were as follows:

- demolition of workshop, laboratory and exterior concrete walls in phase 1A and 1B demo;
- removal of gantry crane; and
- installation of new duct bank for relocation of transformer and generator.

Figure 18 – demolition of interior walls.

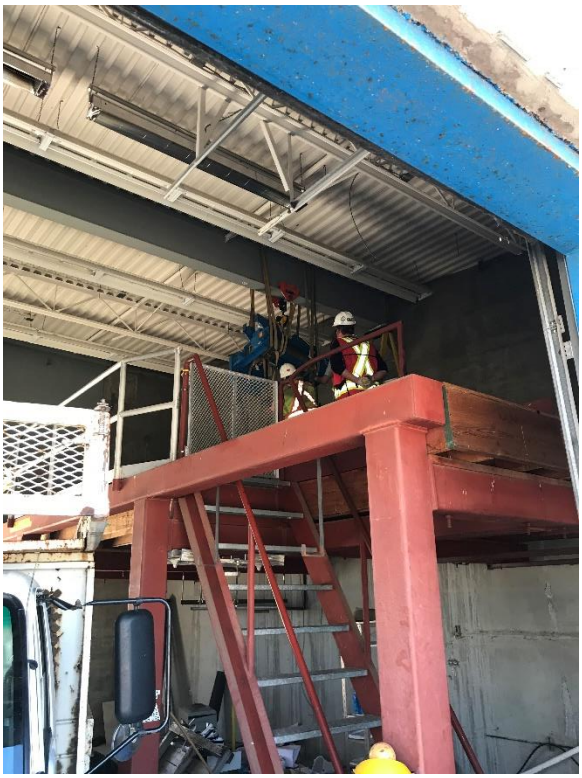


Figure 19 – Removal of gantry crane.

Figure 20 – Demolition of exterior concrete walls and metal roof, sorting material for salvage.

Clover Forcemain (CFM)

The RFP issued May 15 closed on July 11 and proposals were received and evaluated.

Residuals Solids Conveyance Line (RSCL)

Parsons (as the Engineer of Record) progressed and/or completed the following engineering activities:

- package no. 1 residual solids pipes: 90% design;
- package no. 1 residual solids pipes: 90% workshop;
- package no. 1 residual solids pipes: final (100%) design; and
- package no. 2 residual solids pump stations: develop 90% design.

Appendix A – Construction Blasting Notice – July 4, 2018

Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

May 9, 2018

McLoughlin Point Wastewater Treatment Plant: Concrete Works

As part of the Wastewater Treatment Project, construction activities for the McLoughlin Point Wastewater Treatment Plant are underway. The contractor, Harbour Resource Partners, will soon begin concrete pours to build the foundations of the Plant. This work is anticipated to begin mid-May and continue for 12 to 16 months.

What to Expect

- Concrete pours are anticipated to occur daily.
- Concrete mixing transport trucks will be used to supply and install concrete to the site.

Work Hours

- Monday to Friday 7:00 a.m. to 7:00 p.m.
- Saturday 9:00 a.m. to 5:00 p.m.
- When required, work may begin earlier than 7:00 a.m. or extend later than 7:00 p.m.

Traffic Impacts

- No street closures will be required.
- Local access to businesses and residences will be maintained at all times.
- Concrete mixing trucks will follow the Traffic Management Plan approved by the Township of Esquimalt.

About the 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 and will be complete by the end of 2020.

Thank you for your patience as this work is completed. For more information, please visit wastewaterproject.ca.

See map on page 2

To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit **wastewaterproject.ca**. To contact the project, please email **wastewater@crd.bc.ca** or call **1.844.815.6132**.

Wastewater Treatment Project
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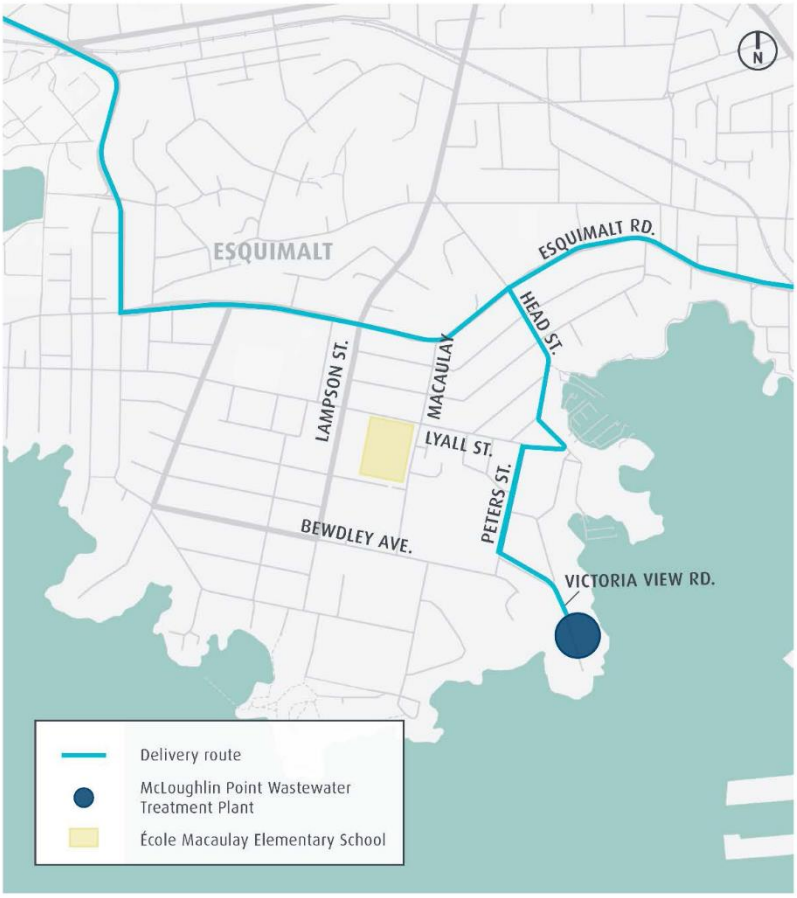
Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

CURRENT ROUTE



To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit **wastewaterproject.ca**. To contact the project, please email **wastewater@crd.bc.ca** or call **1.844.815.6132**.

Wastewater Treatment Project
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Appendix B – Monthly July Cost Report

ASSET MANAGEMENT COST REPORT as at July 31, 2018

Project Component	Control Budget	Allocated Budget	COST EXPENDED					COMMITMENTS			FORECAST		VARIANCE	
			Expended to June 30, 2018	Expended over reporting period (July 2018)	Expended to July 31, 2018	Expended to July 31, 2018 as a % of Budget	Remaining (Unexpended) Budget at July 31, 2018	Total Committment at July 31, 2018	Unexpended Commitment at July 31, 2018	Uncommitted Budget at July 31, 2018	Forecast to Complete	Forecast at Completion	Variance at Completion $	Variance at Completion as a % of Budget
McLoughlin Point Wastewater Treatment Plant [A]	378.0	375.3	110.3	13.8	124.1	33%	251.2	340.8	216.7	34.6	251.2	375.3	-	0%
Residuals Treatment Facility [A]	195.0	176.5	14.7	0.2	14.9	8%	161.6	149.6	134.7	26.9	161.6	176.5	-	0%
Conveyance System [A]	192.0	213.2	37.3	1.7	39.0	18%	174.2	105.2	66.2	108.0	174.2	213.2	-	0%
Total Costs	**765.0**	**765.0**	**162.3**	**15.7**	**178.0**	**23%**	**587.0**	**595.6**	**417.6**	**169.5**	**587.0**	**765.0**	**-**	**0%**

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

Wastewater Treatment Project
Treated for a cleaner future

REPORT TO CORE AREA WASTEWATER TREATMENT PROJECT BOARD
MEETING OF WEDNESDAY, SEPTEMBER 26, 2018

SUBJECT **Wastewater Treatment Project Monthly Report – August 2018**

ISSUE

To Provide the Core Area Wastewater Treatment Project Board with the Monthly Report for August 2018.

BACKGROUND

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

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

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

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

The Business Case established the CAWTP control budget (the Control Budget) of $765 million.

DISCUSSION

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

The monthly report for the period of August 2018 is attached as Appendix A.

RECOMMENDATION

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

RESOLVED that:

The Staff Report, Wastewater Treatment Project Monthly Report – August 2018, be received for information and forwarded to the Core Area Liquid Waste Management Committee and CRD Board for information.

Elizabeth Scott, Deputy Project Director
Wastewater Treatment Project

Dave Clancy, Project Director
Wastewater Treatment Project
Concurrence

Attachments: 1

Appendix A: Wastewater Treatment Project Monthly Report – August 2018

ES:rm

Wastewater Treatment Project

Treated for a cleaner future

CRD Wastewater Treatment Project

Monthly Report

Reporting Period: August 2018

Contents

1 Executive Summary

1.1 Introduction

This monthly report covers the reporting period of August 2018 and outlines the progress made on the Wastewater Treatment Project during this time.

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

Overall the Project is progressing as planned with no changes to the construction/commissioning start and completion dates.

The WWTP Project Component is continuing with Harbour Resource Partners ("HRP" as the Design-Build Contractor for the McLoughlin Point WWTP) progressing in August engineering of the WWTP and outfall; and site work at McLoughlin Point including continuing: installation of the foundation piles, concrete pours for the tsunami and planter walls, and installation of underground piping; and starting concrete pours for the building base slabs.

The RTF Project Component is continuing with Hartland Resource Management Group ("HRMG" as the Design-Build-Finance-Operate-Maintain Contractor for the RTF) progressing planning and permitting, design engineering activities, and vendor selection. Construction activities over the reporting period included drilling, rock blasting, excavating and backfilling.

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 over the reporting period, including: completing the civil/structural early works and issued for construction (IFC) package and submitting a public realm improvements package to the City of Victoria; and progressed construction activities including: continuing to drill, install, tension and proof test tie-backs, remove excess fills from site to accommodate the drilling of the tie-backs and installed wood lagging for the soldier pile wall.
- 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 providing the 90% hazard and operability (HAZOP) report and completed demolition of the existing workshop, formed and placed concrete and commenced framing of the temporary bin room and placed concrete for the new duct bank across View Point Road.

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

- Clover Forcemain: The Project Team completed the evaluation and proposals received in response to the RFP for selection of a construction contractor and identified a preferred proponent.
  - Residual Solids Conveyance Line ("RSCL"): Residual Solids Pipes (RSCL 100): Parsons (as the Design Consultant) completed the final (Request for Proposal ready) design deliverable. The request for proposal closed and the Project Team evaluated the proposals; and
  - Residual Solids Pump Stations (RSCL 200): Parsons (as the Design Consultant) held a design workshop and progressed development of the 90% design deliverable. The Project Team issued the RFQ to pre-qualify contractors for construction of the Residual Solids Pump Stations.
- Arbutus Attenuation Tank ("ART"): Kerr Wood Leidal (as the Design Consultant) progressed the final (tender ready) design deliverable as well as certain pre-requisites for the building permit, including the tree survey and re-vegetation plan and the Environmental Management Plan.

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 ("KPIs") that were defined within the Project Charter.

Changes were made to the dashboard during the reporting period as follows:

- Safety: one recordable safety incident was reported at the Clover Point site during the reporting period. Corrective action has been identified and implemented to ensure the key performance indicator is met; and
- Cost: cost pressures experienced on multiple Conveyance procurements as a result of inflation in the Vancouver Island construction market has resulted in budget pressures. Corrective action has been identified and implemented, however further action is anticipated to be required to maintain the Control Budget.

Table 1- Executive Summary Dashboard

Key Performance Indicators		Project Overall	WWTP	RTF	Conveyance System	Comments
Safety	Deliver the Project safely with zero fatalities and a total recordable incident frequency (TRIF) of no more than 1*.					One recordable incident occurred at the Clover Point site over the reporting period. Corrective action has been identified and implemented. Site inspections are ongoing.
Environment	Protect the environment by meeting all legislated environmental requirements and optimizing opportunities for resource recovery and greenhouse gas reduction					No environmental issues.
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).					Project expenditures within Control Budget but cost pressures experienced on multiple Conveyance procurements as a result of inflation in the Vancouver Island construction market. Corrective action has been identified and is being implemented (see Section 2.7 for details), but further action is anticipated to be required to maintain the Control Budget.

* 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 2. The total recordable incident frequency (TRIF) for the period from January 1, 2018 inclusive of Project Contractors and Project Management Office (PMO) staff was one.

Site safety tours and weekly safety inspections were carried out by PMO construction and safety personnel over the reporting period at all active worksites: Clover Point Pump Station, McLoughlin Point WWTP, RTF, and Macaulay Point Pump Station.

With ongoing construction activities on the Project these inspections continued and site inspections were performed weekly with the relevant prime contractor and CRD representative. Office and site orientations were delivered as required. Over the reporting period four incidents occurred: A report only and a first aid incident occurred at the RTF site; a first aid incident occurred at Clover Point Pump Station; and the Project's first recordable incident occurred at Macaulay Point Pump Station.

On August 2, 2018 a report only incident occurred at the RTF site. A loaded 30 tonne articulated rock truck was being backed into the designated dumping area at the stockpile at the south east corner of the site. During the backing up process the driver checked the vehicle's mirrors to ensure that a flat surface was being maintained to keep the load balanced. He began to dump the load of rock and the box of the truck began to tip. The driver immediately tried to retract the box, however it had already spilled its load of rocks as the truck was designed to provide safety for the operator and for the machine so that in soft ground conditions if the box is off balance it will not tip the cab over with it.

Corrective actions with respect to the incident were taken. The root cause of the incident was threefold:

- poor layout of the stockpile;
- operator error in attempting to dump when conditions were not proper to do so; and
- possible equipment failure.

The truck was immediately tagged "out of service" prior to inspection for any damage. A rubber pad on the #2 axel was replaced allowing the truck to return to service. Although the driver recognized that the conditions were not ideal to dump the contents of the box, this had not been reported to the supervisor. Therefore the driver underwent further safety training on the unloading of materials and recognizing site conditions along with appropriate reporting requirements. The stockpile layout for dumping material was redesigned to ensure trucks have a larger level area to use when backing up and unloading material.

On August 8, 2018 a first aid incident occurred at the Macaulay Point site. A ten foot high scaffold system was erected by a subcontractor to Kenaidan. This scaffold was used to access and secure cables located at ceiling height to allow for the shutdown and relocation of a transformer. The scaffolding was erected with handrails placed on all four sides to enclose the working deck of the scaffold system. Later in the day the handrails on the scaffolding were removed due to limited space around existing piping that was restricting access to complete the work. A worker on the scaffolding securing the cables lost his balance and fell backwards off the scaffolding. The worker

fell approximately 2.4 meters from the working deck. The worker reported to the site supervisor with lower back and leg pain. As a precautionary measure the injured worker was sent to a physician for an additional assessment in which no further treatment was required. The worker resumed regular duties the following day.

Corrective actions with respect to the incident were taken as follows:

- scaffold system was tagged “out of service” and dismantled the day after the incident;
- work area was cordoned off to keep unauthorized personnel out of area due to overhead hazards and limited work area;
- Chinook Scaffolding was contracted to erect proper scaffolding in task areas as well as any modifications to be performed to facilitate work;
- scaffolding inspection checklists were provided to workers to complete prior to working from any scaffolding systems;
- safe work practice review taken with workers on scaffolding and fall protection;
- field level risk assessment card review training on how to identify all hazards associated with task and control measures that will be put into place to reduce or eliminate hazards;
- rigging, slinging and hoisting procedures were reviewed with workers;
- prime contractor and subcontractor supervisor reviewed inspection procedures, incident reporting, worker competency and regulatory requirements for scaffolding; and
- a safety notice was distributed to CRD and prime contractors with regards to the incident and outlined corrective actions taken to prevent recurrence on any project sites.

On August 10, 2018 a first aid incident occurred involving a mechanic subcontractor performing maintenance work to a water truck at the RTF site. The mechanic was tightening a loose bolt with a wrench and the wrench slipped from his grasp causing him to pinch his finger against a solid surface. The mechanic reported the incident to onsite first aid. A function test was performed on the finger and it was determined that no further first aid was needed and the mechanic returned to work.

A corrective action was taken with respect to the incident. As the cause of the incident was improper use of a tool, a review of the procedure followed and an instruction to perform this task in a slower, more controlled motion was given.

On August 27, 2018 a recordable medical aid incident occurred at the Clover Point site. Two subcontractor workers were moving a timber to install as lagging on the soldier pile wall. The worker at ground level (the “groundsman”) was pushing one end of a ten foot long timber up to his coworker that was positioned at a higher elevation on the opposite side of the wall in order to guide it into position. When the groundsman lifted up the timber to slide it onto existing lagging, a board directly beneath the timber slipped from the existing wall and pinched the groundsman’s left index finger. The worker received a crush injury to his finger which split the skin open. Both workers reported the incident to the onsite supervisor. It was determined that the finger would require medical attention and the worker was taken to the hospital for treatment. X-rays of the finger were taken that showed a hairline fracture and stitches were needed to close the open wound. The worker returned to the subcontractor head office to participate in their modified duty program. The worker is not required to have additional treatment for his finger injury. A review of lifting and placing procedures was also undertaken.

Corrective actions were taken with respect to the incident. The timber that slipped had not been properly secured. Every fourth timber is now secured in the pile wall using lag bolts to prevent any timbers from being able to move. Additionally, the crew is to backfill lagging as soon as

possible to avoid further movement of boards and also to ensure all nails installed in the timber lagging are tight up against the steel beams.

Key safety activities conducted during August included:

- review document submissions from prime contractors;
- review of site specific safety plans and high risk tasks;
- CRD prime contractor orientation for new supervisor (Kenaidan);
- WTP Safety Manager and/or Construction Manager conducted regular site inspections at all active Project work sites and daily inspections and Macaulay and Clover Point;
- monthly office/site inspections with prime contractors and CRD Corporate at all active sites;
- monthly communication meeting with WTP Safety Manager and CRD Corporate Safety Manager;
- weekly project update meetings with HRP;
- traffic management plan reviews for Clover Point Pump Station (HRP);
- incident reporting review with prime contractors at active work locations;
- participated in WorkSafeBC tour with prime contractor and Hartland CRD representatives at the RTF project site; and
- organized prime contractor monthly safety meetings with CRD.

Table 2 – WTP Safety Information

	Reporting Period (August 2018)	Project Total to-Date (from January 1, 2017)
Person Hours		
PMO	4,913	70,427
Project Contractor	15,459	234,995
Total Person Hours	20,372	305,421
PMO	36	
Project Contractors working on Project sites	101	
Total Number Of Employees	137	
Near Miss Reports	0	8
High Potential Near Miss Reports	0	2
Report Only	1	3
First Aid	2	4
Medical Aid	0	0
Medical Aid (Modified Duty)	1	1
Lost Time	0	0
Total Recordable Incidents	1	1
	2018 Frequency (from January 1, 2018)	Project Frequency (from January 1, 2017)
First Aid Frequency		2.6
Medical Aid Frequency		0.6
Lost Time Frequency		0
Total Recordable Incident Rate		0.6

2.2 Environment and Regulatory Management

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

2.2.1 Environment

Environmental work in August progressed as planned.

Key environmental management activities completed in August included:

- HRMG (as the Design-Build-Finance-Operate-Maintain Contractor for the RTF) continued with soil tests in support of soil disposal documentation requirements. Test results indicate that there may be some heavy metal contamination, however, additional testing is required to validate results. CRD, HRMG and Stantec are working to prepare a plan to characterize soils at the RTF site and appropriately manage any contaminated material while mitigating costs associated with disposal of any contaminated material; and
- HRP (as the Design-Build Contractor for the McLoughlin Point WWTP), Stantec and the CRD continued advancing the MWR Registration. The focus of that work is on updating the Marine Environmental Impact Study (EIS) to address BC Ministry of Environment and Climate Change Strategy (ENV) comments that arose from their review.

2.2.2 Regulatory Management

In August, 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 HRP (as the Design-Build Contractor for the McLoughlin Point WWTP), and HRMG (as the Design-Build-Finance-Operate-Maintain Contractor for the RTF) in the development and review of permit applications; engaging with federal and provincial regulators in support of obtaining key permits (summarized in Table 3); and continuing to advance the Municipal Wastewater Regulation (MWR) Registration and planning for future permit applications.

Key permitting activities for August include:

- HRMG and CRD met to review HRMG's draft Information Requirements Table (IRT) and to discuss planning of HRMG's Operational Certificate application. The IRT forms the basis of the Operational Certificate application; and
- HRP and CRD met with Fisheries and Oceans Canada (DFO) to receive an update on DFO's review of the application for a Fisheries Act Authorization for outfall construction.

The status of key Project permits are summarized in Table 3. The table is not a list of all required Project permits, but rather a summary of the status of key Project permits.

Table 3 has been updated since the Project's July 2018 Monthly Report as follows:

- The status of the following permits have been updated:
    - McLoughlin Point Outfall: Removed Notice from the Director to Construct under section 40(b) of the MWR as it was received in the last reporting period.
    - McLoughlin Point WWTP: Changed Township of Esquimalt Building Permit (Phase 2) to received.

- Macaulay Point Pump Station: Added details about phased Township of Esquimalt Building Permit approach and changed Township of Esquimalt Building Permit (Phase 1) to Received.

Table 3 - Key Permits Status

Permit / Licence	Anticipated Date	Status	Party Responsible for Obtaining Permit
McLoughlin Point WWTP			
Township of Esquimalt Phased Building Permits (Phase 1 obtained; Phase 2 submitted and anticipated in Q3 2018)	Q3 2018	**Received**	HRP
Municipal Wastewater Regulation ("MWR") Registration	Q4 2019	On track	CRD
McLoughlin Point Harbour Crossing			
Transport Canada Lease	Following completion of construction	On track	HRP
McLoughlin Point Outfall			
Fisheries and Oceans Canada (DFO) *Fisheries Act* Authorization	Q3 2018	Submitted: under review by DFO	HRP
Transport Canada Facility Alteration Permit	Q3 2018	Submitted: under review by Transport Canada	HRP
Transport Canada Licence (works access)	Q3 2018	Submitted: under review by Transport Canada	HRP
Transport Canada Lease	Following completion of construction	On track	HRP
Macaulay Point Pump Station Upgrade			
Township of Esquimalt Phased Building Permits (Phase 1 received; Phase 2 anticipated for submission Q4 2018)	**Phase 1 - Q3 2018 Phase 2 – Q4 2018**	**Phase 1 received Phase 2 on track**	Kenaidan
ECI/Trent Twinning			
Notice from the Director to Construct under Section 40 (b) of the MWR	Q4 2018	On track	Design engineer
City of Victoria Licence (works access)	Q1 2019	On track	Design engineer
Arbutus Attenuation Tank			
Notice from the Director to Construct under Section 40 (b) of the MWR	Q3 2018	On track	Kerr Wood Leidal
District of Saanich Building Permit	Q3 2018	On track	Kerr Wood Leidal
Residuals Treatment Facility			
Operational Certificate	Prior to start of RTF operations	On track	HRMG
District of Saanich Development and Building Permits	Q3 2018	On track	HRMG

2.3 First Nations

First Nations communication and engagement was ongoing over the reporting period.

In August, the PMO, CRD First Nations Relations Division and the Songhees and Esquimalt Liaisons continued meeting and advancing work in areas of shared interest. This included planning of an archaeological training day for members of the Esquimalt and Songhees communities. This training will be used to identify members of the communities who are interested in participating in cultural monitoring of construction activities in registered archaeological sites and in areas of high archaeological potential.

Following the death of Chief Andy Thomas, Esquimalt Nation has been exploring different leadership models – potentially transitioning to an Elected Chief rather than a Hereditary Chief. As part of this exploration, Esquimalt Nation has undergone a change of leadership, with Esquimalt Nation Council taking a more active role. The Environmental, First Nations and Regulatory Manager met with the new leadership at Esquimalt Nation to discuss the changes.

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

Construction Communications

Construction Notices and Updates:

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

- Construction of the new Macaulay Point Pump Station & Forcemain (August 3, 2018) (Appendix A); and
- Macaulay Point Pump Station: Temporary Power Transfer (August 14, 2018) (Appendix B).

The August 3, 2018 construction notice was also posted as signage at the Macaulay Point Pump Station and Forcemain site. It provides an overview of what to expect during construction, work hours, traffic impacts and a rendering of the finished pump station and map of the forcemain route.

Project Website

Throughout the month of August, the Project website, wastewaterproject.ca, was updated with information about the Project. Two construction notices were posted and the Project's photo gallery was updated with a photo of the concrete pour at the McLoughlin Point WWTP site.

Community Meetings

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

- City of Victoria Mayor;
- City of Victoria staff;
- James Bay Neighbourhood Association; and
- Township of Esquimalt Liaison Committee.

In addition, the Project Team provided representatives from the Province of British Columbia's Ministry of Municipal Affairs and Housing with a tour of the Residuals Treatment Facility construction site.

Public Inquiries

Public inquiry numbers from the Project email address and 24/7 information phone line (1-844-815-6132) are noted in Table 4.

Table 4 - Project Inquiries – August 2018

Inquiry Source	Contacts for August
Information phone line inquiries	9
Email inquiries responded to	6

Key themes of the public inquiries were as follows:

- request for information about lighting on the cycle path along the Clover Forcemain;
- feedback about the truck route in Esquimalt;
- inquiries about wastewater treatment processing;
- inquiries about the Residual Solids Conveyance Line design and route; and
- general inquiries about project work.

2.5 Resolutions from Other Governments

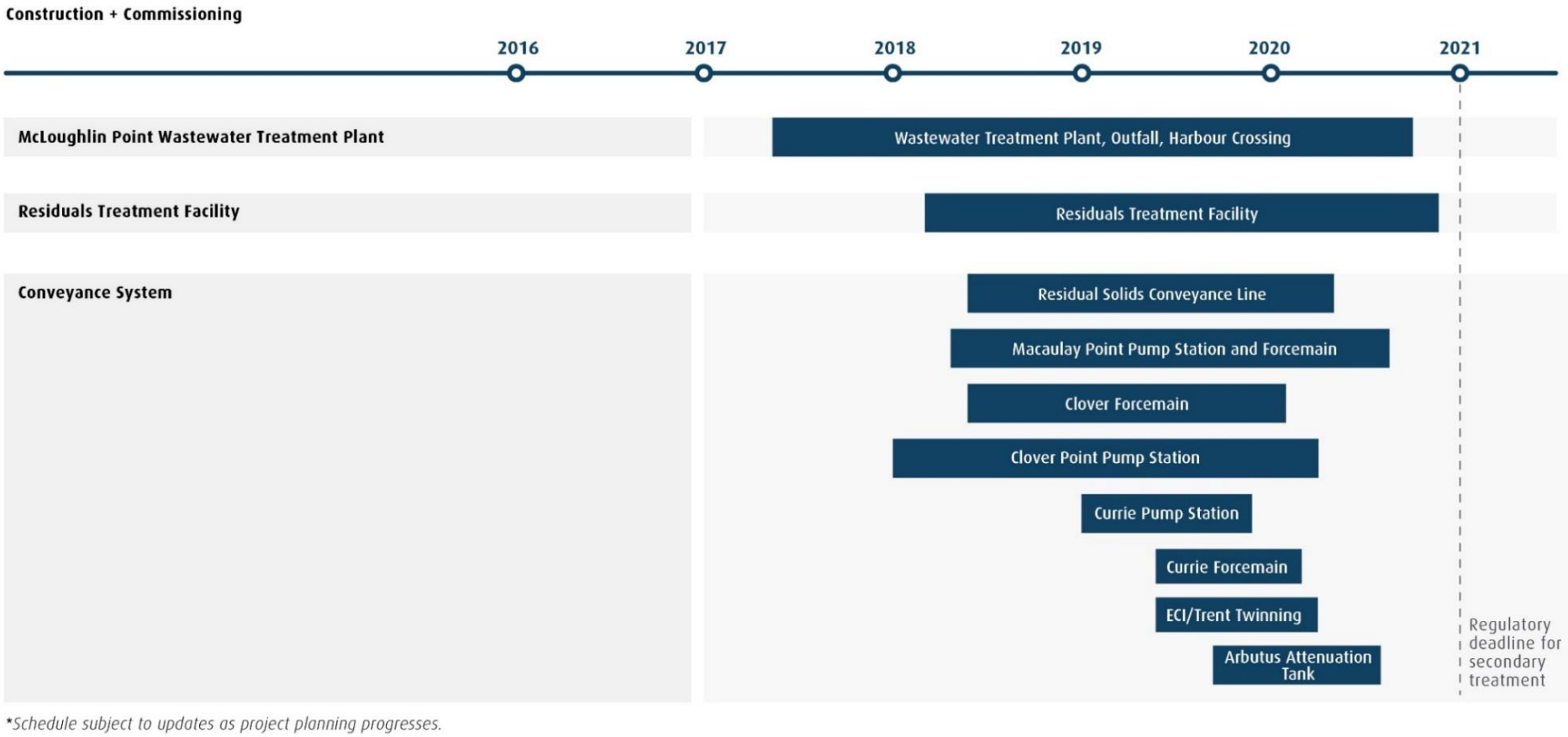
There were no resolutions related to the Project passed by other Governments during the reporting period.

2.6 Schedule

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

Figure 1 shows the high-level Project schedule. This schedule is unchanged from that shown in the previous Project report, however it remains subject to optimization as the Project and planning progresses.

Figure 1-High-Level Project Schedule[1]



*Schedule subject to updates as project planning progresses.

[1] The schedule remains subject to optimization.

2.6.1 30 and 60 day lookahead

Key activities and milestones for the next 30 days (September) are:

Safety

- review prime contractor safety program for Clover Forcemain site;
- new prime contractor CRD safety orientation;
- monthly risk register WTP meeting;
- review of any site specific safety plans or high risk tasks;
- document reviews as required;
- set up office warden training for new designate;
- set up monthly safety meeting for all prime contractor safety personnel on the WTP;
- WTP Safety Manager and/or Construction Manager will conduct regular site inspections at all active Project work sites;
- develop monthly summary for CRD Corporate Safety Manager in regards to Project activities;
- monthly office/site inspections with contractors and CRD Corporate at all active sites;
- monthly communication meeting with WTP Safety Manager and CRD Corporate Safety Manager;
- periodic blasting safety/silica exposure plan reviews at RTF site;
- incident reporting review with prime contractors at active work locations (if applicable) and;
- send out safety notice(s) in the event of an incident to CRD and prime contractors (if applicable).

Environment and Regulatory Management

- HRMG and CRD to meet with ENV to discuss terms of reference for HRMG Operational Certificate application; and
- HRP, Stantec and the CRD to continue advancing the MWR Registration.

First Nations

- continue advancing the planning of archaeological soils relocation to Clover Point Park;
- PMO to make a presentation to Songhees Chief and Council; and
- Project Board Chair to meet with Chiefs of the W̱SÁNEĆ Nations.

Stakeholder Engagement

- ongoing construction communications with stakeholders;
- community information meeting to provide a project update on the Clover Forcemain;
- develop and post information sheets on the Clover Forcemain and Clover Point Pump Station;
- notification of blasting for the Macaulay Point Pump Station and Forcemain;
- planning and preparations for a community meeting on the RSCL; and
- ongoing community liaison meetings.

Cost Management and Forecast

- prepare cost reports;
- monitor schedule;
- prepare for Q3 financial close and interim audit; and

- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

Construction

McLoughlin Point

- commence installation of underground utilities and drains at operations and maintenance area;
- commence concrete wall pours in tertiary area;
- install underground process piping in primary and secondary areas;
- continue with tsunami and planter walls; and
- continue surface runoff/groundwater treatment and discharge.

Clover Point Pump Station

- complete installation of tie-backs;
- excavate to pump room elevation;
- commence excavation of new storm/sanitary wet well; and
- commence forming and rebar for pump room and wet well base slabs.

Macaulay Point Pump Station

- install conveyors to temporary bin room;
- complete temporary bind room;
- excavation of building footprint to bedrock; and
- commence drilling and blasting.

Residuals Treatment Facility

- excavation, drilling and blasting;
- crushing of blast rock and haul to stockpile; and
- commence excavating for the storm water system and potable and fire water lines in area 1.

Engineering

McLoughlin Point WWTP:

- construction package 4 yard pipe: issued for construction (IFC) design deliverable;
- construction package 5 process building slabs: issued for construction (IFC) design deliverable; and
- construction package 6 operations and maintenance (O&M) slabs: issued for construction (IFC) design deliverable.

Residuals Treatment Facility:

- early works package 1 site access road: 100% and issued for construction (IFC) design deliverables;
- early works package 2 digester area foundation: 100% and issued for construction (IFC) design deliverables;
- early works package 3 municipal receiving solids structural: 100% and issued for construction (IFC) design;

- early works package 4 residuals handling foundation: 100% and issued for construction (IFC) design;
- early works package 5 water pump house and water tank foundation: 100% and issued for construction (IFC) design;
- early works package 6 admin building foundation: 100% and IFC design; and
- overall design: 60% design deliverable.

Clover Point Pump Station:

- incorporate comments to civil/structural final design review; and
- submit revised 90% hazard and operability (HAZOP) report.

Macaulay Point Pump Station:

- submit revised early works 1 design submission for demolition and temporary works; and
- submit final (100%) early works 2 design submission for excavation and foundation.

Clover Forcemain:

- complete and issue IFC submission.

Residuals Solids Conveyance Line:

- RSCL100: Residual Solids Pipes: finalize issued for construction (IFC) design deliverable and receive required municipal approvals; and
- RSCL200: Residual Solids Pumps: progress 90% design deliverable.

Arbutus Attenuation Tank:

- progress final (100%) design deliverable; and
- complete submission to District of Saanich for building permit.

Procurement

Clover Forcemain:

- negotiate and execute contract with preferred proponent.

Residuals Solids Conveyance Line:

- RSCL100: Residual Solids Pipes:
  - negotiate contract as per RFP RSCL-100 with proponent; and
  - review all works plans after contract execution.
- RSCL200: Residual Solids Pumps:
  - received and evaluate RFQ responses and selected pre-qualified proponents.

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

Safety

- review of any site specific safety plans or high risk tasks;
- document reviews as required;
- attend CRD joint occupational health and safety meeting;
- WTP Safety Manager and/or Construction Manager will conduct regular site inspections at all active Project work sites;
- develop monthly project summary for CRD Corporate Safety Manager regarding Project activities;

- monthly office/site inspections with contractors and CRD Corporate at all active sites;
- monthly communication meeting with WTP Safety Manager and CRD Corporate Safety Manager;
- periodic blasting safety/silica exposure plan reviews at RTF site; and
- incident reporting review with prime contractors at active work locations (if applicable).

Environment and Regulatory Management

- CRD and KWL (as design consultant for the Arbutus Attenuation Tank) to submit an application for Notice from the Director to Construct under Section 40 (b) of the MWR; and
- Parsons (as design consultant for the RSCL) to prepare BC Water Sustainability Act applications for in-stream work associated with RSCL construction.

First Nations

- Millennia (as the Project's archaeological advisor) to begin archaeological pre-construction digs along Clover Forcemain route with the aid of the Clover Forcemain contractor; and
- PMO and WTP liaisons to continue meeting and advancing issues of overlapping interest.

Stakeholder Engagement

- ongoing construction communications with stakeholders;
- planning for future Project update content;
- planning and preparations for a community meeting on the RSCL; and
- ongoing community liaison meetings.

Cost Management and Forecast

- prepare cost reports;
- monitor schedule;
- prepare for Q3 financial close and interim audit; and
- submit funding claims to Infrastructure Canada (under the Building Canada Fund and Green Infrastructure Fund).

Construction

McLoughlin Point

- continue construction of tsunami and planter walls;
- commence interior walls in the biological aerated filter (BAF) areas;
- construction of base slab at odour control area;
- complete tertiary concrete wall pours; and
- continue surface runoff/groundwater treatment and discharge.

Clover Point Pump Station

- place concrete for base slab in pump room;
- commence forming and rebar for pump room walls; and
- install base slab in wet well.

Macaulay Point Pump Station

- drill and blast; and
- remove blast rock to elevation -4.0m.

Residuals Treatment Facility

- form, install rebar and place concrete in base slabs in areas 1 and 2;
- install storm water system at area 1;
- install potable and firewater lines at area 1; and
- test and backfill potable and firewater lines.

Clover Forcemain

- mobilization and initial survey of site;
- initial traffic management plan, health and safety plan and environmental protection plan;
- pre-construction archaeological digs in area 7; and
- pre-construction soil testing part 1.

Engineering

- McLoughlin Point WWTP: issued for construction (IFC) design for the overall WWTP deliverable
- Residuals Treatment Facility: review early works packages and progress 90% design;
- Clover Point Pump Station: submit final (100%) design deliverable for the overall CPS;
- Macaulay Point Pump Station: submit final (100%) design deliverable;
- Residuals Solids Conveyance Line:
    - RSCL100: Residual Solids Pipes: finalize issued for construction (IFC) design deliverable; and
    - RSCL200: Residual Solids Pumps: submit final (100%) design deliverable.
- Arbutus Attenuation Tank: progress final (100%) design deliverable.

Residuals Solids Conveyance Line:

- RSCL100: Residual Solids Pipes: finalize contractor work plans.
- RSCL200: Residual Solids Pumps:
    - issue request for proposal (RFP) to pre-qualify construction contractors;
    - respond to inquiries from proponents, as needed; and
    - issue request for proposal (RFP) to pre-qualified proponents.

2.7 Cost Management and Forecast

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

We have adjusted the status of the cost key performance indicator from yellow to orange. Orange indicates that the KPI is at risk unless corrective action is taken. Project expenditures are within the Control Budget but cost pressures continue to be significant on the conveyance components of the Project. In July and August the Project Team received proposals for the Clover Forcemain and the Residual Solids Conveyance Line, respectively. The Project Team held competitive procurements for each of these components of the Project and was successful in engaging qualified experienced contractors that submitted proposals under competitive conditions. However, the proposal prices received were greater than estimated as a result of cost escalation due to inflationary pressures in the Victoria area construction market and material supply.

The Project Team anticipates awarding the Clover Forcemain and Residual Solids Conveyance Line in September and October, respectively, and upon award will have procured (and secured pricing) for all components of the Project that are critical to meeting provincial and federal regulations for tertiary treatment of the core area's wastewater, other than the Residual Solids Pump Stations which are under active procurement and anticipated to be awarded within the next quarter. The Project has contingency in-place to manage risks such as escalation, but to offset the escalation the Project Team continues to look for cost saving measures. In order to address the cost pressures on the Conveyance component of the Project the Project Team has implemented value engineering and is reviewing the scope of work for the remainder of the contracts.

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 $1.8 million primarily associated with contract change orders and consultant/advisor contracts.

2.7.2 Expenses and invoicing

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

2.7.3 Contingency and Program Reserves

There were no contingency or program reserve draws over the reporting period. The contingency and program reserve balance is summarized in Table 5. The remaining contingency and program reserve is anticipated to be sufficient to deliver the Project within the Control Budget.

Table 5 - Contingency and Program Reserve Draw-Down Table

WTP Contingency and Program Reserve Draws and Reallocations	Draw Date	$ Amount
Contingency and Program Reserve balance as at August 1, 2018		**$ 69,068,378**
Total Contingency and Program Reserve Draws over the Reporting Period		$ -
Contingency and Program Reserve balance as at August 31, 2018		**$ 69,068,378**

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 WWTP;
- up to $50 million through the Green Infrastructure Fund towards the conveyance system project; and
- up to $41 million towards the RTF through the P3 Canada Fund.

The status of funding claims is summarised in Table 6. 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 6 – Grant Funding Status

Funding Source	Maximum Contribution	Funding Received in the Reporting Period	Funding Received to Date
Government of Canada (Building Canada Fund)	$120M		$23.2M
Government of Canada (Green Infrastructure Fund)	$50M	$5.8M	$5.8M
Government of Canada (P3 Canada Fund)	$41M		
Government of British Columbia	$248M		
TOTAL	**$459M**	**$5.8M**	**$29.0M**

2.8 Key Risks and Issues

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

Table 7 summarizes the highest-level risks that were actively managed over the reporting period, as well as the mitigation steps identified and/or undertaken over the reporting period.

There were no changes to the active risks summary during the reporting period.

Table 7- 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
Project				
Misalignment between First Nations' interests and the implementation of the Project.	The assessed risk level reflects the Project Team's priority of establishing strong and effective relationships with First Nations interfacing with, or interested in, the Project.	First Nations engagement activities remained ongoing over the reporting period (see section 2.3 for further details).	M	No change
Divergent interests between multiple parties and governance bodies whose co-operation is required to successfully deliver the Project.	The assessed risk level reflects the Project Team's priority of establishing strong and effective relationships with municipal, provincial and federal government departments.	The Project Team continued engagement with municipal, provincial and federal government departments throughout the reporting period.	M	No change
Misalignment between Project objectives/scope and stakeholder expectations.	The assessed risk level reflects the Project Team's priority of establishing strong and effective community stakeholder engagement.	Community engagement activities were ongoing over the reporting period (see section 2.4 for further details).	M	No change
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.	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
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.	M	No change
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
Downstream 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.	M	No change
Provincial or Federal government/agency permit requirements not met.	Project Component required Provincial or Federal permit conditions are not met by Project contractors resulting in delays or work stoppage.	The Project Team maintain a centralized permit compliance register to monitor and manage Project permit condition compliance by Project contractors. Meetings held with Federal and Provincial agencies to fully understand and meet requirements in a timely fashion.	M	No change
Public directly contacting contractors at sites.	Direct contact between the public and contractors could expose both parties to worksite hazards and potential injuries.	Communications and engagement plan, contractor orientation.	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
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; 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
Conveyance				
Unexpected geotechnical conditions results in higher procurement and/or construction costs.	Geotechnical conditions result in redesign and/or higher construction cost than budgeted.	Ensure adequate investigations to manage the risk of unexpected geotechnical conditions: comprehensive geotechnical investigations have been undertaken for the Clover Forcemain, Macaulay Point Pump Station and Forcemain, and RSCL. This geotechnical information has been provided to procurement participants. Geotechnical investigations are to be undertaken for ECI and Currie Forcemain.	M	No change
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 in concert with Stantec 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.	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
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 in concert with Stantec 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 costs estimates at discrete design points.	H	No change

Risk Level Key - Assessed risk level (based on likelihood and potential impact)

L	Low
M	Medium
H	High

2.9 Status (Engineering, Procurement and Construction)

2.9.1 Wastewater Treatment Plant (WWTP)

The WWTP Project Component is continuing with Harbour Resource Partners ("HRP" as the Design-Build Contractor for the McLoughlin Point WWTP) progressing in August engineering of the WWTP and outfall; and site work at McLoughlin Point including continuing installation of the foundation piles, continuing concrete pours for the tsunami and planter walls and continued installation of underground piping.

Engineering

HRP (as the Design-Build Contractor for the McLoughlin Point WWTP) progressed planning and design activities in August, including:

- construction package 2 deep foundations: 100% and issued for construction (IFC) design deliverables for the McLoughlin Point WWTP;
- construction package 5 process building slabs: 100% design deliverable for the McLoughlin Point WWTP;
- construction package 6 operations and maintenance (O&M) slabs: 100% design deliverable for the McLoughlin Point WWTP;
- construction package 7 tertiary area foundation and walls: complete issued for construction (IFC) design for the McLoughlin Point WWTP;
- overall design: 100% design deliverable for the McLoughlin Point WWTP; and
- detailed design report for the outfall: issued for construction (IFC) design deliverable of the McLoughlin Point WWTP.

Construction

McLoughlin Point

Photographs of construction progress at McLoughlin Point are shown in Figures 2 – 8. Key construction activities in progress or completed by HRP (as the Design-Build Contractor for the McLoughlin Point WWTP) in August were as follows:

- continued construction of tsunami and planter walls;
- mobilized additional crew trailers and double stacked them;
- expanded area "A" parking lot to accommodate additional office trailers;
- completed erection of concrete placing boom for use on operations and maintenance (O&M) building;
- installed floor drains, rebar and grounding grid in tertiary slab;
- placed 610 cubic meters of concrete in first tertiary slab pour and 490 cubic meters in the second slab pour;
- prefabricated formwork for odour control slab and tertiary wall pours;
- prepared the area at the end of Victoria View Road for micro tunnel boring machine (MTBM) crane pad; and
- continued surface runoff/groundwater treatment and discharge.

Figure 2 – Rebar dowels in the tertiary area.

Figure 3- Erecting concrete placing boom for operations and maintenance (O&M) area.

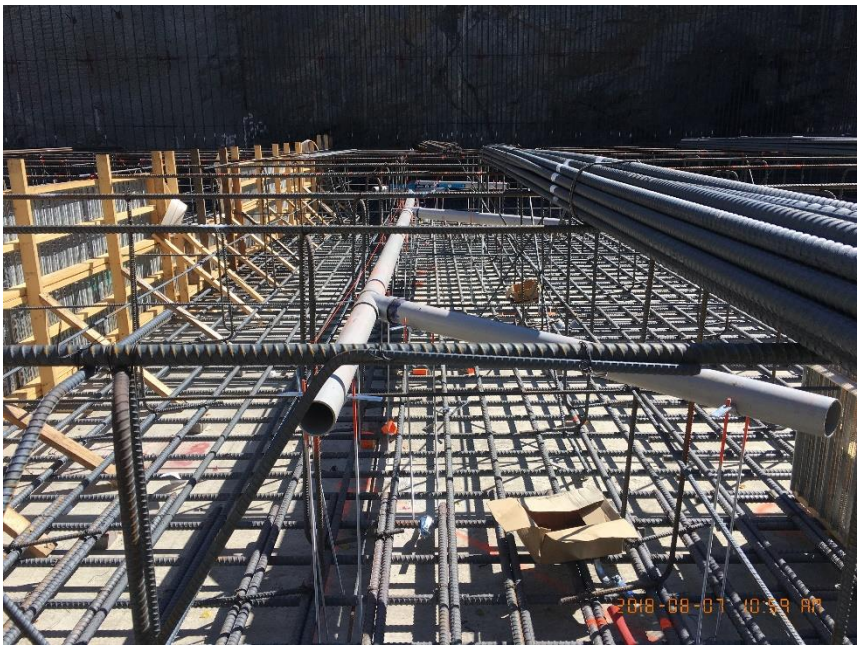


Figure 4 – Setting floor drains in the tertiary slab.

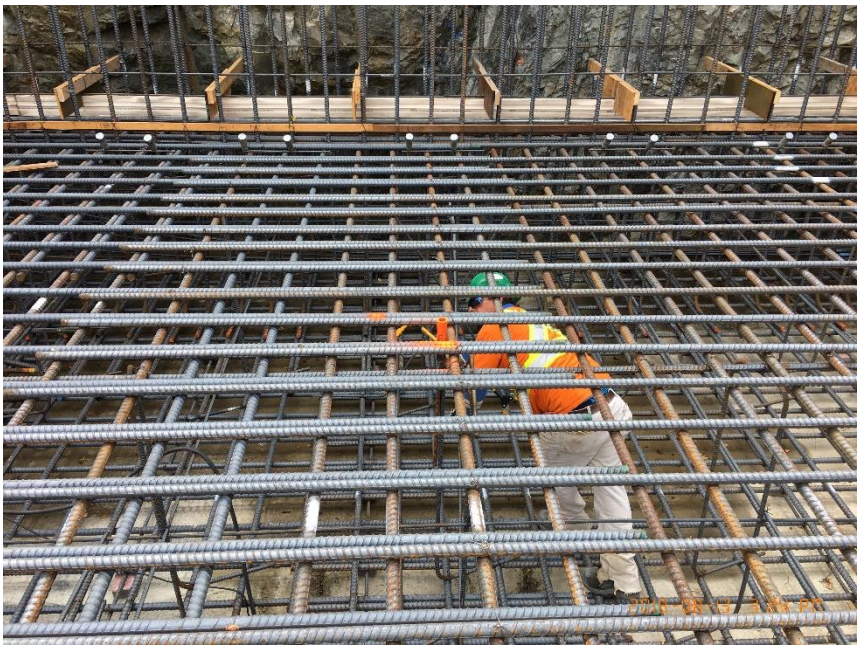


Figure 5 – Cleaning up in tertiary area prior to placing concrete.

Figure 6 – Placing concrete in the tertiary slab.

Figure 7 – Wet curing of concrete slab.

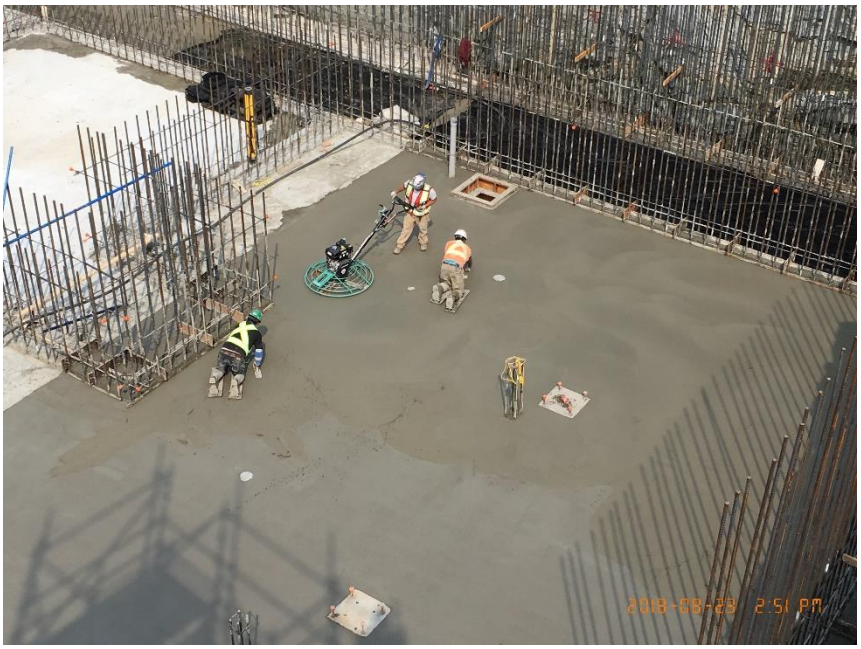


Figure 8 – Finishing concrete in the tertiary slab.

2.9.2 Residuals Treatment Facility (RTF)

The RTF Project Component is continuing with Hartland Resource Management Group ("HRMG" as the Design-Build-Finance-Operate-Maintain Contractor for the RTF) progressing planning and permitting, design engineering activities, and vendor selection. Construction activities over the reporting period included drilling, rock blasting, excavation and backfilling.

Engineering

HRMG progressed planning and design activities in August, including:

- submitted the 60% design submission;
- prepared and submitted various project plans and submittals;
- progressed with vendor selection;
- finalized independent certifier contract;
- worked with BC Hydro to confirm power requirements to the site; and
- worked with District of Saanich and MOE on permitting requirements.

Construction

Photographs of construction progress at the Residuals Treatment Facility are shown in Figures 9 to 12. Activities on site included:

- drilling, rock blasting and excavation (blasting shut down mid-August due to extreme wildfire danger);
- hauling aggregate, placed in 300mm lifts and compact at digester #1 area;
- mobilised new crusher to site and crushed aggregate and stockpiled;
- excavated, loaded and hauled contaminated material to the Hartland Landfill site; and
- excavated upper Hartland access road and stockpile material for future use.

Figure 9 – Rock crushing plant in operation.

Figure 10 – Spreading and compacting aggregate at digester #1 location.

Figure 11 – Excavator with hoe-pack compacting placed aggregate material in valleys and depressions in bedrock.

Figure 12 – Loading and hauling contaminated material to Hartland Landfill.

2.9.3 Conveyance System

Clover Point Pump Station

Kenaidan Contracting Limited ("Kenaidan", as the Design-Build Contractor) progressed planning, design and construction activities over the reporting period, as follows:

Engineering

Kenaidan completed the following engineering activities:

- civil/structural early works 100% and issued for construction (IFC) package submitted for review; and
- public realm improvements package: submission for City of Victoria.

Construction

Photographs of construction progress at Clover Point Pump Station are shown in Figures 13 to 17. Key construction activities in progress or completed by Kenaidan in August were as follows:

- continued to drill, install, tension and proof test tie-backs;
- removing excess fills from site to accommodate the drilling of the tie-backs; and
- installed wood lagging for the soldier pile wall.

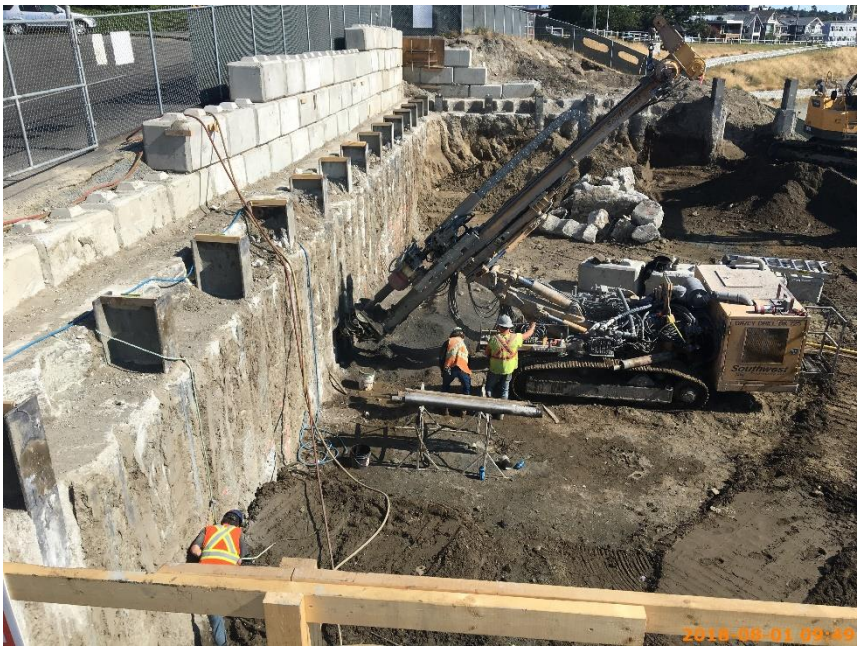


Figure 13 – Southwest drilling tie-backs.

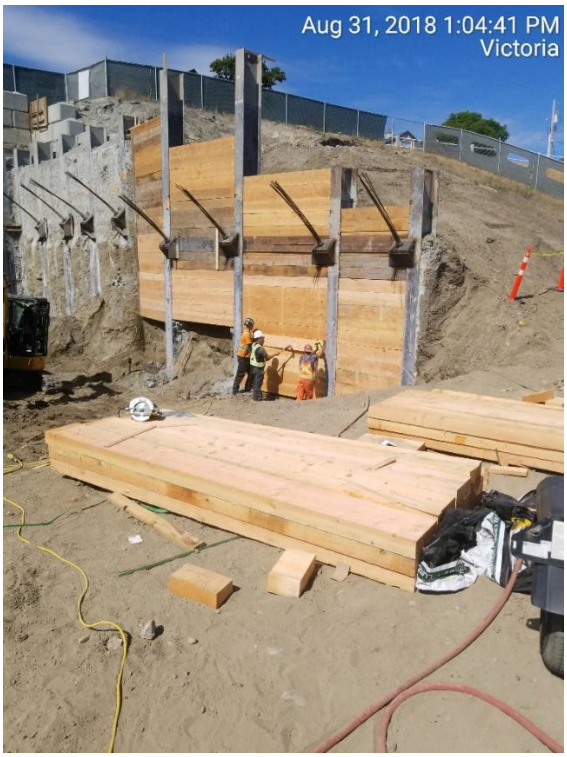


Figure 14 – Installing wood lagging between piles at gridline 8.

Figure 15 – Grinding concrete flush with king piles.

Figure 16 – Excavating down to lower level of tie-backs and hauling material offsite.

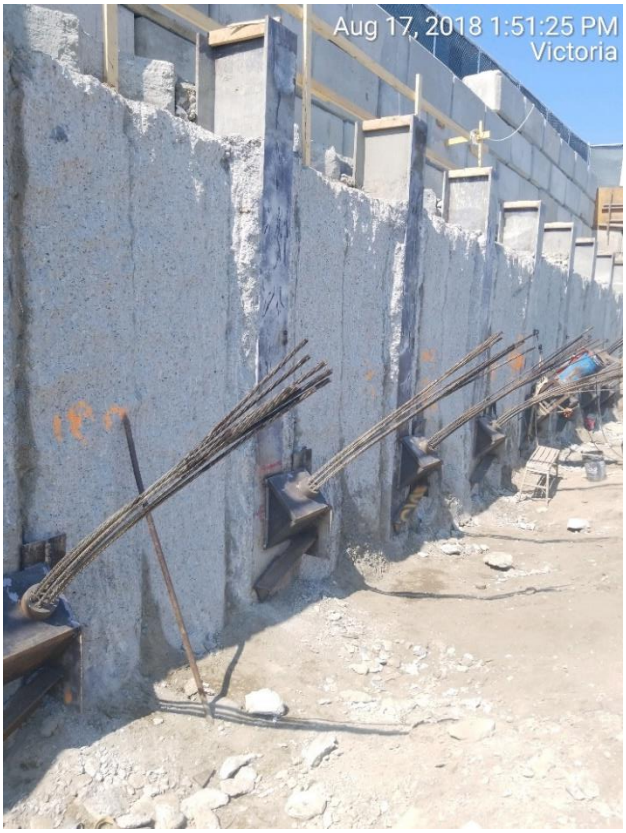


Figure 17 – Tension and proof testing tie-backs.

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, as follows:

Engineering

Kenaidan (as the Design-Build Contractor) completed the following engineering activities: 90% hazard and operability (HAZOP) report provided.

Construction

Photographs of construction progress at Macaulay Point Pump Station and Forcemain are shown in Figures 18 to 20. Key construction activities in progress or completed by Kenaidan in August were as follows:

- completed demolition of workshop, laboratory and exterior concrete walls in phase 1A and 1B demo and sort and dispose of demolished material;
- disconnected, relocated and re-connected the transformer and E-house;
- formed and placed concrete for base slab for the temporary bin room;
- commenced framing of the temporary bin room; and
- placed concrete for the new duct bank across View Point Road.

Figure 18 – Hoisting E-house and moving to new location.

Figure 19 – Placing concrete in duct bank under View Point Road.

Figure 20 – Commence framing of temporary bin room.

Clover Forcemain (CFM)

The CFM contract was executed on September 10, 2018 between the CRD and Windley Contracting Ltd. Issued for construction (IFC) drawings and specifications were included in the contract. Construction activities are expected to begin in October 2018.

Residuals Solids Conveyance Line (RSCL)

Parsons (as the Engineer of Record) progressed and/or completed the following engineering activities:

- package no. 1 residual solids pipes: issued for construction (IFC) design issued; and
- package no. 2 residual solids pump stations: develop 90% design.

Appendix A – Construction Notice – Macaulay Point Pump Station – August 3, 2018

Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

Construction of the new Macaulay Point Pump Station & Forcemain

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. The forcemain is the pipe that will connect the Macaulay Point Pump Station to the McLoughlin Point Wastewater Treatment Plant.

The design of the new pump station reflects its location on the waterfront, improving the visual impact of the building and creating greenspace for the community to enjoy. The pump station will have many sustainable features such as a green roof and rain garden.

What to Expect

- Demolition of the existing pump station workshop and laboratory building.
- Excavation and blasting for the new pump station.
- Construction of the below-grade concrete structure.
- Construction of the above-grade wood structure.
- Excavation and installation of the forcemain and utility relocations along the following roads: Vaughan, Anson, Bewdley and Peters.

Work Hours

- 7:00 a.m. to 7:00 p.m. Monday to Friday
- 9:00 a.m. to 5:00 p.m. Saturday
- No work is planned for Sundays or holidays, except on limited occasions.

Traffic Impacts

- Traffic impacts are expected to be minimal as the majority of the work will be conducted on the existing Macaulay Point Pump Station site.
- There will be localized single-lane traffic during forcemain construction.
- Truck traffic will follow the Traffic Management Plan approved by the Township of Esquimalt.
- The waterfront trail will remain open during construction and operations.

Construction 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.

For more information, please visit wastewaterproject.ca

To learn more about the Wastewater Treatment Project, or to sign up for construction updates, please visit **wastewaterproject.ca**. To contact the project, please email **wastewater@crd.bc.ca** or call **1.844.815.6132**.

Wastewater Treatment Project
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Construction Notice

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Appendix B – Construction Notice – Macaulay Point Pump Station – August 14, 2018

Wastewater Treatment Project
Treated for a cleaner future

Construction Notice

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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. The forcemain is the pipe that will connect the Macaulay Point Pump Station to the McLoughlin Point Wastewater Treatment Plant.

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What to Expect

- Demolition of the existing pump station workshop and laboratory building.
- Excavation and blasting for the new pump station.
- Construction of the below-grade concrete structure.
- Construction of the above-grade wood structure.
- Excavation and installation of the forcemain and utility relocations along the following roads: Vaughan, Anson, Bewdley and Peters.

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Traffic Impacts

- Traffic impacts are expected to be minimal as the majority of the work will be conducted on the existing Macaulay Point Pump Station site.
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- Truck traffic will follow the Traffic Management Plan approved by the Township of Esquimalt.
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Construction is anticipated to be complete in summer 2020.

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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.

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Treated for a cleaner future

Construction Notice

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Wastewater Treatment Project
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Appendix C – Monthly August Cost Report

ASSET MANAGEMENT COST REPORT
as at August 31, 2018

Project Component	Control Budget	Allocated Budget	COST EXPENDED					COMMITMENTS			FORECAST		VARIANCE	
			Expended to July 31, 2018	Expended over reporting period (August 2018)	Expended to August 31, 2018	Expended to August 31, 2018 as a % of Budget	Remaining (Unexpended) Budget at August 31, 2018	Total Committment at August 31, 2018	Unexpended Commitment at August 31, 2018	Uncommitted Budget at August 31, 2018	Forecast to Complete	Forecast at Completion	Variance at Completion $	Variance at Completion as a % of Budget
McLoughlin Point Wastewater Treatment Plant [A]	378.0	375.6	124.1	0.7	124.9	33%	250.7	341.3	216.3	34.3	250.7	375.6	-	0%
Residuals Treatment Facility [A]	195.0	176.3	14.9	0.2	15.1	9%	161.2	150.0	134.9	26.3	161.2	176.3	-	0%
Conveyance System [A]	192.0	213.1	39.0	1.4	40.4	19%	172.7	106.1	65.8	107.0	172.7	213.1	-	0%
Total Costs	**765.0**	**765.0**	**178.0**	**2.3**	**180.4**	**24%**	**584.6**	**597.4**	**417.0**	**167.6**	**584.6**	**765.0**	**-**	**0%**

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

Wastewater Treatment Project
Treated for a cleaner future

REPORT TO CORE AREA WASTEWATER TREATMENT PROJECT BOARD
MEETING OF WEDNESDAY, SEPTEMBER 26, 2018

SUBJECT **Approval of the Project Management Plan for the Wastewater Treatment Project**

ISSUE

To seek approval of the Project Management Plan for the Wastewater Treatment Project.

BACKGROUND

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

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

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

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

The Business Case established the WTP control budget (the Control Budget) of $765 million.

In accordance with the CRD Core Area Wastewater Treatment Board Bylaw No. 1, 2016 the Project Board has appointed a Project Director to oversee all aspects of the Project.

The Project Board Terms of Reference include the requirement that the Project Director lead a Project Team to plan, procure and implement the Project, and that the Project Director will prepare a Project Management Plan to guide the work.

A Project Management Plan was prepared by the Project Team in 2017 and has been used by the Project Team since that time, and has been revised and updated over that time.

DISCUSSION

The purpose of the Project Management Plan is to identify and describe the project management approaches that will allow the Project Team to effectively manage the design, procurement, construction and commissioning of the Project and to safely deliver it on-time and on-budget.

The Project Management Plan aims to:

- summarise the Project's context, governance and team organization structure;

- specify the project management objectives and approaches intended to be used to achieve the key performance indicators (as established in the Project Charter); and
- state key organizational roles and responsibilities that are anticipated to be required to provide effective management, administration and control of the Project.

The Project Team will review the Project Management Plan throughout the delivery of the Project and will update it as required.

The Project Management Plan is attached to this Staff Report as Appendix A.

BUDGET IMPLICATIONS

The continued implementation of the Project Management Plan will support the Project Team in achieving the Project's key performance indicators.

RECOMMENDATION

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

RESOLVED that:

The Wastewater Treatment Project's Project Management Plan, in the form included in the Project Board package, be approved.

Elizabeth Scott, Deputy Project Director
Wastewater Treatment Project

Dave Clancy, Project Director
Wastewater Treatment Project
Concurrence

Attachments: 1

Appendix A: Project Management Plan for the Wastewater Treatment Project

Wastewater Treatment Project

Treated for a cleaner future

Project Management Plan

July 2018

Table of Contents

Glossary of Acronyms

CRD	Capital Regional District
CALWMC	Core Area Liquid Waste Management Committee
CALWMP	Core Area Liquid Waste Management Plan
CAWTPB	Core Area Wastewater Treatment Project Board
DB	Design-Build
DB+	Design-Build Plus
DBB	Design-Bid-Build
DBF	Design-Build-Finance
DBFOM	Design-Build-Finance-Operate-Maintain
DPD	Deputy Project Director
GVHA	Greater Victoria Harbour Authority
IRM	Integrated Resource Management
IWS	Integrated Water Services
KPI	Key Performance Indicator
MWR	Municipal Wastewater Regulations
P3	Public Private Partnership
PCM	Project Controls Manager
PD	Project Director
PES	Parks and Environmental Services
PM	Project Manager
PMO	Project Management Office
PMP	Project Management Plan; the “Plan”
RSCL	Residual Solids Conveyance Line
RTF	Residuals Treatment Facility
RTF PM	Residuals Treatment Facility Project Manager
TRIF	Total Recordable Incident Frequency
WBS	Work Breakdown Structure
WSER	Wastewater System Effluent Regulation
WTP	Wastewater Treatment Project; the “Project”
WWTP	McLoughlin Point Wastewater Treatment Plant
WWTP PM	McLoughlin Point Wastewater Treatment Plant Project Manager

Glossary of Terms

Contractor	The contractor with construction responsibility, being the party responsible for delivering either a DB, DBF or DBFOM contract or a DBB contract
DBB contractor	Party responsible for delivering a DBB contract
DB+ contracts	Design-Build Plus contracts: DB, DBF and DBFOM contracts
Design Consultant	Party responsible for developing the design for DBB contracts
Project Co.	Party responsible for delivering the DB, DBF and DBFOM contracts

1 Introduction

1.1 Project Description

The Wastewater Treatment Project (the “WTP” or the “Project”) will provide the Capital Regional District’s ("CRD") Core Area with wastewater treatment that meets both provincial and federal wastewater regulations.

The Project comprises three components (each a “Project Component”) as summarized herein.

McLoughlin Point Wastewater Treatment Plant:

- A 108 megalitre/day wastewater treatment plant at McLoughlin Point in Esquimalt that will treat sewage to a tertiary level consistent with federal wastewater treatment regulations;
- A cross harbour undersea forcemain (the “Victoria Harbour Crossing”) from Ogden Point to the McLoughlin Point treatment plant (approximately 1000 metres in length); and
- A marine outfall (the “McLoughlin Marine Outfall”) for discharging the effluent from the McLoughlin Point treatment plant into the marine environment.

Residuals Treatment Facility

- The residual solids produced by the WWTP will be processed into Class A biosolids, as defined in British Columbia’s Organic Matter Recycling Regulation, at a RTF located at the Hartland Landfill site;
- The Class A biosolids will be available for beneficial uses.

Conveyance System

- Residual Solids Conveyance Line (“RSCL”): This includes two pipes along with four pumping stations. The two pipes will be installed in a common trench where possible and will connect the WWTP to the RTF:
  - A 200mm pipe approximately 18.5km in length and four pumping stations will convey the residual solids from the WWTP to the RTF;
  - A 350mm pipe approximately 11.5km in length will return the resulting centrate liquid from the RTF back to the Marigold pumping station. Flows from the Marigold pumping station will be directed to the WWTP through the existing collection system for treatment and then discharge out the McLoughlin Marine Outfall.
- Macaulay Point Catchment: the Macaulay Point catchment area conveyance upgrades include three main components:
  - The new Craigflower pump station was constructed to replace an older, smaller lift station to convey the increasing wastewater flows generated by View Royal, Colwood, Langford, Songhees First Nation and Esquimalt First Nation to the Macaulay Point pump station;
  - Macaulay Point Pump Station will be replaced to increase the pumping capacity and upgrade the building and headworks to include grit removal and screening of the wastewater flows to be conveyed to the WWTP; and
  - A new forcemain (the “Macaulay Forcemain”) will be constructed from Macaulay Point Pump Station to convey all wastewater flows from the Macaulay Point catchment area to the WWTP.

- Clover Point Catchment: the Clover Point catchment area conveyance upgrades include four main components:
  - Clover Point Pump Station will be upgraded to increase pumping capacity and upgrade the headworks to include grit removal and screening of the wastewater flows to be conveyed to the WWTP;
  - A new forcemain (the “Clover Forcemain”) will be constructed from Clover Point Pump Station to connect to the Victoria Harbour Crossing at Ogden Point to convey all wastewater flows from the Clover Point catchment area to the WWTP;
  - The Currie Pump Station upgrade (the “Currie Pump Station Upgrade”), pipe twinning (the “East Coast Interceptor Twinning”) and Trent siphon extension (the “Trent Siphon Extension”) will be completed to increase the conveyance capacity for wastewater flows to Clover Point Pump Station; and
  - The Arbutus Attenuation Tank will be constructed to attenuate the wastewater flows entering the East Coast Interceptor from the Saanich East / North Oak Bay area to alleviate system overflows downstream.

1.2 Purpose of Project Management Plan

The purpose of this Project Management Plan (“PMP”) is to identify and describe the project management approaches that will allow the Project Team to effectively manage the design, procurement, construction and commissioning of the Project and to safely deliver it on-time and on-budget.

This PMP aims to:

- summarise the Project’s context (see section 2), governance (section 5) and team organization structure (section 6);
- specify the project management objectives and approaches intended to be used to achieve the KPIs established in the Project Charter (sections 7 – 18); and
- state key organizational roles and responsibilities that are anticipated to be required to provide effective management, administration and control of the Project (sections 6 – 18).

The PMP is intended to provide guidance to the Project Team; the approaches outlined (and in most cases the roles and responsibilities) can be modified as appropriate, for example to adjust to the Project’s progress, the success of the approaches and/or changing circumstances. The Project Team will review the PMP throughout the delivery of the Project and will update it as required.

2 Project Context

2.1 Project Development

The CRD provides regional services including the regional sewage system which serves a population of approximately 320,000 in the Core Area. The Core Area includes seven municipalities and two First Nations within the CRD with a total land area of approximately 215 km^2. These communities are the Cities of Victoria, Langford, and Colwood, the Districts of Oak Bay and Saanich, the Township of Esquimalt, the Town of View Royal, and the Songhees and Esquimalt Nations.

Currently all wastewater from the Core Area is conveyed to preliminary treatment facilities where it is screened prior to marine discharge. Preliminary treatment is provided by 6 mm fine screening to remove rocks/solids, plastic, and floatable materials. The removed materials are trucked to, and disposed of, at the Hartland Landfill. No other treatment occurs prior to the wastewater being discharged into the marine environment from one of two outfalls, located at Clover Point and Macaulay Point. The CRD is the last major coastal community in North America discharging untreated sewage into the marine environment.

Provincial Municipal Wastewater Regulations ("MWR") under the *Environmental Management Act* came into effect in 2012 to "protect public health and the environment". The MWR prescribes the minimum standards of municipal wastewater quality for marine water, fresh water, or ground discharge.

Federal Wastewater System Effluent Regulations ("WSER") under the *Fisheries Act* establish effluent quality performance standards. WSER's objective is to decrease the level of deleterious and harmful substances discharged through wastewater effluent. Facilities discharging effluent quality not equivalent to or better than the secondary treatment performance standards are required to be upgraded. Facilities considered high risk, such as the Macaulay Point and Clover Point outfalls, must be upgraded by December 31, 2020.

Failure to comply with the WSER and the MWR could result in regulatory enforcement action in the form of prosecution, fines, imprisonment, and other remedial penalties.

In order to meet federal and provincial regulations, on May 25, 2016 the Regional Board of the CRD (the "CRD Board") established the Wastewater Treatment Project Board (the "Project Board") under Bylaw 4109 (the "CRD Core Area Wastewater Treatment Board Bylaw No. 1, 2016") for the purposes of administering the Project. The CRD Board adopted by resolution terms of reference ("Terms of Reference") for the Project Board for the purposes of establishing principles governing the WTP. The Terms of Reference are attached as Schedule "A" to the CRD Core Area Wastewater Treatment Board Bylaw No. 1, 2016.

On May 25, 2016 the CRD Board also delegated certain of its powers, duties and functions to the Project Board under Bylaw 4110 (the "CRD Core Area Wastewater Treatment Project Board Delegation Bylaw No. 1, 2016").

The CRD asked the Project Board to review the wastewater treatment issues and, by September 2016, recommend to the CRD and senior levels of government a plan to comply with the law and to preserve senior government funding.

The Project Board heard delegations and presentations from the public, industry professionals, and a CRD Director. The Project Board Chair and Vice Chair also met with staff from the CRD and all of the Core Area municipalities, and with Esquimalt and Songhees Nations representatives.

The Project Board reviewed the previous technical work and extensive public commentary and developed a methodology to review and evaluate all options. This methodology included evaluation of a large number of options to identify a short list that best addressed the Project goals.

The Project Board developed detailed cost estimates for the short-listed options, ranked the short list using triple bottom line (economic, social and environmental) criteria, and identified the best option. This option was the basis of the final report of the Project Board with respect to its recommendation for the WTP, dated September 7, 2016 (the “Final Report”).

On September 14, 2016 the CRD Board received the Final Report and approved the business case (the “Business Case”) to the Final Report. The Business Case established the WTP control budget (the “Control Budget”) of $765 million.

Following the CRD Board’s approval of the Business Case, the CRD submitted amendment number 11 (“Amendment 11”) to the Core Area Liquid Waste Management Plan (“CALWMP”) to the British Columbia Ministry of Environment. The Core Area Liquid Waste Management Plan (“CALWMP”) outlines CRD's wastewater management strategies, including wastewater treatment under the Environmental Management Act.

On September 30, 2016, the British Columbia Ministry of Environment provided conditional approval of Amendment 11 to the CALWMP, and on November 18, 2016 provided a revised conditional approval that superseded the September 30, 2016 approval. The November 18, 2016 conditional approval clarified: that primary treatment is to be guaranteed for Clover Point catchment flows of up to three times average dry weather flows; and that a definitive plan providing a solution for the beneficial use of biosolids that does not incorporate multi-year storage of biosolids within a biocell is to be submitted to the British Columbia Ministry of Environment by June 30, 2019.

Amendment 11 and the Business Case sets out the delivery scope and associated treatment facility performance requirements for the WTP. As the focus of the WTP is to treat wastewater, the CRD will undertake a separate process to review its regional waste management policy and develop a definitive plan for the beneficial use of biosolids.

The CRD has received funding support from the provincial and federal governments for the Project representing approximately 60% of the WTP capital costs. The Government of Canada will contribute: up to $120 million through the Building Canada Fund ‑ Major Infrastructure Component towards the McLoughlin Point Wastewater Treatment Plant (“WWTP”); up to $50 million through the Green Infrastructure Fund towards components of the conveyance system; and up to $41 million towards the Residuals Treatment Facility (“RTF”) through the P3 Canada Fund. The Government of British Columbia will provide up to $248 million towards the three components of the Project. The CRD will provide $306 million for the three Project components and will be responsible for any additional costs.

In accordance with the Terms of Reference:

- the Project Board has appointed a Project Director to oversee all aspects of the Project;
- the Project Director is leading a Project Team to plan, procure and implement the Project; and
- the Project Director has prepared this Project Management Plan to guide the work.

3 Project Delivery Strategy

The Project comprises three Project Components as described in section 1.

The design, construction and commissioning of the Project will require the Project Team to manage a number of key interfaces, including CRD operations and key provincial approvals.

The WWTP is the largest Project Component in monetary value. The RTF is the second biggest Project component. The balance of the Project scope is comprised of upgrades to existing pump stations and the addition of new pump, pipe and storage infrastructure to the Core Area wastewater conveyance system. This Project Component will be delivered through eight construction contracts.

Given the risk profile, overall scale and diverse scope, the Project will be delivered through a number of contracts with a variety of contracting strategies, as outlined in the Business Case and summarized in Table 2. The Business Case sets out the rationale for the selection of each contracting strategy.

Table 1- WTP Contracting Strategy

Project Component	Contract	Contracting Strategy
WWTP	McLoughlin Point Wastewater Treatment Plant	DBF
RTF	Residuals Treatment Facility	DBFOM
Conveyance System	Residual Solids Conveyance Line	DBB
	Residual Solids Pump Stations	DBB
	Macaulay Point Pump Station and Forcemain	DB
	Clover Forcemain	DBB
	Clover Point Pump Station	DB
	Currie Forcemain and ECI Trent Twinning	DBB
	Currie Pump Station	DBB
	Arbutus Attenuation Tank	DBB

The Project management framework and Project organization presented in this PMP have been developed based on the contracting strategies outlined in Table 2.

Competitive selection processes either have or will be used to select contractors for the contracts. The following sections represent the intent for the Project contracts.

3.1 WWTP: Design-Build-Finance (DBF)

The WWTP contract is a DBF agreement that requires Project Co. to design, build and partially finance the McLoughlin Point Wastewater Treatment Plant. The WWTP contract includes three main scope elements: the WWTP, the Victoria Harbour Crossing and the McLoughlin Marine Outfall. The WWTP contract is a Design-Build-Finance (DBF) arrangement with Project Co. responsible for designing to a performance specification and partially financing the elements until key construction milestones are met.

The milestone payment framework under the agreement provides for performance verification and schedule incentive: the contract is structured such that third party debt capital is at risk until Project Co. can demonstrate that the plant has satisfactorily achieved operational capability, including compliance with the contract's performance specifications. Performance will have to be demonstrated continuously over a 90 day acceptance period for Project Co. (and their lenders) to receive full payment. In determining whether to put their capital at risk, third party lenders satisfied themselves that Project Co.'s designs are capable of meeting the contract specifications.

In addition, Project Co. must demonstrate that the plant can meet the contract standards with respect to key performance criteria during a two-year performance period after achieving operational capability. If the specifications are not met over this two-year performance period, Project Co. will be obliged to upgrade the plant as required to meet the standards. Project Co. are therefore incentivized to design and build the plant so that it can be operated comfortably within the performance standards.

Over the duration of the DB period of the WWTP Project Co. will submit progress payment claims which will be reviewed and validated as part of a monthly invoicing cycle. An acceptance holdback will be retained until the end of the performance period, which runs for a two-year period from the acceptance date.

Over the performance period the CRD will operate and maintain the WWTP, and Project Co. will be responsible for:

- monitoring operations;
- consulting with and providing advice to the CRD and the CRD's plant manager with respect to the operation of the Facility;
- assisting with environmental and regulatory compliance;
- preparing and updating the operations manual and operations and maintenance plans;
- assisting with the evaluation of the performance of the WTP and the implementation of plans to achieve continued compliance with the process performance guarantees;
- assisting with the development and implementation of plans that will minimize use of power, chemicals, water and labour; and
- responding to warranty claims.

This structuring of the contract broadly vests performance risk with Project Co., however factors such as the operations and maintenance cost risk relating to the long term operational life of the WWTP are retained by the CRD.

This contracting strategy requires the Project Team to adopt a verification and audit approach to contract management, similar to the DBFOM. However a higher level of verification and audit will be required on this type of contract given that Project Co. will not have ongoing responsibility for the operation of the WWTP.

There are physically interfacing works and screened, degritted wastewater required to be delivered in order for the acceptance and performance period to operate as intended. Responsibility for these interfaces is retained by the CRD and it is the Project Team's responsibility to manage the interfaces during construction and commissioning. Upon commissioning the CRD will assume responsibility for the operation of the WWTP and the management of the interfaces.

3.2 RTF: Design-Build-Finance-Operate-Maintain (DBFOM)

The RTF contract is a Public Private Partnership ("P3") which requires Project Co. to design, build, partially finance, operate and maintain the facility over a 20 year period. Project Co. has the responsibility of designing and operating the facility to meet the performance specification and contract requirements over the term of the contract.

Under the contract there will be no progress or milestone payments made to Project Co. during the design-build phase. Upon commissioning of the facility Project Co will receive partial payment for the construction and then, once the facility is in the operational phase, Project Co. will be compensated through a payment based in-part on the quantity of residual solids treated. This payment structure provides schedule and performance incentives, motivating Project Co. to meet the commissioning date and the operational performance requirements specified in the contract over the duration of the operating period.

A DBFOM transfers a significant amount of risk to Project Co. This contracting strategy requires the Project Team (during the DB phases) and the CRD (during the operating phase) to adopt a verification and audit approach to contract management. Project Co. is fully vested in the 'on time', 'on budget' and quality delivery of the facility as they are required to operate and maintain the facility that they have built for 20 years.

There are physically-interfacing works and residual solids required to be delivered in order for the contract to operate as intended. Responsibility for these interfaces is retained by the CRD and it is the Project Team's responsibility to manage them during construction and commissioning and the CRD's responsibility to manage them during operations.

3.3 Clover Point Pump Station and Macaulay Point Pump Station and Forcemain: Design-Build (DB)

The management of a DB contract is very similar to that of a DBF contract given that the operations and maintenance cost risk will, in both cases, be retained by the CRD.

There are physically interfacing works and wastewater required to be delivered in order for commissioning of the DB pump station elements to be completed. Responsibility for these

interfaces is retained by the CRD and it is the Project Team's responsibility to manage the interfaces during construction and commissioning. Upon commissioning the CRD will assume responsibility for the operation of the conveyance component of the Project (including the Clover Point Pump Station and Macaulay Point Pump Station and Forcemain), and the management of the interfaces.

3.4 Remainder of Conveyance Contracts: Design-Bid-Build (DBB)

For DBB contracts the CRD is responsible for completing the design and retains design, constructability and performance risks. The DBB contracts will require a higher contract administration effort than the other contracting strategies being used on the Project. Additionally a number of the Conveyance contracts to be procured under the DBB delivery strategy are on the Project's critical path therefore robust schedule management will be required to control the delivery schedule.

There are physically interfacing works and wastewater required to be delivered in order for commissioning of the DBB conveyance elements to be completed. Responsibility for these interfaces is retained by the CRD and it is the Project Team's responsibility to manage the interfaces during construction and commissioning. Upon commissioning the CRD will assume responsibility for the operation of the conveyance component of the Project, and the management of the interfaces.

3.5 Project Control Budget

The Business Case established the Control Budget of $765 million.

After approval of the Business Case the Project Team refined the allocation of the Control Budget between the three major Project Components, based on a bottom-up estimating approach and a series of risk workshops. Allocations within the Control Budget were a result of:

a) the development of the Project Management Office ("PMO") Budget using a bottom-up estimating approach;

b) the execution of the WWTP contract;

c) the recalculation of contingencies and a Project reserve: the contingency allocations were established with reference to the risks identified within the WWTP, RTF and Conveyance System Components; and the Project reserve allocation was established with reference to the Project-wide risks identified; and

d) subsequent reallocations (as approved by the Project Board) based on Project progress, including the award of construction contracts for the RTF, Clover Point Pump Station and Macaulay Point Pump Station and Forcemain.

As a result of this bottom-up approach, contract award, and risk assessments, the Project Board has approved the allocated costs, contingencies and project reserve as shown in Table 2. The allocated Control Budget will be used as the basis for the Project Team's management of the budget and reporting.

Table 2- Allocated Control Budget (all in $ millions)

Project Component	Allocated Costs	Contingency	Project Reserve	TOTAL
McLoughlin Point. Wastewater Treatment Plant	$356	$17	$19	$378
Residuals Treatment Facility	$169	$14		$195
Conveyance System	$170	$19		$192
Total	**$696**	**$50**	**$19**	**$765**

3.6 Project Schedule

The WTP schedule has been developed to achieve the Project goal of meeting federal regulations for secondary treatment of wastewater by December 31, 2020. A high-level schedule is presented in Appendix □1 and key milestones are summarized in Table 3.

In order to meet the federal regulations for treatment of the Core Area's wastewater by December 31, 2020, the Project schedule is ambitious. While the Project schedule is achievable there is no float. The successful execution of the Project is dependent on multiple parties and governance bodies and their co-operation will be critical to meeting the Project schedule, and therefore maintaining the Project's budget.

Table 3- Key Milestones

Substantial Completion	Quarter
McLoughlin Point Wastewater Treatment Plant	Q4 2020
Residuals Treatment Facility	Q4 2020
Residual Solids Conveyance Line	Q2 2020
Macaulay Point Pump Station and Forcemain	Q3 2020
Clover Forcemain	Q1 2020
Clover Point Pump Station	Q1 2020
Currie Pump Station	Q4 2019
Currie Forcemain	Q1 2020
ECI/Trent Twinning	Q1 2020
Arbutus Attenuation Tank	Q3 2020

3.7 Key Performance Indicators

The Project Charter defined six Key Performance Indicators ("KPIs"), listed in Table 4, that were developed to support the realization of the Project's vision, mission and goals.

The most important aspect of the Project, and therefore the most important KPI, is safety.

Table 4- WTP KPIs

Key Performance Indicators	
Safety	Deliver the Project safely with zero fatalities and a total recordable incident frequency ("TRIF") of no more than 1*.
Environment	Protect the environment by meeting all legislated environmental requirements and optimizing opportunities for resource recovery and greenhouse gas reduction.
Regulatory Requirements	Deliver the Project such that the Core Area complies with provincial and federal wastewater regulations.
Stakeholders	Continue to build and maintain positive relationships with First Nations, local governments, communities, and other stakeholders.
Schedule	Deliver the Project by December 31, 2020.
Cost	Deliver the Project within the Control Budget ($765 million).

* 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.

The Project Team report performance against the KPIs to the Project Board on a monthly basis.

3.8 First Nations

The Core Area, and therefore the Project components, lie within or near the traditional territories of 16 First Nations. The First Nations most closely associated with the WTP are the Esquimalt and Songhees. Their communities are located in the Core Area within close proximity to the McLoughlin Point WWTP and other Project components. There are four First Nations with communities near the Core Area, but outside the Core Area wastewater system. They are the Tsawout, Tseycum, Tsartlip, and Pauquachin (the W̱SÁNEĆ Nations). Additionally, there are ten other First Nations with Treaty rights in the general vicinity of the Core Area, but primarily fishing rights in the Strait of Juan de Fuca.

4 Guiding and Key Supporting Documents

4.1 CRD Core Area Wastewater Treatment Project Board Bylaw No. 1, 2016

The CRD Core Area Wastewater Treatment Board Bylaw No. 1, 2016 established the Project Board for the purposes of administering the Project. Attached to the bylaw are the Project Board's Terms of Reference, which set out the role, responsibilities and function of the Project Board. The Terms of Reference also provide a framework that includes the Project vision and goals, guiding principles and values, Project Board meeting protocols, confidentiality considerations and identifies those matters that must be referred to the CRD Board for approval. The bylaw was adopted by the CRD Board on May 25, 2016.

4.2 Business Case

The Business Case defined the Project and established the control budget (the "Control Budget") of $765 million. The CRD Board approved the Business Case on September 14, 2016.

4.3 Core Area Liquid Waste Management Plan

The Core Area Liquid Waste Management Plan ("CALWMP") outlines CRD's wastewater management strategies, including wastewater treatment under the Environmental Management Act.

Amendment 11 of the Core Area Liquid Waste Management Plan defines how the CRD will treat wastewater in the Core Area. The CRD has received approval from the Ministry of Environment for Amendment 11 on the condition that a definitive plan for the beneficial use of biosolids be submitted to the Minister by June 30, 2019

The CALWMP also includes seven liquid waste management initiatives designed to protect the core area's water quality: monitoring and sampling; harbour stewardship; watershed protection; trucked liquid waste management; inflow and infiltration; onsite septic maintenance; and source control.

4.4 Project Charter

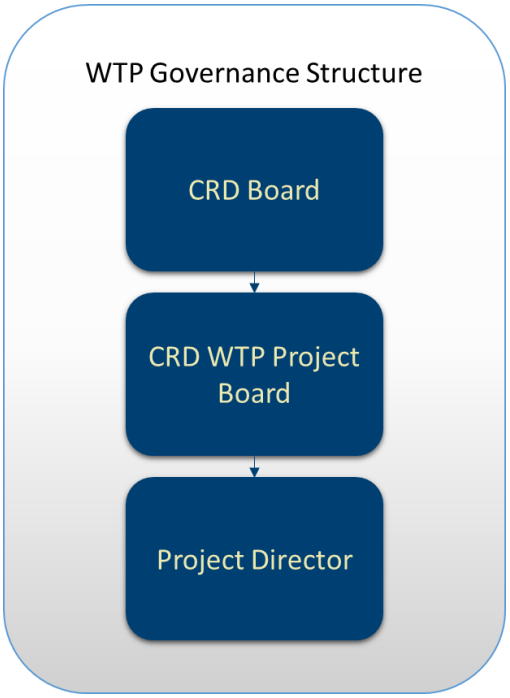
The Project Charter was developed to define the parameters and establish the mandate for the Project Team to execute and deliver the Project. The Project Charter includes the vision and goals from the Project Board's Terms of Reference and defines the mission and KPIs for the Project. The Project Charter also includes a description of roles and responsibilities, and presents a high-level description of the Project budget, schedule, scope, risks, and stakeholders.

5 Project Governance Framework

The governance framework is comprised of the CRD Board, the Project Board, the Project Director and the Deputy Project Director. The organisational chart depicted in Figure 1 shows, at a high level, their relation to one another in the Project governance structure. The primary responsibilities of the entities identified in the governance structure are outlined in this section.

5.1 CRD Board

The CRD Board is comprised of one or more elected officials from each of the local governments within the CRD's boundaries.



The CRD Board established the Project Board through the CRD Core Area Wastewater Treatment Board Bylaw No. 1, 2016, and delegated certain of its powers, duties and functions to the Project Board under the CRD Core Area Wastewater Treatment Project Board Delegation Bylaw No. 1, 2016. Notwithstanding the delegation of authority from the CRD Board to the Project Board, approval from the CRD Board is required for any alteration to the scope, schedule or budget of the Project that would result in the Project: not meeting provincial and federal regulations governing the Project; exceeding approved funding for the Project; or increasing costs to taxpayers from those stated in the Business Case.

The CRD Board also established the CRD Core Area Liquid Waste Management Committee ("CALWMC") to oversee and make recommendations to the Board regarding the CALWMP and certain aspects of the Project.

5.2 Project Board

The Project Board consists of a minimum of seven members appointed by the CRD Board, one of whom shall be the Chief Administrative Officer of the CRD.

The Project Board's role and function as defined in the Terms of Reference is as follows:

- Be responsible for overall planning, Project management, site acquisition, expenditures, and liquid waste management planning for the purposes of the Project.
- Select a Project Director to oversee all aspects of the Project.
- Provide direction and guidance to the Project Director on Project matters, including the development of a decision making framework, business priorities, strategies and resource approval, and appropriate Project controls and reporting procedures.
- Manage the development of a comprehensive Business Case for submission to the federal and provincial governments to confirm funding to proceed to Project implementation.
- Appoint or confirm advisors including fairness advisor and conflict of interest adjudicator.

- Oversee Project scope, schedule and budget as the Project progresses through planning, procurement and implementation phases, with particular attention to risk identification and risk management.
- Work with the Project Director to resolve material issues that may arise over the course of the Project.
- Oversee Project communications, information and consultation activities.

5.3 Project Director (PD)

In accordance with the Terms of Reference, the Project Director is responsible for leading a Project team to plan, procure, and implement the WTP. The Project Director is accountable to the Project Board and accountable for delivering the WTP within the Control Budget of $765 million, and meeting federal and provincial regulations for treatment of the Core Area's wastewater by December 31, 2020.

5.4 Deputy Project Director (DPD)

The Deputy Project Director is directly accountable for managing activities related to governance, finance, project controls, communications and engagement, legal support, properties, and administration of the Project. The Deputy Project Director is also responsible for executive level engagement between the CRD and the Project and supports all functions of the Project Director's role.

5.5 Delegation of Authority to the Project Director and Deputy Project Director

The Project Team has delegated authority in accordance with Bylaw 4186 (the "CRD Delegation Bylaw No. 1, 2017"). CRD Delegation Bylaw No. 1, 2017 delegates to the CRD's officers and employees the authority to acquire and purchase goods and services on behalf of the CRD, subject to the CRD's purchasing policies and procedures, and signing authority limitations.

The signing authority limitations for the Project Director and Deputy Project Director are summarised in Table 5.

Table 5 - Project Team's Delegated Authority

	Authority to purchase contracts and services up to a value of:	Authority to agree to contract changes and amendments up to a value of:
Project Director	$3 million	$2 million
Deputy Project Director	$1.5 million	$1 million

6 Project Team Organization

In accordance with the Terms of Reference, the Project Director is responsible for leading a Project team to plan, procure, and implement the Project. The Project team are taking an owner's-led approach to the management of the Project, which means that the Project Team retains responsibility but is aided by consultants and advisors as required.

The Project Director and Deputy Project Director are supported by a Project Leadership Team. Along with the Project Director and Deputy Project Director, each of the PMs and functional managers reporting to the Project Director and Deputy Project Director make up the Project Leadership Team, as illustrated in Figure 3. The Project Team is organized in a matrix structure under the Project Leadership Team.

In accordance with the Terms of Reference:

- the Project Team includes relevant expertise required for the Project, including financial, technical, estimating, communication and consultation, procurement and legal expertise; and
- membership of the team will reflect the requirements of the work at a particular time and may change over time.

Each Project Component will be executed under the direction of a WTP Project Manager ("PM"). Each PM has responsibility and accountability for their respective Project Component and in this respect are supported by functional managers for the following project management functions: safety, environment, regulatory, First Nations, communications and stakeholder engagement, engineering, construction, quality, project controls, and finance.

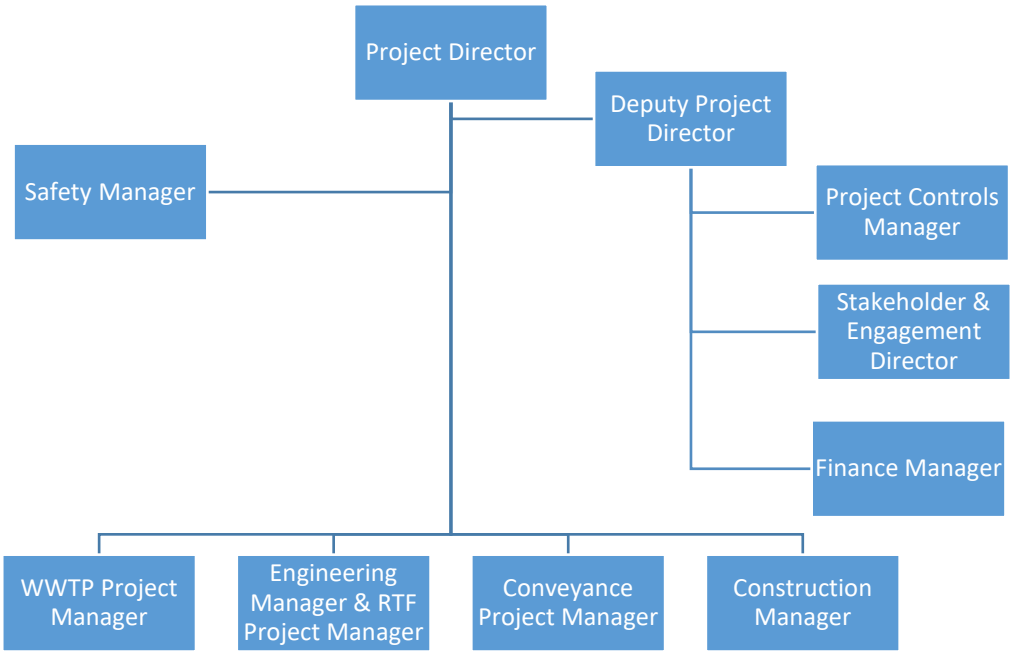
Functional managers are accountable for the development and application of functional management plans, procedures and processes across the Project.

The Project Leadership Team meets weekly to ensure that: the delivery of the Project is co-ordinated; issues and risks are raised and resolved; and there is a common understanding of project progress and priorities.

Integration management is primarily the responsibility of the Project Director, Deputy Project Director and functional managers, and will be facilitated by the following:

- physical and schedule interfaces have and will be clearly delineated in all construction contracts;
- the use of a single Owner's Engineer (Stantec) to develop the indicative design for all critical project components with significant interfaces; and
- commissioning and control plans are under-development.

Figure 2- WTP Leadership Team Organization Structure



6.1 Project Leadership Team

The roles and responsibilities of each individual working on the Project are intended to be clear and detailed to ensure a good understanding of what is required from each individual, while allowing flexibility to respond to Project needs. Descriptions of the Project Leadership Team member's primary responsibilities are outlined in this section.

6.1.1 Project Director

In accordance with the Terms of Reference, the Project Director is responsible for leading a Project team to plan, procure, and implement the WTP. The Project Director is accountable to the Project Board and accountable for delivering the WTP within the Control Budget of $765 million, and meeting federal and provincial regulations for treatment of the Core Area's wastewater by December 31, 2020.

6.1.2 Deputy Project Director

The Deputy Project Director is directly accountable for managing activities related to governance, finance, project controls, communications and engagement, legal support, properties, and administration of the Project. The Deputy Project Director is also responsible for executive level engagement between the CRD and the Project and supports all functions of the Project Director's role.

6.1.3 Safety Manager

The Safety Manager is responsible for ensuring that the Project exercises its duty of care in providing a safe and secure work site, and is responsible for ensuring that work is completed safely.

6.1.4 Project Manager – Wastewater Treatment Plan (WWTP PM)

The WWTP Project Manager is directly responsible for ensuring the WWTP is completed on time and on budget and is integrated with the Residuals Treatment Facility and Conveyance System, and the existing Core Area conveyance network.

6.1.5 Project Manager - Residuals Treatment Facility (RTF PM)

The Residuals Treatment Facility Project Manager is directly responsible for ensuring that the Residual Treatment Facility is completed on time and on budget and is integrated with the Wastewater Treatment Plant and Conveyance System, and the CRD's Hartland Landfill operations.

6.1.6 Project Manager – Conveyance System

The Conveyance System Project Manager is directly responsible for ensuring the Conveyance System is completed on time and on budget and is integrated with the Wastewater Treatment Plant and Residuals Treatment Facility and the existing Core Area conveyance network.

6.1.7 Project Controls Manager

The Project Controls Manager is responsible for managing and coordinating activities related to project controls in a manner that contributes to the successful execution of the three Project components, including: document control, cost control, schedule, trending and risk and reporting in accordance with the PMP and applicable management plans.

6.1.8 Engineering Manager

The Engineering Manager is responsible for supporting the Project Director in all technical and engineering matters in order to safely deliver a quality Project on time and within budget that meets the Project's key performance indicators.

6.1.9 Construction Manager

The Construction Manager is responsible for ensuring that work is completed to the specified scope and quality and managing the various processes in the planning and execution of construction activities.

6.1.10 Director of Communications and Stakeholder Engagement

The Director of Communications and Stakeholder Engagement is responsible for overseeing communications and engagement for all aspects of the Project. The Director of Communications and Stakeholder Engagement is accountable for ensuring that the communication obligations within the project-related licences and agreements are met, and oversees and integrates the contractors' communications activities in accordance with the appropriate contract.

6.1.11 Finance Manager

The Finance Manager is responsible for the Project's financial controls and processes, including: cost reporting, cash flow management, and administration of the Project's funding agreements. The Finance Manager is also responsible for coordination with the CRD's Finance Department, including with respect to: the CRD's capital plan and budgeting; Municipal Finance Authority debt issuance, administration and financial modeling; implementation of CRD policies and procedures with respect to financial controls; and payment processing.

6.2 Project Team

The Project Team is organized in a matrix structure under the Project Leadership Team, as shown in Appendix 2. The Project Team is supported by advisors as required.

6.3 CRD Integration and Support

Successful delivery of the Project requires:

- the support of various CRD departments, including Corporate Communications, First Nations Relations, Human Resources, Legislative and Corporate Services, Finance and Technology; and
- co-ordination between the Project Team and CRD departments that will have responsibilities once the Project Components have been commissioned, including:
  - Integrated Water Services, who will be responsible for the operation and maintenance of all Project components (upon commissioning) other than the Residuals Treatment Facility; and
  - Parks and Environmental Services, who will be responsible for the administration of the Residuals Treatment Facility contract upon commissioning of the facility.

This support and integration occurs through the following means:

i) The Chief Administrative Officer's appointment as a member of the Project Board;
ii) Monthly executive leadership meetings attended by the Project Director, Deputy Project Director and the CRD's Chief Administrative Officer, Chief Financial Officer, and General Managers of Parks and Environmental Services and Integrated Water Services;
iii) Monthly project coordination meetings attended by Project Team members and members of relevant CRD departments, including Integrated Water Services; Parks and Environmental Services; First Nations Relations; and Properties;
iv) The participation in relevant design review and hazard and operability workshops of members of the Integrated Water Services and Parks and Environmental Services departments;
v) The review of relevant contract submittals (e.g. operating plans) by members of the Integrated Water Services and Parks and Environmental Services departments; and
vi) Designated CRD and Project team personnel responsible for ensuring integration on specific subjects, as outlined in Appendix 3.

7 Safety Management

7.1 Objective

Effective safety management is critical to the success of the Project. The most important of the Project's six KPIs is the safety KPI: "Deliver the Project with zero fatalities and a TRIF of no more than 1." 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. The objective of safety management is to deliver the Project safely and meet the Project's safety KPI.

7.2 Approach to Safety Management

7.2.1 Design

Design workshops held during design progression will include a hazard and operability and safety review to identify any hazard and operability or safety issues. See section 8.2.3 for more information regarding design workshops.

7.2.2 Procurement

An evaluation of contractors' safety performance, personnel and practices will be part of all construction procurements.

7.2.3 Construction

The Project Team will delegate the responsibility for safety on each of the Project sites to a prime contractor (being the contractor for that Project site) under section 118 of the Workers Compensation Act (British Columbia). Each prime contractor will be required to designate a site safety representative and submit site safety management and traffic management plans for the Project Team's review prior to commencing construction.

The site safety management plan must include, at a minimum, how the contractor will address:

- safety training;
- identification of hazards;
- rules of conduct for the site;
- personal protective equipment;
- requirements for site safety and first aid training;
- periodic safety inspections and procedures for investigating accidents; and
- schedule and agenda for safety meetings.

Whilst on a Project site, all subcontractors, suppliers, workers and CRD personnel will be required to comply with the requirements of the prime contractor's site safety management plan.

The Project Team will validate that each contractor is meeting their safety requirements through a robust oversight and audit program. The Project Team's oversight of safety management will include:

- mandating and participating in hazard and operability safety reviews during design progression;
- reviewing and commenting on design submittals considering safety impacts;
- reviewing and commenting on contractors' safety and traffic management plans;
- monitoring contractors' performance for conformance to their safety and traffic management plans;
- continuously auditing the prime contractors' and their subcontractors' safety performance, including:
  - reviewing safety incidents with prime contractors to discuss "lessons learned" and how corrective actions are being implemented as a result of these reviews;
  - conducting site safety tours with CRD Safety Management; and
  - conducting periodic meetings with prime contractor's site safety representatives to review safety performance.

7.2.4 Project Team

The Project Team is responsible for the safety of Project Team members and has developed safety policies and practices that Project Team members are required to comply with, including participation in a Project Office safety orientation.

The Project Team understands that, although the responsibility for safety on each Project site will be delegated to a prime contractor, safety remains everybody's responsibility at all times.

7.3 Roles and Responsibilities

The roles and responsibilities with respect to safety management are as follows.

7.3.1 Project Board

The Project Board is responsible for reviewing the Project's safety performance, and ensuring that the Project Team maintains a strong safety-first culture throughout the delivery of the Project.

7.3.2 Project Director

The Project Director is responsible for:

- acting as a champion for safety awareness and leading practices related to safety;
- ensuring that the Safety Manager has sufficient resources to fulfil their responsibilities;
- checking the robustness of the Safety Manager's oversight and audit program; and
- reporting the Project's safety performance to the Project Board.

7.3.3 Safety Manager

The Safety Manager is responsible for ensuring that the Project exercises its duty of care in providing a safe and secure work site, and is responsible for ensuring that work is completed safely.

More specifically the Safety Manager is responsible for:

- acting as a champion for safety awareness and leading practices relating to safety;

- the 'Owners' responsibilities as defined by the British Columbia Workers Compensation Act;
- overseeing and auditing safety management on each contract;
- developing and leading safety training for the Project Team; and
- coordinating safety activities with the CRD's Manager, Corporate Occupational Health & Safety.

7.3.4 Construction Manager

The Construction Manager:

- supports the Safety Manager in the performance of their responsibilities; and
- acts as a champion for safety awareness and leading practices relating to site work safety.

7.3.5 All Project Team Members

All Project Team members act as champions for safety awareness and acknowledge that safety is everyone's responsibility.

7.3.6 Consultant and Contractor Roles for DB+ Contracts

7.3.6.1 Owner's Engineer

The Owner's Engineer is responsible for:

- supporting the Safety Manager in the performance of their responsibilities; and
- acting as a champion for safety awareness and leading practices relating to site work safety.

There are three roles within the Owner's Engineer that have particular responsibilities with respect to safety management:

- the Engineering Compliance Manager and the Discipline Lead are responsible for considering potential safety impacts of design in their review; and
- the Construction Compliance Manager is responsible for ensuring that they communicate any potential safety issues that they observe at site to the Safety Manager.

7.3.6.2 Design Consultant (DBB contracts)

Responsible for leading hazard and operability safety reviews during the design phase, and supports the Safety Manager in the performance of their responsibilities during the construction phase.

There is one role within each Design Consultant that has particular responsibilities with respect to safety management: the Resident Engineer is responsible for ensuring that they communicate any potential safety issues that they observe at site to the Safety Manager.

7.3.7 CRD's Manager, Corporate Occupational Health & Safety

The CRD's Manager, Corporate Occupational Health & Safety is responsible for supporting the Safety Manager in the performance of their responsibilities by periodically-reviewing the status of the Project's safety activities and initiatives.

7.3.8 Prime Contractor

Responsible for the 'Prime Contractor' responsibilities as defined by the British Columbia Workers Compensation Act as specified in Sections 118, and fulfilling the safety requirements of their contract, including preparing, maintaining and complying with site safety management and traffic management plans.

8 Scope, Engineering & Construction Management

8.1 Objective

The objective of scope, engineering and construction management is to enable the Project to meet its regulatory requirement KPI: "Deliver the Project such that the Core Area complies with provincial and federal wastewater regulations".

8.2 Approach to Scope, Engineering and Construction Management

8.2.1 Scope Definition

The Business Case defined the Project components and the Project Charter defined the Project scope. In order to manage scope and interface risks the Project Team is using a single Owner's engineer (Stantec) to develop the indicative design for all critical Project components with significant interfaces. The indicative design will form the basis for defining the key interfaces between Project components.

8.2.2 Specification Preparation, Design Development and Scope Verification

Depending on the contracting strategy, different parties are responsible for preparing specifications, developing the design and verifying the scope.

8.2.2.1 DB+ Contracts

For the DB+ contracts the Owner's Engineer will develop performance specifications to govern the design and construction. The Project Team will then competitively select a Project Co. who will be responsible for undertaking the design and construction in accordance with those performance specifications. The Owner's Engineer will be responsible for scope verification by reviewing Project Co.'s design and construction for compliance with the performance specifications. For the DBF and DBFOM contracts the Owner's Engineer will also be responsible for verifying the compliance of Project Co.'s operations and maintenance related submittals with the performance specifications.

8.2.2.2 DBB Contracts

For the DBB contracts the Project Team will competitively select a Design Consultant to develop the design, including detailed design drawings and prescriptive specifications to govern the construction (Issued for Construction documents). The indicative design, prepared by the Owner's Engineer, will form the basis for the contract requirements with the Design Consultant.

The Project Team will then competitively select a contractor who will be responsible for undertaking the construction in accordance with the design.

The Project Team, Owner's Engineer and Design Consultant will be responsible for scope verification:

- the Project Team will be responsible for confirming that the Owner's Engineer and Design Consultant fulfil their responsibilities;
- the Owner's Engineer will be responsible for reviewing the Design Consultant's detailed design drawings and prescriptive specifications to ensure that the Project's scope requirements have been properly incorporated; and
- the Design Consultant will be responsible for developing the detailed design documents, and for reviewing the contractor's construction for compliance with the detailed design drawings and prescriptive specifications.

8.2.3 Design Development: Reports, Workshops and Meetings

For both DB+ and DBB contracts, as the design is progressed (by Project Co. or the Design Consultant, respectively), the design will be verified through:

- the review of design deliverables, including reports, drawings and specifications, submitted at appropriate stages of design progression; and
- the participation in design workshops held at appropriate design milestones.

The Project Manager will distribute the design deliverables to members of the Project Team and Owner's Engineer for review and comment, as well as to members of the CRD's Integrated Water Services (IWS) or Parks and Environmental Services (PES) departments as relevant.

Design workshops will be scheduled and chaired by the Project Manager, and will provide an opportunity for the design team (Project Co. for the DB+ contracts and the Design Consultant for the DBB contracts) to present their design and respond to comments and questions from workshop participants. The Project Manager will invite relevant members of the Project Team and Owner's Engineer, as well as relevant members of either the CRD's IWS or PES departments (depending on the contract) to participate. Considerations during design review will include: operations and maintenance issues, hazard and operability review; and compliance with the contract requirements.

In addition, for DBB contracts, the Project Manager will hold biweekly design progress meetings with each Design Consultant to review progress, schedule, risks and changes.

8.2.4 Construction Plan

Each contractor will be required to submit a Construction Plan, soon after contract award, that: identifies the laydown and storage areas for materials and equipment and work areas and includes technical plans to address safety, utility relocation, environmental protection, coordination with related projects, traffic control and public notification.

Each contractor will be required to submit their Construction Plan for the Project Team's and either the Owner's Engineer's (for DB+ Contracts) or the Design Consultant's (for DBB contracts) review, and will be responsible for implementing the plan as updated to account for any comments. The Construction Compliance Manager (for DB+ Contracts) / Resident Engineer

(for DBB contracts) will be responsible for checking that the contractor complies with their approved plan.

8.2.5 Public Impact Mitigation Plan

Each contractor will be required to prepare a Public Impact Mitigation Plan for their work, identifying specific risks and vulnerabilities to people and property, including the surrounding community, associated with the construction, and describing how the contractor will mitigate these risks and vulnerabilities.

Each contractor will be required to submit their Construction Plan for the Project Team's and either the Owner's Engineer's (for DB+ Contracts) or the Design Consultant's (for DBB contracts) review, and will be responsible for implementing the plan as updated to account for any comments. The Construction Compliance Manager (for DB+ contracts) / Resident Engineer (for DBB contracts) will be responsible for checking that the contractor complies with their approved plan.

8.2.6 Weekly Construction Progress Meetings

Each Project Manager will chair a weekly construction progress meeting with each contractor to review and ensure a common understanding regarding upcoming construction activities and any particular action or co-ordination required regarding, for example, safety, quality, environmental or communications management. The following will participate in the weekly construction progress meeting:

- relevant contractor representatives;
- the Construction Compliance Manager (for DB+ contracts) / Resident Engineer (for DBB contracts);
- the Project Manager, Safety Manger and Construction Manager; and
- other relevant Project Team representatives, as needed, such as: Project Controls Manager, Schedule Manager, Quality Manager, Environmental, First Nations and Regulatory Manager, and the Director of Stakeholder Engagement and Communications.

8.2.7 Daily Site Reports

Daily site reports will be completed by the Construction Compliance Manager (for DB+ contracts) / the Resident Engineer (for DBB contracts) that summarise the progress on-site, workforce, weather conditions, equipment, visitors to site, special considerations related to construction, safety, environment, quality etc. The Construction Manager will review the Daily Site Reports for each active worksite.

8.2.8 Monthly Reports

Each contractor will be required to submit a monthly report with each monthly invoice including: a summary of progress; the status of any contract changes; schedule updates, including any required recovery schedule; reports on quality, environmental and safety performance, including any accidents or incidents and a summary of action taken or proposed in respect of such accidents or incidents.

Relevant Project Team members, including the Safety Manager, Project Manager, Quality Manager, Project Controls Manager, Construction Manager and Environmental, First Nations and Regulatory Manager, will review the monthly reports.

8.3 Roles and Responsibilities

The roles and responsibilities with respect to scope, engineering and construction management are as follows.

8.3.1 CRD Board

In accordance with the Terms of Reference the CRD Board:

- was responsible for approving the Business Case; and
- is responsible for the approval of any alteration to the scope, schedule or budget of the Project that would result in the Project: not meeting provincial and federal regulations governing the Project; exceeding approved funding for the Project; or increasing costs to taxpayers from those stated in the Business Case.

8.3.2 Project Board

In accordance with the Terms of Reference the Project Board:

- was responsible for:
  - the development of the Business Case, which defined the Project and established the Control Budget;
  - establishing and approving the scope, schedule and budget for the Project (which was achieved through the approval of the Project Charter); and
- is responsible for:
  - approving any changes to the Project Charter that are within their delegated authority; and
  - seeking the CRD Board's approval for any alteration to the scope, schedule or budget of the Project that would result in the Project: not meeting provincial and federal regulations governing the Project; exceeding approved funding for the Project; or increasing costs to taxpayers from those stated in the Business Case.

8.3.3 Project Director and Deputy Project Director

The Project Director and Deputy Project Director are responsible for:

- seeking the Project Board's approval of any required changes to the Project Charter;
- ensuring that the Project Team have sufficient resources to fulfil their responsibilities; and
- managing integration of the interfaces, including commissioning, between Project components to ensure performance requirements are met for the overall Project.

8.3.4 Safety Manager

The Safety Manager is responsible for ensuring that the Project exercises its duty of care in providing a safe and secure work site, and is responsible for ensuring that work is completed safely.

8.3.5 Project Manager

Each Project Manager is directly responsible for ensuring that their Project Component is completed on time and on budget and is integrated with the other Project Components and either the existing Core Area conveyance network (in the case of the WWTP and Conveyance System PMs) or the CRD's Hartland Landfill operations (in the case of the RTF PM).

Specific responsibilities include:

- ensuring adherence to the various Project work flows, such as review procedures for design and construction submittals;
- facilitating design reviews and workshops, and construction progress updates, and liaising with CRD's IWS and PES representatives;
- regular engagement of the Engineering Manager and Construction Manager in resolution of scope issues that arise during progression of design and construction; and
- regular communication with the Project Director and Deputy Project Director, including early identification of scope issues or potential changes with material cost and/or schedule impacts.

8.3.6 Engineering Manager

The Engineering Manager has responsibility for oversight of engineering activities related to scope development, and contract compliance for the design aspects of the Project. Specific responsibilities include:

- developing the scope of services for the Owner's Engineer (through task orders) and Design Consultants;
- ensuring the Owner's Engineer captures the Project scope requirements in the design;
- ensuring the Owner's Engineer reviews Project Co.'s (for DB+ contracts) and Design Consultants' (for DBB contracts) designs for scope verification through design progression;
- managing the integration of design interfaces between Project components;
- ensuring the Owner's Engineer and/or Design Consultants review commissioning activities to verify scope and performance requirements are met; and
- supporting the Project Manager and Construction Manager in resolving scope issues, and related engineering activities, through design and construction progression.

8.3.7 Construction Manager

The Construction Manager is responsible for ensuring that work is completed to the specified scope and quality and managing the various processes in the planning and execution of construction activities. Specific responsibilities include:

- ensuring the Owner's Engineer reviews Project Co.'s (for DB+ contracts) construction activities for scope verification;
- ensuring Design Consultants review contractors' (for DBB contracts) construction activities for scope verification;
- managing the integration of construction interfaces between Project components; and
- regular engagement of the Project Manager, and Engineering Manager in managing scope, engineering and construction issues that arise during progression of construction.

8.3.8 Owner's Engineer

The Owner's Engineer is responsible for:

- developing the indicative design for all critical Project components with significant interfaces;
- establishing the scope and performance requirements for Project Co. (for DB+ contracts) and Design Consultants (for DBB contracts);
- reviewing Project Co.'s (for DB+ contracts) and Design Consultants' (for DBB contracts) design deliverables for scope verification; and
- construction management responsibilities for the DB+ contracts.

There are three roles within the Owner's Engineer that have particular responsibilities with respect to scope, engineering and construction management: Engineering Compliance Manager, Construction Compliance Manager and Discipline Lead.

The Engineering Compliance Manager is responsible for:

- Coordinating Discipline Leads' design review;
- Participating in design workshops and weekly construction co-ordination meetings;
- For DB+ contracts: conducting field visits to confirm construction is in compliance with the contract; and
- For DB+ contracts: overseeing start-up testing and commissioning to confirm compliance with the performance requirements in the contract.

The Construction Compliance Manager is responsible for:

- Coordinating Discipline Leads' construction review;
- Ensuring construction is compliant with approved Issued For Construction documents;
- Reviewing construction progress;
- Participating in weekly construction progress meetings; and
- Communicating/escalating any issues to the relevant Project Team member – e.g. the Safety Manager, Construction Manager, Quality Manager, as applicable.

The Discipline Lead is responsible for:

- For DB+ contracts, ensuring design and construction are compliant with Project Co.'s contract, including start-up testing and commissioning activities;
- For DBB contracts ensuring design is compliant with the Project's scope requirements;
- Conducting reviews and field inspections to verify scope and performance requirements are met for interfaces between Project components, including overall commissioning.

8.3.9 Project Co. and Consultant Roles for DB+ Contracts

8.3.9.1 Project Co

Project Co. is the contractual entity that will be responsible for the design and construction (and operations, maintenance and financing, where applicable) for the DB+ contracts. Project Co. will be responsible for preparing the design deliverables and construction submittals for review by the Project Team and Owner's Engineer, and will fulfill the Engineer of Record duties.

Project Co. has responsibility for engineering and construction management to ensure the scope and performance requirements, as established in the contract, are met.

8.3.9.2 Independent Certifier

For the DBF and DBFOM contracts, an Independent Certifier is responsible for independently verifying, at key defined milestone payments, Project Co.'s satisfaction of the contract's associated scope requirements.

8.3.10 Design Consultant and Contractor Roles for DBB Contracts

8.3.10.1 Design Consultant

For the DBB contracts a Design Consultant will be responsible for developing a design (including detailed design drawings and prescriptive specifications to govern the construction) and for reviewing the contractor's construction for compliance with the detailed design drawings and prescriptive specifications. The Design Consultant has responsibility to ensure the scope and performance requirements are incorporated into the construction contract, including the design drawings and specifications (Issued for Construction documents).

There are three roles within each Design Consultant that have particular responsibilities with respect to scope, engineering and construction management: Resident Engineer, Discipline Lead and Contract Administrator.

- The Resident Engineer is responsible for the coordination of on-site construction oversight, and ensuring conformance with the specifications;
- The Discipline Leads are responsible for quality control of design and construction to ensure the scope requirements are incorporated into the Issued for Construction documents, and that construction is conducted in accordance with the Issued for Construction documents; and
- The Contract Administrator is responsible for administering the Design Consultant's overall responsibilities with respect to engineering and scope management during design and construction, including internal quality reviews of the design progression, shop drawing reviews and site inspections during construction are completed by the appropriate Discipline Leads, daily construction progress reports are properly completed by the Resident Engineer, inspection test reports and documentation are received and reviewed by the appropriate Discipline Leads.

8.3.11 DBB Contractor

The DBB contractor is responsible for preparing the construction submittals (shop drawings) for review by the Design Consultant and Project Team, and for constructing the work in accordance with the Issued for Construction and contract documents.

8.3.12 CRD's Integrated Water Services and Parks and Environmental Services Departments

The CRD's IWS Department will be responsible for operating and maintaining the WWTP and Conveyance components of the Project upon commissioning. CRD IWS representatives will be engaged in the review of specific design and construction submittals and will provide input regarding CRD standards and operations and maintenance considerations. Specific responsibilities include participating in design review and hazard and operability workshops, and reviewing and providing comments on relevant contract submittals (e.g. design reports, drawings and operating plans).

The CRD's Parks and Environmental Service (PES) Department will be responsible for the administration of the RTF contract upon commissioning of the facility. CRD PES representatives will be engaged in the review of specific design and construction submittals for the RTF. Specific responsibilities include: participating in design review workshops, and reviewing and providing comments on relevant contract submittals (e.g. design reports, drawings, operating plans), with a focus on the interfaces between the operations of the Hartland Landfill and the RTF.

9 Schedule Management

9.1 Objective

The objective of schedule management is to enable the Project to meet its schedule KPI: "Deliver the Project by December 31, 2020".

9.2 Approach to Schedule Management

The Project Team's approach to schedule management includes the following steps:

- the establishment of the master project schedule: this is the primary planning and coordination tool for schedule management;
- the inclusion of relevant milestones, schedule incentives and acceleration clauses in each construction contract;
- the maintenance of the master project schedule through the review and incorporation of contractors' baseline and monthly updated schedules; and
- monitoring progress and taking action as required to manage the interfaces between the different Project contracts and meet the Project's key performance indicators.

Each of these steps is described in more detail herein.

9.2.1 Establishment of Master Project Schedule

The Project Team has established a master Project schedule that is designed to:

i) meet the Project's schedule KPI ("Deliver the Project by December 31, 2020");
ii) allow for a logical sequence of commissioning activities, considering that construction of the Project will be achieved through multiple contracts and that each requires the delivery of waste streams to achieve functional completion; and
iii) include float between contract deliverables where possible, with available float distributed in accordance with the impacts of milestone schedule slippage and the mitigation options available for schedule recovery.

The Project Team first developed a Work Breakdown Structure (WBS) based on the Project's scope. The WBS and its associated WBS dictionary is a tool used to categorise the activities required to deliver the Project. The Project's schedule has been developed based on the Project's and major key milestones.

Primavera Project Management software P6 [version 16.2] was used as the primary scheduling tool for preparing the master Project schedule using critical path methodology.

The master Project schedule is detailed to WBS level 4, to allow Project contractors the flexibility to expand to lower levels of WBS in their schedules.

The WBS schedule levels are outlined in

Table 6.

Table 6- WTP Schedule Level Structure

Level	Description
Level 0	**The Milestone schedule**. The Master Project Schedule incorporates the milestone timing objectives of the WTP as set out in the Project Charter and contracts.
Level 1 WBS Level 1	**The Asset Management Summary Schedule.** The Asset Management Schedule is a high level summary of the WTP.
Level 2 WBS Level 2	**The Asset Level Schedule.** The Asset Level Schedule is an integrated Critical Path Method (CPM) schedule that defines the timing of all major project phases. The Asset Level Schedule forms the basis for the development of the control level schedules.
Level 3 WBS Level 3	**The Detailed Schedule.** This is a working level detailed schedule, comprising detailed schedules for engineering, procurement, contracts, construction, pre-commissioning and commissioning work. The Detailed Schedule allows for "what if" analysis and identification of schedule-based changes and impacts. This schedule also allows for schedule risk analysis to be performed as needed. This schedule serves as the main tool for monitoring progress and is maintained as an integrated roll-up or summary of the lower level activities in contractors' schedules.
Level 4 WBS Level 4	**The Execution Schedule.** The Execution Schedule is an integration of the detailed schedules developed by contractors.

9.2.2 Contractual Schedule Conditions

All construction contracts will include:

i) requirements for key milestones to be met by specified dates (in accordance with the Project Team's master project schedule);
ii) payments structured to provide schedule incentives as appropriate in the context of the type of contract and risks that the contractor can manage;
iii) terms that require the contractor to recover or mitigate schedule delays (depending upon the cause of the delay), and allow for CRD acceleration; and
iv) terms that require the contractor to submit a baseline and monthly updated schedules.

9.2.3 Maintenance of Master Project Schedule

Following financial close (for DBFOM/DBF contracts) / contract execution (for DB/DBB contracts) each contractor is required to submit a baseline schedule that achieves the contractual milestones. The Project Team reviews and comments (as appropriate) on each contractor's baseline schedule, and upon acceptance incorporates the contractors' baseline schedule into the master Project schedule.

The Project Team's review of each contractor's baseline schedule includes:

- general schedule quality checks (e.g. open ends, constraints, lags);
- critical path analysis and WBS alignment;
- confirming inclusion of major construction milestones, and that all are aligned with the contractual requirements;

- confirming inclusion of key contractual submittals, including the appropriate CRD review period and all driving deliverables impacting critical activities;
- checking the logic linking design, procurement and construction activities;
- reviewing permitting activities and environmental work windows, including timelines for preparation of required documentation (e.g. EIS), CRD review/approval and regulatory review/approval.
- checking it takes account of environmental work windows and impacts on public events (marathons, cruises, etc.).
- checking that the durations for design activities, key procurements and construction are reasonable; and
- reviewing commissioning execution activities to confirm that the logic is reasonable.

Each contractor is also required to provide monthly updated schedules. The Project Team reviews and comments (as appropriate) on each contractor's monthly schedule, and updates the master Project schedule accordingly, with the incorporation of activity status updates, 'actual start', 'actual finish', and completion percentages, provided by the contractor.

The Project Team's review of each contractor's monthly updated schedules includes:

- verifying progress;
- checking forecast to completion;
- identifying any schedule risks, including through monitoring any float erosion;
- reviewing any changes to the critical path (e.g. the addition or removal of activities; change in duration of activities; change in logic);
- checking that all major construction milestones are aligned with the contractual requirements;
- reviewing the impact of any delays on the other contracts, including commissioning of the other Project components.

Independent verification of construction progress is also provided by the Independent Certifier on the DBFOM and DBF contracts, at key defined milestone payments.

9.2.4 Monitoring Progress

The Project Controls team is responsible for analysing schedule variances for use by the Project Team in monitoring each contractors' schedule performance relative to the agreed baseline, and expediting progress as appropriate.

The Construction Compliance Manager is responsible for conducting a monthly meeting to review schedule progress and risk. Participants will include the Project Controls Manager, Construction Manager and suitable contractor representatives.

The schedule review meeting will cover the following as appropriate:

- Review of project's key milestones and discuss any changes;
- Identification of activities requiring recovery plans to regain Baseline schedule;
- Review four-week look ahead schedule for:
    - critical submittals;
    - critical permits;

- contractor procurement activities;
- contractor construction activities;
- interfaces with other contractors;
- onsite testing;
- off-site inspection of equipment; and
- witness of performance tests.

9.3 Roles and Responsibilities

The roles and responsibilities with respect to schedule management are as follows.

9.3.1 CRD Board

In accordance with the Terms of Reference approval from the CRD Board is required for any alteration to the scope, schedule or budget of the Project that would result in the Project: not meeting provincial and federal regulations governing the Project; exceeding approved funding for the Project; or increasing costs to taxpayers from those stated in the Business Case.

9.3.2 Project Board

The Project Board is responsible for monitoring the Project's schedule progress and, in accordance with the Terms of Reference, seeking the approval of the CRD Board if changes are required.

9.3.3 Project Director

The Project Director is responsible for meeting federal and provincial regulations for treatment of the Core Area's wastewater by December 31, 2020.

9.3.4 Project Managers

The Project Managers are responsible for:

- reviewing and/or approving the contractor's baseline schedule in accordance with the relevant contract;
- managing and delivering their Project Component in accordance with the master Project schedule; and
- recommending to the Project Director any changes to the master Project schedule.

9.3.5 Project Controls Manager

The Project Controls Manager is responsible for:

- establishing, maintaining and monitoring the master Project schedule;
- coordinating the Project Team's review of contractors' baseline and monthly update schedules;
- alerting Project Managers to schedule risks;
- advising Project Managers of schedule impacts of proposed changes, with recommendations for improvement and mitigation;
- assessing schedule 'what if' planning impacts; and

- reporting variances to the master Project schedule to the Project Managers, Deputy Project Director and Project Director.

10 Cost Management and Reporting

10.1 Objective

The objective of cost management and reporting is to enable the Project to meet its cost KPI: "Deliver the Project within the Control Budget ($765 million)".

10.2 Approach to Cost Management and Reporting

The Project Team uses the approved allocated budget as the basis for the management of the budget. Financial activities are controlled by the Finance and Project Controls departments and reported on a monthly and quarterly basis to the Project Board, CALWMC and CRD Board.

10.2.1 Budget

The Project Team allocated the Control Budget between the three major Project components (WTP, RTF, Conveyance) based on a bottom-up estimating approach and a series of risk workshops. On June 6, 2017 the Project Board approved the updated allocated Control Budget. The Project Team use the updated allocated Control Budget as the basis for the management of the budget, including to control costs, commitments, use of contingency and manage cash flow.

10.2.1.1 Work Breakdown Structure

The Project Team developed a Work Breakdown Structure (WBS) based on the Project's scope. The WBS and its associated WBS dictionary is a tool used to categorise the activities required to deliver the Project.

Budgets, commitments, costs and forecasts are managed against the Project's WBS. The WBS is comprised of four levels representing an increasingly detailed division of Project Scope. Table 7 summarise the different levels of the WBS and the type of scope that makes up each level.

Table 7- WTP WBS Level Structure

Level	Description
Level 1	**Project Components/ Contract packages** High level division of planned program components by contract.
Level 2	**Assets/ Projects** The Level 2 WBS details the major assets, and related contingency and financing.
Level 3	**Project Phases and Miscellaneous Categories** The level 3 WBS details the different phases of each project component (design, procurement, construction, commissioning). Third party commitments and the Project Management Office support activities are grouped by expense type or function.
Level 4	**Project Phase Construction Areas and Activities** The Level 4 WBS segregates project phases by construction area and support activities by activity or role and represent the lowest level of cost management.

Applying the principles of change management, the allocated Control Budget remains constant at $765M, while lower-level WBS budgets are updated to match commitments and contract values as procurement activities are finalized. The Project Team seeks the Project Board's approval for any changes to the allocated budget at level 1, and any changes above the Project Team's delegated authority at levels 2 and below.

The team reports both the Control Budget and the allocated Control Budget against detailed commitments, costs and project forecast balances in its monthly and quarterly reports to the Project Board, CALWMC and CRD Board (also posted on the Project's website).

10.2.2 Financial Systems used for Cost Management

SAP is the financial system employed by the CRD and is utilized for the following WTP financial activities:

- Accounts payable processes; purchase orders, managing vendor details, invoices and service entry sheet processing, issuing payments, holdback management and taxation;
- Internal reporting;
- Financial planning and budgets;
- Staff time entry and reporting; and
- Accrual accounting.

The CRD's Financial Services Department manages and maintains processes, policies and controls over the SAP financial system, and the Project Team adheres to these. CRD processes, policies and controls are not duplicated in this document.

The Project Team utilizes Prolog for project management, cost and document controlling purposes. Cost Control functionality processed in Prolog are as follows:

- Contractor/vendor contracts set-up and maintenance;
- Contractor/vendor invoice entry and upload of supporting documents;
- Invoice approvals;
- Review and approval of potential change orders (PCO) and change orders (CO); and
- Monthly and quarterly cost reporting.

The Project Team reconciles project budget and expenses between SAP (the financial and reporting system) and Prolog (the cost controlling system) monthly to ensure accurate and complete reporting.

10.2.3 Invoice Approval

All invoices are processed through an approval workflow before they are either rejected, approved with comments or approved for further processing (payment). Invoice approval workflows are processed in Prolog as pre-defined by management and programmed into the system. The system records the invoice review with a record of the approvers name and date of approval.

All invoice approval workflows include:

- a Project Team member who is involved in managing the scope of the contractor/vendor/advisor and verifies that the invoiced costs are in accordance with work completed (e.g. Construction Compliance Manager and/or Project Manager); and
- a Project Team member who verifies that the invoiced costs are in accordance with the applicable contract.

The final step in every invoice approval workflow is either the Project Director or Deputy Project Director.

10.2.4 Cost Control and Management

On a monthly basis the Project Controls Manager and the Finance Manager meet with the Project Director and the Deputy Project Director to perform a review of:

- invoice status, including invoices pending approval, and invoices that were not submitted before monthly cutoff;
- PCO's approved in the period and subsequent period PCO's;
- federal and provincial funding status including claims and receipts to date;
- financing details including short term financing balance, interest charges in the period, short term interest rates;
- cash flow details including Project forecast and anticipated short term financing draws;
- major contractor cash flows including comparison of forecast to actual; and
- detailed cost report and review of forecast to completion.

10.2.5 Contingency Management

The Project has two types of contingency to manage risks: program Reserve and Project Component contingencies. Program reserve is owned by the Project Board and can only be drawn with their approval. Project Component contingencies are specific to each Project Component and can be drawn within the limits of the Project Team's delegated authority.

Draws on contingency are approved by the Project Director or Deputy Project Director, and are managed in Prolog through potential change orders (PCO's) and follow a predetermined approval workflow similar to invoices. The potential use of contingency is regularly reviewed by the Project Director and Deputy Project Director in risk management meetings.

10.2.6 Cashflow

Due to the Project's funding sources and related conditions, there are differences in timing between incurring and recovering Project-related costs. As a result of these differences, the Project Team, in coordination with the CRD's Chief Financial Officer (CFO) manages cashflow to meet the Projects financial commitments using a short term borrowing facility held with the Municipal Finance Authority.

The authority for short-term and long-term borrowing is established through CRD bylaw, and requires CRD Board approval.

The Project Team analyzes cash position against forecast on a monthly basis, processes draws on the short term facility monthly (as required), and evaluates overall project funding and debt structure to minimize financing charges incurred.

10.2.7 Funding Agreements

The Project is funded by the Federal and Provincial Governments and the CRD through requisitions to Core Area municipalities.

The Project has four funding agreements: three with the federal government and one with the provincial government. All four funding agreements contain terms and conditions that are typical for federal and provincial funding agreements, and define the expenditures that are eligible for reimbursement, the process for reimbursement, and include various reporting, audit and communication requirements.

The Project Team will maintain regular contact with each of the funding partners through the agreements reporting and oversight requirements.

The Project Team will submit expense claims as allowed under the agreements. Specifically, the Project Team will submit claims:

- over the course of the Project to the Federal Government under both the Building Canada and Green Infrastructure Funds, as the Project's funding agreements provide for reimbursement of 50% of eligible expenditures as incurred; and
- to the P3 Canada fund and the Government of British Columbia upon substantial completion of the funded component.

10.2.8 Reporting

Project reporting is the process of tracking, reviewing, and communicating project progress.

A thorough and consistent Project reporting regime allows for timely identification of potential issues and responsive decision making. It also allows stakeholders to understand the current status of the project.

The reporting requirements of the WTP are in line as defined with reference to the Project Board Terms of Reference, the approved senior government funding agreements and the financial and accounting reporting cycle of the CRD.

The Project Team prepares comprehensive monthly and quarterly reports which describe the status of the Project, and specifically address progress of scope, budget, commitments, project expenditures, schedule and risk status. The reports include a dashboard and executive summary which highlight material changes in any of these areas, and provide Project Component specific progress.

10.3 Roles and Responsibilities

The roles and responsibilities with respect to cost management and reporting are as follows.

10.3.1 CRD Board

In accordance with the Terms of Reference, approval from the CRD Board is required for any alteration to the scope, schedule or budget of the Project that would result in the Project;

- not meeting Provincial and Federal regulations governing the Project;
- exceeding approved funding for the Project; or
- increasing costs to taxpayers from those stated in the Business Case.

The CRD Board is also responsible for approving the means by which the Project's cash flow and financing needs will be met.

10.3.2 CRD's Finance Committee

The CRD Finance Committee is responsible for providing advice and recommendations to the CRD Board, including with respect to:

- financial monitoring and reporting;
- financial policies, corporate financial management and audit; and
- cashflow and financing strategies.

10.3.3 Project Board

In accordance with the Terms of Reference the Project Board is responsible for:

- providing direction and guidance to the Project Director on Project matters, including the development of a decision making framework, business priorities, strategies and resource approval, and appropriate project controls and reporting procedures;
- providing the CRD Board with monthly progress reports and a comprehensive quarterly report which will describe the status of the Project, and specifically address Project scope, budget, schedule and risk.

The Project Board is also responsible for reviewing and approving commitments, expenses and contingency and program reserve draws and allocations that exceed the Project Team's delegated authority.

10.3.4 Project Director and Deputy Project Director

The Project Director is responsible for delivering the WTP within the Control Budget of $765 million. The Project Director and Deputy Project Director are responsible for:

- the review and timely submission of monthly and quarterly reports;
- approving Project commitments, expenses and contingency draws and allocations up to their delegated authority; and
- making recommendations to the Project Board for commitments, expenses and contingency and program reserve draws and allocations when greater than their delegated authority.

10.3.5 Finance Manager

The Finance Manager is responsible for ensuring that;

- project financial processes adhere to CRD policies and practices;

- costs are complete and accurately recorded;
- financial information is compiled for the monthly and quarterly reports;
- the Project maintains adequate cash flows; and
- co-ordinate with the CRD's CFO to efficiently structure Project cash flows and financing.

In addition for CRD purposes, the Finance Manager is responsible for annual operating and capital budgets, quarterly variance reports, budget amendments (if required), and year-end close and financial statement audit working papers.

10.3.6 Project Controls Manager (PCM)

The PCM is responsible for:

- estimating, forecasting and monitoring costs against the Control Budget; and
- the timely and accurate preparation of risk and schedule information for the monthly and quarterly reports.

10.3.7 Project Manager

Project Managers are responsible for reviewing:

- invoices and making recommendations for payment; and
- review of sections of the monthly and quarterly reports applicable to their Component.

10.3.8 CRD's Chief Financial Officer

The CRD's CFO is responsible for:

- overseeing all fiscal and fiduciary responsibilities for the CRD, including the Project;
- making recommendations regarding financial oversight to the CRD Board;
- managing the implementation and maintenance of internal control systems;
- ensuring compliance with financial regulations;
- coordinating with the Finance Manager to efficiently structure Project cash flows and financing
- seeking the CRD Board's approval for the means by which the Project's cash flow and financing needs will be met;
- shape the overall financing strategy of the project; and
- preparing annual budgets and quarterly variances.

11 Risk Management

11.1 Objective

The objective of risk management is to allow the Project Team to effectively and proactively manage, control and monitor risks, in order to enable the Project to meet all six of its KPIs.

11.2 Approach to Risk Management

Risk management refers to the activities undertaken to identify and manage the potential impact of risks. Risk management on the Project involves the identification, analysis, oversight, treatment and monitoring of the Project risks.

This PMP provides an overview of the risk management function. The Project Team has prepared and is implementing a Risk Management Plan, which includes the risk management process, roles and responsibilities, management escalation hierarchy as well as requirements for risk meetings and reporting cycles. The objectives of the Risk Management Plan are to direct and empower the Project Team to develop and maintain a 'risk aware' culture, to provide a comprehensive risk identification and control process as part of the ongoing management of the WTP and to proactively forecast and report on risks.

11.3 Risk Identification, Capture, and Monitoring

The Project Leadership Team promotes a risk-aware culture whereby any person is encouraged to raise potential risks for consideration. Early risk identification enables key Project decisions to take account of risks inherent in the Project and enhances efficacy of treatment via early and proactive responses. Risks are then screened, captured and controlled through to closure through the processes set out in the Risk Management Plan.

Risks are captured in risk registers, and assigned a risk owner who is responsible for managing the risk. Risks are allocated to the party best able to manage that risk. This may be the Project Team or a contractor.

Comprehensive risk identification and treatment measures are part of the ongoing management of the Project. Risks have and will continue to be defined and assessed, assigned to a ‘risk owner’ and monitored as part of the ongoing review and treatment of Project risks.

As the Project progresses risks are expected to emerge, evolve, be realized and progressively be retired. Emergent Project risks are broadly expected to be encapsulated under the key risks identified in the Project Risk Registry. Where the risk is a new risk it will be added to the relevant risk register. Once added to the register, the risk event will be managed until it is determined to be retired and the risk event is ‘closed’.

11.4 Risk Review

Risks are reviewed by the risk owners and members of the Project Leadership Team through regular meetings. Project risks are reported to the Project Board monthly through the Project’s monthly progress reports.

11.5 Roles and Responsibilities

The roles and responsibilities with respect to risk management are as follows.

11.5.1 Project Board

In accordance with the Terms of Reference the Project Board:

- is responsible for overseeing Project scope, schedule and budget as the Project progresses through planning, procurement and implementation phases, with particular attention to risk identification and risk management; and
- will review the risk registers at least twice per year.

In addition, the Project Board:

- champions risk management process and 'risk aware' culture; and
- may act as Risk Owner for specific Project risks.

11.5.2 Project Director and Deputy Project Director

The Project Director and Deputy Project Director are:

- responsible for developing and maintaining a 'risk aware' culture;
- accountable to manage Project and strategic Project-wide and Project component risks;
- accountable to ensure appropriate resources are provided to Risk Owners in order to conduct risk assessment, and effectively manage risks; and
- may act as Risk Owner.

11.5.3 Project Managers

The Project Managers are:

- accountable to ensure their section of the risk registers are kept current, accurate and complete;
- ensure Project risks are escalated up the organizational structure, as appropriate;
- champion expediting risk treatment development and risk control actions; and
- may act as Risk Owners.

11.5.4 Project Controls Manager

The Project Controls Manager is responsible for:

- the development and update, as warranted, of the Risk Management Plan and associated procedures and processes;
- ensures Project risks are escalated up the organizational structure, as appropriate;
- responsible for coordinating monthly risk reviews;
- maintains and updates risk registers based on inputs from risk management meetings;
- champions expediting risk treatment development and risk control actions; and
- may act as Risk Owner.

11.5.5 Risk Owner

The Risk owner contributes to issue and risk identification and risk ranking, quantification and response development. They are responsible for managing specific risks as assigned, and:

- working with the relevant Project Manager to develop an effective risk response strategy and associated risk treatment actions;
- leading implementation of approved risk response strategy and associated risk treatment actions;
- assessing the probability and impact of risk and efficacy and sufficiency of risk response strategy on at least a monthly basis; and
- escalating areas of concern to the Project Manager, Project Controls Manager, and/or Deputy Project Director and Project Director. Procurement Management.

12 Procurement Management

12.1 Objective

The objective of procurement management is to develop and deliver a procurement strategy that provides the most cost effective and efficient means of safely delivering the Project on time while achieving quality objectives, in order to enable the Project to meet all six of its KPIs.

12.2 Approach to Procurement Management

The Project Team will use competitive selection processes to procure contractors and consultants, and will advertise all major procurements on BC Bid (a website that allows public sector organizations to advertise opportunities for contracts for a wide range of goods and services). The Project Team will follow CRD's purchasing policy as applicable to the procurement. To the extent possible, procurement activities will be facilitated through Prolog.

In general, for all major procurements, a two stage procurement process will be used, with a Request for Qualifications (RFQ) followed by a Request for Proposals (RFP). The purpose of the RFQ will be to allow any interested party the opportunity to participate, and provides a means for the Project Team to select a shortlist of qualified respondents to participate in an RFP process. The RFP process will require the shortlisted respondents to submit proposals under competitive conditions, and will allow the Project Team to select the proposal that best meets the evaluation criteria specified. A draft contract will be attached to the RFP, and evaluation criteria will be developed for each procurement with consideration of the Project's KPIs and the type of contract to be procured, including the prescriptiveness of the specifications.

12.2.1 Draft Contract

12.2.1.1 DB+ Contracts

For DB+ contracts the Project Team will specify the performance standards in the contract. It is the responsibility of the contractor to understand the performance standards and design accordingly.

12.2.1.2 DBB Contracts

The DBB contracts that make up part of the Conveyance System Project Component require more detailed design documents to be prepared in advance of procurement than the other types of contracting strategies employed on the Project. The Owner's Engineer will prepare an indicative design and then a Design Consultant, selected via a competitive procurement process, will prepare the detailed design documents. The detailed design documents will be completed before the Project Team commences the procurement of the DBB (construction) contract in order to reduce the risk that significant changes to scope are required during the construction phase of the Project.

12.2.2 Service Contracts

The Project Team will be required to procure a variety of service contracts (consultants, advisors, etc.) in order to successfully-deliver the Project. These will be based on CRD contract templates as appropriate.

12.3 Roles and Responsibilities

The roles and responsibilities with respect to procurement management are as follows.

12.3.1 Project Board

In accordance with the Terms of Reference the Project Board is responsible for appointing or confirming advisors as necessary, including fairness advisor and conflict of interest adjudicator.

The Project Board is also responsible for approving the procurement of contracts and services that exceed the Project Team's delegated authority.

12.3.2 Project Director and Deputy Project Director

The Project Director and Deputy Project Director are responsible for:

- approving the procurement of contracts and services within their delegated authority;
- approving the procurement approach to be used to procure the contracts/services; and
- appointing evaluation teams.

12.3.3 Project and Functional Managers

The Project and Functional Managers are responsible for:

- identifying the need for a procurement and formulating the procurement approach, including the procurement process to be used and the evaluation criteria;
- gaining the Project Director and/or Deputy Project Director's approval for the procurement approach;
- overseeing the procurement, including:
    - the creation and negotiation of the contract, with support from Project Team members and the following as appropriate: the Owner's Engineer and/or design consultant, and the Project Team's legal advisor;
    - ensuring Functional Managers review draft contracts as relevant; and

- participating in evaluation teams, as requested.

12.3.4 Advisors

12.3.4.1 Legal Advisor (Norton Rose Fulbright)

The Project Team's legal advisor (Norton Rose Fulbright) will be involved in all major procurements and is responsible for providing advice on the procurement process and preparing and/or reviewing the procurement and contract documents.

12.3.4.2 Fairness Advisor

A fairness advisor will be appointed for all procurements that intend to use collaborative sessions – generally being those for DB+ contracts. The fairness advisor will act as an independent observer of the fairness of the implementation of the procurement process.

12.3.4.3 Additional Advisors on the RTF Procurement

As the RTF will be delivered through a DBFOM (that requires Project Co. to design, build, partially finance, operate and maintain the facility over a 20 year period) the contract has additional terms and conditions compared to a DB or DBB contract, and the procurement requires proponents to expend more effort than would typically be required to participate in a DB or DBB procurement. For this reason, and because of the additional requirements of the contract, additional advisors (including a rate setting advisor, due diligence panel, commercial advisor and Partnerships BC) were involved in the procurement of the RTF, but are not anticipated to be required for the procurement of the DB or DBB contracts.

13 Contract Management

13.1 Objective

The objective of contract management is to effectively manage the delivery of the CRD's and the counterparts' contract obligations of each contract, such that the Project's KPIs can be met. Contract management is the process of managing contract execution in order to maximise operational and financial performance and minimise risk.

13.2 Approach to Contract Management

The contract management required for each contract will differ. Although the contract management required for DBB contracts differs from that required for DB+ contracts as a result of the different risks allocated through each type of contract.

In general:

- for the DBFOM contract the Project Team will perform a verification and audit approach to contract management;
- for the DBF and DB contracts the Project Team will perform an oversight and audit approach to contract management, with a greater focus on operational implications of design and construction than for the DBFOM contract as the DBF and DB contractors will not have ongoing responsibility for operation and maintenance; and
- for the DBB contracts the Project Team will have an active, engaged and continuous contract management and administration effort.

The Project Team will manage each contract in accordance with the terms and conditions of the contract and the particular risk allocation, but the approaches outlined herein will be applied to the management of all construction contracts.

13.2.1 Communications

The Project Team and each contractor will appoint a person to act as the single point of contact for the purposes of contract management.

It is expected that both the Project Team and each contractor will take a proactive approach to contract management. A proactive approach encourages a close working relationship between the Project Team and the Project contractors and can aid with the successful execution of a contract.

Prolog will be used as the contract management tool for all contracts.

13.2.2 Chartering/Orientation

Soon after contract award a chartering / kick-off session will be held between the Project Team and contractor to ensure understanding of Project goals and provide for the introduction of key personnel involved in contract management and execution.

13.2.3 Monthly Report

Each contractor will be required to submit a monthly report with each monthly invoice including: a summary of progress; the status of any contract changes; schedule updates, including any required recovery schedule; reports on quality, environmental and safety performance, including any accidents or incidents and a summary of action taken or proposed in respect of such accidents or incidents.

Relevant Project Team members, including the Safety Manager, Project Manager, Quality Manager, Project Controls Manager, Construction Manager and Environmental, First Nations and Regulatory Manager, will review the monthly reports.

13.2.4 Submittal Review

Each contract will include requirements for many submittals, including with respect to safety, construction, quality, etc. The Project Team will review submittals against the contract requirements, and this review will be facilitated through a submittal workflow in Prolog as follows:

- Contractor uploads submittal to Prolog;
- Project team document controller logs submission, checks completeness and distributes to relevant Project Team members;
- If distributed to Owner's Engineer the Engineering Compliance Manager is responsible for coordinating all Owner's Engineer comments;
- Project Team Assistant Project Manager is responsible for coordinating CRD comments;
- CRD Project Manager decides review endorsement;
- Project team document controller responds on Prolog with comment log and endorsement.

13.2.5 RFIs

Project Team and contractor clarifications will be managed through a Request for Information (RFI) process facilitated through a workflow in Prolog as follows:

- Project Team Project Manager/Assistant Project Manager to review RFI and prepare response (or request input from ECM);
- Engineering Compliance Manager will be responsible for preparing RFI response and engaging discipline engineers, where required;
- RFI responses will be returned back for review by CRD Project Manager/Assistant Project Manager/Engineering Manager;
- Project Team distributes RFI response via Prolog; and
- Any RFI responses that will trigger a potential change to the contract should be identified and a call between CRD and the Owner's Engineer initiated.

13.2.6 Dispute Resolution

A process for dispute resolution will be specified in each construction contract, including steps and timelines for dispute resolution. The Project Team will manage any disputes in accordance with the process specified in the relevant contract.

13.2.7 Change Management

Changes must be controlled and any impact must be assessed before being implemented in order to understand any impacts to the Project.

Any contemplated changes to contracts will be carefully and diligently reviewed, including an assessment of schedule and cost impacts, to ensure that they provide value for money to the CRD.

There are a number of different types of change that are anticipated on the Project, as follows:

- change to the scope of a Contract via a Contemplated Change Notice (owner initiated);
- change to scope of the Contract via a Change Directive (owner initiated);
- change due to a Force Majeure Event (owner or contractor initiated);
- internal change (such as changes to budget and contingency draw down); and
- value engineering (contractor initiated).

Given the nature of the DB+ contracts where the contractor is required to meet the performance requirements of the contract rather than follow a prescribed design, it is anticipated that the number of changes to these contracts will be low. The development of the design as the design phase progresses often results in a change to the final design from that in the contractor's proposal, however, given the nature of these contracts as long as the contractor fulfills the performance requirements a change to their design would not constitute a change under the Project change management process.

The DBB contracts will have more prescriptive design specifications. Given the complex nature of the Project it is likely that the CRD will be required to make some changes to the design specifications during the execution of the contracts. The terms and conditions of a DBB are such that the CRD and the contractor can negotiate changes to the scope of work.

Any changes will be implemented in accordance with the changes section of the applicable contract.

13.2.8 Claims Management

The Project Team will take a proactive approach to claims management with the objective of avoiding the Project Team and contractors from being distracted by unresolved claims. The approach will include the early identification of any potential disagreements, negotiations in good faith, followed by formal dispute resolution if required.

13.3 Roles and Responsibilities

The roles and responsibilities with respect to contract management are as follows.

13.3.1 Project Board

In accordance with the Terms of Reference the Project Board is responsible for working with the Project Director to resolve material issues that may arise over the course of the Project. The Project Board are also responsible for authorizing the settlement of any contract claims that exceed the Project Team's delegated authority.

13.3.2 Project Director and Deputy Project Director

The Project Director and Deputy Project Director are responsible for:

- the Project Team's approach to contract management;
- approving contract changes and claim responses within their delegated authority; and
- seeking the Project Board's approval for any contract changes and claim responses that exceed their delegated authority.

13.3.3 Project Manager

Each Project Manager is responsible for the management of contracts within their Project component, and is responsible for developing and recommending contract claim management strategies to the Project Director and Deputy Project Director.

13.3.4 Construction Manager

The Construction Manager reviews and provides comments in response to contractors' progress reporting, changes and any claims.

13.3.5 Project Controls Manager

The Project Controls Manager is responsible to review and report impacts of contract claim and draft claim settlements.

Responsible for facilitating the change process and maintaining the Project's change management log and the Project control baseline to reflect the current approved Project scope.

13.3.6 Contract Representative

The contract representative will be responsible to be the single point of contact for a particular contract, and to:

- ensure that the Project Team fulfils the owners' responsibility under the contract;
- monitors that the contractor fulfils their responsibilities under the contract;
- approve all contractual/formal correspondence between the Project Team and the contractor;

- approve submittal review comments and RFI/clarification responses;
- manage any changes and disputes; and
- manage the relationship with the contractor.

13.3.7 CRD's Integrated Water Services and Parks and Environmental Services Departments

The CRD's IWS Department will be responsible for operating and maintaining the WWTP and Conveyance components of the Project upon commissioning. CRD IWS representatives will be engaged in the review of specific contract submittals.

The CRD's Parks and Environmental Service (PES) Department will be responsible for the administration of the RTF contract upon commissioning of the facility. CRD PES representatives will be engaged in the review of specific design and construction submittals for the RTF. Specific responsibilities include: participating in design review workshops, and reviewing and providing comments on relevant contract submittals (e.g. design reports, drawings, operating plans), with a focus on the interfaces between the operations of the Hartland Landfill and the RTF.

14 First Nations Consultation and Engagement

14.1 Objective

The objective of First Nations consultation and engagement is to enable the Project to meet its stakeholders KPI: “Continue to build and maintain positive relationships with First Nations, local governments, communities, and other stakeholders”.

14.2 Approach to First Nations Engagement

The CRD has been engaged in consultations with First Nations relating to wastewater treatment since 2006, and in relation to the Project since 2014.

Given the Project’s geographic span, some First Nations have a greater interest in some components of the Project than others. First Nations’ interest in each of the components varies according to the location of the component within or near their traditional territory, and the perceived potential for adverse impacts. The CRD’s engagement and consultation efforts (both to-date and ongoing) and scope were adjusted to reflect the differing interests of each First Nation.

The First Nations most closely associated with the Project are Esquimalt and Songhees Nations, historically known as the Lekwungen. Their present day communities are located in the Core Area within several kilometres of the McLoughlin Point WWTP and other important components of the Project. The Esquimalt and Songhees support the goals of the Project and are participants in the Core Area wastewater system through service agreements. The Chiefs from each Nation are members of the Core Area Liquid Waste Management Committee. The Esquimalt and Songhees have leased land in Victoria Harbour to the Project for use during construction. In recognition of their assistance in the planning and development of the wastewater system, and in recognition of their assertion of Douglas Treaty rights and Aboriginal rights and title, the CRD has entered into support agreements with each of them. These agreements provide, amongst other things, for an Esquimalt Nation liaison position and a Songhees Nation liaison position for the four year term of the Project. The liaisons have been assisting the Project Team in its communications with the Esquimalt and Songhees communities, in the administration of protocols involving potential impacts on ancestral remains and their traditional lands, and in the discussion and management of other important Project-related issues.

There are four First Nations with communities near the Core Area, but outside the Core Area wastewater system. They are SȾÁUTW̱ (Tsawout), W̱SIḴEM (Tseycum), W̱JOŁEŁP (Tsartlip), and BOḰEĆEN (Pauquachin). These Nations are known as the W̱SÁNEĆ Nations. The CRD has ongoing engagement with the W̱SÁNEĆ Nations through the W̱SÁNEĆ Leadership Council, and is engaged in discussions with the W̱SÁNEĆ Nations about parts of the Conveyance System and the Residuals Treatment Facility, which are located on municipal roads or CRD lands within their traditional territories. The CRD intends to involve the W̱SÁNEĆ Nations in the management of heritage issues in their territories that may arise as a result of the construction of the Project.

There are ten other First Nations with Treaty rights in the general vicinity of the Core Area, but primarily fishing rights in the Strait of Juan de Fuca. These Nations are the Scia'new (Beecher Bay), Stz'uminus, Halalt, Penelakut Tribe, T’Sou-ke, Lyackson, MÁLEXEŁ (Malahat), Lake Cowichan, Cowichan Tribes, and Nanoose First Nation (which is included because it is

represented by a tribal association, the Te'mexw Treaty Association, which was formed by some of these Nations). The CRD will be constructing outfall pipes and other infrastructure within or near the Victoria Harbour. The CRD has concluded that the construction and operation of the Project will not conflict with any of the Section 35[1] rights of these Nations but it intends to keep them informed of Project activities, especially as they relate to beneficial outcomes in the marine environment. The Project Team intends to respond promptly to any questions or concerns that may be raised.

14.3 Roles and Responsibilities

The roles and responsibilities with respect to First Nations consultation and engagement are as follows.

14.3.1 CRD Board

The CRD Board is responsible for government-to-government relationships with First Nations, and is supported in this by the CRD's First Nations Relations division (part of the CRD's Executive Services Department).

The CRD Board established the Special Task Force on First Nations Relations as a select committee with a term to December 2018 with a mandate to make recommendations to the CRD Board regarding options for more inclusive governance and decision-making on matters of common interest with neighbouring First Nations.

14.3.2 Project Board

The Project Board are responsible for providing direction to the Project Team with respect to First Nation engagement and consultation activities.

14.3.3 Project Director and Deputy Project Director

The Project Director and Deputy Project Director are responsible for keeping the Project Board apprised of the status of First Nations consultation and engagement activities.

14.3.4 Environmental, First Nations and Regulatory Manager

The Environmental, First Nations and Regulatory Manager is responsible for:

- First Nations engagement and reporting related to federal and provincial permits, authorizations or approvals;
- coordinating Project-related First Nations engagement with the Manager, CRD First Nations Relations;
- supporting the Manager, CRD First Nations Relations, in the CRD's broader First Nations engagement where they may be related to the Project; and

[1] Section 35 of the Constitution Act affirms and provides protection to the Indigenous and treaty rights of Indigenous peoples in Canada which includes, but is not limited to: protection of fishing, logging, hunting, the right to land, and the right to enforcement of treaties.

- informing Project Managers of aspects of their Project Component that are of potential interest to First Nations.

14.3.5 Project Manager

Each Project Manager is responsible for co-ordinating with the Environmental, First Nations and Regulatory Manager regarding aspects of their Project Component that are of potential interest to First Nations.

14.3.6 Manager, CRD's First Nations Relations

The Manager, CRD's First Nations Relations is responsible for:

- the ongoing maintenance of CRD's government-to-government relationships with First Nations;
- coordinating with the Environmental, First Nations and Regulatory Manager on Project-related First Nations engagement; and
- supporting communication efforts and facilitating cultural training for Project staff.

14.3.7 Contractor

Contractors support First Nation engagement goals both directly (e.g. through offering employment and sub-contracting opportunities) and indirectly (e.g. attending meetings and sharing information). In addition to supporting First Nation engagement goals, WTP contractors work with the PMO to incorporate First Nations feedback in design considerations (e.g. through the incorporation of Indigenous knowledge in landscaping plans).

15 Quality Management

15.1 Objective

The objective of quality management is for all work on the Project to meet the Project requirements.

15.2 Approach to Quality Management

Quality management comprises three activities: quality planning, quality assurance and quality control:

- quality planning entails identifying the quality requirements and standards to be followed;
- quality assurance entails oversight, verification and auditing to verify quality control processes are effective and implemented properly; and
- quality control entails inspection, testing and measurement to verify that the work and deliverables meet the requirements.

The Project Team's approach to quality management comprises nominating a party to be responsible for quality management and another party to be responsible for verification of that quality management, with the Project Team providing oversight. This approach will be consistently applied to the different contracting strategies being used to deliver the Project, however the different contracting strategies impact which parties will be assigned the responsibility to manage and verify quality.

Specifically, for:

- DB+ contracts:
  - Project Co. will be responsible for managing the quality of the design, engineering and construction of their contract scope, and the Owner's Engineer will be responsible for verifying that quality; while for
- DBB contracts:
  - the Design Consultant will be responsible for managing the quality of the design and engineering of their contract scope, and the Owner's Engineer will be responsible for verifying that quality; and
  - the DBB contractor will be responsible for managing the quality of the construction, and the Design Consultant will be responsible for verifying that quality.

15.3 Quality Management

For each scope, the party with responsibility for managing quality will be responsible for the:

- preparation of a quality management system: a quality management system is a formalized system that documents processes, procedures, and responsibilities for achieving project quality requirements and standards;
- implementation and maintenance of the quality management system; and

- validation of the quality management system: the purpose of the validation process is to monitor and validate the operation of the quality management system by carrying out spot checks and making inspections and tests of the work that is subject to the quality management system – such as engineering, construction, work areas, equipment, materials, or other items.

15.4 Quality Verification

For each scope, the party with responsibility for verifying quality will be responsible for verifying the quality management system, including verifying the quality manager's preparation, implementation and maintenance of the quality management system. The quality verifier will undertake quality reviews and/or quality audits as required, including as appropriate: review of design documents, verification testing and audits of construction activities and workmanship.

15.5 Roles and Responsibilities

The roles and responsibilities with respect to quality management are as follows.

15.5.1 Project Director and Deputy Project Director

The Project Director and Deputy Project Director are responsible for:

- ensuring that the Quality Manager has sufficient resources to fulfil their responsibilities;
- checking the robustness of the Quality Manager's oversight and audit program.

15.5.2 Construction Manager

The Construction Manager is responsible for ensuring that work is completed to the specified scope and managing the various processes in the planning and execution of construction activities, and engaging the Quality Manager to ensure that work is completed to the required quality.

15.5.3 Quality Manager

The Quality Manager has responsibility for oversight of all quality aspects of the Project, including the oversight of quality-related activities of each party with responsibility for quality or quality verification. The Quality Manager is responsible for ensuring adherence to the quality work flows and procedures.

Specific responsibilities include:

- Review of contractors' quality management plans;
- Review of Design Consultants' quality management systems;
- Review of contractors' Inspection Test Plans;
- Reviewing, tracking and documenting through to resolution (close-out) any quality issues that occur during design, construction, or commissioning; and

- Engaging with and regularly communicating any quality issues to the Project Manager, Construction Manager, and/or Engineering Manager, as appropriate.

15.5.4 Project Manager

The PMs are responsible for overseeing contractor activities under the relevant contract, and co-ordinating with the Quality Manager to ensure proper oversight and audit of the quality management and verification.

15.5.5 Engineering Manager

The Engineering Manager has responsibility for oversight of engineering activities related to scope development, and contract compliance for the design aspects of the Project, including supporting the Quality Manager to ensure proper oversight and audit of the quality management and verification of engineering activities.

15.5.6 Consultant and Contractor Roles for DB+ Contracts

15.5.6.1 Project Co.

Project Co. is responsible for the quality management of the design engineering and construction of their scope of work, and is responsible for:

- developing, maintaining and implementing a quality management system that describes how they plan to manage quality planning, quality assurance and quality control of the design engineering and construction of their scope of work;
- signing letters of assurance in accordance with legislative requirements for quality; and
- submitting quality documentation to demonstrate compliance with the contract documents.

Project Co.'s quality management system will be required to include:

- quality policies and procedures, organizational structure, roles and responsibilities that will serve to ensure that all items of work are in conformance with the contract requirements;
- quality planning responsibilities and activities;
- the review and checks that will be performed on the design, and the inspection and tests that will be performed on construction materials, workmanship, and work to ensure that the overall quality of the constructed works complies with the contractual requirements for the design and construction;
- requirements for design and construction integration;
- the quality assurance and quality control processes that will be applied to technical reports, design drawings, construction documentation and construction workmanship; and
- the non-conforming reporting processes for design and construction and how they will be incorporated into the quality management system.

15.5.6.2 Owner's Engineer

The Owner's Engineer will be responsible for quality verification of Project Co. by conducting quality reviews, quality audits, spot checks and independent inspections and tests of Project Co.'s quality management system and work.

There are three roles within the Owner's Engineer that have particular responsibilities with respect to quality verification: Engineering Compliance Manager, Construction Compliance Manager and Discipline Lead:

- the Engineering Compliance Manager is responsible for ensuring that design submittals meet the applicable contract requirements and comply with design directives, quality standards, and codes;
- the Construction Compliance Manager is responsible for ensuring that the work progresses, and is administered, in accordance with the applicable quality requirements in the contract, including coordinating Discipline Leads' quality assurance inspections at the appropriate points; and
- the Discipline Lead is responsible for checking that work is completed in conformance with the design by carrying out spot checks and independent quality assurance inspections to verify that Project Co. is complying with their quality management systems and procedures for ensuring the work is constructed in accordance with their approved design.

15.5.7 Consultant and Contractor Roles for DBB Contracts

15.5.7.1 Design Consultant

Each Design Consultant is responsible for the quality management of the engineering, and quality verification during construction to ensure the work complies with the contract requirements. Design Consultants will perform quality verification inspections and quality audits of construction.

There are three roles within each Design Consultant that have particular responsibilities with respect to quality management during construction: Resident Engineer, Discipline Lead and Contract Administrator:

- the Resident Engineer is responsible for ensuring that all construction work progresses in accordance with the contract, and is completed in conformance with the contract documents, including the design drawings and technical specifications. The Resident Engineer is also responsible for coordinating site inspections by the Discipline Lead at the appropriate milestones and test points during construction;
- the Discipline Lead is responsible for ensuring the work is constructed in accordance with the contract by conducting periodic inspections of the workmanship, materials and control testing, as prescribed in the contract drawings and technical specifications, and the contractor's quality management system; and
- the Contract Administrator is responsible for oversight of the quality management plans and processes through construction to ensure that the contractor complies with their quality management plans and processes. This includes documentation of appropriate checklists, field measurements and inspections, receipt and filing of quality control testing reports.

15.5.7.2 DBB Contractor

Each DBB contractor is responsible for:

- developing, maintaining and implementing a quality management system that describes how they will comply with the contractual requirements for construction of their scope of work;
- signing letters of assurance in accordance with legislative requirements for quality; and
- submitting quality documentation to demonstrate compliance with the contract documents.

The DBB contractors' quality management system will include:

- quality policies and procedures, organizational structure, roles and responsibilities that will serve to ensure that all items of work are in conformance with the contract requirements;
- quality review responsibilities and activities;
- the inspections and testing that will be performed on construction materials, and workmanship to ensure the overall quality of the constructed works complies with the design requirements prescribed in the Issue for Construction contract documents; and
- the non-conforming reporting processes for design and construction and how they will be incorporated into the quality management system.

16 Environmental and Regulatory Management

16.1 Objective

The objective of environmental and regulatory management is to enable the Project to meet its environment and regulatory requirements KPIs: “Deliver the Project such that the Core Area complies with provincial and federal wastewater regulations” and “Protect the environment by meeting all legislated environmental requirements and optimizing opportunities for resource recovery and greenhouse gas reduction.”

16.2 Approach to Environmental and Regulatory Management

The Project Team’s approach to environmental and regulatory management is multi-faceted and includes activities during design, procurement and construction, including:

- Preparing Environmental Impact Studies, to inform the design and configuration of the Project in order to minimise environmental impacts at the outset, and to identify mitigation measures to reduce any environmental impacts;
- Designing the Project to ensure the Project scope meets: legislative requirements, adheres to approvals granted for the WTP development and facility operations, and incorporates LEED or equivalent principles, as applicable;
- Preparing, implementing, and updating (as warranted) a Project-wide Environmental Management Plan to serve as a framework for the Project Team;
- Preparing, maintaining and monitoring the permit register;
- Retaining an archaeological advisor to provide advice and assistance with respect to archaeological management for the Project as a whole;
- Including robust environmental management, monitoring and reporting requirements in construction contracts, including the requirement for each contractor to appoint a qualified professional to monitor the contractor’s compliance with environmental laws, environmental aspects of applicable permits, archaeological protection, and contaminated soil management;
- Reviewing contractors’ environmental management plans, environmental protection plans and regulatory approval plans – both upon initial submission and as construction progresses to ensure that the plans remain valid and are updated as warranted by, for example, the introduction of new work methods or regulatory requirements;
- Auditing contractors’ environmental performance, including through:
    - The review of any environmental incidents to confirm: the accuracy and sufficiency of reporting, discuss “lessons learned”, and how corrective actions are being implemented as a result of these reviews;
    - conducting site tours and monitoring contractors’ construction activities to confirm contractors are following their environmental protection plans; and
    - conducting periodic meetings with contractor’s site and environmental representatives to review environmental performance.

Many of these activities are outlined in more detail in the following sections.

16.2.1 Environmental Protection Plan

Each contractor is required to develop, implement, effectively monitor and maintain an Environmental Protection Plan that covers, for the contractors' activities:

- Roles and responsibilities with respect to environmental protection;
- Environmental protection, archaeological protection, and contaminated soil removal, including measures to comply with any environmental aspects of permits;
- Installation and maintenance of environmental controls and impact mitigation measures such as temporary erosion and sedimentation control; and
- Environmental monitoring program for water and soil management, and erosion and sedimentation control reporting by the contractor's environmental monitor.

The Environmental Protection Plan is to be prepared by the contractor's environmental monitor, or other qualified professional, and is to be submitted to the Project Team for review, prior to construction starting.

16.2.2 Permit Register

The Project Team has developed and will maintain a permit register to identify and monitor the status of permits, approvals, authorizations, licences and agreements that may be required for the Project.

The scope of the permit register includes:

- all levels of regulatory authorities (i.e. Municipal, Regional, Provincial and Federal);
- all potential Project activities (e.g. pre-construction surveys, site preparation, vegetation clearing, excavation, construction, commissioning and in some cases operation);
- estimated timelines for permit preparation and regulatory review and approval;
- Aboriginal Consultation requirements; and
- the parties (e.g. Project Team, design consultant or contractor) responsible for:
    - obtaining the permit; and
    - complying with any conditions of the permit.

To the extent practical, the Project Team has assigned responsibility for obtaining permits to the relevant counterpart (being either the design consultant or contractor, as discussed below), in order to avoid the Project Team inadvertently constraining the relevant counterpart's execution flexibility. The counterparts' knowledge of construction means, methods and schedule also puts them in the best position to assess which of their activities require a permit and what the permit application should contain.

There are exceptions to the above approach: the Project Team has obtained some licences and agreements on behalf of contractors, and is facilitating the preparation and submission of others. The Project Team is typically retaining responsibility for permit applications when:

i) the schedule doesn't allow for the respective counterpart to apply for and receive a given permit; or
ii) the same permit is required for multiple contracts.

The Project Team is working closely with the design engineers (the Owner's Engineer and/or the design consultant for each of the DBB contracts) to identify those permits that the CRD and/or design engineer should advance in order to reduce schedule risk.

When the Project Team assigns responsibility for obtaining permits to a contractor the permitting responsibility is transferred as a general obligation to obtain all required permits and regulatory approvals, other than any that are specifically-identified as the CRD's responsibility to obtain. The Project Team does not direct contractors with respect to their permitting requirements or approach, but requires regular permit updates to enable the Project Team to monitor the contractor's permitting progress and take further action as warranted, including: reviewing permit applications, sharing relevant information with the contractor and liaising with regulators.

The Project Team is managing the permitting risks by:

- continuing engagement with regulatory agencies to understand their permit application process and requirements;
- ongoing First Nations consultation and engagement; and
- monitoring contractors' permit progress, including: reviews permit applications, shares information and liaises with regulators as warranted.

16.2.3 Archeological Management

The Project Team has hired an archaeological advisor (Millennia Research Inc.) to provide advice and assistance with respect to archaeological management for the Project. Millennia Research Inc. will assist the Project Team by:

- preparing Archaeological Overview Assessments and Archaeological Impact Assessments;
- planning for archaeological mitigation and data recovery;
- preparing archaeological protocols and specifications for inclusion in construction contracts;
- conducting archaeological awareness training for construction crews; and
- undertaking archaeological monitoring.

The Project Team has applied for and received a Site Alteration Permit for all project components that overlap with Registered Archaeological Sites. The Project Team will require archaeological monitors for sites with medium and high probability of encountering archaeological materials, and has developed a chance-find protocol for sites with low probability of encountering archaeological materials. The Project Team, with the assistance of Millennia Research Inc. and the collaboration of First Nation partners, have finalised a protocol for managing human remains.

16.3 Roles and Responsibilities

The roles and responsibilities with respect to environment and regulatory management are as follows:

16.3.1 Project Director and Deputy Project Director

Accountable for the environmental and regulatory compliance of the Project.

16.3.2 Environmental, First Nations and Regulatory Manager

The Environmental, First Nations and Regulatory Manager is responsible for:

- maintaining the Project's Environmental Management Plan and permit register;
- overseeing the Project's archaeological advisor;
- coordinating archaeological management with First Nations liaisons, design consultants and contractors;
- ensuring the sufficiency of contract requirements for environmental and regulatory management;
- overseeing and auditing environmental and regulatory management on each contract.

16.3.3 Project Managers

The PMs are responsible for overseeing contractor activities under the relevant contract, and co-ordinating with the Environmental, First Nations and Regulatory Manager to ensure proper oversight and audit of the environmental and regulatory management on each contract.

16.3.4 Engineering Manager

The Engineering Manager, in consultation with the Environmental, First Nations and Regulatory Manager, is responsible for ensuring design criteria contained within the specifications are consistent with the environmental and regulatory approvals.

16.3.5 Project Team's Archaeological Advisor

The Project Team's archaeological advisor (Millennia Research Inc.) is responsible for providing advice and assistance to the Project Team with respect to archaeological management for the Project.

16.3.6 CRD Parks and Environmental Services Department and Integrated Water Services

The CRD's Parks and Environmental Services Department and/or Integrated Water Services department (as applicable) are responsible for environmental monitoring and/or mitigation activities related to the Project that extend beyond the commissioning period, and maintaining and complying with the terms of permits that are required beyond the commissioning period.

The CRD's Parks and Environmental Services Department is also responsible for the preparation and management of CRD's liquid waste management plans.

16.3.7 Contractor

Each contractor is responsible for:

- adhering to the environmental obligations and commitments required by their contract, including the preparation and implementation of site-specific environmental protection plans;
- complying with permits;
- environmental reporting to the Project Team; and
- reporting to regulatory agencies as required.

17 Human Resource Management

17.1 Objective

The objective of human resource management is to enable the Project to meet all of its KPIs. Human resource management refers to the management of personnel, including their professional development.

17.2 Approach to Human Resource Management

All matters regarding employment will be overseen by the CRD's Human Resources and Organizational Development ("HR&OD") division, under the direction of the Senior Manager of HR&OD and the authority of the CRD's Chief Administrative Officer.

Human resource management will be carried out by the Project Leadership Team with support from the CRD's human resources and organizational development ("HR&OD") division. The performance management of Project Team employees (e.g., development, performance reviews) is the responsibility of the relevant manager within the Project Team.

17.2.1 Policies, Processes and Legislation

As part of the CRD organization, the Project Team will adhere to all of the CRD policies, process and applicable legislative requirements governing matters of employment and employee contract administration.

Recruitment and selection for all positions will be conducted in a fair and equitable manner. The most qualified candidate will be selected with due consideration to the CRD's collective agreements, CRD bylaws, and relevant legislations.

17.2.1.1 Human Resources Development

The CRD has in place a comprehensive Organizational Development Plan to ensure organizational resilience by building a culture that is engaged, responsive, adaptive and aligned with corporate priorities and our service delivery mandate. The plan ensures:

- a strong CRD foundational core through an organizational structure that drives accountability, a corporate planning framework that aligns corporate priorities with service delivery, corporate policies that support effective decision-making, and systems and practices that enable information and knowledge sharing; and
- engagement of employees through leadership excellence that enhances performance and achieves results, ensuring the right talent in the right job at the right time, hiring of employees who have a clear understanding of the organization and role expectations, and ensuring a workforce is maintained that is valued and supported.

Through the Organizational Development Plan, systems and processes are in place that ensure proper workforce planning and employee development to meet current and future organizational objectives. Detailed corporate policies are in place regarding employee training and development, workforce learning and development.

17.2.2 Project Team Staff

There are both CRD Project full time equivalent (FTE) staff (”dedicated staff”) and CRD Project ‘non-FTE’ staff (“support staff”) working on the Project.

The support staff are corporate CRD FTE staff that support select WTP organization functions in addition to their existing responsibilities for the CRD. The proportion of time the support staff spend between the corporate CRD and Project work tasks is accounted for with the use of WTP timesheet coding. Functional roles that supplement the Project organization in this manner have been selected based on a number of considerations including:

- Ongoing skill set development requirements of the CRD;
- FTE staffing requirements of the Project Team;
- Functional role integration requirements between the Project and CRD; and
- Availability of specialist skills.

17.2.3 Employment of Staff

Some staff may be excluded from the CRD’s bargaining units, and others may be included within the bargaining unit(s) depending on the nature of work performed.

Staff excluded from the CRD’s bargaining units will be hired under contract. Contracts shall follow CRD requirements, including form, and all applicable legislative requirements including those required of such organizations as the Canada Revenue Agency.

Staff included with one of the CRD’s bargaining units shall fall under the terms and conditions of employment of the applicable collective agreement.

The HR&OD division makes the determination on behalf of the CRD of whether the staffing appropriately falls within or outside of the bargaining unit.

17.3 Roles and Responsibilities

17.3.1 Board

In accordance with Bylaw 3343 (the "Officers', General Managers' and Management Staff's Bylaw No. 1, 2006") the CRD Board is responsible for approving the number of employee positions within the CRD, including the Project Team. This approval is normally obtained annually with the inclusion of the staff establishment chart in the financial plan that is submitted to the CRD Board. Changes outside of the financial plan require an amendment to be approved by the CRD Board.

17.3.2 Project Board

In accordance with the Terms of Reference the Project Board is responsible for:

- selecting a Project Director to oversee all aspects of the Project; and
- approving the project management organizational structure and appointment of key resources for the project including the Project Director.

17.3.3 Project Director

In accordance with the Terms of Reference, the Project Director is responsible for leading a Project team to plan, procure, and implement the WTP.

17.3.4 Project Deputy Project Director

The Deputy Project Director is responsible for human resource management of the Project Team, including co-ordination with the CRD's Senior Manager, Human Resources and Organizational Development.

17.3.5 Project Leadership Team

The Project Leadership Team is responsible for identifying and recruiting resource requirements.

17.3.6 Project Team Members with Reporting Staff

Project Team Members are responsible for the performance management of reporting staff, in accordance with the CRD's processes.

17.3.7 CRD's Senior Manager, Human Resources and Corporate Safety

The CRD's Senior Manager, Human Resources and Corporate Safety is responsible for all aspects of human resources, labour relations, organizational development, and occupational health and safety leadership, direction and support for the CRD.

17.3.8 Contractors, Consultants, Advisors

Each contractor, consultant and advisor to the Project is responsible for all aspects of human resource management for their employees.

18 Communications and Engagement Management

18.1 Objective

One of the Project's six KPIs is related to communications and engagement management: "Continue to build and maintain positive relationships with First Nations, local governments, communities, and other stakeholders".

The key focus of the Project's communications and engagement activities are 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.

The objectives of the Project's communications and engagement activities are to:

- Continue to build and maintain positive relationships with First Nations, local governments, communities and other stakeholders;
- Communicate the Wastewater Treatment Project's plans, progress, impacts and benefits to community members to ensure they are fully informed about the Project, and seek to understand their interests and concerns. Ensure information is easily accessible and distributed through a variety of methods;
- Manage an inquiry response program. Manage and track e-mail and phone inquiries to continue to provide accurate and timely responses to questions from the public and stakeholders;
- Ensure integrated communications regarding the three components of the Project and the CRD's related planning and operations; and
- Update the media on construction information and key Project milestones.
- Meet communications obligations within each of the four funding agreements, the Esquimalt agreements, the City of Victoria licences, Saanich operating agreement, and communications obligations in any other Project-related licences/agreements.

18.2 Approach to Communications and Engagement Management

The Project Team has prepared a Communications and Engagement Plan. The purpose of the Communications and Engagement Plan is to:

- define the Wastewater Treatment Project's communications and engagement goals;
- outline the anticipated communications and engagement activities during the construction period; and
- describe the roles and responsibilities of the Wastewater Treatment Project's Communications and Engagement Team, which includes CRD staff, consultants and representatives from the contractors for each component of the Project.

The Communications and Engagement Plan was first prepared by the Project Team and approved by the Project Board on April 4, 2017. The Communications and Engagement Plan

was developed to address the stage of the Project at that time, which was the start of construction. The Project Team has implemented the Communications and Engagement Plan and has reviewed the Communications and Engagement Plan to account for progress made on the Project in the fifteen months since the Communications and Engagement Plan was first approved, and the updated Plan was approved by the Project Board on July 26, 2018. The Project Team will seek the Project Board's approval of any further updates that required to the Communications and Engagement Plan as the Project progresses.

18.3 Roles and Responsibilities

The roles and responsibilities with respect to communications and engagement management are as follows.

18.3.1 Project Board

In accordance with the Terms of Reference the Project Board is responsible for:

- approving the establishment and implementation of a communications and consultation plan, and any significant deviations from the communications/consultation plan; and
- overseeing Project communications, information and consultation activities.

18.3.2 Deputy Project Director

The Deputy Project Director oversees the communications and engagement needs of all aspects of the Project including:

- Communications planning;
- community relations;
- public engagement support; and
- construction communications.

The Deputy Project Director is also the Project spokesperson.

18.3.3 Project Director

In the absence of the Deputy Project Director the Project Director is responsible for reviewing and approving communications, as well as:

- Manage the public inquiry response program;
- develop communications and engagement materials including: communications and engagement plans, public notifications, public meeting materials, Q&A documents, website, ad copy and project signs;
- oversee the development and distribution of construction and traffic notifications (to be undertaken by the relevant contractor);
- proactively meet with community members regarding specific issues;
- set up, develop materials and attend public and community meetings; and
- liaise with the public at community/public meeting.

18.3.4 Director of Communications and Stakeholder Engagement

The Director of Communications and Stakeholder Engagement provides communications and engagement expertise and planning in accordance with the overall Project goals. Working with the members of the communications and engagement team, the Director:

- Consults and advises the Deputy Project Director and members of the Project Team on communications and engagement strategies;
- responsible for issues management;
- ensures the communications obligations within the funding agreements, Esquimalt agreements, the City of Victoria licences, the Saanich operating agreement, and other Project-related licences/agreements are met;
- oversees and integrates the contractors' communications activities in accordance with the appropriate contract;
- is the Project spokesperson when the Deputy Project Director is not available; and
- works with the CRD's Senior Manager.

18.3.5 CRD's Senior Manager, Corporate Communications

Any media inquiry related to the Project will be directed to the CRD's Senior Manager, Corporate Communications. The Senior Manager will manage the media response, supported by the communications and engagement team and if required, the relevant contractor.

18.3.6 Role of the Contractor

Project contractors are required to support the communications and engagement team by attending regular meetings with the communications and engagement team during the construction period, and will be responsible for:

- Generating content about construction activities for public notifications and public meetings;
- Responding to inquiries related to their work;
- Attending community meetings and other stakeholder and engagement meetings as requested by the Project Team; and
- Going door-to-door, as and when warranted, to provide information to local residents and businesses to ensure comprehensive notification of construction activities.

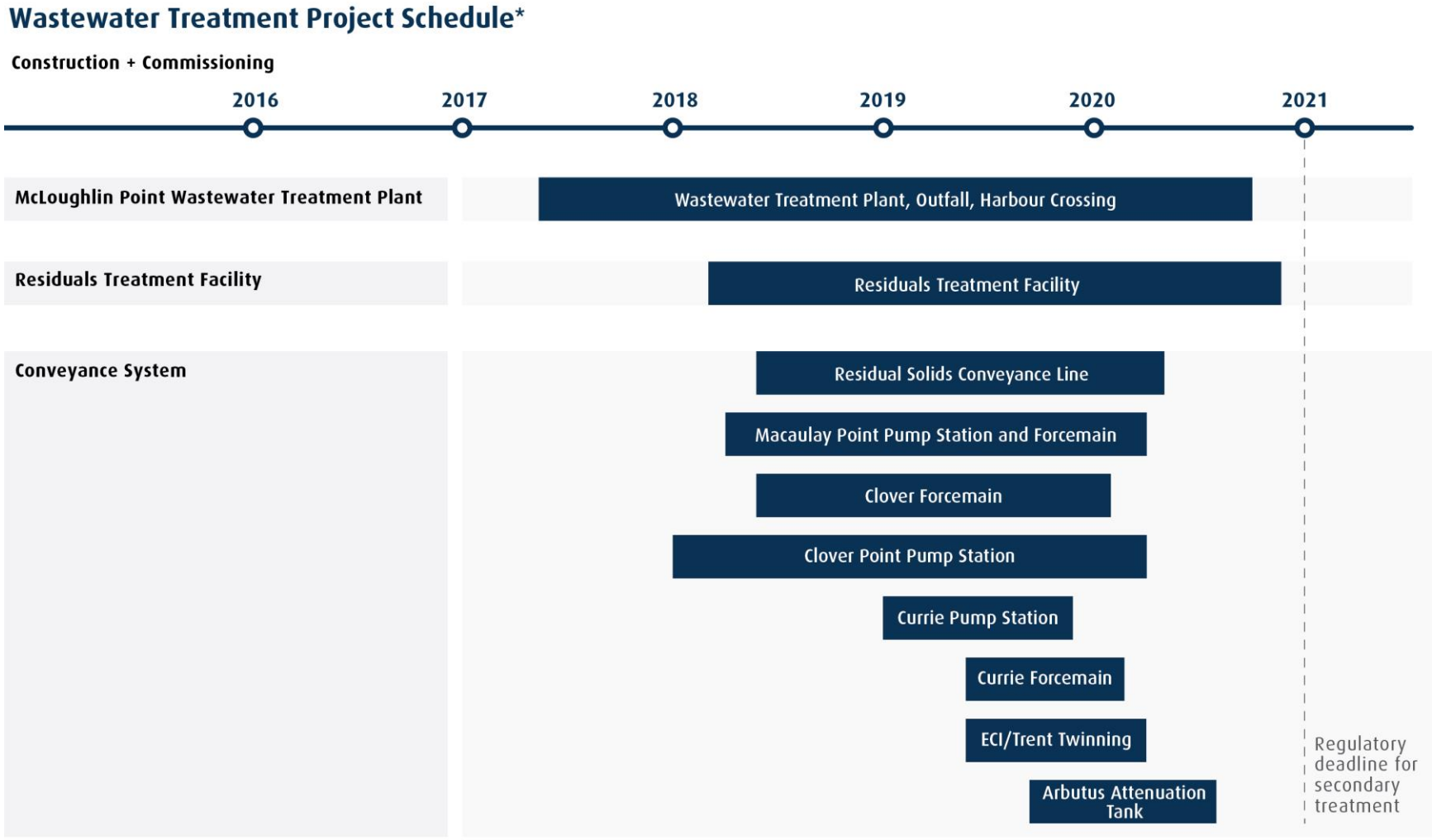
The Wastewater Treatment Project's communications and engagement team will oversee the construction communications program for all Project contractors, in order to ensure coordinated responses on behalf of the Project.

19 Key Reference Documents

Document
Core Area Liquid Waste Management Plan documents: • Core Area Liquid Waste Management Plan • Letter of Conditional Approval of Amendment 11 to the CALWMP from the Minister of Environment • Letter of Revised Conditional Approval of Amendment 11 to the CALWMP from the Minister of Environment
Corporate CRD policies and procedures including: • Occupational Health and Safety (OHS) Program Corporate Guide (formerly known as the Corporate Safety Manual) • CRD Procurement Policy • CRD Human Resources Policies including the Recruitment Selection Policy and Training and Development Policy
CRD bylaws, including: • Bylaw 4109 (the CRD Core Area Wastewater Treatment Project Board Bylaw No. 1, 2016) • Bylaw 4110 (the CRD Core Area Wastewater Treatment Project Board Delegation Bylaw No. 1, 2016). • Bylaw 4186 (the CRD Delegation Bylaw No. 1, 2017)
CRD Solid Waste Management Plan and Approvals
Funding Agreements: • Building Canada Fund Agreement • Green Infrastructure Fund Agreement • P3 Canada Fund Agreement • Provincial Funding Agreement
Project Board reports: • Final report of the Project Board with respect to its recommendation for the WTP, dated September 7, 2016 (the Final Report). • Business Case (the Business Case) to the Final Report.
Project Team Plans: • Project Charter • Risk Management Plan • Communications and Engagement Plan

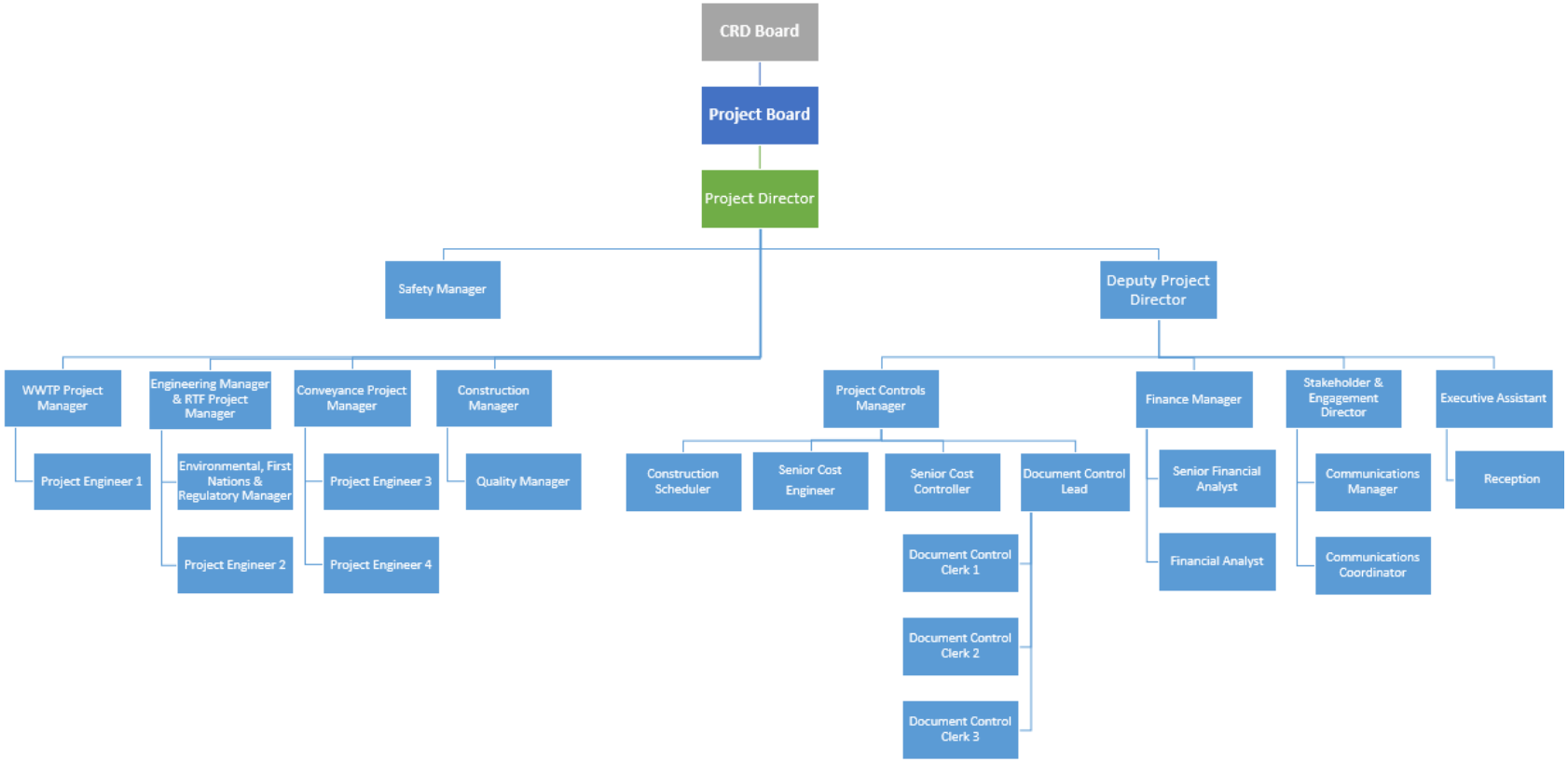
20 Appendices

1. High Level Project Schedule



* *Schedule subject to updates as project planning progresses.*

2. Organization Structure



3. CRD Organization Integration