



Wednesday, February 19, 2025, 3:00 p.m.

Board Room

155 George Street

Prince George, BC

Pages

1. Call to Order

We respectfully acknowledge the unceded ancestral lands of the Lheidli T'enneh, on whose land we live, work and play.

2. Election of Committee Chair

3. Adoption of Agenda

Recommendation:

THAT the Environment and Parks Standing Committee agenda for February 19, 2025 be adopted as circulated.

4. Adoption of Minutes

4.1 October 17, 2024 Environment and Parks Standing Committee Meeting Minutes 4

Recommendation:

THAT the Minutes of the Environment and Parks Standing Committee meeting held on October 17, 2024 be adopted as circulated.

5. Chairperson's Report

6. Reports

6.1 Recycle BC Offer Update 8

Purpose: For Information

Attachments:

1. Letter dated February 12, 2025 - Recycle BC Depot Onboarding Letter
2. Letter dated November 14, 2024 to Recycle BC regarding Consideration of Principal Depot Locations in 2025

Previous Reports:

1. Item No. 5.1, August 2024
2. Item No. 5.1, April 2024
3. Item No. 6.3, February 2024

Recommendation:

THAT the report dated February 12, 2025 regarding "Recycle BC Offer

Update” be received for information.

6.2 Contract ES-25-02 – Scrap Metal Recycling Services

49

Purpose: Consider Award of Contract

Attachments: Backgrounder

Previous Reports: Item No. 12.3, January 2025

Recommendation:

1. THAT the report dated February 7, 2025, regarding “Contract ES-25-02 - Scrap Metal Recycling Services” be received for information.

Recommendation:

2. THAT the Committee recommend to the Board that Contract ES-25-02 - Scrap Metal Recycling Services be awarded to Richmond Steel Recycling Ltd. for the period of April 1, 2025 to March 31, 2028.

6.3 Contract ES-25-03 – Caretaker Services – Chief Lake Regional Transfer Station

54

Purpose: Consider Award of Contract

Attachments: Backgrounder

Previous Reports: Item No. 12.2, January 2025

Recommendation:

1. THAT the report dated February 3, 2025 regarding “Contract ES-25-03 – Caretaker Services – Chief Lake Regional Transfer Station” be received for information.

Recommendation:

2. THAT the Committee recommend to the Board that Contract ES-25-03 – Caretaker Services – Chief Lake Regional Transfer Station be awarded to Shelton Rafferty, Owner, R and M Maintenance Services, for the total amount of \$6,000 per month (excluding taxes) from April 1, 2025 to March 31, 2028.

6.4 Earthworks Services in Support of Cell Two Development at the Foothills Boulevard Regional Landfill

59

Purpose: Consider Competitive Bid Process

Attachments: None

Previous Reports: Item No. 6.1, December 2024

Recommendation:

1. THAT the report dated February 3, 2025, regarding regarding “Earthworks Services in Support of Cell Two Development at the Foothills Boulevard Regional Landfill” be received for information.

Recommendation:

2. THAT the Committee recommend to the Board that a competitive bid process be entered into for earthworks services in support of Cell Two Development at the Foothills Boulevard Regional Landfill.

6.5 Solid Waste Asset Management Planning Consulting Services

144

Purpose: Consider Competitive Bid Process

Attachments: Backgrounder

Previous Reports: None

Recommendation:

1. THAT the report dated February 7, 2025, regarding “Solid Waste Asset Management Planning Consulting Services” be received for information.

Recommendation:

2. THAT the Committee recommend to the Board that a competitive bid process be entered into for the purpose of engaging consulting services for solid waste asset management planning.

7. **Correspondence**
8. **New Business**
9. **Adjournment**

MINUTES OF THE MEETING OF THE ENVIRONMENT AND PARKS STANDING COMMITTEE OF THE REGIONAL DISTRICT OF FRASER-FORT GEORGE HELD ON THURSDAY, OCTOBER 17, 2024 IN THE BOARDROOM, 155 GEORGE STREET, PRINCE GEORGE, BC

Directors Present: Director D. Alan, Acting Chairperson
Director J. Atkinson
Director B. Empey
Director K. Dunphy
Director C. Ramsay
Director B. Skakun
Director O. Torgerson

Directors Absent: Director L. Beckett

Also in Attendance: Director A. Kaehn
Director J. Kirk
Director V. Mobley

Staff Present C. Calder, Chief Administrative Officer
M. Connelly, General Manager of Legislative and Corporate Services
J. Gloger, Manager of Legislative Services
K. Jonkman, General Manager of Community and Development Services
S. White, General Manager of Financial Services
L. Zapotichny, General Manager of Environmental Services

Minutes Recorded and Produced by: B. Bowes, Clerk Typist III/Reception

Media: No media were in attendance.

1. Call to Order

The General Manager of Legislative and Corporate Services called the meeting to order at 9:32 a.m.

The Regional District acknowledged the unceded ancestral lands of the Lheidli T'enneh, on whose land we live, work and play.

The General Manager of Legislative and Corporate Services proceeded to do a roll call of Directors to confirm those attending remotely and those attending in person in the Boardroom.

Election of Acting Chair

M. Connelly, General Manager of Legislative and Corporate Services advised that Director Beckett, Committee Chair was absent, and that the Committee is required to elect an Acting Chair in accordance with Regional Board Procedure Bylaw No. 3267, 2022. It was further noted that Alternate Directors are not eligible to be elected as Chair; and Directors attending remotely that are members of the Committee are considered to be in attendance and are eligible to be nominated.

M. Connelly, General Manager of Legislative and Corporate Services called three times for nominations for the position of Acting Chair of the October 17, 2024 Environment and Parks Standing Committee meeting.

Director Ramsay nominated Director Alan. Director Alan accepted the nomination.

There were no further nominations.

M. Connelly, General Manager of Legislative and Corporate Services declared Director Alan elected by acclamation as Acting Chair of the October 17, 2024 Environment and Parks Standing Committee meeting.

Director Alan assumed the Chair at 9:34 a.m.

2. Adoption of Agenda (Additions/Deletions)

Moved by Empey
Seconded by Dunphy

THAT the agenda for October 17, 2024 Environment and Parks Standing Committee Meeting be adopted as circulated.

CARRIED

3. Adoption of Minutes

3.1 September 11, 2024 Environment and Parks Standing Committee Meeting Minutes

Moved by Ramsay
Seconded by Skakun

THAT the Minutes of the Environment and Parks Standing Committee meeting held on September 11, 2024 be adopted as circulated.

CARRIED

4. Chairperson's Report

The Acting Chairperson advised that there was no report.

5. Reports

5.1 Municipal Solid Waste Tipping Fees

A report was presented regarding Municipal Solid Waste Tipping Fees.

S. White, General Manager of Financial Services, responded to a query from a Director regarding charge accounts and exemptions for not for profits (NFPs) and credit limits for accounts.

L. Zapotichny, General Manager of Environmental Services, encouraged NFPs to use the Regional District's tipping fee exemption application.

Moved by Atkinson
Seconded by Torgerson

THAT the report dated October 3, 2024, regarding "Municipal Solid Waste Tipping Fees" be received for information.

CARRIED

Moved by Empey
Seconded by Dunphy

THAT the Committee recommend to the Board that the tariff rates for the deposit of municipal solid waste at Regional District solid waste facilities as set out in Schedule B attached to the report be approved.

CARRIED

Moved by Ramsay
Seconded by Skakun

THAT the Committee recommend to the Board that the changes to the charge accounts for the deposit of municipal solid waste at Regional District solid waste facilities as set out in Schedule G attached to the report be approved.

CARRIED

5.2 Caretaker Services – Bear Lake, Summit Lake and McLeod Lake Regional Transfer Stations

A report was presented regarding Caretaker Services – Bear Lake, Summit Lake and McLeod Lake Regional Transfer Stations.

Moved by Atkinson
Seconded by Skakun

THAT the report dated October 1, 2024 regarding “Caretaker Services – Bear Lake, Summit Lake and McLeod Lake Regional Transfer Stations” be received for information.
CARRIED

Moved by Atkinson
Seconded by Dunphy

THAT the Committee recommend to the Board that a competitive bid process be entered into for the provision of caretaker services at the Bear Lake, McLeod Lake, and Summit Lake Regional Transfer Stations.
CARRIED

5.3 Four-Season Waste Characterization Study

A report was presented regarding a Four-Season Waste Characterization Study.

L. Zapotichny, General Manager of Environmental Services, responded to queries from Directors regarding the possibility of upgrading the current study, common practices in providing waste characterization studies, moving to a three-season study instead of four seasons, and an estimated cost for the project.

Moved by Torgerson
Seconded by Empey

THAT the report dated October 4, 2024 regarding “Four-Season Waste Characterization Study” be received for information.
CARRIED

Moved by Torgerson
Seconded by Skakun

THAT the Committee recommend to the Board that a competitive bid process be entered into for the purpose of engaging consulting services for the preparation of a four-season waste characterization study.

Moved by Ramsay
Seconded by Atkinson

THAT the motion be amended by replacing “four-season waste characterization study” with “three-season waste characterization study”.

CARRIED

Main motion, as amended.

CARRIED

5.4 ES-22-11 Solid Waste Hauling Services - McBride and Valemount Regional Transfer Stations

A report was presented regarding ES-22-11 Solid Waste Hauling Services - McBride and Valemount Regional Transfer Stations.

Moved by Torgerson
Seconded by Atkinson

THAT the report dated October 1, 2024 regarding "ES-22-11 Solid Waste Hauling Services – McBride and Valemount Regional Transfer Stations" be received for information.

CARRIED

Moved by Torgerson
Seconded by Ramsay

THAT the Committee recommend to the Board that Contract ES-22-11 Solid Waste Hauling Services – McBride and Valemount Regional Transfer Stations be approved for a one-year contract extension for the term of January 1, 2025 – December 31, 2025.

CARRIED

5.5 ES-24-12 As and When Engineering Services Solid Waste

A report was presented regarding ES-24-12 As and When Engineering Services for Solid Waste services.

Moved by Ramsay
Seconded by Skakun

THAT the report dated September 13, 2024 regarding "ES-24-12 As and When Engineering Services Solid Waste" be received for information.

CARRIED

Moved by Empey
Seconded by Dunphy

THAT the Committee recommend to the Board that Contract ES-24-12 As and When Engineering Services Solid Waste be awarded to Tetra Tech Canada Inc. to provide Engineering Services as required to Environmental Services for the contract period of November 1, 2024 to October 31, 2027.

CARRIED

7. Adjournment

Moved by Ramsay
Seconded by Dunphy

THAT the meeting be adjourned - 9:54 a.m.

CARRIED

Chair

General Manager of Legislative and
Corporate Services



REGIONAL DISTRICT of Fraser-Fort George

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REPORT FOR COMMITTEE CONSIDERATION

TO: Chair and Members, Environment and Parks Standing Committee File No.: RECY 1.23
FROM: Laura Zapotichny, General Manager of Environmental Services
DATE: February 12, 2025
SUBJECT: Recycle BC Offer Update
SUMMARY: Purpose: For Information

Attachments:

1. Letter dated February 12, 2025 - Recycle BC Depot Onboarding Letter
2. Letter dated November 14, 2024 to Recycle BC regarding Consideration of Principal Depot Locations in 2025

Previous Reports:

1. Item No. 5.1, August 2024
2. Item No. 5.1, April 2024
3. Item No. 6.3, February 2024

RECOMMENDATION(S):

THAT the report dated February 12, 2025 regarding "Recycle BC Offer Update" be received for information.

ENTITLEMENT	HOW VOTE COUNTED
All 1 Director/1 vote	Majority

ISSUE(S):

On November 14, 2024, Environmental Services administration sent a letter to Recycle BC asking for four additional principal depots: Cummings Road Regional Transfer Station, McBride Regional Transfer Station, Vanway Regional Transfer Station, and Foothills Boulevard Regional Landfill. On February 12, 2025, Recycle BC responded to the letter and offered to onboard the Vanway Regional Transfer Station as a principal depot and the McBride Regional Transfer Station as a satellite depot.

Residents in the west end of Prince George and Electoral Area C and the residents of electoral area H outside of Valemount as well as residents in McBride, will benefit from enhanced recycling services including a convenient option for printed paper and packaging recycling, and including glass, Styrofoam, soft plastics and cartons and containers.

The Committee is not being asked to make any decisions at this time. Environmental Services Administration will be in attendance to answer questions.

RELEVANT POLICIES:

1. *Environmental Management Act*
 - establishes the requirement for regional districts to undertake solid waste management planning; and
 - provides authority for the Minister to regulate extended producer responsibility (product stewardship) initiatives.
2. *Recycling Regulation 449/2004*
 - establishes implementation of extended producer responsibility (product stewardship) programs in British Columbia.

3. 2015 Regional Solid Waste Management Plan
 - establishes stewardship programs as waste management tool; and
 - maintain multi-material drop depots as residential recycling services.
4. Policy RD-23-22: Extended Producer Responsibility Programs
 - establishes a framework that defines the Regional District’s role in providing waste diversion collection services for Extended Producer Responsibility (EPR) programs.
5. Waste Reduction Services Establishment Bylaw No. 2901, 2014
 - establishes the sub-regional service which supports the delivery of the multi-material recycling program.

STRATEGIC PRIORITIES ALIGNMENT:

- | | | | |
|--|---|--|--|
| <input type="checkbox"/> Indigenous and Intergovernmental Partnerships | <input type="checkbox"/> Organizational Strength and Adaptability | <input checked="" type="checkbox"/> Quality Community Services | <input checked="" type="checkbox"/> Environmental Stewardship and Climate Action |
| <input type="checkbox"/> Awareness and Engagement | <input type="checkbox"/> Statutory or Routine Business | | |

SERVICE RELEVANCE:

The Regional District provides solid waste services for the entire Regional District of Fraser-Fort George including waste diversion opportunities and is committed to supporting waste diversion strategies outlined in the *2015 Regional Solid Waste Management Plan* including the opportunity to receive funding through designated EPR organizations.

FINANCIAL CONSIDERATION(S):

The printed paper and packaging program is funded from the Solid Waste (3305) and Waste Reduction (3307) budgets.

Expenditures required to facilitate the Recycle BC program as well as to provide fibre only bins at nine rural transfer stations is reflected in the 3305 and 3307 budgets for the 2025 year.

OTHER CONSIDERATION(S):

Residents in Electoral Area D – Tabor Lake and Stone Creek, serviced by the Cummings Road and Buckhorn Regional Transfer Stations would not have enhanced recycling services. However, there are plans to return a fibre collection bin to each of these sites.

Residents in Electoral Area A – Salmon River - Lakes, along with these who live in the north end of Prince George would be required to utilize the already established Recycle BC Depot at the Hart Return It Bottle Depot. The Chief Lake Regional Transfer Station is on the list to receive a fibre bin.

Recycle BC has indicated that the Foothills Boulevard Regional Landfill could be considered for depot service in 2026.

DECISION OPTIONS:

1. Approve recommendation.
 - The report will be received for information.

COMMENTS:

The McBride Regional Transfer Station and the Vanway Regional Transfer Station meet all eligibility requirements under both the current Recycle BC program plan as well as the proposed Recycle BC 2022 draft stewardship plan that is still under review by the Province.

Recycle BC has provided new Master Service Agreements and Statements of Work that will be presented to the Board for consideration at the March 2025 meeting and will include the following sites as principal depots: the Valemount Regional Transfer Station, Mackenzie Regional Transfer Station, Quinn Street Regional Recycling Depot and the Vanway Regional Transfer Station. The McBride Regional Transfer Station will be included as a satellite depot.

Respectfully submitted,

“Laura Zapotichny”

Laura Zapotichny
General Manager of Environmental Services

LZ:jt



405-221 West Esplanade
North Vancouver, BC V7M 3J3

February 12, 2025

RE: Recycle BC 2025 Depot Onboarding Letter

Laura Zapotichny
General Manager of Environmental Services
Fraser-Fort George Regional District
155 George Street
Prince George, BC V2L 1P8

Via Email

Dear Laura,

Recycle BC has completed its 2025 provincial depot system analysis and has determined that the Regional District of Fraser-Fort George (RDFFG) is eligible for additional depot services in the region.

Recycle BC is a not-for profit organization responsible for residential packaging and paper product recycling throughout British Columbia (BC), servicing close to 2 million households or over 99% of BC through curbside, multi-family and/or depot services. At present there are over 230 depots collecting residential packaging and paper product under the Recycle BC program.

The analysis that has recently concluded reviewed rural and remote, as well as urban communities in BC, and considered factors such as population, the inclusion of other relevant services, distance to a larger service center and distance to an existing Recycle BC depot.

Recycle BC has concluded that the RDFFG is approved for Recycle BC depots in 2025 at the following locations, provided that all program requirements and collection standards are met:

- Vanway Regional Transfer Station, Principal Depot
- McBride Regional Transfer Station, Satellite Depot

Such depots must be staffed, secure during non-operating hours, accept all applicable categories of packaging and paper products, have the capacity to ensure only material from residential sources is collected under the Recycle BC program, and meet all other Recycle BC depot requirements.



RECYCLEBC™

If the RDFFG is interested in adding these locations to its Recycle BC Statement of Work or if you require further information please reach out at your earliest convenience. Note that Recycle BC requires a minimum of 90 days from agreement signature to service commencement. We look forward to hearing from you.

Thank you,



Martin Dickson
Collection Specialist, Collection, Recycle BC

Cc:
Brendan McShane, Director, Collection, Recycle BC
Carmen Fennell, Manager, Collection, Recycle BC



REGIONAL DISTRICT of Fraser-Fort George

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<http://www.rdffg.bc.ca>

Municipalities:

McBride
Mackenzie
Prince George
Valemount

Electoral Areas:

Chilako River-Nechako
Crooked River-Parsnip
Robson Valley-Canoe
Salmon River-Lakes
Tabor Lake-Stone Creek
Willow River-Upper Fraser
Woodpecker-Hixon

November 14, 2024

RECY 1.29

To: Martin Dickson
Collections Specialist, Collection, Interior & North

SENT VIA EMAIL: mtdickson@recyclebc.ca

**Re: Consideration of Principal Depot Locations
in the Regional District of Fraser-Fort George in 2025**

In spring of 2024, the Board for the Regional District of Fraser-Fort George (RDFFG) voted in favour of signing an offer letter from Recycle BC to partner with the agency to provide expanded services within the region for residential packaging and paper product recycling. The offer from Recycle BC was to provide three principal depots at the Valemount Regional Transfer Station, the Mackenzie Regional Transfer Station and the Quinn Street Regional Recycling Depot located in Prince George. The service became operational on September 16, 2024, with residents reporting a high degree of satisfaction with the expanded recycling services offered.

The RDFFG is located in the central interior of British Columbia, with seven electoral areas and four member municipalities (Prince George, Valemount, McBride and Mackenzie). The land area is over 50,000 square kilometres, with the RDFFG operating an extensive transfer station network to service this large area.

With the three principal depots now operational, residents in Mackenzie and Valemount saw a return of recycling services. However, there remains areas that are not serviced by a local depot, including the Village of McBride, as well as rural areas adjacent to the Prince George hub.

The RDFFG is asking for four additional principal depots and to operate them at already established transfer stations within the RDFFG solid waste network.

The four locations are all staffed, gated, fenced and have hours of operations. Each location serves as a hub for the rural populations that utilize these sites for solid waste and recycling services.

The RDFFG has provided the 2021 Canada Census numbers for residents that would be serviced by depots at these locations:

1. Cummings Road Regional Transfer Station
 - A principal depot in this location would serve residents located in Electoral Area D (Tabor Lake – Stone Creek), residents in Electoral Area F (Willow River – Upper Fraser) and residents in Electoral Area E (Hixon – Woodpecker).
 - Electoral Area D population: 4,375
 - Electoral Area F population: 1,249
 - Electoral Area E population: 533
 - i. Total population served: 6,157
2. McBride Regional Transfer Station
 - A principal depot in this location would serve the residents of the village of McBride, but also residents located in Electoral Area H (Robson Valley – Canoe) not including those located in Tete Jaune and Valemount
 - McBride Population: 588
 - Electoral Area H (does not include Valemount): 1,589
 - i. Total population served: 2,177
3. Vanway Regional Transfer Station (located on the west end of Prince George)
 - A principal depot in this location would serve the residents of Prince George who do not qualify for curbside collection and residents in Electoral Area C (Chilako River – Nechako).
 - Electoral Area C population: 1,473

- i. Total rural population served: 3,603*
4. Foothills Boulevard Regional Landfill (located on the north end of Prince George)
- A principal depot in this location would service residents of Prince George who do not qualify for curbside collection and residents in Electoral Area A (Salmon River – Lakes) and Electoral Area G (Crooked River – Parsnip).
 - Electoral Area A population: 3,471
 - Electoral Area G population: 365
- i. Total rural population served: 3,836*

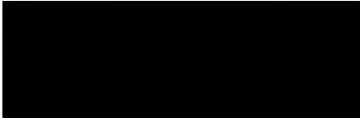
These four locations are some of the busiest sites within the RDFFG transfer station network. With the Recycle BC program now available at three locations, many residents have been asking when the program will be coming to other sites.

The RDFFG is committed to working on reducing the amount of waste going to landfills, including providing access to stewardship programs to as many residents as possible under the Extended Producer Responsibility model in British Columbia.

A key objective in the approved 2015 Regional Solid Waste Management Plan was the on-going improvement of waste diversion. One of the issues that the Plan identified was that the residential recycling services currently provided in the RDFFG transfer station network does not receive funding through designated EPR organizations like Recycle BC (formally Multi-Material BC) and consequently consumers pay for recycling twice through the purchase of products and again through their taxes (used by the RDFFG to fund their multi-material recycling program). Adding four more principal depots to the RDFFG transfer station network would significantly increase the access, residents in this region have, to residential packaging and printed paper recycling.

If these four locations were approved as principal depots, along with the three principal depots already in operation, all member municipalities and all electoral areas within the Regional District of Fraser-Fort George would be serviced by Recycle BC.

Yours truly,



Laura Zapotichny
General Manager of Environmental Services

Telephone: 250-960-4400

LZ:jt



REGIONAL DISTRICT of Fraser-Fort George

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REPORT FOR COMMITTEE CONSIDERATION

TO: Chair and Members, Environment and Parks Standing Committee File No.: RECY 1.23

FROM: Laura Zapotichny, General Manager of Environmental Services

DATE: August 2, 2024

SUBJECT: Recycle BC Update

SUMMARY: Purpose: For Information
Attachments: Backgrounder
Previous Reports:
 1. Item 5.1, April 2024
 2. Item 6.3, February 2024

RECOMMENDATION(S):

THAT the report dated August 2, 2024, regarding "Recycle BC Update" be received for information.

ENTITLEMENT	HOW VOTE COUNTED
All 1 Director/1 vote	Majority

ISSUE(S):

At the April 2024 Board Meeting, the Board agreed to the offer from Recycle BC to operate three principal depots at the Quinn Street Regional Recycling Depot, the Valemount Regional Transfer Station, and the Mackenzie Regional Transfer Station and Select Waste Landfill. The Chair and Corporate Officer were authorized to execute the contractual agreement with Recycle BC by signing the Master Service Agreement and Statement of Work with Recycle BC.

With the contractual agreements signed, Environmental Services Administration (ESA) has been working on meeting the operational needs of each site with an anticipated opening of the Recycle BC program on September 16, 2024.

There are several key areas that must be addressed before the program can begin, including but not limited to: education and signage, collection and storage, training of site attendants and infrastructure.

Recycle BC will be providing the initial signage for each site as well as all the informational brochures and pamphlets for site users. Once the sites are operational, ESA will determine if additional signage is required. Recycle BC is working on an informational update to be released to the public and site users to be supplemented with advertising by the RDIFFG.

Collection of the recyclables will be in 'megabags' that are stored in refurbished metal containers, provided by the RDIFFG. The megabags are supplied by Recycle BC. At the Quinn Street Regional Recycling Depot, two forty-yard roll off containers will be supplied by Recycle BC for cardboard and mixed paper product, as it is anticipated that the greatest volume of material will be collected at this site and under those waste streams.

ESA is working with Recycle BC to develop training for contractors and staff. ESA will be providing on-going support and training to site attendants once the program begins.

One of the largest pieces of onboarding Recycle BC has been ensuring that the proper infrastructure is in place for the program start date of September 16, 2024. This includes machinery and/or equipment to move full megabags of recyclables and storage for tools, equipment and filled megabags.

The Committee is not being asked to make any decisions at this time. Environmental Services Administration will be in attendance to answer questions.

RELEVANT POLICIES:

1. *Environmental Management Act*
 - establishes the requirement for regional districts to undertake solid waste management planning; and
 - provides authority for the Minister to regulate extended producer responsibility (product stewardship) initiatives.
2. *Recycling Regulation 449/2004*
 - establishes implementation of extended producer responsibility (product stewardship) programs in British Columbia.
3. 2015 Regional Solid Waste Management Plan
 - establishes stewardship programs as waste management tool; and
 - maintain multi-material drop depots as residential recycling services.
4. RD-23-22: Extended Producer Responsibility Programs
 - establishes a framework that defines the Regional District’s role in providing waste diversion collection services for Extended Producer Responsibility (EPR) programs.
5. Waste Reduction Services Establishment Bylaw No. 2901, 2014
 - establishes the sub-regional service which supports the delivery of the multi-material recycling program.

STRATEGIC ALIGNMENT:

- Climate Action
 Economic Health
 Indigenous Relations
 Strong Communities
 None – Statutory or Routine Business

SERVICE RELEVANCE:

The Regional District provides solid waste services for the entire Regional District of Fraser-Fort George including waste diversion opportunities and is committed to supporting waste diversion strategies outlined in the *2015 Regional Solid Waste Management Plan* including the opportunity to receive funding through designated EPR organizations.

FINANCIAL CONSIDERATION(S):

The Multi-Material Recycling Service program is funded from the 3305 - Solid Waste and the 3307 - Waste Reduction budgets.

Expenditures required to facilitate program startup and ongoing operational costs once the principal depots are launched are covered by these budgets. Given the temporary pause in recycling services as of May 31, 2024, there is sufficient funding to redirect to the required expenditures.

OTHER CONSIDERATION(S):

N/A

DECISION OPTIONS:

1. Approve recommendation:
 - report will be received.

COMMENTS:

Environmental Services Administration continues to work with contractors, staff and Recycle BC to ensure the three principal depots are ready for the start of the program on September 16, 2024. This includes ensuring that staff and contractors are trained, signage and infrastructure is in place and the public is informed of the opening of the three Recycle BC depots.

Once the three principal depots are operational, Environmental Services Administration will work with Recycle BC for additional principal depots in 2025 as well as identifying the locations where satellite depots may be located.

Respectfully submitted,

“Laura Zapotichny”

Laura Zapotichny
General Manager of Environmental Services

LZ:jt



BACKGROUND

Recycle BC is the not-for-profit stewardship agency that is responsible for residential packaging and paper product recycling throughout British Columbia. Recycle BC ensures packaging and paper product is collected from households and recycling depots, sorted and responsibly managed and recycled.

There are three locations that are set to become principal depots on September 16, 2024. The Mackenzie Regional Transfer Station and Select Waste Landfill (Mackenzie), the Valemount Regional Transfer Station (Valemount) and the Quinn Street Regional Recycling Depot (Quinn Street).

Environmental Services Administration (ESA) has been working on meeting the operational requirements to ensure these sites are able to receive recycling material starting on that date.

Mackenzie:

With the approval of the Recycle BC program, the recycle bins that had been in the town centre were removed on May 31, 2024. There have been concerns from residents about accessibility to recycling services, as the Recycle BC program requirements dictate that the program is operated from the Mackenzie Regional Transfer Station.

ESA is proposing an hour increase to the site. The site currently is open five days a week: Sunday through Thursday, 9am – 5pm. The proposed hour change would see the site open Monday through Friday, 9am – 5pm, Saturday and Sunday, 9am – 3pm and open from 9am – 4pm on the following holidays: Easter Monday, Victoria Day, Labour Day and Thanksgiving Day. Opening the site seven days a week provides flexibility for residential users and increases access to the site by 14 hours per week, year-round.

To meet the infrastructure needs of Recycle BC, ESA will be relocating a second skid-steer from the Foothills Boulevard Regional Landfill site. This piece of equipment is required to move full megabags that are on skids (wooden pallets).



The megabags will be in refurbished recycling bins, with proper signage for residential users. Once the megabag is full, staff will 'tag' the bag, and then set it aside in a C-Can purchased for storage of these materials until pick up can be arranged by the approved Recycle BC hauler.

The long-term plan for the Mackenzie site, is to replicate the Bulkley-Nechako Regional District's Quonset-style hut recycling depot, which will include a covered, sheltered area for residents to do their recycling as well as storage for full megabags. This will be reflected in the 2025 budget, with implementation in late spring/early summer 2025.



The RDFFG will continue to operate the cardboard compactor at the Mackenzie site as a recycling option for commercial customers.

Valemount:

At this time, ESA is not proposing any hour changes at the Valemount Regional Transfer Station.

The long-term plans with the Valemount site include the closure of the old landfill site, which will necessitate the relocation of the metal and yard and garden recycling areas to a newly logged and cleared area adjacent to the transfer station bin area. When that new area is ready, the intention is to make this the permanent site for managing the Recycle BC program, including a Quonset-style hut as pictured above.

The Regional District is currently engaged with the Simpcw First Nation and the Ministry of Forests to obtain a cut permit to begin this work. Pending the ongoing engagement, ESA anticipates a potential start date of the Valemount rural landfill closure project in mid-summer 2025.

Before the start date of September 16, 2024, ESA is working on a staging area for the bins that will house the megabags at the site. These bins will have all five recyclable streams in them for residential usage. This includes the relocation of the swap shed and better lines of site for the site attendants, as well as ease of access for residential users of the site.

ESA has secured a storage container for full megabags, as well as a rental agreement for a small skid-steer for usage on the site and is repurposing an ATV-type multi-purpose vehicle for staff usage on the site. These pieces of equipment will help the staff to complete waste screening, customer service delivery and site management.

The RDFFG will continue to operate the cardboard compactor at the Valemount site as a recycling option for commercial customers.

Quinn Street:

The Quinn Street Regional Recycling Depot has historically been the location within Prince George that sees the highest volume of recycling collected. ESA anticipates this trend to resume when the site begins to accept Recycle BC products on September 16.

The site is currently open seven days a week, Sunday through Saturday, from 9am – 5pm from April 1 to October 31. ESA is proposing that the site maintain these hours of operation year-round. Opening the site seven days a week provides flexibility for residential users and increases access to the site by 16 hours per week, from November 1 to March 31 each year.

The Quinn Street site is currently operated by a contractor. The term for the Caretaker Services contract began on January 1, 2024. In meeting with the current contractor, they are prepared to hire additional staff to meet the requirements of the Recycle BC program as well as ensure that the proper equipment needed to manage the product is on site.

If the hour change is approved for the Quinn Street site, ESA will work with the current contractor to secure a proposed scope change to the current contract. This additional expense will be presented to the Board at the September 2024 meeting.

Other

Recycle BC will be providing the initial signage for each site. If additional signage is required, then the RDFFG will have to purchase them. Recycle BC will also provide megabags, bag 'tags,' and educational materials for staff and contractors to give out to users. Recycle BC is also working on public messaging for the anticipated depot opening on September 16, 2024.

ESA will continue to support and train staff and contractors on materials accepted, sorting of materials and contamination.



**REGIONAL DISTRICT
of Fraser-Fort George**

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**REPORT FOR
COMMITTEE CONSIDERATION**

TO: Chair and Members, Environment and Parks Standing Committee File No.: RECY 1.23
 FROM: Laura Zapotichny, General Manager of Environmental Services
 DATE: April 8, 2024
 SUBJECT: Recycle BC Principal Depot Offer
 SUMMARY: Purpose: Consider Offer from Recycle BC for Three Principal Depots
Attachments:
 1. Backgrounder
 2. Depot Onboarding Offer Letter dated April 5, 2024
 3. Recycle BC Depot Onboarding Guide 2022
Previous Reports: Item 6.3, February 2024

RECOMMENDATION(S):

1. THAT the report be received.
2. THAT the Committee recommend to the Board that the Regional District of Fraser-Fort George (RDFFG) accept the offer from Recycle BC to operate three principal depots at the Quinn Street Regional Recycling Depot, the Valemount Regional Transfer Station, and the Mackenzie Regional Transfer Station.
3. THAT the Committee recommend to the Board that the Chair and Corporate Officer be authorized to execute the contractual agreement with Recycle BC by signing the Master Service Agreement and Statement of Work with Recycle BC.

ENTITLEMENT	HOW VOTE COUNTED
All 1 Director/1 vote	Majority
All 1 Director/1 vote	Majority
All 1 Director/1 vote	Majority

ISSUE(S):

At the February 22, 2024 Board Meeting, Environmental Services Administration (ESA) presented three options for consideration for the future administration and operations of the Multi-Material Recycling Service as the current service provider announced that they would not be continuing this service after the contract expires May 31, 2024.

At this meeting, ESA was authorized to enter into negotiations with Recycle BC for the collection, management and marketing of Packaging and Paper Product (PPP) recycling in the Regional District of Fraser-Fort George under the *Recycling Regulation's Extended Producer Responsibility (EPR)* policy.

Recycle BC has two types of service provision: curbside collection and depot operations. Recycle BC has operated the curbside collection model in the City of Prince George since 2014 and will continue to do so independent of the City of Prince George and the RDFFG.

There are two types of depots under the Recycle BC model: principal depots and satellite depots. With a principal depot, Recycle BC is responsible for:

- the provision of bins for collection;
- the hauling of collected recyclables to a multi-sort facility; and,
- the processing and marketing of all collected recyclables.

Satellite depots operate similarly, though the depot operator (the RDFFG if offer is accepted) is responsible for bin provision and hauling costs to the closest principal depot.

The offer from Recycle BC is for the RDFFG to become a principal depot collector at three sites: Quinn Street Regional Recycling Depot, Valemount Regional Transfer Station and the Mackenzie Regional Transfer Station.

If the offer from Recycle BC is accepted, Environmental Services Administration will work with Recycle BC to sign a Master Services Agreement and a Statement of Work. These two documents would form the contractual relationship between Recycle BC and the RDFFG.

The Committee is being asked to recommend to the Board that the Regional District of Fraser-Fort George accept the offer from Recycle BC to operate three principal depots at the Quinn Street Regional Recycling Depot, the Valemount Regional Transfer Station, and the Mackenzie Regional Transfer Station and that the Chair and Corporate Officer be authorized to execute the contractual agreement with Recycle BC by signing the Master Service Agreement and Statement of Work with Recycle BC.

Environmental Services Administration will be in attendance to provide a presentation on the service proposal and the agreement arrangements.

RELEVANT POLICIES:

1. *Environmental Management Act*
 - establishes the requirement for regional districts to undertake solid waste management planning; and
 - provides authority for the Minister to regulate extended producer responsibility (product stewardship) initiatives.
2. *Recycling Regulation 449/2004*
 - establishes implementation of extended producer responsibility (product stewardship) programs in British Columbia.
3. 2015 Regional Solid Waste Management Plan
 - establishes stewardship programs as waste management tool; and
 - maintain multi-material drop depots as residential recycling services.
4. RD-23-22: Extended Producer Responsibility Programs
 - establishes a framework that defines the Regional District's role in providing waste diversion collection services for Extended Producer Responsibility (EPR) programs.
5. Waste Reduction Services Establishment Bylaw No. 2901, 2014
 - establishes the sub-regional service which supports the delivery of the multi-material recycling program.

STRATEGIC ALIGNMENT:

- Climate Action
 Economic Health
 Indigenous Relations
 Strong Communities
 None – Statutory or Routine Business

SERVICE RELEVANCE:

The Regional District provides solid waste services for the entire Regional District of Fraser-Fort George including waste diversion opportunities and is committed to supporting waste diversion strategies outlined in the *2015 Regional Solid Waste Management Plan* including the opportunity to receive funding through designated EPR organizations.

FINANCIAL CONSIDERATION(S):

The Multi-Material Recycling Service program is funded from the 3305- Solid Waste and the 3307- Waste Reduction budgets. In the 2024 budget, \$459,000 was approved for multi-material recycling services at the Vanway Regional Transfer Station, Quinn Street Regional Recycling Depot and the Foothills Boulevard Regional Landfill and \$510,000 was approved for the rural transfer stations that operate multi-material recycling bins.

OTHER CONSIDERATION(S):

The first step in the new service delivery model with Recycle BC is accepting the offer for three principal depot locations. The anticipated timeline for the implementation and operation of the three principal depots identified is December 31, 2024. Once these depots are established, Environmental Services Administration can work with Recycle BC to identify approved satellite depots within the transfer station network.

There is no proposed timeline for when satellite depots will be operational; however, the RDFFG will work with Recycle BC to expedite the high priority sites, including the McBride Regional Transfer Station, the Foothills Boulevard Regional Landfill, the Vanway Regional Transfer Station and the Cummings Road Regional Transfer Station. Any decision for a transfer station to become a satellite depot would come back before the Board.

DECISION OPTIONS:

1. Approve recommendation:

- a recommendation will be made to the Board that the Regional District of Fraser-Fort George accept the offer from Recycle BC to operate three principal depots at the Quinn Street Regional Recycling Depot, the Valemount Regional Transfer Station and the Mackenzie Regional Transfer Station
- a recommendation will be made to the Board that the Chair and Corporate Officer be authorized to execute the contractual agreement with Recycle BC by signing the Master Service Agreement and Statement of Work with Recycle BC

Other Option:

- a. do not accept Recycle BC's offer for three principal depots in the RDFFG's solid waste services network.
 - this would result in no multi-material recycling services within the RDFFG's solid waste services network

COMMENTS:

With the Multi-Material Recycling Service Agreement set to expire, a new service delivery model must be found if this service is to continue within the RDFFG transfer station network.

The *Extended Producer Responsibility Policy* under the *BC Recycling Regulation* is intended to shift the cost of recycling away from local governments and taxpayers and onto producers and consumers. Recycle BC is the appointed stewardship agency in British Columbia that is mandated to manage packaging and paper product recycling.

Partnering with Recycle BC would see a change in how the service is delivered in the RDFFG's transfer station network, with a reduction of this service at some sites, but an expansion at others. Further, it would shift some of the costs of this program from the RDFFG to Recycle BC as is intended under the *Recycling Regulation*.

Environmental Services Administration recommends that the Committee recommend to the Board to accept the offer from Recycle BC to operate three principal depots at the Quinn Street Regional Recycling Depot, the Valemount Regional Transfer Station and the Mackenzie Regional Transfer Station and authorize the Chair and Corporate Officer to execute the contractual agreement with Recycle BC by signing the Master Service Agreement and Statement of Work with Recycle BC.

Respectfully submitted,

"Laura Zapotichny"

Laura Zapotichny
General Manager of Environmental Services

LZ:jt



BACKGROUNDER

Recycle BC is the not-for-profit stewardship agency that is responsible for residential packaging and paper product recycling throughout British Columbia. Recycle BC ensures packing and paper product is collected from households and recycling depots, sorted and responsibly managed and recycled.

Under the Recycle BC model, there are two types of depots: principal and satellite. All depots must collect a minimum of six collection categories. The individual categories chosen by the depot are approved once included in the Statement of Work between Recycle BC and the depot operator.

Numeric Category Name	Material Type
Category 1	Printed Paper
Category 2	Corrugated Cardboard
Category 3 (a)	Cartons and Paper Cups
Category 3 (b)	Paper Packaging
Category 4	Flexible Plastics
Category 5	White Foam Packaging
Category 5	Coloured Foam Packaging
Category 6	Plastic Containers
Category 7	Metal Containers
Category 8	Glass Bottles and Jars
Categories 1, 2 & 3(b)	Mixed Paper and Cardboard
Categories 3 (a), 6 & 7	Mixed Containers

In the current Multi-Material Recycling Service model, the RDIFFG only collects cartons and containers, mixed paper, and cardboard.

Becoming a Recycle BC depot would increase the number of material categories that are collected including foam packaging, flexible plastics, and glass bottles and jars. There is currently nowhere to recycle these materials in the three member municipalities (Mackenzie, Valemount and McBride).

In each depot model, the same amount of material categories must be collected and the same criteria for operating a depot apply; however, at a satellite depot, the owner of the depot is responsible for bin provision and hauling to a principal depot. Once material from a satellite depot arrives at the principal depot, Recycle BC is responsible for the hauling, processing, and marketing of those materials.

A local government wishing to partner with Recycle BC must first establish principal depots with them. Once those depots are established, the RDIFFG would work with Recycle BC to identify potential sites that could become satellite depots, including cost modelling for bringing those sites onboard.

CRITERIA FOR OPERATING A RECYCLE BC PRINCIPAL DEPOT

To qualify as a principal depot operator, the following criteria must be met:

- a minimum population of 1000 permanent residents within the service catchment area of the community;
- an already established garbage collection;

- a permanent grocery store, that the community is located more than a 40 km drive from an incorporated municipality with a minimum population of 10,000 permanent residents, as measured by the distance between a central location within the commercial center of the municipality to a central location within the commercial center of the community (or its closest approximation); and
- that the community is located more than a 40 km drive from a Recycle BC depot, as measured from the closest Recycle BC depot to a central location within the commercial center of the community (or its closest approximation).

Recycle BC ultimately makes the decision as to which sites they will provide an offer to become a principal depot.

When operating a principal depot for Recycle BC, there are several criteria that depot operators must meet. They include:

- establishing set hours of operation;
- fully staffing the depot collection area when open;
- securing the depot when closed to customers;
- clean up of spilled materials;
- ensuring collected materials are protected from the elements;
- identifying and diverting 'out of scope' materials from institutional, commercial and industrial (ICI) sources; and,
- mitigating contamination to 3% or less, which is determined by conducting random audit samples.

The Quinn Street Regional Recycling Depot, the Valemount Regional Transfer Station, and the Mackenzie Regional Transfer Station all meet these criteria. Additional training for staff and contractors will be required.

CURRENT COSTS FOR THREE PRINCIPAL DEPOT LOCATIONS

The 2023 costs to operate the three sites that have been identified as principal depots are tabulated below:

Site	Hauling	Processing	Bin Rental	Total
Quinn Street Regional Recycling Depot	\$84,084	\$46,266	\$11,025	\$141,375
Mackenzie Regional Transfer Station	\$120,056	\$13,814	\$11,025	\$144,895
Valemount Regional Transfer Station	\$53,161	\$17,926	\$4,410	\$75,497
Totals	\$257,301	\$78,006	\$26,460	\$361,767

The costing provided above is based on market prices from three years ago. If the RDFFG were to tender for the same service, it is likely that the costs for the services listed above would be higher than in the table.

If the RDFFG agrees to these three sites becoming principal depots these are costs borne by Recycle BC.

POTENTIAL OPERATING IMPACTS WITH RECYCLE BC PARTNERSHIP

STAFFING

One of the biggest potential impacts to a partnership with Recycle BC is ensuring that there are adequate staffing levels at the depots.

“A Depot is considered to be “fully staffed” when there are a sufficient number of staff members that the staff are able to (i) regularly check the Containers into which Customers place In-Scope PPP throughout the period of time the Depot is open to Customers, (ii) instruct and direct Customers to place In-Scope PPP in the appropriate Containers or locations, (iii) promptly and regularly remove items that are not In-Scope PPP, (iv) promptly and regularly remove items which Customers did not properly place in the appropriate Containers or locations, (v) communicate with Customers about contamination problems or improperly sorted In-Scope PPP and (vi) otherwise comply with the requirements of this Agreement.”

There are also numerous Customer Service requirements including:

- contractor being responsible for placing signage to assist Customers;

- contractor providing a phone number for customers to call during regular working hours with in-person service and an answering voice mail service for after-hours inquiries;
- maintaining a 24-hour emergency telephone number for use by Recycle BC;
- maintaining sufficient staff to answer phone calls and handle complaints;
- maintaining a log of the complaints and requests of customers;
- responding to complaints within 24 hours of receipt; and,
- ensuring that the complaint logs are available for inspection by Recycle BC during office hours.

In the Statement of Work, Recycle BC outlines their reporting requirements including a complete inventory of the equipment being used by the Contractor to perform the Depot Collection Services, inspections records of each Depot with tonnages and dates on which the Designated Post-Collection Service Provider removed the In-Scope PPP from the Depot, Customer Communications to the Depot Collection Services, provide two reports on associated collection metrics and provide four ad-hoc reports at the request of Recycle BC.

The three identified sites are all currently staffed, with set operational hours. These hours may be adjusted if demand requires, as well as additional staff or contractors may be required to meet the staffing requirements in the Statement of Work. Additionally, there is administrative staff that could potentially take on some of the work outline in the reporting and customer services expectations, but it is possible that an additional staff member may be required to manage the reporting requirements.

HOURS OF OPERATION

All three sites currently operate reduced hours during the winter, with the Mackenzie site only open five days a week. If the offer from Recycle BC is accepted, it may be necessary to open the sites six or seven days a week to maximize the amount of product recovered and ensure the sites are safe for site users.

QUINN STREET: LONG-TERM SITE VIABILITY

Establishing the Quinn Street Regional Recycling Depot as a principal depot for Recycle BC will require an evaluation of the long-term viability of the Quinn Street site. There are concerns about the increased traffic to the site from residential users as well as the site layout, capacity, and the desire of the City of Prince George to have that site back for expansion of their Public Works yard.

Additionally, if other transfer station sites within the region were to become satellite depots, all materials collected within the Prince George region would come to the Quinn Street site as it is the principal depot for storage before collection. The post-consumer collector would pick up all the collected recyclables from this site, increasing the commercial traffic in and out of the Quinn Street site.

Collaboration with the staff at the City of Prince George would be key in developing a new location for a regional or principal recycling depot in the downtown core as well as determining the capital investment necessary for such a site from each organization.

FEES AND EDUCATIONAL TOP UP

In the Statement of Work for Depot Collection Service, Recycle BC will pay Contractors the following amounts for Household In-Scope PPP collected, pursuant to the Statement of Work and made available to the Designated Post-Collection Service Provider for pick-up at a Principal Depot.

- (a) The selected (as indicated by an x in the associated check box) per tonne amounts (including, if selected, the additional baled amount), to be invoiced and paid pursuant to the claims submission process in accordance with the terms of the Agreement.

PPP Description Categories	Materials	Depot Collection Financial Incentive		
		Depot in a Community Without PPP Curbside/Multi-Family Collection	Depot in a Community With PPP Curbside/Multi-Family Collection	Additional Incentive If Baled
		(\$/tonne)	(\$/tonne)	(\$/tonne)
Category 1	Printed Paper			
Category 2	Corrugated Cardboard	<input type="checkbox"/> \$138.16	<input type="checkbox"/> \$94.20	<input type="checkbox"/> + \$115.50
Category 3(b)	Paper Packaging			
Category 3(a)	Cartons and Paper Cups			
Category 6	Plastic Containers	<input type="checkbox"/> \$265.33	<input type="checkbox"/> \$141.30	<input type="checkbox"/> + \$115.50
Category 7	Metal Containers			
Category 4	Plastic Bags and Overwrap	<input type="checkbox"/> \$1,250.00	<input type="checkbox"/> \$1,250.00	<input type="checkbox"/> + \$660.00
Category 5	White Foam Packaging	<input type="checkbox"/> \$2,000.00	<input type="checkbox"/> \$2,000.00	
Category 5	Coloured Foam Packaging	<input type="checkbox"/> \$2,000.00	<input type="checkbox"/> \$2,000.00	
Category 8	Glass Bottles and Jars	<input type="checkbox"/> \$90.00	<input type="checkbox"/> \$90.00	
Category 9	Other Flexible Plastic Packaging	<input type="checkbox"/> \$1,250.00	<input type="checkbox"/> \$1,250.00	<input type="checkbox"/> + \$660.00

Under this fee structure, the Mackenzie and Valemout sites would qualify for the “Depot in a community without PPP curbside/Multi-Family Collection” pricing since neither community has curbside Recycle BC pickup. The Quinn Street site would qualify for financial incentives in the second column.

Currently, the RDFFG is paying the full cost to process and market recyclables collected through the Multi-Material Recycling Services program. Under the Recycle BC model, the RDFFG would receive financial compensation for materials collected.

There is also the opportunity for the RDFFG to apply for additional funds to help offset the education of residential users. While many users are familiar with the three waste streams currently collected – mixed paper, cardboard and cartons and containers – a partnership with Recycle BC would include additional waste streams.

- (b) If selected (as indicated by an x in the associated check box) the Resident Education Top Up amount as set out in the table below times the Depot Only Baseline to be invoiced and paid in arrears, in equal quarterly payments, provided that Contractor has submitted all applicable claims. The Depot Only Baseline will initially be [●] and may be adjusted from time to time as set forth below.

	Top Up available to local governments accepting Depot Collection incentive	\$ per Depot Only Household per Year
<input type="checkbox"/>	Resident Education Top Up	\$0.75

In this Attachment 5:

“Depot Only Baseline” means the number of Depot Only Households in Contractor’s jurisdiction.

“Depot Only Household” means a self-contained residential dwelling unit located in Contractor’s jurisdiction that (i) in the case of a curbside household, does not receive curbside collection from any entity or (ii) in the case of a multi-family household, does not receive multi-family collection from Contractor or Recycle BC (including, for the avoidance of doubt, any contractor who has entered into an agreement to provide multi-family collection for or on behalf of Recycle BC).

On an annual basis on a date to be determined by Recycle BC, and at such other time as the parties may agree, Contractor will, in good faith, report and attest (in a form acceptable to Recycle BC) as to the then-current Depot Only Baseline. Recycle BC may also provide evidence of the then-current Depot Only Baseline. Based on Contractor’s attestation and the evidence provided by Recycle BC, Recycle BC and Contractor will work in good faith to mutually agree on the Depot Only Baseline. Any Dispute in establishing the foregoing will be resolved by the Dispute resolution process under the Agreement.

Without limiting Contractor’s obligations under this Statement of Work (including without limiting the cost Contractor is required to incur to perform such obligations), the Resident Education Top Up amount must be used for the purpose of providing resident education in respect of the Depot Collection Services.

Requesting educational top ups will be a priority for Environmental Services Administration to help off-set these costs when bringing on this program and new material categories. There will be significant work to educate the public about the acceptance of residential versus industrial, commercial, and institutional waste as ICI is not accepted in the Recycle BC program and ensure compliance so that RDFFG avoids Service Level Failures with Recycle BC as a Depot Collector.

SERVICE LEVEL FAILURES

Recycle BC is the appointed stewardship agency responsible for the collection of residential packaging and paper product recycling. As such, they do not collect or accept material from the industrial, commercial, or institutional waste stream.

The Statement of Work outlines the Service Level Failures and penalties associated with the identified failures by the Contractor.

Contractor will incur the following Service Level Failure Credits on the following Service Level Failures; provided, however, that the aggregate amount of Service Credit Level Failures in respect of any calendar year shall not exceed the aggregate amount of Fees payable to Contractor in respect of such calendar year:

	Service Level Failure	Service Level Failure Credit
1	Failure to clean-up or collect materials that have spilled outside the Depot boundary within 2 hours.	Twice the cost of cleanup incurred by Recycle BC (if Recycle BC performs the cleanup) and \$500 per incident (regardless of who performs the cleanup).
2	Pick up by the Designated Post-Collection Service Provider of materials that contain more than 3% by weight of Not Accepted Materials.	\$5,000 per weigh-scale ticketed load, provided that the aggregate Service Level Failure Credit for this Service Level Failure in respect of any calendar year shall not exceed \$120,000.
3	Contractor delivers In-Scope PPP collected at a Depot to any person or facility (including without limitation a landfill, incinerator or energy recovery facility) other than the Designated Post-Collection Service Provider or otherwise disposes of any In-Scope PPP collected at a Depot without the prior written authorization of Recycle BC.	\$25,000 per incident.

The RDFFG intends to continue to provide an ICI cardboard collection option in Mackenzie, McBride and Valemout in the form of the cardboard compactors. These compactors were installed in 2021 and will provide service to ICI customers in those locations.

In Prince George, commercial customers are already directed to return their cardboard to the Cascades Recovery+ plant.

FUTURE OPTIONS: SATELLITE DEPOTS

Once principal depots are established, the RDFFG can negotiate with Recycle BC for the inclusion of other locations as satellite depots. At satellite depot locations, the RDFFG would have all the same responsibilities and obligations as they do operating principal depots, but additionally, the RDFFG would be responsible for the bin provision at the depot locations, as well as the transportation costs of collected In-Scope materials to a principal depot.

The table tabulates the tonnage collected at the other twelve locations that had multi-material recycling bins in 2023. There are no guarantees that Recycle BC would accept any or all of these locations and they would be evaluated on a site-by-site basis and the capital cost to Recycle BC to accept additional In-Scope materials at the principal depots.

Some locations do not meet the Recycle BC depot standards because of lack of staffing and security. Other locations are too small to expand.

The possibility of expanding Recycle BC would have to be considering in terms of capital costs (providing bins and collection containers), tonnage, hauling costs to the nearest principal depot, infrastructure upgrades and staffing requirements.

Location	2023 Tonnage Collected
Vanway Regional Transfer Station	263
Foothills Boulevard Regional Landfill	193
Cummings Road Regional Transfer Station	57
McBride Regional Transfer Station	53
Shelley Regional Transfer Station	45
Chief Lake Regional Transfer Station	24
Buckhorn Regional Transfer Station	31
West Lake Regional Transfer Station	11
Willow River Regional Transfer Station	7.6
Berman Lake Regional Transfer Station	5.9
Hixon Regional Transfer Station	5.1
Dunster Regional Transfer Station	1.2

Environmental Administration has identified the top six potential sites that could be considered for satellite depots, but discussions with Recycle BC would have to take place to determine their acceptance of these sites.

The Buckhorn Regional Transfer Station has no room for expansion and no space for additional product categories.

The Dunster Regional Transfer Station is not staff, fenced, gated or secured and does not have regular operating hours.

The Chief Lake Regional Transfer Station is only fifteen minutes from the Foothills Boulevard Regional Landfill and the Hart Return-it Depot. The Hart Return-it Depot is already an established Recycle BC depot and it may be possible to secure the Foothills site as a satellite. It is unlikely that Recycle BC would accept another depot in such close proximity to two others.

Similarly, the Shelley Regional Transfer Station and the Cummings Road Regional Transfer Station are less than 20km apart.

With the Quinn Street Regional Recycling Depot operating at a Principal Depot, as well as three private depot locations and curbside collection, ESA is unsure if Recycle BC would agree to two additional satellite depots within the City of Prince George (Vanway and Foothills).

Recycle BC has expressed high interest in bringing the McBride Regional Transfer Station on as a satellite depot. The site meets all the requirements for depot service. Materials collected here would be hauled to the Valemount Regional Transfer Station, a reduction in the current hauling by 118km per trip from the current service provision model.

Any satellite depots would have to be determined once the principal depots are established and fully operational. A decision to pursue satellite depots would come back before the Board before Environmental Services Administration proceeded with those negotiations.



405-221 West Esplanade
North Vancouver, BC V2L 1P8

April 5, 2024

RE: Recycle BC Depot Onboarding Offer

Laura Zapotichny
General Manager of Environmental Services
Regional District of Fraser-Fort George
155 George Street
Prince George, BC V2L 1P8

Recycle BC has determined that the Regional District of Fraser-Fort George (RDFFG) is eligible for Recycle BC depot service.

Recycle BC is a not-for-profit organization responsible for residential packaging and paper product recycling throughout British Columbia, servicing close to 2 million households or over 99% of BC through curbside, multi-family and/or depot services. At present, there are over 230 depots collecting residential packaging and paper product under the Recycle BC program.

Recycle BC completed an analysis of our provincial depot system to formalize criteria to guide priorities for additional expansion of depot service. This analysis reviewed rural and remote, as well as urban communities in BC that do not presently include Recycle BC depots, and considered factors such as population, the inclusion of other relevant services, distance to a larger service center and distance to an existing Recycle BC depot.

Recycle BC has concluded that the RDFFG is approved for a Recycle BC depot in 2024 at the following locations, provided that all program requirements and collection standards are met:

- Mackenzie Select Waste Landfill & Regional Transfer Station
- Quinn Street Regional Recycling Depot
- Valemount Regional Transfer Station

Such a depot would need to be staffed, secure during non-operating hours, accept all applicable categories of packaging and paper product, have the capacity to ensure only material from residential sources is collected under the Recycle BC program, and meet all other Recycle BC depot requirements. The Master Service Agreement and Statement of Work are the contractual documents between Recycle BC and collection partners. A sample of the collection agreements can be reviewed here if you are interested in learning more:

[Sample Master Service Agreement](#)
[Sample Depot Statement of Work](#)

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If the RDFFG is interested in this partnership opportunity or if you require further information, please reach out at your earliest convenience. Note that Recycle BC requires a minimum of 90 days from agreement signature to program launch. We look forward to hearing from you and exploring a depot partnership with the RDFFG.

Thank you.

Sincerely,



Martin Dickson,
Collection Specialist, Collection, Interior & North, Recycle BC

cc:

Brendan McShane, Director, Collection, Recycle BC

Carmen Fennell, Manager, Collection, Interior & North, Recycle BC



DEPOT COLLECTION INTRODUCTION AND ONBOARDING EXPECTATIONS

1.0 Background

Recycle BC is a not-for-profit organization, established in 2014 and responsible for residential [packaging and paper product recycling](#) throughout British Columbia, servicing over two million households or over 99% of BC through curbside, multi-family and/or depot services.

We ensure packaging and paper product is collected from households and recycling depots, sorted and responsibly managed and recycled. Recycle BC provides recycling services either directly to communities or by working in partnership with local governments, First Nations, private companies, and other not-for-profit organizations. 183 communities participate in our recycling collection program, and more are serviced by our recycling depots. In 2021 over 214,000 tonnes of residential packaging and paper was collected through the Recycle BC program.

Our program is [funded by businesses](#), like retailers, manufacturers and restaurants that supply packaging and paper products to BC residents, shifting costs away from homeowners.

2.0 Purpose

This document is intended to inform prospective and new depot collectors on the onboarding process, time frames, and program requirements when joining the Recycle BC program. Understanding these requirements will assist depot operators in establishing and operating a successful depot collection program in partnership with Recycle BC.

3.0 Depot Network Overview

The depot network consists of depots that are privately owned and operated, managed by local governments, First Nations, non-profit groups, and retail outlets (return to retail model). There are approximately 230 principal depots located throughout the province in partnership with Recycle BC, collecting in scope residential Packaging and Paper Products (PPP). These depots are located province wide, from very large communities of BC (such as Metro Vancouver) to very rural, remote and island communities. Material transportation, processing, and marketing is provided by the Recycle BC Post Collection Service Provider Green for Life (GFL).

To learn more on the scope of the depot network, follow the link to the Recycle BC Depot Finder Tool:

<https://recyclebc.ca/where-to-recycle/find-depot/>

Regardless of the size of the community the depot is located in, the collection requirements and standards are the same throughout all depots in the Recycle BC network. The way individual depots operate and engage with residents is largely at the discretion of the depot, pending alignment with program requirements. Understanding the requirements of operating a depot, and the different collection options available to depot operators will aid in the efficient and effective management of the depot program.



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4.0 Depot Agreement Requirements

Once a depot is approved, after meeting program criteria and requirements, the owner of the depot is required to enter into a contractual agreement with Recycle BC by signing a Master Services Agreement (MSA) and Statement of Work (SOW). These two documents form the contractual relationship between the depot and Recycle BC.

The MSA is a standard document that outlines the legal requirements of entering into an agreement with Recycle BC, including service standards, insurance requirements and resolution protocols. Specifically, the insurance requirements include:

- Comprehensive General Liability coverage with limits of not less than \$5,000,000 million dollars) per occurrence
- Workers' Compensation Insurance or Workplace Safety & Insurance coverage
- Recycle BC named as additional insured

The requirements in the SOW are for services and performance standards and operational requirements, which are the same for all depot collectors, and include, but are not limited to:

- Establishing set hours of operation
- Fully staffing the depot collection area when open
- Securing the depot when closed to customers
- Cleanup of spilled material
- Ensuring collected materials are protected from the elements
- Identifying and diverting out of scope materials and materials from Institutional, Commercial, and Industrial (ICI) sources
- Mitigating contamination to 3% or less, which is determined by conducting random audit samples

4.1 Understand the SOW

All staff, not just the owners or managers of the depot, should be aware of the contractual obligations in the SOW. Knowing the reason why certain actions must be taken will help staff gain a sense of ownership and responsibility in the program. For example, if staff appreciate that there could be Service Level Failure Credits imposed on the depot because contamination is too high, they may take more care to remove contaminants, especially when they know how detrimental contamination is to the program. Another example is the SOW requirement prohibiting scavenging from collection containers. If staff are aware of this requirement, they can act accordingly by not permitting residents to salvage items, and be able to provide informed reasons why.

5.0 Timing and Expectations for Joining the Recycle BC Program

All depots in the Recycle BC collection network must first be approved for inclusion by Recycle BC as per the criteria and parameters outlined in the Recycle BC Program Plan. Approval is considered based on annual budget allocation



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and fulfilling onboarding and criteria requirements. Appendix B outlines the onboarding expectations and associated timelines.

5.1 Accepted Materials

Recycle BC is responsible for managing in scope PPP materials from residential sources only. Segregation of the various PPP categories is a requirement of all depots in the Recycle BC program, and there are two options for what a depot may include in collection:

- 1) Accept all PPP categories
- 2) Accept “depot only” PPP

For collectors that wish to accept all PPP categories, a minimum of six collection categories must be collected. Further segregation is an option if the depot prefers, and the individual categories chosen by the depot are approved once included in the SOW. These material categories include:

Numeric Category Name	Material Type
Category 1	Printed Paper
Category 2	Corrugated Cardboard
Category 3 (a)	Cartons and Paper Cups
Category 3 (b)	Paper Packaging
Category 4	Flexible Plastics
Category 5	White Foam Packaging
Category 5	Coloured Foam Packaging
Category 6	Plastic Containers
Category 7	Metal Containers
Category 8	Glass Bottles and Jars
Categories 1, 2 & 3(b)	Mixed Paper and Cardboard
Categories 3 (a), 6 & 7	Mixed Containers

Depot only materials are the PPP categories that are not accepted in curbside collection programs. If a depot is located in a region with curbside recycling collection servicing the majority of the population, this subset of material collection is an option. A depot that only wishes to collect depot only materials must accept:



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Category 4	Flexible Plastics
Category 5	White Foam Packaging
Category 5	Coloured Foam Packaging
Category 8	Glass Bottles and Jars

5.2 Incentive Rate

There are two variations in the SOW informing the incentive rate provided for the collection of the PPP. The incentive rate depends on whether there is curbside collection within the municipality, and whether the material will be collected loose or baled. All material categories are eligible for baling, with the exception of foam packaging.

Depots in municipalities without curbside collection receive more compensation per material type than municipalities with curbside recycling. Depots that choose to bale materials also receive an additional incentive for those materials than depots that choose to ship materials loose. Depots are provided incentives based on a per tonne rate by material type.

Local government depots are provided a resident education top up fee to be used to create signage, brochures, etc. Private depots are supplied with signs and brochures from Recycle BC, and do not receive this top up.

To obtain a full understanding of the Recycle BC Depot SOW, please review the link to the Standard Depot SOW:

<https://recyclebc.ca/wp-content/uploads/2021/11/Recycle-BC-Depot-SOW-SAMPLE-2022.pdf>

5.3 Satellite Depots

A depot listed on a depot SOW, in which all collection containers are provided by Recycle BC and all collected materials are managed by Recycle BC's Post Collection Service Provider, is considered a principal depot. Some local government collectors also have satellite depots. A satellite depot is an approved depot that collects in scope PPP from residents, which is then transported to a principal depot at the expense of the principal depot owner. A satellite depot must be approved by Recycle BC and must be owned by the collector that owns the principal depot. The material is comingled to the material collected at the principal depot and managed by the dedicated transporter from the principle depot. While satellite depots must be approved by Recycle BC, they are not listed as depots in the collection network and not identified on the Recycle BC website as drop-off locations. Satellite depot operations are still required to align with collection requirements as per the depot SOW, with one variation. As satellite depots are not recognized depots in the network, satellite depots can choose which material categories are accepted. However, segregation of the categories is still required as per the SOW along with acceptance of in scope material from residential sources only.

6.0 Depot Collection Model

The basic depot collection standard is that collected PPP must be segregated, at a minimum, as outlined in the SOW. Material that is delivered to a depot must be from residential sources only, must be monitored for contamination, and not accepted PPP must be rejected or removed from the collection containers. Depots must be staffed, have designated hours of operation, and be inaccessible when closed.



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The approved and provided collection containers for materials are super sacks for the majority of material categories, and liner bags, used solely for the collection of foam packaging, but variations of the collection containers are permitted upon approval by Recycle BC and the post collection service provider GFL. In special situations, or based on large volume generation GFL may suggest alternative options for collection, which may include:

- Overhead bins-for outdoor collection areas that have higher volumes of material. Overhead bins provide covered, enclosed separated storage for PPP that provides more capacity than super sack collection.
- Roll off containers-outdoor collection option for large volumes of material. Ideally roll off containers have lids to keep material dry and contained.
- Compactor bins-for significant volumes of material typically collected outside. Compaction maximizes the space available in the bin by compacting the material as it is being deposited.

6.1 PPP Management

Acceptance criteria of PPP is very important, and staff should receive continual training about accepted PPP. The Recycle BC program accepts only packaging and paper products from individual residents. Which category PPP belongs to is also important and should be reinforced with staff. Signage, brochures, and the Recycle BC website material list are available to assist staff with accepted PPP training.

6.2 Hazardous Materials

Depots must be especially vigilant about monitoring for hazardous items, which can endanger the safety of depot staff as well as staff at receiving facilities. Hazardous items may include:

- Sharps (needles)
- Knives
- Razor blades
- Butane or propane cannisters
- Batteries (including products which contain batteries)

Hazardous materials pose significant challenges not only to depot staff but also transporters and receiving facility staff and machinery. Diligence is needed to ensure these materials are diverted from collection.

6.3 Material Transportation

GFL is the designated service provider chosen by Recycle BC to manage all transportation, processing, and marketing of collected PPP. Depot staff are responsible for contacting GFL when transport of collected PPP is required. Super sacks, liner bags, and bales must be labelled with a dedicated barcode sticker (provided by GFL, and unique to each depot location) that is affixed to the collection container by depot staff prior to pick up. Transporters use this sticker to scan the container and upload data into tracking and reporting software that identifies what the material is, what type of container it is collected in, and where it came from. This sticker is scanned again once the material reaches the receiving facility, the container or bale is weighed, and added to the database for proper reporting.



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Payment to the depot is based on weight by material type, so ensuring barcode stickers are affixed to containers and checking that transporters are scanning the barcode stickers prior to containers being removed from the depot is important to guarantee correct compensation for the material collected. Transporters are responsible for the loading of the materials collected from the depot, however they may request assistance if the depot is equipped with a pallet jack or a forklift. It is up to the depot manager if they wish to supply equipment use and staff time to assist with loading.

6.4 Customer Service

Residents are generally happy to have a facility to recycle their packages, and appreciate assistance with sorting and understanding the program requirements. As in any business, there are the occasional customers that are unhappy, and may be argumentative, or disregard staff instructions. Staff should attempt to explain the program requirements to residents in a calm and friendly manner, and offer to assist them with their sorting, or provide them with education materials such as brochures, so they can take the information home with them to learn the requirements.

6.5 Information Management

Once a depot is onboarded with Recycle BC, a Depot Contact and Reference Manual will be provided with all contact information, and details for technical depot operations. A Field Services Specialist is assigned to all depot collectors in the network, and is the main contact person for the depot to answer questions, and direct inquiries to the appropriate department.

All depot owners are given the option to receive log in access to a Collector Resource Portal on the Recycle BC website. The portal contains a variety of information including:

- Brochure and sign templates
- Holiday campaigns
- News items and blogs
- Annual report highlights
- Education videos
- Hazardous item campaigns

6.6 Reporting Requirements

Depot collectors are required to submit reports to Recycle BC as requested, which may include:

- Collection metrics necessary for the calculation of greenhouse gas emissions
- Customer communications related to Depot Collection Services including telephone calls, letters, e-mails, text messages
- Data relating to collection tonnages
- Inventory of collection equipment
- Service Disruption Templates



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For any of the above listed reports, the Recycle BC Field Services team is able to provide assistance or further context.



Appendix A: Depot Onboarding Time Frame and Expectations

Phase	Process	Timing
Offer to Join the Recycle BC Program	<p>A prospective depot owner reaches out to Recycle BC to express interest to join. Pending capacity, the depot may be placed on a waitlist for future onboarding. Or;</p> <p>On a regular basis, Recycle BC implements a provincial analysis to determine gaps in depot service. When Gaps are identified, Recycle BC will reach out to provide an offer to join.</p>	Ongoing
Assessment	<p>Review of geographical area and service need is assessed internally</p> <p>Upon review, if the depot is viewed as a possible fit, a site visit will be conducted by a Recycle BC representative to walk through program requirements and the onboarding process, assess the depot location and meet the depot owner and staff</p>	<p>When requests are received</p> <p>Site visits will occur on an agreed upon and beneficial timeframe for all parties</p>



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Administrative	<p>Pending a successful site visit, Recycle BC will provide a collector Information Template which will capture all relevant information to develop the contract base. The required information includes:</p> <ol style="list-style-type: none">Address and contact informationMaterial to be collected and how (i.e. baled, loose, roll off containers, super sacks, etc.)Whether the depot is in a community with or without curbside collectionProposed start dateProof of insurance <p>Additional site changes or development of a Transition Plan may be required pending site observations from the Recycle BC representative.</p> <p>Once the Information Template and the Transition Plan (if required) is completed and returned, Recycle BC will develop an MSA and SOW, inclusive of all provided information for signature, which includes a proposed service commencement date</p> <p>Once fully executed, an agreed upon commencement date will be determined. This will be a minimum 90 days from signed documents being received</p>	<p>If all parties agree to proceed with partnership, the information template will be sent shortly after</p> <p>Timing contingent on receiving the completed information template</p> <p>Minimum 90 days</p>
Operational	<p>Leading up to commencement, Recycle BC signs and depot brochures will be delivered to the depot</p> <p>A dedicated Receiving Facility and transporter will be established and communicated to the depot owner</p> <p>The new depot will be added to the Recycle BC website and depot finder tool</p> <p>Prior to service commencement in partnership with Recycle BC, appropriate collection supplies will be delivered for use in collecting Recycle BC materials</p>	<p>Within 30 days of commencement</p> <p>Days before commencement</p> <p>Days before commencement</p>



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Commencement	Depot begins collection of agreed upon PPP Dedicated Field Services Representative checks in on operations	Agreed upon Commencement date Shortly after commencement
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Appendix B: Depot Operation Tips

1. Collectors should consider their corporate procurement policies well in advance of the implementation date to ensure all aspects of depot onboarding have received approval from depot owners, council or board of directors, as required.
2. Recycle BC requires a minimum of ninety (90) days from the date the signed MSA and SOW are received to the launch of the depot collection. This is to ensure adequate time to secure a transporter, designate a receiving facility, and set up data management systems and financial information.
3. Allow adequate time to procure collection infrastructure:
 - a. Sorting tables
 - b. Covered collection/storage areas
 - c. Staff to oversee the collection area
4. Have signs installed, including sorting signs and hours of operation, in preparation for launch.
5. Ensure all collection areas are able to be secured during closed hours (i.e. locked building, fencing, locks on bins as required).
6. Promotion of the depot launch in advance of the actual launch date through newspaper ads, social media pages, informing member municipalities, etc., will require preparation of ads and information to be sent out.



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REPORT FOR COMMITTEE CONSIDERATION

TO: Chair and Members, Environment and Parks Standing Committee File No.: CONT 1.1

FROM: Laura Zapotichny, General Manager of Environmental Services

DATE: February 7, 2024

SUBJECT: Multi-Material Recycling Services – Future Considerations

SUMMARY: Purpose: Consideration of Service Provision for Multi-Material Recycling
Attachments: Backgrounder – Multi-Material Information
Previous Reports: Item No. 6.6, February 2021

RECOMMENDATION(S):

THAT the report dated February 7, 2023 regarding “Multi-Material Recycling Services – Future Considerations” be received for information.

ENTITLEMENT	HOW VOTE COUNTED
All 1 Director/1 vote	Majority

ISSUE(S):

In May 2023, Cascades Recovery+ approached Environmental Services Administration with the announcement that they are restructuring their Northern British Columbia operations and will be curtailing refuse and recycling bin hauling services. Cascades Recovery+ currently has a Service Agreement with the Regional District of Fraser-Fort George (RDFFG) to provide Multi-Material Recycling Services, which includes bin provision, bin hauling, processing and marketing of the thirty-eight multi-material recycling bins throughout the RDFFG’s transfer station network. This Service Agreement expires on May 31, 2024, and will not be renewed by Cascades Recovery+.

There are three options for the Board to consider for this service:

Option One – Public Tender Process.

- Environmental Services Administration puts out a public tender to secure bin rental and hauling services for multi-material recycling bins. Environmental Services Administration would also need to negotiate a separate processing and marketing agreement for collected recyclables.

Option Two – Recycle BC.

- Environmental Services Administration would enter into negotiations with Recycle BC, the stewardship agency approved to manage the Printed Paper and Packaging waste stream under the Recycling Regulation.

Option Three – No Service.

- The Board could discontinue the Multi-Material Recycling Service.

The Committee is being asked to provide Environmental Services Administration with direction on the preferred option for service delivery for multi-material recycling services. Once direction is given, Environmental Services Administration will return to the Board with costing, program information and timelines for implementation of the preferred option.

RELEVANT POLICIES:

1. *Environmental Management Act*

- establishes the requirement for regional districts to undertake solid waste management planning; and
- provides authority for the Minister to regulate extended producer responsibility (product stewardship) initiatives.

2. Recycling Regulation 449/2004
 - establishes implementation of extended producer responsibility (product stewardship) programs
3. 2015 Regional Solid Waste Management Plan:
 - establishes stewardship programs as waste management tool; and
 - maintain multi-material drop depots as residential recycling services.
4. RD-23-22: Extended Producer Responsibility Programs
 - establishes a framework that defines the Regional District’s role in providing waste diversion collection services for Extended Producer Responsibility (EPR) programs.
5. Waste Reduction Services Establishment Bylaw No. 2901, 2014:
 - establishes the sub-regional service which supports the delivery of the multi-material recycling program.

STRATEGIC ALIGNMENT:

- Climate Action
 Economic Health
 Indigenous Relations
 Strong Communities
 None – Statutory or Routine Business

SERVICE RELEVANCE:

The Regional District provides solid waste services for the entire Regional District of Fraser-Fort George including waste diversion opportunities and is committed to supporting waste diversion strategies. The Multi-Material Recycling Service is consistent with the 2015 Regional Solid Waste Management Plan.

FINANCIAL CONSIDERATION(S):

The operation and delivery of the Multi-Material Recycling Services provided in the electoral areas and member municipalities (excluding the City of Prince George) are funded through the sub-regional (3307) Waste Reduction Services budget. Multi-material Recycling Services provided at the Foothills Boulevard Regional Landfill, Vanway Regional Transfer Station and the Quinn Street Regional Recycling Depot are funded through the region wide (3305) Solid Waste Management budget.

Due to the contract ending with Cascades Recovery+, and the unknown service delivery model for the collection, hauling, processing and marketing of these materials, the cost of this service is currently unknown.

OTHER CONSIDERATION(S):

The Multi-Material Recycling Service was established to provide collection of printed paper and packaging to residential customers throughout the Regional District. In the member municipalities, recyclable material is also accepted from industrial, commercial, and institutional (ICI) customers, due to limitations in local alternatives.

The RDFFG remains one of the only regional districts without a service agreement with Recycle BC, the stewardship agency that is responsible for the collection of Printed Paper and Packaging. Recycle BC has made two formal offers to join their program, (2013 and 2017) both of which have been turned down by the RDFFG Board.

DECISION OPTIONS:

1. Approve recommendations.
 - that the report be received.

COMMENTS:

As the service agreement with Cascades Recovery+ is set to expire on May 31, 2024, consideration needs to be given for the future provision of Multi-Material Recycling Services at the Regional District transfer station facilities. With

direction from the Committee, Environmental Services Administration will report back to the Board with costing and timelines for the preferred option.

Respectfully submitted,

“Laura Zapotichny”

Laura Zapotichny
General Manager of Environmental Services

LZ:jt



BACKGROUNDER – MULTI-MATERIAL INFORMATION

The Multi-material Recycling Services is a long-standing service that has seen various iterations over twenty-nine years of service delivery. In 2014, the delivery of the Multi-material Recycling Services was reconfigured to include rural transfer station sites that had not previously provided recycling services.

Cascades Recovery+ has been the primary service provider (formerly Cascades Recovery Inc, formerly Metro Paper). This long-standing business relationship with Cascades Recovery+ has allowed the Regional District to maintain the service provision for multi-material recycling through market uncertainties. The current Multi-material Recycling Services provides collection of printed paper and packaging to rural communities which includes both residential and commercial sources.

The Multi-Material Recycling Services Agreement with Cascades Recovery+ expires on May 31, 2024. Cascades Recovery+ had stated that they will not be renewing this contract. A new service provision model will have to be undertaken for the continuation of this service.

There are three possible options for the Board to consider for this service.

Option 1: Public Tender for continuation of current service delivery model

In this option, Environmental Services Administration would tender a contract for the provision of the multi-material recycling bins and hauling of bins to the multi-sort recycling facility in Prince George. This option would most closely resemble the current service agreement.

Unlike the past contracts where all aspects of this service were provided by one service provider, Environmental Services Administration would need to enter into a separate agreement for the processing and marketing of the collected recyclables.

There are currently thirty-eight multi-material recycling bins in service. Replacement of thirty-eight specialized bins could be expensive and time consuming. It is likely that there would be a disruption in service to allow for a new contractor to be able to provide all the bins required to meet the service standards in the contract.

It is possible that an interested contractor could enter into negotiations with Cascades Recovery+ to purchase the multi-material recycling bins they own; therefore, reducing the cost to provide new ones, but there are no guarantees that any contractor will undertake this, nor that Cascades Recovery+ is willing to sell the bins.

If new bins are required, they will take time to manufacture.

There is also the possibility that no contractor would bid on either the provision of bins and hauling contract, or the processing and marketing of recyclables contract.

This option would likely significantly increase the cost of this service, although the transfer stations with recycle bins would remain the same. It is also likely that this option would result in a delay of service, as the RDFFG moved from Cascades Recovery+ to a new service provider. The full cost of the bin replacement/purchase would likely be factored into a five-year contract, thus increasing the price to the overall contract from where it has traditionally been.

Option 2: RDFFG enters negotiations with Recycle BC

Under this option, Environmental Services Administration would explore entering a partnership with Recycle BC to provide services for Printed Paper and Packaging (PPP) under the Recycling Regulation's Extended Producer Responsibility.

Past negotiations with Recycle BC have indicated an on-boarding time of anywhere between 18 to 24 months, however no timelines have currently been established. Additionally, Recycle BC has recently made changes to their service provision model and there are no guarantees which transfer station sites would be selected for a depot of the current transfer stations that operate a RDFFG multi-material recycling bin.



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If the RDFFG were to sign on with Recycle BC, all five identified recyclable streams for Recycle BC would have to be collected, including Styrofoam and soft plastics. All sites that operate Recycle BC depots must have staff and at a minimum a bin collection system that is secured.

Under Recycle BC's contracts, no commercial recyclables are allowed in the waste stream.

If Recycle BC is the option that is preferred, the RDFFG would look to continue to operate the cardboard compactors at the three member municipalities of Valemount, Mackenzie, and McBride for industrial, commercial, and institutional drop off. These compactors were installed in 2021 and would require a hauling, processing and marketing contract separate from Recycle BC.

There will need to be oversight of these collection programs to ensure a low rate of contamination to avoid penalties from Recycle BC, as well as an educational campaign.

This option would likely increase operational costs at sites selected for a Recycle BC depot but reduce hauling costs, as Recycle BC is responsible for hauling costs from their principal depot sites.

This is the only option that expands the current list of materials accepted. While it would likely result in a reduction in the number of depot locations, the expansion of products such as glass, Styrofoam and soft plastics are desired by residential users of the facilities and would expand the current list of materials for diversion and is in alignment with the Regional Solid Waste Management Plan.

If this is the option Board would like to pursue, Environmental Services Administration would begin talks with Recycle BC and report back to Board with more information.

Option 3: Cease multi-material recycling bin service within the RDFFG transfer station network.

This option would see Board make the decision to cease the provision of this service within the rural transfer station network. This option goes against the Regional Solid Waste Management Plan which is committed to providing waste reduction services throughout the RDFFG.

Conclusion

Environmental Services Administration is looking for direction from the Board on how to proceed with the Multi-Material Recycling Service. Cascades Recovery+ has committed to providing service for this contract until May 31, 2024, giving time to explore options for service delivery.

Environmental Services Administration will return to Board with more information based on the direction given by Board at the February 2024 meeting. This information will include operational costs, capital costs and staffing costs, as well as timelines for service implementation.



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REPORT FOR COMMITTEE CONSIDERATION

TO: Chair and Members, Environment and Parks Standing Committee

File No.: CONT 1.5

FROM: Darren Wahl, Manager of Solid Waste Operations

DATE: February 7, 2025

SUBJECT Contract ES-25-02 – Scrap Metal Recycling Services

SUMMARY: Purpose: Consider Award of Contract

Attachments: Backgrounder

Previous Reports: Item No. 12.3, January 2025

RECOMMENDATION(S):

1. THAT the report dated February 7, 2025, regarding “Contract ES-25-02 - Scrap Metal Recycling Services” be received for information.
2. THAT the Committee recommend to the Board that Contract ES-25-02 - Scrap Metal Recycling Services be awarded to Richmond Steel Recycling Ltd. for the period of April 1, 2025 to March 31, 2028.

ENTITLEMENT	HOW VOTE COUNTED
All 1 Director/1 vote	Majority
All 1 Director/1 vote	Majority

ISSUE(S):

At the January 2025 Board meeting, the Board approved entering into a competitive bid process for scrap metal recycling services. Request for Proposals for Contract ES-25-02 - Scrap Metal Recycling Services was available on the Regional District web page and the Provincial BCBid@ website as of January 24, 2025, with a closing date of February 7, 2025. Two complete bids were received from qualified service providers.

The Committee is being asked to recommend to the Board to consider the award of Contract ES-25-02 - Scrap Metal Recycling Services to Richmond Steel Recycling Ltd. for the period of April 1, 2025 to March 31, 2028.

RELEVANT POLICIES:

1. Regional District of Fraser-Fort George Delegation Bylaw No. 3276, 2022:
 - provides for requirement of Board authorization for contracts over \$100,000 in value
2. Policy RD-03-09: Procurement of Goods and Services
 - provides for procurement levels and limits
3. Regional Solid Waste Management Plan (RSWMP):
 - provides for the operation of a transfer station system for the collection of both residential solid waste and recyclable materials

STRATEGIC PRIORITIES ALIGNMENT:

- | | | | |
|--|---|--|---|
| <input type="checkbox"/> Indigenous and Intergovernmental Partnerships | <input type="checkbox"/> Organizational Strength and Adaptability | <input checked="" type="checkbox"/> Quality Community Services | <input type="checkbox"/> Environmental Stewardship and Climate Action |
| <input type="checkbox"/> Awareness and Engagement | <input type="checkbox"/> Statutory or Routine Business | | |

SERVICE RELEVANCE:

N/A

FINANCIAL CONSIDERATION(S):

Budget implications for these services are reflected in the proposed 2025 Solid Waste Management (3305) Budget.

OTHER CONSIDERATION(S):

N/A

DECISION OPTIONS:

1. Approve recommendations.
 - a recommendation will be made to the Board to consider award of Contract ES-25-02 - Scrap Metal Recycling Services to Richmond Steel Recycling Ltd. for the period of April 1, 2025 to March 31, 2028

Other Options:

- a. do not make recommendation to Board for award of Contract ES-25-02 - Scrap Metal Recycling Services
 - would result in the Regional District not having scrap metal recycling services after March 31, 2025

COMMENTS:

Environmental Services Administration recommends that Contract ES-25-02 - Scrap Metal Recycling Services be awarded to Richmond Steel Recycling Ltd. for the period of April 1, 2025 – March 31, 2028.

Respectfully submitted,

“Darren Wahl”

Darren Wahl
Manager of Solid Waste Operations

DW:jt



BACKGROUND – ES-25-02 AWARD INFORMATION

The Regional District issued a Request for Proposal for ES-25-02 Scrap Metal Recycling Services which was made available on the Regional District web page and the Provincial BCBid® website on January 24, 2025. The proposal submittal deadline was February 7, 2025. Two qualified submissions have been received in response to the proposal call. Staff have reviewed and evaluated the proposals using the criteria outlined in the Request for Proposals.

The evaluation criteria for the proposal include consideration for:

- Qualifications, Relevant Experience
- Work Plan, Methodology, Project schedule
- Project Budget, Project Revenue Projections
- Quality of Proposal including format

Proponents scoring was as follows:

Name	Score (Max 100)
Richmond Steel Recycling Ltd.	89.5
ABC Recycling Services Ltd.	75.0

Richmond Steel Recycling Ltd. meets the requirements of the scope of work and the expected outcome of the required services for Contract ES-25-02 Scrap Metal Recycling Services. The proposed revenue will offset the costs of handling, processing and marketing of scrap metal. Richmond Steel Recycling Ltd. is offering a set revenue price per metric tonne.



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REPORT FOR CONSIDERATION

TO: Chair and Directors

FROM: Darren Wahl, Manager of Solid Waste Operations

DATE: January 8, 2025

SUBJECT: Scrap Metal Recycling Services

SUMMARY: Purpose: Consider Competitive Bid Process

File No.: CONT 1.5

Attachments: None
Previous Reports: None

RECOMMENDATION(S):

1. THAT the report dated January 8, 2025 regarding “Scrap Metal Recycling Services” be received for information.
2. THAT a competitive bid process be entered into for the provision of scrap metal recycling services.

ENTITLEMENT	HOW VOTE COUNTED
All 1 Director/1 vote	Majority
All 1 Director/1 vote	Majority

ISSUE(S):

The current Scrap Metal Recycling Services contract expires March 31, 2025. There are no extensions remaining on this contract. The Regional District accepts scrap metal and end of life appliances which are collected at designated Regional District transfer stations and landfills. These recyclable materials are periodically crushed, baled and transported, under the contract, to end markets for recycling. Revenue from the sale of the scrap metals belongs to the Regional District and is included with the 2025 budget.

The Board is being asked to consider entering into a competitive bid process for scrap metal recycling services.

RELEVANT POLICIES:

1. Regional District of Fraser Fort-George Delegation Bylaw No. 3276, 2022
 - requires contracts over \$100,000 in value to be considered for approval by the Board
2. Policy RD-03-09: Procurement of Goods and Services
 - provides for procurement levels and limits
3. 2015 Regional Solid Waste Management Plan:
 - provides guidance for residual waste management
 - guidance on how waste is transported to or how it is handled within facilities

STRATEGIC PRIORITIES ALIGNMENT:

- Indigenous and Intergovernmental Partnerships
- Organizational Strength and Adaptability
- Quality Community Services
- Environmental Stewardship and Climate Action
- Awareness and Engagement
- Statutory or Routine Business

SERVICE RELEVANCE:

N/A

FINANCIAL CONSIDERATION(S):

Budget implications for Scrap Metal Recycling Services are funded through the proposed 2025 Solid Waste Management (3305) Budget

OTHER CONSIDERATION(S):

N/A

DECISION OPTIONS:

1. Approve recommendations.
 - a competitive bid process will be entered into for the provision of scrap metal recycling services

Other Options:

- a. do not approve entering into a competitive bid process for scrap metal recycling services
 - would result in the Regional District not having scrap metal recycling services after March 31, 2025

COMMENTS:

The Regional District will benefit from continuing with the Scrap Metal Recycling Program. A contract would secure a stable price for the scrap metal revenue as well as give the Regional District service priority over those who do not hold a contract.

Environmental Services Administration recommends that a competitive bid process be entered into for the provision of scrap metal recycling services.

Respectfully submitted,

“Darren Wahl”

Darren Wahl
Manager of Solid Waste Operations

DW:jt



**REGIONAL DISTRICT
of Fraser-Fort George**

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**REPORT FOR
COMMITTEE CONSIDERATION**

TO: Chair and Members, Environment and Parks Standing Committee File No.: TRAN 10.2
 FROM: Darren Wahl, Manager of Solid Waste Operations
 DATE: February 3, 2025
 SUBJECT: Contract ES-25-03 – Caretaker Services – Chief Lake Regional Transfer Station
 SUMMARY: Purpose: Consider Award of Contract
Attachments: Backgrounder
Previous Reports: Item No. 12.2, January 2025

RECOMMENDATION(S):

1. THAT the report dated February 3, 2025 regarding “Contract ES-25-03 – Caretaker Services – Chief Lake Regional Transfer Station” be received for information.
2. THAT the Committee recommend to the Board that Contract ES-25-03 – Caretaker Services – Chief Lake Regional Transfer Station be awarded to Shelton Rafferty, Owner, R and M Maintenance Services, for the total amount of \$6,000 per month (excluding taxes) from April 1, 2025 to March 31, 2028.

ENTITLEMENT	HOW VOTE COUNTED
All 1 Director/1 vote	Majority
All 1 Director/1 vote	Majority

ISSUE(S):

At the January 2025 Board meeting, the Board approved entering into a competitive bid process for caretaker services at the Chief Lake Regional Transfer Station. Invitation to Tender for Contract ES-25-03 – Caretaker Services – Chief Lake Regional Transfer Station was available on the Regional District web page and the Provincial BC Bid® website as of January 24, 2025, with a closing date of February 7, 2025. One complete bid was received from a qualified service provider.

The Committee is being asked to recommend to the Board to consider the award of Contract ES-25-03 – Caretaker Services – Chief Lake Regional Transfer Station to Shelton Rafferty, Owner, R and M Maintenance Services for the total amount of \$6,000 per month (excluding taxes) from April 1, 2025 to March 31, 2028.

RELEVANT POLICIES:

1. Regional District of Fraser Fort-George Delegation Bylaw No. 3276, 2022:
 - provides for requirement of Board authorization for contracts over \$100,000 in value
2. Policy RD-03-09: Procurement of Goods and Services
 - provides for procurement levels and limits
3. Regional Solid Waste Management Plan (RSWMP):
 - provides for the operation of a transfer station system for the collection of both residential solid waste and recyclable materials

STRATEGIC PRIORITIES ALIGNMENT:

- Indigenous and Intergovernmental Partnerships
- Organizational Strength and Adaptability
- Quality Community Services
- Environmental Stewardship and Climate Action
- Awareness and Engagement
- Statutory or Routine Business

SERVICE RELEVANCE:

The Regional District provides solid waste services for the entire Regional District, including rural transfer stations. Having caretaker services at the solid waste facilities provides a safe site and addresses Regional District liability concerns.

FINANCIAL CONSIDERATION(S):

Budget implications for these services are reflected in the proposed 2025 Solid Waste Management (3305) Budget.

OTHER CONSIDERATION(S):

N/A

DECISION OPTIONS:

1. Approve recommendations.
 - a recommendation will be made to the Board to consider award of Contract ES-25-03 – Caretaker Services – Chief Lake Regional Transfer Station to Shelton Rafferty, Owner, R and M Maintenance Services for the total amount of \$6,000 per month (excluding taxes) from April 1, 2025 to March 31, 2028.

Other Options:

- a. do not make recommendation to Board for award of Contract ES-25-03 – Caretaker Services – Chief Lake Regional Transfer Station
 - would result in the Regional District not having caretaker services at the Chief Regional Transfer Station after March 31, 2025.

COMMENTS:

Environmental Services Administration recommends that Contract ES-25-03 – Caretaker Services – Chief Lake Regional Transfer Station be awarded to Shelton Rafferty, Owner, R and M Maintenance Services for the total amount of \$6,000 per month (excluding taxes) from April 1, 2025 – March 31, 2028.

Respectfully submitted,

“Darren Wahl”

Darren Wahl
Manager of Solid Waste Operations

DW:jt



BACKGROUND – ES-25-03 AWARD INFORMATION

The Regional District issued an Invitation to Tender for ES-25-03 Caretaker Services at Chief Lake Transfer Station which was made available on the Regional District web page and the Provincial BCBid® website on January 24, 2025. The tender submittal deadline was February 7, 2025. One qualified submission has been received in response to the tender call. Staff have reviewed and evaluated the tender using the criteria outlined in the Invitation to Tender.

The evaluation criteria for the tender include consideration for:

- Tenderers Qualifications, Experience and References
- Past Work Experience with the Regional District
- Tender Price

Name	Total Amount per month (excluding taxes)
Shelton Rafferty, Owner, R and M Maintenance Services	\$ 6,000.00

Shelton Rafferty, Owner, R & M Maintenance Services, meets the requirements of the scope of work and the expected outcome of the required services for Contract ES-25-03 Caretaker Services at Chief Lake Transfer Station.



REGIONAL DISTRICT of Fraser-Fort George

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REPORT FOR CONSIDERATION

TO: Chair and Directors
FROM: Darren Wahl, Manager of Solid Waste Operations
DATE: January 8, 2025
SUBJECT: Caretaker Services – Chief Lake Transfer Station
SUMMARY: Purpose: Consider Competitive Bid Process

File No.: TRAN 10.2

Attachments: None
Previous Reports: None

RECOMMENDATION(S):

1. THAT the report dated January 8, 2025 regarding “Caretaker Services – Chief Lake Regional Transfer Station” be received for information.
2. THAT a competitive bid process be entered into for the provision of caretaker services at the Chief Lake Regional Transfer Station.

ENTITLEMENT	HOW VOTE COUNTED
All 1 Director/1 vote	Majority
All 1 Director/1 vote	Majority

ISSUE(S):

The current caretaker services contract for Chief Lake Regional Transfer Station expires on March 31, 2025. The current caretaker services contract was established in 2020 and was extended twice within service agreement provisions to the maximum contract duration of 5 years.

The Board is being asked to consider entering into a competitive bid process for caretaker services at Chief Lake Regional Transfer Station.

RELEVANT POLICIES:

1. Regional District of Fraser Fort-George Delegation Bylaw No. 3276, 2022:
 - provides for requirement of Board authorization for contracts over \$100,000 in value
2. Policy RD-03-09: Procurement of Goods and Services
 - provides for procurement levels and limits
3. Regional Solid Waste Management Plan (RSWMP):
 - provides for the operation of a transfer station system for the collection of both residential solid waste and recyclable materials

STRATEGIC PRIORITIES ALIGNMENT:

- Indigenous and Intergovernmental Partnerships
 Organizational Strength and Adaptability
 Quality Community Services
 Environmental Stewardship and Climate Action

Awareness and Engagement

Statutory or Routine Business

SERVICE RELEVANCE:

The Regional District provides solid waste services for the entire Regional District, including rural transfer stations. Having caretaker services at the solid waste facilities provides a safe site and addresses Regional District liability concerns.

FINANCIAL CONSIDERATION(S):

Budget implications for these services are reflected in the proposed 2025 Solid Waste Management (3305) Budget.

OTHER CONSIDERATION(S):

N/A

DECISION OPTIONS:

- 1. Approve recommendations.
 - a competitive bid process will be entered into for the provision of caretaker services at Chief Lake Regional Transfer Station

Other Options:

- a. do not approve entering into a competitive bid process for caretaker services at Chief Lake Regional Transfer Station
 - would result in the Regional District not having caretaker services at the Chief Lake Regional Transfer Station after March 31, 2025

COMMENTS:

Environmental Services Administration recommends that a competitive bid process be entered into for the provision of caretaker services at the Chief Lake Regional Transfer Station.

Respectfully submitted,

“Darren Wahl”

Darren Wahl
Manager of Solid Waste Operations

DW:jt



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**REPORT FOR
COMMITTEE CONSIDERATION**

TO: Chair and Members, Environment and Parks Standing Committee File No.: LAND 1.6.3.8
 FROM: Laura Zapotichny, General Manager of Environmental Services
 DATE: February 3, 2025
 SUBJECT: Earthworks Services in Support of Cell Two Development at the Foothills Boulevard Regional Landfill
 SUMMARY: Purpose: Consider Competitive Bid Process
Attachments: None
Previous Reports: Item No. 6.1, December 2024

RECOMMENDATION(S):

1. THAT the report dated February 3, 2025, regarding “Earthworks Services in Support of Cell Two Development at the Foothills Boulevard Regional Landfill” be received for information.
2. THAT the Committee recommend to the Board that a competitive bid process be entered into for earthworks services in support of Cell Two Development at the Foothills Boulevard Regional Landfill.

ENTITLEMENT	HOW VOTE COUNTED
All 1 Director/1 vote	Majority
All 1 Director/1 vote	Majority

ISSUE(S):

As the development of Cell Two at the Foothills Boulevard Regional Landfill continues into 2025, earthworks are required to define the base and footprint area of Cell Two in order to maintain the identified critical project path in the development of the Cell Two expansion project.

The Committee is being asked to recommend to the Board to consider entering into a competitive bid process for the purpose of Earthworks Services in Support of Cell Two Development at the Foothills Boulevard Regional Landfill.

RELEVANT POLICIES:

1. Regional District of Fraser-Fort George Delegation Bylaw No. 3276, 2022:
 - requires contracts over \$100,000 in value to be considered for approval by the Board
2. Procurement of Goods and Services Policy No. RD-03-09:
 - provides for procurement levels and limits
3. *Environmental Management Act*: Landfill Criteria for Municipal Solid Waste
 - provides key elements that pertain to municipal solid waste landfill development

STRATEGIC PRIORITIES ALIGNMENT:

- | | | | |
|--|---|---|--|
| <input type="checkbox"/> Indigenous and Intergovernmental Partnerships | <input type="checkbox"/> Organizational Strength and Adaptability | <input type="checkbox"/> Quality Community Services | <input checked="" type="checkbox"/> Environmental Stewardship and Climate Action |
| <input type="checkbox"/> Awareness and Engagement | <input type="checkbox"/> Statutory or Routine Business | | |

SERVICE RELEVANCE:

The Earthworks Services at the Foothills Boulevard Regional Landfill assists the Regional District in maintaining the identified critical project path, in the development of the Cell Two expansion project.

FINANCIAL CONSIDERATION(S):

Budget implications for Earthworks Services at Foothills Boulevard Regional Landfill are reflected in the proposed Solid Waste Management (3305) Budget. The Earthworks Services at Foothills Boulevard Regional Landfill represent the third stage in development of Cell Two. The Project is expected to take three to five years to complete.

OTHER CONSIDERATION(S):

N/A

DECISION OPTIONS:

1. Approve recommendations.
 - a recommendation will be made to the Board that a competitive bid process be entered into for the provision of Earthworks Services in support of Cell Two Development at the Foothills Boulevard Regional Landfill.

Other Options:

- a. do not make a recommendation to enter into a competitive bid process to acquire Earthworks Services in support of Cell Two Development at the Foothills Boulevard Regional Landfill
 - would result in no further field work in the development of Cell Two to be carried out causing the project to be delayed.

COMMENTS:

The next step in the development of Cell Two is to begin earthworks in summer of 2025.

Environmental Services Administration recommends entering into a competitive bid process for Earthworks Services in Support of Cell Two Development at the Foothills Boulevard Regional Landfill.

Respectfully submitted,

“Laura Zapotichny”

Laura Zapotichny
General Manager of Environmental Services

LZ:jt



REGIONAL DISTRICT of Fraser-Fort George

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REPORT FOR CONSIDERATION

TO: Chair and Directors File No.: LAND 1.6.3
FROM: Laura Zapotichny, General Manager of Environmental Services
DATE: December 9, 2024
SUBJECT: Cell Two – Foothills Boulevard Regional Landfill - Development Design Update
SUMMARY: Purpose: For Information

Attachments:

- 1. Backgrounder – Cell Two Development Stages
- 2. Technical Memo – Cell Two Development Design

Previous Reports:

- 1. Item No. 6.2, February 2024
- 2. Item No. 5.1, July 2023

RECOMMENDATION(S):

THAT the report dated December 9, 2024 regarding “Cell Two – Foothills Boulevard Regional Landfill – Development Design Update” be received for information.

ENTITLEMENT	HOW VOTE COUNTED
All 1 Director/1 vote	Majority

ISSUE(S):

In July 2023, the Board approved entering into an agreement with Tetra Tech Canada Inc. as the engineer of record for engineering services for Cell Two Development at the Foothills Boulevard Regional Landfill.

During spring/summer 2024 the Cell Two project moved forward with the logging, grinding and grubbing components. Once completed a Geotechnical Survey along with a detailed land survey was undertaken and completed in the fall of 2024.

Concurrently work on the required Operational Certificate amendments and a new Design Operations and Closure Plan (DOCP) was undertaken and will continue in 2025.

The DOCP is a regulatory compliance activity which must be carried out every five years. The previous Integrated Landfill Management Plan is from 2011. This updated document will outline the steps required as the Regional District moves to final closure of Cell One of the Foothills Boulevard Regional Landfill and will incorporate and identify Cell Two development and location.

The Cell Two Development Design Brief document prepared by Tetra Tech explains the current regulatory and physical settings driving the construction methodology and the environmental standards within which the project will proceed. It identifies the physical characteristics of the site, design challenges, engineered solutions and the initial proposed Cell Two design for the site. Through this initial design, a preliminary high level cost estimate has been developed into two phases, one being the major earthworks project to be carried out in 2025, which will shape the base of the future cell and the other covers the remaining costs for the construction of Cell Two.

Environmental Services Administration and Tetra Tech (remotely) will be in attendance for a presentation.

RELEVANT POLICIES:

1. *Environmental Management Act: Landfill Criteria for Municipal Solid Waste*
 - provides key elements that pertain to municipal solid waste landfill development.
2. Ministry of Environment and Parks: *Landfill Criteria for Municipal Solid Waste 2nd Edition (2016)*
 - establishes guideline criteria for the development of municipal solid waste landfills to maximize reduction of environmental impact through sound engineered design and construction methodologies.

STRATEGIC PRIORITIES ALIGNMENT:

- | | | | |
|--|---|--|--|
| <input type="checkbox"/> Indigenous and Intergovernmental Partnerships | <input type="checkbox"/> Organizational Strength and Adaptability | <input checked="" type="checkbox"/> Quality Community Services | <input checked="" type="checkbox"/> Environmental Stewardship and Climate Action |
| <input type="checkbox"/> Awareness and Engagement | <input type="checkbox"/> Statutory or Routine Business | | |

SERVICE RELEVANCE:

Solid waste is a region wide service. The Foothills Boulevard Regional Landfill receives 98% of the RDIFFG’s municipal solid waste. The remaining air space in Cell One is not expected to exceed the summer of 2028 and therefore a lateral expansion into Cell Two is required for the site to continue to accept municipal solid waste beyond 2028.

FINANCIAL CONSIDERATION(S):

Budget implications for Cell Two at the Foothills Boulevard Regional Landfill are reflected in the proposed 2025 Solid Waste Management (3305) Budget.

OTHER CONSIDERATION(S):

N/A

DECISION OPTIONS:

1. Approve recommendations.
 - report will be received

COMMENTS:

The Cell Two Development Design Brief outlines the current regulatory conditions, the physical settings driving the construction methodology and the environmental standards within which the project will proceed. To ensure that the Cell Two Development 2025 project timelines are met, and engineering budget costs are maintained; the required Operational Certificate amendments, and the DOCP will require completion in 2025; concurrently with the Cell Two earthworks while the project is proceeding to conceptual and schematic design.

Environmental Services Administration recommends proceeding with the recommendations and preliminary design as presented in the Cell Two Development Design Brief which will enable the Project to realize the 2025 project timelines while also keeping the budgeted engineering costs on track.

Respectfully submitted,

“Laura Zapotichny”

Laura Zapotichny
General Manager of Environmental Services

LZ:jt



BACKGROUND– CELL TWO DEVELOPMENT STAGES

The ongoing development of Cell Two at the Foothills Boulevard Regional Landfill, a lateral expansion on the current footprint, is scheduled to proceed in stages, defined by a series of structured projects carried out both sequentially and concurrently. These stages were identified in the request for proposal for engineering services for this project.

An overview of these required stages and their anticipated timing are as follows:

Preliminary Design Stage: Completed

The Preliminary Design Phase was completed in 2024 with the logging of the remaining forested area on the landfill site of approximately 9.2 hectares. Following the completion of the logging in spring of 2024, the grubbing and grinding of the 7-hectare project area was completed by fall of 2024. The removal of all vegetation and organic overburden was also completed at this time. Once these two initial steps were completed a Land Survey along with a drilling site investigation was completed in Fall of 2024.

Concurrently, the RDFFG is required to update to the existing Operational Certificate (OC) to include Cell Two and complete a new Design Operation and Closure Plan (DOCP). The amendments to the Operational Certificate for the Foothills Boulevard Regional Landfill were submitted to the Ministry of Environment and Parks in December 2024. Work will continue on updating the DOCP into 2025, as final design elements become known for the Cell Two expansion.

Conceptual Design Stage: Completed

The Conceptual Design stage included information sharing with key stakeholders; verifying the regulatory obligations for the project with the identified agencies responsible for project oversight; conceptual plans; and order of magnitude costing. Stakeholder engagement will continue throughout the project life cycle.

Initial project costs will be estimated at this time. The engineer will present the Design Brief (10% detail) to the RDFFG Board in December 2024.

Schematic Design Stage

Once a conceptual design is presented, the engineer will continue to work with the Environmental Services Administration to prepare all permit applications, including the Operational Certificate Amendment, Design Approval by the Ministry of Environment and Parks, an updated DOCP for the Foothills site, and any municipal requirements.

This stage will see the engineer submit a Class C cost estimate and prepare the schematic design (30% detail). The estimated date of completion for this stage is early summer 2025.

Detailed Design Stage

Once Environmental Services Administration approves the schematic design and Class C cost estimate; including ongoing communication with the Ministry of Environment and Parks; the detailed design work, (60% design detail) can begin. It is anticipated this work will take place in Fall of 2025 and will include a Class B Cost Estimate.

Once a Class B estimate of the project is approved, RDFFG Administration will work to secure funding for the entirety of the project with the Municipal Financial Authority. Estimated completion of this stage is Fall 2025.

Final Design Stage

The final design stage (90% design detail) will begin in the winter of 2025/2026. This includes the final design of Cell 2 and a Class A cost estimate. This will be presented to the RDFFG Board by the engineer.

With approval of the final design, the engineer will provide Construction Quality Assurance and Construction Quality Control Plans.

Construction Documents and Award of Tender Stage:

With approval from the RDFFG Board and financing secured, the engineer will work with Environmental Services Administration to finalize all permits and regulatory approvals for the project, as well as prepare the tender documents for the procurement of construction of Cell Two.

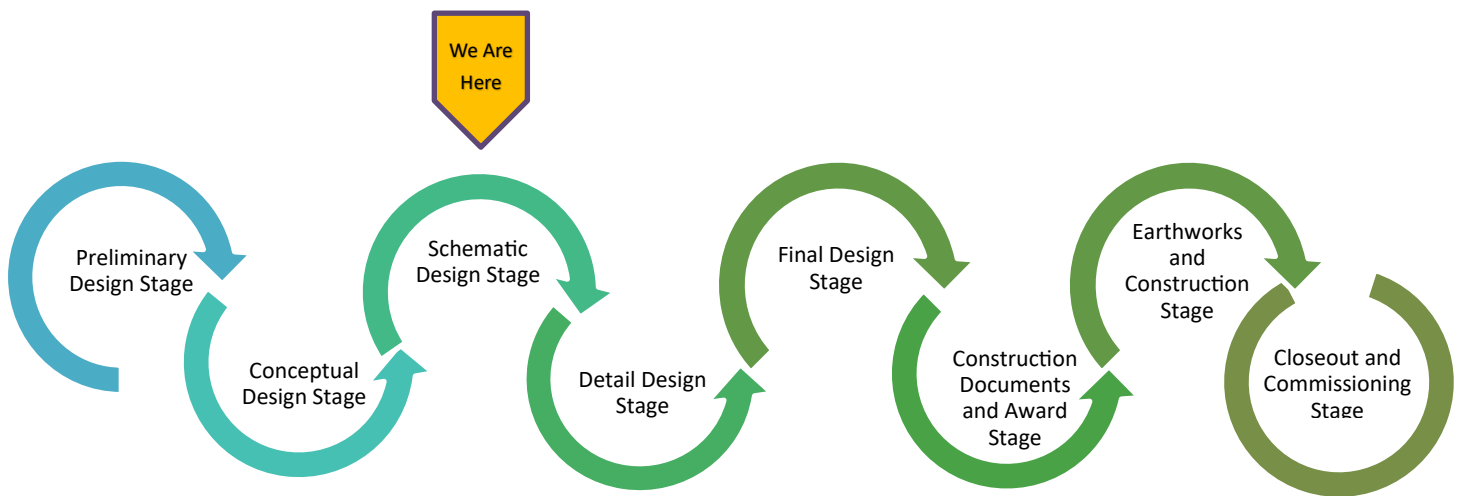
During this stage, the issuance of the construction tender will take place as well as the award of the construction contract by the RDFFG Board. It is anticipated that two different construction tenders will be issued – one for the earthworks in summer of 2025 and another for the remaining earthworks and construction for 2026 and 2027.

Earthworks and Cell Construction Stage:

It is anticipated that the construction of Cell Two, beginning with the earthworks required for the development of Cell Two will be undertaken in spring of 2025. These works will continue into 2026 followed by the technical construction of Phase One of Cell Two in 2027.

Close Out and Warranty Stage:

Upon construction completion and inspection, commissioning will be undertaken. The site should become operational late fall 2027. The RDFFG will enter into the closeout and warranty period of this project.





To: Laura Zapotichny, General Manager of Environmental Services
Darwin Paton, Environmental Services Technologist

Date: December 6, 2024

Memo No.: 1

From: Michel Lefebvre, M.Sc., P.Eng.
Spencer Smith, P.Eng.
Michelle Jelinski, P.Eng.
Rana Mandour, P.Eng.

File: 704-SWM.SWOP04864-01

Subject: Regional District of Fraser-Fort George – Foothills Boulevard Regional Landfill
Cell 2 Development Design Brief

1.0 INTRODUCTION

Tetra Tech Canada Inc. (Tetra Tech) was retained by the Regional District of Fraser-Fort George (RDFFG) to undertake the Cell 2 Development at the Foothills Boulevard Regional Landfill (FBRL, Site). The FBRL operates under Operational Certificate (OC) No. MR-01697, issued on October 31, 2005, by the British Columbia (BC) Ministry of Environment (currently the Ministry of Environment and Parks [MEP]). A copy of the OC is provided in Appendix A.

The Site is located at 6595 Foothills Boulevard, Prince George, BC. The legal description of the Site is Block A of the northeast ¼ of District Lot 4053 and Block A of the northwest ¼ of District Lot 4048, Cariboo District. The landfill is owned and operated by the RDFFG. The attached Figure 1 shows the existing Site layout.

Cell 2 is the next lateral expansion cell to be constructed and is shown on Figure 1. The existing topography of this area and the proposed layout is shown in Appendix B. The design rationale, assumptions, and criteria included in this technical memorandum (report) form the basis of the Cell 2 design.

The principal objectives of this report are as follows:

- Describe the regulatory setting for the Cell 2 design;
- Describe the regional and local setting for the Site; and
- Present the design basis of Cell 2.

This report is based on the design criteria and proposed Cell 2 layout at the conceptual design stage (Appendix B) and is considered to be a snapshot in time as a documented record of the design basis intended to represent a guideline to be carried into the detailed design stage. The design criteria may be subject to change (in consultation with the MEP and RDFFG), and design details will be further refined during the detailed design stages. Similarly, the drawings presented in this report (Appendix B) are at a conceptual design stage and are subject to change. They are included for the purposes of this report but are not to be used for tendering or construction purposes.

2.0 REGULATORY SETTING

Landfill design and operation in BC is regulated under the following:

- *Environmental Management Act* (2003) – covers waste disposal, Municipal Solid Waste (MSW) management, contaminated sites, and greenhouse gas (GHG) generation;
- *Landfill Criteria for Municipal Solid Waste* (2016) (Landfill Criteria) – guidance document for siting, design, operation, and closure of landfills;
- *Landfill Gas (LFG) Management Regulation* (2008) – covers subsurface LFG monitoring and management;
- *Guidelines for Environmental Monitoring at MSW Landfills* (1996) – covers parameters for environmental monitoring and reporting; and
- *BC Contaminated Sites Regulation* (1996) – covers parameters for assessing groundwater quality at contaminated sites.

The FBRL was issued the current OC No. MR-01697 on October 31, 2005, by the MEP. The OC predates the second edition of the *BC Landfill Criteria for Municipal Solid Waste*, (June 2016). Condition 4.2.3. of the OC states that the facilities must be developed and operated in accordance with the Design and Operation Plan.

The previous design, operations, and closure plan (DOCP) was prepared by XCG Consulting Ltd. (XCG) named the Integrated Landfill Management Plan (March 25, 2010). An updated DOCP document is currently in development by Tetra Tech. In addition, an application for amendment to the OC is concurrently in development by Tetra Tech and the RDFFG. Both the updated DOCP and OC will be developed to reflect the existing Cell 1 footprint and future Cell 2 footprint.

3.0 PHYSICAL AND TOPOGRAPHIC SETTING

The Site's physical setting is partially summarized from the *2010 Integrated Landfill Management Plan* by XCG (2010) and the *2021 Annual Operations Report — Foothills Regional Landfill by the Regional District of Fraser-Fort George* (RDFFG 2021).

The Site property encompasses an area of approximately 87.3 hectares. The landfill, composting, and recycling activities conducted at the Site encompass an area of approximately 25 hectares within the permitted landfill property. The site topography is hummocky with relief across the Site of approximately 30 m.

The Site's topography and hydrology is summarized from the *2006 Design and Operations Plan* by AMEC Earth & Environmental Ltd. (AMEC 2006) and from the *Foothills Boulevard Regional Landfill Site Hydrogeological Data Gap Analysis* by Ecoplans Ltd. (Ecoplans 2010) quoted in the *2010 Integrated Landfill Management Plan* by XCG (2010).

Topographically, the Site exists in a series of depressions formed in a knob and kettle outwash plain area with up to 30 m of relief across the Site. Prior to development, surface elevations at Site ranged between approximately 735 to 790 metres above mean sea level (m amsl) (XCG 2010).

Within the vicinity of site, the primary drainage feature is the Nechako River which flows to the east where this tributary enters the Fraser River. Southwest of the Site, seasonal and intermittent drainage features exist which flow towards the Nechako River at times of exceptional rainfall or snowmelt (XCG 2010).

The area encompassing the proposed Cell 2 footprint was logged, cleared, and grubbed, and stripped of organics and topsoil in 2024 prior to the beginning of the drilling phase of the site investigation. The topography of the proposed Cell 2 area as of the September 2024 survey is included in Appendix C and shown on Figure 1 of Appendix B.

4.0 GEOLOGICAL / HYDROGEOLOGICAL SETTING

The following section presents an overview and summary of the regional settings with respect to geological and hydrogeological conditions.

4.1 Regional Geology and Hydrogeology

Information regarding the regional geology and hydrogeology is summarized from the *2006 Design and Operations Plan* by AMEC (2006) as quoted in *2010 Integrated Landfill Management Plan* by XCG (2010).

Surficial deposits in the vicinity of the Site are comprised of lacustrine sand and silt with intermittent gravel content, underlain by clay till. In the vicinity of the Site, the glacial drift overlying the clay till ranges from 70 to 140 m thick. The top of the clay till in the vicinity of the Site has been found at elevations of approximately 680 to 700 m amsl corresponding to an approximate depth of 75 m below ground (XCG 2010).

4.2 Site Geology and Hydrogeology

Information regarding the Site geology and hydrogeology was summarized from the *2006 Design and Operations Plan* by AMEC (2006) as quoted in the *2010 Integrated Landfill Management Plan* by XCG (2010).

The Site is separated from a two (2) kilometer lowlands area near the Nechako River by a highlands area produced by an east-west trending esker complex. The surficial soils throughout the area are likely continuous with shallower Site soil having an increasing silt content to the north and an increasing coarse sand and gravel content to the south corresponding to the vicinity of the esker complex (XCG 2010).

The expected bedrock is estimated to lie at a depth of 50 m below ground surface (XCG 2010). However, it is noted that bedrock was not encountered during the field investigation undertaken by Tetra Tech in 2024 (further detail noted in Section 5.0).

At the Site, shallow groundwater movement in the horizontal direction is predominantly to the southwest towards the Nechako River (XCG 2010).

Unsaturated sand at the Site extends to a depth ranging from approximately 55 to 83 m below ground surface (mbgs). The overburden sand constitutes an unconfined aquifer with a water table elevation recorded between 696 and 704 m amsl. The saturated sand is reported to range in thickness from 0 to approximately 5 m. The hydraulic conductivity of the sand is reported to range from 1.2×10^{-4} to 6×10^{-5} m per second (XCG 2010).

5.0 SITE INVESTIGATION

The following section presents a summary of the field investigation and laboratory program completed in support of the site investigation activities. The site investigation program was undertaken within the footprint of Cell 2 to confirm geological conditions and inform the design basis and conceptual design. Laboratory soil testing and interpretation from the site investigation program is ongoing and will provide further detail as part of the detailed design stage.

5.1 Field Investigation Program

A field investigation and associated analytical testing of soil samples were undertaken by Tetra Tech on July 29 through August 10, 2024, to support the future Cell 2 development. Prior to the field program, Tetra Tech completed the verification of buried utilities for the property utilizing a private locating service which completed a 50 m sweep of the proposed borehole locations.

The field investigation program was comprised of four (4) borehole locations with Standard Penetration Tests (SPTs), including three (3) boreholes drilled to 40 m (BH-01, BH-02, BH-03) and one (1) borehole to 80 m (BH-04) with a groundwater monitoring well installation. The groundwater monitoring well was completed with the installation of a two-inch polyvinyl chloride (PVC) standpipe. The locations of the boreholes are shown in Appendix B and the borehole logs are included in Appendix D.

Drilling was conducted with a TerraSonic TSI 150 Compact Crawler track mounted sonic rig. Tetra Tech logged the soils encountered using the modified Unified Soil Classification System (USCS). Soils were visually classified in the field noting individual soil strata, the interfaces between them, and depth of encountered water tables. Disturbed soil samples were collected at select depths within each borehole to allow field personnel to characterize the stratigraphy of each borehole.

SPTs were conducted at:

- An interval of 5 feet (1.5 m) at 24BH-01;
- An interval of 10 feet (3 m) at 24BH-02;
- An interval of 5 feet (1.5 m) for the upper 20 feet and an interval of 10 feet (3 m) to borehole target depth at 24BH-03; and
- An interval of 10 feet (3 m) for the upper 160 feet and an interval of 20 feet (6 m) to borehole target depth at 24BH-04.

A total of one (1) Shelby tube sample was collected within the underlying clay till. Other attempts at collecting Shelby tubes were unsuccessful.

A groundwater piezometer was installed at the site of 24BH-04 to confirm groundwater elevation. The piezometer installation consisted of a 50 mm (2 inch) schedule 40 solid pipe PVC casing with a slotted screen at the bottom of the borehole. The piezometer construction details are outlined on the borehole log attached in Appendix D.

Following completion of the drilling program, the water level was recorded by Tetra Tech on October 25, 2024 (approximately 11 weeks after the program) to allow the water levels to stabilize.

5.2 Laboratory Program

Select soil samples collected during the drilling program were tested in the laboratory for moisture content, Atterberg limits, grain size analysis, standard proctor tests, and direct shear tests. The results of the laboratory analyses form the basis for the design of Cell 2, and are attached to this report under Appendix E.

5.3 Site Investigation Results

The details of the soil and groundwater conditions encountered at each borehole location are presented on the borehole logs in Appendix D. The following sections present a summary of the soil conditions at the borehole locations drilled at the project site.

Based on the available results from the site investigation, the lithology was consistent with the previously reported geology. The Cell 2 footprint comprised sand and silt deposits with intermittent gravel content, underlain by clay till. The sand deposits, which dominated the encountered materials, was typically compact to dense, damp to moist, predominately brown, with varying silt content ranging from trace to silty.

The water elevation at 24BH-04 was recorded to be 65.26 mbgs.

5.4 Results of Laboratory Testing

Soil samples selected for laboratory testing were chosen from the depths that would best represent the materials to be used in the construction of the embankments and clay liner. Laboratory tests were conducted at Tetra Tech's geotechnical laboratory to determine the engineering properties of representative samples collected from boreholes distributed across the Site. The testing program included the following items to support the detailed design of the composite lined cells as well as provide preliminary data for future earthworks-related compaction testing:

- Twenty (20) moisture contents;
- Four (4) Atterberg limits;
- Five (5) grain size analyses;
- Four (4) sieve analyses;
- Four (4) standard proctor tests;
- Two (2) direct shear testing.

Results are presented in Table 1, and copies of the laboratory reports are contained in Appendix E. The following sections summarize the site investigation test results.

5.4.1 Natural Moisture Content

Soil samples were collected at various intervals from all boreholes and submitted for natural moisture content. The results of the analyses are summarized in Table 1. The moisture content of the collected samples ranged between 3.1% and 33.9%, and was on average 18.8% with a geometric mean of 16.2%.

5.4.2 Particle Size Distribution

A total of five (5) soil samples were selected for particle size analysis using the Hydrometer method, and a total of four (4) soil samples were selected for particle size analysis using the sieve method. These results are summarized in Table 1.

5.4.3 Atterberg Limits

A total of 4 soil samples were tested to determine the Atterberg limits on the cohesive materials. The laboratory results indicate that the plasticity index (PI) ranged from 5 to 18 (average of 11.3), the liquid limit (LL) ranged from 19 to 33 (average of 18.8), and the plastic limit (PL) ranged between 14 to 23 (average of 16.5) classifying two of the soil samples as low plastic, and two samples classified as medium plastic. These results are summarized in Table 1.

5.4.4 Standard Proctor

Four samples were submitted for standard proctor testing. Optimum moisture content ranged from 14.4% to 17.5% and maximum dry density ranged from 1,645 kg/m³ to 1,785 kg/m³. The laboratory results are provided in Table 1.

5.4.5 Direct Shear

Two samples (one bulk sample and one Shelby tube sample) were submitted for direct shear testing. For the analysis conducted on Bulk 1 of BH-01, and at a cohesion intercept of 5 kPa, the peak strength and residual strength and the inferred angle of shearing resistance were recorded to be 37.4 degrees and 31.8 degrees respectively. For the analysis conducted on SH02 of BH-04, and at a cohesion intercept of 5 kPa, the peak strength and residual strength and the inferred angle of shearing resistance were recorded to be 28.7 degrees and 25.2 degrees respectively. Further details regarding the laboratory results can be found in Appendix E.

5.5 Survey

A topographical survey of the proposed Cell 2 area was completed by Allnorth on September 6, 2024. Results are included in Appendix C.

6.0 PROPOSED CELL 2 DESIGN

The following section presents a summary of the design criteria incorporated into the proposed Cell 2. This incorporates requirements from the OC, Design Criteria (Section 5.0) of the Landfill Criteria, and previous cell design and construction experience.

6.1 Design Overview

The design of Cell 2 is proposed to incorporate the following:

- The cell depth to be constructed approximately 20 m below the perimeter berm and a top of waste elevation of approximately 810 m amsl based on a minimum 10% top slope and maximum 33% side slopes.
- The landfill cell to be developed as a lined cell with a continuous leachate collection layer to facilitate ongoing leachate management, where the average leachate head on the liner can be controlled to less than 0.3 m.

- The nature of the hydrogeology, the existing topography, and the cut and fill requirements have been considered to optimize the depth of cell development. A conservative approach to landfill liner design has been taken with the objective of enhancing protection of the environment.
- The design of the landfill liner will meet or exceed the requirements of the Landfill Criteria, which includes a high-density polyethylene (HDPE) geomembrane with a thickness of 1.5 mm (60 mil) underlain by a geosynthetic clay liner (GCL).

6.2 Buffer Zones

The Landfill Criteria requires a minimum 50 m buffer zone between the landfill footprint and the landfill site boundary. The 20 m buffer closest to the landfill shall be used for access roads, firebreaks, and leachate or landfill gas (LFG) infrastructure, as required. The outer 30 m buffer should be comprised of natural or landscaped screening.

The north extent of the proposed Cell 2 design is more than 50 m from the site boundary. The west, north, and northeast portions of Cell 2 consist of a minimum 30 m buffer of natural (forested) screening. A perimeter access road is proposed to be located around the east and north portions of the Cell 2 area, within the 20 m buffer zone closest to the landfill footprint.

There may be additional setbacks required to accommodate the proposed FortisBC infrastructure planned for future construction.

6.3 Landfill Geometry

The proposed geometry of Cell 2 has been developed to meet the requirements of the Landfill Criteria.

The description of the proposed Cell 2 geometry is described in the subsections below and illustrated in the conceptual design drawings attached in Appendix B.

6.3.1 Waste Slopes

The description of the proposed Cell 2 wastes slopes are as follows:

- Maximum waste side slopes of 3H:1V (33%) grade; and
- Minimum waste plateau (top slope) of 10H:1V (10%) grade.

6.3.2 Base Grades

The description of the proposed landfill cell base grades of Cell 2 are as follows:

- Maximum allowable side slopes for the base liner of 3 horizontal to 1 vertical (3H:1V). The conceptual design proposes base liner side slopes of 4H:1V.
- A minimum 2% grade for the primary drainage path (leachate collection piping). The conceptual design proposed a primary grade of 3%.
- A minimum 0.5% grade for the secondary drainage path. The conceptual design proposes a secondary grade of 2%.

6.3.3 Depth to Groundwater

The Landfill Criteria requires a minimum 1.5 m separation between the bottom of the cell and the depth to groundwater. On October 25, 2024, a measurement was obtained from BH-04 located in the northwest portion of Cell 2 and the depth-to-water was measured to be more than 65 m below surface. Even with the anticipated surface elevation changes (cut and fill) associated with the proposed cell design, the depth to groundwater is anticipated to be approximately 43 m below the bottom of the cell, significantly exceeding the 1.5 m minimum separation requirement.

6.4 Liner System

The landfill liner system has been designed to meet or exceed the base liner requirements of the Landfill Criteria. The liner system is proposed to consist of the following components from bottom to top:

- A GCL (secondary liner).
- A 60 mil (1.5 mm) textured (double-sided), black, HDPE geomembrane (primary liner).
- A heavy non-woven geotextile (to protect the geomembrane liner from potential puncture).
- A minimum 300 mm layer of drainage material (leachate system).
- A light non-woven geotextile filter layer (applicability dependent upon initial lift waste composition and general long-term waste composition).

Per the Landfill Criteria, continuous Quality Assurance (QA) and Quality Control (QC) inspections are to be carried out by a Qualified Professional (QP) during installation of the liner system. A leak detection survey is recommended to be performed after the HDPE installation to identify any areas that may have been damaged during placement.

6.4.1 Clay Materials for Engineered Clay Liner

The preliminary results of the site investigation and material characterization results indicate that there will not be available clay material for clay liner construction. Silt and sand material are anticipated to be encountered during excavation; therefore, no engineered clay liner is proposed as part of this design basis.

6.5 Leachate Collection System

The leachate collection system will be designed to allow for control of the internal piezometric level of leachate within the landfill. The Landfill Criteria requires the average leachate head (depth) on the liner to be less than 300 mm. The acceptable leachate head is defined as the depth of leachate above the lowest point of the liner, not including sumps or leachate trenches. The leachate collection system will be designed to handle the quantity and composition of leachate anticipated during both the operation and post-closure periods of the landfill.

6.5.1 Leachate Collection Infrastructure

A 50 mm diameter drainage aggregate material will be placed at a minimum thickness of 300 mm overtop the cell floor as well as within any leachate collection trenches and leachate sump. An engineered filter layer will be placed above the drainage material to minimize the potential for fines to make their way into the drainage layer.

Per the Landfill Criteria, leachate collection piping is to be installed with a lateral spacing of no more than 15 m and a maximum drainage path of 50 m. Based on the current conceptual design, the proposed leachate trench will have

an average spacing of 50 m from the side slopes resulting in an exemption required for the 15 m collection piping spacing and the maximum drainage path of 50 m. The leachate system, and therefore exemption, will be based on detailed calculations demonstrating the drainage system is capable of managing expected leachate flows based on local environmental rainfall data to maintain a leachate head of less than 300 mm during peak flows.

SDR11 HDPE perforated leachate piping with minimum 150 mm diameter is proposed for use in the leachate collection trench system. The collection pipes will be designed with a minimum slope of 2% along the primary flow path. The collector pipes will drain to a sump at the low point of the cell floor. The design will incorporate risers at each end of the collector pipes which will allow for the monitoring and removal of leachate as well as maintenance of the leachate system. The proposed leachate trench configuration and drainage aggregate layer will provide a support for a smooth solid walled flexible HDPE pipe, thereby guarding against lateral deflection of the pipe. Perforations in the leachate collection pipe will be along the bottom of the pipe offset from the invert of the pipe to collect leachate and reduce sediment loading within the pipe structure.

Per the Landfill Criteria, QA and QC inspections will be carried out during installation of the leachate collection system.

6.5.2 Leachate Removal Infrastructure

Leachate will be removed via a leachate riser pipe extending from the Cell 2 sump to the top of the east berm. The removal system will be equipped with a leachate level monitoring and pumping system that will allow operators to monitor the leachate head at the low point of the base of the cell, and to facilitate pumping the leachate out of Cell 2.

Leachate from Cell 2 is ultimately intended to be directed to the Prince George sanitary sewer system via an existing force main located near the main entrance of the Site. The leachate from Cell 2, once pumped from the sump, will be pumped into a new force main that ties directly into the existing force main. For added storage capacity, a leachate tank is intended adjacent to the Cell 2 leachate riser pipe to allow landfill operators flexibility when pumping to the force main.

6.6 Surface Water Management

Surface water management infrastructure, such as ponds and ditches will be incorporated into the Cell 2 design to direct surface water runoff away from the active operation, and to minimize the potential for erosion and sediment loading to downstream water courses. The goal of surface water management is to minimize the impact of the landfill on the downstream environment, while preserving the hydrologic cycle.

The Landfill Criteria requires the following design criteria for surface water management works:

- Surface water ditches and retention ponds shall be designed for the control and retention of a 1:100-year, 24-hour storm event;
- Ditch surfaces are to be armoured with appropriate protection for expected flow velocities (i.e., rip rap, erosion control matting, or vegetative cover); and
- Ditches are to maintain a minimum 1% grade to prevent sedimentation and maintain hydraulic design capacity.

Further assessment as part of the detailed design stage will be undertaken to develop the surface water management infrastructure required to meet the objectives and requirements set out in the OC and Landfill Criteria.

6.7 Cell Access

An access road will be incorporated into the design to provide access to Cell 2. The access road is proposed to extend north of the existing haul road and access into Cell 2 is proposed to be from the south or west portion of the cell.

Per the Landfill Criteria, access roads are required to be designed with the following:

- Provide safe, all-weather access to waste disposal areas;
- Road surface to be a minimum of four (4) m wide for one lane and seven (7) m wide for two lanes;
- Roads for public and commercial traffic shall not exceed 8% grade; and
- Surface water ditches shall be maintained to promote proper drainage. Armoured ditches are recommended for road steeper than 2%.

The access road is proposed to consist of the following components:

- 150 mm prepared subgrade;
- Engineered fill (depth as required); and
- 150 mm granular base course.

7.0 COST ESTIMATE

A preliminary, high-level cost estimate associated with the construction of Cell 2 has been developed prior to the results of the site investigation findings. The cost estimate is comprised of two components: one for earthworks and one for the remaining cell construction. Both cost estimates are provided under separate cover.

8.0 NEXT STEPS

Next steps include requesting an exemption to increase the leachate collector pipe lateral spacing and maximum drainage path, as part of the next stages of detailed design based on calculations showing that the Cell 2 leachate system will be capable of maintaining a leachate head of less than 300 mm during peak leachate flows.

9.0 LIMITATIONS OF REPORT

This report and its contents are intended for the sole use of the Regional District of Fraser-Fort George and their agents. Tetra Tech Canada Inc. does not accept any responsibility for the accuracy of any of the data, the analysis, or the recommendations contained or referenced in the report when the report is used or relied upon by any Party other than the Regional District of Fraser-Fort George, or for any Project other than the proposed development at the subject site. Any such unauthorized use of this report is at the sole risk of the user. Use of this document is subject to the Limitations on the Use of this Document attached in the Appendix or Contractual Terms and Conditions executed by both parties.

10.0 CLOSURE

We trust this technical memo meets your present requirements. If you have any questions or comments, please contact the undersigned.

Respectfully submitted,
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PERMIT TO PRACTICE
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Enclosures: Figure 1: Existing Site Plan and Proposed Cells
Appendix A: Operational Certificate MR-01697
Appendix B: Drawings – Cell 2 Conceptual Design
Appendix C: Topographical Survey (September 2024) – Allnorth
Appendix D: Borehole Logs
Appendix E: Lab Results
Appendix F: Limitations on the Use of this Document

REFERENCES

- BC Ministry of Environment. 2016. Landfill Criteria for Municipal Solid Waste, Second Edition. June 2016.
- DataBC (Province of British Columbia). 2018. BC Water Resources Atlas.
Website: <http://maps.gov.bc.ca/ess/hm/wrbc/> (Accessed October 2024).
- Regional District of Fraser-Fort George. 2021 Annual Operations Report — Foothills Regional Landfill.
- XCG Consulting Ltd. 2010. Integrated Landfill Management Plan.

TABLES

Table 1: Soils Lab Program Results Summary

Table 1: Soils Lab Program Results Summary

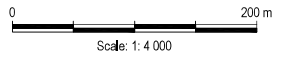
Borehole Number	Sample Number	Sample Depth (Below Ground Level)		Sample Depth (Below Ground Level)		Soil Description Modified USCS	Moisture Content (%)	Atterberg Limits			Grain Size Analysis					Sieve Analysis (mm)										Standard Proctor		Direct Shear		
		Top (ft)	Bottom (ft)	Average (ft)	Average (m)			LL	PL	PI	P _{fines} (%)	Clay (%)	Silt (%)	Sand (%)	Gravel (%)	40	25	19	12.5	9.5	4.75	2.0	0.85	0.425	0.250	0.150	0.075		SPMDD (kg/m ³)	Opt. MC (%)
		% Passing																												
BH-01	Bulk 1	13	20	16.5	5.0																						1645	16.6	See Results on PDFs	
	Bulk 2	35	40	37.5	11.4																						1785	14.4		
	B15	81	82	81.5	24.8		3.9																							
BH-02	B01	2	3	2.5	0.8		24.5																							
	B02	10	11	10.5	3.2		20.6																							
	B03	18	19	18.5	5.6		19.9																							
	B04	21	22	21.5	6.6		20.3																							
	Bulk 1	35	40	37.5	11.4		16.8			48	4	44	52	0													1780	14.8		
	Bulk 2	53	57	55	16.8		10.8																							
BH-03	B01	3	4	3.5	1.1		33.9																							
	SS01	5	7	6	1.8		27.8																							
	B04	16	17	16.5	5.0		24.8																							
	B09	40	41	40.5	12.3		10																							
BH-04	B01	3	4	3.5	1.1	ML	28.5	29	23	6																				
	B02	8	9	8.5	2.6		25.1																							
	B03	11	12	11.5	3.5		26.6																							
	Bulk 1	13	17	15	4.6		19				84	1	83	16	0												1700	17.5		
	B05	23	24	23.5	7.2		24.2																							
	B06	26	27	26.5	8.1						87	2	85	13	0															
	Bulk 2	61	65	63.0	19.2		3.1									100	83	77	67	59	48	33	14	6	4	3	2.1			
	B31	232	233	232.5	70.9						97	2	95	2	1															
	B32	237	238	237.5	72.4	CL-ML	7.8	19	14	5																				
	B33	244	245	244.5	74.5	CL-CI	12.9	30	14	16																				
SH02	250	250.75	250.4	76.3						62	19	43	27	11																See Results on PDFs
B34	255	256	255.5	77.9	CI	15.9	33	15	18																					

Notes:
 LL - Liquid Limit.
 MC - Moisture Content.
 PI - Plasticity index.
 PL - Plastic Limit.
 SPMDD - Standard Proctor Maximum Dry Density.
 USCS - Unified Soil Classification System.

FIGURES

Figure 1: Existing Site Plan and Proposed Cells

Q:\Electrom\Drawings\04_MASTER PROJECT BASE PLANS\Regional District of Fraser-Fort George\Productions\SWM_SWOP\4864-01\Figures\Conceptual Cell 2 Design\RDFFG Design Brief\Fig_1.dwg [FIGURE 1] October 31, 2024 - 10:28 pm (B.V. GAMMIE: EDM)



CLIENT		2024 DESIGN BRIEF FOOTHILLS BOULEVARD REGIONAL LANDFILL			
REGIONAL DISTRICT of Fraser-Fort George		EXISTING SITE PLAN AND PROPOSED CELLS			
PROJECT NO. SWM_SWOP04864-01	DWNN DRG	CXD MJ	REV 0	Figure 1	
OFFICE EDM	DATE September 26, 2024				



APPENDIX A

OPERATIONAL CERTIFICATE MR-01697

MINISTRY OF ENVIRONMENT
OPERATIONAL CERTIFICATE
MR-01697

*Under the Provisions of the Environmental Management Act
and in accordance with the
Regional District of Fraser-Fort George
Solid Waste Management Plan*

Regional District of Fraser-Fort George
155 George Street
Prince George, British Columbia
V2L 1P8

is authorised to manage recyclable material and municipal solid waste at a sanitary landfill located at **6595 Foothills Boulevard**, Prince George, British Columbia, subject to the conditions listed below. Contravention of any of these conditions is a violation of the *Environmental Management Act* and may result in prosecution.

1. LOCATION OF AUTHORISED FACILITY

The location of the facility for the management of recyclable material and municipal solid wastes to which this Operational Certificate is applicable is the Foothills Landfill, Block A of the Northeast ¼ of District Lot 4053 and Block A of the Northwest ¼ of District Lot 4048, Cariboo District as shown in the attached plan and containing 87 hectares more or less.

2. ENTRANCE FACILITIES

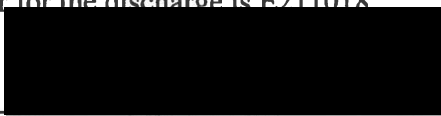
The authorised facility includes recyclable material and municipal solid waste drop-off facilities, weigh scales and related appurtenances approximately as shown on the attached Site Plan.

3. MANAGEMENT OF MUNICIPAL SOLID WASTE

3.1. Sanitary Landfill

3.1.1. The authorised facilities are a sanitary landfill area, composting area, landfill gas management, recyclable material storage areas and related appurtenances approximately as shown on the attached Site Plan. The site reference number for the discharge is E211018

Date Issued: **OCT 31 2005**


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for Director, Environmental Management Act

- 3.1.2. The characteristics of the discharge must be municipal solid waste as defined under the *Environmental Management Act* and other wastes as approved in writing by the Director.
- 3.1.3. Waste may be discharged to the areas specified in the Regional District's Design and Operation Plan, approximately located as shown on the attached Site Plan.

4. **GENERAL REQUIREMENTS**

4.1. **Qualified Professionals**

All facilities and information, including works, plans, assessments, investigations, surveys, programs and reports, must be certified by qualified professionals.

4.2. **Plans**

4.2.1. The Regional District shall prepare a Design and Operation Plan that will include considerations for site operation and development, leachate and landfill gas management, composting operations, monitoring programs and environmental impact mitigation management.

The Design and Operation Plan must be submitted to the Director by November 30, 2005.

4.2.2. The Design and Operation Plan must address, but not be limited to, each of the subsections in the *Landfill Criteria for Municipal Solid Waste* including performance, siting, design, operational and closure and post-closure criteria.

4.2.3. The facilities must be developed and operated in accordance with the Design and Operation Plan.

4.2.4. Any updates to the plan shall be immediately submitted to the Director.

4.3. **Additional Facilities or Works**

The Director may require investigations, surveys, and the construction of additional facilities or works. The Director may also amend information requirements of this Operational Certificate including plans, programs, assessments and reports.

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5. OPERATIONAL REQUIREMENTS

5.1. Operator Training and Development

At a minimum, the Regional District will ensure that operating personnel are trained to industry standards and at least one member of the on-site personnel are trained and current in a SWANA recognized landfill operator course or equivalent.

5.2. Wildlife Management and Control

At the time of issuance of this certificate the Regional District is not required to install electric fencing for the purpose of preventing access to the site by bears.

The Regional District is required to monitor wildlife (medium and large carnivores) activity at the facility and keep records of occurrences and observations of wildlife (medium and large carnivores).

The Director may request the Regional District to develop a Wildlife Management Plan that presents solutions for preventing wildlife access to the facility.

5.3. Compost

Composting facilities shall be operated and maintained in accordance with the *Organic Matter Recycling Regulation*.

5.3. Management of Landfill Gas

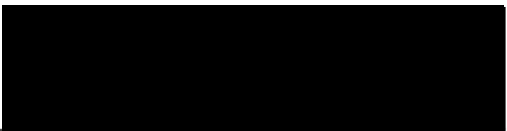
The management of landfill gas shall be managed in accordance with sections 4.2 and 6.4 of the *Landfill Criteria for Municipal Solid Waste*. In addition, the Regional District will have a qualified professional prepare an Operations and Maintenance Manual for the landfill gas management system.

6. HAZARDOUS WASTE MANAGEMENT

6.1. Hazardous Waste

“Hazardous Wastes” as defined by the *Hazardous Waste Regulation* pursuant to the *Environmental Management Act* are prohibited from disposal unless expressly authorised by the *Hazardous Waste Regulation*, approved by the Director or as specified in the Operational Certificate.

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6.2. Waste Asbestos

Waste asbestos is authorized for disposal subject to compliance with the requirements of section 40 of the *Hazardous Waste Regulation* and the following conditions:

- 6.2.1. The asbestos waste may not be mixed with any other hazardous waste.
- 6.2.2. The Regional District must approve the disposal before disposal takes place.
- 6.2.3. All other applicable requirements of the *Hazardous Waste Regulation*, including but limited to manifesting and waste record keeping, must also be complied with.

6.3. Handling of Impacted Soil

The *Environmental Management Act*, the *Contaminated Sites Regulation* and the *Hazardous Waste Regulation* are applicable for the disposal of impacted (contaminated) soil at the facility.

6.4. Hazardous Wastes from Accidental Spills or Abandonment

Hazardous wastes resulting from accidental spills or abandonment of dangerous goods may be accepted at the facility only under the authority of Section 52(1) of the *Hazardous Waste Regulation*.

7. MONITORING

7.1. Monitoring Program

- 7.1.1. A monitoring program shall be developed by a qualified professional to identify potential impacts to the environment and public health from the facility.
- 7.1.2. The monitoring program shall be submitted as part of the Design and Operation Plan.
- 7.1.3. The monitoring program must address, but not be limited to, subsections 4.1, 4.2 and 7.15 of the *Landfill Criteria for Municipal Solid Waste* and the *Guidelines for Environmental Monitoring at Municipal Solid Waste Landfills*.
- 7.1.4. Monitoring must be conducted in accordance with the monitoring program.

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for Director, Environmental Management Act

8. REPORTING

All reports and drawings shall be submitted in electronic format unless otherwise requested by the Director.

8.1. Drawings

All drawings shall be certified correct and sealed by a qualified professional. Drawings shall be submitted to the Director within 30 days of completion or as otherwise specified by the Director.

8.2. Annual Report

The Regional District shall submit an Annual Report to the Director on or before June 30 each year for the previous calendar year. The report shall contain, but not be limited to the following information:

- i.) an executive summary;
- ii.) the type and tonnage of waste received, recycled and landfilled for the year;
- iii.) a current topographic map detailing airspace consumption, on-site borrow pit changes and future developments;
- iv.) updated estimates for the remaining capacity, closure date for the current phase and closure date for the current landfill footprint;
- v.) any new information or proposed changes relating to the facilities and Design and Operation Plan;
- vi.) composting operation activity including amount of material received for composting, material composted, material sold and number of composting cycles;
- vii.) occurrences or observations of wildlife (medium and large carnivores) at the facility;
- viii.) a statement regarding the facility's progress in reducing the regional solid waste stream, in accordance with the hierarchy of reduce, reuse and recycle principles; and,
- ix.) the results of all monitoring programs as specified in this Operational Certificate. Data interpretation and comparison to the performance criteria in the *Landfill Criteria for Municipal Solid Waste* and the *Guidelines for Environmental Monitoring and Municipal Solid Waste*

Date Issued: **OCT 31 2005**

Landfills. Trend analysis, as well as an evaluation of the impacts of the discharges on the receiving environment in the previous year shall be carried out by a qualified professional.

9. CLOSURE PLAN

At least one year in advance of decommissioning the landfill, or as otherwise specified by the Director, a Closure Plan shall be submitted which includes at least the following information:

- i) a topographic plan showing the final elevations contours of the landfill and surface water diversion and drainage controls;
- ii) specifications for the final cap and proposed end use of the site; and,
- iii) provisions for a minimum 25 year post-closure care period at the facility which, at a minimum, considers the following: groundwater monitoring, surface water monitoring, landfill gas management, erosion and settlement monitoring and management.

10. CLOSURE AND POST-CLOSURE FUND

The Regional District will conform to the Public Sector Accounting and Auditing Board's requirements (PS 3270) to recognize solid waste landfill closure and post-closure liability. The Regional District will develop a plan to ensure that sufficient funds are available for closure and post-closure care work.

Date Issued:

OCT 31 2005

Page: 6 of 6



Del Reinheimer, P.Eng.
for Director, Environmental Management Act

OPERATIONAL CERTIFICATE: MR-01679

SITE PLAN



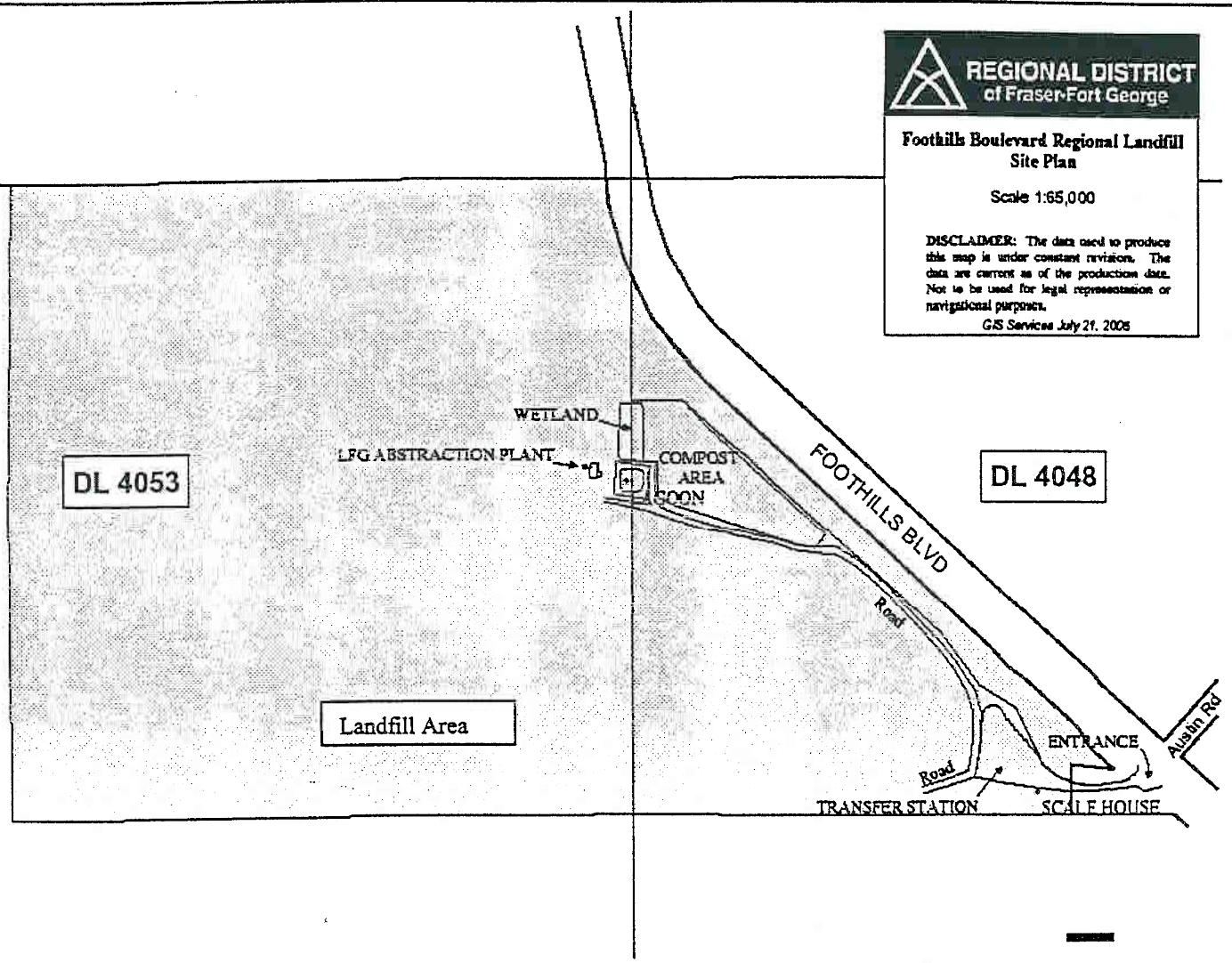
REGIONAL DISTRICT
of Fraser-Fort George

Foothills Boulevard Regional Landfill
Site Plan

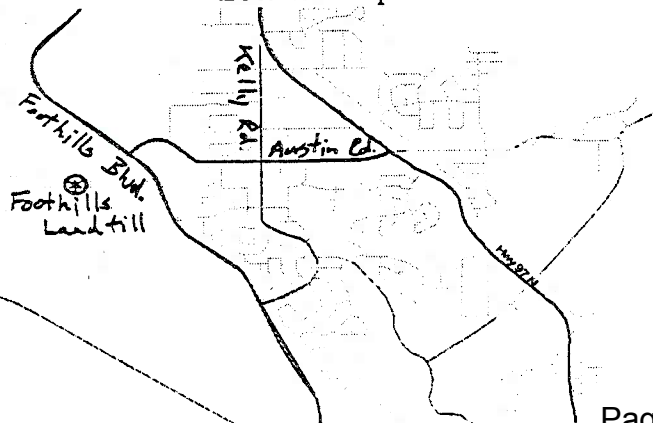
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DISCLAIMER: The data used to produce this map is under constant revision. The data are current as of the production date. Not to be used for legal representation or navigational purposes.

GIS Services July 21, 2005



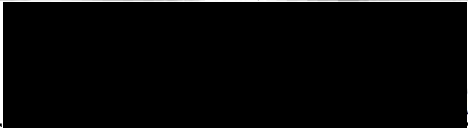
Location Map



Scale: Not to Scale

OCT 31 2005

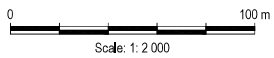
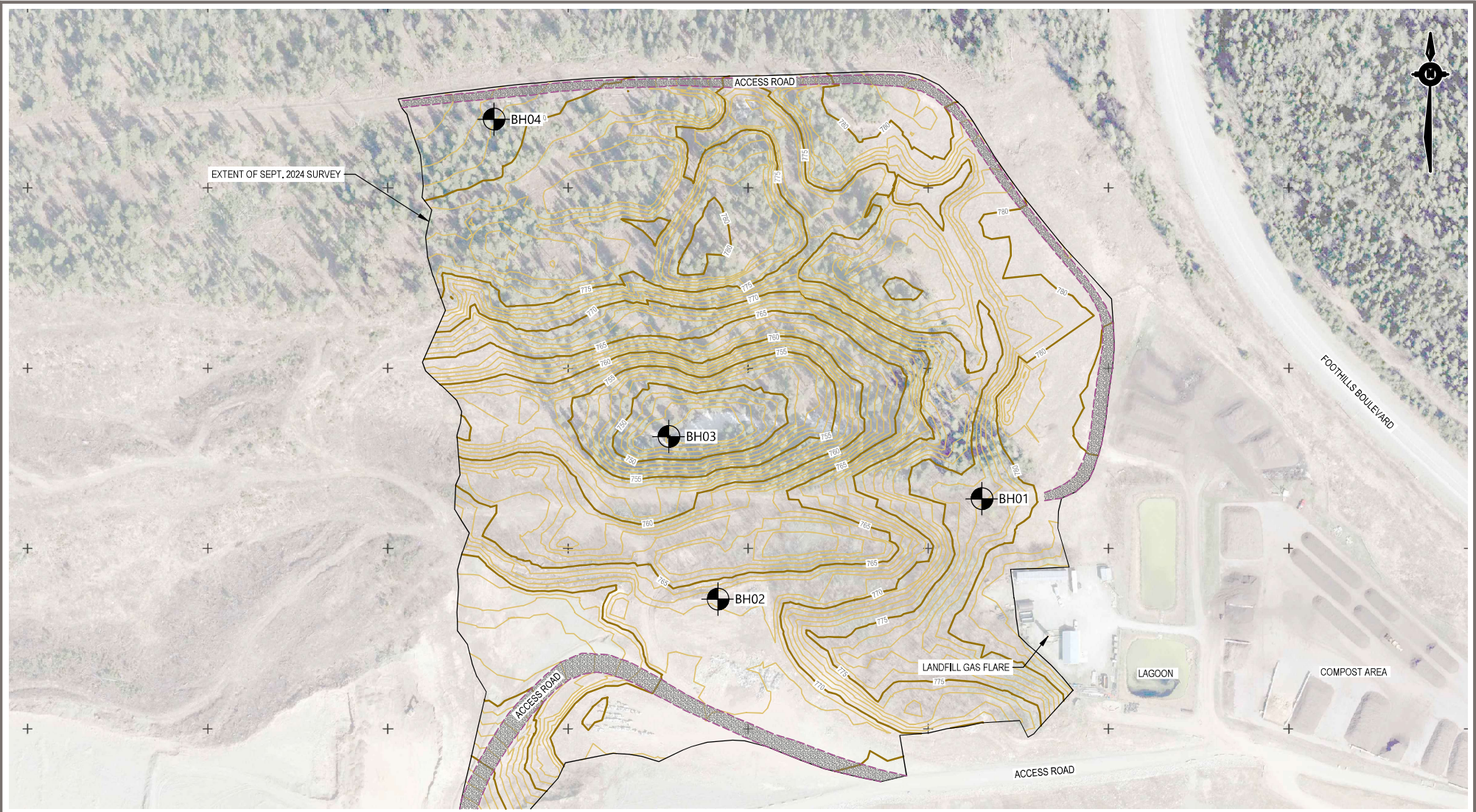
Operational Certificate No. MR-01697


Del Reinheimer, P.Eng.
for Director, Environmental Management Act
Omineca and Peace Regions

APPENDIX B

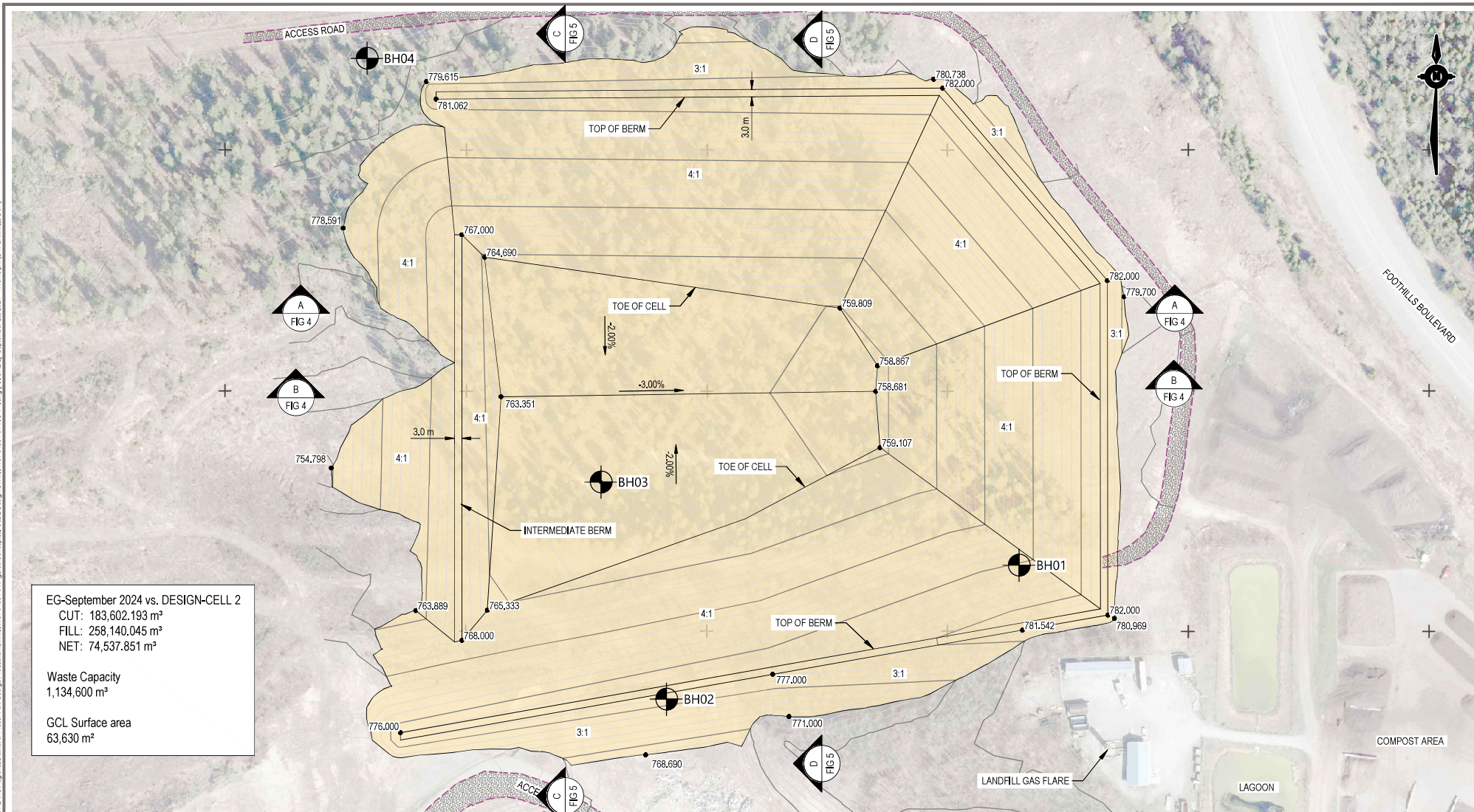
DRAWINGS – CELL 2 CONCEPTUAL DESIGN

Q:\Environment\4864\01_MASTER PROJECT BASE PLAN\Regional District of Fraser-Fort George\Production\SWM_SWOP\4864-01_Figures\Conceptual Cell 2 Design\SWM_SWOP\4864-01_Figures\4864-01_Figures_1.dwg [FIGURE 1] September 26, 2024 - 11:14:00 pm (BY: GAMME, DON)



CLIENT		2024 CELL 2 DEVELOPMENT FOOTHILLS BOULEVARD REGIONAL LANDFILL		
REGIONAL DISTRICT of Fraser-Fort George		EXISTING SITE PLAN SEPTEMBER 2024 SURVEY		
PROJECT NO. SWM_SWOP04864-01	DWNN DRG	CHD MJ	REV 0	Figure 1
OFFICE EDM	DATE September 26, 2024			

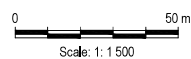
Q:\Environment\48190_MASTER PROJECT BASE PLAN\Regional District of Fraser-Fort George\Production\SWM\SWP\4864-01\Figures\Conceptual Cell 2 Design\SWM\SWP\4864-01-Fig 4.dwg FIGURE 2 September 26, 2024 - 11:13:16 pm BY: GAMME DON



EG-September 2024 vs. DESIGN-CELL 2
 CUT: 183,602.193 m³
 FILL: 258,140.045 m³
 NET: 74,537.851 m³

Waste Capacity
 1,134,600 m³

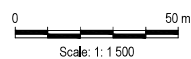
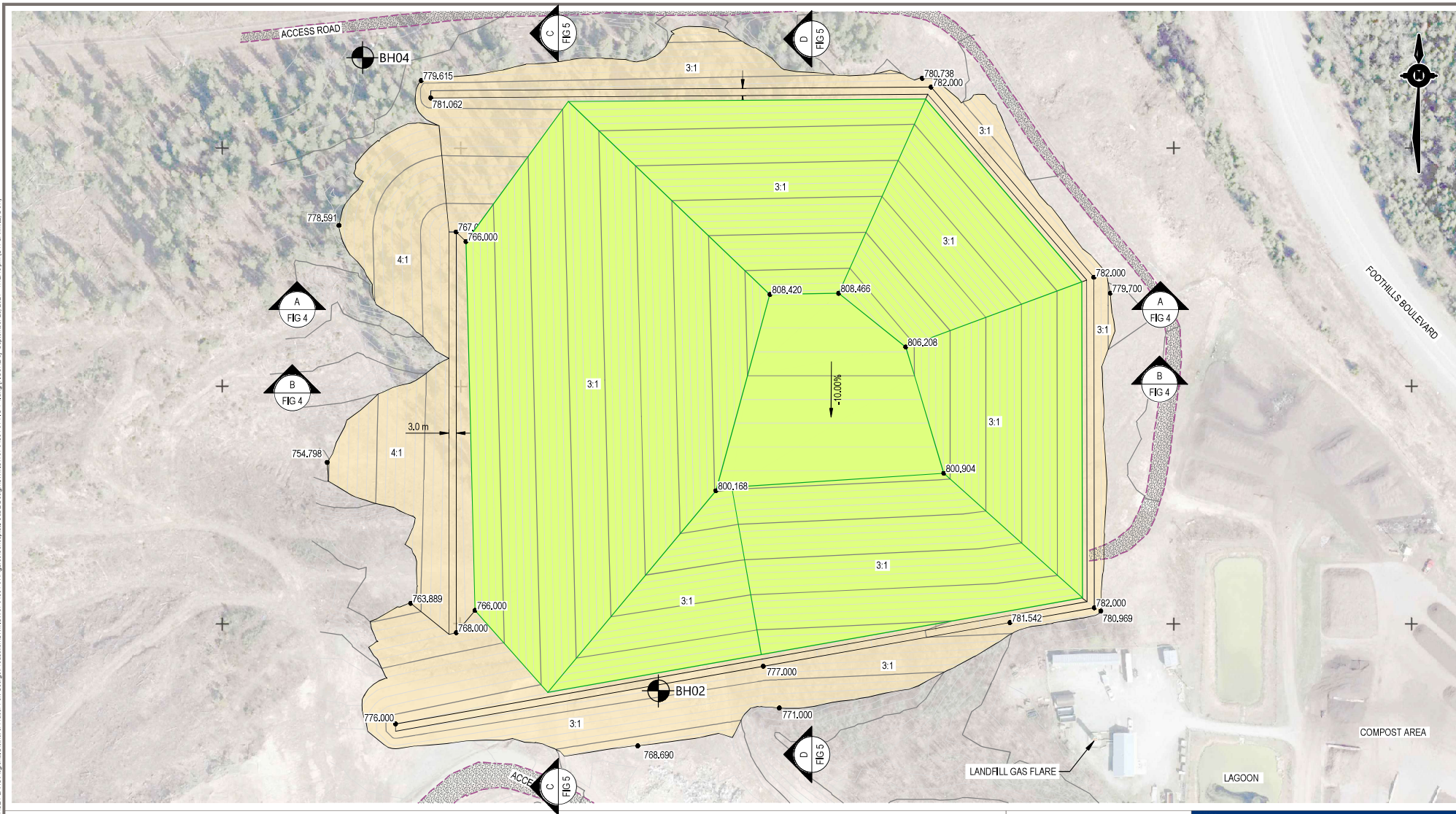
GCL Surface area
 63,630 m²



CLIENT		2024 CELL 2 DEVELOPMENT FOOTHILLS BOULEVARD REGIONAL LANDFILL			
REGIONAL DISTRICT of Fraser-Fort George		PLAN CONCEPTUAL CELL 2 DESIGN			
PROJECT NO. SWM.SWOP04864-01	OWN	CHK	REV	Figure 2	
	DRG	MJ	0		
OFFICE EDM	DATE September 26, 2024				

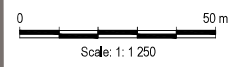
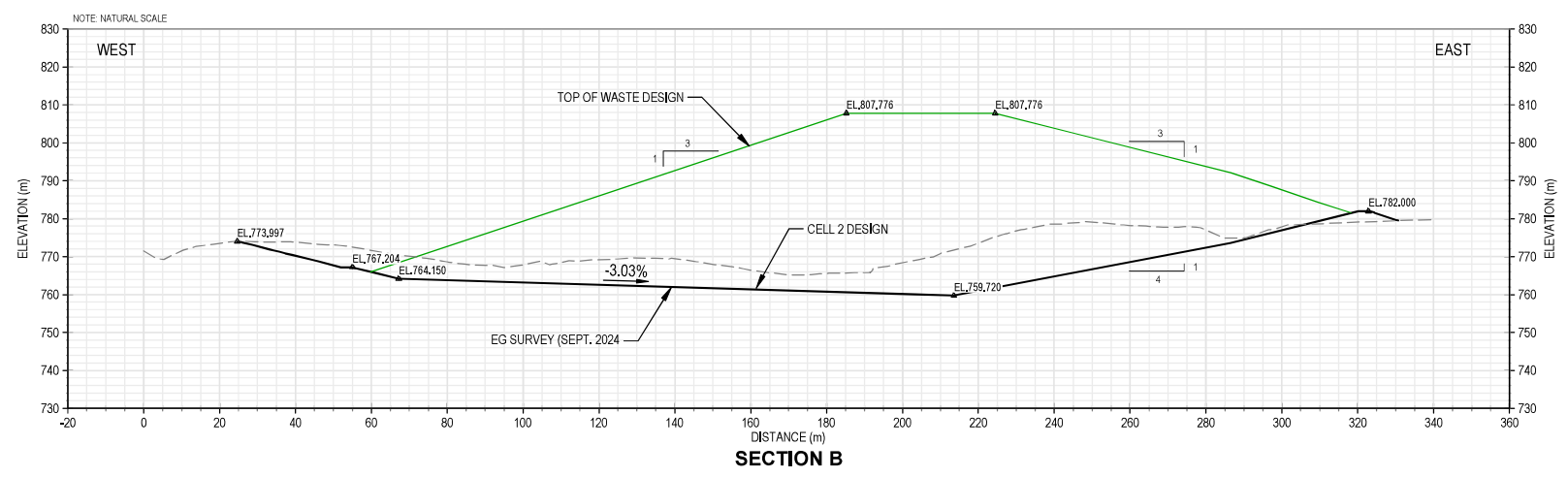
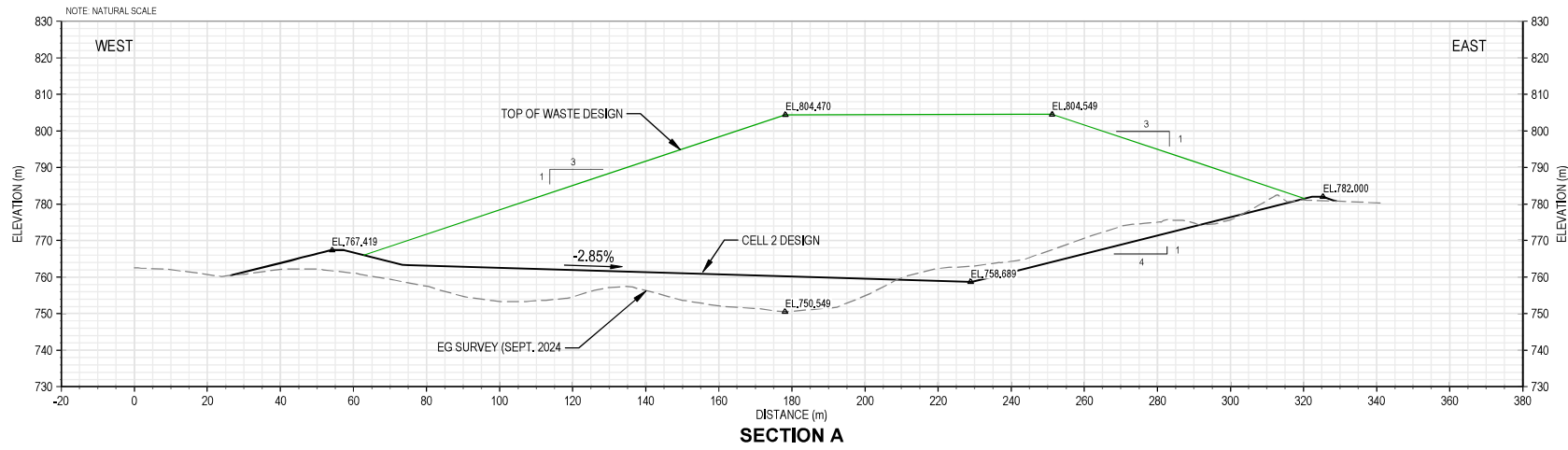


Q:\Environment\Training\02_MASTER PROJECT BASE PLAN\Regional District of Fraser-Fort George\Productions\SWM\SWP\4864-01\Figures\Conceptual Cell 2 Design\SWM\SWP\4864-01\Fig 3.dwg [FIGURE 3, September 26, 2024, 1:12:46 pm BY: GAMME, DON]



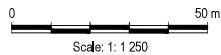
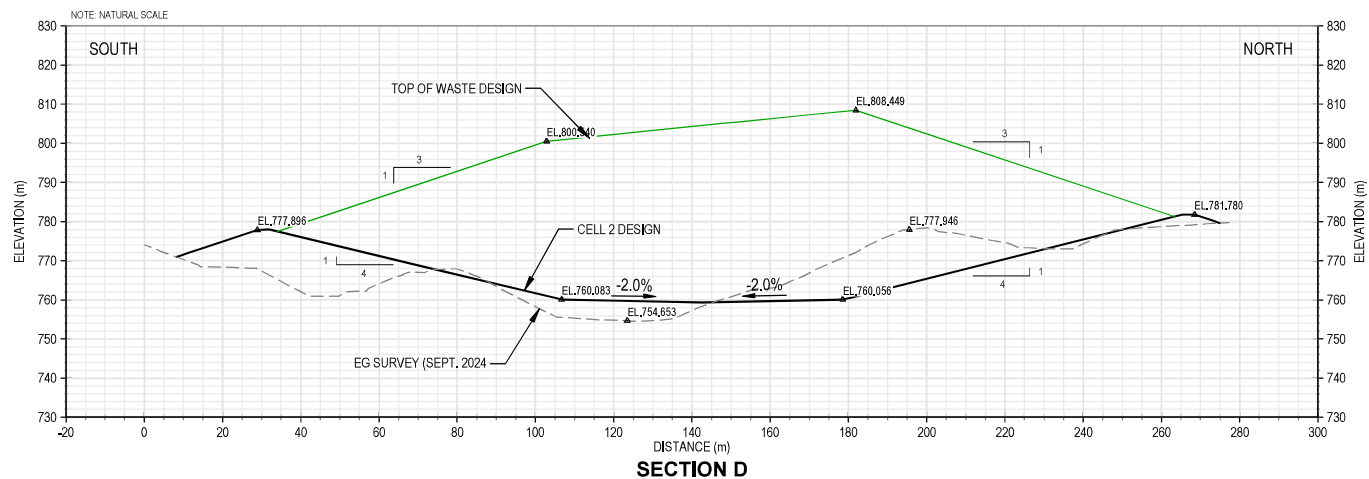
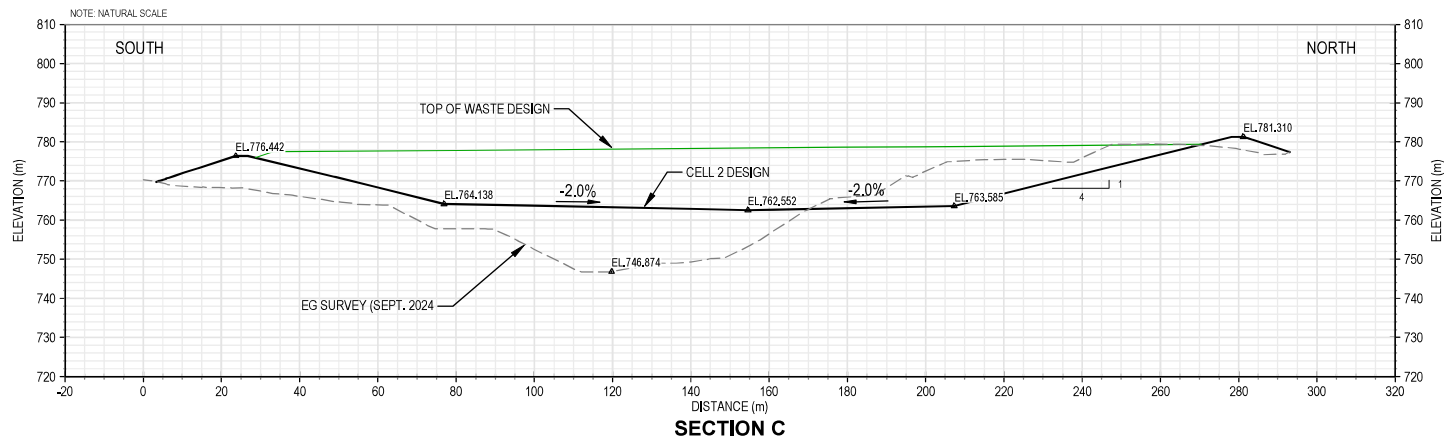
CLIENT		2024 CELL 2 DEVELOPMENT FOOTHILLS BOULEVARD REGIONAL LANDFILL			
REGIONAL DISTRICT of Fraser-Fort George		PLAN CONCEPTUAL CELL 2 TOP OF WASTE			
	PROJECT NO.	OWN	CHK	REV	Figure 3
	SWM.SWP04864-01	DRG	MJ	0	
	OFFICE	DATE			
EDM	September 26, 2024				

Q:\Environment\Drawings\04_MASTER PROJECT BASE\PI\ANS\Regional\District of Fraser-Fort George\Productions\SWP\4864-01\Figures\Conceptual_Cell 2 Design\SWP\4864-01\Figs --.dag [FIGURE 4] September 26, 2024 - 11:15 pm BY: GAMME_DON



CLIENT 		2024 CELL 2 DEVELOPMENT FOOTHILLS BOULEVARD REGIONAL LANDFILL		
CROSS-SECTION A AND B				
	PROJECT NO. SWM.SWOP04864-01	DWN DRG	CND MJ	REV 0
	OFFICE EDM	DATE September 26, 2024		
				Figure 4

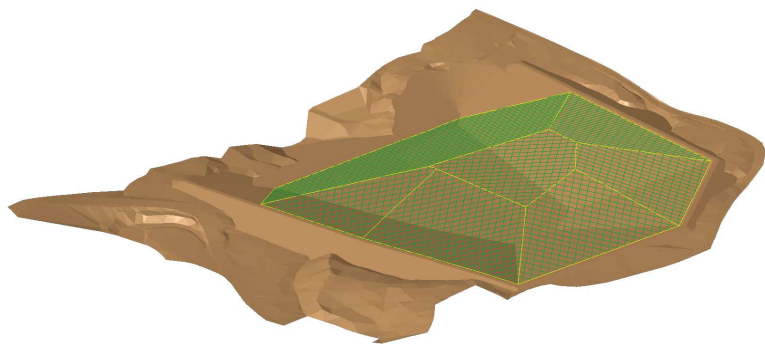
Q:\Environment\Drawings\02_MASTER PROJECT BASE\PI\ANS\Regional\District of Fraser-Fort George\Productions\SWM\SWP\4864-01\Figures\Conceptual Cell 2 Design\SWM\SWP\4864-01\Figs --.dwg [FIGURE 5, September 26, 2024 - 11:14 am] BY: GAMMIE, DON



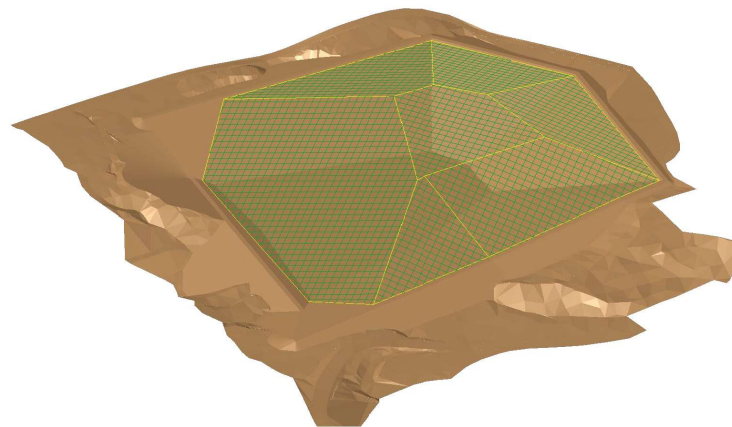
CLIENT 	2024 CELL 2 DEVELOPMENT FOOTHILLS BOULEVARD REGIONAL LANDFILL		
	CROSS-SECTION C AND D		
	PROJECT NO. SWM.SWOP04864-01	DWN DRG	CND MJ
	OFFICE EDM	REV 0	DATE September 26, 2024

Figure 5

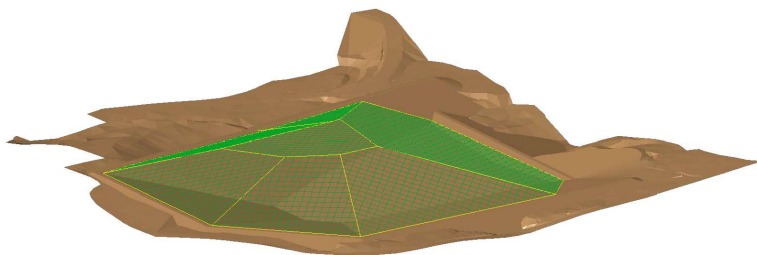
Q:\Environment\Training\01_MASTER PROJECT BASE PLANS\Regional District of Fraser-Fort George\Production\SWM_SWOP\4864-01\Figures\Conceptual Cell 2 Design\SWM_SWOP\4864-01\Figures\Conceptual Cell 2 Design\SWM_SWOP\4864-01\Figs - 4.dwg [FIGURE 6] September 26, 2024 - 11:11 pm BY: GAMME DON



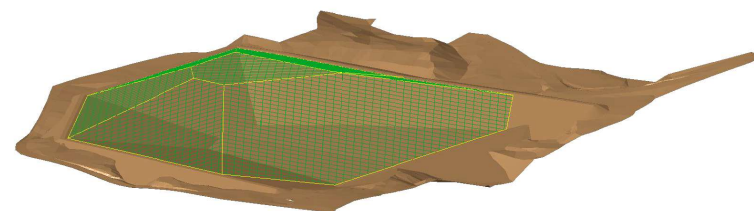
LOOKING NORTHWEST



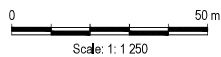
LOOKING NORTHEAST



LOOKING SOUTHWEST



LOOKING SOUTHEAST





CLIENT  REGIONAL DISTRICT of Fraser-Fort George	2024 CELL 2 DEVELOPMENT FOOTHILLS BOULEVARD REGIONAL LANDFILL			
	3D VIEWS			
 TETRA TECH	PROJECT NO. SWM_SWOP04864-01	DWN DRG	CND MJ	REV 0
	OFFICE EDM	DATE September 26, 2024		

Figure 6

APPENDIX C

TOPOGRAPHICAL SURVEY (SEPTEMBER 2024) – ALLNORTH

APPENDIX D

BOREHOLE LOGS

Regional District of Fraser-Fort George

Borehole No: 24BH-01

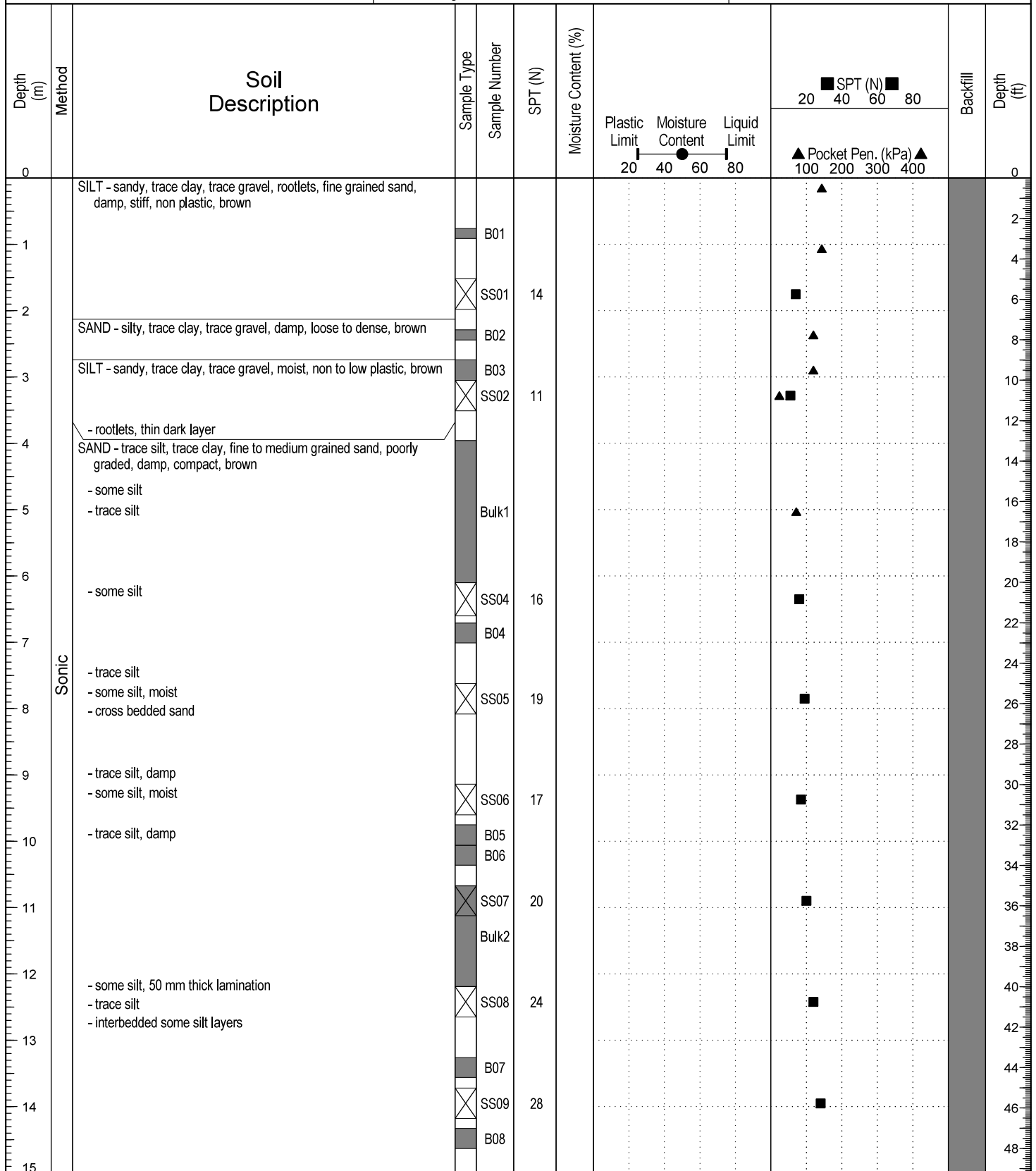
Project: RDFFG BC 2024 Cell 2 Geotechnical Investigation

Project No: SWM.SWOP04864-01

Location: RDFFG Landfill

Prince George, British Columbia

UTM: 511328 E; 5982827 N; Z 10



Contractor: Geotech Drilling

Completion Depth: 41.15 m

Equipment Type: Terra Sonic 150

Start Date: 2024 July 30

Logged By: LL/SS/TS

Completion Date: 2024 August 1

Reviewed by: **Page 98 of 147**

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Regional District of Fraser-Fort George

Borehole No: 24BH-01

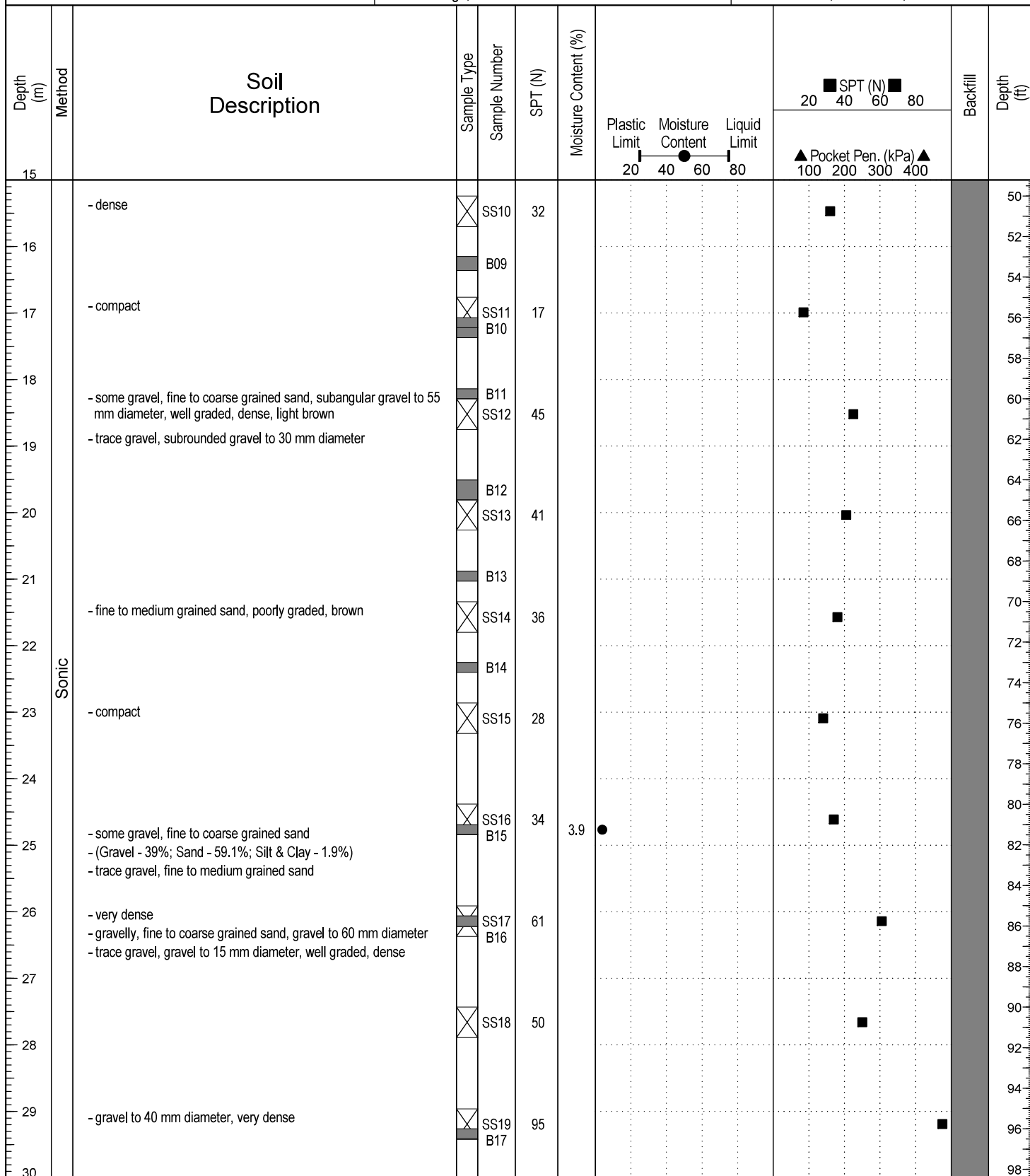
Project: RDFFG BC 2024 Cell 2 Geotechnical Investigation

Project No: SWM.SWOP04864-01

Location: RDFFG Landfill

Prince George, British Columbia

UTM: 511328 E; 5982827 N; Z 10



Contractor: Geotech Drilling

Completion Depth: 41.15 m

Equipment Type: Terra Sonic 150

Start Date: 2024 July 30

Logged By: LL/SS/TS

Completion Date: 2024 August 1

Reviewed by: **Page 99 of 147**

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Regional District of Fraser-Fort George

Borehole No: 24BH-01

Project: RDFFG BC 2024 Cell 2 Geotechnical Investigation

Project No: SWM.SWOP04864-01

Location: RDFFG Landfill

Prince George, British Columbia

UTM: 511328 E; 5982827 N; Z 10

Depth (m)	Method	Soil Description	Sample Type	Sample Number	SPT (N)	Moisture Content (%)	Plastic Limit	Moisture Content	Liquid Limit	SPT (N)	Pocket Pen. (kPa)	Backfill	Depth (ft)	
30														
31	Sonic		X	SS20	79						■		100	
32		- some gravel, some silt GRAVEL - trace sand, gravel to 30 mm diameter, medium to coarse grained sand, poorly graded, damp, very dense, greyish brown	X	SS21	87						■			104
33		SAND - trace gravel, trace silt, fine to coarse grained sand, well graded, damp, very dense, brown	■	B18										108
34		- trace clay	X	SS22	84							■		112
35		- silty, gravel to 15 mm diameter, dry, light brown - no visible clay, gravel to 25 mm diameter, moist, brown	■	B19										116
36			X	SS23	76							■		120
37		- damp	X	SS24	96								■	124
38			■	B20										128
39		- trace clay, gravel to 10 mm diameter	X	SS25	80							■		132
40			X	SS26	69								■	136
41		- gravel to 15 mm diameter											140	
42		END OF BOREHOLE (41.15 metres) slough - 41.00 metres at 0 hrs. water - 33.38 metres at 0 hrs. Note: Backfilled at completion											144	
43													148	
44													152	
45													156	



Contractor: Geotech Drilling

Completion Depth: 41.15 m

Equipment Type: Terra Sonic 150

Start Date: 2024 July 30

Logged By: LL/SS/TS

Completion Date: 2024 August 1

Reviewed By: Page 100 of 147

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Regional District of Fraser-Fort George

Borehole No: 24BH-02

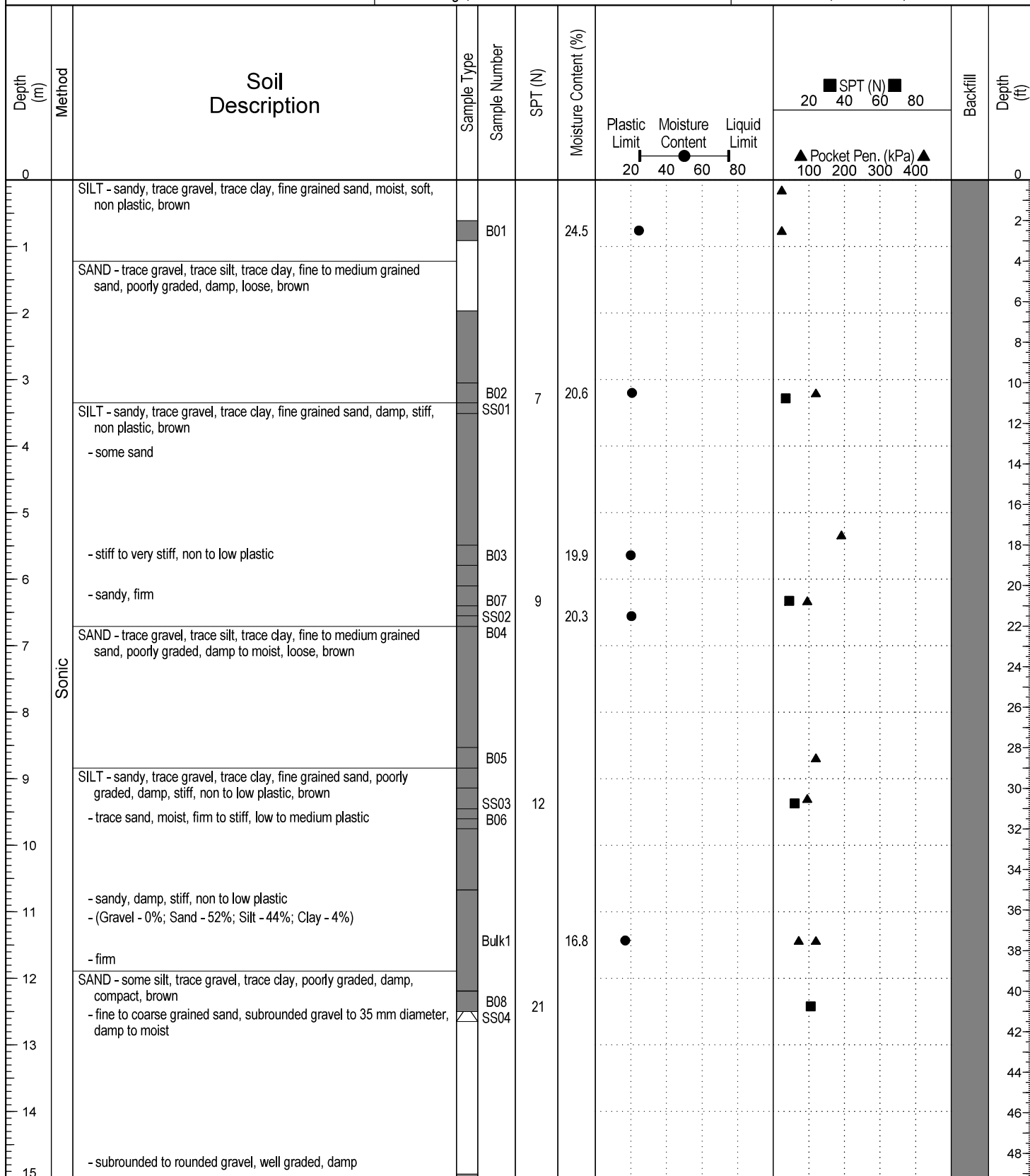
Project: RDFFG BC 2024 Cell 2 Geotechnical Investigation

Project No: SWM.SWOP04864-01

Location: RDFFG Landfill

Prince George, British Columbia

UTM: 511220 E; 5982760 N; Z 10



Contractor: Geotech Drilling

Completion Depth: 40.08 m

Equipment Type: Terra Sonic 150

Start Date: 2024 August 2

Logged By: LL/SS/TS

Completion Date: 2024 August 2

Reviewed By: ML

Page 1 of 3

Regional District of Fraser-Fort George

Borehole No: 24BH-02

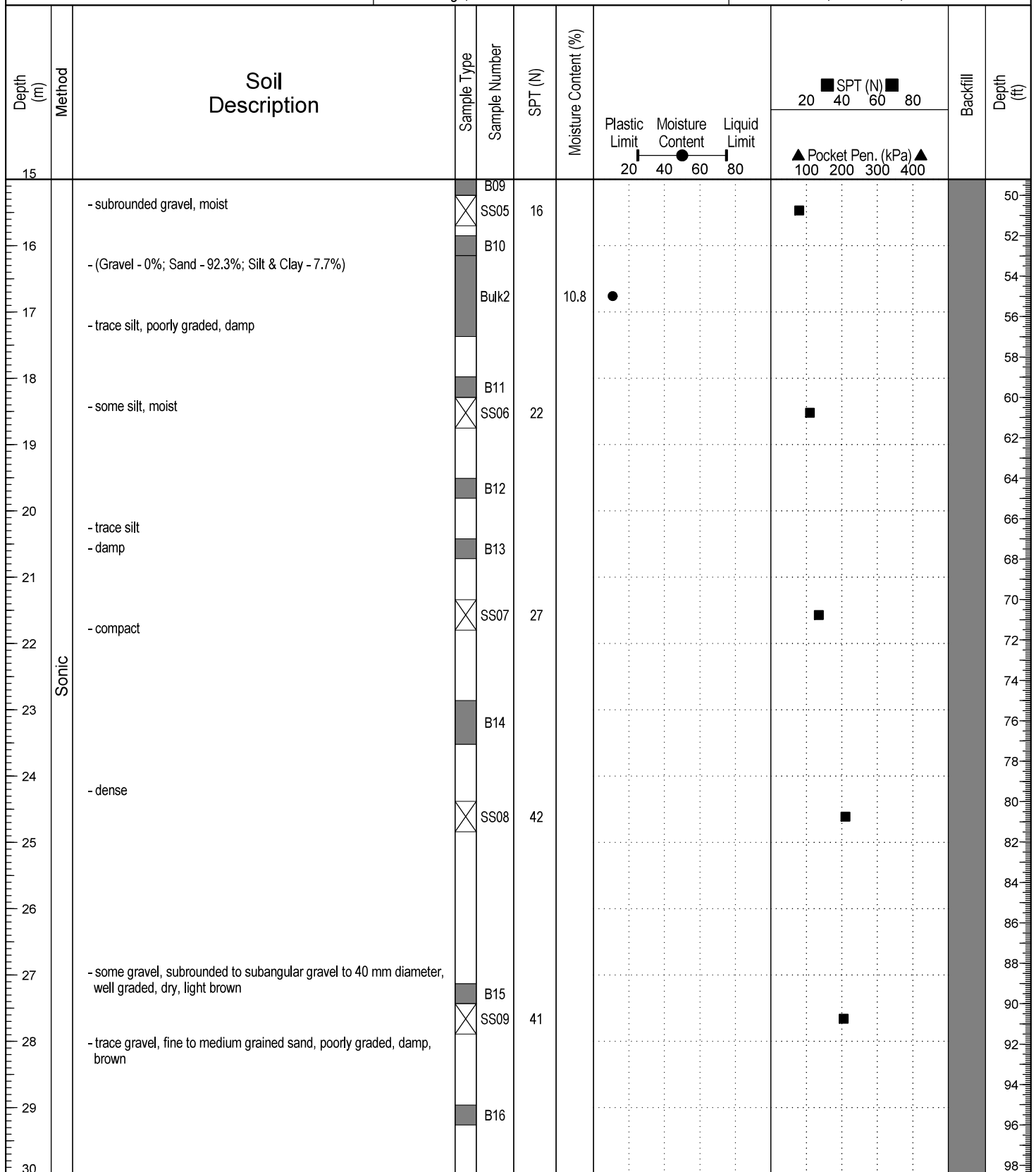
Project: RDFFG BC 2024 Cell 2 Geotechnical Investigation

Project No: SWM.SWOP04864-01

Location: RDFFG Landfill

Prince George, British Columbia

UTM: 511220 E; 5982760 N; Z 10



Contractor: Geotech Drilling

Completion Depth: 40.08 m

Equipment Type: Terra Sonic 150

Start Date: 2024 August 2

Logged By: LL/SS/TS

Completion Date: 2024 August 2

Reviewed By: ML

Page 2 of 3

Regional District of Fraser-Fort George

Borehole No: 24BH-02

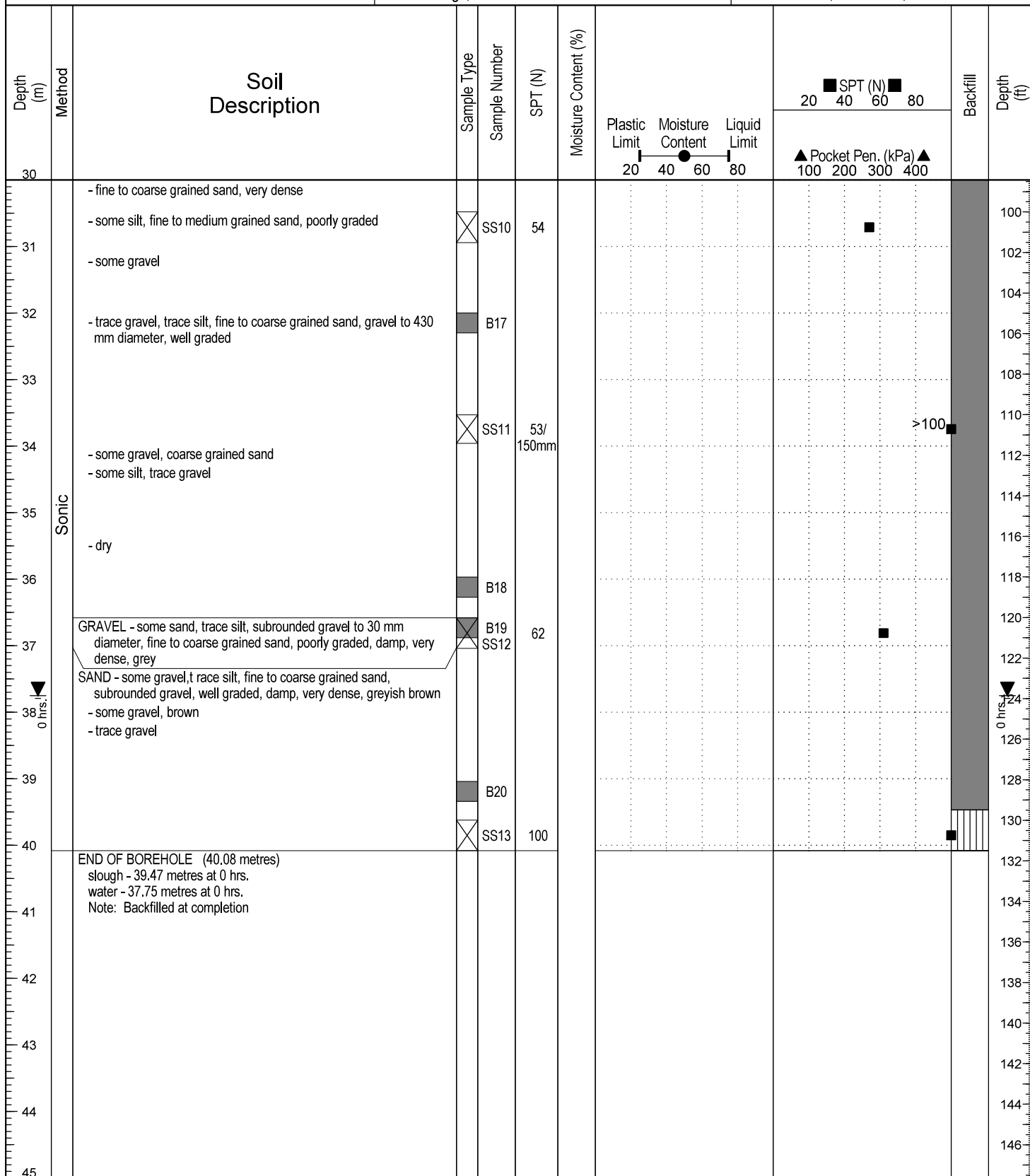
Project: RDFFG BC 2024 Cell 2 Geotechnical Investigation

Project No: SWM.SWOP04864-01

Location: RDFFG Landfill

Prince George, British Columbia

UTM: 511220 E; 5982760 N; Z 10



Contractor: Geotech Drilling

Completion Depth: 40.08 m

Equipment Type: Terra Sonic 150

Start Date: 2024 August 2

Logged By: LL/SS/TS

Completion Date: 2024 August 2

Reviewed By: Page 103 of 147

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Regional District of Fraser-Fort George

Borehole No: 24BH-03

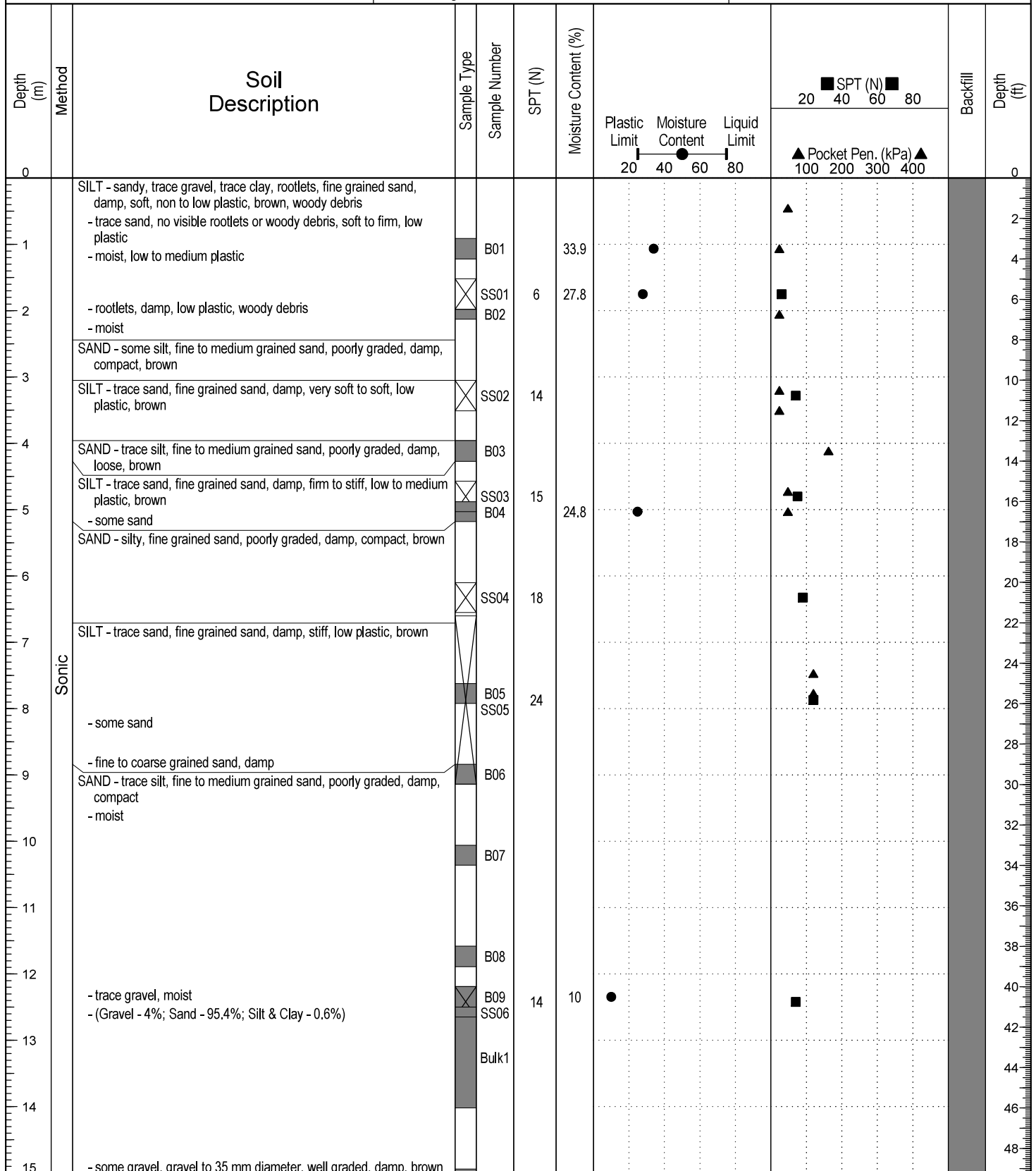
Project: RDFFG BC 2024 Cell 2 Geotechnical Investigation

Project No: SWM.SWOP04864-01

Location: RDFFG Landfill

Prince George, British Columbia

UTM: 511153 E; 5982860 N; Z 10



Contractor: Geotech Drilling

Completion Depth: 40.08 m

Equipment Type: Terra Sonic 150

Start Date: 2024 August 3

Logged By: LL/SS/TS

Completion Date: 2024 August 4

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Regional District of Fraser-Fort George

Borehole No: 24BH-03

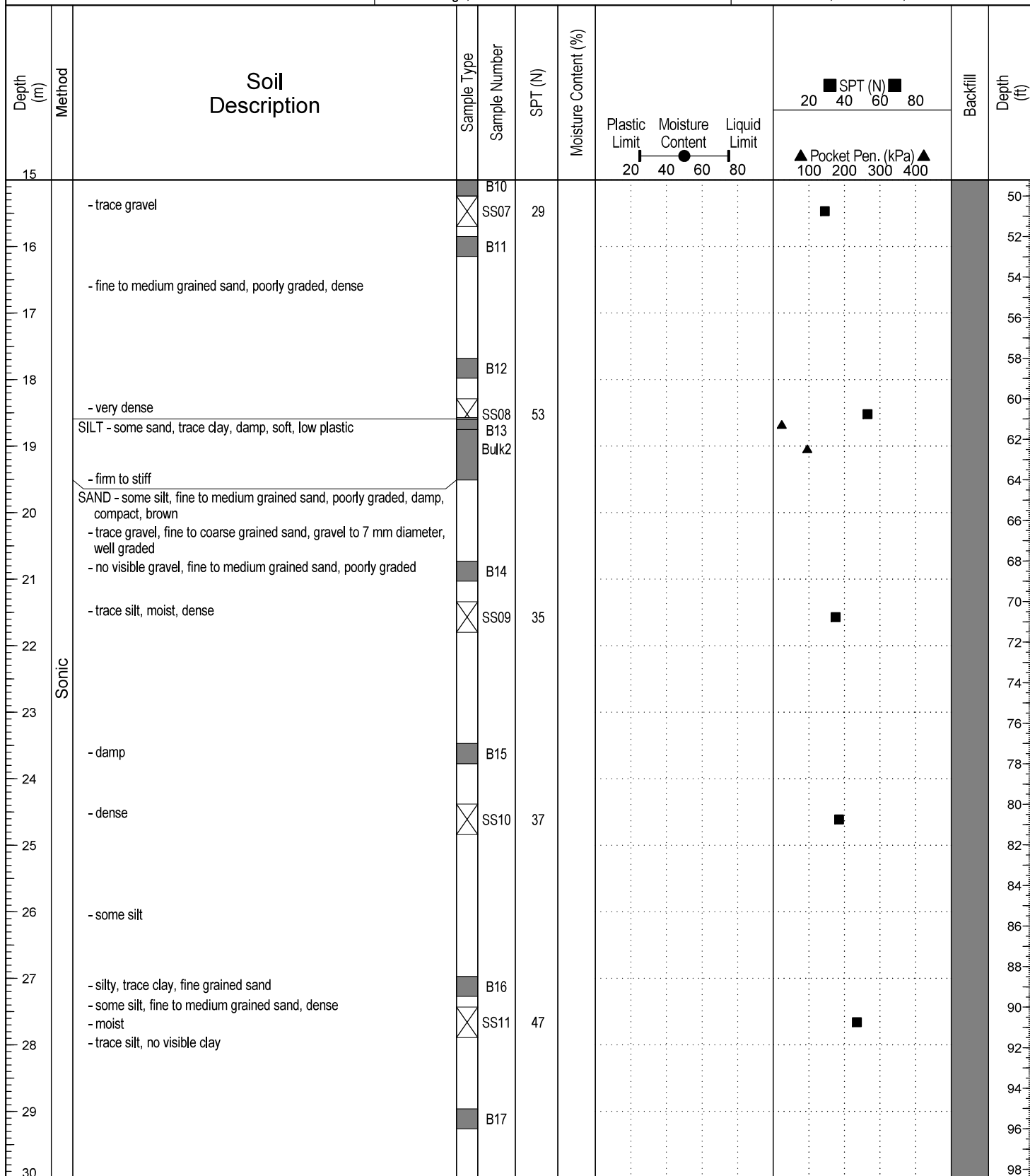
Project: RDFFG BC 2024 Cell 2 Geotechnical Investigation

Project No: SWM.SWOP04864-01

Location: RDFFG Landfill

Prince George, British Columbia

UTM: 511153 E; 5982860 N; Z 10



Contractor: Geotech Drilling

Completion Depth: 40.08 m

Equipment Type: Terra Sonic 150

Start Date: 2024 August 3

Logged By: LL/SS/TS

Completion Date: 2024 August 4

Reviewed By: ML

Page 2 of 3

Regional District of Fraser-Fort George

Borehole No: 24BH-03

Project: RDFFG BC 2024 Cell 2 Geotechnical Investigation

Project No: SWM.SWOP04864-01

Location: RDFFG Landfill

Prince George, British Columbia

UTM: 511153 E; 5982860 N; Z 10

Depth (m)	Method	Soil Description	Sample Type	Sample Number	SPT (N)	Moisture Content (%)	Moisture Content			SPT (N)	Backfill	Depth (ft)
							Plastic Limit	Moisture Content	Liquid Limit			
30												
31		- some silt, very dense	X	SS12	56							100
32		- trace silt, damp		B18								104
33												108
34		- some silt, moist	X	SS13	58							112
35	Sonic	- damp										116
36		- trace clay, silt nodules		B19								120
37		- very dense - fine grained sand	X	SS14	64							124
38												128
39		- mottled with black streaks - brown - mottled grey to black		B20								132
40		- dense	X	SS15	35							136
41		END OF BOREHOLE (40.08 metres) slough - 39.85 metres at 0 hrs. water - 32.00 metres at 0 hrs. Note: Backfilled at completion										140
42												144
43												148
44												152
45												156



Contractor: Geotech Drilling

Completion Depth: 40.08 m

Equipment Type: Terra Sonic 150

Start Date: 2024 August 3

Logged By: LL/SS/TS

Completion Date: 2024 August 4

Reviewed By: ML

Page 3 of 3

Regional District of Fraser-Fort George

Borehole No: 24BH-04

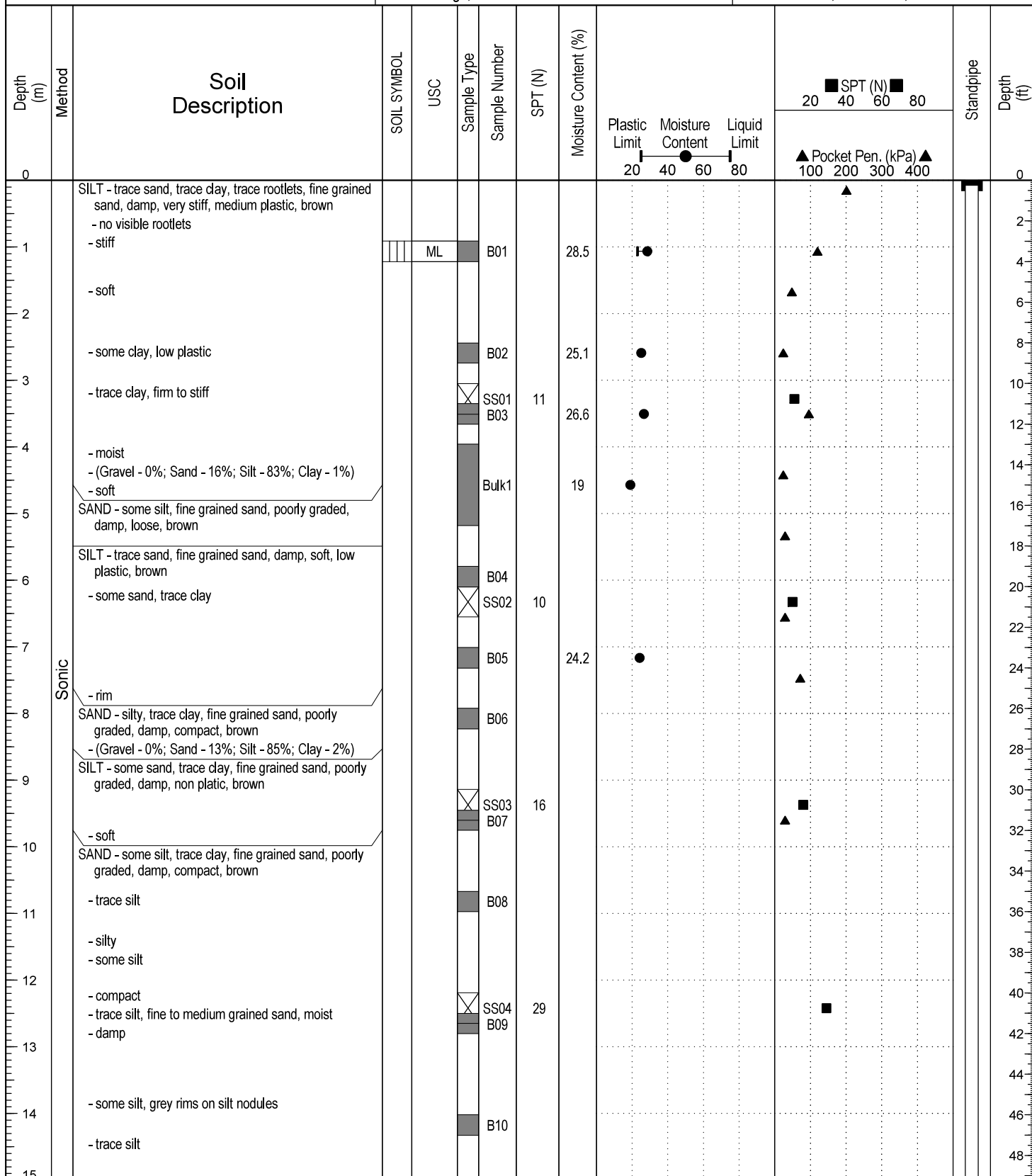
Project: RDFFG BC 2024 Cell 2 Geotechnical Investigation

Project No: SWM.SWOP04864-01

Location: RDFFG Landfill

Prince George, British Columbia

UTM: 511032 E; 5983043 N; Z 10



Contractor: Geotech Drilling

Completion Depth: 80.39 m

Equipment Type: Terra Sonic 150

Start Date: 2024 August 6

Logged By: LL/SS/TS

Completion Date: 2024 August 9

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Page 1 of 6

Regional District of Fraser-Fort George

Borehole No: 24BH-04

Project: RDIFFG BC 2024 Cell 2 Geotechnical Investigation

Project No: SWM.SWOP04864-01

Location: RDIFFG Landfill

Prince George, British Columbia

UTM: 511032 E; 5983043 N; Z 10

Depth (m)	Method	Soil Description	SOIL SYMBOL	USC	Sample Type	Sample Number	SPT (N)	Moisture Content (%)	Plastic Limit Moisture Content Liquid Limit	SPT (N)		Standpipe	Depth (ft)	
										20	40			60
15														
16	Sonic	- dense			SS05		40						50	
17		- trace gravel, fine to coarse grained sand, subrounded gravel to 35 mm diameter, well graded, damp, very dense			B11									52
18		- no visible gravel, fine to medium grained sand, poorly graded, dense			B12									56
19		- some gravel, fine to coarse grained sand, subrounded gravel to 50 mm diameter, well graded, very dense			B13									58
20		- compact			SS06		29							60
21		- trace gravel, gravel to 25 mm diameter, wet			Bulk2			3.1						62
22		- (Gravel - 52%; Sand - 45.9%; Silt & Clay - 2.1%)												64
23		- some gravel												66
24		- some silt, trace gravel												68
25		- trace silt, damp			B14									70
26		- dense			SS07		33							72
27		- gravel to 50 mm diameter, wet												74
28		- some gravel												76
29		- trace gravel			B15									78
30		- damp												80
31		- compact			SS08		24							82
32		- moist												84
33	- gravel to 20 mm diameter, poorly graded, damp												86	
34	- no visible gravel, fine to medium grained sand			B16									88	
35													90	
36	- trace gravel, trace coarse grained sand, dense			SS09		40							92	
37	- no visible gravel or clay												94	
38													96	
39													98	



Contractor: Geotech Drilling

Completion Depth: 80.39 m

Equipment Type: Terra Sonic 150

Start Date: 2024 August 6

Logged By: LL/SS/TS

Completion Date: 2024 August 9

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Page 2 of 6

Regional District of Fraser-Fort George

Borehole No: 24BH-04

Project: RDFFG BC 2024 Cell 2 Geotechnical Investigation

Project No: SWM.SWOP04864-01

Location: RDFFG Landfill

Prince George, British Columbia

UTM: 511032 E; 5983043 N; Z 10

Depth (m)	Method	Soil Description	SOIL SYMBOL	USC	Sample Type	Sample Number	SPT (N)	Moisture Content (%)	Plasticity Chart			Standpipe	Depth (ft)	
									Plastic Limit	Moisture Content	Liquid Limit			
30														
31	Sonic	- wet				SS10	35						100	
32						B18							106	
33		- trace gravel, trace coarse grained sand, subrounded gravel to 15 mm diameter												108
34		- very dense - some gravel, fine to coarse grained sand, gravel to 17 mm diameter, well graded - trace gravel, gravel to 25 mm diameter					SS11	50/ 50mm						110
35		- gravelly, subrounded to rounded gravel to 40 mm diameter					B19							116
36		- some silt, trace gravel, gravel to 30 mm diameter, damp - trace silt, subrounded gravel, moist												118
37							SS12	61						122
38							B20							124
39		- damp												128
40		- moist, dense - gravelly, trace clay, subangular to rounded gravel to 35 mm diameter, damp					SS13	40						132
41	- silty, some gravel - trace gravel, trace silt, no visible clay, gravel to 25 mm diameter					B21							136	
42	- some gravel, trace clay, gravel to 35 mm diameter												138	
43	- greyish brown - some silt, trace clay, moist - trace gravel, gravel to 10 mm diameter					SS14	31						142	
44	- trace silt - some silt - trace silt - some silt					B22							144	
45	- interbedded gravel layers												146	



Contractor: Geotech Drilling

Equipment Type: Terra Sonic 150

Logged By: LL/SS/TS

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Completion Depth: 80.39 m

Start Date: 2024 August 6

Completion Date: 2024 August 9

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Regional District of Fraser-Fort George

Borehole No: 24BH-04

Project: RDFFG BC 2024 Cell 2 Geotechnical Investigation

Project No: SWM.SWOP04864-01

Location: RDFFG Landfill

Prince George, British Columbia

UTM: 511032 E; 5983043 N; Z 10

Depth (m)	Method	Soil Description	SOIL SYMBOL	USC	Sample Type	Sample Number	SPT (N)	Moisture Content (%)	Plastic Limit	Moisture Content	Liquid Limit	SPT (N)		Standpipe	Depth (ft)
												20	40		
45															
46	Sonic	- some gravel - interbedded gravel layers - some silt, some gravel - moist, very dense				SS15 B23	50/ 50mm						> 100		148
47		- trace silt, no visible gravel, fine to medium grained sand, poorly graded, damp													150
48															152
49							SS16 B30	53							154
50															156
51			- trace clay				B24								158
52			- gravel to 5 mm diameter												160
53															162
54			- some silt - trace silt				B25								164
55			- some silt - trace coarse grained sand												166
56		- gravel to 20 mm diameter												168	
57		- some silt, mottled brown to grey, grey coatings on silty nodules				SS17	75							170	
58														172	
59		- trace silt, fine to coarse grained sand, rounded to subangular gravel to 20 mm diameter, well graded, brown												174	
60		- some silt				B26								176	
														178	
														180	
														182	
														184	
														186	
														188	
														190	
														192	
														194	
														196	



Contractor: Geotech Drilling

Completion Depth: 80.39 m

Equipment Type: Terra Sonic 150

Start Date: 2024 August 6

Logged By: LL/SS/TS

Completion Date: 2024 August 9

Reviewed by: ML 110 of 147

Page 4 of 6

Regional District of Fraser-Fort George

Borehole No: 24BH-04

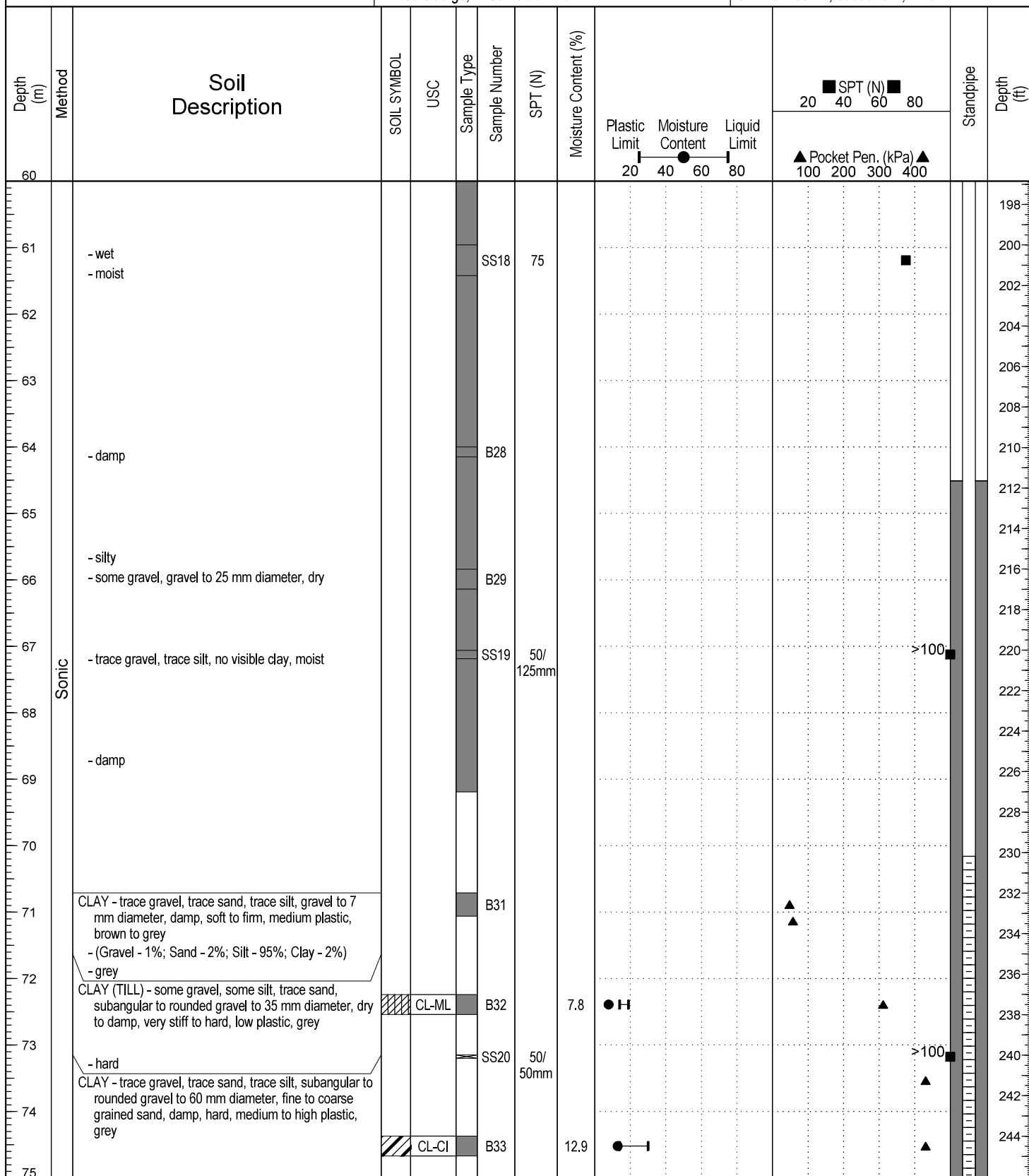
Project: RDFFG BC 2024 Cell 2 Geotechnical Investigation

Project No: SWM.SWOP04864-01

Location: RDFFG Landfill

Prince George, British Columbia

UTM: 511032 E; 5983043 N; Z 10



Contractor: Geotech Drilling

Completion Depth: 80.39 m

Equipment Type: Terra Sonic 150

Start Date: 2024 August 6

Logged By: LL/SS/TS

Completion Date: 2024 August 9

Reviewed By: ML

Page 5 of 6

Regional District of Fraser-Fort George

Borehole No: 24BH-04

Project: RDFFG BC 2024 Cell 2 Geotechnical Investigation

Project No: SWM.SWOP04864-01

Location: RDFFG Landfill

Prince George, British Columbia

UTM: 511032 E; 5983043 N; Z 10

Depth (m)	Method	Soil Description	SOIL SYMBOL	USC	Sample Type	Sample Number	SPT (N)	Moisture Content (%)	Plastic Limit Moisture Content Liquid Limit	SPT (N)	Pocket Pen. (kPa)	Standpipe	Depth (ft)
75													
76	Sonic	- (Gravel - 11%; Sand - 27%; Silt - 43%; Clay - 19%) - some gravel			X	SH02 SS21	84						248
77		- trace gravel, very stiff - firm to stiff											250
78		- some gravel, gravel to 40 mm diameter - hard	CI			B34		15.9	●				252
79													254
80						SH03							256
81		END OF BOREHOLE (80.39 metres) slough - none at 0 hrs. water - 17.75 metres at 0 hrs. Standpipe installed to 80.16 metres											258
82													260
83													262
84													264
85													266
86													268
87													270
88													272
89													274
90													276



Contractor: Geotech Drilling

Completion Depth: 80.39 m

Equipment Type: Terra Sonic 150

Start Date: 2024 August 6

Logged By: LL/SS/TS

Completion Date: 2024 August 9

Reviewed By: ML 112 of 147

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APPENDIX E

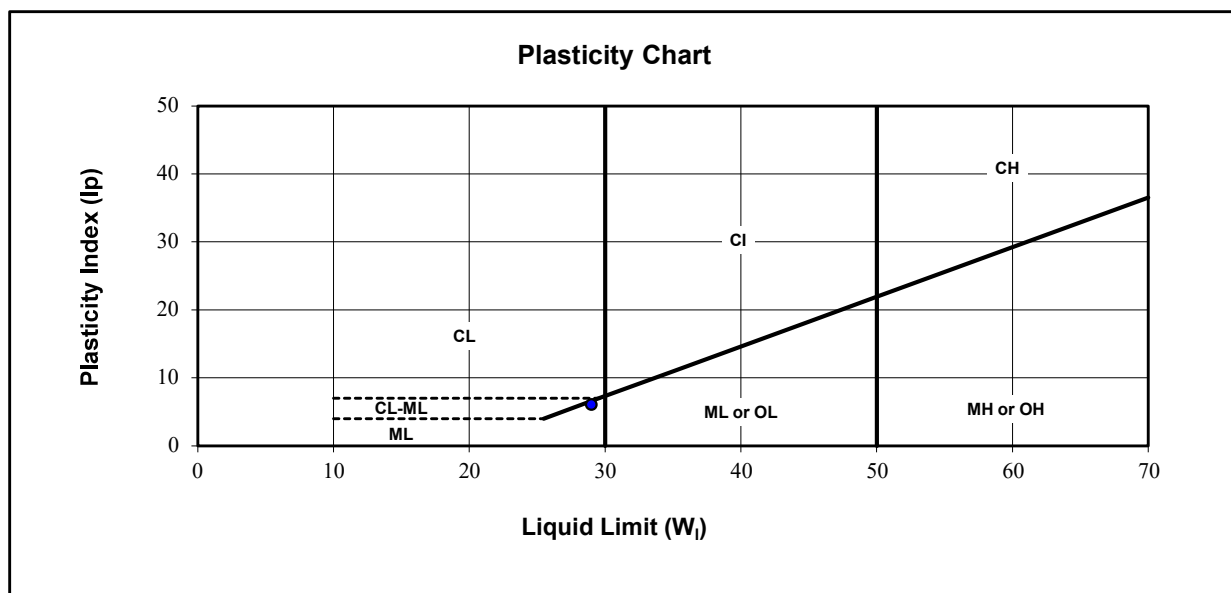
LAB RESULTS

ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project: RDFFG Cell 2 Geotechnical Investigation Sample Number: B01
Project No: SWM.SWOP04864-02 Borehole: BH-04
Client: Regional District of Fraser - Ft. George Depth: 3.0 - 4.0 ft
Attention: Darwin Paton Sampled By: LL/TS/SS Tested By: LL
Email: dpaton@rdffg.bc.ca Date Sampled: August 15, 2024
Date Tested: October 8, 2024

Sample Description: SILT, trace sand, clay, brown



Liquid Limit (W _l):	<u>29</u>	Natural Moisture (%):	<u>28.5</u>
Plastic Limit:	<u>23</u>	Soil Plasticity:	<u>Low</u>
Plasticity Index (Ip):	<u>6</u>	Mod.USCS Symbol:	<u>ML</u>

Remarks:

Reviewed By: _____ P.Eng.

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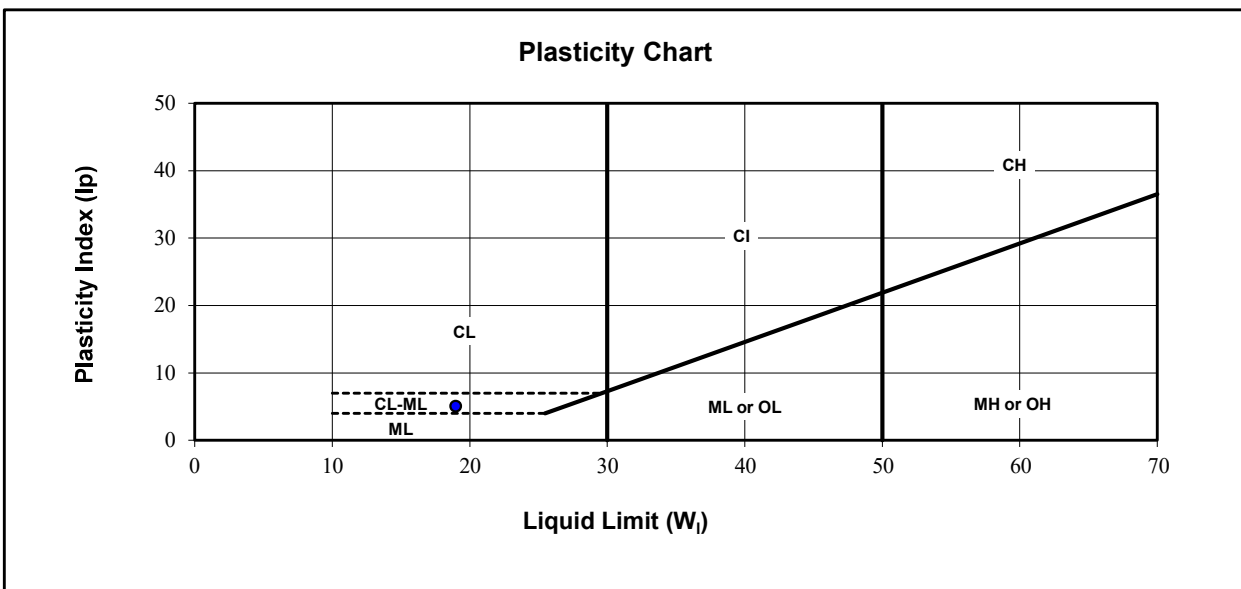


ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project: <u>RDFFG Cell 2 Geotechnical Investigation</u> Project No: <u>SWM.SWOP04864-02</u> Client: <u>Regional District of Fraser - Ft. George</u> Attention: <u>Darwin Paton</u> Email: <u>dpaton@rdffg.bc.ca</u>	Sample Number: <u>B32</u> Borehole: <u>BH-04</u> Depth: <u>237.0 - 238.0 ft</u> Sampled By: <u>LL/TS/SS</u> Tested By: <u>LL</u> Date Sampled: <u>August 15, 2024</u> Date Tested: <u>October 8, 2024</u>
---	--

Sample Description: SILT, some gravel, trace clay, trace sand, greyish brown



Liquid Limit (W _l):	<u>19</u>	Natural Moisture (%):	<u>7.8</u>
Plastic Limit:	<u>14</u>	Soil Plasticity:	<u>Low</u>
Plasticity Index (I _p):	<u>5</u>	Mod.USCS Symbol:	<u>CL - ML</u>

Remarks: _____

Reviewed By: _____ P.Eng.

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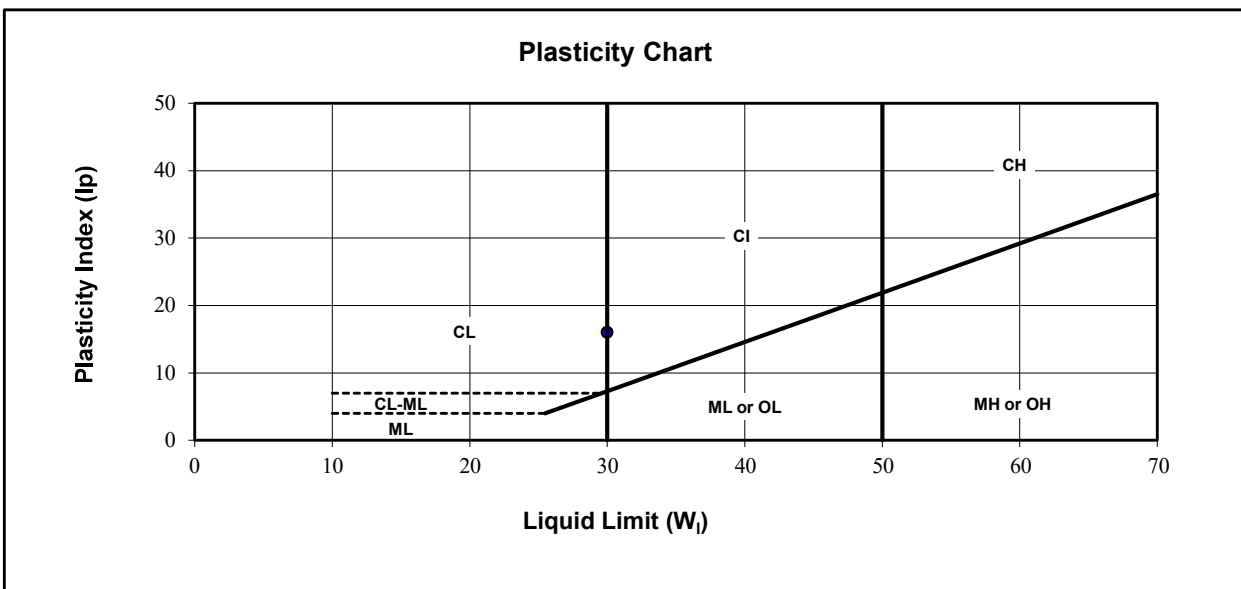


ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project: <u>RDFFG Cell 2 Geotechnical Investigation</u> Project No: <u>SWM.SWOP04864-02</u> Client: <u>Regional District of Fraser - Ft. George</u> Attention: <u>Darwin Paton</u> Email: <u>dpaton@rdffg.bc.ca</u>	Sample Number: <u>B33</u> Borehole: <u>BH-04</u> Depth: <u>244.0 - 245.0 ft</u> Sampled By: <u>LL/TS/SS</u> Tested By: <u>LL</u> Date Sampled: <u>August 15, 2024</u> Date Tested: <u>October 8, 2024</u>
---	--

Sample Description: CLAY, silty, trace sand, gravel, greyish brown



Liquid Limit (W _l):	<u>30</u>	Natural Moisture (%):	<u>12.9</u>
Plastic Limit:	<u>14</u>	Soil Plasticity:	<u>Low to Medium</u>
Plasticity Index (I _p):	<u>16</u>	Mod.USCS Symbol:	<u>CL-CI</u>

Remarks: _____

Reviewed By: _____ P.Eng.

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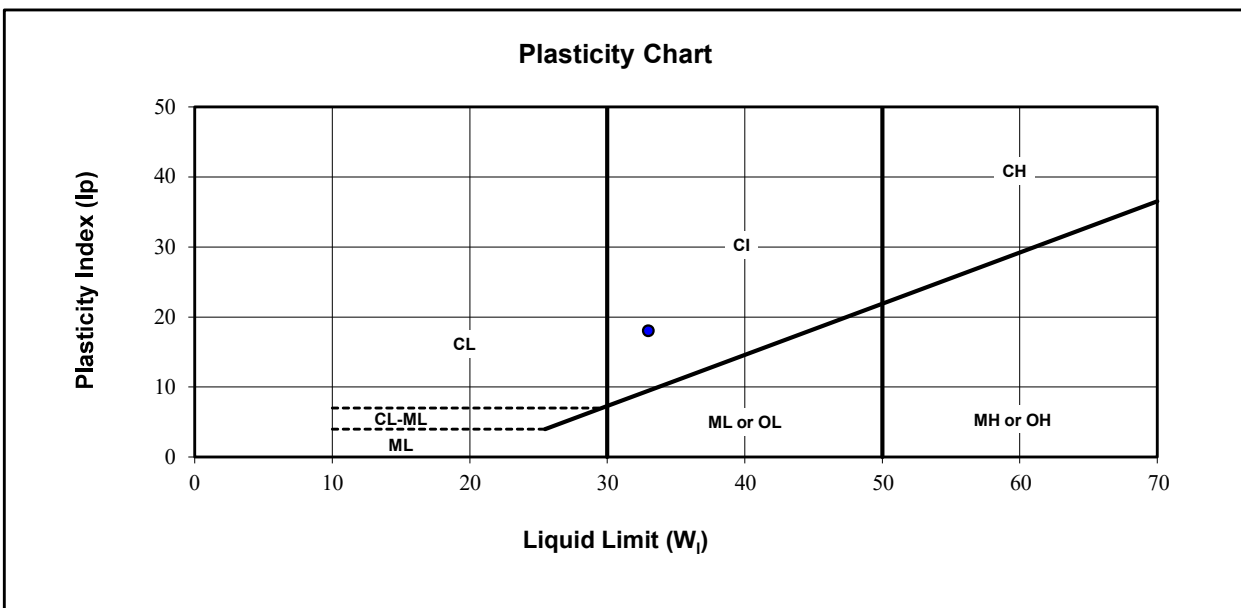


ATTERBERG LIMITS TEST REPORT

ASTM D4318

Project: <u>RDFFG Cell 2 Geotechnical Investigation</u> Project No: <u>SWM.SWOP04864-02</u> Client: <u>Regional District of Fraser - Ft. George</u> Attention: <u>Darwin Paton</u> Email: <u>dpaton@rdffg.bc.ca</u>	Sample Number: <u>B34</u> Borehole: <u>BH-04</u> Depth: <u>255.0 - 256.0 ft</u> Sampled By: <u>LL/TS/SS</u> Tested By: <u>LL</u> Date Sampled: <u>August 15, 2024</u> Date Tested: <u>October 8, 2024</u>
---	--

Sample Description: CLAY, silty, trace sand, gravel, dark greyish brown



Liquid Limit (W_1):	<u>33</u>	Natural Moisture (%):	<u>15.9</u>
Plastic Limit :	<u>15</u>	Soil Plasticity:	<u>Medium</u>
Plasticity Index (Ip) :	<u>18</u>	Mod.USCS Symbol:	<u>CI</u>

Remarks: _____

Reviewed By: [REDACTED] P.Eng.

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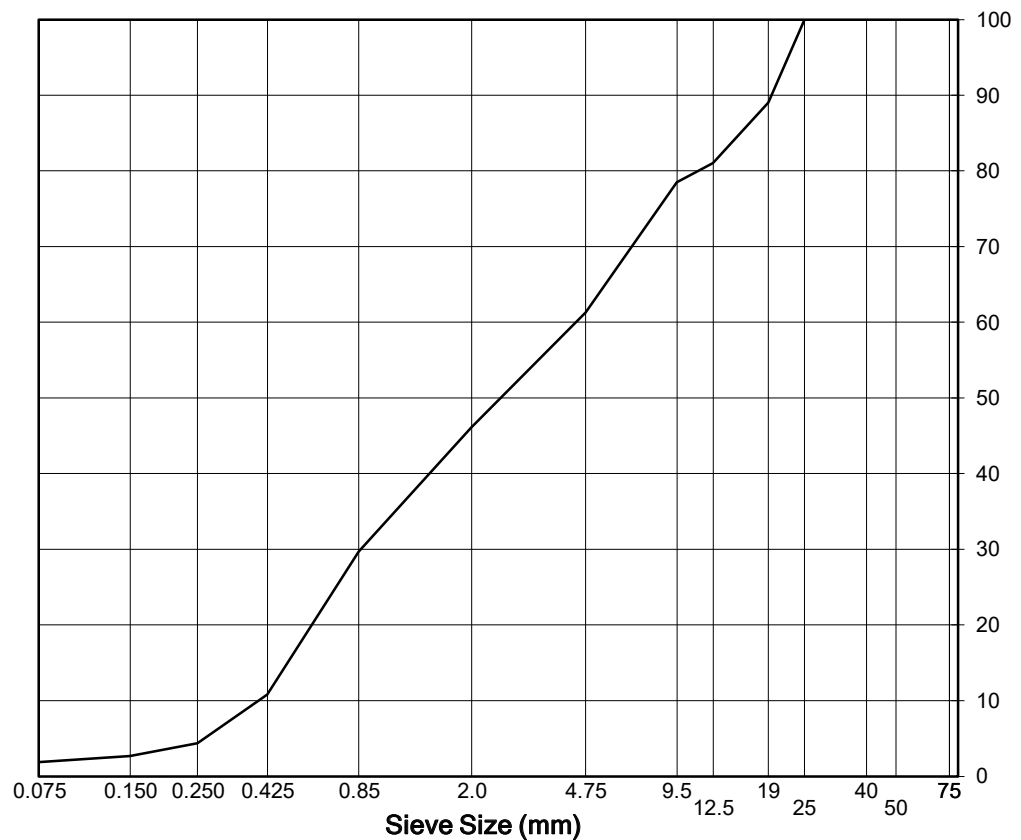
SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.: SWM.SWOP04864-02
 Project: RDFFG Cell 2 Geotechnical Investigation
 Client: Regional District of Fraser - Fort George
 Attention: Darwin Paton
 Email: dpaton@rdffg.bc.ca
 Description: SAND and GRAVEL, trace fines (silt/clay), brown
 Borehole No.: BH-01
 Depth: 81-82 ft
 Supplier: _____
 Specification: _____

Sample No.: B15
 Date Received: August 15, 2024
 Sampled by: LL/TS/SS
 Date Tested: October 8, 2024
 Tested by: LL Office: Edmonton
 Moisture Content (as received): 3.9%
 No. Crushed Faces: Two (2) or Three (3)
 By Particle Mass: _____

Sieve Size	Percent Passing
25	100
19	89
12.5	81
9.5	79
4.75	61
2.0	46
0.85	30
0.425	11
0.250	4
0.150	3
0.075	1.9



Remarks: _____

Reviewed By: _____ P.Eng.

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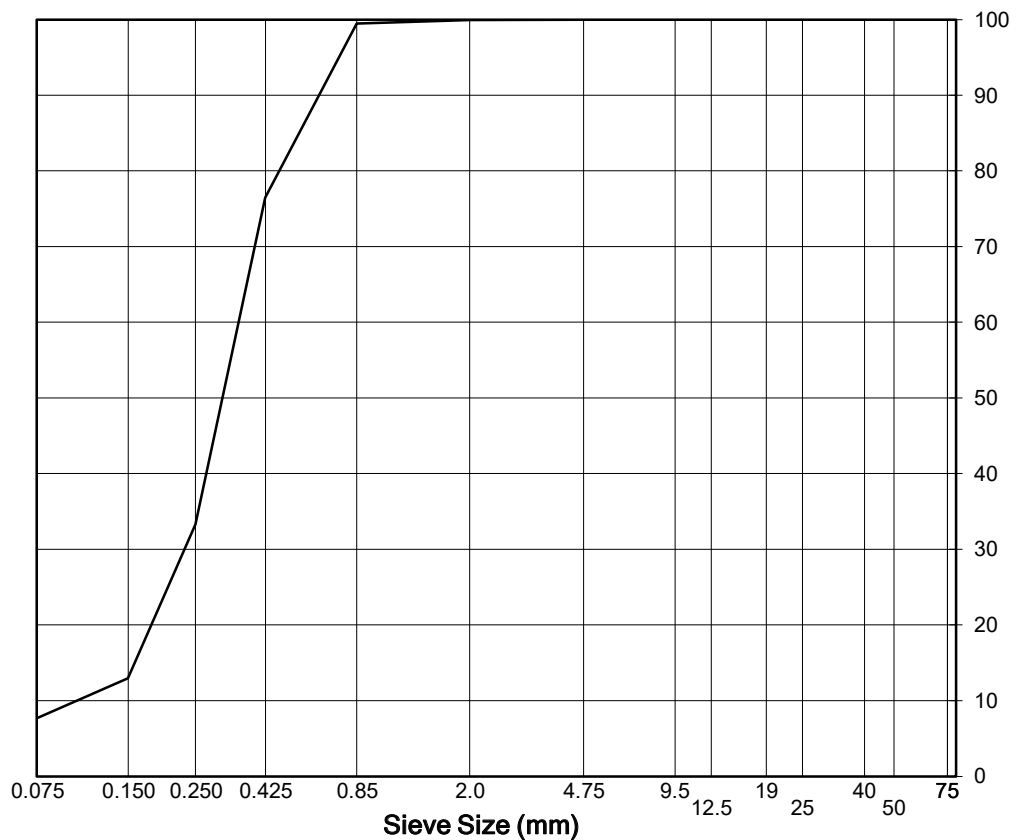
SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.: SWM.SWOP04864-02
 Project: RDFFG Cell 2 Geotechnical Investigation
 Client: Regional District of Fraser - Fort George
 Attention: Darwin Paton
 Email: dpaton@rdffg.bc.ca
 Description: SAND, trace fines (silt/clay), brown
 Borehole No.: BH-02
 Depth: 53-57 ft
 Supplier: _____
 Specification: _____

Sample No.: Bulk 2
 Date Received: August 15, 2024
 Sampled by: LL/TS/SS
 Date Tested: October 8, 2024
 Tested by: LL Office: Edmonton
 Moisture Content (as received): 10.8%
 No. Crushed Faces: Two (2) or Three (3)
 By Particle Mass: _____

Sieve Size	Percent Passing
9.5	100
4.75	100
2.0	100
0.85	99
0.425	76
0.250	33
0.150	13
0.075	7.7



Remarks: _____

Reviewed By: ██████████ P.Eng.

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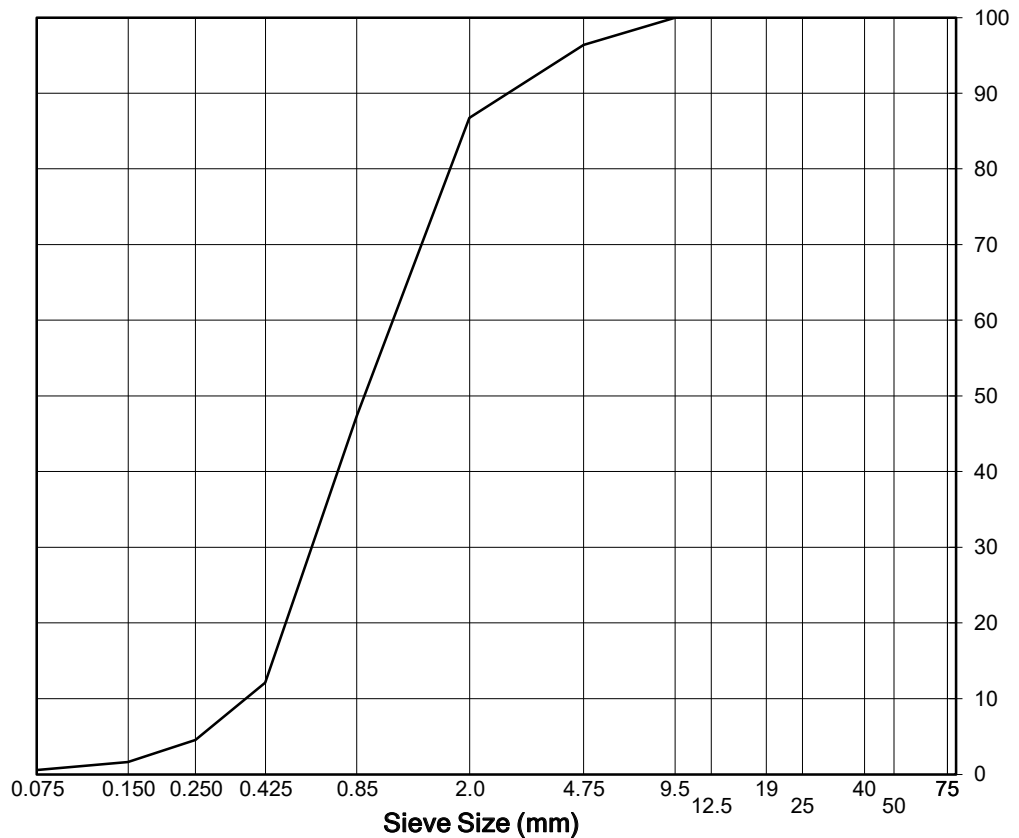
SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.: SWM.SWOP04864-02
Project: RDFFG Cell 2 Geotechnical Investigation
Client: Regional District of Fraser - Fort George
Attention: Darwin Paton
Email: dpaton@rdffg.bc.ca
Description: SAND, trace gravel, fines (silt/clay), brown
Borehole No.: BH-03
Depth: 40-41 ft
Supplier: _____
Specification: _____

Sample No.: B09
Date Received: August 15, 2024
Sampled by: LL/TS/SS
Date Tested: October 8, 2024
Tested by: LL Office: Edmonton
Moisture Content (as received): 10.0%
No. Crushed Faces: Two (2) or Three (3)
By Particle Mass: _____

Sieve Size	Percent Passing
9.5	100
4.75	96
2.0	87
0.85	47
0.425	12
0.250	5
0.150	2
0.075	0.6



Remarks: _____

Reviewed By: _____ P.Eng.

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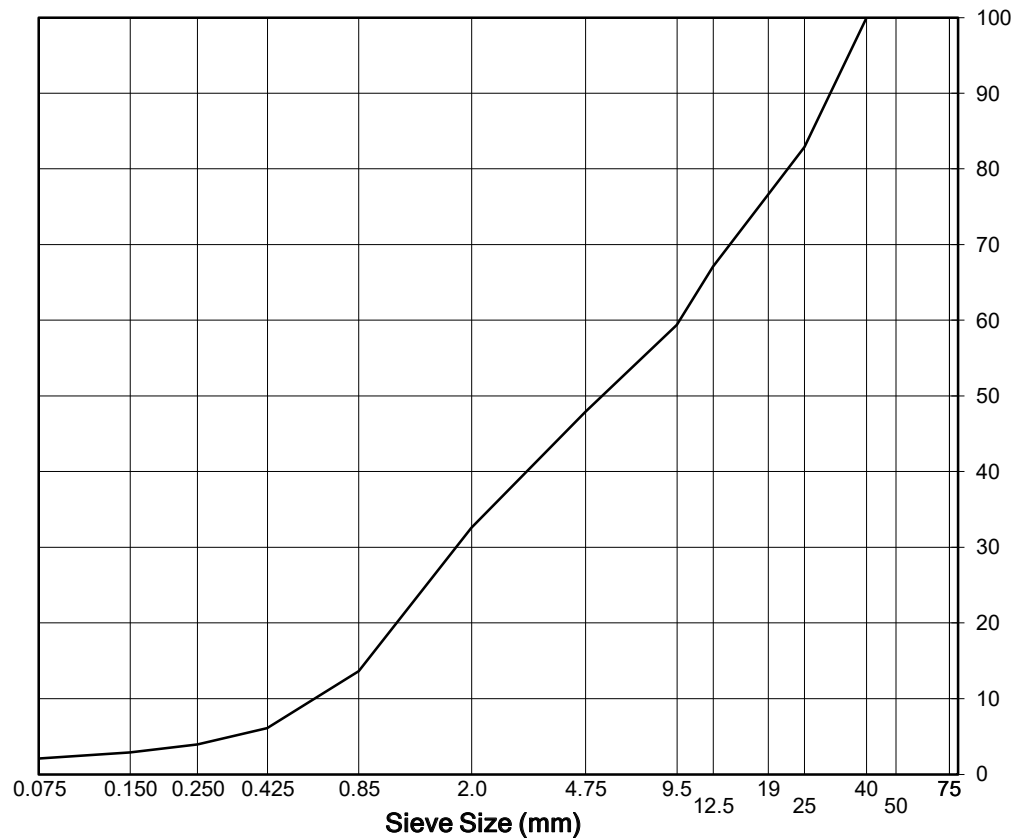
SIEVE ANALYSIS REPORT

Washed Sieve: ASTM C136 and C117

Project No.: SWM.SWOP04864-02
 Project: RDFFG Cell 2 Geotechnical Investigation
 Client: Regional District of Fraser - Fort George
 Attention: Darwin Paton
 Email: dpaton@rdffg.bc.ca
 Description: GRAVEL and SAND, trace fines (silt/clay), brown
 Borehole No.: BH-04
 Depth: 61-65 ft
 Supplier: _____
 Specification: _____

Sample No.: Bulk 2
 Date Received: August 15, 2024
 Sampled by: LL/TS/SS
 Date Tested: October 8, 2024
 Tested by: LL Office: Edmonton
 Moisture Content (as received): 3.1%
 No. Crushed Faces: Two (2) or Three (3)
 By Particle Mass: _____

Sieve Size	Percent Passing
40	100
25	83
19	77
12.5	67
9.5	59
4.75	48
2.0	33
0.85	14
0.425	6
0.250	4
0.150	3
0.075	2.1



Remarks: _____

Reviewed By: _____ **[Redacted Signature]** _____ P.Eng.

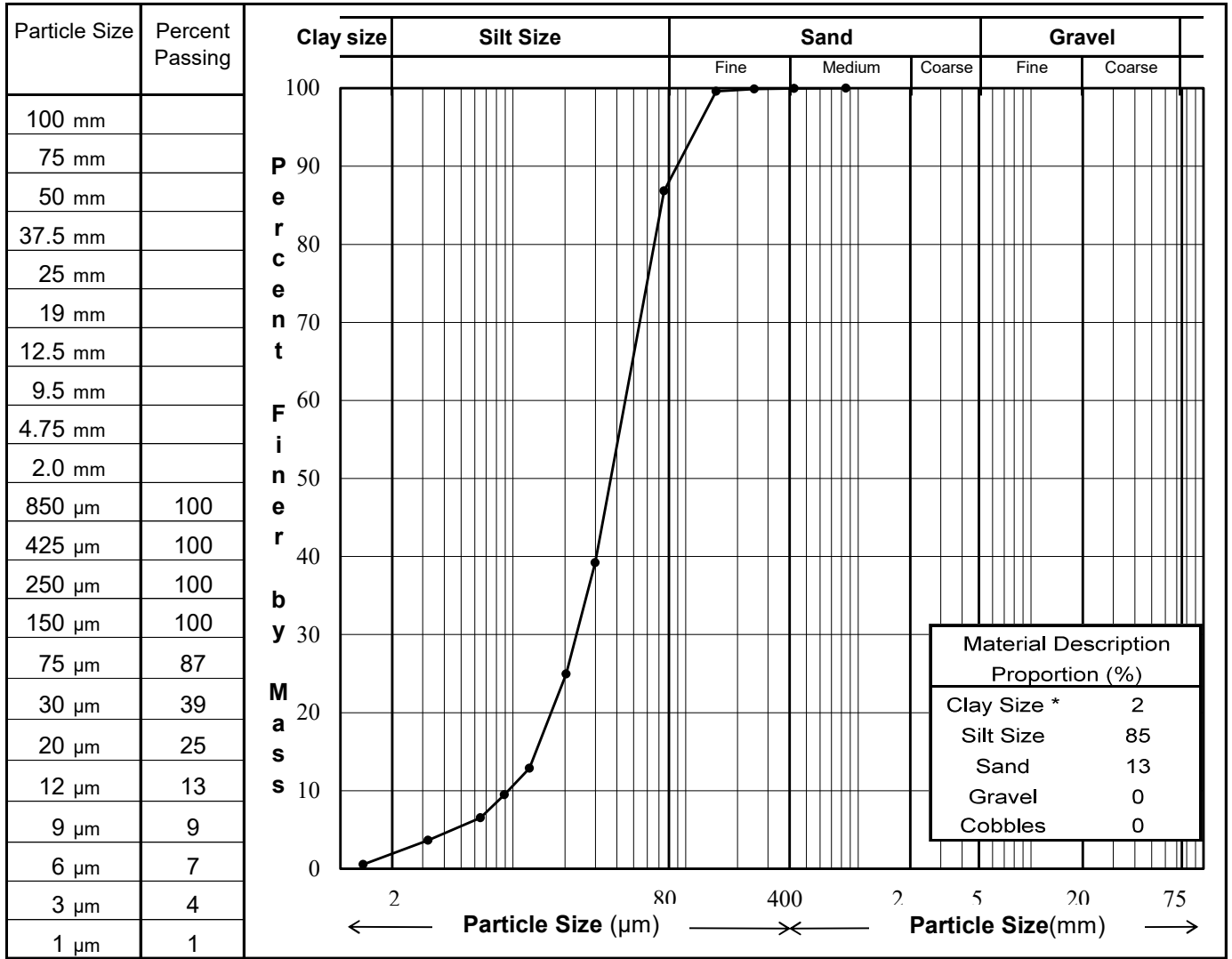
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PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D7928 †

Project:	RDFFG Cell 2 Geotechnical Investigation	Sample No.:	B06
Client:	Regional District of Fraser - Fort George	BH Location:	BH-04
Project No.:	SWM.SWOP04864-02	Depth:	26.0 - 27.0 ft
Location:		Date Tested	October 8, 2024
Description:	SILT, some sand, trace clay, brown	Tested By:	LL



Remarks: † Unless expressly stated, this test was performed by the Air Dry Method
 * The upper clay size of 2 µm, per the Canadian Foundation Engineering Manual

Reviewed By: [REDACTED] P.Eng.

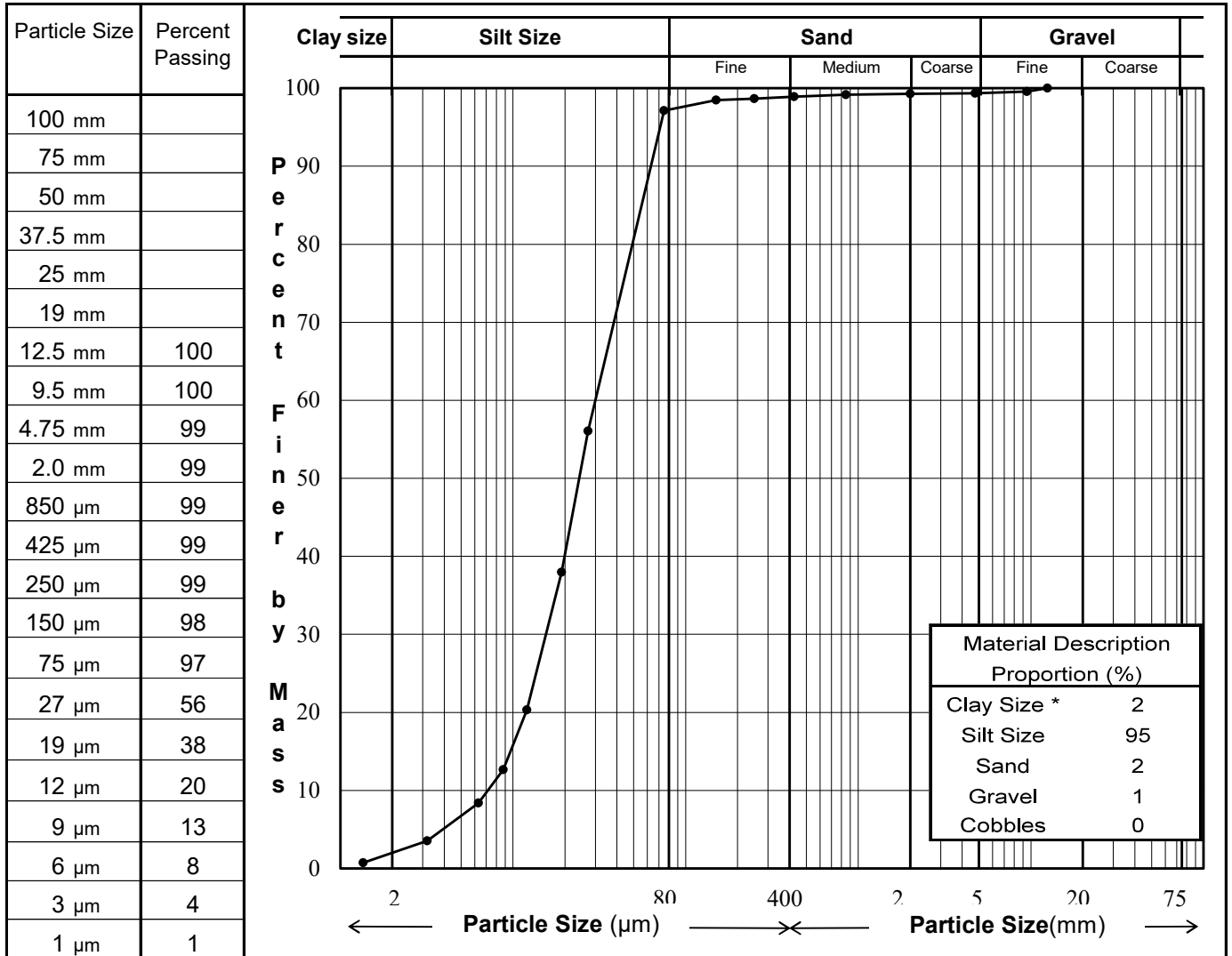
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PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D7928 †

Project:	RDFFG Cell 2 Geotechnical Investigation	Sample No.:	B31
Client:	Regional District of Fraser - Fort George	BH Location:	BH-04
Project No.:	SWM.SWOP04864-02	Depth:	232.0 - 233.0 ft
Location:		Date Tested	October 8, 2024
Description:	SILT, trace clay, sand, gravel, brown	Tested By:	LL



Remarks: † Unless expressly stated, this test was performed by the Air Dry Method
 * The upper clay size of 2 µm, per the Canadian Foundation Engineering Manual

Reviewed By: [REDACTED] P.Eng.

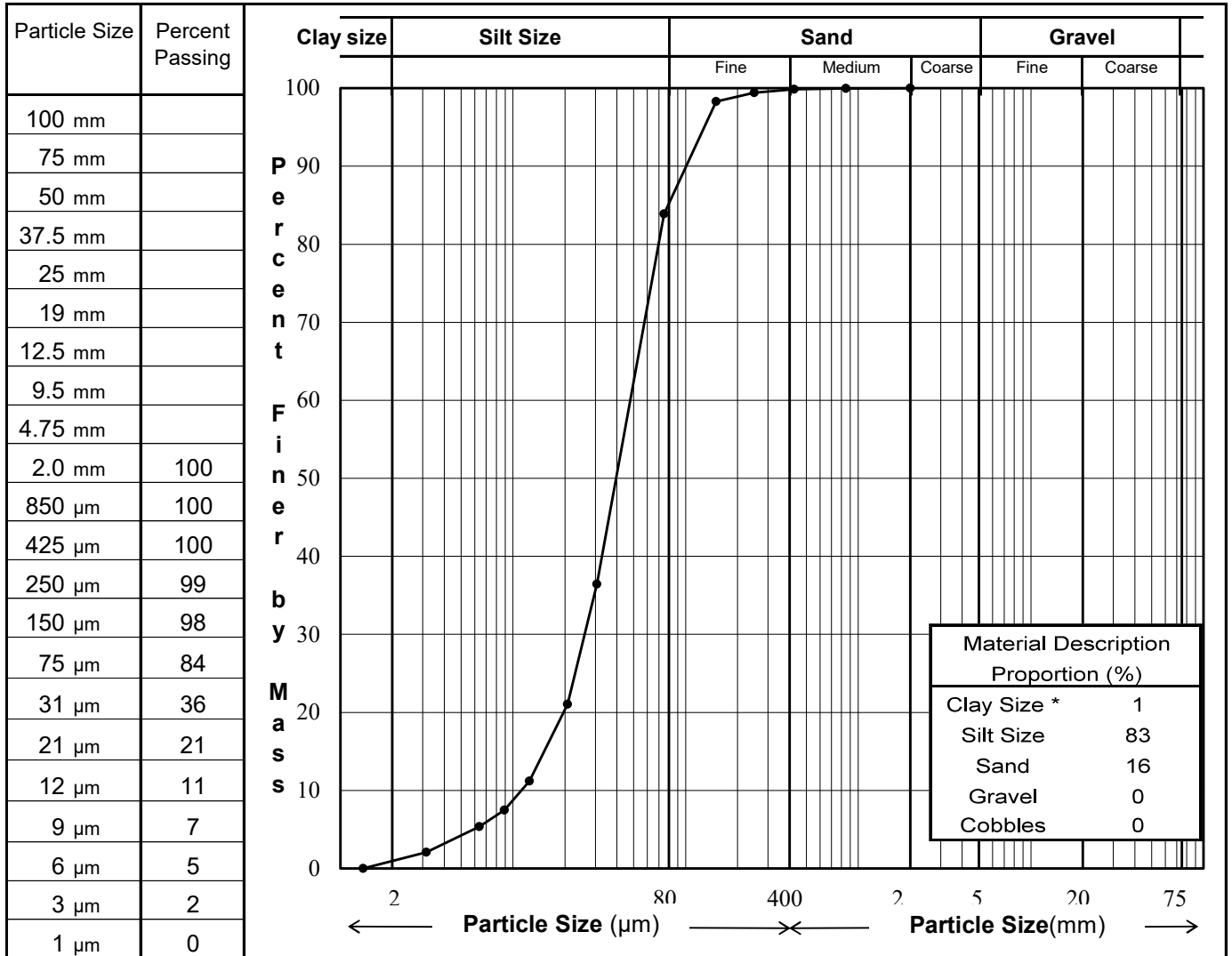
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PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D7928 †

Project:	RDFFG Cell 2 Geotechnical Investigation	Sample No.:	Bulk 1
Client:	Regional District of Fraser - Fort George	BH Location:	BH-04
Project No.:	SWM.SWOP04864-02	Depth:	13.0 - 17.0 ft
Location:		Date Tested	October 8, 2024
Description:	SILT, some sand, trace clay, brown	Tested By:	LL



Remarks: † Unless expressly stated, this test was performed by the Air Dry Method
 * The upper clay size of 2 µm, per the Canadian Foundation Engineering Manual

Reviewed By: [REDACTED] P.Eng.

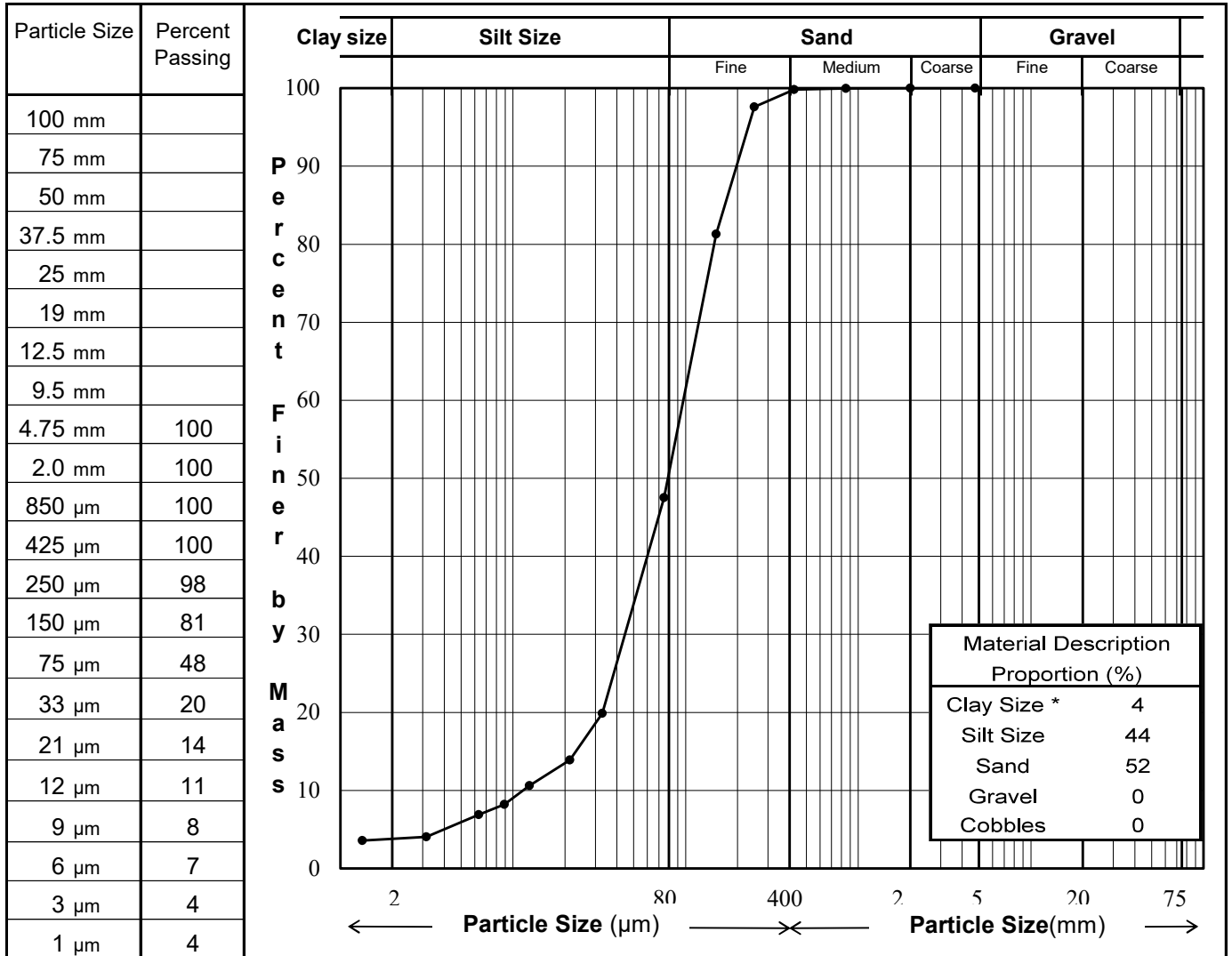
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PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D7928 †

Project:	RDFFG Cell 2 Geotechnical Investigation	Sample No.:	Bulk 1
Client:	Regional District of Fraser - Fort George	BH Location:	BH-02
Project No.:	SWM.SWOP04864-02	Depth:	35.0 - 40.0 ft
Location:		Date Tested	October 8, 2024
Description:	SAND and SILT, trace clay, brown	Tested By:	LL



Remarks: † Unless expressly stated, this test was performed by the Air Dry Method
 * The upper clay size of 2 µm, per the Canadian Foundation Engineering Manual

Reviewed By: _____ [REDACTED] _____ P.Eng.

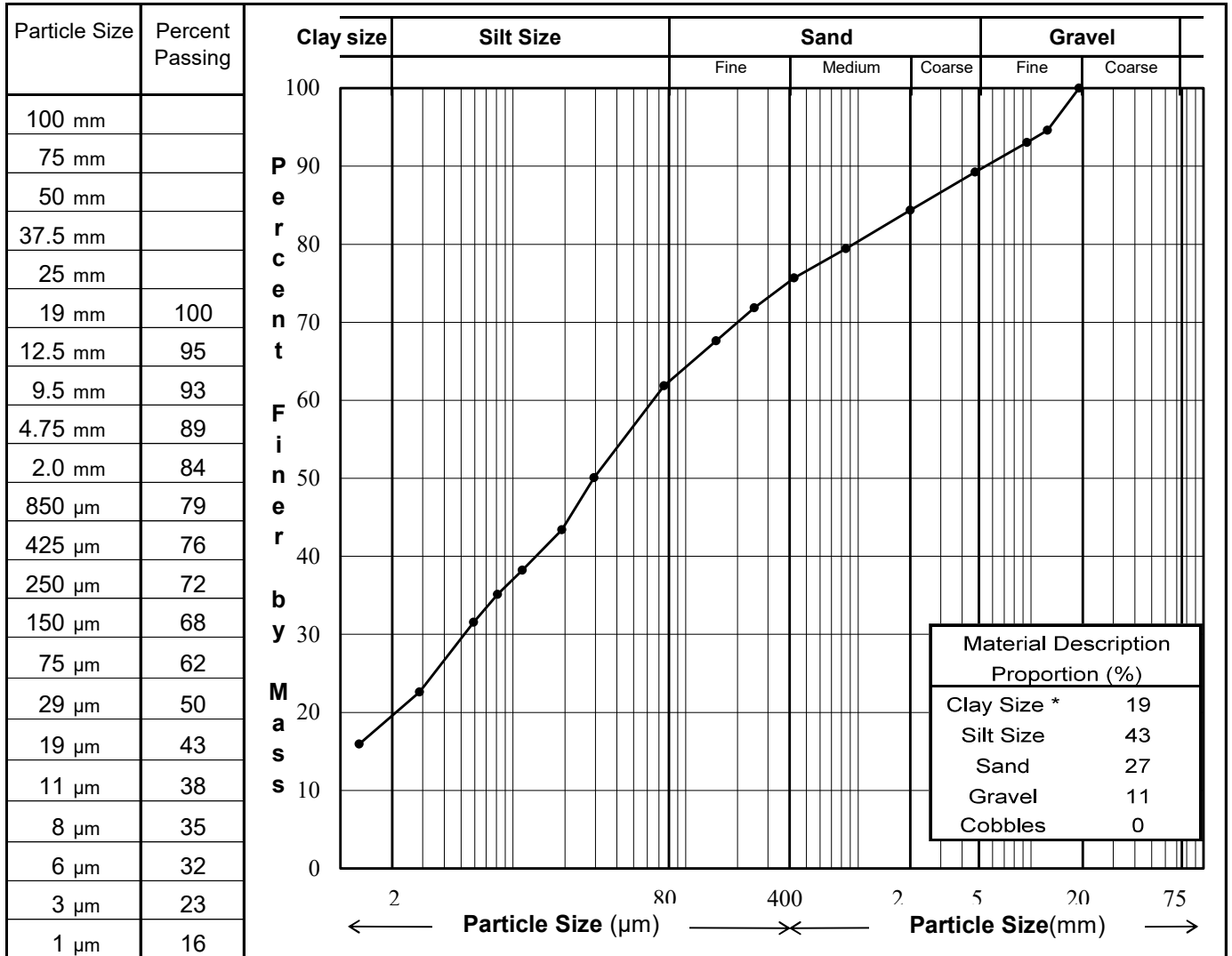
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PARTICLE SIZE ANALYSIS (Hydrometer) TEST REPORT

ASTM D7928 †

Project:	RDFFG Cell 2 Geotechnical Investigation	Sample No.:	SH02
Client:	Regional District of Fraser - Fort George	BH Location:	BH-04
Project No.:	SWM.SWOP04864-02	Depth:	250-250.75 ft
Location:		Date Tested:	October 2, 2024
Description:	SILT, sandy, some clay, gravel, greyish brown	Tested By:	LL



Remarks: † Unless expressly stated, this test was performed by the Air Dry Method
 * The upper clay size of 2 µm, per the Canadian Foundation Engineering Manual

Reviewed By: [REDACTED] P.Eng.

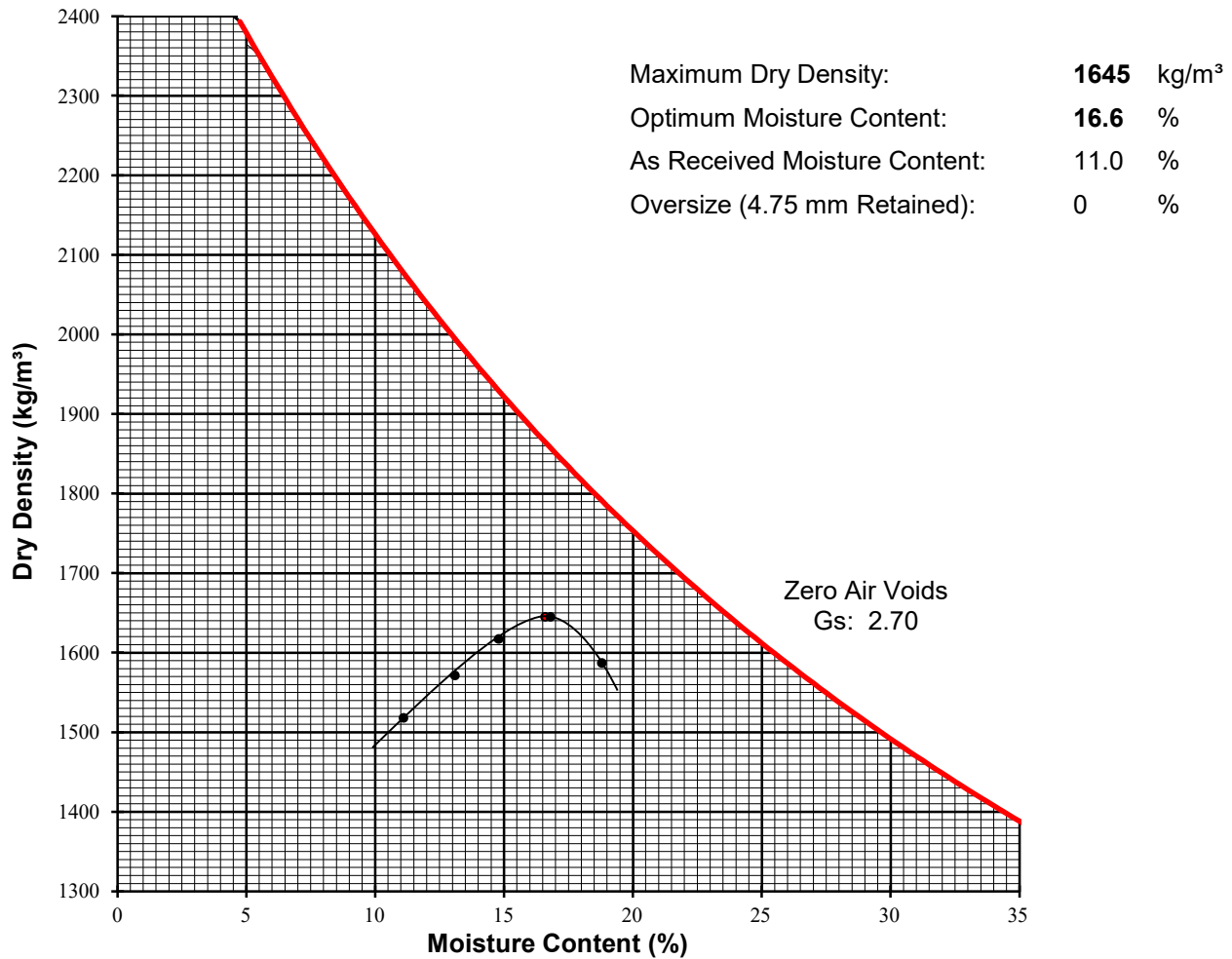
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MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 (Standard Proctor)

Project: RDFFG Cell 2 Geotechnical Investigation	Sample No.: Bulk 1
Project No.: SWM.SWOP04864-02	Sampled By: LL/TS/SS
Client: Regional District of Fraser - Fort George	Date Received: Sep 3, 2024
Attention: Darwin Paton	Test Date: Sep 20, 2024
E-mail: dpaton@rdffg.bc.ca	Test By: LL
Borehole No.: BH-01	Test Method: A (Manual)
Depth: 13-20 ft	
Sample Description: SAND, trace silt, brown	



Remarks: _____

Reviewed By: [REDACTED] P.Eng.

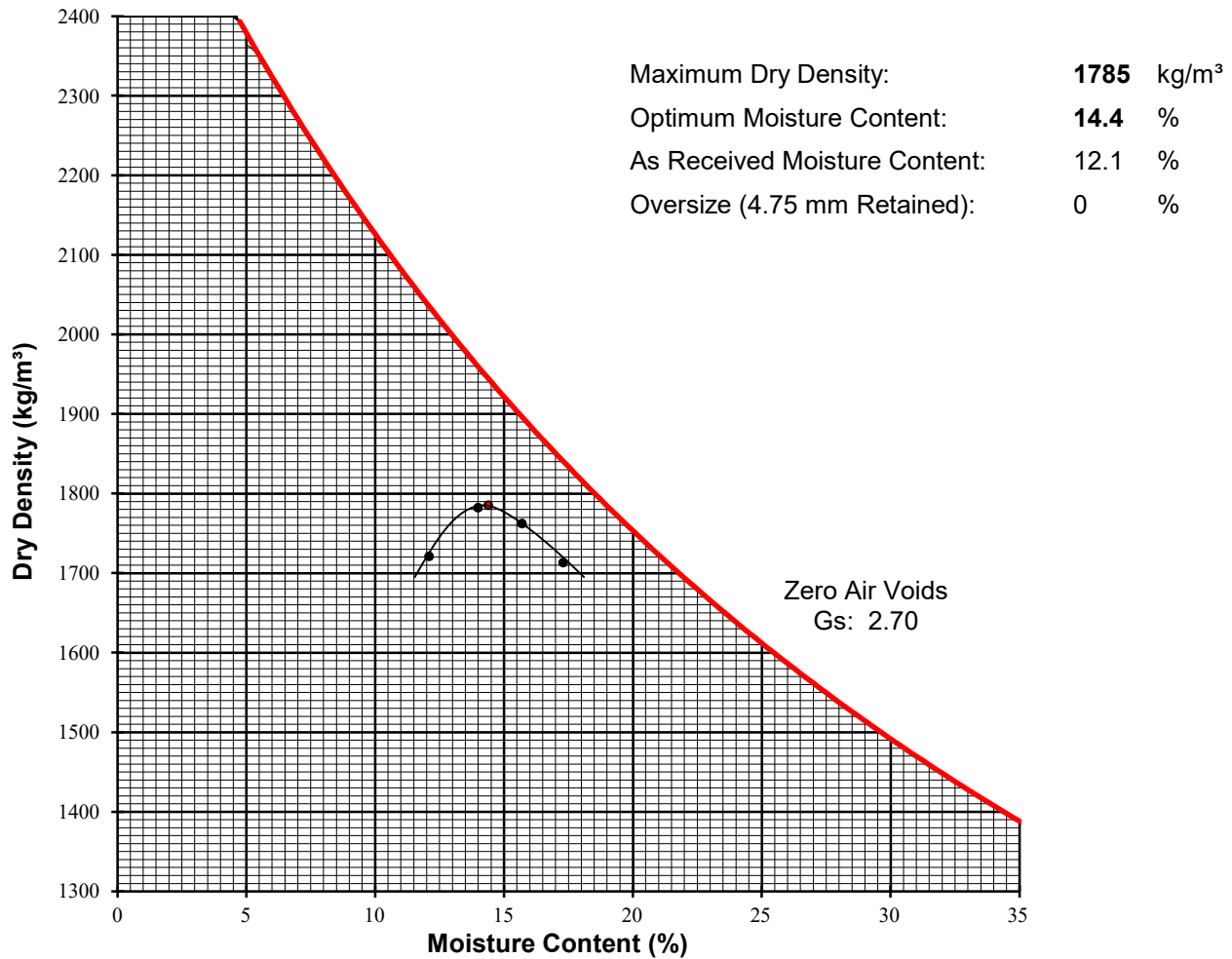
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MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 (Standard Proctor)

Project: RDFFG Cell 2 Geotechnical Investigation	Sample No.: Bulk 2
Project No.: SWM.SWOP04864-02	Sampled By: LL/TS/SS
Client: Regional District of Fraser - Fort George	Date Received: Sep 3, 2024
Attention: Darwin Paton	Test Date: Sep 20, 2024
E-mail: dpaton@rdffg.bc.ca	Test By: LL
Borehole No.: BH-01	Test Method: A (Manual)
Depth: 35-40 ft	
Sample Description: SAND, trace silt, brown	



Remarks: _____

Reviewed By: [REDACTED] P.Eng.

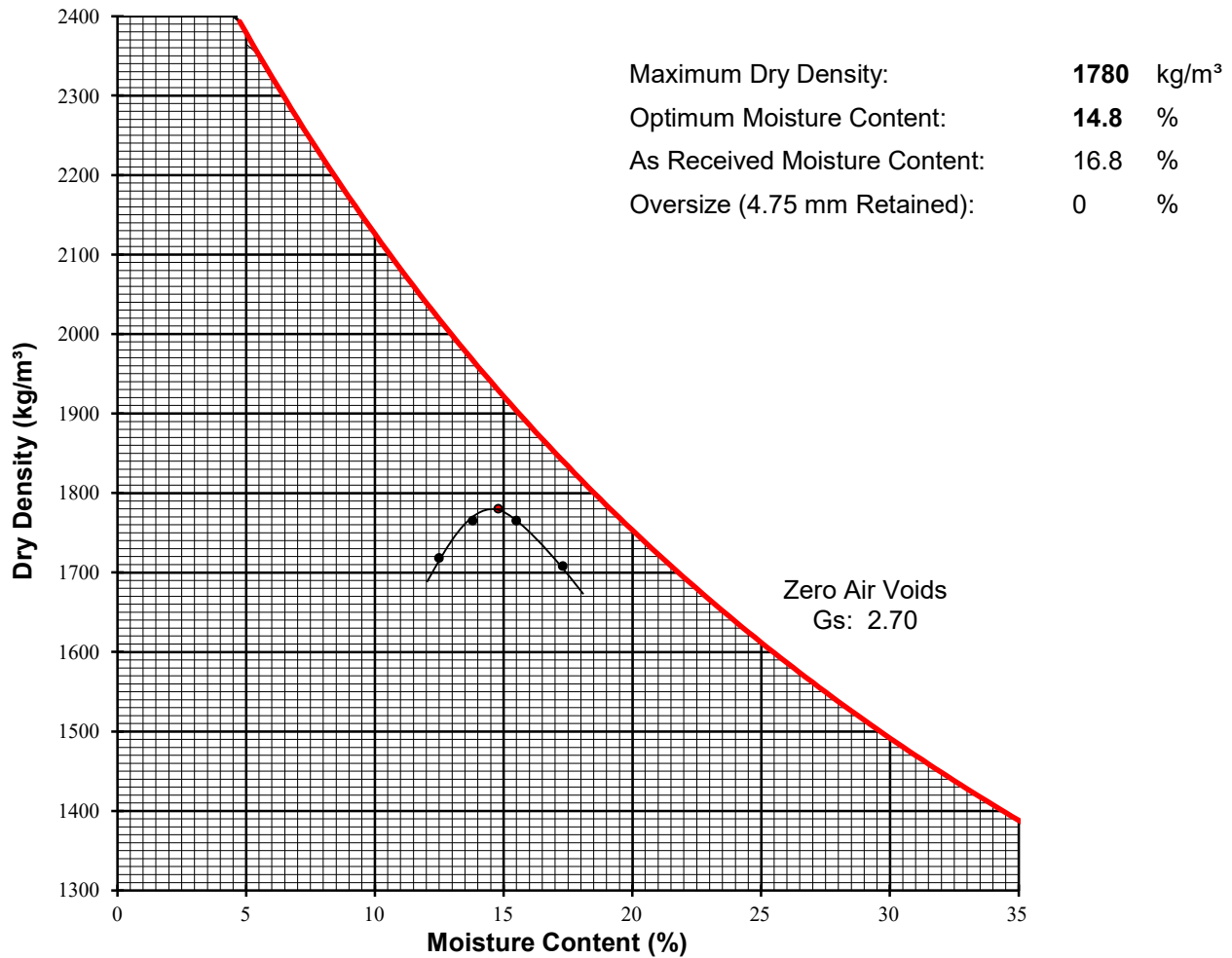
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MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 (Standard Proctor)

Project: RDFFG Cell 2 Geotechnical Investigation	Sample No.: Bulk 1
Project No.: SWM.SWOP04864-02	Sampled By: LL/TS/SS
Client: Regional District of Fraser - Fort George	Date Received: Sep 3, 2024
Attention: Darwin Paton	Test Date: Oct 26, 2024
E-mail: dpaton@rdffg.bc.ca	Test By: LL
Borehole No.: BH-02	Test Method: A (Manual)
Depth: 35-40 ft	
Sample Description: SAND and SILT, trace clay, brown	



Remarks: _____

Reviewed By: [REDACTED] P.Eng.

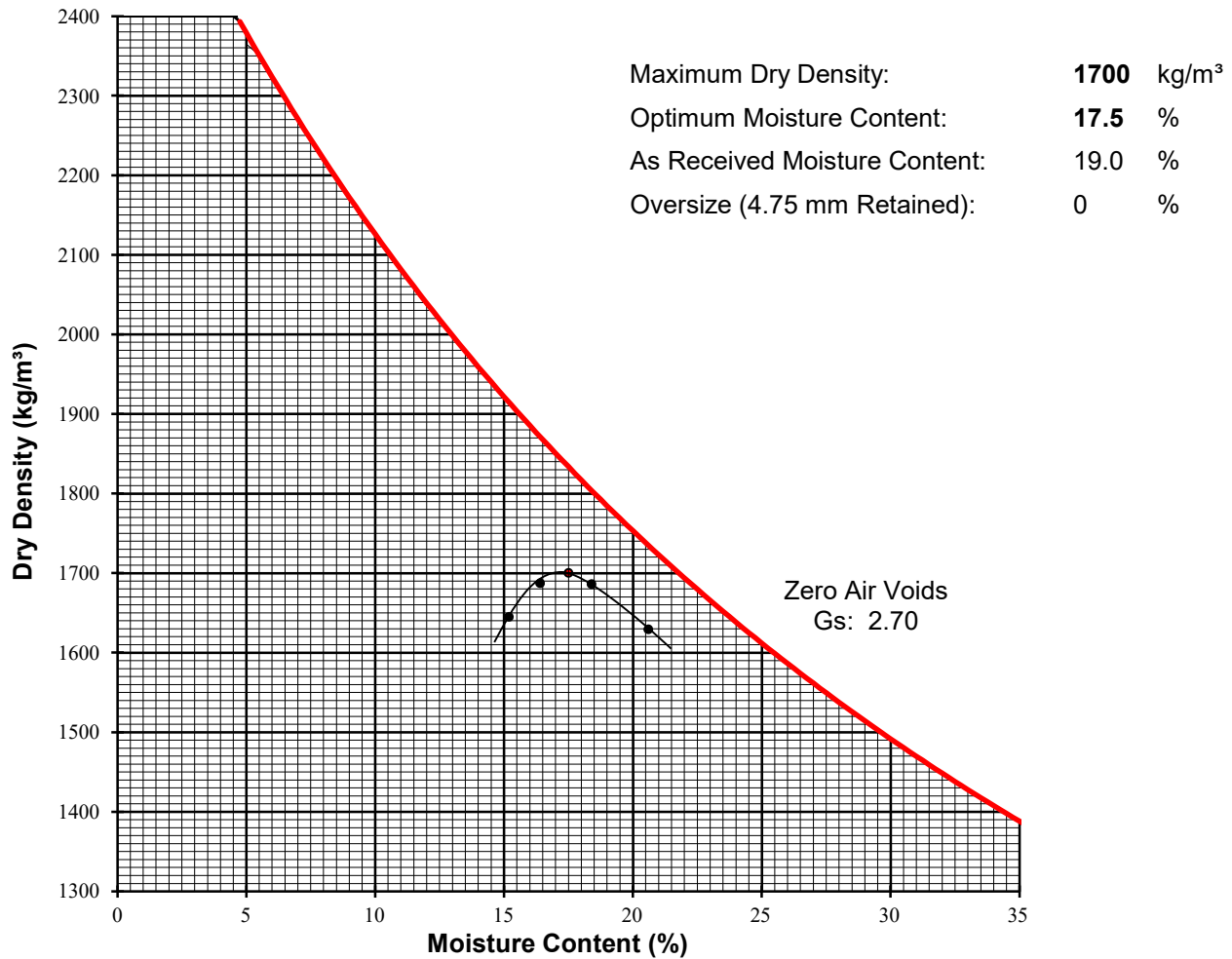
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MOISTURE-DENSITY RELATIONSHIP (Proctor) REPORT

ASTM D698 (Standard Proctor)

Project: RDFFG Cell 2 Geotechnical Investigation	Sample No.: Bulk 1
Project No.: SWM.SWOP04864-02	Sampled By: LL/TS/SS
Client: Regional District of Fraser - Fort George	Date Received: Sep 3, 2024
Attention: Darwin Paton	Test Date: Oct 26, 2024
E-mail: dpaton@rdffg.bc.ca	Test By: LL
Borehole No.: BH-04	Test Method: A (Manual)
Depth: 13-17 ft	
Sample Description: SILT, some sand, trace clay, brown	



Remarks: _____

Reviewed By: [REDACTED] P.Eng.

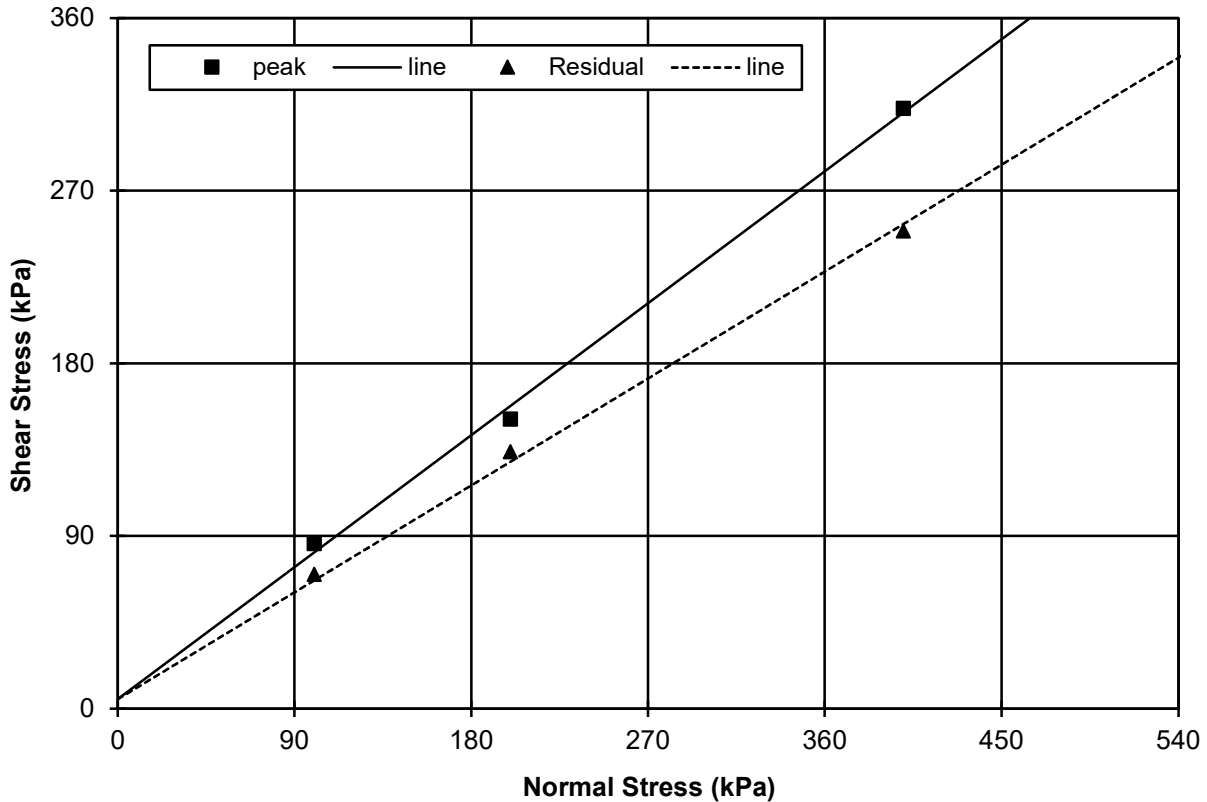
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SUMMARY of DIRECT SHEAR TEST RESULTS

ASTM D3080

Project: RDFFG Cell 2 Geotechnical Investigation	Borehole No. BH-01 Bulk 2
Project No.: SWM.SWOP04864-02	Depth: 35-40 ft
Client: Regional District of Fraser - Fort George	Date: September 21, 2024
Attention: _____	Tested By: TD
Email: _____	Office: Edmonton



Inferred Shear Strength Parameters :-

	Cohesion Intercept (kPa)	Inferred Angle of Shearing Resistance (Degrees)
Peak Strength:	5	37.4
Residual Strength:	5	31.8

Reviewed By: _____ P.Eng.

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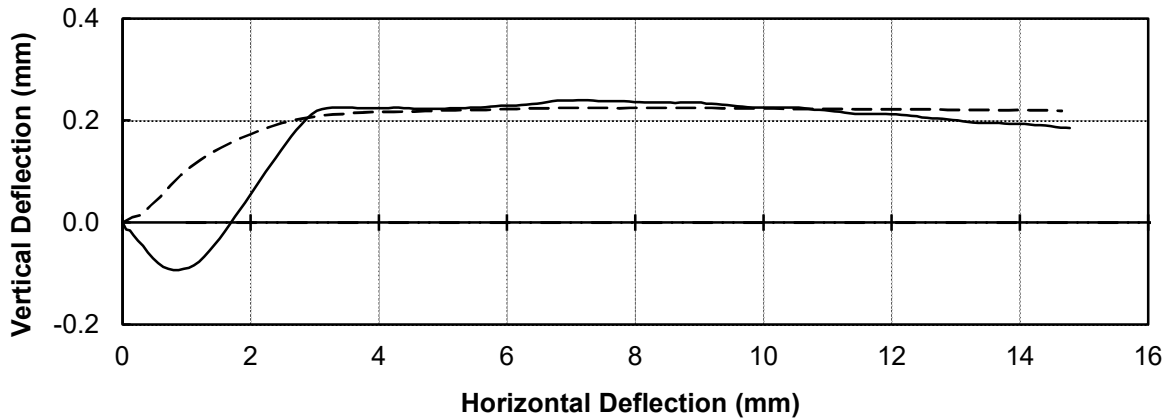
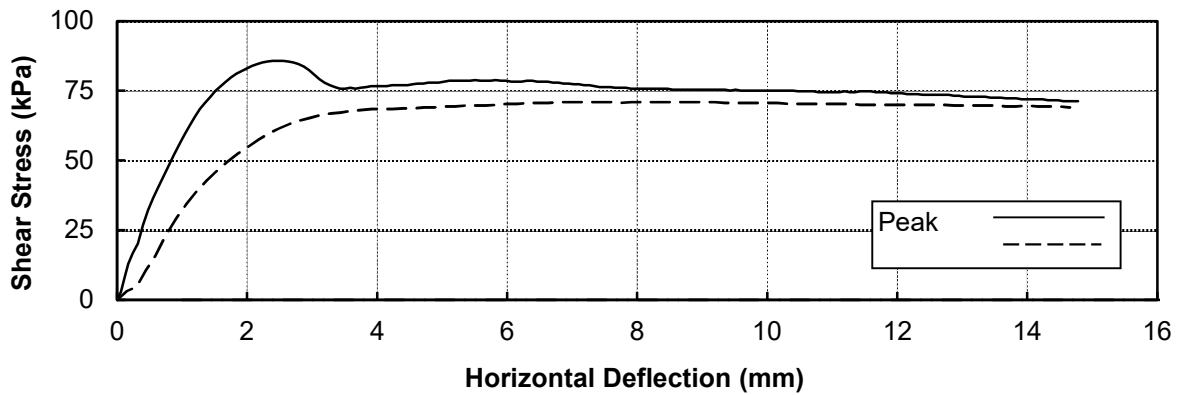


DIRECT SHEAR TEST

ASTM D3080

Project:	RDFFG Cell 2	Borehole No.:	BH-01 Bulk 2
Project No.:	SWM.SWOP04864-02	Depth:	35-40 ft
Client:	Regional District of Fraser - Fort George	Test No.:	DS-1
Date Tested:	September 21, 2024	Machine:	4
Description:	SAND, trace silt, brown	Preparation:	Remolded

Normal Stress (kPa) =	100	Moisture Content (%)	16.5
Peak Stress (kPa) =	86	Wet Density (Mg/m ³)	2.047
Residual Stress (kPa) =	69	Dry Density (Mg/m ³)	1.757



Remarks: _____

Reviewed By: _____ P.Eng.

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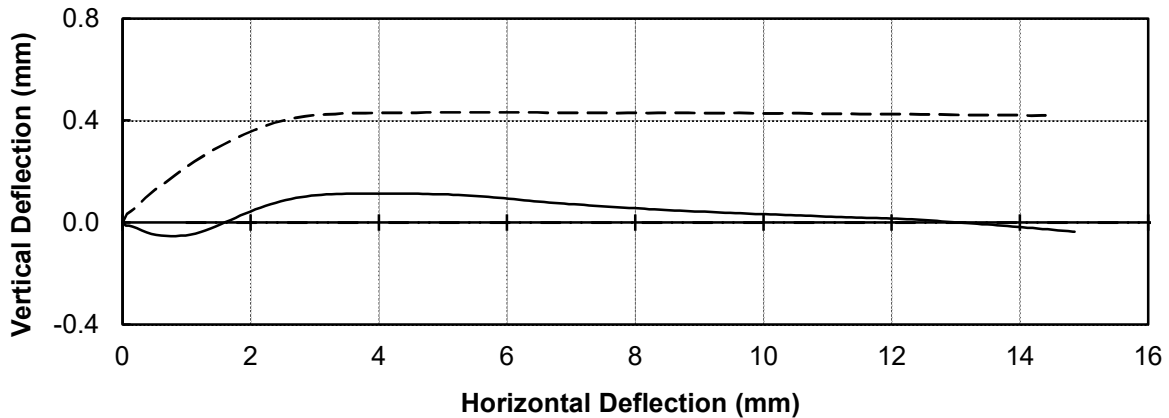
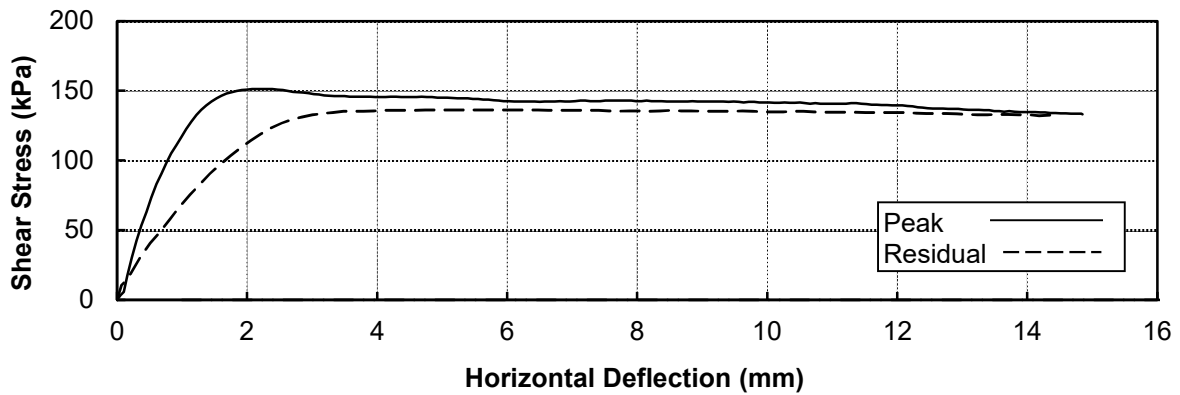


DIRECT SHEAR TEST

ASTM D3080

Project:	RDFFG Cell 2	Borehole No.:	BH-01 Bulk 2
Project No.:	SWM.SWOP04864-02	Depth:	35-40 ft
Client:	Regional District of Fraser - Fort George	Test No.:	DS-2
Date Tested:	September 21, 2024	Machine:	5
Description:	SAND, trace silt, brown	Preparation:	Remolded

Normal Stress (kPa) =	200	Moisture Content (%)	16.4
Peak Stress (kPa) =	151	Wet Density (Mg/m ³)	2.047
Residual Stress (kPa) =	132	Dry Density (Mg/m ³)	1.759



Remarks: _____

Reviewed By: [REDACTED] P.Eng.

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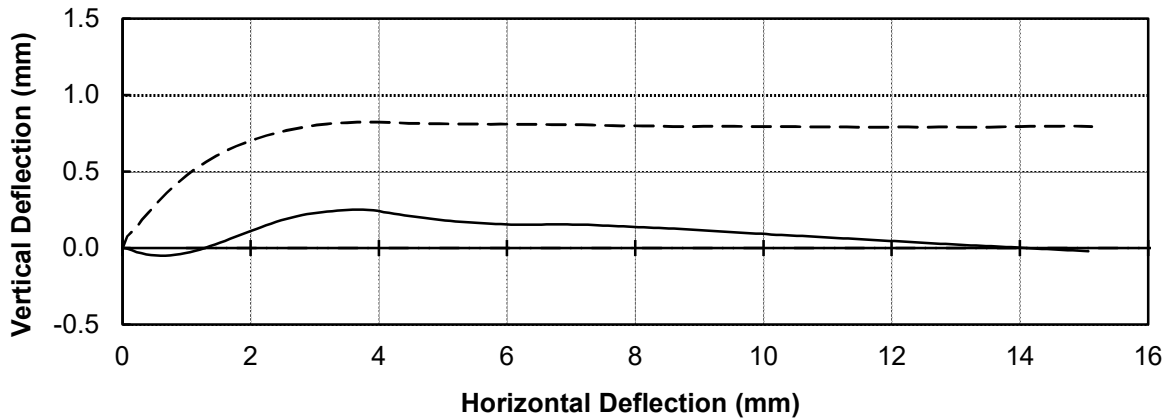
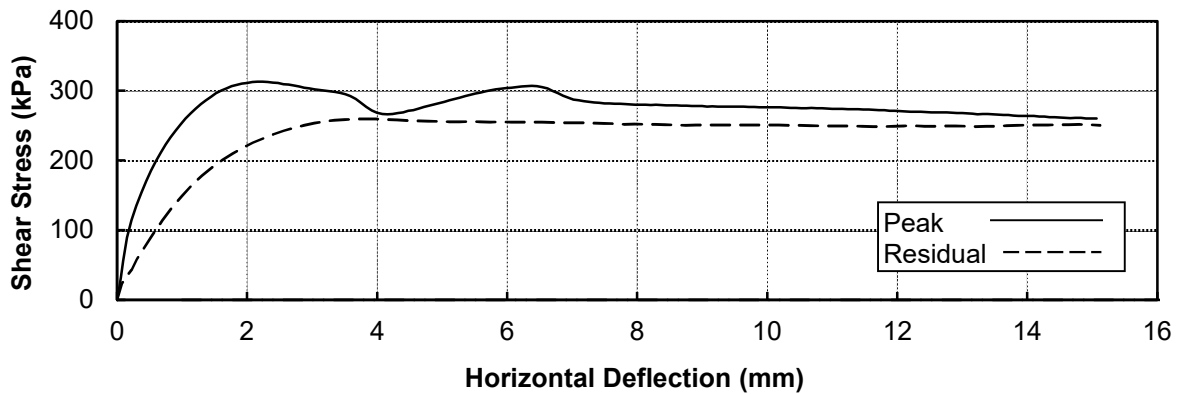


DIRECT SHEAR TEST

ASTM D3080

Project:	RDFFG Cell 2	Borehole No.:	BH-01 Bulk 2
Project No.:	SWM.SWOP04864-02	Depth:	35-40 ft
Client:	Regional District of Fraser - Fort George	Test No.:	DS-3
Date Tested:	September 21, 2024	Machine:	6
Description:	SAND, trace silt, brown	Preparation:	Remolded

Normal Stress (kPa) =	400	Moisture Content (%)	16.5
Peak Stress (kPa) =	313	Wet Density (Mg/m ³)	2.047
Residual Stress (kPa) =	249	Dry Density (Mg/m ³)	1.756



Remarks: _____

Reviewed By: _____ P.Eng.

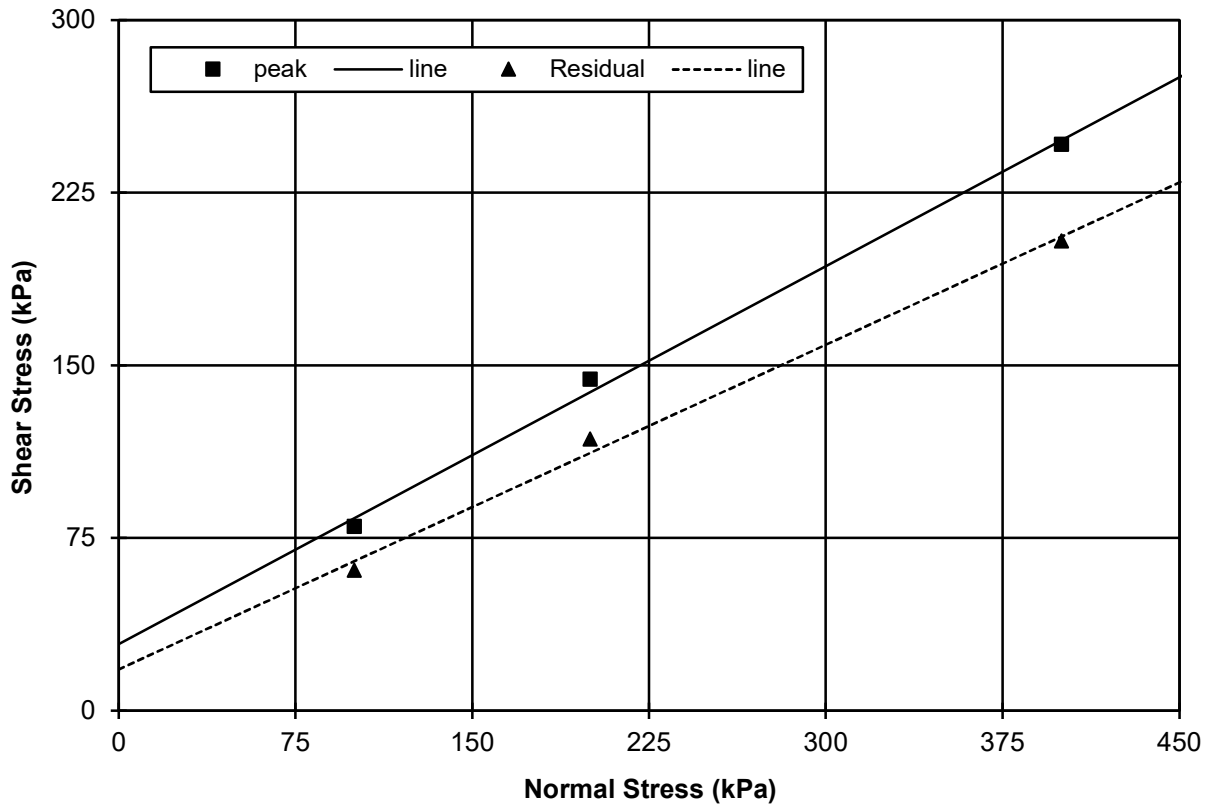
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SUMMARY of DIRECT SHEAR TEST RESULTS

ASTM D3080

Project: RDFFG Cell 2 Geotechnical Investigation	Borehole No. BH-04 SH02
Project No.: SWM.SWOP04864-02	Depth: 250-250.75 ft
Client: Regional District of Fraser - Fort George	Date: September 17, 2024
Attention: _____	Tested By: TD
Email: _____	Office: Edmonton



Inferred Shear Strength Parameters :-

	Cohesion Intercept (kPa)	Inferred Angle of Shearing Resistance (Degrees)
Peak Strength:	29	28.7
Residual Strength:	18	25.2

Reviewed By: _____ P.Eng.

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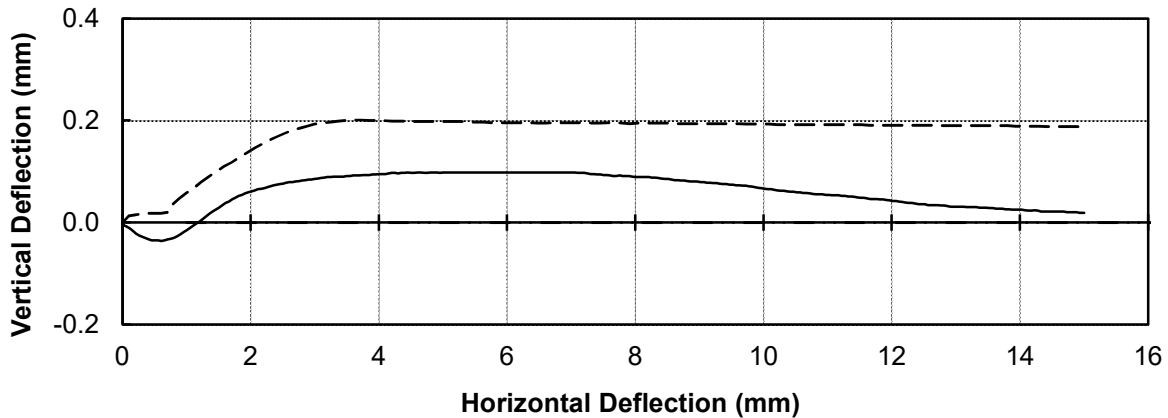
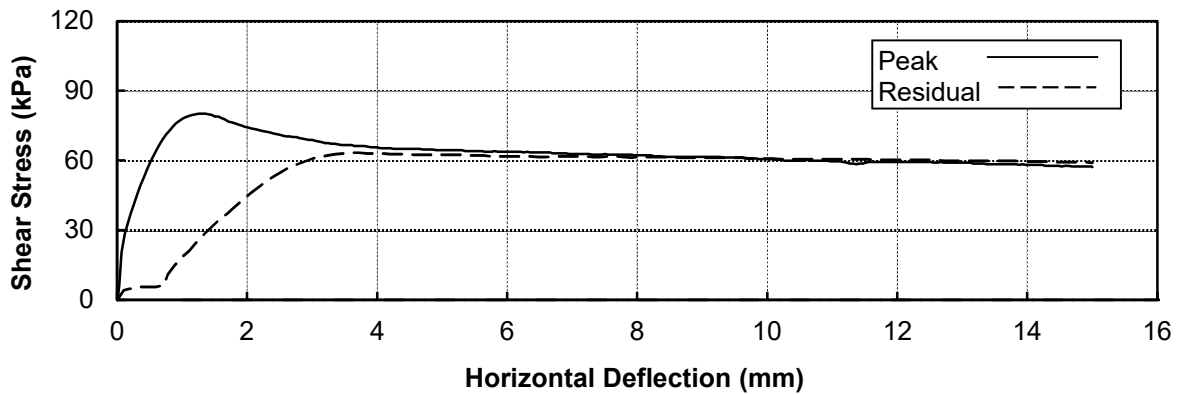


DIRECT SHEAR TEST

ASTM D3080

Project:	RDFFG Cell 2	Borehole No.:	BH-04 SH02
Project No.:	SWM.SWOP04864-02	Depth:	250-250.75 ft
Client:	Regional District of Fraser - Fort George	Test No.:	DS-4
Date Tested:	September 17, 2024	Machine:	4
Description:	SILT, sandy, some clay, gravel, dark grey	Preparation:	Undisturbed

Normal Stress (kPa) =	100	Moisture Content (%)	13.5
Peak Stress (kPa) =	80	Wet Density (Mg/m ³)	2.229
Residual Stress (kPa) =	59	Dry Density (Mg/m ³)	1.965



Remarks: _____

Reviewed By: _____ P.Eng.

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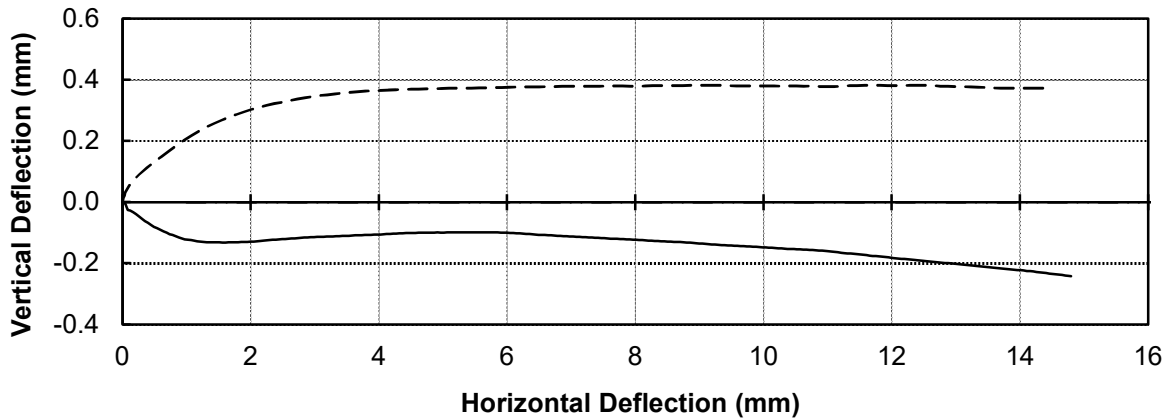
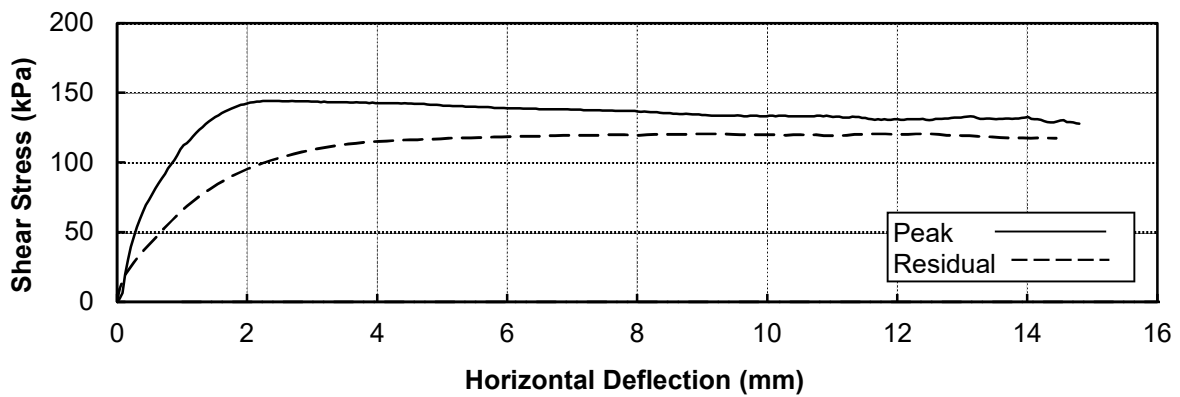


DIRECT SHEAR TEST

ASTM D3080

Project:	RDFFG Cell 2	Borehole No.:	BH-04 SH02
Project No.:	SWM.SWOP04864-02	Depth:	250-250.75 ft
Client:	Regional District of Fraser - Fort George	Test No.:	DS-5
Date Tested:	September 17, 2024	Machine:	5
Description:	SILT, sandy, some clay, gravel, dark grey	Preparation:	Undisturbed

Normal Stress (kPa) =	200	Moisture Content (%)	13.2
Peak Stress (kPa) =	144	Wet Density (Mg/m ³)	2.241
Residual Stress (kPa) =	117	Dry Density (Mg/m ³)	1.979



Remarks: _____

Reviewed By: _____ P.Eng.

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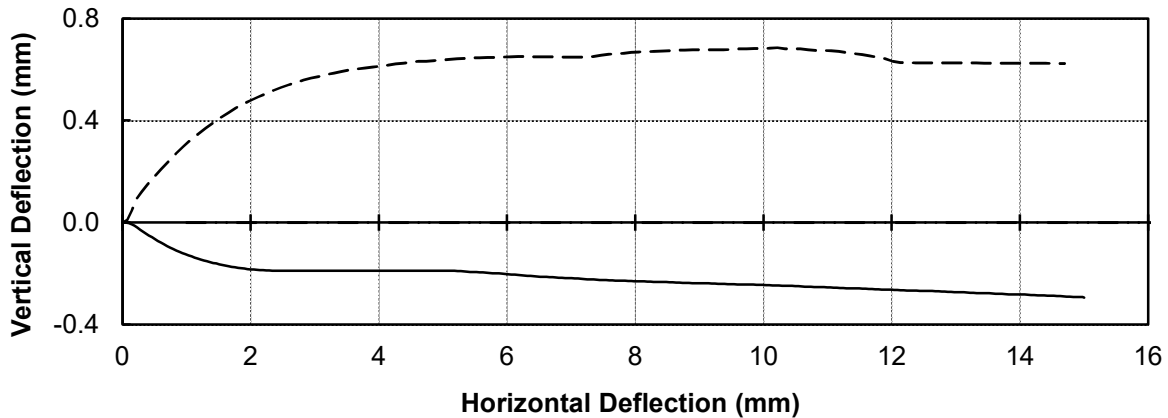
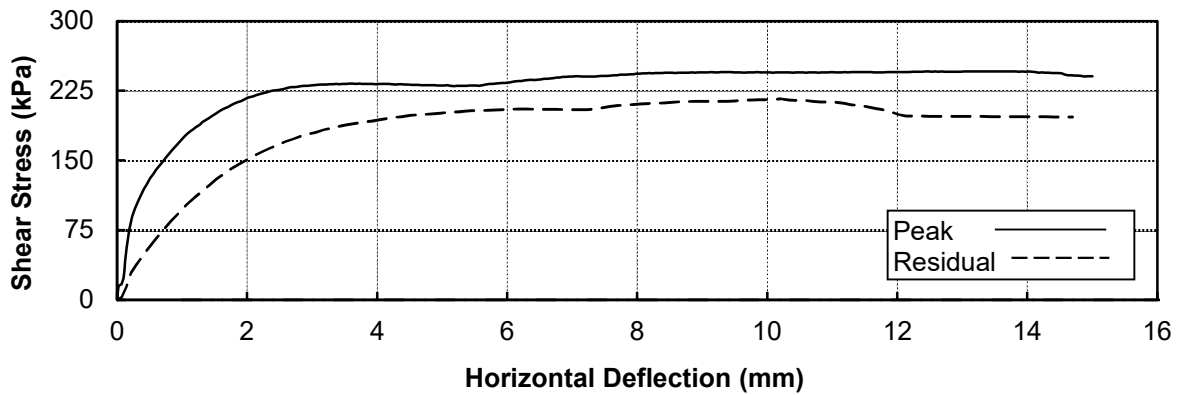


DIRECT SHEAR TEST

ASTM D3080

Project:	RDFFG Cell 2	Borehole No.:	BH-04 SH02
Project No.:	SWM.SWOP04864-02	Depth:	250-250.75 ft
Client:	Regional District of Fraser - Fort George	Test No.:	DS-6
Date Tested:	September 17, 2024	Machine:	6
Description:	SILT, sandy, some clay, gravel, dark grey	Preparation:	Undisturbed

Normal Stress (kPa) =	400	Moisture Content (%)	14.8
Peak Stress (kPa) =	246	Wet Density (Mg/m ³)	2.195
Residual Stress (kPa) =	197	Dry Density (Mg/m ³)	1.913



Remarks: _____

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MOISTURE CONTENT TEST RESULTS

ASTM D2216

Project: RDFFG Cell 2 Geotechnical Investigation Borehole No.: BH-02
 Project Number: SWM.SWOP04864-02 Date Tested: October 8, 2024
 Client: Regional District of Fraser - Ft. George Tested By: LL
 Project Manager: Michelle Jelinski Page: 1

Sample Number	Depth	Moisture Content (%)	Visual Description of Soil
B01	2.0-3.0 ft	24.5	SILT, trace sand, brown
B02	10.0-11.0 ft	20.6	SILT, sandy, brown
B03	18.0-19.0 ft	19.9	SILT, trace clay, brown
B04	21.0-22.0 ft	20.3	SILT, trace clay, sand, brown

Reviewed By: _____ P.Eng.

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MOISTURE CONTENT TEST RESULTS

ASTM D2216

Project:	<u>RDFFG Cell 2 Geotechnical Investigation</u>	Borehole No.:	<u>BH-03</u>
Project Number:	<u>SWM.SWOP04864-02</u>	Date Tested:	<u>October 8, 2024</u>
Client:	<u>Regional District of Fraser - Ft. George</u>	Tested By:	<u>LL</u>
Project Manager:	<u>Michelle Jelinski</u>	Page:	<u>1</u>

Sample Number	Depth	Moisture Content (%)	Visual Description of Soil
B01	3.0-4.0ft	33.9	SILT, trace clay, brown
SS01	5.0-7.0ft	27.8	SILT, trace sand, brown
B04	16.0-17.0 ft	24.8	SILT, trace clay, brown

Reviewed By: _____ P.Eng.

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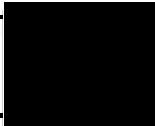


MOISTURE CONTENT TEST RESULTS

ASTM D2216

Project: RDFFG Cell 2 Geotechnical Investigation Borehole No.: BH-04
 Project Number: SWM.SWOP04864-02 Date Tested: October 8, 2024
 Client: Regional District of Fraser - Ft. George Tested By: LL
 Project Manager: Michelle Jelinski Page: 1

Sample Number	Depth	Moisture Content (%)	Visual Description of Soil
B02	8.0-9.0 ft	25.1	SILT, trace clay, brown
B03	11.0-12.0 ft	26.6	SILT, trace sand, brown
B05	23.0-24.0 ft	24.2	SILT, trace sand, brown

Reviewed By:  P.Eng.

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APPENDIX F

LIMITATIONS ON THE USE OF THIS DOCUMENT

LIMITATIONS ON USE OF THIS DOCUMENT

GEOENVIRONMENTAL

1.1 USE OF DOCUMENT AND OWNERSHIP

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Where TETRA TECH submits electronic file and/or hard copy versions of the Professional Document or any drawings or other project-related documents and deliverables (collectively termed TETRA TECH's "Instruments of Professional Service"), only the signed and/or sealed versions shall be considered final. The original signed and/or sealed electronic file and/or hard copy version archived by TETRA TECH shall be deemed to be the original. TETRA TECH will archive a protected digital copy of the original signed and/or sealed version for a period of 10 years.

Both electronic file and/or hard copy versions of TETRA TECH's Instruments of Professional Service shall not, under any circumstances, be altered by any party except TETRA TECH. TETRA TECH's Instruments of Professional Service will be used only and exactly as submitted by TETRA TECH.

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Services performed by TETRA TECH for the Professional Document have been conducted in accordance with the Contract, in a manner

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If any error or omission is detected by the Client or an Authorized Party, the error or omission must be immediately brought to the attention of TETRA TECH.

1.4 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that it has fully cooperated with TETRA TECH with respect to the provision of all available information on the past, present, and proposed conditions on the site, including historical information respecting the use of the site. The Client further acknowledges that in order for TETRA TECH to properly provide the services contracted for in the Contract, TETRA TECH has relied upon the Client with respect to both the full disclosure and accuracy of any such information.

1.5 INFORMATION PROVIDED TO TETRA TECH BY OTHERS

During the performance of the work and the preparation of this Professional Document, TETRA TECH may have relied on information provided by third parties other than the Client.

While TETRA TECH endeavours to verify the accuracy of such information, TETRA TECH accepts no responsibility for the accuracy or the reliability of such information even where inaccurate or unreliable information impacts any recommendations, design or other deliverables and causes the Client or an Authorized Party loss or damage.

1.6 GENERAL LIMITATIONS OF DOCUMENT

This Professional Document is based solely on the conditions presented and the data available to TETRA TECH at the time the data were collected in the field or gathered from available databases.

The Client, and any Authorized Party, acknowledges that the Professional Document is based on limited data and that the conclusions, opinions, and recommendations contained in the Professional Document are the result of the application of professional judgment to such limited data.

The Professional Document is not applicable to any other sites, nor should it be relied upon for types of development other than those to which it refers. Any variation from the site conditions present, or variation in assumed conditions which might form the basis of design or recommendations as outlined in this report, at or on the development proposed as of the date of the Professional Document requires a supplementary exploration, investigation, and assessment.

TETRA TECH is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the property, the decisions on which are the sole responsibility of the Client.

1.7 NOTIFICATION OF AUTHORITIES

In certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed and the client agrees that notification to such bodies or persons as required may be done by TETRA TECH in its reasonably exercised discretion.



**REGIONAL DISTRICT
of Fraser-Fort George**

Main Office: 155 George Street, Prince George, BC V2L 1P8
 Telephone: (250) 960-4400 / Fax: (250) 563-7520
 Toll Free: 1-800-667-1959 / www.rdffg.ca

**REPORT FOR
COMMITTEE CONSIDERATION**

TO: Chair and Members, Environment and Parks Standing Committee File No.: REGI 1.0
 FROM: Laura Zapotichny, General Manager of Environmental Services
 DATE: February 7, 2025
 SUBJECT: Solid Waste Asset Management Planning Consulting Services
 SUMMARY: Purpose: Consider Competitive Bid Process
Attachments: Backgrounder
Previous Reports: None

RECOMMENDATION(S):

1. THAT the report dated February 7, 2025, regarding "Solid Waste Asset Management Planning Consulting Services" be received for information.
2. THAT the Committee recommend to the Board that a competitive bid process be entered into for the purpose of engaging consulting services for solid waste asset management planning.

ENTITLEMENT	HOW VOTE COUNTED
All 1 Director/1 vote	Majority
All 1 Director/1 vote	Majority

ISSUE(S):

The Regional District of Fraser Fort George (Regional District) operates an extensive network of landfills and transfer stations. Many of these sites are aging, with extensive infrastructure in place that will require repair, refurbishment, or replacement over the next decade. Additionally, the Regional District is undertaking an expansion at the Foothills Boulevard Regional Landfill in the construction of Cell 2 and is seeking to quantify the available air space from this expansion and understand its value to the Regional District.

The Regional District currently has a five-year solid waste financial plan that supports the long-term operation and demand planning of the Regional District's landfill and transfer station assets; however, it is recognized that this plan is only a component of a much larger picture that considers all of the Regional District's extensive solid waste operations, maintenance needs, and infrastructure management.

The Committee is being asked to recommend to the Board to consider entering into a competitive bid process for the purpose of retaining a consultant to undertake an evaluation of assets within the solid waste network.

RELEVANT POLICIES:

1. Regional Solid Waste Management Plan:
 - provides an implementation schedule for the waste characterization study
2. Policy RD-03-09: Procurement of Goods and Services:
 - provides for procurement levels and limits
3. Regional Solid Waste Management Financial Plan 2021
 - Provides a framework for revenue and requestion levels to support the objectives of the Regional Solid Waste Management Plan and meet regulatory obligations

STRATEGIC PRIORITIES ALIGNMENT:

- | | | | |
|--|---|--|--|
| <input type="checkbox"/> Indigenous and Intergovernmental Partnerships | <input type="checkbox"/> Organizational Strength and Adaptability | <input checked="" type="checkbox"/> Quality Community Services | <input checked="" type="checkbox"/> Environmental Stewardship and Climate Action |
| <input type="checkbox"/> Awareness and Engagement | <input type="checkbox"/> Statutory or Routine Business | | |

SERVICE RELEVANCE:

The Regional District provides solid waste services for the entire Regional District of Fraser-Fort George.

FINANCIAL CONSIDERATION(S):

Budget implications for this service are reflected in the proposed 2025 Solid Waste Management (3305) Budget.

OTHER CONSIDERATION(S):

N/A

DECISION OPTIONS:

1. Approve recommendations.
 - a recommendation will be made to the Board that a competitive bid process be entered into for the purpose of engaging consulting services for Solid Waste Asset Management

Other Options:

- a. do not make a recommendation to enter into a competitive bid process for the purpose of engaging consulting services for Solid Waste Asset Management
 - would result in this work being delayed

COMMENTS:

As part of the Regional District's Asset Management Strategy (2017), one of the policy considerations is to create service specific asset management plans. The creation of an asset management plan for solid waste would help meet this goal. Additionally, the Regional District is looking to update the 2021 Regional Solid Waste Management Financial Plan in 2026.

A full understanding of the status of the solid waste management network would contribute to greater accuracy in financial planning of this service.

Respectfully submitted,

"Laura Zapotichny"

Laura Zapotichny
General Manager of Environmental Services

LZ:jt



BACKGROUNDER – SOLID WASTE ASSET MANAGEMENT

The provision of solid waste management services is one of a number of regional wide services provided by the Regional District to all of the electoral areas and member municipalities. The importance of this service cannot be understated, and it is imperative for the Regional District to have a financial plan, including a fulsome asset management assessment, to guide decisions regarding the financial state of solid waste services in the region.

Why Solid Waste Asset Management Planning (AMP)?

Implementing asset management practices in solid waste operations is critical to:

- ensure efficient waste disposal;
- minimize environmental impact;
- optimize financial planning; and,
- maintain reliable service levels

by proactively identifying and addressing potential issues with facilities and infrastructure, which will ultimately extend their lifespan and reduce unexpected disruptions.

What is the Objective of Asset Management Planning?

The objective of asset management planning is to deliver a technical and financial roadmap for managing the Regional District's solid waste facilities and assets and to provide the means for the Regional District to maximize value from its assets, at the lowest overall expense, while at the same time maintaining service levels for its residents.

Regional District of Fraser-Fort George's Asset Management (AM) Strategy

As part of the Regional District's Asset Management Strategy (2017), one of the policy considerations is to create service specific asset management plans. The procurement of a consultant to prepare a solid waste management plan will be a major step forward in meeting the goals of the AM strategy; information for grant opportunities; updated five-year financial plan and a more robust regional solid waste management plan.

- **Asset Inventory and Condition Assessment:**
 - Detailed list of all solid waste assets (equipment, bins, containers, facilities) with age, condition, and maintenance history
 - Landfill Cell airspace
 - Breakdown of critical components with potential failure points
 - Visual inspections and performance data analysis (e.g., equipment breakdowns, bin damage)
- **Performance Metrics and Trends:**
 - Waste generation per capita
 - Recycling and composting diversion rates
 - Landfill capacity utilization
 - Costs associated with regional wide waste disposal, composting and recycling
- **Maintenance and Repair Strategies:**
 - Current maintenance practices and budget allocation
 - Preventive maintenance schedule for equipment and assets
 - Repair and replacement policies for aging assets
 - Cost-benefit analysis of repair vs. replacement options
- **Capital Improvement Plan:**
 - Identified needs for infrastructure upgrades (new equipment, landfill improvements such as Cell 2 and commercial entrance)
 - Estimated project costs and funding sources
 - Phased implementation plan considering budget constraints
- **Sustainability Initiatives:** (in support of goals identified in the Regional Solid Waste Management Plan)
 - Strategies to increase diversion rates
 - Environmental impact analysis of waste management practices

The key reasons to implement asset management in solid waste:

- **Cost savings:**
 - By identifying maintenance needs early, preventing breakdowns, and optimizing asset utilization, asset management can significantly reduce operational costs associated with repairs and replacements.
- **Environmental protection:**
 - Proper asset management helps minimize waste generation by optimizing and extending the lifespan of the landfills, contributing to a smaller environmental footprint.
- **Improved service quality:**
 - Proactive maintenance ensures reliable waste disposal services, minimizing disruptions and complaints from residents.
- **Risk mitigation:**
 - By monitoring asset condition and identifying potential failures, asset management can proactively address risks related to equipment breakdowns, safety hazards, and environmental contamination.
- **Data-driven decision making:**
 - Asset management systems gather data on equipment performance, allowing for informed decisions regarding maintenance schedules, asset replacement, and resource allocation.
- **Compliance with regulations:**
 - Proper asset management practices can help ensure compliance with environmental regulations related to waste disposal and handling.

Engaging a consultant to undertake this work will help guide Administration and the Board in long term solid waste management planning including:

- Updating the 2021 Regional Solid Waste Management Financial Plan
- Updating the 2011 Integrated Landfill Management Plan
- Updating the 2015-2025 Regional Solid Waste Management Plan