



"A WORLD OF OPPORTUNITIES WITHIN OUR REGION"

REQUEST FOR PROPOSAL – CLEARVIEW LANDFILL LEACHATE COLLECTION POND CONSTRUCTION

Located at Fort St. James

Solicitation # RDBN-ENV-25-07

Regional District of Bulkley-Nechako

Request Issued: August 20, 2025

**Closing Date: Wednesday, September 17, 2025
4:00 pm (Pacific Standard Time)**

Contact: Alex Eriksen, Director of Environmental Services
bid@rdbn.bc.ca

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1 PROJECT SUMMARY

The Regional District of Bulkley-Nechako (the Regional District) is seeking proposals from qualified proponents in response to this request for proposal ("RFP"). The successful proponent shall provide all labour, equipment, materials, and services required to construct a geomembrane-lined pond, including subgrade preparation, supply and installation of geomembranes and geocomposites, quality control testing, and related works in accordance with the specifications outlined below. All work must be completed to the satisfaction of the Engineer and the Regional District.

2 BACKGROUND

The Regional District owns and operates a landfill located approximately 22 km north of the junction of Highways 16 and 27, between Vanderhoof and Fort St. James, British Columbia. The site encompasses a total permitted area of approximately 168 hectares, with 32 hectares designated for landfill development and a current landfill footprint of about 4.7 hectares. The property is located on unsurveyed Crown land near Clear Creek, north of Section 36, Township 18, Range 5, Coast District, with access via a road west off Highway 27.

The landfill began operations on November 15, 2005, and is managed as a "natural control facility" in accordance with the BC Landfill Criteria for Municipal Solid Waste (2016). Waste placement has occurred within Sub-Cells 1 through 5 of Phase 1, situated in the southeast and northeast quadrants of the property.

3 TERMS AND CONDITIONS

The terms and conditions applicable to this Request for Proposals are contained within this document. Submission of a proposal in response to this RFP indicates acceptance of all terms and conditions contained herein or in any addenda issued by the Regional District.

4 CANCELLATION OF RFP

The Regional District reserves the right to cancel this Request for Proposals at any time and for any reason and will not be responsible for any direct or indirect loss, damage, cost, or expense incurred or suffered by any Proponent because of such cancellation. The acceptance of any proposal and the subsequent execution of a contract may be subject to funding and approval by the Board of the Regional District of Bulkley-Nechako.

5 SUBMISSION GUIDELINES

The Regional District invites the submission of proposals from qualified and experienced contractors as outlined in this document.

The Regional District will accept Proposals submitted by email or by direct delivery (in person or by courier/mail) to the Regional District main office at 37 3rd Avenue Burns Lake.

All proposals must be submitted to the Regional District by 4:00 pm (local time) on Wednesday, September 17, 2025

Proposals submitted by fax will **NOT** be accepted. Any Proposals received after the closing

time will be considered disqualified.

By Email

One (1) single PDF file containing your submission must be delivered to the Regional District by email at bid@rdbn.bc.ca. The Regional District will confirm receipt of emails.

By Direct Delivery (Hand Delivered, Mail or Courier)

One (1) complete copies of your submission must be submitted in a sealed envelope with the following information written on the outside of the envelope containing the proposal, as well as on the outside of the courier envelope/box (if sending by courier):

Attention: Procurement Clerk
Regional District of Bulkley-Nechako
37 3rd Avenue Burns Lake, BC V0J 1E0

Regional District of Bulkley-Nechako – **CLEARVIEW LANDFILL LEACHATE
COLLECTION POND CONSTRUCTION**
Request for Proposal
Responding Organization's name and address.

Inquiries regarding the RFP may be directed by email to bid@rdbn.bc.ca.

Please note that questions related to this Request for Proposals will be accepted up to 4:00 pm on September 9, 2025. This will allow the answers to questions asked to be properly distributed to all interested parties via BC Bid.

Proponents shall be solely responsible for the delivery of their proposal in the manner and time prescribed. All submissions must be delivered according to the instructions provided herein and the Regional District will accept no responsibility for documents delivered to any other location.

To ensure your receipt of any answers to questions asked or addendums issued, you must fill out and return the attached reply form to bid@rdbn.bc.ca.

Failure to submit a properly filled out reply form absolves the Regional District of any obligation to provide addendums to Proponents wishing to submit a proposal.

See Appendix A for the Proposal Reply Form

6 ADDENDA

Addenda to this RFP may be issued prior to closing in response to queries received or at the initiative of the Regional District. Addenda will be in written form posted on BC Bid and the Regional District website. Information contained within RFP addenda is considered an integral part of the RFP and should be considered by Proponents when responding to this RFP.

All final Addenda will be issued and posted on BC Bid and the Regional District website by 4:00 pm on Friday September 12, 2025.

Verbal communications will not be binding unless confirmed by written addenda.

It is the sole responsibility of the Proponent to check for addendums.

7 SITE TOUR

A site tour will take place on Thursday, September 4, 2025 at 11:00 AM. Attendance is not mandatory. However, proponents who wish to attend must confirm their attendance by contacting Alex Eriksen at the Regional District office by phone 250-692-3195 or via email at bid@rdbn.bc.ca.

8 ALTERNATIVE SOLUTIONS

If alternative solutions are offered, the information should be submitted in the same format as a standard proposed response but should be clearly marked as an "Alternative Proposal". If a Proponent submits more than one proposal each must be separately and uniquely identified.

9 ARTIFICIAL INTELLIGENCE

Proponents must note in their bid documents if they have used any artificial intelligence in the development of their submission, and if so, confirm they have verified and validated the information received through artificial intelligence, prior to including it in their submission.

10 CHANGES TO PROPOSALS

By written notice submitted prior to the closing date, a Proponent may amend or withdraw its proposal. Upon closing, all proposals become irrevocable and may not be amended or withdrawn except where the Proponent and the Regional District have mutually agreed to a change for the purpose of entering into a contract.

Information obtained from any other source is not official and should not be relied upon.

11 PROPONENTS' EXPENSES

The Regional District will not be responsible for any costs incurred by the Proponents as a result of the preparation or submission of a Proposal pertaining to this RFP. The accuracy and completeness of the Proposal is the Proponent's responsibility. If errors are discovered, they will be corrected by the Proponent at their expense.

Proponents acknowledge that the Regional District, in preparation for the RFP supply of oral or written information to Proponents, review Proposals or the carrying out the Regional District's responsibilities under this RFP, does not owe a duty of care to the Proponents.

12 CONFIDENTIALITY OF INFORMATION

In accordance with the Freedom and Information and Protection of Privacy Act, the Proponents will treat as confidential and will not, without prior written consent of the Regional District, publish, release, or disclose, or permit to be published, released, or disclosed, any information supplied to, obtained by, or which comes to knowledge of the Proponents as a result of this RFP except insofar as such publication, release or disclosure is required by the laws of British Columbia.

13 OWNERSHIP OF PROPOSALS AND FREEDOM OF INFORMATION

All Proposals submitted under this RFP become the property of the Regional District and will not be returned to the Proponent. The Regional District advises Proponents that parts or all their Proposals may be subject to the provisions of British Columbia's *Freedom of Information and Protection of Privacy Act (FOIPPA)* and the *Community Charter*. Proponents who wish to ensure parts of their Proposals are protected from disclosure under the FOIPPA Act should specifically identify any information or records provided with their Proposals that constitute a) trade secrets, and b) that are supplied in confidence, and c) the release of which could significantly harm their competitive position. Information that does not meet all three of the foregoing categories may be subject to disclosure to third parties. Please refer to the *Freedom of Information and Protection of Privacy Act* for further information. The Regional District cannot guarantee that any information contained within a proposal will remain confidential if a request for access is made.

14 ACCEPTANCE OF PROPOSALS

This RFP should not be construed as an agreement to purchase goods or services nor as an invitation to perform any service for the Regional District except as specifically outlined herein. Proposals shall remain open for acceptance by the Regional District for a minimum of 60 days after the RFP closing date.

The Regional District's intent is to enter into a contract with the Proponent who has submitted the best value proposal. The Regional District reserves the right to accept any or none of the Proposals submitted and will evaluate Proposals based on the best value offered to the Regional District and not necessarily the lowest price, using the criteria specified in this RFP.

The Regional District reserves the right in its sole unrestricted discretion to:

- a) Reject any and/or all irregularities in a proposal submitted.
- b) Waive any defect or deficiency in a proposal whether that defect or deficiency materially affects the proposal and accept that proposal.
- c) Reject any and/or all Proposals for any reason, without discussion with the Proponent(s);
and
- d) Accept a proposal which is not the lowest price proposal.

In addition to any other provision of this RFP, the Regional District may, at its absolute

discretion, choose not to consider a Proposal if the Proponent, or any officer or director of the Proponent, is or has been engaged directly or indirectly in a legal action against the Regional District in relation to any matter.

Proponents should not attempt to solicit any members of the elected Board of Directors or employees of the Regional District. Any solicitation may result in the Proponent being removed from consideration.

15 EVALUATION CRITERIA

Proposals will be ranked on a points basis with criteria including cost, qualifications (personnel), availability, experience, and quality of proposal. The Proposal Evaluation Form is a tool to assist in the evaluation process; however, it is not the sole determining factor in the evaluation process.

See Appendix A for the Proposal Evaluation Form

16 CONFLICT OF INTEREST

When submitting a Proposal, the Proponent must complete, sign and include with their Proposal a Conflict of Interest Disclosure Statement (Appendix "C").

The Regional District may reject a Proposal based on an actual, potential, or perceived conflict of interest.

The Regional District may reject any Proposal where:

- a) One or more of the directors, officers, principles, partners, senior management employees, shareholders, or owners of the Proponent, is an officer, employee, or director of the Regional District or a consultant involved in the procurement process, or is a member of the immediate family of an officer, employee or director of the Regional District or a consultant involved in the procurement process; or
- b) In the case of a Proposal submitted by a Proponent who is an individual person, where that individual is an officer, employee, or director of the Regional District or a consultant involved in the procurement process or is a member of the immediate family of officer, employee, or director of the Regional District or a consultant involved in the procurement process.

(collectively, "Restricted Parties")

A Proponent who has any concerns regarding whether a current or prospective employee, advisor, or member of that Proponent is, or may be, a Restricted Party, should request an advance decision by submitting to the Chief Administrative Officer (CAO), not less than ten working days (**September 4, 2025**) prior to the Closing Time, by email, the following information:

- a) Names and contact information of the Proponent and the person which the advance opinion is requested;
- b) A description of the relationship that raises the possibility or perception of a conflict of interest or unfair advantage; and
- c) Copies of any relevant documentation

The Regional District may make an advance decision regarding whether the person is a Restricted Party, and whether the Regional District will reject a Proposal based on the information provided. If Proponent has identified an actual, perceived or potential conflict of interest regarding this RFP process or project, the Proponent must submit a Conflict of Interest Disclosure Statement (Appendix "A") to the CAO by **September 9, 2025**.

17 SUBCONTRACTORS

All subcontractors, including affiliates of the Proponent, should be clearly identified in the Proposal as per the form attached as Appendix "D"

A Proponent may not subcontract to a firm or individual whose current or past corporate or other interests, may, in the Regional District's opinion, give rise to an actual, perceived or potential conflict of interest in connection with the services described in the RFP. This includes, but not limited to, involvement by the firm or individual in the preparation of the RFP, or a relationship with any employee, contractor representative of the Regional District involved in preparation of the RFP, participating on the evaluation committee or in the administration of the Contract. If a proponent is in doubt as to whether a proposed subcontractor might be in conflict of interest, the Proponent should consult with the CAO prior to submitting a Proposal. By submitting a Proposal, the Proponent represents that it is not aware of any circumstances that would give rise to a conflict of interest this is actual, perceived or potential, in respect of the RFP.

18 EXECUTION OF CONTRACT

Following acceptance by the Regional District, the successful Proponent will be provided with written confirmation. A contract will be signed by both parties subject to negotiation between the Regional District and the Proponent.

19 INTENT OF CONTRACT DOCUMENTS

The intent of the Contract Documents is that the Contractor will provide all permits, materials, supervision, labour, equipment and all else necessary for, or incidental to, the proper execution to the Work described in the RFP documents or as directed by the Regional District and all incidental Work to complete the project.

20 LOCAL CONDITIONS

The Contractor will, by personal inspection, examination, calculations, or tests, or by any other means, satisfy themselves with respect to the local conditions to be encountered and the quantities, quality, and practicability of the Work and of their methods of procedure. No verbal agreements or conversation with any officer, agent, or employee of the Regional

District, either before or after the execution of the Contract, will affect or modify any of the terms or obligations herein contained.

21 MANAGER'S STATUS

The Manager will be the Regional District's representative during the period of operation and will observe the Work in progress on behalf of the Regional District for the purpose of ensuring that the Contractor maintains the site in a satisfactory condition, and for ensuring that the Work has been satisfactorily carried out. The Manager will have the authority to stop the Work whenever such stoppage may be necessary, in their opinion, to ensure the proper execution of the Work in accordance with the provisions of the Contract.

The Contractor will comply with such an order immediately. Neither the giving nor the carrying out of such orders thereby entitle the Contractor to any extra payment and the Regional District will not be held liable for any damages or any breach of laws, bylaws or regulations that may result.

22 GREENHOUSE GAS (GHG) REPORTING

The Contractor shall report all fuel used while performing work under this RFP, including fuel used by subcontractors, if applicable. At minimum, the Contractor must provide:

- Type of fuel used (e.g., gasoline, diesel)
- Estimated volume (in litres)
- General description of vehicle or equipment (e.g., pickup truck, excavator)
- Purpose or location of work (e.g., site name or activity)

This information shall be submitted once at the end of the project or as requested by the Regional District.

The data collected will support the Regional District's CleanBC reporting and climate initiatives.

Contractors are asked to retain supporting records (e.g., receipts or logs) for a period of one year in case verification is needed.

23 CONTRACTOR'S PERSONNEL

The Contractor will always keep sufficient personnel to carry out the Work required by the Contract. The Contractor must demonstrate that their organization is adequately staffed and trained to perform the requirements.

All workers must have sufficient knowledge, skill, and experience to perform properly the Work assigned to them and to be tactful and courteous in dealing with the Regional District's staff. Any supervisor or worker employed by the Contractor or Sub-Contractor who, in the opinion of the Manager, does not perform their Work in a competent manner, appears to act in a disorderly or intemperate manner, or is intoxicated or willfully negligent will at the written request of the Manager, be removed from the site of the Work immediately and will not be employed again in any portion of the Work without the approval of the Manager.

The Contractor will comply with all federal and provincial legislation regarding wages and labour regulations including payment of all dues, levies, or charges made under or in relation to the Contract. The Contractor will make proof of payment available to the Manager when requested.

24 CONTRACTOR'S QUALITY CONTROL PROGRAM

The Contractor must demonstrate that their organization has an established quality control plan for identifying and preventing deficiencies in the quality of services. General performance monitoring and supervision of the service is a fundamental requirement.

25 ASSIGNMENT OF CONTRACT

The Contractor will not sublet, sell, transfer, assign, or otherwise dispose of the Contract or any portions thereof, or their right, title, or interest therein, or their obligations thereunder without written consent of the Regional District, except for assignment to a bank of the payments to be received hereunder.

26 RIGHT TO TERMINATE SERVICES

The Regional District may terminate any or all services upon 30 days' written notice. If such notice is given, the Regional District will pay only for time and expenses incurred by the Contractor up to the termination date and for any reasonable time and expenses incurred to bring the services to a close in a prompt and orderly manner.

27 REGIONAL DISTRICT'S RIGHT TO CORRECT DEFICIENCIES

Upon failure of the Contractor to perform the Work in accordance with the Contract Documents, and after written notice to the Contractor, or without notice if any emergency or danger to the Work or public exists, the Regional District may, without prejudice to any other remedy they may have, correct such deficiencies. The cost of Work performed by the Regional District in correcting deficiencies will be paid by the Contractor or may be deducted from monies payable to the Contractor.

28 INDEMNITY

Notwithstanding the provision of insurance coverage by the Contractor, the Contractor hereby agrees to indemnify and save harmless the Regional District, its officers, agents and employees from and against all claims, demands, losses, costs, damages, actions, suits or proceedings by whomever made, brought or prosecuted and in any manner based upon, arising out of, related to, occasioned by or attributable to the activities of the Contractor, its servants, agents, sub-contractors and sub-operators, in providing the services and performing the Work of the Contract, excepting always liability arising solely out of the negligent act or omission of the Regional District.

29 INSURANCE

The Contractor, without limiting its obligations or liabilities, and at its own expense, must provide and maintain throughout the Contract term, the following insurances with insurers licensed in the Province of British Columbia in forms acceptable to the Regional District. All required insurance (except Professional Liability Insurance and automobile insurance on vehicles owned by the Contractor) shall be endorsed to show the Regional District as additional insured and provide the Regional District with thirty (30) days' advance written notice of cancellation or material change.

The Contractor's insurance policies shall include a deductible no greater than \$25,000 for each claim. The Contractor must provide the Regional District with evidence of the required

insurance, in a form acceptable to the Regional District, upon notification of award and prior to the execution and delivery of the contract:

- a) Commercial General Liability (CGL), written on an occurrence-based form, in an amount not less than \$3,000,000 inclusive per occurrence insuring against bodily injury and property damage and including liability assumed under the contract. The Regional District is to be added as additional insureds. Such CGL coverage shall include the following liability extensions: Contingent Employers Liability, Broad Form Products & Completed Obligations, Personal Injury, Blanket Contractual, and Cross Liability.
- b) Professional Liability in an amount not less than \$2,000,000 inclusive per occurrence.
- c) Where the Contractor requires the use of automobiles to undertake the Work of the Contract, the Contractor will have the following:
 - a. Automobile Liability on all vehicles owned, operated, or licensed in the name of the Contractor in an amount not less than \$2,000,000 per occurrence.
 - b. Non-owned Automobile Liability insurance in an amount not less than \$2,000,000 per occurrence.

The Contractor shall ensure that all sub-contractors forming from this Contract meet the insurance requirements outlined above. It is the sole responsibility of the Contractor to determine if additional limits of liability insurance coverage are required to protect them from risk.

30 OCCUPATIONAL HEALTH AND SAFETY

The Contractor will use due care and take all necessary precautions to ensure the protection of persons and property at the Facility and will comply with the Workers' Compensation Act of the Province of British Columbia.

The Contractor must prepare a Health and Safety plan in accordance with the provincial WorkSafe BC. A copy will be submitted to the Regional District prior to commencing the Work.

31 CHANGES IN THE WORK

The Regional District, without invalidating the Contract, may make changes by altering, adding to, or deducting from the Work. The Contractor will proceed with the Work as changed and the Work will be executed under the provisions of the Contract. No changes will be undertaken by the Contractor without a written order from the Regional District, except in an emergency endangering life or property, and no claims for additional compensation will be valid unless the change was so ordered. The Regional District will entertain no payment for extra work or changes in any Contract unless a "Change Order" form is completed and signed by the Regional District and the Contractor.

If, in the opinion of the Regional District, such changes affect the Contract amount, these will be adjusted at the time of ordering the changes. The value of the addition or deduction from the Contract amount, and the method of determining such value, will be decided by the Regional District. The Regional District will use one or more of the following methods in deciding such value:

1. by lump sum submitted by the Contractor and accepted by the Regional District.
2. on a force account basis as specified in these General Conditions.

32 COMPLIANCE WITH LAWS

The contractor will give all the notices and obtain all the licenses and permits required to perform the Work and provide written confirmation that the Contractor (and Sub-contractor's) personnel are fully certified to perform the Work. The Contractor will comply with all laws, regulations and requirements of authorities having jurisdiction applicable to the Work or performance of the contract.

33 LAWS OF BRITISH COLUMBIA

Any Contract resulting from this RFP will be governed by and will be construed and interpreted in accordance with all laws in effect in the Province of British Columbia.

34 PROPOSAL FORMAT AND CONTENT

The proponent shall provide one (1) bound copy of its proposal to the Regional District. The content of the proposal should include (but is not limited to) the following.

- a) A description of the proponent's understanding of the Services.
- b) A description of the proponent's corporate structure and history.
- c) A list of the personnel to be involved in providing the Services, their roles, and the per diem rate for each person or category of personnel.
- d) Staff resumes and relevant experience (including references) of key staff, with details of staff time allocation for each component of the work.
- e) A list of all sub-contractors that will be used to provide the Services along with their costs, company resumes, and administration fees (if applicable).
- f) A detailed work program and timeline for providing the Services, including a description of the following:
 - the scope of the background review;
 - the stakeholder and community consultation process;
 - the factors to be considered in developing the service delivery models proposed; and,
- g) A list of at least three (3) references, which may be contacted by the Regional District.

35 SCOPE OF WORK

See Appendix E for engineered design and hold points.

The engineered design is currently labelled as "Draft". Final drawings and instructions are not expected to have any changes that will affect the interpretation of the design or project cost. Section 31 applies.

APPENDIX A - PROPOSAL REPLY FORM

PROPOSAL REPLY FORM	
Project Title: Clearview Landfill Leachate Collection Pond Construction	
Company Name: _____	
Contact Person: _____	
Contact Information	
Phone	
e-mail	
Mailing Address	

APPENDIX B - PROPOSAL EVALUATION FORM

PROPOSAL EVALUATION FORM			
Proponent's Name: _____			
Project Title: Clearview Landfill Leachate Collection Pond Construction			
Evaluation Date: _____			
Evaluator: _____			
Criteria			
Step 1:		YES	NO
	Proposal received prior to closing		
Mandatory Criteria	Reply Form		
	Resumes of project team included		
	Reference List		
Step 2:		Max Points	Points Awarded
	1.0 Qualifications and Experience: <ul style="list-style-type: none"> Company's experience with HDPE geomembrane installations for ponds, landfills, or similar infrastructure Relevant project examples Qualifications and certifications of proposed personnel 	30	
	2.0 Methodology and Work Plan: <ul style="list-style-type: none"> Clear and realistic work plan with defined tasks and sequencing Understanding of scope, risks, and mitigation strategies 	30	
	3.0 Price:	30	
	4.0 Proposal Quality: <ul style="list-style-type: none"> Overall presentation, clarity, and organization Understanding of project Inclusion of all required documents and forms 	10	
Total Score		100	

APPENDIX C - CONFLICT OF INTEREST DISCLOSURE STATEMENT

Proponent Name: _____

The Proponent, including its officers, employees, and any person or other entity working on behalf of or in conjunction with (including subcontractors), the Proponent on this procurement process:

- is free of any conflict of interest that could be perceived to improperly influence the outcome of this procurement process.
- has not, and will not, participate in any improper procurement practices that can provide the Proponent with an unfair competitive advantage including obtaining and using insider type information to prepare a solicitation offer or participating in bid rigging.
- has an actual, perceived or potential conflict of interest regarding this procurement process as a result of:

State reason(s) for conflict of interest:

If an actual, perceived or potential conflict of interest regarding this procurement process has been identified, the Proponent must submit this document to the CAO by September 9, 2025

By signing below, I certify that all statements made on this form are true and correct to the best of my knowledge.

Print Name of Person Signing Disclosure

Authorized Representative of:

Signature of Person Making Disclosure

Date Signed

APPENDIX D - LIST OF SUBCONTRACTORS

The Proponent advises that they will be subcontracting the following parts of the work to the Subcontractor(s) listed below. In the Proponent's opinion, the Subcontractor(s) named are reliable and competent to perform that part of the work for which each is listed. Please indicate "not applicable" on this page if Subcontractors are not required and include it with your Proposal. Following acceptance of the Proposal, the Subcontractors named in the List of Sub-Contractors must not be changed nor will additional subcontractors be employed except with the written approval of the Regional District.

Subcontractor's Legal Name	Work to be Performed by Subcontractor

APPENDIX E - LEACHATE COLLECTION POND DESIGN AND REPORT

July 30, 2025
Trace Project No. 900-0008-05

Submitted via email: alex.eriksen@rdbn.bc.ca

Regional District of Bulkley-Nechako
37 - 3 Avenue
P.O. Box 820 Burns Lake
British Columbia V0J 1E0

Attention: Alex Erikson, Director of Environmental Services

Dear Alex:

Re: Clearview Landfill Leachate Collection Pond Design Report
Clearview Landfill, near Vanderhoof, British Columbia

1.0 INTRODUCTION

The Regional District of Bulkley-Nechako (RDBN) retained Trace Associates Inc. (Trace) to prepare a design for a leachate collection pond for the future phases of the Clearview Landfill (Landfill). Trace conducted this work in accordance with Trace's Professional Report Conditions (Appendix A).

1.1 Site Information

The Landfill is owned and operated by the RDBN and is located approximately 22 km north of the junction between Highways 16 and 27, between Vanderhoof and Fort St. James, British Columbia (BC). The Landfill has a total permitted area of approximately 168 hectares, of which 32 hectares is proposed for Landfill development area, and approximately 4.7 hectares is the current extent of the Landfill footprint. The legal description of the property is unsurveyed Crown land in the vicinity of Clear Creek, North of Section 36, Township 18, Range 5, Coast District. Entry to the Landfill is via the main access road which exits west off of Highway 27.

The Landfill began accepting waste on November 15, 2005, and is currently operating as a "natural control facility" under the BC *Landfill Criteria for Municipal Solid Waste* (Landfill Criteria) (BC MOE, 2016). Landfill operations, since commencement of waste placement activities in 2005, have been undertaken in Sub-Cells 1, 2, 3, and 4 of Phase 1, located in the southeast and northeast quadrants of the property.

In 2013, Sub-Cell 3 was constructed directly north of Sub-Cells 1 and 2. Based on a Sub-Cell inspection carried out by Trace (formerly XCG Consultants Limited), the BC Ministry of Environment and Climate Change Strategy issued approval to begin landfilling within Sub-Cell 3 on August 21, 2013. The RDBN subsequently began landfilling in the new Sub-Cell in 2013.

In August and September 2018, the RDBN completed surface water drainage improvements at the Landfill. The sediment from the contact water pond was landfilled and the contact water pond was filled in with on-site soils from the area south of the pond. Perimeter drainage ditches were constructed to capture contact water and contain it within the active footprint of the Landfill. The top plateau of Sub-Cells 1 and 2 were graded to promote surface water run off.



Construction of Sub-Cell 4 was completed in 2020 and Sub-Cell 5 in 2023. Waste placement is currently taking place in Phase 1, Sub-Cell 5.

2.0 CONCEPTUAL CELL DESIGN

2.1.1 Groundwater Level

As outlined in the Landfill Criteria (BC MOE, 2016), the base of a landfill is to be a minimum of 1.5 m above the high groundwater level. Therefore, to develop the conceptual cell design for the future phases of the Landfill, Trace reviewed the water level data and borehole logs for the existing groundwater monitoring wells at the Landfill. Of note, monitoring wells MW03-09 and MW03-10 were excluded from this assessment as the borehole logs for these wells were not provided and Trace was unable to confirm that the screen was set at an appropriate elevation to capture the groundwater level.

The monitoring wells within the network to the west side of the proposed future phases development area have unreliable completions (i.e., long screens, installed in slough, filter packs that extend too high compared to the screen length) or the screen depth is not set at the correct elevation to capture the various groundwater zones. Additionally, there is uncertainty with the groundwater level data for monitoring wells that are greater than 20 years old as the well integrity may be compromised.

Based on the review of the water level data and borehole logs located to the east of the proposed future phases development area, it is expected that there are two groundwater bearing zones, which is consistent with the 2003 Design, Operation, and Closure Plan (DOCP) (Gartner Lee, 2003) indicating two different zones. The deeper regional zone is consistent with what has been previously reported in the 2003 DOCP. The uppermost groundwater zone appears to be continuous within a layer of gravelly sands, with varying amounts of clays and silts.

The uppermost groundwater zone is expected to flow beneath the Landfill towards the northeast as shown by the approximate groundwater contours on Drawing 002 (Appendix B).

With the limited number of groundwater monitoring wells and borehole logs within the proposed future phases development area, the expected level for the uppermost groundwater zone was extrapolated along various cross-sections within the proposed future phases development area as outlined in Drawings 004 through 006. Based on the approximate groundwater level the conceptual base of the future phases was prepared to be approximately 1.5 m higher in elevation. The depth of the uppermost groundwater zone should be confirmed through testpitting or additional monitoring well installation prior to detailed design of grading plan and the liner system in the proposed future phases development area. Proposed monitoring well locations are shown in Drawing 002. The target completion depth should be within the layer of gravelly sands to target the shallow groundwater zone. Additionally, one long-term monitoring transducer to capture groundwater elevation fluctuations every six hours could be installed during the next freshet to see changes in elevations. If a geomembrane is selected as part of the lining system for the future phases and the base of the Landfill cannot be maintained at a minimum of 1.5 m above the high groundwater level, a groundwater interception layer and waiver from the requirement may be required.

2.1.2 Excavation and Grading

The conceptual base design for the future phases is shown in Drawing 002 (Appendix B). As outlined in Drawing 002, the base is graded at a minimum of 2% towards the north and 0.5% towards the east in accordance with the Landfill Criteria (BC MOE, 2016). Based on the conceptual cell design, approximately 41,600 m³ of cut and 13,850 m³ of fill is required to achieve sub-grade elevations.



2.2 Leachate Conveyance Piping

All piping components of the leachate collection and conveyance system shall be constructed from high-density polyethylene (HDPE) due to the chemical resistance provided by HDPE and compatibility with the lining system (for welding). The connections of the pipes will be completed using methods that allow HDPE pipes to be joined together with sealed joints.

The HDPE pipe shall have high load melt indices (HLMIs) that do not differ between materials by more than 2 g/10 min, where the HLMI shall be obtained under 21.6 kg at 190 °C as per ASTM D1238 (ASTM, 2023). Most joints between sections of HDPE pipe are to be completed by butt-fusion techniques. In the instance where space restrictions will not allow the use of equipment to complete the butt-fusion weld, fusion connection couplings may be considered.

Base leachate collection pipes and fittings shall be DR11 rated to the dimensions shown on the Drawings (Appendix B). The perforated leachate collection pipe from Phase 1 shall be graded at a minimum of 1.5%. The pipe is to be installed in the bottom of the trench and will include round rock pipe surround placed along the top and sides of the pipe. A non-woven geotextile wrap is to be installed around the round rock to prevent the migration of sediment into the leachate collection pipe. Waste will be placed directly over top of the non-woven geotextile. In the northeast corner of Phase 1, Sub-Cell 5, the perforated leachate collection pipe will transition to a non-perforated pipe. A hydrated bentonite plug will be installed around the non-perforated pipe to contain the leachate within the leachate collection pipe before flowing outside of the existing Landfill cell.

For future phases, the leachate collection pipes shall be graded at a minimum of 2% towards the north and 1% towards the east.

For the perforated pipes, perforations shall be drilled into the sidewalls of the pipe and shall be 15 mm in diameter at 150 mm spacing in four rows as shown on the Drawings (Appendix B). The rows of perforations shall be off set as shown on the Drawings. All debris from drilling the perforations shall be removed from inside the pipe prior to installation.

3.0 LEACHATE COLLECTION POND DESIGN

The proposed leachate collection pond is located to the northeast of the Landfill footprint. Leachate from Phase 1 and future phases will flow into the leachate collection pond. The design of the leachate pond is summarized as follows:

- Approximately 3,600 m³ of capacity.
- 1 m of freeboard.
- 2.5 horizontal to 1 vertical (2.5H:1V) pond slopes and pond berm slopes.
- 2.5H:1V pond cut slopes.
- Bottom of pond elevation 870.50 to 870.18 m.
- Top of pond berm elevation 875.50 m.
- Maximum embankment height of 3.5 m (subject to investigation completed by a Geotechnical Engineer).



- Spillway to prevent the pond from overtopping and eroding the pond berm in the event of an emergency. A sump is to be excavated into the existing ground at the outlet of the spillway and backfilled with rip rap to mitigate overland flow of leachate into existing drainage pathways in the event of an emergency.

For the construction of the leachate collection pond, approximately 4,700 m³ of cut and 1,500 m³ of fill is required to achieve subgrade elevations. It is anticipated that the pond berm will be constructed from the material that has been excavated from the pond, subject to the approval of a Geotechnical Engineer.

Trace reviewed the Dam Safety Regulation (GOBC, 2023) which includes the following exemption clauses:

“2 (1) Unless otherwise ordered under subsection (2), this regulation does not apply to a dam that meets both of the following criteria:

(a) the dam is less than 7.5 m in height;

(b) the dam is capable of impounding at full supply level a maximum total storage volume of water in the reservoir of the dam of 10 000 m³ or less.

(7) This Part applies in relation to a dam if the dam meets the criteria set out in one or more of the following paragraphs

(a) the dam is

(i) 1 m or more in height, and

(ii) capable of impounding at full supply level a total storage volume of water in the reservoir of the dam greater than 1 000 000 m³;

(b) the dam is

(i) 2.5 m or more in height, and

(ii) capable of impounding at full supply level a total storage volume of water in the reservoir of the dam greater than 30 000 m³ ;

(c) the dam is 7.5 m or more in height;

(d) the dam has a classification of significant, high, very high or extreme.”

As outlined above, the maximum pond berm height is 3.5 m and the maximum leachate holding capacity is 3,600 m³, and therefore, the Dam Safety Regulation does not apply. Since the Dam Safety Regulation does not apply, the spillway is not required to meet the criteria outlined in the *Plan Submission Requirements for the Construction and Rehabilitation of Small Dams* (BC MFLNRO & RD, 2018). However, Trace used this document to inform the design of the emergency spillway.

The pond berm will be constructed with a non-woven geotextile, 150 mm road subbase, and 150 mm road base in accordance with the Drawings. The road sub-base and base will be placed a minimum of 1 m from the edge of the pond slope. This will allow for a road base width of 2.4 m.



3.1 Pond Lining System

Since the leachate collection pond is intended to store leachate on a continuous basis, the lining system will consist of a double geomembrane liner system with a leak detection and collection layer between the two liners. The lining system is to be installed on the base and side slopes during construction of the pond. The profiles of the lining system on the base and side slopes are listed from the top down as follows:

- Primary 2.0 mm thick geomembrane barrier layer
- Triplanar geocomposite – leak collection layer
- Secondary 2.0 mm thick geomembrane barrier layer
- Prepared sub-grade

Descriptions of each of the components of the lining system are included in the sections that follow.

3.1.1 Primary and Secondary Geomembranes

The primary geomembrane liner is intended to act as the key barrier between the leachate and the environment. A premium HDPE geomembrane has been selected due to its chemical resistance, ultraviolet resistance, strength, and durability. The secondary geomembrane is also manufactured from premium HDPE and provides additional containment and environmental protection in the event of a breach in the primary liner. Should there be a leak in the primary liner, the secondary liner is in place to prevent it from being released into the environment and the leakage is collected within the leak collection layer, which is installed between the primary and secondary liners, and conveyed to the low spot of the pond, where a leak detection stand pipe is located as described in Section 3.5.

The geomembranes that were selected for the project are white (one side) textured (both sides) conductive-backed premium HDPE (Solmax HDPE GSE HX 80 Mil Geomembrane). The geomembrane is to be installed with the white side up.

The conductive geomembrane formulation is recommended for the primary and secondary geomembranes to facilitate a leak location survey on the bare geomembranes once the installation has been completed. When a conductive geomembrane liner is used, the bare geomembrane leak location survey (ASTM D7240) (ASTM, 2018) does not require water to perform the test and can be completed by the geomembrane installer to detect holes in the geomembranes.

3.1.2 Triplanar Geocomposite Collection and Removal Layer

The leachate collection pond includes a leak detection and collection layer. The leak collection layer allows for collection of any leachate that passes through the primary liner and directs it to the low point within the base of the pond, located in the southwest corner. The geocomposite selected for the leak collection layer is the 300 mil Texel SolDrain. A triplanar geocomposite has been selected due to its ability to provide efficient drainage and the high compressive resistance of the material. The structure of the triplanar material allows the material to provide long term enhanced drainage should partial clogging occur, due to its ability to resist compressive creep and its high transmissivity.

3.2 Anchor Trench Design

The anchor trench for the geosynthetic materials is intended to provide pull-out resistance such that the geosynthetic materials will not result in pull-out from the anchor trench once leachate is added to the pond. The anchor trench will be 1 m deep and 1 m wide and backfilled with native on-site material.



During the installation of the geomembranes and triplanar geocomposite, temporary anchoring of the geomembrane shall be applied to secure them in place prior to the installation of overlying materials or backfilling of the anchor trench.

3.3 Leak Location Survey

Electrical Leak Location Surveys are to be completed following the installation of both the primary and secondary geomembranes. Electrical leak location surveys provide a high degree of accuracy when detecting defects in the geomembrane, allowing for comprehensive repairs prior to the commissioning of the leachate collection pond. Rigorous construction quality control and quality assurance during the installation of the geomembrane, paired with electrical leak location surveys, are recommended. The leak location surveys should be completed as follows:

- Primary and Secondary Geomembrane – Spark Test ASTM D7240 – on the bare geomembrane upon completion of installation of the primary and secondary geomembranes on the base and side slopes.

Following the completed leak location surveys, the Contractor will be required to make repairs to the geomembrane identified during the leak location survey. Installation of subsequent material layers are not to be completed until leak testing of the secondary and primary geomembrane has been completed and all leaks have been repaired and retested.

3.4 Pond Inlet and Outlet Extraction Pipe

The pond inlet is a 200 mm non-perforated HDPE DR11 pipe at a minimum grade of approximately 1.5% from Phase 1 and the future phases of the Landfill. These pipes will be connected to a solid wall HDPE DR11 manhole with a 300 mm sump prior to entering the pond. The pipe outlet from the manhole will be graded at a minimum of 1.5% towards the pond, where a pipe penetration will be constructed through the liner system as detailed on Drawing 018. Stainless-steel gate valves with stem extensions will be installed at the inlets and the outlet of the manhole so that the manhole can be isolated from the Landfill or the pond.

The outlet for the pond consists of a 300 mm perforated HDPE DR 11 side slope riser pipe that is anchored to a concrete pad installed along the pond berm. The riser pipe will be 150 mm above the base of the pond along the side slope to account for thermal expansion of the pipe. The RDBN will insert a pump intake into the side slope riser pipe as needed to pump the leachate back into the Landfill. The side slope riser pipe will include an electrofusion end cap at the bottom of the pipe so that the pump cannot reach the base of the pond and potentially damage the liner system.

3.5 Leak Detection Pipe

As outlined previously, the leak collection layer allows for collection of any leachate that passes through the primary liner and directs it to the low point within the base of the pond, located in the southwest corner. The pond leak detection pipe is located at the low point along the base of the pond and is to be installed below the primary geomembrane liner and above the triplanar geocomposite. The leak detection pipe will be a 25 mm non-perforated HDPE DR17 pipe that extends from the pond berm to the base of the pond. The RDBN will periodically insert a water level tape into the leak detection pipe to determine if any liquid is present below the primary geomembrane liner. If liquids are present, they will be pumped back into the pond.



4.0 LIMITATIONS OF REPORT

This report is based solely on the conditions which existed on site at the time of the report. The RDBN, and any other parties using this report with the express written consent of the RDBN and Trace, acknowledges that conditions affecting the design can vary with time and that the conclusions and recommendations set out in this report are based on the information available at the time of the report.

The RDBN, and any other party using this report with the express written consent of the RDBN and Trace, also acknowledges that the conclusions and recommendations set out in this report are based on limited observations and testing at the Landfill site and that conditions may vary across the Landfill site which, in turn, could affect the conclusions made.

The RDBN acknowledges that Trace is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, or investment of the Landfill site, the decisions on which are the sole responsibility of the RDBN.



5.0 CLOSURE AND QUALITY MANAGEMENT

We trust this meets your requirements. Should you have any questions or comments, please contact the undersigned.

Respectfully submitted,
Trace Associates Inc.

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MG/so

APPENDICES

Appendix A Trace Associates Inc. Professional Report Conditions
Appendix B Drawings

DOCUMENT CONTROL

Revision	Description	Project Manager	File Location	Date Issued
0	Issued for client use	Thomas Kolodziej	K: Drive (Final)	July 30, 2025



6.0 REFERENCES

- ASTM (ASTM International). (2018). *Standard practice for electrical leak location using geomembranes with an insulating layer in intimate contact with a conductive layer via electrical capacitance technique (conductive-backed geomembrane spark test) (Designation: D7240-18)*. <https://store.astm.org/d7240-18.html>
- ASTM (ASTM International). (2023). *Standard test method for melt flow rates of thermoplastics by extrusion plastometer (Designation: D1238-20)*. <https://store.astm.org/d1238-20.html>
- BC MFLNRO & RD (British Columbia Ministry of Forests, Lands, Natural Resource Operations and Rural Development). (2018). *Plan submission requirements for the construction and rehabilitation of small dams, dam safety program*. https://www2.gov.bc.ca/assets/gov/environment/air-land-water/water/dam-safety/plan_submission_requirements_2018_v_14a.pdf
- BC MOE (British Columbia Ministry of Environment). (2016). *Landfill criteria for municipal solid waste*. https://www2.gov.bc.ca/assets/gov/environment/waste-management/garbage/landfill_criteria.pdf
- Gartner Lee (Gartner Lee Limited). (2003). *Clearview eastern sub-regional landfill design, operations and closure plan*.
- GOBC (Government of British Columbia). (2023). *Dam Safety Regulation, B.C. Reg. 40/2016, O.C. 114/2016, last amended February 10, 2023 by B.C. Reg. 32/2023*. British Columbia Ministry of Energy, Mines, and Low Carbon Innovation. https://www.bclaws.gov.bc.ca/civix/document/id/complete/statreg/40_2016



Appendix A

Trace Associates Inc.
Professional Report
Conditions

1.0 USE OF REPORT

This report pertains to a specific site, development, organization, or business and a specific scope of work, all as specifically identified in the within report (the "Report") (such site, development, organization or business and scope of work is hereinafter referred to as the "Subject"). It is not applicable to any other Subject. An assessment or evaluation of a Subject other than the one specifically identified in the within Report would necessitate a supplementary evaluation.

This Report and the assessments, evaluations, and recommendations contained in it are intended for the sole use of Trace Associates Inc.'s (Trace's) client, as specifically identified in the Report (the "Client"). If this Report is being read by any other person (other than from a regulatory body or government agency), such person is hereby advised that Trace is not making any observations, evaluations, or recommendations for such person's benefit and such person is unable to rely on the contents of this Report. Any such person would use this Report at their own risk, and liability is expressly declined to any person other than the Client. Accordingly, no responsibility is accepted by Trace for any damages suffered by any reader of this Report other than the Client. Diligence by all readers is assumed. Any use of or reliance on the Report by any person other than the Client is at the sole risk of the user.

This Report is subject to copyright and may not be reproduced either wholly or in part without the prior, written permission of Trace. The Client agrees that it shall use the Report for its own internal purposes, and it shall not provide the Report to another party (other than a regulatory body or government agency). The report provided is suitable for use by the client for the intended purpose only after accounts are settled for the work conducted.

2.0 LIMITATION OF REPORT

This Report is based solely on the information and conditions that existed and were presented to Trace at the time of Trace's evaluation. The Client acknowledges conditions affecting the contents of this Report can vary with time and that the conclusions and recommendations set out in this Report are time sensitive.

The Client also acknowledges that the conclusions and recommendations set out in this Report are based on limited observations and upon circumstances, assumptions and information presented or made available to Trace by the Client and, where applicable testing on the Subject site. Further, the Client acknowledges that conditions may vary across a site and with time which, in turn, could affect the conclusions and recommendations made.

The Client acknowledges that Trace is neither qualified to, nor is it making, any recommendations with respect to the purchase, sale, investment or development of the site, the decisions on which are the sole responsibility of the Client.

3.0 INFORMATION PROVIDED TO TRACE BY OTHERS

During the performance of the work and the preparation of this Report, Trace may have relied on information provided by persons (third parties) other than the Client if instructed to do so by the Client. Trace did not verify this information and accepts no responsibility for the accuracy or the reliability of such information and disclaims all liability with respect thereto.



4.0 LIMITATION OF LIABILITY

In consideration of Trace providing the services requested by the Client to complete the Report, and other good and valuable consideration, the receipt and sufficiency of which is hereby acknowledged by the Client, the Client agrees that Trace's liability shall be limited as follows:

1. With respect to any claims brought against Trace by the Client for damages of any kind whatsoever, including without limitation, incidental, consequential, exemplary, or punitive damages, for any reason whatsoever arising out of the observations, conclusions, or recommendations contained in the Report, the amount of such claim and the extent of Trace's liability shall be limited to the amount of fees paid by the Client to Trace under this Agreement.
2. With respect to claims brought by any third parties arising out of the contents of this Report, the Client agrees to indemnify, defend, and hold harmless Trace from and against any and all claim or claims, action or actions, demands, damages, penalties, fines, losses, costs, and expenses of every nature and kind whatsoever, including solicitor-client costs, arising or alleged to arise either in whole or part out of services provided by Trace or the Report completed by Trace.

5.0 DISCLOSURE OF INFORMATION BY CLIENT

The Client acknowledges that in conducting the scope of work (the "Scope") and preparing the Report, Trace has relied on information provided by the Client. Trace, in conducting the Scope and preparing the Report, has assumed the accuracy, and has not attempted to verify the completeness of all such information. The Client acknowledges that Trace cannot be held liable for any damages to the Client resulting from any inaccuracies or incompleteness in the information provided by the Client to Trace.

6.0 STANDARD OF CARE

Services performed by Trace for this Report have been conducted in a manner consistent with the level of skill ordinarily exercised by members of the professional associations of which Trace's employees who worked on this Scope and this Report are members. Professional judgment has been applied in developing the conclusions and/or recommendations provided in this Report (or under separate cover). No further warranty or guarantee, express or implied, is made concerning the test results, comments, recommendations, or any other portion of this Report.

7.0 NOTIFICATION OF AUTHORITIES

The Client acknowledges that in certain instances, the discovery of hazardous substances or conditions and materials may require that regulatory agencies and other persons be informed. The Client acknowledges and agrees that the notification of such bodies or persons remains wholly the responsibility of the Client; however, agrees that notification to such bodies or persons, as required, may be done by Trace in Trace's reasonably exercised discretion.

8.0 OWNERSHIP OF INSTRUMENTS OF SERVICE

The Client acknowledges that all reports, plans, and data generated by Trace during the performance of the work and preparation of the Report and other documents prepared by Trace in the course of performing the scope are considered its professional work product and shall remain the copyright property of Trace. Any patents, methods, ideas, concepts, know-how, copyrights, trademarks, trade secrets, or other intellectual property rights developed by Trace prior to, during, and in the course of performing the Services



("IP") will be the exclusive property of Trace. The only exception to this is where Trace has prepared an Emergency Response Plan and associated training materials for a Client; in these cases, the Client owns these documents and is solely responsible for their implementation in an emergency.

9.0 ALTERNATE REPORT FORMAT

Where Trace submits both electronic file and hard copy versions of the Report, drawings, and other documents and deliverables (collectively termed "Trace's instruments of professional service"), the Client agrees that only the signed and stamped versions shall be considered final and legally binding. Trace shall keep the original electronic documents for record and working purposes, and, in the event of a dispute or discrepancies, Trace's electronic copy shall govern.

The Client agrees that both electronic file and hard copy versions of Trace's instruments of professional service shall not, under any circumstances, no matter who owns or uses them, be altered by any party, except Trace. The Client warrants that Trace's instruments of professional service will be used only and exactly as submitted by Trace and for the purpose for which such instruments of professional service were intended.

The Client recognizes and agrees that electronic files submitted by Trace have been prepared and submitted using specific software and hardware systems. Trace makes no representation about the compatibility of these files with the Client's current or future software and hardware systems.

10.0 RECORDS RETENTION

Trace will, at its own cost and effort, retain project related Client data, including billing records, project files, documents, and final reports, for 12 years from the date of written authorization to proceed with the Scope. After 12 years, all data and information will be destroyed without notice to the Client. The Client may request in writing, within the 12-year period, copies of such information, and Trace will provide the information to the Client at the Client's cost.

11.0 GOVERNING LAW

The validity, construction, and performance of these General Conditions, which the Client shall be deemed to have accepted upon its acceptance of this Report, shall be governed by the laws in effect in the Province where the Subject site is located.



Appendix B

Drawings

Engineering Drawings Clearview Landfill Leachate Collection System Regional District of Bulkley-Nechako, B.C.

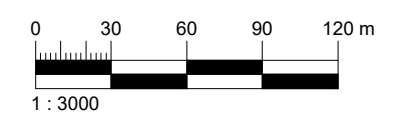
ACTIVE DRAWING STATUS

DWG NUMBER	DRAWING TITLE	REVISION	DATE	STATUS	OLD/REPLACED REVISIONS
DRAWING 001	GENERAL SITE PLAN	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 002	DESIGN BASE FOR FUTURE PHASES	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 003	ISOPACH BETWEEN GROUND AND DESIGN BASE FOR FUTURE PHASES	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 004	CROSS SECTIONS 'A' AND 'B'	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 005	CROSS SECTIONS 'C' AND 'D'	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 006	CROSS SECTIONS 'E AND 'F'	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 007	LEACHATE COLLECTION PIPE PLAN FOR FUTURE PHASES	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 008	DESIGN POND BASE PLAN	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 009	DESIGN POND CROSS SECTIONS 'G' AND 'H'	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 010	LEACHATE COLLECTION SYSTEM PLAN	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 011	PHASE 1 AND FUTURE PHASES CENTRELINE PROFILES	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 012	LEACHATE COLLECTION POND INLET PLAN	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 013	LEACHATE COLLECTION POND OUTLET PLAN	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 014	DESIGN POND CROSS SECTIONS 'I' AND 'J'	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 015	DESIGN POND CROSS SECTIONS 'K AND 'L'	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 016	SPILLWAY PLAN AND CROSS SECTIONS	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 017	DESIGN POND DETAILS 1 TO 4	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 018	DESIGN POND INLET PIPE PENETRATION DETAILS 5 AND 6	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 019	DETAIL 7 AND 8 TYPICAL CROSS SECTION CREST OF POND BERM AND PHASE 1 LEACHATE COLLECTION CROSS SECTION	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW
DRAWING 020	CONSTRUCTION NOTES AND SPECIFICATIONS	0	JULY 2025	ISSUED FOR CONSTRUCTION	ISSUED FOR REVIEW



- LEGEND**
- PHASE DIVISIONS
 - EXISTING FENCE
 - + EXISTING MONITORING WELLS
 - PROPOSED DESIGN LOCATIONS

- NOTES:**
1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS UNLESS OTHERWISE STATED.
 2. COORDINATES ARE BASED UTM NAD 83 ZONE 10.
 3. BACKGROUND IMAGE FROM GOOGLE EARTH 2025.
 4. TOPOGRAPHY FROM RDBN 2025.



REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG
A	10	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG

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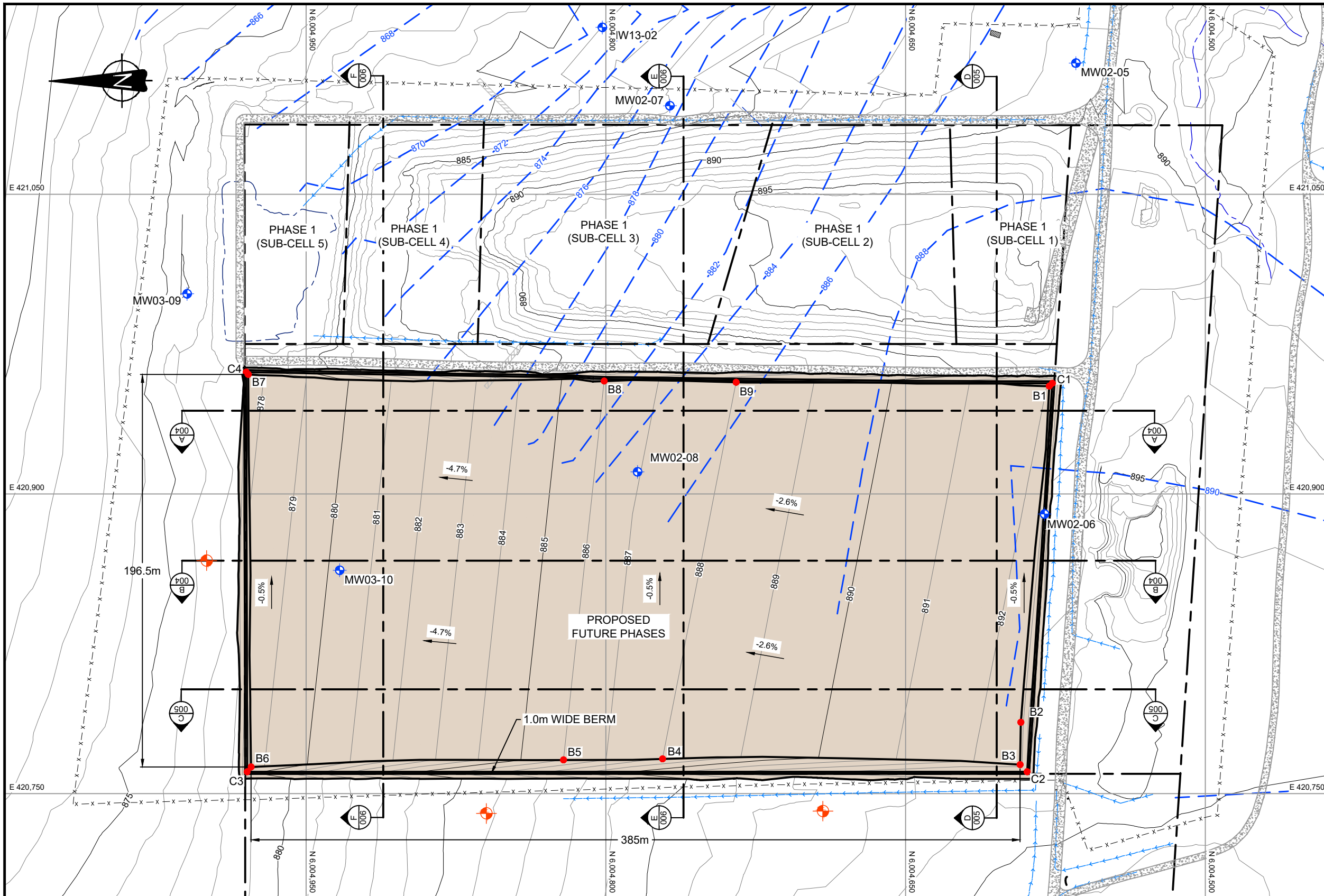
REGIONAL DISTRICT OF
BULKLEY-NECHAKO

TRACE
ASSOCIATES

DWN BY:	SM
CHK'D BY:	MG
DATUM:	-
PROJECTION:	-
SCALE:	AS SHOWN

PROJECT	CLEARVIEW LANDFILL LEACHATE COLLECTION SYSTEM
TITLE	GENERAL SITE PLAN

DATE:	JULY 2025
PROJECT NO.:	900-0008-05
REV. NO.:	0
DRAWING No.	001

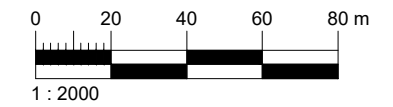


- LEGEND**
- PHASE DIVISIONS
 - x-x-x- EXISTING FENCE
 - - - - GROUNDWATER CONTOURS (APPROXIMATE)
 - ⊕ EXISTING MONITORING WELLS
 - ⊕ PROPOSED MONITORING WELLS
 - SURVEY CONTROL POINTS
 - PROPOSED BASE DESIGN

- NOTES:**
1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS UNLESS OTHERWISE STATED.
 2. COORDINATES ARE BASED UTM NAD 83 ZONE 10.
 3. TOPOGRAPHY FROM RDBN 2025.

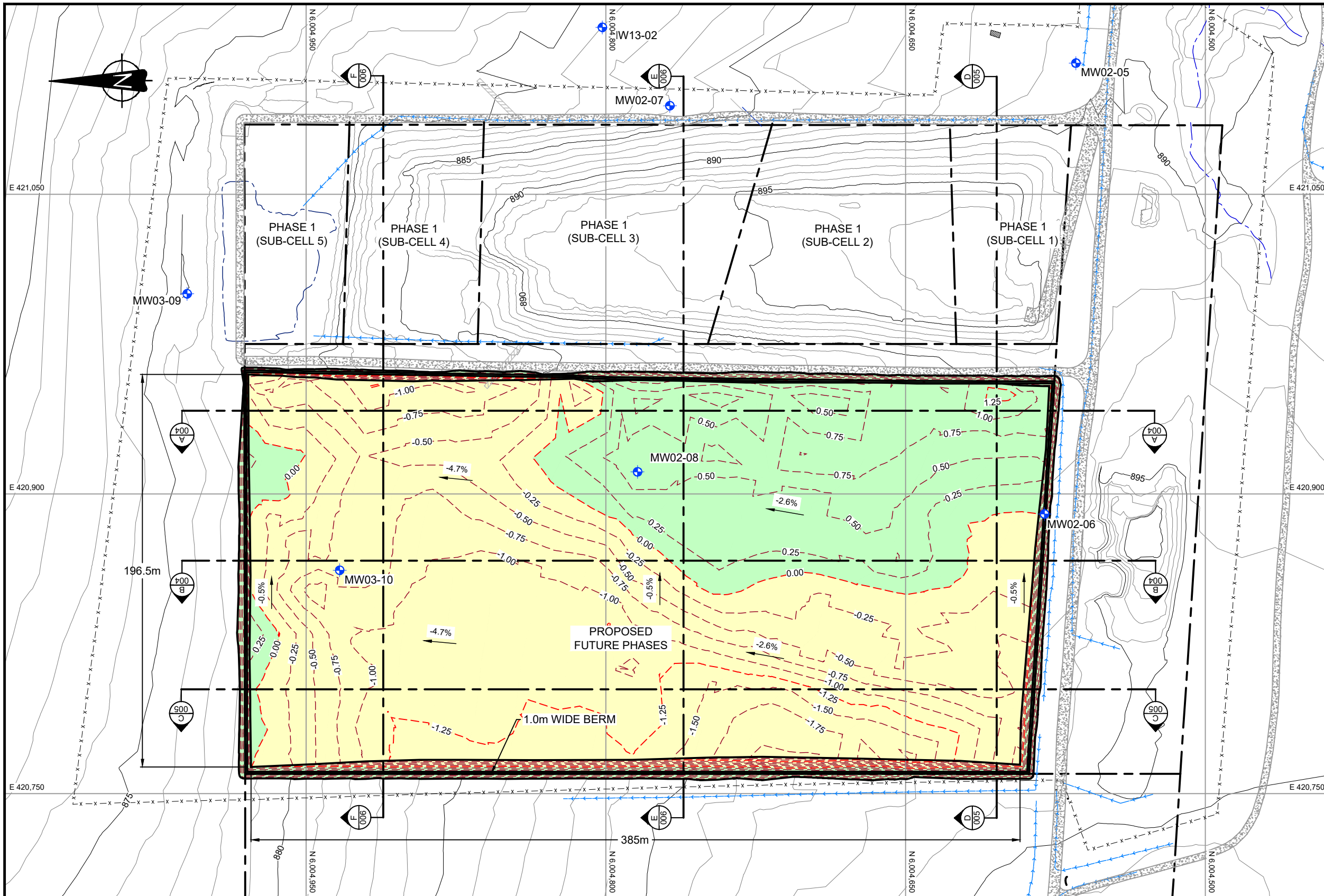
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B2	420735.74	6004592.37	892.51
B3	420714.53	6004592.72	892.61
B4	420717.39	6004771.65	888.00
B5	420716.88	6004821.20	886.00
B6	420713.36	6004977.52	878.69
B7	420909.83	6004979.00	877.63
B8	420906.50	6004800.85	886.00
B9	420905.88	6004734.83	888.00
C1	420905.37	6004576.59	892.62
C2	420710.96	6004589.24	894.04
C3	420710.96	6004979.53	879.52
C4	420910.98	6004980.00	878.01

B = BASE SUBGRADE
C = CREST



REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG
A	10	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG

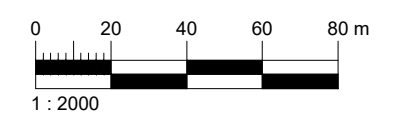
REGIONAL DISTRICT OF BULKLEY-NECHAKO 	DWN BY: SM	PROJECT CLEARVIEW LANDFILL LEACHATE COLLECTION SYSTEM	DATE: JULY 2025
	CHK'D BY: MG		PROJECT NO: 900-0008-05
	DATUM: -	TITLE DESIGN BASE FOR FUTURE PHASES	REV. NO.: 0
	PROJECTION: -		DWG No. 002
	SCALE: AS SHOWN		



- LEGEND**
- PHASE DIVISIONS
 - x-x-x- EXISTING FENCE
 - ⊕ EXISTING MONITORING WELLS
 - DESIGN CUT
 - DESIGN FILL

- NOTES:**
1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS UNLESS OTHERWISE STATED.
 2. COORDINATES ARE BASED UTM NAD 83 ZONE 10.
 3. TOPOGRAPHY FROM RDBN 2025.

QUANTITIES
 TOTAL CUT = 41,600 m³
 TOTAL FILL = 13,850 m³
 NET VOLUME = 27,750 m³

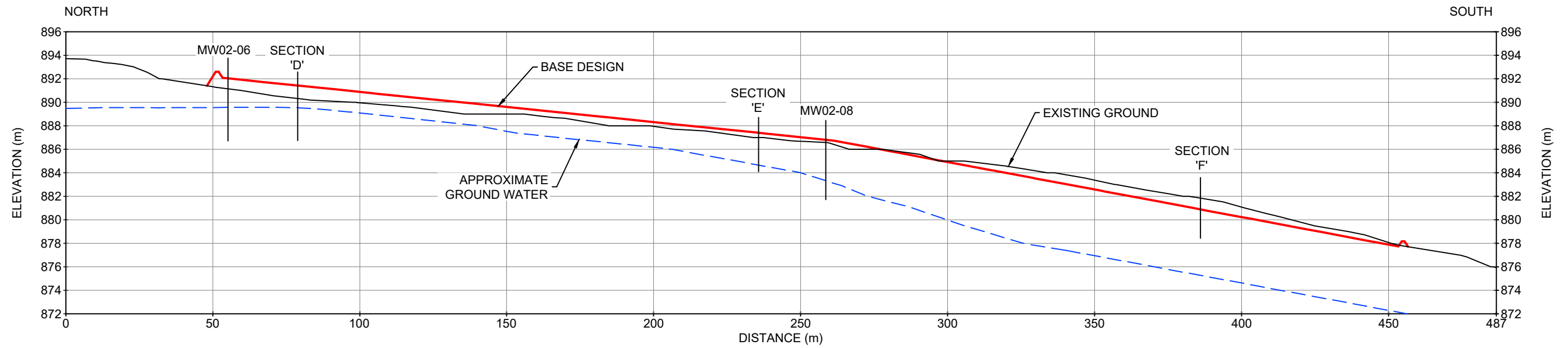


REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG
A	10	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG

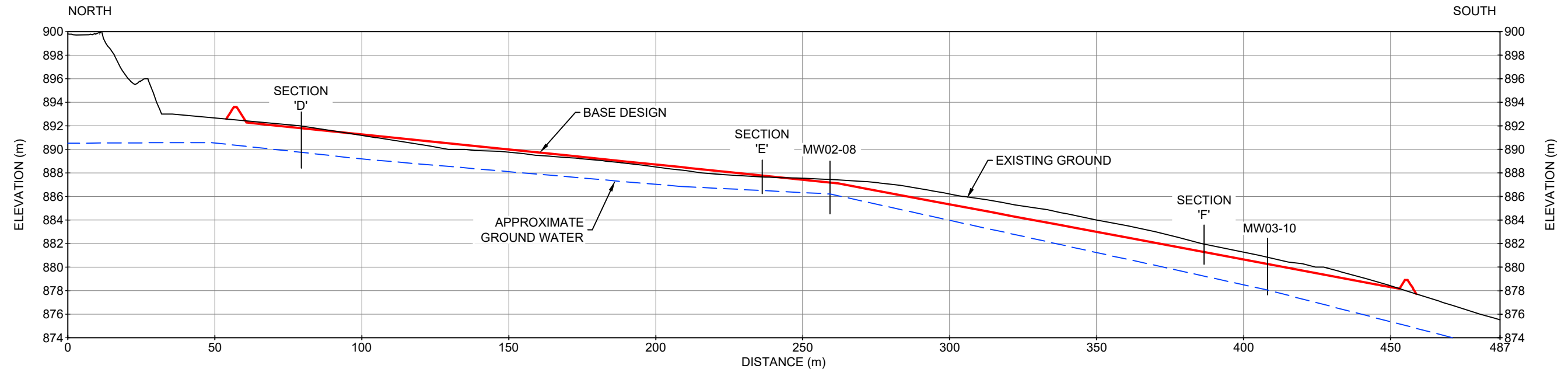
REGIONAL DISTRICT OF
BULKLEY-NECHAKO

TRACE
ASSOCIATES

DWN BY:	SM	PROJECT	CLEARVIEW LANDFILL LEACHATE COLLECTION SYSTEM	DATE:	JULY 2025
CHK'D BY:	MG			PROJECT NO.:	900-0008-05
DATUM:	-	TITLE	ISOPACH BETWEEN GROUND AND DESIGN BASE FOR FUTURE PHASES	REV. NO.:	0
PROJECTION:	-			DWG No.	003
SCALE:	AS SHOWN				



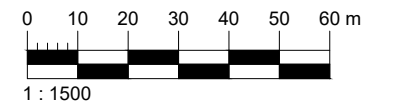
A
002
CROSS-SECTION
4x VERTICAL EXAGGERATION



B
002
CROSS-SECTION
4x VERTICAL EXAGGERATION

LEGEND

- EXISTING GROUND
- - - APPROXIMATE GROUND WATER
- BASE DESIGN



REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG
A	10	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG

REGIONAL DISTRICT OF
BULKLEY-NECHAKO



DWN BY:	SM
CHK'D BY:	MG
DATUM:	-
PROJECTION:	-
SCALE:	AS SHOWN

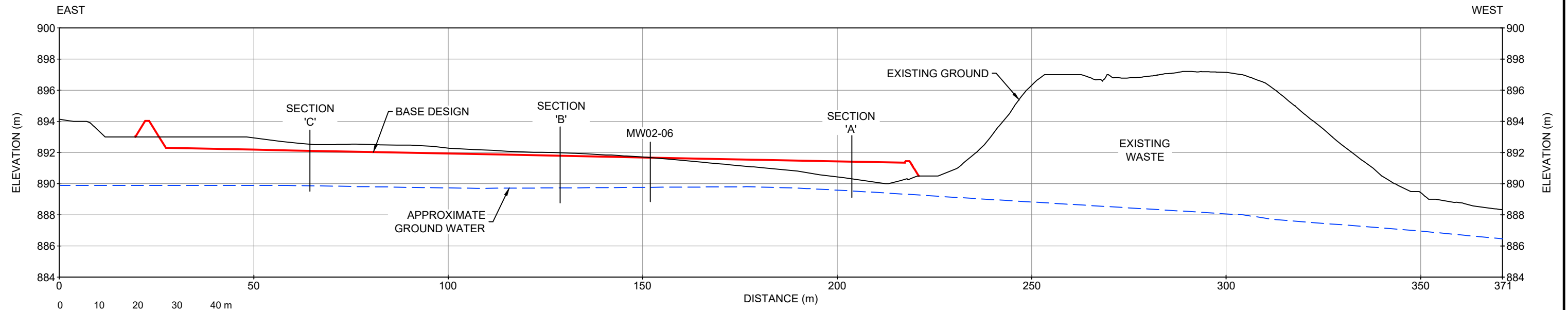
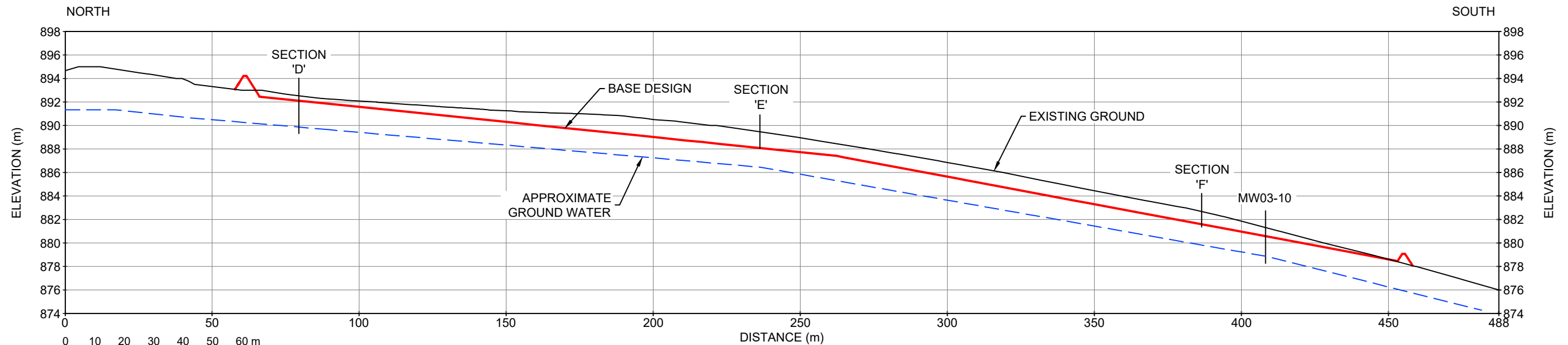
PROJECT

CLEARVIEW LANDFILL LEACHATE
COLLECTION SYSTEM

TITLE

CROSS SECTIONS 'A' AND 'B'

DATE:	JULY 2025
PROJECT NO.:	900-0008-05
REV. NO.:	0
DRAWING No.	004



LEGEND

- EXISTING GROUND
- APPROXIMATE GROUND WATER
- BASE DESIGN

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG
A	10	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG

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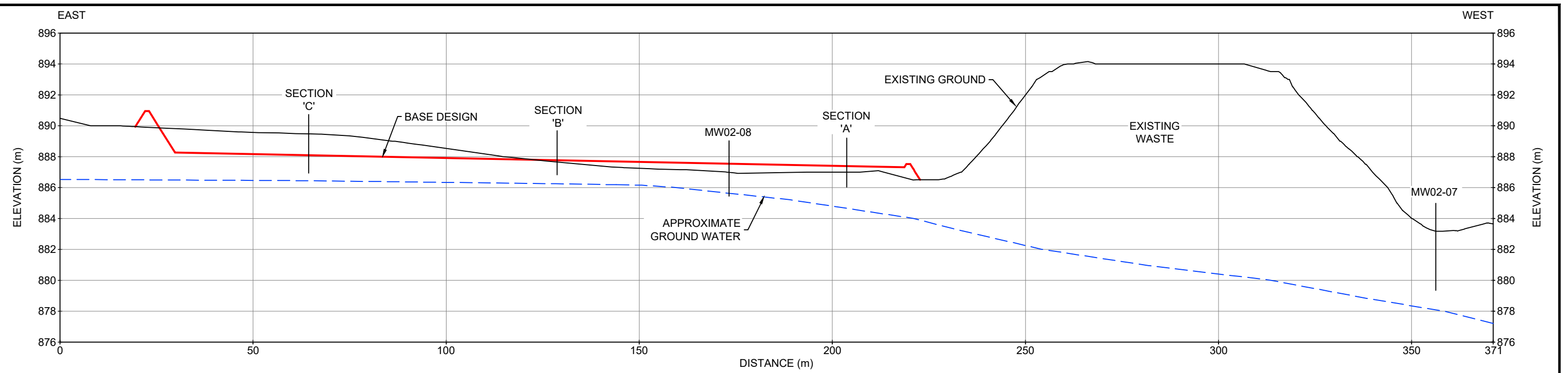
REGIONAL DISTRICT OF
BULKLEY-NECHAKO

DWN BY:	SM
CHK'D BY:	MG
DATUM:	-
PROJECTION:	-
SCALE:	AS SHOWN

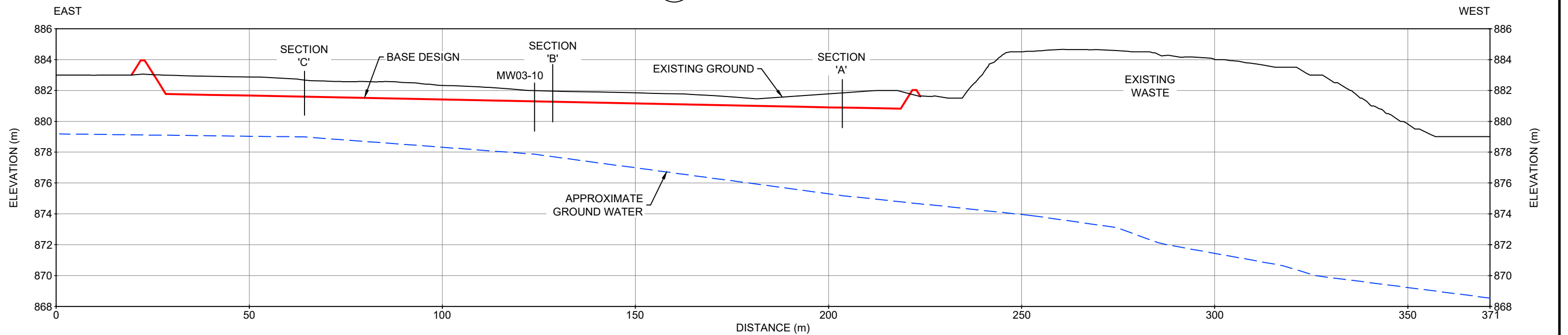
PROJECT
CLEARVIEW LANDFILL LEACHATE COLLECTION SYSTEM

TITLE
CROSS SECTIONS 'C' AND 'D'

DATE:	JULY 2025
PROJECT NO.:	900-0008-05
REV. NO.:	0
DRAWING No.	005

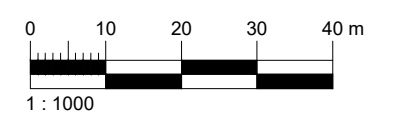


E
002 CROSS-SECTION
4x VERTICAL EXAGGERATION



F
002 CROSS-SECTION
4x VERTICAL EXAGGERATION

LEGEND
 ——— EXISTING GROUND - - - - - APPROXIMATE GROUND WATER
 ——— BASE DESIGN



REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG
A	10	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG

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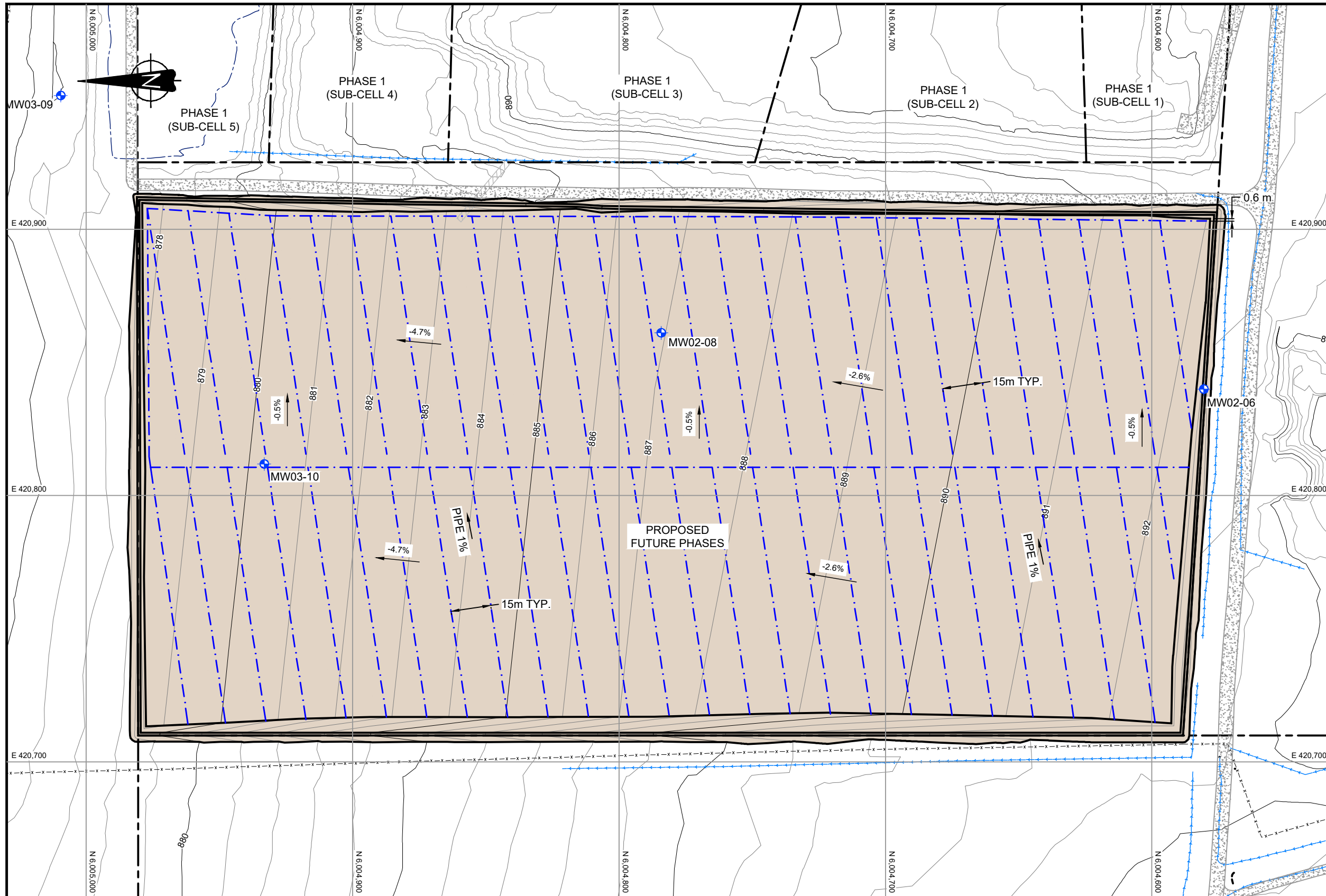
REGIONAL DISTRICT OF
BULKLEY-NECHAKO

DWN BY:	SM
CHK'D BY:	MG
DATUM:	-
PROJECTION:	-
SCALE:	AS SHOWN

PROJECT
**CLEARVIEW LANDFILL LEACHATE
COLLECTION SYSTEM**

TITLE
CROSS SECTIONS 'E' AND 'F'

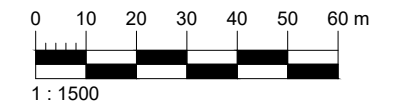
DATE:	JULY 2025
PROJECT NO:	900-0008-05
REV. NO.:	0
DRAWING No.	006



LEGEND

- PHASE DIVISIONS
- - - - - EXISTING FENCE
- LEACHATE COLLECTION PIPES
- ⊕ EXISTING MONITORING WELLS
- PROPOSED BASE DESIGN

- NOTES:**
1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS UNLESS OTHERWISE STATED.
 2. COORDINATES ARE BASED UTM NAD 83 ZONE 10.
 3. TOPOGRAPHY FROM RDBN 2025.
 4. LEACHATE COLLECTION PIPE ELEVATIONS 150mm ABOVE DESIGN SUBGRADE.



REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG
A	10	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG

REGIONAL DISTRICT OF
BULKLEY-NECHAKO

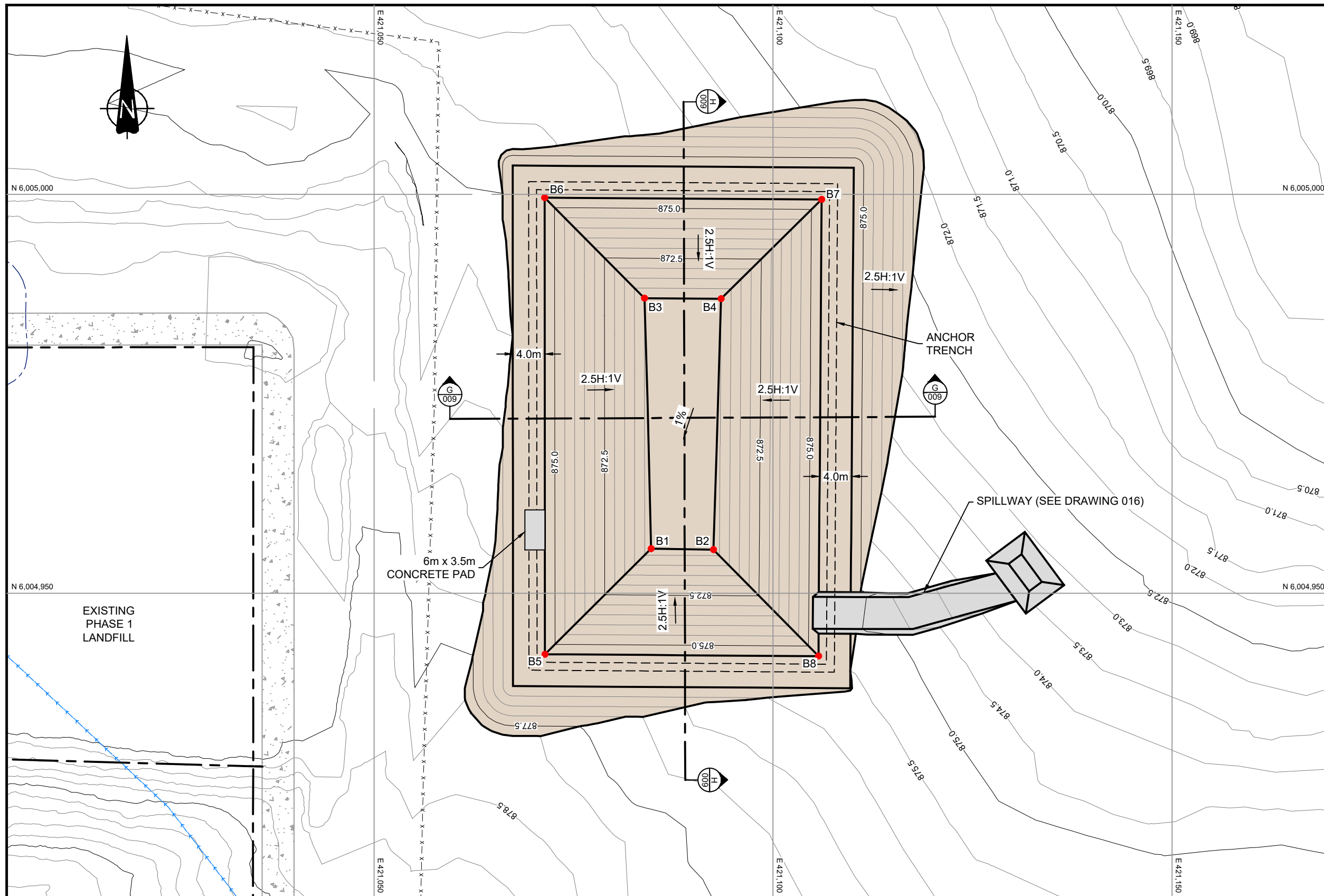


DWN BY: SM
 CHK'D BY: MG
 DATUM: -
 PROJECTION: -
 SCALE: AS SHOWN

PROJECT
CLEARVIEW LANDFILL LEACHATE COLLECTION SYSTEM

TITLE
LEACHATE COLLECTION PIPE PLAN FOR FUTURE PHASES

DATE: JULY 2025
 PROJECT NO.: 900-0008-05
 REV. NO.: 0
 DWG No. 007

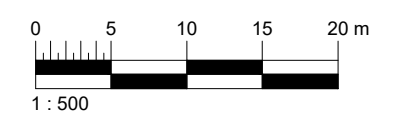


- LEGEND**
- PHASE DIVISIONS
 - EXISTING FENCE
 - SURVEY CONTROL POINTS
 - PROPOSED POND BASE DESIGN

- NOTES:**
1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS UNLESS OTHERWISE STATED.
 2. COORDINATES ARE BASED UTM NAD 83 ZONE 10.
 3. TOPOGRAPHY FROM RDBN 2025.

QUANTITIES
 TOTAL CUT = 4668 m³
 TOTAL FILL = 1541 m³
 POND VOLUME CAPACITY 3600m³

POND BASE DESIGN SURVEY CONTROL POINTS			
NAME	EASTING (m)	NORTHING (m)	ELEVATION (m)
B1	421084.72	6004955.58	870.18
B2	421092.52	6004955.47	870.20
B3	421083.88	6004986.98	870.50
B4	421093.49	6004986.91	870.50
B5	421071.42	6004942.36	875.50
B6	421071.36	6004999.56	875.50
B7	421106.07	6004999.33	875.50
B8	421105.68	6004942.13	875.50



REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG
A	31	05	2025	ISSUED FOR CLIENT REVIEW	MG	MG

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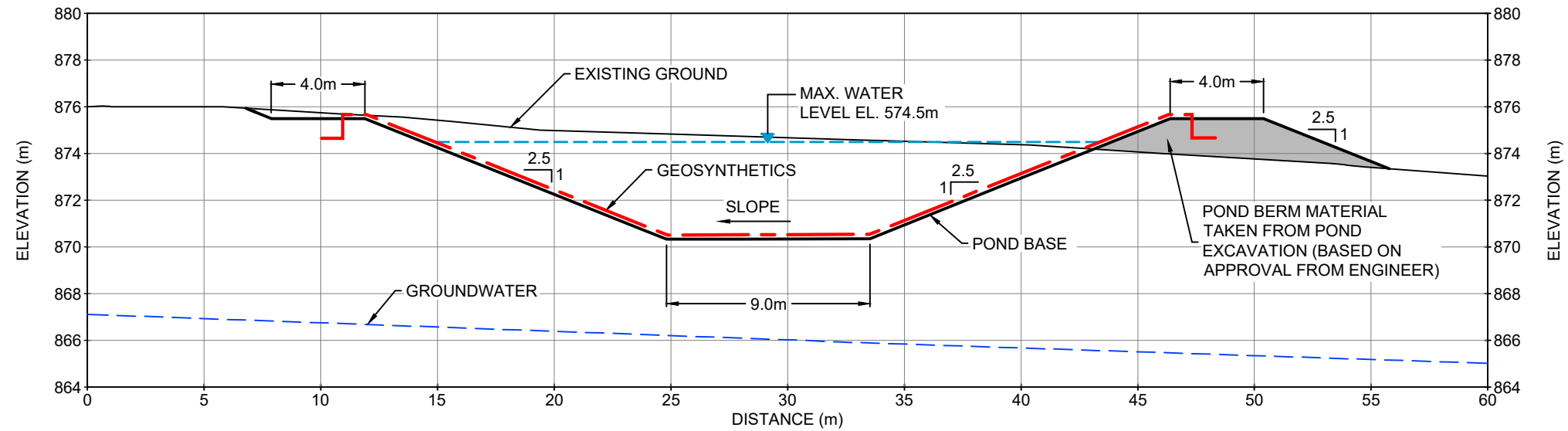
REGIONAL DISTRICT OF
BULKLEY-NECHAKO

TRACE
ASSOCIATES

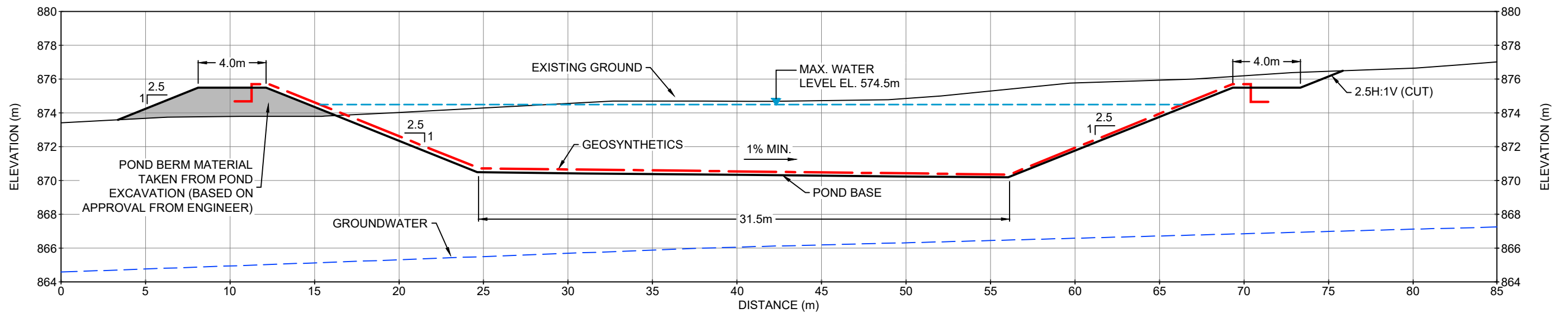
DWN BY:	SM
CHK'D BY:	MG
DATUM:	-
PROJECTION:	-
SCALE:	AS SHOWN

PROJECT	CLEARVIEW LANDFILL LEACHATE COLLECTION SYSTEM
TITLE	
DESIGN POND BASE PLAN	

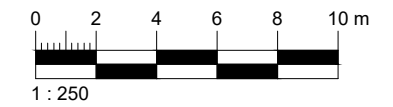
DATE:	JULY 2025
PROJECT NO.:	900-0008-05
REV. NO.:	0
DWG No.	008



G
008 CROSS-SECTION



H
008 CROSS-SECTION



REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG
A	10	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG

REGIONAL DISTRICT OF
BULKLEY-NECHAKO

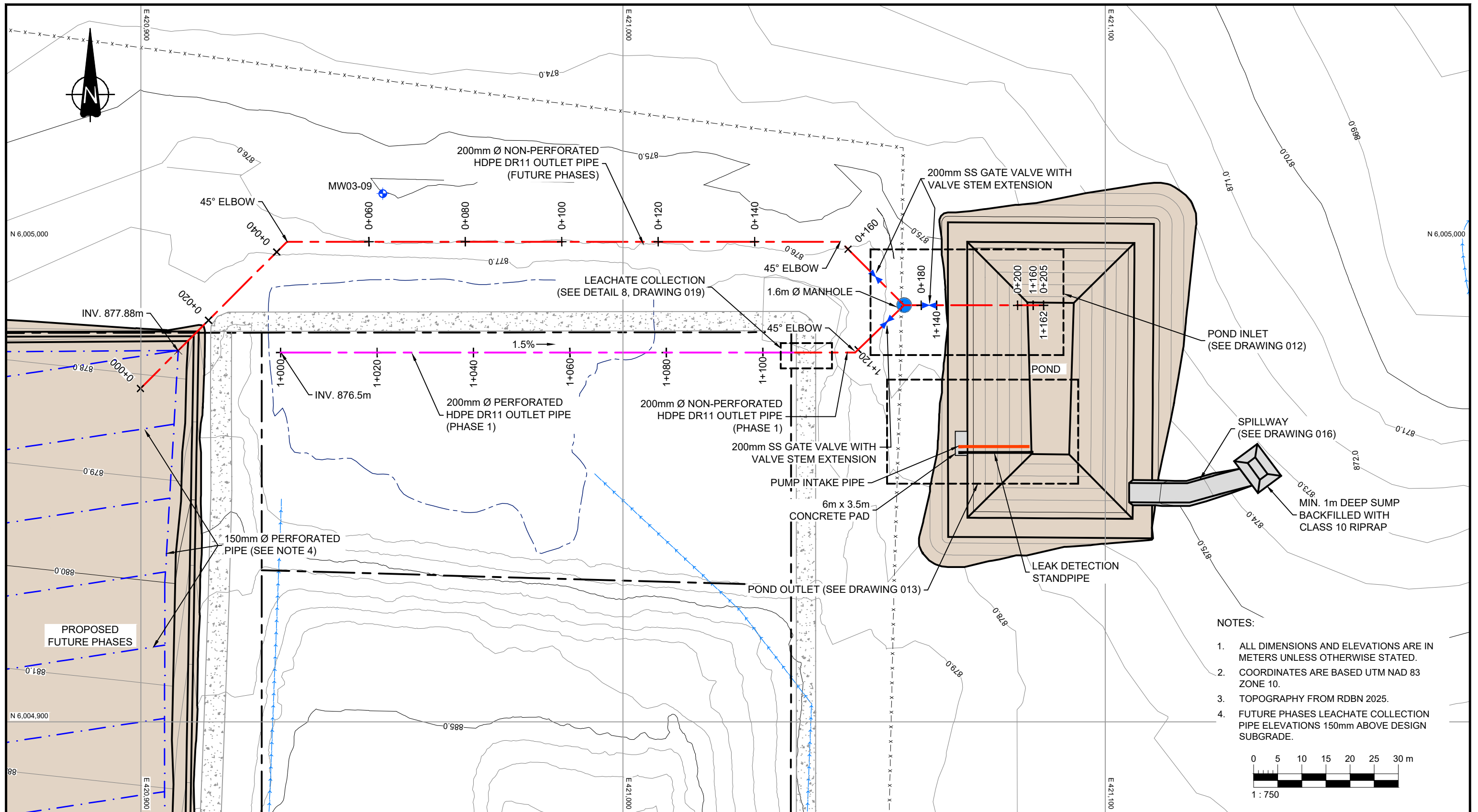


DWN BY:	SM
CHK'D BY:	MG
DATUM:	-
PROJECTION:	-
SCALE:	AS SHOWN

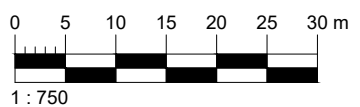
PROJECT
**CLEARVIEW LANDFILL LEACHATE
COLLECTION SYSTEM**

TITLE
DESIGN POND CROSS SECTIONS 'G' AND 'H'

DATE:	JULY 2025
PROJECT NO.:	900-0008-05
REV. NO.:	0
DWG No.	009



- NOTES:
1. ALL DIMENSIONS AND ELEVATIONS ARE IN METERS UNLESS OTHERWISE STATED.
 2. COORDINATES ARE BASED UTM NAD 83 ZONE 10.
 3. TOPOGRAPHY FROM RDBN 2025.
 4. FUTURE PHASES LEACHATE COLLECTION PIPE ELEVATIONS 150mm ABOVE DESIGN SUBGRADE.



REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG
A	10	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG

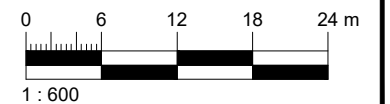
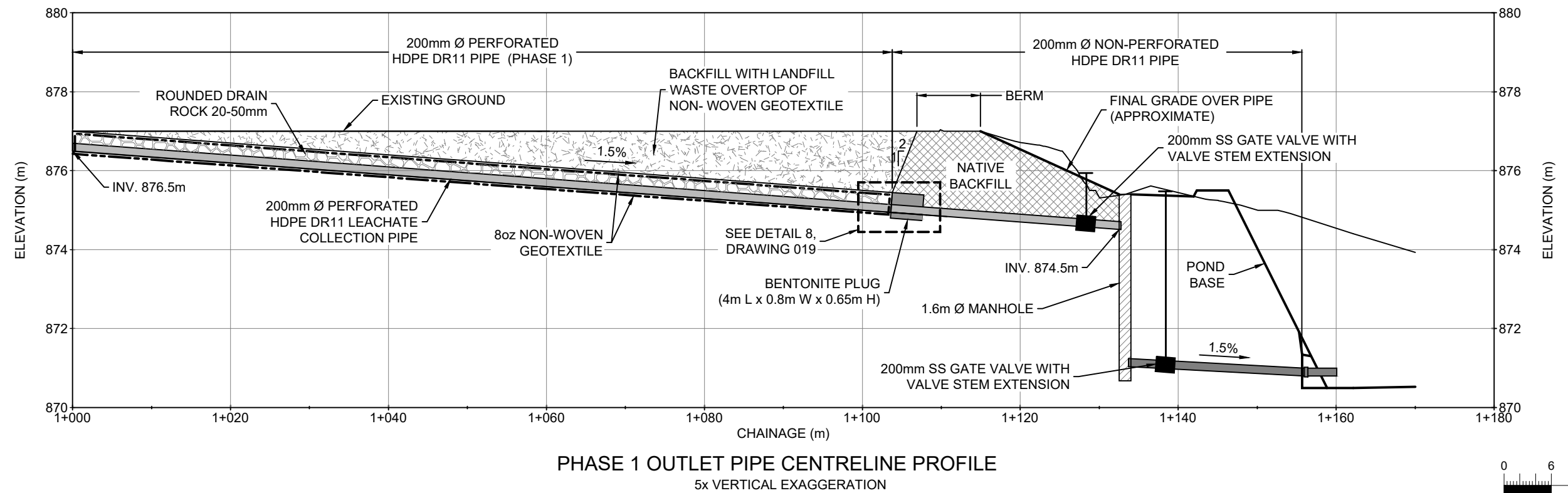
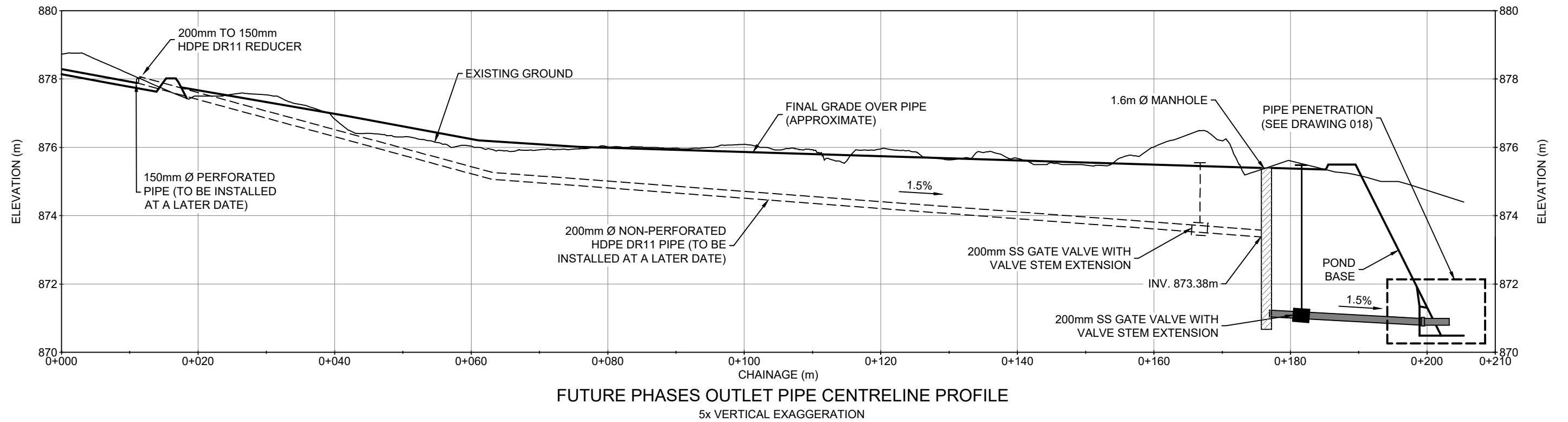
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REGIONAL DISTRICT OF
BULKLEY-NECHAKO

DWN BY:	SM
CHK'D BY:	MG
DATUM:	-
PROJECTION:	-
SCALE:	AS SHOWN

PROJECT	CLEARVIEW LANDFILL LEACHATE COLLECTION SYSTEM
TITLE	LEACHATE COLLECTION SYSTEM PLAN

DATE:	JULY 2025
PROJECT NO.:	900-0008-05
REV. NO.:	0
DWG No.	010



REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG
A	31	05	2025	ISSUED FOR CLIENT REVIEW	MG	MG

REGIONAL DISTRICT OF
BULKLEY-NECHAKO

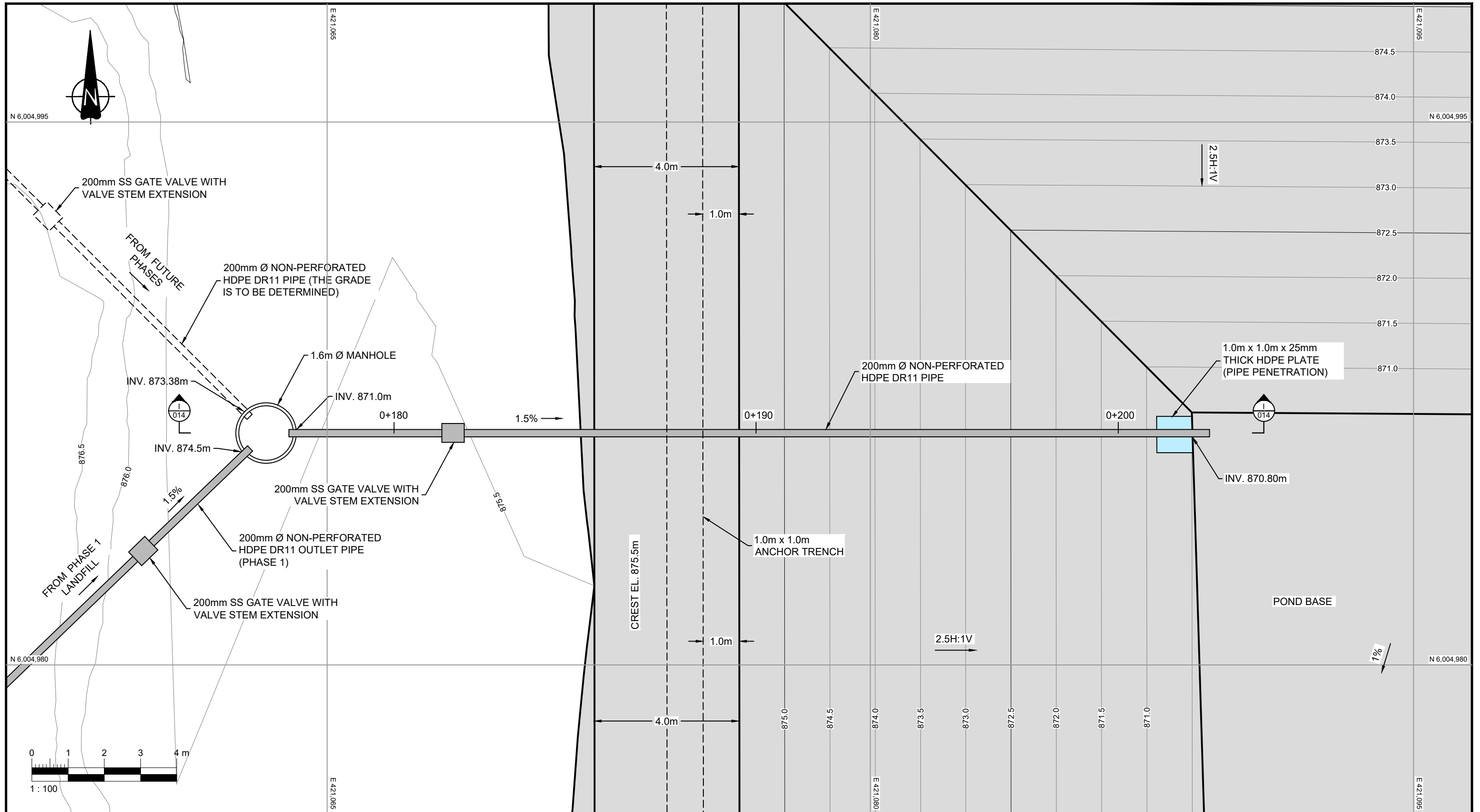
TRACE
ASSOCIATES

DWN BY:	SM
CHK'D BY:	MG
DATUM:	-
PROJECTION:	-
SCALE:	AS SHOWN

PROJECT
CLEARVIEW LANDFILL LEACHATE COLLECTION SYSTEM

TITLE
PHASE 1 AND FUTURE PHASES PIPELINE CENTRELINE PROFILES

DATE:	JULY 2025
PROJECT NO.:	900-0008-05
REV. NO.:	0
DWG No.	011



REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG
A	10	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG

REGIONAL DISTRICT OF
BULKLEY-NECHAKO

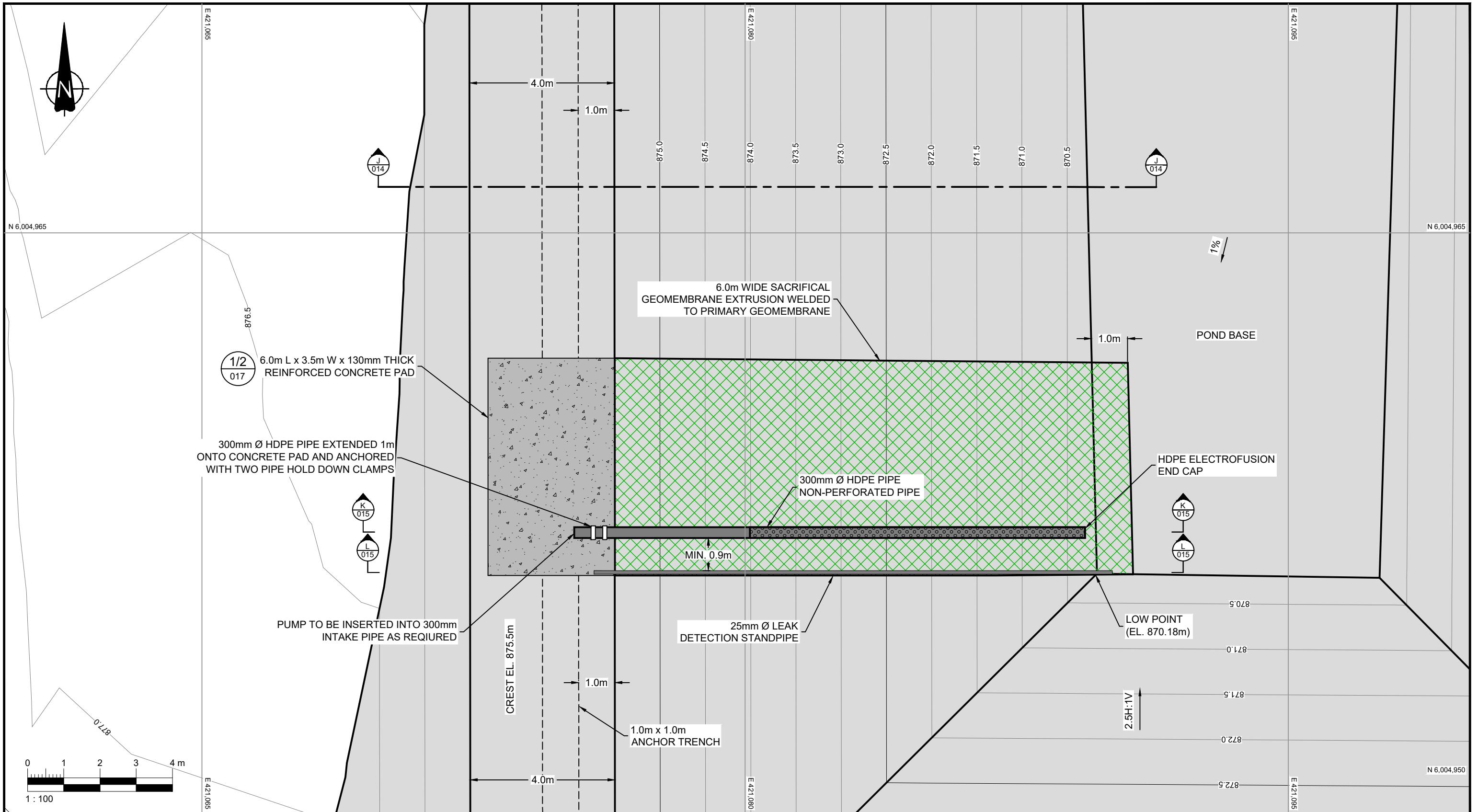


DWN BY: SM
CHK'D BY: MG
DATUM: -
PROJECTION: -
SCALE: AS SHOWN

PROJECT
**CLEARVIEW LANDFILL LEACHATE
COLLECTION SYSTEM**

TITLE
**LEACHATE COLLECTION POND
INLET PLAN**

DATE: JULY 2025
PROJECT NO: 900-0008-05
REV. NO.: 0
DWG No. 012



REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG
A	10	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG

REGIONAL DISTRICT OF
BULKLEY-NECHAKO

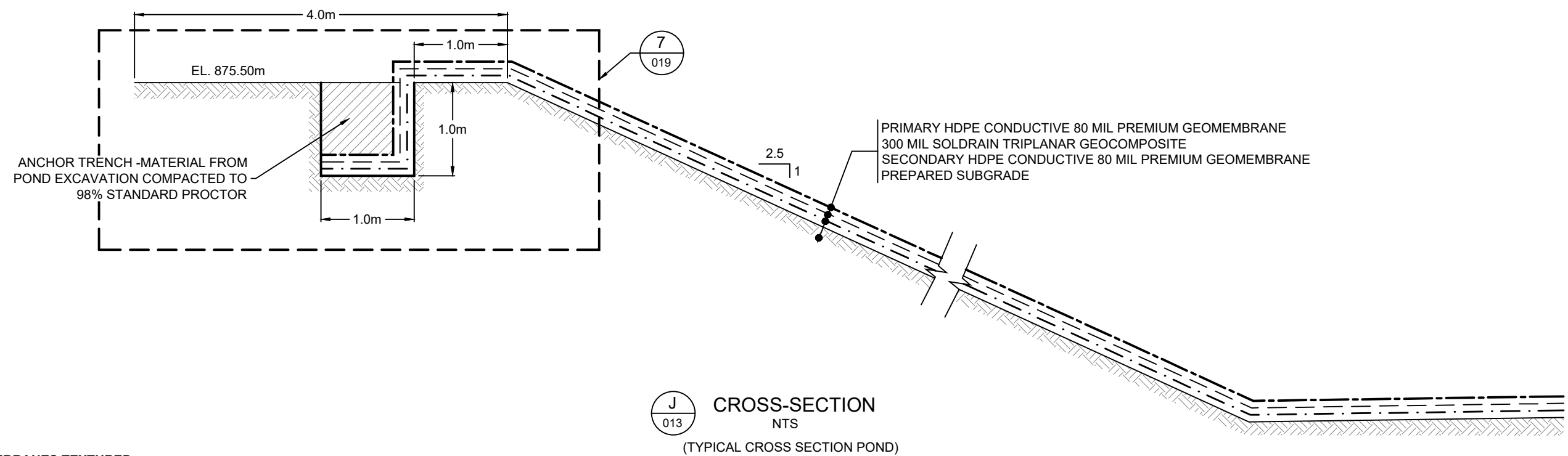
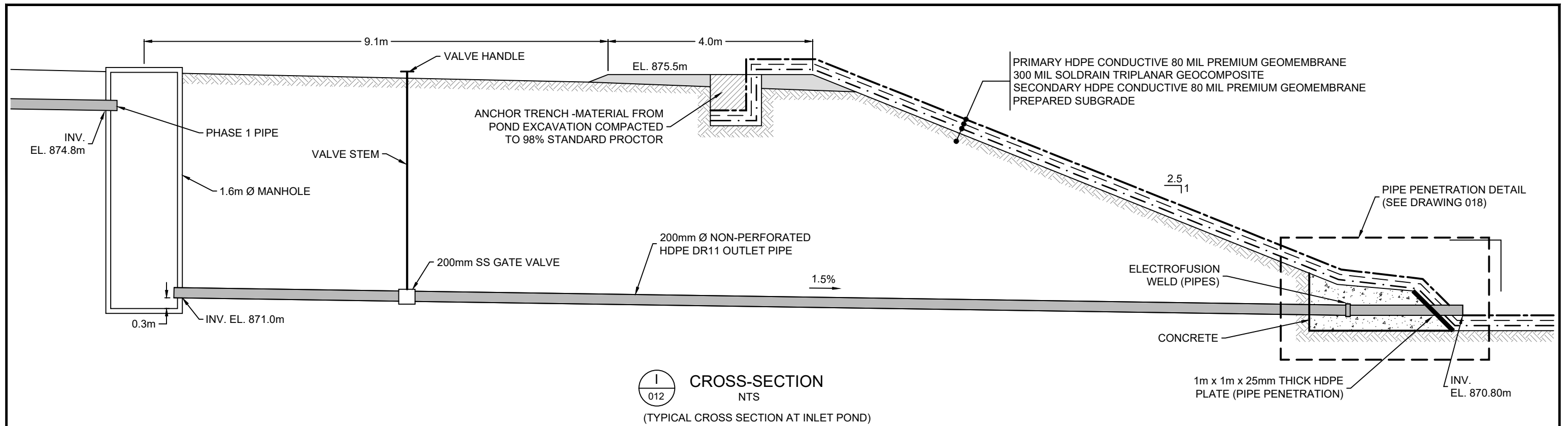
TRACE
ASSOCIATES

DWN BY: SM
CHK'D BY: MG
DATUM: -
PROJECTION: -
SCALE: AS SHOWN

PROJECT
**CLEARVIEW LANDFILL LEACHATE
COLLECTION SYSTEM**

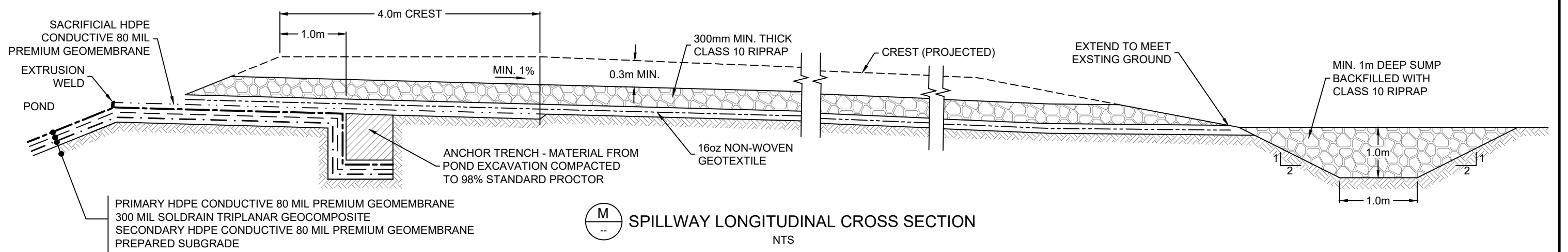
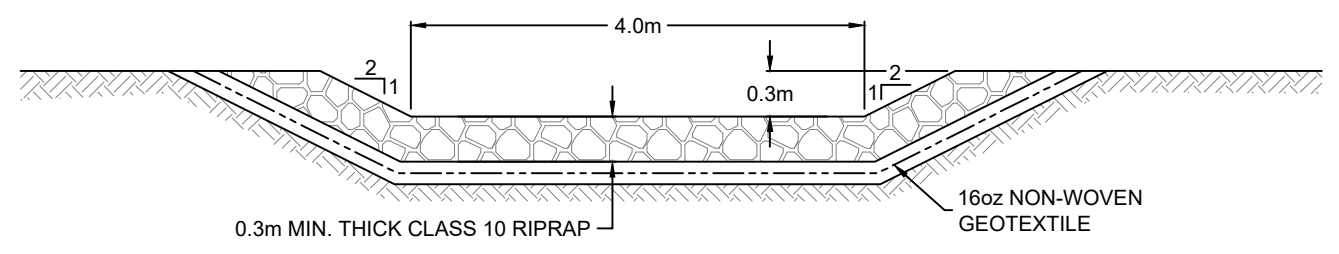
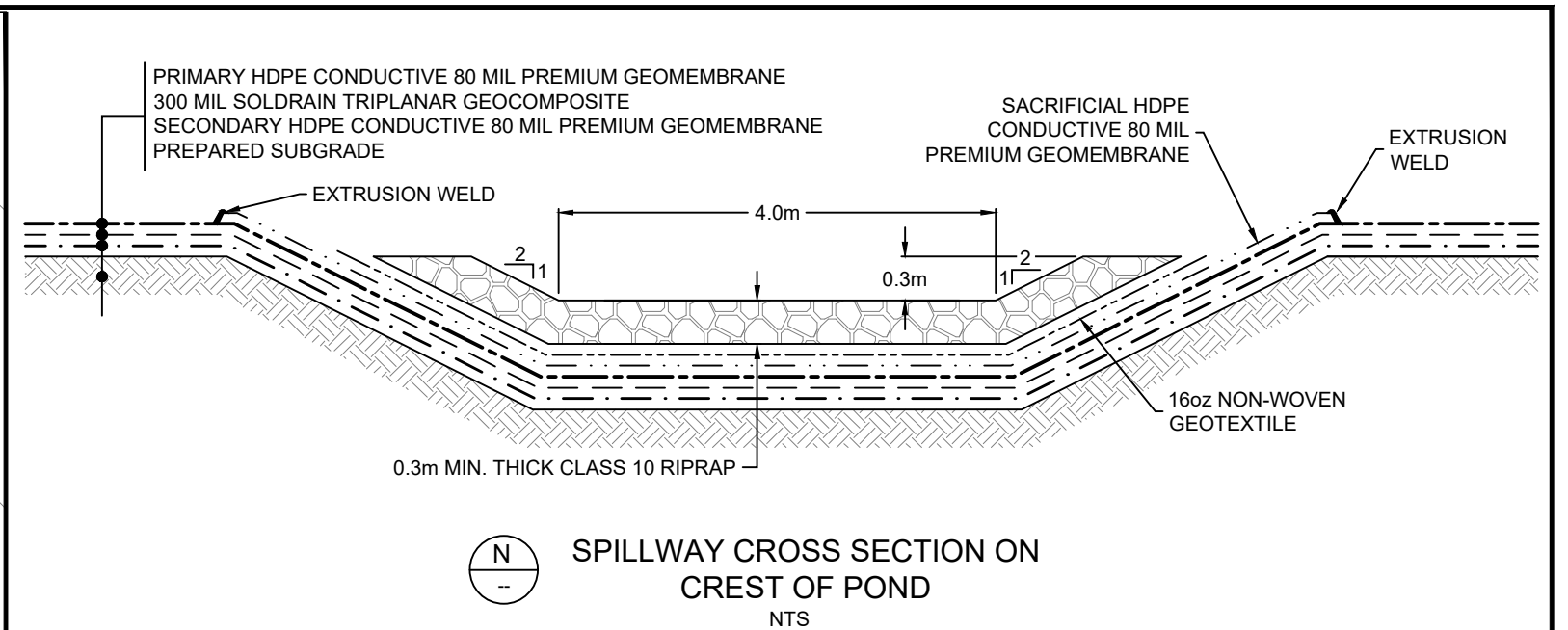
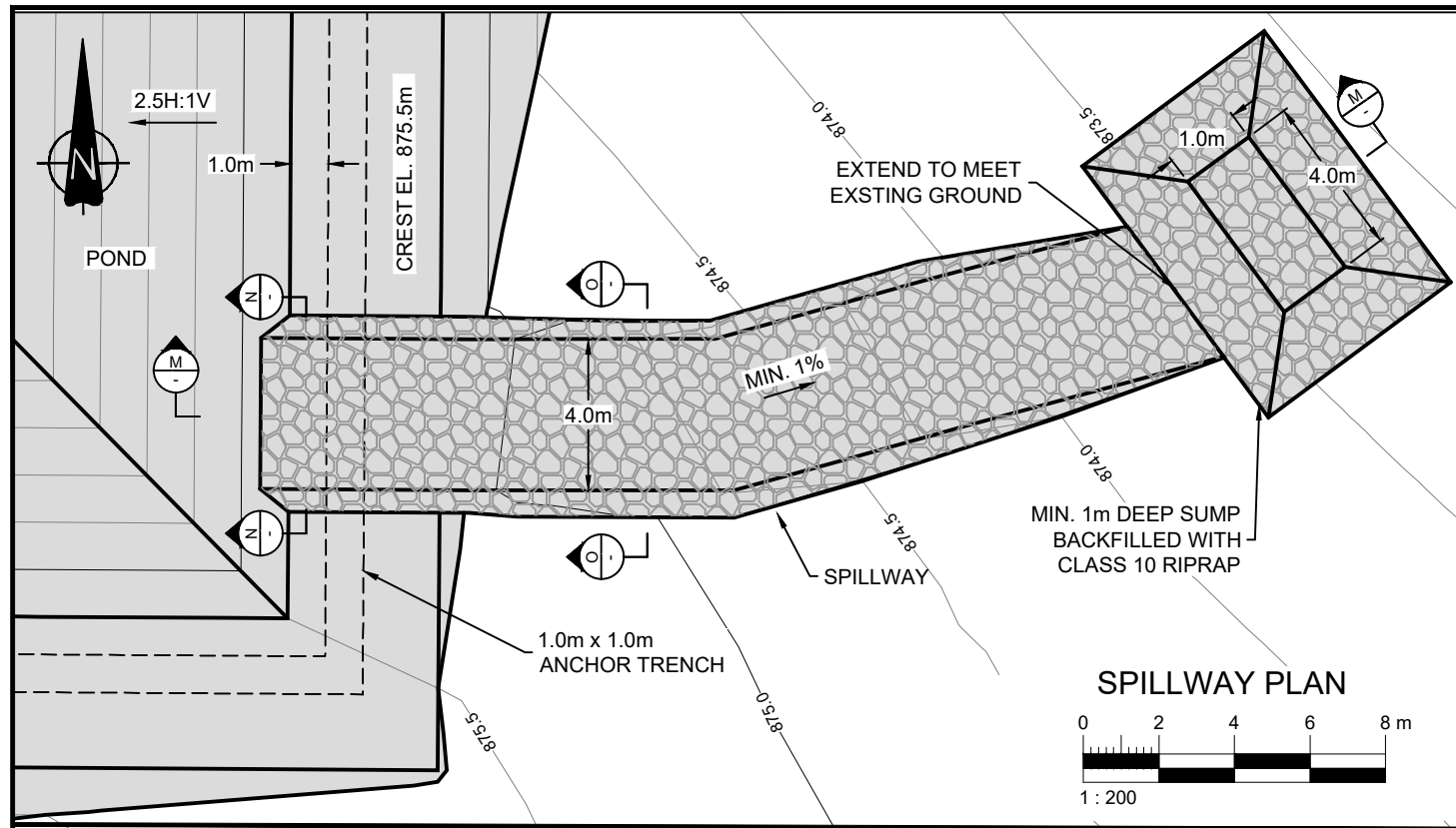
TITLE
**LEACHATE COLLECTION POND
OUTLET PLAN**

JULY 2025
PROJECT NO: 900-0008-05
REV. NO.: 0
DWG No. 013



NOTE: ALL GEOMEMBRANES TEXTURED ON BOTH SIDES, WHITE-TOP SIDE

									REGIONAL DISTRICT OF BULKLEY-NECHAKO	DWN BY: SM	PROJECT	DATE: JULY 2025
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG				CHK'D BY: MG	CLEARVIEW LANDFILL LEACHATE COLLECTION SYSTEM	PROJECT NO: 900-0008-05
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG		DATUM: -		TITLE		REV. NO.: 0
A	10	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG				PROJECTION: -	DESIGN POND CROSS SECTIONS 'I' AND 'J'	DWG No. 014
REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.				SCALE: AS SHOWN		



NOTE: ALL GEOMEMBRANES TEXTURED ON BOTH SIDES, WHITE-TOP SIDE

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG
A	10	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG

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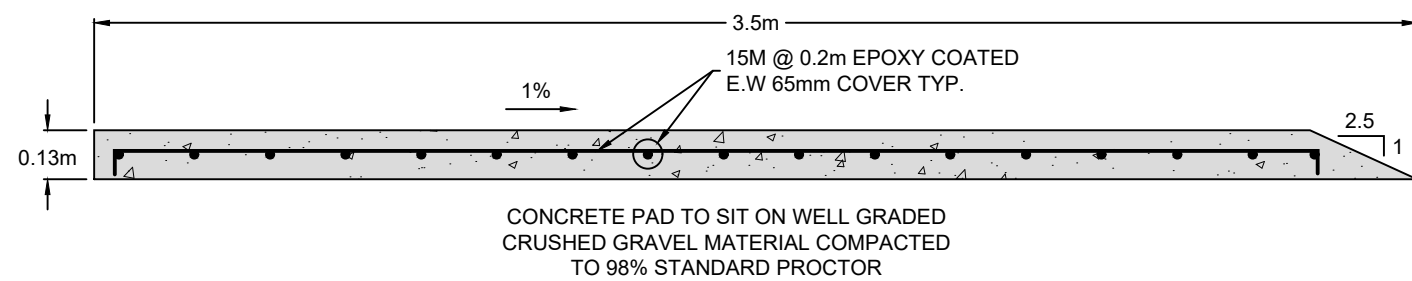
REGIONAL DISTRICT OF BULKLEY-NECHAKO

DWN BY:	SM
CHK'D BY:	MG
DATUM:	-
PROJECTION:	-
SCALE:	AS SHOWN

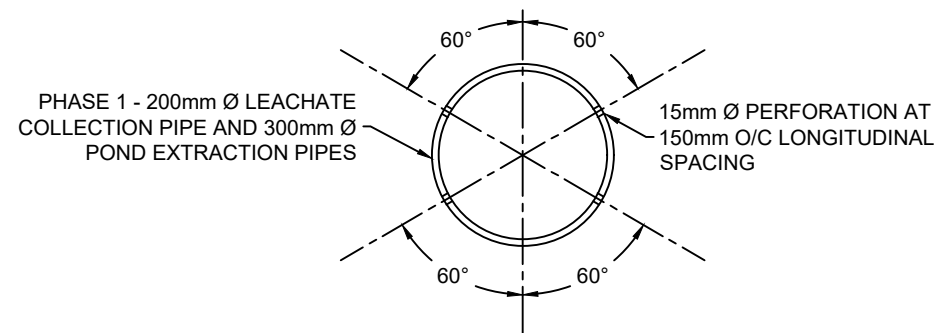
PROJECT: CLEARVIEW LANDFILL LEACHATE COLLECTION SYSTEM

TITLE: SPILLWAY PLAN AND CROSS SECTIONS

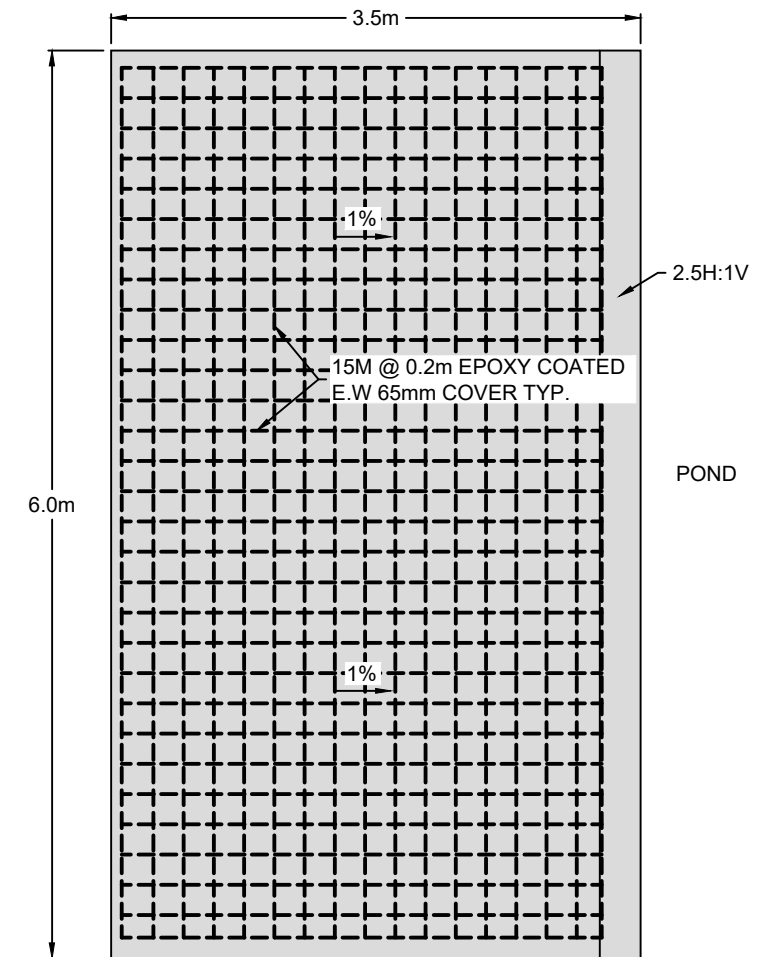
DATE:	JULY 2025
PROJECT NO.:	900-0008-05
REV. NO.:	0
DWG No.	016



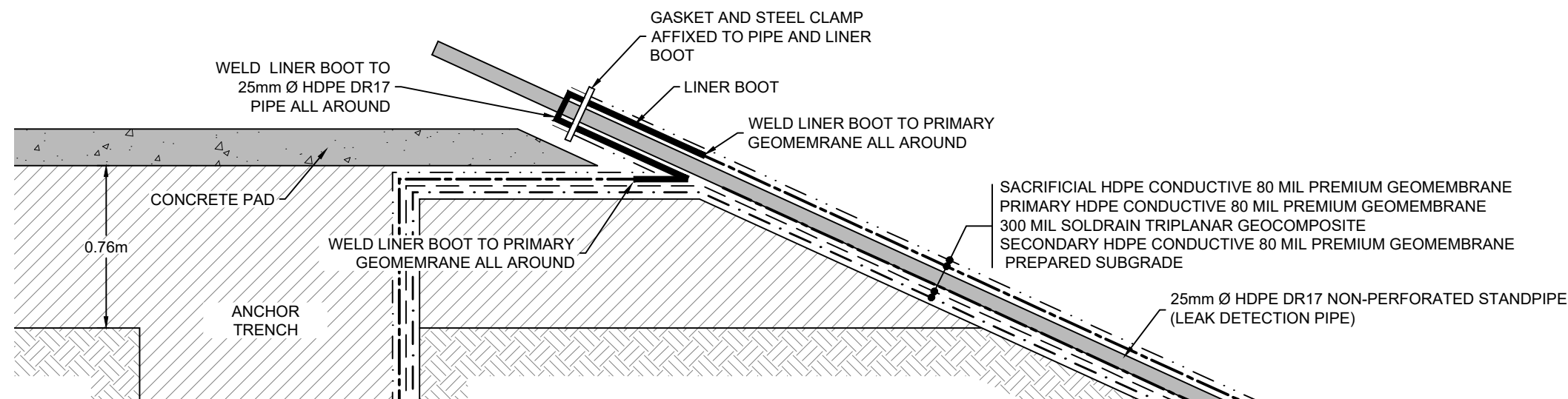
1
013
CONCRETE PAD CROSS SECTION
0 0.2 0.4 0.6 0.8 m
1:20



3
015
TYPICAL PIPE PERFORATION DETAIL
NTS



2
013
CONCRETE PAD PLAN
0 0.5 1.0 1.5 2.0 m
1:50



4
015
PIPE PENETRATION DETAIL -OUTLET
NTS

NOTE: ALL GEOMEMBRANES TEXTURED ON BOTH SIDES, WHITE-TOP SIDE

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG
A	10	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG

REGIONAL DISTRICT OF
BULKLEY-NECHAKO



DWN BY:	SM
CHK'D BY:	MG
DATUM:	-
PROJECTION:	-
SCALE:	AS SHOWN

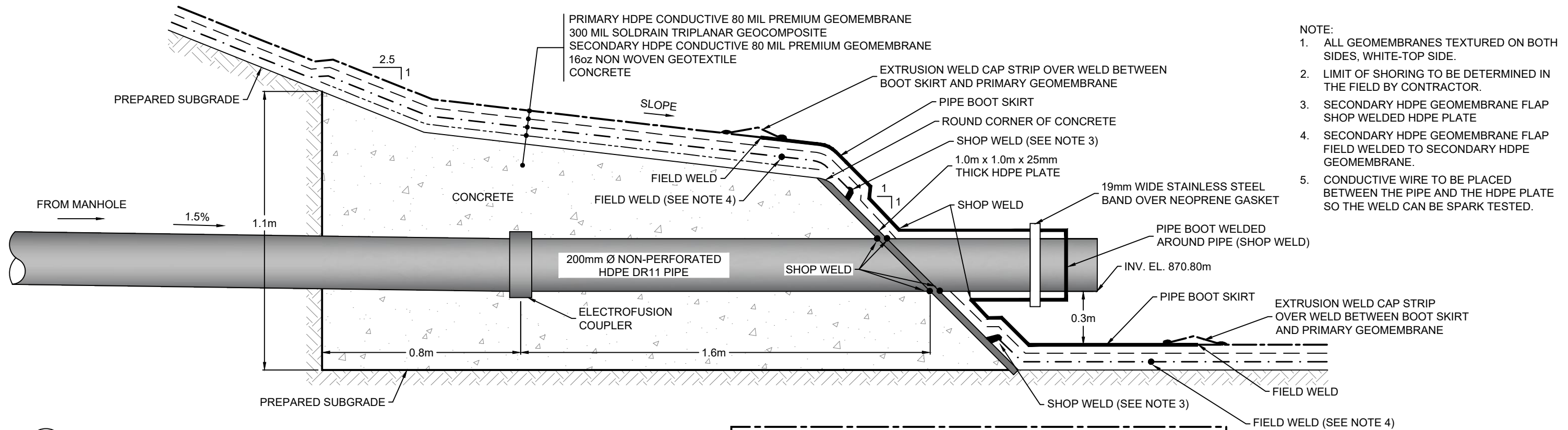
PROJECT

CLEARVIEW LANDFILL LEACHATE
COLLECTION SYSTEM

TITLE

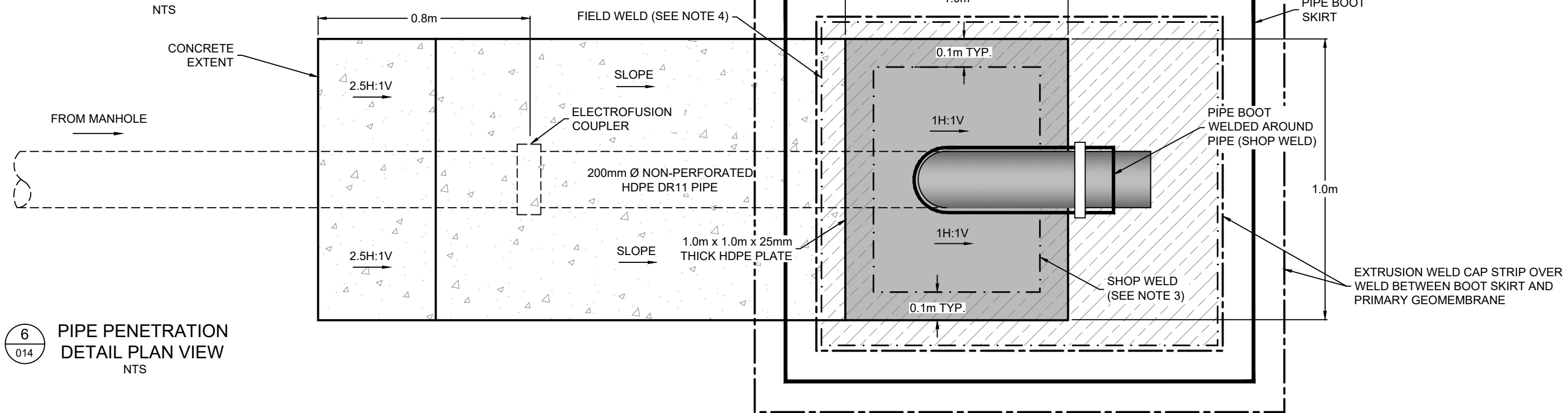
DESIGN POND DETAILS 1 TO 4

DATE:	JULY 2025
PROJECT NO.:	900-0008-05
REV. NO.:	0
DWG No.	017



- NOTE:
1. ALL GEOMEMBRANES TEXTURED ON BOTH SIDES, WHITE-TOP SIDE.
 2. LIMIT OF SHORING TO BE DETERMINED IN THE FIELD BY CONTRACTOR.
 3. SECONDARY HDPE GEOMEMBRANE FLAP SHOP WELDED HDPE PLATE
 4. SECONDARY HDPE GEOMEMBRANE FLAP FIELD WELDED TO SECONDARY HDPE GEOMEMBRANE.
 5. CONDUCTIVE WIRE TO BE PLACED BETWEEN THE PIPE AND THE HDPE PLATE SO THE WELD CAN BE SPARK TESTED.

5 PIPE PENETRATION DETAIL CROSS SECTION NTS

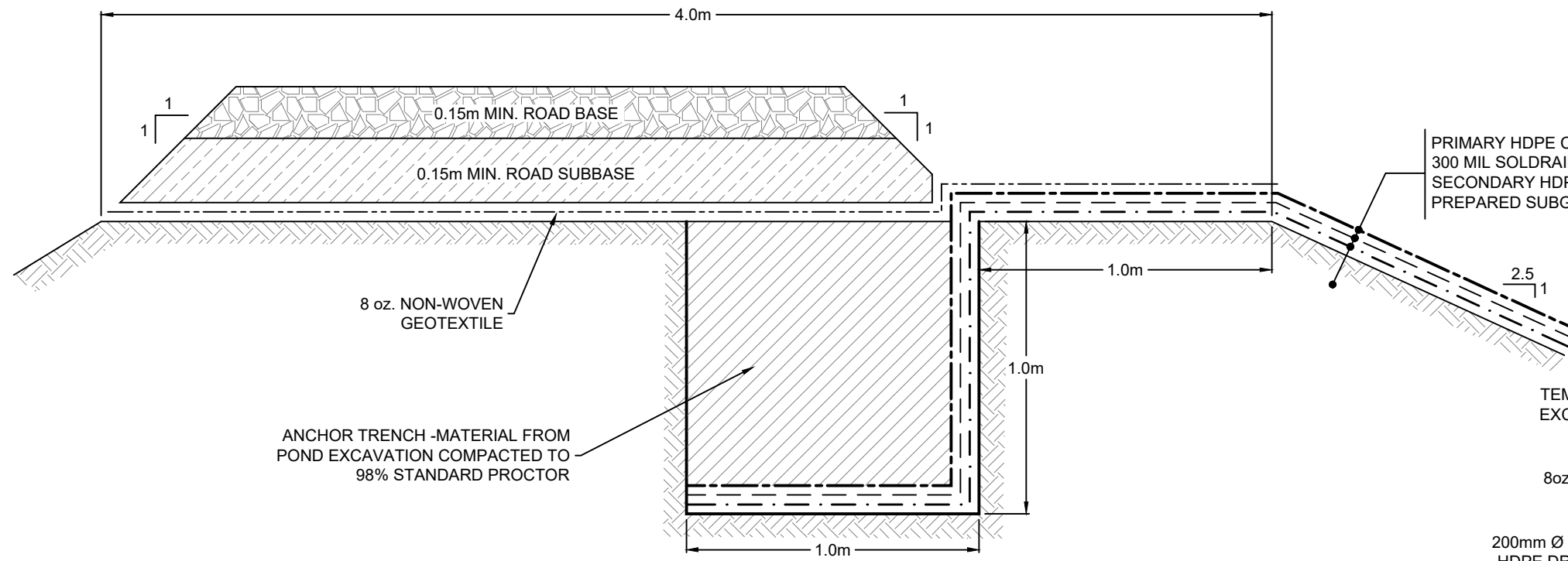


6 PIPE PENETRATION DETAIL PLAN VIEW NTS

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG
A	10	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG

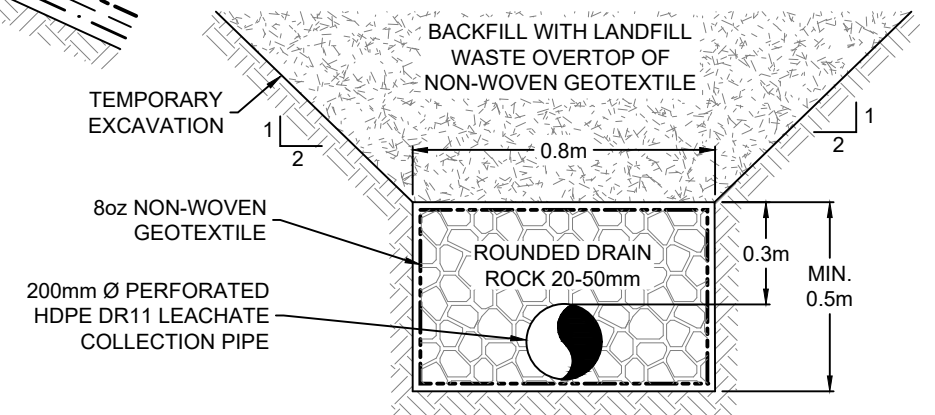
REGIONAL DISTRICT OF BULKLEY-NECHAKO 	DWN BY: SM	PROJECT CLEARVIEW LANDFILL LEACHATE COLLECTION SYSTEM	DATE: JULY 2025
	CHK'D BY: MG		PROJECT NO: 900-0008-05
	DATUM: -	TITLE DESIGN POND INLET PIPE PENETRATION DETAILS 5 AND 6	REV. NO.: 0
	PROJECTION: -		DWG No. 018
	SCALE: AS SHOWN		

NOTE: ALL GEOMEMBRANES TEXTURED ON BOTH SIDES, WHITE-TOP SIDE

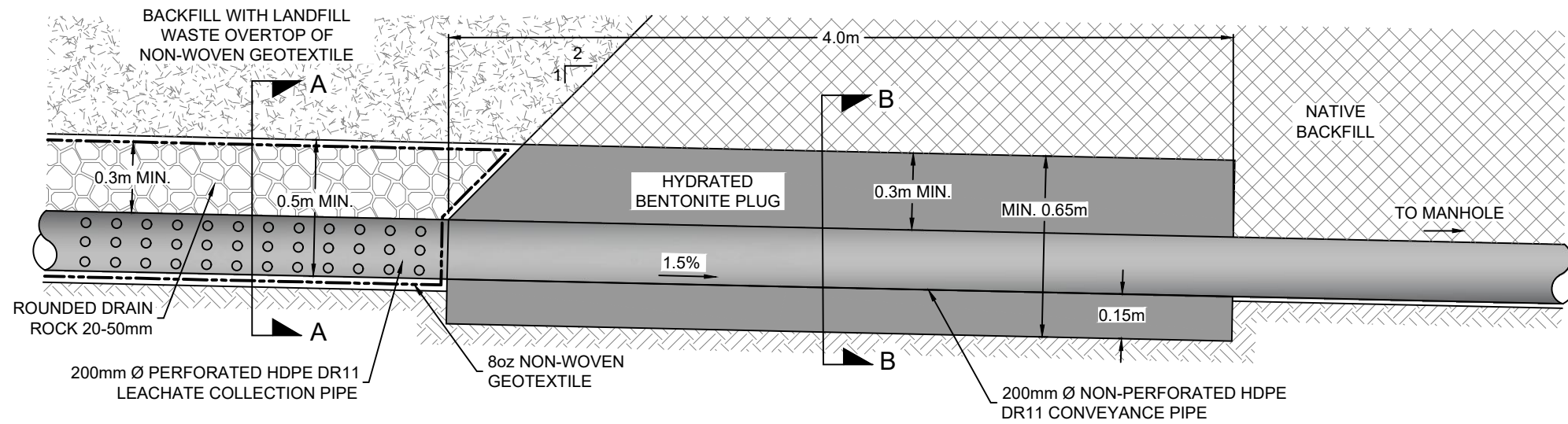


7
013
TYPICAL CROSS SECTION
CREST OF POND BERM
NTS

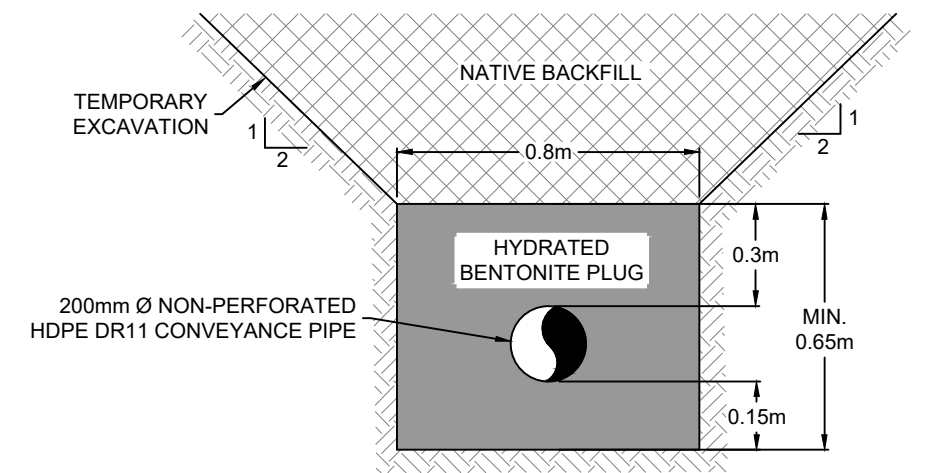
PRIMARY HDPE CONDUCTIVE 80 MIL PREMIUM GEOMEMBRANE
300 MIL SOLDRAIN TRIPLANAR GEOCOMPOSITE
SECONDARY HDPE CONDUCTIVE 80 MIL PREMIUM GEOMEMBRANE
PREPARED SUBGRADE



A
-
TYPICAL CROSS SECTION
DRAIN ROCK
NTS



8
011
PHASE 1 LEACHATE
COLLECTION CROSS SECTION
NTS



B
-
TYPICAL CROSS SECTION
HYDRATED BENTONITE PLUG
NTS

REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.
0	16	07	2025	ISSUED FOR CONSTRUCTION	MG	MG
B	27	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG
A	10	06	2025	ISSUED FOR CLIENT REVIEW	MG	MG

REGIONAL DISTRICT OF
BULKLEY-NECHAKO

DWN BY: SM
CHK'D BY: MG
DATUM: -
PROJECTION: -
SCALE: AS SHOWN

PROJECT
CLEARVIEW LANDFILL LEACHATE
COLLECTION SYSTEM

TITLE
DETAIL 7 AND 8
TYPICAL CROSS SECTION CREST OF POND BERM AND
PHASE 1 LEACHATE COLLECTION CROSS SECTION

DATE: JULY 2025
PROJECT NO.: 900-0008-05
REV. NO.: 0
DWG No. 019

CLEARVIEW LANDFILL LEACHATE COLLECTION POND DRAWINGS SPECIFICATIONS

1. HOLD POINT: CONTRACTOR TO COMPLETE A TOPOGRAPHIC SURVEY OF EXISTING CONDITIONS PRIOR TO ANY CONSTRUCTION WORKS FOR ENGINEER TO REVIEW AND APPROVE.
2. HOLD POINT: CONTRACTOR TO PROVIDE AND ENGINEER TO REVIEW AND APPROVE GEOMEMBRANE AND GEOCOMPOSITE PANEL LAYOUT PRIOR TO DEPLOYMENT.
3. HOLD POINT: CONTRACTOR TO PROVIDE AND ENGINEER TO REVIEW AND APPROVE GEOMEMBRANE MANUFACTURER'S ROUTINE BATCH QUALITY CONTROL TESTING RESULTS PRIOR TO DEPLOYMENT OF THE GEOMEMBRANE.
4. HOLD POINT: CONTRACTOR TO SUBMIT QUALITY CONTROL PROGRAM INCLUDING WELDING, TESTING, SAMPLING AND REPAIR PROCEDURES, TEST REPORT SHEETS, EQUIPMENT DETAILS AND PERSONNEL LIST INCLUDING THE NAMES OF THE SUPERVISOR AND THE CREW SIZE AND DUTIES OF EACH WHO WILL BE EMPLOYED ON THE WORKS FOR ENGINEER TO REVIEW AND APPROVE.
5. HOLD POINT: ENGINEER TO INSPECT AND APPROVE SUBGRADE PRIOR TO PLACEMENT OF THE SECONDARY GEOMEMBRANE.
6. HOLD POINT: ENGINEER TO INSPECT AND APPROVE SECONDARY GEOMEMBRANE PRIOR TO DEPLOYMENT OF THE OVERLYING LAYER.
7. HOLD POINT: ENGINEER TO INSPECT AND APPROVE TRIPLANAR GEOCOMPOSITE PRIOR TO DEPLOYMENT OF THE OVERLYING LAYER.
8. HOLD POINT: ENGINEER TO INSPECT AND APPROVE PRIMARY GEOMEMBRANE PRIOR TO DEPLOYMENT OF THE SACRIFIAL GEOMEMBRANE OR FILLING OF THE POND.
9. HOLD POINT: CONTRACTOR TO SURVEY THE POND SUBGRADE PRIOR TO DEPLOYMENT OF THE GEOSYNTHETICS FOR ENGINEER TO REVIEW AND APPROVE.
10. ENGINEER TO REVIEW AND APPROVE MATERIAL USED TO CONSTRUCT THE POND BERM AND TO PROVIDE THE APPROPRIATE COMPACTION SPECIFICATIONS BASED ON THE MATERIAL.
11. SUBGRADE SHALL BE SMOOTH AND FREE OF SHARP OBJECTS, DEBRIS, STONES LARGER THAN 150mm IN DIAMETER, OR EXCESSIVE MOISTURE AND STANDING WATER THAT MAY CAUSE DAMAGE TO THE GEOMEMBRANE.
12. SUBGRADE TO PROVIDE A FIRM AND UNYIELDING SURFACE FOR GEOMEMBRANE DEPLOYMENT. SURFACE TO BE TESTED BY PROOF ROLLING AND APPROVED BY ENGINEER.
13. THE CONTRACTOR SHALL SUBMIT WRITTEN CONFIRMATION THAT THE SURFACE UPON WHICH THE GEOMEMBRANE IS TO BE INSTALLED HAS BEEN INSPECTED AND ACCEPTED AS BEING SUITABLE FOR THE DEPLOYMENT OF GEOMEMBRANE MATERIALS. SUCH WRITTEN ACCEPTANCE SHALL BE PROVIDED BY THE CONTRACTOR TO THE OWNER.
14. HOLD POINT: THE CONTRACTOR SHALL CONDUCT A LEAK LOCATION SURVEY USING THE SPARK TEST METHOD IN ACCORDANCE WITH ASTM D7240 ON THE PRIMARY AND SECONDARY GEOMEMBRANES. ANY DEFECTS IDENTIFIED AS A RESULT OF THIS TESTING SHALL BE REPAIRED BY THE CONTRACTOR IN ACCORDANCE WITH THESE SPECIFICATIONS. THE CONTRACTOR SHALL PROVIDE LEAK LOCATION RESULTS AND REPAIR LOG TO THE ENGINEER FOR REVIEW AND APPROVAL.
15. THE SACRIFICAL, PRIMARY AND SECONDARY GEOMEMBRANES WILL BE SOLMAX HIGH-DENSITY POLYETHYLENE (HDPE) GSE HX 80 MIL CONDUCTIVE GEOMEMBRANE - TEXTURED BOTH SIDES AND ONE SIDE WHITE IN COLOUR, THE GEOMEMBRANES WILL BE INSTALLED WITH THE WHITE COLOUR SIDE UP.
16. AT A MINIMUM, THE GEOMEMBRANES WILL MEET THE SPECIFICATIONS OF GRI GM 13 AS PUBLISHED BY THE GEOSYNTHETICS RESEARCH INSTITUTE AND WILL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS.
17. THE FIELD SEAMS FOR THE GEOMEMBRANES SHALL MEET SPECIFICATIONS SUMMARIZED IN GRI GM 19 AS PUBLISHED BY THE GEOSYNTHETIC RESEARCH INSTITUTE.
18. THE TRIPLANAR GEOCOMPOSITE WILL BE 300 MIL TEXEL SOLDRAIN OR AN APPROVED EQUIVALENT. THE TRIPLANAR WILL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS.
19. THE CONTRACTOR SHALL PROVIDE A WRITTEN REPORT ON THE COMPLETED INSTALLATION WHICH SHALL CERTIFY THAT THE GEOMEMBRANE IS INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS AND THE SPECIFICATION, IS READY FOR BACKFILLING, AND THAT THE WARRANTY IS IN EFFECT. THIS REPORT SHALL BE SIGNED BY A SENIOR OFFICER OF THE CONTRACTOR. THE REPORT SHALL BE COMPLETE WITH THE CONTRACTOR'S QUALITY CONTROL RECORDS, TESTING RESULTS, AND A DETAILED AS-BUILT RECORD OF THE CONSTRUCTION.
20. THE CONTRACTOR SHALL PROVIDE A SHOP DRAWING OF THE PIPE PENETRATION FOR ENGINEER TO REVIEW AND APPROVE.
21. THE CONTRACTOR SHALL BACKFILL THE ANCHOR TRENCH WITH EXCAVATED MATERIAL FREE OF STONES LARGER THAN 25mm AND IN 200mm THICK LIFTS AND COMPACT THE BACKFILL MATERIALS TO 98% STANDARD PROCTOR. COMPACTION DENSITY RESULTS SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW AND APPROVAL.
22. AT A MINIMUM, THE GEOTEXTILES WILL MEET THE SPECIFICATIONS OF GRI GM 12 AS PUBLISHED BY THE GEOSYNTHETICS RESEARCH INSTITUTE AND WILL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS.
23. ALL PIPING WILL BE HDPE DR11 UNLESS SPECIFIED OTHERWISE IN THE DRAWINGS. PIPE RESIN WILL BE PE4710 OR AN APPROVED EQUIVALENT. CONTRACTOR TO PROVIDE AND ENGINEER TO REVIEW AND APPROVE PIPE SPECIFICATIONS PRIOR TO INSTALLATION OF PIPES.
24. CONCRETE SHALL BE IN ACCORDANCE WITH CSA A23.1/A23.2 AND CSA A23.4, WITH A MINIMUM SPECIFIED 28-DAY COMPRESSIVE STRENGTH OF 30 MPA, CLASS S-1 EXPOSURE. THE CONCRETE MIX DESIGN AND TESTING RESULTS SHALL BE PROVIDED TO THE ENGINEER FOR REVIEW AND APPROVAL.
25. 1.6m MANHOLE TO BE SOLID WALL DR 11 HDPE. MANHOLE TO BE CONSTRUCTED WITH A BASE OF 200mm THICK LAYER OF 25mm MINUS CRUSHED GRAVEL.
26. HDPE MANHOLE TO BE MANUFACTURED WITH HDPE PIPE STUBS AND FLANGES FOR CONNECTION OF PIPES.
27. THE CONTRACTOR SHALL PROVIDE A SHOP DRAWING OF THE HDPE MANHOLE FOR ENGINEER TO REVIEW AND APPROVE.

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REV	D	M	Y	ISSUE/REVISION DESCRIPTION	ENG.	APPR.			SCALE: AS SHOWN	CONSTRUCTION NOTES AND SPECIFICATIONS	