



Blackwater Gold Project

Transmission Line Surface Erosion Prevention and Sediment Control Plan

June 2022

CONTEXT STATEMENT

The Blackwater Gold Project (Project) received an Environmental Assessment Certificate #M19-01 (EAC) on June 21, 2019, under the 2002 *Environmental Assessment Act*, and received a Decision Statement (DS) on April 15, 2019 under the *Canadian Environmental Assessment Act, 2012*, approving the Project with conditions. Blackwater is an open pit gold and silver mine with associated ore processing facilities located 112 km southwest of Vanderhoof in central British Columbia. The EAC and DC includes activities associated with the construction and operation of an electrical transmission line (TL) that is required to provide the energy requirements for the Project. A number of provincial permits and authorizations will be required to construct and operate the TL. The primary permits include the following: Statutory Right-of-Way (ROW) and interim Licence of Occupation (LOO) for Crown Land, an Occupant Licence to Cut, Special Use Permits (for reactivation of existing and non-status roads), and Junction Permits for critical road intersections.

The Transmission Line Surface Erosion Prevention and Sediment Control Plan (TL SEPSCP) support applications for Crown land tenure (i.e., Statutory ROW, LOO) under the *Land Act* and is also required under the *Forest and Range Practices Act* (FRPA). The draft TL SEPSCP provided, herein, has been developed based largely on the erosion prevention and sediment control requirements under section 9.2 of the Joint Application Information Requirements for *Mines Act / Environmental Management Act* Permits (JAIR; Ministry of Energy, Mines and Petroleum Resources & Ministry of Environment and Climate Change Strategy 2019). The TL SEPSCP takes into consideration the comments received from Aboriginal Groups during the preparation of the TL SEPSCP submitted as part of the Joint *Mines Act / Environmental Management Act* Permits Application for BW Gold's Major Works. In addition, the TL SEPSCP is designed to be implemented together with EAC Condition 29 (Transmission Line Sedimentation Monitoring Plan), specifically Condition 29(a) which requires the development of site-specific erosion and sediment control prescriptions for all transmission line construction and maintenance works that have the potential to impact TDWL Class 1 Waterbodies as set out in Appendix A and/or other waterbodies identified to be of cultural significance by other Aboriginal Groups, during transmission line construction and maintenance.

BW Gold is providing this draft version of the SEPSCP for review and comment. BW Gold welcomes comments on the draft Plan. BW Gold have used Section 9.2 of the 2019 Joint Application Information Requirements as a surrogate guideline in the development of the TL SEPSCP and concordance with that document is provided below:

Requirement Description	Location in Plan
The objectives of the Transmission Line Surface Erosion Prevention and Sediment Control Plan are to ensure that disturbance is limited to permitted boundaries and that effects of disturbance are mitigated in a timely manner. Provide details on proposed activities for achieving the objectives, including:	
■ best management practices during construction and operation;	Section 4
■ training requirements;	Section 3.1
■ detailed monitoring and reporting plans;	Sections 5 and 6
■ provisions of adaptive management;	Section 7
■ ongoing consultation with stakeholders; and	Section 8.1
■ considerations for reclamation planning.	Table 4.1-1

Requirement Description	Location in Plan
Include Standard Operating Procedures (SOPs) for addressing, if applicable, riparian areas, old growth and mature forests, rare and at-risk species and ecosystems, metal uptake, large/coarse woody debris, and invasive plant species. If prudent, develop a separate Transmission Line Invasive Plant Management Plan to highlight the key considerations for early identification and effective management of invasive plants to facilitate successful site reclamation.	Separate Transmission Line Invasive Plant Management Plan has been developed.

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ACRONYMS AND ABBREVIATIONS

Artemis	Artemis Gold Inc.
BC	British Columbia
BC CDC	British Columbia Conservation Data Centre
BMPs	Best Management Practices
Blackwater	Blackwater Gold Project
BW Gold	BW Gold Ltd.
CM	BW Gold Construction Manager
CCM	EPC or EPCM Construction Manager
CEO	Chief Executive Officer
DFO	Department of Fisheries and Oceans
DS	Decision Statement
EAC	Environmental Assessment Certificate
EAO	Environmental Assessment Office
ECCC	Environment and Climate Change Canada
EM	BW Gold Environmental Manager
EMC	Environmental Monitoring Committee
EMLI	Ministry of Energy, Mines and Low Innovation Carbon
EMP	Environmental Management Plan
EMS	Environmental Management System
EPCM	Engineering, Procurement and Construction Management
ESC	erosion and sediment control
FLNRO	Ministry of Forests, Lands, Natural Resource Operations and Rural Development
IEM	Independent Environmental Monitor
m	metre(s)
MEMPR	Ministry of Energy, Mines and Petroleum Resources
MOE	Ministry of Environment
Project	Blackwater Gold Project

QP	Qualified Professional
RISC/RIC	Resources Information Standards Committee/Resource Inventory Committee Standards
RMA	Riparian Management Area
RMZ	Riparian Management Zone
ROW	Right of Way
RRZ	Riparian Reserve Zone
SOP	Standard Operating Procedure
TEM	Terrestrial Ecosystem Mapping
TL	Transmission Line
TL SEPSCP	Transmission Line Surface Erosion Prevention and Sediment Control Plan
NTUs	Nephelometric turbidity units
PMP	Probable Maximum Precipitation
TARP	Trigger Action Response Plan
TSS	total suspended solids
YDU-WL	Yinka Dene 'Uza'hne – Water Law

1. PROJECT OVERVIEW

The Blackwater Gold Project (the Project) is a gold and silver open pit mine located in central British Columbia (BC), approximately 112 kilometres (km) southwest of Vanderhoof, 160 km southwest of Prince George, and 446 km northeast of Vancouver.

The Project site is presently accessed via the Kluskus Forest Service Road (FSR), the Kluskus-Ootsa FSR and an exploration access road, which connects to the Kluskus-Ootsa FSR at km 142. The Kluskus FSR joins Highway 16 approximately 10 km west of Vanderhoof. A new, approximately 13.8 km road (Mine Access Road) will be built to replace the existing exploration access road, which will be decommissioned. The new planned access is at km 124.5. Driving time from Vanderhoof to the mine site is about 2.5 hours.

Major mine components include a tailings storage facility (TSF), ore processing facilities, waste rock, overburden and soil stockpiles, borrow areas and quarries, water management infrastructure, water treatment plants, accommodation camps and ancillary facilities. The gold and silver will be recovered into a gold-silver doré product and shipped by air and/or transported by road.

Electrical power for the Project will be supplied by a new approximately 135 km, 230 kilovolt (kV) overland transmission line (TL) that will connect to the BC Hydro grid at the Glenannan substation located near the Endako mine, 65 km west of Vanderhoof.

A brief description of the proposed TL is as follows:

- An up to 140 m wide corridor containing a 230 kV transmission line originating at BC Hydro's Glenannan Substation near Endako and connecting to the electrical substation at the plant site.
- The transmission line will be constructed with a cleared ROW limited to a 40 m width for most of the route and all standard spans, and with an up to 50 m width cleared ROW for longer spans in select areas. The transmission line area covers approximately 541ha for the entire length of 134.3 km.
- Existing permitted and non-status roads will be used for the purpose of accessing the ROW but for the purpose of construction, new access trails and stream crossings will be located only within the transmission line cleared ROW.
- Equipment and material laydown areas will also lie within the cleared ROW.

The Blackwater mine site is located within the traditional territories of Lhoosk'uz Dené Nation (LDN), Uikatcho First Nation (UFN), Skin Tyee Nation and Tsilhqot'in Nation. The Kluskus and Kluskus-Ootsa FSRs and Project transmission line cross the traditional territories of Nadleh Whut'en First Nation (NWFN), Saik'uz First Nation (SFN), and Stelat'en First Nation (StFN; collectively, the Carrier Sekani First Nations) as well as the traditional territories of the Nazko First Nation (NFN), NeeTahiBuhn Band, Cheslatta Carrier Nation and Yekooche First Nation (EAO 2019a and 2019b).

Overall Project construction is anticipated to take two years. The construction of the TL is anticipated to take approximately 14 months, once all TL regulatory permits for construction are received. The primary permits include the following: Statutory Right-of-Way (ROW) and interim Licence of Occupation (LOO) for Crown Land, an Occupant Licence to Cut, Road and Road Use Permits, and Junction Permits for critical road intersections. Post construction, there will be periodic inspections and maintenance as well as occasional unscheduled power supply interruptions that will require inspection and maintenance/repair activities. Mine development will be phased with staged increases in production over a 23-year mine life. Currently, since power will be required throughout closure and post-closure phases of the mine life to support camp and water management/treatment activities, the TL will be decommissioned 46 years or more after construction through the operations, closure and post-closure phases. However, most of the temporary access trails used for construction on the TL ROW will be reclaimed and/or decommissioned within three years after the completion of the TL construction.

New Gold Inc. (New Gold) the predecessor to Artemis Gold Inc. (Artemis) received Environmental Assessment Certificate EAC #M19-01 on June 21, 2019 under the 2002 *Environmental Assessment Act* (EAO 2019c) and a Decision Statement (DS) on April 15, 2019 under the *Canadian Environmental Assessment Act, 2012* (CEA Agency 2019). In August 2020, Artemis acquired the mineral tenures, assets and rights in the Blackwater Project that were previously held by New Gold Inc. On August 7, 2020, the Certificate was transferred to BW Gold Ltd. (BW Gold), a wholly-owned subsidiary of Artemis, under the 2018 *Environmental Assessment Act*. The Impact Assessment Agency of Canada notified BW Gold on September 25, 2020 to verify that written notice had been provided within 30 days of the change of proponent as required in Condition 2.16 of the DS, and that a process had been initiated to amend the DS.

2. PURPOSE AND OBJECTIVES

The purpose of the Transmission Line Surface Erosion Prevention and Sediment Control Management Plan (TL SEPSCMP) is to minimize the potential for mobilizing sediment, destabilizing slopes, and impacting surface water quality and aquatic habitat resulting from mining activities during construction and operations phases of the transmission line (TL). The TL SEPSCMP support applications for Crown land tenure (i.e., Statutory ROW, LOO) under the *Land Act* and is also required under the *Forest and Range Practices Act* (FRPA). This plan outlines key roles, as well as provides guidance on assessing erosion potential, and developing prescriptions for event-based control strategies.

The objectives of the TL SEPSCMP are to:

- Minimize the potential for mobilizing sediment, destabilizing slopes; and
- Ensure surface water quality and aquatic habitat remains uncompromised.

This TL SEPSCP is intended to be used in conjunction with other management and monitoring plans pertinent to the protection of the aquatic receiving environment, including the following:

- Transmission Line Sediment Monitoring Plan (as required by Condition 29 of the EAC which includes the application of the principal guidelines and standards of the Yinka Dene 'Uza'hné Surface Water Management Policy of CSFN);
- TL Construction Environmental Management Plan; and
- TL Air Quality and Fugitive Dust Management Plan.

The intent of this document is to outline strategies and design objectives, with appropriate flexibility, to allow the facilities to be field-fit to suit the site conditions encountered (i.e., an adaptive management approach). The TL SEPSCP describes best management practices (BMPs) that will be implemented – it is not meant to be prescriptive. Site specific measures to be implemented for specific work areas (e.g., stream crossings) will be presented on detailed design drawings prepared for construction. The overall objective of the SEPSCP is to manage contact water within the TL ROW and roads, so as to prevent runoff from potentially impacting adjacent watercourses.

The term “contact water” in relation to TL construction activities is used to describe water that has come into contact with any disturbed areas, road runoff, borrow areas, or vegetation cleared areas. Conversely, “non-contact water” is used to describe water that has not come into contact with any disturbed areas.

The TL SEPSCP is focused mainly on the construction phase of the TL which is estimated to be approximately 14 months in duration once permits are received. The construction phase of the project is the period of highest risk for erosion and sedimentation effects. Subsequent to construction, as the TL will receive much lower levels of disturbance with the consequent reduction in environmental risk due to sediment releases.

3. ROLES AND RESPONSIBILITIES

BW Gold has the obligation of ensuring that all commitments are met and that all relevant obligations are made known to mine personnel and site contractors during all phases of the mine life. A clear understanding of the roles, responsibilities, and level of authority that employees and contractors have when working at the mine site is essential to meet Environmental Management System (EMS) objectives.

Table 3-1 provides an overview of general environmental management responsibilities during all phases of the mine life for key positions that will be involved in environmental management. Other positions not specifically listed in Table 3-1 but who will provide supporting roles include independent environmental monitors, Independent Tailings Review Board, TSF qualified person, and other qualified persons and qualified professionals.

Table 3-1: Blackwater Roles and Responsibilities

Position	Responsibility
Chief Executive Officer (CEO)	The CEO is responsible for overall Project governance. Reports to the Board.
Chief Operating Officer (COO)	The COO is responsible for engineering and Project development and coordinates with the Mine Manager to ensure overall Project objectives are being managed. Reports to CEO.
Vice President (VP) Environment & Social Responsibility	The VP is responsible for championing the Environmental Policy Statement and EMS, establishing environmental performance targets and overseeing permitting. Reports to COO.
General Manager (GM) – Development	The GM is responsible for managing project permitting, the Project's administration services and external entities, and delivering systems and programs that ensure Artemis's values are embraced and supported: Putting People First, Outstanding Corporate Citizenship, High Performance Culture, Rigorous Project Management and Financial Discipline. Reports to COO.
Mine Manager	The Mine Manager, as defined in the <i>Mines Act</i> , has overall responsibility for mine operations, including the health and safety of workers and the public, Environmental Management System (EMS) implementation, overall environmental performance and protection, and permit compliance. The Mine Manager may delegate their responsibilities to qualified personnel. Reports to GM.
Construction Manager (CM)	The CM is accountable for ensuring environmental and regulatory commitments/ and obligations are being met during the construction phase. Reports to GM.
Environmental Manager (EM)	The EM is responsible for the day-to-day management of the Project's environmental programs and compliance with environmental permits, updating EMS and MPs. The EM or designate will be responsible for reporting non-compliance to the CM, and Engineering, Procurement and Construction (EPC) contractor, other contractors, the Company and regulatory agencies, where required. Supports the CM and reports to Mine Manager.
Departmental Managers	Departmental Managers are responsible for implementation of the EMS relevant to their areas. Reports to Mine Manager.
Indigenous Relations Manager	Indigenous Relations Manager is responsible for Indigenous engagement throughout the life of mine. Also responsible for day-to-day management and communications with Indigenous groups. Reports to EM.
Community Relations Advisor	Community Relations Advisor is responsible for managing the Community Liaison Committee and Community Feedback Mechanism. Reports to Mine Manager.

Position	Responsibility
Environmental Monitors	Environmental Monitors (includes Environmental Specialists and Technicians) are responsible for tracking and reporting on environmental permit obligations through field based monitoring programs. Report to EM.
Aboriginal Monitors	Aboriginal Monitors are required by EAC #M19-01 Condition 17 and will be responsible for monitoring the Project's potential effects on Aboriginal interests. Aboriginal Monitors will be involved in adaptive management and follow-up monitoring programs.
Employees and Contractors	Employees are responsible for being aware of permit requirements specific to their roles and responsibilities. Report to departmental managers.
Qualified Professionals and Qualified Persons	Qualified professionals and qualified persons will be retained to review objectives and conduct various aspects of environmental and social monitoring as specified in EMPs and social MPs.

BW Gold will employ a qualified person as EM who will ensure that throughout the Construction phase (including the construction of the TL), the EMS requirements are established, implemented and maintained, and that environmental performance is reported to management for review and action. The EM is responsible for retaining the services of qualified persons or qualified professionals with specific scientific or engineering expertise to provide direction and management advice in their areas of specialization. The EM will be supported by a staff of Environmental Monitors that will include Environmental Specialists and Technicians and a consulting team of subject matter experts in the fields of environmental science and engineering. In accordance with EAC Condition 29 a), the development and implementation of sediment and erosion control prescriptions for all transmission line construction and maintenance works must be prepared by a Qualified Professional who is also a Certified Professional in Erosion and Sediment Control (CPESC).

During the Construction phase, the EPC or EPCM contractor and subcontractors, will report to the CM. The EPC or EPCM contractor will be responsible for ensuring that impacts are minimized, and environmental obligations are met during the Construction phase. For non-EPCM contractors, who will perform some of the minor works on site, the same reporting structure, requirements, and responsibilities will be established as outlined above. BW Gold will maintain overall responsibility for management of the construction and operation of the mine site and will therefore be responsible for establishing employment and contract agreements, communicating environmental requirements, and conducting periodic reviews of performance against stated requirements.

The CM is accountable for ensuring that environmental and regulatory commitments/obligations are being met during the construction phase. The EM will be responsible for ensuring that construction activities are proceeding in accordance with the objectives of the EMS and associated MPs. The EM or designate will be responsible for reporting non-compliance to the CM, and EPC or EPCM contractor, other contractors, the Company and regulatory agencies, where required. The EM or designate will have the authority to stop any construction activity that is deemed to pose a risk to the environment; work will only proceed when the identified risk has been addressed and concerns rectified.

Environmental management during operation of the Project will be integrated under the direction of the EM, who will liaise closely with Departmental Managers and will report directly to the Mine Manager. The EM will be supported by the VP of Environment and Social Responsibility in order to provide an effective and integrated approach to environmental management and ensure adherence to corporate environmental standards. The EM will be accountable for implementing the approved MPs and reviewing them periodically for effectiveness. Departmental Managers (e.g., mining, milling, and plant/site services) will be directly responsible for implementation of the EMS and MPs/standard operating procedures) relevant to their areas. It is expected that during operations of the project that the operations, inspection,

and maintenance/repair of the TL will fall under the Mine Site Services Department, with some of the services being assigned to qualified consultants and contractors. All employees and contractors are responsible for daily implementation of the practices and policies contained in the EMS.

During closure and post-closure staffing levels will be reduced to align with the level of activity associated with these phases. Prior to initiating closure activities, BW Gold will revisit environmental and health and safety roles and responsibilities to ensure the site is adequately resourced to meet permit monitoring and reporting requirements. The Mine Manager will have overall responsibility for Closure and Post-closure activities.

Pursuant to Condition 19 of the EAC, BW Gold has established an Environmental Monitoring Committee to facilitate information sharing and provide advice on the development and operation of the Project, and the implementation of EAC conditions, in a coordinated and collaborative manner. Committee members include representatives of the Environmental Assessment Office (EAO), UFN, LDN, NWFN, StFN, SFN, NFN, Ministry of Energy, Mines and Low Carbon Innovation (EMLI), ENV Ministry of Environment and Climate Change Strategy (ENV) and Ministry of Forests, Lands, Natural Resource Operations and Rural Development.

Pursuant to Condition 17 of the EAC, Aboriginal Group Monitor and Monitoring Plan, BW Gold will retain or provide funding to retain a monitor for each Aboriginal Group prior to commencing construction of the transmission line and during the transmission line's active maintenance activities and decommissioning. The general scope of the monitor's activities will be related to monitoring for potential effects from the Project on the Aboriginal Group's Aboriginal interests.

The TL EPC or EPCM contractor roles and responsibilities relating to environmental management, industrial and domestic waste management, and environmental protection are identified below in Table 3-2.

Table 3-2: Transmission Line Construction Contractor Roles and Responsibilities

Role	Responsibility
Contractor Construction Manager (CCM)	The Contractor Construction Manager (CCM) has ultimate responsibility for construction proceedings, including worker and public health and safety and environmental protection. The CCM will ensure the implementation of training programs as well as support the Blackwater Gold Environmental Policy. The CCM will ensure that adequate support and resources are made available for the implementation and maintenance of the Environmental Management System (EMS), including the management plan implementation and review. The CCM may, as needed, delegate their duties to Qualified Professional (QPs). Report to the BW Gold Construction Manager.
Contractor Construction Superintendents	The Contractor Construction Superintendents have an administrative responsibility and requirement to act upon the directions, guidance, and support of the Construction Manager. They are resources to the CCM, and have the following responsibilities: <ul style="list-style-type: none"> ■ Support the implementation of the Blackwater Gold Environmental Policy; ■ Ensure that environmental matters are given consideration in pre-planning of construction activities, budgets, training, and operations; and ■ Ensure that workers under their supervision are made aware of known, or reasonably foreseeable, environmental aspects where they work.

Role	Responsibility
Construction Employees, Contractors, and Sub-Contractors	<p>Employees have general responsibilities for environmental protection, which include:</p> <ul style="list-style-type: none">■ Supporting the Blackwater Gold Environmental Policy;■ Supporting implementation of EMPs;■ Cooperating with the Blackwater Environment Committee representative(s);■ Learning and following environmental best practices and procedures relevant to their work;■ Following instructions and directives given by supervisors;■ Operating equipment in an environmentally responsible manner to avoid environmental impacts;■ If training another worker, ensuring that they are properly completing all required tasks and responsibilities in accordance with environmental best practices procedures;■ Reporting all environmental incidents immediately to their supervisor, who will expedite a response to address the incident;■ Participating in mitigating or minimizing harm to the environment should an environmental incident occur; and■ Asking for help or information when unsure how to perform a task without compromising social, cultural, archaeological, or environmental values.

4. COMPLIANCE OBLIGATIONS, GUIDELINES, AND BEST MANAGEMENT PRACTICES

4.1 Legislation

Federal legislation pertinent to water management includes:

- *Canadian Environmental Protection Act, 1999;*
- *Fisheries Act;*
- *Impact Assessment Act;*
- *Federal Policy on Wetland Conservation;*
- *United Nations Declaration on the Rights of Indigenous Peoples Act.*

Provincial legislation pertinent to water management includes:

- *BC Environmental Management Act;*
- *Environmental Assessment Act;*
- *Environmental Management Act;*
- *Mines Act -Health, Safety and Reclamation Code for Mines in BC;*
- *Forest Practices Code of British Columbia;* and
- *Water Sustainability Act.*

4.2 Environmental Assessment Certificate and Decision Statement Conditions

EAC Condition 13 requires the development of a Construction Environmental Management Plan (CEMP) which must address erosion and sediment control. The TL SEPSCP, herein, forms an important component of the Transmission Line CEMP as it relates to the development and implementation of ESC measures.

Similarly, Condition 29 of the EAC requires the development of a Transmission Line Sedimentation Monitoring Plan that takes into consideration the application of Yinka Dene 'Uza'hne – Water Law (YDU-WL) in the development and implementation of steps and procedures that are to be followed during the construction, operations, and closure of the Transmission Line. To address Condition 29, a separate but related document, entitled *Transmission Line Sedimentation Monitoring Plan – Framework and Guidelines* (TL SMP-FG) was prepared by Ecologic Environmental Consultants Ltd. (EcoLogic 2022). Throughout this TL SEPSCP, references are made to the TL SMP-FG. The TL SEPSCP and the SMP-FG are related and non-conflicting documents that support each other in the successful implementation of Condition 29. Section 3.3.1 of EcoLogic (2022) provides the draft guidelines and framework for YDU-WL.

Reference is made to ESC in Condition 3.1 in federal DS which states:

“The Proponent shall implement measures to control erosion and sedimentation within the Designated Project area to avoid the deposit of deleterious substances in water frequented by fish. The Proponent shall submit these measures to the Agency and to Indigenous groups before implementing them.”

Section 7 of the SEPSCP addresses this federal DS condition.

4.3 Guidelines and Best Management Practices

Best management practice (BMP) guidelines, industry standards, and other documents used to develop this document include, but are not limited to:

- Developing a Mining Erosion and Sediment Control Plan (BC MOE 2015);
- Health, Safety, and Reclamation Code for Mines in British Columbia (BC MEM 2021);
- BC Field Sampling Manual (BC MOE 2013);
- Standards and Best Practices for Instream Works (BC WLAP 2004);
- Land Development Guidelines for the Protection of Aquatic Habitat (Chilibeck et al. 1993); Manual of Control of Erosion and Shallow Slope Movement (Coulter et al. 1997);
- Freshwater Intake End-of-Pipe Fish Screen Guideline (DFO 1995);
- Erosion and Sediment Control Practices for Forest Roads and Stream Crossings a Practical Operations Guide (Gillis 2007);
- Natural Processes: The Application of Natural Systems for the Reclamation of Drastically Disturbed Sites (Polster 2009);
- Erosion and Sediment Control (VOI 2005);
- Alberta Transportation (AT) - Erosion and Sediment Control Manual (AT 2011);
- Forest Practices Codes Fish Stream Crossing Guide (BC MFLNRO, BC MOE and DFO 2012); and
- Field Guide to Noxious and Other Selected Invasive Plants of British Columbia (Ralph et al. 2014).

The reader is also referred to EcoLogic (2022) Section 3.6 for additional YDU-WL considerations (e.g., Engineering with Nature).

5. SUPPORT

5.1 Training and Education

All staff will attend site orientation where the contents, requirements and commitments made in this plan will be communicated. Staff will be adequately trained for their roles to implement this plan and will be aware of BW Gold's commitments to uphold this plan. Training will cover measures to mitigate effects on ecosystems, soils, vegetation, and aquatic systems, and will emphasize the importance of following and implementing the TL SEPSCP. The project QP-CPESC for ESC will be responsible for reviewing the training program to ensure that it meets or exceeds requirements.

Employee education and outreach on surface erosion prevention and sediment control will be supported by:

- Development and delivery of educational material to site personnel; and
- Maintaining updated information related to surface erosion prevention and sediment control at Blackwater in a location available to employees.

5.2 Internal and External Communication

Observations related to surface erosion prevention and sediment control will be:

- Reported by construction staff to their supervisors;
- Documented in an Observation Logbook to be kept and maintained by the site QP-CPESC for ESC on behalf of the Contract Construction Manager; and
- Independent Environmental Monitor site visits and documented inspections
- Reported at least monthly by the Contract Construction Manager to the BW Gold EM on the content of the Observation Logbook. More frequent reporting may be required at the request of the BW Gold EM.

Refer to EcoLogic (2022) Section 3.8 Reporting Requirements which provides some additional communication requirements as required under the YDWL.

6. IMPLEMENTATION MEASURES

6.1 General Approach

The TL SEPSCP, herein, is focused on the use of source control measures to prevent sediment from getting entrained in surface water runoff, and the use of erosion and sediment control (ESC) measures to manage surface water affected by construction activities. In addition, ESC measures, where required, have been designated downgradient of construction grading activities.

The ESC measures outlined in Table 6.1-1 have been selected for general application during construction of the major components of the TL construction. Selected mitigation measures may be applied individually or combined to arrive at the required level of ESC. For higher risk and higher consequence works, a multi-barrier approach may be utilized, in which a combination of ESC measures are installed in series to reduce potential for sediment transport. Adaptive selection in the field will be dependent on observed site conditions, schedule, and weather.

The project QP-CPESC for ESC will be responsible for overseeing the contractor's implementation of the ESC measures and commitments, which includes supervision, monitoring, reporting, orientation, education and training. The project QP-CPESC holds the primary responsibility for the types of ESC measures being implemented, for verification of satisfactory completion, and regular reporting to the Independent Environmental Monitor (IEM). The IEM will also conduct scheduled inspections that will be integrated into the ESC program.

BW Gold will invite Aboriginal Groups' monitors and, if available, arrange for the Aboriginal Groups' monitors to be present during TL construction and maintenance activities where site-specific ESC measures and prescriptions are being planned and implemented. The TL SEPSCP and related TL SMP-FG and revisions must be implemented to the satisfaction of the site QP-CPESC for ESC throughout the TL construction and maintenance activities, and to the satisfaction of the EAO and EMLI.

Table 6.1-2 provides products and methodologies to be employed when construction work activities require ESC.

6.1.1 *Environmental Protection Measures*

The TL SEPSCP supports the application of the environmental protection measures described below. These measures are consistent with those presented EcoLogic (2022). Section 3.4 (ESC Prescription and Compliance Requirements).

6.1.1.1 *Timing of Works*

- Clearing activities will be planned to coincide with periods of drier weather.
- Avoid soil handling or equipment movement during periods of intense rainfall (saturated soil conditions).
- Clearing activities will be completed as quickly as possible by ensuring all necessary equipment and materials are onsite and ready for installation to minimize the duration of disturbance activities.
- Work in and about a stream will occur outside of the critical fishery sensitive windows unless a timing variance is authorized.

6.1.1.2 *Avoiding and Minimizing Effects*

- The construction footprint will be minimized to the smallest area required for access, laydown, and construction.
- Avoid the introduction of invasive plants by adhering to the Invasive Plant Management Plan.

Table 6.1-1: Work Activity, Potential Erosion Hazard and Associated ESC Measures

Type of Work	Potential Hazard	ESC Measures (Best Management Practices)
Site Preparation (vegetation clearing and grubbing)	<ul style="list-style-type: none"> Disturbance of vegetation 	<ul style="list-style-type: none"> Disturbed areas will be re-seeded and/or re-vegetated as soon as possible with approved species as prescribed
Disturbed soils (grading, cut and fill, digging, boring, accessing construction site)	<ul style="list-style-type: none"> Splash, sheet, rill and wind erosion, and sediment transport off-site 	<ul style="list-style-type: none"> Limit size of disturbed area. Minimize time of exposure of disturbed soils. Runoff to be directed away from exposed soil surfaces, when practical. Areas of exposed soil will be covered and re-vegetated as soon as possible following construction or before winter shut down in preparation for freshet. Isolate areas of disturbance using fibre roll log or silt fence when needed to prevent sediment laden waters from entering watercourse. Install downgradient sediment traps to capture runoff and allow settling. Work will stop or be redirected to accommodate heavy rainfall event when the site shows signs of deterioration. ESC measures will be inspected regularly and checked after rain/wind events and repaired as required. The structures will be cleaned out when sediment has accumulated.
Ditch Construction	<ul style="list-style-type: none"> Rill and gully erosion, and sediment transport off-site 	<ul style="list-style-type: none"> Construct any ditches, water bars, or water diversions within the work area so they do not directly discharge sediment-laden surface flows into the stream. Divert such flows to a vegetated area where flows can slowly infiltrate.

Table 6.1-2: Erosion and Sediment Control Product and Methodology List

Product	Components	General Description	Potential Uses
Silt Fence	Woven Geotextile / stakes	Preassembled woven geotextile mounted to 4 foot stakes.	Toe of slope stockpiles or berms containing exposed soils. Downgradient of exposed soil on slopes where rainfall could entrain and transport sediment.
Rock Check Dams	75-300 mm diameter, clean pit run rock	Non-woven geotextile required for core.	Installed in drainage ditches to slow velocity of water and allow entrained sediment to settle upstream of the check dam.
Triangular Silt Control Dyke	Bought pre-fabricated	Triangular foam wrapped in geotextile filter fabric. Typically sold in 7' lengths.	Same purpose as a rock check dam but requires less equipment for placement. Requires more maintenance than rock check dams.

Product	Components	General Description	Potential Uses
Coir Logs	30 cm Diameter 20 cm Diameter	Log manufactured from coconut fibres which is staked into the ground.	Same purpose as a silt fence. Requires embedment to minimize ground disturbance. Larger diameter logs should be used to protect ecologically sensitive areas, or to provide basic filtration of water draining from larger areas of exposed soil.
Rock Filter Bags	Bags of rock	Filter bags filled with clean 50mm rock.	May be used as a barrier, to secure silt fence and geotextile.
Seed	Approved seed mix	Seed areas once disturbance is complete to reduce potential for future erosion.	Exposed soil at final grade, or where area will be left for longer than 30 days.
	As specified in design drawings, construction specifications or RCP	Permanent seed to be applied once areas are to final grade.	<p>Areas in which construction has been completed should be seeded with a permanent native seed mix.</p> <p>The proposed seed mix (or similarly commercially available) will be comprised of the following species or equivalent:</p> <ul style="list-style-type: none"> ■ Slender wheatgrass (<i>Elymus trachycaulus</i>); ■ Rocky mountain fescue (<i>Festuca saximontana</i>); ■ Tufted hairgrass (<i>Deschampsia caespitosa</i>); and ■ Northern sweetvetch (<i>Hedysarum boreale</i>). <p>The purpose of temporary seeding is to stabilize the soil and reduce damage from wind and/or water until permanent stabilization is accomplished. Seeding is applicable to areas that are exposed and subject to erosion for more than 30 days, and is usually accompanied by surface preparation, fertilizer, and mulch; however, the timing of seeding is weather and season dependent and consequently this method is not applicable at all times. Temporary seeding may be accomplished by hand or mechanical methods, or by hydraulic application (hydroseeding), which incorporates seed, water, fertilizer, and mulch into a homogeneous mixture (slurry) that is sprayed onto the soil. Selection of seeding methods will be site-specific: hand seeding will be used in small areas that are difficult to reach with equipment and hydroseeding will be used on steep slopes (>2:1) that are highly susceptible to erosion. Fertilizers and hydroseeding containing fertilizers will not be used near watercourses (within 30 m of the top of bank).</p>

Product	Components	General Description	Potential Uses
Erosion Control Blanket	Rolled erosion control blanket (Coir or Straw)	Erosion control blanket made of either coir or straw materials and provided in a roll which can be rolled out to cover exposed soil.	Slopes can be stabilized with erosion control blanket to minimize erosion. Also used in channels which will be exposed to water flow before vegetation establishment.
Riprap	Class 1 and 2 Riprap	As per Technical Specifications.	Steep slopes can be immediately stabilized with riprap to minimize erosion and ensure long-term stability.
Clean Gravel	25 mm washed gravel	Washed gravel.	Used for construction of berms, winter installation of silt fence, temporary cover, etc.
Geotextile	Class I Non-Woven	Class I Non-Woven Geotextile, (OPSS 1860) – 2 m wide roll.	Used for lining rock check dams.
Silt Bags	3.5 x 5 m	Non-woven geotextile.	End of pipe sediment control.
Turbidity Curtain	50' x 6' curtain with floats	50' lengths typical, with 6' deep panels.	Used within ponds, lakes, or streams to isolate work area from other water.

6.1.1.3 Sediment and Erosion Control Measures

- Excavated soils will be stockpiled within the area approved for Project use and at least 15 m away from any drainage features, drains, ditches, and 30 metres from any waterbody or water course.
- Ensure any sediment mobilization resulting from soil stockpiling or tracking from equipment/vehicles is cleaned up in a timely manner.
- Effective erosion and sediment control measures shall be installed before commencing construction to reduce the potential for introduction of sediment into any surface water feature (i.e., stream, pond, wetland, drain, or ditch) or watercourses in accordance with Land Development Guidelines for the Protection of Aquatic Habitat (Fisheries and Oceans Canada 1993) and Standards and Best Practices for Instream Works (BC Ministry of Environment 2004), unless otherwise specified.
- Contingency supplies of sediment and erosion control materials shall be maintained on site and workers shall be sufficiently trained in their appropriate installation and maintenance.
- Sediment and erosion control measures shall be:
 - inspected regularly at a frequency commensurate with the risk, nature, location, and seasonality of the work and adapted or revised, as appropriate;
 - repaired as necessary in a timely manner, commensurate with the risk, nature, location, and seasonality of the work; and
 - maintained until construction is completed and the affected areas are sufficiently stabilized and re-vegetated so there is minimal risk of erosion or sedimentation at the site because of construction activities.
- Erosion and sediment control structures (e.g., straw bales, vegetation matting) shall be certified weed free where practicable.
- Control runoff and manage stormwater (for example rainfall or snow melt) and direct it away from construction areas where excavation, spoil placement, and staging activities occur.

- Ensure all natural drainage features in the construction area are protected from the release or inflow of sediment-laden water related to the activities.

6.1.1.4 *Fish and Aquatic – Habitat Alteration, Disturbance, or Loss*

- Ensure that no impacts (direct or indirect) occur to the riparian community around the watercourses or their riparian and instream habitat's form and function unless a *Water Sustainability Act* notification/authorization or related federal authorization has been obtained. All conditions must be complied with.
- No debris, soil or other deleterious material resulting from construction-related activities will be allowed to enter watercourses or wetlands. Any debris inadvertently introduced into watercourses will be removed and reported to the Construction Manager.
- When working during periods of heavy and/or prolonged rainfall, isolate the area of work and install appropriate sediment controls to prevent the release of sediment-laden water or any other deleterious substances into surface water.
- During construction conducted close to any watercourse, waterbody, or wetland, ensure materials are not pushed, allowed to fall, or eroded into the water or wetlands.
- Operate machinery on land above the high-water mark to minimize disturbance to the banks and bed of any watercourse or waterbody.
- Do not remove coarse woody debris from any waterbodies.

6.2 Surface Water Infrastructure to Minimize Erosion and Control Sediment

6.2.1 *Surface Runoff Management*

Natural topography and water management structures erected during the construction period (runoff collection ditches, diversion ditches and sediment ponds), will either divert non-contact water away from the worksite or direct construction-related contact surface runoff into a stabilized area where it can be effectively managed. There are 2 types of construction-related water as follows:

1. Non-contact water that can run-off directly to the receiving environment with no treatment required.
2. Contact water that only requires treatment for sediments.

6.2.1.1 *Freshwater Diversion Ditches*

A diversion ditch is a channel lined with vegetation, riprap, or other flexible material designed for the conveyance and management of non-contact surface runoff to a receiving system without causing erosion.

6.2.1.2 *Contact Water Collection Ditches*

A runoff collection ditch intercepts construction water runoff and diverts it to a stabilized area where it can be effectively managed. Collection ditches are used within applicable areas to collect runoff and convey it to appropriate sediment control measures. General locations and conditions may include:

- Below disturbed existing slopes to divert sediment-laden water to control facilities;
- At or near the perimeter of the construction area to prevent sediment-laden runoff from leaving the site; and
- Below disturbed areas before stabilization to prevent erosion.

Collection ditches will be temporary structures and will convey the runoff from the area to sediment ponds.

6.2.1.3 *Sediment Ponds*

Sediment ponds are for reducing sediment loadings when other erosion control or sediment control methods are insufficient. Sediment pond design and performance requires a large enough pond area to settle materials present, use of erosion control methods upslope of the pond, and assessment and determination of the need for settling aids.

6.2.2 *Work in and around Water*

The following are standard (typical) mitigation measures that shall be considered when preparing work procedures for working in or around water:

- Critical erosion control measures (e.g., silt fence, fibre roll log, erosion control blanket) must be in place and functional before, during, and after site construction operations have been completed. Typical details for these critical ESC measures are shown on Appendix A - Typical Cross Section Drawings. Table 6.1-2 includes potential Erosion and Sediment Control products for use.
- Concrete station, stockpiles, laydown, storage, pump discharge, and equipment maintenance area locations will be a minimum of 30 m from any watercourse or waterbody.
- If practicable, work will occur during the construction window of least risk for fish bearing watercourses.

The reader should also refer to EcoLogic (2022), Section 3.6.5 (Work In and Around Water: Stream Crossings) for additional information.

6.2.3 *Phasing of Construction and Intended Sequence of Major Activities*

A preliminary construction phasing list to be considered when planning construction activities for the transmission line includes the items listed below:

1. Identify applicable cut/fill phasing of grading activities. The Contractor will work to establish a grading plan so that tree clearing, and vegetation removal is done in segments/reaches so that large areas are not cleared without the provision of adequate erosion and sediment control measures.
2. Install strategic ESC measures (fibre roll logs, silt fence and erosion control blankets) downgradient of active construction work areas, where required.
3. Construct temporary diversion and drainage swales to direct water to designated area(s) and stabilize as required.
4. If spoil stockpiles near open waterbodies are intended to remain in place longer than 48 hours, the stockpile soil will be covered with appropriate materials to prevent erosion and or dust formation.
5. Once the conveyance ditches are completed and commissioned, all temporary bypass flows will be re-directed to convey surface water to newly constructed conveyance ditches.
6. Monitor and remove accumulated sediment from traps and temporary measures before the design capacity has been reduced by 50%.
7. Following heavy rainfall events ESC measures will be inspected to ensure effectiveness and maintenance will be conducted as required as per Table 7-1: Incident Monitoring Triggers and Actions in Section 7.

The reader should also refer to EcoLogic (2022), Section 3.4.2 (Prescriptions for monitoring specific waterbodies (in accordance with YDWL).

6.3 Operations

6.3.1 General Approach to Natural Recovery Processes

Understanding critical steps in the natural recovery process can assist in the identification of site-specific prescriptions for surface erosion and can provide direction for the most applicable techniques for overcoming the obstacles to disturbance recovery. The key is to identify the factors preventing natural recovery and tailor mitigation strategies to address these factors in a manner like what would occur naturally in the long-term (Polster, 2009). Natural recovery and engineering with nature are also discussed in EcoLogic (2022, Section 3.6.1).

Some of the most basic processes of primary succession, as noted by Bradshaw (2000) are: (1) immigration and establishment of appropriate species, which can be improved by strategically planting species to minimize dispersion distances and prepare the growing surfaces to assist in germination success, (2) stabilization and accumulation of fine-textured soil, which may be accomplished by applying growth media and large woody debris to coarse ground, and (3) soil nitrogen accumulation, which can be assisted by planting nitrogen-fixing species.

Appropriate efforts made during the planning stage to address the processes described above can reduce both the application and maintenance costs of erosion control. Erosion control prescriptions suitable for specific disturbance areas can also enhance the natural recovery process. Table 6.3-1 indicates some limiting factors that may impede natural recovery, solutions that occur naturally to overcome these obstacles, and general options for strategies to enhance or induce natural solutions. Note that many of these principles overlap those of effective erosion prevention.

Table 6.3-1: List of Limiting Factors that Impede Natural Recovery Process

Obstacle	Natural Solution	Enhanced Solution
Steep slopes	Erosion occurs until slopes are stable; pockets of growth in areas of collected organic matter	Recontour slopes; strategically select locations for planting; bioengineering techniques
Rapid erosion	Rough and loose surfaces; large woody debris; vegetative covers that minimize erosion	Mechanically roughen up surfaces, apply large woody debris, select species mixes for quick establishment and effective ground cover
Compaction	Vegetation and weathering promotes compaction	Mechanically roughen up surfaces
Moisture deficit	Weathering to small particle sizes	Apply growth media and/or mulch
Nutrient deficiency	Nitrogen fixing pioneering species	Apply growth media and or mulch, select nutrient fixing species, fertilize
Lack of seed sources	Pioneering species with widely dispersed seed	Pocket planting to provide seed sources over large areas
Lack of micro-sites	Rough and loose surfaces	Mechanically roughen up surfaces

**Modified from Polster (2009).*

6.4 Reclamation

The approach to reclamation involves the principles of the ESC and natural processes described above. The primary techniques that will be applied are:

- Drainage Control and Protection of Watercourses;
- Overburden Application and Surface Preparation; and
- Re-vegetation.

Together, these techniques will address the key points of the overall reclamation approach. More specialized techniques will be required in some areas, to be determined on a site-specific basis. Fundamentally, all efforts will be made to prevent erosion using the best practices available, while the need for sediment control techniques will be gradually eliminated unless necessary or for interim requirements.

Drainage within the disturbed areas will maintain natural drainage patterns. This will be accomplished with appropriate contouring, removal of temporary diversion systems and sediment control features, and restoration of surface water channels.

6.4.1 *Drainage Control*

One strategy integral to the overall water management approach is to design drainage of the site to replicate natural conditions. Designing landforms that mimic pre-development or natural conditions in the watersheds helps stabilize soil, prevent erosion, and prevent introduction of sediment to the aquatic environment. Drainage control practices will include ditching, grass-lined ditches, cross drains, and diversion dikes.

6.4.2 *Overburden Application and Surface Preparation*

All sites to be re-vegetated will require surface preparation to provide suitable conditions for seeding or transplanting. (IVMP) The most significant strategy that stems from the reclamation philosophy described above is that of a rough and loose surface preparation. This technique draws from the basic principles of effective ESC and promotes development of sustainable vegetation. The process follows the steps of contouring to the desired landform shape and optimal drainage with the objective of minimizing slope length and gradient as much as possible, applying overburden or other fine-textured growth media to improve moisture content and nutrient availability, and mechanically disturbing the surface, leaving it rough and loose on the finest scale practical.

Plants require a growth medium of suitable texture and organic matter content that allows for root penetration, provides a suitable moisture regime, and contributes desirable nutrients. Salvaged overburden will be used to provide a growth medium during reclamation where practicable.

Disturbed surfaces will be mechanically decompacted where practical, providing significant benefits for erosion prevention, including the establishment of plant microsites, and fostering surface stabilization through re-vegetation.

Particular attention will be paid to the presence of invasive species within the project site during operation and during the closure and post closure phase. Invasive plant monitoring will be conducted in accordance with the Transmission Line Integrated Vegetation Management Plan.

6.5 Emergency Preparedness

To facilitate preparedness of possible emergency ESC incidents, the contractor will keep an inventory of ESC material accessible at work sites. The inventory will consist of but not limited to:

- Silt fence rolls with wooden stakes;
- Rolled erosion control products with staples;
- Floating turbidity curtain;
- Silt curtain;
- Fiber rolls;
- Stockpiles of boulder and clean sand; and
- Sand bags.

7. MONITORING

Condition 29 of the EAC requires the development of a TL specific Sedimentation Monitoring Plan focused on YDWL Class 1 Waterbodies as set out in Appendix 1 of the EAC and other waterbodies identified to be of cultural by other Aboriginal Groups during TL construction and maintenance activities. Section 6, provided herein, is meant to provide guidance and instruction for site personnel and contractors on sediment monitoring activities. The TL specific Sedimentation Monitoring Plan is intended to provide the framework for enhanced site-specific monitoring requirements for critical YDWL Class 1 Waterbodies. Refer to EcoLogic (2022), Section 3.4.2. Prescriptions for specific waterbodies.

Sampling plans and methods must be incorporated into Class 1 site prescriptions (based on the YDU-WL) as outlined in the TL SMP-FG document. The project QP-CPESC for ESC will be responsible for incorporating and implementing these site-specific monitoring plans.

In general, event-based sediment control effectiveness monitoring will be conducted at areas of concern during spring freshet and after large rainstorms and snowmelt events (refer to Table 7-1: Incident Monitoring Triggers and Actions). Regular inspections performed by qualified personnel will ensure that control measures are intact and functioning. Visual inspections of sediment control structures will include assessments of the structure's physical integrity and signs of accelerated erosion. Any damages to control measures or excess sediment build-up will be assessed and modified accordingly. Once disturbed areas are adequately re-vegetated to provide effective erosion control, inspection frequency will decrease.

7.1 Monitoring, Measurement, Analysis, and Evaluation

Erosion and sediment control elements will be inspected and maintained, with an emphasis on adaptive management to quickly evaluate and respond to changing conditions and requirements. Key measures will include:

- Assessing the performance of erosion and sediment control elements and systems; and
- Identifying and promptly addressing areas where maintenance, upgrades, modifications, or additional mitigation measures are necessary.

Visual inspection and assessments of water management elements and systems will be incorporated on an ongoing basis as part of general construction. On active work sites, these informal visual surveys will be augmented by formal, regularly scheduled inspections to be performed by environmental technicians at an appropriate frequency as dictated by site conditions and with oversight from the project QP-CPESC for ESC. In frozen conditions, formal inspection frequency may be reduced. The QP-CPESC or their designate will be empowered to issue Stop Work Orders as conditions indicate. This is discussed in EcoLogic (2022), Section 3.0.

Water management and erosion and sediment control elements will be regularly inspected and maintained. Maintenance procedures will include prompt attention to potential ditch or culvert blockage or failure, or outside seepage. Maintenance will also include routine removal of accumulated sediment from ditches and retention structures.

The project QP-CPESC or other designated person will be responsible for overseeing the erosion prevention and sediment control monitoring program, maintaining inspection and maintenance records, ensuring reporting of TSS data as required, and providing guidance on any changes or needs to the program.

Construction personnel will be required to report any potentially adverse incidents of erosion, structural, or function failure, culvert debris accumulation, or similar occurrences to the Construction Manager.

Table 7-1: Incident Monitoring Triggers and Actions

Roles	Trigger – Minor	Trigger – Moderate	Trigger – Major
<i>First person On the Scene (First Responders) will assess conditions to determine the initial Trigger to be applied.</i>	<i>Examples of Minor Triggers:</i> <ul style="list-style-type: none">■ Freshet Preparation.■ Old and non-active erosion events.■ Small Rills, non-active.■ Equipment required is as per normal activities for maintenance and minor repairs.■ Small, easily manageable erosion events.■ Standing water in non-designated areas.	<i>Examples of Moderate Triggers:</i> <ul style="list-style-type: none">■ Active ditch erosion.■ Existing Freshet Conditions.■ 24-hr storm events >44 mm rain precipitation (2-Year return period).■ Conditions that are active and have the potential to cause operational changes due to access restrictions or have potential for threats to infrastructure.■ Standing water in non-designated areas that have potential for mobility or interfere with operations.	<i>Examples of Major Triggers:</i> <ul style="list-style-type: none">■ Slopes with active gullies and erosion channels where large volumes of sediment including rock is entrained.■ Immediate threats to infrastructure.■ Major sedimentation threats to water bodies.■ 24-hr storm events >73 mm rain precipitation (10-Year return period).■ Prolonged heavy rainfall events > 3 days.■ Standing water in non-designated areas that have potential for mobility or interfere with operations in high risk/critical areas.
First Responder - first person on the scene who discovered the event. Project Engineer - personnel designated to perform inspections.	<ol style="list-style-type: none">1. Note areas where erosion event has occurred, notify Supervisor.2. If possible redirect flows or correct event immediately.3. Inspectors to note culverts that may be plugged and that may need attention to be ready for spring freshet flows.4. Investigate source of erosion event as necessary to prevent repeats or to reduce/remove potential for larger event.	<ol style="list-style-type: none">1. All Minor Response duties.2. Provide immediate actions/assistance as necessary to minimize negative effects of erosion event if safe to do so.3. Notify EPCM contractor of event including location, potential for damage, proximity to water body, and safety aspects.	<ol style="list-style-type: none">1. All Moderate Response duties.2. Prevent entry by non-essential personnel and maintain a safe distance.3. If safe to do so, minimize negative effects.4. Release the scene to Mine Rescue upon their arrival as necessary.
EPC Contractor	<ol style="list-style-type: none">1. Provide assistance to First Responder/Inspector as necessary.	<ol style="list-style-type: none">1. All Minor Response duties.2. Determine level of effort required to mitigate the hazard and repair the damage.3. Organize mitigations/repairs.4. Notify Environmental Manager, if associated with water bodies or in receiving environment.5. Notify Mine Manager if event associated inside the pit or with catch benches or with tailings storage facility.7. Notify department superintendent/superintendent as necessary.	<ol style="list-style-type: none">1. All Moderate Response duties.2. Depending on gravity of situation, initiate Mine Emergency Response Procedures.3. Ensure safety of the First Responder and safety of the crew by preventing non-essential personnel from entering area.4. Notify Engineering and Environmental Departments.5. Notify Project Engineer.
Environmental Monitor	<ol style="list-style-type: none">1. Schedule inspections and designate inspectors in fall periods for freshet readiness in spring.2. Share notes of inspections with EPC Contractor and Construction Manager as necessary.3. Review SEPSCP and revise as necessary.4. Ensure revisions are communicated to all affected departments.	<ol style="list-style-type: none">1. Respond to notifications for further inspection.2. If sedimentation into waterbody, perform up and downstream samples for water quality to determine compliance. Note: Full suite samples may be necessary.3. Direct environmental/erosion controls that may have to take place to mitigate impacts, reduce environmental hazard.4. Record event and mitigations for reporting purposes.	<ol style="list-style-type: none">1. All Moderate Response duties.2. Notify Environmental Manager3. Prepare for and assist in receiving environment investigations and impact assessments.
Construction Manager	<ol style="list-style-type: none">1. Schedule inspections and designate inspectors in fall periods for freshet readiness in spring.2. Share notes of inspections with Environment Monitor as necessary.	<ol style="list-style-type: none">1. Provide resources/guidance to event responders as necessary.2. Determine if outside agencies are required to provide assistance.3. Determine courses of action to prevent/mitigate damage to resources.	<ol style="list-style-type: none">1. All Moderate Response duties.2. Notify Environmental Manager.3. Notify Safety Lead.4. Notify Mine Manager.
Environmental Manager	<ol style="list-style-type: none">1. Duties as normal.	<ol style="list-style-type: none">1. Report event to external agencies, Indigenous groups as necessary.	<ol style="list-style-type: none">1. All Moderate Response duties.2. Provide recommendations to senior management on risks, mitigations and impacts.
Mine Manager	<ol style="list-style-type: none">1. Duties as normal.	<ol style="list-style-type: none">1. Duties as normal.	<ol style="list-style-type: none">1. Notify Corporate Executive as necessary.2. Ensure all necessary funding and resources are provided in an efficient manner.

7.1.1 Incident Monitoring

A TARP will also be implemented if signs of erosion are noted on site during the construction or active maintenance phases of the transmission line project. Three levels of qualitative triggers have been defined: examples of each trigger level and roles and responsibilities for the implementation of subsequent actions are summarized in Table 7-1: Incident Monitoring Triggers and Actions.

7.1.2 Total Suspended Solids Monitoring

Surface water TSS and turbidity monitoring will be implemented where identified in EAC Plan 29 as required or as otherwise determined during project activities by the project QP-CPESC.

7.1.3 Quality Assurance / Quality Control

Quality assurance/quality control (QA/QC) principles will follow those outlined in guidance documents throughout the field sample collection and laboratory analysis phases (BC MOE 2012; Environment Canada 2012c; Clark 2013). All water quality samples will be collected by qualified personnel using suitable sampling equipment. Samples will be collected in appropriate containers and transported and stored following accepted procedures. Chain-of-Custody forms will be used to track the samples and analyses will be conducted by an accredited laboratory.

The instrument used to measure turbidity samples on-site will be calibrated as per manufacturer recommendations to ensure QA/QC. A calibration log will be kept for each turbidity meter unit indicating last calibration and maintenance.

7.2 Nonconformity and Corrective Action

Water quality results will be compared against one or more relevant water quality guidelines. If the turbidity reading and TSS concentrations exceed the established limits, the BW EM will notify the Construction Manager. Additional mitigation measures will be implemented to reduce the sediment loading to the receiving environment if required to achieve levels that are acceptable for discharge.

During and after an exceedance event, additional turbidity samples will be taken at key locations. This is described in more detail in EAC Plan 29.

7.3 Incident Identification

Employees will be encouraged to report signs of erosion within the TL ROW. When signs of erosion are observed, the affected site will be addressed in a timely manner to minimize additional erosion by applying the appropriate erosion control techniques. The affected area will continue to be monitored until erosion has been controlled and is no longer a concern.

Environmental incidents caused by uncontrolled release of sediment will be communicated by the individual who detects an incident to their supervisor and to the BW Environmental Department. The project QP-CPESC for ESC will also be notified immediately and their expertise and guidance sought and followed to ensure compliance is re-established and maintained.

Key information that should be documented during an incident resulting from erosion or sediment release includes:

- Location, cause, and nature of the incident;
- Environmental or Project features affected (e.g., road, watercourse, forest land, infrastructure);
- Time, extent, and magnitude/quantity of material or area affected;

- Response and actions to control the incident;
- Any follow-up tasks required, mitigation/remediation/corrective actions, or additional sampling needs; and
- Photographs, GPS location, and a map may be included for clarification and understanding of proximity risks.

Notification and communication of identified incidents will be made within the Project team. Aboriginal Groups, outside agencies and other stakeholders will be notified based on reporting requirements outlined in the TL SMP-FG document and other agreements.

8. REPORTING AND RECORD KEEPING

8.1 Reporting

Erosion prevention and sediment control records will be maintained, including existing surface water management/treatment measures and assessment of their performance, repairs or mitigation activities undertaken, and a log of dated photographs. The reports will be kept in the Construction office or another designated area. The EM or Environmental Monitor(s) will prepare weekly (during the open water season e.g., April – October, monthly during the winter season) and monthly monitoring reports that will include the following information:

- Summaries of environmental monitoring (e.g., date and time of each sample, weather conditions) ;
- Sampling results (e.g., receiving water results compared to Maximum Allowable Increase levels for any works in and around water, instrument calibration records, etc.); and
- Documentation of all non-compliance instances, including the level of exceedance, the duration of exceedance, the mitigation measures taken, verification of the reporting of the exceedance and any related communications with regulators regarding the exceedance event, and future measures to be taken to avoid or control further exceedances.

Following completion of the construction activities, the EM or Environmental Monitor(s) will prepare a completion report that includes the following information specific to this SEPSCP:

- Maintenance activities;
- Inspection results;
- Assessment of the effectiveness of the BMPs based on the sampling results; and
- A brief description of ongoing activities at the site related to maintenance and monitoring of site areas.
- Reporting requirements in alignment with YDWL are provided in EcoLogic (2022), Section 3.8 Reporting Requirements.

8.2 Incident Reporting

Reports will be prepared for environmental incidents related to the TL SEPSCP that occur within the Construction area. Reports will be forwarded to government agencies as required by regulations and permits and to the IEM. Reports will also be forwarded on request to Aboriginal Groups based on established communication protocols. Based on the opinion of the QL or their designate, a Stop Work Order may be issued (refer to EcoLogic (2022), Section 3.0 Stop Work Orders.)

8.3 Record Keeping

Monitoring data will be entered into an electronic database and have quality control checks completed upon receipt of results. Data will be entered into a standard format that allows for data reporting and analyses. Data and data comparisons will be stored in a single file format for each type of survey or monitoring activity.

9. EVALUATION AND ADAPTIVE MANAGEMENT

9.1 Onsite Inspection and Plan Review

Inspection and maintenance are vital to the performance of erosion and sedimentation control measures; therefore, the success of the TL SEPSCP is dependent on monitoring of implemented BMPs.

The construction personnel / sub-contractors, project QP-CPESC for ESC, and IEM will inspect all erosion control measures weekly during spring freshet and monthly outside of freshet and in open water period, as well as after each significant runoff-producing rainfall event as per Table 7-1: Incident Monitoring Triggers and Actions. Silt fences, sediment traps/basins, ditches, culverts, and sediment control ponds will be visually inspected for the following:

- Excess sediment build-up;
- Structural/physical integrity; and
- Anticipated wear and tear.
- Sediment removal and proper disposal will be performed as required.

Once the ESC measures have been installed, their effectiveness will be monitored by the project QP-CPESC for ESC and the IEM and maintenance will be carried out, as necessary. All ESC measures will be inspected by the construction personnel / sub-contractors and/or project QP-CPESC for ESC and/or IEM before and after following heavy rainstorms or snowmelt events such as spring freshet during the Construction Phase. Immediate action will be taken by the construction personnel / sub-Contractors when the need for maintenance or repair of ESC measures is identified for the ongoing performance of the measures. Monitoring will include but not be limited to the following:

- New erosion control prescriptions will be developed, as needed based on encountered or anticipated erosion of disturbed soils, slopes, and ditches. Initial erosion will be inspected visually by searching for light surface material (litter or soil) movement, while sedimentation resulting from erosion will be determined by searching for deposition of soil particles at the bottom of slopes and depressions. Rilling, gullying, pedestalling, and unusual compaction are also indicators of erosion and will be recorded if and when observed.
- Sediment accumulation in ditches, check dams, and sumps will be identified, and maintenance actions will be recommended where needed.
- Revegetated areas will be monitored for evidence of wind and water erosion; remedial seeding and erosion-control measures will be applied when required.

The Environmental Manager together with the Contractor Construction Manager and the project QP-CPESC for ESC will modify the TL SEPSCP when necessary, to reflect changing site conditions or new information which has been identified during construction.

9.2 Continuous Improvement

The design of ESC measures should be viewed as a flexible process that responds to new information obtained throughout the Construction Phase. Contingency strategies for the Project will be active and adaptive, with ongoing inspection, maintenance, and re-evaluation for all BMP control measures and surrounding site conditions. If monitoring identifies that BMPs are not functioning adequately, the following steps will be taken:

- Confirm control measure/feature installed correctly.
- Assess appropriate size or length/depth of control method with site circumstances.

- Determine if alternate BMP/control method or contingency measures are required.
- Assess if increased maintenance/inspections required.

An inventory of ESC materials will be kept on site to address problems that may arise. The inventory list will be updated regularly to reflect a more accurate estimate of the quantities that should be stocked on site. The materials will provide a spectrum of measures to address a broad range of site conditions and severity.

Adaptive management enables a dynamic context for continually improving the management approach by adjusting the decision-making process with the learning from the field outcomes and updated information available. Adaptive management also promotes proactive measures that ensure that contingency plans will be in place and extra materials available before the beginning of any construction activity so that preventative or corrective responses are ready to be quickly implemented if needed.

As part of the adaptive management strategy, this document will be used as guidance for specific work tasks or procedure creation for activities during construction, operations and during reclamation phases of the Project.

10. PLAN REVISION

This Plan is a 'living document' and components of the plan may be reviewed over the life of the Project. This Plan will be reviewed annually as part of reporting. Any revisions will be implemented following review by stakeholders and an opportunity for response by BW Gold.

Notification and consultation related to modifications to TL SEPSCP will be communicated to the EMLI and Aboriginal Groups. Updated versions of the plan will be filed with EMLI and provided to the Aboriginal Groups.

11. QUALIFIED PROFESSIONALS

Under the direction of Allnorth Consultants Limited, this management plan has been prepared and reviewed the following QPs:

Prepared by:

Reviewed by:

Mike Padula
Project Manager

David Watt, R.P.F.
Registered Professional Forester

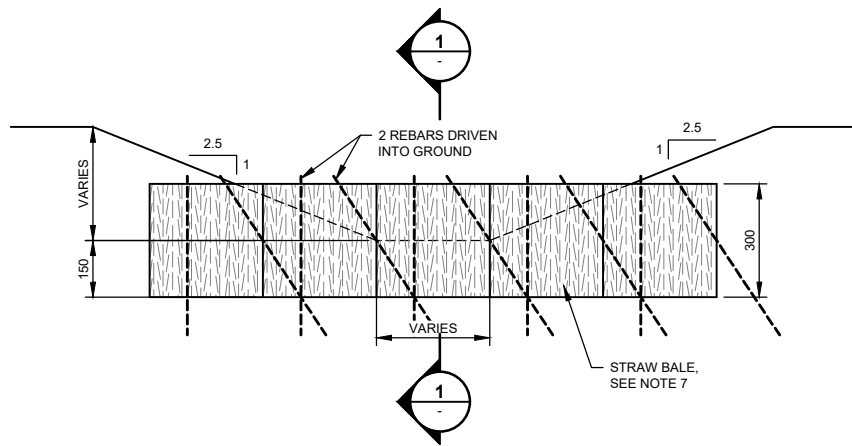
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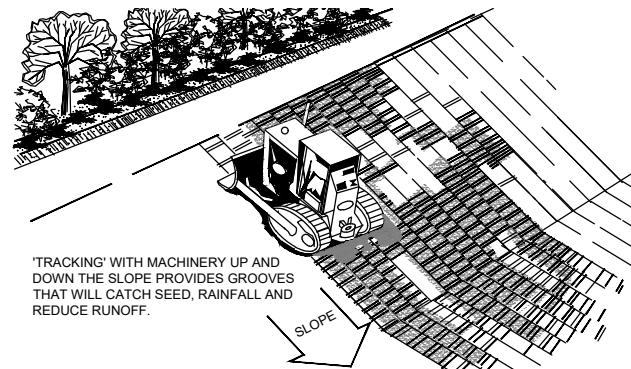
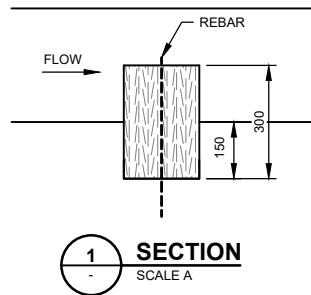
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APPENDIX A TYPICAL CROSS SECTION DRAWINGS

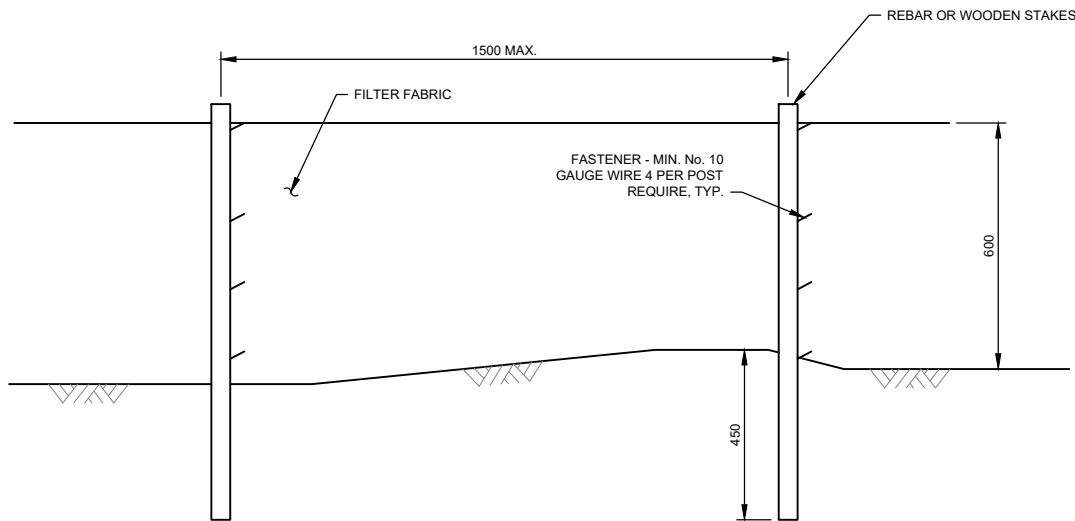
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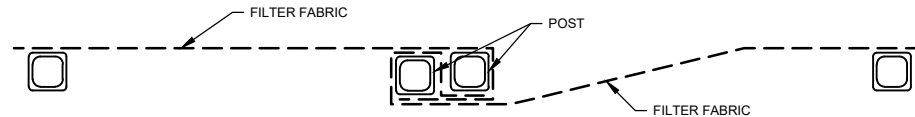
STRAW BALE ON CHANNEL
SCALE A



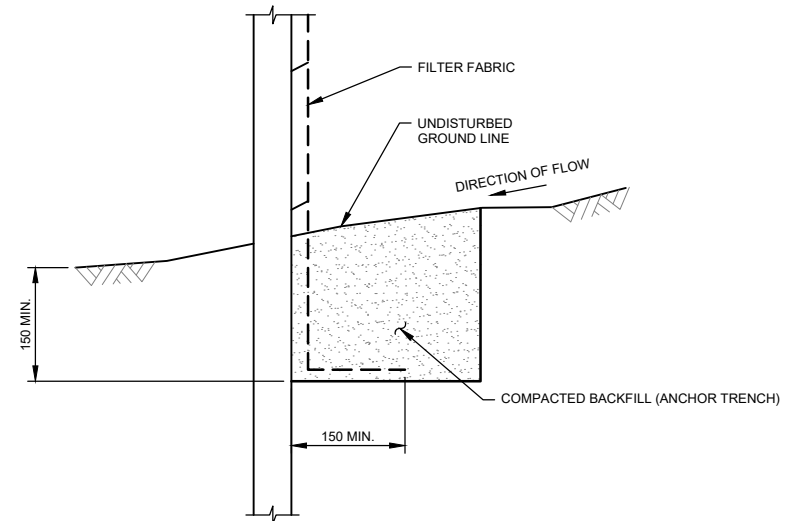
SLOPE ROUGHENING
NTS



SILT FENCING PROFILE
SCALE A



SILT FENCES ATTACHMENT
SCALE B

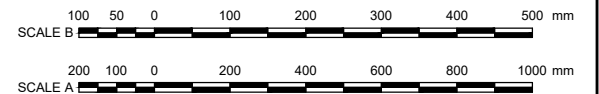


SILT FENCING - CROSS SECTION
SCALE B

NOTES :

1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS NOTED OTHERWISE.
2. BEST MANAGEMENT PRACTICES (BMP) FOR SEDIMENT AND EROSION CONTROL WILL BE APPLIED DURING CONSTRUCTION AND OPERATION OF COLLECTION CHANNELS AND SEDIMENT CONTROL POND.
3. FOUNDATION PREPARATION SHALL CONSIST OF REMOVAL OF VEGETATION, MUD, DEBRIS, AND SOFT AND DELETERIOUS MATERIAL.
4. ALL SEDIMENT AND EROSION CONTROL MEASURES MUST BE CONSTRUCTED, STABILIZED AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS.
5. SITE GRADING SURFACE WATER RUNOFF TO BE DIRECTED TO THE COLLECTION CHANNELS AT ALL TIMES DURING SITE DISTURBANCE ACTIVITIES UNTIL FINAL STABILIZATION IS ACHIEVED.
6. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL MEASURES PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
7. STRAW BALE SHALL BE IMPLEMENTED ON COLLECTION CHANNELS WHEN REQUIRED BY THE CONTRACTOR. TYPE OF CHANNELS MAY INCLUDE NON-CONTACT RUNOFF, CONTACT RUNOFF, ACCESS ROAD, PERMANENT AND TEMPORARY CHANNELS.

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BRITISH COLUMBIA
ENGINEER

**Knight Piesold
CONSULTING**

BW GOLD LTD.

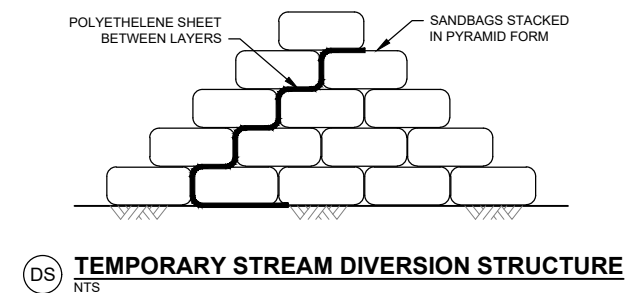
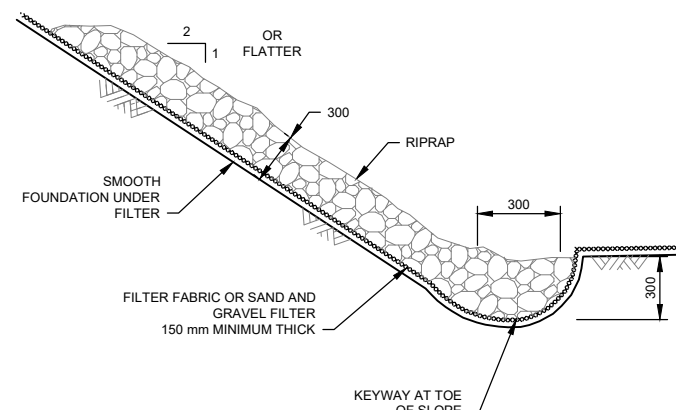
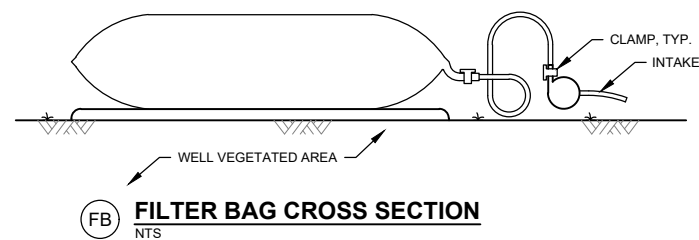
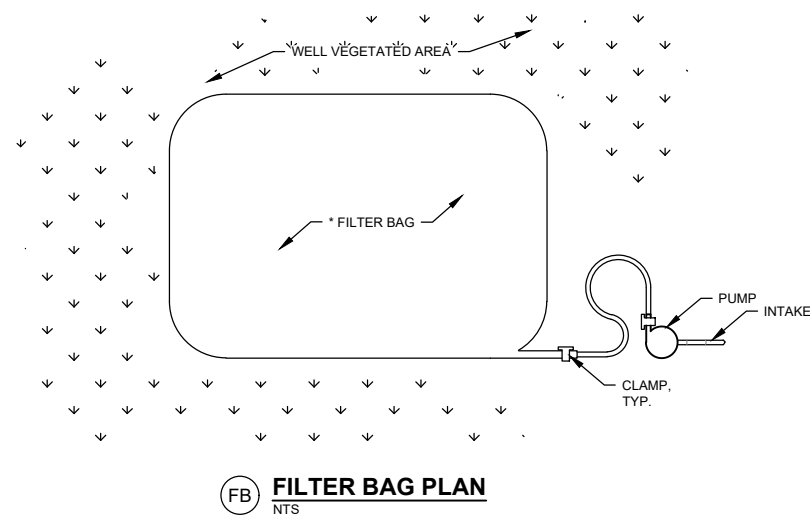
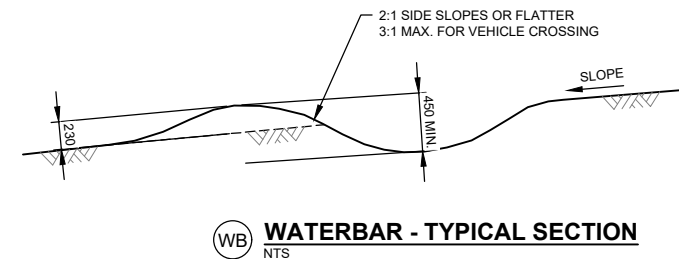
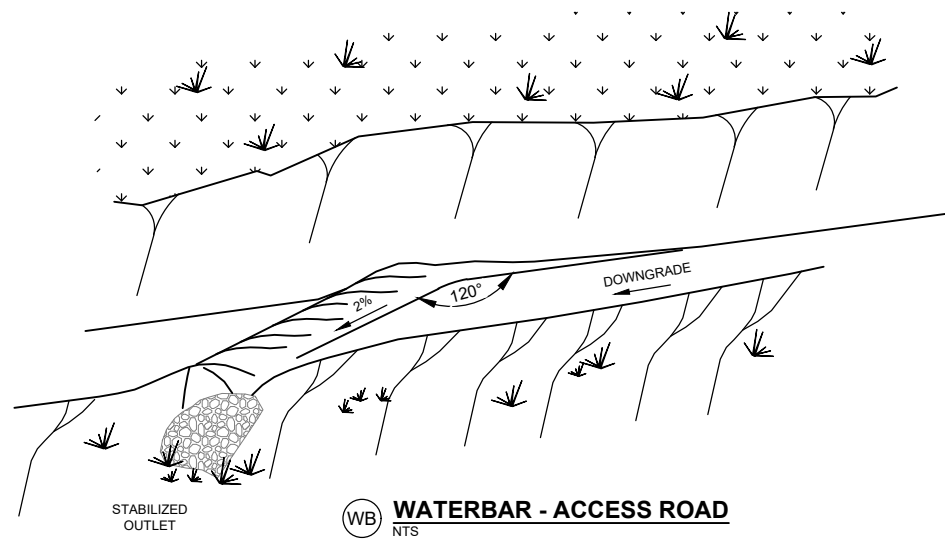
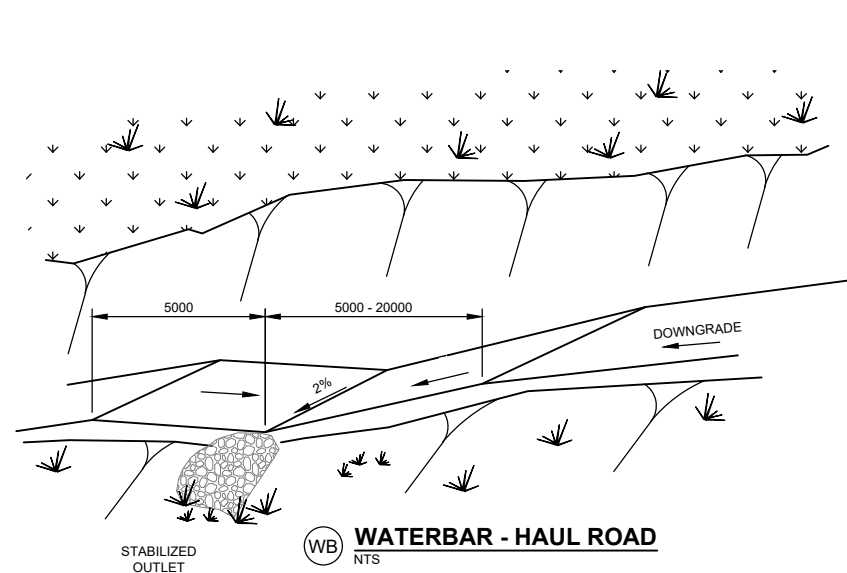
BLACKWATER GOLD PROJECT

**EROSION AND SEDIMENT CONTROL
TYPICAL SECTIONS AND DETAILS
SHEET 1**

PIA NO. **VA101-457/33** DRAWING NO. **C3801** REVISION **0**

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REFERENCE DRAWINGS					REVISIONS					REVISIONS			


2021-02-04



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- NOTES:**

1. ALL SEDIMENT AND EROSION CONTROL MEASURES MUST BE CONSTRUCTED, STABILIZED AND FUNCTIONAL BEFORE SITE DISTURBANCE BEGINS.
2. SURFACE WATER RUNOFF TO BE DIRECTED TO THE EROSION CONTROL BMPs AT ALL TIMES DURING SITE DISTURBANCE ACTIVITIES UNTIL FINAL STABILIZATION IS ACHIEVED.
3. THE CONTRACTOR SHALL INSPECT ALL EROSION CONTROL BMPs PERIODICALLY AND AFTER EACH RUNOFF-PRODUCING RAINFALL EVENT. ANY NECESSARY REPAIRS OR CLEANUP TO MAINTAIN THE EFFECTIVENESS OF THE EROSION CONTROL DEVICES SHALL BE MADE IMMEDIATELY.
4. AN AREA IS CONSIDERED TO HAVE ACHIEVED FINAL STABILIZATION WHEN IT HAS A MINIMUM UNIFORM 70% VEGETATIVE COVER OR OTHER PERMANENT NON-VEGETATIVE COVER TO RESIST ACCELERATED SURFACE EROSION.
5. DIVERSION STRUCTURE TO CONSIST OF SANDBAGS OR U-SHAPED METAL PLATE.

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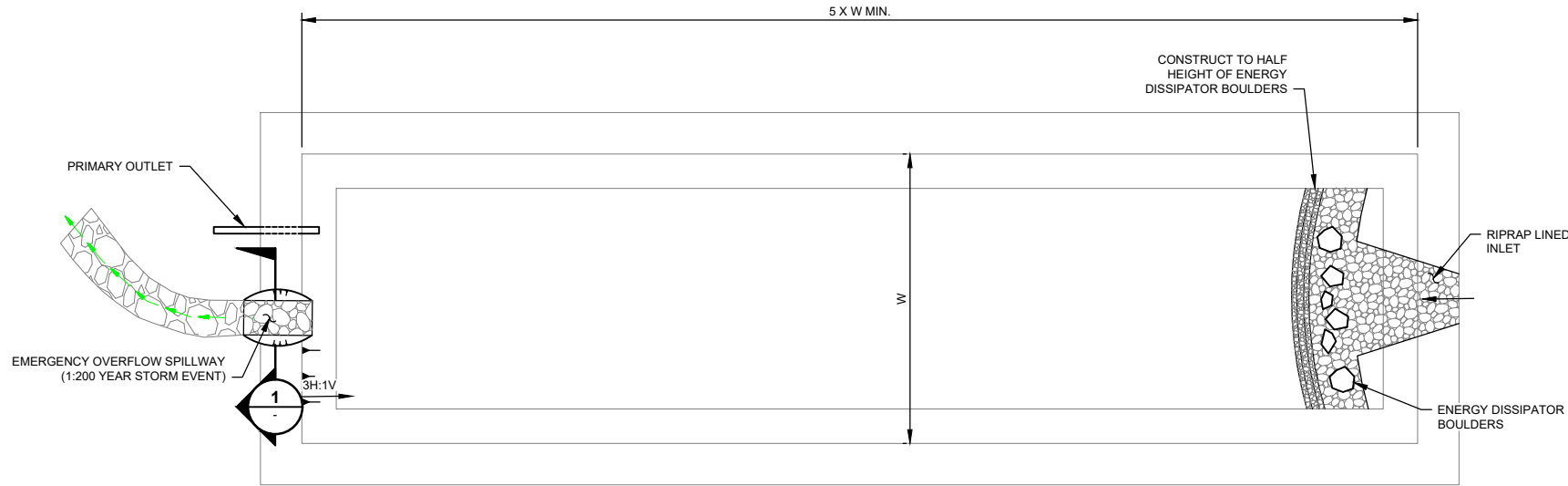
BLACKWATER GOLD PROJECT

EROSION AND SEDIMENT CONTROL TYPICAL SECTIONS AND DETAILS SHEET 2

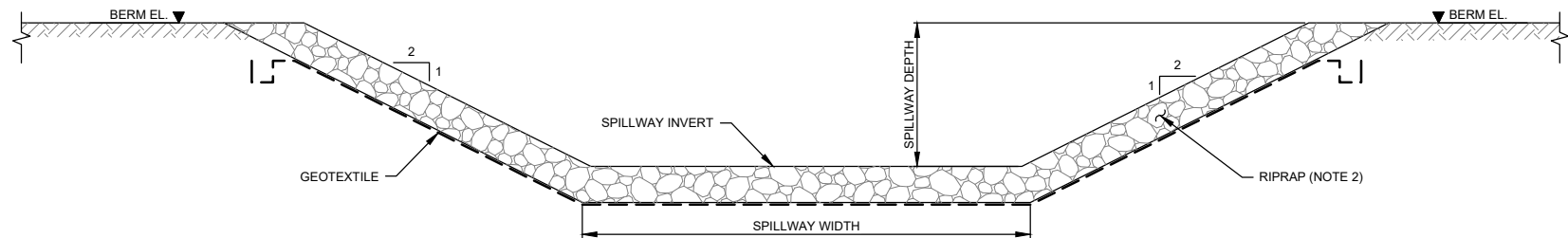
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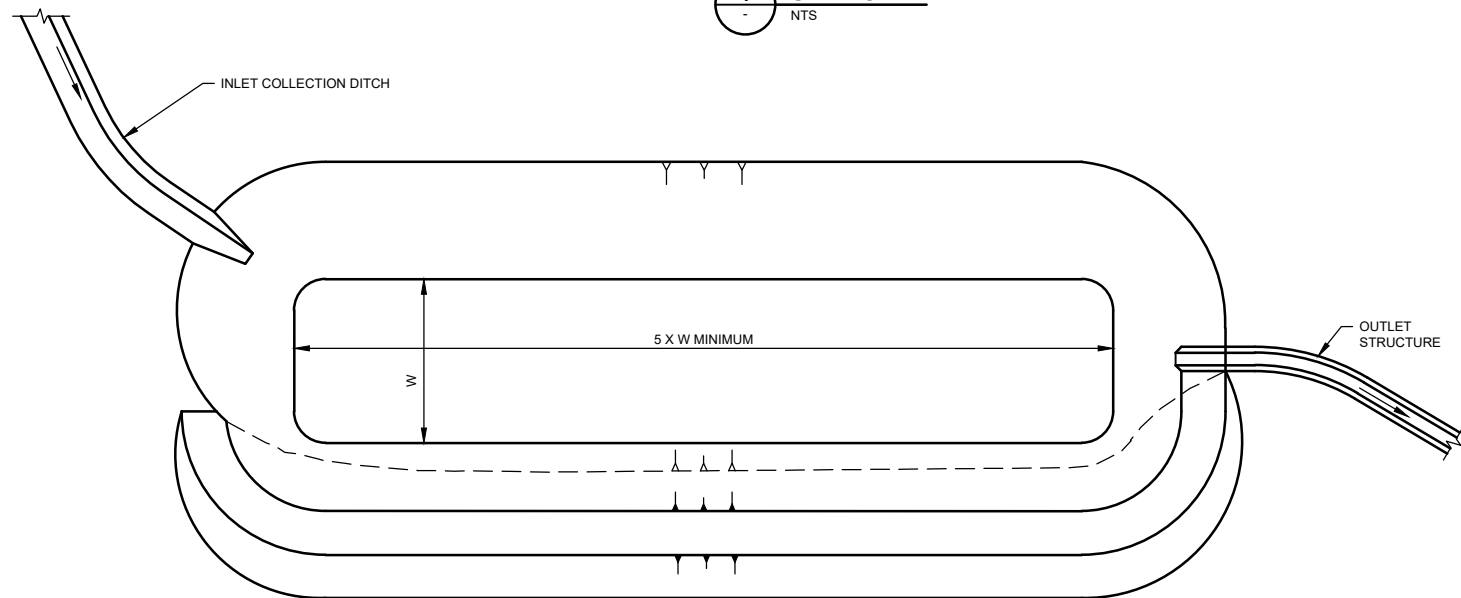
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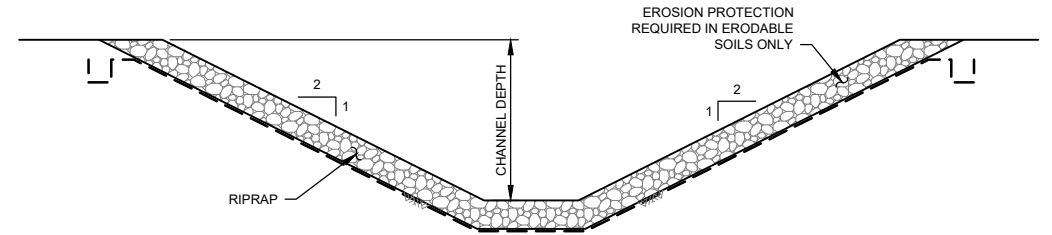
SP **SEDIMENT POND
PLAN VIEW**
SCALE A



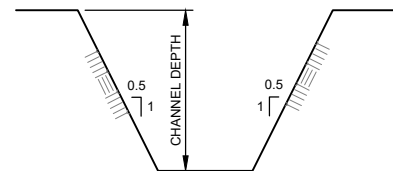
1 **SECTION**
NTS



SB **SEDIMENT BASIN PLAN**
NTS



DD1 CD1 **DIVERSION / COLLECTION DITCH IN SOIL**
NTS



DD2 CD2 **DIVERSION / COLLECTION DITCH IN ROCK**
NTS

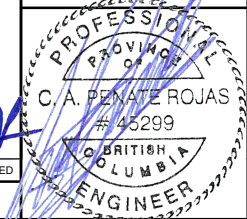
NOTES:

1. SEDIMENT POND LINING REQUIREMENTS SUBJECT TO ENGINEERS REVIEW OF FOUNDATION MATERIAL.
2. RIPRAP TO BE SPECIFIED FOR EACH INDIVIDUAL SEDIMENT POND DURING DETAILED DESIGN PHASE.
3. DIMENSIONS AND ELEVATIONS ARE IN METRES, UNLESS OTHERWISE NOTED.

**DETAILED DESIGN
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10000 5000 0 10000 20000 30000 40000 50000mm
SCALE A

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**EROSION AND SEDIMENT CONTROL
TYPICAL SECTIONS AND DETAILS
SHEET 3**

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