REPORT

2022 Annual Facility Performance Report—Coal Reject Spoils

Teck Coal Limited, Fording River Operations

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Reference No. 22516328-2022-123-R-Rev0-1800

29 March 2023

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EXECUTIVE SUMMARY

This report presents the 2022 annual facility performance report (AFPR) for the coal reject spoils at the Fording River Operations (FRO) mine site, located near Elkford, BC. The following coal reject spoils are included in this report:

- **A-Spoil**—dormant
- **Box Yard spoil**—dormant
- **Kilmarnock / Toe Berm spoil**—dormant
- **Impact Berm spoil**—dormant
- **Blake spoil**—dormant
- **Turnbull West spoil**—dormant
- **Taylor Rejects spoil**—dormant
- **Eagle 4 South Backfill spoil**—active
- **Rehandled Box Yard spoil**—new facility, active from February to July 2021, inactive throughout the reporting period

As coal rejects are a by-product of coal processing, they are considered “tailings” per the Health, Safety and Reclamation Code (HSRC) for Mines in British Columbia (EMLI 2022) definition and are therefore subject to requirements for tailings storage facilities that cannot retain water or saturated tailings.

This report was prepared based on a site visit carried out by WSP Canada Inc. (WSP; previously known as Golder Associates Ltd.) on 27 and 28 September 2022, a review of site data provided by Teck Coal Ltd. (Teck), and discussions with Teck staff. Based on visual observations during the 2022 annual site visit the coal reject spoils appeared generally safe with minor maintenance issues that require action.

The reporting period for this AFPR is 1 September 2021 through 31 August 2022, unless otherwise noted.

Review of Key Hazards

The potential failure modes associated with each coal reject spoil is as follows:

- **Instability —** instability may result from inadequate design or construction/development including excessive rate of development, high phreatic levels within the spoil, or excessive strain. Removal/excavation of spoil material from the toe could lead to slope instability. A seismic event could lead to strength loss in the foundations including undrained failure at select spoil facilities or loss of strength of the spoil material.
  - Stability analyses for A-Spoil, Kilmarnock / Toe Berm, Blake, and Turnbull West spoils are out of date, and do not consider undrained failure/liquefaction of foundations for select facilities. No stability analyses have been completed for Box Yard, Impact Berm, or Taylor Rejects spoils.
    - A staged update, starting with Kilmarnock / Toe Berm, Impact Berm and Blake spoils, is in progress at the time of this report.

  - These spoils were observed to be in good condition during the 2022 inspection with no concerns indicative of a facility safety issue, however portions of the Box Yard spoil are noted to be over steepened (approximately 0.75H:1V) and existing practices to mitigate the risk should be provided to the Engineer of Record for review.
- Stability analyses for the Eagle 4 South Backfill spoil indicates static and pseudo-static minimum factors of safety which meet or exceed design criteria. However, corrective actions relating to operations are required following observations during the annual inspection.
- At the Eagle 4 South Backfill and Taylor Rejects spoils, excavations at the toe were observed during the annual inspection and immediate actions were taken to mitigate the risks. Additional remediation at Eagle 4 South Backfill spoil is required and planned prior to the end of Q2 2023.

- **External erosion of slope face or toe —** External instability of a facility due to loss of materials from the slope face or toe as a result of rainfall, snowmelt, or surface water flows. This represents a credible hazard for all coal reject spoils, however this is not a risk to personnel or the public with current controls.

WSP and Teck completed preliminary catastrophic credible failure mode assessments using a risk assessment template created by Teck. While there are areas of uncertainty to be resolved, Teck and WSP do not believe there are any failure modes that could result in potential loss of life, provided design and operational controls are implemented.

Consequence of Failure

Teck has advised they will adopt design loading based on extreme events for any facility with a catastrophic credible flow-type failure mode. Adopting this approach meets or exceeds regulatory requirements, aligns with Teck's goal to eliminate risk for loss of life, and is consistent with the Global Industry Standard on Tailings Management (GTR 2020), which supports evolving beyond the conventional consequence classification system.

Summary of Significant Changes

The following were identified as significant changes during the reporting period:

- Three instances of unauthorized work were identified during the site visit, at the A-Spoil, Taylor Rejects spoil and Eagle 4 South Backfill spoil. At A-Spoil, unauthorized earthworks were being completed, while at Taylor Reject spoil and the Eagle 4 South backfill spoil unauthorized excavations at the toe were being completed. These instances of unauthorized works indicate a breakdown in application of Teck's Standard Policy's and Procedures, especially in relation to the notification and approval procedures for operations on coal reject spoils. Corrective action is required to prevent reoccurrence.
- Blake spoil continued to be used as a short-haul location, with approximately 210,000 m^3 of material placed and approximately 170,000 m^3 removed during the reporting period, based on Teck survey data.
- Approximately 1,770,000 m^3 of combined coarse and fine rejects was placed in the Eagle 4 South Backfill spoil over the reporting period, based on Teck survey data.
- The rehandled coal rejects from Box Yard spoil, designated the Rehandled Box Yard spoil, have been included in this years AFPR reporting. The Rehandled Box Yard spoil comprises approximately 830,000 m^3 of coarse coal rejects, placed in the potentially acid generating (PAG) designated area within the Swift North Spoil, located on the west side of Fording River.

Significant Changes in Instrumentation or Visual Monitoring Records

No significant changes to instrumentation or visual monitoring occurred during the reporting period.

Significant Changes in Stability and/or Surface Water Control

The following risks to facility stability were identified as requiring corrective action:

- Taylor Rejects spoil—Excavation at the north side occurred within the reporting period and exposed previously confined coal rejects which may allow an alternative pathway for runout. Excavated slopes (up to approximately 8 m high) were also left oversteepened; within a week of notification, the excavation was re-sloped.
- Eagle 4 South Backfill—Excavation at the east toe was observed at the time of the site with the excavated slope (up to approximately 10 m high) left in an oversteepened state. This presented an immediate danger to equipment and personnel working in the area (HSRC Section 6.20.2(2)). Following identification, work was halted, and an initial berm placed to block access to the excavation. Teck also identified an alternate source of borrow material and placed an additional berm adjacent to the access road to block access as well as added signage to restrict access. Corrective action to re-slope the excavated toe area is required prior to resumption of operations in this area.

Operation, Maintenance, and Surveillance Manual and Emergency Preparedness and Response Plan

Operation, maintenance, and surveillance (OMS) procedures for the coal reject spoils are documented in Teck's Standard Practices and Procedures (SP&P) EN.020.R6, Waste Dump Management (Teck 2020b), however this document does not meet the requirements for a TSF (EMLI 2022).

A detailed review by Teck key personnel and the Engineer of Record should be completed and a specific operational document for coal reject spoils should be developed.

Emergency response actions for the coal reject spoils are documented in Teck's SP&P EN.020.R6, Waste Dump Management (Teck 2020b), including trigger action response plans (TARPs) and a roles and responsibilities matrix. These procedures and the roles and responsibilities need to be reviewed in consultation with the EoR.

Emergency preparedness documentation is prepared on a site-wide basis (i.e., covers activities for emergency response at the mine site) and is documented in EP.001.R7, dated 28 February 2022 (Teck 2022).

Recommendations

Table E-1 presents the status of priority 1 and 2 recommended actions from the 2021 AFPR (Golder 2022a) and new priority 1 or 2 recommended actions from the 2022 AFPR. Priority 3 and 4 recommendations are presented in Section 6.0 of the report.

Table E-1: 2022 Annual Facility Performance Report Priority 1 and 2 Recommended Actions for the Coal Reject Spoils

ID Number	Facility	Deficiency or Non-conformance	Applicable Code/ Guideline Reference / Potential Safety Hazard	Recommended Action	Priority	Recommended Timing for the Action	Status as of March 2023
2021-06	All	Placement of materials without notification	Potential breakdown in site procedures.	Review notification procedures for changes in operations.	2	Q2 2023	**Complete**— Retroactive management of change for classification of coal reject spoils as tailing facilities to be completed, including additional training, signage at facilities, and notification to be posted at gatehouse
2022-01		Lack of surveillance and communications resulting in hazardous situations	HSRC Section 10.5.2	Determine or clarify appropriate operation, maintenance, and surveillance procedures for the coal reject spoils. Confirm roles, responsibilities, accountability, communication requirements, change notification/approval procedures and governance for all OMS tasks related to coal reject spoils, and train relevant staff accordingly.	2	Q2 2023	**New Recommendation**— Planned review / update of OMS manual and/or SP&P in Q2 2023
2021-12	Kilmarnock / Toe Berm	Stability assessment requires update	HSRC Sections 10.1.4	Update stability analysis to confirm current conditions and geometry meet design criteria. Assess potential need for additional subsurface investigations.	2	Q4 2023	**In progress**—Stability analyses completed and has indicated need for additional testing/site investigations which are planned for Q2 2023, Timing updated from 2022
2021-14		Erosion of toe of southeast extent of spoil	Potential for undermining spoil toe	Redirect water from exiting Old South spoil into Kilmarnock channel to prevent erosion of Kilmarnock / Toe Berm spoil toe.	2	2023	**Incomplete**—Timing updated from 2022, in consideration of re-sloping efforts for adjacent Old South Spoil.
2021-17	Blake	Stability assessment requires update	HSRC Sections 10.1.4	Update stability analysis to confirm current conditions and geometry meet design criteria. Determine the future for the North Blake spoil area and expected future geometry. Assess potential need for additional subsurface investigations.	2	2023	**In progress**—stability analyses underway, recommended timing updated from 2022
2022-04	Eagle 4 South Backfill	Unauthorized excavation at toe	Unsupported toe could result in local failure, risk to personnel working in the area	Remediation of slope is required prior to the removal of the exclusion zone and recommencement of operations in the area.	2	Q2 2023	**New Recommendation**

HSRC = Health, Safety and Reclamation Code; OMS = operation, maintenance, and surveillance; EoR = Engineer of Record; SP&P = Standard Practices and Procedures.

Priority	Description
1	A high probability or actual facility safety issue considered immediately dangerous to life, health or the environment, or a significant risk of regulatory enforcement.
2	If not corrected, could likely result in facility safety issues leading to injury, environmental impact, or significant regulatory enforcement; or, a repetitive deficiency that demonstrates a systematic breakdown of procedures.

Source: HSRC Guidance Document, Section 4.2 (Ministry of Energy and Mines 2016).

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ABBREVIATIONS

Abbreviation	Definition
AFPR	annual facility performance report
ALARP	as low as reasonably practicable
CCFR	combined coarse and fine rejects
CFMA	credible failure mode assessment
CR	coarse rejects
EoR	engineer of record
FoS	factor of safety
FRO	Fording River Operations
GISTM	global industry standard on tailings management
HSRC	health, safety and reclamation code for mines in British Columbia
OMS	operation, maintenance, and surveillance
PAG	potentially acid generating
QP	Qualified Person
QPO	quantifiable performance objective
SP&P	standard practices and procedures
TARP	trigger action response plan
Teck	Teck Coal Limited
TSF	tailings storage facility
WSP	WSP Canada Inc.

1.0 INTRODUCTION

1.1 Purpose, Scope of Work, and Method

At the request of Teck Coal Limited (Teck), Fording River Operations (FRO), WSP Canada Inc. (WSP), has completed the 2022 annual facility performance report (AFPR) for the coal reject spoils at the FRO mine site, located near Elkford, BC.

This AFPR includes the following coal reject spoils (from oldest to youngest), shown in Figure 1:

- **A-Spoil**—dormant
- **Box Yard spoil**—dormant
- **Kilmarnock / Toe Berm spoil**—dormant
- **Impact Berm spoil**—dormant
- **Blake spoil**—dormant
- **Turnbull West spoil**—dormant
- **Taylor Rejects spoil**—dormant
- **Eagle 4 South Backfill spoil**—active
- **Rehandled Box Yard spoil**— new facility, active from February to July 2021, inactive throughout the reporting period

This AFPR report is based on a site visit conducted by WSP (previously known as Golder Associates Ltd.) on 27 and 28 September 2022. All coal reject spoils were inspected in conjunction with Teck staff involved in the maintenance, operation, and surveillance of the facilities. Site data, including available instrumentation data between 1 September 2021 and 31 August 2022 (the reporting period), were also reviewed.

Photographs of the coal reject spoils from the annual site visit are presented in Appendix A, and a summary of observations is included in the inspection reports in Appendix B.

All coordinates presented in this report are in Universal Transverse Mercator system with elevations referenced to the Elk Valley Elevation Vertical Datum unless otherwise noted.

This report is to be read in conjunction with the Study Limitations provided at the end of the text.

1.2 Regulatory Requirements

1.2.1 BC Health, Safety and Reclamation Code

The coal reject spoils are subject to the Health, Safety and Reclamation Code (HSRC) for Mines in British Columbia (EMLI 2022).

This report has also been prepared considering the Interim Guidelines of the British Columbia Mine Waste Rock Pile Research Committee (BCMWRPRC 1991), the Guidelines for Mine Waste Dump and Stockpile Design (Hawley and Cunning 2017), and the HSRC guidance document (Ministry of Energy and Mines 2016) and is intended to meet the requirement for an annual report as set out in Section 10 of the HSRC for Mines in British Columbia (EMLI 2022).

1.2.2 Permits and Licences

Coal rejects spoils at FRO are permitted under Teck's permit No. C-3 and associated amendments.

Permit amendments associated with the dormant coal reject spoils are available publicly via the Ministry of Energy, Mines, and Low Carbon Innovation website. The active Eagle 4 South Backfill spoil is permitted under a 2017 amendment to Teck's permit No. C-3 (MEMNG 2017) to a maximum elevation of 2,015 m.

2.0 BACKGROUND

2.1 Coal Reject Spoils

The FRO site is an active open pit steelmaking coal mine. The Eagle 4 South Backfill spoil was the only active coal rejects spoil at the FRO site at the time of this report, with material being placed since 19 January 2017 (MEMNG 2017); the Rehandled Box Yard spoil was active from February to July 2021, and inactive throughout the reporting period. The location of the coal reject spoils at FRO are shown in Figure 1, with cross-section locations and profiles shown in Figure 3 through Figure 8.

As part of mining operations and coal processing, by-product material known as coal rejects are produced. At FRO coal rejects refers to both historical coarse rejects (CR) and combined coarse and fine rejects (CCFR) that are currently produced at the plant. The annual volume of coal rejects produced on site is approximately 2,500,000 m^3 to 3,500,000 m^3 (as reported by Teck).

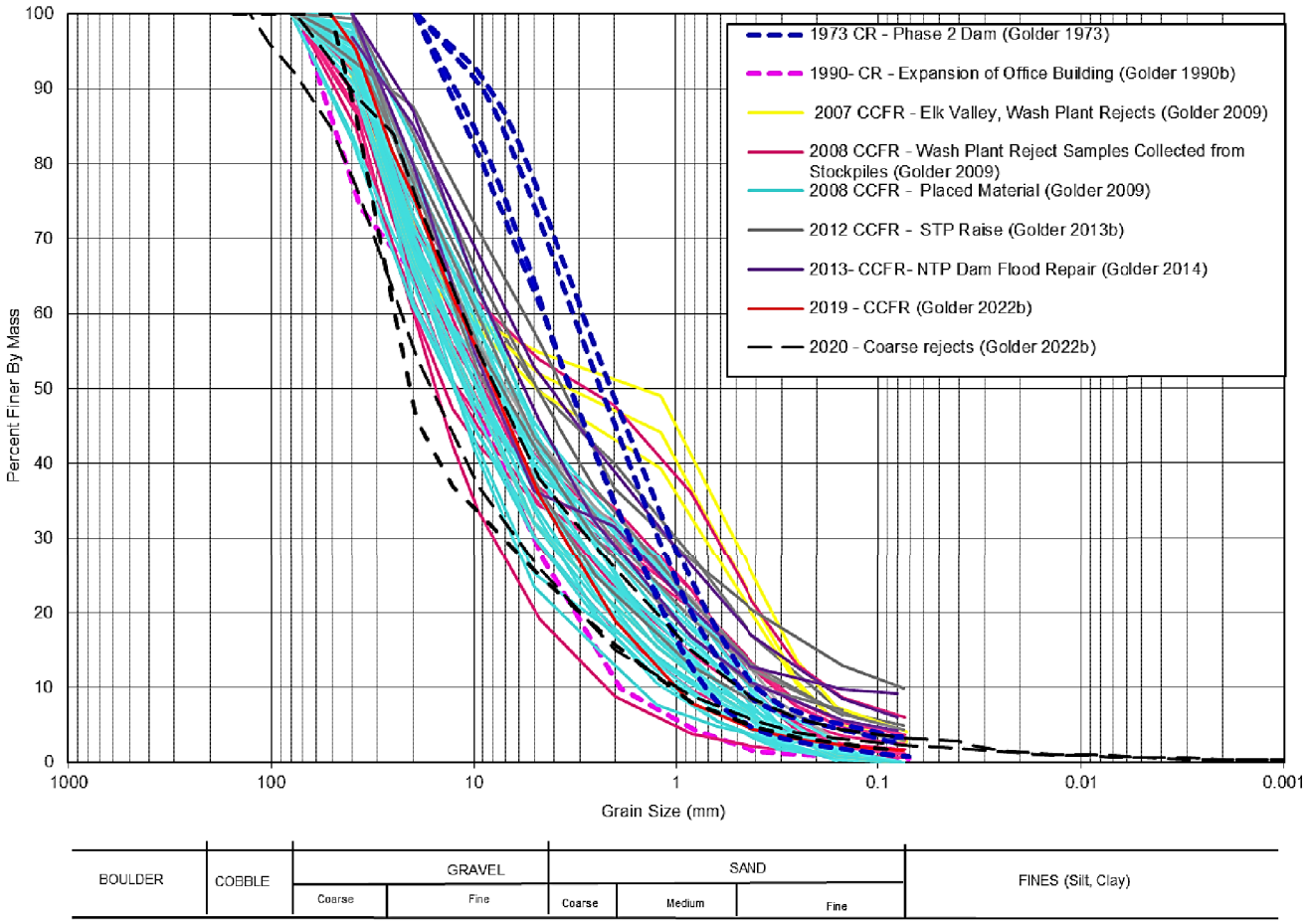
Raw coal delivered to the breaker at FRO contains high-ash material in the form of carbonaceous mineral rock. To meet product specifications, this high-ash rock is separated from the raw coal at the wash plant, within the processing plant. The high-ash (i.e. non-coal rock particles) waste consists of coarse fraction and fine fraction by-products. Since 2005, a portion of the fine fraction has been separated from the remainder of the slurry floatation tailings at the wash plant and mixed with the CR to produce CCFR. CCFR is hauled by truck to a designated CCFR storage facility (i.e., spoil). The properties of the CR and CCFR are summarized in Chart 1.

Table 1: Coal Rejects Characterization

Characteristic	Value	Unit	Comment	Source
PSD – finer than 0.075 mm	<10	%	As shown in Chart 1.	Golder Brawner 1973, 1976; Golder 1990b, 2009, 2013b, 2014, 2022b
PSD – D_{85}	6.5 to 49	mm		
PSD – D_{50}	1.5 to 20	mm		
PSD – D_{15}	0.2 to 3.5	mm		
Specific gravity	2.03 to 2.38	n/a	Range of values based on density testing conducted on CR and CCFR.	Golder Brawner 1976; Golder 2002, 2005b, 2008b
Friction angle	33.5 to 45.5	degrees	Triaxial and direct shear testing of CR and CCFR.	Golder Brawner 1976; Golder 1981, 1997a, 2005b, 2008b
In situ, uncompacted wet density	1,319 to 1,763	kg/m^3	Determined at Blake spoil by in situ PNG and sand cone replacement method.	Golder 2008b

PSD = particle size distribution; CR = coarse rejects, CCFR = combined coarse and fine rejects; PNG = portable nuclear gauge; n/a = not applicable.

Particle size distributions of historical CR and CCFR samples are shown in Chart 1. CR material is shown by dashed lines and CCFR by solid lines.



CR = coarse rejects; CCFR = combined coarse and fine rejects; NTP = North Tailings Pond; STP = South Tailings Pond.

Chart 1: Coarse Rejects and Combined Coarse and Finer Rejects Particle Size Distribution Curves

The CR is generally less fine than the CCFR, however the difference in gradations is not significant and some CCFR samples have a fines content as low as the CR.

Direct shear laboratory testing and in situ testing were conducted on the CR and CCFR material of the Blake spoil (Golder 2008b). The direct shear testing showed that when tested at field density levels, the material demonstrated dilatant behaviour under moderate loading (200 and 400 kPa).

Teck (2016b) indicates that historical testing and monitoring data have shown that acid-consuming and acid-generating issues are not of significant concern for CCFR at FRO. The chemical nature of the rejects was detailed in a report by SRK Consulting (Canada) Ltd. in 2017 (SRK 2017) which indicates that:

- coal rejects have a low potential for acid rock drainage
- placement of rejects in spoils result in oxygen consumption or low gas permeabilities where oxygen concentrations decrease at depth
    - this supports conditions that result in nitrate and selenium microbial reduction

2.2 Overview of Design, Construction, and Previous Operation

2.2.1 A-Spoil

2.2.1.1 Overview of Design and Subsurface Conditions

There is no information available on the initial design of A-Spoil.

A-Spoil is located south of Lake Mountain Creek, north of Swift Pit and northwest of the site plant and offices. Golder (1981) provides a review of the spoil and reports that the permit allowed for a maximum elevation of 1,737.4 m (datum unknown). A permit amendment for the expansion of A-Spoil was granted (MEMPR 1981) subsequent to the Golder (1981) report and allowed for the expansion of A-Spoil to elevation 1,780 m (datum unknown).

Golder (1981) describes the original A-Spoil as being constructed within a small topographic swale that drains to the south and that a minor pond is present between the southern limit of the spoil and Greenhills Road. Review of the 1968 survey information (FRO 2015) indicates that the site was placed on the western side of a topographical high point matching the elevation range defined by Teck (2017b). The base of the spoil is located on relatively gently sloping ground that was likely a minor watercourse prior to development.

Two known test pit investigations (Teck 2015b; AMECFW 2015) have been completed in the vicinity of A-Spoil. General conditions indicate the following:

- topsoil
- glaciofluvial deposits
- till deposits, which consisted of mixed sand and gravel within a clay matrix
- groundwater appeared within test pits close to the existing pond at an approximate depth of 3.0 m

Review of geological mapping (MEMPR 1987) indicates that the underlying bedrock formation is the Mist Mountain formation.

2.2.1.2 Construction History

Golder (1981) describes bottom-up development of A-Spoil with free-dumped material being spread by dozers in approximately 1 m thick lifts, followed by compaction by haul truck and dozer traffic. The A-Spoil is approximately 380 m wide, 440 m long, and 75 m high, based on a top elevation of 1,750 m and toe elevation of 1,675 m. The spoil has an overall area of approximately 140,000 m^2 and an estimated total volume of approximately 8,000,000 m^3. Based on LiDAR data from 2021, slope angles are up to approximately 38°. A cross-section of the facility is shown in Figure 5 based on the section location shown in Figure 2.

A-Spoil is the oldest coal reject spoil on site and is comprised of CR with a restoration soil stockpile on top. Golder (2016c) included the proposed development of a restoration soil stockpile on top of the CR. The restoration soil stockpile was planned to be completed in six 5 m lifts using the bottom-up method with overall slopes of 5H:1V.

The Golder (2016c) report also notes that at the south and southwest sides of the spoil, it appears that CR had been tipped over the edge, resulting in slopes at angle of repose (approximately 37°).

In 2022, the southern crest of A-Spoil was used for topsoil stockpiling. Additional information observed in the 2022 inspection is provided in Section 5.5.1.

2.2.1.3 Previous Operations

A-Spoil received CR from the start of mining in 1973 through to the 1980s; dates are uncertain and unconfirmed.

A-Spoil is no longer receiving CR material and is dormant.

2.2.2 Box Yard Spoil

2.2.2.1 Overview of Design and Subsurface Conditions

The Box Yard spoil is located directly southeast of Shandley Pit (now drained and being mined out) and west of the processing plant and site offices.

Limited data are available on the original conditions of the underlying foundation of the spoil and no known investigation information is available. The Box Yard spoil is located within the previous Shandley Pit and as such is expected to have been developed over mined-out waste rock. Review of the post-mined contours (Golder 2008d) indicates that the surface underlying the spoil was generally flat with a gentle rise.

Review of geological mapping (MEMPR 1987) indicates that bedrock underlying the coal reject spoil is the Mist Mountain formation; however, the bedrock is likely an older formation at the base of the pit due to mining.

2.2.2.2 Construction History

Prior to July 2021, the Box Yard spoil was approximately 310 m wide, 400 m long, and 85 m high, based on a top elevation of 1,700 m and toe elevation of 1,615 m. The spoil had an overall area of approximately 145,000 m^2 and stored an estimated total volume of CR of approximately 900,000 m^3. Based on LiDAR data from 2019, the overall slope angle of the spoil was interpreted to be approximately 35° (Golder 2021).

Between February and July 2021, Teck excavated CR material from the Box Yard spoil and placed the material within the potentially acid-generating (PAG) designated section of the Swift North spoil (referred to as the Rehandled Box Yard spoil, see Section 2.2.9). It was estimated by Teck that as of July 2021, approximately 830,000 m^3 (92%) of CR material had been removed, with 70,000 m^3 remaining.

The cross-section of the facility is shown in Figure 5 based on the section location shown in Figure 2.

The remainder of the Box Yard spoil is within the pit wall of the Swift Pit. Sections of the facility are oversteepened from excavation efforts (approximately 0.75H:1V; recommended action 2021-11), with overall slope angles generally 37°.

2.2.2.3 Previous Operations

The Box Yard spoil is estimated to have received CR in the 1980s through to the mid-1990s; dates are uncertain and unconfirmed.

The Box Yard spoil is no longer receiving coal rejects and is dormant. Teck indicated that no material has been added or removed since July 2021.

2.2.3 Kilmarnock / Toe Berm Spoil

2.2.3.1 Overview of Design and Subsurface Conditions

The Kilmarnock / Toe Berm spoil is located at the toe of the Old South spoil, approximately 15 m northwest of Kilmarnock Creek.

Golder (1990c) indicates that the Kilmarnock / Toe Berm spoil was constructed to provide a protective barrier at the western limit of the Old South spoil to improve its overall stability.

Golder (1994) indicates that the facility was designed to a maximum elevation of 1,730 m for the storage of up to 14,000,000 m^3 of CR near the toe of the Old South spoil Stage 3 development (elevation 2,045 m). The Kilmarnock / Toe Berm spoil is therefore assumed to be partially buried beneath two wrap-around, descending stages of the Old South spoil (Stages 4A West and 4B West; Golder 1994).

Golder (1989) reported the results of four boreholes within the Kilmarnock Creek flood plain and in the outer limits of the Old South spoil footprint. The investigation identified the following soil deposits (bedrock depths were not reported) in the Kilmarnock Creek flood plain (top to bottom):

- **fluvial material**—between 3.4 and 4.8 m thick
- **glacial till**—between 1.8 and 4.3 m thick

Investigations completed by Golder (1994) indicated foundation soils consist of glacial till that varies from dense clayey silt with sand, gravel, and cobbles to dense mixtures of silt-sand-gravels with cobbles and boulders. Materials were noted as exhibiting high shear strength characteristics.

Review of the 1968 survey information (FRO 2015), surveyed prior to development of the facility, indicates that the original ground had a gentle profile with an approximate slope of 8°. The survey also indicates that the spoil is located partially on the Kilmarnock Creek flood plain, and Golder (1990c) indicated that the southern limit of the Kilmarnock / Toe Berm spoil would extend beyond the till bench that borders the northern extent of the Kilmarnock Creek flood plain. Lenses of organic and/or fine-grained and alluvial deposits can occur in flood plains, and it is therefore possible that soft organic, fine-grained lenses and/or saturated sands and gravel may be present in the foundation beneath the spoil.

Based on review of geological mapping (MEMPR 1987), bedrock in the area is expected to be the Fernie Formation, which consists of shale, siltstone, sandstone, and some limestone.

2.2.3.2 Construction History

The Kilmarnock / Toe Berm spoil is understood to have been initially developed in the early 1990s using conveyor and spreader methods (Golder 1990c). The spoil continued to receive CR until approximately 2002; however, no known development records are available.

Cross-sections for the facility are shown in Figure 6 based on section locations shown in Figure 3. The spoil is approximately 450 m wide, 850 m long, and 130 m high, based on a top elevation of 1,770 m. The spoil stores an estimated total volume of CR of approximately 60,000,000 m^3. Based on LiDAR data from 2021, the overall slope angle of the spoil was interpreted to be approximately 25°, though bench scale slopes are typically at angle of repose (approximately 37°), for benches up to 80 m in height.

2.2.3.3 Previous Operations

The Kilmarnock / Toe Berm spoil is estimated to have received CR in the early to mid-1990s through to approximately 2002; dates are uncertain and unconfirmed.

The Kilmarnock / Toe Berm spoil is no longer receiving CR and has been dormant since 2002.

In 2005, it was identified that the CR in the Kilmarnock / Toe Berm spoil was burning (Golder 2005a).

Between 2018 and 2021 monitoring wells were drilled and set up for sampling at the southern toe of the Kilmarnock / Toe Berm spoil (FRO 2022).

2.2.4 Impact Berm Spoil

2.2.4.1 Overview of Design and Subsurface Conditions

The Impact Berm spoil is located 15 m to the southwest of the current route of Kilmarnock Creek.

Design information was completed by Golder (1990a) in which the Impact Berm spoil was included as a two-phase dyke construction as a measure to guard against potential runout failure debris from the Old South spoil. The Impact Berm spoil was shown to extend over the Kilmarnock Creek area prior to creek diversion, with a design top elevation of 1,660 m.

A review of survey information from 1968 (FRO 2015) indicates that the northwestern portion of the Impact Berm spoil is founded within the Kilmarnock creek flood plain and is therefore expected to be underlain by alluvial and/or saturated sand and gravel. This area may have glacial till underlying the Kilmarnock Creek alluvial deposits and is expected to have glacial till underlying the southeastern portion of the spoil, based on observations at the nearby Kilmarnock till borrow pit.

Golder (1989) reported the results of four boreholes within the Kilmarnock Creek flood plain and in the outer limits of the Old South spoil footprint. The investigation identified the following soil deposits (bedrock depths were not reported) in the Kilmarnock Creek flood plain (top to bottom):

- **fluvial material**—between 3.4 and 4.8 m thick
- **glacial till**—between 1.8 and 4.3 m thick

Golder (1990c) indicated that the foundations of the nearby Kilmarnock / Toe Berm spoil consist of till and surficial peat material, which, based on proximity, could also be present under the Impact Berm spoil.

Based on review of geological mapping (MEMPR 1987), bedrock in the area is expected to be the Fernie Formation, which consists of shale, siltstone, sandstone, and some limestone.

2.2.4.2 Construction History

The Impact Berm spoil is believed to have been constructed in the early 1990s (Golder 1990a,c; 1994) as the second phase of the Old South spoil barrier project. Golder (1990a) indicates that the Impact Berm spoil was to be constructed to an elevation of 1,660 m with the footprint extending over the Kilmarnock Creek area with Kilmarnock Creek diverted to the north of the Impact Berm spoil. A review of 2019 LiDAR survey information indicates that the diversion of Kilmarnock Creek was completed.

No information is available on the development of the Impact Berm spoil. Based on site inspection observations, the Impact Berm spoil appears to have been developed in a single lift by end tipping material.

A cross-section of the facility is shown in Figure 7 based on the section location shown in Figure 3. The spoil is approximately 325 m wide, 350 m long, and 35 m high, based on a top elevation of 1,660 m and a natural ground elevation of approximately 1,625 m. The spoil has a footprint area of approximately 50,000 m^2 and stores approximately 1,000,000 m^3 of CR material. Based on LiDAR data from 2021, the overall slope angle of the spoil was interpreted to be near the angle of repose (approximately 37°).

2.2.4.3 Previous Operations

The Impact Berm spoil is estimated to have received CR in the early to mid-1990s; dates are uncertain and unconfirmed (Golder 2021). The Impact Berm spoil has also been referred to as the South Toe Dyke (Golder 1990a).

The Impact Berm spoil is no longer receiving CR and is dormant.

Teck has reported the monitoring wells were drilled and set up for sampling on and around the Impact Berm spoil between 2018 and 2021.

2.2.5 Blake Spoil

2.2.5.1 Overview of Design and Subsurface Conditions

The Blake spoil is located east of the South Tailings Pond and directly north of the Kilmarnock / Toe Berm spoil. The spoil is located topographically above site infrastructure and work areas, including the mine access road, gatehouse, railway, gas line, breaker area, and coal stockpile area.

The initial design of the Blake spoil is summarized in Golder (1997b), which indicates a geometry comprising two lifts, each between 30 and 35 m high, a 40 m wide bench between the lifts, and an elevation of 1,765 m.

In 2002, an expansion of the spoil to the south, over the existing Kilmarnock / Toe Berm spoil, and raise to elevation 1,810 m was designed. This expansion was referred to as the “Upper Blake reject spoil.” Golder (2002) indicates that this was developed over an area of previous waste rock failures. The design included a rock drain to convey Blake Creek (presumed to join Blackmore Creek) through the base of the facility.

A revised design configuration for the Upper Blake reject spoil was developed in 2004 (Golder 2004) including increasing the height of the spoil and changing to the storage of CCFR from CR. The spoil height was increased to elevation 1,820 m, additional benches were added, and the height of each bench was reduced from 40 to 30 m. The facility footprint was also extended to the south over failed waste rock debris and lifts of CR placed as part of the Kilmarnock / Toe Berm spoil.

A significant expansion of the Blake reject spoil was developed in 2008 (Golder 2008c), which included expanding the spoil to the north and east of the Upper Blake reject spoil. Two options were developed and based on a review of LiDAR data in 2019, it is inferred that Option 2 was implemented. The Option 2 design proposed a spoil at an approximate elevation of 1,850 m with 15 m bench heights and an overall design slope of 16°.

A geotechnical assessment was completed by Golder (2002) and noted that portions of the Upper Blake spoil were to be placed over waste rock debris resulting from a failure of the Blaine spoil in mid-July 1986. As such, the foundation may contain loose material that could re-mobilize. A test pit investigation was completed by Golder (2008c) to assess the subsurface conditions for the North Blake spoil. Test pits (up to 5 m deep) were located along the proposed facility toe and on the natural slopes within the facility footprint. The investigation indicated the following (from top to bottom):

- silt and peat topsoil
- gravelly sand with a silt and clay layer
- gravel with sand and some silt

Possible bedrock was encountered in one location (2.0 to 3.1 m deep) where material was reported as possible weathered Fernie Formation bedrock (Golder 2008c). Groundwater was observed at relatively shallow depths within one test pit.

The Blake spoil was constructed on sloped original ground (elevation approximately 1,685 m at the toe of the facility) at an angle between 5° and 15° (Golder 1997b, 2002, 2007). Review of geological mapping (MEMPR 1987) indicates that the bedrock consists of shale and sandstone of the Fernie Formation.

2.2.5.2 Construction History

Geotechnical assessments (Golder 2002, 2007, 2008b, 2011a, 2012a, 2013a) indicate that the spoil was generally constructed using the bottom-up method including free dumping of CR/CCFR and spread using earthwork equipment. Geotechnical assessments (Golder 2011a, 2012a, 2013a) noted that approximately 93,000 m^3 of waste rock was placed in the spoil between 2010 and 2012.

The southern extent of the Upper Blake reject spoils (above the Kilmarnock / Toe Berm spoil) are noted to be burning (Golder 2011a, 2012a, 2013a). To limit the burning, lift thicknesses were reduced to increase the compaction of each lift (decrease oxygen).

A cross-section of the facility is shown in Figure 7 based on the section location shown in Figure 3. The spoil is approximately 685 m wide, 670 m long, and 150 to 200 m high, based on a top elevation of 1,835 m. The spoil has a footprint area of approximately 260,000 m^2 and stores approximately 16,000,000 m^3 of coal rejects. Based on LiDAR data from 2021, the overall slope angle of the spoil was interpreted to be approximately 23°, though bench scale slopes are typically at angle of repose (approximately 37°) for lifts up to 50 m.

2.2.5.3 Previous Operations

The Blake spoil is estimated to have received CR from approximately 1997 through to 2004, CCFR from 2004 through 2014, and waste rock from 2010 to 2012.

Blake spoil has been dormant since 2014; however, it has been used as a temporary short-haul location since 2021 (Section 5.5.5).

2.2.6 Turnbull West Spoil

2.2.6.1 Overview of Design and Subsurface Conditions

The Turnbull West spoil is located on the west side of Fording River, at the western edge of the Swift North spoil and comprises co-mingled waste rock and CCFR.

Golder (2003) completed a geotechnical assessment of the original design of the Turnbull West spoil including an assessment of pore-water pressures at the base of the spoil. The assessment noted that where soft foundation soils were encountered at the southern corner of the proposed spoil, the toe should be pulled back to avoid loading this isolated area.

The design was revised in 2011 (Golder 2011b) for an increased elevation of 1,830 m and in 2012 (Golder 2012b) to elevation 1,900 m (Golder 2012b). The facility was designed based on bottom-up placement with lifts ranging in thickness from 15 to 30 m. The revised 2012 design also included a maximum facility height of approximately 190 m at an overall slope angle of approximately 2H:1V with individual lifts at an angle of 37°.

Four geotechnical test pit investigations of the Turnbull West spoil have been completed by Golder (2003, 2008a, 2013c) and Teck (2015b). Encountered stratigraphy included the following (from top to bottom):

- topsoil
- loose to compact gravel and silt
- very soft to firm silt to clayey silt, or loose gravel
- sand layer

Shallow groundwater was encountered in the investigations, with the shallowest encountered at approximately 1.4 m below ground surface (Teck 2015b).

Glacial till is expected on ridges and higher elevations and underlying some of the alluvial deposits, based on investigations elsewhere on site. Bedrock was encountered in two investigations at an approximate depth of 0.8 m below ground surface (Golder 2013c; Teck 2015b). Review of geological mapping (MEMPR 1987) noted the bedrock geology to be the Mist Mountain formation.

2.2.6.2 Construction History

WSP understands that CCFR was sent to Turnbull West spoil from approximately 2009 or 2010 until about 2014, when coal rejects began being sent to the Taylor Rejects spoil. Teck reported that when CCFR was placed, it was free dumped with waste rock at a minimum ratio of about 2:1 waste rock to CCFR. Based on an annual volume of coal rejects produced on site of approximately 2,500,000 m^3 to 3,500,000 m^3 (as reported by Teck), the assumed volume of CCFR stored in Turnbull is between approximately 10,000,000 and 17,500,000 m^3. The volumes of waste rock reported to have been placed in Turnbull West spoil from 2009 to 2015 (approximately 67,000,000 m^3) confirm that the Turnbull West spoil is predominantly waste rock.

Geotechnical assessments (Golder 2011a, 2012a, 2013a) indicate the Turnbull West spoil was constructed as designed with setbacks or horizontal benches incorporated at height intervals of approximately 30 m.

A cross-section of the facility is shown in Figure 8 based on the section location shown in Figure 4. The spoil is approximately 1,500 m wide, 1,250 m long, and 130 m high, based on a top elevation of 1,830 m and a natural ground elevation of approximately 1,700 m. The spoil has a footprint area of approximately 1,200,000 m^2 and stores approximately 110,000,000 m^3 of co-mingled waste rock and CCFR. Based on LiDAR data from 2021, the overall slope angle of the spoil was interpreted to be approximately 24°, though bench scale slopes range from approximately 25° to 38°.

2.2.6.3 Previous Operations

The Turnbull West spoil contains comingled waste rock and coal rejects. Waste rock has been placed at the spoil location since at least 2003; rejects were consigned to the spoil between approximately 2009 or 2010 through 2014.

The Turnbull West spoil is not currently receiving CCFR. Waste rock is being placed as the Swift North waste rock spoil, which is being developed over the Turnbull West spoil.

2.2.7 Taylor Rejects Spoil

2.2.7.1 Overview of Design and Subsurface Conditions

The Taylor Rejects spoil is located south of Turnbull Ridge, east of 2-Spoil and west of the Eagle 6 North pit.

The Taylor Rejects spoil is comprised of CCFR and is part of the larger Taylor waste rock spoil, both of which are inactive. The Taylor waste rock spoil includes the Taylor Rejects, North Taylor Backfill spoil, the Upper Taylor West spoil, the Eagle 6 West Backfill spoil, Taylor Pit spoil, and the Taylor Extension spoil. This report distinguishes between the Taylor Rejects spoil and the surrounding waste rock spoils that are referred to collectively as the Taylor waste rock spoils.

No information was available on the design and operation of the Taylor Rejects spoil.

No known field investigations have been completed; however, the Taylor Rejects spoil was founded on a relatively flat platform of the Taylor / Eagle 6 West Backfill waste rock spoil, approximately 200 m south of the northern face of the spoil. The Taylor / Eagle 6 West Backfill waste rock spoil comprise a combination of pit backfill waste rock and unconfined waste rock spoils.

Review of geological mapping (MEMPR 1987) indicates that the bedrock is the Mist Mountain formation (MEMPR 1987); however, the bedrock is likely an older formation at the base of the pit due to mining.

2.2.7.2 Construction History

Based on a review of survey data provided by Teck and air photos from 2014 through 2018, the Taylor Rejects spoil appears to have been developed using the bottom-up method in at least two lifts. Teck reports that the Taylor Rejects spoil was developed similarly to the active Eagle 4 South Backfill spoil, that is, the CCFR was free dumped by haul truck and spread by dozer in approximately 2 m high lifts.

The Taylor Rejects spoil is circular with an approximate diameter of 400 m and a height of 30 m, based on a top elevation of 2,005 m and a waste rock pad elevation of approximately 1,975 m. The spoil stores approximately 3,500,000 m^3 of CCFR and is surrounded by a ramp constructed of breaker rock (FRO 2020). By 2018 the coal rejects were mostly encapsulated by waste rock, placed around the outer edge of the spoil. The approximate extents are shown in Figure 4.

In 2022 the northern side of the rejects spoil was uncovered and the spoil was partially excavated with the material being used as borrow for the saturated rockfill construction. Additional information observed in the 2022 inspection is provided in Section 5.5.7.

2.2.7.3 Previous Operations

CCFR was placed in the Taylor Rejects spoil from 2014 to approximately February 2017.

The Taylor Rejects spoil is not currently receiving CCFR and has been dormant since 2017; however recent activity was observed during the site visit (Section 5.5.7).

2.2.8 Eagle 4 South Backfill Spoil

2.2.8.1 Overview of Design and Subsurface Conditions

The Eagle 4 South Backfill spoil is located in the Eagle Mountain area near the active Eagle 6 Pit.

The Eagle 4 South Backfill spoil is an active facility and is currently used for the storage of CCFR. It is the only coal rejects spoil currently active at FRO.

The Eagle 4 South Backfill spoil was initially designed in late 2016 (Teck 2016b) with a revised design completed in early 2017 (Teck 2017a). The spoil was designed to hold 12,300,000 m^3 of CCFR and to be buttressed on three sides (east, west, and south) by existing waste rock spoils (Teck 2016a). A geotechnical assessment completed by Teck (2016b) indicated an overall slope design angle of 2H:1V (approximately 26°) or less with a maximum lift height interval of 15 m. Eagle 4 South Backfill spoil was designed to be developed in two phases (Teck 2016a):

- **Phase 1**—to elevation 1,985 m with a design capacity of 7,100,000 m^3 of CCFR and buttressed on three sides (east, west, and south) by existing waste rock spoils
- **Phase 2**—on top of Phase 1 to elevation 2,015 m with a design capacity of 5,200,000 m^3 of CCFR

No known field investigations have been completed. However, Teck (2016a) indicated that the Eagle 4 South Backfill spoil was constructed on top of waste rock used to backfill the Eagle South Pit. The placement of the waste rock ceased in November 2016. Based on an available section (Teck 2016b), the backfilled rock is approximately 100 m thick and mostly flat with side slopes up to approximately 2H:1V. Backfilled waste rock is underlain by the mined out bedrock surface. The backfilled waste rock underlying the CCFR is expected to be free draining and have relatively high strength in comparison with the placed CCFR.

Review of geological mapping (MEMPR 1987) indicates that the bedrock is the Mist Mountain formation (MEMPR 1987); however, the bedrock is likely an older formation at the base of the pit due to mining.

2.2.8.2 Construction History

Teck (2016a, 2018) indicates that the spoil is developed using the bottom-up method, with CCFR material free dumped by haul truck and spread by dozer in approximately 2 m high lifts. Benches are incorporated every 15 m in height to achieve an overall slope of 2H:1V.

A wireline extensometer was installed at the northeast corner of the spoil after it was discovered that one lift in the area exceeded the maximum 15 m permitted height.

Water at the facility is managed by directing runoff to ditches and local sumps to minimize ponding. Drainage of ponded water is accelerated by ripping channels in the area, as required (Teck 2016a).

A cross-section of the facility is shown in Figure 8 based on the section location shown in Figure 3. The spoil is approximately 550 m wide, 600 m long, and 35 to 55 m high, based on a top elevation of 1,990 m. The spoil has a footprint area of approximately 390,000 m^2 and stored approximately 11,700,000 m^3 up to August 2022. Based on LiDAR data from 2021 and site observations, the overall slope angle of the spoil was interpreted to be approximately 26° (2H:1V), with local areas up to 30 m high at approximately 37° (angle of repose). Additional information observed in the 2022 inspection is provided in Section 5.5.8.

Development of Phase 1 commenced in February 2017, and Phase 2 of the Eagle 4 South Backfill spoil had been initiated in 2021.

2.2.8.3 Previous Operations

The Eagle 4 South Backfill spoil is currently active and has been receiving CCFR over backfilled waste rock since February 2017.

2.2.9 Rehandled Box Yard Spoil

2.2.9.1 Overview of Design and Subsurface Conditions

The rehandled coal rejects from Box Yard spoil, designated the Rehandled Box Yard spoil, have been included in this year's AFPR. The Rehandled Box Yard spoil comprises approximately 830,000 m^3 of CR material, placed in the PAG designated area within the Swift North spoil, located on the west side of Fording River.

There was no specific design for the Rehandled Box Yard spoil. Teck reports that the material was placed in accordance with Teck's Standard Practices and Procedures (SP&P) EN.020.R6, Waste Dump Management (Teck 2020b).

The Rehandled Box Yard spoil was constructed on waste rock in the Swift North Spoil. Within the footprint of the Swift North spoil, the foundation soils beneath the spoil are generally described as till overlying bedrock except along watercourses where alluvial sediments overlay either till or bedrock. Near the Rehandled Box Yard spoil, foundations are generally comprised of 0.5 m thick clay to clayey silt overlying weathered bedrock (Golder 2013c, Teck 2015b). Foundation preparation was completed over the majority of the Swift North spoil, including around the PAG area.

Review of geological mapping (MEMPR 1987) noted the bedrock geology to be the Mist Mountain formation.

2.2.9.2 Construction History

Limited data are available on the sequencing of material placement, but Teck has indicated that the material was placed between February and July 2021 by end-dumping in approximately 15 m high lifts. By end of September 2022, the material was encapsulated by surrounding waste rock.

The approximate extents are shown in Figure 4.

2.2.9.3 Previous Operations

The CR from the Box Yard spoil was relocated to the Rehandled Box Yard spoil in 2021, then subsequently buried by waste rock placed in Swift North spoil PAG area.

2.3 Site Seismicity

A site-specific seismic hazard model for the FRO site was developed based on historical seismicity and a review of geological and paleoseismological features (Golder 2016a). The model includes four area sources from the 5th Generation Seismic Hazard Model and nine faults and fault segments mapped in northwest Montana. The 5th Generation Seismic Hazard Model was developed by Natural Resources Canada for use in the 2015 National Building Code of Canada.

Probabilistic analysis results from the site-specific hazard model are listed in Table 2. All site-specific peak ground acceleration values were evaluated for a soil Site Class C as described in the 2010 National Building Code of Canada (NRCC 2010), as this represents WSP's understanding of the general foundation conditions at the spoil locations. Note that the 2015 National Building Code of Canada description for Site Class was not published at the time of publication of Golder (2016a).

Table 2: Fording River Operations Site Seismic Hazard Values

Exceedance Probability	Return Period (years)	Peak Ground Acceleration (g)
40% in 50 years	100	0.020
10% in 50 years	475	0.063
5% in 50 years	1,000	0.097
2% in 50 years	2,475	0.158
1% in 50 years	5,000	0.222
½% in 50 years	10,000	0.300

Notes: FRO site coordinates: 50.202°N, 114.876°W; g = 9.81 m/s^2. For firm ground site class "C," very dense soil and soft rock foundation, as defined by 2010 National Building Code of Canada (NRCC 2010). Return periods are not exact representations of annual exceedance probabilities; rounding per Canadian Dam Association (CDA 2013, 2019) is shown.

2.4 Key Operational Components

The following are key operational components of the coal reject spoils:

- Visual inspections, completed at varying frequencies based on spoil status.
  - Dormant spoils are inspected three times annually by staff from the FRO Geotechnical Engineering team, or as required by site events (heavily precipitation, seismic event etc.).
  - Active spoils are inspected by the FRO Area Supervisor every 4 hours, the Monitor Person every 2 hours, the Senior Supervisor Mine Operations every 12 hours, Geotechnical Engineering team and the Short Range Engineer every week.
- Waste dump development standard practices and procedures (SP&P).
- GPS and extensometers, including reporting via NavStar GeoExplorer monitoring software.

Teck's SP&P EN.020.R6, Waste Dump Management (Teck 2020b), outline requirements for each of the key components listed above. For visual inspections any identified deficiencies are recorded, and photographic documentation is maintained.

SP&P EN.020.R6 for waste dump development include methods for dumping, rock rollout requirements, dumping of different materials, stockpiling of materials, water management, and remediation processes. For CR and CCFR material, procedures require they are dumped in designated areas and developed using the bottom-up method using a dozer to spread and compact free dumped materials in 2 to 3 m high lifts while maintaining an overall inter-ramp angle no greater than 26°. Procedures also require that surface water is diverted away from the dump platform crest in accordance with good engineering practice.

Data from GPS and extensometers are routinely monitored and assessed using the NavStar GeoExplorer monitoring software. Instrumentation data are transmitted remotely, in real time. Teck staff receive email alerts when warning or alarm thresholds (Section 2.6) are triggered.

2.5 Key Personnel

The Engineer of Record (EoR) for the coal reject spoils as of 2020, is Julia Steele, P.Eng., an employee of WSP. The EoR role is currently being undertaken under limited terms of reference, pending the completion of works to gather sufficient information to assess the current conditions and risks and to complete analyses to align with Teck's tailings and water retaining structures (Teck 2019) requirements.

The Qualified Person (QP) for the coal reject spoils is James Campbell, P.Eng., Senior Engineer, who is an employee of Teck. James Campbell became the QP for the coal reject spoils on 4 May 2021. James is supported by Ross Roseingrave, P.Eng., Senior Engineering Supervisor, an employee of Teck. Rob Foy, Superintendent of Operations, is the owner of all spoils at FRO, including the coal reject spoils.

2.6 Quantifiable Performance Objectives

2.6.1 Instability

Quantitative performance objectives (QPOs) for extensometers (wirelines), including the one installed at the Eagle 4 South Backfill spoil, and the associated Trigger Action Response Plan (TARP) have been developed based on the velocity of movements and are documented in Teck's SP&P EN.020.R6, Waste Dump Management (Teck 2020b). These QPOs are summarized in Table 3.

Table 3: Extensometer Active Facility Monitoring Trigger Action Response Plan Summary

	Normal Operations	Warning	Alarm	Critical
	"End Dump"	**"Dump Short & Push"**	**"Closed"**	**"Failure Closure"**
Velocity (mm/day)	0 to 1,200	1,200 to 2,000	2,000 to 5,000	>5,000

Note(s): Extensometers are read every 2 hours for active facilities. Refer to SP&P EN.020.R6 for full details.

End Dump = end-dumping material placement; Dump Short & Push = dump short and push material placement; Closed = no material placement within 50 m on either side of the extensometer; Failure Closure = implement waste dump failure alert guidelines.

These generic QPOs and TARPs were developed for top-down waste rock spoils and should be reviewed in consultation with the EoR to determine if they are generally applicable to bottom-up coal reject spoils and specifically, to the Eagle 4 South Backfill spoil (recommended action 2021-03).

In addition, based on values within the GeoExplorer instrumentation monitoring system, it is understood that there are 3D velocity QPOs used for GPS monitors installed at the A-Spoil, Blake, Turnbull West, and above Kilmarnock/Toe Berm spoils, as summarized in Table 4.

Table 4: GPS Quantitative Performance Objectives Summary

	Normal Operations	Warning	Alarm
3D Velocity (mm/day)	<150	150 to 300	>300

These QPOs are not documented in Teck's SP&P EN020.R6, Waste Dump Management (Teck 2020b), which states that action is required "if GPS units in critical areas are found to be in a sustained warning state." No further details, including a definition of "sustained" or which instruments are in critical areas, are provided. It is also noted that the rationale for the adopted values is not documented. Further details on the rationale of the adopted QPO values as well as the actions to be taken following exceedance should be provided and documented in operational documentation including the TARPs (recommended action 2021-03).

2.6.2 Internal Erosion

The coal reject spoils do not retain water and are considered free draining. Seepage is visually monitored during inspections; no QPOs are set for seepage.

3.0 OPERATIONS, MAINTENANCE, AND CONSTRUCTION DURING THE 2021/2022 REPORTING PERIOD

3.1 Operations

Of the nine coal reject spoils at FRO, one facility was active and the remaining eight facilities were dormant or inactive during the reporting period.

3.1.1 Active Coal Reject Spoil

The Eagle 4 South Backfill spoil was active in 2021/2022 and was developed by free dumping using the bottom-up method and lift heights generally up to 15 m with an overall slope angle no greater than 26° (2H:1V). Some areas have been over-dumped resulting in lift heights of 30 m, which exceed design of 15 m. WSP understands that placement of materials is managed using the Wenco GPS machine guidance system. Approximately 1,770,000 m^3 of CCFR was placed in the Eagle 4 South Backfill spoil over the reporting period, based on Teck supplied survey data.

No dozer was observed on the facility at the time of the site visit, and it is unclear if dozing and compacting of each lift is being completed (Appendix A, Photograph 29). Corrective actions are needed (recommended action 2021-25) to ensure coal reject spoil development is following Teck's SP&P EN.020.R6, Waste Dump Management (Teck 2020b).

Excavation of coal reject materials at the toe of an approximately 30 m high slope on the east side of the active spoil, was observed during the site visit (Appendix A, Photograph 30). Following identification of the hazardous situation, work was halted, and an initial berm was placed to block access to the excavation. Teck identified an alternate source of borrow material and placed an additional berm adjacent to the access road to block access as well as added signage to restrict access.

Corrective action to re-slope the excavated toe area is required prior to resumption of operations in this area (recommended actions 2022-01 and 2022-04). Refer to Section 5.5.8 for details on facility performance relative to failure modes.

It is understood that per Teck's SP&P EN.020.R6, the Eagle 4 South Backfill spoil is visually monitored by the FRO Area Supervisor every 4 hours, the Monitor Person every 2 hours, the Senior Supervisor Mine Operations every 12 hours, and the Geotechnical Engineering team and the Short Range Engineer every week. Reporting from the weekly Geotechnical Engineering team should be provided to the EoR for review.

Design work for an expansion to the Eagle 4 South Backfill spoil was initiated by WSP during the reporting period and is ongoing.

3.1.2 Dormant and Inactive Coal Reject Spoils

The following spoils were dormant, with minimal or no activity in the 2021/2022 reporting period:

- **A-Spoil**—Topsoil placement was observed on the southern crest of A-Spoil. Work was being completed without the prior notice or approval from the Teck tailings department.
- **Box Yard spoil**—No activity.
- **Kilmarnock / Toe Berm spoil**— No activity.
- **Impact Berm spoil**— No activity.

- **Blake spoil**—Blake spoil was used as a short-haul location, with approximately 210,000 m^3 of material placed and approximately 170,000 m^3 removed during the reporting period (based on Teck survey data).
- **Turnbull West spoil**—No activity.
- **Taylor Rejects spoil**—Excavation at the north side of the Taylor Rejects spoil occurred within the reporting period which exposed previously contained coal rejects. This results in a potential hazard for the personnel excavating the coal rejects. Excavated slopes were observed to have been left at heights of up to approximately 8 m (Appendix A, Photograph 27). Within a week of notification, the excavation was re-sloped.

The Rehandled Box Yard spoil was inactive during the reporting period. The relocated coal rejects material was encapsulated by waste rock within the PAG zone of the Swift North spoil during the reporting period.

Visual inspections were completed three times annually per Teck's SP&P EN.020.R6 (Teck 2020b) for all of the dormant coal reject spoils. The two inspections completed in 2022 were completed by staff from the FRO Geotechnical Engineering team and were reviewed by WSP; the inspection from 2021 was completed during the 2021 AFPR by the EoR and staff from the FRO Geotechnical Engineering team.

CFMAs were completed for the facilities assessed to be at the highest risk. CFMAs remain to be completed for three facilities (recommended actions 2021-10, 2021-21 and 2021-23). Similarly, updates to stability analyses, (recommended actions 2021-12, 2021-15 and 2021-17; in progress at the time of this report), also prioritized facilities assessed to be at the highest risk.

3.2 Maintenance

There are two erosion features near the division between Blake spoil and Kilmarnock/Toe Berm spoil. The erosion gully at the southern extent of Blake spoil (first identified in 2021) looks to have progressed back from the crest slightly. At the Kilmarnock / Toe Berm spoil northern extent, a new erosion feature was observed along the crest of the spoil; Teck reports this gully formed in Q1 2022. Both of these features were bermed off, and diversion ditches were created to channel water to sumps located along the crest. These features confirm the erodibility of the coal rejects and the importance of surface water management.

At the Kilmarnock / Toe Berm spoil southern toe, the erosion path first observed in 2021 (due to water flowing out of the Old South spoil and along the road) looks to have progressed, though no water was flowing at the time of the 2022 site visit (Appendix A, Photograph 13). Corrective actions are required (recommended action 2021-14).

4.0 REVIEW OF PRECIPITATION DATA

Three local climate monitoring stations exist at the FRO site: wastewater treatment plant, A-Spoil, and Brownie spoil. Records were available from the waste water treatment plant and Brownie spoil weather stations during the reporting period of 1 September 2021 to 31 August 2022. Only limited precipitation data were available for the A-Spoil station; it has therefore been excluded from the climate data review.

The Fording River Cominco station is the closest regional Environment and Climate Change Canada station to the FRO site; however, the station has not published precipitation data since 2017. The waste water treatment plant station has been used as the main precipitation station for the Fording River Cominco infilling gap process since December 2013 and now makes up the majority of the dataset. As a result, a new combined dataset, hereafter referred to as the Fording River (infilled) dataset, has been used for the climate review. The waste water treatment plant station precipitation data were used over the entire reporting period.

The total precipitation recorded at the Fording River (infilled) and Brownie spoil stations over the reporting period is shown in Table 5 with their monthly total precipitation is presented in Chart 2. For comparison purposes, the long term (1970 to 2021) average monthly precipitation at FRO (from the Fording River Cominco infilled dataset) is also presented in Chart 2. The long-term (1970 to 2021) average annual precipitation at the mine site is estimated to be 631 mm.

Note that data presented in Table 5 and Chart 2 for the Fording River (infilled) and Brownie spoil stations are raw data; no adjustments for station elevation or undercatch were made.

Table 5: Total Precipitation from 1 September 2021 to 31 August 2022

Weather Station	Total Precipitation (mm)
Fording River (infilled)	669
Brownie spoil	617

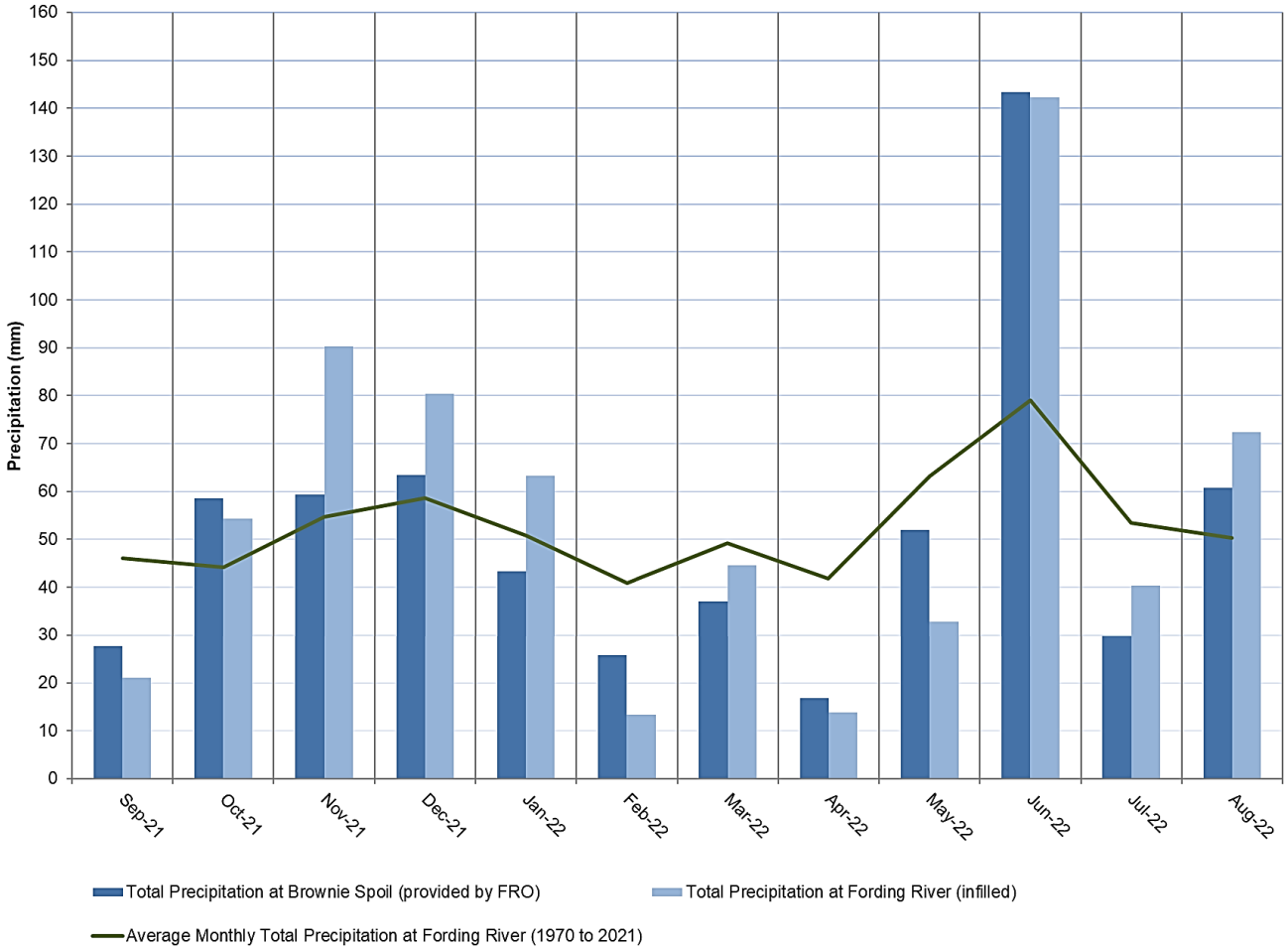


Chart 2: Monthly Precipitation Data from 1 September 2021 to 31 August 2022

The precipitation data in Table 5 indicates the annual precipitation at FRO was in line with the long-term average, with the Fording River (infilled) dataset from 1 September 2021 to 31 August 2022 indicating 38 mm (6%) higher precipitation than the
long-term average of 631 mm and the Brownie spoil weather station dataset indicating14 mm (2%) lower precipitation than the long term annual average.

Freshet typically starts in April to May at FRO, with higher runoff flow events expected during those months as a result of combined rainfall and snowmelt.

Two additional external erosion features were identified during the site visit (Section 5.5.3.2) and were likely caused during periods of heavier precipitation and/or snow melt.

5.0 COAL REJECT SPOILS SAFETY ASSESSMENT

This section presents an assessment of the safety of the coal reject spoils based on observations from the 2022 site visit and review of data for each of the coal reject facilities, in comparison with potential credible failure modes.

5.1 Site Visit

A site visit was carried out on 27 and 28 September 2022 by Julia Steele, P.Eng. and Natasha Carrière, P.Eng., of WSP; they were accompanied by David Walker, P.Eng., and Spencer Costigan, E.I.T., of Teck.

Appendix A presents a summary of photographs taken during the September 2022 inspection and photograph locations and directions are presented in Figure 2 through Figure 4. A summary of observations made during the annual visit are included in Appendix B.

Based on visual observations during the annual 2022 site visit, the coal reject spoils appeared generally safe, with the exception of the two oversteepened excavations: one at the Taylor Rejects spoil and one at the toe of the Eagle 4 South Backfill spoil. Teck took immediate action for the two excavations, though outstanding actions are still required at the Eagle 4 South Backfill spoil (Sections 5.5.7 and 5.5.8).

Maintenance at the southern toe of the Kilmarnock / Toe Berm spoil is required, as identified in Section 3.2.

5.2 Review of Background Information

Teck provided the following information for this AFPR:

- 2021 FRO site LiDAR topographic data and orthophoto
- GPS and extensometer instrumentation data
- records of routine visual inspections by Teck personnel
- site climate data from 1 September 2021 to 31 August 2022

In addition, available historical data were reviewed as part of this AFPR.

5.3 Consequence of Failure

Teck has advised that they are aligned with the Global Industry Standard on Tailings Management (GISTM; GTR 2020), which, in turn, is consistent with their safety culture. Teck has further advised they will adopt the extreme consequence case design loading for any facility with a credible catastrophic flow-type failure mode. Adopting this approach meets or exceeds regulatory requirements, aligns with Teck's goal to eliminate any risk for loss of life, and is consistent with the GISTM (GTR 2020).

A risk assessment, including an assessment of failure consequence, has not been completed for the coal reject spoils, however, credible failure mode assessments (CFMAs) have been completed for certain facilities. A risk assessment should be completed for all facilities (recommended actions 2021-08, 2021-10, 2021-13, 2021-16, 2021-18, 2021-21, 2021-23 and 2021-24).

5.4 Review of Operational Documents

5.4.1 Operation, Maintenance, and Surveillance Manual

Operation, maintenance, and surveillance (OMS) procedures for the coal reject spoils are documented in Teck's SP&P EN.020.R6, Waste Dump Management (Teck 2020b), however this document does not meet the requirements for a TSF.

A detailed review by Teck key personnel and the EoR should be completed and a specific operational document for coal reject spoils should be developed (recommended actions 2021-03 and 2022-01).

The FRO erosion and sediment control plan (Teck 2020a) provides overall site-wide procedures for the management of erosion. This document references SP&P EN.038.R6 (Teck 2015a), which provides specific details related to CCFR spoils. It is recommended that these procedures be reviewed in consultation with the EoR in relation to current coal reject spoil practices (recommended action 2021-02).

Closure plans and general reclamation activities for the dormant coal reject spoils are outlined in Teck's five-year reclamation plan (Teck 2021).

5.4.2 Emergency Preparedness and Response Plans

Emergency response actions in the event of a failure or conditions which are indicative of an impending failure of the coal reject spoils are documented in Teck's SP&P EN.020.R6, Waste Dump Management (Teck 2020b) and include TARPs and a roles and responsibilities matrix. It is recommended that these procedures be reviewed in consultation with the EoR in relation to potential differences between waste rock spoils and coal reject spoils (recommended action 2022-01).

Emergency preparedness documentation is prepared on a site-wide basis (i.e., covers activities for emergency response at the mine site) and is documented in EP.001.R7, dated 28 February 2022 (Teck 2022).

5.4.3 Facility Safety Review

No facility safety reviews (i.e. dam safety reviews) have been completed for the coal reject spoils.

5.5 Assessment of Coal Reject Spoil Safety Relative to Failure Modes and Facility Performance

This section summarizes potential failure modes generally considered for coal reject spoils. A comparison of performance against potential failure modes (assessed on a facility-by-facility basis) is also provided.

A design basis has not been set for each facility and the design basis and criteria for each facility are to be documented, informed by the results of risk assessments, for each facility (recommended action 2021-04). For the Kilmarnock / Toe Berm, Impact Berm, and Blake spoils this action is partially being progressed as part of stability analyses.

Two potential failure modes, commonly associated with coal reject spoils, have been identified:

- **Instability**
  - Inadequate design or construction of the spoil could lead to insufficient strength in spoil materials or the foundation. High phreatic levels within the spoil or excessive strain could contribute to this failure mode.

- Rapid development of the spoil could cause excessive loading of the foundations. Soft, organic, fine-grained materials (such as those found in flood plains) are susceptible to this failure mode.
- A seismic event could cause loss of strength of spoil materials or the foundation materials.
- A seismic event could trigger liquefaction of foundations. Loose/saturated materials (such as alluvial deposits in the foundations) are susceptible to this failure mode.
- The foundations or toe could be undermined by unauthorized construction or excavation.

- **External erosion**
  - High volume/velocity surface water flows, likely during a storm event or from snow melt, that exceed the capacity of surface water management infrastructure(s), if present.
  - Lack of, or poorly maintained, surface water management infrastructure, which promotes runoff to the spoil face or along the toe. This failure mode is likely progressive.
  - Negligent or unintentional release of water (e.g., water truck) on spoil face or at toe; this failure mode would likely only result in a limited area of erosion.
  - A flood event causing water level rise in an adjacent watercourse could erode the toe of the spoil or foundation soil.

These potential failure modes are assessed for each facility in Sections 5.5.1 through 5.5.9, relative to available facility data and observed performance.

Existing controls, include QPOs and TARPs, as detailed in Section 2.6, and the FRO erosion and sediment control plan (EN.038.R6; Teck 2020a) and surface water management plan for active spoils (Teck 2020c). Surface water management guidelines for the dormant spoils are not known.

5.5.1 A-Spoil

A-Spoil is dormant, though topsoil placement along the southern crest was observed during the site visit (Appendix A, Photographs 2 and 3).

5.5.1.1 Instability

Design Basis and Existing Controls

Stability analyses were completed in 2016, prior to and following the placement of a restoration soil stockpile on top of the facility (Golder 2016b,c).

- Static stability assessments partially met a Factor of Safety (FoS) of 1.5, with FoS ranging from 1.4 to 2.1.
- Pseudo-static stability assessments, which used the 1-in-975 seismic loading, indicated FoS exceeded 1.1. The seismic loading used is out of date.
- Stability analyses did not consider the potential for undrained failure in the glaciofluvial material encountered during site investigations (AMECFW 2015).

Following confirmation of design criteria, updated stability analyses should be completed, using current geometry and conditions. In addition, the impact of potential undrained behaviour of the glaciofluvial material should be assessed (recommended action 2021-07).

Observed Performance

A-Spoil was observed to be in good condition during the 2022 inspection with no signs of large scale instability (Appendix A, Photographs 1 to 6). Surface instability due to erosion is discussed in Section 5.5.1.2.

GPS data for the single instrument (A_Spoil), located at the crest above the Liverpool ponds were available from 23 September 2021 through to 18 March 2022, and from 24 June 2022 through to 10 July 2022 (Appendix C, Figures C-1 and C-2). Data was not available after 10 July 2022 and it is recommend that Teck repair or replace the instrument and resume monitoring on the facility (recommended action 2022-02). Calculated 3D velocities were generally less than 50 mm/day during the reporting period which is consistent with expected performance, and therefore not indicative of instability.

Topsoil stockpiling was observed along the south slope crest during the site visit. Work was being completed without prior notification or approval from the Teck tailings department. Increased loading of the crest could lead to instability concerns, and a review of communication procedures on site should be conducted (recommended actions 2022-01).

5.5.1.2 External Erosion of Spoil Face or Toe

Design Basis and Existing Controls

The facility has been partially revegetated, but the majority of the spoil is unvegetated along the south slope and along the crest (Appendix A, Photographs 1 to 6).

Failure due to external erosion of materials at the toe of the spoil as a result of surface water flows is not applicable to A-Spoil as there are no watercourses in the immediate vicinity.

Observed Performance

Significant erosion gullies were noted along the southern slope (Appendix A, Photograph 1), up to 5 m wide and 1 m deep. These are not considered to represent a risk to the facility at this time.

5.5.2 Box Yard Spoil

The Box Yard spoil is dormant and no longer receiving material. At the time of reporting approximately 8% of the original volume remains (Appendix A, Photograph 7) largely within the wall of the Swift Pit.

5.5.2.1 Instability

Design Basis and Existing Controls

There is no information available on the initial design of the Box Yard spoil and no stability assessments have been completed.

Observed Performance

Work to remove the Box Yard spoil has left the excavated face of the material at angle of repose (approximately 37°), with localized oversteepened portions of the spoil at 0.75H:1V slopes (Appendix A, Photograph 7). Teck has confirmed that the plan is to maintain the existing volume in its current condition which poses a potential risk to workers operating within the active pit in the area. Existing site practices to mitigate risk to personnel downslope should be submitted to the EoR for review (recommended action 2021-11). Updated stability analysis should also be completed for the remaining configuration (recommended action 2021-09).

5.5.2.2 External Erosion of Spoil Face or Toe

Design Basis and Existing Controls

The facility is at increased risk of external erosion due to the oversteepened face, which could mobilize material into the active pit downslope.

Failure due to external erosion of materials at the toe of the spoil as a result of surface water flows is not applicable to Box Yard spoil as there are no watercourses in the immediate vicinity.

Observed Performance

The remaining portion of the Box Yard spoil above the Swift Pit is at angle of repose with sections that are oversteepened and Teck have reported that safety mitigations are in place for the Swift Pit. Details should be provided to the EoR (recommended action 2021-11).

5.5.3 Kilmarnock / Toe Berm Spoil

The Kilmarnock / Toe Berm spoil is dormant and no longer receiving material.

During the 2022 site inspection of the Kilmarnock / Toe Berm spoil an odour associated with the burning waste material was encountered. No signage or other information was readily available to provide information on the associated hazard or risk. Signage or other safety procedures should be posted on the facility regarding potentially hazardous atmosphere from burning coal rejects (recommended action 2022-03).

5.5.3.1 Instability

Design Basis and Existing Controls

Stability analyses were completed in 1990 and 1994 (Golder 1990c, 1994):

- Static stability assessments partially met a FoS of 1.5, with FoS ranging from 1.2 to greater than 1.8. The lowest FoS was encountered at the eastern limit of the spoil along the edge of the Kilmarnock flood plain, where ground conditions included isolated surficial peat soils (Golder 1990c). Updates based on current geometry are required.
- No pseudo-static analyses have been completed.
- Stability analyses did not consider the potential for undrained failure in lenses of soft organic material and fine-grained material, which may be present due to the spoil being located partially on the Kilmarnock Creek flood plain (1990c). Golder (1990c) recommended that isolated surficial peat soils, identified within the spoil footprint, be removed prior to development of the spoil. However, there is no information available to confirm foundation preparation was completed or that deeper lenses of poor material were considered.
- Liquefaction of the saturated alluvial soils in the foundation have not been assessed.

An updated stability assessment is required (recommended action 2021-12), and WSP began this work in late 2022.

Golder (2005a) assessed the impact that burning rejects may have on the long-term stability. Samples of burned rejects were recovered and tested. The shear strength of the burned rejects was assessed to be comparable to that of unburned rejects. As such, the presence of burning rejects is not expected to impact stability.

Observed Performance

No sinkholes or evidence of other stability issues were observed during the 2022 inspection.

Historical creeping/settlement was seen at the crest of the first lift above Kilmarnock Creek (Appendix A, Photograph 12); conditions appear to be similar to those observed during the 2021 annual inspection. The observed settlement does not present a risk to facility stability. The area should continue to be monitored.

There is no instrumentation on the Kilmarnock / Toe Berm spoil however there are GPS units on the Old Swift spoil above the Kilmarnock / Toe Berm spoil which could measure large scale creep in the foundations. Data (Appendix C, Figures C-3 to C-6) indicated 3D velocities were generally less than 50 mm/day with a maximum settlement of approximately 300 mm, moving to the southwest (Appendix C, Figure C-3 and C-6), which is consistent with expected settlement within the waste rock, and therefore not indicative of instability.

An excavation was observed along the crest of the Kilmarnock / Toe Berm spoil during the site visit (Appendix A, Photograph 11). The Teck tailings department has not been notified, nor had approval had been provided. While this excavation does not pose a risk to the facility, best practice would be to backfill open test pits. Teck has identified a plan for retroactive management of change for classification of coal reject spoils as tailing facilities, including additional training, signage at facilities, and notification to be posted at gatehouse.

Teck provided water level data for the monitoring wells located at the southern toe of the Kilmarnock / Toe Berm spoil. The data shows that the water levels are below original ground elevations, which would align with the current interpretation of a free-draining behaviour in the facility (Appendix C, Figure C-7). No water levels within the spoil are available.

5.5.3.2 External Erosion of Spoil Face or Toe

Design Basis and Existing Controls

The southern portion of the Kilmarnock / Toe Berm spoil is located within the Kilmarnock Creek flood plain (Golder 1990c) and there are no known criteria set to protect the Kilmarnock / Toe Berm spoil against toe erosion from increased flows in Kilmarnock Creek. There is also no evidence of toe erosion being considered in the design (i.e., no riprap or setback).

The Kilmarnock / Toe Berm spoil has an overall slope angle of approximately 25°, though bench scale slopes are typically at angle of repose (approximately 37°) for benches up to 80 m in height. The angle of repose slopes are more susceptible to erosion on the spoil face, in particular along the larger lift heights.

Observed Performance

The Kilmarnock / Toe Berm spoil was observed to generally be in good condition with minor issues that require maintenance.

Three historical erosion gullies were present on the western side of the spoil, which were caused by ponding on the crest during the 2013 flood event (Appendix A, Photograph 8). The gullies appear to be relatively stable when compared with photos and survey data from previous years (2013 through 2021) but should continue to be monitored.

The erosion path at the southern toe of the facility (Appendix A, Photograph 13) first observed in 2021 due to water flowing out of the Old South spoil and along the road, looks to have progressed slightly (recommended action 2021-14), though no water was flowing at the time of the 2022 site visit.

One new erosion gully was noted during the site visit, near the northern extent of the Kilmarnock / Toe Berm spoil, near the division between Blake and Kilmarnock / Toe Berm spoils (Appendix A, Photographs 8 and 9). Teck reports that this feature was formed in Q1 2022 after precipitation events, resulting from channeling of surface water at the crest following precipitation events. The run out path collected on the lower bench, then continued down to nearly the lower FRO access road. The runout path was largely revegetated at the time of the site visit and the gully was measured to be approximately 7 m wide and 2 m deep. A berm was placed around the scarp at the crest in Q3 2022 and diversion ditches were created at that time to channel water to sumps which are set back from the crest.

5.5.4 Impact Berm Spoil

The Impact Berm spoil is dormant and no longer receiving material.

5.5.4.1 Instability

Design Basis and Existing Controls

Stability analyses were completed in 1994 (Golder 1994) but did not include a section through the Impact Berm spoil, only the Kilmarnock / Toe Berm spoil.

- The spoil is located within the Kilmarnock Creek flood plain and as such there is a potential for lenses of soft organic, fine-grained lenses, and/or saturated, sorted sands and gravel, which could be susceptible to undrained and/or liquefaction failure (Golder 1989).
- Golder (1990c) indicated that the foundations of the nearby Kilmarnock / Toe Berm spoil include surficial peat material, which based on proximity, could be present under the Impact Berm spoil.

Stability analyses are required to assess existing stability based on current geometry as well as evaluate potential failure due to undrained behaviour and/or liquefaction of the foundation materials (recommended action 2021-15), and WSP began this work in late 2022.

Observed Performance

The Impact Berm spoil was observed to be in good condition during the 2022 inspection and performance was within that expected for normal conditions.

Teck provided water level data for monitoring wells located on and around the Impact Berm spoil . The data shows water levels near and within the Impact Berm spoil are below original ground level indicating the CR materials are unsaturated (Appendix C, Figure C-8).

5.5.4.2 External Erosion of Spoil Face or Toe

Design Basis and Existing Controls

The northern portion of the Impact Berm spoil is located within the Kilmarnock Creek flood plain. There are no criteria set to protect the Impact Berm spoil against toe erosion from increased flows in Kilmarnock Creek and there is no evidence of toe erosion being considered in the design (i.e., no riprap or setback).

The Impact Berm spoil has an overall slope at angle of repose (approximately 37°) and a height of approximately 35 m. The facility has been partially revegetated, which helps to mitigate the risk from erosion along the slope faces.

Observed Performance

The Impact Berm spoil was observed to be in good condition during the 2022 inspection with some minor rills observed (Appendix A, Photograph 15).

No evidence of current or historical toe erosion due to increased surface water flows was observed in the 2022 site visit.

5.5.5 Blake Spoil

The Blake spoil is dormant, though it has been used as a short-haul location (i.e., temporary stockpiling prior to continued transportation) for CCFR since 2021 (Appendix A, Photograph 21). Teck has confirmed that the North Blake spoil will continue to be used to temporarily stockpile materials.

5.5.5.1 Instability

Design Basis and Existing Controls

The initial design of the Blake spoil is summarized in Golder (1997b) with updated information provided as part of the revised design configurations in Golder (2002, 2004, 2008c). The latest stability analyses were completed in 2008 (Golder 2008c) based on an expanded facility with a maximum elevation of 1,850 m.

- Static stability assessments met a FoS of 1.5.
- Pseudo-static stability assessments used the 1-in-475 seismic loading. The pseudo-static FoS exceeded 1.1; however, the seismic loading used is out of date.
- Stability analyses did not consider the potential for undrained failure as a result of topsoil and silt encountered during the field investigation along with a high groundwater phreatic surface in the area (Golder 2008c).

Stability analyses are required to assess the current geometry as well as the potential for undrained behaviour of topsoil and silt materials identified in the foundation. Following confirmation of design criteria, the seismic load and return period used to assess pseudo-static stability should be reviewed, and the analyses should be updated (recommended action 2021-17); WSP began this work during the reporting period.

Observed Performance

There were no signs of instability during the site visit (Appendix A, Photographs 18 to 22).

5.5.5.2 External Erosion of Spoil Face or Toe

Design Basis and Existing Controls

Failure due to external erosion of materials at the toe of the spoil as a result of surface water flows is not applicable to Blake spoil as there are no watercourses in the immediate vicinity.

The Blake spoil has an overall slope angle of approximately 23°, though bench scale slopes are typically at angle of repose (approximately 37°) for benches up to 50 m in height. The angle of repose slopes are more susceptible to erosion on the spoil face, in particular along the higher lift heights.

Observed Performance

The extent and depth of the large erosion gully along the western slope, observed in 2021, appeared to be unchanged. Older erosion features on Blake spoil were also noted (Appendix A, Photograph 18).

During the 2022 annual visit a berm was observed to have been placed around the erosion feature first noted in 2021 at the south end of the Blake spoil, near the division between Blake and Kilmarnock/ Toe Berm spoils, along the western crest of the 1,780 m platform to manage surface water flows. The erosion feature was measured to be approximately 3.5 m deep and 12 m wide, with material run out on a lower bench; the gully looks to have progressed slightly since the initial event (Appendix A, Photographs 18 and 19). As discussed in Section 5.5.3.2, surface water management upslope of the gully was also improved to direct flows away from this area (recommended action 2021-19).

5.5.6 Turnbull West Spoil

The Turnbull West spoil is dormant and partially reclaimed on the south side.

5.5.6.1 Instability

Design Basis and Existing Controls

Stability analyses were completed by Golder (2011b, 2012b, 2019):

- Static stability met a FoS of 1.5.
- Pseudo-static stability assessments used the 1-in-2,475 seismic loading. The pseudo-static FoS exceeded 1.1. The seismic loading criteria for stability analyses should be confirmed with Teck for this facility.
- Stability analyses did not consider the potential for undrained behaviour and/or liquefaction failure of fine-grained and saturated material encountered in the foundation during field investigations along with a high groundwater phreatic surface in the area (Golder 2003, 2008a, 2013c). The toe of the facility is located along the Fording River flood plain, which has liquefaction susceptible soils. The stability analysis should be updated to consider these failure modes (recommended action 2021-20).

Observed Performance

The Turnbull West spoil was observed to be in generally good condition during the 2022 inspection with no signs of instability (Appendix A, Photographs 23 to 26).

There are seven GPS units (TB_WD_Turnbull West Spoil_01 through TB_WD_Turnbull West Spoil_07) located along the crest of the Turnbull West spoil slope above the Fording River (Appendix C, Figures C-11 to C-15)). 3D velocities were generally less than 100 mm/day during the reporting period, consistent with expected performance, and are not indicative of instability.

5.5.6.2 External Erosion of Spoil Face or Toe

Design Basis and Existing Controls

The south side of the Turnbull West spoil has been re-sloped to approximately 2H:1V and reclaimed, reducing the risk of external erosion in this area. The facility is constructed of co-mingled waste rock and CCFR, and as such the addition of waste rock further reduces the facilities risk to external erosion.

The Fording River meanders around the extent of the Turnbull West spoil, and there are no criteria set to protect the Turnbull West spoil against toe erosion from the Fording River due to increased surface water flows. However, the toe of Turnbull West spoil comprises waste rock, which will be resistant to flood erosion.

Observed Performance

The Turnbull West spoil was observed to be in good condition during the 2022 inspection with some minor rills observed.

No evidence of current or historical toe erosion due to increased surface water flow was observed in the 2022 site visit.

5.5.7 Taylor Rejects Spoil

The Taylor Rejects spoil is dormant and mostly buried under waste rock except on the north side that has been recently re-opened.

5.5.7.1 Instability

Design Basis and Existing Controls

There is no stability analysis for the Taylor Rejects spoil, but due to the location of the Taylor Rejects spoil, large scale instability is unlikely. Stability analyses are required to assess the current geometry (recommended action 2021-22).

Observed Performance

During the 2022 site visit, excavation of the encapsulating waste rock and into the coal rejects on the north end was observed (Appendix A, Photograph 27). The excavation face was left oversteepened at a height of approximately 8 m, which poses a risk to any operators working in the area. The material was being used as borrow for the saturated rockfill construction, however the Teck tailings department had not been notified nor provided approval for this work. Within a week of notification, the excavation was re-sloped to mitigate the risk from the oversteepend face. An investigation into this occurrence was completed by Teck and a plan for retroactive management of change for classification of coal reject spoils as tailing facilities has been developed, including additional training, signage at facilities, and notification to be posted at the gatehouse.

A minor excavation was also observed along the crest of the Taylor Rejects spoil during the site visit (Appendix A, Photograph 28) which the Teck tailings team were also not aware of.

5.5.7.2 External Erosion of Spoil Face or Toe

Design Basis and Existing Controls

A failure due to external erosion of materials at the toe of the spoil as a result of surface water flows is not applicable to the Taylor Reject spoil as there are no watercourses in the immediate vicinity.

The facility is largely encapsulated in waste rock, which mitigates the risk of external erosion. Minor erosion may be possible on the newly exposed north side of the spoil but has not been observed.

Observed Performance

Due to recent excavation on the north end (Appendix A, Photograph 27), there is potential for erosion of the coal reject material previously encapsulated by waste rock. Within a week of notification, the excavation was re-sloped, however this portion remains exposed (i.e., not encapsulated in waste rock).

5.5.8 Eagle 4 South Backfill Spoil

The Eagle 4 South Backfill spoil was active during the reporting period.

5.5.8.1 Instability

Design Basis and Existing Controls

Stability analyses were completed in 2016 (Teck 2016b) and 2017 (Teck 2017a). The results should be reviewed following confirmation of design criteria but are generally anticipated to be adequate for the facility.

- Static stability assessments met a FoS of 1.5.
- Pseudo-static stability assessments used up to date 1-in-10,000 seismic loading. The pseudo-static FoS exceeded 1.1.

Observed Performance

Multiple deficiencies were noted at the Eagle 4 South Backfill spoil at the time of the site visit.

During the 2022 site visit, it was observed that some lifts of the Eagle 4 South Backfill spoil had been placed without dozer compaction, as required by Teck's SP&P EN.020.R6 (Teck 2020a), and no dozer was observed to be present. In addition, some lifts had been placed at double (30 m) the design height, which does not meet permit conditions for the Eagle 4 South Backfill spoil (MEMNG 2017; permit C-3, section B.1(b) and B.1(c)(ii)). Similar observations were made during the 2021 site visit and a review of current procedures and permit conditions, along with an investigation to determine the cause of variances from design/permit conditions should be undertaken. The investigation should identify procedures to prevent reoccurrence, and these procedures should be implemented (recommended action 2021-25).

At the time of the 2022 site visit, material was being excavation at the toe of the eastern side of the facility for use as borrow for the saturated rockfill construction (Appendix A, Photograph 30). The excavation face (approximately 10 m high) was oversteepened. The slope above the excavation was approximately 30 m high, at angle of repose (approximately 37°), and showed signs of movement. The excavation resulted in worker and equipment operating in an unsafe area beneath an unstable slope which could have resulted in a fatality (HSRC Section 6.20.2(2)).

Neither the Teck tailings department nor geotechnical department had been notified of, or provided approval for, this work. After the site visit team reported the unsafe work, work was halted, and an initial berm was placed blocking access to the excavation. Teck identified an alternate source of borrow material and placed an additional berm adjacent to the access road to block access as well as added signage to restrict access. Corrective action to re-slope the excavated toe area is required prior to resumption of operations in this area (recommended action 2022-04). Teck has indicated that a dozer will be used to infill the existing cut and create a buttress at the toe. Teck has further identified a plan for retroactive management of change for classification of coal reject spoils as tailing facilities, including additional training, signage at facilities, and notification to be posted at gatehouse.

An extensometer (101), originally installed following minor cracking and settlement in 2020 at the northeast corner above a sampling well, indicated velocities were less than 50 mm/day during the reporting period and as such are not a concern for facility safety in this area (Appendix C, Figure C-16).

5.5.8.2 External Erosion of Spoil Face or Toe

Design Basis and Existing Controls

The Eagle 4 South Backfill spoil is currently active and equipment is available to maintain surface water management infrastructure.

A failure mode due to external erosion of materials at the toe of the spoil, as a result of surface water flows is not applicable to Eagle 4 South spoil as there are no watercourses in the immediate vicinity.

Observed Performance

No external erosion concerns were observed at the Eagle 4 South Backfill spoil during the 2022 inspection.

5.5.9 Rehandled Box Yard Spoil

The Rehandled Box Yard spoil was inactive over the reporting period. At the time of inspection, the spoil was buried under waste rock within the PAG waste rock zone of the Swift North spoil and as such was not directly inspected.

5.5.9.1 Instability

Design Basis and Existing Controls

There is no stability analysis for the Rehandled Box Yard spoil; however, due to the location and encapsulation, instability is not a credible failure mode.

Observed Performance

The Rehandled Box Yard spoil was not directly observed; however, based on the locations withing the Swift North Spoil and encapsulated waste rock, there are no stability concerns (Appendix A, Photograph 31).

5.5.9.2 External Erosion of Spoil Face or Toe

Design Basis and Existing Controls

This failure mode is not applicable to the Rehandled Box Yard spoil as the spoil is buried by waste rock and there are no watercourses in the immediate vicinity.

The facility is encapsulated in waste rock, which mitigates the risk of external erosion.

Observed Performance

Based on the location within the Swift North spoil and that the facility is encapsulated in waste rock, there are no stability concerns related to erosion.

Given the buried status of the Rehandled Box Yard spoil within the Swift North spoil, future annual reporting for the facility should be included with annual spoils reporting and not within an annual facility performance report for tailings facilities (recommended action 2022-05).

6.0 SUMMARY AND RECOMMENDATIONS FOR THE 2022 ANNUAL FACILITY PERFORMANCE REPORT

6.1 Summary of Activities During Reporting Period

The following activities were completed during the reporting period:

- Visual inspections from 2022 with photograph documentation and tri-annual records of dormant spoils were completed by Teck and provided to WSP. Visual inspections were completed for the active Eagle 4 South Backfill spoil and should be provided to WSP for review.
- **A-Spoil**—Stockpile placement near the crest was observed on the southern crest of A-Spoil, without prior notification and approval from the Teck tailings department. A CFMA was completed for the facility.
- **Box Yard spoil**—No activity.
- **Kilmarnock / Toe Berm spoil**—A new erosion feature was observed at the northern extent, near the division between the Kilmarnock / Toe Berm and Blake spoils. The scarp was bermed off and diversion ditches were added to direct surface water flows away from the crest. A CFMA was completed and stability analyses are underway.
- **Impact Berm spoil**—A CFMA was completed and stability analyses are underway.
- **Blake spoil**—Blake spoil continues to be used as a short-haul location, with approximately 210,000 m^3 of material placed and approximately 170,000 m^3 removed during the reporting period, based on Teck survey data. The erosion feature identified in 2021, at the south extent near the division between the Kilmarnock / Toe Berm and Blake spoils, was bermed off at the scarp and surface was flows were redirected. A CFMA was completed and stability analyses are underway.
- **Turnbull West spoil**—No activity.
- **Taylor Rejects spoil**—Excavation at the north side of the Taylor Rejects spoil occurred within the reporting period and exposed previously contained coal rejects. Excavated slopes were left at heights of approximately 8 m, though within a week of notification the excavation was re-sloped.
- **Eagle 4 South Backfill spoil**—Active during the reporting period with approximately 1,770,000 m^3 of new CCFR material was placed within the active Eagle 4 South Backfill spoil. Excavation at the east toe was observed at the time of the annual site visit and has since had a berm and signage placed to block access to the excavation. Corrective actions are required and planned to be implemented by Teck prior to the end of Q2 2023.
- **Rehandled Box Yard spoil**—The relocated coal rejects material was covered and was observed to be encapsulated by waste rock within the PAG designated zone of the Swift North spoil.

6.2 Summary of Precipitation

Annual precipitation onsite for the reporting period was in line with the long-term average over the year.

Two additional external erosion features were identified during the site visit and were likely caused during periods of heavier precipitation.

6.3 Summary of Performance and Changes

The following risks to facility stability were identified as requiring corrective action:

- Taylor Rejects spoil—Excavation at the north side occurred within the reporting period and exposed previously confined coal rejects which may allow an alternative pathway for runout. Excavated slopes (up to approximately 8 m high) were also left oversteepened; within a week of notification, the excavation was re-sloped.
- Eagle 4 South Backfill spoil—Excavation at the east toe was observed at the time of the site with the excavated slope (up to approximately 10 m high) left in an oversteepened state. This presented an immediate danger to equipment and personnel working in the area (HSRC Section 6.20.2(2)). Following identification, work was halted, and an initial berm placed to block access to the excavation. Teck identified an alternate source of borrow material and placed an additional berm adjacent to the access road to block access as well as added signage to restrict access. Corrective action to re-slope the excavated toe area is required prior to resumption of operations in this area. Teck had indicated plans to infill the excavation and add a berm at the toe prior to the end of Q2 2023.

Maintenance at the southern toe of the Kilmarnock / Toe Berm spoil is required

6.4 Consequence of Failure

Teck has advised that they will adopt design loading based on extreme events for any facility with a catastrophic credible flow-type failure mode. Adopting this approach meets or exceeds regulatory requirements, aligns with Teck's goal to eliminate risk for loss of life, and is consistent with the GISTM (GTR 2020), which supports evolving beyond the conventional consequence classification system.

6.5 Recommendations

Table 6 presents the status of the recommended actions from the 2021 AFPR (Golder 2022a) and new recommended actions from the 2022 AFPR. There are multiple new recommendations based on this 2022 AFPR. Completed or retracted actions are shown with grey shading.

Table 6: 2022 Annual Facility Performance Report Recommended Actions for the Coal Reject Spoils

ID Number	Facility	Deficiency or Non-conformance	Applicable Code/ Guideline Reference / Potential Safety Hazard	Recommended Action	Priority	Recommended Timing for the Action	Status as of March 2023
2021-01	All	Dormant spoil inspection reports not available to EoR for review	Section 7.2 (Teck 2020a)	Provide the dormant spoil inspection reports to the EoR.	4	Q4 2022	**Complete**—2022 photographs provided and tri-annual inspections, historic photographs available on Teck servers.
2021-02		Current practices not aligned with SP&P EN.038.R6	Teck staff unaware of erosion control measures for dormant CR / CCFR spoils	Review SP&P EN.038 R6 in consultation with EoR and compare against current erosion control procedures adopted for CR and CCFR spoils.	4	2023	**Incomplete**
2021-03		Spoil QPOs not set or require update	HSRC Section 10.1.13	Determine or update existing QPOs for the spoils in consultation with the QP QPOs should be defined for each coal rejects spoil.	3	2023	**Incomplete**— recommended timing updated from 2022
2021-04		Design criteria has not been set or documented	HSRC Section 10.1.14	Determine and document design criteria for each facility, subject to Teck's approach to adopting extreme design loading for any facility with a credible catastrophic flow-type failure mode, which will be informed by the risk assessments for each facility.	4	2024	**Incomplete**— recommended timing updated from 2023 in consideration of other priority facilities at FRO
2021-05		OMS manuals and TARPS do not account for CR/CCFR spoils being designated as TSFs	HSRC Section 10.5.2	Review the operational, maintenance, and surveillance documents with respect to TSF requirements. Consideration should be made for separating the waste rock spoil operational documents from those that are considered a TSF spoil.	4	2023	**Retracted and replaced with recommendation 2022-01**
2021-06		Placement of materials without notification	Potential breakdown in site procedures.	Review notification procedures for changes in operations.	2	Q2 2023	**Complete**— Retroactive management of change for classification of coal reject spoils as tailing facilities to be completed, including additional training, signage at facilities, and notification to be posted at gatehouse.
2022-01		Lack of surveillance and communications resulting in hazardous situations	HSRC Section 10.5.2	Determine or clarify appropriate operation, maintenance, and surveillance procedures for the coal reject spoils. Confirm roles, responsibilities, accountability, communication requirements, change notification/approval procedures and governance for all OMS tasks related to coal reject spoils, and train relevant staff accordingly.	2	Q3 2023	**New Recommendation**— Planned review / update of OMS manual and/or SP&P in Q2 2023, and incorporate management of change plan
2021-07	A-Spoil	Stability assessment requires update	HSRC Sections 10.1.4	Update stability analysis to confirm current conditions and geometry meet design criteria. Assess potential need for additional subsurface investigations.	3	2024	**Incomplete**— recommended timing updated from 2023
2021-08		No failure consequence assessment	HSRC Section 10.1.11	Complete risk assessment informed by the stability analyses. If required, complete a runout assessment to assess the potential runout distance.	3	2024	**In progress**—CFMA complete, risk assessment scheduled. Recommended timing updated from 2023
2022-02		Inability to monitor facility	EN.020.R6	Repair or replace the GPS instrument and resume monitoring at southwest crest.	4	2023	**New Recommendation**
2021-09	Box-Yard	Stability assessment requires update	HSRC Sections 10.1.4	Remove remaining material or complete a stability analysis for the Box Yard spoil for current conditions.	3	2024	**Incomplete**
2021-10		No failure consequence assessment	HSRC Section 10.1.11	Remove remaining material or risk consequence assessment informed by the stability analyses. If required, complete a runout assessment to assess the potential runout distance.	3	2024	**Incomplete**
2021-11		Oversteepened slopes from excavation of spoil	Oversteepened slopes increase potential for runout in the active Swift Pit	Remove remaining material or document existing practices to mitigate risk to personnel downslope during mining for Swift Project. Provide documentation to the EoR.	3	Q2 2023	**In progress**—material to remain, documentation of existing practices to be sent by Teck Geotechnical personnel. Recommended timing updated from 2022

Table 6: 2022 Annual Facility Performance Report Recommended Actions for the Coal Reject Spoils

ID Number	Facility	Deficiency or Non-conformance	Applicable Code/ Guideline Reference / Potential Safety Hazard	Recommended Action	Priority	Recommended Timing for the Action	Status as of March 2023
2021-12	Kilmarnock / Toe Berm	Stability assessment requires update	HSRC Sections 10.1.4	Update stability analysis to confirm current conditions and geometry meet design criteria. Assess potential need for additional subsurface investigations.	2	2023	**In progress**—Stability analyses completed and has indicated need for additional testing/site investigations which are planned for Q2 2023, Timing updated from 2022
2021-13		No failure consequence assessment	HSRC Section 10.1.11	Complete risk assessment informed by the stability analyses. If required, complete a runout assessment to assess the potential runout distance.	3	2024	**In progress**—CFMA complete, risk assessment scheduled, recommended timing updated from 2022 in consideration of CMFA results
2021-14		Erosion of toe of southeast extent of spoil	Potential for undermining spoil toe	Redirect water from exiting Old South spoil into Kilmarnock channel to prevent erosion of Kilmarnock / Toe Berm spoil toe.	2	2023	**Incomplete**—Timing updated from 2022, in consideration of re-sloping efforts for adjacent Old South Spoil.
2022-03		No warnings for potentially hazardous atmosphere in accessible locations	Potential Safety Hazard	Post signage or implement other safety procedures on Kilmarnock/ Toe Berm spoil regarding potentially hazardous atmosphere from burning coal rejects.	3	Q3 2023	**New Recommendation**
2021-15	Impact Berm	Stability assessment requires update	HSRC Sections 10.1.4	Update stability analysis to confirm current conditions and geometry meet design criteria. Assess potential need for additional subsurface investigations.	3	2023	**In progress**—stability analyses underway, recommended timing updated from 2022
2021-16		No failure consequence assessment	HSRC Section 10.1.11	Complete risk assessment informed by the stability analyses. If required, complete a runout assessment to assess the potential runout distance.	3	2024	**In progress**—CFMA complete, risk assessment scheduled, recommended timing updated from 2022 in consideration of CFMA results
2021-17	Blake	Stability assessment requires update	HSRC Sections 10.1.4	Update stability analysis to confirm current conditions and geometry meet design criteria. Determine the future for the North Blake spoil area and expected future geometry. Assess potential need for additional subsurface investigations.	2	2023	**In progress**—stability analyses underway, recommended timing updated from 2022
2021-18		No failure consequence assessment	HSRC Section 10.1.11	Complete risk assessment informed by the stability analyses. If required, complete a runout assessment to assess the potential runout distance.	3	2024	**In progress**—CFMA complete, risk assessment scheduled, recommended timing updated from 2022 in consideration of CFMA results
2021-19		Erosion gully at low point	Potential for regressive erosion into spoil potentially leading to instability	Re-slope 1,780 m platform along western crest around new erosion scarp to prevent further erosion.	3	Q3 2022	**Complete**— Surface water management improved on crest, berms placed around gully
2021-20	Turnbull West	Stability assessment requires update	HSRC Section 10.1.4	Update stability analysis to confirm current conditions and geometry meet design criteria. Assess potential need for additional subsurface investigations.	3	2024	**Incomplete**— recommended timing updated from 2023
2021-21		No failure consequence assessment	HSRC Section 10.1.11	Complete risk assessment informed by the stability analyses. If required, complete a runout assessment to assess the potential runout distance.	3	2024	**Incomplete**— recommended timing updated from 2023
2021-22	Taylor Rejects	Stability assessment requires update	HSRC Sections 10.1.4	Update stability analysis to confirm current conditions and geometry meet design criteria. Assess potential need for additional subsurface investigations.	3	2024	**Incomplete**— recommended timing updated from 2023
2021-23		No failure consequence assessment	HSRC Section 10.1.11	Complete risk assessment informed by the stability analyses. If required, complete a runout assessment to assess the potential runout distance.	3	2024	**Incomplete**— recommended timing updated from 2023
2021-24		No failure consequence assessment	HSRC Section 10.1.11	Complete risk assessment informed by the stability analyses. If required, complete a runout assessment to assess the potential runout distance.	3	Q4 2023	**In progress**—CFMA complete, risk assessment scheduled

Table 6: 2022 Annual Facility Performance Report Recommended Actions for the Coal Reject Spoils

ID Number	Facility	Deficiency or Non-conformance	Applicable Code/ Guideline Reference / Potential Safety Hazard	Recommended Action	Priority	Recommended Timing for the Action	Status as of March 2023
2021-25	Eagle 4 South Backfill	Potential non-compliance with design and permit	HSRC Section 10.1.5, Permit C-3, section B.1(b) and B.1(c)(ii)	Review current procedures and permit conditions and undertake a review of the cause of variances. Identify and implement procedures to prevent reoccurrence.	3	2023	**Incomplete**— recommended timing updated from 2022
2022-04		Unauthorized excavation at toe	Unsupported toe could result in local failure, risk to personnel working in the area	Remediation of slope is required prior to the removal of the exclusion zone and recommencement of operations in the area.	2	Q2 2023	**New Recommendation**
2022-05	Rehandled Box Yard Spoil	n/a	n/a	Given the buried status of the Rehandled Box Yard spoil within the Swift North spoil, future annual reporting for the facility should be included with annual spoils reporting and not within an annual facility performance report for tailings.	4	none	**New Recommendation**
2021-26	Swift North	Facility not inspected or AFPR completed	HSRC Section 10.5.3	Include newly placed coal rejects spoil located within Swift North spoil in the 2022 AFPR.	3	2022	**Complete**—relocated Box Yard spoil material in PAG region of Swift North spoil, reviewed as part of this AFPR

Note: Grey shaded rows indicate completed or redacted actions.

CR = coarse rejects; CCFR = combined coarse and fine rejects; HSRC = Health, Safety and Reclamation Code; OMS = operation, maintenance, and surveillance; TARP = Trigger Action Response Plan; TSF = tailings storage facility; EoR = Engineer of Record; QPO = quantifiable performance objective; CFMA = credible failure mode assessment; AFPR = annual facility performance report; PAG = potentially acid generating; QP = Qualified Person SP&P = Standard Practices and Procedures; n/a = not applicable.

Priority	Description
1	A high probability or actual facility safety issue considered immediately dangerous to life, health or the environment, or a significant risk of regulatory enforcement.
2	If not corrected, could likely result in facility safety issues leading to injury, environmental impact, or significant regulatory enforcement; or a repetitive deficiency that demonstrates a systematic breakdown of procedures.
3	Single occurrences of deficiencies or non conformances that alone would not be expected to result in facility safety issues.
4	Best Management Practice – Further improvements are necessary to meet industry best practices or reduce potential risk.

Source: HSRC Guidance Document, Section 4.2 (Ministry of Energy and Mines 2016).

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7.0 CLOSURE

The reader is referred to the Study Limitations section, which follows the text and forms an integral part of this report.

We trust that this report meets your present requirements. If you have any questions or additional requirements, please contact the undersigned.

WSP Canada Inc.

2023-03-29

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https://golderassociates.sharepoint.com/sites/158990/project files/6 deliverables/issued/2022-123-r-rev0-1800- coal reject spoils afpr/22516328-2022-123-r-rev0-1800 coal reject spoils afpr 29mar_23.docx

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STUDY LIMITATIONS

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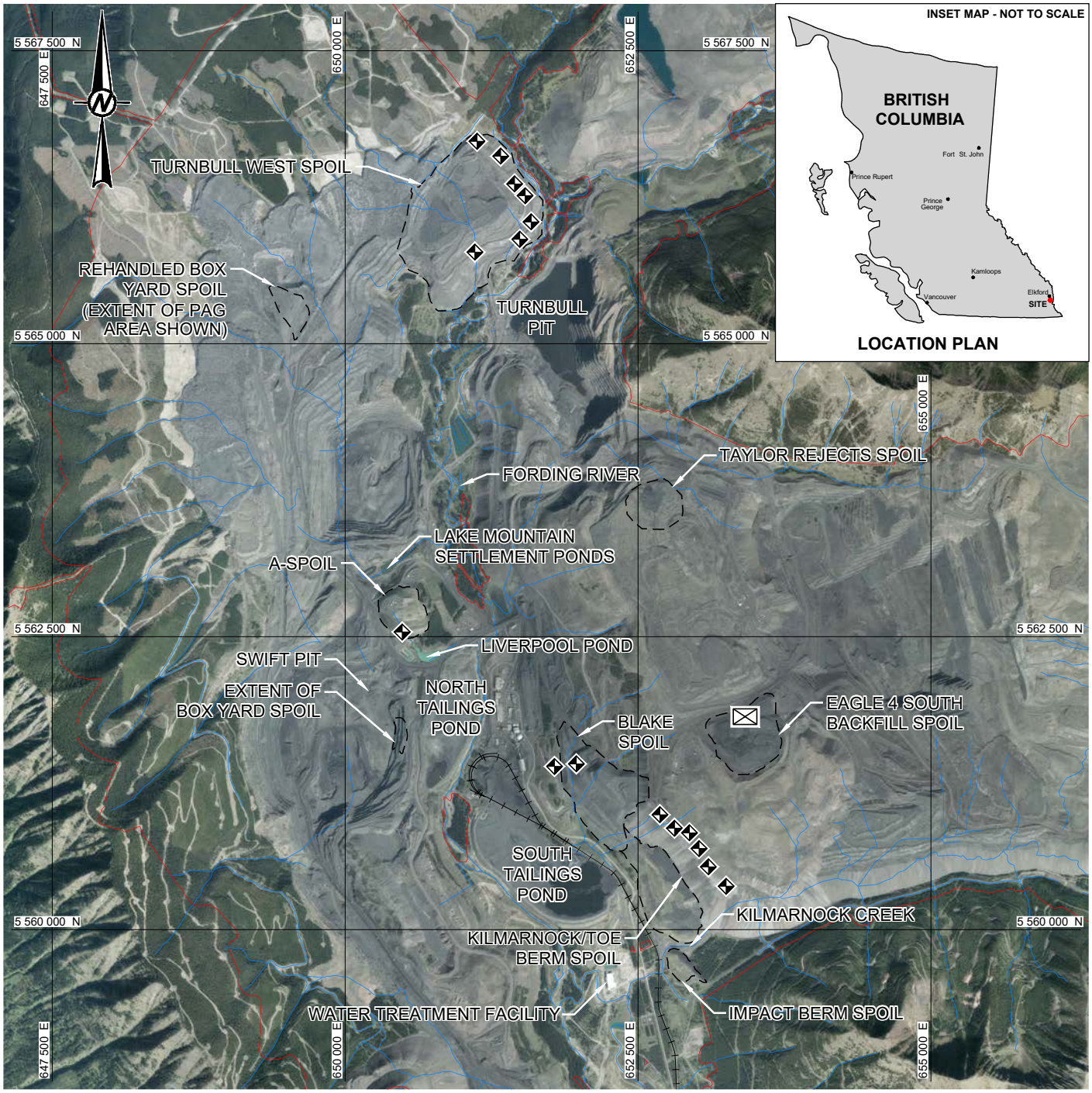

LEGEND

- C3 PERMIT BOUNDARY
- WATERCOURSE
- APPROXIMATE SPOIL FOOTPRINT
- RAILWAY
- GPS LOCATION
- EXTENSOMETER LOCATION

NOT FOR CONSTRUCTION

NOTES

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2. COORDINATES ARE IN UTM ZONE 11, ELEVATIONS ARE REFERENCED TO THE ELK VALLEY ELEVATION DATUM.

REFERENCE

1. 2021 AERIAL PHOTO PROVIDED BY TECK COAL LIMITED, FORDING RIVER OPERATIONS, RECEIVED: 12 OCTOBER 2021, DATES FLOWN: 22 JULY 2021.
2. WATERCOURSE DATA PROVIDED BY TECK COAL FORDING RIVER OPERATIONS. FILE NAME: WATERNETWORK_ALL.dxf, RECEIVED: 29 AUGUST 2018.

0 1,000 2,000
1:50,000 METRES

CLIENT
TECK COAL LIMITED
FORDING RIVER OPERATIONS
ELKFORD, B.C.

PROJECT
2022 ANNUAL FACILITY PERFORMANCE REPORT
COAL REJECT SPOILS

CONSULTANT
wsp

YYYY-MM-DD	2023-03-21
DESIGNED	P.AMINI-MOTLAGH
PREPARED	J.FUNKE
REVIEWED	N.CARRIERE
APPROVED	J.STEELE

TITLE
SITE PLAN AND INSTRUMENT LOCATIONS

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
22516328	1000/1800/2022-123	0	1

LEGEND

- C3 PERMIT BOUNDARY
- WATERCOURSE
- APPROXIMATE SPOIL FOOTPRINT
- RAILWAY
- GPS LOCATION
- # 2022 SITE VISIT PHOTO LOCATION

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0 250 500
1:10,000 METRES

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TITLE
PHOTOGRAPH AND CROSS-SECTION LOCATIONS 1 OF 3

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
22516328	1000/1800/2022-123	0	2

LEGEND

- C3 PERMIT BOUNDARY
- WATERCOURSE
- APPROXIMATE SPOIL FOOTPRINT
- RAILWAY
- GPS LOCATION
- 2022 SITE VISIT PHOTO LOCATION
- EXTENSOMETER LOCATION

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NOT FOR CONSTRUCTION

0 250 500
1:15,000 METRES

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PROJECT
2022 ANNUAL FACILITY PERFORMANCE REPORT
COAL REJECT SPOILS

TITLE
PHOTOGRAPH AND CROSS-SECTION LOCATIONS 2 OF 3

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
22516328	1000/1800/2022-123	0	3

LEGEND

- C3 PERMIT BOUNDARY
- WATERCOURSE
- APPROXIMATE SPOIL FOOTPRINT
- RAILWAY
- GPS LOCATION
- # 2022 SITE VISIT PHOTO LOCATION

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2. WATERCOURSE DATA PROVIDED BY TECK COAL FORDING RIVER OPERATIONS. FILE NAME: WATERNETWORK_ALL.dxf, RECEIVED: 29 AUGUST 2018.

0 500 1,000

1:20,000 METRES

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ELKFORD, B.C.

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TITLE
PHOTOGRAPH AND CROSS-SECTION LOCATIONS 3 OF 3

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
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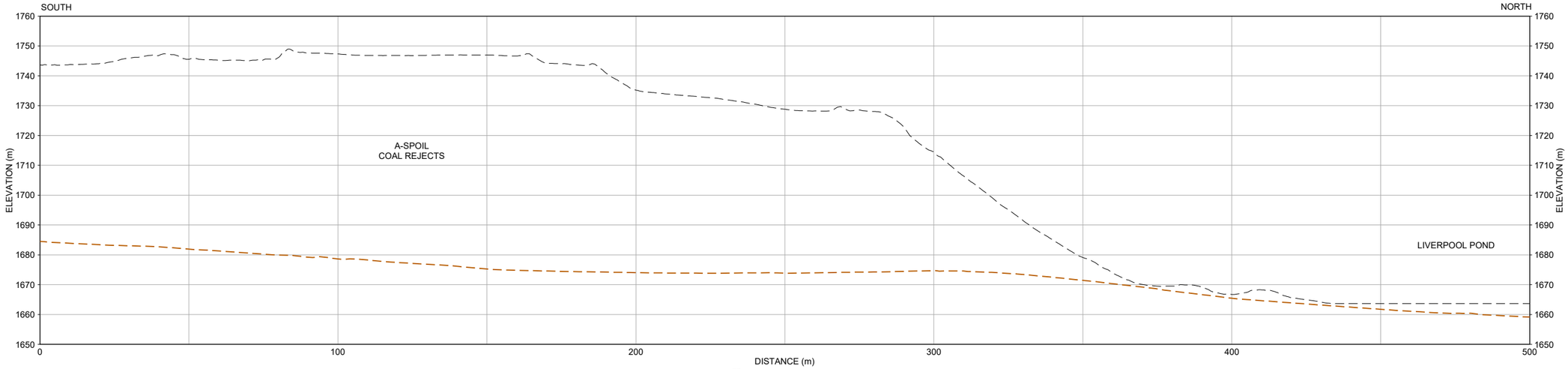
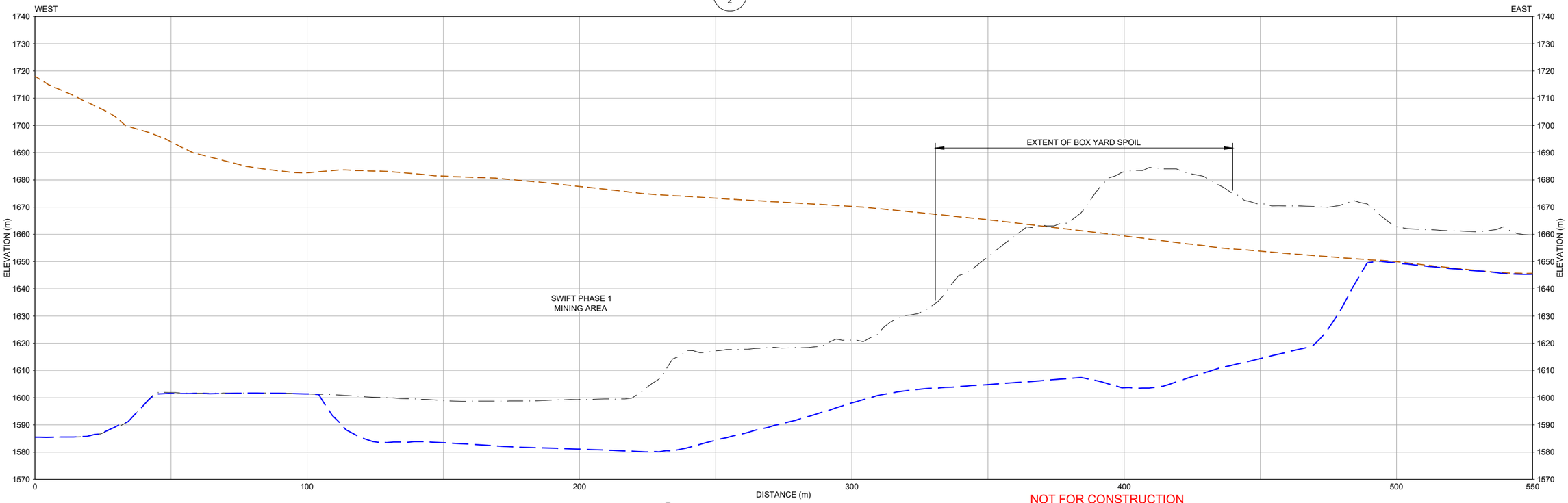


SCALE 1:1,500 m

A-SPOIL CROSS-SECTION



SCALE 1:1,500 m

B EXTENT OF BOX YARD SPOIL CROSS-SECTION

NOT FOR CONSTRUCTION

0 25 50
1:1,500 METRES

LEGEND

- 1968 ORIGINAL GROUND SURFACE
- 2021 LIDAR EXISTING GROUND SURFACE
- 2022 EXISTING GROUND SURFACE
- MINED OUT SURFACE

NOTES

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REFERENCES

1. ORIGINAL GROUND ESTIMATED BASED ON 1968 ORIGINAL GROUND SURFACE CONTOURS PROVIDED BY TECK COAL LIMITED FORDING RIVER OPERATIONS, FILE NAME: "1968_CONTOURS_BG.dwg", RECEIVED: 8 DECEMBER 2015 AND GOLDER. 1976. TAILINGS STORAGE PROPOSED 1977 EXTENSION. REPORT PREPARED FOR FORDING COAL LTD. REFERENCE NO. V75193. SUBMITTED JANUARY 1976 (GROUND SURFACE DIGITIZED BY GOLDER FROM COMINCO DRAWING (UNNAMED), FIGURE 1 LOCATION OF BOREHOLES).
2. 2021 LIDAR PROVIDED BY TECK COAL LIMITED FORDING RIVER OPERATIONS, RECEIVED: 12 OCTOBER 2021, DATES FLOWN: 22 JULY 2021.
3. 2022 LIDAR AND MINED OUT SURFACE PROVIDED BY TECK COAL LIMITED, FORDING RIVER OPERATIONS, RECEIVED: 1 NOVEMBER 2022.

CLIENT
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FORDING RIVER OPERATIONS
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REVIEWED	N.CARRIERE
APPROVED	J.STEELE

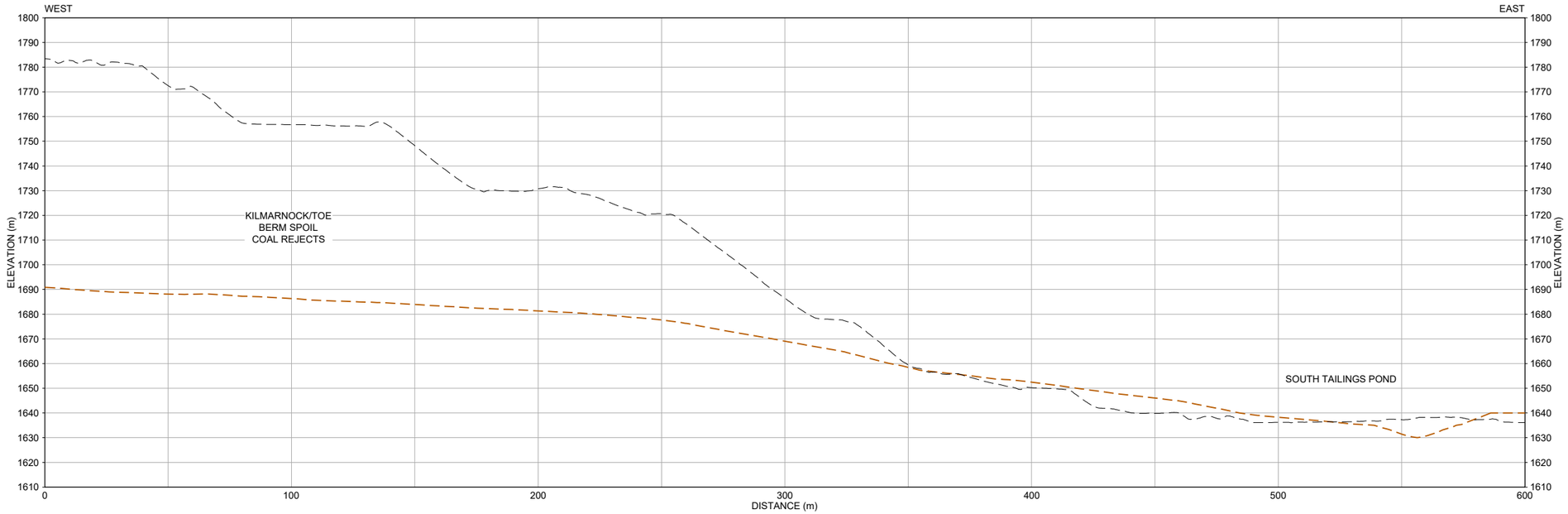
PROJECT
2022 ANNUAL FACILITY PERFORMANCE REPORT
COAL REJECT SPOILS

TITLE
CROSS-SECTIONS A AND B

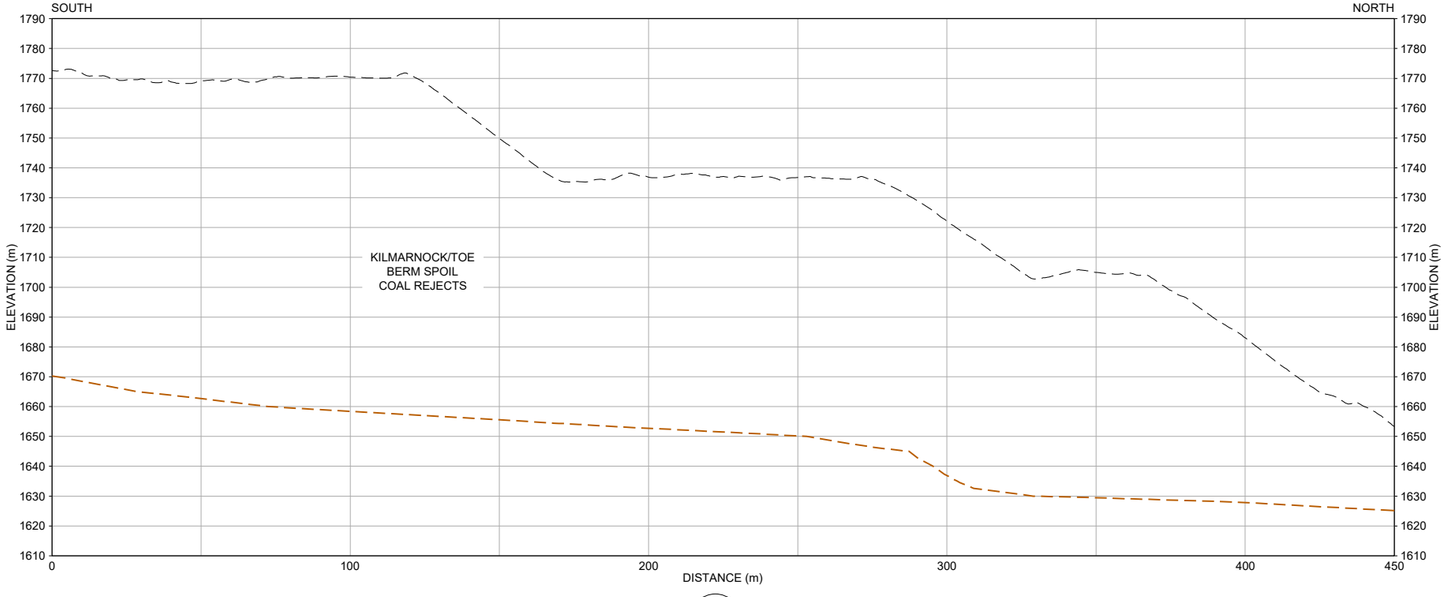
PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
22516328	1000/1800/2022-123	0	5

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25 mm



SCALE 1:2,000 m C 3 KILMARNOCK/TOE BERM SPOIL CROSS-SECTION



SCALE 1:2,000 m D 3 KILMARNOCK/TOE BERM SPOIL CROSS-SECTION

LEGEND

1968 ORIGINAL GROUND SURFACE

2021 LIDAR EXISTING GROUND SURFACE

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NOT FOR CONSTRUCTION

0 50 100
1:2,000 METRES

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ELKFORD, B.C.

CONSULTANT

YYYY-MM-DD	2023-03-21
DESIGNED	P.AMINI-MOTLAGH
PREPARED	J.FUNKE
REVIEWED	N.CARRIERE
APPROVED	J.STEELE

PROJECT
2022 ANNUAL FACILITY PERFORMANCE REPORT
COAL REJECT SPOILS

TITLE
CROSS-SECTIONS C AND D

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
22516328	1000/1800/2022-123	0	6

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25 mm

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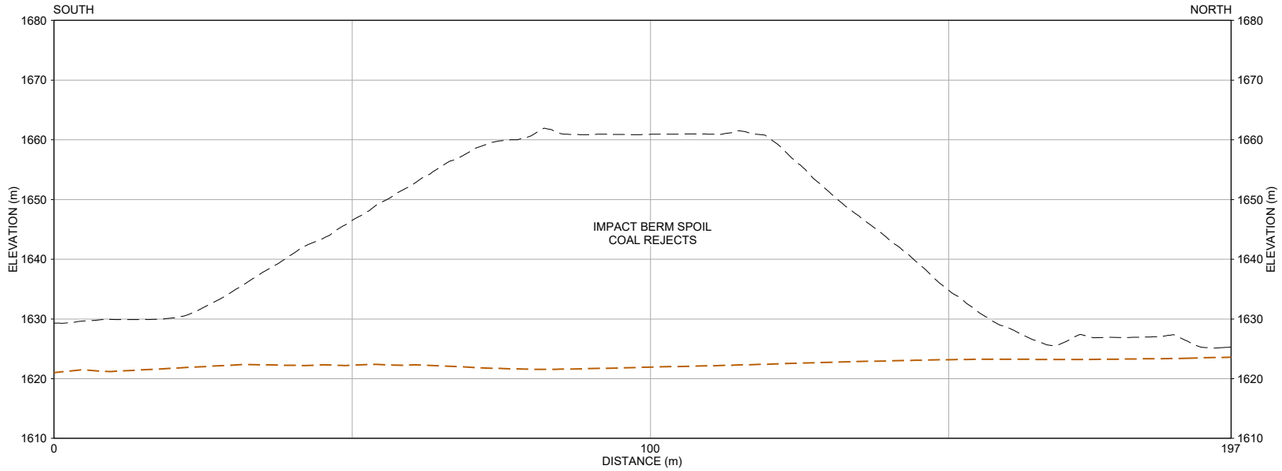
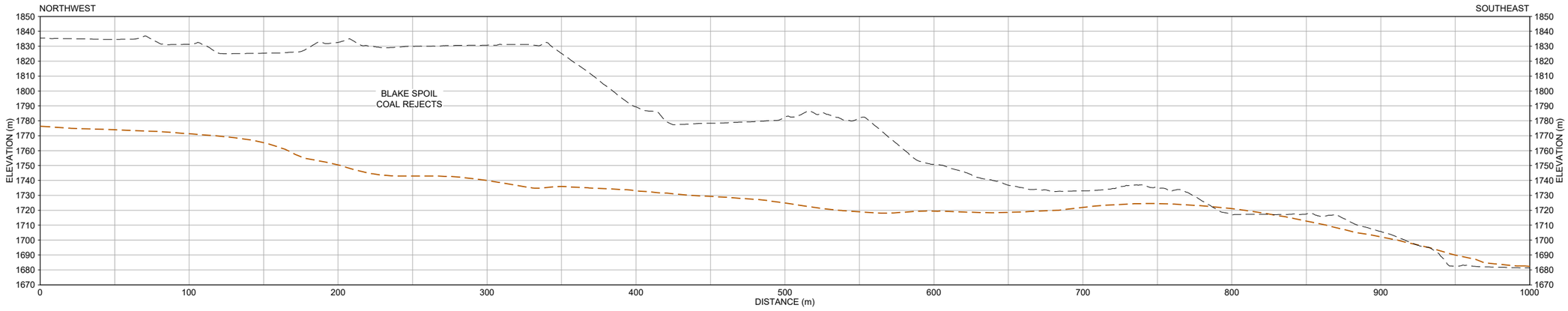


SCALE 1:1,000 m — E/3 — IMPACT BERM SPOIL CROSS-SECTION



SCALE 1:3,000 m — F/3 — BLAKE SPOIL CROSS-SECTION

NOT FOR CONSTRUCTION

0 25 50
1:1,000 METRES

0 50 100
1:3,000 METRES

LEGEND

- 1968 ORIGINAL GROUND SURFACE
- 2021 LIDAR EXISTING GROUND SURFACE

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ELKFORD, B.C.

CONSULTANT
wsp

YYYY-MM-DD	2023-03-21
DESIGNED	P.AMINI-MOTLAGH
PREPARED	J.FUNKE
REVIEWED	N.CARRIERE
APPROVED	J.STEELE

PROJECT
2022 ANNUAL FACILITY PERFORMANCE REPORT
COAL REJECT SPOILS

TITLE
CROSS-SECTIONS E AND F

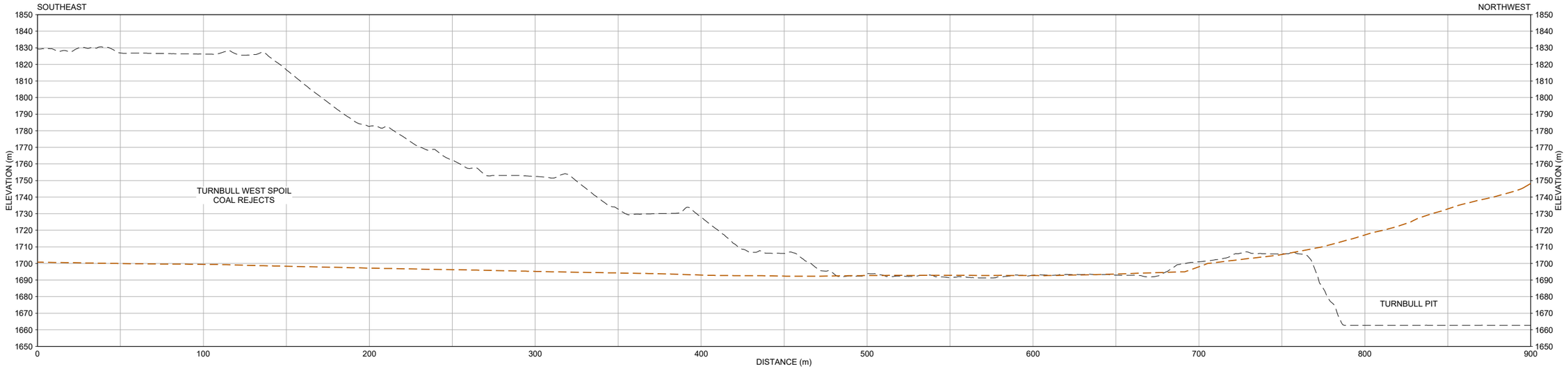
PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
22516328	1000/1800/2022-123	0	7

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

25 mm

0

Path: \\golder.gds\comp\edata\e\fle\vl\vancouver\CAD-GIS\Client\Teck Coal\Fording River\99_PROJECTS\22516328\1000\1800\2022-123\02_PRODUCTION\DWG\ | File Name: 22516328-1000-1800-2022-123-005_008.dwg | Last Edited By: jhopson Date: 2023-02-21 Time:11:16:26 AM | Printed By: jHopson Date: 2023-03-21 Time:9:04:12 AM



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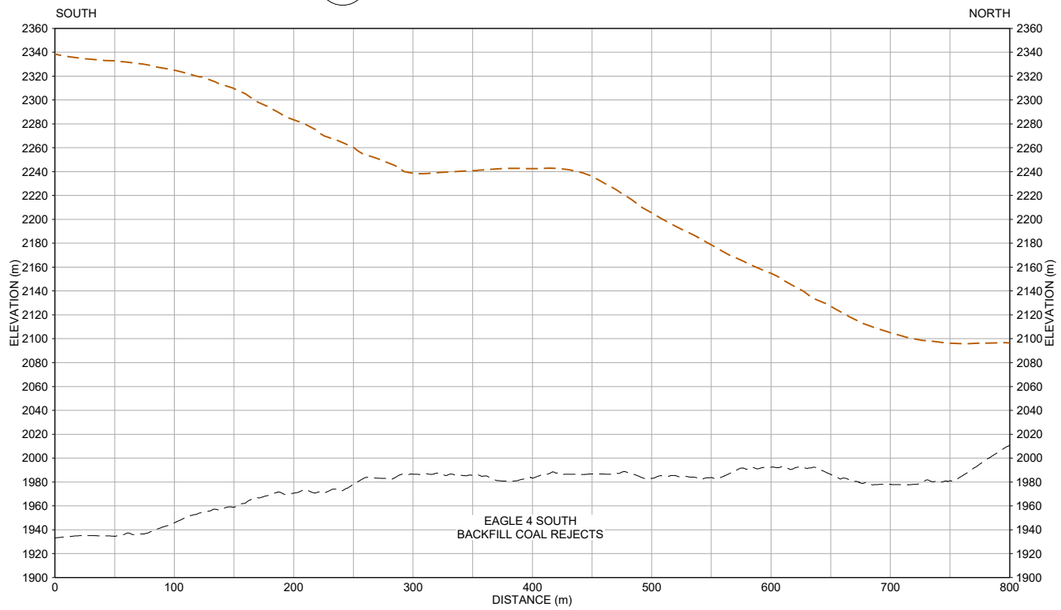

SCALE 1:5,000 m — H/3 — EAGLE 4 SOUTH BACKFILL SPOIL CROSS-SECTION

NOT FOR CONSTRUCTION

0 50 100
1:2,500 METRES

0 100 200
1:5,000 METRES

LEGEND

1968 ORIGINAL GROUND SURFACE

2021 LIDAR EXISTING GROUND SURFACE

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ELKFORD, B.C.

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PROJECT
2022 ANNUAL FACILITY PERFORMANCE REPORT
COAL REJECT SPOILS

TITLE
CROSS-SECTIONS G AND H

PROJECT NO.	PHASE/TASK/DOC.	REV.	FIGURE
22516328	1000/1800/2022-123	0	8

IF THIS MEASUREMENT DOES NOT MATCH WHAT IS SHOWN, THE SHEET SIZE HAS BEEN MODIFIED FROM: ANSI B

0 25 mm

Path: \\golder.gds\comp\kelowna\office\Vancouver\CAD-GIS\Client\Teck Coal\Fording River\99_PROJECTS\22516328\1000\1800\2022-123\02_PRODUCTION\DWG\ | File Name: 22516328-1000-1800-2022-123-005_008.dwg | Last Edited By: jhopson Date: 2023-02-21 Time:11:16:26 AM | Printed By: jHopson Date: 2023-03-21 Time:9:04:41 AM

APPENDIX A

2022 Site Inspection Photographs

PHOTOGRAPH 1 **27 September 2022**

A-Spoil: South side of the slope above Liverpool Settling ponds, looking north.

PHOTOGRAPH 2 (LEFT) and 3 (RIGHT) **27 September 2022**

A-Spoil: topsoil stockpiling was observed on the south crest, looking west (Photograph 2) and east (Photograph 3).

PHOTOGRAPH 4 **27 September 2022**

A-Spoil: overview of the crest, including equipment storage, looking north.

PHOTOGRAPH 5 (LEFT) and 6 (RIGHT) **27 September 2022**

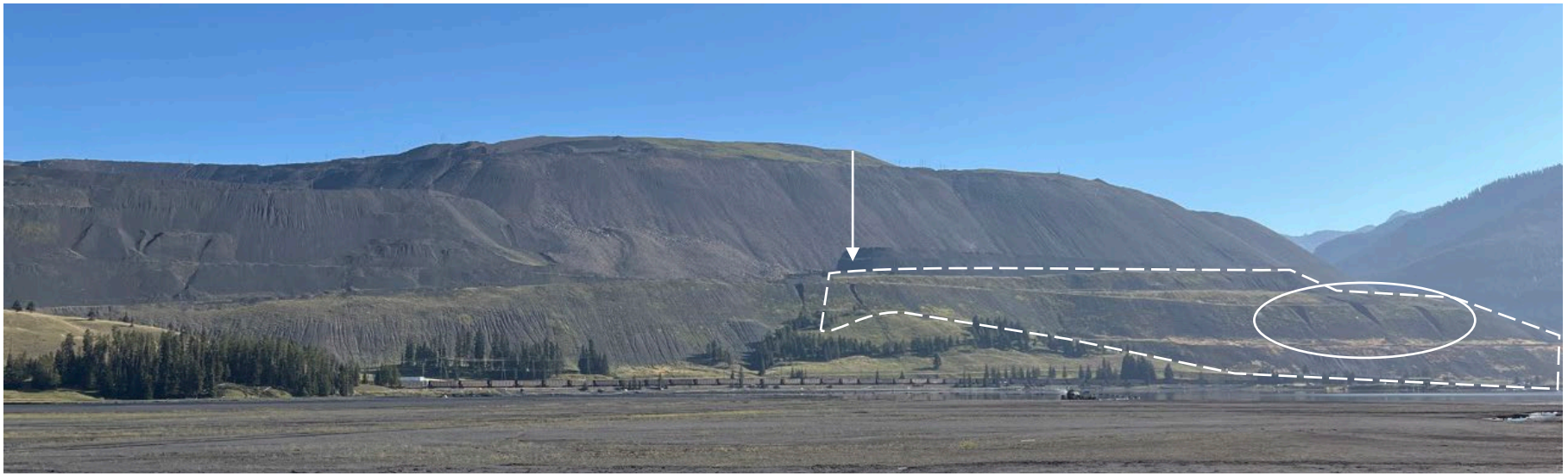
A-Spoil: view of the north side of Spoil showing revegetation, looking northwest (Photograph 5) and north (Photograph 6).

PHOTOGRAPH 7 **28 September 2022**

Box Yard spoil: view of excavated spoil remnant (white dash), looking north.

PHOTOGRAPH 8

27 September 2022



Kilmarnock / Toe Berm spoil: overview of the Kilmarnock / Toe Berm spoil (white dash) including erosion gully from 2022 precipitation event (white arrow) and the 2013 flood (white circle), looking northeast from the South Tailings Pond.

PHOTOGRAPH 9

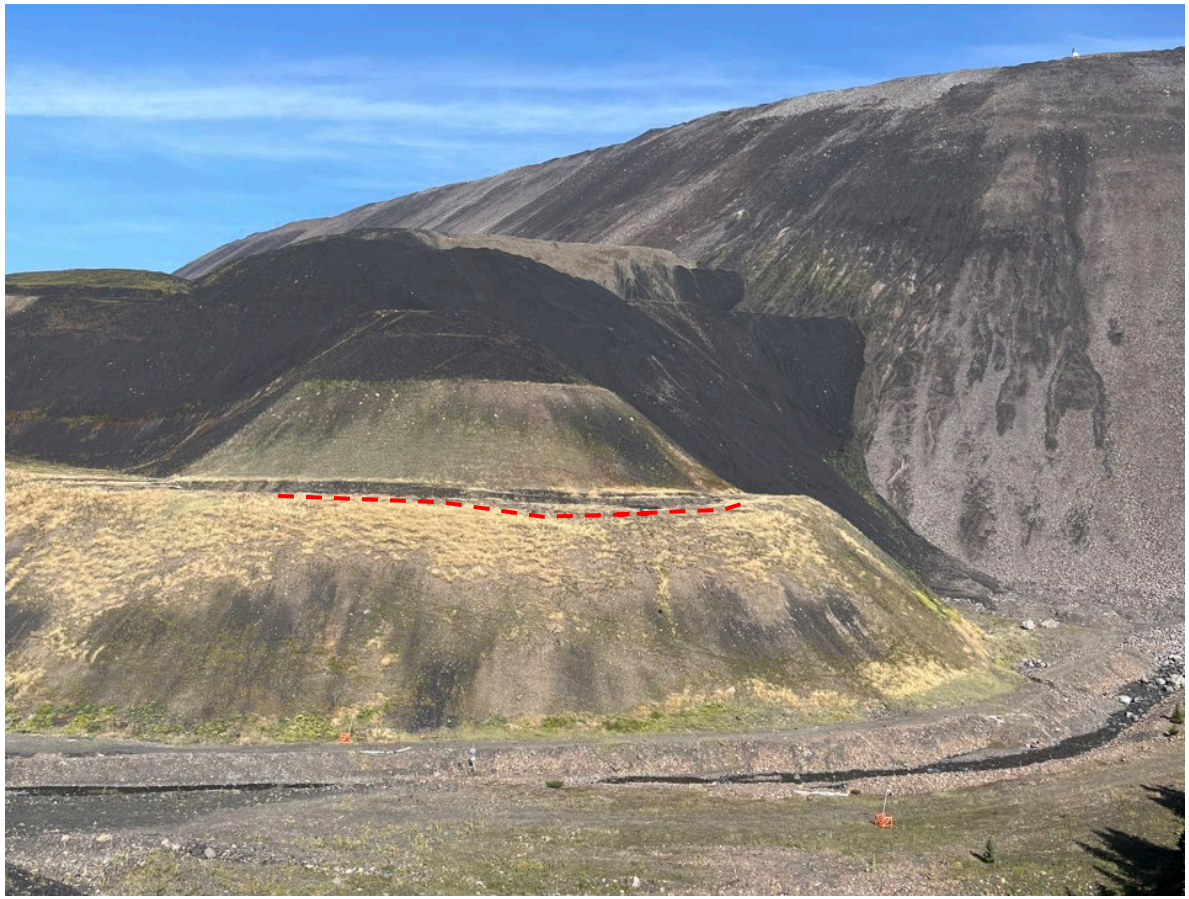
27 September 2022

Kilmarnock / Toe Berm spoil: view of the erosion gully and runout that formed following the 2022 precipitation event.

PHOTOGRAPH 10 (LEFT) and 11 (RIGHT) **27-28 September 2022**

Kilmarnock / Toe Berm spoil: view of burning material plume, looking south (Photograph 10) and of an excavation on the Kilmarnock / Toe Berm spoil platform, looking southeast (Photograph 11).

PHOTOGRAPH 12 **27 September 2022**



Kilmarnock / Toe Berm spoil: overview of facility at the south, showing crest settlement (noted in red), looking north.

PHOTOGRAPH 13 **27 September 2022**

Kilmarnock / Toe Berm spoil: erosion feature (shown in white), due to water seepage from the Old South spoil, no flow at time of inspection, erosion increased since 2021 inspection, looking north.

PHOTOGRAPH 14 **28 September 2022**

Kilmarnock / Toe Berm spoil (red dash) and Impact Berm spoil (white dash), looking southwest from the Old South spoil.

PHOTOGRAPH 15 **27 September 2022**

Impact Berm spoil: eastern slope and toe, looking southwest from Kilmarnock Creek.

PHOTOGRAPH 16 (LEFT) and 17 (RIGHT) **27 September 2022**

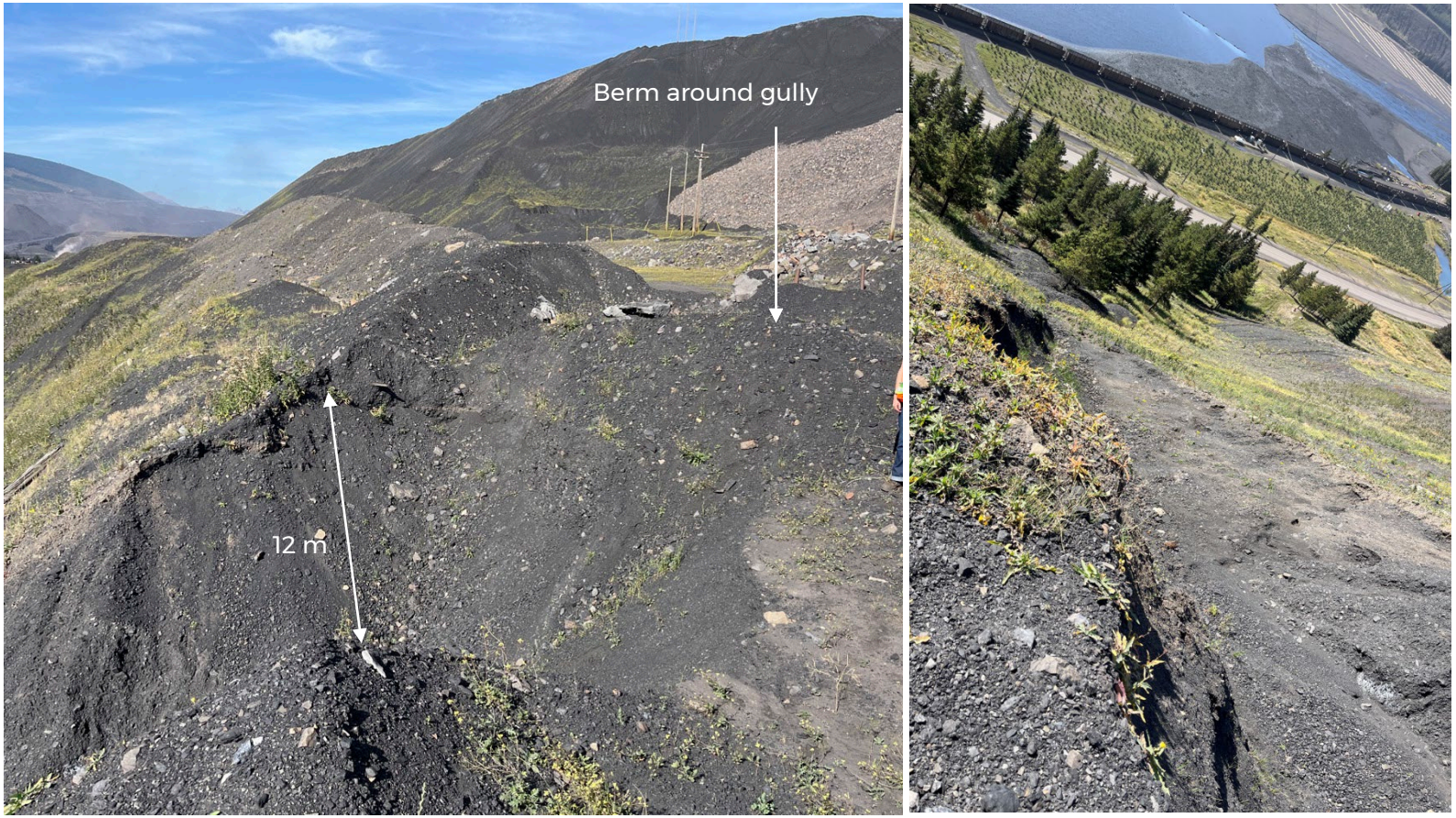
Impact Berm spoil: monitoring well, looking north (16), and oversteepened stockpile, looking west (17).

PHOTOGRAPH 18

27 September 2022

Blake spoil (white dash): large erosion features (old, white circle; 2021, white arrow) along western slope, looking northeast from the South Tailings Pond.

PHOTOGRAPH 19 **27 September 2022**



Blake spoil: view of erosion gully and runout that formed following the 2021 precipitation event.

PHOTOGRAPH 20 **27 September 2022**

Blake spoil (white dash): overview from north end of Kilmarnock / Toe Berm spoil, looking northwest.

PHOTOGRAPH 21

28 September 2022

Blake and Kilmarnock / Toe Berm spoils: overview from Old South spoil, bermed around erosion gully from 2021; overview of Blake spoil, looking northwest.

PHOTOGRAPH 22 **27 September 2022**

Blake spoil: west slope with minor vegetation, minor erosion rilling, and bedrock outcrop, looking east.

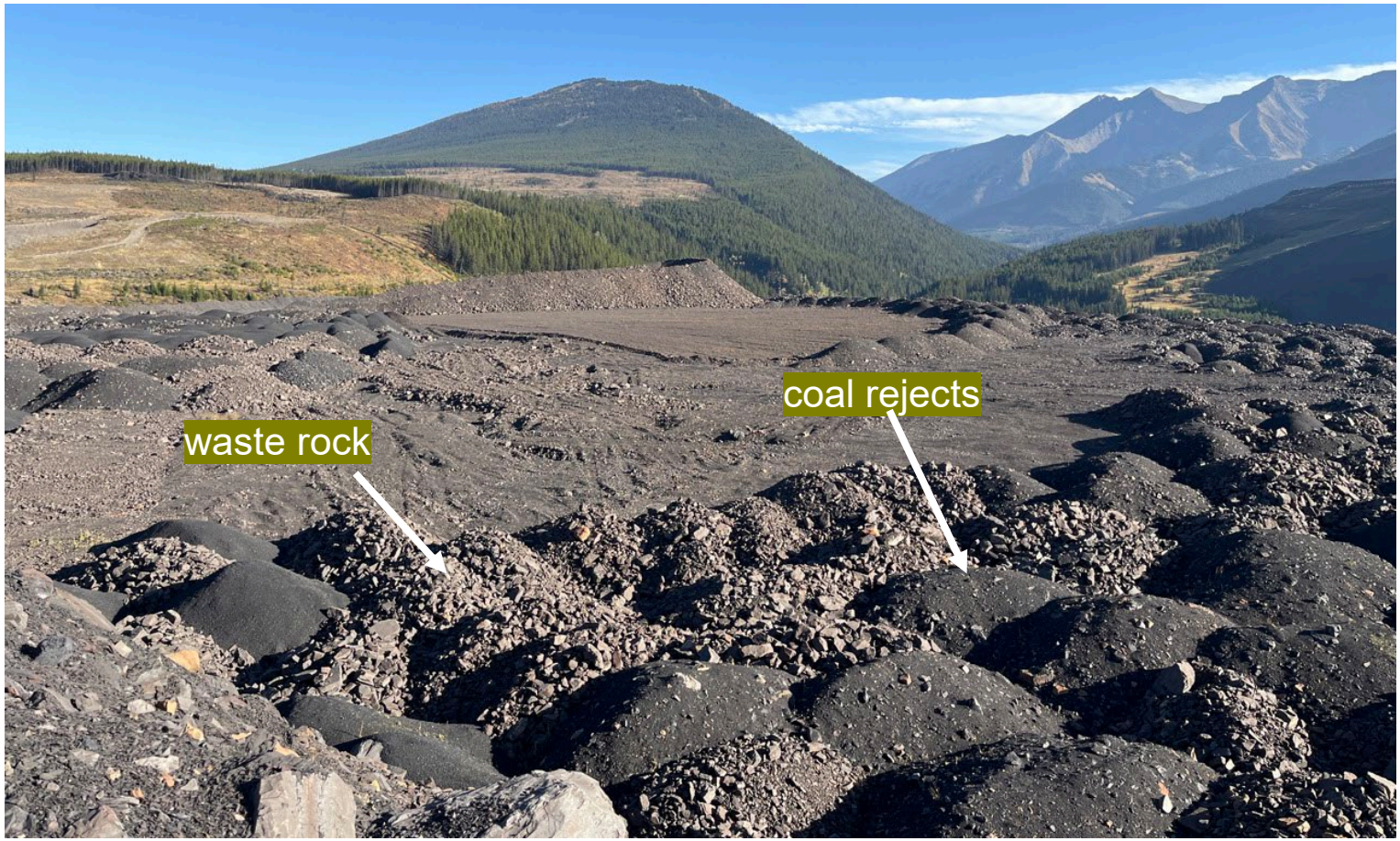
PHOTOGRAPH 23 **28 September 2022**

Turnbull West spoil: looking west at downstream slopes.

PHOTOGRAPH 24 (LEFT) and 25 (RIGHT) **28 September 2022**

Turnbull West spoil: downstream slopes of north side, looking northwest (24) and northeast towards Fording River at the toe (25).

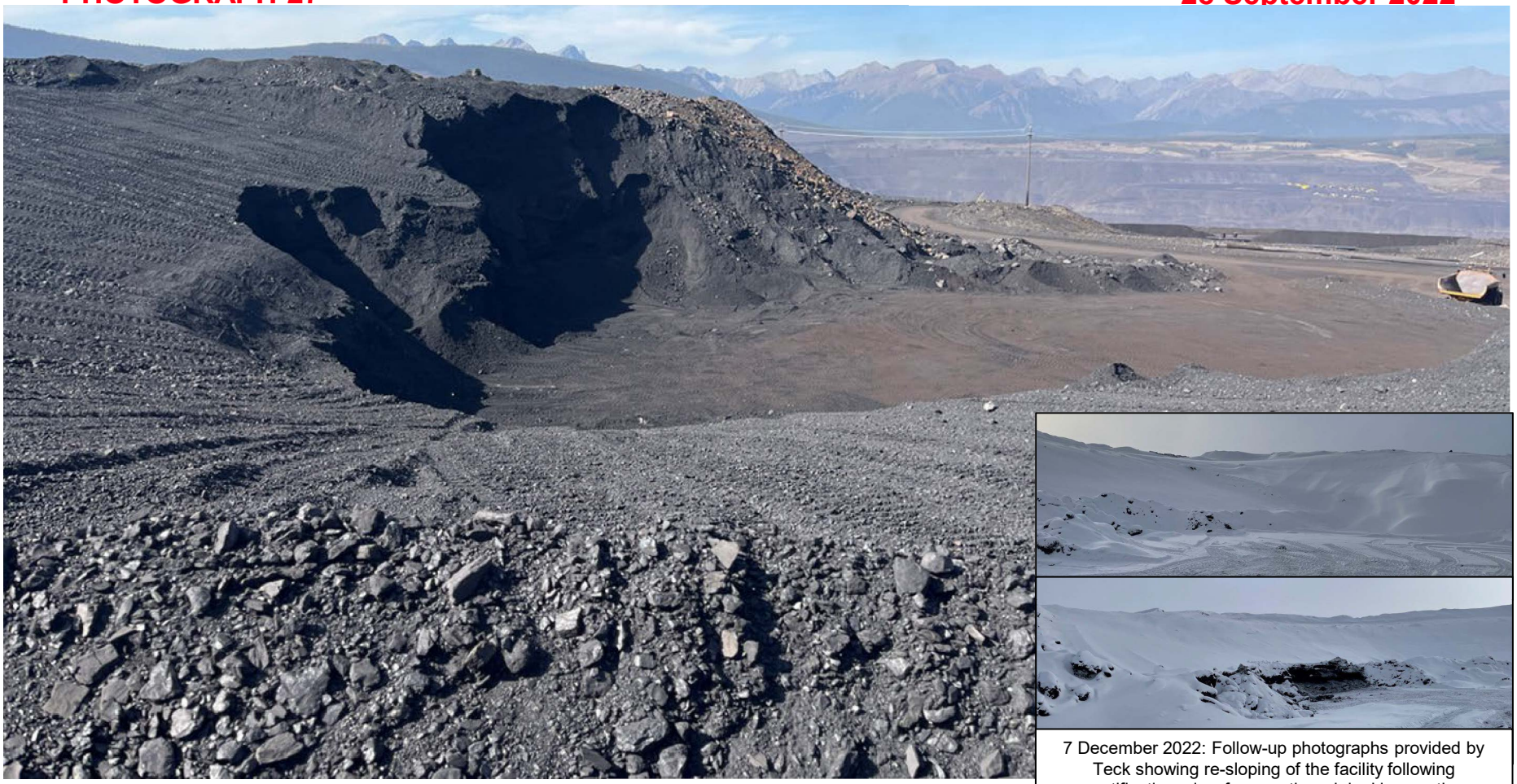
PHOTOGRAPH 26 **28 September 2022**



Turnbull West spoil: platform, looking north.

PHOTOGRAPH 27

28 September 2022



7 December 2022: Follow-up photographs provided by Teck showing re-sloping of the facility following notification, view from north end, looking south.

Taylor spoil: previously contained by waste rock, exposed at north end due to excavation for borrow material, left oversteepened, looking northwest.

PHOTOGRAPH 28 **28 September 2022**

Taylor spoil: platform, looking southwest.

PHOTOGRAPH 29 **28 September 2022**

Eagle 4 South Backfill spoil: overview, looking north.

PHOTOGRAPH 30

28 September 2022

28 September 2022: Follow-up photograph provided by Teck showing berm blocking access to the excavation at the east side of the spoil.

Eagle 4 South Backfill spoil: east side spoil at the toe, looking west at unauthorized operations at the toe and deformation above and adjacent to the excavated slope (white dashed area).

PHOTOGRAPH 31 **28 September 2022**

Rehandled Box Yard spoil: approximate location of the excavated Box Yard spoil material placed in the potentially acid-generating zone in the Swift North spoil, looking southwest.

APPENDIX B

2022 Site Visit Inspection Reports

Client:	**Teck Coal Limited, Fording River Operations**	**Inspectors:**	**Julia Steele, P.Eng., Natasha Carrière, P.Eng.**
Project:	**22516328 – 2022 Annual Facility Performance Report**	**Date:**	**27 September 2022**
Location:	**Spoil**	**Reviewed By:**	**Julia Steele, P.Eng.**

GENERAL INFORMATION			
Facility Type:	Coal reject spoil (dormant since 2014)		
Weather:	Sunny, hazy	**Temp:**	5°C to 22°C

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
1. PLATFORM CONDITIONS	2 to 4	
1.1 Crest Elevation		1,750 m
1.2 Placed Material		Coarse rejects.
1.3 Construction Method (top down/ bottom-up)		Bottom-up. Development with free-dumped material being spread by dozers in approximately 1 m thick lifts.
1.4 Surface Cracking		No surface cracking was observed or reported.
1.5 Unexpected Settlement		No unexpected settlement was observed or reported.
1.6 Lateral Movement		No lateral movement was observed or reported.
1.7 Other Unusual Conditions	4 2, 3	Spoil has become a box yard storage area. Topsoil stripping and placement operations along south crest Tailings department not aware of the works.
2. SLOPE FACE	1, 5, 6	
2.1 Slope Angle		Overall interlift at 2H:1V (26 deg.), single lift at 37 deg. on south side.
2.2 Signs of Erosion	1	Erosion along the south slopes (gullies), potentially increasing sediment intake in the downstream Liverpool Ponds
2.3 Signs of Movement (Deformation)		No signs of movement were observed or reported.
2.4 Cracks		No signs of cracking were observed or reported.
2.5 Other Unusual Conditions	5, 6	The facility has been partially revegetated.
3. TOE	1	
3.1 Slope Angle		Overall interlift at 2H:1V (26 deg.), single lift at 37 deg. on south side
3.2 Signs of Erosion		Minor surficial erosion.
3.3 Signs of Movement (Deformation)		No signs of movement were observed or reported.
3.4 Cracks		No signs of cracking were observed or reported.
3.5 Seepage or Wet Areas		No signs of seepage were observed or reported.
3.6 Vegetation Growth		Spoil has been partially revegetated.
3.7 Other Unusual Conditions		None.
4. ADVANCEMENT PATTERN		NA – no advancement over reporting period. Dormant.

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
5. DOCUMENTATION		
5.1 Operation, Maintenance and Surveillance (OMS) Manual		See below.
5.1.1 OMS Manual exists		Partially documented in (SP&P) EN.020.R6, no independent OMS manual.
5.1.2 OMS Plan reflects current spoil conditions		Specific operational document for coal reject spoils should be developed to account for potential differences between waste rock spoils and coal reject spoils. Confirm roles, responsibilities, accountability, communication requirements, change notification/approval procedures and governance for all OMS tasks related to coal reject spoils. Detailed review by the EoR required.
5.1.3 Date of last revision		15 September 2020
5.2 Emergency Preparedness Plan (EPP)		See below.
5.2.1 EPP Exists		Documented in Teck's SP&P EN.020.R6, including TARPs and a roles and responsibilities matrix. Site-wide emergency response documented in EP.001.R7.
5.2.2 EPP Reflects Current Conditions		Procedures be reviewed in consultation with the EoR in relation to potential differences between waste rock spoils and coal reject spoils.
5.2.3 Date of Last Revision		15 September 2020 (EN.020), 28 February 2022 (EP.001)
6. NOTES Topsoil stripping and stockpiling along the south crest, without prior notice to the tailings department.		

Client:	**Teck Coal Limited, Fording River Operations**	**Inspectors:**	**Julia Steele, P.Eng., Natasha Carrière, P.Eng.**
Project:	**22516328 – 2022 Annual Facility Performance Report**	**Date:**	**28 September 2022**
Location:	**Box Yard Spoil**	**Reviewed By:**	**Julia Steele, P.Eng.**

GENERAL INFORMATION			
Facility Type:	Coal reject spoil (dormant since 2021)		
Weather:	Sunny, hazy	**Temp:**	5°C to 22°C

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
1. PLATFORM CONDITIONS	7	No changes since last inspection. Box Yard spoil was almost completely mined out in 2021. Coarse rejects from this facility have been transported and placed within the Swift North Spoil within the potentially acid generating (PAG) designated zone. The remnants of the Box Yard spoil are over-steepened
1.1 Crest Elevation		
1.2 Placed Material		
1.3 Construction Method (top down/ bottom-up)		
1.4 Surface Cracking		
1.5 Unexpected Settlement		
1.6 Lateral Movement		
1.7 Other Unusual Conditions		
2. SLOPE FACE		
2.1 Slope Angle		
2.2 Signs of Erosion		
2.3 Signs of Movement (Deformation)		
2.4 Cracks		
2.5 Other Unusual Conditions		
3. TOE		
3.1 Slope Angle		
3.2 Signs of Erosion		
3.3 Signs of Movement (Deformation)		
3.4 Cracks		
3.5 Seepage or Wet Areas		
3.6 Vegetation Growth		
3.7 Other Unusual Conditions		
4. ADVANCEMENT PATTERN		N/A – no advancement over reporting period. Dormant.
5. DOCUMENTATION		
5.1 Operation, Maintenance and Surveillance (OMS) Manual		See below.
5.1.1 OMS Manual exists		Partially documented in (SP&P) EN.020.R6, no independent OMS manual.
5.1.2 OMS Plan reflects current spoil conditions		Specific operational document for coal reject spoils should be developed to account for potential differences between waste rock spoils and coal reject spoils. Confirm roles, responsibilities,

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
		accountability, communication requirements, change notification/approval procedures and governance for all OMS tasks related to coal reject spoils. Detailed review by the EoR required.
5.1.3 Date of last revision		15 September 2020
5.2 Emergency Preparedness Plan (EPP)		See below.
5.2.1 EPP Exists		Documented in Teck's SP&P EN.020.R6, including TARPs and a roles and responsibilities matrix. Site-wide emergency response documented in EP.001.R7.
5.2.2 EPP Reflects Current Conditions		Procedures be reviewed in consultation with the EoR in relation to potential differences between waste rock spoils and coal reject spoils.
5.2.3 Date of Last Revision		15 September 2020 (EN.020), 28 February 2022 (EP.001)
6. NOTES No major changes since 2021 AFPR.		

Client:	**Teck Coal Limited, Fording River Operations**	**Inspectors:**	**Julia Steele, P.Eng., Natasha Carrière, P.Eng.**
Project:	**22516328 – 2022 Annual Facility Performance Report**	**Date:**	**27-28 September 2022**
Location:	**Kilmarnock / Toe Berm Spoil**	**Reviewed By:**	**Julia Steele, P.Eng.**

GENERAL INFORMATION			
Facility Type:	Coal reject spoil (dormant since 2002)		
Weather:	Sunny, hazy	**Temp:**	5°C to 22°C

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
1. PLATFORM CONDITIONS	10 to 13 14	
1.1 Crest Elevation		1,770 m
1.2 Placed Material		Coarse rejects.
1.3 Construction Method (top down/ bottom-up)		Conveyor and spread. Limited information regarding construction.
1.4 Surface Cracking 1.5 Unexpected Settlement 1.6 Lateral Movement	12	Creeping / settlement was seen at the south crest of the first lift above Kilmarnock Creek. Conditions did not appear to have progressed since the 2021 annual inspection.
1.7 Other Unusual Conditions	10	The facility is reported to contain burning coarse rejects.
2. SLOPE FACE	8 to 9, 12	
2.1 Slope Angle		Overall interlift at 2H:1V (26 deg.), lifts at 37 deg.
2.2 Signs of Erosion	9	▪ Three historical erosion gullies were present on the western side of the spoil, which were caused by ponding on the crest during the 2013 flood event. Conditions did not appear to have progressed since the 2021 annual inspection. ▪ A new erosion gully was present on the western side of the spoil, at the northern extent, which was caused by ponding on the crest during the precipitation events. The gully was bermed off and diversion ditches were created to channel water to sumps located along the crest. The runout path was partially revegetated.
2.3 Signs of Movement (Deformation)		See items 1.4 to 1.6
2.4 Cracks		See items 1.4 to 1.6
2.5 Other Unusual Conditions		See item 1.7
3. TOE	8,12,13	
3.1 Slope Angle		Overall interlift at 2H:1V (26 deg.), lifts at 37 deg.
3.2 Signs of Erosion	13	Erosion was observed at the toe of facility due to water flowing out of the Old South Spoil and along the road located at the toe. No flowing water at time of inspection
3.3 Signs of Movement (Deformation)		No signs of movement were observed or reported.

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
3.4 Cracks		No signs of cracking were observed or reported.
3.5 Seepage or Wet Areas		No signs of seepage were observed or reported.
3.6 Vegetation Growth	8,12	Some grass growing on lower lifts.
3.7 Other Unusual Conditions		None.
4. ADVANCEMENT PATTERN		NA – no advancement over reporting period. Dormant.
5. DOCUMENTATION		
5.1 Operation, Maintenance and Surveillance (OMS) Manual		See below.
5.1.1 OMS Manual exists		Partially documented in (SP&P) EN.020.R6, no independent OMS manual.
5.1.2 OMS Plan reflects current spoil conditions		Specific operational document for coal reject spoils should be developed to account for potential differences between waste rock spoils and coal reject spoils. Confirm roles, responsibilities, accountability, communication requirements, change notification/approval procedures and governance for all OMS tasks related to coal reject spoils. Detailed review by the EoR required.
5.1.3 Date of last revision		15 September 2020
5.2 Emergency Preparedness Plan (EPP)		See below.
5.2.1 EPP Exists		Documented in Teck's SP&P EN.020.R6, including TARPs and a roles and responsibilities matrix. Site-wide emergency response documented in EP.001.R7.
5.2.2 EPP Reflects Current Conditions		Procedures be reviewed in consultation with the EoR in relation to potential differences between waste rock spoils and coal reject spoils.
5.2.3 Date of Last Revision		15 September 2020 (EN.020), 28 February 2022 (EP.001)
6. NOTES No major changes since 2021 AFPR.		

Client:	**Teck Coal Limited, Fording River Operations**	**Inspectors:**	**Julia Steele, P.Eng., Natasha Carrière, P.Eng.**
Project:	**22516328 – 2022 Annual Facility Performance Report**	**Date:**	**27-28 September 2022**
Location:	**Impact Berm Spoil**	**Reviewed By:**	**Julia Steele, P.Eng.**

GENERAL INFORMATION			
Facility Type:	Coal reject spoil (dormant since mid-1990s)		
Weather:	Sunny, hazy	**Temp:**	5°C to 22°C

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
1. PLATFORM CONDITIONS	14, 16	
1.1 Crest Elevation		1,660 m
1.2 Placed Material		Coarse rejects.
1.3 Construction Method (top down/ bottom-up)		Appears to have been developed in a single lift by end tipping material. Limited information regarding construction.
1.4 Surface Cracking		No surface cracking was observed or reported.
1.5 Unexpected Settlement		No unexpected settlement was observed or reported.
1.6 Lateral Movement		No lateral movement was observed or reported.
1.7 Other Unusual Conditions		None.
2. SLOPE FACE	14, 15	
2.1 Slope Angle		36 deg.
2.2 Signs of Erosion	14, 15	Minor rilling observed.
2.3 Signs of Movement (Deformation)		No signs of movement were observed or reported.
2.4 Cracks		No signs of cracking were observed or reported.
2.5 Other Unusual Conditions		None.
3. TOE	15	
3.1 Slope Angle		36 deg.
3.2 Signs of Erosion		No signs of erosion at the toe were observed or reported.
3.3 Signs of Movement (Deformation)		No signs of movement were observed or reported.
3.4 Cracks		No signs of cracking were observed or reported.
3.5 Seepage or Wet Areas		No signs of seepage were observed or reported.
3.6 Vegetation Growth		Partially revegetated slope.
3.7 Other Unusual Conditions	17	Gravel/crush stockpile just beyond southwest toe, left at over steepened slope
4. ADVANCEMENT PATTERN		NA – no advancement over reporting period. Dormant.
5. DOCUMENTATION		
5.1 Operation, Maintenance and Surveillance (OMS) Manual		See below.
5.1.1 OMS Manual exists		Partially documented in (SP&P) EN.020.R6, no independent OMS manual.

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
5.1.2 OMS Plan reflects current spoil conditions		Specific operational document for coal reject spoils should be developed to account for potential differences between waste rock spoils and coal reject spoils. Confirm roles, responsibilities, accountability, communication requirements, change notification/approval procedures and governance for all OMS tasks related to coal reject spoils. Detailed review by the EoR required.
5.1.3 Date of last revision		15 September 2020
5.2 Emergency Preparedness Plan (EPP)		See below.
5.2.1 EPP Exists		Documented in Teck's SP&P EN.020.R6, including TARPs and a roles and responsibilities matrix. Site-wide emergency response documented in EP.001.R7.
5.2.2 EPP Reflects Current Conditions		Procedures be reviewed in consultation with the EoR in relation to potential differences between waste rock spoils and coal reject spoils.
5.2.3 Date of Last Revision		15 September 2020 (EN.020), 28 February 2022 (EP.001)
6. NOTES Gravel/crush stockpile at southwest toe, left at oversteepened slope; not a concern for facility, though indicates operations in proximity. Water level monitoring drillholes on crest and at toe observed during inspection, previously unknown.		

Client:	**Teck Coal Limited, Fording River Operations**	**Inspectors:**	**Julia Steele, P.Eng., Natasha Carrière, P.Eng.**
Project:	**22516328 – 2022 Annual Facility Performance Report**	**Date:**	**27-28 September 2022**
Location:	**Blake Spoil**	**Reviewed By:**	**Julia Steele, P.Eng.**

GENERAL INFORMATION			
Facility Type:	Coal reject spoil (dormant since 2014)		
Weather:	Sunny, hazy	**Temp:**	5°C to 22°C

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
1. PLATFORM CONDITIONS	21, 19	
1.1 Crest Elevation		1,835 m
1.2 Placed Material		Blake spoil continues to be used as a short-haul location, with approximately 210,000 m3 of material placed and approximately 170,000 m3 removed during the reporting period (based on Teck survey data).
1.3 Construction Method (top down/ bottom-up)		Bottom-up development.
1.4 Surface Cracking		No surface cracking was observed or reported.
1.5 Unexpected Settlement		No unexpected settlement was observed or reported.
1.6 Lateral Movement		No lateral movement was observed or reported.
1.7 Other Unusual Conditions	19	Small berm around gully scarp (See 2.2) to prevent further water inflow.
2. SLOPE FACE	18 to 21	
2.1 Slope Angle		23 deg (overall slope angle); individual lift at 37 deg.
2.2 Signs of Erosion	19	The erosion feature from 2021 caused by surface water runoff, located at the southern extent on western crest of the 1,780 m platform, was measured as approximately 4 m wide and 2 m deep. The erosion feature was bermed off and diversion ditches were created to channel water to sumps located along the crest.
2.3 Signs of Movement (Deformation)		No signs of movement were observed or reported.
2.4 Cracks		No signs of cracking were observed or reported.
2.5 Other Unusual Conditions		None.
3. TOE	18	
3.1 Slope Angle		23 deg (overall slope angle); individual lift at 37 deg.
3.2 Signs of Erosion		Minor surficial erosion.
3.3 Signs of Movement (Deformation)		No signs of movement were observed or reported.
3.4 Cracks		No signs of cracking were observed or reported.
3.5 Seepage or Wet Areas		No signs of seepage were observed or reported.
3.6 Vegetation Growth		No signs of vegetation were observed.
3.7 Other Unusual Conditions		None.

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
4. ADVANCEMENT PATTERN		Free dumping in small area at north end as short-haul location, with limited quantities and durations.
5. DOCUMENTATION		
5.1 Operation, Maintenance and Surveillance (OMS) Manual		See below.
5.1.1 OMS Manual exists		Partially documented in (SP&P) EN.020.R6, no independent OMS manual.
5.1.2 OMS Plan reflects current spoil conditions		Specific operational document for coal reject spoils should be developed to account for potential differences between waste rock spoils and coal reject spoils. Confirm roles, responsibilities, accountability, communication requirements, change notification/approval procedures and governance for all OMS tasks related to coal reject spoils. Detailed review by the EoR required.
5.1.3 Date of last revision		15 September 2020
5.2 Emergency Preparedness Plan (EPP)		See below.
5.2.1 EPP Exists		Documented in Teck's SP&P EN.020.R6, including TARPs and a roles and responsibilities matrix. Site-wide emergency response documented in EP.001.R7.
5.2.2 EPP Reflects Current Conditions		Procedures be reviewed in consultation with the EoR in relation to potential differences between waste rock spoils and coal reject spoils.
5.2.3 Date of Last Revision		15 September 2020 (EN.020), 28 February 2022 (EP.001)
6. NOTES No major changes since 2021 AFPR.		

Client:	**Teck Coal Limited, Fording River Operations**	**Inspectors:**	**Julia Steele, P.Eng., Natasha Carrière, P.Eng.**
Project:	**22516328 – 2022 Annual Facility Performance Report**	**Date:**	**28 September 2022**
Location:	**Turnbull West Spoil**	**Reviewed By:**	**Julia Steele, P.Eng.**

GENERAL INFORMATION			
Facility Type:	Coal reject spoil (dormant since 2015)		
Weather:	Sunny, hazy	**Temp:**	5°C to 22°C

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
1. PLATFORM CONDITIONS	26	
1.1 Crest Elevation		1,830 m
1.2 Placed Material	26	Combined coarse and fine rejects co-mingled with waste rock.
1.3 Construction Method (top down/ bottom-up)		The facility was designed based on bottom-up placement with lifts ranging in thickness from 15 to 30 m.
1.4 Surface Cracking		No surface cracking was observed or reported.
1.5 Unexpected Settlement		No unexpected settlement was observed or reported.
1.6 Lateral Movement		No lateral movement was observed or reported.
1.7 Other Unusual Conditions		None.
2. SLOPE FACE	23 to 25	
2.1 Slope Angle		Overall interlift at 2H:1V (26 deg); individual lifts at 37 deg.
2.2 Signs of Erosion		Minor rilling was observed.
2.3 Signs of Movement (Deformation)		No signs of movement were observed or reported.
2.4 Cracks		No signs of cracking were observed or reported.
2.5 Other Unusual Conditions		The south side of the Turnbull West spoil has been resloped to approximately 2H:1V and has been reclaimed.
3. TOE	23 to 25	
3.1 Slope Angle		Overall interlift at 2H:1V (26 deg); individual lifts at 37 deg.
3.2 Signs of Erosion		No signs of erosion at the toe were observed or reported.
3.3 Signs of Movement (Deformation)		No signs of movement were observed or reported.
3.4 Cracks		No signs of cracking were observed or reported.
3.5 Seepage or Wet Areas		No signs of seepage were observed or reported.
3.6 Vegetation Growth	23	Reclaimed south side.
3.7 Other Unusual Conditions		None.
4. ADVANCEMENT PATTERN		NA – no advancement over reporting period. Dormant.
5. DOCUMENTATION		
5.1 Operation, Maintenance and Surveillance (OMS) Manual		See below.
5.1.1 OMS Manual exists		Partially documented in (SP&P) EN.020.R6, no independent OMS manual.

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
5.1.2 OMS Plan reflects current spoil conditions		Specific operational document for coal reject spoils should be developed to account for potential differences between waste rock spoils and coal reject spoils. Confirm roles, responsibilities, accountability, communication requirements, change notification/approval procedures and governance for all OMS tasks related to coal reject spoils. Detailed review by the EoR required.
5.1.3 Date of last revision		15 September 2020
5.2 Emergency Preparedness Plan (EPP)		See below.
5.2.1 EPP Exists		Documented in Teck's SP&P EN.020.R6, including TARPs and a roles and responsibilities matrix. Site-wide emergency response documented in EP.001.R7.
5.2.2 EPP Reflects Current Conditions		Procedures be reviewed in consultation with the EoR in relation to potential differences between waste rock spoils and coal reject spoils.
5.2.3 Date of Last Revision		15 September 2020 (EN.020), 28 February 2022 (EP.001)
6. NOTES No major changes since 2021 AFPR.		

Client:	**Teck Coal Limited, Fording River Operations**	**Inspectors:**	**Julia Steele, P.Eng., Natasha Carrière, P.Eng.**
Project:	**22516328 – 2022 Annual Facility Performance Report**	**Date:**	**28 September 2022**
Location:	**Taylor Rejects Spoil**	**Reviewed By:**	**Julia Steele, P.Eng.**

GENERAL INFORMATION			
Facility Type:	Coal reject spoil (dormant since 2017)		
Weather:	Sunny, hazy	**Temp:**	5°C to 22°C

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
1. PLATFORM CONDITIONS	27, 28	
1.1 Crest Elevation		1,975 m
1.2 Placed Material		Combined coarse and fine rejects.
1.3 Construction Method (top down/ bottom-up)		Bottom-up method.
1.4 Surface Cracking	27	The Taylor Reject spoil is mostly buried under waste rock and stored behind free-dumped waste rock piles, though the top layer remains partially exposed.
1.5 Unexpected Settlement		
1.6 Lateral Movement		
1.7 Other Unusual Conditions		
2. SLOPE FACE	27	The Taylor Reject spoil is mostly buried under waste rock and stored behind free-dumped waste rock piles, though it was partially excavated at the north end at the time of the inspection. Excavation has exposed coal rejects along the side, and slopes were left oversteepened. The tailings and geotechnical departments at FRO were not aware of these works. Within a week of notification, the excavation was re-sloped, however this portion remains exposed (i.e. not encapsulated in waste rock).
2.1 Slope Angle		
2.2 Signs of Erosion		
2.3 Signs of Movement (Deformation)		
2.4 Cracks		
2.5 Other Unusual Conditions		
3. TOE		The toe is buried under waste rock and not visible or exposed to the elements (with the exception of the excavation noted in Section 2).
3.1 Slope Angle		
3.2 Signs of Erosion		
3.3 Signs of Movement (Deformation)		
3.4 Cracks		
3.5 Seepage or Wet Areas		
3.6 Vegetation Growth		
3.7 Other Unusual Conditions		
4. ADVANCEMENT PATTERN		NA – no advancement over reporting period. Dormant.
5. DOCUMENTATION		
5.1 Operation, Maintenance and Surveillance (OMS) Manual		See below.
5.1.1 OMS Manual exists		Partially documented in (SP&P) EN.020.R6, no independent OMS manual.
5.1.2 OMS Plan reflects current spoil conditions		Specific operational document for coal reject spoils should be developed to account for potential differences between waste

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
		rock spoils and coal reject spoils. Confirm roles, responsibilities, accountability, communication requirements, change notification/approval procedures and governance for all OMS tasks related to coal reject spoils. Detailed review by the EoR required.
5.1.3 Date of last revision		15 September 2020
5.2 Emergency Preparedness Plan (EPP)		See below.
5.2.1 EPP Exists		Documented in Teck's SP&P EN.020.R6, including TARPs and a roles and responsibilities matrix. Site-wide emergency response documented in EP.001.R7.
5.2.2 EPP Reflects Current Conditions		Procedures be reviewed in consultation with the EoR in relation to potential differences between waste rock spoils and coal reject spoils.
5.2.3 Date of Last Revision		15 September 2020 (EN.020), 28 February 2022 (EP.001)
6. NOTES Excavation at the north extent has exposed coal rejects along this side and slopes were left oversteepened, posing a risk to operators. The tailings and geotechnical departments at FRO were not aware of these works.		

Client:	**Teck Coal Limited, Fording River Operations**	**Inspectors:**	**Julia Steele, P.Eng., Natasha Carrière, P.Eng.**
Project:	**22516328 – 2022 Annual Facility Performance Report**	**Date:**	**28 September 2022**
Location:	**Eagle 4 South Backfill Spoil**	**Reviewed By:**	**Julia Steele, P.Eng.**

GENERAL INFORMATION			
Facility Type:	Coal reject spoil (active)		
Weather:	Sunny, hazy	**Temp:**	5°C to 22°C

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
1. PLATFORM CONDITIONS	29	
1.1 Crest Elevation		1,660 m
1.2 Placed Material		Combined coarse and fine rejects. Some breaker rock had been placed in the spoil in 2021, which is inconsistent with the permit conditions. No new (significant) breaker rock material observed.
1.3 Construction Method (top down/ bottom-up)		Bottom-up method, with CCFR material free dumped by haul truck and spread by dozer in approximately 2 m high lifts. No dozer was observed, unclear if dozing and compacting of each lift is being done.
1.4 Surface Cracking		Surface cracking was observed at the edge of the active platform in section built over-height and is being monitored by extensometer. Not inspection this year.
1.5 Unexpected Settlement		No unexpected settlement was observed or reported.
1.6 Lateral Movement		No lateral movement was observed or reported.
1.7 Other Unusual Conditions		None.
2. SLOPE FACE	29, 30	
2.1 Slope Angle		Overall interlift at 2H:1V (26 deg); individual lifts at 37 deg. ~30 m high slope at 37 deg. on north end
2.2 Signs of Erosion		Minor rilling observed.
2.3 Signs of Movement (Deformation)		Signs of movement observed above undercut toe at north end.
2.4 Cracks		No signs of cracking were observed or reported.
2.5 Other Unusual Conditions	30	Ongoing excavation at the north toe of the spoil at the time of the inspection, with slope above showing deformation. Unauthorized excavation at overly steep slopes, deformation along slopes. Approximately 30 m high slope without benching above the excavation. Following identification, work was halted, a berm placed to block access to the excavation, and operations were suspended in this area.
3. TOE	29, 30	
3.1 Slope Angle		Overall interlift at 2H:1V (26 deg); individual lifts at 37 deg. Excavated toe (vertical) at north end
3.2 Signs of Erosion		No signs of erosion at the toe were observed or reported.

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
3.3 Signs of Movement (Deformation)		Movement above excavated toe at north end
3.4 Cracks		No signs of cracking were observed or reported.
3.5 Seepage or Wet Areas		No signs of seepage were observed or reported.
3.6 Vegetation Growth		None.
3.7 Other Unusual Conditions	31	Ongoing excavation at the north toe of the spoil at the time of the inspection. Unauthorized excavation at overly steep slopes, deformation along slopes.
4. ADVANCEMENT PATTERN		Some lifts of the Eagle 4 South Backfill spoil have been placed without dozer compaction, which is required per Teck's SP&P (EN.020.R6). Further, some lifts had been placed double height (30 m) which does not meet the permit conditions for the Eagle 4 South Backfill spoil. No dozer was observed during inspection.
5. DOCUMENTATION		
5.1 Operation, Maintenance and Surveillance (OMS) Manual		See below.
5.1.1 OMS Manual exists		Partially documented in (SP&P) EN.020.R6, no independent OMS manual.
5.1.2 OMS Plan reflects current spoil conditions		Specific operational document for coal reject spoils should be developed to account for potential differences between waste rock spoils and coal reject spoils. Confirm roles, responsibilities, accountability, communication requirements, change notification/approval procedures and governance for all OMS tasks related to coal reject spoils. Detailed review by the EoR required.
5.1.3 Date of last revision		15 September 2020
5.2 Emergency Preparedness Plan (EPP)		See below.
5.2.1 EPP Exists		Documented in Teck's SP&P EN.020.R6, including TARPs and a roles and responsibilities matrix Site-wide emergency response documented in EP.001.R7.
5.2.2 EPP Reflects Current Conditions		Procedures be reviewed in consultation with the EoR in relation to potential differences between waste rock spoils and coal reject spoils.
5.2.3 Date of Last Revision		15 September 2020 (EN.020), 28 February 2022 (EP.001)

6. NOTES

Unauthorized excavation at the east extent has left slopes oversteepened, posing a risk to operators. Tailings and geotechnical departments at FRO were not aware of these works. Additional monitoring of the area is required and corrective action to re-slope the excavated toe area is required prior to resumption of operations in this area.

No dozer was observed on the facility at the time of the site inspection, and it is unclear if dozing and compacting of each lift is being done.

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA	
Client:	**Teck Coal Limited, Fording River Operations**	**Inspectors:**	**Julia Steele, P.Eng., Natasha Carrière, P.Eng.**
Project:	**22516328 – 2022 Annual Facility Performance Report**	**Date:**	**28 September 2022**
Location:	**Rehandled Box Yard Spoil**	**Reviewed By:**	**Julia Steele, P.Eng.**

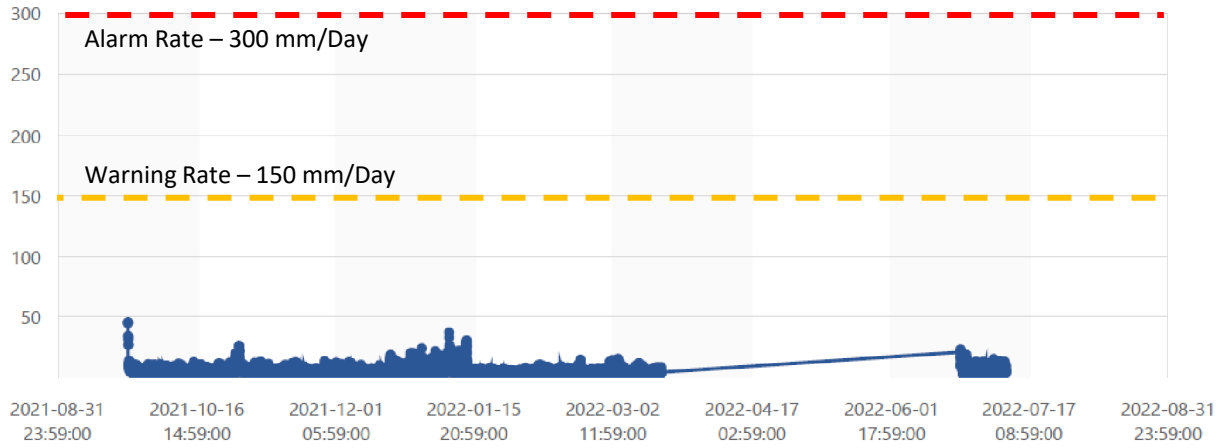
GENERAL INFORMATION			
Facility Type:	Coal reject spoil (dormant since 2021)		
Weather:	Sunny, hazy	**Temp:**	5°C to 22°C

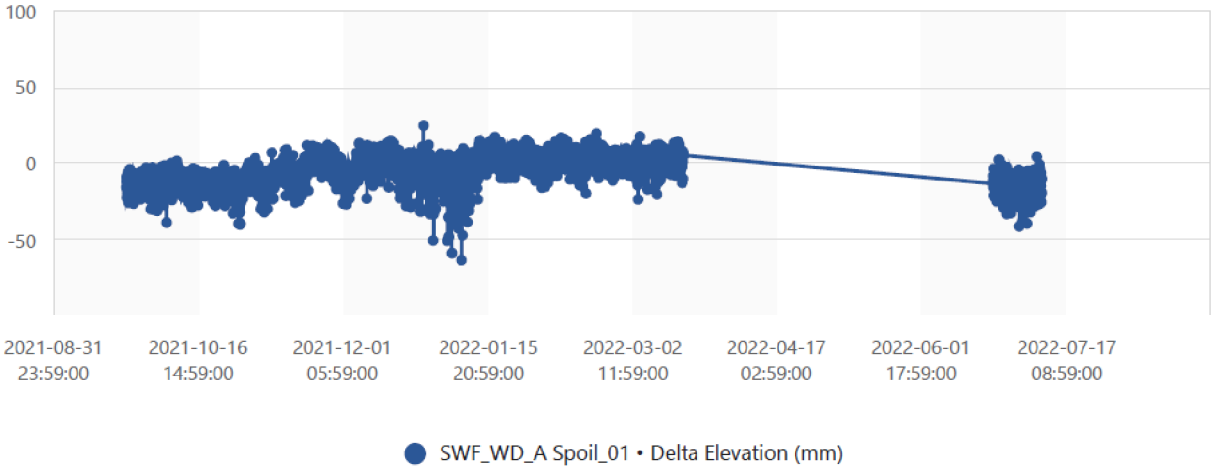
INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
1. PLATFORM CONDITIONS	31	New item for inspection, not visible at time of inspection, buried/ encapsulated. Coarse rejects from Box Yard spoil have been transported and placed within the Swift North Spoil within a potentially acid generating (PAG) designated zone. The rehandled coarse rejects were end-dumped and then subsequently surrounding by waste rock and buried.
1.1 Crest Elevation		
1.2 Placed Material		
1.3 Construction Method (top down/ bottom-up)		
1.4 Surface Cracking		
1.5 Unexpected Settlement		
1.6 Lateral Movement		
1.7 Other Unusual Conditions		
2. SLOPE FACE		
2.1 Slope Angle		
2.2 Signs of Erosion		
2.3 Signs of Movement (Deformation)		
2.4 Cracks		
2.5 Other Unusual Conditions		
3. TOE		
3.1 Slope Angle		
3.2 Signs of Erosion		
3.3 Signs of Movement (Deformation)		
3.4 Cracks		
3.5 Seepage or Wet Areas		
3.6 Vegetation Growth		
3.7 Other Unusual Conditions		
4. ADVANCEMENT PATTERN		N/A – no advancement over reporting period. Dormant.
5. DOCUMENTATION		
5.1 Operation, Maintenance and Surveillance (OMS) Manual		See below.
5.1.1 OMS Manual exists		Partially documented in (SP&P) EN.020.R6, no independent OMS manual.
5.1.2 OMS Plan reflects current spoil conditions		Specific operational document for coal reject spoils should be developed to account for potential differences between waste

INSPECTION ITEM	PHOTO	OBSERVATIONS, COMMENTS & OTHER DATA
		rock spoils and coal reject spoils. Confirm roles, responsibilities, accountability, communication requirements, change notification/approval procedures and governance for all OMS tasks related to coal reject spoils. Detailed review by the EoR required.
5.1.3 Date of last revision		15 September 2020
5.2 Emergency Preparedness Plan (EPP)		See below.
5.2.1 EPP Exists		Documented in Teck's SP&P EN.020.R6, including TARPs and a roles and responsibilities matrix. Site-wide emergency response documented in EP.001.R7.
5.2.2 EPP Reflects Current Conditions		Procedures be reviewed in consultation with the EoR in relation to potential differences between waste rock spoils and coal reject spoils.
5.2.3 Date of Last Revision		15 September 2020 (EN.020), 28 February 2022 (EP.001)
6. NOTES New inspection location following removal and relocation of coarse rejects from the Box Yard Spoil. Unable to be directly inspected due to encapsulation.		

APPENDIX C

Instrumentation Data





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ELKFORD, B.C.

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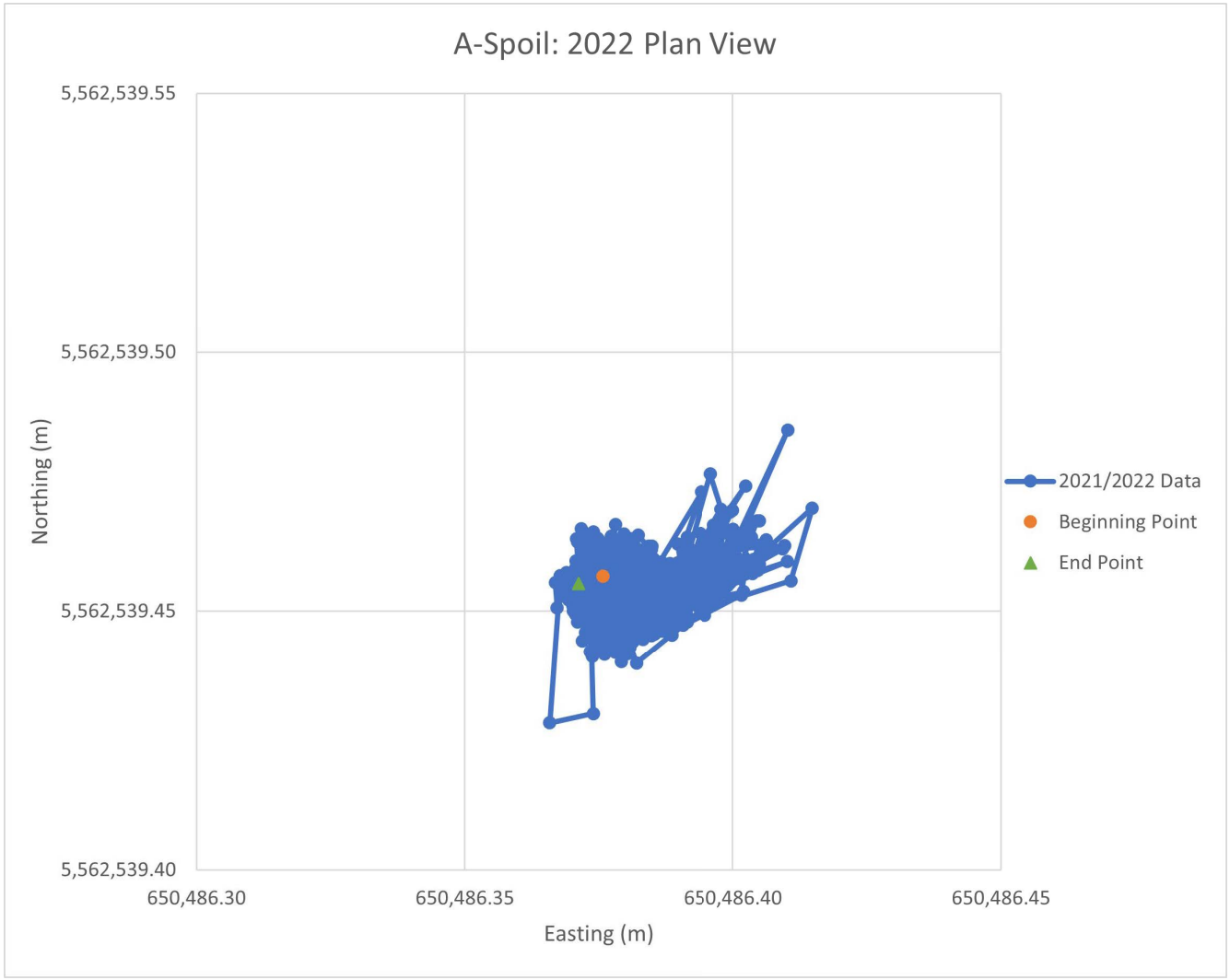
PREPARED	P. Amini-Motlagh
DESIGN	P. Amini-Motlagh
REVIEW	N. Carrière
APPROVED	J. Steele

PROJECT
2022 ANNUAL FACILITY PERFORMANCE REPORT FOR COAL REJECT SPOILS

TITLE
GPS MONITORING DATA
A-SPOIL

PROJECT No.	Phase/Task/Doc.	Rev.	SHEET
22516328	**1000/1800/2022-123**	**0**	**C-1**



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Note: EGL_WD_Old South Spoil_01 delta elevation was not properly zeroed initially but was corrected 1 September 2022.

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PROJECT
2022 ANNUAL FACILITY PERFORMANCE REPORT FOR COAL REJECT SPOILS

TITLE
GPS MONITORING DATA
OLD SOUTH SPOIL ABOVE KILMARNOCK / TOE BERM SPOIL

PROJECT No.	Phase/Task/Doc.	Rev.	SHEET
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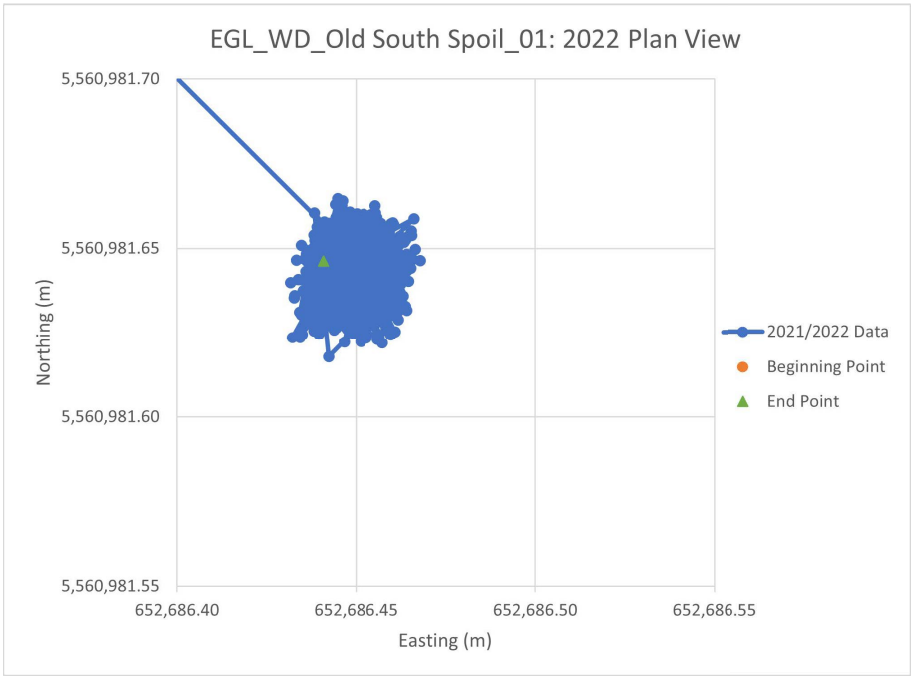

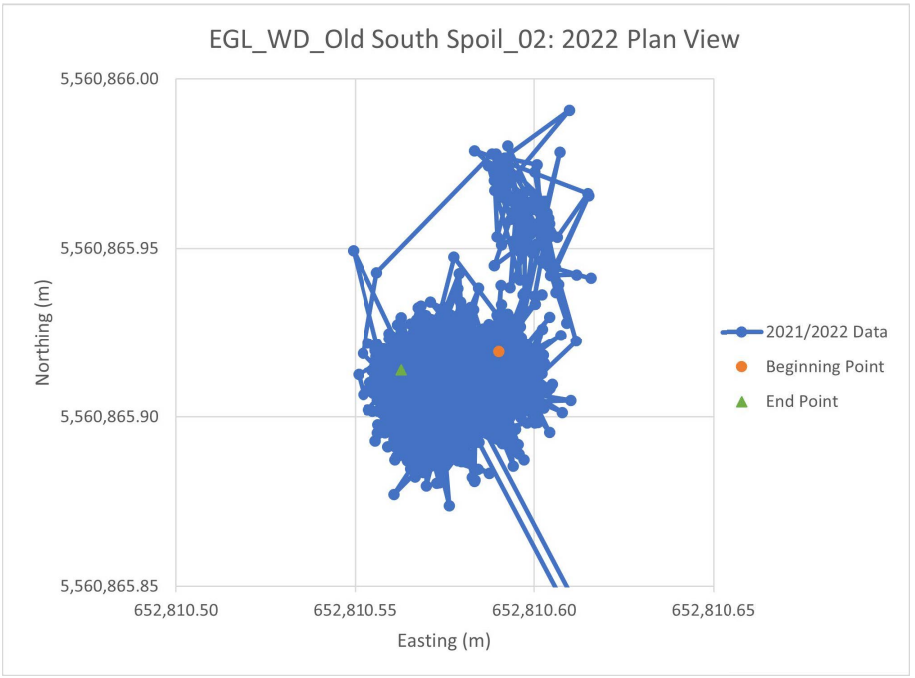

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PROJECT No.	Phase/Task/Doc.	Rev.	SHEET
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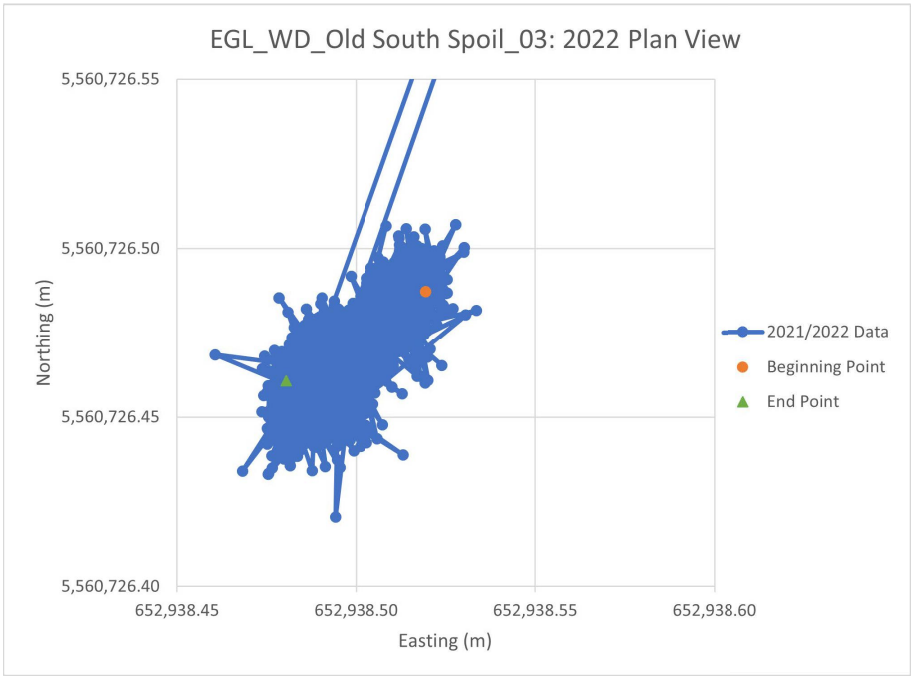

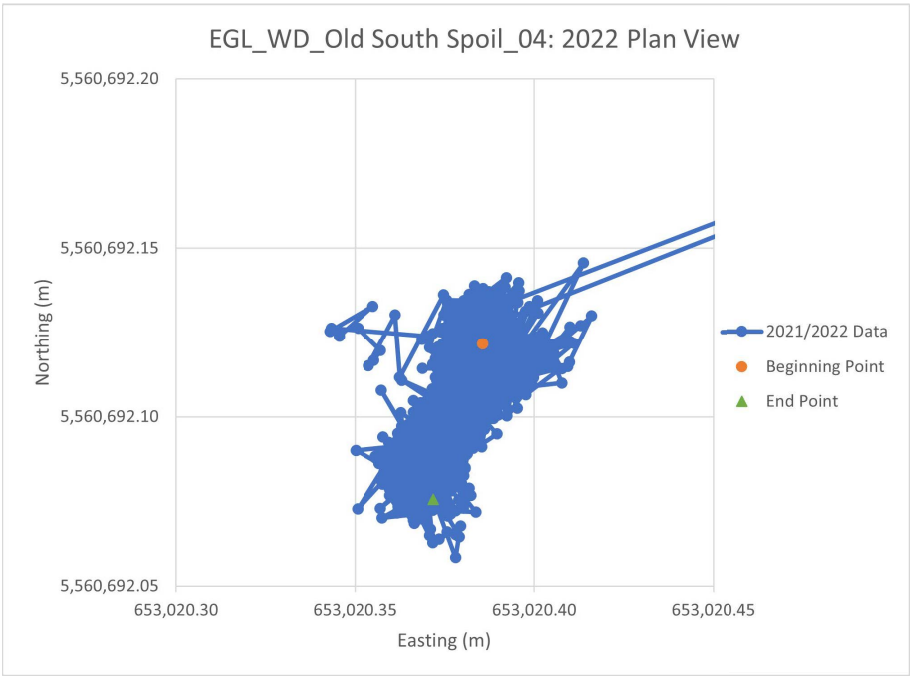

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PROJECT No.	Phase/Task/Doc.	Rev.	SHEET
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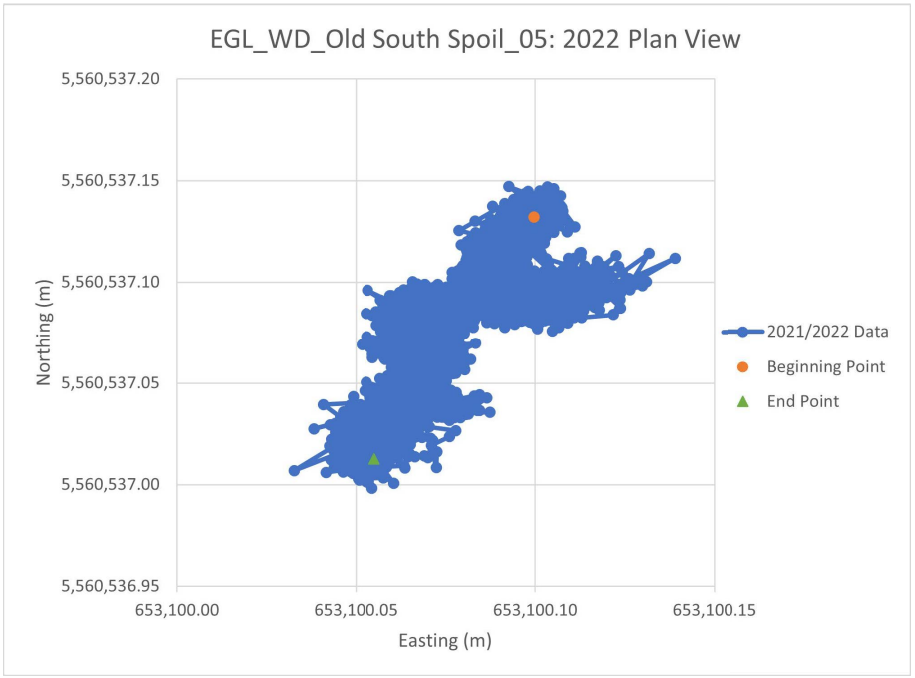

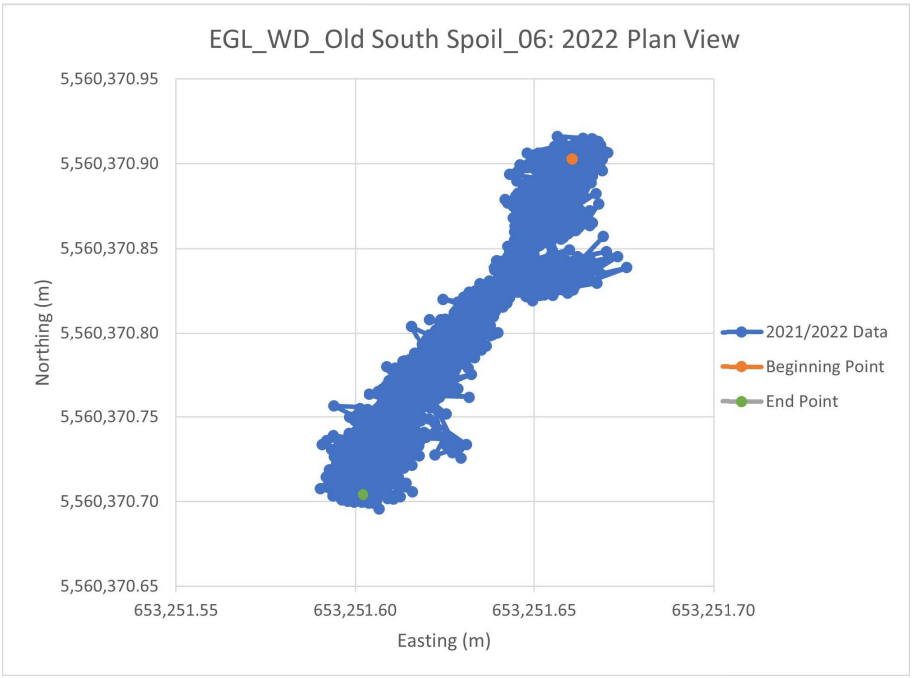

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PROJECT No.	Phase/Task/Doc.	Rev.	SHEET
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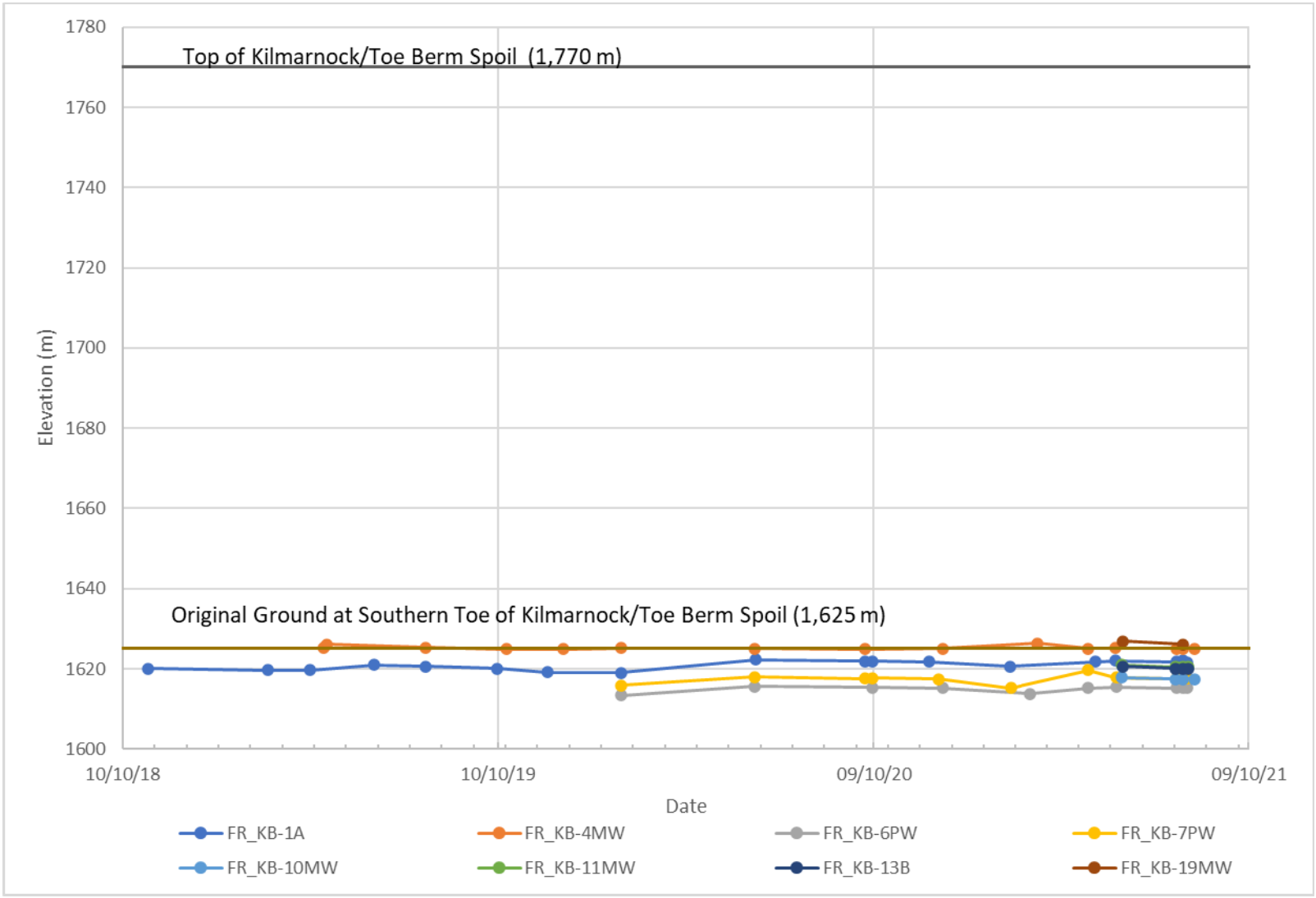

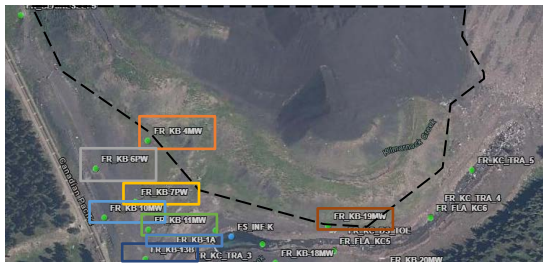

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TITLE
GROUNDWATER MONITORING DATA
KILMARNOCK / TOE BERM SPOIL SOUTHERN EXTENT

PROJECT No.	Phase/Task/Doc.	Rev.	SHEET
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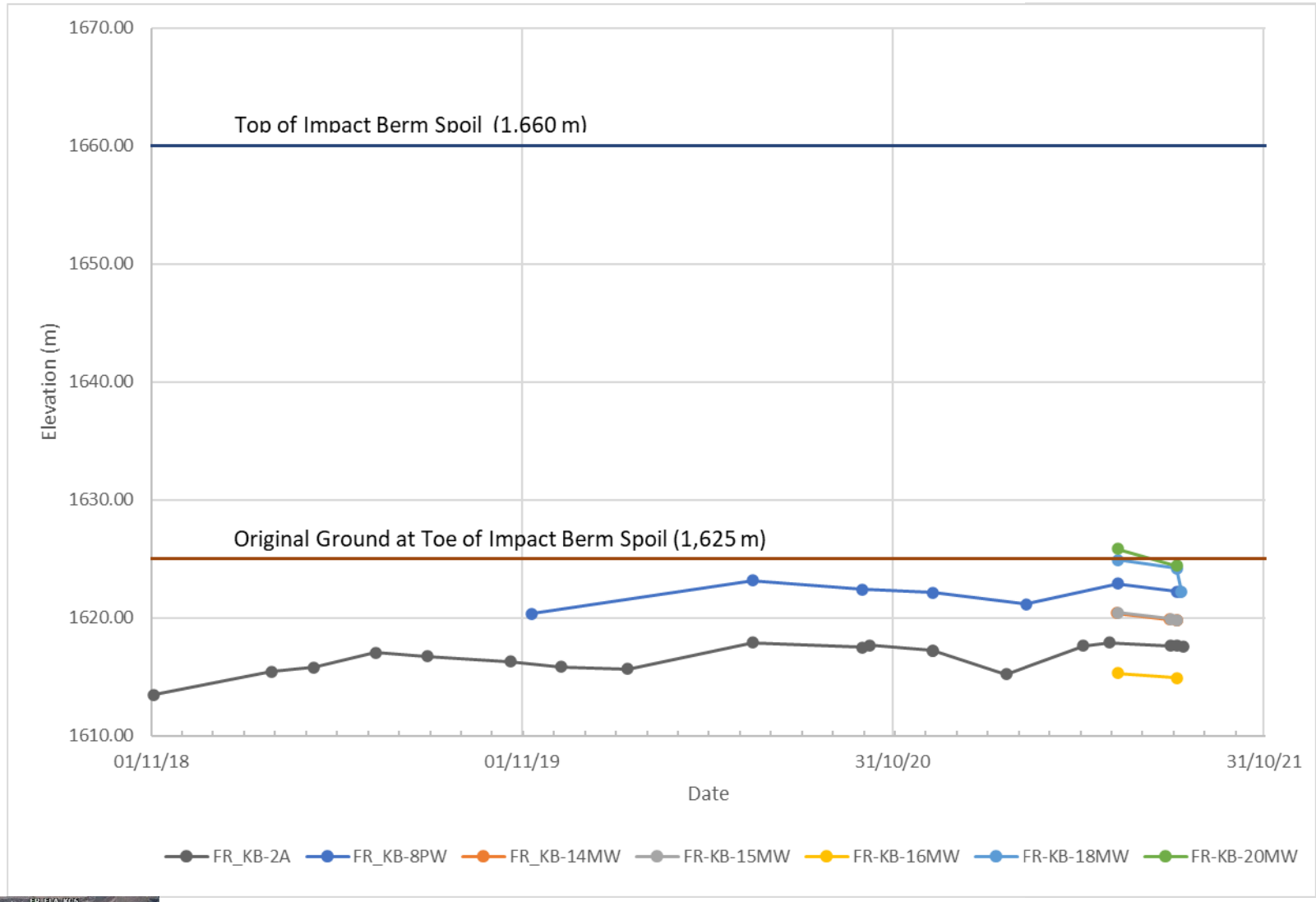

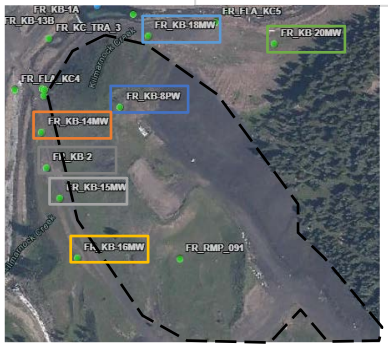

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TITLE
GROUNDWATER MONITORING DATA
IMPACT BERM SPOIL

PROJECT No.	Phase/Task/Doc.	Rev.	SHEET
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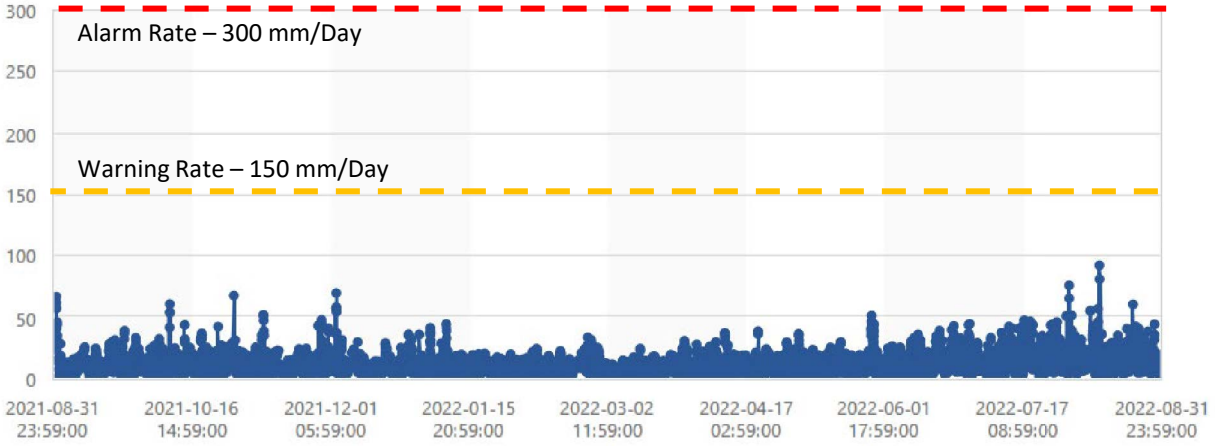

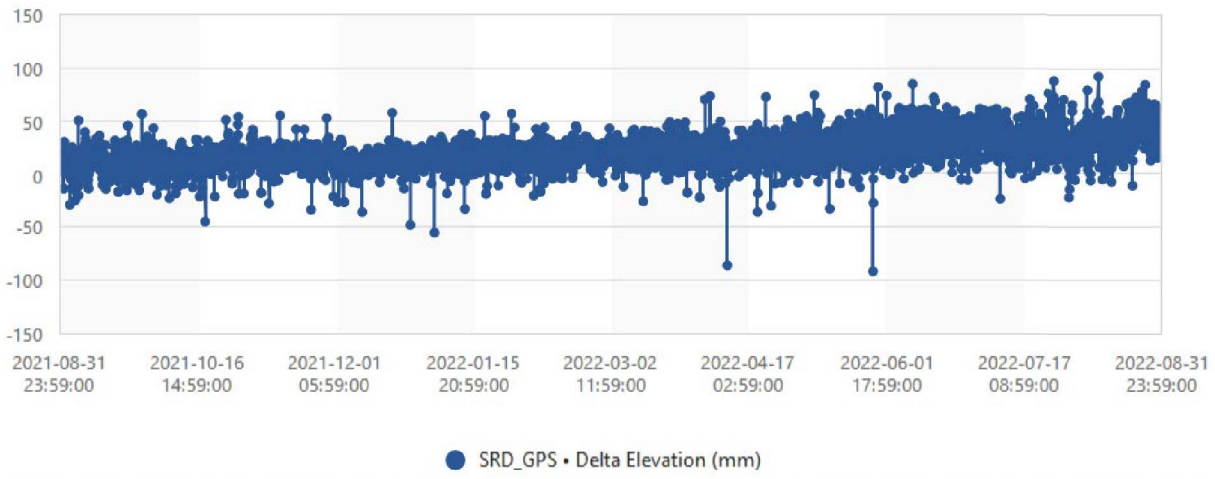

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PROJECT
2022 ANNUAL FACILITY PERFORMANCE REPORT FOR COAL REJECT SPOILS

TITLE
GPS MONITORING DATA
BLAKE SPOIL

PROJECT No.	Phase/Task/Doc.	Rev.	SHEET
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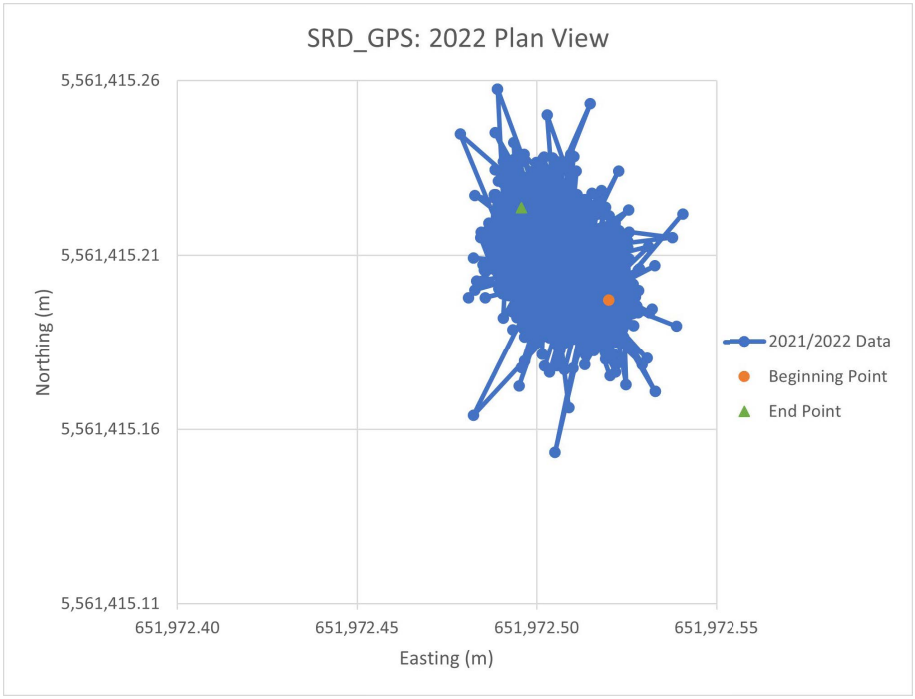

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TITLE
GPS MONITORING DATA
BLAKE SPOIL

PROJECT No.	Phase/Task/Doc.	Rev.	SHEET
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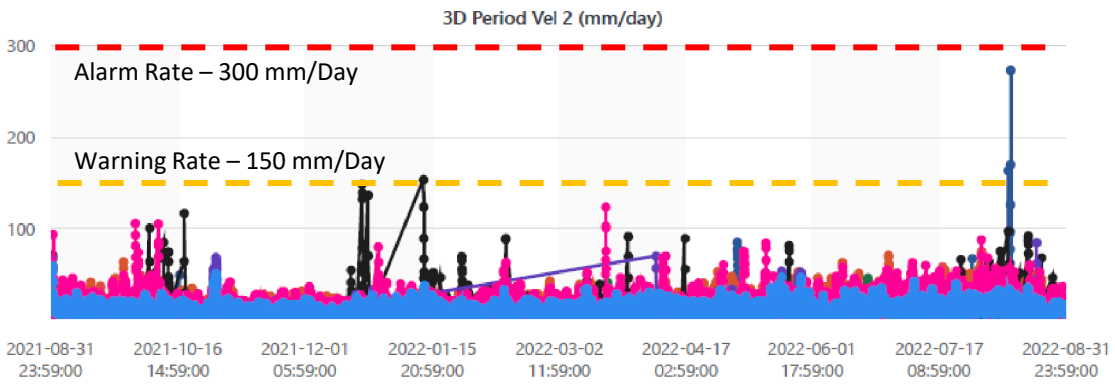

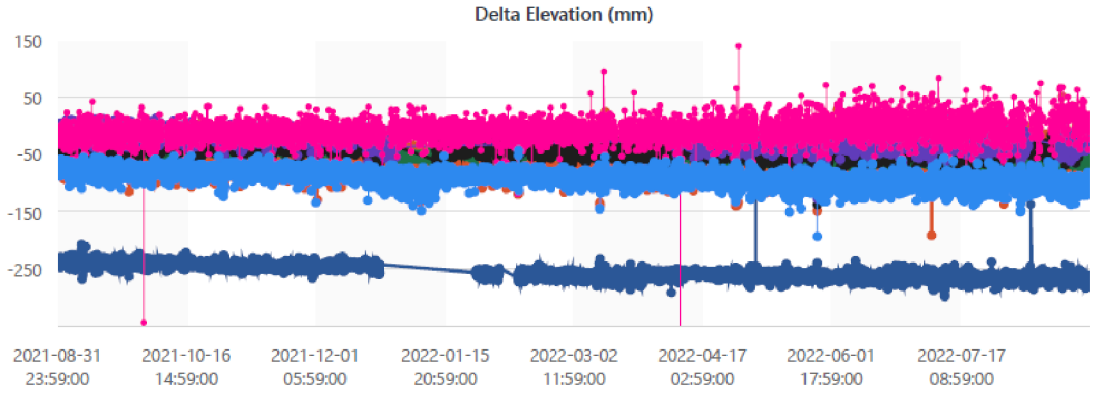

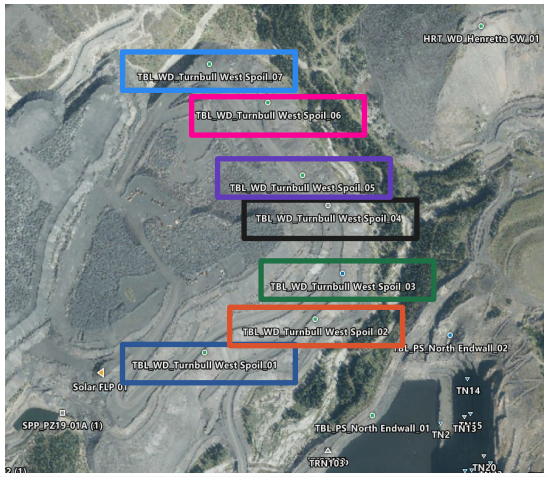

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PROJECT
2022 ANNUAL FACILITY PERFORMANCE REPORT FOR COAL REJECT SPOILS

TITLE
GPS MONITORING DATA
TURNBULL WEST SPOIL

PROJECT No.	Phase/Task/Doc.	Rev.	SHEET
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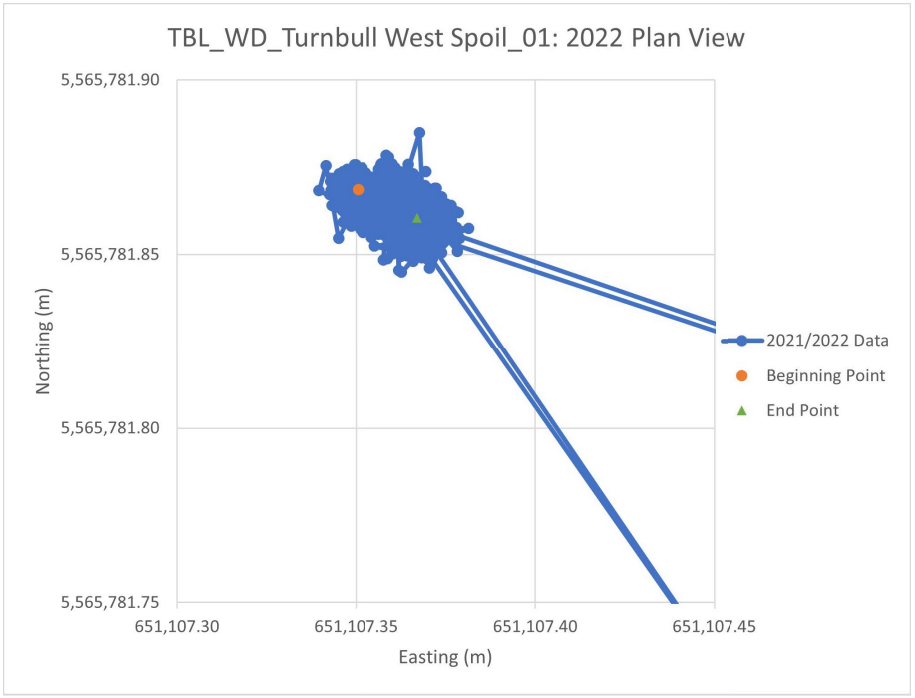

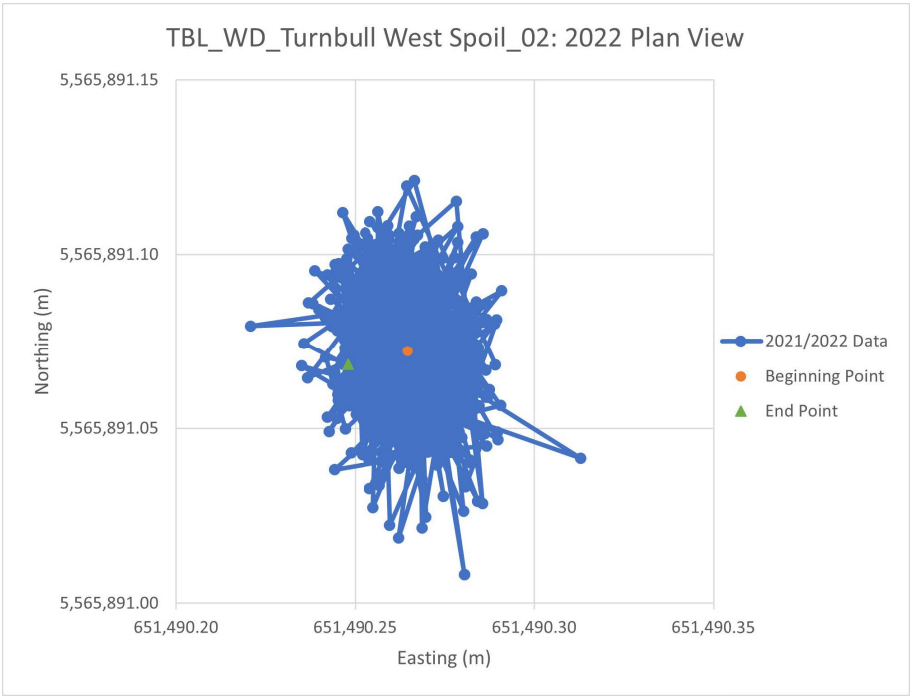

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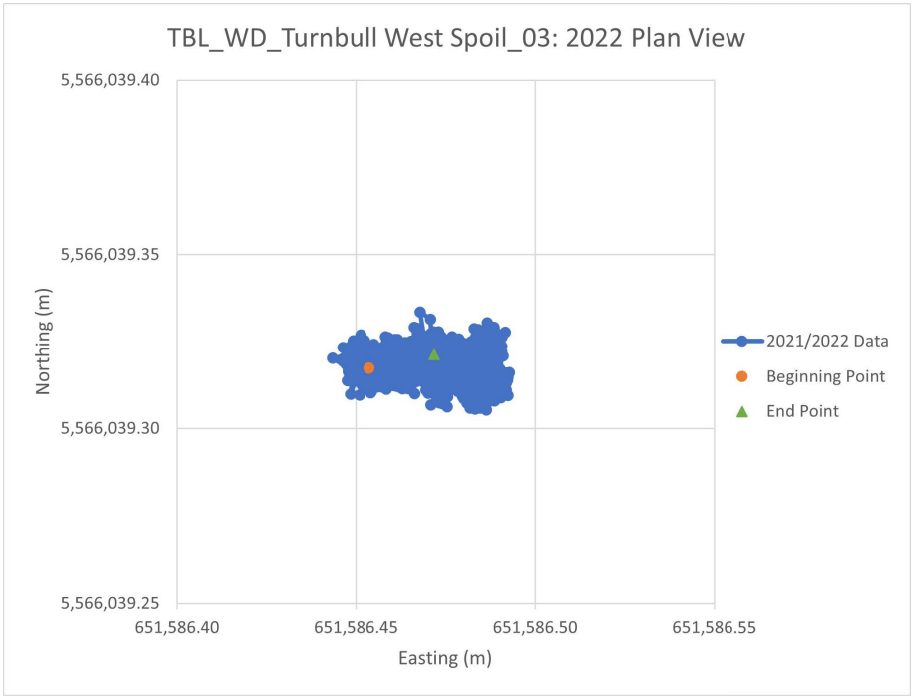
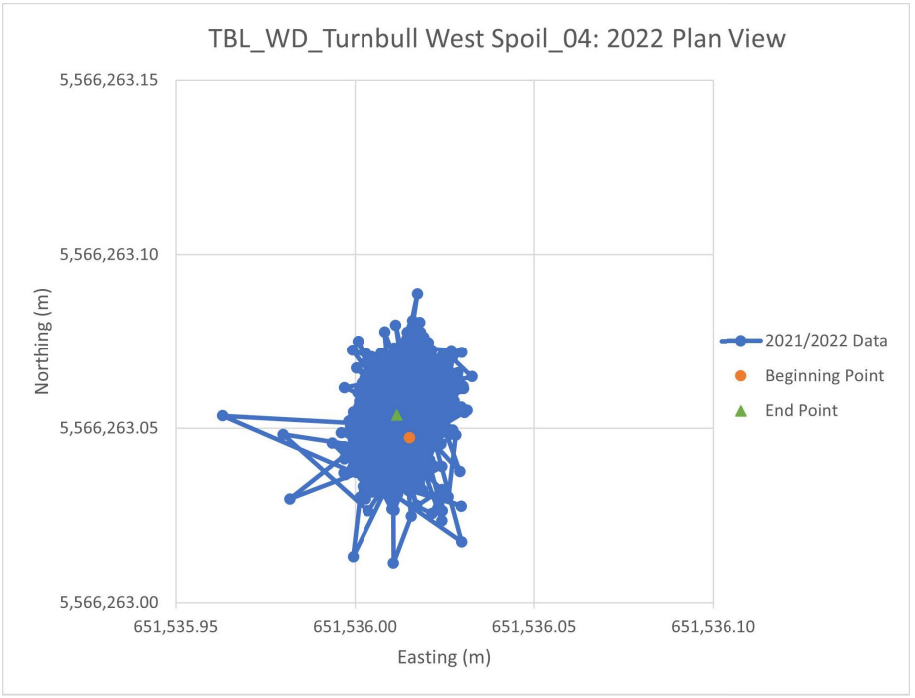
GPS MONITORING DATA
TURNBULL WEST SPOIL

PROJECT No.	Phase/Task/Doc.	Rev.	SHEET
22516328	**1000/1800/2022-123**	**0**	**C-12**





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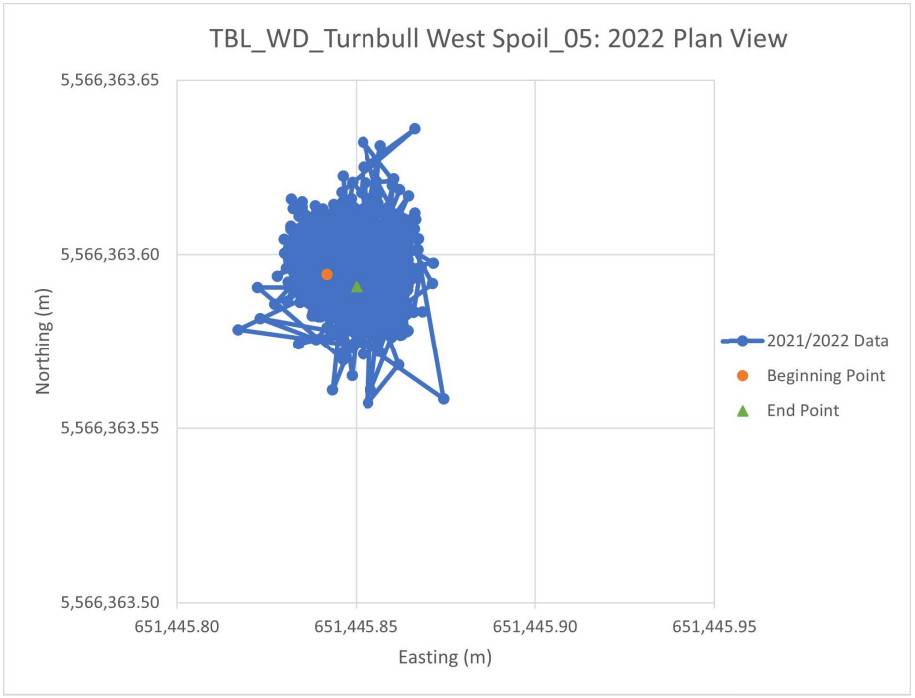
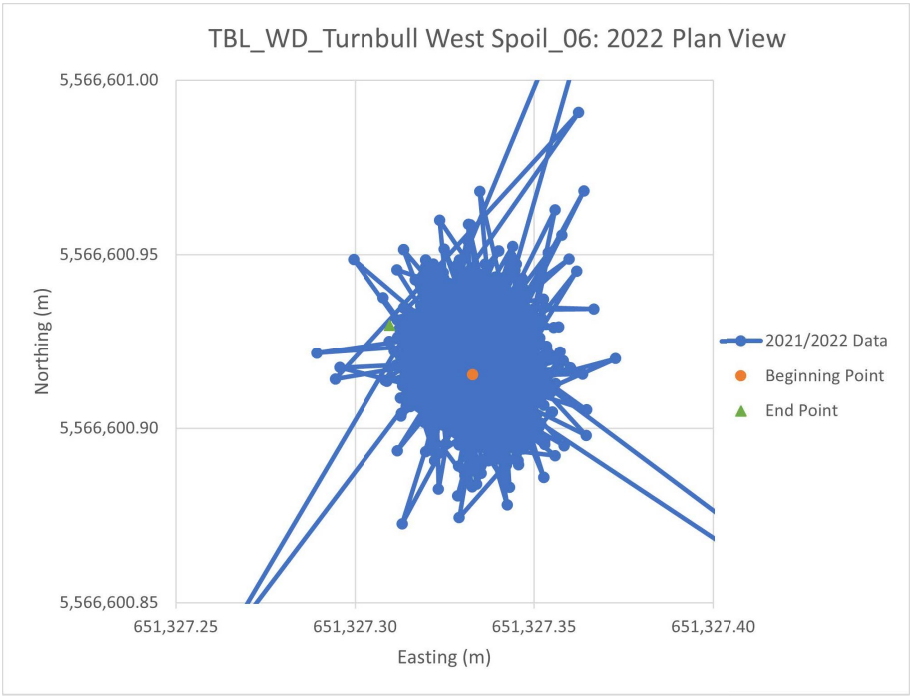
22516328	**1000/1800/2022-123**	**0**	**C-13**





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PROJECT No.	Phase/Task/Doc.	Rev.	SHEET
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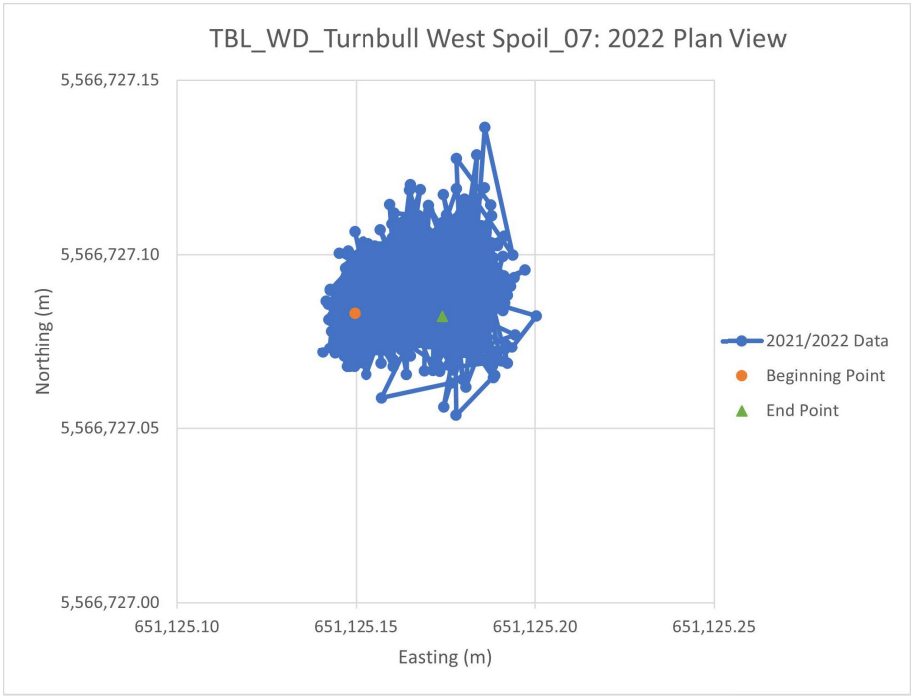

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TURNBULL WEST SPOIL

PROJECT No.	Phase/Task/Doc.	Rev.	SHEET
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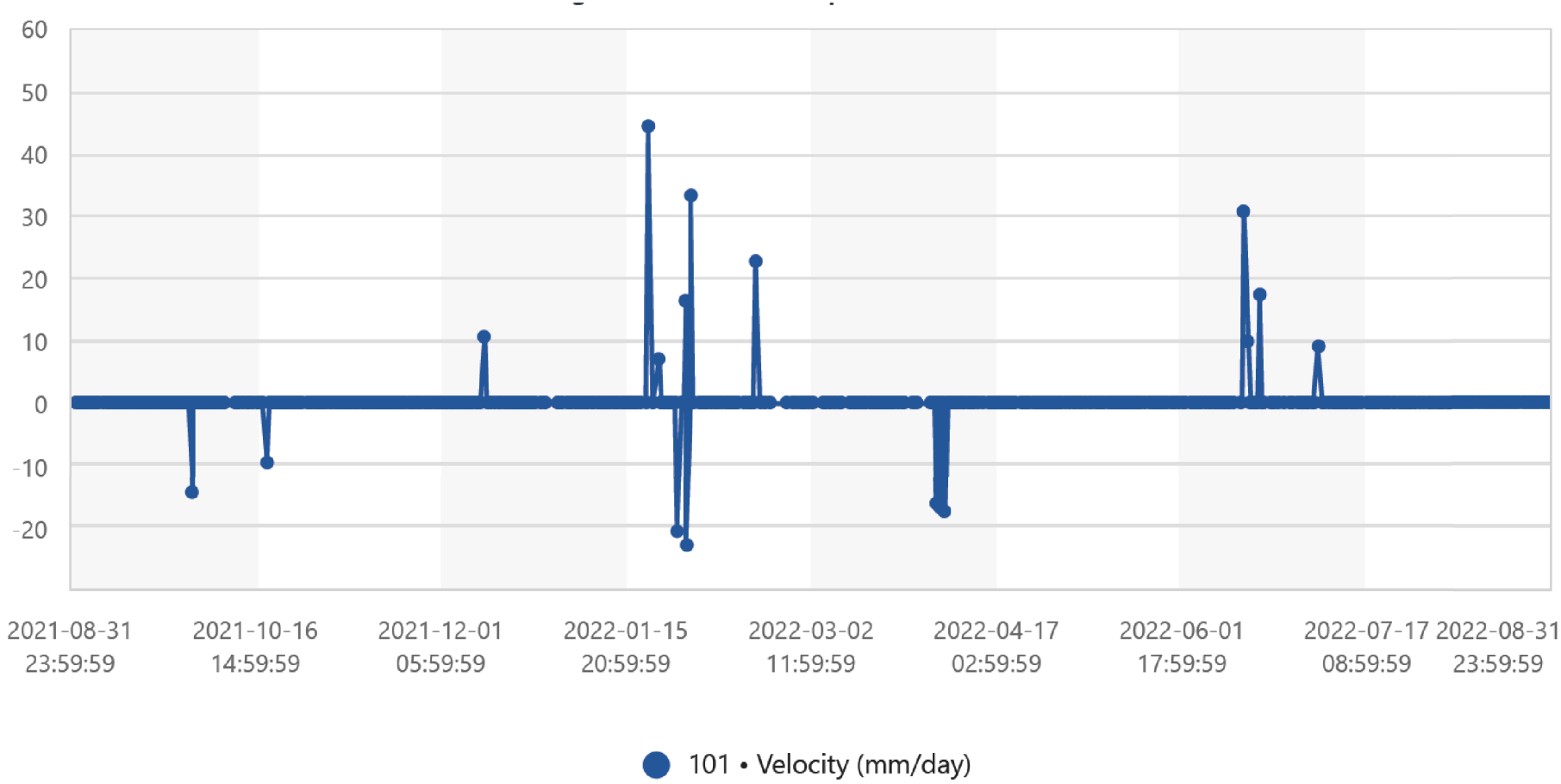

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APPROVED	J. Steele

PROJECT
2022 ANNUAL FACILITY PERFORMANCE REPORT FOR COAL REJECT SPOILS

TITLE
EXTENSOMETER MONITORING DATA
EAGLE 4 SOUTH BACKFILL SPOIL

PROJECT No.	Phase/Task/Doc.	Rev.	SHEET
22516328	**1000/1800/2022-123**	**0**	**C-16**

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