

TECHNICAL MEMORANDUM

DATE 3 October 2022

Reference No. 22538861-002-TM-Rev0-30000

TO Susan Henderson
Truepoint Exploration

FROM Dale Heffernan and Fiona Esford

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2022 CARMACKS COPPER ANNUAL INSPECTION

1.0 INTRODUCTION

This memorandum summarises the observations made during the 2022 annual inspection of the Carmacks Copper Project site. The inspection was carried out by Golder Associates Ltd., a member of WSP (WSP Golder) for Truepoint Exploration (Truepoint) on behalf of Granite Creek Copper Ltd. (Granite Creek) to fulfil the requirements of Section 16.1 of the Quartz Mining License (QML-0007) for the site. The work was carried out in accordance with WSP Golder's proposal CX22538861-001-P-Rev0, dated 15 August 2022, and approved by Granite Creek on 17 August 2022.

The purpose of the inspection was to evaluate the condition and stability of the existing facilities in the area of the proposed mine. The existing facilities at the site comprise a mine exploration camp, access roads, and minor drainage structures. WSP Golder also inspected the area of proposed mine development. The proposed mine infrastructure, as described in the approved QML, dated 15 April 2009, includes a heap leach facility, water management ponds, an open pit, a waste rock storage area, a processing plant and related facilities, ore preparation facilities, ore stockpiles, and water diversion structures.

2.0 OBSERVATIONS

2.1 Overview

The inspection was carried out by Mr. Dale Heffernan, P.Eng. of WSP Golder on 30 August 2022. The inspection focused on the existing site infrastructure and a review of the general site conditions. Photographs of the site at the time of the inspection are presented in Attachment 1. Data collected from thermistors, between 2007 and 2022, are presented in Attachment 2.

The project is in the advanced exploration stage. The only infrastructure on site at the time of inspection was the exploration camp and access roads to the proposed open pit mine area and other areas of the property. The access roads were developed to provide access for exploration and investigation activities.

The site development required to support operations has not started yet. Therefore, there is no stability concern associated with the undeveloped facilities and no maintenance is required. No permanent water diversion structures are in place. There are, however, temporary water management structures (i.e., ditches and sediment catch basins) in place that are appropriate for the exploration stage of the property. We recommend that these diversion structures continue to be inspected annually and that ongoing maintenance be conducted, as deemed necessary.

2.2 Exploration Camp Area

In previous years, inspections of the camp area have noted the presence of cracking, most likely resulting from thaw induced settlement beneath and adjacent to core storage racks. No cracking was observed in the vicinity of the core storage racks during the 2022 inspection. As in previous years, settlement in this area does not represent a safety concern and the inspection did not indicate erosion of sediments from the pad area into the surrounding natural area.

There are two heated buildings, the core shack and geology office, located adjacent to the core storage racks. The tanks, valves and hosing were in a satisfactory condition, at the time of inspection. Liners and spill pads have been placed beneath each tank to act as secondary containment for potential leaks and were also in a satisfactory condition.

The slope behind the camp (Photos 1 and 2) is stable and does not pose a safety concern for the camp structures or current operations. There is minor raveling of small sections of the slope, but these are not impacting camp safety, nor would they represent a risk for workers on the project. Some regrowth of vegetation was observed in the camp area.

2.3 Proposed Heap Leach Facility Area

The inspection included the area of the proposed heap leach facility and associated water management pond. Site preparation in these areas has been limited to clearing of trees and topsoil. This portion of the site also includes several access roads and drilling platforms used for exploration and investigation activities. The sediment control measures include ditches and berms to divert water into sediment catch basins, silt fences, and vegetated areas to break up flow and reduce the potential for erosion.

Clearing and drilling activities were carried out more recently in 2015, 2017, and 2021 at a location down slope of the proposed heap leach facility, near the proposed water management pond. Regrowth of vegetation on the 2015 and 2017 drill pads, primarily volunteer species of grass, has mitigated loss of sediment from these areas and is suitably rehabilitated. The 2021 drill pads were observed to be in a satisfactory condition at the time of the inspection.

Further downstream, within the floodplain of Williams Creek, silt fences have been installed and the area seeded where sediment from previous site erosion accumulated. Grass seed was applied in 2009 to promote the re-establishment of vegetation and to further stabilize sediment. The approach was noted to be generally effective in 2011 and 2012, but with limited regrowth attributed to periodic pooling of water. The area was also re-vegetated with woody plants (willow cuttings), and these plants are now well established. Volunteer species of grass and woody plants are performing very well. There was no evidence of sediment movement, indicating that re-vegetation has been effective in minimizing erosion. Silt fencing surrounding these areas is now overgrown and there is no evidence of sediment movement through the area.

2.4 Proposed Open Pit Area

The area proposed for the open pit mine was inspected. The slopes of the trenches excavated as part of the effort to obtain bulk samples during exploration activities were observed to be in satisfactory condition (Photos 3 to 8). There was no observed slumping or failures of the trenches and the slopes facilitate egress for wildlife. Several of the drill pads were inspected and there did not appear to be any erosion noted from these areas that would require attention.

2.5 Proposed Waste Rock Storage Facility Area

The proposed waste rock storage area was inspected. The waste rock storage area is tree covered and the drill pads and access roads in the area are re-vegetating by volunteer species to the extent that access on foot is now difficult.

2.6 Fuel Storage Area

The existing fuel storage area was inspected. It comprises a bunded and lined basin constructed to contain any spilled fuel and currently contains a few dozen drums of diesel fuel. Approximately 0.2 m of water has accumulated in the basin (Photos 9 and 10). The bund is less than 3 m in height and the basin capacity is less than 10,000 m³; therefore, the fuel storage area is appropriately permitted under the QML without need for a water license (Yukon Environment Dam Guide).

Some of the previously reported damage to the liner has been repaired. However, the areas with larger holes remain unrepaired. These areas will require HDPE welding in order to patch the liner (Photos 11 and 12). The fuel drums have since been organized in a manner to allow wildlife egress from the basin. There is some vegetation growth along the top of the containment berms and within the lined basin. There is the potential that the roots of willows and other shrubs could penetrate through the liner.

2.7 Site Access Roads

The access road to the north of the proposed waste rock storage area was observed to be in good condition with only minor erosion observed. The North Williams Creek culvert has undergone some crushing and has accumulated some sediment (Photo 14). However, the culvert remains adequate to accommodate the relatively minor flows observed at the time of the inspection. There is no visual evidence to indicate that erosion is occurring near the culvert. The access road should be inspected annually, and periodic maintenance of drainage features and erosion management should be anticipated.

The ford road crossing installed at Williams Creek in 2013 continues to function as intended (Photos 15 and 16). The rockfill in the ford is well-graded and there is no indication of movement of finer materials. Pondered water was observed on the upstream side of the road, with flow across the road. It is possible that a large rainfall event could result in erosion. We therefore recommended that the ford continue to be inspected annually and maintenance be carried out, if required. The ford is appropriate for the current status of the project. However, prior to site development, it is recommended that the crossing is upgraded.

The access road crossing at Merrice Creek includes a single-span bridge (Photos 17 to 22). The wood decking on the bridge is beginning to show signs of wear and side rails have started to separate from the deck (Photograph 18). The structure of the bridge was observed to be in a satisfactory condition and is securely anchored at each of the abutments. The right (or southern) abutment is steep sided and there is evidence that erosion may be continuing to occur at this location under high-flow conditions. The bridge should be monitored annually and following large rainfall events. In the event that erosion begins to compromise the stability of the abutment, consideration should be given to the installation of erosion protection at this location.

The access road outside of the QML boundary was observed to be in poor condition with significant rutting and erosion. It is understood that drainage work and repair efforts along this section of the access road is scheduled for end of the current exploration season (fall 2022).

3.0 THERMISTOR DATA

Thermistor monitoring data, through 2022 demonstrate that clearing of the Heap Leach Facility area in 1997, promoted thawing of the discontinuous permafrost. However, in recent years that progress has been lost due to vegetation regrowth. Based on thermistor monitoring from 2007 to 2022, shown in Attachment 2, the Heap Leach Facility area would need to be re-cleared to facilitate thawing. The most recent data was provided by Truepoint on 22 August 2022 to WSP Golder. It consisted of readings taken during August 2022.

In general, thermistors BH-01-07, BH-03-07, BH-06-07, BH-17-07, located within the proposed heap leach site, have generally continued to show a gradual year-on-year decrease in temperatures at depths greater than 5 to 7 m, depending on location. Similar trends are also apparent in BH-12-07, BH-18-07, and BH-29-07 located within the proposed waste rock storage area. The remaining thermistors, BH-13-07 and BH-26-07, have consistently indicated little or no permafrost, over the depth monitored. BH-23-07 was destroyed in either 2020 or 2021. Note the monitoring depth/elevation varies by location.

The project is located in an area of warm (greater than -2°C) discontinuous permafrost. Based on site data, where permafrost exists, the temperature ranges from about -0.4 to -2°C , below a depth of 10 m. This is evident from the thermistor plots, which can be interpreted to estimate the active thaw layer and permafrost, where present. The thermistor plots indicate the presence of permafrost at the following locations:

- BH-01-07, BH-03-07 and BH-06-07 to the south and west of the proposed heap leach facility area, where the active thaw layer is approximately 5 to 7 m thick with permafrost below.
- BH-12-07, BH-18-07 and BH-29-07 within the proposed waste rock storage area, where the active thaw layer varies from approximately 5 to 8 m thick with permafrost below.
- BH-13-07, within the proposed events pond area, indicates that no permafrost exists to a depth of 18.3 m. However, permafrost may exist below this depth.
- BH17-07, within the proposed Heap Leach Facility, where the active layer is approximately 5 m thick. Ground temperatures below the active layer are near 0°C , except at 8 and 25 m below ground surface (bgs) where the ground temperature is near -2°C . 8 m bgs corresponds with a layer of no recovery during the 2007 drilling investigation. 25 m bgs is within the bedrock.

No permafrost has been observed at thermistors BH-23-07 and BH-26-07 over the monitored depths of 15.0 m and 12.0 m, respectively. These instruments are within the proposed Heap Leach Facility area. Permafrost likely exists below the depth monitored. Both instruments show a cooling trend since 2017. Below 10 m depth, a decreasing temperature trend approaching 0°C is evident.

4.0 RECOMMENDATIONS

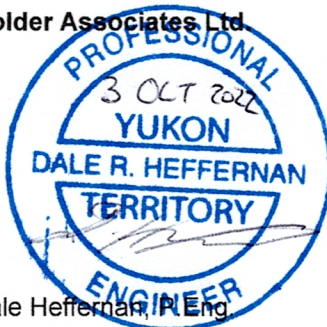
The inspection of the Carmacks Copper Project site was completed on 30 August 2022. Based on the inspection the following recommendations are provided:

- Water crossings, including the bridge abutments at Merrice Creek, should continue to be inspected annually and following major rainfall events. Maintenance should be carried out, as required to maintain the functionality and safety of these crossings.
- The wood side rails on the Merrice Creek bridge have separated from the wood decking. The wood rails should be repaired and reattached to the bridge deck.
- Drainage repairs and upgrades, such as constructing ditches, is required along the access road between Freegold Road and Merrice Creek.
- The damage to the liner at the fuel storage area should be repaired. This may require engaging a specialist contractor to weld HDPE patches over the damaged areas. At the time when repairs to the liner are made, the vegetation within the bermed area should be removed, the area inspected and repaired, if required. Alternatively, the project may want to consider decommissioning and replacing the existing fuel bund with one or more double walled fuel tanks. The surrounding soils should be assessed for hydrocarbon contamination if the existing fuel bund is decommissioned. If necessary, remediation of the surrounding soil should be conducted. These efforts may include on-site soil farming.

5.0 CLOSURE

The reader is referred to the Study Limitations section, which follows the text and forms an integral part of this technical memorandum. We trust that the contents of this technical memorandum meet your requirements for the 2022 annual inspection

Golder Associates Ltd.



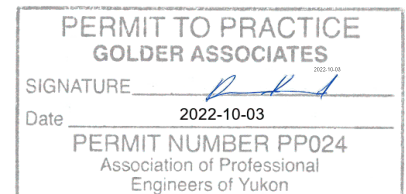
Dale Heffernan, P.Eng.
Geotechnical Engineer

A handwritten signature in blue ink, appearing to read "Fiona Esford".

Fiona Esford, M.A.Sc., P.Eng.
Senior Geotechnical Engineer

DH/FE/anr/nm

Attachments: Attachment 1: Photographs
Attachment 2: Thermistor Data



[https://golderassociates.sharepoint.com/sites/166389/project files/6 deliverables/02_issued/22538861-002-tm-rev0-30000-2022 carmacks copper annual inspection/22538861-002-tm-rev0-30000-2022 carmacks copper annual inspection 03oct_22.docx](https://golderassociates.sharepoint.com/sites/166389/project%20files/6%20deliverables/02_issued/22538861-002-tm-rev0-30000-2022%20carmacks%20copper%20annual%20inspection/22538861-002-tm-rev0-30000-2022%20carmacks%20copper%20annual%20inspection%2003oct_22.docx)

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ATTACHMENT 1

Photographs

Attachment 1: Photographs

Carmacks Copper 2022 Annual Inspections

Reference No. 22538861-002-TM-Rev0-30000
3 October 2022



Exploration Camp



Photo 1: Slope behind camp – slope is in satisfactory condition



Photo 2: Slope behind camp – slope is in satisfactory condition

Proposed Open Pit Area



Photo 3: Discovery trench – sides of trench are sloped, trench is in satisfactory condition

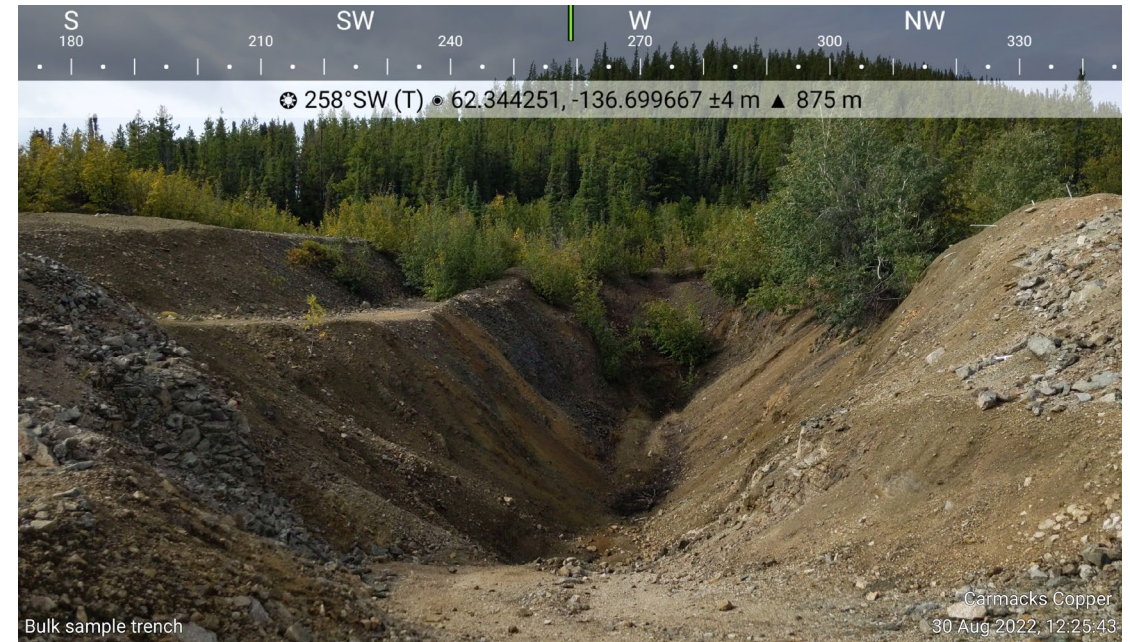


Photo 4: Bulk sample trench – sides of trench are sloped and benched, trench is in satisfactory condition

Proposed Open Pit Area



Photo 5: Reclaimed exploration trench



Photo 6: Reclaimed exploration trench

Proposed Open Pit Area



Photo 7: Exploration trench – trench is currently in use



Photo 8: Exploration trench – trench is partially reclaimed

Fuel Storage Area



Photo 9: Water accumulation in fuel bund



Photo 10: Fuel bund vegetation

Fuel Storage Area



Photo 11: Patch in fuel bund liner



Photo 12: Hole in fuel bund liner

Site Access Roads

Waste Rock Storage Area



Photo 13: Waste Rock Storage Area

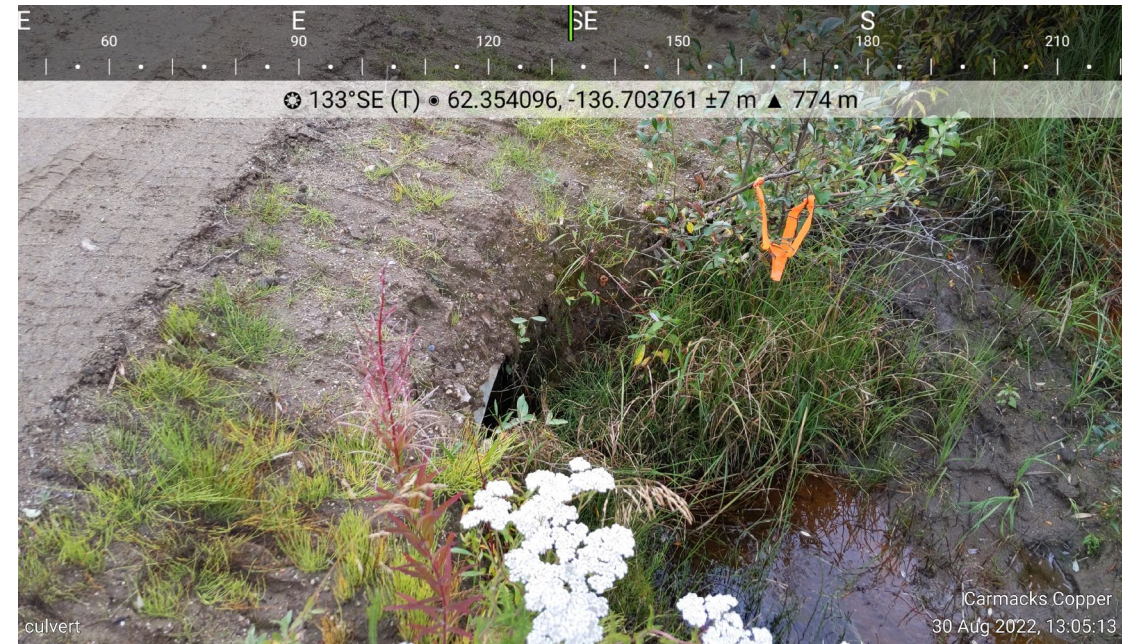


Photo 14: Culvert under road

Site Access Roads

Williams Creek



Photo 15: Ford crossing



Photo 16: Ford Crossing

Site Access Roads

Merrice Creek

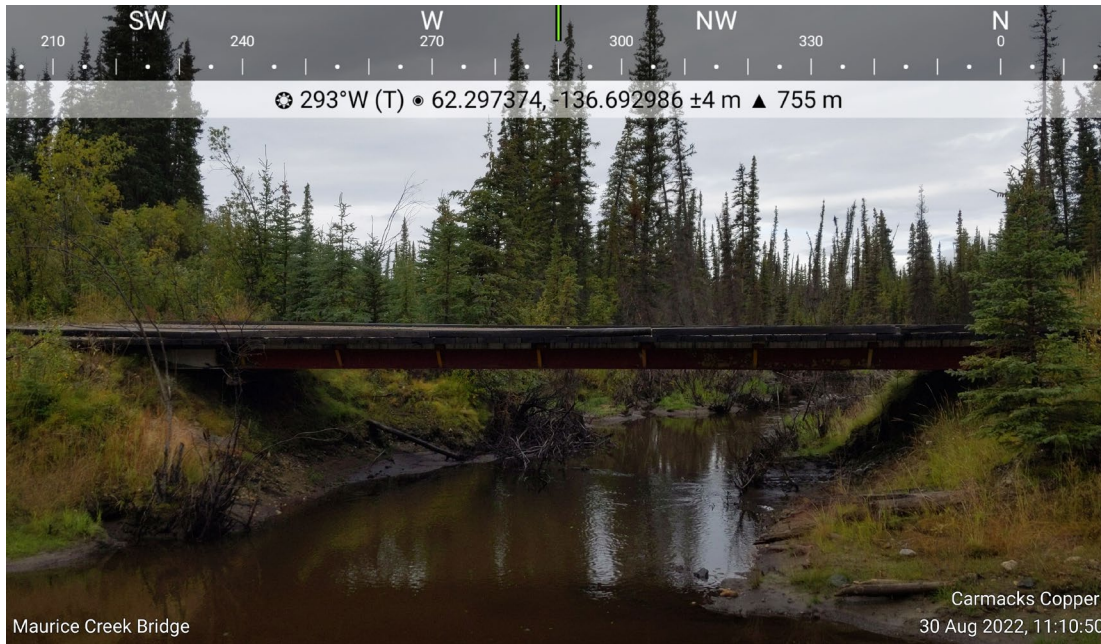


Photo 17: Merrice Creek Bridge



Photo 18: Damaged bridge rail – rail should be reattached to the bridge deck

Site Access Roads

Merrice Creek



Photo 19: North abutment of Merrice Creek bridge

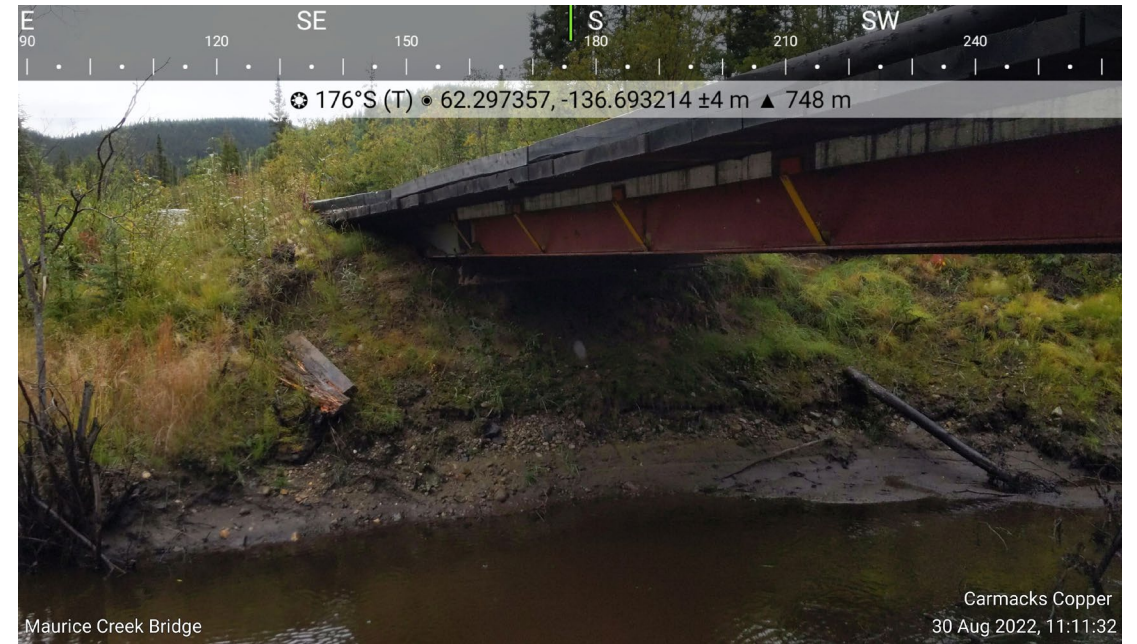


Photo 20: South abutment of Merrice Creek bridge

Site Access Roads

Merrice Creek



Photo 21: North abutment of Merrice Creek bridge



Photo 22: South abutment of Merrice Creek bridge

ATTACHMENT 2

Thermistor Data

