

**NEW GOLD RAINY RIVER MINE
APPENDIX R
VEGETATION TRIALS SUMMARY**



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Memorandum

To: Garnet Cornell – Environmental Specialist, New Gold

From: Lindsay Tallon, Sr Geoscientist

Cc: Sylvie St. Jean – New Gold; Denise Chapman , Dave Christensen – Okane

Our ref: B-1003-016

Date: December 19, 2019

Re: **Rainy River Vegetation Trials - Summary of 2019 Work Package**

Introduction

New Gold has engaged with government regulators and community stakeholders to demonstrate that vegetation can successfully be re-established as part of ongoing progressive reclamation and closure at the Rainy River Mine (RRM). New Gold is currently in the process of conducting a vegetation trial to demonstrate efficacy of revegetation efforts and to test various cover system configurations. The objective of the vegetation trial is to test the cover system configurations and vegetation mixes that are most likely to result in a self-sustaining ecosystem that is compatible with the surrounding area.

Major construction efforts began on the vegetation trial in the summer of 2019. The following memorandum summarizes the efforts overseen by Okane personnel during the construction and implementation of the vegetation trials in 2019. It should be noted that the following summary does not constitute an as-built report. It is expected that the landform as-built will be submitted by the earthworks contractor.

Site Visits

Initial Plateau Construction (July 5 to 8, 2019)

Mobilization for cover system construction on the vegetation trial began on June 24, 2019. Initial layout of the cover system plots was completed on June 28, 2019, with topsoil being placed immediately afterward. Topsoil was placed on the north plots beginning around July 5 (Figure 1).



Figure 1: Initial plateau construction showing topsoil placement on the northern half of the plots (left side of figure).

Initial efforts at incorporating the topsoil into the underlying overburden on July 6 were not successful (Figure 2). A garden rototiller was not able to penetrate through the topsoil into the overburden and a heavier implement was required.



Figure 2: Initial effort at topsoil incorporation using a garden rototiller.

A cursory inspection of the cover system on July 7, 2019 found large boulders were protruding through what was assumed to be the final cover thickness. Closer inspection found that waste rock was visible in certain areas where the cover system was especially thin. The thickness of the cover system was then measured for quality control purposes. It was discovered that the cover system did not meet specifications in any locations across the landform. Work on plot construction was halted and Okane personnel left the site.

Slope and Plateau Construction (August 13 to 22, 2019)

The entire landform was to be reconstructed with an additional 1.5 m of overburden placed on the surface of the existing material. Material hauling began on August 12, 2019, with Okane personnel arriving on site on August 13. Initial efforts focused on the north slope (Figure 3) and south slope (Figure 4 and Figure 5).



Figure 3: Construction of the north slope of the vegetation trial landform.



Figure 4: Construction of the south slope of the vegetation trial landform.



Figure 5: Construction in progress of the south slope of the vegetation trial landform.

Construction of the slopes progressed well despite periodic work disruptions due to heavy rain. Okane personnel were able to stake out the layout of the plateau area prior to construction on that area (Figure 6). Overburden was then hauled to the plateau surface and bladed to the specified depth (Figure 7) for subsequent compaction (Figure 8). Additional overburden was subsequently placed over the compacted overburden layer to the specified depth (Figure 9).



Figure 6: Layout of the plateau surface area prior to cover placement.



Figure 7: Hauling and blading cover system material on the plateau surface.



Figure 8: Slickensides indicative of a high clay content material as placed on the plateau surface.



Figure 9: Placement of the overburden cover system on the plateau area.

Trial and Destructive Plot Construction (September 3 to 9, 2019)

The final phase of construction for the 2019 field season concluded with construction of the plateau cover system and the destructive plots on the lower plateau. Final plot construction was conducted between September 3 and 8, 2019. Experimental plots were flagged, and topsoil was incorporated using a purpose-built tiller implement on a skid-steer (Figure 10). The same implement was then used to incorporate fertilizer and the southern half of the experimental plots was completed (Figure 11). Construction of the experimental plots took place between September 6 and 7, 2019 (Figure 12).



Figure 10: Topsoil incorporation into experimental plots using tiller attachment.



Figure 11: Experimental plots following final incorporation and prior to planting.



Figure 12: Experimental plots looking north.

The western slope and associated plateau were constructed during the final phase of work for the year. The plateau on the western side of the vegetation landform is known as the Destructive Plot and is meant to serve as an area that can be destructively sampled at regular annual intervals throughout the life of the program. Material was spread and quality control indicated that the cover system met specifications (Figure 13).



Figure 13: West slope plateau (destructive plot) area prior to grading material.

A final check of cover system depths and experimental plot layout was conducted on September 8, 2019 prior to Okane personnel leaving the site.

Tree Planting and Slope Hydroseeding

The final phase of 2019 construction work concluded with planting of tree seedlings and hydroseeding of the landform slopes. Tree planting and hydroseeding was carried out by a 3rd party contractor. Landform slopes were hydroseed in late September 2019 and included a test of commercially available ProGanics Biotic Soil Media from Profile Products (Figure 14). Sections of the landform slopes were left unseeded as a control plot and already exhibit signs of rill erosion (Figure 15) Experimental tree plots were seeded in late October 2019 by a local nursery (Figure 16 and Figure 17). Okane has not been on site to perform quality control checks, as it is understood that additional tree seeding will take place in the spring of 2020.



Figure 14: Landform slope following hydroseeding and application of ProGanics with unseeded control plot on right.



Figure 15: Rill erosion on unseeded control plot.



Figure 16: Tree seedlings on experimental plot looking east.



Figure 17: Tree seedlings on experimental plots looking west.

Scheduled Activities for 2020

Activities planned for 2020 largely include a continuation and finalization of the 2019 program. It is expected that tree planting will be finished in spring or early summer of 2020. Following planting the expected activities for 2020 include:

- A QC site visit following completion of tree planting;
- A monitoring site visit in the fall of 2020 to assess initial monitoring parameters;
- An on-site meeting and failure modes and effects workshop to discuss initial results and study findings, and,
- Consultation with regulators, including an expected in-person progress update presentation.

Closure

We trust information provided in this memorandum is satisfactory for your requirements. Please do not hesitate to contact me at (306) 713-0140 or ltallon@okc-sk.com should you have any questions or comments.