Appendix M

Evaluation of Proposed Changes to Final Landform

Landloch

BOGGABRI COAL MINE

EVALUATION OF PROPOSED CHANGES TO FINAL LANDFORM – MODIFICATION 8

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1 INTRODUCTION

The Boggabri Coal Mine (BCM) is an open cut coal mine located about 15 km north east of the Boggabri township in north-western NSW. Boggabri Coal Operations Pty Ltd (BCOPL) has operated BCM on behalf of Idemitsu Australia Resources and its joint venture partners since 2006. BCM operates within the Leard Forest Mining Precinct and is immediately adjacent to the Tarrawonga Coal Mine to the south and Maules Creek Coal Mine to the north.

BCM Extension was granted Project Approval 09_0182 (which is now known as State Significant Development [SSD] 09_0182). It is supported by the '*Continuation of Boggabri Coal Mine Environmental Assessment*' (Hansen Bailey, 2010) and is valid to December 2033. SSD 09_0182 has been modified on six occasions.

Currently BCOPL intends to seek a modification to SSD 09_0182 (MOD 8) under Section 4.55 of the Environmental Planning and Assessment Act. The changes involve:

a) increasing the approved maximum depth of mining down to the Templemore Coal Seam (and associated mine plan amendments) to recover an additional 61.6 Million tonnes (Mt) of Run of Mine coal resource within the currently approved Mine Disturbance Boundary, resulting in a six year extension to mine life (i.e. from 31 December 2033 to 31 December 2039); and

b) construction of a specifically designed fauna movement crossing of the existing haul road between the mining area and the Mine Infrastructure Area to encourage the movement of fauna from the Leard State Forest to the Southern Rehabilitation Area.

The application will be supported by a modification application prepared by Hansen Bailey.

As part of the preparation of the Modification Report, Hansen Bailey engaged Landloch Pty Ltd (Landloch) to:

- conduct an assessment of the Conceptual Final Landform Design to be established as part of this Modification;
- consider how the proposed modification of the rehabilitation and final landform design may affect integration with adjoining Maules Creek and Tarrawonga Mines; and
- develop assessment, mitigation and management recommendations that may be required to address any potential reductions in erosion stability resulting from the modification.

The Conceptual MOD 8 Project Layout is presented in Figure 1.

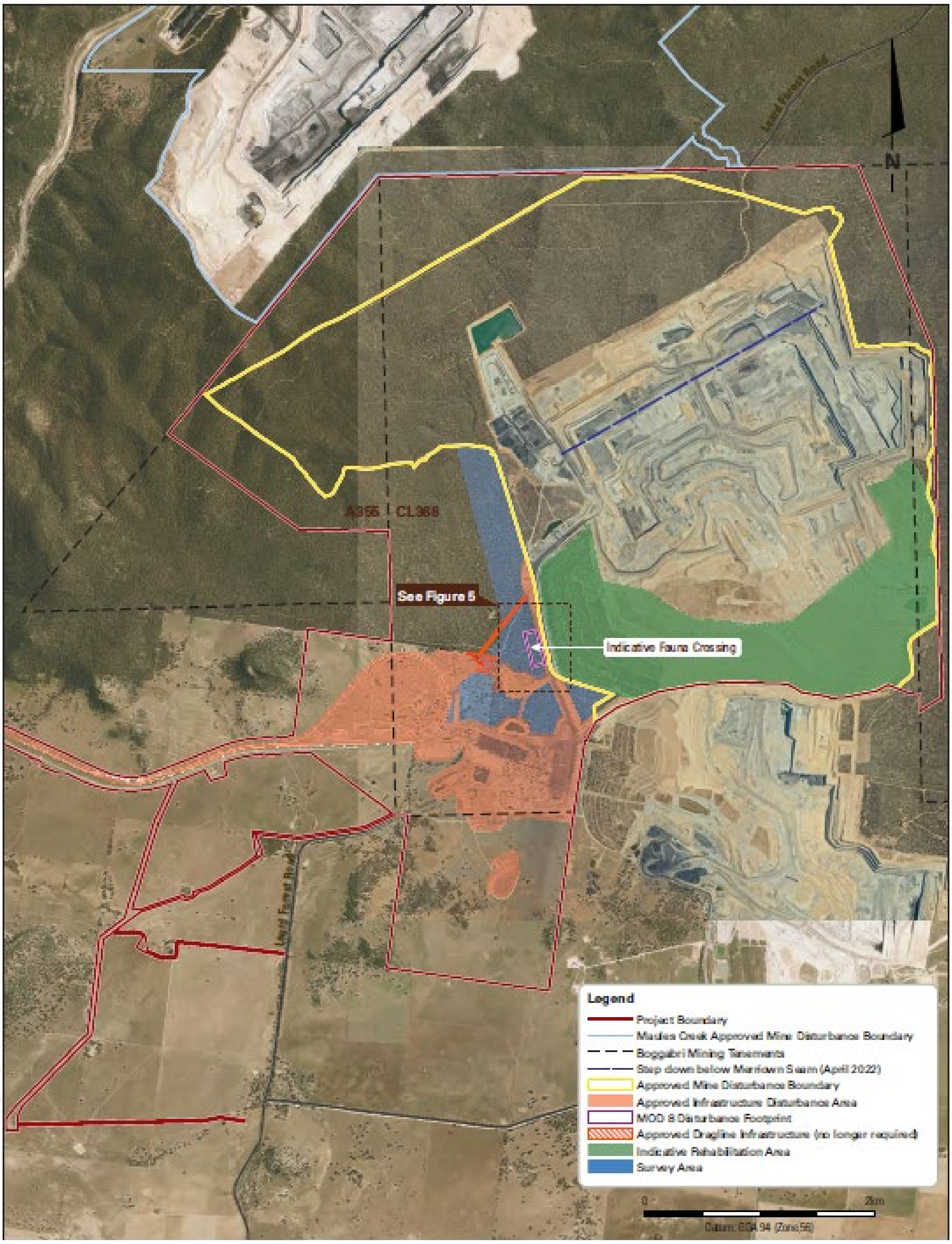

Figure 1. Conceptual MOD 8 Project Layout (courtesy of Hansen Bailey, 2021).

2 CURRENT LANDFORM

The existing approval is for BCOPL to construct a final landform that will be constructed to "*drain to the natural environment*" and is "*consistent with the surrounding environment*" (Table 16 Rehabilitation Objectives, State Department of Planning, Conditions of Approval [SSD] 09_0182).

The general concept design for the Overburden Emplacement Area (OEA) aims to achieve linear batter gradients of 10° (17.5 %), with lifts to a height of 20 m, initially constructed to be separated by diversion banks (berms), which are removed once target vegetation cover levels are achieved, and are expected to provide a stable landform (Hansen Bailey 2010).

The main changes for Modification 8 comprise the following:

- increasing the approved maximum depth of mining down to the Templemore Coal Seam;
- increasing the approved maximum height of the OEA to 400 m RL. This elevation is 5 m higher than currently approved (395 m RL); and
- constructing a specifically designed fauna movement crossing near the existing haul road between the mining area and the Mine Infrastructure Area.

The proposed OEA includes an area of existing rehabilitation with 20 m high batters separated by berms on its south-west batters, that were constructed under the current approval, but not shown explicitly on Figure 1. That area is not considered to represent a change from the currently approved landform.

The currently approved Conceptual Final Landform is provided in Figure 2 and the proposed Mod 8 Final Landform is provided in Figure 3.

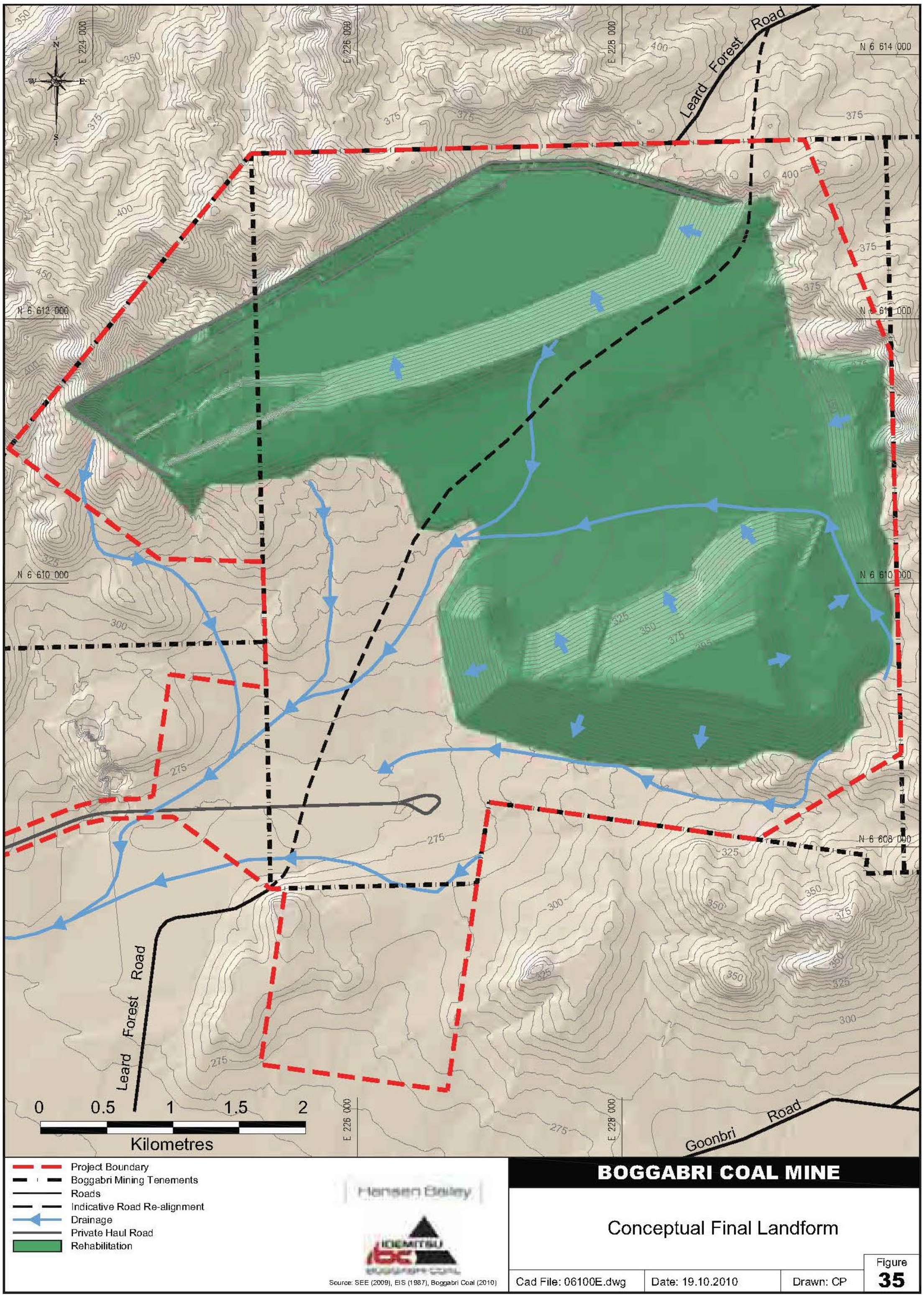

Figure 2. Currently approved Conceptual Final Landform (Hansen Bailey 2010).

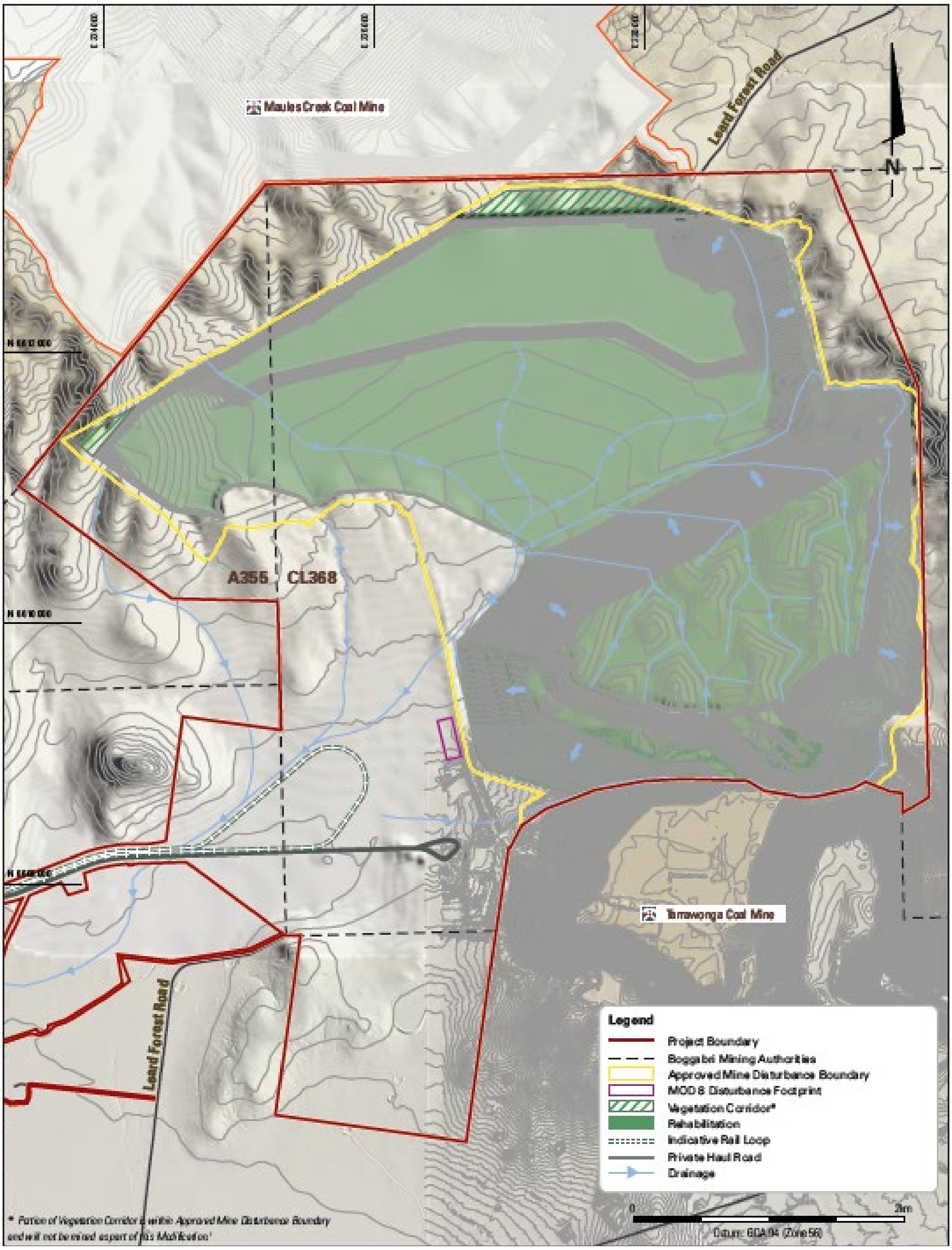

Figure 3. Proposed Mod 8 Conceptual Final Landform (courtesy of Hansen Bailey, 2021).

A key change to the OEA is that the top of the landform will be formed as an undulating surface, with most runoff being retained on the top of the landform, and potentially reducing uncontrolled discharges onto outer batter slopes. Comparison of likely drainage patterns (derived from analysis of the Digital Elevation Models (DEMs) provided) (Figures 4 and 5) shows the more complex water movement patterns on the top of the MOD 8 conceptual landform, and considerable reduction in uncontrolled discharges onto outer batter slopes.

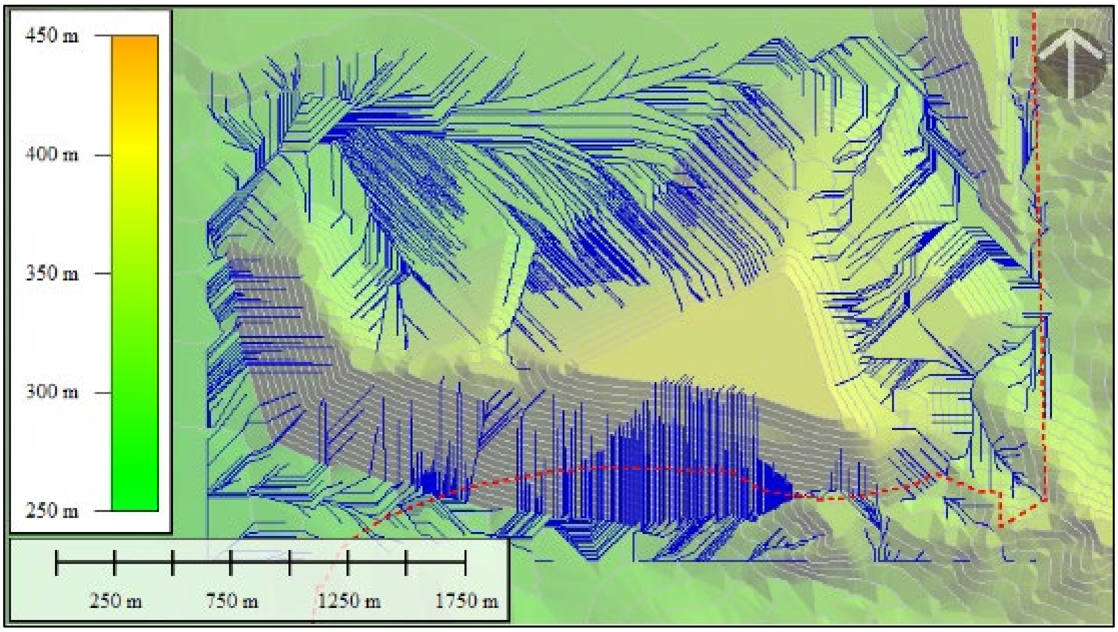

Figure 4. Digital elevation model of the Approved OEA landform with predicted drainage (blue lines). Minimum catchment area for flow lines is 0.25 ha.

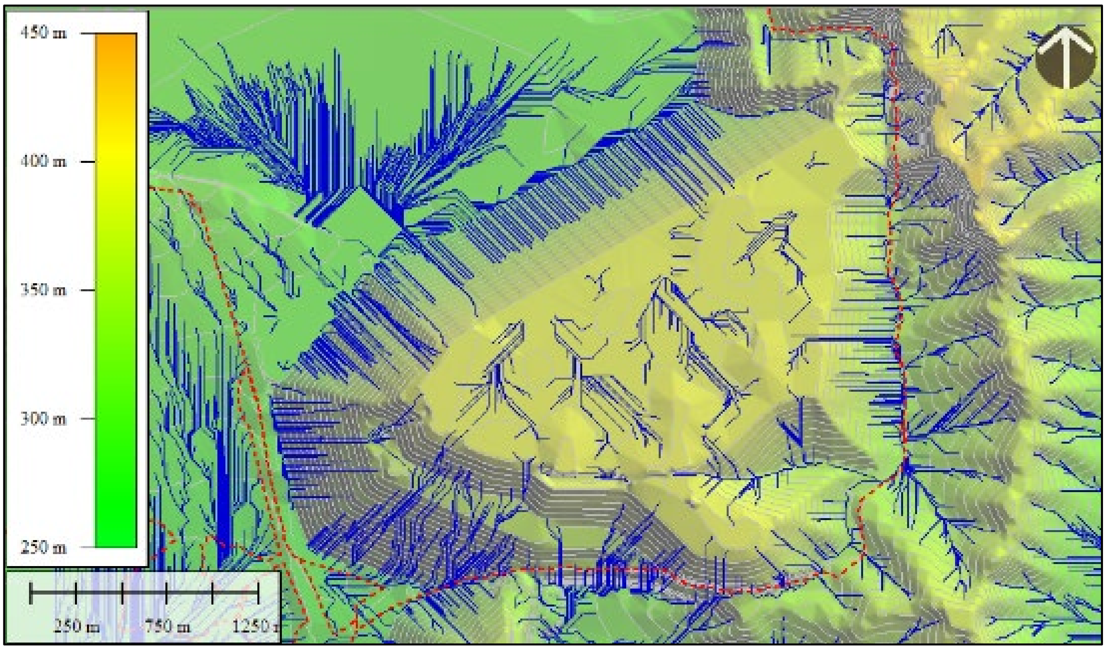

Figure 5. Digital elevation model of the Proposed OEA landform with predicted drainage (blue lines). Minimum catchment area for flow lines is 0.25 ha.

3 IMPACTS OF PROPOSED CHANGES ON PREDICTED EROSION - OEA

3.1 Overview

To determine whether the modified design has potential to reduce erosion stability relative to the currently approved design, the SIBERIA landform evolution model (Willgoose et al. 1989; 1991) was applied to both the approved and the proposed modified landforms. Model output was assessed to determine whether the modification has potential to create any points or areas of increased long-term erosion risk.

Due to SIBERIA limitations with respect to input DTM file size, the OEA and pit areas were modelled separately. This section evaluates the OEA.

3.2 Development of SIBERIA input parameters

Input parameters for SIBERIA are typically derived by fitting the various model equations to time series data of rainfall and erosion. However, in most instances, sufficiently long series of these data are not available for landforms of interest. Therefore, Landloch has developed and widely applied an alternative approach to the estimation of SIBERIA model parameters. It uses output data from the Water Erosion Prediction Project (WEPP) runoff/erosion model (Flanagan and Livingston 1995). The general approach applied is to:

(a) Make measurements on appropriate site materials to derive WEPP model parameters.
(b) Run the WEPP model to generate data sets of runoff and erosion for slopes and materials of interest using site specific climate data.
(c) Analyse the WEPP output to derive the required SIBERIA input parameters.

For this site, a previous study for BCOPL (Landloch 2018) had measured WEPP erodibility parameters for several soils currently used in rehabilitation across the mine. Simulations had been carried out for one of the soils, which was identified as being most representative of soils likely to be used in rehabilitation works on the site. WEPP simulations used a 100-year climate file prepared to be representative of site rainfall.

To derive SIBERIA parameters relevant to the evolution of the landform over hundreds of years, the WEPP erodibility files were modified to consider the target vegetation for batter slopes (Box Gum Grassy Woodland), with cover levels as specified in BCOPL (2017):

- 30 % grass cover;
- 20 % litter cover;
- Approximately 30 % shrub canopy cover; and
- 30-65 % tree canopy cover.

To simulate the effects of those levels of vegetative cover on soil erosion potential:

- The WEPP hydraulic conductivity parameter (K_e) was modified to account for impacts of cover on steady infiltration rate as shown by rangeland research (Kato et al. 2009). Effectively, steady infiltration rate generally increases by 7-10 mm/h for each 10 % increase in surface cover.

- Random Roughness (RR) of the surface was increased slightly from an initially smooth condition to account for accumulation of tree debris on the surface over time. (Form roughness from cross slope ripping is expected to give larger – short-term – increases in RR, but the rip lines are expected to largely disappear after 20 to 50 years, so their contribution to RR was considered minimal.)
- Cover (C) factors for the Revised Universal Soil Loss Equation (RUSLE) (Renard et al. 1997) were derived using the levels of canopy and contact cover specified to the target vegetation, using Table D-5 in Rosewell (1993).

3.3 SIBERIA Simulations

The simulations were run for both approved and proposed OEA landforms, for a period of 300 years. This ensured that any long-term changes in landform that might result in significant changes in erosion rates were fully considered. Model output was provided at intervals of 50, 100, 200, and 300 years.

DEMs provided by BCOPL were input to SIBERIA. Areas with greatest potential for erosion were designated on each landform (Figures 6 and 7), and used in subsequent estimation of erosion rates.

Figure 7 (proposed landform) shows a western area of benched rehabilitation that has been constructed as part of the approved landform.

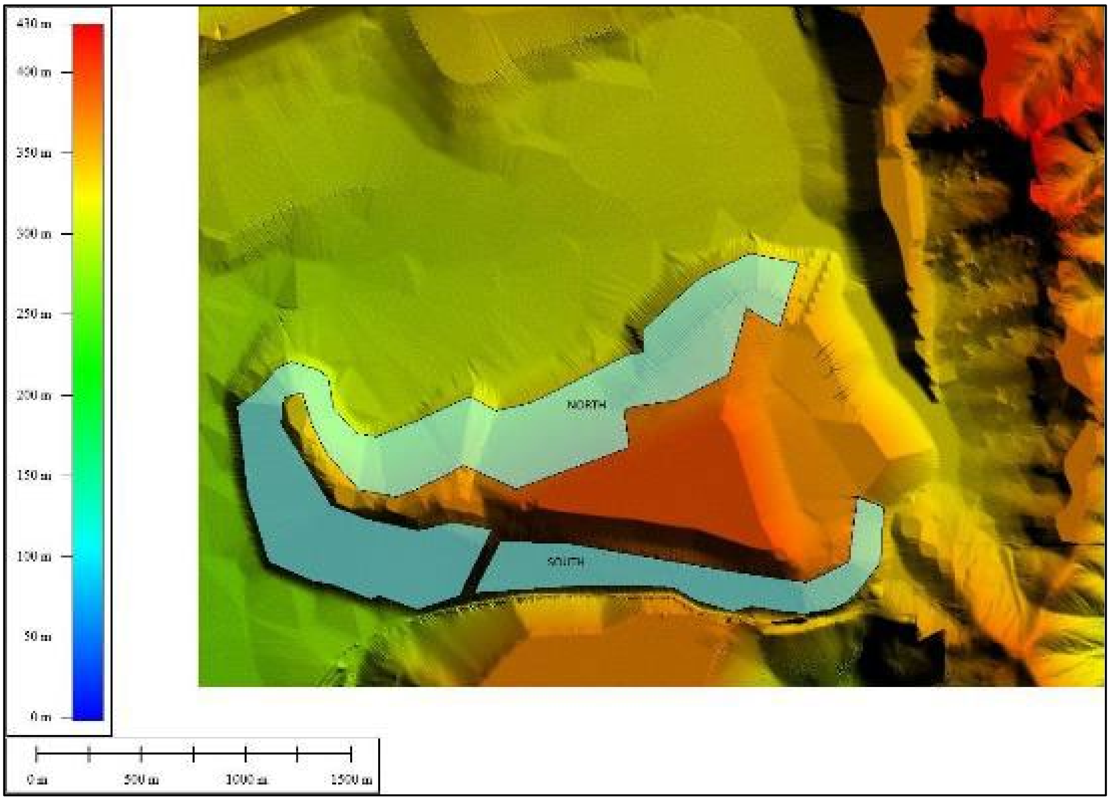

Figure 6. Approved OEA landform – as input to SIBERIA.

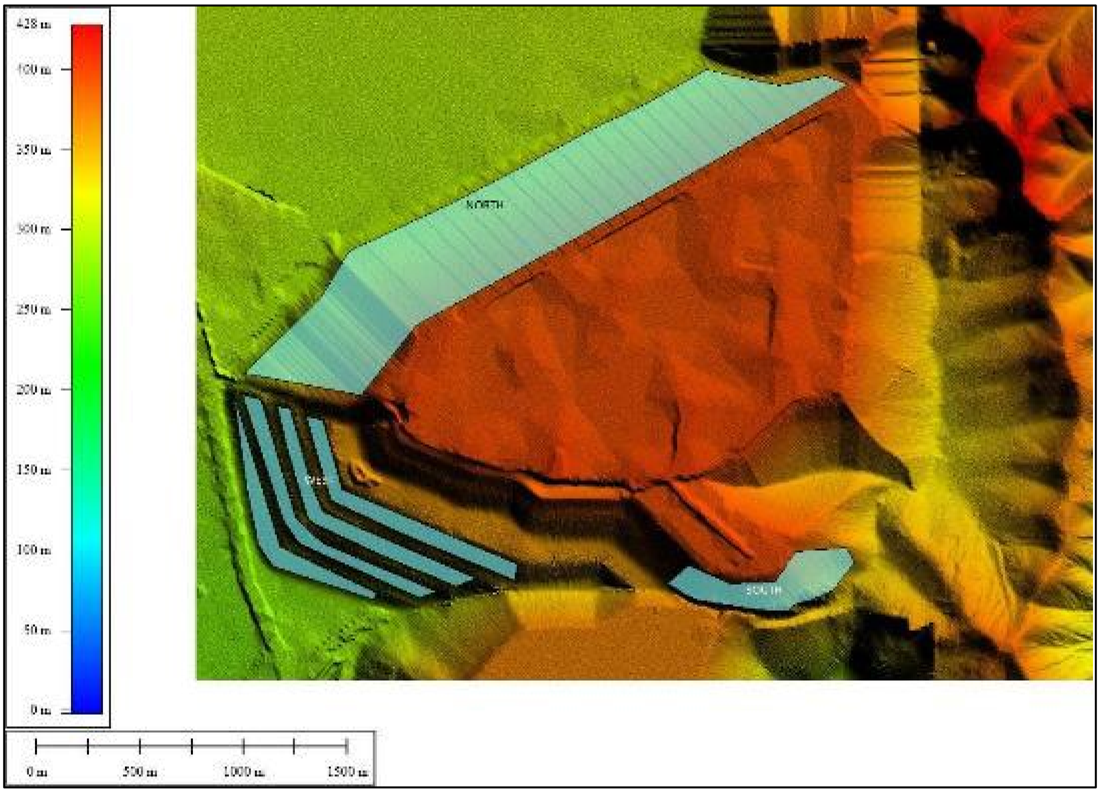

Figure 7. Proposed OEA landform– as input to SIBERIA.

3.4 Predicted erosion

3.4.1 Overview of rates

Predicted rates of erosion in the zones indicated in Figures 6 and 7 are shown in Tables 1 and 2 below.

Table 1: Predicted erosion and gully development for areas on the approved OEA landform design

Simulation year	Maximum gully depth (m)	Average erosion (t/ha/y)	Cumulative erosion (mm)
	North		
50	<0.3	5.5	18
100	0.3	5.5	36
200	0.6	5.5	72
300	0.8	5.5	109
	South		
50	0.4	6.8	23
100	0.7	6.9	46
200	1.1	6.6	90
300	1.4	6.4	133

Table 2: Predicted erosion and gully development for areas on the proposed OEA landform design

Simulation year	Maximum gully depth (m)	Average erosion (t/ha/y)	Cumulative erosion (mm)
North			
50	<0.3	6.4	21
100	<0.3	6.4	43
200	0.3	6.3	85
300	0.4	6.3	127
West			
50	<0.3	5.5	18
100	0.3	5.5	36
200	0.5	5.4	72
300	0.6	5.3	107
South			
50	1.3	12.6	42
100	2.1	12.5	84
200	2.9	12.2	165
300	3.3	11.8	244

A value of 11.2 t/ha/y averaged over an area of interest is often cited as a tolerable soil loss rate. However, that value was derived by US soil conservation agencies for deep, fertile cultivated soils, and has little relevance to most rehabilitated minesites. Using similar criteria to those applied for crop land, a lower soil loss tolerance value of 4.5 t/ha/y was developed by US agencies for erosion of rangeland soils and shallow cultivated soils (Wight and Siddoway 1979).

Target erosion rates to be used in erosion modelling for minesite landform design were reviewed in detail by Howard and Loch (2019), who concluded that "acceptable" rates could be modified depending on a number of risk factors associated with waste landform erosion rates, processes, and sediment movement. For the Pilbara, they recommended target erosion rates ranging from 3 t/ha/y to 9 t/ha/y, depending on assessed risk ranging from low to medium to high. For BCM, risk would likely be rated as either low or medium, indicating that acceptable erosion rates would lie in the range 6 – 9 t/ha/y.

In general, predicted erosion rates for both approved and proposed landforms are in the range of 5.3 to 6.9 t/ha/y. These rates are consistent with the range of 6 - 9 t/ha/y proposed as an acceptable target rate for erosion modelling associated with landform design for low to moderate risk slopes (Howard and Loch 2019). As the simulations in this assessment include some conservative assumptions with respect to long-term soil and vegetation development, the predicted rates can be considered acceptable.

The one (south) region of higher erosion rates indicated for the proposed landform is a relatively small area for which the batter slope is predicted to be impacted by uncontrolled discharges from the broad flat area above it. This area will be discussed in greater detail in a following section.

3.4.2 Spatial distribution of erosion – approved OEA

Figures 8 to 10 show predicted erosion strongly concentrated in some relatively restricted areas of the OEA landform, with Transects A1 to A3 located in some of those areas.

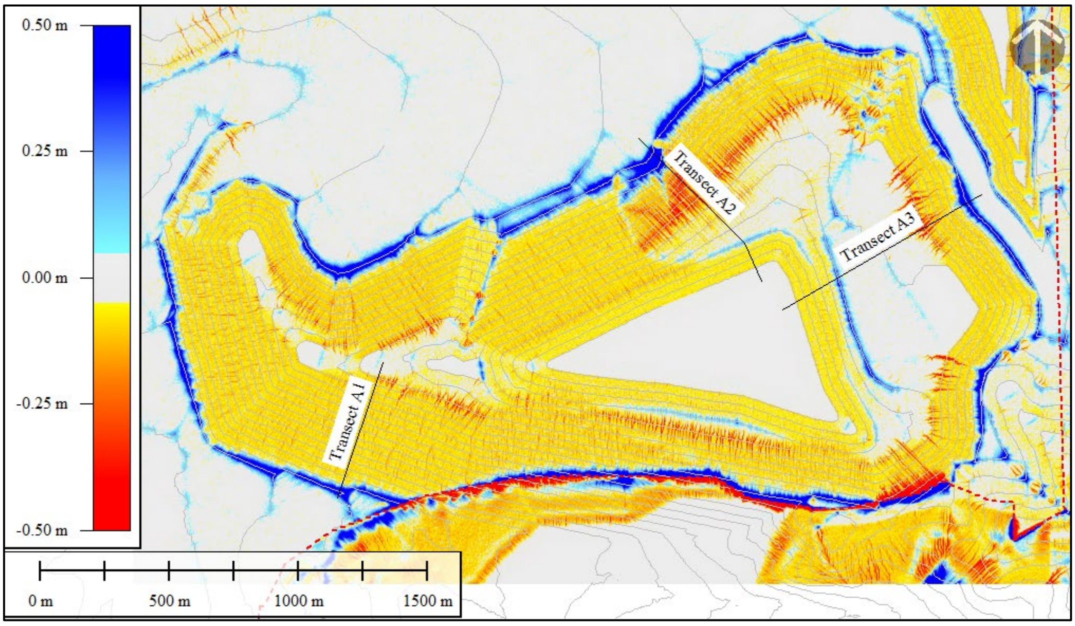

Figure 8. Plan view of predicted erosion and deposition from the Approved OEA at 300 yrs.

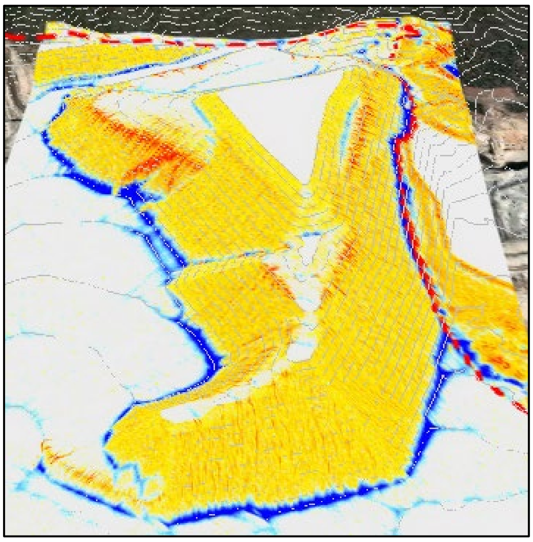

Figure 9. Eastern view of DEM of the Approved OEA.

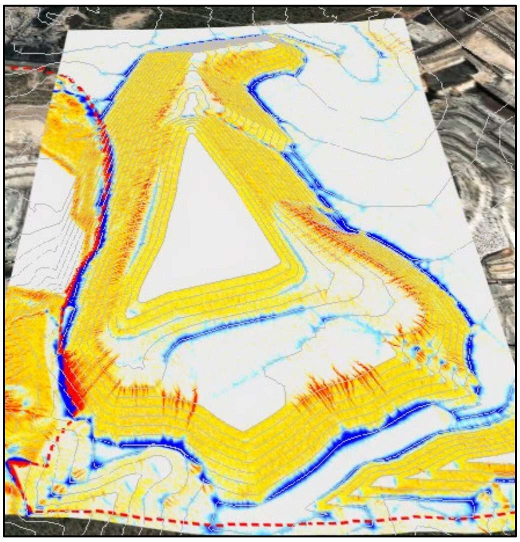

Figure 10. Western view of DEM of the Approved OEA.

3.4.3 *Profile properties associated with rill/gully development on approved landform*

Comments on the transect cross-sections (Figures 11 to 13) are as follows:

Transect A1, which has the least rill/gully erosion, is largely linear, except for a small level section at its top.

Transect A2 is a more complex slope, with a level top, a short section of higher gradient, a long section of moderate gradient, and then a marked increase in gradient at run of approximately 425 m. It is notable that the area of elevated rill gully development on this transect (shown in Figure 8) is located at the point (approximately 425 m) where gradient shows a marked increase. The key issue at this point is that the increase in gradient occurs at a relatively long slope length, at which point overland flow volumes will be relatively large. The section of higher gradient close to the top of the slope does not show the same level of rill/gully development, because it is subject to only small overland flow volumes.

Transect A3 is also a complex slope with alternating sections of low and high gradient. Again, for this transect, the area of elevated rill/gully development (Figure 8) is located at the point (run of approximately 650 m) where there is both a marked increase in gradient and overland flow volumes will be relatively large.

It is extremely common to observe rapid increases in rill/gully development at the point on a slope where gradients show a marked increase. One obvious response may be to change surface properties of the area with higher gradient (addition of rock, for example), but <u>such measures are only successful if the surface change is applied to the complete length of higher gradient slope</u>. Overland flow moving downslope off an "armoured" area typically causes elevated erosion rates immediately downslope of the armoured area. This occurs because the low sediment load of the flow across the armoured area means that its capacity to detach sediment is elevated.

Simpler and more effective options to control the issue are to either (or both):

a) construct linear or concave slope profiles, so that there are no low-gradient sections immediately upslope of zones of higher gradient; and
b) where zones of lower gradient occur, incorporate drainage structures to intercept overland flows and divert them away from the downslope sections of higher gradient.

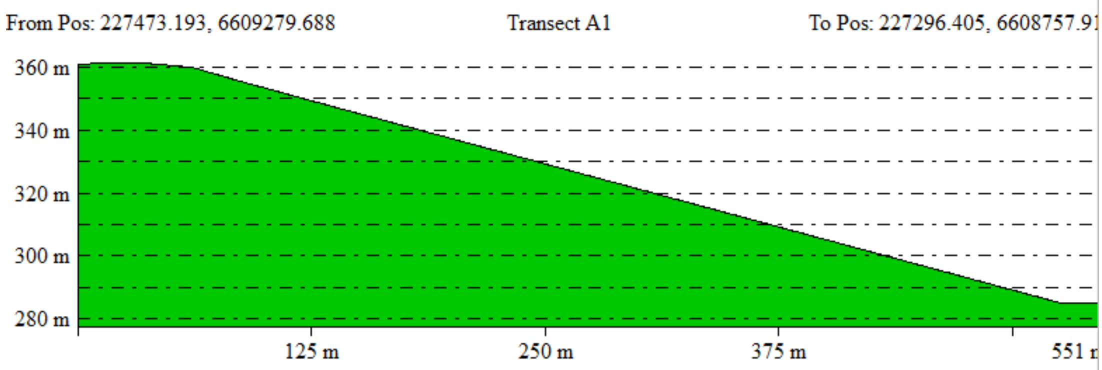

Figure 11. Transect A1. Linear slope. Gradient 16 % (9°), Rise 70 m, Run 460 m.

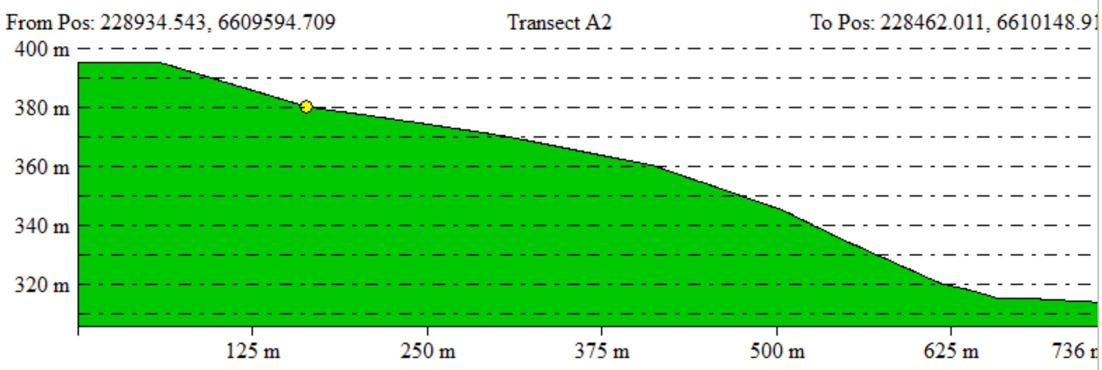

Figure 12. Transect A2. Convex slope. Gradients 9 % to 24 % (5° to 13°), Rise 80 m, Run 600m.

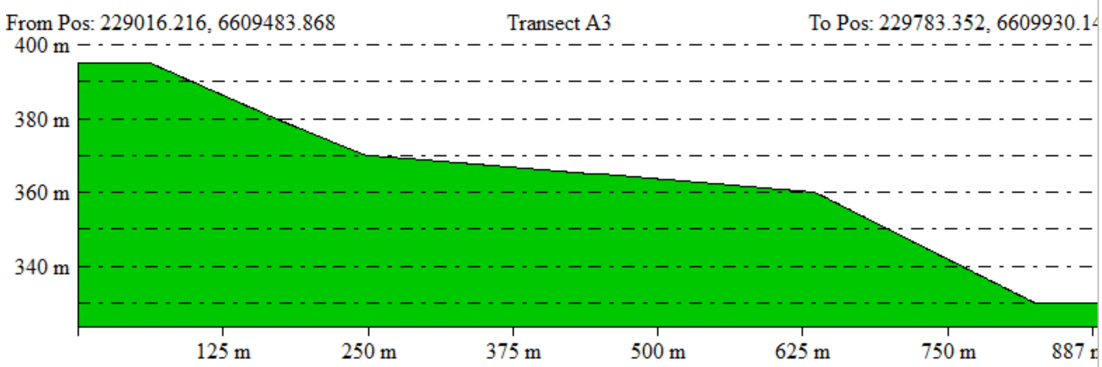

Figure 13. Transect A3. Concave / Convex slope. Gradients 2.5 to 16 % (1.5° to 9°), Rise 65 m, Run 760 m.

3.4.4 Spatial distribution of erosion – proposed OEA

The spatial distribution of predicted erosion on the proposed OEA landform is shown in Figures 14 to 16 below. Transects B1, B2, (locations shown in Figure 14) provide some information on the localised development of erosion shown in the figures. Transect B3 (Figure 17), gives information on the southern section predicted to produce the highest erosion rates (Table 2).

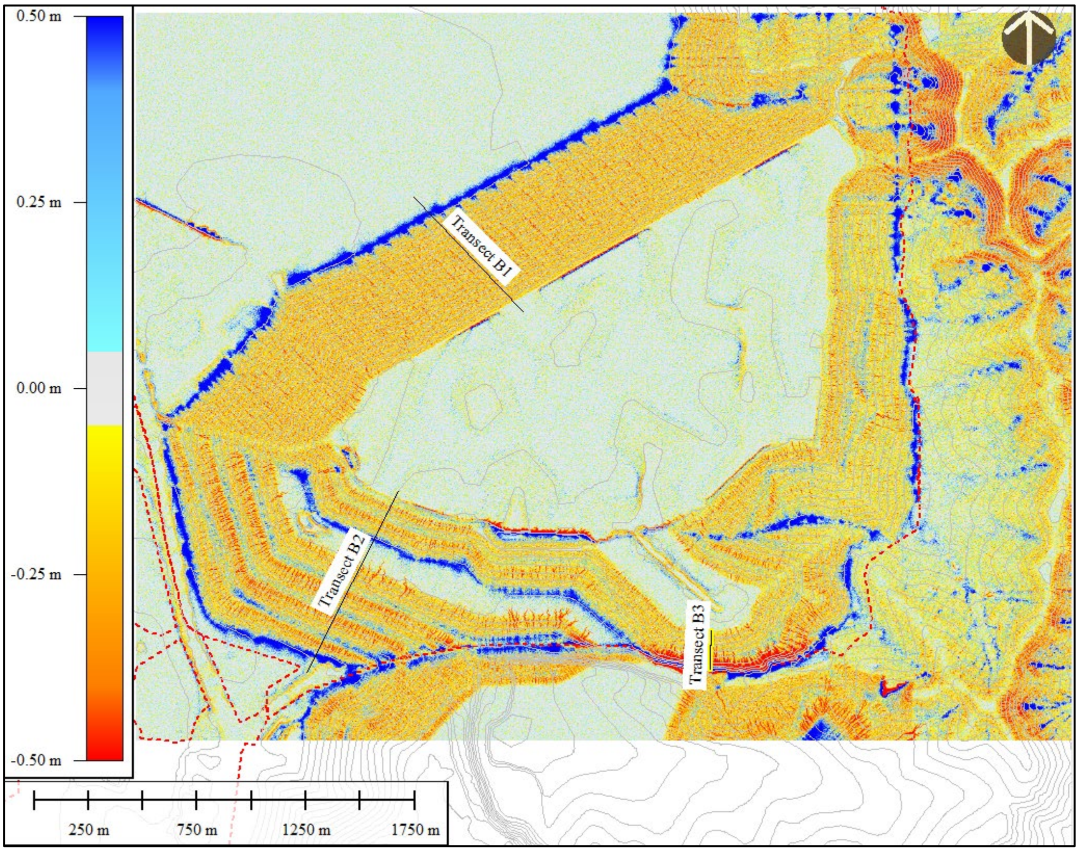

Figure 14. Plan view of predicted erosion and deposition from the proposed OEA at 300 yrs.

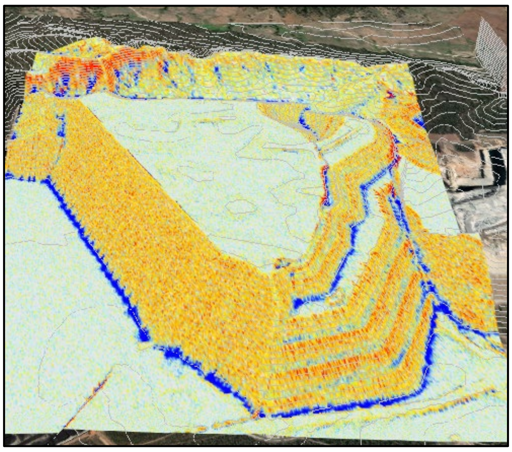

Figure 15. Eastern view of DEM of the proposed OEA.

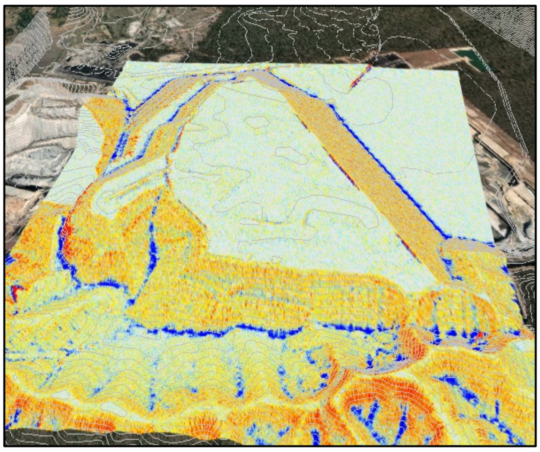

Figure 16. Western view of DEM of the proposed OEA.

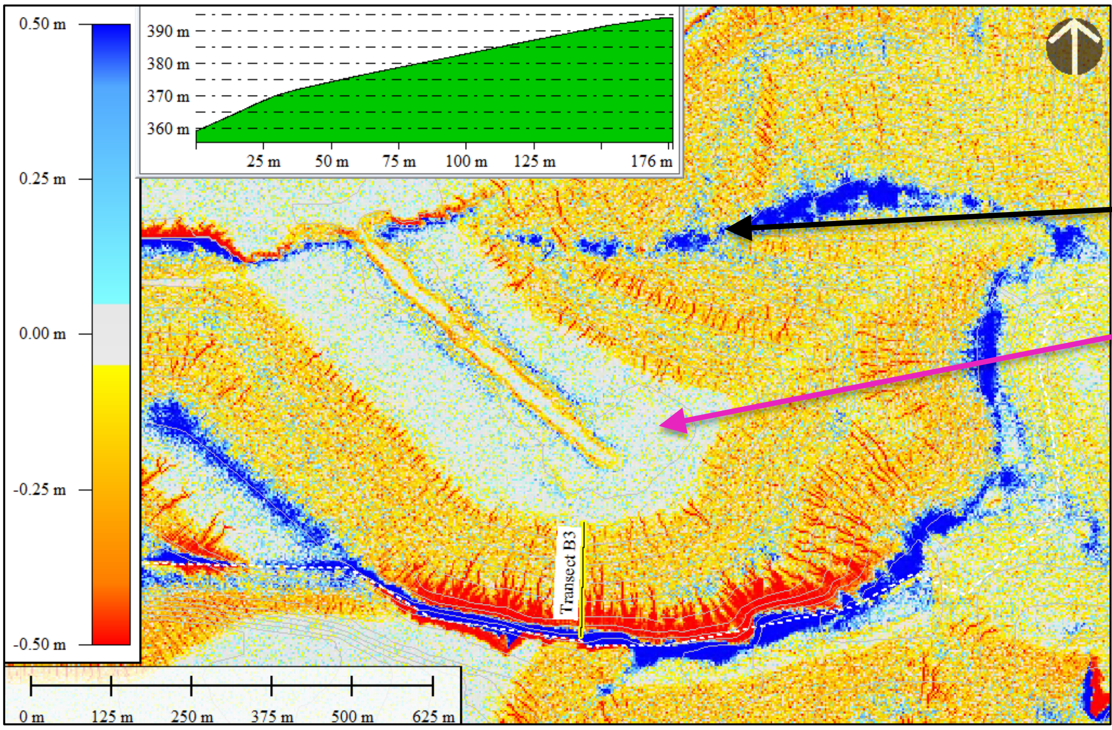

Figure 17. Plan view of erosion and deposition on the southern section, and location of Transect B3. Mine boundary indicated by white line. Arrows (purple and black) show (respectively) flat OEA top area discharging runoff onto batter slopes and potential drainage line that could convey all runoff from this OEA top area.

3.4.5 Profile properties associated with rill/gully development on proposed landform

Transects B1 to B3 are shown in Figures 18 to 20 respectively.

Transect B1 is a linear slope, and the simulations indicate no severe development of rill/gully erosion.

Transect B2 shows a more complex slope profile, with a section of lower gradient between two linear sections. Overall, this transect shows no severe rill/gully development, which may, at least in part, be due to the use of a benched profile with some drainage by berms.

Transect B3, however, has a distinctly convex profile, with a short steep section at the toe of the profile that has been predicted to erode at a significantly higher rate. Accelerated erosion of that final steeper section is inevitable, and appears to be exacerbated by uncontrolled discharge of runoff from the flat OEA top section onto the convex batters. (Figure 17 clearly shows gullying along the border of the flat top section – consistent with discharge onto the batter slopes).

The erosion potential of this area of the landform could be reduced to an acceptable level by:

a) rock armouring the final steep section of the slope profile; or
b) diverting flow on the upslope flatter section of the OEA to an existing flow path (shown by deposition in Figures 14 and 17) running to the east. (The drainage

line would obviously need to be suitably stabilised by conservative hydraulic design and by placement of rock armour.)

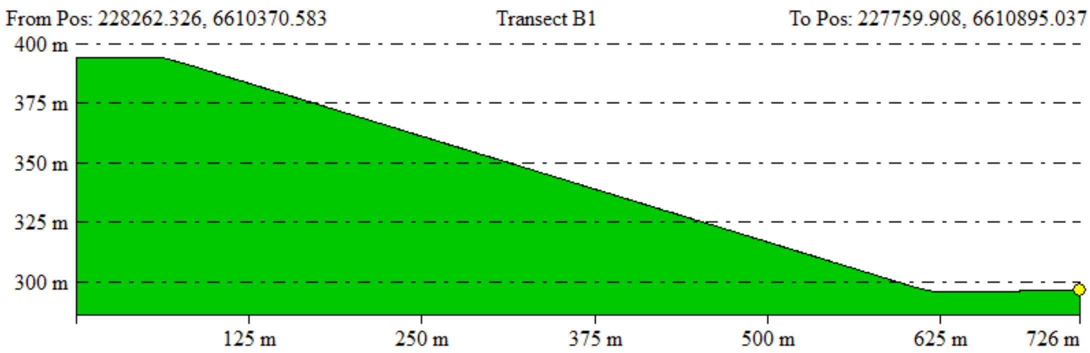

Figure 18. Transect B1. Linear slope. Gradient 18 % (10°), Rise 100 m, Run 560 m.

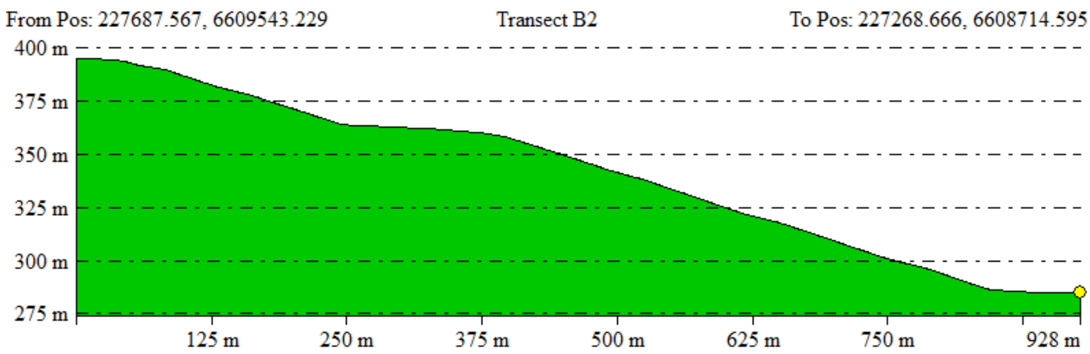

Figure 19. Transect B2. Concave-Linear slope. Gradients 2.5 to 16 % (1.5° to 9°), Rise 110 m, Run 830 m.

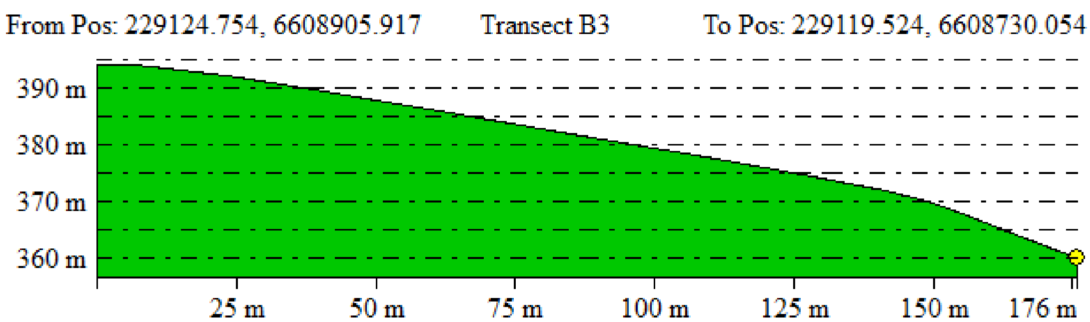

Figure 20. Transect B3. Convex-Linear slope. Gradients 16 % and 40 % (9° and 22°). Rise 35 m, Run 175 m.

4 IMPACTS OF PROPOSED CHANGES ON PREDICTED EROSION – PIT

4.1 Overview

The SIBERIA landform evolution model was run for both the approved and the proposed modified landforms, to determine whether the proposed modification creates any points or areas of increased long-term erosion potential.

The preceding section considered the OEA. This section considers the pit area.

4.2 Input parameters

Simulations for the pit area used the same erodibility parameters as were used for the OEA.

Because there is likely to be considerable exposure of rock on the highwall, those OEA parameters for vegetated soil are inappropriate for at least some sections of the pit area. However, there is currently, no information to guide selection or calculation of more appropriate parameters. Nor is there information on the likely extent of rock exposure, nor on rock durability.

Consequently, simulations for the pit should be considered as indicating erosion potential solely on the basis of gradient and flow concentration, rather than being estimates of the rates of erosion that may actually occur.

It is anticipated that final (detailed) design of the highwall would require input from a geotechnical engineer, and the conceptual design may be significantly amended at that time.

4.3 Simulations

The simulations were run for both approved and proposed OEA landforms , for a period of 300 years. Model output was provided at intervals of 50, 100, 200, and 300 years.

DEMs provided by BCOPL were input to SIBERIA. Areas for which erosion rates were estimated were designated on each landform and are shown in Figures 21 and 22.

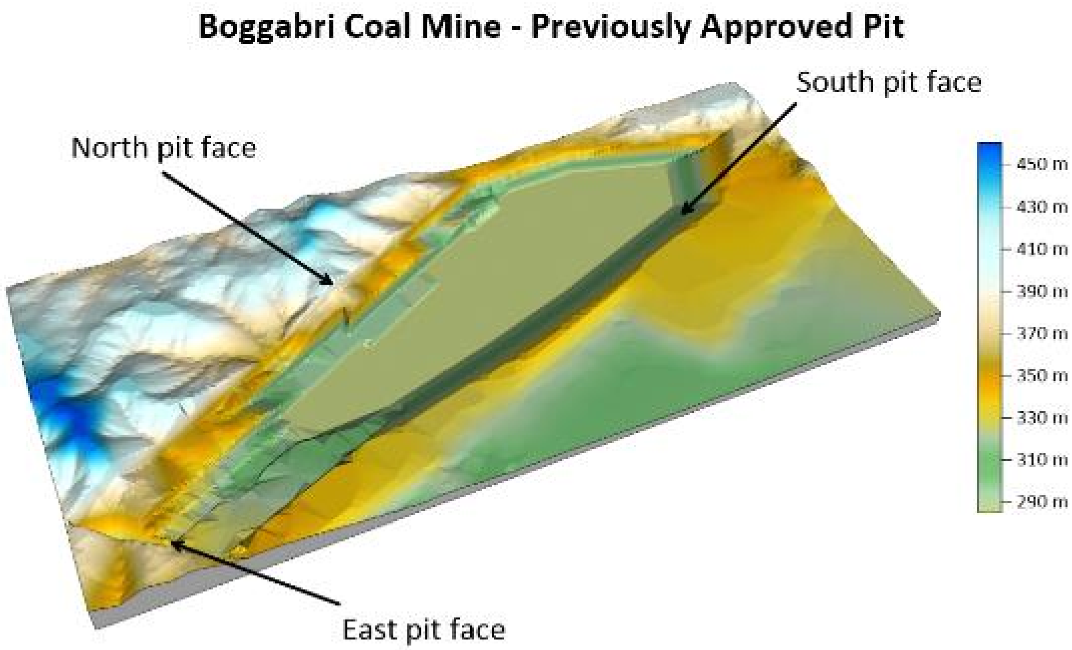

Figure 21. Pit area currently approved.

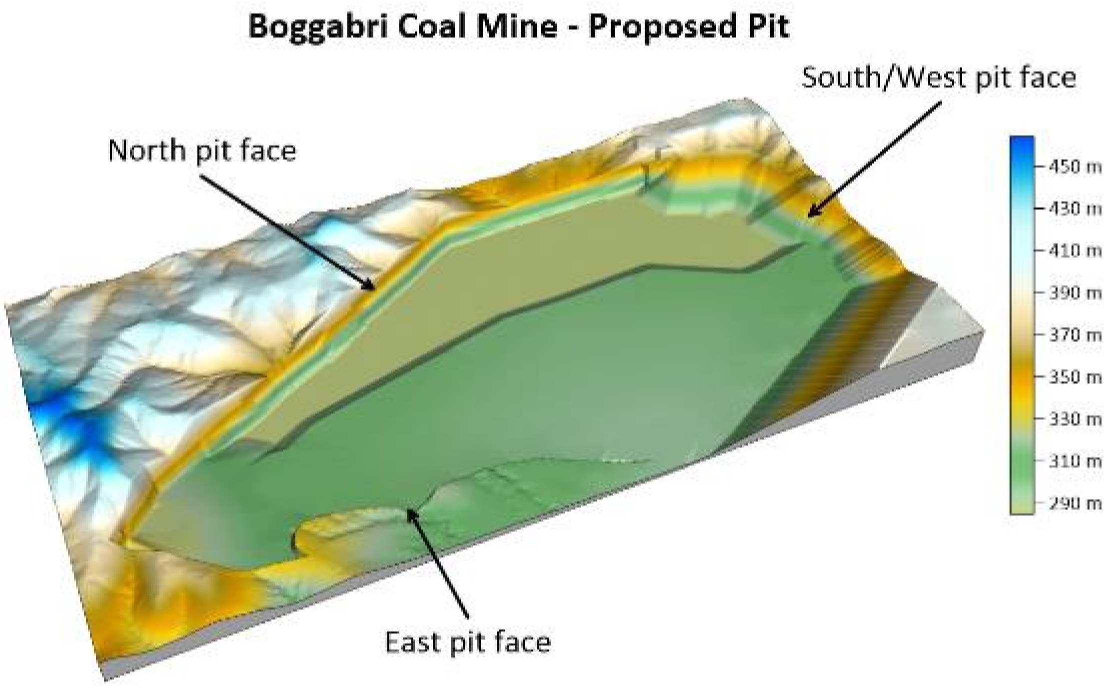

Figure 22. Pit area for proposed landform.

4.4 Predicted erosion

4.4.1 Overview of rates

Predicted rates of erosion in the zones indicated in Figures 20 and 21 are shown in Tables 3 and 4 below.

Table 3: Predicted erosion and gully development for areas on the approved pit design.

Simulation year	Maximum gully depth (m)	Average erosion (t/ha/y)	Cumulative erosion (mm)
North pit face			
50	7	209	698
100	9	169	1,262
200	12	135	2,159
300	14	117	2,939
South pit face			
50	<0.3	6	19
100	<0.3	5	37
200	0.3	5	72
300	0.3	5	106
East pit face			
50	1.5	13	42
100	2.3	10	75
200	3.3	8	129
300	4.1	7	177

Table 4: Predicted erosion and gully development for areas on the proposed pit design.

Simulation year	Maximum gully depth (m)	Average erosion (t/ha/y)	Cumulative erosion (mm)
North pit face			
50	4	112	375
100	6	97	698
200	9	83	1,254
300	11	76	1,763
South/West pit face			
50	3	40	134
100	4	36	256
200	5	31	464
300	6	28	649
East pit face			
50	<0.3	6	20
100	<0.3	6	40
200	0.3	6	80
300	0.5	6	119

Bearing in mind that the data in Tables 3 and 4 show erosion potential, but do not account for presence/absence of durable rock in steep cut batters, it appears that:

- For the north face, erosion potential of the approved design is higher than for the proposed design, though the data do not account for:

- Presence/absence of durable rock; and
    - Possible installation of a diversion drain to intercept and divert overland flows from the Maules Creek mine to the north.
- For the east face, erosion potential of the approved design is also higher than for the proposed design.
- For the south face, erosion potential of the proposed design is higher than for the proposed design, though the data do not account for presence/absence of durable rock.

Overall, the data suggest that there may not be much difference in erosion rates between the two designs, though with the proposed design appearing potentially more stable.

However, any differences may not be of great consequence in terms of environmental impact, as the spatial data on erosion and deposition (detailed in following sections) indicate that any eroded sediment will be deposited within the pit area.

4.4.2 Spatial distribution of erosion – approved pit design

Figures 23 and 24 show predicted erosion at two occasions during the 300-year simulation for the pit area. As would be expected, erosion depth is greatest on the highwall areas of steep gradient.

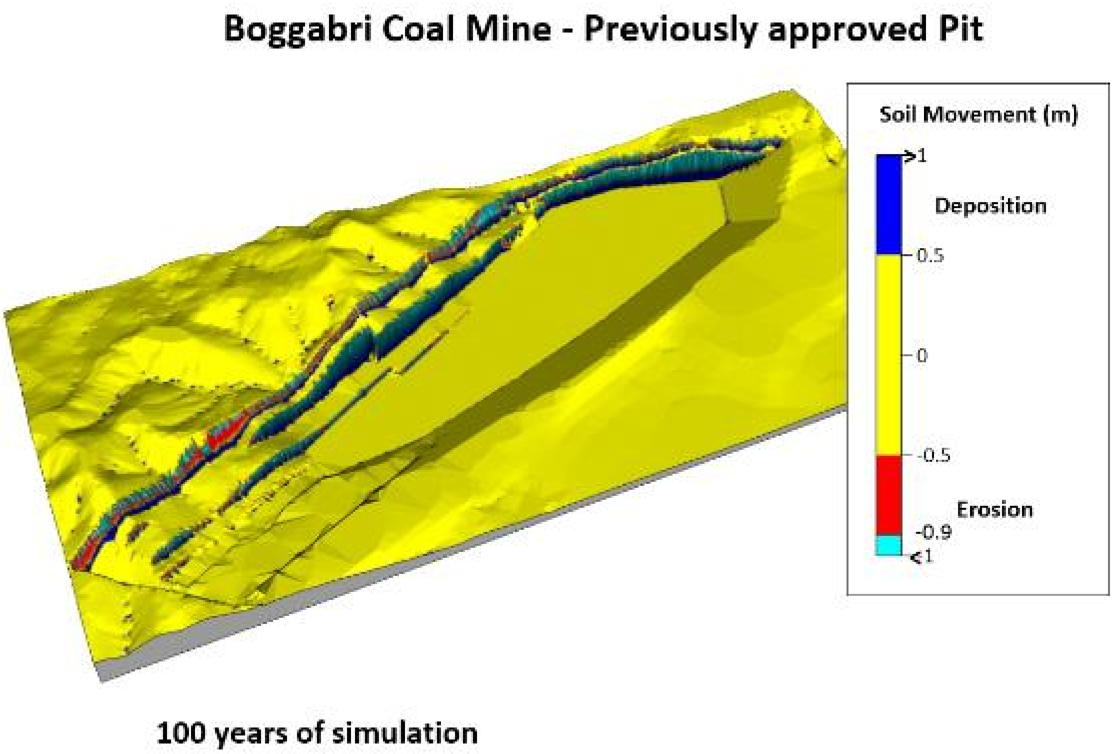

Figure 23. Plan view of erosion and deposition in the approved pit area after 100 years.

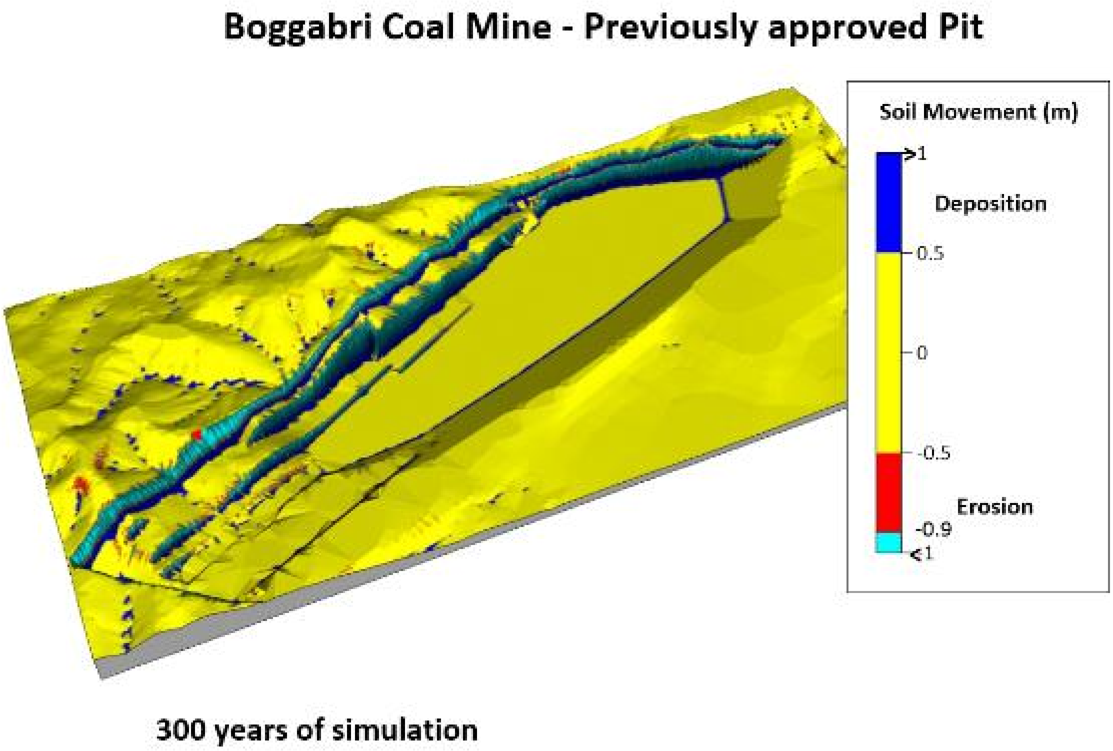

Figure 24. Plan view of erosion and deposition in the approved pit area after 300 years.

4.4.3 Spatial distribution of erosion – proposed pit design

The spatial distribution of predicted erosion on the proposed pit landform at two occasions during the 300-year simulation is shown in Figures 25 and 26 below.

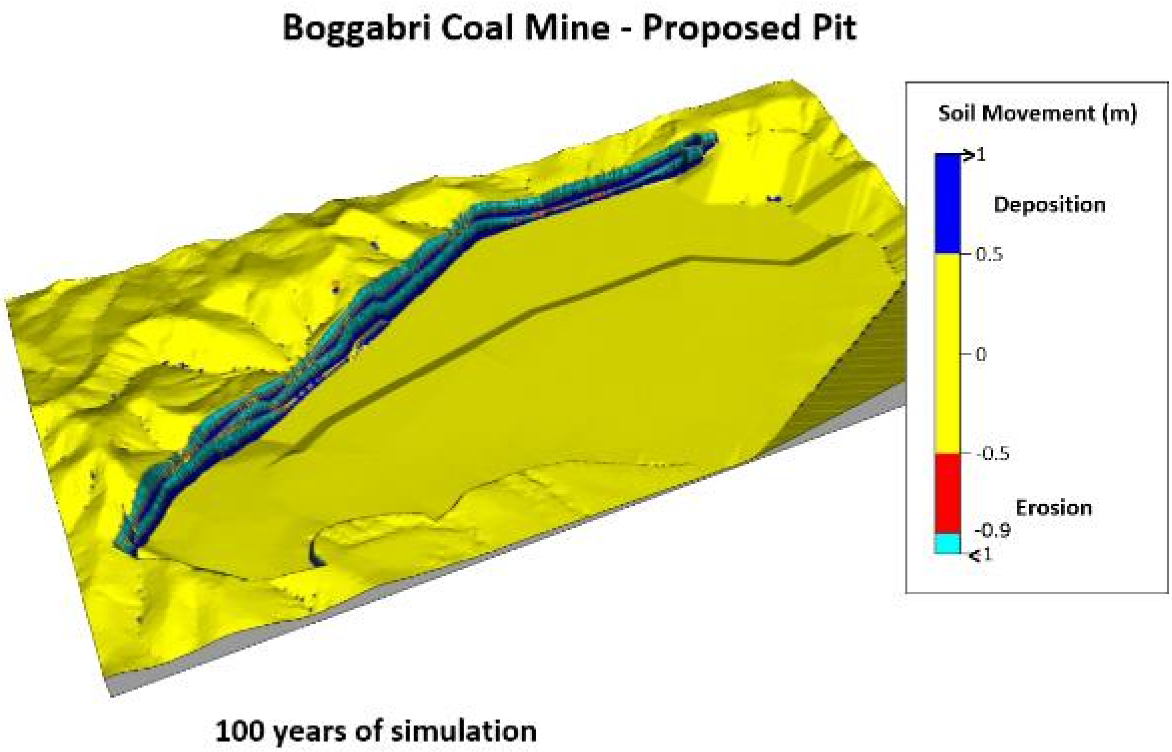

Figure 25. Plan view of erosion and deposition in the proposed pit area after 100 years.

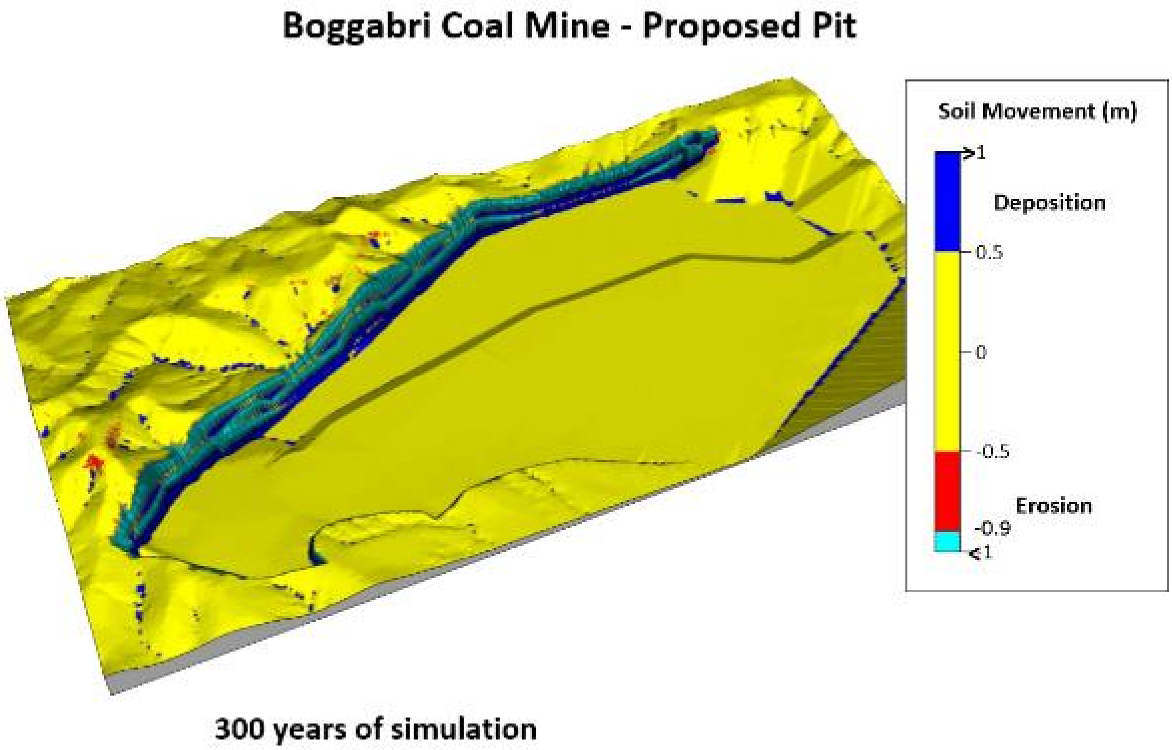

Figure 26. Plan view of erosion and deposition in the proposed pit area after 300 years.

These figures again show greatest erosion in the steep areas of highwall, with a corresponding zone of considerable deposition at the toe of the highwall.

The predicted deposition shows that sediment is largely if not completely contained within the pit.

5 INTEGRATION OF FINAL LANDFORM WITH ADJOINING MINES

The BCM lease adjoins those of Maules Creek Mine (MCM) to the north and Tarrawonga Mine to the south. This is shown in Figure 27.

In terms of integration, it is considered that this could occur via:

a) some coordination or linkage of constructed landforms;
b) ecological interactions – either through faunal movement and feeding patterns or possibly establishment of complementary vegetation (where rehabilitated areas are contiguous; and/or
c) movements of surface drainage.

For the purposes of this report, the key focus is on the potential for the proposed MOD 8 landform to cause deleterious changes in currently approved interactions.

5.1 Maules Creek Mine interaction

To the north of BCM, there is currently planned to be a portion of undisturbed land remain between MCM and the highwall of the BCM pit. Consequently, it can be expected that there will be no direct interaction between those two mines. A region of 250 m either side of the common lease boundary is to be retained as a Vegetation Corridor in accordance with the current conditions of approval.

Analysis of contour data indicates – <u>both for the currently approved and proposed landforms</u> – some movement of runoff from the proposed MCM OEA towards and over the highwall of the BCM pit (Figures 27 and 28). Those runoff flows could be controlled/diverted by construction of some drainage line parallel to the BCM highwall in that area. Such diversion would, in any case, be highly desirable, as small, concentrated flows discharging onto the highwall would have potential to cause accelerated erosion (and possibly gullies) unless the cut face was composed of competent rock.

Nonetheless, there is no significant change in the currently approved interaction.

5.2 Tarrawonga Mine interaction

Figures 27 and 28 show that the proposed final landforms of these two mines will meet at the lease boundary, with landform batter slopes each ending at the boundary. Effectively, there will be a valley left between the adjoining waste landforms.

Some planning will be required to manage runoff reaching that valley from the adjoining batter slopes. (The Tarrawonga Mine indicative final landform shows some drop structures – presumably rock drains – discharging to the floor of that valley.)

Although a slight variation from current approval, management of those flows will not be difficult, simply addressing:

- directions of flow in the valley; and

- an agreed base level for the drainage path along the lease boundary.

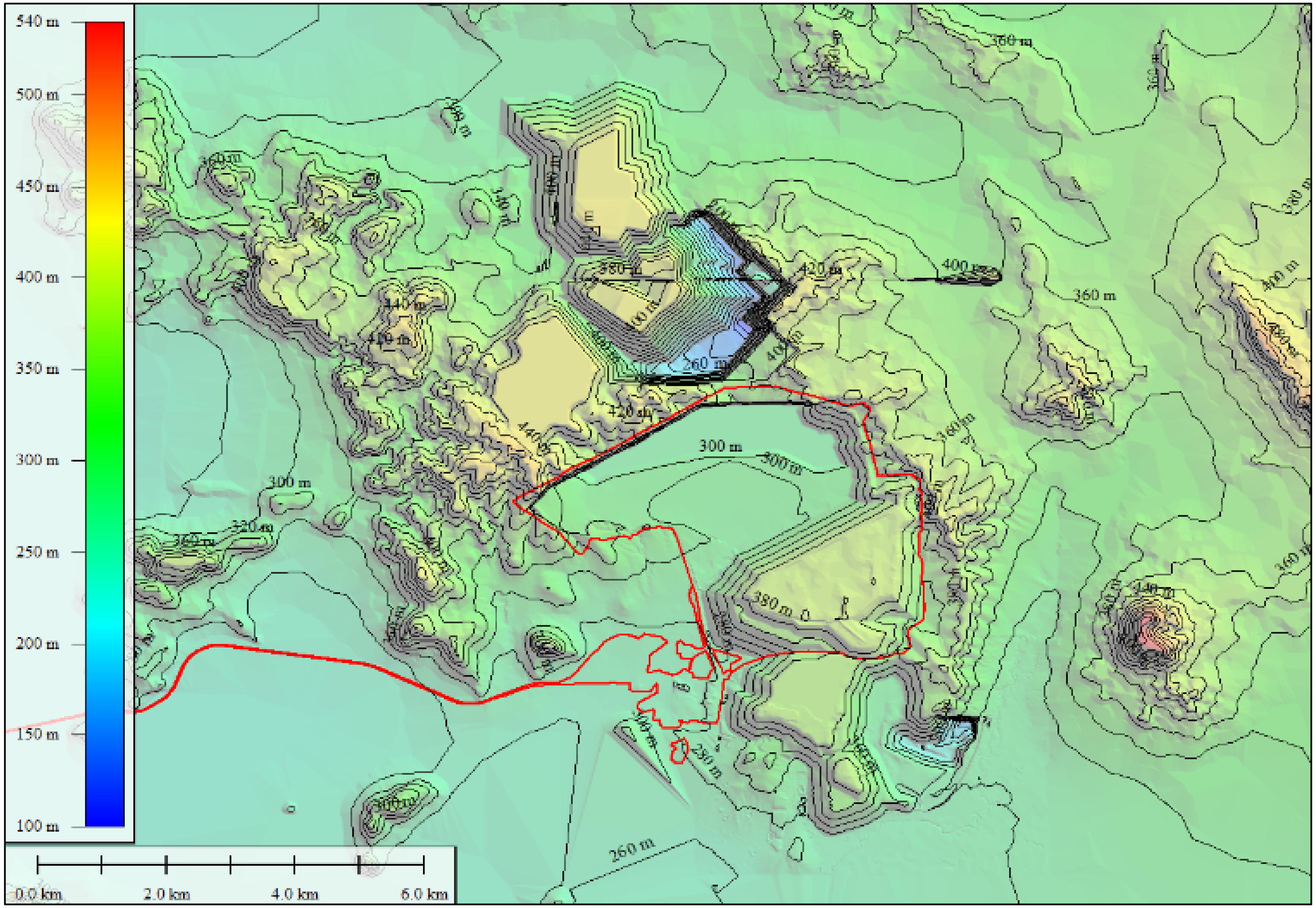

Figure 27. Proposed final landforms for Maules Creek, Boggabri, and Tarrawonga Mines, with the BCM boundary denoted by the red line.

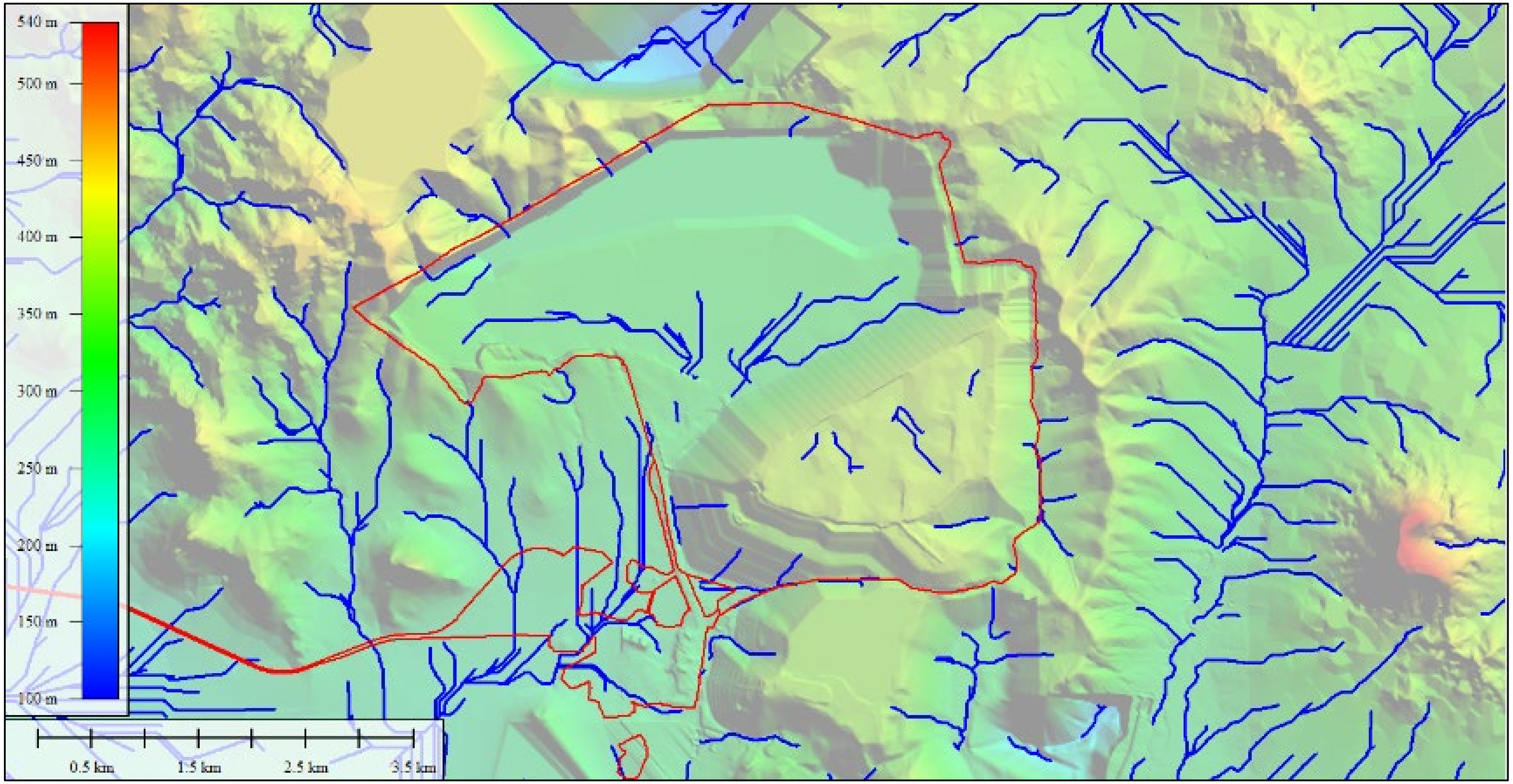

Figure 28. Drainage paths (blue lines) derived from contour data, and BCM boundary denoted by the red line.

6 MOD 8 IMPACTS AND MITIGATION OPTIONS

6.1 Erosion rates – OEA

Overall, the erosion rates predicted by SIBERIA simulations for both the approved and proposed conceptual final OEA landforms were low to moderate.

This reflects the assumption of achievement of the target vegetation community, which can be expected to result with increases in soil permeability and development of soil cover and surface litter. As the site has been observed to be achieving successful revegetation, this assumption appears to be justified.

The simulations indicate that the erosion risk for the site is, generally, not high.

6.2 Impacts and their mitigation for the proposed change in OEA landform

Simulations show that one relatively small area of the proposed OEA (shown in Figure 16) and in transect B3 (Figure 20) has increased erosion potential, whereas erosion potential is not significantly changed for the remainder of the landform.

Because the area of increased erosion risk is relatively small, practicable and achievable options that could be applied to reduce its erosion risk to a more acceptable level include:

- diversion of flow from the OEA top away from this batter (as indicated in Figure 16 and Section 3.4.5); and/or
- rock armouring the short steep section at the toe of the slope.

When more detailed landform plans are being prepared for the mine, there may also be the potential to alter the batter slope designs to eliminate the convex profile and short, high-gradient section at the toe of the slope.

6.3 Erosion rates in the pit area

Although simulations for both approved and proposed designs indicate considerable erosion will occur on the steep sections of the highwall, it is noted that:

- highwall slope designs will need to be assessed and possibly modified to meet geotechnical requirements; and
- the extent and durability of rock that will be left exposed in the highwall is not known at this stage. If the steep faces are largely composed of durable rock, then erosion rates will be much lower than predicted.

Overall, the simulations do not indicate large differences between approved and proposed pit landforms, and it is likely that any differences that develop may not be of environmental concern in any case. It appears that most, if not all, of the detached sediment will be retained within the pit area.

6.4 Integration across sites

Consideration of the proposed final landforms does not identify any significant changes in integration across the three mine sites from the currently approved final landform.

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