



CHAPTER 3 – PROJECT DESCRIPTION

NEW LENTON COAL PTY LTD
NEW LENTON COAL PROJECT

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3. PROJECT DESCRIPTION

3.1 Overview and Objective

New Lenton Coal Pty Ltd (NLC) is a wholly owned subsidiary of Bowen Coking Coal Ltd (BCC). BCC is a wholly owned subsidiary of Argo Holdings Qld Pty Ltd (Argo). Argo acquired BCC in July 2026, at which point BCC became an unlisted public entity. BCC originally acquired NLC from the New Hope Corporation (New Hope) in July 2022. The Lenton Joint Venture (LJV) is an unincorporated joint venture between New Lenton Coal Pty Ltd (ACN 095 390 079) and MPC Lenton Pty Ltd (MPC) (ACN 149 618 904). NLC and MPC own the LJV assets as tenants in common in the participating interests of 90% and 10% respectively.

LJV is the holder of mining lease (ML) 70337, ML 700053 and ML 700054 (referred to as the New Lenton MLs or the Project area), on which the New Lenton Coal Project (the Project) is proposed. The New Lenton MLs cover an area of 1,313 ha and are subject to an existing State approved environmental authority (EA) for all mining leases. The New Lenton MLs are located in the Bowen Basin of central Queensland, approximately 120 km south west of Mackay and 50 km north of Moranbah (refer to Figure 3-1).

LJV is also the holder of ML 70109 and ML 70260, referred to as the Burton Mine MLs, which adjoin the New Lenton MLs, and which are subject to an existing State approved EA. Burton Mine commenced operations around 1996.

NLC is proposing to develop open cut coal mining pits on the New Lenton MLs, with supporting infrastructure. Approximately 1.9 million tonnes per annum (Mtpa) of metallurgical run of mine (ROM) coal¹ will be mined over a period of 18 years with a total of approximately 30 Mt over the life of the mine. In some years, including during ramp up phases, less than 1.9 Mtpa ROM coal will be mined. Overburden will be placed in in-pit and out of pit overburden dumps, with a residual void remaining at the end of mine life. Supporting infrastructure includes a mine infrastructure area (MIA), haul roads, realignment of a public road and water management infrastructure (refer to Figure 3-3). ROM coal will be hauled to Burton Mine for washing in Burton Mine's coal handling and processing plant (CHPP). Product coal will be hauled to Burton Mine's train load out (TLO) facility and railed to Dalrymple Bay Coal Terminal (DBCT). Rejects from washing of Project ROM coal will be stored within Burton Mine's existing co-disposal areas within old mine voids.

3.2 Location

3.2.1 Regional Location

The regional location of the New Lenton MLs is shown in Figure 3-1. The New Lenton MLs are located in the Isaac Regional Council (IRC) local government area. Product coal will be transported to the Burton Mine TLO, from where it will be railed to DBCT near Mackay, along the Goonyella rail line (see Figure 3-1).

The Burton Mine MLs and TLO, and other regional mining projects are shown in Figure 3-2 as granted mining leases and proposed mining projects (generally shown as mineral development licences (MDLs)). These projects have been considered in the assessment of cumulative impacts where there is potential for cumulative impacts, relevant to the particular environmental value being assessed (e.g. groundwater, ecology), with the Project. In particular, mining activities at Burton Mine to the immediate east and south have the potential for cumulative impacts with the Project. Other smaller mines are located between 5 km and 30 km south of Burton Mine.

¹ Metallurgical coal is used in the manufacture of steel.

The nearest mining activities to the west area North Goonyella and Red Hill mines which are approximately 15 km west and separated from the Project by the Burton Range. The nearest mining activity to the east is Hail Creek Mine which is approximately 25 km west and separated from the Project by the Carborough Range.

There are no nearby granted petroleum leases for coal seam gas production.

3.2.2 Location of Project Activities

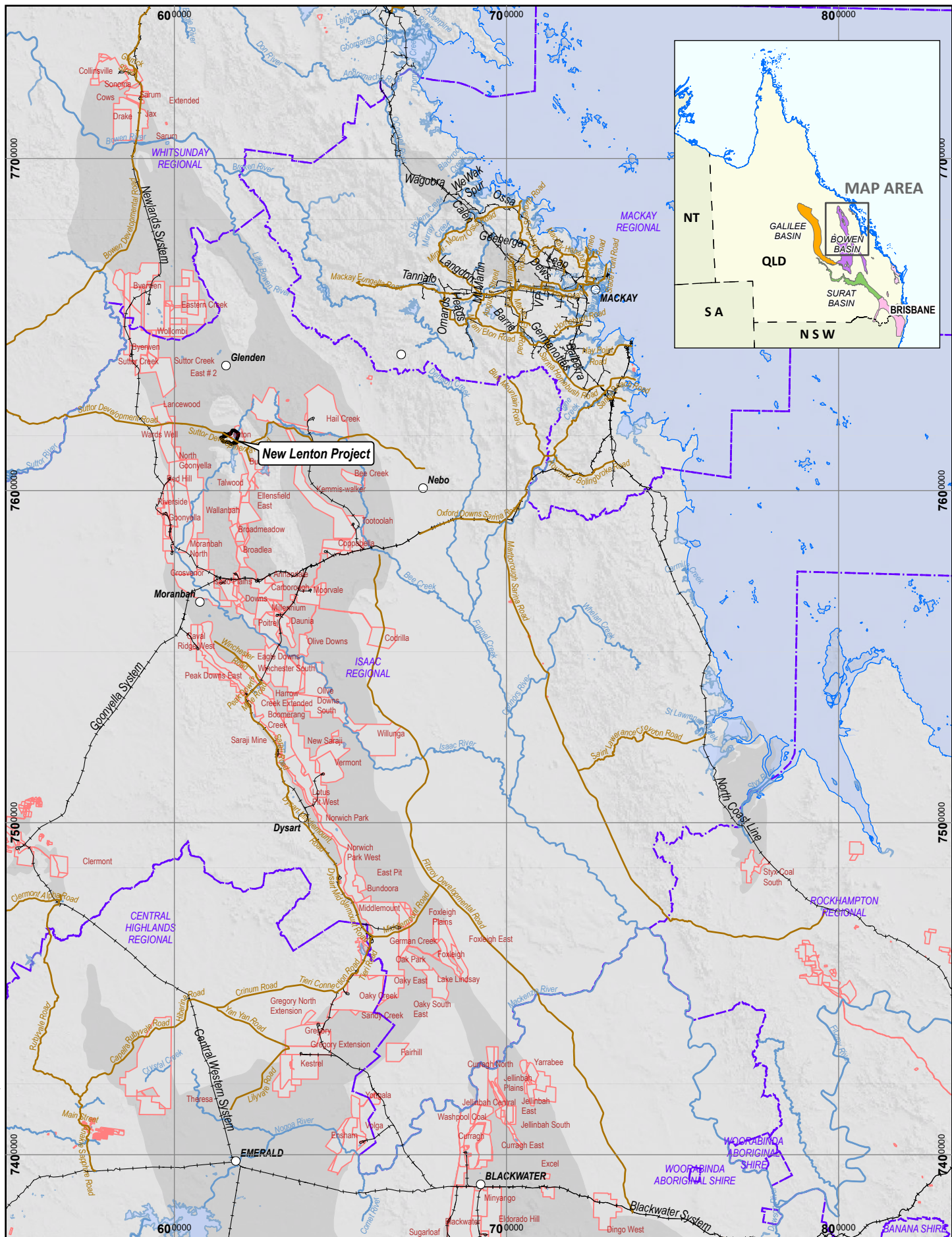
The proposed Project activities are shown in Figure 3-3, and comprise:

- 2 mining pits, East Pit and West Pit
- In-pit and out of pit overburden dumps
- MIA
- haul roads, including haul road connection with the Burton Mine haul roads and a bed level crossing of the Isaac River
- Suttor Developmental Road (a public road) realignment, with a new bridge over the Isaac River
- mine affected water dams
- sediment dams
- clean water diversion drains
- mine affected water pipeline connecting with pipelines at Burton Mine
- diversion of Ti-Tree Creek
- levee along the diversion of Ti-Tree Creek
- levee along the Isaac River
- general infrastructure and construction working area.

The Project's proposed disturbance area, as shown in Figure 3-3, totals 886 ha, and includes sufficient area for construction working room for infrastructure and general mining activities. The disturbance areas shown in figures presented in the Referral totalled 645 ha. Figure 3-3 differs to the Project maps presented in the Referral through the addition of an area for infrastructure construction working room and general mining activities, providing a maximum potential Project footprint whilst allowing for construction and operational flexibility.

A construction working room width of 30 m has been allowed around the levees and Ti-Tree Creek diversion. In sensitive areas (e.g. in proximity to the Isaac River) opportunities will be sought to reduce the construction working room. The proposed disturbance area is generally greater than 50 m from the Isaac River high bank. In some localised areas this narrows to approximately 30 m, however the construction working room can be reduced in these areas so that actual disturbance remains approximately 50 m from the high bank of the Isaac River.

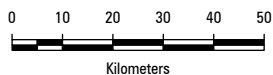
The change in disturbance area between Figure 3-3 and the maps presented in the Referral is shown in Figure 3-4. Impact assessments in this PER are based on the proposed disturbance area shown in Figure 3-3.



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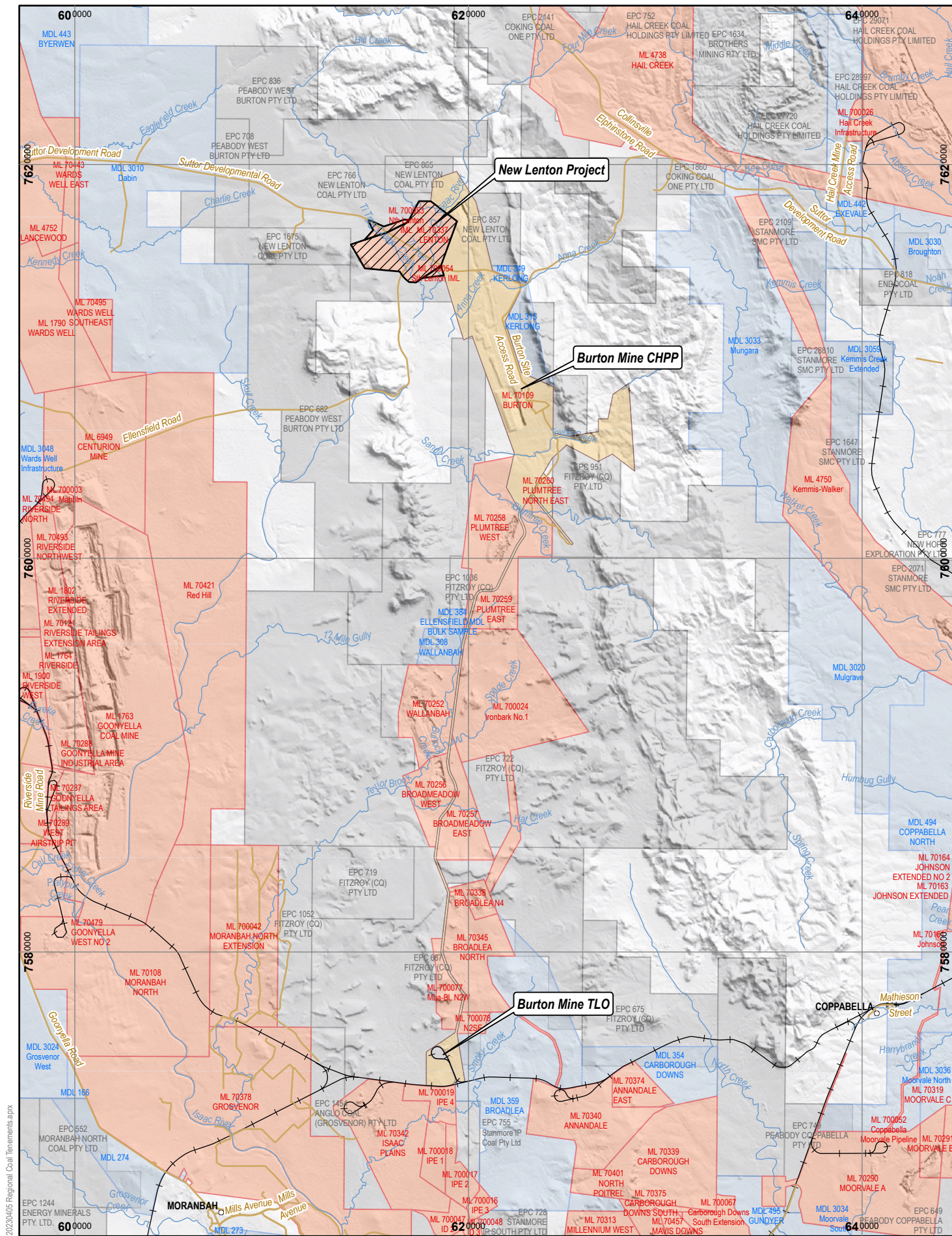
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Regional Location

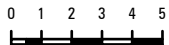


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LEGEND

New Lenton Project	Town Symbols
Burton Mine MLs	Waterway
ML	Roads
MDL	Railway
EPC	

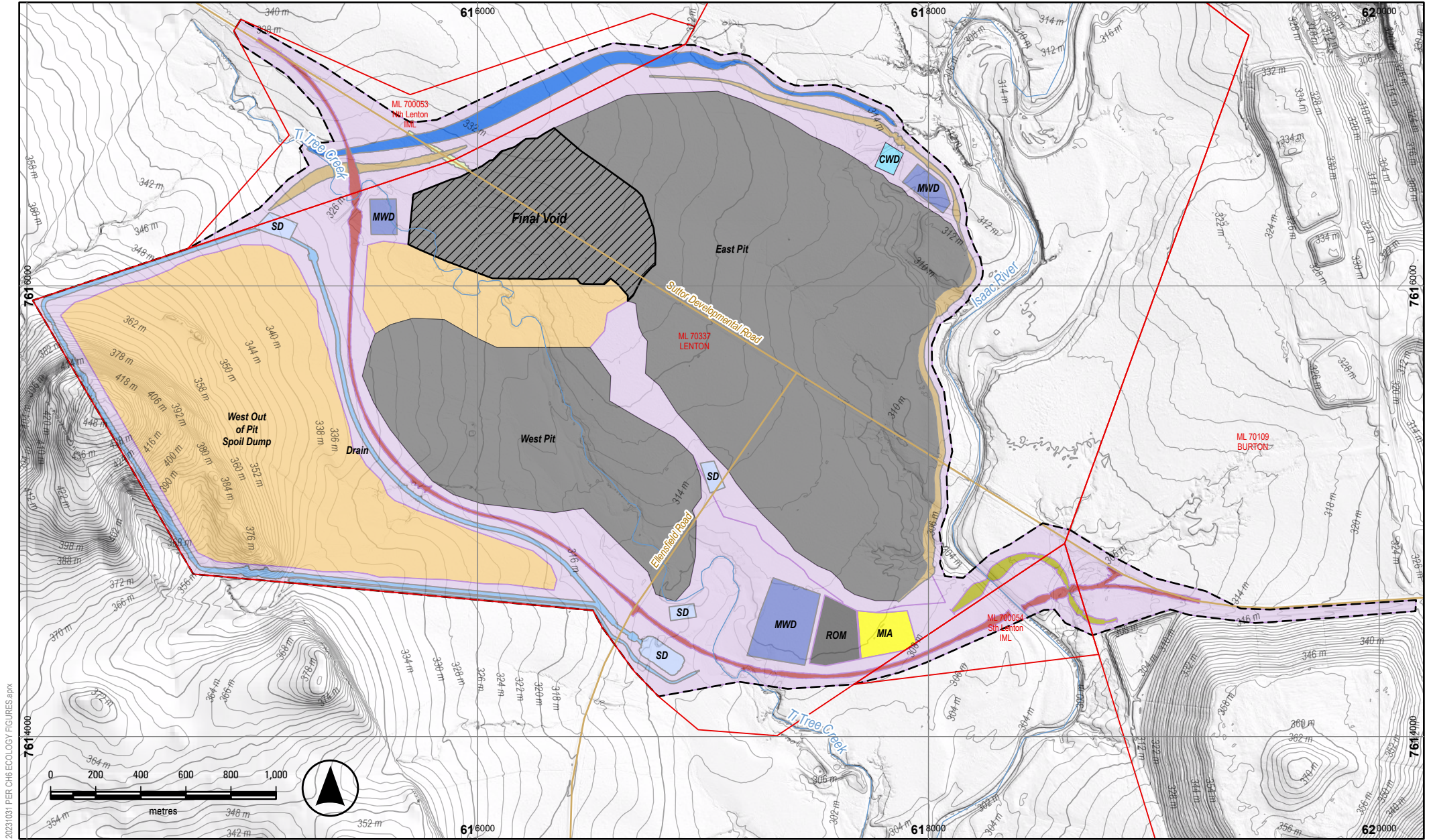
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Regional Mining Projects



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Legend

- Mining Lease
- Proposed Disturbance Area
- Waterway
- Roads
- Contour Line, Intermediate
- Contour Line, Major
- Final Void

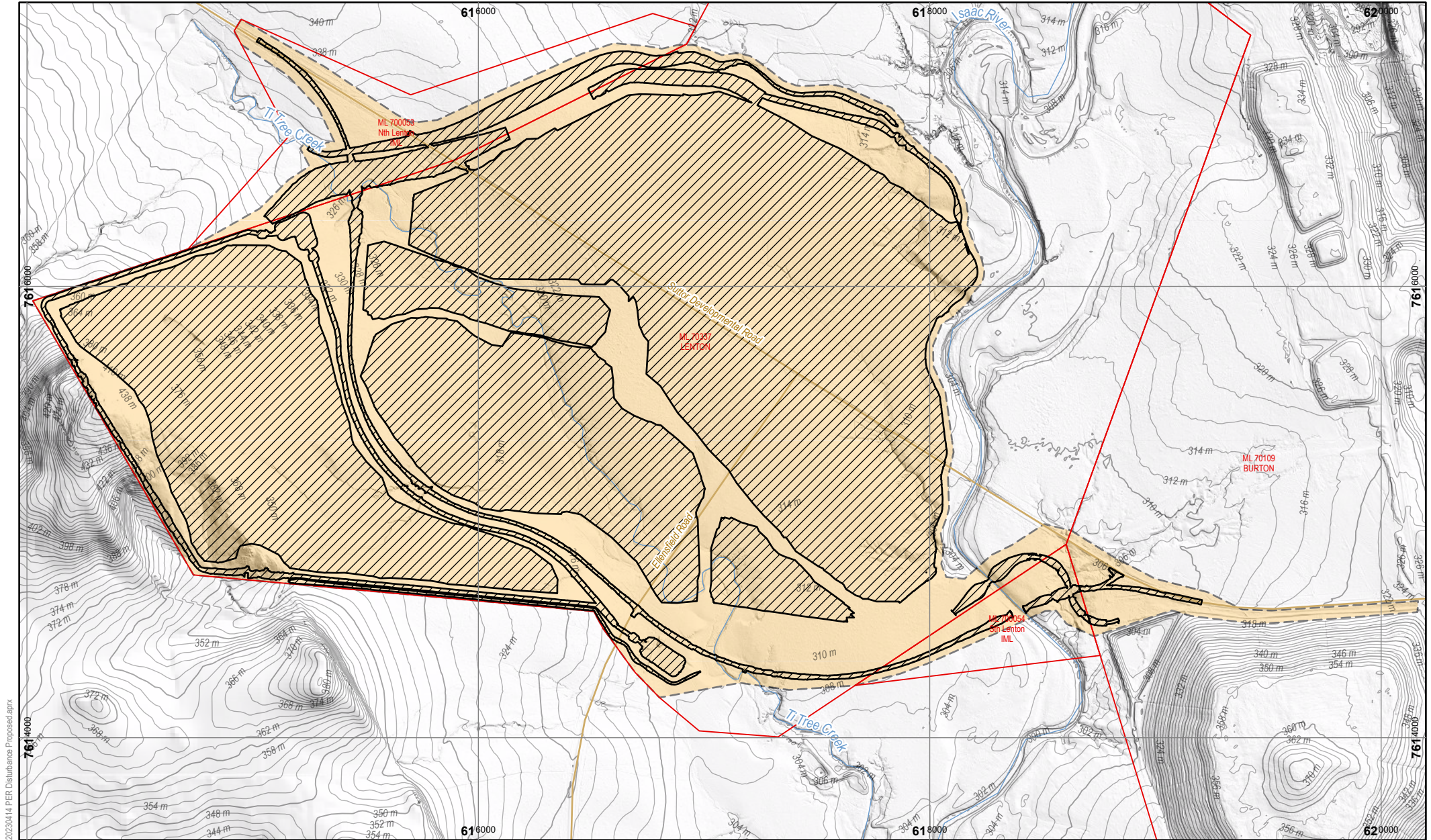
- Mine Infrastructure Area
- ROM
- Dump Footprint
- Sutor Developmental Road Realignment
- Haul Road
- Infrastructure and Construction Working Area
- Pit Footprint

- Temp Road Diversion
- Operational Levee
- Drain
- Ti Tree Creek Diversion
- Mine Water Dam
- Clean Water Dam
- Sediment Dam

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Project Layout

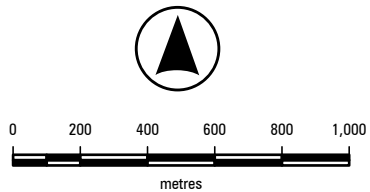


20230414 PER Disturbance Proposed approx

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- Legend
- Mining Lease
 - Disturbance Area - EPBC Referral
 - Proposed Disturbance Area
 - Waterway
 - Roads
 - Contour Line, Intermediate
 - Contour Line, Major

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Change to Project Layout
 Presented in the Referral

3.2.3 Properties

Land ownership and easements within the New Lenton MLs are shown in Figure 3-5 and described in Table 3-1, which also describes the Project's activities on the land parcels.

There are two privately owned freehold properties (belonging to a single pastoral operation at Burton Downs), one State Road (Suttor Developmental Road), one unformed State road reserve, one freehold property with a road owned by an unrelated mining company (Ellensfield Road) and one unformed road reserve parallel to Ellensfield Road. The majority of land on which Project activities are proposed is operated as a single pastoral station, Burton Downs.

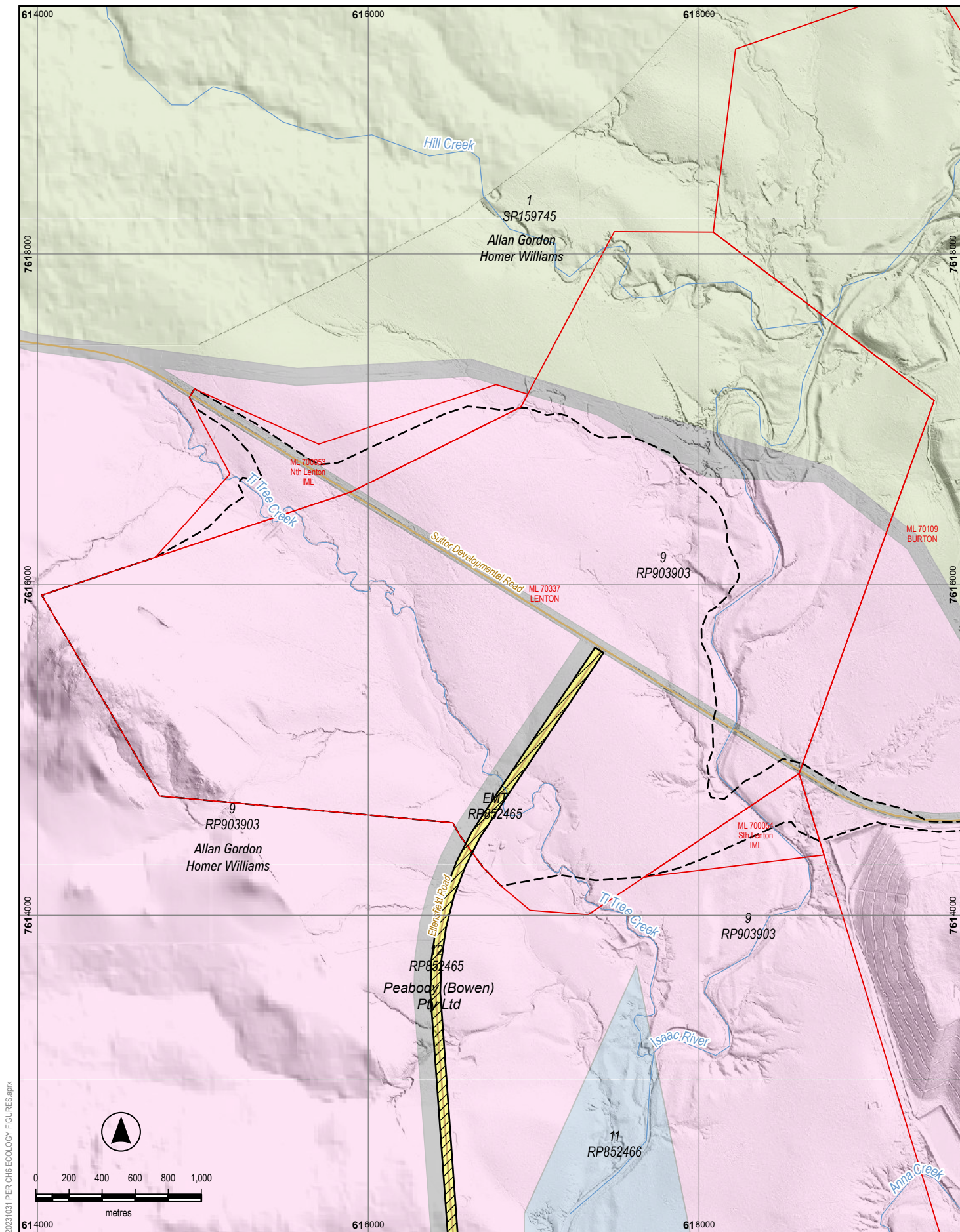
The proponent has in place compensation agreements with landowners for undertaking mining activities on the land for the Project. The proponent has an agreement with Transport and Main Roads (TMR) for the realignment of the Suttor Developmental Road.

Ellensfield Road is owned and maintained by Peabody (and independent resource company) for access to the North Goonyella accommodation village (owned by a third party unrelated to the proponent), with the road not currently in use.

Within the New Lenton MLs the Isaac River does not have its own cadastral boundaries.

Table 3-1 Land Ownership and Easements

Lot and Plan	Registered Owner/Lessee	Land Tenure	Project
9 RP903903	Burton Downs, private landholder	Freehold	All mining activities
1 SP159745	Burton Downs, private landholder	Freehold	No direct impacts
Suttor Developmental Rd	State	Road Reserve	All mining activities, hence proposal to realign the Suttor Developmental Rd
Unformed State Road	State	Road Reserve (alternate to Suttor Developmental Road)	No direct impacts
Lot 12 RP852465	Peabody Bowen Pty Ltd	Freehold	Linear lot associated with Ellensfield Road.
Unformed Local Road	Isaac Regional Council	Road Reserve (unallocated State Land adjacent Ellensfield Road)	All mining activities
EMT RP852465	Peabody Bowen Pty Ltd	Easement over Lot 12 RP852465	All mining activities



20231031 PER CH6 ECOLOGY FIGURES.aprx

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 Mining Lease	 Road Reserve
 Proposed Disturbance Area	 11 on RP852466
— Waterway	 12 on RP852466
— Roads	 1 on SP159745
 Easement	 9 on RP903903

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Land Ownership and Easements

3.2.4 Land Use

The land in the New Lenton MLs is used for grazing with parts cleared for cattle grazing, and other areas containing remnant vegetation, particularly along or adjacent watercourses and drainage lines.

The predominant land uses in the region are cattle grazing and coal mining (see Figure 3-2). The Suttor Developmental Road bisects the New Lenton MLs.

3.3 Burton Mine

3.3.1 Burton Mine - Mining and Infrastructure

The Burton Mine MLs are shown in Figure 3-2 and Figure 3-6. This figure shows the location of existing mining activities and infrastructure at Burton Mine:

- mined areas including Burton North, Burton Widening and Ellensfield pits / voids (which are also used for storage of mine affected water)
- in-pit and out of pit overburden dumps associated with mined pits at various stages of rehabilitation, including completed rehabilitation
- Ellensfield pit / void for the co-disposal of rejects and tailings from the CHPP
- CHPP
- TLO and rail loop (Figure 3-2)
- product and ROM coal stockpiles near the CHPP
- MIA
- haul roads and access roads
- accommodation camp (village) for up to 300 people and sewage treatment facilities
- administration area, including offices (located adjacent the CHPP / MIA)
- water management dams for managing mine and sediment affected water
- Teviot Dam, which supplies clean (raw) water to Burton Mine (including for the camp and CHPP).

3.3.2 Interaction of the Project with Burton Mine

Section 1.5 of Chapter 1 provides a high level overview of the interaction between the Project and Burton Mine.

This chapter describes these interactions in more detail, as follows:

- Section 3.8.7 describes the processing of ROM coal from the Project at the Burton Mine CHPP.
- Section 3.9 describes rejects and tailings management at Burton Mine.
- Section 3.11.3 describes the integration of the water management systems with Burton Mine
- Section 3.13.3 describes the ROM coal haul road connecting the Project with Burton Mine.

The Project will not result in any changes to Burton Mine's CHPP infrastructure for washing coal, transporting coal from the CHPP to the TLO, or railing of coal from the TLO to DBCT. These aspects do not form part of the Project.

The new infrastructure required for the Project on Burton Mine will include:

- Approximately 1.5 km of connecting haul road to the existing haul road network
- Approximately 1.5 km of pipeline to connect with existing water management infrastructure at Burton Mine.

These new infrastructure items form part of the Project within the proposed disturbance area.

3.4 Coal Resources and Reserves

The resources (Table 3-2) and reserves (Table 3-3) for the Project were estimated in July 2021 in accordance with The Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (The JORC Code).

Table 3-2 JORC Resources

Measured (Mt)	Indicated (Mt)		Inferred (Mt)	Total (Mt)
60	50		30	140

Table 3-3 JORC Reserves

Proven (Mt)	Probable (Mt)	Total (Mt)
11	3	14

3.5 Environmental Context

3.5.1 Climate

Climate data was extracted from the nearest Bureau of Meteorology (BoM) weather station at Moranbah Airport (station number 34035) from 2013 to present (BoM, 2023). For regional evaluation of longer-term climate, additional data was accessed from the SILO (Scientific Information for Land Owners) database (<https://www.longpaddock.qld.gov.au/silo/point-data>).

Rainfall within Queensland's seasonally arid interior is notoriously unreliable in its intensity, duration and location. The climate of the area is dominated by intense rainfall events throughout the wet season (approximately November to March). These rainfall events are often highly variable in their spatial and temporal distribution, with much of the rain falling in distinct, spatially separated cells across the landscape. Generally, little rain is experienced throughout the dry season, with an occasional shower/storm in that period. Evaporation tends to exceed rainfall for almost all days of the year, except during intense rainfall events.

Temperatures within central Queensland can range over 43°C in a yearly cycle, with minima below freezing in the winter months and maxima in the low to mid-forties in summer. Maximum median temperatures over the recording period at Moranbah Airport are highest in December (34.8°C), when cloud-cover is still relatively restricted. Minimum median temperatures are generally lowest in July (8.6°C).

3.5.2 Topography, Catchments and Watercourses

The area of the New Lenton MLs is relatively flat and encompasses a section of the Isaac River. The New Lenton MLs are located at an elevation of approximately 300 m to 340 m Australian Height Datum (AHD). The southern and western boundary of the site are generally between 300 and 315 m AHD with the highest point on the site along the eastern boundary (refer to Figure 3-7).

The Project site is located within the headwaters of the Isaac River Catchment. The Isaac River Catchment is part of the Isaac-Connors sub-catchment which is part of the Fitzroy River Basin (see Figure 3-8). The Isaac Conner's sub catchment is approximately 22,000 km² and the Fitzroy Basin catchment area is approximately 140,000 km².

The Isaac River is the main watercourse within the Project area, and runs along the eastern boundary of the New Lenton MLs. In addition, there are two other watercourses / drainage features passing through

the MLs, Hill Creek (a designated watercourse) and Ti-Tree Creek (a non-designated watercourse or drainage feature²) (see Figure 3-7 and Figure 3-9), both are tributaries of the Isaac River. Hill Creek traverses the north-eastern portion of the MLs, until its confluence with Isaac River. There are no direct impacts from the Project on Hill Creek.

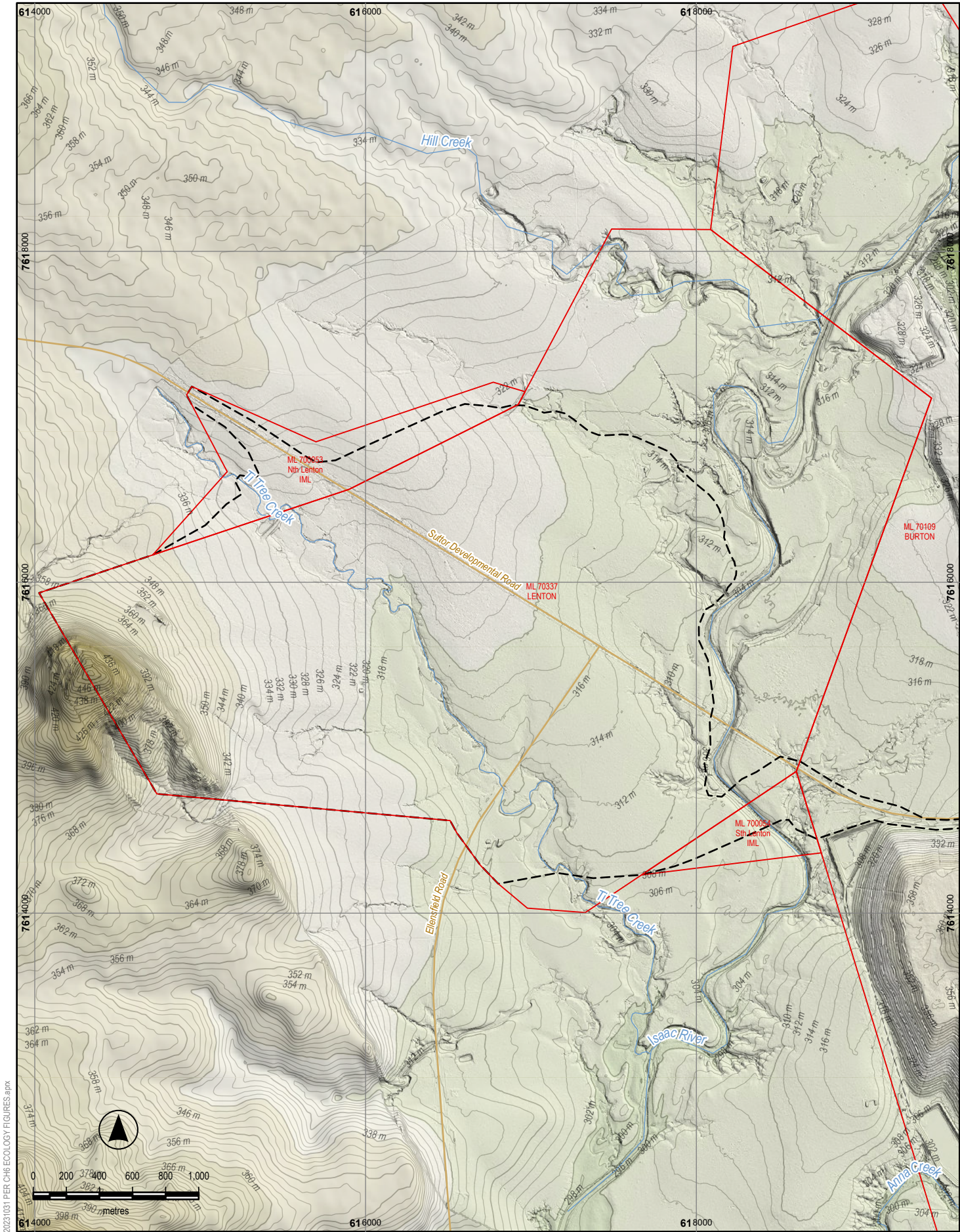
Ti-Tree Creek crosses ML 70337 diagonally further south, where it joins the Isaac River approximately 2 km downstream of the New Lenton MLs. It is proposed to divert Ti-Tree Creek around the open cut mine pit workings.

All three watercourses / drainage features are ephemeral. After dry periods, a significant rainfall event is typically required in order to restore flows in the creeks.

Burton Gorge Dam is situated on the Isaac River approximately 3.5 km downstream of the New Lenton MLs. Burton Gorge Dam also receives inflows from Anna Creek (including Lake Elphinstone), Sandy Creek, Plumtree Creek and Teviot Creek (including Teviot Creek Dam). These watercourses flow into the southern arm of Burton Gorge Dam and their catchments are not affected by the Project.

Local catchments and watercourses are shown in Figure 3-7 and Figure 3-9.

² The Department of Natural Resources, Mines and Energy (DNRME) determined that Ti-Tree Creek is not a designated watercourse under the *Water Act 2000*.



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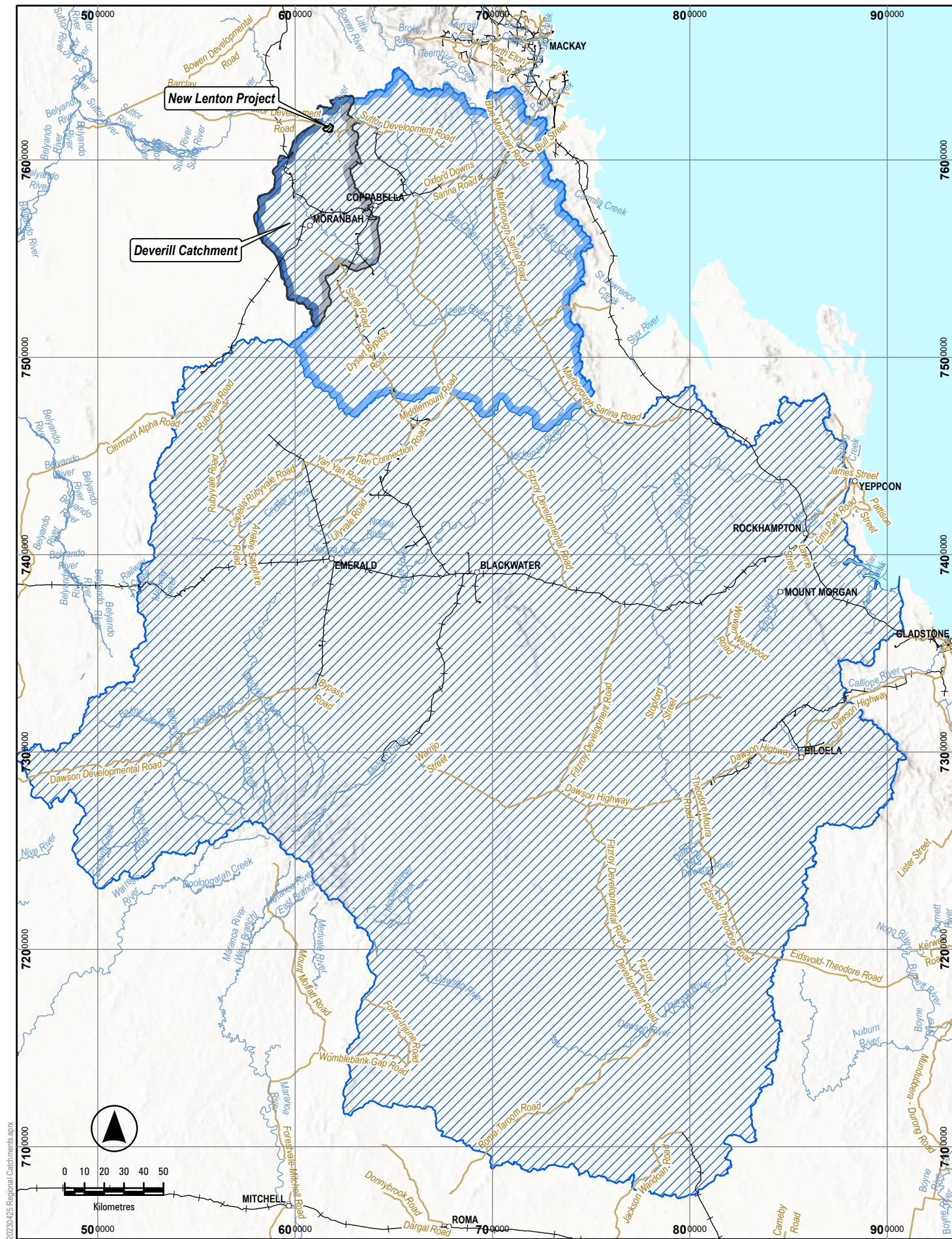
- Mining Lease
- Proposed Disturbance Area
- Waterway
- Roads
- Contour Line, Intermediate
- Contour Line, Major

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Topography

Figure | 3-7



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LEGEND

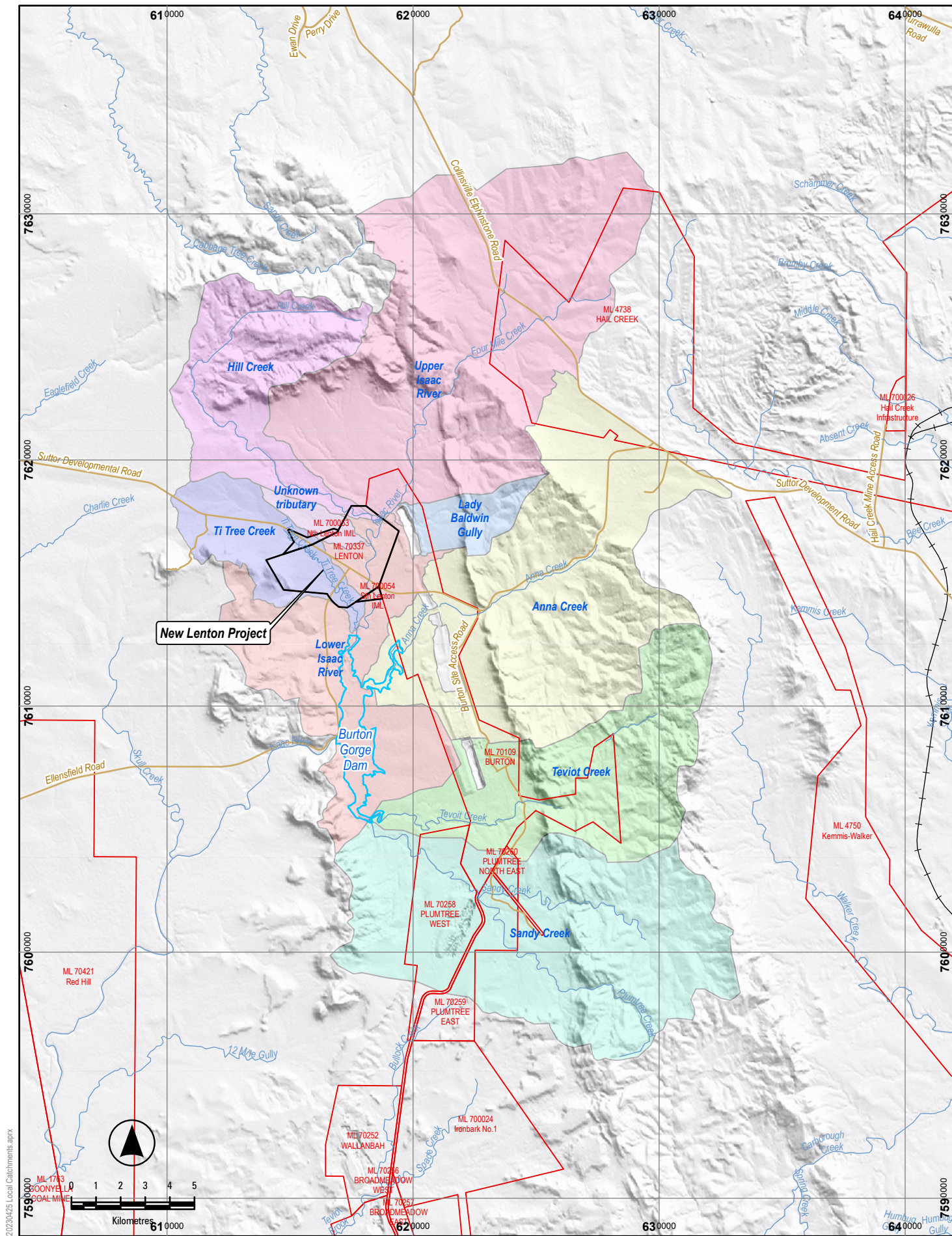
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|--|--------------------|--|-----------------------|
| | New Lenton Project | | Railway |
| | Town Symbols | | Deverill Catchment |
| | Waterway | | Fitzroy Catchment |
| | Roads | | Isaac River Catchment |

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Regional Catchments



2023/04/25 Local Catchments.aprx

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LEGEND

- New Lenton Project
- ML
- Waterway
- Roads
- +— Railway

Local Catchment

- Anna Creek
- Hill Creek
- Lady Baldwin Gully
- Lower Isaac River
- Sandy Creek
- Teviot Creek
- Ti Tree Creek
- Unknown tributary
- Upper Isaac River
- Burton Gorge Dam

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Local Catchments

3.5.3 Geology

3.5.3.1 Regional Geology

The Project area is located in the Bowen Basin, a basin spanning an extent of approximately 200,000 km² and is one of five major foreland sedimentary basins formed along the eastern side of Australia during the Permian period. The Bowen Basin extends in a north to south direction from Townsville, Queensland at its northern extent to Moree, New South Wales at its southern extent. In the southern parts, the extent of the Bowen Basin and the Great Artesian Basin (GAB) overlap. The Project area and surrounds are located along the south-western section of the Nebo Synclinorium in the northern part of the Bowen Basin. The general stratigraphic sequence in the Bowen Basin in the vicinity of the Project area is shown in Table 3-4.

Extensive geological faulting is present over and surrounding the Project area. The main structural feature of the Project area is the Burton Range Fault, which is marked by the eastern boundary of the Burton Range. The Burton Range Fault crosses the Project area from the southern boundary toward the north and northwest and is aligned adjacent to the western boundary of ML 70337. The fault has caused relatively large vertical displacements in the Permian geology (>700 m throw), isolating the Rangal Coal Measures on each side of the fault. Other faults with up to 200 m throw also isolate the coal seams of the Rangal Coal Measures within sections of the Project area.

Additional information on regional geology is provided in Chapter 5.

Table 3-4 Regional Stratigraphic Sequence in the Project Area

Period	Stratigraphic Unit		Map Code	Lithological Description	Thickness (m)
Quaternary	Quaternary (Isaac River) Alluvium		Qa	Clay, silt, sand, and gravel; flood-plain alluvium and alluvial fans	0 to 20
	Colluvial deposits		Qr, Qa/f	Clay, silt, sand, gravel, and soil; colluvial and residual deposits	0 to 20
			TQr	Clay, silt, sand, gravel, and soil; colluvial and residual deposits (generally on older land surfaces)	0 to 20
Tertiary	Suttor Formation		Tu	Quartz sandstone, clayey sandstone, mudstone, and conglomerate; fluvial and lacustrine sediments; minor interbedded basalt.	0 to 50
	Duaranga Formation		Tb	Mudstone, sandstone, conglomerate, siltstone, oil shale, lignite & basalt	0 to 50
Triassic	Mimosa Group	Moolayember Formation	Rm	Micaceous lithic sandstone, micaceous siltstone	Unknown
		Clematis Group	Re	Cross-bedded quartz sandstone, some quartz conglomerate and minor red-brown mudstone.	Unknown

		Rewan Group	Rr	Lithic sandstone, pebbly lithic sandstone, green to reddish brown mudstone and minor volcanolithic pebble conglomerate (at base). Sandstone mudstone & minor conglomerate (at base).	0 to 1,570 (average 440)
Permian	Blackwater Group	Rangal Coal Measures	Pwj	Calcareous sandstone, calcareous shale, mudstone, and concretionary limestone including the following coal seams: Burton Rider, Leichhardt and Vermont.	20 to 70 Burton Rider - 2 Leichhardt and Vermont - 8
		Fort Cooper Coal Measures, Fair Hill Formation	Pwt	Lithic sandstone, conglomerate, mudstone, carbonaceous shale, coal, tuff, tuffaceous (cherty) mudstone.	30 to 60
		Moranbah Coal Measures	Pwb	Labile sandstone, siltstone, mudstone, coal, conglomerate in the east.	Unknown
	Back Creek Group		Pb	Quartzose to lithic sandstone, siltstone, carbonaceous shale, minor coal and sandy coquinite.	Unknown

3.5.3.2 Local Geology

The local geology (and hydrogeology) can be divided into three main units:

- the Quaternary to Tertiary sediments (including alluvium) and weathered horizons (regolith);
- Rewan group; and
- the Permian coal measures bedrock.

A typical stratigraphic sequence for the Project area is shown in Figure 3-10.

Regional geological mapping and site investigations shows that alluvium is localised along river channels. Quaternary floodplain alluvium associated with surface watercourses is comprised of clay, silt, sand, and gravel sediments. The thickness of the alluvium is greater close to the Isaac River channel and decreases with distance from the River.

The regolith in the Project area is mainly comprised of shallow Tertiary to Quaternary age colluvium and residual soils, derived from weathered underlying Triassic and Permian bedrock strata. The depth of weathering is variable across the Project area ranging from 10 m to 50 meters below ground level (mBGL), with an average of approximately 25 mBGL.

Tertiary age basalt flows outcrop to the north-west of the Project area. Due to its limited and isolated occurrences within the vicinity of the Project, the Tertiary basalt has not been identified as a geologic unit of significance to the Project.

Triassic age strata within and adjacent the Project area consists of the Moolayember Formation, Clematis Group, and the Rewan Formation. Both the Moolayember Formation and Clematis Group have been significantly eroded within the Project area, such that the Moolayember Formation is absent from the Project area and the Clematis Group is only present in the very west of the Project area. The Rewan

Formation is a lithic sandstone (Sagittarius Sandstone) with a clayey matrix interbedded with mudstones and siltstones with scattered carbonaceous plant material. The average thickness of the Rewan Formation is 440 m within the Project area.

The Rangal Coal Measures are the uppermost unit of coal-bearing strata in the Bowen Basin and the primary resource target within the Project area. Mining target seams within the Rangal Coal Measures include the Burton Rider seam and the Leichhardt / Vermont coal sequence. The typical thickness of the Burton Rider and Leichhardt / Vermont sequence is 1 to 2 m and 8 m (including 2 m of ash and tuff partings), respectively. The two sequences are separated by an average of 20 to 25 m of non-coal interburden comprised of sandstone, siltstone and minor mudstone. The thickness and extent of the Leichhardt/Vermont seams is based on site geological models, geological mapping and drill holes.

The Rangal Coal Measures are underlain by the Fort Cooper Coal Measures, with coal seams of the respective formations separated by an average thickness of approximately 99 m of interburden. The Yarrabee Tuff is a regional marker unit defining the transition from the Rangal Coal Measures to the Fort Cooper Coal Measures. The main seam of the Fort Cooper Coal Measures is the Girrah Seam that is typically 30 m thick and has a high ash content. The Girrah Seam is not a target seam for the Project.

Additional information on local geology is provided in Chapter 5.

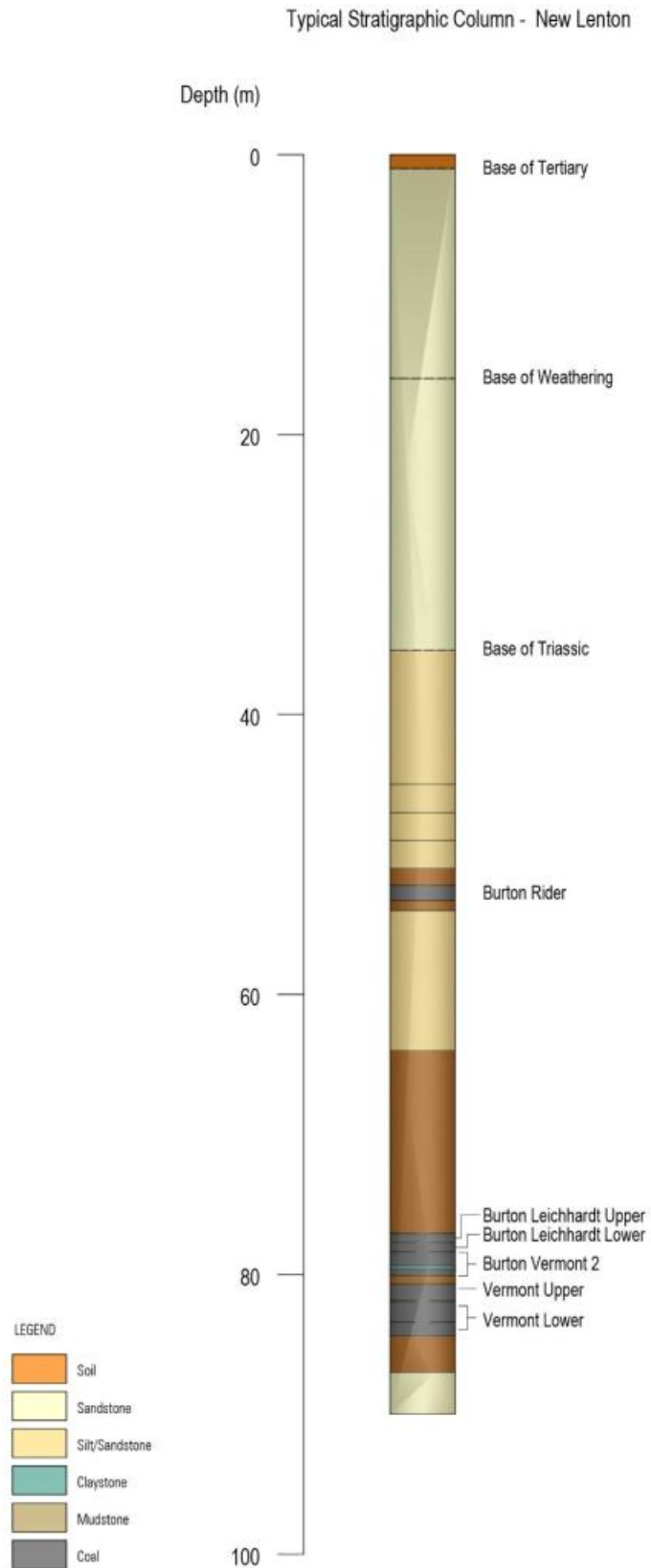


Figure 3-10 **Stratigraphy of the Project Area**

3.5.3.3 Target Resources

A significant amount of 3D and 2D seismic assessments have been utilised across the deposit to help develop a sound understanding of the deposits structure. Results of seismic surveys indicate that the south west corner of the Project area near the Burton Range Thrust is a structurally complex zone of north north-west to north striking thrust faulting and associated folding, that becomes less complex (i.e. less faulted) to the north.

Within the confines of the open cut reserve areas numerous large compressional structures have been interpreted with displacements ranging from 40 m to 200 m. The majority of these structures include reverse faults with drill holes intersecting the same seam more than once. In two holes the same seam was intersected three times, indicating complex faulting zones.

The Project has been divided into three structural zones described as follows:

- Eastern – containing the Burton Anticline and Lenton Syncline which plunge gently to the north.
- Central – complex thrust fault zone with fault throws in the order of 100 m to 200 m on the western limb of the Lenton Syncline. This zone forms most of the Horst Block which is devoid of economic Rangal Coal Measures.
- Western – a monocline dipping to the north north-east bounded on the east by fault with 200 m of throw and the west by the Burton Range Thrust.

The Leichardt and Vermont seams crop along the southern and eastern edge of the identified pit boundary. The seams then dip to the north and to the west. The initial seam dips seen around the crop line varies considerably but typically ranges between 15 degrees to 25 degrees. Further down dip, the seams begin to flatten out slightly to an average seam dip of less than 10 degrees.

3.5.4 Soils and Agricultural Potential

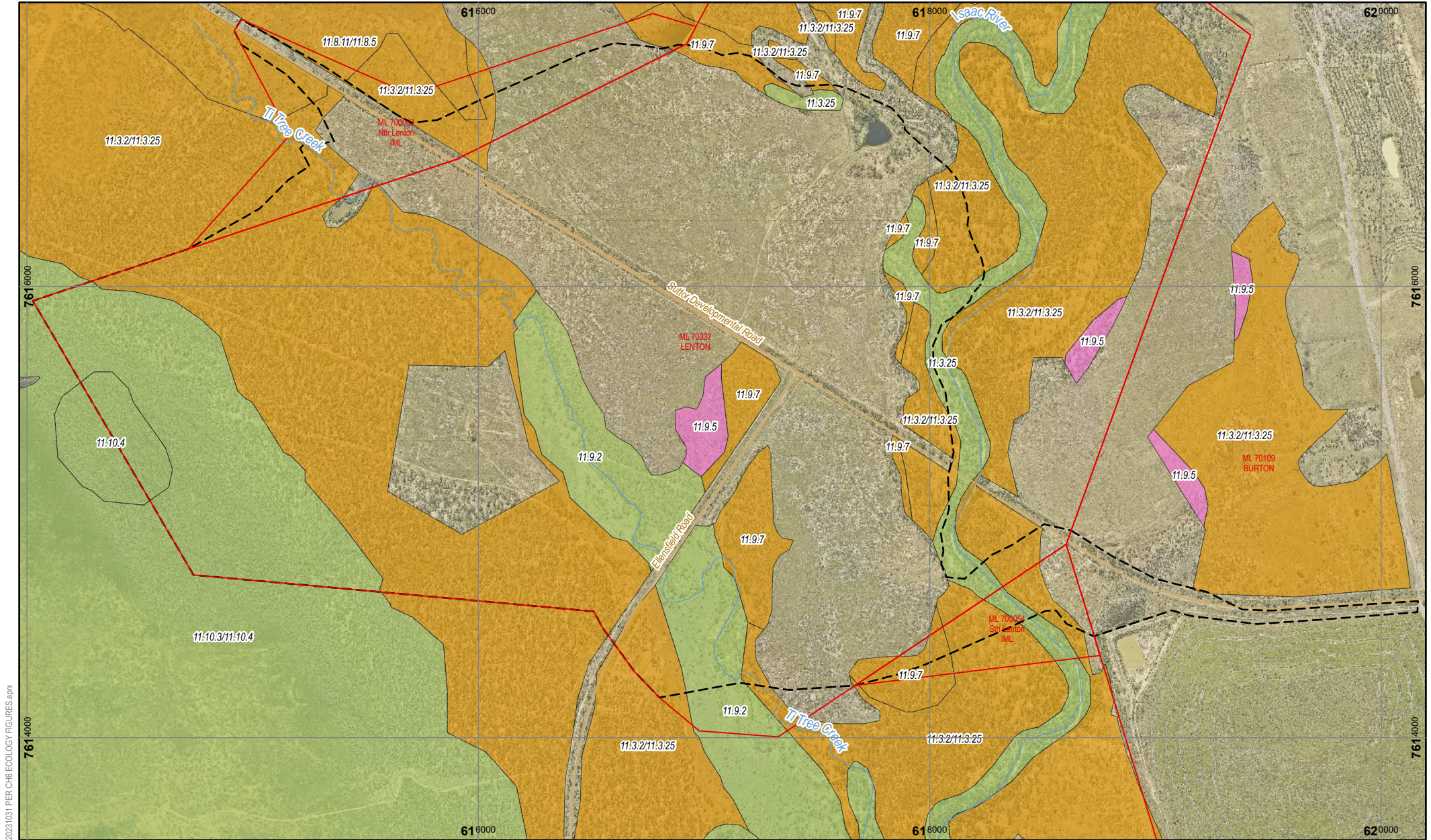
Within the New Lenton MLs, cattle grazing of native and introduced pastures is the dominant agricultural enterprise on areas cleared of remnant vegetation.

A soil field program was conducted by SLR in 2019 for the Project area and was designed to satisfy a 1:25,000 survey scale intensity. Within the Project area, three soil map units (SMUs) have been identified based on the dominant soil types. The three SMUs within the Project area were identified as Brown Sodosol, Black Vertosol and Brown Vertosol.

All soil profiles were above pH 5.5 and are considered nil risk as acid sulphate soils, given their landscape position and also vegetation types present across the Project area. All soil profiles contained moderately dispersive and dispersive horizons according to their exchangeable sodium percentage (ESP) score, which will be likely require amelioration (e.g using gypsum) for use of soils as growth medium in rehabilitation. Soil properties have been assessed to inform the progressive rehabilitation and closure plan (PRCP) for the Project and post mining land uses. The Project's PRCP schedule was approved by DES in October 2023.

3.5.5 Vegetation

This section provides an overview of state and field mapped regional ecosystems and threatened ecological communities within and surrounding the Project area. **Chapter 6** provides detail on terrestrial ecology surveys of this area. Figure 3-11 shows the State mapped regional ecosystems (REs). Figure 3-12 shows field mapped regional ecosystems, which cover the area of Project activities and contain least concern REs and of concern REs. Figure 3-13 shows the threatened ecological communities (TECs) identified through field surveys within and surrounding the Project area, with the only TEC identified being Poplar Box Grassy Woodland on Alluvial Plains (Poplar Box).

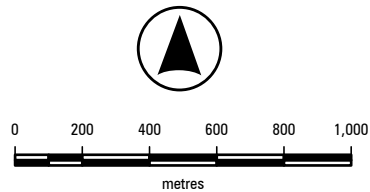


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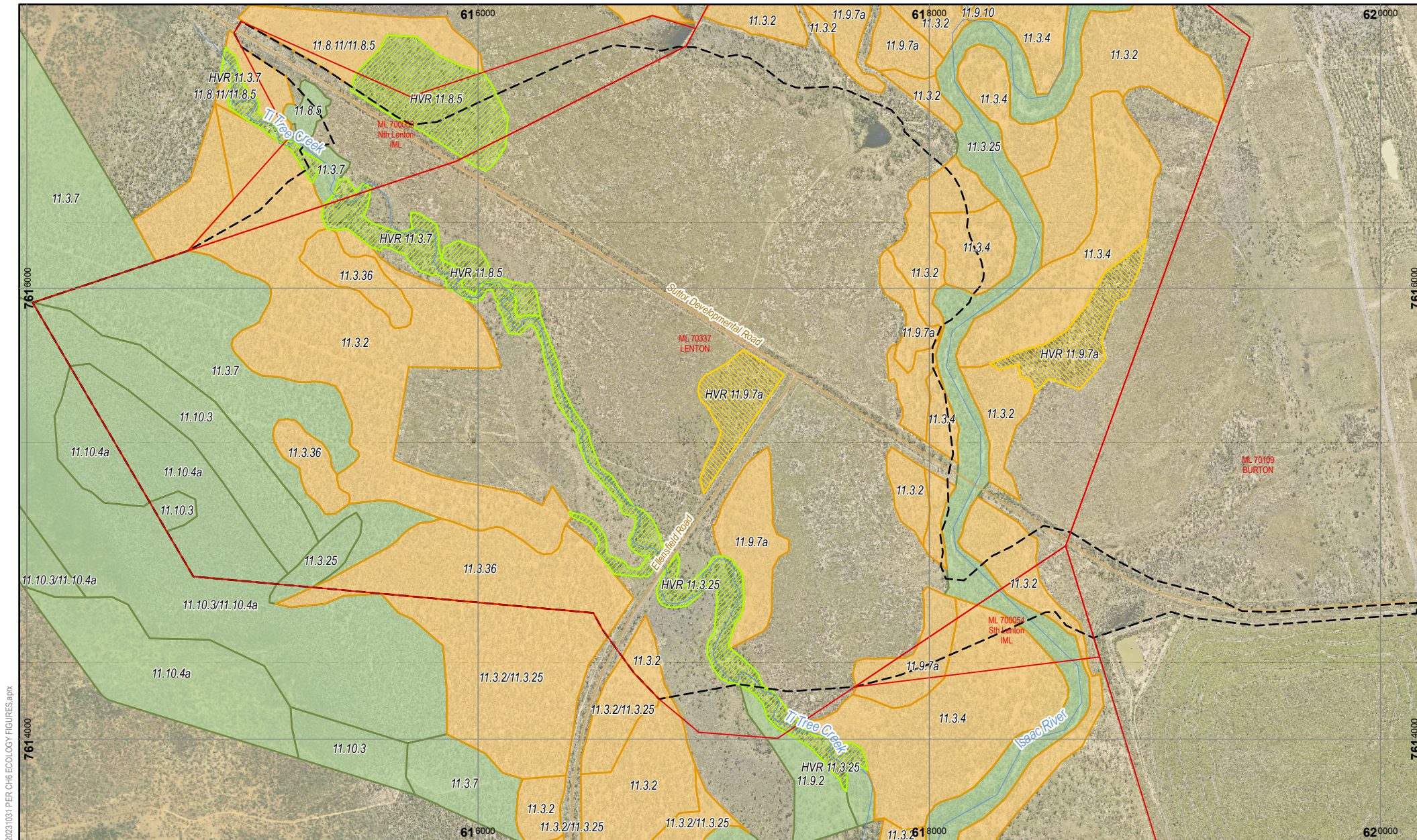


- Legend
- Mining Lease
 - Proposed Disturbance Boundary
 - Waterway
 - Roads
 - Endangered Dominant
 - Of Concern Dominant
 - Least Concern

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State Mapped
 Regional Ecosystems

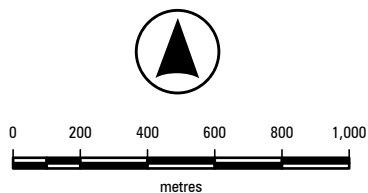


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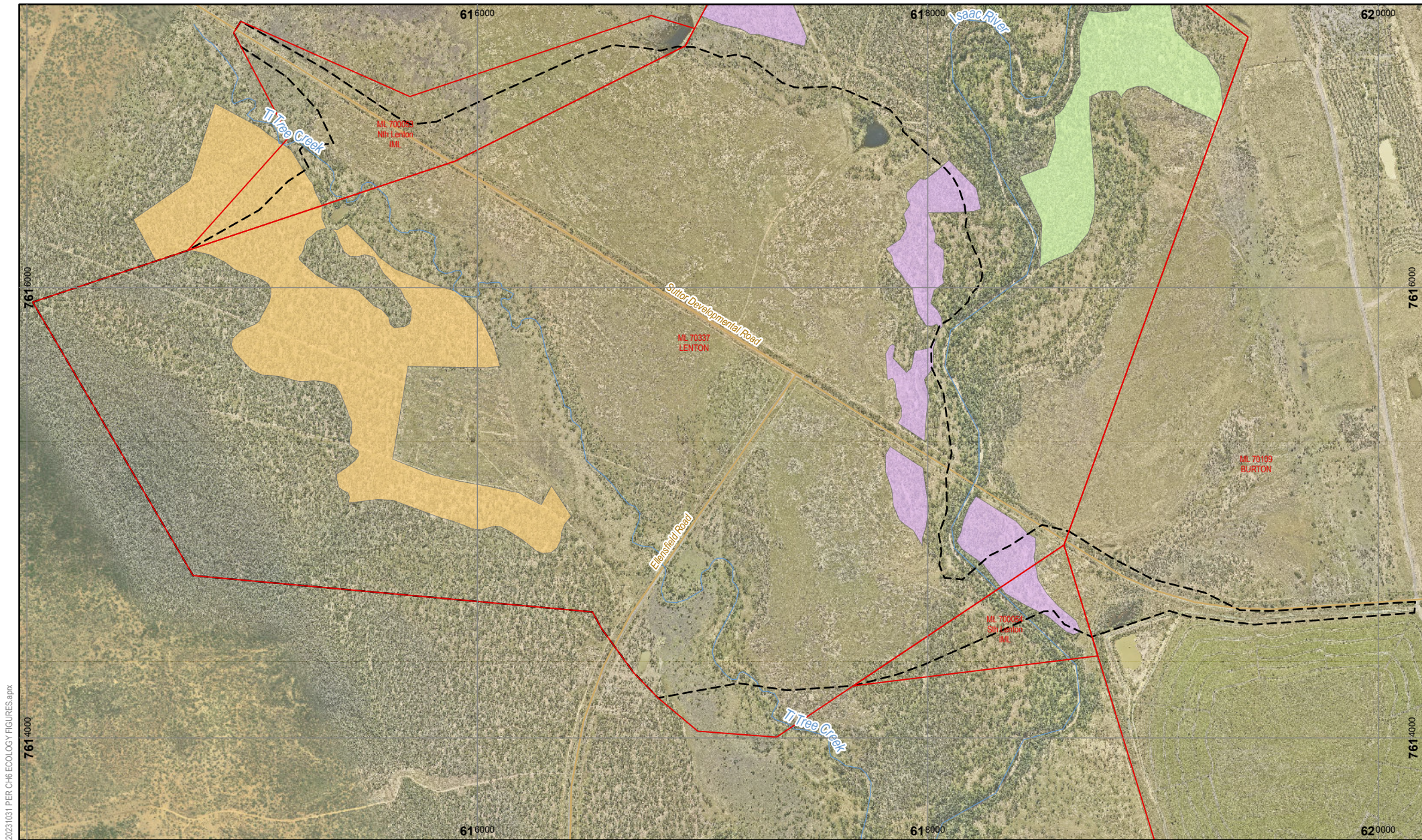


- Legend
- Mining Lease
 - Proposed Disturbance Boundary
 - Waterway
 - Roads
 - Remnant Least Concern
 - Remnant Of Concern
 - HVR Least Concern
 - HVR Of Concern

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Field Mapped
 Regional Communities

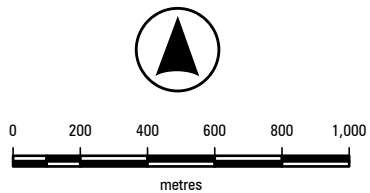


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- | | |
|---|--|
| Legend | Poplar Box TEC |
| Mining Lease | Category A2 |
| Proposed Disturbance Boundary | Category B |
| — Waterway | Category C |
| — Roads | |

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Threatened Ecological Communities

3.5.6 Cultural Heritage

A Cultural Heritage Management Plan (CHMP) has been executed by the proponent (or its predecessors) and the relevant Aboriginal Parties (the Barada Barna Kabalbara YeitMarla No 3 People) covering the New Lenton MLs (as well as other areas). Management of Aboriginal cultural heritage will continue to be conducted in accordance with the CHMP.

A subsequent Cultural Heritage Management Agreement (CHMA) has been executed by the proponent and additional relevant Aboriginal Parties (the Wiri People Core Country Claimants) covering the New Lenton MLs (as well as other areas). Management of Aboriginal cultural heritage will continue to be conducted in accordance with the CHMA.

3.6 Mine Schedule

The mine plan for the Project is to mine the coal resources at an average rate of up to 1.9 Mtpa over approximately 18 years, with a total of approximately 30 Mt over the life of the mine. Some years, including during ramp up phases, will mine less than 1.9 Mtpa ROM coal. Annual coal production will depend on resource depth and market conditions. The mining schedule is based on civil and mining resource availabilities and the economic comparisons of the mine pit shells and mining directions. Approximately 1.1 Mtpa of product coal will be produced with a total of approximately 18 Mt over the life of the mine.

The Project schedule showing ROM coal tonnes, product coal tonnes and overburden / waste bank cubic meters (bcm) is presented in Figure 3-14.

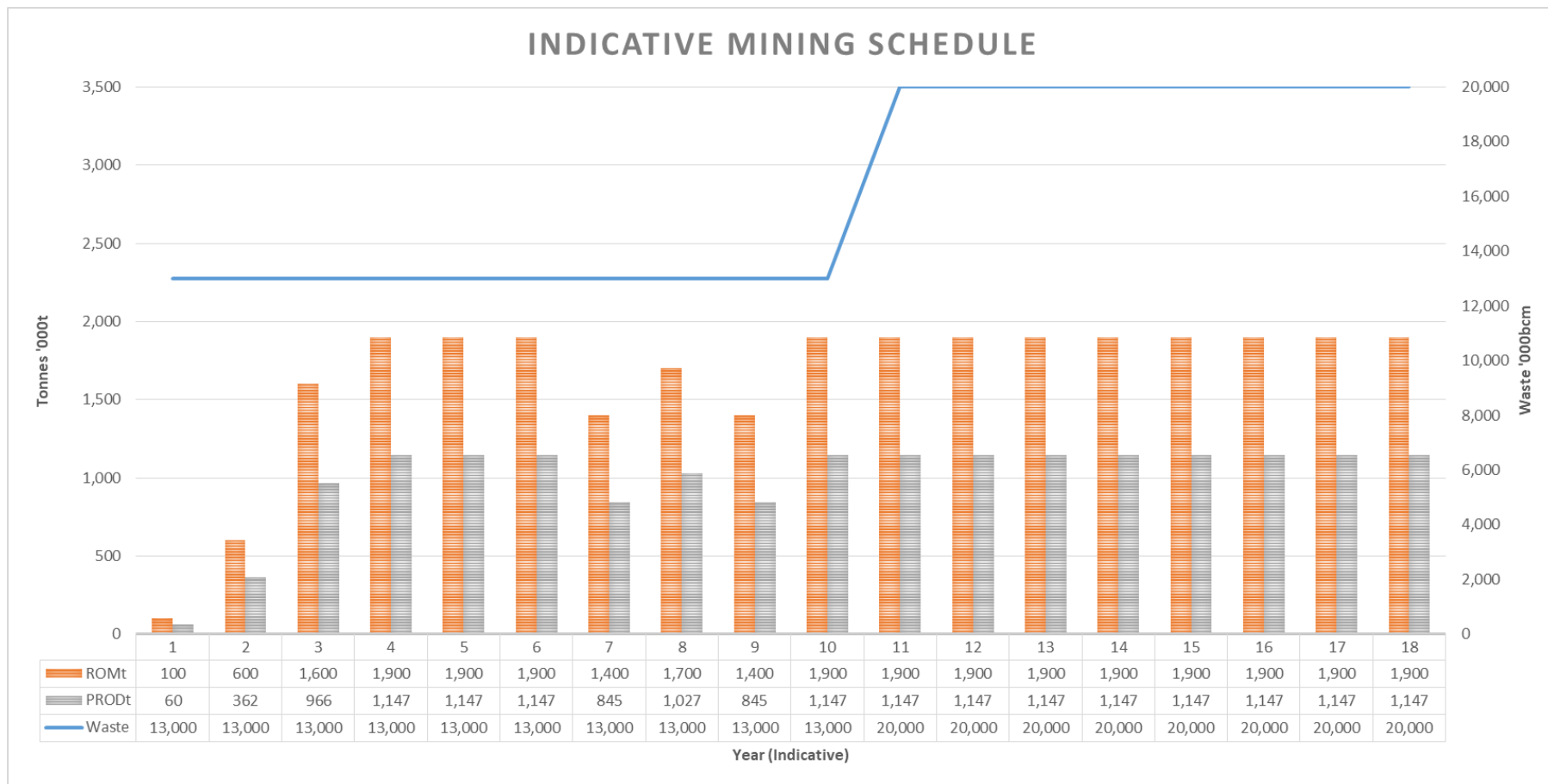
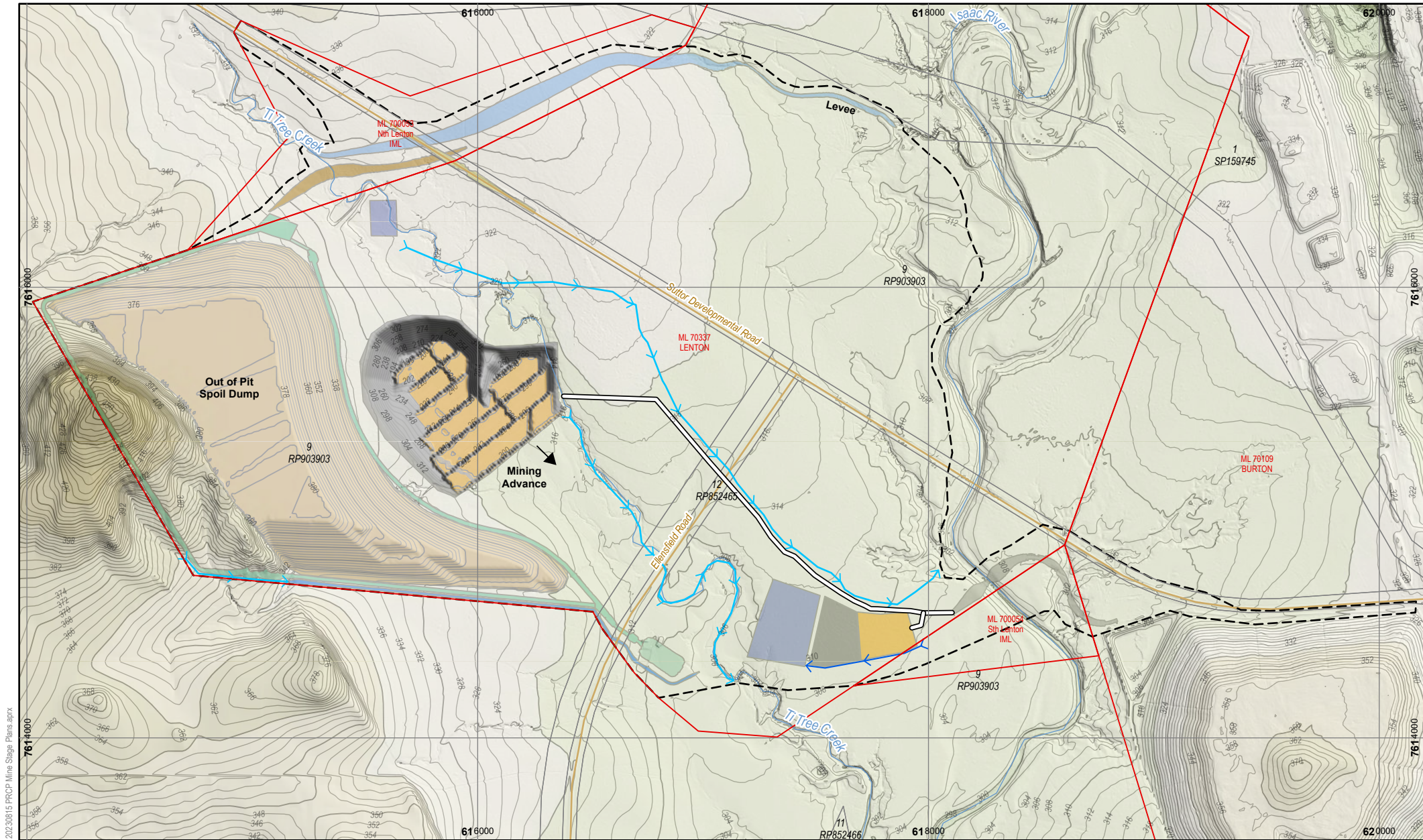


Figure 3-14 *Indicative Mine Schedule - Material Movements*

3.7 Mine Stage Plans

Mine stage plans have been prepared, and show the progression of mining as follows:

- Year 1 (Figure 3-15) shows mining of West Pit including clearing, grubbing, topsoil removal, pre-stripping of overburden and establishment of an out of pit overburden dump. Ti-Tree Creek diversion and levee will be constructed in the initial Project stage to allow mining of West Pit. The Isaac River levee and Suttor Developmental Road realignment are not required in Year 1, however construction will commence between Year 1 and the subsequent stage plans. Other general infrastructure such as the MIA, ROM pad, water management dams and roads will be established in Year 1.
- Year 5 (Figure 3-16) shows mining of West Pit has been completed, mining of East Pit has commenced with associated out of pit dumps, and rehabilitation has been substantially progressed on the western out of pit dump. The Isaac River levee has been constructed by Year 5.
- Year 10 (Figure 3-17) shows the advance of mining of East Pit, backfill and rehabilitation of West Pit with overburden from East Pit, and substantial rehabilitation of the out of pit overburden dumps.
- Year 13 (Figure 3-18) shows the advance of East pit, in-pit backfill of East Pit, and substantially completed rehabilitation of out of pit dumps and the backfilled West Pit.
- The final landform (Figure 3-19), as approved by the Department of Environment and Science (DES) in the EA, shows the residual void area and rehabilitated out of pit and in-pit dumps and infrastructure areas. A buffer zone of 50 m will be maintained between the pit high wall edge and the final landform protecting the Ti-Tree Creek diversion, which allows for a final, stable high wall.

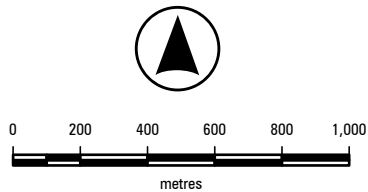


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- LEGEND**
- Mining Lease
 - Cadastral Boundary
 - Proposed Disturbance Boundary
 - Mining Activity
 - Active Spoil Dump
 - Mining Advance
 - Pit Highwall

- WM Infrastructure**
- Clean Water Drain
 - Diversion
 - Haul Road
 - Levee
 - MIA
 - Mine Water Dam
 - ROM

- Sediment Dam
- Sediment Drain
- Temp. Road Diversion
- Clean Water Drain
- Mine Water Drain
- Haul Road

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Mine Stage Plan
 Year 1

Figure | 3-15

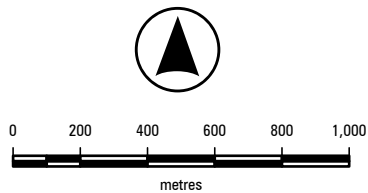


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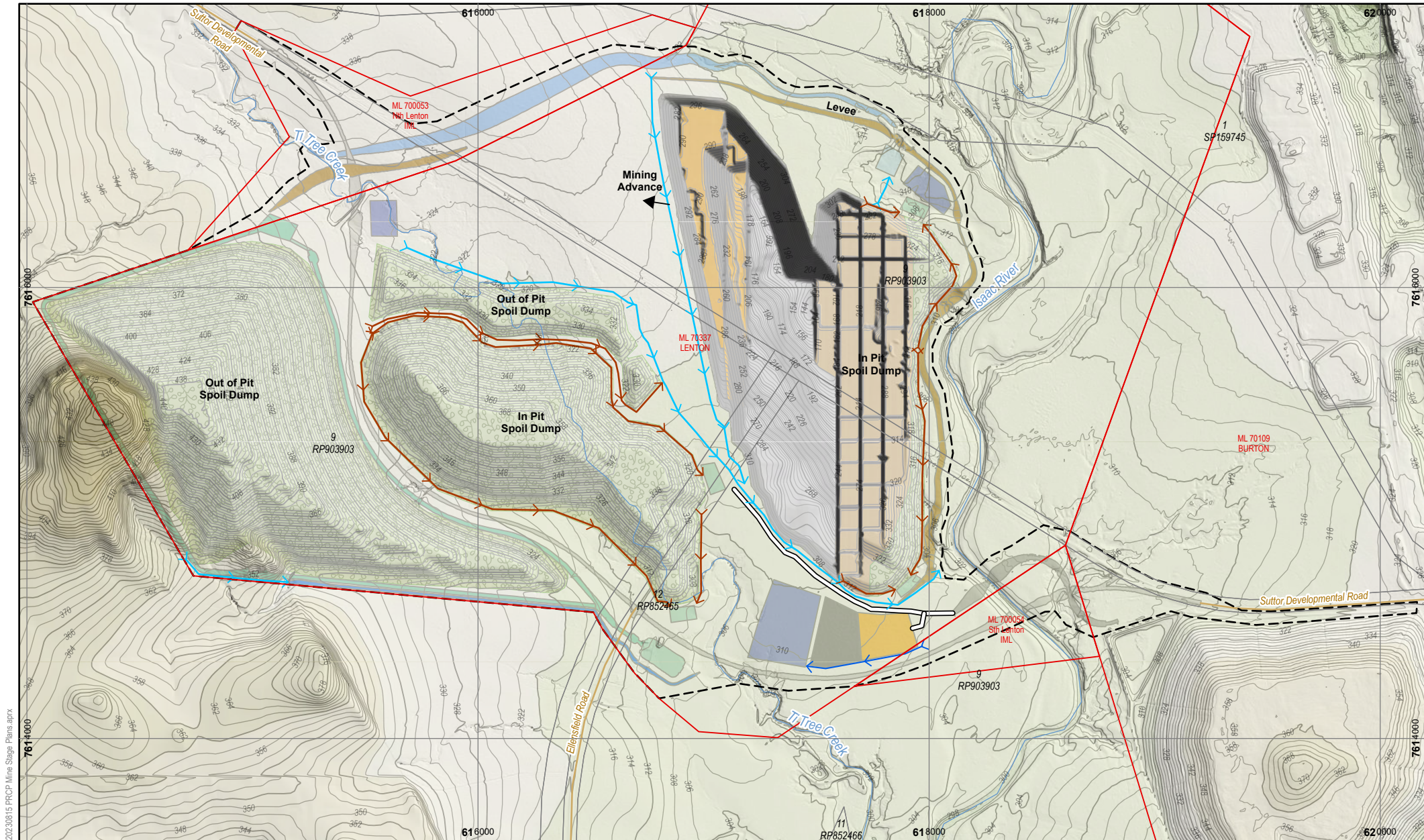
LEGEND	
	Mining Lease
	Cadastral Boundary
	Proposed Disturbance Boundary
Mining Activities	
	Active Spoil Dump
	Mining Advance
	Pit Highwall
	Pit Floor
	Rehabilitation
WM Infrastructure	
	Clean Water Drain
	Clean Water Dam
	Sediment Drain
	Diversion
	Sediment Dam
	Perm. Road Diversion
	Levee
	MIA
	Mine Water Dam
	ROM
	Haul Road
	Haul Road
	Clean Water Drain
	Mine Water Drain
	Sediment Water Drain

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Mine Stage Plan
 Year 5

Figure | 3-16

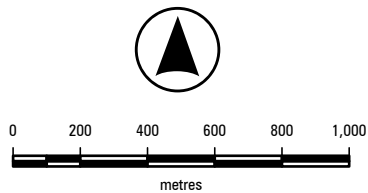


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LEGEND	
	Mining Lease
	Cadastral Boundary
	Proposed Disturbance Boundary
Mining Activities	
	Active Spoil Dump
	Mining Advance
	Pit Highwall
	Pit Floor
	Rehabilitation

WM Infrastructure	
	Clean Water Drain
	Clean Water Dam
	Sediment Drain
	Diversion
	Sediment Dam
	Perm. Road Diversion
	Levee

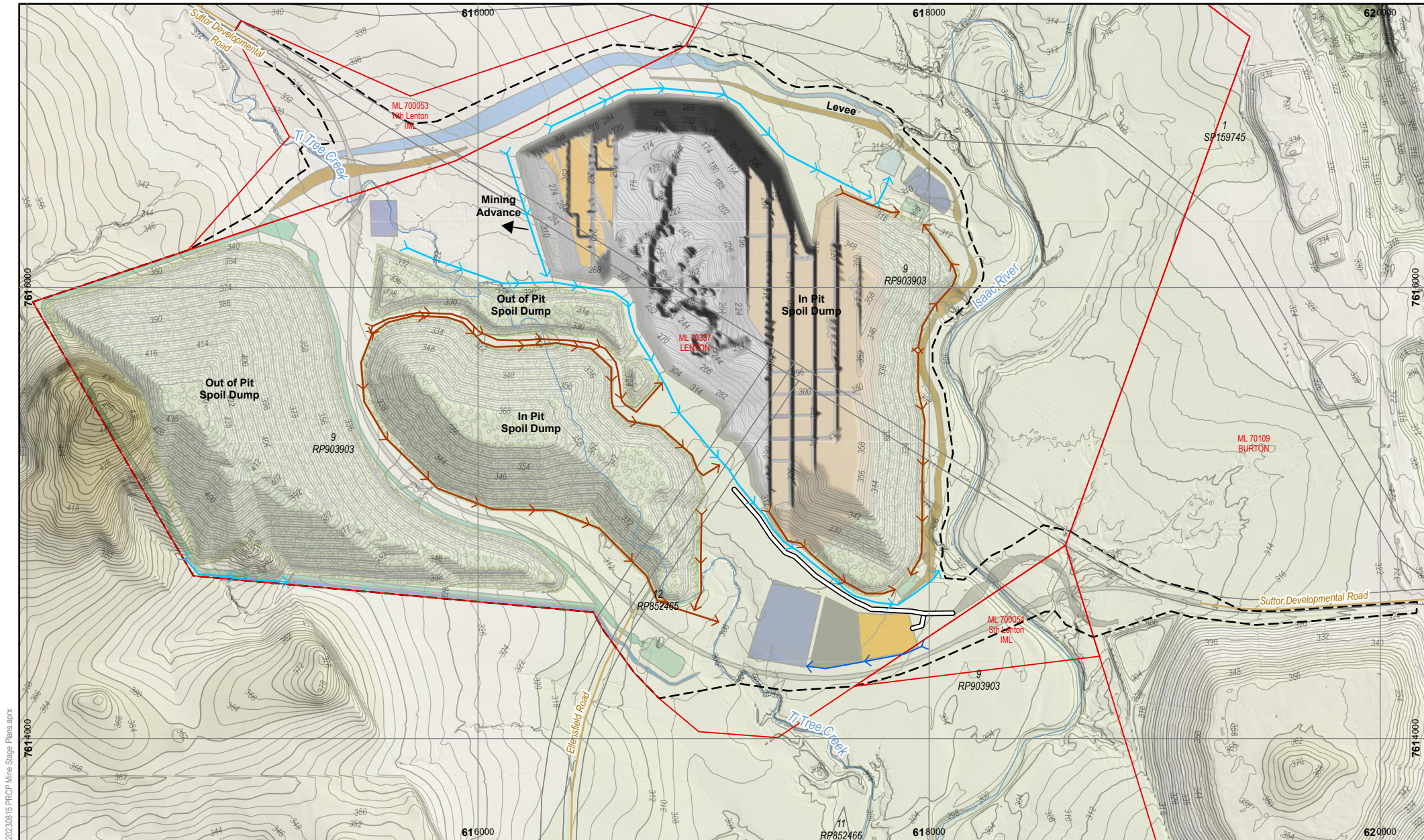
	MIA
	Mine Water Dam
	ROM
	Haul Road
	Haul Road
	Clean Water Drain
	Mine Water Drain
	Sediment Water Drain

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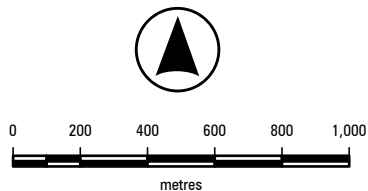


Mine Stage Plan
Year 10

Figure | 3-17



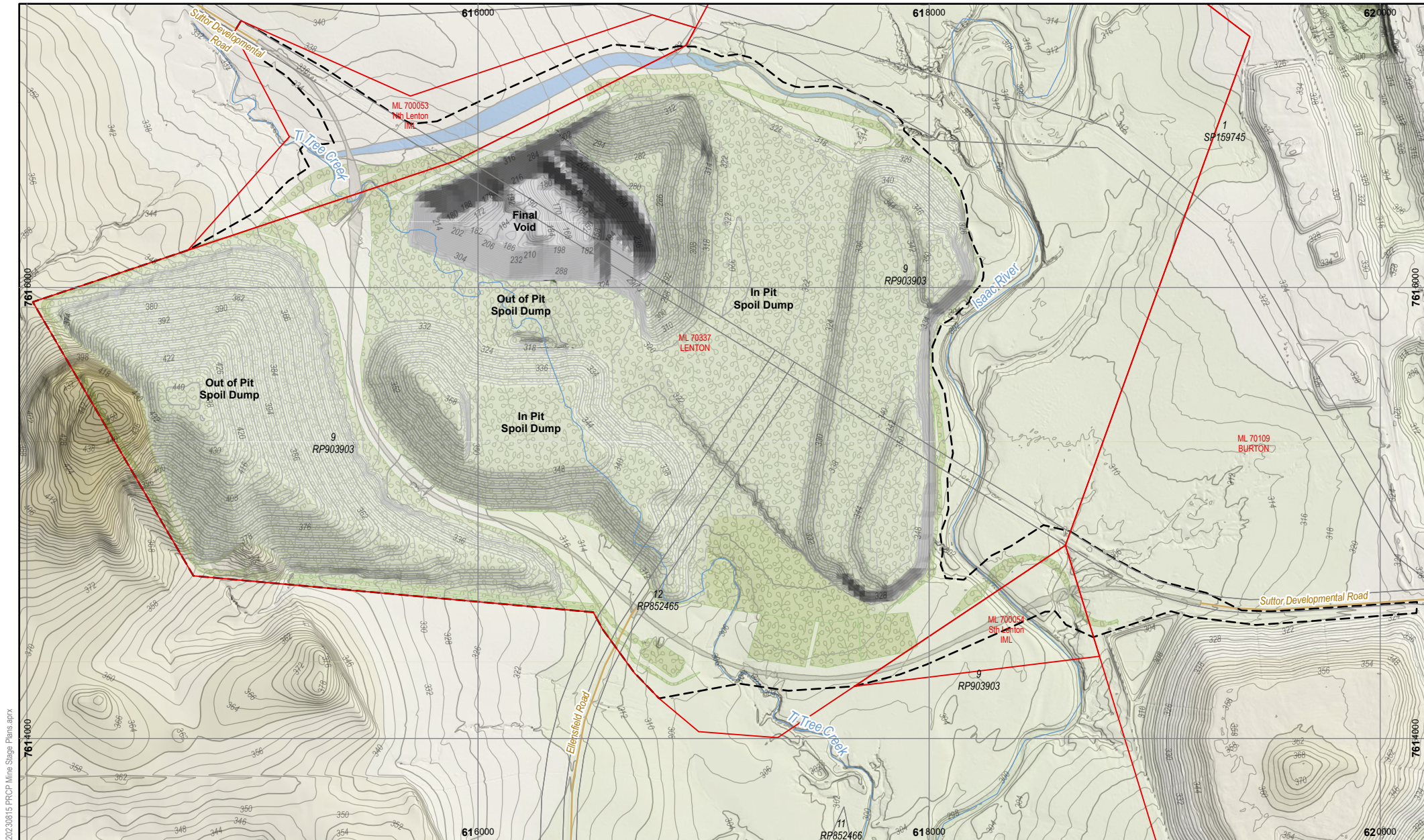
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Mine Stage Plan
 Year 13

Figure | 3-18

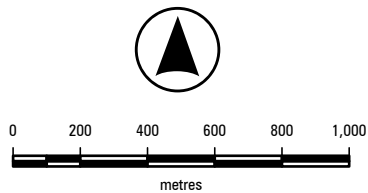


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- LEGEND**
- Mining Lease
 - Cadastral Boundary
 - Proposed Disturbance Boundary
 - Pit Highwall
 - Pit Floor and Low Wall
 - Rehabilitation
 - Permanent Road Diversion
 - Diversion

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Final Landform

Figure | 3-19

3.8 Mining Process

3.8.1 Overview

Mining will target the Burton Rider, Leichhardt and Vermont coal seams of the Rangal Coal Measures. Mining operations will occur on a continuous 24 hour, seven day a week cycle. Approximately 18 Mt of product coal will be produced from the Project's ROM coal at the Burton Mine CHPP, with approximately 12 Mt of tailings and rejects (collectively referred to as co-disposal).

The Project open cut mining will involve the following activities:

- clearing of vegetation
- stripping and stockpiling of topsoil
- drilling and blasting of pre-strip overburden
- removing the pre-strip overburden using truck and shovel fleets and/or dozers
- drilling and blasting of overburden
- overburden removal by truck and shovel fleets
- coal mining using excavators
- progressive rehabilitation of overburden dump areas.

3.8.2 Permits to Disturb

All ground disturbance will be subject to a disturbance permitting system which considers a number of factors, including:

- State and Commonwealth approvals
- need for the disturbance
- method of disturbance
- spotter catcher requirements
- drainage and sediment control requirements
- vegetation status
- cultural heritage matters
- vegetation and topsoil recovery
- rehabilitation.

3.8.3 Vegetation Clearing

Progressive clearing of pasture grasses, tree and shrub regrowth, and remnant vegetation will be required ahead of topsoil stripping for the Project activities. Clearing will be undertaken progressively, as areas are required for mining, and to minimise exposed areas. Spotter catchers will be engaged to conduct pre-clearance surveys prior to vegetation clearing.

3.8.4 Topsoil Stripping

Following vegetation clearing, topsoil will be recovered using dozers, and relocated using front end loaders, trucks and/or scraper fleet. Topsoil will either be used directly on areas of progressive rehabilitation or stockpiled for later use if no areas for rehabilitation are available at the time of stripping. Topsoil stockpiles will be appropriately located and sized to minimise loss of biological and physiochemical integrity. An inventory of topsoil will be maintained on site which records details such as stripping and stockpiling date, quantity, stabilisation treatments, analysis results and usage location.

3.8.5 Overburden Removal

Mining will utilise an open cut mining technique where strips and blocks are mined in succession, thus allowing waste from one strip or block to be dumped into a previously mined out area. Waste from an initial strip or boxcut will either been taken to an out of pit dump or dumped in an adjoining pit. Overburden may be utilised in the construction of associated infrastructure such as roads and water management structures.

The western and central / northern out of pit dump will contain approximately 16.9 million cubic meters (Mm^3) and 1.8 Mm^3 of material respectively. In comparison West Pit and East Pit in-pit dumps will contain approximately 198.5 Mm^3 and 97 Mm^3 respectively. Overall, approximately 6% of waste is dumped out of pit.

After topsoil has been removed from a strip, the overburden waste material will be drilled and blasted and subsequently removed by a combination of truck/shovel, truck/excavator or dozer push methods in order to expose the top coal seam.

A schematic, representative of this type of open cut mining operations, is shown in Figure 3-20.

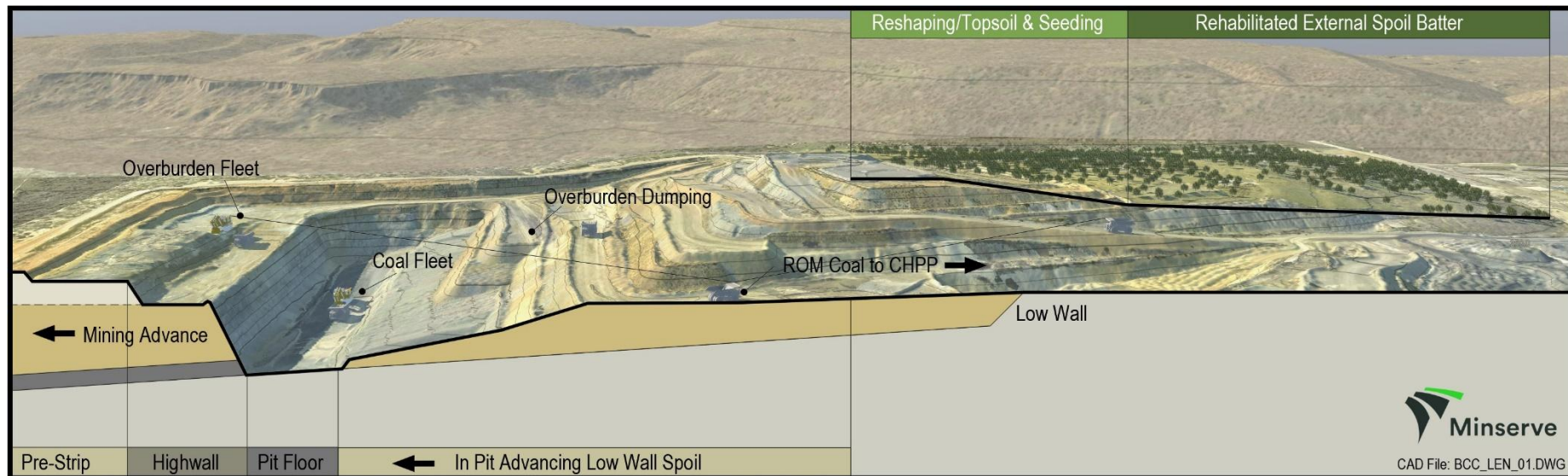


Figure 3-20 Open Cut Mining Schematic

3.8.6 Overburden Characterisation and Management

Assessments of the geochemistry of overburden in the Project area were undertaken by URS in 2005 (URS, 2005) and URS in 2013 (URS, 2013).

URS, 2005 describes that four holes were drilled from which 37 overburden samples were analysed. The overburden samples taken were moderately alkaline, ranging for 8.1 to 9.36 (median pH 9.0). The EC (1:5) ranged from 190 $\mu\text{S}/\text{cm}$ to 690 $\mu\text{S}/\text{cm}$, with a median EC (1:5) value of 350 $\mu\text{S}/\text{cm}$. The alkalinity was low, ranging from 0.2 kg $\text{H}_2\text{SO}_4/\text{t}$ to 1.2 kg $\text{H}_2\text{SO}_4/\text{t}$ with a median value of 0.4 kg $\text{H}_2\text{SO}_4/\text{t}$ (URS, 2013). Total sulphur content of the overburden samples was low to moderate, ranging from <0.01 to 2.10 percent by weight (average 0.03%), only present in the unoxidized (sulphide) form. The corresponding net acid production potential (NAPP) values ranged from -118 kg $\text{H}_2\text{SO}_4/\text{t}$ to -2 kg $\text{H}_2\text{SO}_4/\text{t}$ (average -46 kg $\text{H}_2\text{SO}_4/\text{t}$), while the acid neutralising capacity (ANC) ranged from 7 kg $\text{H}_2\text{SO}_4/\text{t}$ to 121 kg $\text{H}_2\text{SO}_4/\text{t}$ (median 48 kg $\text{H}_2\text{SO}_4/\text{t}$). On the basis of these results, all overburden samples were classed as non-acid forming (NAF). Additionally, 90% of the overburden samples were classified as barren (i.e., containing <0.1% sulphur) (URS, 2013).

Total metal concentrations in overburden were within the health-based investigation levels for soils (NEPC, 1999). Water extractable dissolved metal concentrations were below the target values identified in Australian livestock drinking water guidelines at the time of assessment (ANZECC and ARMCANX, 2000).

Some of the overburden was found to be sodic, and therefore prone to crusting, resulting in reduced infiltration and consequent reduced plant growth, high runoff, dispersion, and erosion.

A further sampling program was conducted by URS in 2013 which consisted of an additional 18 overburden samples. The results of this analysis and assessment were consistent with the 2005 sampling.

The findings of these assessments are summarised as follows:

- Overburden is likely to be benign and will generate moderately alkaline and fresh (non-saline) runoff following surface exposure.
- The majority of the overburden will have very low sulfur content (<0.1%) and can be classified as barren.
- All samples tested were NAF or acid consuming.
- Acid generation from overburden is unlikely given the high acid neutralising capacity of the materials.
- The concentration of metals in overburden is unlikely to present any environmental risks for revegetation and overall rehabilitation of any out-of-pit overburden dump.
- The concentration of soluble metals and salts in runoff and seepage from overburden is likely to remain well within relevant water quality guideline concentration limits and has a low risk of impacting upon downstream water quality.
- Some overburden (mudstone) is likely to be sodic and could therefore be prone to crusting.
- Overburden material may be susceptible to spontaneous dispersion during wet weather or after mechanical working.

Overburden will be covered by topsoil and vegetated as part of progressive rehabilitation. Externally draining overburden slopes will be at a maximum angle of 15 – 20 % (i.e. a shallow slope angle) which, in combination with topsoiling and re-vegetation, will control erosion from overburden dumps. Where practical as part of overburden haulage and placement, weathered materials (with a higher potential for dispersion) will be preferentially dumped beneath unweathered materials. Prior to and during the rehabilitation process, runoff from overburden will be managed in accordance with the requirements of the erosion and sediment control plan (ESCP) for the site, as required by EA conditions, which includes directing runoff through a network of sediment control dams.

3.8.7 Coal Recovery

Mining the coal seam will continue along the length of a strip or terrace until the end of the strip or terrace is reached. Once the coal seam has been mined out the strip will become available as an overburden dumping destination.

The coal will be mined using front end loaders and excavators and placed into rear dump trucks for haulage. The haul trucks will transport the coal along the strip or terrace, up a ramp out of the pit, then along internal haul roads to the ROM coal stockpile area located near the MIA. ROM coal will be loaded onto road trains and transported along the ROM coal road to the ROM coal stockpile pad at the Burton Mine CHPP. Coal will be washed at the Burton Mine CHPP. There are no changes proposed to the CHPP to allow washing of Project ROM coal.

3.8.8 Mining Equipment

The mining fleet comprises conventional mining equipment, approximately as follows:

- 2 large excavators (500 – 600 t) for overburden removal
- 2 smaller (approximately 120 - 350 tonne) tonne excavators for overburden, coal and general site works
- 10 – 15 large dump trucks (190 – 220 t) for overburden
- 10 smaller dump trucks (85 – 190 t) for coal, rejects and topsoil
- 5 dozers (D10 and D11 sizes)
- 2 graders
- 2 water trucks
- 2 loaders
- 2 overburden drills.

In general, large excavators mine the overburden and thick partings, which are then hauled by rear dump trucks to their planned dump site. The thinner partings and coal are likely to be mined by smaller excavators or loaders. A range of auxiliary fleet is utilised to maintain roads, dumps and complete rehabilitation, which includes graders and dozers. Water carts are employed on-site to minimise dust levels. A drill is also used for drilling out blast patterns on the overburden and thick partings.

3.9 Rejects and Tailings Management

Coal tailings and reject materials (together, co-disposal material) from the washing of Project ROM coal will be disposed within the Ellensfield pit at Burton Mine, as originally authorised under the 'Final land use and rehabilitation approval schedule' in Burton Mine's EA, and subsequently under the approved PRCP schedule. Ellensfield pit is a regulated structure under Burton Mine's EA and hence subject to the operational and rehabilitation criteria in the EA for regulated structures. Co-disposal material is pumped from the CHPP to the Ellensfield pit. Residual water in the pit is then pumped back to the CHPP via a return water line for reuse in the coal washing process, which reduces the quantity of imported water required at the CHPP.

Ellensfield pit has an available capacity of approximately 20 million bank cubic meters (Mbcm). The predicted life of mine co-disposal volume from Project ROM coal is 7 Mbcm (based on 12 Mt rejects). The predicted life of mine co-disposal volumes, inclusive of co-disposal from washing of ROM coal from Burton Mine and the Project, is 14 Mbcm. Therefore the approved co-disposal area in Ellensfield pit has surplus capacity of approximately 6 Mbcm to store, manage and rehabilitate all co-disposal material.

Assessments of the geochemistry of reject material in the Project area were undertaken by URS in 2005 (URS, 2005). Four holes were drilled from which 14 coal roof and floor samples that would be indicative of CHPP rejects were analysed. Coal roof and floor samples indicated that 85.7% of the samples tested were NAF (NAPP -85 kg H₂SO₄/t to 34 kg H₂SO₄/t). The pH (1:5) and EC (1:5) ranged from 7.3 to 10.0,

and 171 $\mu\text{S}/\text{cm}$ to 342 $\mu\text{S}/\text{cm}$, respectively. The total sulphur concentration varied from 0.02% to 1.22% with 64.3 % of the coal roof and coal floor samples having a total sulphur concentration equal to or less than 0.1%. Total metal concentrations in potential reject materials were within the health-based investigation levels for soils (NEPC, 1999). Water- extractable dissolved metal concentrations were below the target values identified in Australian livestock drinking water guidelines at the time of assessment (ANZECC and ARMCANX, 2000). The above results indicated that most rejects (57%) materials have low sulphur content ($<0.1\%$). Over 85% of reject samples were classified as NAF. A few samples with elevated sulphur concentrations were from locations in close proximity to coal seams (i.e. coal roof and coal floor samples). Most rejects generated should be relatively benign and will initially generate moderately alkaline and non-saline runoff following surface exposure, noting that rejects will be disposed in the Ellensfield pit at Burton Mine (i.e. no runoff to the external environment). Total sulfur content and buffering capacity of rejects is variable. Most reject will remain alkaline.

Information on geochemistry informs the management of co-disposal within the Ellensfield pit, including the subsequent covering of co-disposal with NAF overburden material, capping with a soil layer, seeding and revegetating. Co-disposal will become part of the rehabilitated landform within the pit area.

Ellensfield pit will remain as the intended location for placement of all co-disposal material as it has sufficient capacity. The utilisation of Ellensfield pit for co-disposal removes the need to construct, operate and decommission a tailings dam to support the Project. In-pit placement of co-disposal is used by many coal mines in Queensland and is considered higher on the DES rehabilitation hierarchy than leaving residual voids and surface reject disposal (DEHP, 2014).

3.10 Mining Infrastructure

3.10.1 Mine Infrastructure Area

The MIA will comprise of an administration, ablution facilities, carpark, heavy vehicle workshop, warehouse, wash bay, tyre change area, tyre storage area and access roads. The Burton Mine MIA may also serve as a location for mine equipment maintenance.

The Project will utilise self-bunded fuel tanks to store fuel and lubricants within the MIA. Lubricants and waste oil will be appropriately stored in close proximity to the workshop facilities. Waste oil and other hydrocarbon products will continue to be managed with a preference for recycling with local contractors. The main fuel usage at the Project will be diesel. Runoff from areas potentially containing hydrocarbons will be treated using an oil-water separator.

The MIA will be serviced by a sewage collection system, which will be serviced by local contractors. Sewage will be collected by an appropriately licensed waste disposal contractor and transported off-site to a licenced waste disposal facility.

3.10.2 Power Supply

Power is required for the MIA and offices, with power to be supplied by diesel generators.

3.10.3 Telecommunications

The Project will use microwave links for external and internal telecommunications. Due to the progressive and mobile nature of the mining operations, microwave communication will be used internally for mine network communications. A digital radio system is used for mine vehicle communications and hand-held radios.

3.11 Water Management System

3.11.1 Overview

The water management system for the Project is described in detail in Chapter 4. This section provides a summary of the information contained in Chapter 4.

For water management system purposes, the water generated at the Project is divided into six types:

- Raw water: sourced external to the mine operations (i.e. from Teviot Dam at Burton Mine).
- Clean water: surface runoff from undisturbed areas.
- Mine affected water: including pit water, processing plant water, groundwater seepage or runoff from areas disturbed by mining activities, and groundwater from dewatering activities.
- Sediment water: rainfall runoff from catchments which discharge through release points associated with erosion and sediment control (ESC) structures.
- Water from the MIA: water potentially contaminated with hydrocarbons or other chemicals (e.g. through run-off from the fuel storage area, that is managed locally at infrastructure areas).
- Potable water: treated water suitable for human consumption (as supplied to Burton Mine accommodation camp).

Proposed water management infrastructure is shown in Figure 3-15 to Figure 3-19 for various stages of development, and includes:

- Mine affected water dams, interconnected via pipelines
- Sediment control dams and sediment drains
- Clean water dam and drains
- Pipeline for transfer of mine affected water to Burton Mine
- A diversion of Ti-Tree Creek
- A levee along the diversion of Ti-Tree Creek, designed to protect the mining areas from the 0.1% annual exceedance probability (AEP) flood event
- A levee along the Isaac River, designed to protect the mining areas from the 0.1% AEP flood event.

Refer to Section 3.12 for a description of the levees and the diversion.

3.11.2 Separation of Water Types

The water management strategy is for separation of mine affected water, sediment affected water and clean water.

Mine affected will be preferentially transferred to Burton Mine or used for dust suppression to minimise the potential for controlled releases from mine water dams. Controlled releases of mine affected water are authorised under the EA, which places limits on the volumes and quality of mine affected water that can be released subject to flows in receiving waters.

A network of sediment drains will divert runoff to the sediment dams. Water captured in sediment dams will be preferentially used for dust suppression.

Clean water will be diverted around disturbed areas. During the early to middle stages of development a small clean water catchment will report to a dam situated behind the Isaac River levee, from where water will be pumped to the environment.

Raw water is supplied to Burton Mine from Teviot Dam. Treated raw water is used at the Burton Mine accommodation camp. Demand for treated raw water at the Project will be limited to ablution facilities. Treated raw water will either be trucked or piped to the Project for use at the ablution facilities.

Potentially contaminated water collected within the MIA will be collected and treated for reuse via an oil and water separator or similar device. All treated contaminated water will be contained and reused within site operations.

3.11.3 Integration with Burton Mine

The mine affected water management system will be integrated with Burton Mine. A pipeline will connect the mine water dam at the Project to the existing mine affected water pipeline network at Burton Mine. Where excess mine affected water is generated at the Project it will be piped to Burton Mine for storage within the voids. Where there is a shortage of water (e.g. for dust suppression) at the Project, it will be pumped from the storages at Burton Mine. Burton Mine has a surplus of water comprising mine affected water in voids and dams, sediment affected water in dams and raw water from Teviot Dam. It is not practical, desirable or effective to have a separate water management system for the Project and Burton Mine, as the overall balance of water supply and demand can be better managed with an integrated system.

3.11.4 Mine Water Dams

Containment of mine affected water is provided by the following proposed storages (see Figure 3-15 to Figure 3-19 and Figure 4-16 to Figure 4-19):

- Transfer Dam
- Pit Dam 1
- Pit Dam 2.

Pit dewatering will be pumped to Pit Dam 1 and Pit Dam 2, where it will then be pumped for storage and use within Transfer Dam. Transfer Dam functions as the primary mine affected water storage for the water management system, as well as capturing potentially mine affected runoff from the MIA and ROM stockpile area.

Transfer Dam will have the ability to pump mine affected water between the Project and Burton Mine, depending on the water supply or containment needs for the Project.

3.11.5 Sediment Dams

The sediment dams have been sized in accordance with the International Erosion Control Association (IECA) method (IECA, 2018), and have been based on the following design standards and methodology

A summary of the conceptual sediment dam capacities and the surface areas (based on average 5 m depth) is provided in Table 3-5. Sediment dams at each Project stage / phase are shown in Figure 3-15 to Figure 3-19 and Figure 4-16 to Figure 4-19.

Table 3-5 Conceptual Sediment Dam Capacities and Surface Areas

Dam name	Max. catchment area (ha)	Settling volume (ML)	Solids storage volume (ML)	Total volume required (ML)	Dam surface area (ha)
SD1	88.8	15.9	7.9	23.8	0.63
SD2	102.7	18.4	9.2	27.6	0.74
SD4	50.1	9.0	4.5	13.4	0.36
SD5	59.9	10.7	5.4	16.1	0.43
SD6	44.9	8.0	4.0	12.1	0.32

Dam name	Max. catchment area (ha)	Settling volume (ML)	Solids storage volume (ML)	Total volume required (ML)	Dam surface area (ha)
SD7	27.7	5.0	2.5	7.4	0.20

3.12 Levees and Diversion

The key components of the Project's flood protection infrastructure are:

- a constructed channel to divert Ti-Tree Creek
- a levee to protect mine operations from flooding of Ti-Tree Creek diversion
- a levee to protect mine operations from Isaac River flooding.

3.12.1 Ti-Tree Creek Diversion and Levee

The following design criteria has been applied to the Ti-Tree Creek diversion and levee:

- 0.1% AEP flood protection for the Project pits in accordance with the DES's requirements in the Manual for assessing consequence categories and hydraulic performance of structures (DES, 2016)
- conveyance of the 1 in 10 (10%) AEP event within the diverted channel
- freeboard of 600 mm
- afflux to be minimised with no resulting constraints to adjacent landowners
- final landform between the permanent diversion and residual void to provide flood immunity for a probable maximum precipitation (PMP) design flood.

A general arrangement drawing for the Ti-Tree Creek diversion and levee, which achieves the above design criteria, is presented in Figure 3-21. The general arrangement is an engineered design that considers topography and modelled flood levels.

The diverted Ti-Tree Creek flows into the Isaac River approximately 4.7 km upstream of the current Ti-Tree Creek and Isaac River confluence. The existing Ti-Tree Creek channel through the Project area has a length of 4.95 km and a fall of 26 m with an average bed grade of 0.52%. The proposed design seeks to maintain a similar bed grade with the channel being 2.8 km with a fall of 18 m resulting in an average bed grade of 0.6%. This design aims to control the flood velocities to mimic the existing channel and subsequent impacts on Ti-Tree Creek and the Isaac River. The channel will have a low flow channel width of 5 m with a base width of 35 m, and batters will be at 1 in 3 with topsoil consisting of grasses and vegetation. Upon completion of mining the Ti-Tree Creek diversion is proposed to remain in its diverted state with final landforms established to protect the residual void from a PMP design flood event. The diversion releases through an engineered structure to control water flows and velocity, into a natural drainage channel of an unnamed tributary approximately 400 m before the Isaac River.

Associated with the diversion, the Ti-Tree Creek flood levee will be constructed to prevent the ingress of water into the pit from flows that exceed the capacity of the Ti-Tree Creek diversion channel. The levee is designed to protect the pit from the 0.1% AEP flood event. In places the natural topography provides the flood immunity for the 0.1% AEP flood event and hence the levee is not continuous. To achieve this immunity and the necessary freeboard, the levee is proposed to be constructed to a height of between 333 and 334 mAHD in the vicinity of the existing Ti-Tree Creek channel. Further east, close to the confluence with the Isaac River, the levee height will range from 325 mAHD to 315 mAHD (0.8 m to 3.6 m high) in line with the adjacent flood surface gradient.

The levee will be a regulated structure and hence will require design, construction and operation in accordance with Schedule I of the EA conditions for regulated structures. The levee will be a fully

engineered structure and will be constructed using compacted clay lifts and top-soiled and grass-covered to minimise the potential for erosion.

The Ti-Tree Creek diversion and levee, and the 0.1% AEP flood event extent, are shown in Figure 3-21 and Figure 3-22.

3.12.2 Isaac River Levee

A levee is required on the Isaac River floodplain. This levee will protect the eastern and southern extent of East Pit from flood ingress from the Isaac River (see Figure 3-21 and Figure 3-22).

The following design criteria have been applied to the Isaac River levee:

- 0.1% AEP flood protection for the pits in accordance with the DES's requirements in the Manual for assessing consequence categories and hydraulic performance of structures (DES, 2016)
- freeboard of 600 mm.

The Isaac River levee will be constructed in stages in the initial 1 to 5 years of mining as East Pit develops and encroaches on the 0.1% AEP floodplain. The Isaac River levee will merge with the Ti-Tree Creek levee. The levee will be a fully engineered structure and will be constructed using compacted clay lifts and topsoiled and grass covered to minimise the potential for erosion.

The levee will be a regulated structure and hence will require design, construction and operation in accordance with Schedule I of the EA conditions for regulated structures.

As mining is progressed in East Pit an overburden dump will be formed between the Isaac River levee and the pit, and will form the final landform structure providing flood immunity during mining and post closure (see Figure 3-19).

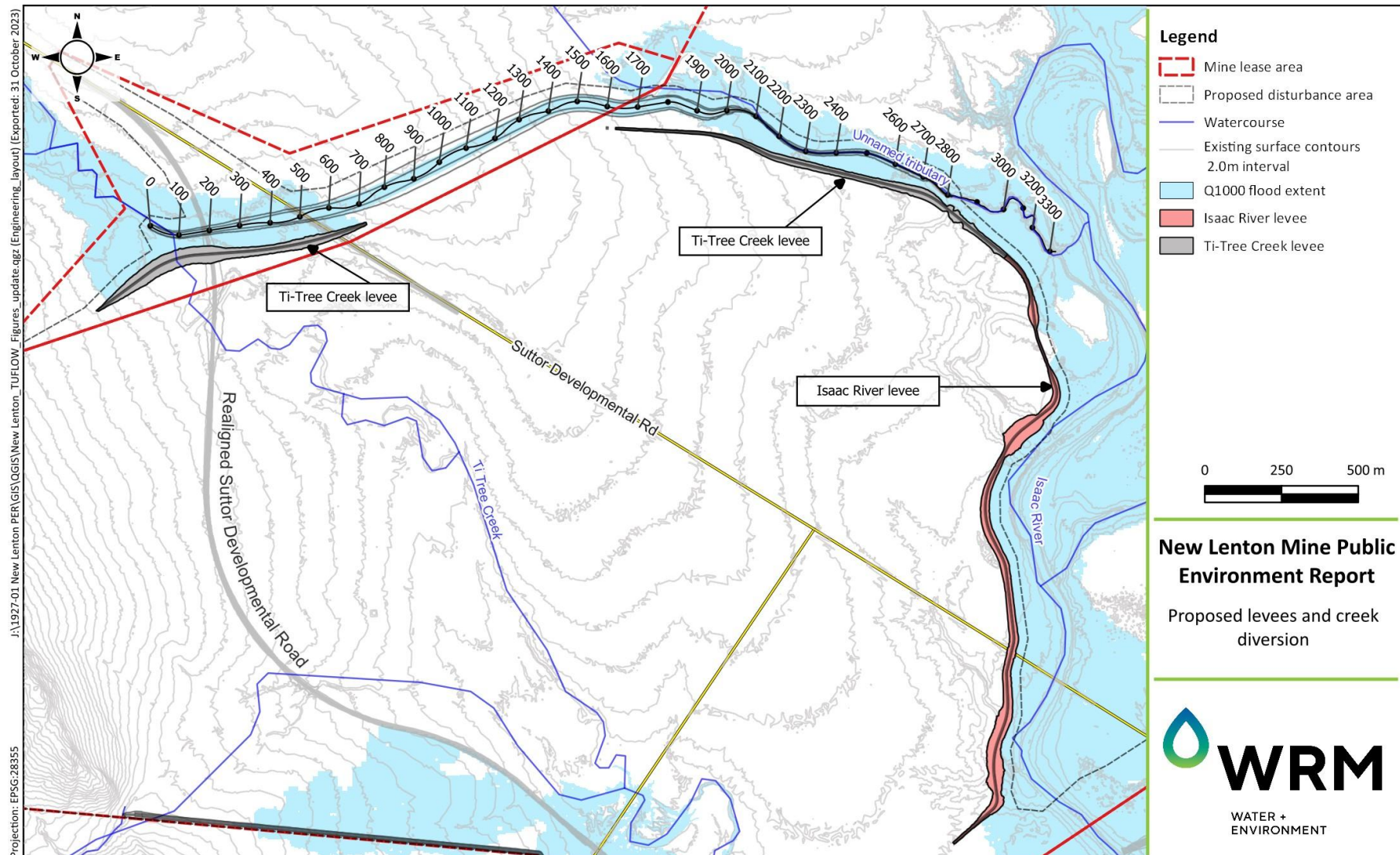
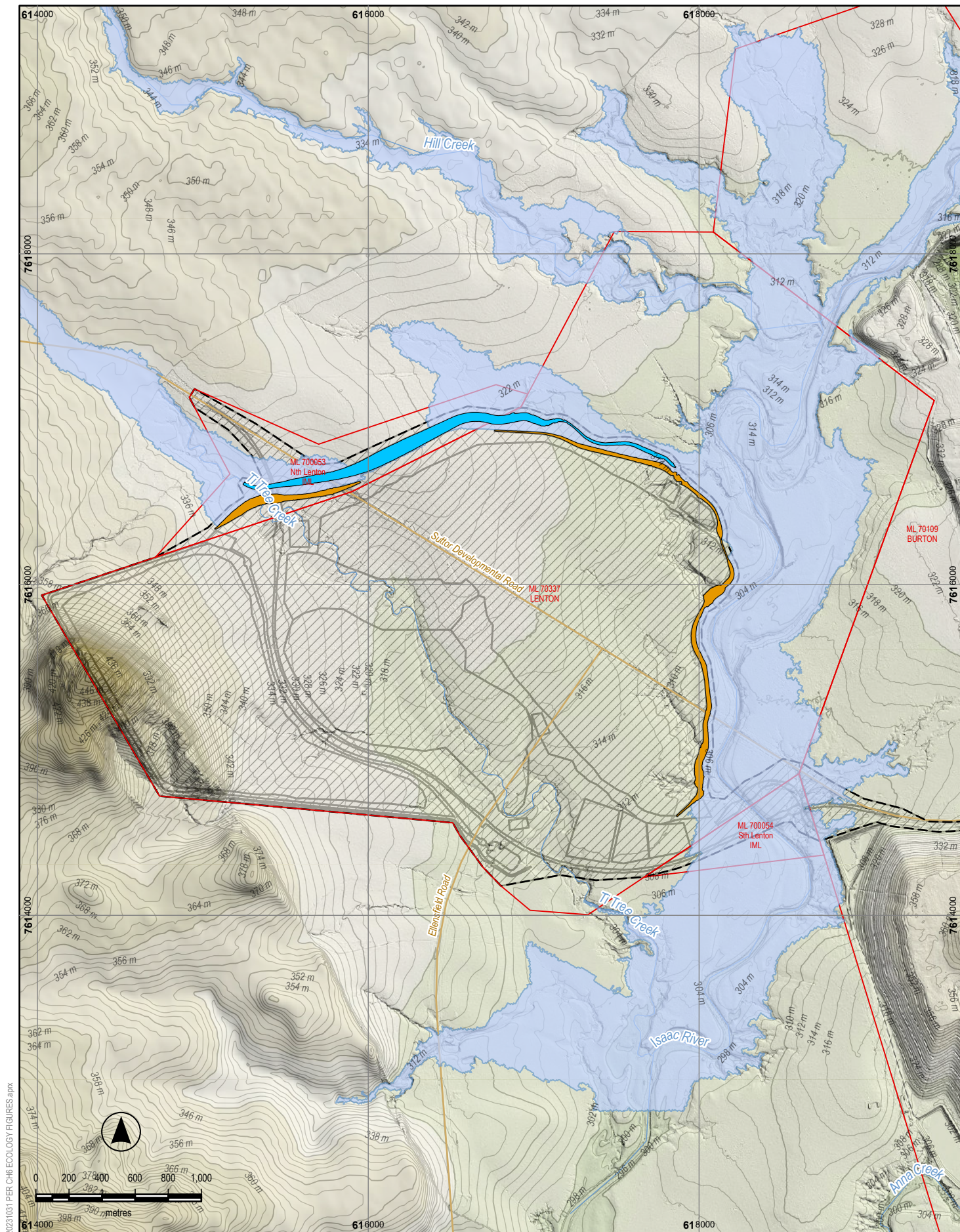


Figure 3-21 Ti-Tree Creel Levee and Diversion – General Arrangement



Datum: MGA94 Zone 55
 Scale: 1 : 22,500 (A4)
 Date: 20/08/2026 4:43 PM
 Drawn: RA (Source: AARC)



DISCLAIMER: Third party data sources are used in this map compilation. Minserve makes no warranty regarding this data's accuracy or currency.

Legend

- Mining Lease
- Roads
- Waterway
- Contour Line, Intermediate
- Contour Line, Major
- Proposed Disturbance Area
- Project Layout
- Operational Levee
- Ti Tree Creek Diversion
- Q1000 Flood (Operations)

NEW LENTON COAL PROJECT Public Environment Report 2026



0.1% AEP Flood Event with Levees
and Ti Tree Creek Diversion

3.13 Transport Infrastructure

3.13.1 Site Access

Access to the Project will be via the Suttor Developmental Road from the west or east. The Suttor Developmental Road provides direct access east to Mackay via the Peak Downs Highway. Whilst access is possible from Ellensfield Road from the south, this road is controlled by a third party, currently not in use and therefore unlikely to provide site access. Internal light and heavy vehicle access roads will connect the Suttor Developmental Road (whether existing or realigned) to the MIA and other infrastructure.

3.13.2 Suttor Developmental Road Realignment

Realignment of the Suttor Developmental Road is required to allow mine pit development in areas where coal reserves are located beneath the existing Road alignment. As pit development is staged, the Suttor Developmental Road realignment can occur in stages over a number of years, allowing for the continued public use of the Road.

Realignment of the Suttor Developmental Road will also result in staged realignments of Ellensfield Road to maintain the connectivity of these roads.

The Suttor Developmental Road realignment includes:

- a new bridge across the Isaac River
- crossing of culverts within the Ti-Tree Creek diversion
- crossing of the Ti-Tree Creek levee.

Whilst the existing Suttor Developmental Road is in use, culverts will be used for the crossing of Ti-Tree Creek diversion.

Road works are required for the construction phase of the Project for the purposes of maintaining public access along Suttor Developmental Road and Ellensfield Road. The impact of the road works on the local community are expected to be minimal.

3.13.3 Haul Roads

Internal haul roads will be used for the transport of overburden between pits areas and the dump areas. Where these haul roads cross the Suttor Developmental Road (existing or realigned), an active traffic management system will be implemented (e.g. dedicated traffic light controls).

ROM coal will be transported along a haul road that connects with existing haul roads at Burton Mine (referred to as the ROM coal haul road). ROM coal will likely be transported in road trains (e.g. 4 road trains with capacity of around 160 t per road train). The ROM coal haul road will also be used by other light and heavy vehicles transiting between Burton Mine and the New Lenton MLs. The Project includes the upgrade or development of the ROM coal haul road on Burton Mine for approximately 1.5 km, until it reaches existing haul roads of a suitable standard for the proposed haulage.

Within the New Lenton MLs the ROM coal haul road crosses the Isaac River and the Suttor Developmental Road realignment. A bed level crossing is proposed for the Isaac River.

The conceptual design for the bridge crossing is to replicate the existing Suttor Developmental Road bridge crossing, as shown in Figure 3-23.

The conceptual design for the bed level includes:

- aligned perpendicular (within approximately 10°) to the water flow
- the level of the crossing will be at or around the low flow level
- rock chutes downstream of the bed level crossing to control erosion caused by overtopping flows

- stream bed scour protection that abuts the surface edge of the crossing at the same level installed at a gradient similar to the natural channel gradient.

A dedicated ROM coal haul road underpass of the Suttor Developmental Road realignment is proposed to avoid interfacing with public vehicles.

Any other crossings of Suttor Developmental Road (existing or realigned) for light or heavy vehicles will be subject to an active traffic management system.



Figure 3-23 *Current Suttor Developmental Road Crossing of the Isaac River*

3.13.4 Product Coal Haulage, Rail and Port

The Project will not result in any changes to Burton Mine’s infrastructure for washing coal, transporting product coal from the CHPP to the TLO, or railing of product coal from the TLO to DBCT.

3.14 Rehabilitation and Decommissioning

DES must approve a progressive rehabilitation and closure plan (PRCP) schedule under the *Environmental Protection Act 1999* (EP Act) prior to Project activities commencing. The PRCP is a comprehensive plan for rehabilitation and closure of the Project in accordance with milestones and completion criteria for each stage of rehabilitation, as approved by DES.

A PRCP and PRCP schedule was submitted to DES in June 2022 in accordance with the requirements of the EP Act and the statutory guideline: Progressive Rehabilitation and Closure Plans (ESR/2019/4964

V2.00) (PRCP Guideline). The PRCP schedule was approved by DES in November 2023, and is provided as **Appendix 5**.

The PRCP includes areas with a post mining land use (PMLU) and non-use management areas (NUMAs) (e.g. a residual void). Rehabilitation milestones apply to areas with a PMLU and management milestones apply to areas with a NUMA. PMLUs must be safe, stable, not cause environmental harm and be able to sustain a post mining land use such as grazing. NUMAs must be safe, structurally stable and minimise the release of contaminants. To ensure NUMA structural stability, the PRCP includes criteria for maximum slope angles for high walls and low walls, geotechnical factors of safety, and a geotechnical factor of safety assessment by a suitably qualified person.

The PRCP schedule consists of the following:

- rehabilitation and management milestones
- milestone criteria
- identification of PMLUs or NUMAs
- when land becomes available for rehabilitation and available for improvement
- rehabilitation areas and improvement areas
- milestone completion dates.

Rehabilitation and closure of the Project's activities will be undertaken in accordance with the approved PRCP schedule. The mining stage plans, including areas of progressive rehabilitation, and the proposed final landform are shown in figures in Section 3.1.

The rehabilitation and decommissioning phase is designed to improve environmental outcomes of the mined landform. Therefore it is not predicted that the rehabilitation and decommissioning phase will result in any additional impacts to MNES to that which are assessed in this PER for construction, operations and the residual landform.

3.15 Workforce

Construction of infrastructure such as the levees and public road realignments will be staged, resulting in a staggered construction workforce over time. Initial construction activities will occur for the MIA, roads, levees, diversion and water management infrastructure. A workforce of approximately 100 people will be required for the initial construction activities with lower numbers expected during subsequent stages of construction.

The Project's operational workforce will comprise a steady state of approximately 150 employees and contractors.

There will be no change to the workforce numbers at Burton Mine as a result of Project activities, as there is no change to the capacity of the CHPP, the volume or manner in which product coal is handled and transported, and the methods and volumes for disposal of rejects and tailings.

The majority of the workforce will drive in-drive out (DIDO) and will be accommodated at the Burton Mine accommodation camp when on roster. The accommodation camp has sufficient capacity for the Project workforce when on roster. Should there be any periods when camp capacity is exceeded (e.g. during a construction stage) then alternative accommodation camps, catering to mining activities, are available in the local area, including at the nearest township of Nebo.

3.16 Project Alternatives

Project alternatives have been considered in terms of location of activities, design of infrastructure and types of activities proposed.

3.16.1 Mining Location

The location of mining is defined by the location, depth and geology of the coal resource. Through extensive exploration, the coal resource has been clearly defined.

However where the coal resource encroaches on the Isaac River the proponent has not sought to divert the Isaac River, affording long term protection to the River's environmental values. The proposed pit shells have been defined by mining tenure, economic, environmental and geological constraints.

3.16.2 Mining Methods

The coal resource in the Project area is suited to open cut mining methods.

Due to complex geology and the relatively small size of the pit shells, the proponent proposes to use the excavators for overburden removal, rather than a dragline.

The mining schedule has been designed to maximise the efficient use of mining equipment and coal recovery, with an overburden dumping schedule designed to align with the preferred rehabilitation options for the final landform. Overburden from the Project will be dumped in-pit, thereby reducing the residual void size, or placed in areas where overburden can achieve the final landform design criteria described in the PRCP schedule.

Coal mining is proposed using conventional open cut methods excavators, dump trucks and dozers. There are no practicable alternatives to the method for coal extraction.

The preferred method for coal haulage between the pit areas and the ROM stockpile at the Burton Mine CHPP is by using road trains, which are the most efficient and economical over the haulage distance. Using mine fleet haul trucks is inefficient over the distances required to haul ROM coal to the Burton Mine.

3.16.3 Resource Sterilisation

The proposed mining method and sequence targets all economic coal within the resource area in the MLs, except where this coal is under the Isaac River and hence will not be mined. There is very limited potential for coal seam gas extraction from the coal seams proposed for mining due to their low gas content. Coal seams at deeper depths in the Project area remain available for coal seam gas extraction, although this resource is not currently targeted by the overlapping coal seam gas tenement holders. The Project will not result in the sterilisation of coal or coal seam gas resources.

3.16.4 Rehabilitation and Decommissioning

Section 3.14 describes the rehabilitation and decommissioning of mining activities. As part of the mine design, that has led to the approved PRCP schedule, the proponent has adopted landform criteria that assist in the achieving the preferred final land use. This includes externally draining dump slopes being reshaped to an overall landform of less than 11.5 degrees (20%).

The mining schedule has been designed to locate the residual void area outside of the 0.1% AEP floodplain of the Isaac River. However the residual void will be within the pre-mining 0.1% AEP floodplain of Ti-Tree Creek. The optimised mine schedule did not allow for a residual void outside of a pre-mining 0.1% AEP floodplain and therefore it was preferable to locate the residual void in the Ti-Tree Creek floodplain. Ti-Tree Creek is significantly smaller than the Isaac River and a final stable landform has been designed to protect the residual void from flooding post closure.

3.16.5 Residual void

The size of the proposed residual void will be reduced through progressive in-pit placement of overburden and rehabilitation of overburden areas (see Figure 3-15 to Figure 3-19 showing staged mine progression and rehabilitation). The PRCP schedule authorises a maximum NUMA (void) size of 52.5 ha, which

represents approximately 6% of the proposed disturbance area. This is a significantly smaller NUMA than might otherwise exist if less backfilling of the pit were to occur. The residual void will be safe, structurally stable and non-polluting.

3.16.6 Ti-Tree Creek Diversion

Various options were considered for the Ti-Tree Creek diversion, including whether mining could occur without diverting the Creek. However, as the Creek runs through West Pit, a diversion was deemed necessary for the Project to be economic. A diversion that followed the realigned Suttor Developmental Road was considered; however the interaction of a public road, levee, diversion and mine pits was deemed overly complicated for operations. A diversion that bisected East Pit and West Pit was considered however this would result in significant operational issues, including limiting available dump room. Other options involved building temporary diversions and associated levees which were then progressively moved until a final post closure permanent alignment was achieved. This option was deemed too complex and costly, without allowing for the ongoing stabilisation and vegetation of a temporary diversion.

The preferred alignment has the following advantages and was therefore the preferred option:

- The diversion alignment can be constructed once, allowing for ongoing remediation and stabilisation.
- The alignment provides a reasonable approximation of the geomorphic properties of the original Creek alignment.
- A long term stable landform can be designed to protect the residual void from flooding.
- The alignment does not sterilise coal resources or affect the operability of mining activities.

3.16.7 Levees

As mining occurs in the 0.1% AEP floodplain of the Isaac River and Ti-Tree Creek, levees are required. Without the levees, the area of resource extraction would be significantly reduced, likely rendering the Project uneconomic. However, the mine schedule allows for overburden to be dumped between the Isaac River and the mine pit; thereby removing the need for a long-term stable levee structure along the Isaac River post closure. Along the Isaac River the levee was sited to provide a buffer zone that is generally greater than 50 m from the Isaac River high bank, with some localised areas approximately 30 m distant.

3.16.8 Infrastructure

The Project utilises existing infrastructure at Burton Mine rather than develop infrastructure specifically for the Project. This provides environmental and economic benefits by reducing the Project footprint and reducing capital expenditure. The existing infrastructure at Burton Mine that will be utilised for the Project includes the CHPP, in-pit rejects and tailings disposal, TLO, internal haul roads, some use of the MIA, and connections to water management infrastructure.

The location of infrastructure required for the Project has been selected to minimise vegetation clearance.

The Suttor Developmental Road realignment follows the available route between pit areas and the western out of pit dump. The realignment has been agreed with TMR and provides the optimal alignment to allow for mining. A bridge was selected for the crossing of the Isaac River to match the current road standard for the crossing.

A bed level crossing for the ROM coal haul road crossing of the Isaac River was selected to avoid unnecessary duplication of bridge structures, provide a basic level of flood immunity (recognising that, at times of higher water levels haulage would not be possible), allow for low flows in the River, and be capable of being decommissioned and fully rehabilitated post mining. The bed level crossing area has been selected in an area with similar crossing lengths and vegetation to other locations.

The water management plan for the Project has been integrated with the approved water management system for Burton Mine, rather than developed as an independent system. This allows for balancing of mine affected water across the Project and Burton Mine, and minimises the potential for uncontrolled releases of mine affected water. **Chapter 4** describes the integrated mine water management system, and demonstrates that the model does not predict uncontrolled releases of mine water. If a standalone mine water management system were proposed for the Project, this would increase the risk of uncontrolled releases of mine water, increase the size and footprint of the Project mine water dams and increase the risk of stoppages to operations. Therefore the preferred option, being an integrated mine water management system, provides environmental and economic benefits.

3.16.9 Accommodation

The accommodation strategy is described in Section 3.15, with accommodation primarily at the Burton Mine camp due to the remote nature of the Project. As there is an existing camp at Burton Mine, with minimal impacts on the surrounding community, other accommodation options were not deemed feasible.

3.16.10 Matters of National Environmental Significance

The controlling provisions for the Project are listed threatened species and communities, and a water resource, in relation to coal seam gas development and large coal mining development. The Project alternatives that have influenced these controlling provisions are:

- Selection of location for infrastructure to minimise impacts on remnant vegetation which is potential habitat for listed threatened species and ecosystems.
- Avoiding impacts on riparian vegetation along the Isaac River through the selection of the levee location.
- No direct impacts on the Isaac River other than linear infrastructure crossings.
- Utilisation of existing infrastructure at Burton Mine, which provides environmental benefits by reducing the need for new infrastructure.
- Incorporation of the levees along the Isaac River and Ti-Tree Creek diversion into mine design to prevent flooding of the active mining pit during operations up to a 1:1,000 year flood event.
- Mine scheduling and design that results in a residual void protected from flooding of the permanent Ti-Tree Creek diversion and Isaac River by a long term stable landform structures.
- Post mining landform design and land use, which influences surface water and groundwater.
- Post mining land use, with the majority returned to grazing land, similar to the pre-mining land use.
- Mine water management system that is integrated with Burton Mine, with controlled releases in accordance with the Project's EA conditions.

3.17 Consequence of Not Proceeding with the Project

There is demand for metallurgical coal products throughout international markets, resulting in the Project being deemed viable. The Project will create approximately 150 full time operational and management jobs in the production of metallurgical coal for export. This will provide employment security and stability, with associated social and economic benefits. Approximately 100 short term construction jobs will also be generated. The Project will provide businesses within the local area and broader Central Queensland region increased goods and services supply opportunities.

The Queensland Government is a significant benefactor from coal mining royalties, with coal the largest export commodity in the State. Additional royalty revenue will flow from the Project throughout the life of mine.

The Project will:

- Mine an additional 30 Mt coal thereby providing economic benefits and associated employment.
- Contribute to the State's economy and provide ongoing employment opportunities.
- Employ approximately 150 people for the duration of operations, with approximately 100 short term construction jobs.
- Provide opportunities for local and regional employment in construction, transport and the supply of goods and services.
- Allow for the ongoing contributions that the Project proponent and its holding company make to the community.
- Provide local and regional community benefits derived from the flow on effect of employment and business confidence generated by the Project.
- Require approximately \$60 million in capital investment to bring it to full production.
- Generate coal sales and exports, with associated revenue benefits for the State and Commonwealth through coal royalties (approximately \$800 million forecast for the Project) and other taxation.
- Provide a continuous and steady level of economic activity in the region, with ongoing opportunities for engagement of local and regional suppliers.
- Capitalise on existing infrastructure and activities located at Burton Mine, and reduce the Project's environmental footprint, by utilising existing:
 - coal processing and railing infrastructure
 - existing mined out pit areas for disposal of rejects and storage of mine affected water
 - water management infrastructure.

The Project is critical to the ongoing ability of the proponent to continue to extract metallurgical (steel making) coal to meet its forecast production volumes.

Should the Project not proceed, the economic and social benefits will not be realised. This PER describes the potential social, economic and environmental impacts of the Project and measures to manage, mitigate and offset those impacts. On balance the socio-economic benefits of the Project outweigh the residual social, economic and environmental impacts of the Project.

3.18 References

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