



ATLAS-CAMPASPE MINERAL SANDS PROJECT OPTIMISATION MODIFICATION

SUBMISSIONS REPORT

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EXECUTIVE SUMMARY

The Atlas-Campaspe Mineral Sands Project (the Project) includes the development of a mineral sands mining operation (herein referred to as the Atlas-Campaspe Mine), together with the construction and operation of a rail loadout facility located near the township of Ivanhoe (herein referred to as the Ivanhoe Rail Facility).

Since the preparation of the Project Environmental Impact Statement, Tronox has undertaken Project optimisation planning in consideration of recent experience at its existing NSW operations. Tronox submitted the Atlas-Campaspe Mineral Sands Project Optimisation Modification (the Modification) Modification Report to the NSW Department of Planning, Industry and Environment (DPIE) on 22 July 2019, which would allow for the implementation of the outcomes of the optimisation planning. Tronox is seeking the Modification under section 4.55(2) of the *Environmental Planning and Assessment Act, 1973*.

The Modification Report was placed on public exhibition by the DPIE from 2 August to 15 August 2019. During this period, Government agencies, non-government organisations, businesses and members of the public were invited to provide submissions on the Modification Report to the DPIE.

Submissions Summary

A total of 14 submissions on the Modification were received, consisting of nine from NSW Government agencies, one from a Commonwealth Government Agency, three from Local Councils and one from a non-Government Organisation. None of the submissions received by Tronox objected to the Modification. The following key issues were raised:

- Potential road transport issues associated with:
 - the proposed use of the light vehicle access routes;
 - fatigue management; and
 - road upgrades and maintenance.
- The location and design of the proposed emergency airstrip.
- The location and design of the proposed telecommunications tower.
- Groundwater monitoring program for the Ivanhoe Rail Facility groundwater supply bore.
- Management of the Aboriginal heritage sites at the Ivanhoe Rail Facility.

Refinement of the Project

Further Project planning undertaken by Tronox (following submission of the Modification Report) has identified an existing/alternative emergency airstrip located in close proximity to the Atlas-Campaspe Mine on Tronox-leased land. Utilisation of the existing emergency airstrip will provide a more cost-effective solution for the Project. Accordingly, the emergency airstrip described in the Modification Report is no longer proposed as part of the Modification.

Tronox is also seeking to modify Conditions 12 and 13, Schedule 2 of Development Consent (SSD_5012) as part of the Modification, which relate to the demarcation of the Project surface development areas. Tronox considers that the intent of these conditions can be met through the implementation of a range of measures that are currently implemented at its other operations in western NSW without implementing the specific requirements outlined in Conditions 12 and 13, Schedule 2 of Development Consent (SSD_5012). Modified Conditions 12 and 13 have been proposed as part of this Submissions Report.

Consultation

Since the lodgement of the Modification Report, Tronox has continued to consult with the Balranald Shire Council in relation to the increased mineral concentrate transport and the proposed use of local roads by Project-related light vehicles to access the Atlas-Campaspe Mine.

Tronox has also continued to consult with the NSW Biodiversity and Conservation Division (within the DPIE) regarding the results of a search of the National Native Title Tribunal, requested by the BCD in their submission.

Further Environmental Assessment

Tronox has undertaken an assessment of the potential visual impacts of the proposed telecommunications tower (requested by the DPIE). The assessment concludes that the proposed telecommunications tower is unlikely to significantly change views of the Project from the identified potentially sensitive viewpoints, and the assessment of potential visual impacts described in the Modification Report (i.e. no significant changes to the approved potential visual impacts are expected) therefore remains unchanged.

Evaluation of Merits

The Modification Report concluded that the Modification is justified on environmental, economic and social grounds. Based on Tronox's consideration of the submissions on the Modification, Tronox considers that the justification provided in the Modification Report remains unchanged.

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1 INTRODUCTION

1.1 BACKGROUND

The Atlas-Campaspe Mineral Sands Project (the Project) includes the development of a mineral sands mining operation (herein referred to as the Atlas-Campaspe Mine), together with the construction and operation of a rail loadout facility located near the township of Ivanhoe (herein referred to as the Ivanhoe Rail Facility).

The Atlas-Campaspe Mine is located approximately 80 kilometres (km) north of Balranald, New South Wales (NSW), and approximately 270 km south-east of Broken Hill, NSW. The Ivanhoe Rail Facility is located approximately 135 km north-east of the Atlas-Campaspe Mine, and is approximately 4.5 km south-west of the township of Ivanhoe. Construction activities at the Atlas-Campaspe Mine commenced in 2018, however Project operations are yet to commence.

The Project will integrate with currently existing/approved Tronox operations in western NSW, including:

- the Broken Hill Mineral Separation Plant (MSP) – located in Broken Hill approximately 270 km north-west of the Atlas-Campaspe Mine;
- Snapper Mine – located approximately 105 km west of the Atlas-Campaspe Mine; and
- Ginkgo Mine – located approximately 100 km west of the Atlas-Campaspe Mine.

The Project operates in accordance with Development Consent (SSD_5012) issued under Part 4 of the NSW *Environmental Planning and Assessment Act, 1979* (EP&A Act) in 2014.

On 22 July 2019, Tronox submitted the Atlas-Campaspe Mineral Sands Project Optimisation Modification (the Modification) Modification Report to the NSW Department of Planning, Industry and Environment (DPIE). The Modification is being sought under section 4.55(2) of the EP&A Act. An overview of the Modification is provided in Section 1.2.

The Modification Report was placed on public exhibition by the DPIE from 2 August to 15 August 2019. During this period, Government agencies, non-government organisations (NGOs), businesses and members of the public were invited to provide submissions on the Modification Report to the DPIE.

The DPIE provided a letter to Tronox dated 27 August 2019 requesting a Submissions Report be prepared for the Modification. Tronox's responses to the submissions received during the public exhibition period are detailed in Section 4.

This Submissions Report has been prepared generally consistent with the draft *Preparing a Submissions Report – Guidance for State Significant Projects* guideline (Department of Planning and Environment, 2017).

1.2 OVERVIEW OF THE EXHIBITED MODIFICATION

Since the preparation of the *Atlas-Campaspe Mineral Sands Project Environmental Impact Statement* (Cristal Mining Australia [CMA], 2013), Tronox has undertaken Project optimisation planning in consideration of recent experience at its existing NSW operations.

A key outcome of the Project optimisation planning was revised mine scheduling for the Atlas deposit, which would increase the maximum mineral concentrate production rate, without increasing the approved ore mining rate. Other changes to optimise Project operations were also identified as part of the Project optimisation planning. The optimisation of the Project would increase its efficiency and economic viability.

The Modification would implement the outcomes of the optimisation planning and would include:

- increased mineral concentrate production from 546,000 tonnes per annum (tpa) to 665,000 tpa;
- increased mineral concentrate transport from 450,000 tpa to 665,000 tpa;
- increased mineral concentrate transport truck trips from 24 per day to 35 per day;
- increased mineral concentrate transport train length (from 600 metres [m] to 920 m) and frequency (from six to eight train movements per week [i.e. four arrivals, four departures]);
- increased MSP process waste disposal from 50,000 tpa to 65,000 tpa;
- the option to use an overland conveyor to transfer overburden in addition to haul trucks;
- the relocation of the Atlas-Campaspe Mine accommodation camp;
- development of an emergency airstrip at the Atlas-Campaspe Mine;
- the option to develop on-site solar power generation infrastructure at the Atlas-Campaspe Mine to supplement diesel generator sets;
- construction and operation of a telecommunications tower at the Atlas-Campaspe Mine;
- extension to the Ivanhoe Rail Facility hardstand area;
- extension of the Ivanhoe Rail Facility rail siding and addition of a passing siding;
- a revised alignment of the Ivanhoe Rail Facility access road and access road intersection;
- a groundwater supply bore for the Ivanhoe Rail Facility; and
- the use of local roads other than the road haulage route by Project-related light vehicles to access site.

The Modification would not change the following components of the Project:

- mine path or mine life;
- mining method;
- mineral concentration methods;
- overburden and ore extraction rate;
- sand residue, coarse reject and process waste placement management;
- annual maximum water supply/demand;
- rehabilitation works;
- biodiversity offset area; or
- workforce.

Table 1 provides a comparative summary of the existing/approved and modified Project.

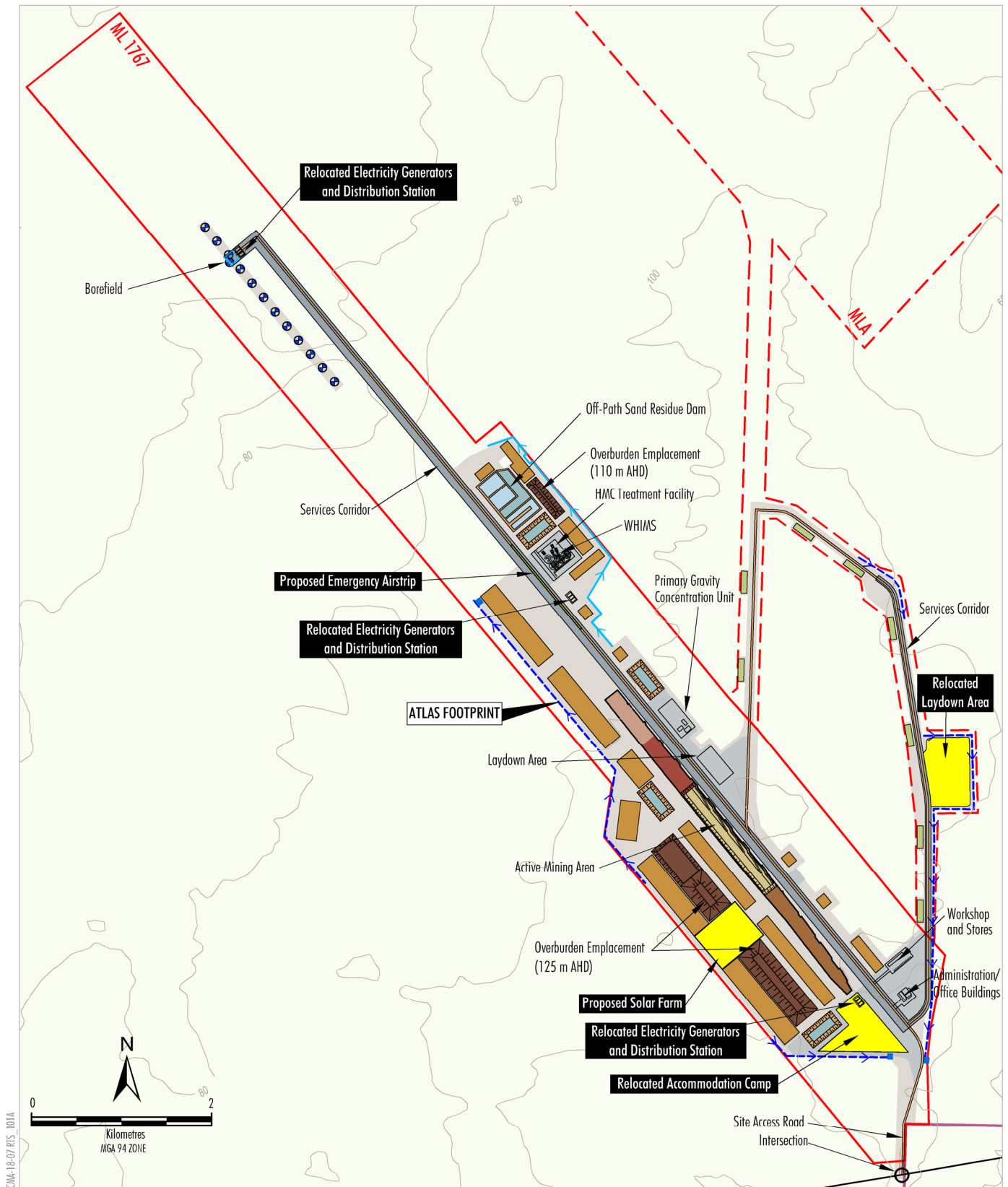
Table 1
Comparison of the Existing/Approved and Modified Project

Project Component	Existing/Approved Project	Modified Project
Atlas-Campaspe Mine		
Project Life	Mining operations until 30 June 2034.	No change.
Tenement	Mining Lease 1767 and Mining Lease Application 1.	No change.
Mining	Dry mining (i.e. dozers and/or loaders and excavators) operation producing approximately 7.2 million tpa of ore.	No change.
Mineral Concentration and Mineral Concentrate Transport	- Ore concentrated in the primary gravity concentration unit (comprising a screen, surge bin and wet concentrator) to produce heavy mineral concentrate. - Heavy mineral concentrate washed in the salt washing facility prior to processing in the wet high intensity magnetic separator circuit to produce ilmenite-rich, leucoxene-rich and non-magnetic (containing rutile-rich and zircon-rich) mineral concentrates. - Mineral concentrate production up to 546,000 tpa. - Mineral concentrate transport up to 450,000 tpa. - Up to 24 Roads and Maritime Services-approved haulage vehicle trips per day.	- No change to mineral concentration methods. - Increase in mineral concentrate production and transport up to 665,000 tpa. - Increase in Roads and Maritime Services -approved haulage vehicle trips up to 35 per day.
Overburden Management	- Overburden removal ahead of ore extraction areas using conventional truck and shovel methods (e.g. excavators and haul trucks). - Overburden replacement, including progressive backfilling of mine voids behind the advancing ore extraction areas or in overburden emplacements adjacent to the mine path using haul trucks.	Option to use an overland conveyor to transfer overburden in addition to haul trucks.
Sand Residue and Coarse Reject Management	Sand residues and coarse rejects placed in either overburden emplacement cells behind the advancing ore extraction area or in off-path sand residue dams.	No change.
MSP Process Waste Management	- MSP process waste placed behind the advancing ore extraction areas at either the Ginkgo Mine, Snapper Mine or Atlas-Campaspe Mine. - MSP process waste production of up to 50,000 tpa.	- No change to MSP process waste management. - Increase in MSP process waste production up to 65,000 tpa.
Water Supply	Water requirements will be supplied by the Atlas-Campaspe Mine borefield.	No change.
Electricity Supply	Electricity supplied by diesel generator sets.	Option to develop on-site solar power generation infrastructure to supplement diesel power generation.
Supporting Infrastructure	Construction of supporting infrastructure within the approved surface development area.	- Relocation of the accommodation camp. - Development of an emergency airstrip. - Construction and operation of a telecommunications tower.
Site Access	Access to the Atlas-Campaspe Mine is via the road haulage route.	The use of other local roads other than the haulage route by Project-related light vehicles to access site.
Employment	- Approximately 300 personnel during peak construction. - Approximately 200 personnel during operations.	No change.
Rehabilitation Works	Progressive rehabilitation undertaken as mining advances.	No change.
Biodiversity Offset Area	Approximately 16,540 hectares will be established to offset native vegetation communities cleared for the Project.	No change.

Table 1 (Continued)
Comparison of the Existing/Approved and Modified Project

Project Component	Existing/Approved Project	Modified Project
<i>Ivanhoe Rail Facility</i>		
Infrastructure	Construction of infrastructure within the approved surface development area, including access road, rail siding, hardstand area, site office, parking, fencing, lighting and water management infrastructure.	- Extension to the hardstand area. - Extension of the rail siding and addition of a passing siding. - Revised alignment of the access road and access road intersection.
Unloading and Stockpiling	Mineral concentrate emptied directly onto a mineral concentrate stockpile for reclaim by a front-end loader to load directly into train wagon containers.	No change.
Train Movements	- Up to three trains per week. - Up to one train trip in any 24-hour period.	- Increase in train frequency to four per week. - No change to number of trains in any 24-hour period.
Water Supply	Waters collected onsite and potable water trucked from the Atlas-Campaspe Mine or the Ivanhoe town water supply.	- Addition of a groundwater supply bore. - No change to the potable water supply.
Electricity Supply and Distribution	Electricity supplied via the local network.	No change.

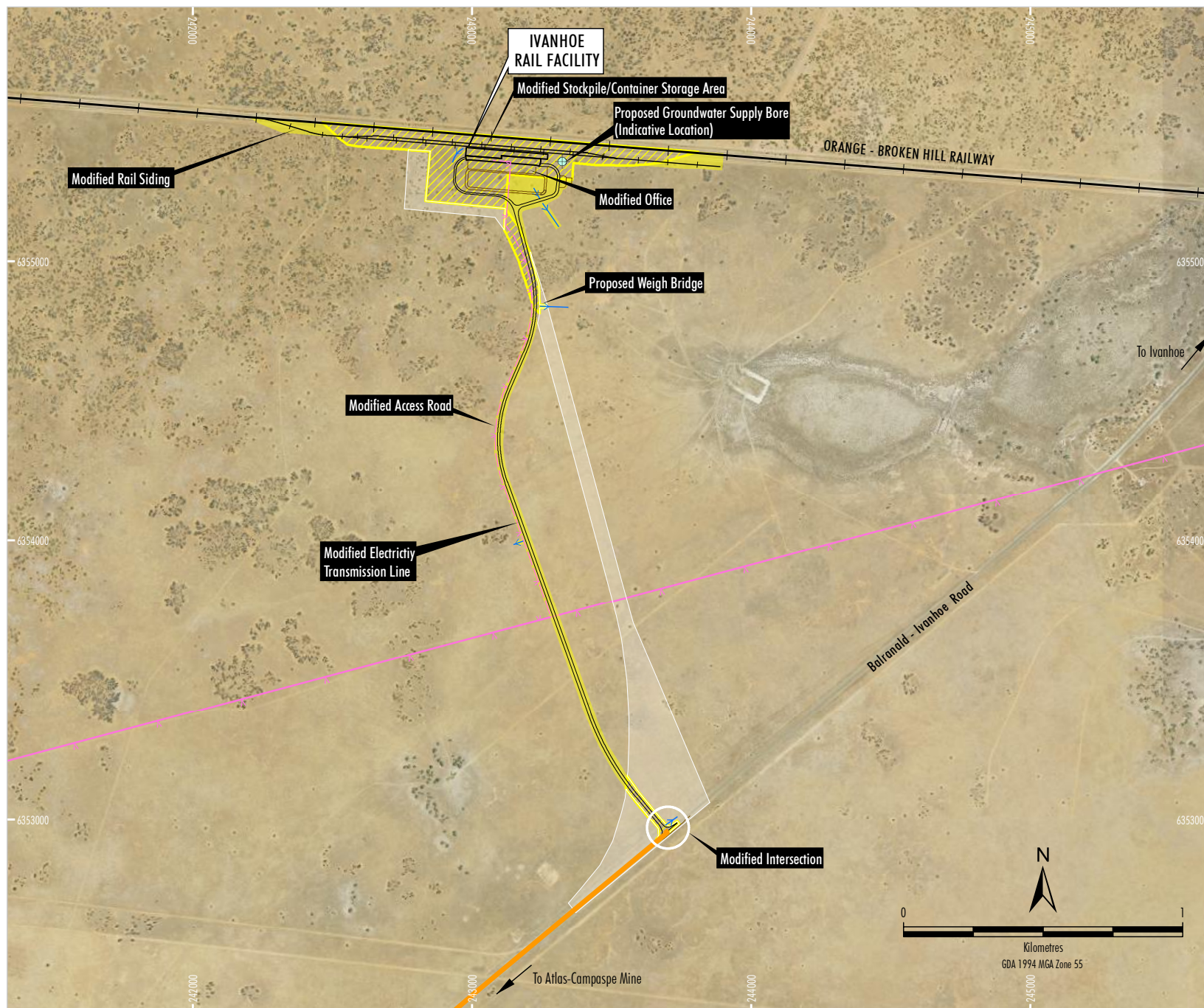
The general arrangement of the modified Atlas-Campaspe Mine and Ivanhoe Rail Facility are shown on Figures 1 and 2, respectively. The proposed light vehicle access routes are shown on Figure 3.



Source: © NSW Department of Finance, Services & Innovation (2018);
Cristal Mining Australia (2012) and Tronox (2019)

TRONOX
OPTIMISATION MODIFICATION
Modified Atlas-Campaspe Mine
General Arrangement - Year 2

Figure 1



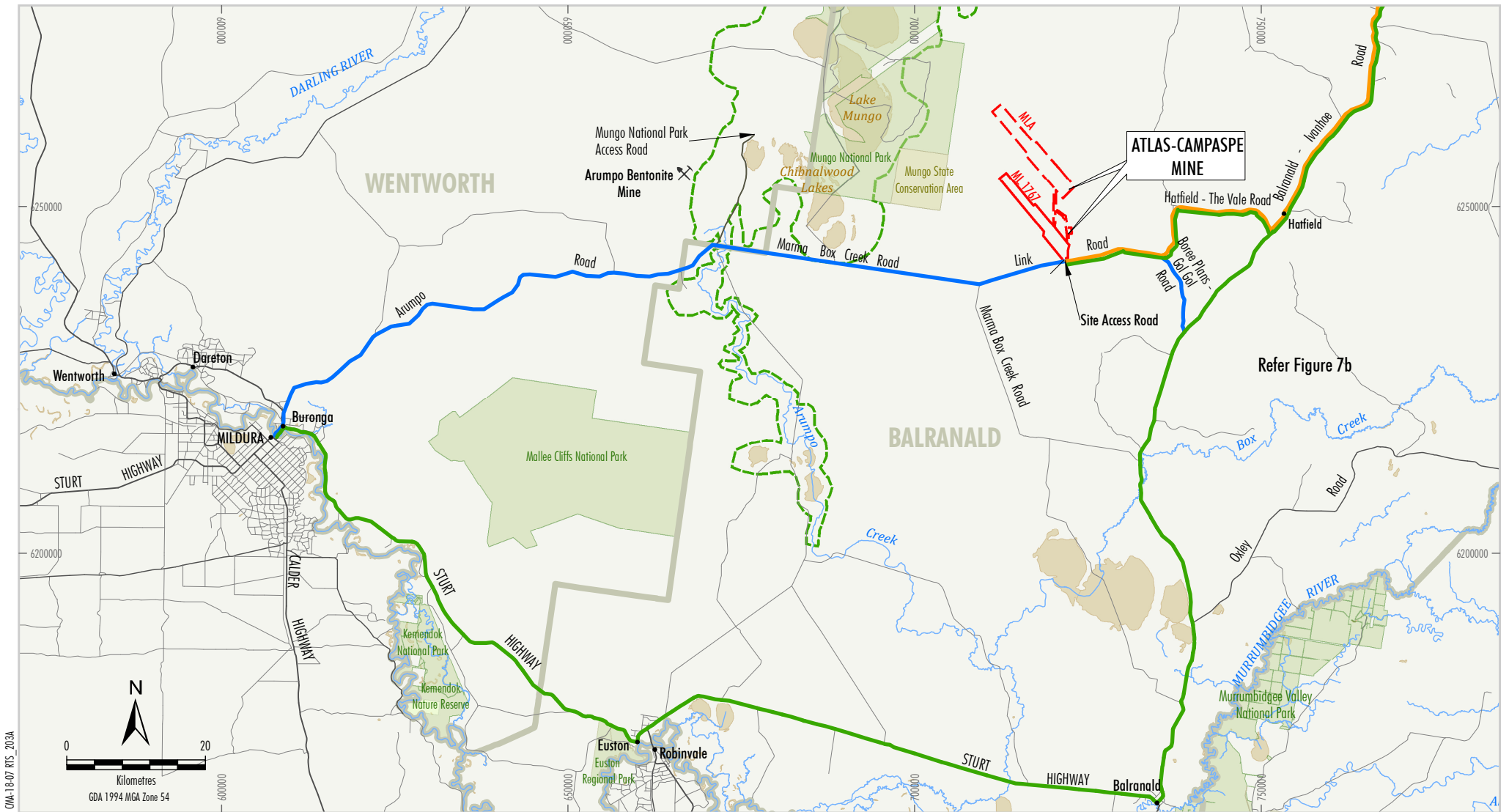
- LEGEND**
- Approved Surface Development Area Required
 - Additional Surface Development Area
 - Approved Surface Development Area not Required
 - Approved Mineral Concentrate Transport Route*
 - Existing Electricity Transmission Line

* MSP Process Waste Transport Route following cessation of operations at the Ginkgo and Snapper Mines

Source: Cristal Mining Australia (2012); Tronox (2019)
 Orthophoto: © NSW Department of Finance, Services & Innovation (2017)

TRONOX
 OPTIMISATION MODIFICATION
 Modified Ivanhoe Rail Facility
 General Arrangement

Figure 2



GMA-18-07 RTS 203A

LEGEND

- Mining Lease Boundary (ML 1767)
- - - Mining Lease Application Boundary (MLA)
- - - Willandra Lakes Region World Heritage Area
- Local Government Area Boundary
- National Park
- Nature Reserve
- Regional Park
- State Conservation Area
- Approved Light Vehicle Access Route
- Approved Mineral Concentrate Transport Route
- Proposed Light Vehicle Access Routes

Source: © NSW Department of Finance, Services & Innovation (2018);
Cristal Mining Australia (2012); Tronox (2019) and TTPP (2019)

TRONOX
OPTIMISATION MODIFICATION
Project Light Vehicle Access Routes

Figure 3

2 ANALYSIS OF SUBMISSIONS

2.1 NUMBER OF SUBMISSIONS

A total of 14 submissions on the Modification were received, consisting of:

- three from Local Councils (namely the Balranald Shire Council [BSC], Central Darling Shire Council [CDSC] and Wentworth Shire Council [WSC]);
- nine from NSW Government agencies, namely:
 - DPIE;
 - Biodiversity and Conservation Division (BCD) within the DPIE;
 - Division of Resources and Geoscience [DRG] within the DPIE;
 - Resources Regulator within the DPIE (Resources Regulator);
 - Water Division within the DPIE (DPIE – Water);
 - Natural Resources Access Regulator (NRAR);
 - Roads and Maritime Services [RMS];
 - Environment Protection Authority [EPA]; and
 - Transport for NSW.
- one from the Commonwealth Civil Aviation Safety Authority [CASA]; and
- one from the Australian Rail Track Corporation (ARTC).

A register characterising each submission (i.e. support, objection or comment) and a reconciliation of the comments provided is provided in Appendix A.

Tronox did not receive any submissions from stakeholder groups or individual community members.

2.2 SUMMARY OF SUBMISSIONS

Local Councils

The BSC provided comments on the Modification, while the CDSC and WSC did not provide any comment or objection to the Modification.

NSW Government Agencies

The DPIE, RMS, BCD, Resources Regulator, DPIE – Water and NRAR provided comments on the Modification. The EPA, DRG and Transport for NSW did not provide any comment or objection to the Modification.

Commonwealth Government Agencies

The CASA provided comments regarding the proposed emergency airstrip at the Atlas-Campaspe Mine.

Non-Government Organisations

The ARTC indicated that it supported the Modification.

2.3 KEY ISSUES RAISED IN SUBMISSIONS

Although no objections to the Modification were received, the following key issues were raised:

- Potential road transport issues associated with:
 - the proposed use of the light vehicle access routes;
 - fatigue management; and
 - road upgrades and maintenance.
- The location and design of the proposed emergency airstrip.
- The location and design of the proposed telecommunications tower.
- Groundwater monitoring program for the Ivanhoe Rail Facility groundwater supply bore.
- Management of the Aboriginal heritage sites at the Ivanhoe Rail Facility.

Tronox's responses to the submissions which included comments are provided in Section 4.

3 ACTIONS TAKEN SINCE EXHIBITION

3.1 REFINEMENT OF THE PROJECT

Emergency Airstrip

Further Project planning undertaken by Tronox (following submission of the Modification Report) has identified an existing/alternative emergency airstrip located in close proximity to the Atlas-Campaspe Mine on Tronox-leased land. Utilisation of the existing emergency airstrip will provide a more cost-effective solution for the Project. Accordingly, the emergency airstrip described in Section 2.1.8 of the Modification Report is no longer proposed as part of the Modification.

A revised/modified Atlas-Campaspe Mine general arrangement excluding the emergency airstrip is provided in Appendix E.

Development Consent Conditions – Development Limits

Conditions 12 and 13, Schedule 2 of Development Consent (SSD_5012) require Tronox to engage a registered surveyor to mark out the boundaries of the approved surface development areas associated with the Project prior to construction, and retain these boundary markings for the life of the Project.

The intent of Conditions 12 and 13, Schedule 2 of Development Consent (SSD_5012) is to minimise the potential for disturbance to occur outside the approved surface development area. Tronox considers that the intent of these conditions can be met through the implementation of a range of measures that are currently implemented at its other operations in western NSW without implementing the specific requirements outlined in Conditions 12 and 13, Schedule 2 of Development Consent (SSD_5012).

Consistent with the approach adopted at Tronox's other operations in western NSW, Tronox would implement the following measures for each planned area of vegetation clearance:

- A Disturbance Permit would be required for all vegetation clearance activities. The Disturbance Permit application process includes confirmation that the proposed vegetation clearance activities are within the approved surface development area.
- The Disturbance Permit would include clear mapping of the vegetation clearance areas and clear instructions would be provided to vegetation clearance contractors.
- The Disturbance Permit vegetation clearance areas would be:
 - clearly delineated with posts, pegs and/or flagging tape prior to vegetation clearing; and
 - loaded into mobile equipment GPS systems to allow the operator to confirm their location relative to the approved surface development area (to supplement to the on-ground markings).
- Vegetation clearance would be conducted in accordance with the Vegetation Clearance Protocol included in the Biodiversity Management Plan (CMA, 2018a).

Given the above, and based on consultation with the DPIE, Tronox proposes to modify Conditions 12 and 13, Schedule 2 of Development Consent (SSD_5012) as part of the Modification as follows:

12. Prior to commencement of each vegetation clearance activity ~~construction~~, unless the Secretary agrees otherwise, the Applicant shall:
 - (a) ~~engage a registered surveyor to mark out the boundaries of the~~ vegetation clearance area in accordance with a site-based Disturbance Permit system ~~development limits) (including surface infrastructure and extraction limits); and~~
 - (b) ~~submit a survey plan of these boundaries with applicable GPS coordinates to the Secretary.~~
13. ~~The Applicant shall ensure that these boundaries are clearly marked for the life of the development.~~
Note: The surface disturbance area is shown in the figures in Appendix 2.

3.2 ENGAGEMENT ACTIVITIES

Since the lodgement of the Modification Report, Tronox has continued to consult with the BSC and BCD regarding the Modification. An overview is provided below.

Balranald Shire Council

Both preceding and following submission of the Modification Report, Tronox has engaged with the BSC in relation to the proposed increase in mineral concentrate transport and use of local roads by Project-related light vehicles to access the Atlas-Campaspe Mine.

As a result of this consultation, the BSC provided a proposed set of conditions in its submission. Tronox's response to the BSC's submission are provided in Section 4.1.

Tronox is continuing to consult with the BSC regarding contributions to the maintenance of the local road routes.

Biodiversity and Conservation Division

The BCD requested that Tronox provide the results of a National Native Title Tribunal (NNTT) search to determine if additional Aboriginal stakeholders or Native Title determination changes are relevant to the Project.

On 27 August 2019 (i.e. following submission of the Modification Report), Tronox provided the BCD the results of a search of the NNTT it conducted in April 2019. The BCD subsequently confirmed its satisfaction that there are no additional Aboriginal stakeholders or Native Title determination changes relevant to the Project. Further detail is provided in Section 4.2. The correspondence with BCD has been provided as Appendix D.

3.3 FURTHER ENVIRONMENTAL ASSESSMENT

The DPIE requested that consideration of the potential visual impacts of the telecommunications tower be included in this Submissions Report. Consideration of potential visual impacts of the telecommunications tower is provided in Section 4.4.

No other stakeholders requested that additional environmental assessment be undertaken for the Modification.

4 RESPONSE TO SUBMISSIONS

Responses to the issues raised by the various stakeholders are provided in the sub-sections below. As described in Section 2.1, Tronox did not receive any submissions from stakeholder groups or individual community members.

The following Local Council and NSW Government agencies provided comment on the Modification in their submissions (Section 2.2):

- BSC;
- RMS;
- BCD;
- DPIE;
- DPIE – Water;
- NRAR;
- Resources Regulator; and
- CASA.

The comments provided by the BSC, RMS, BCD, DPIE, DPIE – Water, NRAR and Resources Regulator have been addressed in the sub-sections below.

As the comments provided by the CASA were wholly related to the previously proposed airstrip (Section 3.1), they have not been considered further.

4.1 ROAD TRANSPORT

The Modification would include increased mineral concentrate transport and the use of local roads by Project-related light vehicles other than the road haulage route to access the Atlas-Campaspe Mine. The BSC and RMS provided comments in relation to the potential road transport impacts of the Modification. These comments, and a response to each have been provided below.

4.1.1 Road Upgrades & Maintenance

Comment 1

The BSC indicated its satisfaction with the existing formula for calculating Tronox's contributions to the maintenance of the road haulage route as prescribed in Appendix 7 of Development Consent (SSD_5012):

$$\text{Applicant's Annual Ongoing Maintenance Contribution (\$)} = \\ \$1.36 \times \text{Dry Tonne} \times (F / \$486,806)$$

It did however recommend that the 2013 dollar values in the formula included in Appendix 7 of Development Consent (SSD_5012) be modified to reflect the indexed 2019 value.

Response 1

Tronox is satisfied with the existing formula for calculating Tronox's contributions to the maintenance of the road haulage route described in Appendix 7 of Development Consent (SSD_5012).

Given Appendix 7 of Development Consent (SSD_5012) already provides for the indexation of the values in accordance with the Consumer Price Index, BSC's recommendation to index the formula to reflect 2019 indexed values appears to be redundant, and therefore Tronox considers that this is not required.

Comment 2

In relation to the proposed use of local roads other than the road haulage route by Project-related light vehicles, the BSC recommended that any modified Development Consent include conditions in relation to:

- Tronox's contributions to any required upgrades of Link Road and Boree Plains – Gol Gol Road to a standard suitable for use by Project-related light vehicles;
- Tronox's contributions to the maintenance of the light vehicle access routes based on the proportion of traffic on these local roads that is Project-related; and
- Tronox's responsibility regarding the closure of Link Road and Boree Plains – Gol Gol Road during severe wet weather at the direction of the BSC.

In addition, the DPIE requested that this Submissions Report include additional information regarding the proposed local road route upgrades.

Response 2

TTPP (2019) conducted a review of the standard of the local road route (including Link Road and Boree Plains-Gol Gol Road) in the Road Transport Assessment (Appendix A of the Modification Report).

TTPP (2019) identified the desirable standard and geometric characteristics for the local road routes based on safety, costs and environmental considerations to be Class 4B (minor) roads under the *Unsealed Road Manual* (ARRB, 2009). The desirable minimum carriageway width and formation width for a Class 4B (minor) road are 9 m and 11m, respectively (TTPP, 2019).

TTPP (2019) concluded that much of the local road route meets the desirable geometric standard for minimum carriageway width and formation width. The carriageway width and formation width of Link Road (between Marma Box Creek Road and the Atlas-Campaspe Mine access road) was however considered to be less than the desirable standard with some sections being 5 m wide. TTPP therefore recommended that this section of road be upgraded accordingly.

TTPP (2019) also recommended that the surface of Boree Plains-Gol Gol Road be sealed for the last 100 m on its approach to its intersection with Balranald-Ivanhoe Road.

These road upgrades would be funded by Tronox and conducted by the BSC subject to separate approvals.

To address the BSC's comment regarding Tronox's contributions to Link Road and Boree Plains – Gol Gol Road upgrades, the following modified Development Consent condition is proposed:

Condition 1A, Schedule 3

- 1A. *By 30 December 2020, unless otherwise agreed with the Secretary, the Applicant shall pay BSC for the road improvements and intersections works detailed in Table 1A to an acceptable standard for light vehicles.*

Table 1A: Road Upgrade Works

<i>Measures</i>	<i>Applicable Roads Authority</i>
<i>Road widening along Link Road (between the Atlas-Campaspe Mine access road and Marma Box Creek Road)</i>	<i>BSC</i>
<i>Seal the surface of Boree Plains-Gol Gol Road for the last 100 m on its approach to its intersection with Balranald-Ivanhoe Road.</i>	<i>BSC, RMS</i>

Note that the proposed modified Condition 1A, Schedule 3 also includes a requirement for Tronox to seal the first 100 m of Boree Plains – Gol Gol Road (from its intersection with Balranald - Ivanhoe Road) to address the RMS recommendation described in Comment 3.

To address the BSC's comment regarding Tronox's contributions the maintenance of the light vehicle access routes, Tronox is continuing to consult with the BSC to address this issue. Tronox will provide the DPIE with an update on the outcomes of this consultation once completed.

Tronox is satisfied with the BSC's comment regarding the closure of Link Road and Boree Plains – Gol Gol Road, and would (at the direction of the BSC) close portions of Link Road and Boree Plains – Gol Gol Road which form part of the road haulage route and light vehicle access route during wet weather as required.

Comment 3

The RMS recommended that the first 100 m of Boree Plains-Gol Gol Road (from its intersection with Balranald-Ivanhoe Road), and the first 100 m of the Ivanhoe Rail Facility access road (from its intersection with Balranald-Ivanhoe Road) be sealed.

Response 3

Tronox is satisfied with the RMS' recommendations, and would seal the first 100 m of Boree Plains - Gol Gol Road (from its intersection with Balranald-Ivanhoe Road), and the first 100 m of the Ivanhoe Rail Facility access road (from its intersection with Balranald-Ivanhoe Road) as part of the modified Project.

To address the RMS' comment in regard to sealing the first 100 m of Boree Plains - Gol Gol Road, proposed modified Development Consent Condition 1A (see Response 2 above) relevantly includes the following measure: *Seal the surface of Boree Plains-Gol Gol Road for the last 100 m on its approach to its intersection with Balranald-Ivanhoe Road.*

To address the RMS's comment in regard to sealing the first 100 m of the Ivanhoe Rail Facility Access Road, the following modification to Condition 1, Schedule 3 of Development Consent (SSD_5012) is proposed:

- 1 *Within 12 months of commencing construction on the site and prior to the haulage of mineral concentrate, unless otherwise agreed with the Secretary, the Applicant shall implement the road upgrade, realignment and intersections works detailed in Table 1 to an acceptable standard for Type 1 Road Trains, to the satisfaction of the applicable roads authority.*

Table 1: Road Upgrade Works

Measures	Applicable Roads Authority
Upgrade existing Balranald-Ivanhoe Road and Hatfield-The Vale Road intersection	RMS, BSC
Road widening and associated drainage works along: - Hatfield-The Vale Road (14.5km section); - Magenta Road (3km section); - Boree Plains-Gol Gol Road (5.5km section); - Link Road (8km section)	BSC
Construction of unsealed two lane road between: - Hatfield-The Vale Road and Boree Plains-Gol Gol Road intersections (2km section); - Magenta Road and Boree Plains-Gol Gol Road intersections (2km section) liaised	BSC
Construction of new intersections at: - Hatfield-The Vale Road and Magenta Road; - Magenta Road and Boree Plains-Gol Gol Road; - Link Road and Atlas-Campaspe site access road	BSC
Construction of a new intersection at Balranald-Ivanhoe Road and Ivanhoe rail facility access road	RMS, CDSC
Seal and undertake drainage works along Magenta Road (2km section)	BSC
<u>Seal the first 100 m of the Ivanhoe Rail Facility access road from its intersection with Balranald-Ivanhoe Road.</u>	<u>RMS, CDSC</u>
High risk safety deficiencies along Balranald-Ivanhoe Road as identified in the Road Safety Audit	BSC, CDSC

Notes:

- Under the Roads Act 1993, the Applicant may require separate approvals from RMS and/or the Councils as the appropriate roads authority prior to construction or closure of public roads.
- For road and intersection upgrades where the RMS is the appropriate roads authority, the Applicant will need to enter into a Works Authorisation Deed prior to commencing works, including the design, construction, alteration, maintenance, demolition and/or removal of these works.
- In the event that there is a dispute between the Applicant and either of the Councils about the implementation of this condition, then either party may refer the matter to the Secretary for resolution.

Comment 4

The RMS recommended that any modified Development Consent include a condition that restricts the use of the local roads to Project-related light vehicles only (i.e. no Project-related heavy vehicles would be permitted to use the local roads).

Response 4

Tronox is satisfied with the RMS' recommendation and proposes the following amendments to Condition 6, Schedule 3 of Development Consent (SSD_5012) to allow Project-related light vehicles to use the light vehicle access routes (Figure 3):

- 6 The Applicant shall ensure that no project-related **light vehicles** (including employees and contractors) uses local roads to access the site, other than those local roads that form part of the haulage route shown in Appendix 3 **and the light vehicle access routes shown in Appendix 11**, except in an emergency to avoid the loss of life, property and/or to prevent environmental harm.

Note: This condition does not apply to any employees that may reside on a local road that does not form part of the haulage route **or light vehicle access routes** (in the vicinity of the development), or the infrequent use of the roads for consultation, environmental monitoring and inspection and maintenance of nearby infrastructure.

To address the RMS' comment in regard to restricting the use of the local roads to Project-related light vehicles only, the following modified Development Consent condition is proposed:

Condition 6A, Schedule 3

- 6A *The Applicant shall ensure that no project-related heavy vehicles (including employees and contractors) use local roads to access the site, other than those local roads that form part of the haulage route shown in Appendix 3, except in an emergency to avoid the loss of life, property and/or to prevent environmental harm.*

4.1.2 Transport Management Plan

Comment 5

The RMS recommended that a management plan addressing fatigue management of workers travelling to and from the Atlas-Campaspe Mine is prepared to the satisfaction of Council and the RMS.

The RMS also recommended that the Transport Management Plan (CMA, 2018b) be updated to include the regular inspection of the proposed light vehicle access routes in consultation with and to the satisfaction of the BSC and WSC.

Response 5

Tronox is satisfied with the RMS' recommendation regarding the preparation of a fatigue management plan. Tronox would update the Transport Management Plan to include a Fatigue Management Plan prepared in consideration of the *Fatigue Management Guide* (NSW Resources Regulator, 2018) (Section 3.2.3 of the Modification Report).

Tronox expects that regular inspection of the proposed light vehicle access routes would be undertaken in accordance with any road maintenance agreements finalised with Councils and considers no change to the Transport Management Plan (CMA, 2018b) is required.

4.2 ABORIGINAL CULTURAL HERITAGE

The Modification would include changes to the approved Ivanhoe Rail Facility surface development area. As described in Section 3.6.2 of the Modification Report, five Aboriginal cultural heritage sites were identified in the modified Ivanhoe Rail Facility surface development area, namely RLF 29, RLF 30, RLF 31, RLF 32 and RLF 33.

The BCD provided a set of recommendations in relation to the Aboriginal heritage sites at the Ivanhoe Rail Facility. Many of these recommendations are consistent with the recommendations of the Aboriginal Cultural Heritage Assessment (ACHA) (Landscape, 2019) undertaken for the Modification and would therefore be implemented as part of the modified Project. Responses to the remaining recommendations have been provided below.

Comment 6

The BCD recommended Tronox complete an Aboriginal Site Impact Recording Form (ASIRF) for each of the artefacts to be collected for storage prior to the commencement of any disturbance activities occurring (i.e. the artefacts associated with Aboriginal heritage sites RLF 29, RLF 30, RLF 31, RLF 32 and RLF 33).

Response 6

As requested by the BCD, Tronox would complete an ASIRF for the artefacts that would be recorded and collected for storage at the approved 'Keeping Place' (i.e. the artefacts associated with sites RLF 29, RLF 30, RLF 31, RLF 32 and RLF 33).

Comment 7

As described in Section 3.2, the BCD recommended that Tronox undertake a search of the NNTT, provide the results of the search to the BCD, and update the Heritage Management Plan (CMA, 2017) with the results of the search.

Response 7

As described in Section 3.2, a search of the NNTT was undertaken by Tronox in April 2019, however the results were not presented in the Modification Report (as noted by the BCD in its submission). The search did not identify any additional Aboriginal stakeholders or Native Title determination changes relevant to the Project.

Tronox provided a copy of the NNTT search results to the BCD on 27 August 2019. No changes to the Heritage Management Plan (CMA, 2017) are considered necessary as no changes to the Aboriginal stakeholders or Native Title determination changes relevant to the Project were identified.

Notwithstanding the above, the Heritage Management Plan (CMA, 2017) would be reviewed and, if necessary, revised by Tronox to include the Modification (subject to any modified Development Consent conditions).

4.3 BIODIVERSITY

The Modification would include changes to the approved Ivanhoe Rail Facility surface development area. The BCD provided a biodiversity related comment in its submission and a response has been provided below.

Comment 8

The BCD recommended that the Biodiversity Management Plan (CMA, 2018a) be reviewed and revised as necessary to incorporate the changes resulting from the Modification.

Response 8

The Biodiversity Management Plan (CMA, 2018a) would be reviewed and, if necessary, revised by Tronox to include the Modification (subject to any modified Development Consent conditions).

4.4 TELECOMMUNICATIONS TOWER

The Modification would include the construction and operation of a telecommunications tower at the Atlas-Campaspe Mine to provide mobile reception to the Project area and surrounds.

Comment 9

The DPIE requested that this Submissions Report include additional information about the proposed telecommunications tower, including the indicative location, height and lighting information.

Response 9

The telecommunications tower would be constructed within the approved surface development area of the Atlas-Campaspe Mine (i.e. no additional surface disturbance would be required). An **indicative** location of the telecommunications tower is provided on Appendix E. The exact location of the tower within the approved surface development area would be determined in consultation with Telstra. The location of the telecommunications tower would be chosen with respect to the location of approved infrastructure and the optimisation of signal strength for the Project area and surrounds.

The height of the telecommunications tower would be up to 55 m.

Comment 10

The DPIE requested that Tronox consider the *State Environmental Planning Policy (Infrastructure) 2007* (Infrastructure SEPP) in relation to the proposed telecommunications tower.

Response 10

The Infrastructure SEPP applies to the whole of NSW and aims to facilitate the effective delivery of infrastructure across NSW.

Clause 115(1) of the Infrastructure SEPP states:

115 Development permitted with consent

- (1) *Development for the purposes of telecommunications facilities, other than development in clause 114 or development that is exempt development under clause 20 or 116, may be carried out by any person with consent on any land.*

The proposed telecommunications tower is not development described in clause 114 (“Development Permitted without Consent”) or clauses 20 and 116 (“Exempt Development”) of the Infrastructure SEPP and therefore requires Development Consent.

Clause 1115(3) of the Infrastructure SEPP provides

- (3) *Before determining a development application for development to which this clause applies, the consent authority must take into consideration any guidelines concerning site selection, design, construction or operating principles for telecommunications facilities that are issued by the Secretary for the purposes of this clause and published in the Gazette.*

The *NSW Telecommunications Facilities Guideline Including Broadband* (Department of Planning, 2012) includes four principles for site selection, design, construction and operation principles for telecommunications facilities. Consideration of how these four principles have been applied to the proposed telecommunications tower is provided in Table 2.

Table 2
Consideration of NSW Telecommunications Facilities Guideline Including Broadband Principles

Principle		Relevance to the Modification
Principle 1: A telecommunications facility is to be designed and sited to minimise visual impact.		
(a)	<i>As far as practical, a telecommunications facility that is to be mounted on an existing building or structure should be integrated with the design and appearance of the building or structure.</i>	N/A – the proposed telecommunications tower would not be mounted on an existing building or structure.
(b)	<i>The visual impact of telecommunications facilities should be minimised, visual clutter is to be reduced particularly on tops of buildings, and their physical dimensions (including support mounts) should be sympathetic to the scale and height of the building to which it is to be attached, and sympathetic to adjacent buildings.</i>	Refer below for consideration of the potential visual impacts for the proposed telecommunications tower.
(c)	<i>Where telecommunications facilities protrude from a building or structure and are predominantly backgrounded against the sky, the facility and their support mounts should be either the same as the prevailing colour of the host building or structure, or a neutral colour such as grey should be used.</i>	N/A – the proposed telecommunications tower would not protrude from a building or structure.
(d)	<i>Ancillary facilities associated with the telecommunications facility should be screened or housed, using the same colour as the prevailing background to reduce its visibility, including the use of existing vegetation where available, or new landscaping where possible and practical.</i>	Refer below for consideration of the potential visual impacts for the proposed telecommunications tower.
(e)	<i>A telecommunications facility should be located and designed to respond appropriately to its rural landscape setting.</i>	Refer below for consideration of the potential visual impacts for the proposed telecommunications tower.
(f)	<i>A telecommunications facility located on, or adjacent to, a State or local heritage item or within a heritage conservation area, should be sited and designed with external colours, finishes and scale sympathetic to those of the heritage item or conservation area.</i>	N/A – the proposed telecommunications tower would not be located on or adjacent to a State or local heritage item or within a heritage conservation area.
(g)	<i>A telecommunications facility should be located so as to minimise or avoid the obstruction of a significant view of a heritage item or place, a landmark, a streetscape, vista or a panorama, whether viewed from public or private land.</i>	Refer below for consideration of the potential visual impacts for the proposed telecommunications tower.
(h)	<i>The relevant local government authority must be consulted where the pruning, lopping, or removal of any tree or other vegetation would contravene a Tree Preservation Order applying to the land or where a permit or development consent is required.</i>	N/A – the proposed telecommunications tower would be located within the approved surface development area. Notwithstanding the above, Tronox has consulted with the BSC regarding the Modification.
(i)	<i>A telecommunications facility that is no longer required is to be removed and the site restored, to a condition that is similar to its condition before the facility was constructed.</i>	In accordance with the rehabilitation objectives in Condition 32, Schedule 3 of the Development Consent, surface infrastructure (including the proposed telecommunications tower) would be decommissioned and removed from the Project site.
(j)	<i>The siting and design of telecommunications facilities should be in accordance with any relevant Industry Design Guides.</i>	The proposed telecommunications tower would be located in consultation with Telstra and in accordance with relevant industry standards.

Table 2 (continued)
Consideration of NSW Telecommunications Facilities Guideline Including Broadband Principles

Principle		Relevance to the Modification
Principle 2: Telecommunications facilities should be co-located wherever practical.		
(a)	Telecommunications lines are to be located, as far as practical, underground or within an existing underground conduit or duct.	N/A – the proposed telecommunication tower is located in a remote area of western NSW and therefore it would not form part of a co-located telecommunications tower.
(b)	Overhead lines, antennas and ancillary telecommunications facilities should, where practical, be co-located or attached to existing structures such as buildings, public utility structures, poles, towers or other radiocommunications equipment to minimise the proliferation of telecommunication facilities and unnecessary clutter.	
(c)	Towers may be extended for the purposes of co-location.	
(d)	The extension of an existing tower must be considered as a practical co-location solution prior to building new towers.	
(e)	If a facility is proposed not to be co-located the proponent must demonstrate that co-location is not practicable.	
(f)	If the development is for a co-location purpose, then any new telecommunications facility must be designed, installed and operated so that the resultant cumulative levels of radio frequency emissions of the co-located telecommunications facilities are within the maximum human exposure levels set out in the Radiation Protection Standard.	N/A – the proposed telecommunication tower is located in a remote area of western NSW and therefore it would not form part of a co-located telecommunications tower.
Principle 3: Health standards for exposure to radio emissions will be met.		
(a)	A telecommunications facility must be designed, installed and operated so that the maximum human exposure levels to radiofrequency emissions comply with Radiation Protection Standard. Refer also to Appendix D.	The proposed telecommunications tower would be designed, installed and operated in consultation with Telstra and in accordance with relevant industry standards including the <i>Industry Code C564:2018 Mobile Phone Base Station Deployment</i> (Communications Alliance Ltd, 2018) and <i>Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields – 3 kHz to 300 GHz</i> (Australian Radiation Protection Nuclear Safety Agency, 2016). Once the detailed design and location of the proposed telecommunications tower has been finalised, an Environmental EME Report would be prepared for the proposed telecommunications tower in accordance with the <i>Industry Code C564:2018 Mobile Phone Base Station Deployment</i> (Communications Alliance Ltd, 2018).
(b)	An EME Environmental Report shall be produced by the proponent of development to which the Mobile Phone Network Code applies in terms of design, siting of facilities and notifications. The Report is to be in the format required by the Australian Radiation Protection Nuclear Safety Agency. It is to show the predicted levels of electromagnetic energy surrounding the development comply with the safety limits imposed by the Australian Communications and Media Authority and the Electromagnetic Radiation Standard, and demonstrate compliance with the Mobile Phone Networks Code.	
Principle 4: Minimise disturbance and risk, and maximise compliance		
(a)	The siting and height of any telecommunications facility must comply with any relevant site and height requirements specified by the <i>Civil Aviation Regulations 1988</i> and the <i>Airports (Protection of Airspace) Regulations 1996</i> of the Commonwealth. It must not penetrate any obstacle limitation surface shown on any relevant Obstacle Limitation Surface Plan that has been prepared by the operator of an aerodrome or airport operating within 30 kilometres of the proposed development and reported to the Civil Aviation Safety Authority Australia.	The proposed telecommunications tower would be located in consultation with Telstra and in accordance with relevant industry standards, <i>Civil Aviation Regulations 1988</i> and the <i>Airports (Protection of Airspace) Regulations 1996</i> .
(b)	The telecommunications facility is not to cause adverse radio frequency interference with any airport, port or Commonwealth Defence navigational or communications equipment, including the Morundah Communication Facility, Riverina.	The proposed telecommunications tower would be designed and operated in consultation with Telstra so as not to cause adverse radio frequency interference airport, port or Commonwealth Defence navigational or communications equipment.
(c)	The telecommunications facility and ancillary facilities are to be carried out in accordance with the applicable specifications (if any) of the manufacturers for the installation of such equipment.	The proposed telecommunications tower would be installed and operated in accordance with manufacturers' specifications.

Table 2 (continued)
Consideration of NSW Telecommunications Facilities Guideline Including Broadband Principles

	Principle	Relevance to the Modification
(d)	<i>The telecommunications facility is not to affect the structural integrity of any building on which it is erected.</i>	N/A – the proposed telecommunications tower would not be erected on an existing building.
(e)	<i>The telecommunications facility is to be erected wholly within the boundaries of a property where the landowner has agreed to the facility being located on the land.</i>	The proposed telecommunications tower would be located in land controlled by the Tronox.
(f)	<i>The carrying out of construction of the telecommunications facilities must be in accordance with all relevant regulations of the Blue Book – ‘Managing Urban Stormwater: Soils and Construction’ (Landcom 2004), or its replacement.</i>	Erosion and sediment control during the construction and operation of the proposed telecommunications tower would be conducted in accordance with the Surface Water Management Plan which considers the requirements of <i>Managing Urban Stormwater: Soils and Construction</i> (Landcom, 2004).
(g)	<i>Obstruction or risks to pedestrians or vehicles caused by the location of the facility, construction activity or materials used in construction are to be mitigated.</i>	N/A – Construction works for the proposed telecommunications tower would be undertaken wholly inside the Project area (i.e. no public access).
(h)	<i>Where practical, work is to be carried out during times that cause minimum disruption to adjoining properties and public access. Hours of work are to be restricted to between 7.00am and 5.00pm, Mondays to Saturdays, with no work on Sundays and public holidays.</i>	Construction works for the proposed telecommunications tower would be undertaken in accordance with the approved Project construction hours (i.e. 24 hours per day, 7 days per week).
(i)	<i>Traffic control measures are to be taken during construction in accordance with Australian Standard AS1742.3-2002 Manual of uniform traffic control devices – Traffic control devices on roads.</i>	N/A – the construction of the proposed telecommunications tower would not require the closure of any public roads.
(j)	<i>Open trenching should be guarded in accordance with Australian Standard Section 93.080 – Road Engineering AS1165 – 1982 – Traffic hazard warning lamps.</i>	N/A – the construction of the proposed telecommunications tower would not require the open trenching of any public roads.
(k)	<i>Disturbance to flora and fauna should be minimised and the land is to be restored to a condition that is similar to its condition before the work was carried out.</i>	Vegetation clearance required for the proposed telecommunication tower would be undertaken in accordance with the vegetation clearance protocol included in the Biodiversity Management Plan.
(l)	<i>The likelihood of impacting on threatened species and communities should be identified in consultation with relevant state or local government authorities and disturbance to identified species and communities avoided wherever possible.</i>	N/A – the proposed telecommunications tower would be located inside the approved Project surface development area. Notwithstanding the above, the management of potential biodiversity impacts would be conducted in accordance with the Biodiversity Management Plan.
(m)	<i>The likelihood of harming an Aboriginal Place and / or Aboriginal object should be identified. Approvals from the Department of Environment, Climate Change and Water (DECCW) must be obtained where impact is likely, or Aboriginal objects are found.</i>	N/A – the proposed telecommunications tower would be located inside the approved Project surface development area. Notwithstanding the above, the management of potential Aboriginal cultural heritage impacts would be conducted in accordance with the Heritage Management Plan.
(n)	<i>Street furniture, paving or other existing facilities removed or damaged during construction should be reinstated (at the telecommunications carrier's expense) to at least the same condition as that which existed prior to the telecommunications facility being installed.</i>	N/A – the proposed telecommunications tower would not require the removal or damage of street furniture, paving or other existing facilities.

Consideration of Potential Visual Impacts Associated with Proposed Telecommunications Tower

There are no townships or settlements located within 5 km of the Atlas-Campaspe Mine, and the setting of the Atlas-Campaspe Mine is characterised by cleared pastoral lands of low scenic quality (CMA, 2013). Notwithstanding, the following locations have been identified as potentially sensitive viewpoints surrounding the Atlas-Campaspe Mine (CMA, 2013):

- Willandra Lakes Region World Heritage Area (including Mungo National Park);
- Mungo National Park;
- Mungo State Conservation Area;
- rural residences; and
- local roads.

A description of the location of these potentially sensitive viewpoints (relative to the Atlas-Campaspe Mine) and their surrounds is provided below.

- The Willandra Lakes Region World Heritage Area is generally characterised by low landforms and topographic depressions at lower elevations than the Atlas-Campaspe Mine (CMA, 2013). Intervening topography and vegetation would be present in views towards the Atlas-Campaspe Mine from key viewpoints at the Willandra Lakes Region World Heritage Area, which are located **more than 10 km from the Atlas-Campaspe Mine**.
- Mungo National Park is located **more than 5 km from the Atlas-Campaspe Mine** and has a lower elevation than much of the Atlas-Campaspe Mine (approximately 80 m AHD). Intervening topography and vegetation would be present in views towards the Atlas-Campaspe Mine.
- The Mungo State Conservation area is located **approximately 8 km from the Atlas-Campaspe Mine**, however is heavily wooded (restricting potential views) and is not readily accessible or routinely accessed by the public.
- The closest privately-owned residence is located **approximately 14 km east of the Atlas-Campaspe Mine**. Intervening topography and vegetation would be present in views towards to the Atlas-Campaspe Mine.
- The closest Local Road to the Atlas-Campaspe Mine (Link Road, Figure 3) provides access to a limited number of rural residences, and is located **more than 5 km south of the Atlas-Campaspe Mine**.

The topography within and adjacent to the Atlas-Campaspe Mine varies from a maximum of 119 m AHD, and a minimum of 59 m AHD (Evans & Peck, 2012). The maximum topographic variation in proximity to the Atlas-Campaspe Mine is therefore approximately 60 m.

Given the distance of the potentially sensitive viewpoints from the Atlas-Campaspe Mine (i.e. greater than 5 km), the presence of intervening topography and vegetation, and the topographic variation within and adjacent to the Atlas-Campaspe Mine (i.e. 60 m), the proposed telecommunications tower is unlikely to significantly change views of the Project from the potentially sensitive viewpoints listed above. The assessment of potential visual impacts described in Section 3.1 of the Modification Report (i.e. no significant changes to the approved potential visual impacts are expected) therefore remains unchanged.

4.5 WATER RESOURCES

The Modification would include the addition of a groundwater supply bore at the Ivanhoe Rail Facility, and changes to the approved surface development area at the Ivanhoe Rail Facility.

The DPIE – Water and NRAR provided water related comments in their combined submission and responses have been provided below.

Comment 11

The DPIE – Water and NRAR provided a comments regarding the Groundwater Management Plan (CMA, 2018d) and Surface Water Management Plan (CMA, 2018c) for the Project.

Response 11

The Groundwater Management Plan (CMA, 2018d) and Surface Water Management Plan (CMA, 2018c) would be reviewed and, if necessary, revised by Tronox to include the Modification (subject to any modified Development Consent conditions).

To address the comments from the DPIE – Water and NRAR, Tronox would undertake the following:

- Update the Surface Water Management Plan (which includes erosion and sediment control measures for the Project) to incorporate the modified Ivanhoe Rail Facility surface development area.
- Revise the Groundwater Management Plan to include quarterly water level and quality (electrical conductivity, pH, standard anions and cations, and metals) at the Ivanhoe Rail Facility groundwater supply bore and at bores GW006769 and GW040560 (subject to land access agreements being finalised the relevant leaseholders).

Comment 12

The DPIE – Water requested that the Modification Report include the relevant Water Access Licence (WAL) number for the Ivanhoe Rail Facility groundwater supply bore.

Response 12

Tronox obtained a zero share component WAL (for subsequent trading of water on the open market) in May 2019 (Reference Number 70AL616600). Tronox has entered into a commercial arrangement with an existing WAL holder to transfer 100 shares in the Lower Lachlan Alluvium Groundwater Source to Tronox's zero share WAL.

4.6 MINING OPERATIONS PLAN

The Modification would include additional infrastructure and changes to approved infrastructure at the Atlas-Campaspe Mine (Section 1.2 of the Modification Report).

Comment 13

The Resources Regulator indicated that the currently approved MOP, namely the *Atlas Mineral Sands Mine Mining Operation Plan – Clearing and Construction 2018 – 2020* (CMA, 2018e), would need to be updated prior to any Modification-related construction activities occurring at the Atlas-Campaspe Mine, including the preparation of a new Rehabilitation Cost Estimate (RCE).

Response 13

Tronox would update the MOP to include all relevant aspects of the Modification prior to any Modification-related construction activities occurring at the Atlas-Campaspe Mine. This would include the preparation of a new RCE to reflect the proposed changes to the Atlas-Campaspe Mine.

5 UPDATED EVALUATION OF MERITS

The Modification Report concluded that the Modification is justified on environmental, economic and social grounds.

Based on Tronox's consideration of the submissions on the Modification, Tronox considers that the justification provided in the Modification Report remains unchanged.

6 REFERENCES

ARRB (2009) *Unsealed Road Manual*.

Australian Radiation Protection Nuclear Safety Agency (2016) *Radiation Protection Standard for Maximum Exposure Levels to Radiofrequency Fields – 3 kHz to 300 GHz*.

Communications Alliance Ltd (2018) *Industry Code C564:2018 Mobile Phone Base Station Deployment*.

Cristal Mining Australia (2013) *Atlas-Campaspe Mineral Sands Project Environmental Impact Statement*.

Cristal Mining Australia (2017) *Atlas-Campaspe Mineral Sands Project Heritage Management Plan*. August 2017. Prepared by Landskape.

Cristal Mining Australia (2018a) *Atlas-Campaspe Mineral Sands Project Biodiversity Management Plan*. March 2018.

Cristal Mining Australia (2018b) *Atlas-Campaspe Mineral Sands Project Transport Management Plan (Construction Phase)*. August 2018.

Cristal Mining Australia (2018c) *Atlas-Campaspe Mineral Sands Project Surface Water Management Plan*. March 2018.

Cristal Mining Australia (2018d) *Atlas-Campaspe Mineral Sands Project Groundwater Management Plan*. August 2018.

Cristal Mining Australia (2018e) *Atlas-Campaspe Mineral Sands Mine Mining Operation Plan – Clearing and Construction 2018 - 2020*.

Department of Planning (2012) *NSW Telecommunications Facilities Guideline Including Broadband*.

Department of Planning and Environment (2017) *Preparing a Submissions Report – Guidance for State Significant Projects*. Draft report.

Evans & Peck (2012) *Atlas-Campaspe Mineral Sands Project Surface Water Assessment*.

Landcom (2004) *Managing Urban Stormwater: Soils and Construction*.

Landskape (2019) *Atlas-Campaspe Mineral Sands Project Optimisation Modification Aboriginal Cultural Heritage Assessment*. Report to Tronox Mining Australia Limited.

NSW Resources Regulator (2018) *Fatigue management Guidance for the NSW mining and petroleum industries*.

APPENDIX A
SUBMISSIONS SUMMARY

Submitter	Group	View	Submission Format	Submission Topic/s Addressed						
				Aboriginal Heritage	Biodiversity	Road Transport	Emergency Airstrip	Telecom Tower	Water Resources	Mining Operations Plan
NSW Government Agencies										
Department of Planning, Industry and Environment (DPIE)	Government	Comment	Email					X		
Biodiversity and Conservation Division within the DPIE	Government	Comment	Letter	X	X					
Division of Resources and Geoscience within the DPIE	Government	-	Letter	No comments provided.						
Water Division within the DPIE	Government	Comment	Letter						X	
Natural Resources Access Regulator	Government	Comment	Letter						X	
Resources Regulator within the DPIE	Government	Comment	Letter							X
Roads and Maritime Services	Government	Comment	Letter			X				
Environment Protection Authority	Government	-	Letter	No comments provided.						
Transport for NSW	Government	-	Letter	No comments provided.						
Commonwealth Government Agencies										
Australian Government Civil Aviation Safety Authority	Government	Comment	Letter				X			
Local Councils										
Balranald Shire Council	Government	Comment	Letter			X				
Central Darling Shire Council	Government	-	Email	No comments provided.						
Wentworth Shire Council	Government	-	Email	No comments provided.						
Non-Government Organisations										
Australia Rail Track Corporation	NGO	Support	Letter	No comments provided.						
Total				1	1	2	1	1	2	1

APPENDIX B
REGISTER OF SUBMITTERS

Group	Name	Section Issues Addressed
NSW Government Agencies	Department of Planning, Industry and Environment (DPIE)	4.4
	Biodiversity and Conservation Division within the DPIE	4.3, 4.4
	Division of Resources and Geoscience within the DPIE	N/A
	Water Division within the DPIE	4.5
	Natural Resources Access Regulator	4.5
	Resources Regulator within the DPIE	4.6
	Roads and Maritime Services	4.1
	Environment Protection Authority	N/A
	Transport for NSW	N/A
Commonwealth Government Agencies	Civil Aviation Safety Authority	N/A
Local Councils	Balranald Shire Council	4.1
	Central Darling Shire Council	N/A
	Wentworth Shire Council	N/A
NGO's	Australia Rail Track Corporation	N/A

APPENDIX C

UPDATED MITIGATION MEASURES

As described in Section 4 of the Main Report, additional mitigation measures are proposed for the Modification in response to the comments received by Tronox on the Modification Report. These have been summarised below.

Road Upgrades, Maintenance and Safety

- Tronox would seal the first 100 m of Boree Plains-Gol Gol Road and the first 100 m of the Ivanhoe Rail Facility access road (from their intersections with Balranald-Ivanhoe Road).
- Tronox would pay the Balranald Shire Council annual contributions for the maintenance of local roads along the light vehicle access routes based on the proportional use of the local roads by Project-related light vehicles and in accordance with an agreement with the BSC.
- Tronox would close portions of Link Road and Boree Plains – Gol Gol Road which form part of the road haulage route and light vehicle access route during wet weather as required.
- Tronox would update the Transport Management Plan to include a revised Fatigue Management Plan in consideration of the NSW Resources Regulator Fatigue Management Guideline.

APPENDIX D

CORRESPONDENCE WITH THE BIODIVERSITY AND
CONSERVATION DIVISION

From: Andrew Fisher **On Behalf Of** ROG South West Region Mailbox
Sent: Tuesday, 27 August 2019 11:14 AM
To: Haakon Nielssen
Cc: Lucas Burns; Lyndon Patterson
Subject: RE: Atlas-Campaspe Optimisation Modification - National Native Title Tribunal Search

Haakon,

Thanks for supplying this. The Department is satisfied there are no native title claims or determinations (holders) in the area of the mine or modification assessment.

Regards,
Andrew

Andrew Fisher
Senior Team Leader, Planning – South West

Biodiversity and Conservation | Department of Planning, Industry and Environment
T 02 6022 0623

512 Dean St, Albury, NSW 2640

www.dpie.nsw.gov.au

Contact the South West Planning Team about biodiversity and Aboriginal cultural heritage planning and regulation matters by emailing rog.southwest@environment.nsw.gov.au.



The Department of Planning, Industry and Environment acknowledges that it stands on Aboriginal land. We acknowledge the traditional custodians of the land and we show our respect for elders past, present and emerging through thoughtful and collaborative approaches to our work, seeking to demonstrate our ongoing commitment to providing places in which Aboriginal people are included socially, culturally and economically.

From: Haakon Nielssen
Sent: Tuesday, 27 August 2019 9:26 AM
To: Andrew Fisher
Cc: ROG South West Region Mailbox; Lucas Burns
Subject: FW: Atlas-Campaspe Optimisation Modification - National Native Title Tribunal Search

Dear Andrew,

Thank you for the NSW Biodiversity and Conservation Divisions (BCD) submission on the Atlas-Campaspe Optimisation Modification (dated 15 August 2019).

In the submission, the BCD request Tronox undertake a search of the National Native Title Tribunal (NNTT) to determine if any additional Aboriginal Stakeholders or Native Title determination changes are relevant to the Modification. We also note that the former Office of Environment and Heritage (OEH) requested this search be undertaken in correspondence to Tronox dated 3 April 2019.

A search of the NNTT was completed by Tronox subsequent to the request dated 3 April 2019, however it was not presented in the Modification Report (as noted by the BCD in its submission).

Accordingly, please find attached the search results of the NNTT undertaken by Tronox in April 2019. Note that the search did not identify any additional Aboriginal stakeholders relevant to the Project, or changes to any Native Title determinations or applications within the Project area.

The results of this search will also be included in the Submissions Report currently being prepared by Tronox.

Please don't hesitate to call if you have any queries.

Regards,

Haakon Nielssen
Manager Environment
AUS – Murray Basin
Tronox Holdings plc



From: Andrew Fisher
Sent: Wednesday, 3 April 2019 2:46 PM
To: Haakon Nielssen
Cc: John Gilding
Subject: RE: Atlas-Campaspe Mineral Sands Project Optimisation Modification - Aboriginal Cultural Heritage Assessment (OEH Notification) - NNTT

This is an external email. If you see this email as suspicious, please send it as attachment (hit Ctrl+Alt+F) to spam@cristal.com.

Hi Haakon,

Further to you notifying OEH that Cristal Mining is continuing consultation with the Registered Aboriginal Parties in relation to the Atlas-Campaspe Mineral Sands Project Optimisation Modification, we undertook to provide you with details of the National Native Title Tribunal.

Maps to check for native title determinations or recent applications can be found here:
<http://www.nntt.gov.au/assistance/Geospatial/Pages/Maps.aspx>

While RAPs have already been established under the original SEARs, OEH advises that a current search of the search of the NNTT should be done just in case there are any additional stakeholders or a change of determinations/applications.

Regards,
Andrew

Contact the Office of Environment and Heritage (OEH) South West Planning Team about biodiversity and Aboriginal cultural heritage planning and regulation matters by emailing rog.southwest@environment.nsw.gov.au.

From: John Gilding

Sent: Friday, 29 March 2019 1:46 PM

To: Haakon Nielssen; ROG South West Region Mailbox <rog.southwest@environment.nsw.gov.au>

Subject: RE: Atlas-Campaspe Mineral Sands Project Optimisation Modification - Aboriginal Cultural Heritage Assessment (OEH Notification)

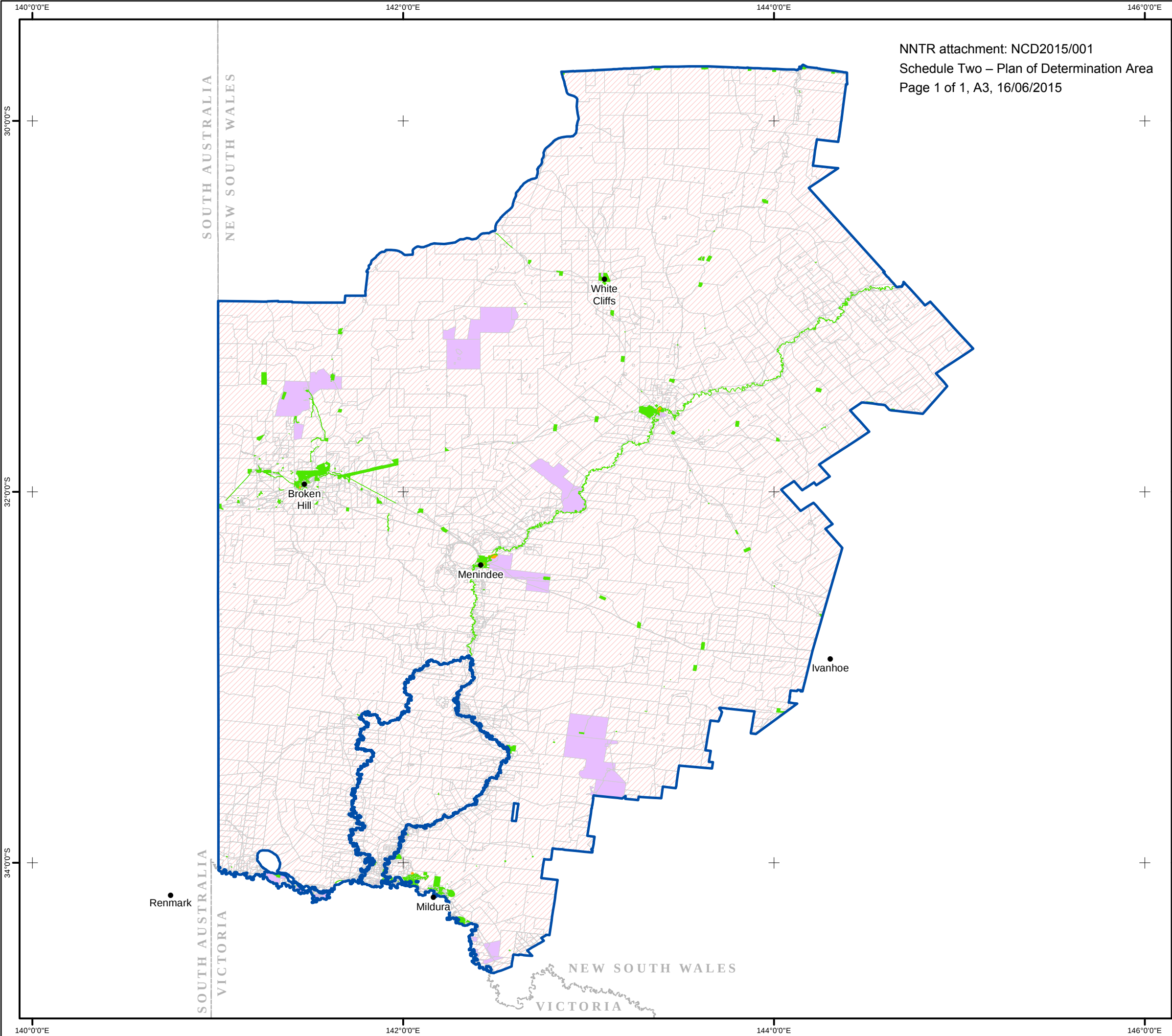
Hi Haakon,

Thanks for sending this through. OEH acknowledges that you are continuing consultation with the Registered Aboriginal Parties as per those identified in the Secretaries EARs.

Cheers

JG

RESULTS OF NATIONAL NATIVE TITLE TRIBUNAL SEARCH



NNTR attachment: NCD2015/001
Schedule Two – Plan of Determination Area
Page 1 of 1, A3, 16/06/2015



National
Native Title
Tribunal

Native Title Determination

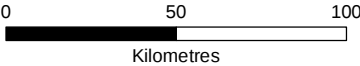
**NSD6084/1998 Barkandji Traditional
Owners #8 (NC1997/032)**

Legend

NSD6084/1998 Barkandji Traditional Owners
#8 (NC1997/032)

Outcome

- Excluded Area
- Exclusive Area
- Extinguished Area
- Non-Exclusive Area

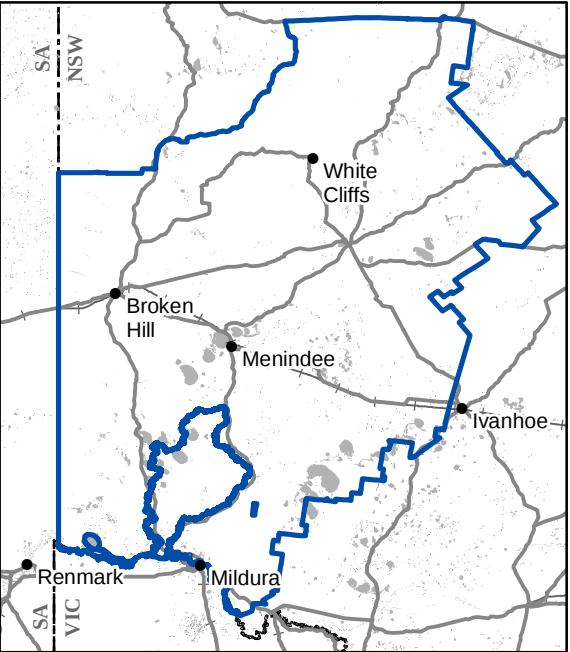


Geocentric Datum of Australia 1994

Prepared by:
Geospatial Services, National Native Title Tribunal
04/06/2015

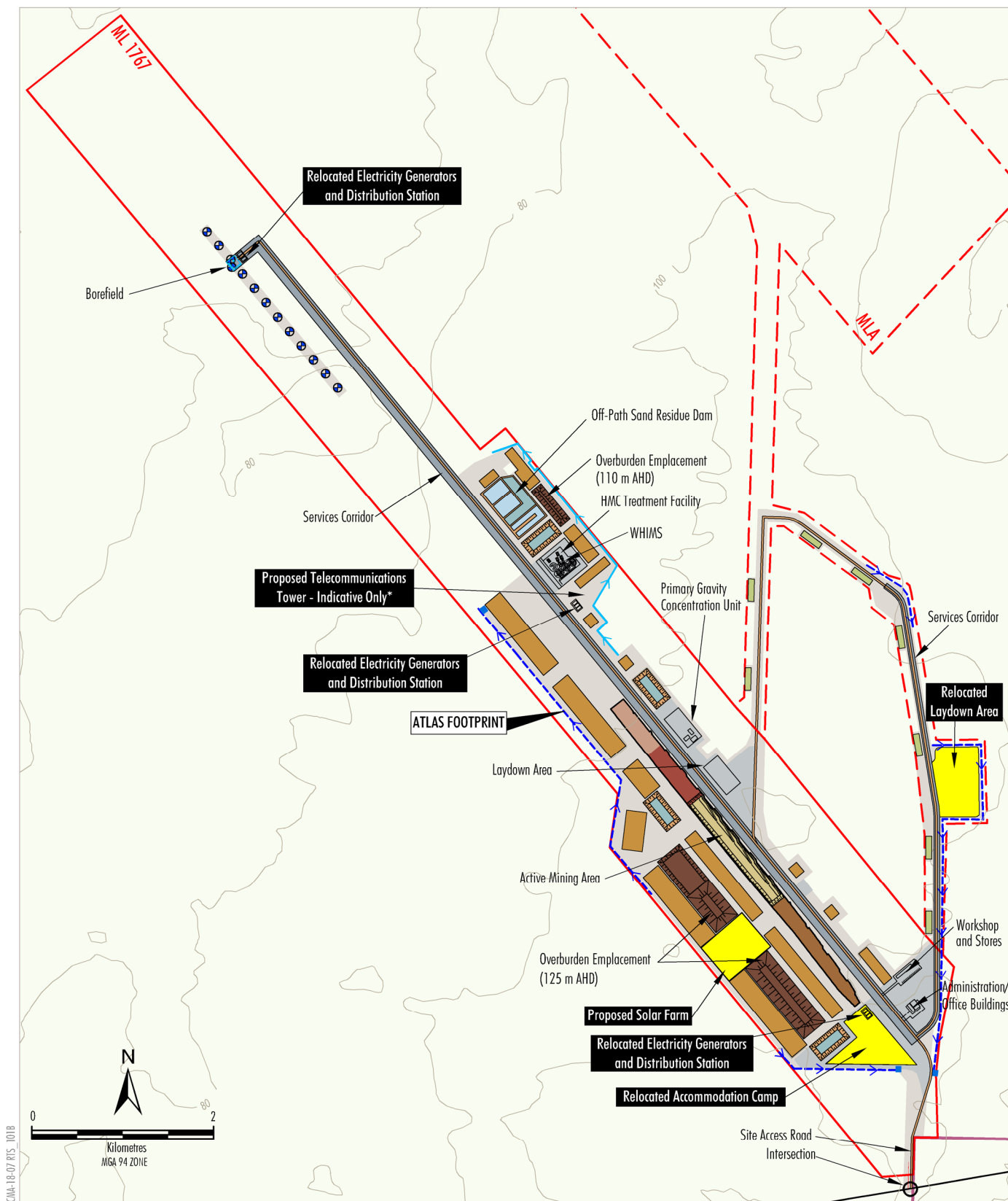
Data Sources:
Application boundary compiled by National Native Title Tribunal based on information or instructions provided by the applicants. Data source, Land tenure and roads data sourced from NSW Trade & Investment, 2014 & 2015. Determination area compiled by National Native Title Tribunal based on information or instruction provided by NTSCORP/ The State of NSW.

© Commonwealth of Australia 2015
The Registrar, the National Native Title Tribunal and its staff, members and agents and the Commonwealth (collectively the Commonwealth) accept no liability and give no undertakings guarantees or warranties concerning the accuracy, completeness or fitness for purpose of the information provided. In return for you receiving this information you agree to release and indemnify the Commonwealth and third party data suppliers in respect of all claims, expenses, losses, damages and costs arising directly or indirectly from your use of the information and the use of the information you obtained by any third party.

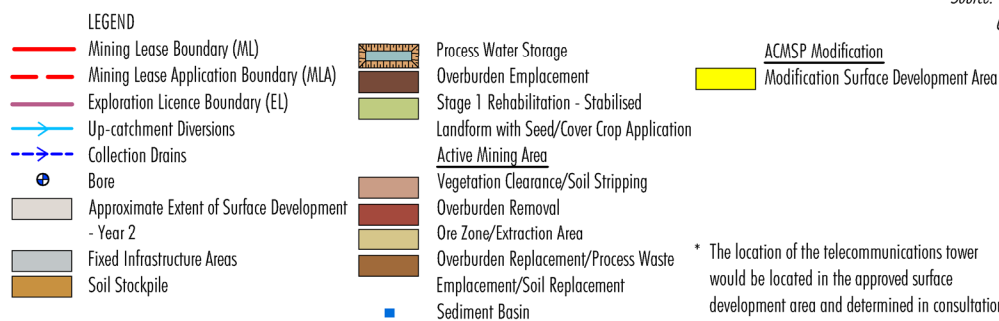


APPENDIX E

REVISED ATLAS-CAMPASPE MINE GENERAL ARRANGEMENT



Source: © NSW Department of Finance, Services & Innovation (2018);
Cristal Mining Australia (2012) and Tronox (2019)



* The location of the telecommunications tower would be located in the approved surface development area and determined in consultation with Telstra.

TRONOX
OPTIMISATION MODIFICATION
Modified Atlas-Campaspe Mine
General Arrangement - Year 2

Figure 1