RUTILA
RESOURCES

BALLA BALLA INFRASTRUCTURE – RAIL AND CONVEYOR PROJECT

ASSESSMENT ON PROPONENT INFORMATION – SUPPLEMENTARY INFORMATION DOCUMENT

Date: 9 December 2014

BBIRA-RAL-EN-RPT- 2500

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Photo on front page titled "Balla Balla Train Pulling Copper Ore in Sacks – C1901-1910" obtained from Battye Library Perth

EXECUTIVE SUMMARY

Forge Resources Swan Pty Ltd (Forge) obtained Ministerial approval for the development of the Balla Balla Infrastructure Port (BBIP) on 21 August 2013 (Ministerial Statement 945 (MS 945)). Forge is a 100% owned subsidiary of ASX listed Rutila Resources Ltd (Rutila). Rutila is the joint venture (JV) partner with Todd Corporation Ltd in the Balla Balla JV, whereby Forge is the assigned Manager.

The BBIP is located on the Pilbara coastline, approximately 100 kilometres (km) east of Anketell Point and 120 km south-west of Port Hedland in Western Australia (WA). The BBIP was originally proposed to allow the export of ore from Rutila's Balla Balla Infrastructure Mine (MS 794), however recent studies have identified that there is additional port capacity available for use by third parties. The Pilbara Iron Ore Project (PIOP) (MS 924) operated by Flinders Mines Ltd (Flinders) will be the BBIP foundation customer.

To allow this to occur, an approximate 200 km combination of railway and overland conveyor will be constructed to connect the BBIP with the PIOP in the central Pilbara region. This railway and conveyor ore transport infrastructure is referred to as the Balla Balla Infrastructure – Rail and Conveyor Project (the Proposal), and combined with the BBIP, form the Balla Balla Infrastructure Project.

Table ES 1 provides a short summary of the Proposal that is the subject of this document.

Table ES 1: Summary of the Proposal

Proposal Title	Balla Balla Infrastructure – Rail and Conveyor Project
Proponent Name	Forge Resources Swan Pty Ltd
Short Description	The Proposal is to construct and operate a railway line (approximately 160 km in length) and conveyor line (approximately 40 km in length) running from the Pilbara Iron Ore Project (operated by Flinders Mines Ltd) north to the Balla Balla Infrastructure Port. The Proposal includes supporting infrastructure such as stockyards, borrow pits, access roads, communications, water bores and pipelines, accommodation camps, workshops, laydown areas, a ballast quarry, a conveyor railway line overpass and grade separation crossing of the North West Coastal Highway (NWCH).

Two 'key' environmental factors, flora and vegetation and terrestrial fauna, were identified as potentially being significantly impacted by the Proposal in the absence of mitigation. Potential environmental impacts, mitigation and outcomes for these factors are discussed in Table ES 2 and are described in more detail in Section 6.

Table ES 2: Assessment table – key environmental factors

Preliminary Key Environmental Factor / EPA Objective	Potentially Significant Impact (without mitigation)	Environmental Aspect	Management Actions (Mitigation)	Regulation	Predicted Outcomes (Meets EPA Objective – Y/N)
Flora and Vegetation – To maintain representation, diversity, viability and ecological function at the species, population and community level.	Context Flora: • No Threatened Flora (TF) recorded within the Study Area ('Study Area' for this factor is defined as the alignment and areas surveyed by Ecoscape and described in Ecoscape, 2014a); • Nine Priority (P) Flora recorded within the Study Area, including three P1 and one P2 taxa; • 17 additional Priority Flora (PF) have the potential to occur (but were not recorded); • No Declared Pest plants under the *Biosecurity and Agriculture Management Act 2007* recorded; and • 16 introduced plant species recorded. Vegetation: • 90.6% of the vegetation in the Study Area was found to be in Excellent condition, with 6.2% in Very Good condition; • Beard Vegetation Associations that intersect with the Study Area all have more than 97.8% of their pre-European extent remaining; • No sheetflow dependent vegetation identified within the Study Area; • No Threatened Ecological Communities (TECs) identified; • One PEC (P3 'Horseflat Land System of the Roebourne Plains') located in the northern portion of the Study Area; • Vegetation that may represent the P1 sub-type of the 'Four plant assemblages of the Wona Land System' PEC identified but not yet confirmed as a PEC; • Groundwater Dependent Ecosystems (GDEs) occur within the Study Area, generally along main drainage lines; and • A number of vegetation types having restricted distributions were identified by Ecoscape (2014) as being locally significant. Relevant Design Commitments: • The Proposal Area boundary and BBIP rail loop have been relocated approximately 4.5 km to the south-east, which excludes large portions of the P3 PEC from this assessment; and • Up to 3,000 ha of ground disturbance will be required during operations. The balance between the vegetation disturbed during construction and the operational footprint will be rehabilitated once the areas are no longer required. Impacts • Direct loss of mostly Very Good to Excellent condition vegetation;	• Ground disturbance – clearing of native vegetation; and • Earthmoving and construction activities.	**Implement the following industry best-practice controls:** • Implement Project Construction and Operational EMPs; • Vegetation clearing will be managed through internal ground disturbance procedures; • Boundaries of areas to be cleared or disturbed will be identified by GPS coordinates and maps of boundaries will be provided to dozer operator; • Undertake progressive clearing; • Conduct raised blade disturbance where practicable on tracks to minimise vegetation removal; • Develop the disturbance footprint to the minimum required to ensure safe and adequate construction and operation; • Apply water or dust suppressants to disturbed areas and ore transfer/storage areas to minimise dust generation; • Implement weed hygiene and management measures/procedures to prevent spread of weeds and the introduction of new weed species as a result of construction and operation of the railway line and associated infrastructure; and • Clean vehicles prior to entering vegetated areas to prevent the introduction of new weed species. **Implement the following additional proposal specific controls:** • Conduct additional flora and vegetation surveys of any portions of the Proposal Area that have not yet been surveyed. The Proposal Area is the area that forms the basis for this Proposal and is the area within which the Proposal will be implemented. The Proposal Area is outlined in red in Figure 1; • Develop Infrastructure Plan and submit to OEPA for approval prior to the commencement of construction. The Infrastructure Plan is to finalise the required disturbance to key environmental features, and will include the results of the surveys discussed above; • Offset clearing of up to 3,000 ha of Very Good to Excellent condition vegetation, based on the results of the Infrastructure Plan; • Identify the status and map the extent of the potential P1-P3 'Four plant assemblages of the Wona Land System ' PEC identified in the Proposal Area; • Vegetation confirmed to form part of a PEC is to be considered a key constraint – the rail alignment design will be assessed to avoid PECs where practicable. Flexible infrastructure (camps, access roads, borrow pits etc.) will be located outside of the PEC boundaries where practicable; • Locally significant vegetation and known PF locations will be included in a design constraints map to be used during detailed project planning. These locations will be avoided if suitable alternative options for the rail alignment are available. Flexible infrastructure (camps, access roads, borrow pits etc.) will be sited to avoid or minimise impacts to these locations; and • Appropriate buffers will be applied around locally significant vegetation, PECs and PF if necessary based on the construction activities to be undertaken (i.e. to minimise indirect impacts from dust, flooding etc.).	• Ministerial Statement (future); • *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), Part V (authorised clearing) and Environmental Protection (Clearing of Native Vegetation) Regulations 2004 – able to address any additional clearing outside of boundaries or limits authorised under Part IV of the EP Act; • *Wildlife Conservation Act 1950* (WA) (WC Act) and EPBC Act can address impacts to protected flora if found; • Weed management will be in accordance with the requirements of the *Agriculture and Related Resources Protection Act 1976;* and • Future State Agreement Act, *Mining Act 1978* (Mining Act) and Port Authority approvals to ensure Proposal is developed as per approved design.	• The Proposal will result in the disturbance of up to 3,000 ha of native vegetation, with approximately 1,200ha being rehabilitated at the completion of the construction period. A conservative estimate is that all of the vegetation to be disturbed is either in Very Good or Excellent condition (96.8% of the vegetation within the Study Area falls within either of these categories); • The final disturbance extent within each bioregion will be confirmed with the submission of the Infrastructure Plan prior to construction. This information will be used to determine offset requirements; • The proposed disturbance is not expected to result in a significant decline in the extent of vegetation associations as all are almost completely intact (i.e. >97.8% remaining) and the Proposal is linear in nature (i.e. disturbance is spread across up to 15 associations); • No TECs or TF species are expected to be impacted; • PF have been recorded and some plants or populations may not be able to be avoided. Impacts however are not expected to be significant given that: o Some species thrive on disturbed areas and populations may therefore increase; and o Most species have a wide distribution or are locally common. • Of note is that the BBIP rail loop has been relocated approximately 4.5 km to the south-east, which has significantly reduced impacts to a P3 PEC 'Horseflat Land System of the Roebourne Plains'. The final Proposal Area boundary has been amended to reflect this change. Up to 324.5 ha of this PEC remains within the Proposal Area, however this equates to only 2.3% of the overall PEC polygon (PEC polygon 1878). A portion of the PEC may be disturbed however it not is expected to be significant from a local or regional perspective; • Up to 6 ha of the vegetation that may represent a P1 sub-type of the 'Four plant assemblages of the Wona Land System' PEC is expected to be impacted as it lies within a confined valley. The implementation of management actions will minimise the impacts to this potential PEC however up to 19% of the polygon (Figure 7) will be disturbed. There are approximately 127,050 ha of this PEC within the Pilbara, therefore the Proposal is not expected to significantly impact the PEC on a regional scale; • No sheetflow dependent vegetation will be impacted as none was found within the Proposal Area; • Indirect impacts are not expected to be significant
		Alteration or blockage of surface water flows	• Incorporate surface water management and erosion protection into project planning and design to minimise disruption to watercourses and riparian vegetation; and • Implement measures to manage surface water flows along the length of the rail alignment to minimise downstream effects.	• *Environment Protection and Biodiversity Conservation Act 1999* (EPBC Act), Part V (authorised clearing) and Environmental Protection (Clearing of Native Vegetation) Regulations 2004 – able to address disturbance to vegetation	

Preliminary Key Environmental Factor / EPA Objective	Potentially Significant Impact (without mitigation)	Environmental Aspect	Management Actions (Mitigation)	Regulation	Predicted Outcomes (Meets EPA Objective – Y/N)
	• Direct loss of confirmed or potential PEC vegetation; • Direct loss of PF species; • Indirect impacts to vegetation health through a range of mechanisms such as dust, flooding or erosion; • Transfer of existing weeds, introduction of new weed species during construction and operation; and • Groundwater drawdown around abstraction bores resulting in a reduction in GDE health.			as a result of flooding or erosion outside of the limits authorised under Part IV of the EP Act; and • Future State Agreement Act, *Mining Act 1978* (Mining Act) and Port Authority approvals to ensure watercourse crossings are developed as per approved design.	as the implementation of industry-standard controls has suitably managed these impacts in similar projects across the Pilbara; • Any occurrences of new weed species or the spread of existing weeds will be contained within the Proposal Area and controlled through eradication measures; and • Taking into consideration the careful selection of Proposal Area boundaries (to exclude key environmental features), proposed management actions and the application of offsets, Rutila expects that the Proposal can be implemented to meet the EPA Objective for this factor.
		Abstraction of groundwater	Groundwater abstraction bores to be located and operated such that groundwater drawdown is minimised within areas of confirmed GDEs.	26D and 5C Licences under the RIWI Act can ensure impacts to GDEs are minimised.	
Terrestrial Fauna - To maintain representation, diversity, viability and ecological function at the species, population and assemblage level.	Context • Three broad fauna habitats; plain and plateau, slopes and river, large creek and associated vegetation; • Five conservation significant fauna recorded in the Study Area ('Study Area' is defined as the alignment and areas surveyed by Phoenix and described in Phoenix, 2014a): o Northern Quoll (EN - EPBC Act; S1 - WC Act); o Rainbow Bee-eater (Migratory – EPBC Act); o Lined Soil-crevice Skink (P4 – Department of Parks and Wildlife (DPaW)); o Australian Bustard (P4 – DPaW); and o Western Pebble-mound Mouse (P4 – DPaW). • A further 23 conservation significant fauna species may potentially occur; • Approximately 640 ha of suitable Northern Quoll denning and shelter habitat was mapped as scattered 'patches', spanning several land systems and is considered significant habitat; • Restricted habitat for Pilbara Olive Python (VU – EPBC Act, S1 – WC Act) and Northern Marsupial Mole (EN – EPBC Act, S1 – WC Act) also located; • 3,612 ha of potential burrowing and foraging habitat for the Bilby (VU – EPBC Act; S1 – WC Act) and Brush-tailed Mulgara (P4 – DPaW) was recorded in the northern portion of the Study Area; • With the exception of the Northern Quoll, Pilbara Olive Python and Northern Marsupial Mole habitat, conservation significant fauna habitat is generally well connected to similar habitat outside of the Proposal Area; • The Rainbow Bee-eater, Australian Bustard and Western Pebble-mound Mouse are common and widespread throughout the	Ground disturbance – clearing of potential fauna habitat	Implement the following management actions: • Implement management actions detailed in Flora and Vegetation section above. The majority of these actions also manage impacts to fauna habitat; • Conduct additional targeted significant fauna habitat surveys of any portions of the Proposal Area that have not yet been surveyed (Figure 8); • Develop Infrastructure Plan and submit to OEPA for approval prior to the commencement of construction. The Infrastructure Plan is to finalise the required disturbance to conservation significant fauna habitat, and will include the results of the surveys discussed above; • No Northern Marsupial Mole habitat is to be disturbed; • Northern Quoll and Pilbara Olive Python denning/shelter habitat areas are to be considered key constraints – the rail alignment design will be assessed to avoid these areas of habitat where practicable. Flexible infrastructure (camps, access roads, borrow pits etc.) will not be located within these habitat areas; • Watercourse crossings will be constructed with culverts or bridges which will allow fauna to traverse under the rail corridor; • Bilby, Brush-tailed Mulgara and SRE habitat will be included in a design constraints map to be used during detailed project planning. Flexible infrastructure (camps, access roads, borrow pits etc.) will be sited to avoid or minimise impacts within these habitat areas; • Appropriate buffers will be applied around Northern Quoll, Pilbara Olive Python and Northern Marsupial Mole denning /shelter habitat if necessary based on the construction activities to be undertaken (i.e. to minimise indirect impacts from dust, flooding etc.); • Prepare and implement a Northern Quoll Management Plan prior to construction. The management plan will include information from the Infrastructure Plan about final habitat disturbance requirements as well as additional specific design and management controls for the Northern Quoll such as: o Pre-clearing surveys to determine the location of dens; o Clearing campaigns and significant developments within Northern Quoll critical denning / shelter habitat will be scheduled to avoid the breeding season where possible; o Consideration of additional fauna culverts to maintain habitat connectivity; o Rehabilitation of habitat; and o Conduct a program to monitor the effects of the Proposal on Northern Quoll.	• Ministerial Statement (future); • EPBC Act Part V (authorised clearing) and Environmental Protection (Clearing of Native Vegetation) Regulations 2004 – able to address any additional fauna habitat disturbance outside of boundaries authorised under Part IV of the EP Act; • WC Act and EPBC Act can address unauthorised impacts to protected fauna; and • Future State Agreement Act, Mining Act and Port Authority approvals to ensure Proposal is developed as per approved design.	• The Proposal will result in the disturbance of approximately 3,000 ha of fauna habitat, of which approximately 1,200 ha will be rehabilitated at the completion of the construction period. Broad fauna habitat in the surrounding area remains almost completely intact and therefore the Proposal is not expected to have a significant effect on the representation of broad fauna habitat at a local or regional level; • Northern Quoll are expected to be able to traverse the rail embankment. The majority of the areas of Northern Quoll denning / shelter habitat will be completely avoided. Of note is that the Proposal Area has been revised to now exclude site Q5, which had the highest recorded numbers of Northern Quoll. After the implementation of management actions up to 5 ha of the remaining habitat will be required to be disturbed out of a total of 640 ha identified in the Study Area. This equates to a disturbance of habitat within the Study Area of less than 1%. All of the land systems containing suitable habitat are well represented in the surrounding areas. Rutila is confident that habitat disturbance has been avoided and minimised as much as possible. The Proposal is therefore not expected to result in a significant residual impact to this species; • After the implementation of the management actions up to 78 ha of Pilbara Olive Python habitat will be required to be disturbed, out of a total of 4,109 ha identified within the Study Area. Of note is that the Proposal Area has been revised to now exclude site Q5, which had a significant portion of suitable habitat for this species. The maximum disturbance of habitat identified within the Study Area equates to less than 2%. Suitable habitat exists outside of the Proposal Area and Rutila is confident that habitat disturbance has been avoided and minimised as much as possible. Rutila therefore expects that the Proposal will not result in a significant residual impact on this species; • The sand dune habitats (shown in dark blue on Figure 2 and Figure 3) are considered to be suitable to support the Northern Marsupial Mole, however its presence or absence cannot be
		Vehicle traffic, noise and human interaction	Implement the following controls: • Include fauna egress mechanisms at all turkeys nest dams; • Provide training to ensure that native or introduced fauna are not fed by site	Future State Agreement Act, Mining Act and Port Authority approvals to ensure Proposal is constructed in accordance with	

Preliminary Key Environmental Factor / EPA Objective	Potentially Significant Impact (without mitigation)	Environmental Aspect	Management Actions (Mitigation)	Regulation	Predicted Outcomes (Meets EPA Objective – Y/N)
	Pilbara bioregion and the records of these species from the surveys are not considered to be significant; • 13 likely or potential short-range endemic (SRE) taxa identified as occurring within the Study Area; and • Two of these SRE species are only known from within the Study Area. Relevant Design Commitments: • Up to 3,000 ha of general fauna habitat disturbance will be required during operations. The balance between the habitat disturbed during construction and what is required during operations will be rehabilitated once the areas are no longer required; • The Proposal Area boundary has been revised to exclude Nunyerry Gorge, which contains site Q5, the site that had the highest recorded numbers of Northern Quoll during the Phoenix survey; • Disturbance of Northern Quoll denning /shelter habitat will be restricted to a maximum of 5 ha; • No Northern Marsupial Mole habitat will be disturbed; and • Disturbance of Pilbara Olive Python shelter habitat will be restricted to a maximum of 78 ha. <u>Impacts</u> • General loss of fauna habitat; • Loss of conservation significant fauna habitat; • Decline in habitat quality; • Vehicle strike causing injury or death; and • Change in behaviour as a result of noise.	during construction and operation activities	personnel; • Store food wastes in bins that are not easily accessible to fauna; • Use low noise equipment where practicable; • Develop borrow pits such that they are free-draining (where practicable – discussed further in Section 7) to minimise water pooling; • Control introduced fauna around camps and other work areas; • Internal reporting of all incidents resulting in fauna injury or death; and • Set and enforce vehicle speed limits.	controls.	confirmed. Nevertheless, avoidance, minimisation and mitigation strategies have been applied this habitat, and the Proposal is able to completely avoid this habitat; • Other conservation significant fauna habitat is widespread and generally well connected to similar habitat outside of the Proposal Area. The disturbance of a narrow corridor and associated items is not expected to significantly impact the habitat of these species. • The Proposal will not affect the conservation status of any significant species; • Two SRE species are only known from within the study area, from rocky hill and gully habitat. Avoidance and management strategies are proposed for SRE habitat, and the development of linear infrastructure is likely to dissect a portion of SRE habitat rather than disturb an entire population. It is also likely that suitable habitat exists outside the Proposal Area (Phoenix, 2014a). The Proposal is therefore unlikely to result in significant impacts to any SRE species; • Noise impacts are not expected to be significant as construction does not generally occur in a single location for an extended period. Rail movements during operations are infrequent; and • Taking into consideration the careful selection of Proposal Area boundaries (to exclude key fauna habitat) and proposed management actions, Rutila expects that the Proposal can be implemented to meet the EPA Objective for this factor.

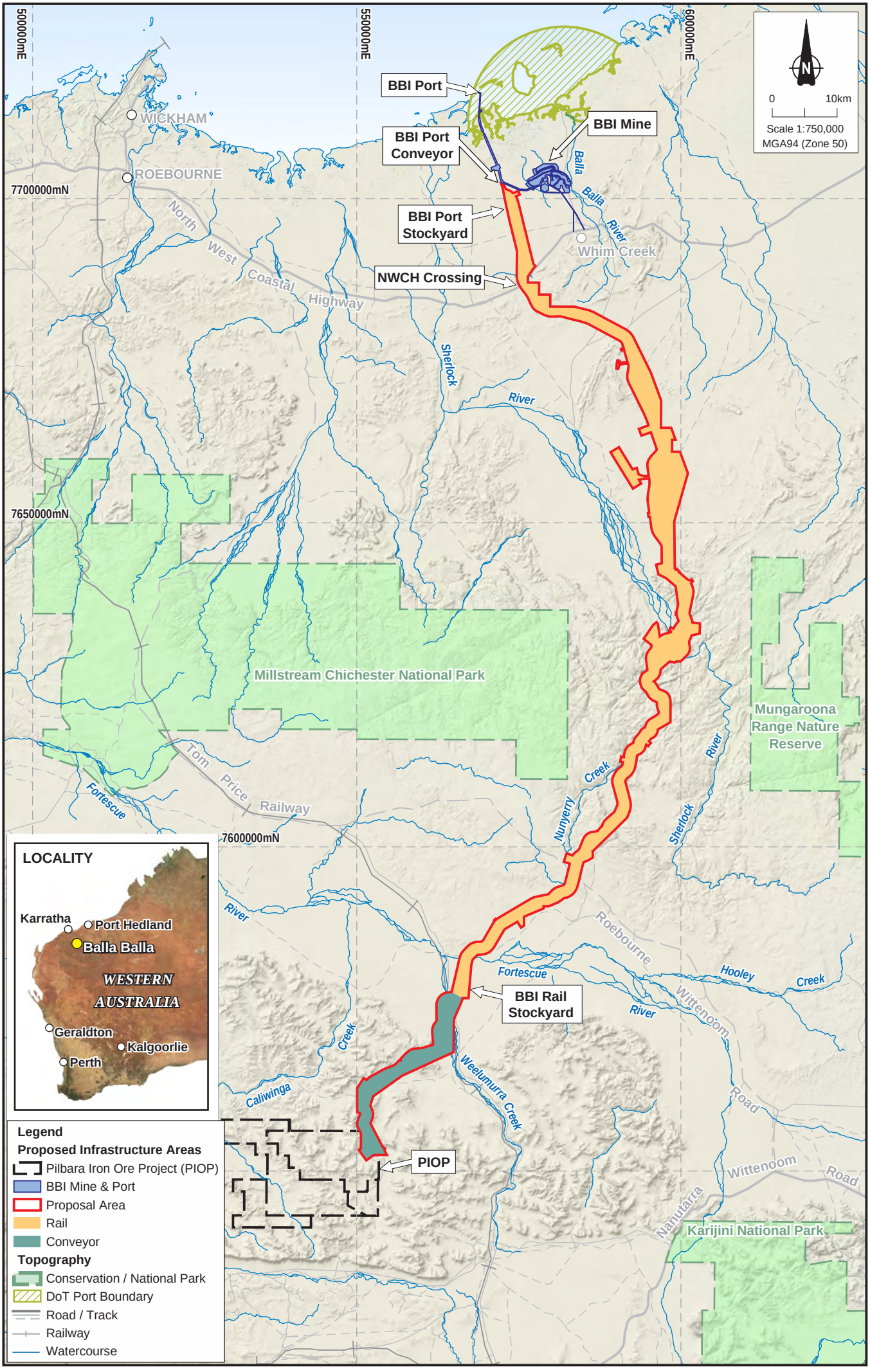

Figure ES 1: Location of the Proposal Area and Indicative Infrastructure

Figure ES2 provides a conceptual illustration of the significance framework and how it applies to the key environmental factors that may be impacted by the Proposal. It illustrates Rutila's view of the level of uncertainty remaining after all available information has been considered. It is expected that the application of conditions (relating to offsets and the requirement for an Infrastructure Plan) will greatly reduce any uncertainty and ensure that the Proposal can meet the EPA's Objectives.

Please note that Figure ES2 is conceptual only and is not intended to imply precision in evaluating the significance of impacts.

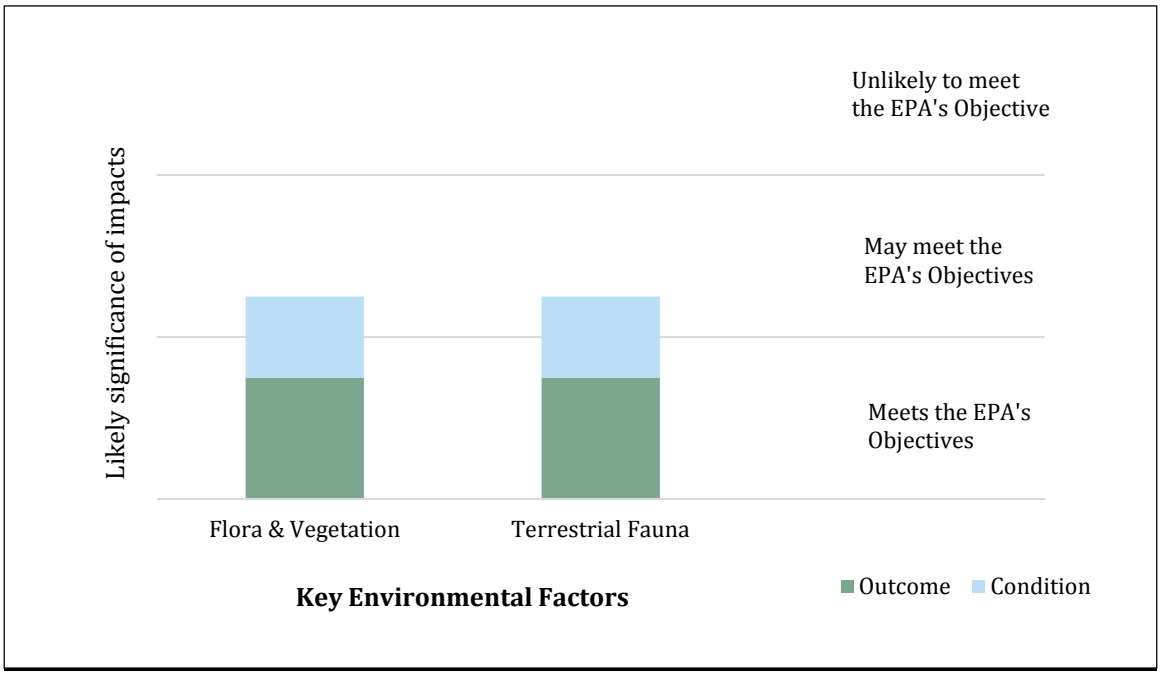

Figure ES 2: Conceptual illustration of the application of the significance framework

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1 INTRODUCTION

1.1 PROJECT BACKGROUND

Forge Resources Swan Pty Ltd (Forge) obtained Ministerial approval for the development of the Balla Balla Infrastructure Port (BBIP) on 21 August 2013 (Ministerial Statement 945 (MS 945)). Forge is a 100% owned subsidiary of ASX listed Rutila Resources Ltd (Rutila). Rutila is the joint venture (JV) partner with Todd Corporation Ltd in the Balla Balla JV, whereby Forge is the assigned Manager.

The BBIP is located on the Pilbara coastline, approximately 100 kilometre (km) east of Anketell Point and 120 km south-west of Port Hedland in Western Australia (WA). The BBIP was originally proposed to allow the export of ore from Rutila's Balla Balla Infrastructure Mine (MS 794) mine, however recent studies have identified that there is additional port capacity available for use by third parties. The Pilbara Iron Ore Project (PIOP) (MS 924) operated by Flinders Mines Ltd (Flinders) will be the BBIP foundation customer.

To allow this to occur, an approximate 200 km combination of railway and overland conveyor will be constructed to connect the BBIP with the PIOP in the central Pilbara region. This railway and conveyor ore transport infrastructure is referred to as the Balla Balla Infrastructure – Rail and Conveyor Project (the Proposal), and combined with the BBIP form the Balla Balla Infrastructure Project.

1.2 PURPOSE OF THIS DOCUMENT

The purpose of this Assessment on Proponent Information (API) document is to provide a detailed description of the Proposal and to enable assessment of the potential environmental impacts that may result, should the Proposal be implemented. This document also outlines the key elements (characteristics) required for the construction and operation of the Proposal. The assessment will be completed by the Office of the Environmental Protection Authority of WA (OEPA) under the provisions of Part IV of the *Environmental Protection Act 1986* (EP Act).

This document has been submitted along with a referral under Section 38(1) of the EP Act, on the assumption that an API level of assessment is appropriate (refer to Section 1.3 below). This assumption is based on ongoing discussions with the OEPA over several months.

The intention is that this API document contains all the information that the OEPA would require to assess the Proposal, and therefore the scoping process can be circumvented. Rutila has commissioned studies based on input from the OEPA and therefore it is expected that this process is appropriate.

This API document has been written in accordance with the EPA's gazetted Environmental Impact Assessment (EIA) Part IV divisions 1 and 2 Administrative Procedures (EPA, 2012a), and has also taken into account the *Environmental Assessment Guideline 8: for Environmental Factors and Objectives* (EPA 2013c). Rutila also considered OEPA advice about the guidance document currently being prepared for release by the OEPA.

This API document focuses on the environmental factors that are deemed to be 'key' factors, those with the potential to be significantly impacted and could not be appropriately managed under other existing legislation. Potential impacts to these key factors are described in detail and assessed using relevant studies specific to the Proposal. 'Other' environmental factors are discussed briefly, with a focus on demonstrating that they can be appropriately managed using a combination of industry-standard controls and other existing legislation. Therefore, this API document describes the most relevant impacts and characteristics of the Proposal for assessment and provides all related biological reports and survey results as Appendices (Appendix 1).

Rutila is also in the process of preparing a referral under the *Environment Protection and Biodiversity Conservation Act 1999* (Cth) (EPBC Act) which is to be submitted in parallel with this API document. Rutila intends on keeping the approval processes separate and does not request a bilateral assessment for this Proposal.

1.3 LEVEL OF ASSESSMENT CRITERIA - CATEGORY A API

In submitting this document, the criteria for a Category A level of assessment were reviewed. Table 1 identifies these criteria and describes how the Proposal complies with each criteria.

Table 1: Criteria for Category A API level of assessment

Criteria	Comment
(a) The Proposal raises a limited number of key environmental factors that can readily be managed and for which there is an established condition-setting framework.	The Proponent, in consultation with the OEPA, has considered the key environmental factors. Flora and vegetation and terrestrial fauna are considered to be key environmental factors for the Proposal. There is an established condition setting framework for rail and linear infrastructure proposals in terrestrial environments in the Pilbara.
(b) The Proposal is consistent with established policies, guidelines and standards.	The location and purpose of the land upon which the Proposal is based is consistent with established Government policy and land use. Assessment against policies, guidelines and standards is provided in this API document and the Proposal is consistent with these. Information is provided where relevant in relation to guidelines and standards.
(c) The Proponent can demonstrate that it has conducted appropriate and effective stakeholder consultation, in particular with decision making authorities.	Rutila has completed extensive stakeholder consultation. A summary of the consultation is included in Section 5.
(d) There is limited or local concern only about the likely effect of the Proposal, implemented, on the environment.	The Proposal is expected to result in low levels of local concern. Previous concerns with the Proposal from Pastoralists, Native Title claimants and mining tenure holders have led to numerous realignments of the Proposal Area (refer to Section 2.5) to ensure that the Proposal will be acceptable. The Proposal Area is the area that forms the basis for this Proposal and is the area within which the Proposal will be implemented. The Proposal Area is outlined in red in Figure 1.

2 PROPONENT AND KEY PROPOSAL CHARACTERISTICS

2.1 PROPONENT DETAILS

The proponent for this submission is Forge. Forge is a 100% owned subsidiary of ASX listed Rutila. Rutila is the JV partner with Todd Corporation Ltd in the Balla Balla JV, whereby Forge is the assigned Manager.

The Proponent for the Proposal is detailed below:

Forge Resources Swan Pty Ltd
ABN: 14 149 783 068

The key contact person in relation to this document is:

Rutila Resources Pty Ltd

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2.2 KEY PROPOSAL CHARACTERISTICS

Rutila has considered *Environmental Assessment Guideline 1: Defining the Key Characteristics of a Proposal* (EAG1) (EPA, 2012b) - which focuses on how to define the key characteristics of proposals for the purposes of assessment and incorporation into Ministerial Statements. The objective of EAG1 is to assist proponents to identify and provide the key characteristics that capture all key features of the proposal relevant to Part IV of the EP Act. The key characteristics for the Proposal are described in Table 2.

Table 2: Key Characteristics of the Proposal (Corresponds to Proposal Area boundary provided in Figure 1)

Summary of the Proposal		
Proposal Title	Balla Balla Infrastructure – Rail & Conveyor Project	
Proponent Name	Forge Resources Swan Pty Ltd	
Short Description	The Proposal is to construct and operate a railway line (approximately 160 km in length) and conveyor line (approximately 40 km in length) running from the Pilbara Iron Ore Project (operated by Flinders) north to the Balla Balla Infrastructure - Port. The Proposal includes supporting infrastructure such as stockyards, borrow pits, access roads, communications, water bores and pipelines, accommodation camps, workshops, laydown areas, a ballast quarry, a conveyor railway line overpass and a level crossing of the North West Coastal Highway.	
Physical Elements		
Element	**Location**	**Proposed Extent Authorised**
Ground disturbance	Within the Proposal Area shown in Figure 1	Disturbance of no more than 3,000 hectares (ha) within the 50,089 ha Proposal Area, with no more than approximately 1,800 ha remaining disturbed during operations. The disturbance areas not required for operations are to be rehabilitated post-construction.
All elements	Within the Proposal Area shown in Figure 1	Disturbance of no more than 5 ha within areas of defined Northern Quoll denning and shelter habitat as shown in Figure 2 and Figure 3.
		Disturbance of no more than 78 ha within areas of defined Pilbara Olive Python shelter habitat as shown in Figure 2 and Figure 3.
		No disturbance of Northern Marsupial Mole habitat as shown in Figure 2 and Figure 3.

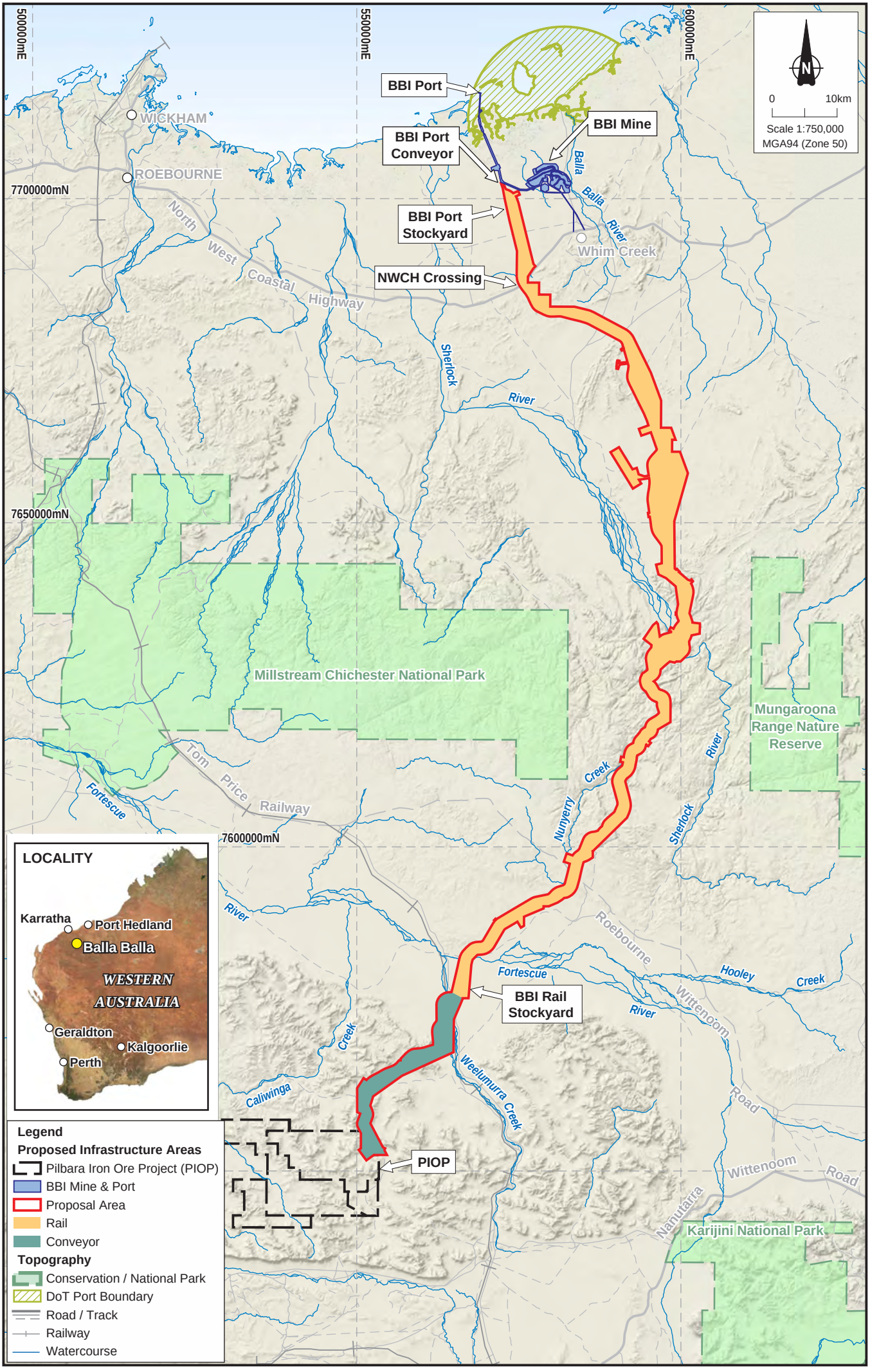

Figure 1: Location of the Proposal Area and Indicative Infrastructure

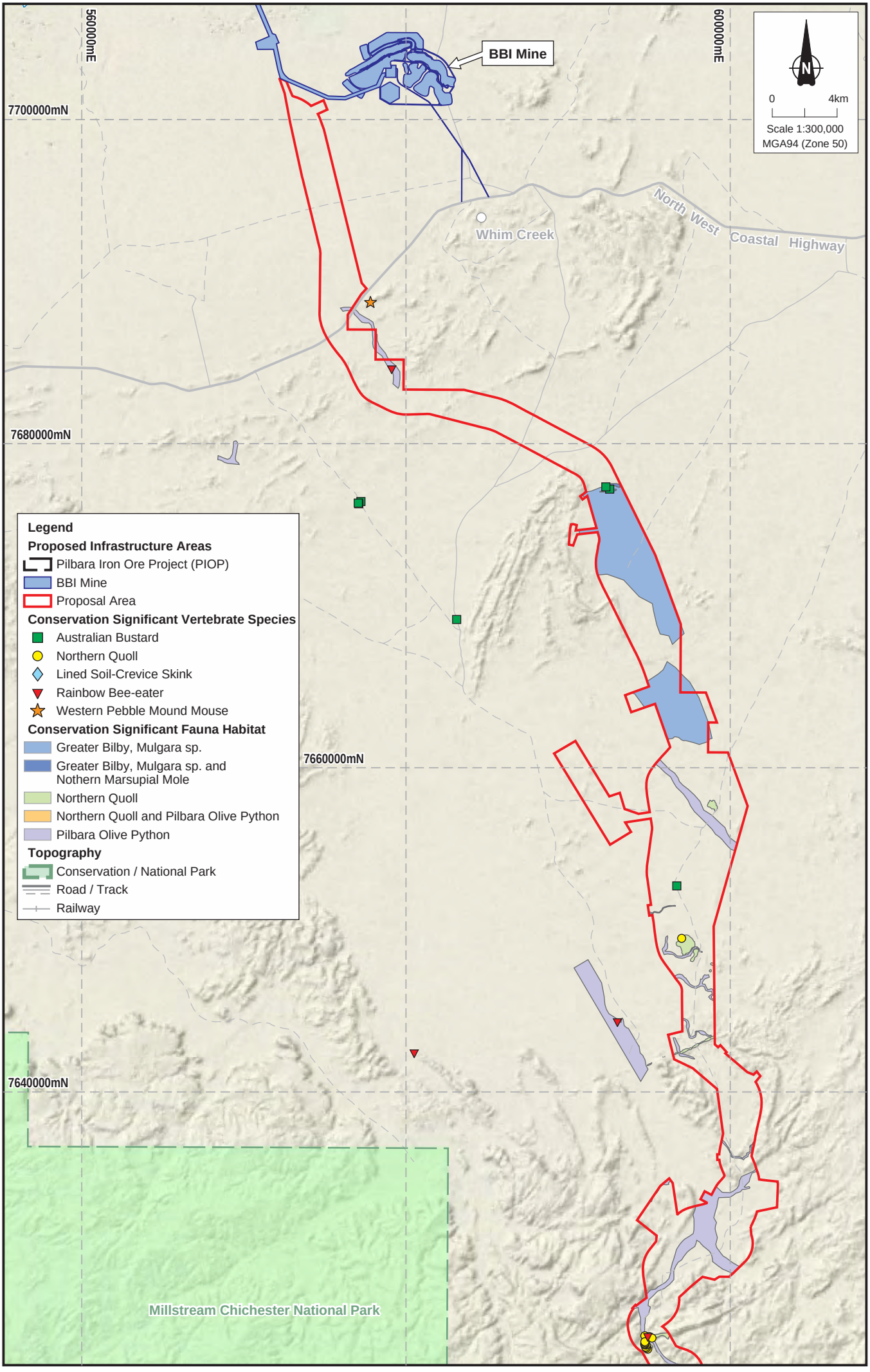

Figure 2: Conservation significant fauna records and habitat in the northern half of the Study Area (Source: Phoenix, 2014a)

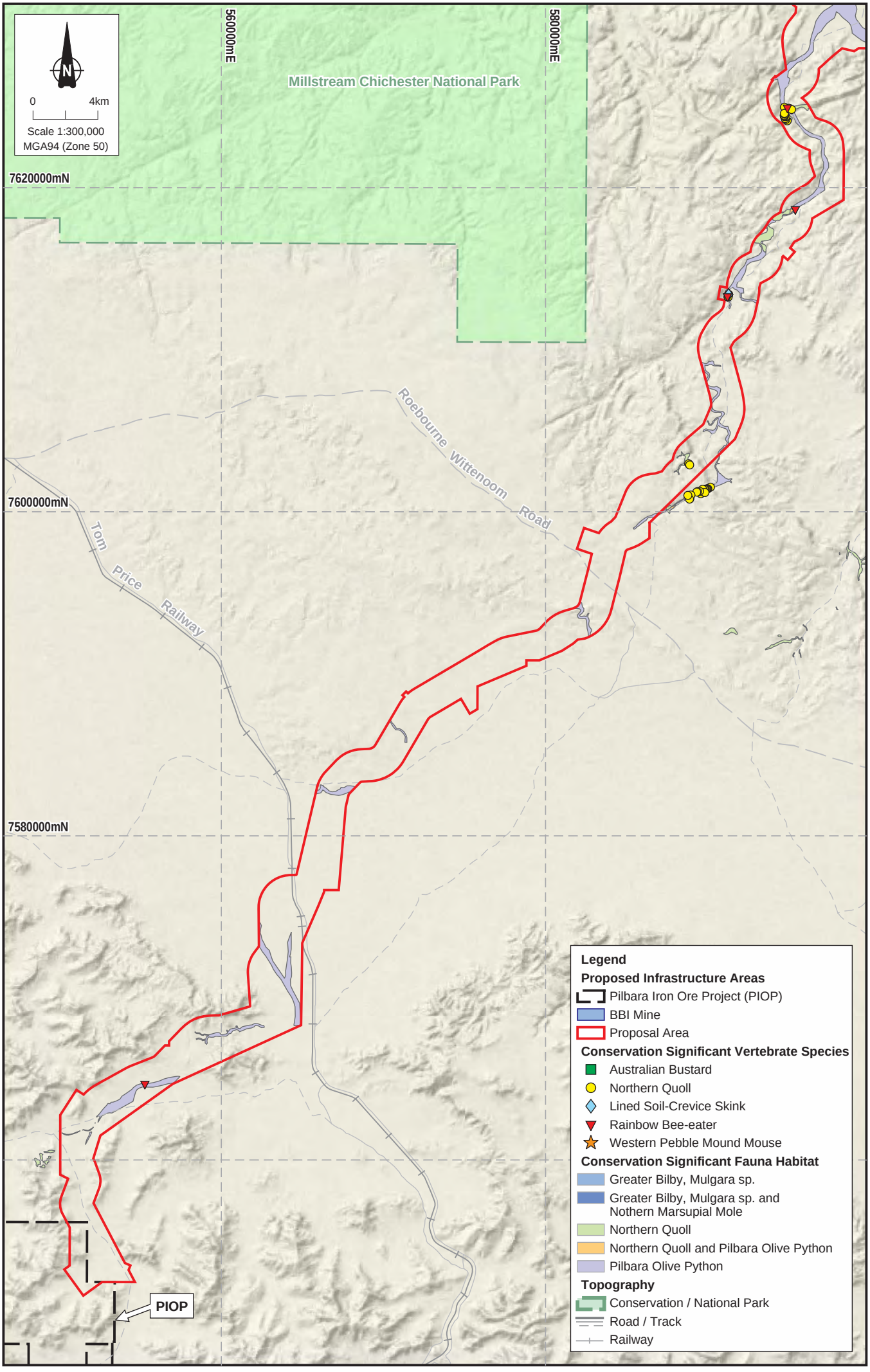

Figure 3: Conservation significant fauna records and habitat in the northern half of the Study Area (Source: Phoenix, 2014a)

3 GENERAL DESCRIPTION OF PROPOSAL

3.1 PROPOSAL FACILITIES AND ACTIVITIES

Table 3 summarises the elements of the Proposal as well as any key characteristics relevant to EIA. Up to 3,000 ha of ground disturbance within the 50,089 ha Proposal Area will be required to implement the Proposal. Figure 1 shows the boundary of the Proposal Area within which all ground disturbance is expected to occur.

The Proposal does not include mining operations or the processing of iron ore at Rutila's Balla Balla Infrastructure Mine or the export of ore through Rutila's BBIP, which have already been approved under Part IV of the EP Act (Ministerial Statements 794 and 945 respectively).

Table 3: Summary description of Proposal elements

Proposal Element	Description
40 km (estimated) overland conveyor from PIOP Conveyor Feed Chute to the Balla Balla Infrastructure Railway (BBIR) Stockyard	The battery limit for the south of the PIOP is the end of the load out Conveyor into the conveyor Feed Chute. Flinders will deliver the ore to the Conveyor Feed Chute, which unloads directly onto the overland conveyor. This conveyor connects the PIOP Conveyor Feed Chute to the BBIR Stockyard. It will be approximately 40 km in length and installed on an elevated trestle structure. Communications, power, water pipelines and other services are expected to be either connected to the trestle structure, or buried alongside or underneath the structure. Disturbance estimates are based on an average 30 m construction disturbance width, which includes the conveyor construction area, as well as access roads and topsoil stockpiles. The average corridor width will be reduced to approximately 18 m for operations, with 12 m being rehabilitated once it is no longer required. All conveyors are expected to be completely covered, although this will be dependent on operational requirements. The conveyor will cross the Rio Tinto Iron Ore (RTIO) Tom Price railway line via a trestle overpass at the northern end of the conveyor corridor (Figure 1). Rutila is in discussions with RTIO about the design of the overpass, however it is expected that any issues will be minor in comparison with the alternative option of a rail-over-rail overpass.
BBIR Stockyard	The BBIR stockyard is located immediately east of the RTIO Tom Price railway line and adjacent to the southern loop of the BBIR (Figure 1). Ore from the 40 km conveyor will be stacked within the stockyard from where it will be reclaimed by a bucket-wheel reclaimer and loaded onto trains via a train loading facility. The stockpiles, reclaimer, internal conveyor transfer points and train loading facility will be fitted with water (or approved equivalent) sprays to control dust. Storm water runoff from stockpiles will be controlled on-site using retention and sedimentation basins.
BBIR - 160 km (estimated) railway line from BBIR Stockyard to the BBIP Stockyard	The BBIR will extend approximately 160 km north from the Conveyor / Rail Interchange Stockyard (Figure 1). The railway line will be standard gauge heavy haul railway with passing loops strategically located along the line to maximise system performance. A marshalling yard will also be installed. The railway construction corridor will include the rail embankment, access roads, topsoil stockpiles, communications and services. Communications and other services will generally be buried alongside the rail embankment in a separate services corridor (Figure 1). The railway construction corridor will require an average of 80 m disturbance width. The average overall corridor width will be reduced to approximately 50 m for operations, with 30 m being rehabilitated once it is no longer required. The rail embankment will be armoured by ballast rock to minimise erosion of the structure. Drainage culverts or bridges will be installed for minor and major water course crossings respectively. A minimum two major watercourse crossings will be required, to cross Fortescue and Sherlock Rivers and / or its tributaries. Figure 1 shows the location of these watercourse crossings. Culverts will be installed across watercourses, and they will be

Proposal Element	Description
	appropriately designed and installed such that they can cope with potential flood events in each location. The railway line will cross several public roads, the most significant being the NWCH, which will be a road over rail grade separation crossing. These crossings will be installed with warnings as required by the *Rail Safety Act 2010*.
BBIP Stockyard	The BBIP Stockyard will be located adjacent to the northern rail loop, with a conveyor overpass connecting the stockyard with the BBIP (Figure 1). It will hold sufficient capacity to load cape-size vessels and accommodate a throughput of 25 million tonnes per annum. Ore will be unloaded from the trains using a car unloader and transported via overland conveyor to the BBIP stockyard. Ore will be stacked within the stockyard from where it will be reclaimed by a bucket-wheel reclaimer and transferred onto the BBIP conveyor via a load out bin. The stockpiles, bucket-wheel reclaimer, internal conveyor transfer points and the load out bin will be fitted with water (or approved equivalent) sprays to control dust. Stormwater runoff from stockpiles will be controlled on-site using retention and sedimentation basins. The BBIP Stockyard has been relocated from its original position (as approved under MS 945) to now be further set back from the coastline. A marshalling yard and rolling stock maintenance facility also form part of the BBIP Stockyard area, located south of the rail loop.
BBIP Conveyor	A short (approximately 5 km) conveyor will connect the BBIP Stockyard with the BBIP causeway. The ore will then be exported via the approved BBIP facilities. The conveyor will be installed on a trestle structure, and will cross the rail embankment at the northern side of the rail loop. The conveyor construction corridor includes the conveyor construction area, as well as access roads and topsoil stockpiles. Communications, power, water pipelines and other services are expected to be either connected to the trestle structure, or buried alongside or underneath the structure. Disturbance estimates are based on an average 30 m construction disturbance width, which includes the conveyor construction area, as well as access roads and topsoil stockpiles. The average corridor width will be reduced to approximately 18 m for operations, with 12 m being rehabilitated once it is no longer required. All conveyors are expected to be completely covered.
Borrow pits	Rutila will target a cut and fill balance as much as possible along the rail length, however through areas of flat terrain, borrow pits will be required to provide sufficient material for the rail embankment. Borrow pits will be target suitable material within the Proposal Area, in locations that minimise haul distances. The size of each borrow pit will vary, however the typical depth will be 2 m. Borrow pits will generally be sloped to be free-draining. There may be some areas of extremely flat ground where the borrow pits cannot reasonably be sloped to be free-draining. In these locations the borrow pits will be bunded around their perimeter to prevent surface water inflows, and evaporation and infiltration will be used to minimise the time that standing water remains in the pit. Several borrow pits will remain open during the operational period to provide supplementary material for maintenance purposed as required. The remaining borrow pits will be rehabilitated once they are no longer required.
Associated infrastructure and services	**External Access Roads -** refers to roads that are located outside of the rail corridor. These may include roads that connect the rail corridor with borrow pits, water bores, public roads or accommodation camps. These roads will vary in width depending on their purpose, from 6 m for light vehicle access roads to 20 m for material haul roads. **Communication Towers and Reticulated Services - c**ommunications cables (e.g. fibre optic) and towers will be installed along the length of the rail and conveyor corridors. These cables will be buried within the services section of the corridor or installed along the conveyor trestle structure. **Water Supply and Pipelines -** during construction and operations, water will be sourced from a number of bores within the Proposal Area. The total expected water requirement will be 1.8 GL/yr for construction, primarily required for embankment conditioning and dust suppression. Lower water volumes will be required during operation, for maintenance purposes.

Proposal Element	Description
	Sources of suitable groundwater are currently being investigated. Once identified, Rutila will obtain the appropriate licences under the *Rights in Water and Irrigation Act 1914* (RIWI Act). Each bore will be operated to ensure that only the sustainable yield for each bore is abstracted. Abstraction planning will be detailed in a Groundwater Operating Strategy submitted to the Department of Water (DoW) as part of the 5C application process. **Accommodation Camps** - potentially three accommodation camps will be installed within the Proposal Area for construction personnel. These camps will be appropriately sited in proximity to key work areas and potable water supply. **Workshop and Laydown Areas - s**everal workshops and laydown areas will be required along the length of the Proposal Area. Workshops will vary in size and purpose and will be used to service light and construction vehicles, and other equipment. Laydown areas will be used for parking and storage areas. There will be light vehicle refuelling facilities at several of the workshops or laydown areas. On-site storage of fuel will be required for the operation of mobile plant, vehicles, generators and other equipment. Some limited quantities of solvents, paints, cleaning products and bonding agents will also be required. All hydrocarbons, hazardous or dangerous goods will be stored and used in compliance with relevant legislation and standards. **Ballast Quarry -** may be developed within the Proposal Area if a suitable site can be located. This ballast quarry will provide ballast armour material for the rail embankment. If a suitable site cannot be found within the Proposal Area then material may be brought to site from an external source (i.e. not part of this Proposal). **Power Supply** - generators will be utilised during construction, located close to areas of power demand (i.e. such as camps or workshops). Generators will either be self-bunded, or located within a bunded area to minimise spill risks. **Landfill -** one or more putrescible landfills may be developed on site for the disposal of construction and operations waste. All hazardous wastes will be disposed of off-site. The viability of recycling opportunities will be considered. No landfills will be located within the Millstream Water Reserve. All landfills will be sited, developed and operated in accordance with Department of Environment Regulation (DER) works approval and licence conditions.

3.2 LOCATION, TENURE AND LAND USE

The Proposal Area is located in the Pilbara region of WA and is shown in Figure 1. All proposed disturbance addressed in this API document is planned to be constructed entirely within the boundary of the Proposal Area.

The Proposal Area will be aligned with the following tenure (from south to north):

Miscellaneous licence L47/733 extending north from the PIOP to the southern end of the rail corridor;

The future Special Railway Licence (SRL) corridor which will overlay the majority of the railway portion of the Proposal. The SRL will run from the rail loop at the BBIR Stockyard to the boundaries of a new Pilbara Ports Authority (PPA) lease in the north. The width of the SRL when granted will be narrower than the Proposal Area as it will be refined based on more detailed design work completed in early 2015; and

A future Pilbara Ports Authority (PPA) lease that will include the northern portion of the rail corridor, as well as the BBIP stockyard and BBIP.

A Section 91 (S91) licence has been applied for under the *Land Administration Act 1997* over the majority of the Proposal Area and is expected to be granted on 12 December 2014. This S91

licence will allow geotechnical, water and other relevant investigations to occur prior to construction.

The Proposal Area passes through the City of Karratha and the Shire of Ashburton Local Government areas. The Proposal Area includes an area of Unallocated Crown Land (UCL) and three pastoral leases – Sherlock, Mallina and Coolawanyah. Mining is a significant land use in the surrounding area of the proposed BBIR and the Proposal Area traverses several areas of Mining Act tenure.

The Proposal Area passes between the Millstream Chichester National Park and Mungaroo Range Nature Reserve (avoidance of these reserves was identified early as a key constraint for the Proposal), however it does pass through a Redbook area. This Redbook area (shown in Figure 4) lies immediately west and adjacent to the Millstream Chichester National Park and covers an area of 73,585 ha.

Figure 4 shows the tenure and land use features.

3.3 ALTERNATIVES CONSIDERED

A railway line is considered the best iron ore transport option as Rutila can cost-effectively boost their transport efficiency and reduce greenhouse gas emissions by negating the use of road haulage.

Numerous different rail alignment options from mine to port were originally considered for the Proposal (Figure 5). Key factors that Rutila considered during the assessment of alternative alignments for the Proposal included:

- Cost;
- Engineering constraints;
- Development timeframes;
- Location in relation to ore bodies (PIOP and other areas of potential mineralisation);
- Registered and other potential significant Aboriginal Heritage sites;
- Complete avoidance of Millstream Chichester National Park and Mungaroona Range Nature Reserve;
- Existing public use areas;
- Pastoral activities and pastoralist requests; and
- Potential environmental constraints.

Several key changes that were made to the overall Proposal Area alignment have some environmental outcomes as discussed below:

1. **Avoidance of Nunyerry Gorge**. Nunyerry Gorge was found to have a relatively large population of Northern Quoll (refer to Appendix 1) that was unavoidable given the narrow width of the gorge. The area was also identified as a significant ethnographic site during Aboriginal Heritage investigations. The realignment of the Proposal Area around this section greatly reduced the potential environmental and Heritage impacts;
2. **Relocation of northern rail loop**. The original location of the northern rail loop was at the very northern end of the Proposal Area. The rail loop has now been relocated south-west, and will link to the BBIP via a short (5 km) conveyor. This relocation both shortens

the rail length by approximately 5 km and also greatly reduces the impact to a Priority Ecological Community (discussed further in Section 4); and

3. **Crossing of Sherlock River**. The alignment now crosses the Sherlock River higher upstream, where the width of the watercourse and predicted flows are lower. This reduced the potential impacts to riparian vegetation and indirect impacts associated with watercourse crossings. This realignment also avoids the Roebuck Plains as requested by the Pastoralist as well as the Croyden Outstation, which has Aboriginal significance.

The final Proposal Area alignment was considered to be the most feasible based on consideration of the above factors.

3.4 APPROVAL AND DEVELOPMENT TIMEFRAMES

Key approval milestone targets for assessment under Section 38 of the EP Act are shown in Table 4. These timeframes are consistent with the EPA's *Environmental Assessment Guideline No. 6: for Timelines for EIA of Proposals* (EAG6) (EPA 2010). The key development milestone timeframes will be determined after a full Bankable Feasibility Study has been completed in mid-2015.

Table 4: Approvals Schedule

	2014	2015				
Stage	**Dec**	**Jan**	**Feb**	**Mar**	**Apr**	**May**
Rutila submits Referral Form and API documentation						
OEPA set level of assessment as API						
OEPA assess API and Rutila provide additional information if requested						
OEPA publish report and draft conditions and submit to Minister						
Ministerial Statement released						

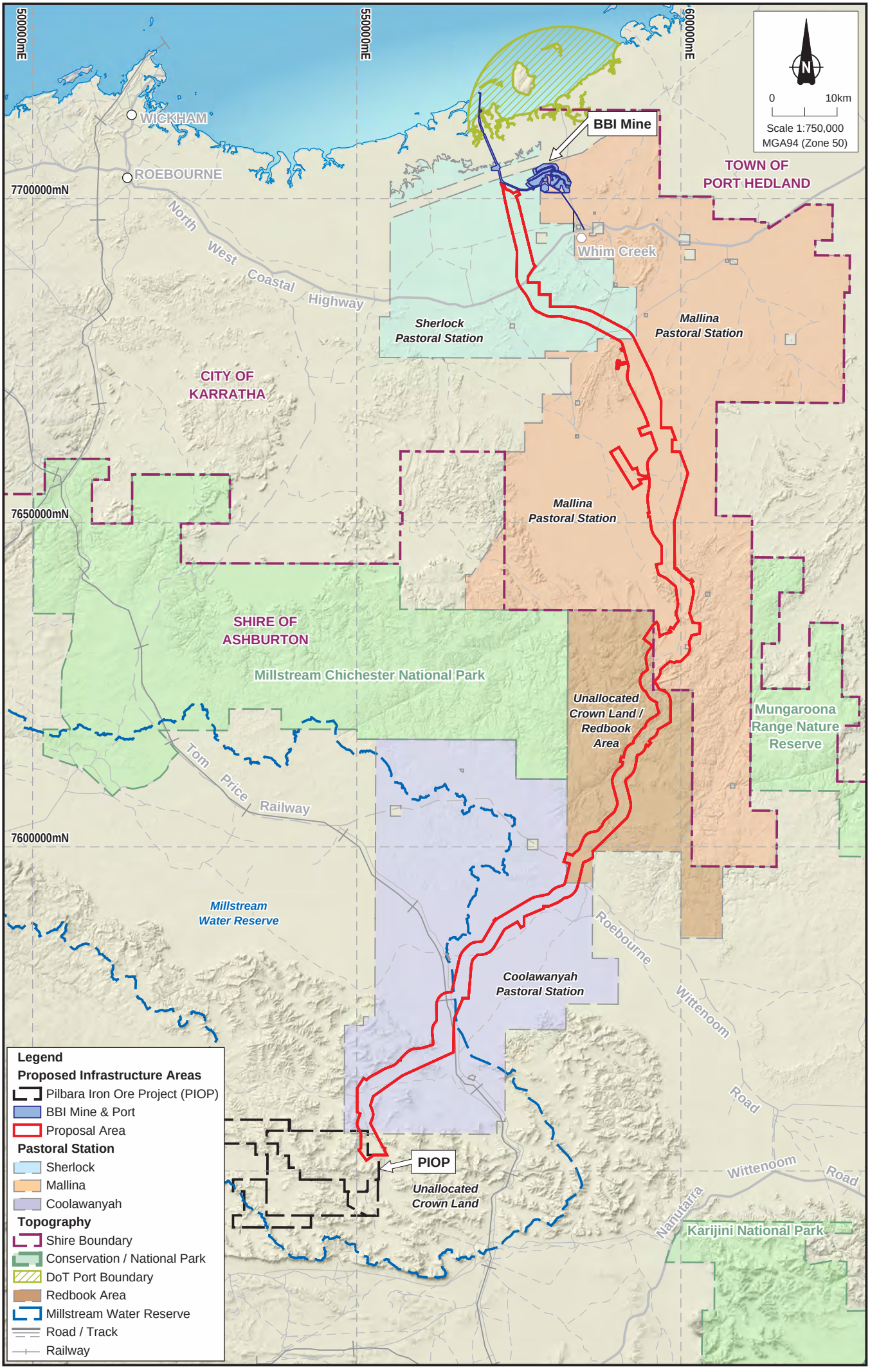

Figure 4: Tenure and land use within the Proposal Area

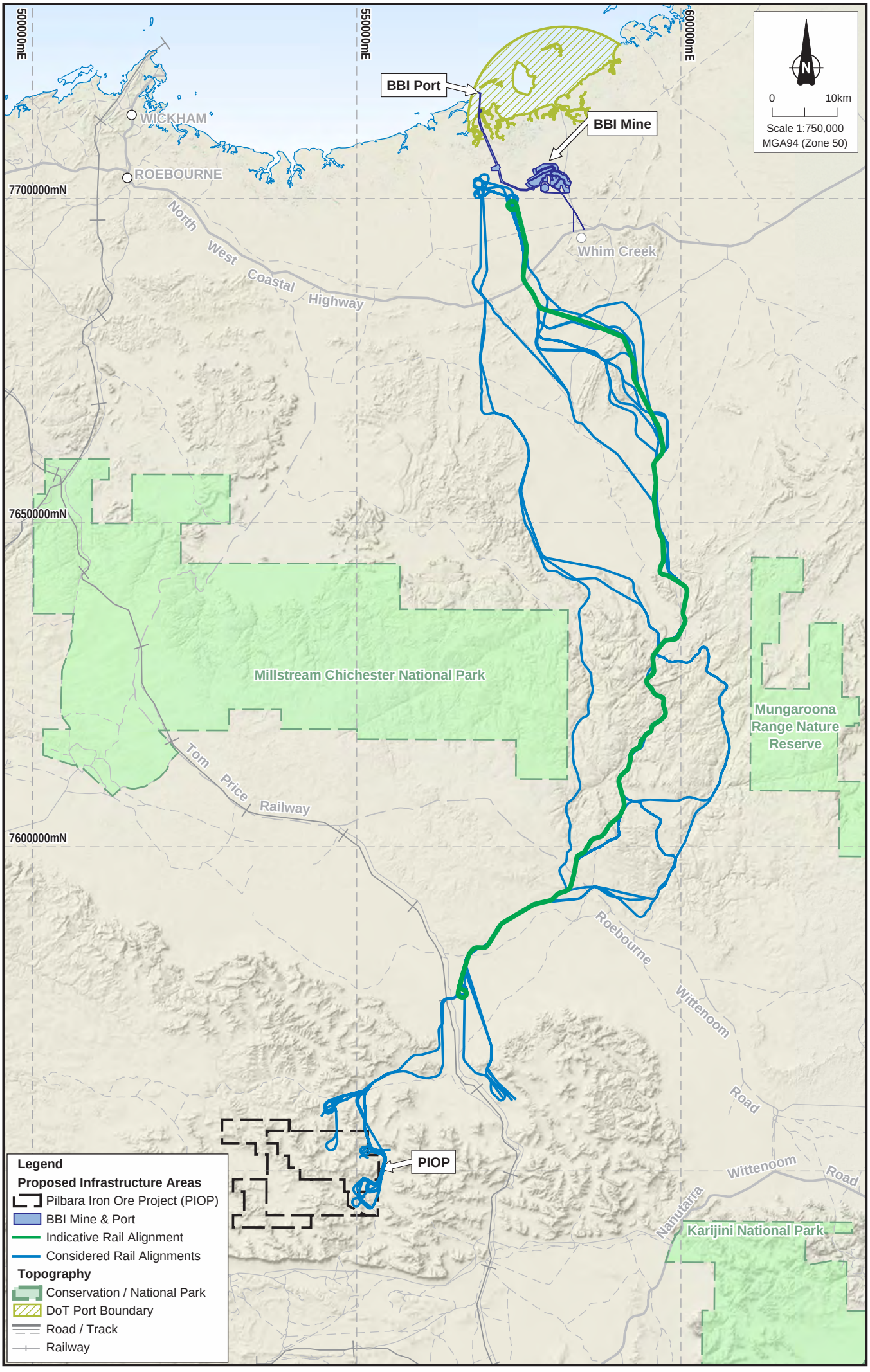

Figure 5: Alternative rail alignment options considered for the Proposal

4 STAKEHOLDER CONSULTATION

Rutila has identified the key stakeholders for the Proposal and in addition to identifying individual stakeholders, Rutila has also brought together multiple stakeholders where necessary to ensure there is alignment between key decision making authorities.

A date record summary of consultation efforts is maintained by Rutila and will be used to support the government approvals process by demonstrating that key stakeholder have been identified and will be added to when new stakeholders arise. This summary of stakeholder consultation is provided in Appendix 3.

Table 5 details the key stakeholders that Rutila has consulted with that are relevant to this Proposal.

Table 5: Relevant stakeholder consultation records

Stakeholder	Date	Topics / issues raised	Proponent response / outcome
OEPA	Ongoing monthly meetings	• Submission, format and content of the API document (this document); • Presentation of outcomes of biological surveys; • Key factors; • Review of draft EIA summary table; and • Project updates.	Rutila will continue to inform OEPA of design changes and the status of surveys and approval submissions.
DER	21 Nov 2014	• Presentation of the Proposal; • Licensing of various infrastructure that form part of the Proposal under Part V of the EP Act, including: o BBIP Stockyard and conveyor connection to BBIP; o Wastewater treatment plants; o Landfill(s) (if required); and o Mobile crushing facilities (if required).	Rutila will obtain works approvals and licences under Part V of the EP Act prior to construction and operation respectively.
DoW	14 Oct 2014	• Presentation of the Proposal; • Groundwater abstraction along the rail alignment; • Submission of 26D and Bed and Banks Permit applications for groundwater investigations; and • DoW informed Rutila that the Millstream aquifer should be considered to be completely allocated.	Rutila will submit 5C licence applications for all groundwater abstraction for the Proposal.
Department of the Environment (DoE) (Commonwealth)	24 Sep 2014	• Presentation of the Proposal; • Presentation of outcomes of biological surveys; • Presentation of potential impacts to Matters of National Environmental Significance (MNES); • Expected submission dates for EPBC Act referral; and • Cost-recovery.	Rutila will consider DoE's advice when preparing the EPBC Referral.
DPaW	Oct - Nov 2014	• Information regarding the Proposal and potential impacts to conservation significant species provided via phone and email; and • DPaW originally stated that a meeting would not be necessary as no major concerns were raised, however recently have requested a project presentation (to occur in December	Rutila will continue to liaise with DPaW as required, however no concerns were raised.

Stakeholder	Date	Topics / issues raised	Proponent response / outcome
		2014).	
Department of State Development	Ongoing	Discussions and acceptance of the Proposal.	Proposal accepted.
PPA	Ongoing	• Proposed Port Land and lease / licence boundaries; and • Transfer from Department of Transport jurisdiction.	Development application and lease/licence applications for the development of the Proposal will be submitted.
Ngarluma Aboriginal Corporation	Ongoing	• Tenure boundaries & potential disturbance impacts discussed; • Employment, contracting and training opportunities discussed; and • Heritage surveys completed.	General favourable feedback of Proposal, discussion ongoing.
Yindjibarndi Aboriginal Corporation	Ongoing	• Tenure boundaries & potential disturbance impacts discussed; • Employment, contracting and training opportunities discussed; and • Heritage surveys completed.	Proposal welcomed.
Wunambal Gaambera Aboriginal Corporation	Ongoing	Proposal discussed including relationship to PIOP.	Proposal welcomed.
Coolawanyah Pastoral Station	Ongoing	• Tenure boundaries & potential disturbance impacts discussed; and • Early works progressing.	Proposal generally accepted, discussions ongoing.
Sherlock Pastoral Station	Ongoing	• Tenure boundaries & potential disturbance impacts discussed; and • Early works progressing.	Proposal accepted.
Mallina Pastoral Station	Ongoing	• Tenure boundaries & potential disturbance impacts discussed; and • Early works progressing.	Proposal welcomed.
Flinders	Ongoing	• PIOP export requirements; • Timeframe targets; • Infrastructure connections; • Use of Flinders camp for biological surveys; and • Sharing of environmental information and resources.	Rutila will continue to liaise with Flinders throughout the life of the Proposal.
Department of Transport	Ongoing – Last consultation was 19 Nov 2014	• Transfer marine vesting; and • Input to marine & rail design/philosophy.	Proposal accepted.
Main Roads Western Australia	19 Nov 2014	The design of the NWCH crossing.	Proposal accepted.

5 RELEVANT STUDIES

In preparation of the Proposal, publically available information was considered, however most of the Proposal Area had not been subject to biological surveys, with the only known information relating to the approved BBIP and Balla Balla Infrastructure Mine at the north of the Proposal Area and the PIOP at the southern extent.

Rutila planned and implemented a series of studies to confirm specific aspects of baseline environmental information and likely impacts associated with the Proposal. Ecoscape Australia Pty Ltd (Ecoscape) conducted the flora and vegetation surveys and Phoenix Environmental Pty Ltd (Phoenix) conducted the terrestrial fauna surveys. These studies are listed and described in Table 6, and provided in Appendix 1 for reference.

Table 6: Summary of environmental surveys

Survey/ investigations name	Study Area, type and timing	Study standard / guidance and limitations
Flora and Vegetation		
Rutila Resources Railway Corridor Flora and Vegetation Assessment. June 2014.	Desktop assessment and reconnaissance survey conducted in May 2014.	• EPA Guidance Statement No. 51 • Position Statement No. 3 • Consultation with DPaW **Limitations:** None.
Rutila Resources Railway Corridor Flora and Vegetation Assessment. November 2014.	• 57, 063 ha Study Area; • Single season Level 2 survey; and • Desktop review and field survey in Jul – Aug 2014.	• EPA Guidance Statement No. 51 • Position Statement No. 3 • Consultation with DPaW **Limitations**: • Field survey was conducted outside the optimal period for Pilbara botanical surveys as outlined in Guidance Statement No. 51. There were moderate constraints in this regard in some areas and some vegetation types that had a significant annual or ephemeral component. • All other limitations were considered negligible.
Terrestrial Fauna		
Terrestrial Fauna Surveys for the Rutila Resources Railway Corridor. Final Report. November 2014.	• 27,064 ha Study Area; • Level 1 terrestrial fauna survey and Level 2 short-range endemic (SRE) survey conducted in June and July 2014; and • Targeted vertebrate fauna survey conducted 26 Aug – 4 Sep 2014.	• EPA Guidance Statement No. 51 • EPA Guidance Statement No. 56 • EPA Guidance for the Assessment of Environmental Factors No. 20 • Position Statement No. 3 • Consultation with DPaW **Limitations:** • *Scope and completeness* – Pilbara Olive Python surveys presented difficulty without the capacity of the field team to undertake night surveys. • *Proportion of fauna identified, recorded and/or collected* – The scope did not include systematic Level 2 trapping, therefore comprehensive assemblage data was not collected • *Availability of adequate contextual information* –Paucity of comparative data in the area regarding approximate/typical abundance and distribution of many species, including the target species in the targeted fauna survey.
Addendum to: Terrestrial Fauna Surveys for the Rutila Resources Railway Corridor. November 2014.	Level 1 field survey conducted on 20-22 October 2014.	• Study standard / guidance as above. **Limitations**: • Habitat mapping was conducted mainly at a broad scale, based on information collected during flights over the Study Areas and only ground-truthed at survey sites.

Rutila will also be conducting detailed assessments prior to construction such as:

- Geotechnical investigations and test pits, including watercourse crossing locations. These investigations will provide information for bridge and culvert design, embankment materials and potential borrow pit locations;
- Groundwater source investigation drilling, pump-testing and sustainable yield assessments at target locations along the length of the Proposal Area;
- Landfill siting investigations if waste is to be disposed of onsite;
- Nutrient loading assessments for wastewater disposal (i.e. from sewage treatment plants); and
- Flow rate and volume assessments at watercourse crossings to inform culvert or bridge design.

6 ASSESSMENT OF PRELIMINARY KEY ENVIRONMENTAL FACTORS

6.1 DETERMINATION OF KEY ENVIRONMENTAL FACTORS

This API document has taken into account advice about the recent guidance document being prepared for release by the OEPA. This section will focus on the environmental factors that are deemed to be 'key' factors; those with the potential to be significantly impacted and could not be appropriately managed under other existing legislation. Potential impacts to these key factors are described in detail and assessed using the information provided from relevant studies specific to the Proposal. 'Other' environmental factors are discussed briefly in Section 7, with a focus on demonstrating that they can be appropriately managed using a combination of industry-standard controls and other existing legislation. In summary, this section will describe the most relevant impacts and characteristics of the Proposal for assessment and provides all related biological reports and survey results as Appendices (Appendix 1).

Rutila and Preston Consulting Pty Ltd conducted an assessment of the potential environmental impacts of the Proposal and determined that flora and vegetation and terrestrial fauna were the two 'key' environmental factors that required a detailed assessment in this API document.

The hydrological processes environmental factor was originally considered to be a 'key' environmental factor due to the potential for the rail embankment to impact Sheetflow dependent vegetation, however none was identified in the flora and vegetation surveys. Remaining impacts to this factor (i.e. those associated with watercourse crossings) were expected to be able to be managed using industry-standard design commitments and the requirements of the SRL and PPA approvals.

6.2 FLORA AND VEGETATION

6.2.1 CONTEXT

Policy Context

The Proposal Area passes between the Millstream Chichester National Park and Mungaroo Range Nature Reserve (avoidance of these reserves was identified early as a key constraint for the Proposal), however it does pass through a Redbook area. This Redbook area (shown in Figure 4) lies immediately west and adjacent to the Millstream Chichester National Park and covers an area of 73,585 ha (Figure 4).

Relevant Baseline Information

The following information summarises the relevant findings of the flora and vegetation surveys undertaken by Ecoscape (2014). The complete reports have been provided in Appendix 1 for reference.

Flora:

- No plant taxon recorded in the Study Area was listed as Threatened under the EPBC Act;
- No plant taxon recorded in the survey is gazetted as a TF pursuant to Subsection 2 of Section 23F of the *Wildlife Conservation Act 1950* (WA) (WC Act);
- Nine Priority Flora (PF) species were found:
  - P1 taxa *Abutilon* sp. Pritzelianum (S. van Leeuwen 5095), *Helichrysum oligochaetum*, *Heliotropium muticum*;
  - P2 taxon *Pentalepis trichodesmoides* subsp. *Hispida;*
  - P3 taxa *Indigofera* sp. Bungaroo Creek (S. van Leeuwen 4301), *Oldenlandia* sp. Hamersley Station (A.A. Mitchell PRP 1479), *Sida* sp. Barlee Range (S. van Leeuwen 1642); and
  - P4 taxa *Goodenia nuda*, *Rhynchosia bungarensis*.
- 17 other PF have the potential to occur but were not recorded;
- Two taxa were found that have a significant range extension (*Gyrostemon tepperi* and *Sida* sp. Rabbit Flat (B.J. Carter 626));
- One previously undescribed species was found, known as *Acacia* sp. that was at times a dominant component of the mid stratum; and
- 16 introduced species were located, none of which were Declared Pest plants or listed on any weed register.

Vegetation:

- 90.6% of the vegetation in the Study Area was found to be in Excellent condition, with 6.2% in Very Good condition. Areas that were mapped in lesser condition had been impacted by cattle grazing and weed invasion (Ecoscape, 2014);
- None of the vegetation types recorded within the Study Area are considered likely to represent a Threatened Ecological Community (TEC). The nearest known TEC is more than 20 km from the Study Area;
- One vegetation type was considered to represent the P3 'Horseflat Land System of the Roebourne Plains' PEC (shown on Figure 6) (vegetation type **Ex_1**) and another four vegetation types may represent other subtypes of this PEC (vegetation types **Te(1)**, **Tw(1)**, Mattiske **FPg1** and **Cc_2AbEb**);
- One vegetation type may represent (Shown on Figure 7) the P1 'Cracking clays of the Chichester and Mungaroona Range' subtype of the 'Four plant assemblages of the Wona land system' PEC (vegetation type **Sb**);
- Groundwater Dependant Ecosystems (GDEs) occur within the Study Area, predominantly along major drainage lines;
- Three vegetation types may be significant according to the *EPA Guidance Statement No. 51. Terrestrial Flora and Vegetation Surveys for Environmental Impact Assessment in Western Australia* due to having small representation/restricted distribution (vegetation types (**ElAs3Tm**, **FbGpEm** and **AmEe**);
- Two vegetation types have an association with poorly represented land systems (**AmEe** and **As_3** associated with the Gregory land system); and
- The characteristics of one vegetation type is similar to other vegetation that was considered significant in other surveys in the region (vegetation types **ElEgTw**).

Due to recent design refinements, there are some portions of the Proposal Area that do not align with the area examined by Ecoscape during their level 2 survey (Figure 8). All of these portions are within the boundaries of the desktop survey buffer (Appendix 1).

Relevant Design Considerations

Of note is that the BBIP rail loop has been relocated approximately 4.5 km to the south-east, which has significantly reduced impacts to the P3 'Horseflat Land System of the Roebourne Plains' PEC (Figure 6). Rutila has amended the original Proposal Area boundary to reflect this change.

Up to 1,800 ha of ground disturbance will be required during operations. The balance between the vegetation disturbed during construction and what is required during operations will be rehabilitated once the areas are no longer required.

6.2.2 POTENTIAL SIGNIFICANT IMPACTS WITHOUT MITIGATION

Ground disturbance such as direct clearing, earthmoving activities and increased vehicular traffic, predominantly during the construction of the Proposal may result in the following impacts:

- Direct loss of primarily Very Good to Excellent condition native vegetation within the Proposal Area (96.8% is expected to be in Very Good to Excellent condition (Ecoscape, 2014));
- Direct loss of PF individuals or populations;
- Clearing of vegetation within PEC or potential PEC vegetation types. 324.5 ha of the P3 'Horseflat Land System of the Roebourne Plains' PEC is located within the Proposal Area (another four vegetation types that may represent other subtypes of this PEC (equates to an additional 140 ha) have been excluded from the Proposal Area by amending the boundaries). One vegetation type may represent the P1 'Cracking clays of the Chichester and Mungaroona Range' subtype of the 'Four plant assemblages of the Wona land system' PEC, which covers an area of 32 ha (Figure 7);
- Direct loss of locally significant vegetation;
- Indirect impacts to vegetation health through a range of mechanisms such as dust, flooding or erosion; and
- Transfer of existing weeds, or the introduction of new weed species during construction and/or operation.

The rail embankment will cross numerous minor and major watercourses along the length of the rail alignment. Without mitigation these watercourse crossings may cause flooding and erosion. This may result in the decline in vegetation health within affected areas.

The abstraction of groundwater will be required at various locations along the length of the rail alignment. Target groundwater abstraction zones may align with areas of GDEs and without mitigation this abstraction may result in significant groundwater drawdown that could potentially result in a decline in vegetation health within the affected GDEs.

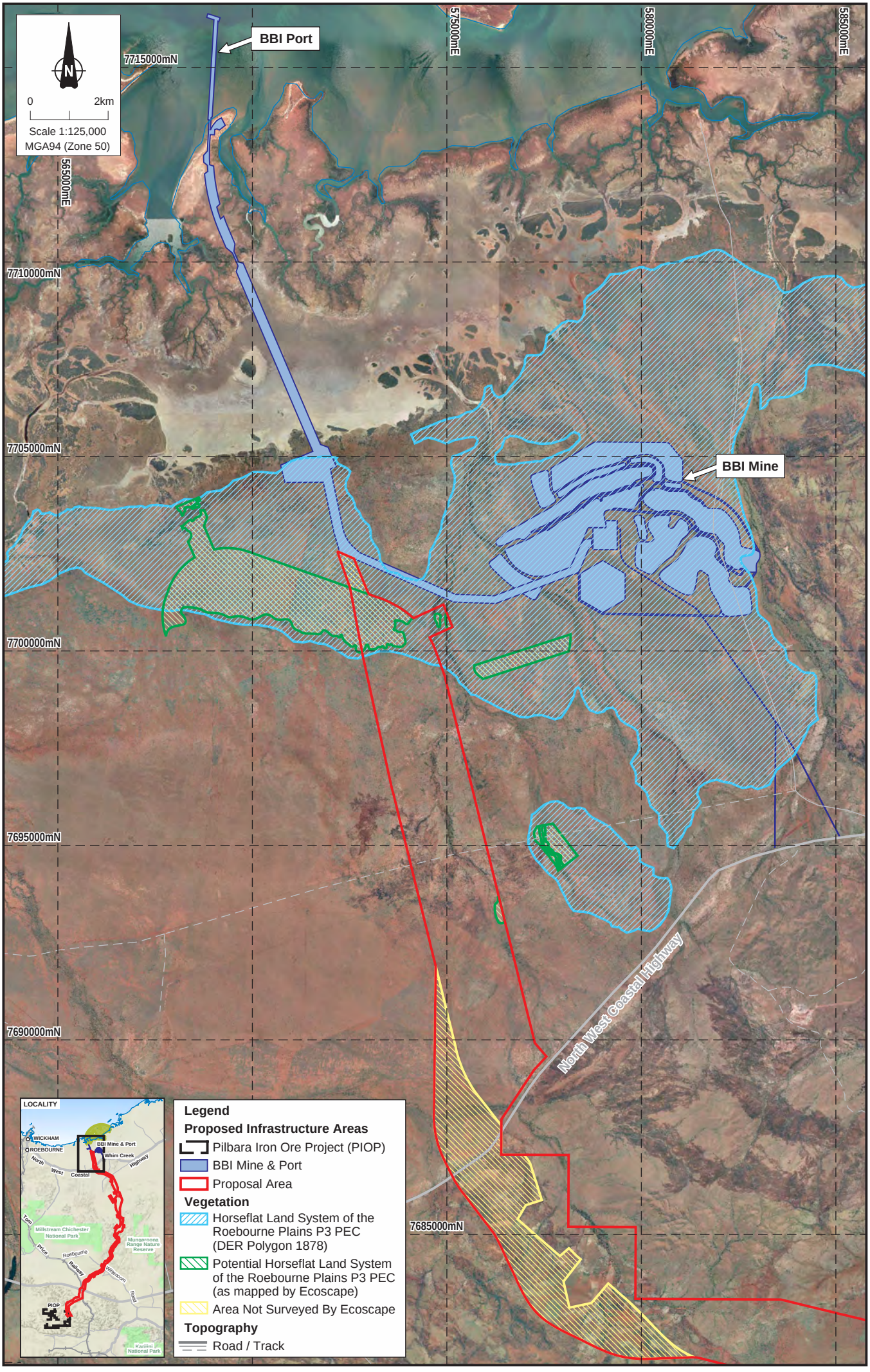

Figure 6: Priority Ecological Communities of the Northern Portion of the Rail Corridor

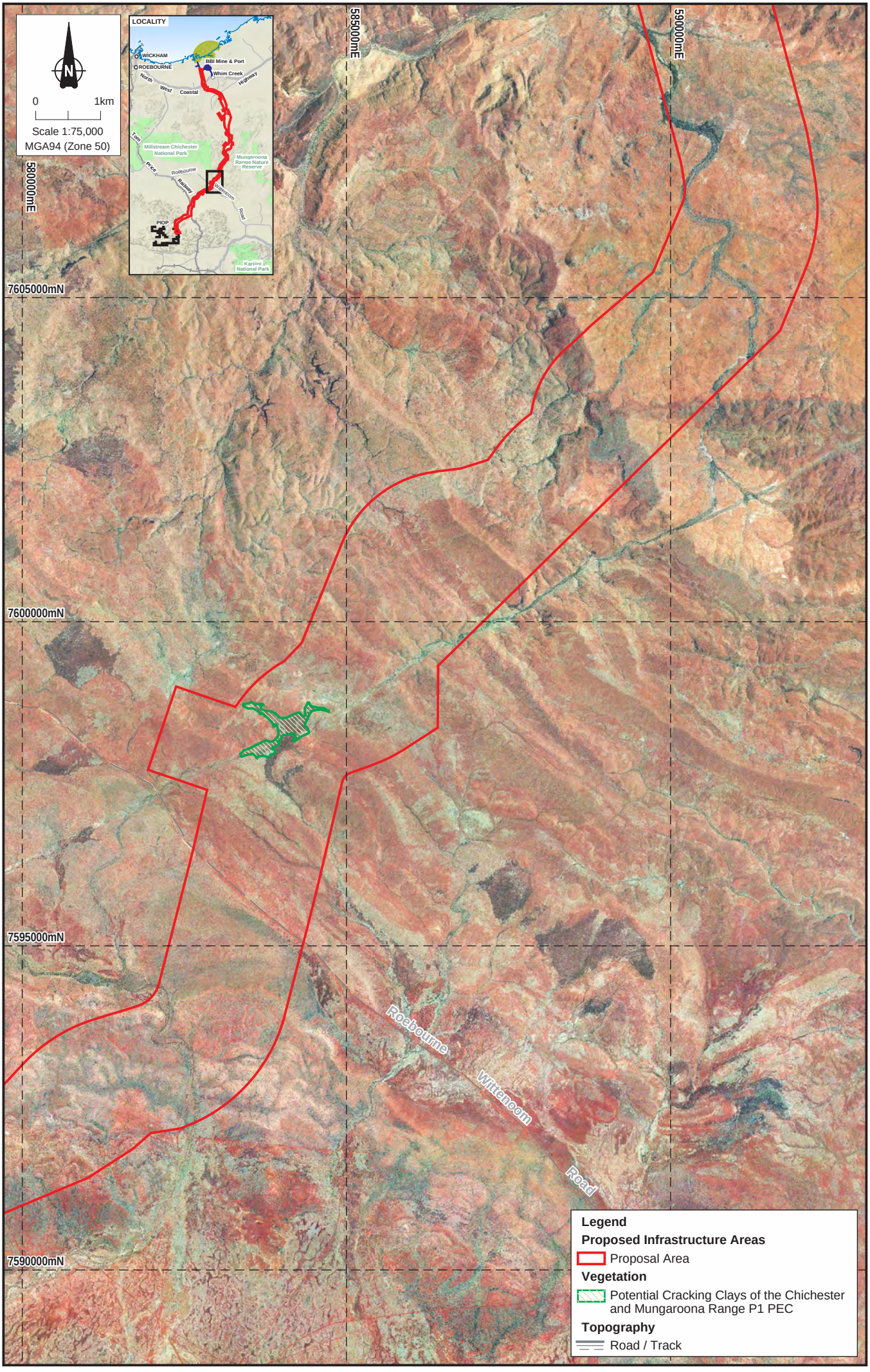

Figure 7: Priority Ecological Communities of the Southern Portion of the Rail Corridor

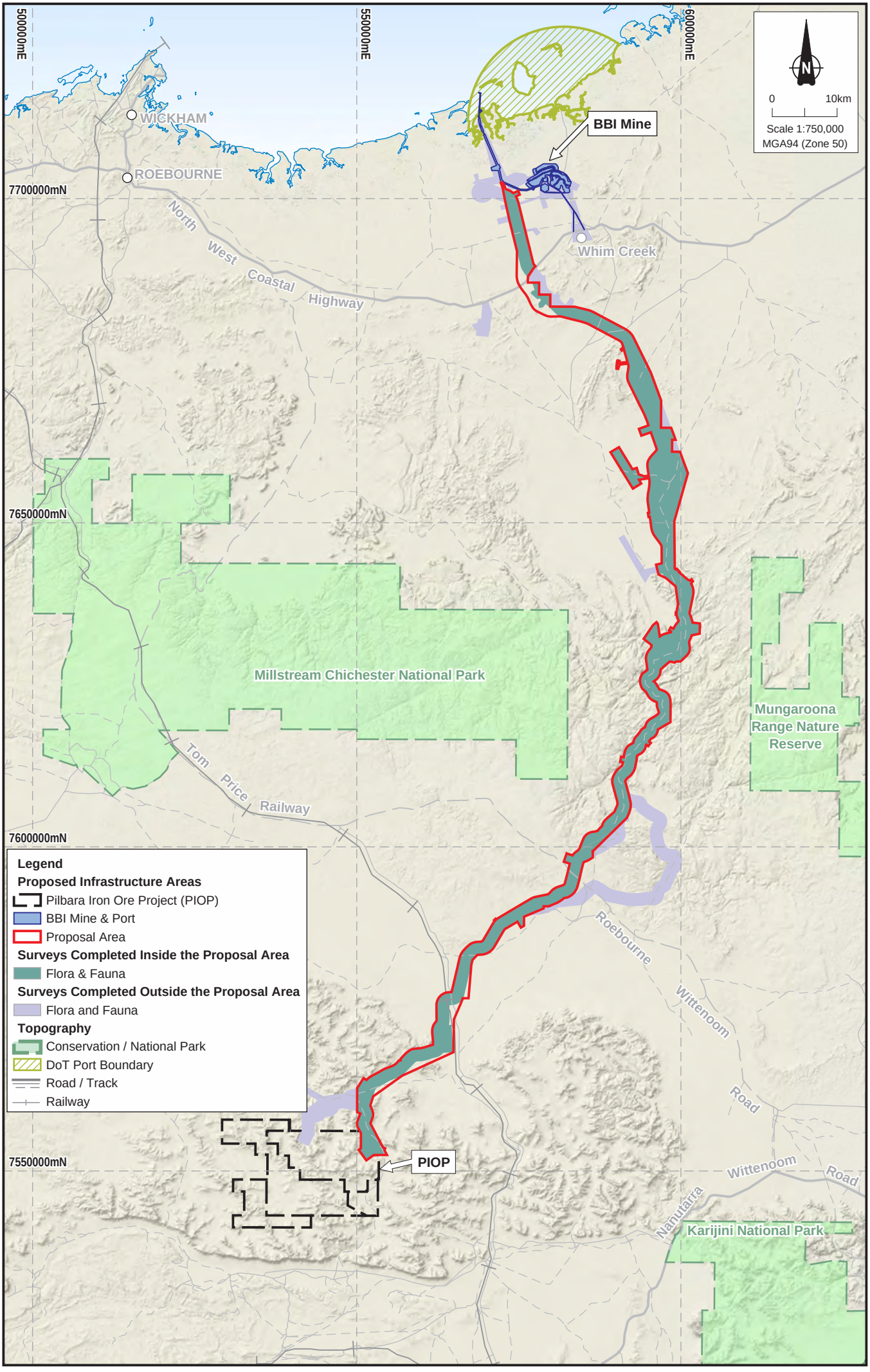

Figure 8: Study Areas and Proposal Area boundaries

6.2.3 PROPOSED MANAGEMENT (MITIGATION)

Rutila proposes to implement appropriate management measures to mitigate the potential impacts described in Section 6.2.2 above. The management measures have been divided into two types of controls; industry best-practice controls and additional Proposal-specific controls. Industry best-practice controls to be implemented are listed below:

- Develop the disturbance footprint to the minimum required to ensure safe and adequate construction and operation;
- Construction and Operational EMPs will be developed and implemented;
- Internal ground disturbance procedures and a ground disturbance permit (GDP) system will be developed prior to the commencement of ground disturbance. Vegetation clearing will only occur if accompanied by an approved GDP;
- Boundaries of areas to be cleared or disturbed will be identified by GPS coordinates and maps of boundaries will be provided to the bulldozer operator;
- Clearing will be undertaken in a progressive manner, as close as reasonably practicable prior to construction;
- Topsoil and vegetation will be pushed to the side of disturbance areas or corridors for use in rehabilitation;
- Conduct raised blade disturbance where practicable on temporary disturbance areas;
- Apply water or dust suppressants to disturbed areas and ore transfer/storage areas to minimise dust generation;
- Incorporate surface water management and erosion protection into project planning and design to minimise disruption to watercourses and riparian vegetation;
- Implement measures to manage surface water flows along the length of the rail alignment to minimise downstream effects;
- Locate and operate groundwater abstraction bores in accordance with DoW requirements such that groundwater drawdown is minimised within areas of confirmed GDEs;
- Implement weed hygiene and management measures/procedures to prevent spread of weeds and the introduction of new weed species as a result of construction and operation; and
- Clean vehicles prior to entering vegetated areas to prevent the introduction of new weed species.

The following additional Proposal-specific management measures will be employed by Rutila to avoid, minimise and/or mitigate potential impacts to flora and vegetation:

- Conduct additional flora and vegetation surveys of any portions of the Proposal Area that have not yet been surveyed. Figure 8 shows areas that were not subject to a Level 2 survey (however all areas lie within the boundaries of the desktop survey buffer). Rutila will ensure that each area is surveyed to an appropriate level. A desktop survey is expected to be suitable for most areas given the lack of TF or TECs, however a site survey to map the boundaries may occur if potential PEC vegetation is identified;
- Develop Infrastructure Plan and submit to OEPA for approval prior to the commencement of construction. This Proposal is being submitted prior to detailed design, therefore flexibility is critical at this early stage. The Infrastructure Plan will be

completed following detailed design and will finalise the required disturbance to key environmental features, and will include the results of the surveys discussed above;

- An offset is to be provided for clearing of up to 3,000 ha of Very Good to Excellent condition vegetation, based on the results of the Infrastructure Plan. The Infrastructure Plan will provide accurate details of disturbance of Very Good or Excellent condition vegetation within each land system;
- Identify the status and map the extent of the potential P1-P3 'Four plant assemblages of the Wona Land System' PEC identified in the Proposal Area;
- Vegetation confirmed to form part of a PEC is to be considered a key constraint – the rail alignment design will be assessed to avoid PECs where practicable. Flexible infrastructure (camps, access roads, borrow pits etc.) will be located outside of the PEC boundaries where practicable. The Infrastructure Plan will finalise the expected impact prior to construction and demonstrate how the above actions were incorporated into the design;
- Locally significant vegetation and known PF locations will be included in a design constraints map to be used during detailed project planning. These locations will be avoided if suitable alternative options for the rail alignment are available. Flexible infrastructure (camps, access roads, borrow pits etc.) will be sited to avoid or minimise impacts to these locations. The Infrastructure Plan will finalise the expected impact prior to construction and demonstrate how the above actions were incorporated into the design;
- Appropriate buffers will be applied around locally significant vegetation, PECs and PF if necessary based on the construction activities to be undertaken (i.e. to minimise indirect impacts from dust, flooding etc.); and
- Groundwater abstraction bores to be located and operated such that groundwater drawdown is minimised within areas of confirmed GDEs.

Rutila will ensure that all staff, contractors and visitors are made aware of obligations and objectives regarding the protection of native vegetation.

6.2.4 REGULATION

The Ministerial Statement released as a result of this API process is expected to regulate impacts to flora and vegetation, either via limits in the key characteristic table or via conditions, including the following:

- Limit of ground disturbance during construction period;
- Limit of ground disturbance during operations period, with a requirement for the remaining balance (construction disturbance minus operations disturbance) to be rehabilitated;
- Limit on disturbance within confirmed PEC boundaries;
- Confinement of activities to within defined Proposal Area;
- Condition requiring the submission and approval of an Infrastructure Plan prior to construction; and
- Condition requiring offsets for the disturbance of Very Good to Excellent condition vegetation. Condition is expected to set a price per hectare for each bioregion.

The EPBC Act will regulate any potential impacts to MNES flora or vegetation resulting from Proposal implementation (however none have been found so far). Rutila is referring the Proposal to DoE in parallel to this API submission, however this will be for impacts to MNES fauna.

Part V of the EP Act and the Environmental Protection (Unauthorised Clearing) Regulations 2004 can address any unauthorised clearing that may occur outside of the areas approved through the Part IV EP Act process.

The management of weeds will be in accordance with the requirements of the *Agriculture and Related Resources Protection Act 1976.*

Several approvals relate to the design of the Proposal, and will ensure it complies with relevant standards. These include a future State Agreement Act proposal for the rail corridor, a mining proposal to be submitted under the Mining Act for the conveyor, and Port Authority approvals for works within the PPA boundary (boundaries are still in negotiation, however this will cover the northern portion of Proposal).

6.2.5 OUTCOME AND ASSESSMENT AGAINST EPA OBJECTIVE

Predicted Outcomes

The outcomes presented in this section have been determined using the best available information. Given that the Proposal is intended to allow some flexibility through the design phase, these outcomes have allowed for a level of conservatism where impacts cannot be accurately defined.

After the application of management and mitigation measures have been considered, the Proposal will result in the disturbance of up to 3,000 ha of native vegetation. It is expected that 1,800 ha of these disturbed areas will be required during operations. The remainder (estimated 1,200 ha) will be rehabilitated at the completion of the construction phase. Progressive rehabilitation may occur if viable. A conservative estimate is that all of the vegetation to be disturbed is either in Very Good or Excellent condition (96.8% of the vegetation within the Study Area falls within either of these categories).

The final disturbance extent within each bioregion will be confirmed with the submission of the Infrastructure Plan prior to construction. This information will be used to determine offset requirements. The cost of the offset contribution per hectare for each bioregion is expected to be set by the EPA as part of the ministerial conditions.

The proposed disturbance is not expected to result in a significant decline in the extent of vegetation associations as all are almost completely intact (i.e. >97.8% remaining) and the Proposal is linear in nature (i.e. disturbance is spread across up to 15 associations).

TECs or TF species are not expected to be impacted by the Proposal as none have been recorded within or in close proximity to the Proposal Area.

The BBIP rail loop has been relocated approximately 4.5 km to the south-east, which has significantly reduced impacts to the P3 'Horseflat Land System of the Roebourne Plains' PEC. Up to 324.5 ha of this PEC still lies within the Proposal (and may be disturbed), however this equates to a disturbance of only 2.3% of the overall PEC polygon (PEC polygon 1878), in

addition to the 0.58% disturbance associated with the BBIP. A portion of the PEC may be disturbed however it is expected to be significant from a local or regional perspective

Up to 6 ha of the vegetation that may represent the P1 'Cracking clays of the Chichester and Mungaroona Range' sub-type of the 'Four plant assemblages of the Wona Land System' PEC is expected to be impacted as it lies within a confined valley. The implementation of management actions identified in Section 4.3.1.4 will minimise the impacts to this potential PEC, however up to 19% of the polygon will be disturbed. This PEC extends over approximately 127,050 ha of the Pilbara, therefore the Proposal is not expected to significantly impact the PEC on a regional scale.

No SFDV will be impacted as none was found within the Proposal Area. Environmental culverts are therefore not expected to be required.

PF have been recorded within the Proposal Area and despite the implementation of the listed management measures some plants or populations may not be able to be avoided. It must also be assumed that there will be other PF plants or populations within the Proposal Area that have not yet been located given that it is not possible to locate every plant over such a large area. The Proposal is however not expected to significantly impact or affect the conservation status of any PF species given that some species thrive on disturbed areas and populations may therefore increase and most species have a wide distribution or are locally common (refer to Phoenix (2014) in Appendix 1 for additional information about PF).

The Proposal is unable to avoid passing through a Redbook Area (Figure 4), as the alternative would be to pass through the Millstream Chichester National Park or the Mungaroona Range Nature Reserve. The linear nature of the Proposal however means that impacts to the value of this Redbook Area will not be significantly affected.

Indirect impacts are not expected to be significant as the implementation of best-practice industry controls has suitably managed these impacts in similar projects across the Pilbara.

Any occurrences of new weed species or the spread of existing weeds will be contained within the Proposal Area and controlled through eradication measures.

Degree of Uncertainty

There are some uncertainties associated with the predicted outcomes, however none of these are expected to be significant. These include:

- Areas of the Proposal Area that lie outside Ecoscape's Level 2 survey area (Figure 8). These areas were within the boundary of Ecoscape's desktop survey however and nothing significant was found in those areas. These areas will be subjected to a Level 2 survey prior to construction, with the findings being included in the Infrastructure Plan. The proposed key characteristics limits and conditions are expected to ensure that any uncertainty does not result in changes to the predicted impacts. The degree of uncertainty for the predicted outcomes is therefore low; and
- The Level 2 survey occurring over a single season. It is expected that sufficient information was gathered during the single season Level 2 survey to allow an assessment of impacts to this factor. A second season may lead to the identification of additional PF species or locations however given the linear nature of the Proposal, and the wide-ranging habitat of the majority of PF, it is unlikely that this information would alter the predicted outcome.

Alignment with EPA Objective

Given that up to 3,000 ha of Very Good to Excellent condition vegetation is required to be disturbed to implement the Proposal, the Proposal was predicted to have a residual impact for this factor. Taking into consideration the application of offsets however, Rutila expects that the Proposal can be implemented to meet the EPA objective for this factor.

6.3 TERRESTRIAL FAUNA

6.3.1 CONTEXT

Policy Context

As discussed in Section 6.2.1, the Proposal Area passes between the Millstream Chichester National Park and Mungaroo Range Nature Reserve (avoidance of these reserves was identified early as a key constraint for the Proposal), however it does pass through a Redbook area. This Redbook area (shown in Figure 4) lies immediately west and adjacent to the Millstream Chichester National Park and covers an area of 73,585 ha (Figure 4).

Relevant Baseline Information

The following information summarises the major findings of the terrestrial fauna surveys undertaken by Phoenix. Unless otherwise stated, the following text should be considered to be a direct reference to Phoenix (2014a).

Eight broad fauna habitats were mapped by Phoenix within the Study Area. These fauna habitats, along with their extent of occurrence within the Study Area, are detailed in Appendix 1. Three fauna habitats were limited in extent; Woodland, Gully and Isolated Sand Dune, each covering less than 1% of the Study Area.

A total of 128 vertebrate fauna species were recorded during the field surveys. Five species of conservation significance were recorded during the survey from direct sightings, secondary evidence, echolocation recordings and camera traps:

- Northern Quoll (*Dasyurus hallucatus*) (Endangered – EPBC);
- Rainbow Bee-eater (*Merops ornatus*) (Migratory – EPBC);
- Lined Soil-crevice Skink (*Notoscincus butleri*) (Priority 4 – DPaW);
- Australian Bustard (*Ardeotis australis*) (Priority 4 – DPaW); and
- Western Pebble-mound Mouse (*Pseudomys chapmani*) (Priority 4 – DPaW).

Northern Quoll was recorded from trapping, camera trapping, scats and bones. During the targeted survey, 21 Northern Quoll individuals were recorded at three sites and based on population estimates this reflects the number of animals in the trapping area. Approximately 640 ha of suitable denning and shelter habitat for Northern Quoll was mapped over several land systems as scattered 'patches' within the Study Area. The habitat is considered significant habitat for the species. The land systems containing suitable habitat are also well represented in the Study Area surrounds. It is likely that Northern Quoll occur more broadly in suitable habitat in these areas, including within the Chichester and Hamersley Ranges which extend widely east and west of the Study Area.

The Rainbow Bee-eater (*Merops ornatus*) and Lined Soil-crevice Skink (*Notoscincus butleri*) were directly sighted within the Study Area. Tracks of the Australian Bustard (*Ardeotis australis*) and an inactive mound of the Western Pebble-mound Mouse (*Pseudomys chapmani*) were also recorded. The records of the Lined Soil-crevice Skink from the survey represent an easterly range extension of approximately 40 km. The survey records from within spinifex grassland habitat are consistent with the habitat type of the majority of previous records for the species. This habitat is well represented both within the Study Area and more broadly outside of the Study Area and it may occur more commonly in the broader region. The Rainbow Bee-eater, Australian Bustard and Western Pebble-mound Mouse are common and widespread throughout the Pilbara bioregion and the records of these species from the surveys are not considered to be significant.

Based on habitats present in the Study Area, known distributions and nearby records, a further 23 conservation significant species may potentially occur in the Study Area (Phoenix, 2014a):

Reptiles:

- Gane's Blind Snake (*Anilios ganei*) (Priority 1 – DPaW); and
- Pilbara Olive Python (*Liasis olivaceus barroni*) (Vulnerable – EPBC Act), (Schedule 1 – WC Act).

Birds:

- Flock Bronzewing (*Phaps histrionica*) (Priority 4 – DPaW);
- Fork-tailed Swift (*Apus pacificus*) (Migratory – EPBC Act), (Schedule 3 – WC Act);
- Eastern Great Egret (*Ardea modesta*) (Migratory – EPBC Act), (Schedule 3 – WC Act);
- Glossy Ibis (*Plegadis falcinellus*) (Migratory – EPBC Act), (Schedule 3 – WC Act);
- White-bellied Sea-Eagle (*Haliaeetus leucogaster*) (Migratory – EPBC Act), (Schedule 3 – WC Act);
- Grey Falcon (*Falco hypoleucos*) (Schedule 1 – WC Act), (Vulnerable – DPaW);
- Peregrine Falcon (*Falco peregrinus*) (Schedule 4 – WC Act);
- Bush Stone-curlew (*Burhinus grallarius*) (Priority 4 – DPaW);
- Common Sandpiper (*Actitis hypoleucos*) (Migratory – EPBC Act), (Schedule 3 – WC Act);
- Common Greenshank (*Tringa nebularia*) (Migratory – EPBC Act), (Schedule 3 – WC Act);
- Wood Sandpiper (*Tringa glareola*) (Migratory – EPBC Act), (Schedule 3 – WC Act);
- Oriental Pratincole (*Glareola maldivarum*) (Migratory – EPBC Act), (Schedule 3 – WC Act); and
- Star Finch (*Neochmia ruficauda subclarescens*) (Priority 4 – DPaW).

Mammals:

- Brush-tailed Mulgara (*Dasycercus blythi*) (Priority 4 – DPaW);
- Long-tailed Dunnart (*Sminthopsis longicaudata*) (Priority 4 – DPaW);
- Bilby (*Macrotis lagotis*) (Vulnerable – EPBC Act), (Schedule 1 – WC Act);
- Northern Marsupial Mole (*Notoryctes caurinus*) (Endangered – EPBC), (Schedule 1 – WC Act), (Endangered –DPaW priority fauna list);
- Spectacled Hare-wallaby (*Lagorchestes conspicillatus leichardti*) (Priority 4 – DPaW);
- Black-flanked Rock-wallaby (*Petrogale lateralis lateralis*) (Vulnerable – EPBC Act), (Schedule 1 – WC Act), Vulnerable – DPaW);

- Ghost Bat (*Macroderma gigas*) (Priority 4 – DPaW); and
- Short-tailed Mouse (*Leggadina lakedownensis*) (Priority 4 – DPaW).

No evidence of Bilby, Mulgara, Northern Marsupial Mole, Pilbara Olive Python or any new *Lerista* species was recorded during the targeted fauna survey. Approximately 3,600 ha of habitat characterised by burrowing substrate and adequate vegetation structure suitable to support Bilby and Mulgara was mapped within the Study Area, although habitat quality was variable within these mapped areas. Land system mapping indicates the potential habitat extends well beyond the Study Area, both to the east and west.

It is highly likely the Pilbara Olive Python occurs within the Study Area, particularly in the (approximately) 40 km section containing creekline habitat within the Rocklea land system. This habitat occurs in the central part of the Proposal Area and was identified as very suitable for the species (Figure 2 and Figure 3). The habitat is lined by rocky land features and dotted with permanent pools which are ideal for basking, foraging and sheltering. The Rocklea land system extends well outside the Study Area. Minor creeklines, permanent waterholes and rocky refuges suitable for this species were evident in the Rocklea land system from aerial observations beyond the Study Area boundaries.

The sand dune habitats are considered suitable to support the Northern Marsupial Mole. Because of the limited information available on the species distribution and biology, as well as sampling difficulties, its presence in this habitat cannot be conclusively ruled out based on the field survey results.

Thirteen likely or potential SRE invertebrates were collected from the Study Area comprising three arachnids, two centipedes, seven isopods and one snail. Eleven of these were collected from the field survey and two species were identified in the desktop review inside the Study Area, but were not collected in the present field survey. With the exception of slaters, all SREs were only recorded as higher taxonomic ranks (sp. indet.), morphological identification was not possible. Two slaters, *Buddelundia* '92' and *Buddelundia* '95' are currently only known from the Study Area, but are likely to occur more widely based on their apparent habitat preferences for rocky hill slopes and gullies, respectively.

Relevant Design Considerations

Up to 3,000 ha of general fauna habitat disturbance will be required during operations. The balance between the habitat disturbed during construction and what is required during operations will be rehabilitated once the areas are no longer required.

The rail alignment has been relocated to now avoid Phoenix's site Q5 (Nunyerry Gorge), which had the highest numbers of Northern Quoll during the Phoenix survey (Figure 2 and Figure 3). Rutila has amended their original Proposal Area boundary to reflect this change.

Rutila have reviewed disturbance requirements and can commit to the following from a design perspective:

- Disturbance of Northern Quoll denning /shelter habitat will be restricted to a maximum of 5 ha;
- No Northern Marsupial Mole habitat will be disturbed; and
- Disturbance of Pilbara Olive Python shelter habitat will be restricted to a maximum of 78 ha.

6.3.2 POTENTIAL SIGNIFICANT IMPACTS WITHOUT MITIGATION

Ground disturbance such as direct clearing, earthmoving activities and increased vehicular traffic during the construction and operation of the Project (predominantly during the construction phase of this Proposal) may result in the following impacts:

- Direct disturbance of up to 3,000 ha of general fauna habitat;
- Direct disturbance of potential conservation significant fauna habitat, including identified Northern Quoll, Bilby, Mulgara, Pilbara Olive Python and Northern Marsupial Mole habitat;
- Decline in habitat quality as a result of indirect impacts (such as dust or pollution);
- Alterations in fauna behaviour (such as breeding and foraging etc.) as a result of noise emissions from construction and operational activities; and
- Possibility of terrestrial fauna injury or death as a result of vehicle strike due to increased vehicular traffic within the Proposal Area.

6.3.3 PROPOSED MANAGEMENT (MITIGATION)

The Proposal design has, and will continue to, avoid and minimise clearing of higher value fauna habitat where practicable. The proposed rail alignment and locations of associated infrastructure were developed to optimise operational costs while being sensitive to the need to avoid or limit the impact to potential significant fauna values due to clearing and disturbance of habitat.

Rutila proposes to implement appropriate management measures to mitigate the potential impacts described in Section 6.3.2 above. The management measures have been divided into two types of controls; industry best-practice controls and additional Proposal-specific controls.

The proposed industry best-practice controls for ground disturbance (i.e. such as minimising disturbance, developing a GDP system, managing weeds etc.) listed in Section 6.2.3 will also apply to general fauna habitat disturbance and therefore have not been repeated in this section. Additional industry best-practice management measures specific to fauna will include:

- Watercourse crossings will be constructed with culverts or bridges which will allow fauna to traverse under the rail or conveyor corridor;
- Fauna egress mechanisms will be installed at all turkeys nest dams;
- Control introduced fauna around camps and other work areas and provide training to ensure that native or introduced fauna are not fed by site personnel;
- Store food wastes in bins that are not easily accessible to fauna;
- Use low noise equipment where practicable;
- Develop borrow pits such that they are free-draining to avoid water pooling;
- Report internally all incidents resulting in fauna injury or death; and
- Set and enforce vehicle speed limits.

The following Proposal-specific management measures will also be employed by Rutila to avoid, minimise and/or mitigate potential impacts to terrestrial fauna:

- Conduct additional targeted significant fauna habitat surveys of any portions of the Proposal Area that have not yet been surveyed (Figure 8);

- Develop Infrastructure Plan and submit to OEPA for approval prior to the commencement of construction. The Infrastructure Plan is to finalise the required disturbance to conservation significant fauna habitat, and will include the results of the surveys discussed above;
- Watercourse crossings will be constructed with culverts or bridges which will allow fauna to traverse under the rail corridor;
- Northern Marsupial Mole denning/shelter habitat will not be disturbed;
- Northern Quoll and Pilbara Olive Python denning/shelter habitat is to be considered key constraints – the rail alignment design will be assessed to avoid these areas of habitat where practicable. Flexible infrastructure (camps, access roads, borrow pits etc.) will not be located within these habitat areas;
- Bilby, Brush-tailed Mulgara and SRE habitat will be included in a design constraints map to be used during detailed project planning. Flexible infrastructure (camps, access roads, borrow pits etc.) will be sited to avoid or minimise impacts within these habitat areas;
- Appropriate buffers will be applied around Northern Quoll, Pilbara Olive Python and Northern Marsupial Mole denning /shelter habitat if necessary based on the construction activities to be undertaken (i.e. to minimise indirect impacts from dust, flooding etc.);
- Given the extent of suitable Northern Quoll habitat in the Proposal Area, a Northern Quoll Management Plan will be prepared and implemented prior to construction. The management plan will include information from the Infrastructure Plan about final habitat disturbance requirements as well as additional specific design and management controls for the Northern Quoll such as:
    - Pre-clearing surveys to determine the location of dens;
    - Clearing campaigns and significant developments within Northern Quoll critical denning / shelter habitat will be scheduled to avoid the breeding season where possible;
    - Consideration of additional fauna culverts to maintain habitat connectivity;
    - Rehabilitation of habitat; and
    - Conduct a program to monitor the effects of the Proposal on Northern Quoll.
- In the event that monitoring suggests significant adverse effects on local Northern Quoll populations as a result of the Proposed Action, a framework will be developed for further investigations, management and contingency actions.

6.3.4 REGULATION

The Ministerial Statement released as a result of this API process is expected to regulate impacts to flora and vegetation, either via limits in the key characteristic table or via conditions, including the following:

- Limit of ground disturbance during construction period;
- Limit of ground disturbance during operations period, with a requirement for the remaining balance (construction disturbance minus operations disturbance) to be rehabilitated;
- Limit on disturbance within Northern Quoll, Pilbara Olive Python and Northern Marsupial Mole denning / shelter habitat boundaries;
- Confinement of activities to within defined Proposal Area; and

- Condition requiring the submission and approval of an Infrastructure Plan prior to construction.

The EPBC Act will regulate any potential impacts to MNES fauna resulting from Proposal implementation. Rutila is referring the Proposal to DoE in parallel to this API submission. The WC Act also manages unauthorised impacts to species listed under that Act.

Part V of the EP Act and the Environmental Protection (Unauthorised Clearing) Regulations 2004 can address any unauthorised clearing of fauna habitat that may occur outside of the areas approved through the Part IV EP Act process.

Several approvals relate to the design of the Proposal, and will ensure it complies with relevant standards. These include a future State Agreement Act proposal for the rail corridor, a mining proposal to be submitted under the Mining Act for the conveyor, and Port Authority approvals for works within the PPA boundary (boundaries are still in negotiation, however this will cover the northern portion of the Proposal).

6.3.5 OUTCOME AND ASSESSMENT AGAINST EPA OBJECTIVE

Predicted Outcomes

The proposed railway corridor and locations of associated infrastructure were developed to optimise operational costs and balance the need to avoid or limit the impact to potential significant fauna values.

Other active management measures are also consistent with best practice and stewardship principles.

After application of the described management and mitigation measures, the Proposal is expected to result in the following outcomes in relation to terrestrial fauna:

- The Proposal will result in the disturbance of approximately 3,000 ha of fauna habitat, with approximately 1,800 ha remaining disturbed during the operations period. Broad fauna habitat in the surrounding area remains almost completely intact and therefore the Proposal is not expected to have a significant effect on the representation of broad fauna habitat at a local or regional level;
- Northern Quoll are expected to be able to traverse the rail embankment. The majority of the areas of Northern Quoll denning / shelter habitat will be completely avoided. Of note is that the Proposal Area has been revised to now exclude Nunyerry Gorge (site Q5), which had the highest recorded numbers of Northern Quoll. After the implementation of the management actions approximately 5 ha of the remaining 640 ha of denning / shelter habitat will be required to be disturbed. The overall disturbance of habitat within the Study Area is therefore less than 1%. All of the land systems containing suitable habitat are well represented in the surrounding areas, including within the Chichester and Hamersley Ranges which extend widely east and west of the Study Area (Phoenix, 2014). Rutila is confident that habitat disturbance has been avoided and minimised as much as possible. The Proposal is therefore not expected to result in a significant residual impact to this species;
- Pilbara Olive Python was considered likely to occur in an approximately 40 km section of creek line habitat within the Proposal Area. This creek line habitat extends well outside the Proposal Area. Minor creek lines, permanent waterholes and rocky refuges were

evident from aerial observations beyond the Proposal Area (Phoenix, 2014). After the implementation of the management actions up to 78 ha of Pilbara Olive Python habitat will be required to be disturbed, out of a total of 4,109 ha identified within the Study Area. As stated above, the Proposal Area has been revised to now exclude site Q5, which had a significant portion of suitable habitat. The overall disturbance of habitat within the Study Area equates to approximately 1.9%. Rutila is confident that habitat disturbance has been avoided and minimised as much as possible. This, combined with the knowledge that suitable habitat extends well beyond the boundaries of the Proposal Area, results in the expectation that there will not be a significant residual impact on this species;

- The sand dune habitats (shown in dark blue on Figure 2 and Figure 3) are considered to be suitable to support the Northern Marsupial Mole, however due to limited species distribution and biology information its presence or absence cannot be confirmed (Phoenix, 2014). Rutila has taken a conservative approach and assumed that this species is present. Avoidance, minimisation and mitigation strategies have been applied this habitat. After the implementation of the management actions, the two Northern Marsupial Mole habitat areas will be entirely avoided;
- Other conservation significant fauna habitat is widespread and generally well connected to similar habitat outside of the Proposal Area. The disturbance of a narrow corridor and associated items is not expected to significantly impact the habitat of these species;
- The Proposal will not affect the conservation status of any significant species;
- Two SRE species are only known from within the study area, from rocky hill and gully habitat. Avoidance and management strategies are proposed for SRE habitat, and the development of linear infrastructure is likely to dissect a portion of SRE habitat rather than disturb an entire population. It is also likely that suitable habitat exists outside the Proposal Area (Phoenix, 2014a). The Proposal is therefore unlikely to result in significant impacts to any SRE species; and
- Indirect impacts are not expected to be significant as construction does not generally occur in a single location for an extended period. Rail movements during operations are infrequent.

Degree of Uncertainty

There are some uncertainties associated with the predicted outcomes, however none of these are expected to be significant. These include:

- Areas of the Proposal Area that lie outside Phoenix's targeted survey area (Figure 8). These areas will be subjected to a Level 2 survey prior to construction, with the findings being included in the Infrastructure Plan. The proposed key characteristics limits and conditions are expected to ensure that any uncertainty does not result in changes to the predicted impacts. The degree of uncertainty for the predicted outcomes is therefore low; and
- Areas of Northern Quoll habitat that was not surveyed during the targeted survey. These potential habitat areas were identified by Rutila as being completely avoidable and this has been considered in calculating the amount of habitat that is required to be disturbed. Therefore the uncertainty about the presence of Northern Quoll within these habitat areas has no impact on the predicted outcome as the areas would be avoided anyway.

Alignment with EPA Objective

Given that minimal impacts to conservation significant fauna habitats are expected during the implementation of the Proposal, the Proposal is not expected to have a significant residual impact for this factor. Rutila expects that the Proposal can be implemented to meet the EPA objective for this factor.

7 OTHER ENVIRONMENTAL FACTORS

Rutila has assessed the potential impacts of the Proposal on the various environmental factors listed in *Environmental Assessment Guideline 8: for Environmental Factors and Objectives* (EPA 2013c). This API document focuses on the environmental factors that are deemed to be 'key' factors, those with the potential to be significantly impacted and could not be appropriately managed under other existing legislation. Potential impacts to these key factors are described in detail in Section 6 and assessed using relevant studies specific to the Proposal.

The 'other' environmental factors have been considered by Rutila and due to the low level of impact, application of industry standard controls and other regulatory mechanisms, these factors are not expected to be required to be assessed in detail by the EPA. Table 7 provides the relevant EIA information for 'other' environmental factors to ensure the EPA has a high degree of confidence that the potential impacts are not significant and are manageable under standard industry controls and other regulatory mechanisms. Rutila understands the importance of compliance with the relevant statutes that will be used to manage these environmental factors.

To ensure that the assessments are as concise as possible, the following sections only contain the baseline environmental information that was deemed to be relevant to each factor. For detailed information of broader existing environmental information (i.e. geology, climate and weather), please refer to the biological survey reports attached in Appendix 1.

Table 7: Environmental assessment – other environmental factors

Factor and EPA Objective	Relevant Existing Environment	Environmental Aspect	Potentially Significant Impact (without mitigation)	Management Actions (Mitigation)	Regulation	Predicted Outcomes (Meets EPA Objective – Y/N)
Hydrological Processes - To maintain the hydrological regimes of groundwater and surface water so that existing and potential uses, including ecosystem maintenance, are protected.	• The Pilbara is characterised by seasonal watercourses in response to the erratic nature of rainfall in the region; • The northern portion of the Proposal Area is associated with the Sherlock River, crossing the river and corresponding with its floodplain and tributaries; • Near the centre of the Proposal Area the alignment crosses the Fortescue River; • The southern portion of the Proposal Area is associated with Weelumurra Creek and its tributaries that flow into the Fortescue River; • GDEs identified within the Study Area; • No Sheetflow dependant vegetation identified within the Study Area; and • No significant groundwater users known in the area.	• Ground disturbance – clearing of approximately 3,000 ha of native vegetation; • Development of the Proposal, including creek and river crossings; • Abstraction of approximately 1.8 GL/yr of groundwater for water supply during construction (reduces to 0.3 GL/yr during operations); and • Removal of riparian and in-stream vegetation.	• Alterations to surface water flows, causing flooding, sedimentation, , ponding, diversions, erosion and/or reduction in surface water availability downstream; • Erosion caused by increased run-off and flow velocity as a result of reduced vegetation cover; • Reduction in groundwater availability; and • Groundwater drawdown reducing the health of GDEs.	The following management strategies will be employed by Rutila to avoid, minimise and/or mitigate potential impacts to hydrological processes: • Civil engineering designs will include appropriate drainage requirements. Catchment analysis will be carried out in order to determine culvert and bridge design parameters; • Install engineered culverts where natural drainage features are interrupted by the rail embankment; • Borrow pits will be made to be self-draining where practicable. In extremely flat areas where borrow pits cannot reasonably be made to self-drain the pits will be bunded to prevent surface flows from entering the pit. Water collecting within the pit will be allowed to infiltrate or evaporate; • Where the risk of erosion is identified in specific areas during construction, erosion control structures such as silt fences, diversion and collection bunds, sediment dams and holding sumps will be installed. Such structures will be temporary in nature and will be completely removed as part of rehabilitation of the construction area; • Undertake progressive rehabilitation of disturbed areas that are not required for ongoing operations; and • Drill and abstract groundwater in accordance with 26D and 5C licences administered by the DoW.	• Ministerial Statement (future) • EPBC Act Part V (authorised clearing) and Environmental Protection (Clearing of Native Vegetation) Regulations 2004 – able to address any additional clearing outside of boundaries authorised under Part IV of the EP Act; • 26D and 5C licences under the RIWI Act will manage groundwater drilling and abstraction; and • Future State Agreement Act, Mining Act and Port Authority approvals to ensure major watercourse crossings are developed as per approved design.	• Vegetation clearing will be progressive, and areas not required for operations will be rehabilitated progressively or at the completion of the construction period. This minimises the potential for surface water impacts such as erosion and flooding; • Best-practice surface water management for rail projects is now well understood and has been demonstrated to be successful and will be adopted for the Proposal; • Groundwater impacts are expected to be minor and able to be managed by DoW under the RIWI Act; • Erosion and sedimentation impacts during construction are expected to be localised and short-term; and • This factor can be managed using industry standard management controls and existing legislation. This will ensure that the Proposal will effectively meet the EPA objective.
Landforms - To maintain the variety, integrity, ecological functions and environmental values of landforms and soils.	• Pilbara Bioregion; • Chichester, Fortescue Plains, Hamersley and Roebourne subregions; and • 65 geological units.	• Development of borrow pits and ballast quarry; and • Earthworks such as cut and fill activities.	• Alteration of existing landforms; and • Soil erosion and sedimentation from disturbed areas.	• A net cut and fill balance will be targeted during engineering design; • Implementation of sediment and erosion control measures (detailed above); • Borrow pit depths will generally be limited to 2 m; • Borrow pits will be made to be self-draining where practicable. In extremely flat areas where borrow pits cannot reasonably be made to self-drain the pits will be bunded to prevent surface flows from entering the pit. Water collecting within the pit will be allowed to infiltrate or evaporate; • Borrow pits that are not required for operations will be rehabilitated; and • If not required for operations, the ballast quarry will be closed and rehabilitated in accordance with current Mining Act guidance.	• Ministerial Statement (future); and • Future State Agreement Act, Mining Act and Port Authority approvals to ensure Proposal is developed as per approved design.	• The Proposal footprint is restricted largely to valley floors with minimal need for cuttings or traversal over significant landforms; • The Proposal will not result in the creation of significant landforms or activities that will affect the ecological function of soils; and • The Proposal can meet the EPA objective.
Subterranean Fauna - To maintain representation, diversity, viability and ecological function at the species, population and assemblage level.	The Proposal is not expected to have an impact on subterranean fauna. No significant excavations or dewatering are proposed along the linear alignment.					
Terrestrial Environmental Quality - To maintain the quality	The majority of the Proposal Area remains relatively undisturbed, however with some evidence of grazing. No areas of potential contamination are located in proximity to the Proposal Area.	• Generation of waste - including: • General domestic waste (e.g. paper, cardboards, some	• Localised contamination of soil, groundwater or surface water and subsequent impacts	• Waste will be segregated and either removed from site via an authorised waste contractor or disposed of onsite to a landfill licensed under Part V of the EP Act; • Hydrocarbons and chemicals bunded and stored in accordance with Dangerous Goods Safety (Storage and Handling for Non-	• *Dangerous Goods Safety A*ct 2004 (storage of hazardous materials); • Dangerous Goods Safety (Storage and Handling for Non-	The Proposal does not involve the production, storage or handling of large quantities of materials that may cause pollution. The

Factor and EPA Objective	Relevant Existing Environment	Environmental Aspect	Potentially Significant Impact (without mitigation)	Management Actions (Mitigation)	Regulation	Predicted Outcomes (Meets EPA Objective – Y/N)
of land and soils so that the environmental values, both ecological and social, are protected.		plastics and food scraps); • Industrial wastes (e.g. pallets, packaging, scrap metals; and tyres); • Hazardous wastes (e.g. hydrocarbons and contaminated material); and • Hydrocarbon or chemical spills.	on surrounding ecosystems; and • Creation of hazards for native fauna and personnel	explosives) Regulations 2007 and AS1940: Storage and Handling of Flammable and Combustible Liquids; • Re-fuelling bays at bulk fuel storage facilities equipped with concrete aprons or suitable lining (e.g. buried heavy duty plastic); • Spill clean-up material readily available at work sites and on mobile service trucks of vehicles, where hydrocarbons and chemicals are stored and/or used; and • A spill response procedure will be developed and implemented prior to construction.	explosives) Regulations 2007; • Part V EP Act (Works Approval and Licence for landfill); • Environmental Protection (Unauthorised Discharges) Regulations 2004; and • General provisions of the EP Act.	potential for impacts on this factor are therefore relatively low and can be appropriately managed via existing legislation. The Proposal can therefore meet the EPA objective.
Inland Waters Environmental Quality - To maintain the quality of groundwater and surface water, sediment and biota so that the environmental values, both ecological and social, are protected.	• The northern portion of the rail alignment is associated with the Sherlock River, crossing the river and corresponding with its floodplain and tributaries; • Near the centre of the rail corridor the alignment crosses the Fortescue River; and • The southern portion of the rail alignment is associated with Weelumurra Creek and its tributaries that flow into the Fortescue River.	• Generation of waste (as described in the factor above); • Hydrocarbon or chemical spills; • Surface water runoff from cleared areas; and • Alteration of surface water flows.	• Groundwater or surface water contamination via waste or hydrocarbon / chemical spills; and • Increased turbidity due to erosion caused by reduced vegetation cover or alteration of surface water flow paths.	• Manage waste and hydrocarbon / chemical spills as per management actions listed in the factor above (Terrestrial Environmental Quality); and • Manage surface water flows in accordance with the management actions listed in the factor 'Hydrological Processes'.	• *Dangerous Goods Safety Act* 2004 (storage of hazardous materials); • Dangerous Goods Safety (Storage and Handling for Non-explosives) Regulations 2007; • Part V EP Act (Works Approval and Licence for landfill); • Environmental Protection (Unauthorised Discharges) Regulations 2004; and • General provisions of the EP Act.	• The Proposal does not involve the production, storage or handling of large quantities of materials that may cause pollution. • Surface water management has been discussed adequately under the Hydrological Processes factor and was determined that the EPA Objective could be met. • The potential for impacts on this factor are therefore relatively low and can be appropriately managed via existing legislation. The Proposal can therefore meet the EPA objective.
Air Quality - To maintain air quality for the protection of the environment and human health and amenity.	• The Proposal is located in a remote area in with the nearest sensitive receptors more than 3.5 km away as listed below: o Coolawanyah Homestead (3.5 km to the south east of the Proposal Area); o Mount Florance Homestead (6 km to the south east); o Sherlock Homestead (7 km to the west); and o Croydon Outstation (10 km to the west). • No significant sources of air pollution are in proximity to the Proposal.	• Dust lift from bare ground / cleared areas; • Construction and operational activities such as the mechanical disturbance of rock and soil materials by plant operation, blasting and use of vehicles on dirt roads; and • Use of machinery, gensets and light and heavy vehicles.	• Increased levels of airborne dust; and • Minor point source air emissions from vehicle and genset exhausts.	• The area of exposed cleared surfaces will be kept to the minimum required for safe and efficient construction; • Dust suppression will occur in areas that have high potential to generate dust, such as areas that receive heavy traffic and key construction areas; • Vehicle speeds will be restricted; • The performance of dust suppression equipment will be monitored by regular site inspections; and • Where practicable and cost effective dust suppressants may be used to reduce the volume of water required to effectively minimise dust generation.	• Occupational Safety Regulations 1996; • General provisions of the EP Act; and • Mining Act (conveyor to PIOP) and Port Authority (port boundaries) approvals to include management of dust.	The potential for impacts on this factor are relatively low, with dust being the main emission. No sensitive receptors are in close proximity to the Proposal Area. The Proposal therefore can meet the EPA objective.
Amenity - To ensure that impacts to amenity are reduced as low as reasonably practicable.	• The Proposal Area is not extensively used by the public and is not visible from main tourist routes or settlements; • The Proposal is located in a remote area in with the nearest sensitive receptors more than 3.5 km away; and • There are no public facilities in proximity to the Proposal Area.	• Earthmoving activities; • Vehicle movements; • General construction and operation activities / traffic; and • Use of machinery.	• Direct impacts such as noise and vibration to sensitive receptors; and • Public access will be limited in some operational areas.	• Equipment used will be maintained in accordance with manufacturers' specifications and relevant standards; • Vehicle speeds within the Proposal Area will be restricted; • Any noise or other amenity complaints will be raised as an incident and investigated; and • Internal combustion engines fitted with a suitable muffler in serviceable condition.	• Environmental Protection (Noise) Regulations 1997; • State Planning Policy 5.4 (noise); • General provisions of the EP Act; and • Future State Agreement Act process expected to consider amenity impacts on stakeholders.	The potential for impacts on this factor are relatively low given the remote location, and can be appropriately managed via existing legislation and negotiations with Pastoralists. The Proposal therefore can meet the EPA objective.
Heritage - To ensure that historical and cultural associations are not adversely affected.	• Several listed Aboriginal Heritage sites (of their buffers) occur within the Proposal Area; • Initial Aboriginal Heritage surveys are currently being undertaken for the Proposal; and • No European Heritage sites are located within the Proposal Area.	General ground disturbance.	Disturbance of Aboriginal Heritage sites.	• Ethnographic and heritage surveys will be undertaken prior to any ground disturbance to identify sites of Aboriginal significance; • Significant Aboriginal sites will not be disturbed without authorisation; • All aspects of the Proposal will be carried out in accordance with EPA Guidance Statement No. 41 (EPA 2004) through the implementation of a Cultural Heritage Management Plan and relevant agreements with native title claimant groups, thereby avoiding impact to Aboriginal sites of significance; and • Ground disturbance will be subjected to an internal ground	• *Aboriginal Heritage Act 1972;* • *Aboriginal and Torres Strait Islander Heritage Protection Act 1984; and* • *Native Title Act 1993*.	Rutila is aware of their responsibilities under the *Aboriginal Heritage Act 1972*, and is currently working with the relevant Native Title groups to ensure impacts to Aboriginal Heritage sites are minimised. The rail alignment has already been relocated in some areas to avoid significant sites. The potential for impacts on this

Factor and EPA Objective	Relevant Existing Environment	Environmental Aspect	Potentially Significant Impact (without mitigation)	Management Actions (Mitigation)	Regulation	Predicted Outcomes (Meets EPA Objective – Y/N)
				disturbance approval process.		factor can be appropriately managed via existing legislation. The Proposal therefore can meet the EPA objective.
Human Health - To ensure that human health is not adversely affected.	No risk to human health is anticipated. Noise and vibration is covered in the Amenity section above.					
Offsets - To counterbalance any significant residual environmental impacts or uncertainty through the application of offsets.	• One PEC (P3 'Horseflat Land System of the Roebourne Plains') recorded in the northern portion of the Ecoscape (2014) Study Area (Figure 6); • Vegetation that may represent one of the four community types that for the P1-P3 'Four plant assemblages of the Wona Land System ' PEC was recorded to occur within the Ecoscape (2014) Study Area (Figure 7); • No TECs or TF recorded; • Three P1, one P2, four P3 and two P4 PF species found; and • With the exception of the Northern Quoll, Pilbara Olive Python and Northern Marsupial Mole habitat, fauna habitat is generally well connected to similar habitat outside of the Proposal Area.	• Ground disturbance – clearing of approximately 3,000 ha of native vegetation; and • Earthmoving and construction / operation activities.	• Direct loss of mostly Very Good to Excellent condition vegetation • Direct loss of confirmed and potential PEC vegetation • Direct loss of PF species • Direct loss of conservation significant fauna habitat	• Develop Infrastructure Plan and submit to OEPA for approval prior to the commencement of construction. The Infrastructure Plan is to finalise the required disturbance to key environmental features, and will include the results of the surveys discussed above; and • Offset clearing of up to 3,000 ha of Very Good to Excellent condition vegetation, based on the results of the Infrastructure Plan.	• EP Act • EPBC Act	Offsets are proposed to counterbalance the significant residual environmental impacts or uncertainty associated with the Proposal. The Proposal will therefore meet this EPA objective.
Rehabilitation and Closure - To ensure that premises are closed, decommissioned and rehabilitated in an ecologically sustainable manner, consistent with agreed outcomes and land uses, and without unacceptable liability to the State.	The majority of the Proposal Area is currently used for pastoral activities, with a portion remaining as UCL.	• Ongoing use of / responsibility for infrastructure; • Hydrocarbon / chemical storage areas; • Disturbed areas; and • Inadequate rehabilitation and closure planning.	• Contamination; • Alteration of landforms impacting surface water flow; • Increased erosion associated with unstable landforms; • Unsuitable reinstatement of vegetation or fauna habitat; and • The spread of weeds, increased dust.	• Topsoil will be stripped and stored onsite for rehabilitation; • Management procedures for the recovery, storage and utilisation of topsoil will be developed and implemented; • Topsoil is to be stored for the shortest time period possible to maintain viability of the seed bank and soil fertility; • Any areas cleared for construction purposes that are not required during operations (borrow pits, access tracks etc.) will be rehabilitated as soon as practicable after they are no longer required; • Rehabilitation Procedure will be developed for the Project in accordance with EPA Guidance Statement No. 6 Rehabilitation of Terrestrial Ecosystems (EPA 2006), which sets out the general expectations about re-establishing biodiversity values where a site is to be rehabilitated back to native vegetation; • Comply with the requirements of the *Contaminated Sites Act* 2003 if contamination occurs; • Soil stockpiles will be inspected regularly for evidence of erosion and weeds and remediated accordingly; and • Closure and rehabilitation of the rail structure itself will be subject to discussions with the WA State Government as railway lines are generally retained as a state asset.	• Ministerial Statement (future) to include requirement for rehabilitation of areas not required for operations; • *Contaminated Sites Act* 2003 will manage any potential contamination; and • Future State Agreement Act (rail), Mining Act and Port Authority (conveyor) approval processes expected to consider rehabilitation and closure.	• Any areas cleared for construction purposes that are not required during operations (borrow pits, access tracks etc.) will be rehabilitated, either progressively or at the completion of construction. Closure and rehabilitation of the rail structure itself will be subject to discussions with the WA State Government as railway lines are generally retained as a state asset. If required, the final closure of the Proposal is not expected to be complicated due to the lack of significant landforms. • Rehabilitation and closure is therefore not expected to be a significant issue for the Proposal and therefore the Proposal can meet the EPA objective.

8 PRINCIPLES OF THE EP ACT

The EP Act identifies a series of principles for environmental management (Section 4a, EP Act, as amended). Rutila has considered these principles in relation to the development and implementation of the Proposal. Table 8 outlines how the principles relate to the Proposal.

Table 8: EP Act principles

Principle	How it will be addressed by the Proposal
1. Precautionary principle Where there are threats of serious irreversible damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation. In the application of the precautionary principle, decisions should be guided by: a. careful evaluation to avoid, where practicable, serious or irreversible damage to the environment; and b. an assessment of the risk-weighted consequences of various options.	The Proposal has utilised existing environmental data during design and has supplemented it with a series of studies that are identified in Section 4.1. Detailed design will utilise spatial data to avoid and minimise impacts on identified constraints.
2. Intergenerational equity The present generation should ensure that the health, diversity and productivity of the environment is maintained or enhanced for the benefit of future generations.	The Proposal can be designed and implemented without significant impacts on the health, diversity and productivity of the environment. The Proposal will enable economic and social benefits to flow from iron ore projects that have "stranded ore" and would otherwise have no transport solution.
3. Conservation of biological diversity and ecological integrity Conservation of biological diversity and ecological integration should be a fundamental consideration	Survey work has been used to confirm the range and status of environmental values within the Proposal Area. The recorded baseline data from the Proposal Area and surrounds indicate that there are not likely to be significant biodiversity or ecological integrity impacts at local or regional scales.
4. Improved valuation, pricing and incentive mechanisms a. Environmental factors should be included in the valuation of assets and services. b. The polluter pays principle – those who generate pollution and waste should bear the cost of containment, avoidance or abatement. c. The users of goods and services should pay prices based on the full life cycle costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste. d. Environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, which benefit and/or minimise costs to develop their own solutions and responses to environmental problems.	Rail transport of bulk material has been proven to be more efficient and achieve a lower environmental impact during operation than road transport. Environmental constraint avoidance and management costs have been considered in the project costing phases and this will continue through the Bankable Feasibility Study stage.
5. Waste minimisation All reasonable and practicable measures should be taken to minimise the generation of waste and its discharge into the environment	Waste will be minimised by adopting the hierarchy of waste controls; avoid, minimise, re-use, recycle and safe disposal.

9 CONCLUSION

Avoidance is a key strategy for the management of environmental impacts and Rutila has used the information gathered by Ecoscape and Phoenix in 2014 to incorporate constraint mapping and avoidance into their alignment planning at an early stage. This planning, combined with the proposed width of the Proposal Area, will allow the majority of significant vegetation or habitat to be avoided completely.

For those areas of significant vegetation or habitat that cannot be avoided, disturbance will be able to be minimised through management measures such as relocation of flexible infrastructure, narrowing of construction corridors through significant vegetation or habitat and general best-practice industry controls.

Areas disturbed during construction that are not required for operations will be rehabilitated. This is expected to be a significant area for this Proposal (approximately 1200 ha) and will result in a reduction in the residual impact of the Proposal.

Offsets are proposed to compensate for the residual environmental impact of the Proposal; specifically the loss of 3,000 ha of Very Good to Excellent condition vegetation. Final arrangements will occur pending the submission of an Infrastructure Plan at the completion of detailed design, and offset payments will occur on a cost per hectare basis.

Rutila has completed extensive stakeholder consultation that will continue to develop as the Proposal proceeds into detailed design, construction and operational phases (refer to Section 4). This stakeholder consultation has demonstrated that many environmental factors can be managed under other legislation.

'Key' and 'other' environmental factors have been assessed against EPA Objectives and relevant guidelines. The Proposal has been prepared with design, layout and management controls identified to avoid, minimise or manage the potential environmental impacts. Given the configuration of the Proposal to avoid and minimise significant impacts and the management actions and controls to protect the environment, the Proposal is expected to meet the EPA Objectives.

10 GLOSSARY

Term	Meaning
AH Act	*Aboriginal Heritage Act 1972*
API	Assessment on Proponent Information – the level of assessment relevant to this Proposal
BBIP	Balla Balla Infrastructure Port
BBIR	Balla Balla Infrastructure Railway
DAA	Department of Aboriginal Affairs
DER	Department of Environment Regulation
Disturbance Area	The actual area of disturbance required to implement the Proposal. The Disturbance Area will be within the Proposal Area boundaries.
DMP	Department of Mines and Petroleum
DoE	Department of the Environment (Commonwealth)
DoW	Department of Water
DPaW	Department of Parks and Wildlife
DSD	Department of State Development
EAG1	Environmental Assessment Guideline 1: Defining the key characteristics of a proposal
EAG6	Environmental Assessment Guideline 6: Timelines for Environmental Impact Assessment of Proposals
Ecoscape	Ecoscape Australia Pty Ltd
EIA	Environmental Impact Assessment
EMPs	Environmental Management Plans
EPA	Environmental Protection Authority (WA)
EP Act	*Environmental Protection Act 1986*
EPBC Act	*Environmental Protection and Biodiversity Conservation Act 1999* (Commonwealth)
Flinders	Flinders Mines Limited
Forge	Forge Resources Swan Pty Ltd
GDEs	Groundwater Dependent Ecosystems
GL	Gigalitre
ha	Hectares
km	Kilometres
m	Metres
MNES	Matters of National Environmental Significance
MS 945	Ministerial Statement 945
NWCH	North West Coastal Highway
OEPA	Office of the Environmental Protection Authority of Western Australia
PEC	Priority Ecological Communities – plant communities listed as being potentially threatened under the *Wildlife Conservation Act 1950*
PF	Priority Flora
Phoenix	Phoenix Environmental Pty Ltd
PIOP	Pilbara Iron Ore Project

Term	Meaning
PPA	Pilbara Ports Authority
Proposal	As defined under the EP Act - a project, plan, programme, policy, operation, undertaking or development or change in land use, or amendment of any of the foregoing, but does not include scheme.
The Proposal	The Proposal is to construct and operate a railway line (approximately 160 km in length) and conveyor line (approximately 40 km in length) running from the Pilbara Iron Ore Project (operated by Flinders) north to the Balla Balla Port. The Proposal includes supporting infrastructure such as stockyards, borrow pits, access roads, communications, water bores and pipelines, accommodation camps, workshops, laydown areas, a ballast quarry, a conveyor railway line overpass and grade separation crossing of the North West Coastal Highway (NWCH).
Proposal Area	The Proposal Area is the area that forms the basis for this Proposal and is the area within which the Proposal will be implemented. The Proposal Area is outlined in red in Figure 1.
RIWI Act	*Rights in Water and Irrigation Act 1914*
Rutila	Rutila Resources Ltd
RTIO	Rio Tinto Iron Ore
S91	Section 91 of the *Land Administration Act 1997*
SRE	Short-range Endemic
SRL	Special Rail Licence
TEC	Threatened Ecological Communities – plant communities listed as being threatened and legally protected under the *Wildlife Conservation Act 1950* and / or the *Environment Protection and Biodiversity Conservation Act 1999*
TF	Threatened Flora
UCL	Unallocated Crown Land
WA	Western Australia
WC Act	*Wildlife Conservation Act 1950* (WA)

11 REFERENCES

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12 APPENDICES

The following Appendices are provided on the attached CD:

Appendix 1: Biological Reports and Surveys
Appendix 2: Proposal Area Shapefiles
Appendix 2: Stakeholder Consultation Summary