ATTACHMENT L

Transport and Main Roads

Species Management Program

Koala (*Phascolarctos cinereus*)

Mackay/Whitsunday District

Project Title – Eton Range Realignment Project (ERRP)

Project No. – 242/33B/008

Location – Eton Range (33B)

Connecting Queensland
www.tmr.qld.gov.au

Queensland Government

Contact for enquiries and proposed changes

If you have any questions regarding this document or if you have a suggestion for improvements, please contact:

Contact officer: Shannon Ireland

Title: Environmental Officer

Phone: 07 4951 8576

Version history

Version no.	Date	Changed by	Nature of amendment
0.1	13.01.15	Shannon Ireland	Prepare SMP
1	16.01.15	Shannon Ireland	Issue SMP
2	25.03.15	Shannon Ireland	Revised SMP
3	24.07.15	Shannon Ireland	Reissue SMP

The following officer has **reviewed** this document:

Department of Transport and Main Roads

Name Timothy Dalton

Position Environmental Officer

Signature _____ Date 27.07.15

1 Introduction

A number of studies have been undertaken as part of the concept and design phases of the Eton Range Realignment Project, including flora and fauna assessments in 2009, 2011 and 2013.

In December 2013, a Fauna Assessment Report was prepared by Ecological Survey and Management. The objective of the fauna and habitat assessment was to identify key fauna constraints within the area impacted by the final route selection.

During this survey Koalas (*Phascolarctos cinereus)* were identified at three locations in the project area, and calls of this species were also heard in adjacent areas during spotlighting activities. The study identified the majority of the project area as potential Koala habitat.

This Species Management Program specifically relates to the management of Koalas during the construction phase of the project.

Spotter-catcher activities will be undertaken by individuals approved under a DEHP S12(D) Nature Conservation (Administration) Regulation 2006 Rehabilitation Permit to trap/relocate protected native fauna and to pick for identification purposes native flora and to undertake fauna surveys.

The Contractor awarded the works will responsible for engagement of the suitably qualified spotter-catcher.

2 Project Justification

The Peak Downs Highway crosses the Eton Range approximately 40 km south-west of Mackay. The range section through Spencers Gap has tight curves and a very steep grade, rising 130 m in a little less than 1.5 km. There are additional climbing lanes at the top and bottom of the range, but only two lanes through the central section, approximately half the length of the crossing.

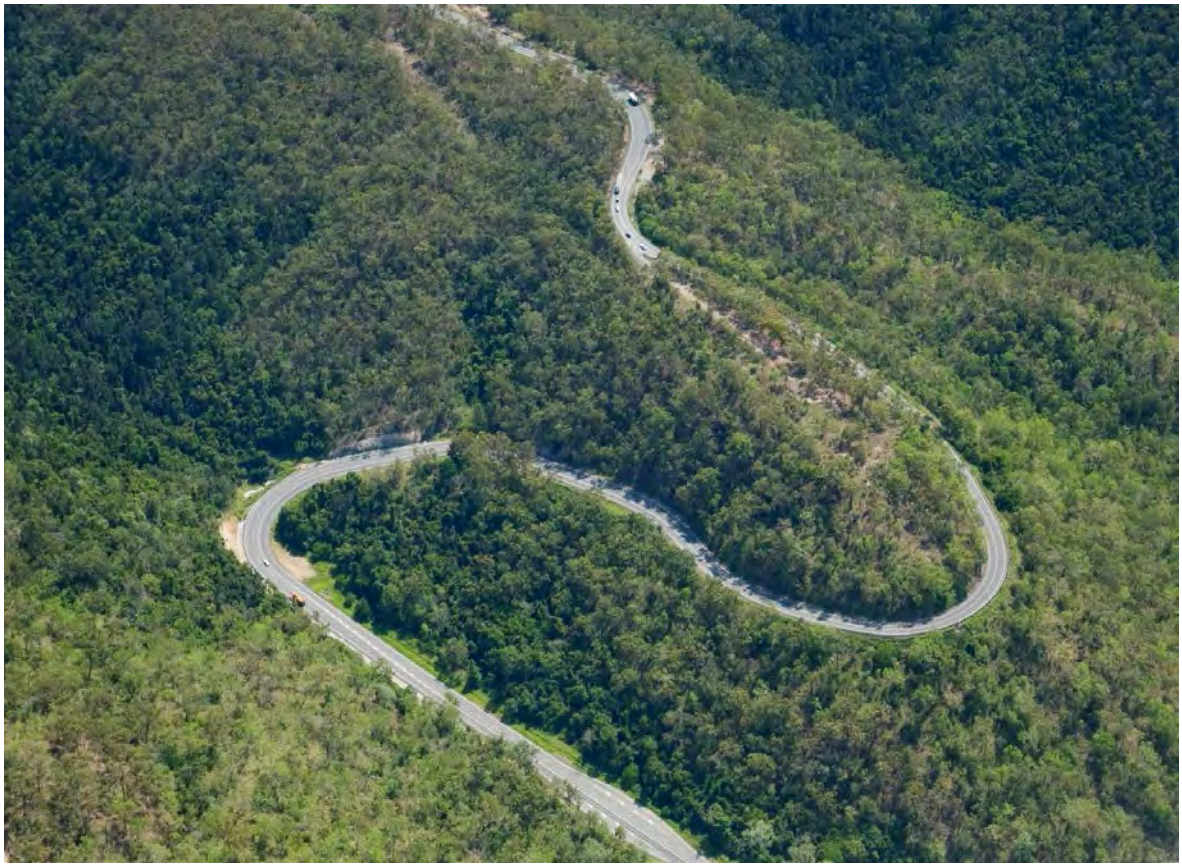


Figure 1 Peak Downs Highway – Eton Range Crossing

Approximately 4,000 vehicles use the range crossing each day, including 100 B-double trucks travelling to and from the mines. The Peak Downs Highway is the only designated B-double route west from Mackay to the mines in the Northern Bowen Basin. The freight carried per day includes 1.7 million litres of diesel and 80 tonnes of other dangerous goods, including explosives.

The existing Eton Range crossing represents a significant constraint to the safe and efficient operation of the Peak Downs Highway between Mackay and Nebo. The uphill travel is a challenge for heavy vehicles where the grade reduces speeds to less than 20km/h and causes traction issues. The geometry has also contributed to driver fatalities and serious accidents. Incidents which result in road closure are also reasonably common, thereby affecting the reliability of the link.

Upgrade of the Eton Range crossing involves realignment and construction of two (2) dual lane carriageways, split carriageway, for approximately 1.7 km and the widening of the existing carriage to 4 lanes with 3 metre shoulders for approximately 1.2 km. The project is part of the Peak Downs Highway Safety Package, funded by the Federal Government to support development in local townships, enhance productivity of existing and future mining operations in the Bowen Basin and Galilee Basin by addressing the effect of limitation in the region's freight transport network, and improve the safety and efficiency of the Peak Downs Highway.

The upgrade will improve safety on the descent by eliminating the straight approach to the steep down grade; reduce the likelihood and severity of traffic accidents and incidents by providing flatter grades, larger radius curves and additional lanes; eliminate dangerous overtaking of slow-moving vehicles by eliminating bunching of traffic behind heavy vehicles, and; improving travel time reliability by reducing disruption and closure resulting from traffic incidents. The design of the project is unique – the objective is to manage driver behaviour rather than simply meet engineering design compliance.

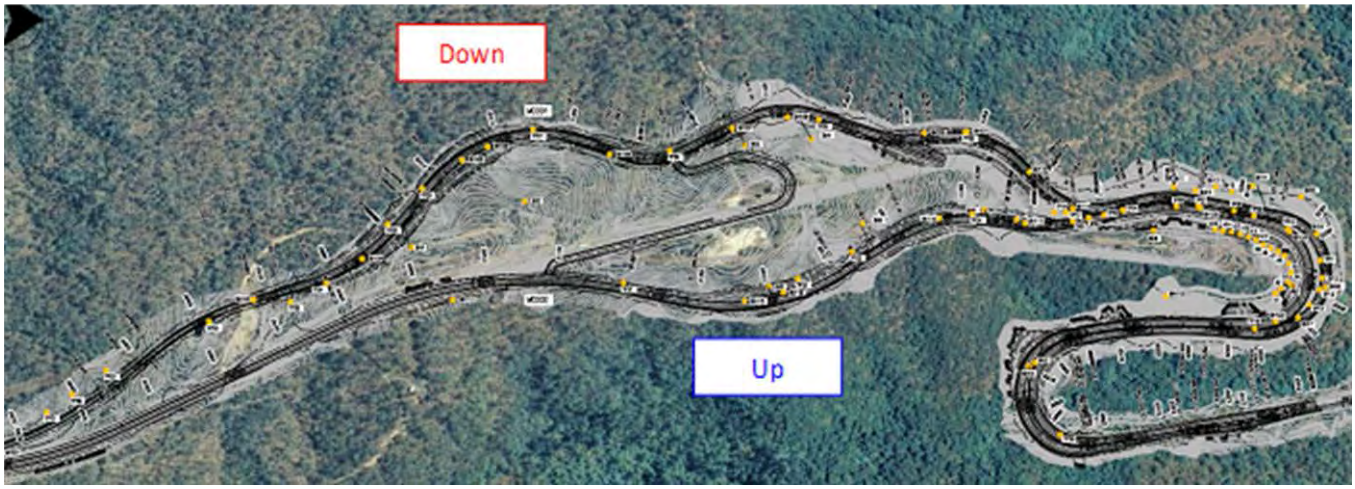


Figure 2 Eton Range Realignment Project (ERRP)

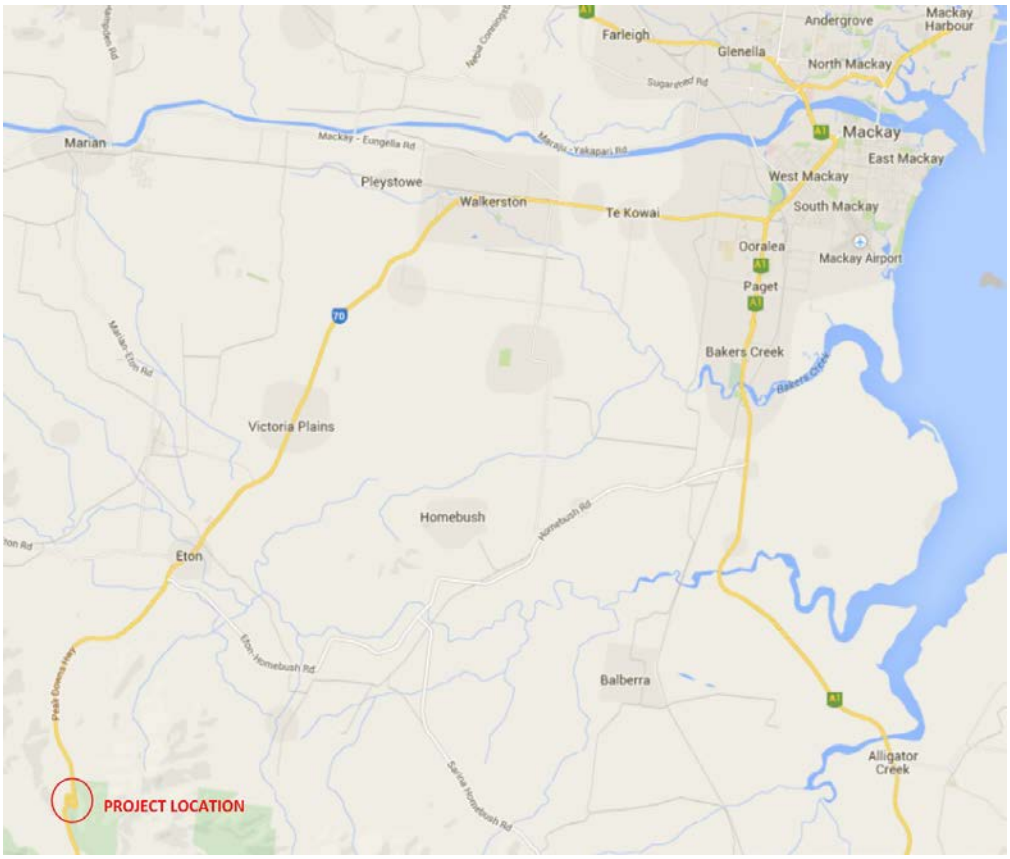


Figure 3 Project Locality Map

3 Activity Details

The project involves the construction of two (2) split dual lane carriageways for approximately 1.7km and the widening of the existing carriage to 4 lanes with 3 metre shoulders for approximately 1.2km.

The project will contain all the normal elements of a road construction project including relocation of services, drainage, earthworks, placement of pavement, road lighting, road furnishing etc.

The construction sequence will generally entail the following activities –

- Progressive clearing of vegetation and ground preparation works along the alignment as required to accommodate construction activities;
- Installation of temporary erosion and sediment controls in accordance with Erosion and Sediment Control Plan developed by the Contractor and approved by DTMR as Principal;
- Installation of drainage infrastructure including 15 new drainage culverts ranging in size from 1/600RCP to 3/2100RCP with a Ø1800 corrugated steel pipe grouted centrally;
- General bulk earthworks which include approximately 400,000m^3 of road excavation and 80,000 m^2 of road embankment;
- Installation of complex longitudinal drainage systems in the centre median ranging in size from 1/450 RCP to 1/1500RCP, approximately 1 km long, with numerous branch pits and grated inlet pits;
- Excavation and concrete lining of an elaborate surface catch and batter drainage system to intercept and direct overland flow to controlled outlet points, over 3200 m^3 of reinforced concrete;
- Rehabilitation of approximately 950 m of existing roadway;
- Placement of 30,000m^3 of plant mixed pavement material and 15,000 tonnes of DG14 & DG20 asphalt;
- Spraying over 220,000 litres of bituminous primes, primerseals and seals;
- Installation of an elaborate barrier system which includes w-beam, thrie-beam and concrete barriers and other road furniture including road signs; and

- 6.4 hectares of landscaping and revegetation works, with approximately 4.0 hectares of 1:1 slope to stabilise and vegetate.

For construction of reinforced earth embankments, construction specifics include –

- Establishment of access track around hairpin;
- Progressive clearing. On the embankments, trees will be felled and stumps left in-situ to provide stabilisation of the upper slopes to allow construction to occur;
- Special earthworks with approximately 33,500 m^3 of bench excavation to the existing steep side slope to key in the placement of 188,000 m^2 of purposely processed embankment material. Embankments will be constructed from the bottom up;
- Based on geotechnical investigations, some blasting is likely to be required. This will occur in accordance with legislative requirements;
- Sorting, processing and blending materials to satisfy the material specifications within standard and RE embankments;
- Permanent drainage controls;
- Geogrid will be installed within the embankment in 600 mm increments;
- Landscaping will utilise ameliorated soil and Enkamat, overlayed with organic blanket. Enkamat is a permanent erosion prevention mat, and is used as an alternative to concrete, asphalt and stone riprap systems for controlling erosion; and
- Species selection for landscaping is based on sight lines and speed of establishment. A range of growth forms have been selected, dependant on the location.

Ancillary activities that will be required during construction will include –

- Establishment of site office (or offices);
- Clearing and stripping of access tracks;
- Establishment of stockpile and spoil areas;
- Establishment of laydown areas for construction materials;
- Crushing and screening of material sourced on site;
- Sourcing suitable construction materials; and
- Sourcing water for construction activities.

Post Construction –

- Landscaping and revegetation area maintenance and weed maintenance;
- Road maintenance, including drainage and pavement; and
- Construction site decommissioning.

The main construction project is expected to take two years to complete.

Clearing will occur in stages. Vegetation has been previously disturbed for lay down areas, emergency stopping places for heavy vehicles, Telstra and Ergon infrastructure, survey works, geotechnical investigations, and trial embankment works. A plan showing the impact area is included as Attachment A. Approximately 17 ha of vegetation will be removed as part of the construction contract.

4 Emergency Works

This SMP does not prevent any reasonable action being taken by DTMR or its Contractors to safeguard public and staff safety in case of an emergency situation. In an emergency situation, public and staff safety considerations will take precedence over this Species Management Program. Where possible, DTMR will discuss proposed actions with DEHP, by contacting Jeanette Kirby on 4999 6810.

5 Species Information

Extracted from Eton Range Realignment Project Fauna Assessment Report prepared for Department of Transport and Main Roads by Ecological Survey and Management (December 2013).

The Koala is a tree-dwelling, medium-sized marsupial with a stocky body, large rounded ears, sharp claws and variable but predominantly grey coloured fur. Males are generally larger than females and

there is a gradient in body weight from north to south across their range, with larger individuals in the south and smaller individuals in the north. The average weight of males is 6.5 in Queensland, compared with 12 kg in Victoria. In the north of its range, the Koala tends to have shorter, silver-grey fur, whereas in the south it has longer, thicker, brown-grey fur.

In Queensland the Koala has scattered populations throughout Queensland, in moist forests along the coast, sub-humid woodlands in southern and central Queensland, and in some eucalypt woodlands along watercourses in the semi-arid environments of the western part of the State. The Koala has also been found to occur in non-riverine communities in semi-arid areas (DEHP, Date accessed 12 January 2015).

Koalas are solitary animals living within a network of overlapping home ranges, which allows contact between individuals for mating. Home ranges vary in size depending on the density of the population and the abundance of suitable food trees.

Males begin to breed at three to four years of age. Females breed when they are two years old, generally giving birth each year. Following a pregnancy of 35 days, a koala gives birth to a single young. Births usually take place between November and February. The young stays in the pouch for the next six months before emerging. The joey will then spend between six and 12 months riding on its mothers back. Generally, by 12 months of age, the young is weaned and takes up a home range, which overlaps with its mother, for much of the next year. Between the age of two and three years these young disperse beyond their original home range to establish their own range, usually during the breeding season (DEHP, Date accessed 12 February 2015).

Outside of south-east Queensland bioregion, the koala (*Phascolarctos cinereus*) is currently listed as Least Concern under the *Nature Conservation (Wildlife) Regulation 2006*. The Queensland Government have indicated an intention to list the species as Vulnerable throughout Queensland.

The koala is listed as Vulnerable under the *Environmental Protection and Biodiversity Conservation Act 1999*.

6 Site Assessment

A total of four Regional Ecosystems were identified during detailed field surveys. All of the vegetation communities that were identified align with remnant REs that have a VM Act Vegetation Management status of ‘Least Concern’ and Biodiversity status of ‘No concern at present’. RE 8.12.5 is endemic to the sub-region (Clark-Connors Range province) while the other three REs occur ubiquitously upon ranges, hills and/or footslopes throughout the Central Queensland Coast bioregion.

Koalas were recorded at three locations during November 2013 field surveys of the project area, and with the exception of the vine thicket community represented by RE 8.12.3, all vegetation in the project area is expected to provide suitable habitat for this species. The abundance of the koala in the project area is considered to be high, reflective of the extent of koala distribution across the broader Eton and Clarke-Connors Ranges. The koalas that have been recorded have the potential to form part of a key source population for breeding or dispersal.

7 Mitigation Management

It is recognised that felling trees within koala habitat can result in the death of, or serious injury to koalas that are present in those trees or in trees adjacent to those being cleared. A number of management measures have been developed to mitigate potential impacts on koalas during clearing works. As part of the site induction process, all staff who will be involved in clearing works will be made aware of the management measures to be implemented on site, and their responsibilities under the *Nature Conservation (Wildlife Management) Regulation 2006*. Failure to comply will result in the Contractor being responsible for any and all mitigation costs associated with the non-conformance.

Policy 6 of the *Nature Conservation (Koala) Conservation Plan 2006* outlines provisions relating to how Koala habitat trees are to be cleared to prevent injury of Koalas. Whilst Policy 6 is not applicable to this project given its location outside south-east Queensland, the management measures within Policy 6 are considered to reflect best practice and therefore should be applied to ensure injury or harm of potentially resident koalas is limited to the greatest extent possible.

All clearing will be carried out in such a way as to ensure that Koalas living in or near the area being cleared have enough time to move out of the clearing site without human intervention. Clearing will be carried out by:

- Carrying out clearing in stages, with no more than 3 ha cleared in any one stage; and
- Ensuring that between each stage, there is at least one period of 12 hours (6 pm – 6 am) during which no trees are cleared on site.

Across the site, appropriate habitat links will be maintained during clearing to allow koalas living on the site to move out of the site. Fauna exclusion fencing will be installed as directed by the qualified fauna spotter-catcher. All other fencing must be fauna friendly, to allow movement into adjacent habitat. The direction of clearing will be generally away from the Peak Downs Highway, and towards vegetation being retained, to ensure koalas are not pressured to cross the road or move through construction areas, and that koalas can safely leave the site of clearing and relocate to adjacent habitat.

Prior to the commencement of clearing each stage, the disturbance footprint will be surveyed for the presence of koalas and evidence of recent koala habitation. Tree trunks will be assessed for scratch marks caused by koalas climbing. Two ecologists will conduct the survey the day prior to clearing to ensure that the survey is relevant and accurate. If a koala is observed in a tree within the clearing footprint, the position of the tree will be recorded by a hand held GPS and details recorded.

Where koalas are encountered within the disturbance footprint on the day of clearing, the tree will be flagged and a 30 m exclusion zone will be introduced around the tree/s and a strip of vegetation leading to the edge of the disturbance footprint will be left untouched until such time as the koalas have moved away from the works area. At no time will a tree in which a koala is present, or a tree with a crown overlapping a tree in which a koala is present, be cleared. At the end of each day, the Spotter catcher is to ensure there is a clear passage for Koalas to leave the site, unimpeded by obstacles such as sediment and erosion control fencing.

Koalas can be difficult to see, even to the trained eye, and particularly when resting in the tops of tall leafy trees. Koalas can also jump from one tree to another. Consequently, continual surveillance of Koalas present on site is required for the duration of clearing operations to ensure against accidentally felling or interfering with a tree that has a resident Koala. Spotter catchers will be working on foot alongside operators during all clearing works, and will oversee the operation. At all time, fauna spotter catchers will remain visible to, and clear of, operators and machinery. Communication will be achieved through the use of 2 way radios. At no time will the fauna spotter catcher physically move a koala from a tree in which is it resting to another location. Any tree identified by the fauna spotter catcher as being a risk to koalas of felled, should not be felled, damaged or interfered with until the Koala has moved from the felling site of its own volition.

If a Koala is injured during clearing, works will cease and the Koala will be inspected by the fauna spotter catcher to assess the extent of injury and determine appropriate treatment. Where injury is considered to be minor (for example, a minor abrasion) and the animal is otherwise alert and active, the animal may be released to reduce stress. If the animal is suffering injuries of a more intermediate nature, it will be immediately transported to:

Name	Valley Vet Surgery
Phone	4959 2099
Address	14 Dutton St, Walkerston QLD 4751

In the event that a wildlife carer is required, Australian Wildlife Rescue Services will be contacted:

Name	Yvette Getts Australian Wildlife Rescue Services
Mobile	0447 543 268
Address	PO Box 6687, Mackay QLD 4741

Where the Contractor observes conflicts between pest animals and native fauna, such as koalas, DTMR will be notified immediately and will liaise with DEHP and the fauna spotter-catcher regarding management measures.

8 Avoidance

The design of the Eton Range realignment was significantly constrained by the very steep terrain, which allowed little opportunity to avoid potential habitat areas. In addition, road geometry has limited opportunities to install any adequately sized culvert structures as fauna passage.

The extent of clearing will be limited to only what is necessary to facilitate construction, and works have been sited adjacent to the existing Peak Downs Highway to avoid significant impacts to areas on the Eton Range that contain undisturbed remnant vegetation and good quality habitat. Mitigations measures detailed in this SMP will be implemented throughout the construction phase to minimise impact to individuals.

Removal of vegetation, installation of road furniture and construction of significant batter slopes will create an unavoidable potential barrier to movement to adjacent areas of habitat along much of the winding 3.1 km stretch during the construction and operational phases. Once construction is complete, the project also has the potential to increase the risk of vehicle strike for koalas where movement is not excluded.

Following construction, a record will be kept of any koala injuries or deaths on the realigned section of the Peak Downs Highway. This record will be maintained for at least 12 months to ensure data collected includes a breeding season. Information will be gathered from DTMR Inspectors, local wildlife carers, and Rangers within DEHP. Where conflicts with vehicles are recorded, DTMR will consult with DEHP to discuss potential solutions including signage and fauna exclusion fencing.

9 Reporting

At the conclusion of each stage of clearing, the Contractor will provide DTMR with a post-clearing report that will detail all actions undertaken, including details of koalas located within the disturbance footprint and actions taken.

Incidents involving wildlife injury or death will be recorded in the DEHP Fauna Incident Register. The completed Fauna Incident Register will be forwarded via email to **palm@ehp.qld.gov.au** within 24 hours of the incident occurring.

10 Contact Details

If the DTMR Project Manager needs to contact DEHP regarding any of the activities detailed in this program, Jeanette Kirby – Senior Ranger will be contacted on 4999 6810 or

jeanette.kirby@ehp.qld.gov.au. Should DEHP need to contact DTMR in regards to implementation of this program, please contact Environmental Officer Shannon Ireland on 4951 8576 or shannon.m.ireland@tmr.qld.gov.au.

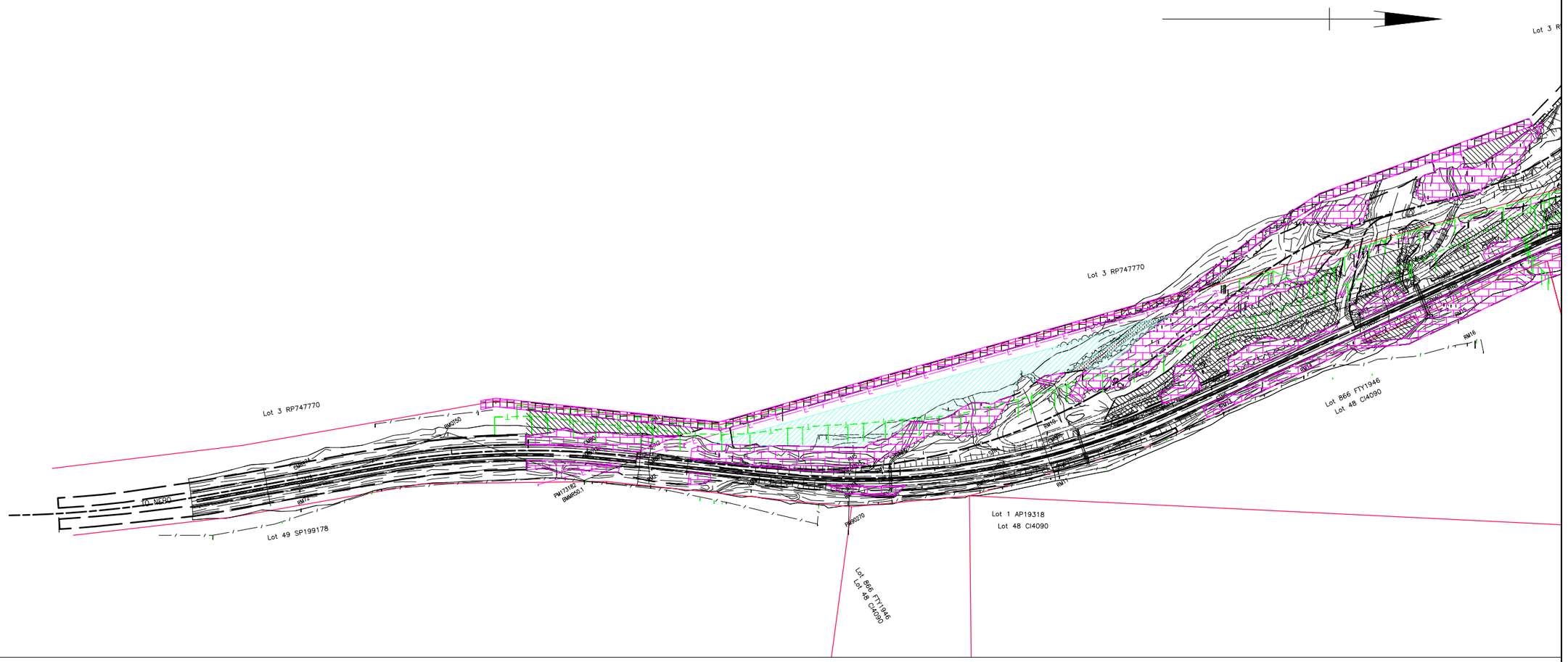
11 References

EcoSM (2013) *Eton Range Realignment Project – Fauna Assessment Report.* Prepared for Department of Transport and Main Roads, December 2013

EcoSM (2011) Eton Range Upgrade Project – Options W1A-W2A and X1A-X2A. Prepared for Department of Transport and Main Roads, July 2011

DEHP (2012) *Koala Ecology.* Available at: ehp.qld.gov.au/wildlife/koalas/koala-ecology.html Accessed on: 12 January 2015

ATTACHMENT A – PROJECT BOUNDARIES – EXTENT OF CLEARING



LEGEND

- AREA NOT TO BE CLEARED
- POTENTIAL CLEARING (HABITAT ASSESSMENT) (Approx Area = 24654m^2)
- ERRP CLEARING WORKS TO BE COMPLETED (Approx Area = 149687m^2)
- SPECIAL STAGED CLEARING AND GRUBBING.
  FOR SLOPE MANAGEMENT TO BE COMPLETED (Approx Area = 14204m^2)

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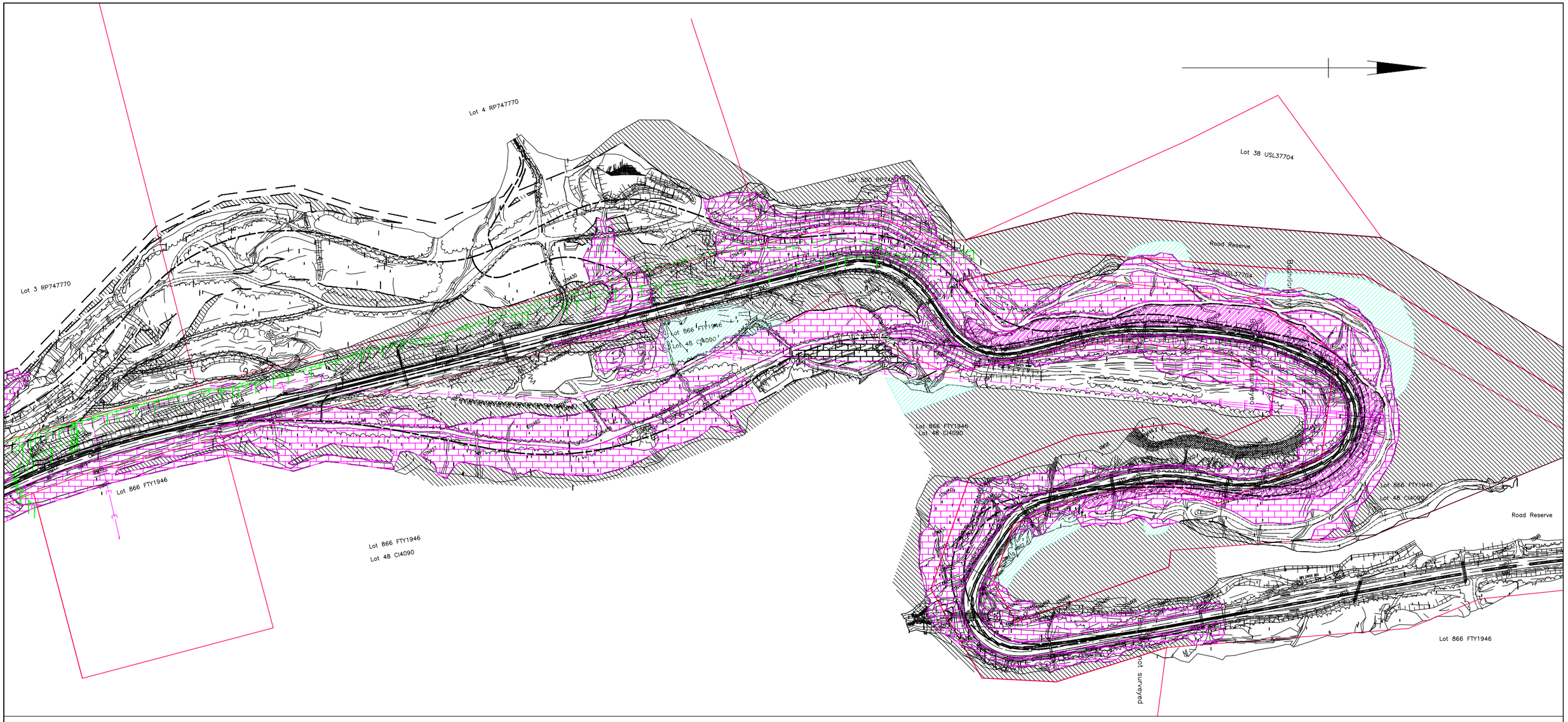
ETON RANGE REALIGNMENT PROJECT

CLEARING TO BE COMPLETED (SHEET 1 OF 2)

Scale 0 20 40 60 80m

ERRP-SK-003

04/08/2015



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ETON RANGE REALIGNMENT PROJECT

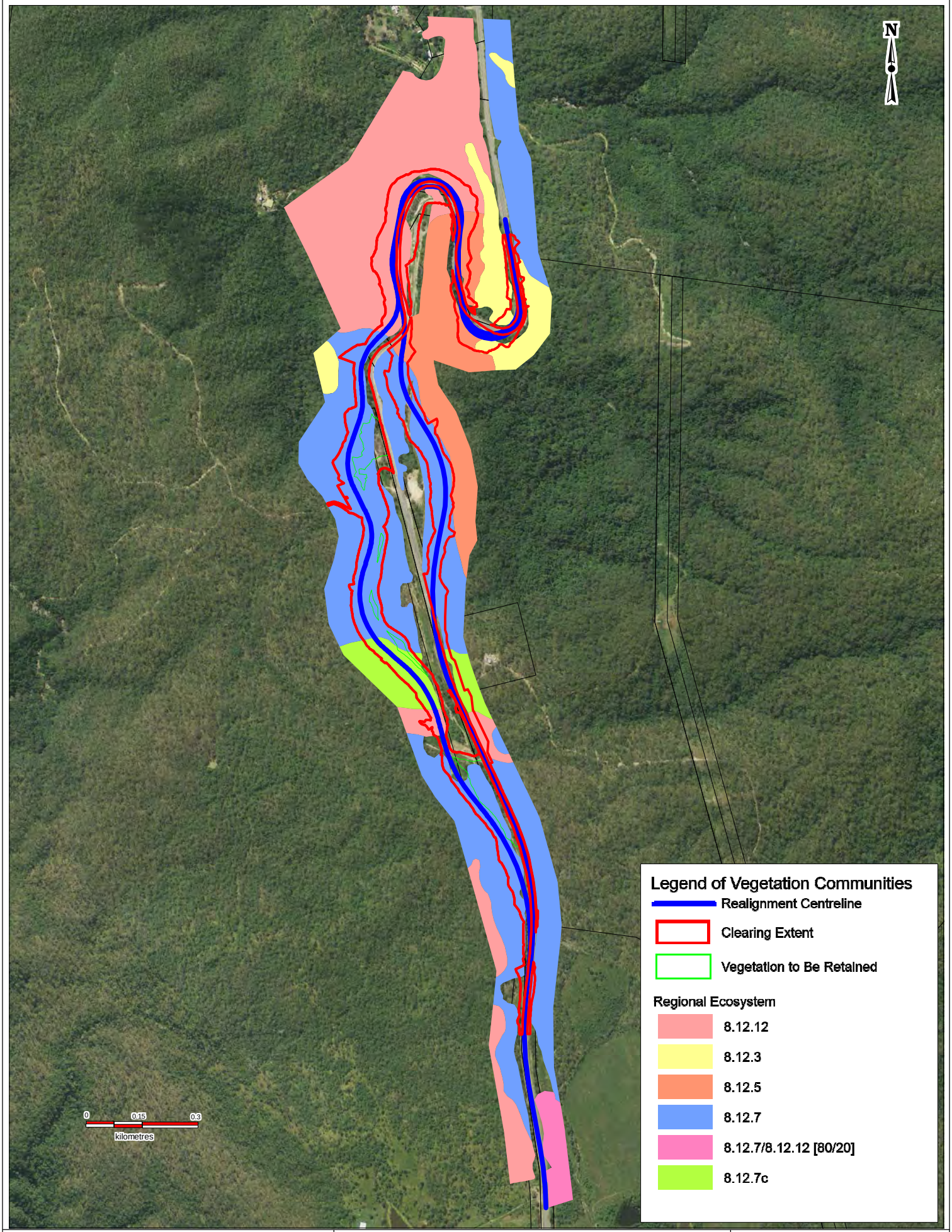
CLEARING TO BE COMPLETED (SHEET 2 OF 2)

Scale 0 20 40 60 80m

ERRP–SK–004

04/08/2015

ATTACHMENT B – VEGETATION COMMUNITY MAPPING



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Projection/ Datum:	Map Grid of Australia (MGA) Zone 55, Geocentric Datum of Australia (GDA) 1994
File location :	G:\MKY\DIRP Projects\Const Rehab MWks\242_33B_901 & 242_33B_8\ 2 - Development\Environment\Eton Range_Full Project\ Data\Files\Vegetation Community Mapping

Title:

Peak Downs Highway (Nebo-Mackay)
Eton Range Realignment Project (ERRP)
242/33B/8
Vegetation Community Mapping

Queensland Government

Transport and Main Roads

Plan No/ Job No:	Attachment B	Issue: A	Date: 25/03/2015
Drawn by:	S Ireland	Checked by:	M Weatherley