

environmental management



Carmichael Coal Rail Project NCA Vegetation Clearing Permit

SP2 Rail – Laydown & Temporary Works Areas

Adani Mining Pty Ltd
6396
October 2012



Document Control

| | |
|-------------------|---|
| Title | Carmichael Coal Rail Project – NCA Vegetation Clearing Permit – SP2 Temporary Works Areas |
| Job Number | 6396 |
| Client | Adani Mining Pty Ltd |

Document Issue

| Issue | Date | Prepared By | Checked By |
|-------|------------|-------------|------------|
| Draft | 18-10-2012 | NC | RM |
| Draft | 22-10-2012 | DH | NC |
| Final | 26-10-2012 | SA | RM |

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Plant Species (D – Dominant; C – codominant; A – associated; S – Suppressed)

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I. Introduction

The Environmental Management Division of the Saunders Havill Group was engaged by Adani Mining Pty Ltd to prepare this vegetation clearing permit application to enable clearing for the Carmichael Coal Rail Project (SP2 section – Refer to Plan 1). This report supports the *Nature Conservation Act, 1992* (NCA) Clearing Permit application.

The Carmichael Coal Rail Project involves the construction of a rail line connecting the Carmichael mine site to the existing Goonyella and Newlands rail systems to provide for the export of coal via the Hay Point and Abbot Point coal terminals. The proposed mine is projected to have a total output capacity of 60 million tonnes per annum.

The Project has been declared a 'significant project' under the State Development and Public Works Organisation Act 1971 (SDPWO Act) and as such, an Environmental Impact Statement (EIS) is required for the Project. This report is prepared to accompany the EIS and seek approval to clear 'least concern' plants along the rail corridor for temporary works associated with construction.

The rail line is divided into two (2) project components as follows:

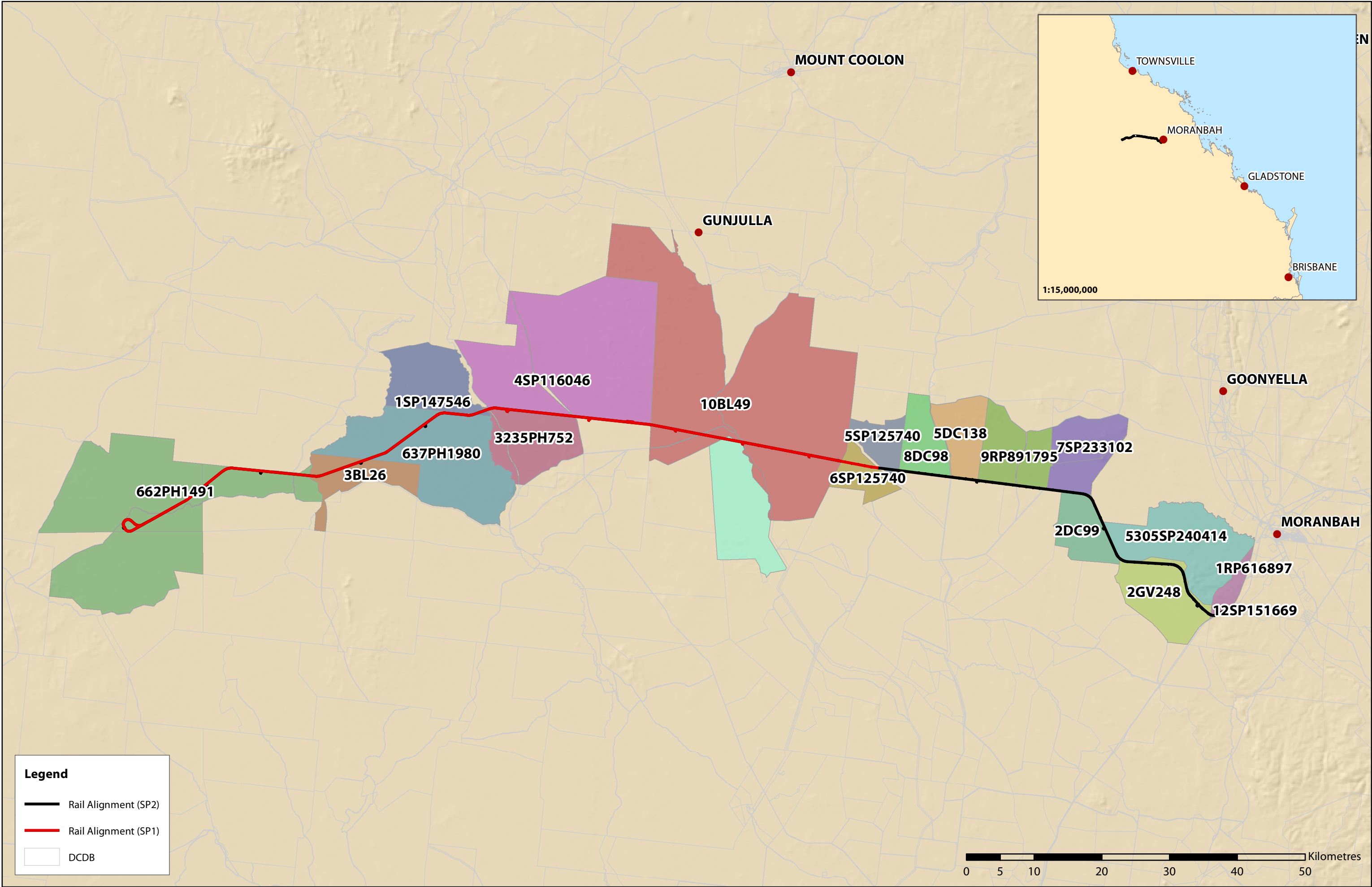
- **Separable Portion 1 (SP1)** – known as 'west rail' which traverses approximately 120km from the Mine site east towards Moranbah; and
- **Separable Portion 2 (SP2)** – known as 'east rail' which connects 'west rail' with the existing Goonyella rail system and provides access to Dalrymple Bay and Hay Point coal terminals.

This report is prepared for clearing associated with SP2 of the rail line, and in particular the temporary works associated with the rail construction including laydown areas, construction camps, turning and ballast areas.

Adani Mining Pty Ltd is aware of a number of processes and exemptions under the *Nature Conservation Act 1992* which may lead to the ability to clear 'Least Concern' plants for the Carmichael Coal Rail Project. These processes and exemptions are discussed in further detail within this report, however include:

- Various exemptions listed under S41(1) of the Nature Conservation (Protected Plants) Conservation Plan 2000;
- Receipt of a clearing permit for the clearing of Least Concern Plants

In support of this clearing application detailed information regarding the type and approximate numbers of Least Concern plants present within the SP2 laydown and temporary works areas is provided.





2. Nature Conservation Act, 1992

The *Nature Conservation Act 1992* (NCA) provides for the conservation of nature including important natural areas such as national parks and conservation parks or resource reserves as well as flora and fauna considered to be 'extinct in the wild', 'endangered', 'vulnerable', 'near threatened' and 'least concern wildlife'.

The Carmichael Coal rail project requires the clearing of 'Least Concern' Plants within the laydown and temporary works areas associated with the SP1 section of the Rail Corridor. The clearing for temporary works can be facilitated in two ways under the NCA. This includes:

1. The receipt of a clearing permit for the clearing of 'Least Concern' Plants; and/or
2. Agreement to a process under S41 of the *Nature Conservation (Protected Plants) Conservation Plan 2000* (NC Plan).

S41 of the NC Plan provides a number of exemptions that may be applicable to the Carmichael Coal Rail project including:

- 1) *'A clearing permit is not needed for taking a protected plant if –*
 - a) *The taking happens in the course of an activity under an authority, other than a mining lease or petroleum lease, made, granted or given under another Act by—*
 - i. *the Governor in Council; or*
 - ii. *someone else and the chief executive approves the taking in the course of the activity; or*
 - b) *the taking happens in the course of an activity under a mining lease; or*
 - c) *the taking happens in the course of an activity under a petroleum lease; or*
 - d) *for a least concern plant on private land—the person taking the plant is the landholder of the land.*
- 2) *For subsection (1)(a)(ii), the chief executive's approval may be given –*
 - a) *for a particular activity or class of activity; and*
 - b) *with or without conditions; and*
 - c) *only if the chief executive is satisfied the taking will not adversely affect the survival in the wild of the plant.*

Under S41 of the NC Plan an exemption for the project could be facilitated in a number of ways, subject to the final tenure / lease arrangement for the corridor. It is requested that the clearing of Least Concern' Plants for the Carmichael Coal Rail temporary works is either facilitated through an exemption under S41 described above, or through the issue of a 'Clearing Permit'.

This document provides information to support the issuing of a clearing permit and to demonstrate that the clearing will not adversely affect the survival of identified plants in the wild.



3. Application Details

The rail alignment is located within a nominal 95 metre (m) wide corridor that runs from the Mine approximately 189 km eastwards to connect with existing QR National Goonyella Coal Rail System (Refer to *Plan 1 Rail project overview SP2*).

The Rail (west) portion is designed to accommodate a dual gauge (i.e. narrow gauge and standard gauge) with a capacity up to 100 Mtpa. This will allow for future connections to other existing and/or proposed third party rail infrastructure via standard and/or narrow gauge lines. The Rail (east) will be a narrow gauge track with capacity assessed at 60 Mtpa.

The laydown and temporary works areas are required to facilitate the construction of the rail. This associated infrastructure includes:

- Construction Camp – 1
- Laydown Area Turning Circle – 16
- Laydown Area – Track – 10
- Laydown Area Bridge – 7
- Ballast Stockpile – 1

Refer to **Appendix B** for a location plan of the laydown and temporary works areas. Example drawings are presented in **Appendix C**.

Table 1: Application Summary

| | |
|-------------------------|---|
| Applicant | Adani Mining Pty Ltd |
| Location | SP2 Rail Corridor - associated infrastructure, including laydown areas, batching plants and construction camps |
| RPD | <ul style="list-style-type: none">• Lot 5 SP125740• Lot 8 DC98• Lot 5 DC138• Lot 9 RP891795• Lot 7 SP233102• Lot 2 DC99• Lot 2 GV248• Lot 1 RP616897 |
| Local Government | Isaac Regional Council |
| Clearing Purpose | Establishment of Carmichael Coal Mine rail infrastructure |

3.1. Land Tenure

The SP2 rail line is located within either freehold, leasehold, unallocated State land or road reserve and is not currently controlled by Adani Mining Pty Ltd. It is not yet known what the final tenure arrangement for the rail line will be, therefore this report addresses clearing associated with all properties along the SP2 alignment. Refer to **Appendix A** – Tenure Plan for further information.



4. Clearing Extent & Methodology

4.1. Clearing extent

Clearing for construction of the rail corridor and associated infrastructure (e.g. laydown areas, batching plants and construction camps) is required along the length of the SP2 rail corridor. Clearing triggers a permit under the Nature Conservation Act (1992) within the following properties:

- Lot 5 SP125740
- Lot 8 DC98
- Lot 5 DC138
- Lot 9 RP891795
- Lot 7 SP233102
- Lot 2 DC99
- Lot 2 GV248
- Lot 1 RP616897

The proposed clearing encompasses the areas of the various laydown and temporary works areas along the length of the SP2 rail alignment.

4.2. Construction & Clearing Methodology

It is expected that construction of the Project (Rail) will commence in the third quarter of 2013 for a period of approximately two years. The construction schedule currently indicates that construction activities in the first year are largely concerned with the undertaking of civil works (earthworks and structures), such as the establishment of watercourse crossings. Yard works are also scheduled during this period. Earthworks are planned to commence in 2013 and continue through 2014. Track laying, followed by ballasting and tamping, will commence in 2014 and is scheduled for completion in 2015.

The Construction Environmental Management Plan will detail the various requirements for the clearing, earthworks and construction phase aspects of the project. Specific to the requirements for clearing activities are:

- Planning and sequencing of clearing activities;
- Requirements for site stabilization and erosion and sediment control; and
- Specific management strategies within sensitive areas (e.g watercourse and wetland areas).

4.3. Fauna Spotter

A fauna spotter will be present throughout the clearing process. The fauna spotter will check proposed clearing areas for fallen logs, nests and other potential animal breeding places and as per any conditions required under the requirements of the NCA and *Nature Conservation (Wildlife) Regulation 2006*.



It is intended that the proponent will operate under a Species Management Program (whether specifically prepared or generic), which allows for the tampering of animal breeding places and can be obtained under Section 88 of the NCA and Section 332 of the Nature Conservation (Wildlife Management) Regulation 2006.

4.4. Threatened Flora

This NCA Permit report does not seek approval to clear Listed Endangered, Vulnerable or Near Threatened (EVNT) species. Prior to the commencement of clearing activities, additional field investigations will be conducted within potential habitat areas to confirm the absence of listed species. Should any EVNT species be encountered, approval to clear relevant species will be sought.



5. Audit of proposed clearing

The following provides an audit of Least Concern Plants within the proposed clearing footprints. The density and number of plants have been determined using standard assessment methods which detail the numbers of individuals per hectare. This information correlates to detailed vegetation mapping to determine numbers of each species requiring removal within various vegetation community types. It is noted that in a number of instances, the estimates of individual plants to be removed by the clearing exercise is likely to be less than identified within the schedules.

Reporting is on a property basis with species schedules coinciding with mapped vegetation polygons. The following properties are included within the audit.

- Lot 5 SP125740
- Lot 8 DC98
- Lot 5 DC138
- Lot 9 RP891795
- Lot 7 SP233102
- Lot 2 DC99
- Lot 2 GV248
- Lot 1 RP616897

Where further detailed information is required to provide more accurate estimates, this has been noted and will be supplied prior to the issue of the final clearing permit (if required).

In addition, the plant audit information provided within this document demonstrates that the clearing will not adversely affect the survival of identified plants in the wild. This is evident when comparing the minor clearing required for the laydown and temporary works areas in comparison to the vast areas of similar mapped vegetation that will remain within the local and regional landscape. This information may also provide confidence that appropriate exemptions under S41 of the NC Plan may be relevant to the project.



6. Temporary Works – Clearing for Laydown Areas, Batching Plants and Construction Camps

6.1. Lot 5 SP125740 Laydown Area Track (I) @ 4.5 Ha = 4.5Ha

- Groundlayer in non-remnant areas dominated by *Pennisetum ciliare* (Buffel Grass) (>50%) and bare ground (30%). These areas are heavily grazed and disturbed. These areas have historically been cleared for cattle pastures or cropping. Calculations based on 3 4mx5m quadrats.

Table 2: Species Audit of the Laydown Areas (Track) within Lot 5 on SP125740

| Str. | Rel. dom. | Scientific Name | Common Name | Conservation Status (NCA92) | EPBC Status | Number or M ² of vegetation |
|-------------------|-----------|------------------------------|----------------------|-----------------------------|-------------|--|
| Tree and Shrubs | | <i>Acacia harpophylla</i> | Brigalow | Least Concern | Not Listed | Species lists within this non remnant location were recorded during field survey; however no tree and shrub species density counts has been undertaken. Field data to support this application will be provided. It is noted that general density analysis of native ground layer species was generally recorded as described below. |
| | | <i>Carissa ovata</i> | Currant Bush | Least Concern | Not Listed | |
| | | <i>Capparis lassiantha</i> | Wait-A-While | Least Concern | Not Listed | |
| | | <i>Eremophila mitchellii</i> | False Sandlewood | Least Concern | Not Listed | |
| Forbs and grasses | A | <i>Aristida latifolia</i> | Feathertop Wiregrass | Least Concern | Not Listed | 4050m ² |
| | A | <i>Enteropogon</i> | Curly Windmill | Least Concern | Not Listed | 1350m ² |
| | A | <i>Cyperus bifax</i> | | Least Concern | Not Listed | 1350m ² |

Plant Species (D – Dominant; C – codominant; A – associated; S – Suppressed)



6.2. Lot 5 SP125740 Turning Circle (I) @ 1 Ha = 1Ha

- Groundlayer in non-remnant areas dominated by *Pennisetum ciliare* (Buffel Grass) (>50%) and bare ground (30%). These areas are heavily grazed and disturbed. These areas have historically been cleared for cattle pastures or cropping. Calculations based on 3 4mx5m quadrats.

Table 3: Species Audit of the Turning Circle Area within Lot 5 on SP125740

| Str. | Rel. dom. | Scientific Name | Common Name | Conservation Status (NCA92) | EPBC Status | Number or M ² of vegetation |
|-------------------|-----------|------------------------------|----------------------|-----------------------------|-------------|--|
| Tree and Shrubs | | <i>Acacia harpophylla</i> | Brigalow | Least Concern | Not Listed | Species lists within this non remnant location were recorded during field survey; however no tree and shrub species density counts has been undertaken. Field data to support this application will be provided. It is noted that general density analysis of native ground layer species was generally recorded as described below. |
| | | <i>Carissa ovata</i> | Currant Bush | Least Concern | Not Listed | |
| | | <i>Capparis lassiantha</i> | Wait-A-While | Least Concern | Not Listed | |
| | | <i>Eremophila mitchellii</i> | False Sandlewood | Least Concern | Not Listed | |
| Forbs and grasses | A | <i>Aristida latifolia</i> | Feathertop Wiregrass | Least Concern | Not Listed | 900m ² |
| | A | <i>Enteropogon</i> | Curly Windmill | Least Concern | Not Listed | 300m ² |
| | A | <i>Cyperus bifax</i> | | Least Concern | Not Listed | 300m ² |
| | | | | | | |

Plant Species (D – Dominant; C – codominant; A – associated; S – Suppressed)

6.3. Lot 8 DC98 Laydown Area Track (I) @ 4.5 Ha = 4.5Ha

- Groundlayer in non-remnant areas dominated by *Pennisetum ciliare* (Buffel Grass) (56.2%) and bare ground (15.56%) These areas are heavily grazed and disturbed. These areas have historically been cleared for cattle pastures or cropping. Calculations based on 9 4mx5m quadrats.

Table 4: Species Audit of the Laydown Area (Track) for Lot 8 on DC98

| Str. | Rel. dom. | Scientific Name | Common Name | Conservation Status (NCA92) | EPBC Status | Number or M ² of vegetation |
|-----------------|-----------|----------------------------|--------------|-----------------------------|-------------|--|
| Tree and Shrubs | | <i>Acacia harpophylla</i> | Brigalow | Least Concern | Not Listed | Species lists within this non remnant location were recorded during field survey; however no tree and shrub species density counts has been undertaken. Field data to support this application will be provided. It is noted that general density analysis |
| | | <i>Carissa ovata</i> | Currant Bush | Least Concern | Not Listed | |
| | | <i>Capparis lassiantha</i> | Wait-A-While | Least Concern | Not Listed | |



| | | | | | | |
|--------------------------|---|------------------------------|----------------------|---------------|------------|---|
| | | <i>Eremophila mitchellii</i> | False Sandlewood | Least Concern | Not Listed | of native ground layer species was generally recorded as described below. |
| | | | | | | |
| Forbs and grasses | A | <i>Aristida latifolia</i> | Feathertop Wiregrass | Least Concern | Not Listed | 3600m2 |
| | A | <i>Dichanthium</i> | Queensland | Least Concern | Not Listed | 270m2 |
| | A | <i>Enteropogon</i> | Curly Windmill | Least Concern | Not Listed | 495m2 |
| | A | <i>Sporobolus</i> | Brigalow Grass | Least Concern | Not Listed | 495m2 |

Plant Species (D – Dominant; C – codominant; A – associated; S – Suppressed)

6.4. Lot 8 DC98 Turning Circle (2) @ Ha = 2 Ha

- Groundlayer in non-remnant areas dominated by *Pennisetum ciliare* (Buffel Grass) (56.2%) and bare ground (15.56%) These areas are heavily grazed and disturbed. These areas have historically been cleared for cattle pastures or cropping. Calculations based on 9 4mx5m quadrats.

Table 5: Species Audit of the Turning Circle Areas (2) within Lot 8 on DC98

| Str. | Rel. dom. | Scientific Name | Common Name | Conservation Status (NCA92) | EPBC Status | Number or M ² of vegetation |
|--------------------------|-----------|------------------------------|----------------------|-----------------------------|-------------|--|
| Tree and Shrubs | | <i>Acacia harpophylla</i> | Brigalow | Least Concern | Not Listed | Species lists within this non remnant location were recorded during field survey; however no tree and shrub species density counts has been undertaken. Field data to support this application will be provided. It is noted that general density analysis of native ground layer species was generally recorded as described below. |
| | | <i>Carissa ovata</i> | Currant Bush | Least Concern | Not Listed | |
| | | <i>Capparis lassiantha</i> | Wait-A-While | Least Concern | Not Listed | |
| | | <i>Eremophila mitchellii</i> | False Sandlewood | Least Concern | Not Listed | |
| | | | | | | |
| Forbs and grasses | A | <i>Aristida latifolia</i> | Feathertop Wiregrass | Least Concern | Not Listed | 1600m2 |
| | A | <i>Dichanthium</i> | Queensland | Least Concern | Not Listed | 120m2 |
| | A | <i>Enteropogon</i> | Curly Windmill | Least Concern | Not Listed | 220m2 |
| | A | <i>Sporobolus</i> | Brigalow Grass | Least Concern | Not Listed | 220m2 |
| | | | | | | |

Plant Species (D – Dominant; C – codominant; A – associated; S – Suppressed)



6.5. Lot 5 DCI38 Laydown Area Track (I) and Laydown Area Turning Circle (I)

(No land Owner Access Granted)

Table 6: Species Audit of the Laydown Area (Track) and Laydown Area Turning Circle within Lot 5 on DC138

| Str. | Rel. dom. | Scientific Name | Common Name | Conservation (NCA92) | Status | EPBC Status | Number or M ² of vegetation |
|-------------------|-----------|-------------------------|-------------|----------------------|--------|-------------|--|
| Tree and Shrubs | | <i>To be determined</i> | | | | | <i>To be determined</i> |
| | | | | | | | |
| | | | | | | | |
| Forbs and grasses | | <i>To be determined</i> | | | | | <i>To be determined</i> |
| | | | | | | | |
| | | | | | | | |

Plant Species (D – Dominant; C – codominant; A – associated; S – Suppressed)

6.6. Lot 9 RP891795 Laydown Area Bridge (I), Laydown Area Track (I) and Laydown Area Turning Circle (2)

(No land Owner Access Granted)

Table 7: Species Audit of the Laydown Area (Bridge), Laydown Area (Track) and Laydown Areas (Turning Circles) within Lot 9 on RP891795

| Str. | Rel. dom. | Scientific Name | Common Name | Conservation (NCA92) | Status | EPBC Status | Number or M ² of vegetation |
|-----------------|-----------|-------------------------|-------------|----------------------|--------|-------------|--|
| Tree and Shrubs | | <i>To be determined</i> | | | | | <i>To be determined</i> |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |



| | | | | | | |
|-------------------|--|------------------|--|--|--|------------------|
| Forbs and grasses | | To be determined | | | | To be determined |
| | | | | | | |
| | | | | | | |
| | | | | | | |

Plant Species (D – Dominant; C – codominant; A – associated; S – Suppressed)

6.7. Lot 7 SP233102 Laydown Area Bridge (I) @ 6 Ha = 6Ha

- Groundlayer in non-remnant areas dominated by *Pennisetum ciliare* (Buffel Grass) (90%) and in these areas heavily grazed and disturbed. These areas have historically been cleared for cattle pastures or cropping. Calculations based on 13 4mx5m quadrats.

Table 8: Species Audit of the Laydown Area (Bridge) within Lot 7 on SP233102

| Str. | Rel. dom. | Scientific Name | Common Name | Conservation Status (NCA92) | EPBC Status | Number or M ² of vegetation |
|-------------------|-----------|------------------------------|----------------------|-----------------------------|-------------|--|
| Tree and Shrubs | | <i>Acacia harpophylla</i> | Brigalow | Least Concern | Not Listed | Species lists within this non remnant location were recorded during field survey; however no tree and shrub species density counts has been undertaken. Flied data to support this application will be provided. It is noted that general density analysis of native ground layer species was generally recorded as described below. |
| | | <i>Carissa ovata</i> | Currant Bush | Least Concern | Not Listed | |
| | | <i>Capparis lassiantha</i> | Wait-A-While | Least Concern | Not Listed | |
| | | <i>Eremophila mitchellii</i> | False Sandlewood | Least Concern | Not Listed | |
| Forbs and grasses | A | <i>Dichanthium sericeum</i> | Queensland Bluegrass | Least Concern | Not Listed | 750m2 |
| | A | <i>Aristida latifolia</i> | Feathertop Wiregrass | Least Concern | Not Listed | 750m2 |
| | | | | | | |
| | | | | | | |

Plant Species (D – Dominant; C – codominant; A – associated; S – Suppressed)

6.8. Lot 7 SP233102 Laydown Area Track (I) @ 4.5 Ha = 4.5Ha

- Groundlayer in non-remnant areas dominated by *Pennisetum ciliare* (Buffel Grass) (90%) and in these areas heavily grazed and disturbed. These areas have historically been cleared for cattle pastures or cropping. Calculations based on 13 4mx5m quadrats.



Table 9: Species Audit of the Laydown Area (Track) within Lot 7 on SP233102

| Str. | Rel. dom. | Scientific Name | Common Name | Conservation Status (NCA92) | EPBC Status | Number or M ² of vegetation |
|-------------------|-----------|------------------------------|----------------------|-----------------------------|-------------|---|
| Tree and Shrubs | | <i>Acacia harpophylla</i> | Brigalow | Least Concern | Not Listed | Species lists within this non remnant location were recorded during field survey; however no tree and shrub species density counts has been undertaken. Flid data to support this application will be provided. It is noted that general density analysis of native ground layer species was generally recorded as described below. |
| | | <i>Carissa ovata</i> | Currant Bush | Least Concern | Not Listed | |
| | | <i>Capparis lassiantha</i> | Wait-A-While | Least Concern | Not Listed | |
| | | <i>Eremophila mitchellii</i> | False Sandlewood | Least Concern | Not Listed | |
| Forbs and grasses | A | <i>Dichanthium sericeum</i> | Queensland Bluegrass | Least Concern | Not Listed | 563m2 |
| | A | <i>Aristida latifolia</i> | Feathertop | Least Concern | Not Listed | 563m2 |
| | | | | | | |
| | | | | | | |

Plant Species (D – Dominant; C – codominant; A – associated; S – Suppressed)

6.9. Lot 7 SP233102 Laydown Area Turning Circle (2) @ 1 Ha = 2Ha

- Groundlayer in non-remnant areas dominated by *Pennisetum ciliare* (Buffel Grass) (90%) and in these areas heavily grazed and disturbed. These areas have historically been cleared for cattle pastures or cropping. Calculations based on 13 4mx5m quadrats.

Table 10: Species Audit of the Laydown Area (Turning Circles) within Lot 7 on SP233102

| Str. | Rel. dom. | Scientific Name | Common Name | Conservation Status (NCA92) | EPBC Status | Number or M ² of vegetation |
|-----------------|-----------|------------------------------|------------------|-----------------------------|-------------|---|
| Tree and Shrubs | | <i>Acacia harpophylla</i> | Brigalow | Least Concern | Not Listed | Species lists within this non remnant location were recorded during field survey; however no tree and shrub species density counts has been undertaken. Flid data to support this application will be provided. It is noted that general density analysis of native ground layer species was generally recorded as described below. |
| | | <i>Carissa ovata</i> | Currant Bush | Least Concern | Not Listed | |
| | | <i>Capparis lassiantha</i> | Wait-A-While | Least Concern | Not Listed | |
| | | <i>Eremophila mitchellii</i> | False Sandlewood | Least Concern | Not Listed | |
| | | | | | | |



| | | | | | | |
|-------------------|---|-----------------------------|----------------------|---------------|------------|-------|
| Forbs and grasses | A | <i>Dichanthium sericeum</i> | Queensland Bluegrass | Least Concern | Not Listed | 250m2 |
| | A | <i>Aristida latifolia</i> | Feathertop | Least Concern | Not Listed | 250m2 |
| | | | | | | |
| | | | | | | |

Plant Species (D – Dominant; C – codominant; A – associated; S – Suppressed)

6.10. Lot 7 SP233102 Camp (I) @ 9.3 Ha = 9.3ha

- Groundlayer in non-remnant areas dominated by *Pennisetum ciliare* (Buffel Grass) (90%) and in these areas heavily grazed and disturbed. These areas have historically been cleared for cattle pastures or cropping. Calculations based on 13 4mx5m quadrats.

Table 11: Species Audit of the Construction Camp Area within Lot 7 on SP233102

| Str. | Rel. dom. | Scientific Name | Common Name | Conservation Status (NCA92) | EPBC Status | Number or M ² of vegetation |
|-------------------|-----------|------------------------------|----------------------|-----------------------------|-------------|--|
| Tree and Shrubs | | <i>Acacia harpophylla</i> | Brigalow | Least Concern | Not Listed | Species lists within this non remnant location were recorded during field survey; however no tree and shrub species density counts has been undertaken. Field data to support this application will be provided. It is noted that general density analysis of native ground layer species was generally recorded as described below. |
| | | <i>Carissa ovata</i> | Currant Bush | Least Concern | Not | |
| | | <i>Capparis</i> | Wait-A-While | Least Concern | Not | |
| | | <i>Eremophila mitchellii</i> | False Sandlewood | Least Concern | Not Listed | |
| Forbs and grasses | A | <i>Dichanthium sericeum</i> | Queensland Bluegrass | Least Concern | Not Listed | 1163m2 |
| | A | <i>Aristida</i> | Feathertop | Least Concern | Not | 1163m2 |
| | | | | | | |

Plant Species (D – Dominant; C – codominant; A – associated; S – Suppressed)



6.II. Lot 2 DC99 Laydown Area Track (2) and Laydown Area Turning Circle (3)

(No land Owner Access Granted)

Table 12: Species Audit of the Laydown Areas (Track) and Laydown Areas (Turning Circle) within Lot 2 on DC99

| Str. | Rel. dom. | Scientific Name | Common Name | Conservation (NCA92) | Status | EPBC Status | Number or M ² of vegetation |
|-------------------|-----------|------------------|-------------|----------------------|--------|-------------|--|
| Tree and Shrubs | | To be determined | | | | | To be determined |
| | | | | | | | |
| | | | | | | | |
| Forbs and grasses | | To be determined | | | | | To be determined |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Plant Species (D – Dominant; C – codominant; A – associated; S – Suppressed)

6.I2. Lot 2 GV248 Laydown Area Bridge (4) @ 6 Ha = 24Ha

- Groundlayer in non-remnant areas dominated by *Pennisetum ciliare* (Buffel Grass) (45%) and in these areas heavily grazed and disturbed. These areas have historically been cleared for cattle pastures or cropping. Calculations based on 15 4mx5m quadrats.

Table 13: Species Audit of the Turning Circle Areas (2) within Lot 8 on DC98

| Str. | Rel. dom. | Scientific Name | Common Name | Conservation Status (NCA92) | EPBC Status | Number or M ² of vegetation |
|-----------------|-----------|----------------------------|--------------|-----------------------------|-------------|---|
| Tree and Shrubs | | <i>Acacia harpophylla</i> | Brigalow | Least Concern | Not Listed | Species lists within this non remnant location were recorded during field survey; however no tree and shrub species density counts has been undertaken. Field data to support this application will be provided. It is noted that |
| | | <i>Carissa ovata</i> | Currant Bush | Least Concern | Not Listed | |
| | | <i>Capparis lassiantha</i> | Wait-A-While | Least Concern | Not Listed | |



| | | | | | | |
|--------------------------|---|------------------------------|------------------|---------------|------------|--|
| | | <i>Eremophila mitchellii</i> | False Sandlewood | Least Concern | Not Listed | general density analysis of native ground layer species was generally recorded as described below. |
| | | | | | | |
| Forbs and grasses | A | <i>Heteropogon contortus</i> | Black Speargrass | Least Concern | Not Listed | 43200m2 |
| | A | <i>Aristida latifolia</i> | Feathertop | Least Concern | Not Listed | 6480m2 |
| | A | <i>Enteropogon</i> | Curly Windmill | Least Concern | Not Listed | 1920m2 |
| | A | <i>Themeda triandra</i> | Kangaroo Grass | Least Concern | Not Listed | 30480m2 |
| | A | <i>Sporobolus caroli</i> | Fairy Grass | Least Concern | Not Listed | 2400m2 |
| | | | | | | |
| | | | | | | |

Plant Species (D – Dominant; C – codominant; A – associated; S – Suppressed)

6.13. Lot 2 GV248 Laydown Area Track (3) @ 4.5 Ha = 13.5Ha

- Groundlayer in non-remnant areas dominated by *Pennisetum ciliare* (Buffel Grass) (45%) and in these areas heavily grazed and disturbed. These areas have historically been cleared for cattle pastures or cropping. Calculations based on 15 4mx5m quadrats

Table 14: Species Audit of the Laydown Areas (Track) within Lot 2 on GV248

| Str. | Rel. dom. | Scientific Name | Common Name | Conservation Status (NCA92) | EPBC Status | Number or M ² of vegetation |
|--------------------------|-----------|------------------------------|------------------|-----------------------------|-------------|---|
| Tree and Shrubs | | <i>Acacia harpophylla</i> | Brigalow | Least Concern | Not Listed | Species lists within this non remnant location were recorded during field survey; however no tree and shrub species density counts has been undertaken. Flined data to support this application will be provided. It is noted that general density analysis of native ground layer species was generally recorded as described below. |
| | | <i>Carissa ovata</i> | Currant Bush | Least Concern | Not Listed | |
| | | <i>Capparis lassiantha</i> | Wait-A-While | Least Concern | Not Listed | |
| | | <i>Eremophila mitchellii</i> | False Sandlewood | Least Concern | Not Listed | |
| | | | | | | |
| Forbs and grasses | A | <i>Heteropogon contortus</i> | Black Speargrass | Least Concern | Not Listed | 24300m2 |
| | A | <i>Aristida latifolia</i> | Feathertop | Least Concern | Not Listed | 3645m2 |
| | A | <i>Enteropogon</i> | Curly Windmill | Least Concern | Not Listed | 1080m2 |



| | | | | | | |
|--|---|--------------------------|----------------|---------------|------------|---------|
| | A | <i>Themeda triandra</i> | Kangaroo Grass | Least Concern | Not Listed | 17145m2 |
| | A | <i>Sporobolus caroli</i> | Fairy Grass | Least Concern | Not Listed | 1350m2 |
| | | | | | | |

Plant Species (D – Dominant; C – codominant; A – associated; S – Suppressed).

6.14. Lot 2 GV248 Laydown Area Turning Circle (4) @ 1 Ha & 1 @ 6.7ha = 10.7 Ha

- Groundlayer in non-remnant areas dominated by *Pennisetum ciliare* (Buffel Grass) (45%) and in these areas heavily grazed and disturbed. These areas have historically been cleared for cattle pastures or cropping. Calculations based on 15 4mx5m quadrats

Table 15: Species Audit of the Laydown Areas (Turning Circle) within Lot 2 on GV248

| Str. | Rel. dom. | Scientific Name | Common Name | Conservation Status (NCA92) | EPBC Status | Number or M ² of vegetation |
|-------------------|-----------|------------------------------|------------------|-----------------------------|-------------|--|
| Tree and Shrubs | | <i>Acacia harpophylla</i> | Brigalow | Least Concern | Not Listed | Species lists within this non remnant location were recorded during field survey; however no tree and shrub species density counts has been undertaken. Field data to support this application will be provided. It is noted that general density analysis of native ground layer species was generally recorded as described below. |
| | | <i>Carissa ovata</i> | Currant Bush | Least Concern | Not Listed | |
| | | <i>Capparis lassiantha</i> | Wait-A-While | Least Concern | Not Listed | |
| | | <i>Eremophila mitchellii</i> | False Sandlewood | Least Concern | Not Listed | |
| Forbs and grasses | A | <i>Heteropogon contortus</i> | Black Speargrass | Least Concern | Not Listed | 18% (12060m ²) |
| | A | <i>Aristida latifolia</i> | Feathertop | Least Concern | Not Listed | 2.7% (1809m ²) |
| | A | <i>Enteropogon</i> | Curly Windmill | Least Concern | Not Listed | 0.8% (536m ²) |
| | A | <i>Themeda triandra</i> | Kangaroo Grass | Least Concern | Not Listed | 12.7% (8509m ²) |
| | A | <i>Sporobolus caroli</i> | Fairy Grass | Least Concern | Not Listed | 1.0% (670m ²) |
| | | | | | | |

Plant Species (D – Dominant; C – codominant; A – associated; S – Suppressed).

6.15. Lot 2 GV248 Ballast Area (28.0128ha)

- Groundlayer in non-remnant areas dominated by *Pennisetum ciliare* (Buffel Grass) (45%) and in these areas heavily grazed and disturbed. These areas have historically been cleared for cattle pastures or cropping. Calculations based on 15 4mx5m quadrats.



Table 16: Species Audit of the Ballast Area in Lot 2 on GV248

| Str. | Rel. dom. | Scientific Name | Common Name | Conservation Status (NCA92) | EPBC Status | Number or M ² of vegetation |
|-------------------|-----------|------------------------------|------------------|-----------------------------|-------------|--|
| Tree and Shrubs | | <i>Acacia harpophylla</i> | Brigalow | Least Concern | Not Listed | Species lists within this non remnant location were recorded during field survey; however no tree and shrub species density counts has been undertaken. Field data to support this application will be provided. It is noted that general density analysis of native ground layer species was generally recorded as described below. |
| | | <i>Carissa ovata</i> | Currant Bush | Least Concern | Not Listed | |
| | | <i>Capparis lassiantha</i> | Wait-A-While | Least Concern | Not Listed | |
| | | <i>Eremophila mitchellii</i> | False Sandlewood | Least Concern | Not Listed | |
| Forbs and grasses | A | <i>Heteropogon contortus</i> | Black Speargrass | Least Concern | Not Listed | 18% (50423m ²) |
| | A | <i>Aristida latifolia</i> | Feathertop | Least Concern | Not Listed | 2.7% (7563m ²) |
| | A | <i>Enteropogon</i> | Curly Windmill | Least Concern | Not Listed | 0.8% (560m ²) |
| | A | <i>Themeda triandra</i> | Kangaroo Grass | Least Concern | Not Listed | 12.7% (35576m ²) |
| | A | <i>Sporobolus caroli</i> | Fairy Grass | Least Concern | Not Listed | 1.0% (280m ²) |

Plant Species (D – Dominant; C – codominant; A – associated; S – Suppressed)

6.16. Lot 1 RP616897 Laydown Area Bridge (1) (No land Owner Access Granted)

Table 17: Species Audit of the Laydown Area (Bridge) for Lot 1 on RP616897

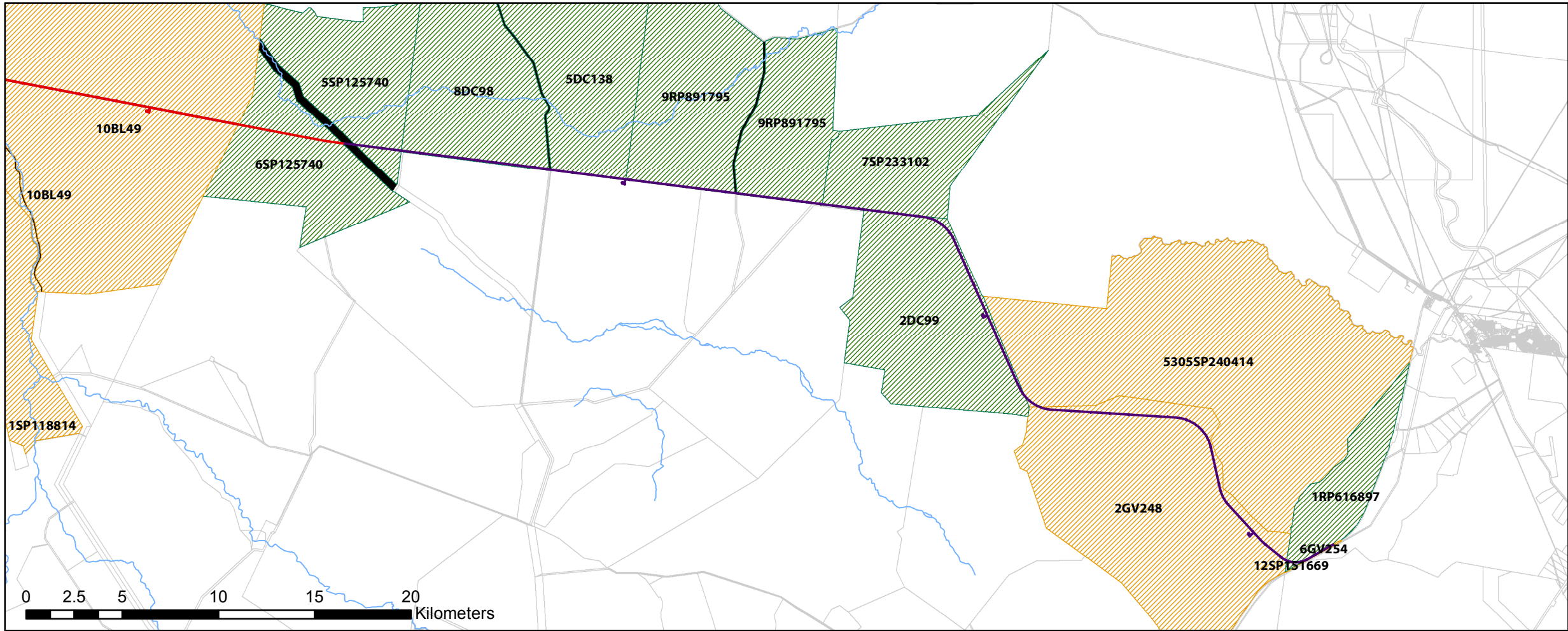
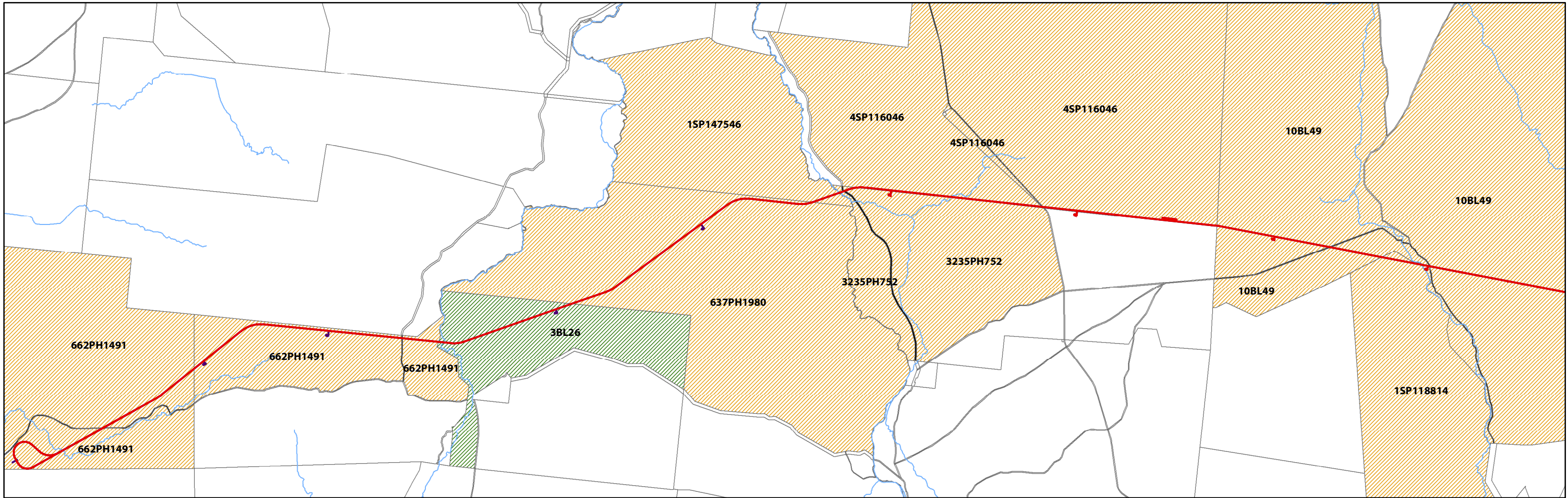
| Str. | Rel. dom. | Scientific Name | Common Name | Conservation Status (NCA92) | Status | EPBC Status | Number or M ² of vegetation |
|-------------------|-----------|-------------------------|-------------|-----------------------------|--------|-------------|--|
| Tree and Shrubs | | <i>To be determined</i> | | | | | <i>To be determined</i> |
| | | | | | | | |
| | | | | | | | |
| Forbs and grasses | | <i>To be determined</i> | | | | | <i>To be determined</i> |
| | | | | | | | |
| | | | | | | | |

Plant Species (D – Dominant; C – codominant; A – associated; S – Suppressed)



Attachment A

Tenure Plan



Legend

- Rail Alignment (SP1)
- Rail Alignment (SP2)

- DCDB
- Watercourses

TENURE

- Other (incl Road Reserves, Watercourses)
- Freehold
- Leasehold

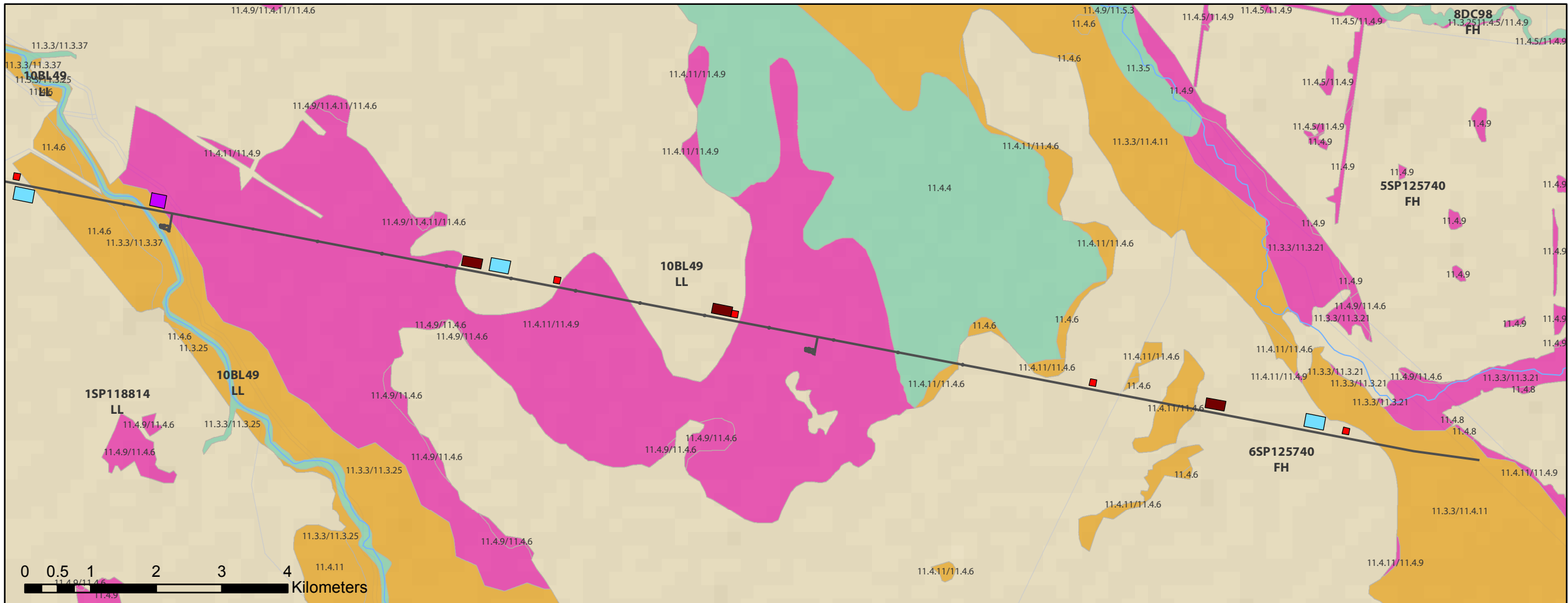
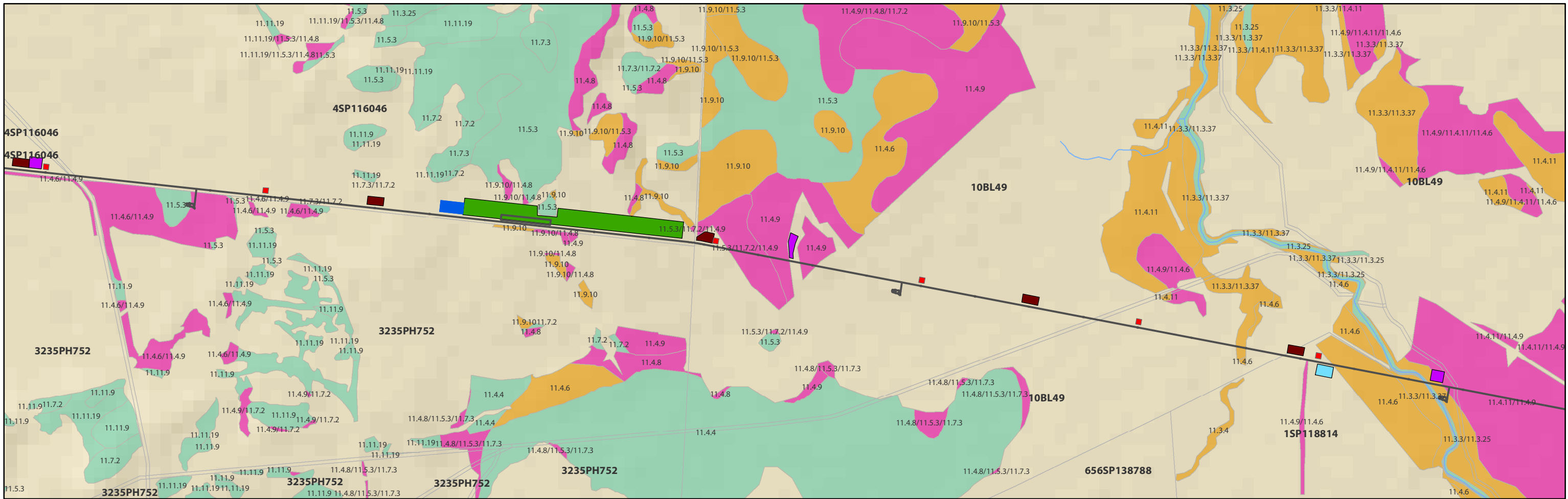
0 2.5 5 10 15 20 Kilometers





Attachment B

Location of Temporary Works Areas



Legend

- Rail Alignment (SP1)
- Rail Alignment (SP2)
- DCDB
- Watercourses

Regional Ecosystem Mapping v6.1

- Remnant vegetation containing Endangered REs
- Remnant vegetation containing Of Concern REs
- Remnant vegetation that is a Least Concern RE
- Camp Locations
- Laydown Area Turning Circle
- Laydown Area Track
- Laydown Area Facility Area
- Laydown Area Bridge
- Batch Plant
- Ballast Stockpile

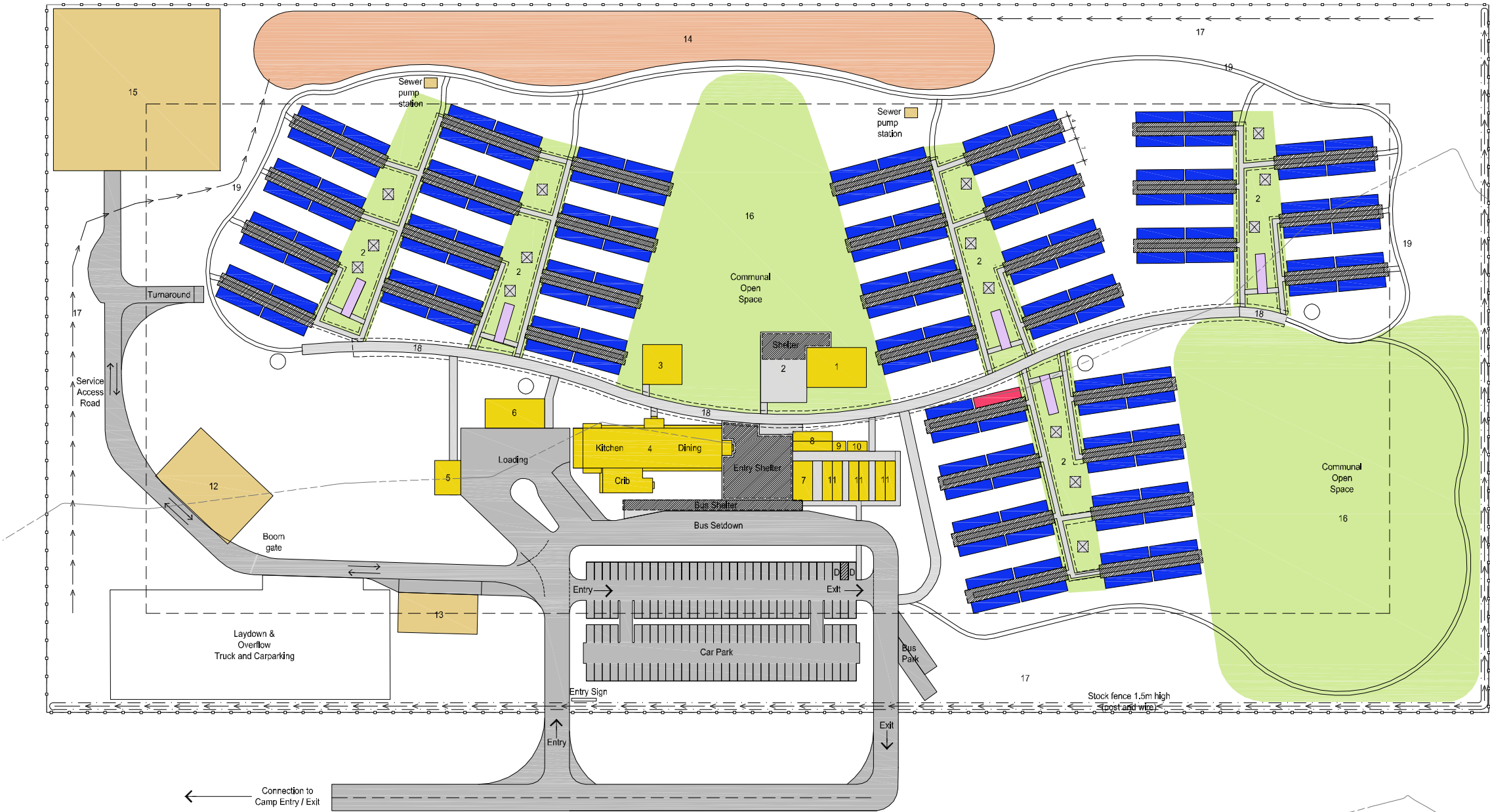


Attachment C

Construction/Layout Plans

RAIL CAMP ONE

PLAN



LEGEND

| | | | | |
|---------------------|---|----------------------------|---|-----------------|
| COMMUNAL BUILDING | 1 - Recreation Centre/ Wet Mess IT & Telephone | 7 - Office | 14 - Detention Basin | Fire Tank Water |
| ACCOMMODATION UNIT | 2 - BBQ & Shelter Areas | 8 - Ablution M&F | 15 - Sewerage Treatment Plant | Catch Drain |
| DISABLED UNIT | 3 - Gym | 9 - Ablution (Disabled) | 16 - Communal Open Space | Perimeter Bund |
| LAUNDRY | 4 - Kitchen/Dining | 10 - First Aid | 17 - Fire Break (30M wide) | Perimeter Fence |
| PATH | 5 - Waste | 11 - Lockers | 18 - Central Path (3M wide) with Freestanding Awning | |
| INFRASTRUCTURE | 6 - Maintenance / Linen Store | 12 - Water Treatment Plant | 19 - Walking Track / Maintenance (1.2M - 2.5M wide) | |
| COMMUNAL OPEN SPACE | | | | |
| DETENTION BASIN | | | | |

| | |
|---|---------|
| ACCOMMODATION UNITS | 405 |
| DISABLED UNITS | 2 |
| CAR PARKING | 125 |
| DISABLED CARPARKING | 2 |
| BUS PARKING | 2 |
| EFFULENT DISPOSAL | 4 ha |
| (based on 100m ² per person) | |
| DETENTION BASIN | .42ha |
| TOTAL OPEN SPACE | 5.58 ha |
| (including firebreak) | |
| TOTAL SITE AREA | 9.38 ha |

