CHRISTMAS ISLAND
PHOSPHATES

Clearing Permit Application Supporting Documentation

April 2022

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1.0 Introduction

Phosphate Resources Limited (PRL) was granted Mining Lease MCI 70/1A on the 4th August 1997; in 2013, the lease was extended until 2034 and operates phosphate mining, processing and shipping operations from Christmas Island under the trading name Christmas Island Phosphates (CIP).

Mining Lease MCI 70/1A occupies approximately 1636 hectares. During its tenure, CIP have conducted vegetation clearing for exploration and mining purposes within the mine lease boundaries.

Christmas Island is an Indian Ocean Territory of Australia, located approximately 2,600 km North - West of Perth. The island is predominantly National Park (63%). The boundaries of the National Park and the original mining lease were determined from aerial photography. The areas operated under mine lease have all been previously cleared and under lease conditions no primary rainforest can be cleared for mining operations.

2.0 Proposed Clearing Areas

Areas applied for under this application fall into the following categories:

- Stockpile built by CIP
- Areas dominated with fern vegetation which was previously considered a weed due to the low environmental values of these areas
- Areas dominated with weed species
- Areas with secondary regrowth
- Areas contained within previous permits which have expired
- Areas which have been amended within clearing permit areas due to clearing being completed within the nominated area but have now had vegetation regeneration

Total area contained within this application is 19.56 ha. Vegetation field inspections were conducted and reference points photographed noting Northings, Eastings and orientation.

Vegetation clearing will be conducted using mechanical equipment - loaders, dozers or excavators.

Location	Application Area	Total Mine Block Area ha
ML100 SPW MB15	0.1	5.5
ML100 SPW MB18	0.72	4.6
ML101 F17 MB4	2.36	3.6
ML101 F17 MB12	0.63	1.15
ML101 F17 MB14	6.84	2.46
ML101 F17 MB15	0.89	8.6
ML101 F17 MB22	1.39	5.73
ML101 MB49	1.28	3.9
ML133 MB11/MB12	1.69	3.66
ML140 MB1	2.5	3.4
ML140 STP26B	1.16	1.9
Total Area	**19.56**	**44.5**

Table 1 Proposed Clearing Areas

3.0 Existing Environment

Christmas Island has a tropical monsoonal climate with distinct wet and dry seasons and little seasonal variation in temperature. The dry season (May-November) is dominated by low and sporadic rainfall

events with consistent south-east trade winds. The wet season generally occurs from December – April with the island receiving most of its rainfall during this period.
Temperatures remain relatively uniform throughout the year, the island has high humidity throughout the year with frequent dews and heavy mists during the wet season.

4.0 Geology and Soils

Christmas Island is one of a series of seamounts that rise above the 5,500m deep abyssal areas of the West Australian Basin. At the core of the island are volcanic rocks, mainly composed of basalt with a layer of limestone generally covering these volcanic rocks, with occasional outcrops.

A series of geological uplifts and successive layering of coral reefs over the basalt core of the island have led to the eruption of new cliffs and terraces from the ocean, forming stepped terraces and inland cliffs. Limestone is mixed with dolomite sediments, basalts and tuffs. Phosphate rich soil covers the limestone over approximately half of the island.

5.0 Landforms and Topography

The island is characterised by sea cliffs that rise via a series of terraces to a central plateau. The shoreline is dominated by cliffs with a few small beaches. The islands natural landscape is dominated by karstic surface landforms and cave systems.

6.0 Hydrology

A major feature of the island is the lack of surface drainage. Rainfall mostly infiltrates the land surface and is utilised by plants, contributes to soil water stores or recharges to groundwater.

Christmas Island soils are generally highly permeable and there is consequently little runoff or erosion in the wet season when the soils are saturated, runoff can during heavy rainfall have some risk of erosion and sedimentation carriage.

Permanent surface water habitats on Christmas Island are limited to a number of spring fed streams found along coastal or sloping areas of the island. Hosnie Springs and The Dales are both listed as a Wetland of International Importance under the Convention on Wetlands of International Importance, Water Fowl Habitat 1971 (RAMSAR Convention) and are listed in the Directory of Important Wetlands in Australia.

7.0 Flora

The Christmas Island National Park covers 63% of the island, approximately 25% of the islands original vegetation has been cleared for mining and infrastructure.

The geology and climate on Christmas Island create the biophysical environment and constraints for the vegetation communities. These factors determine the soil nutrient status, seasonal availability of moisture and degree of exposure to wind which in turn control the distribution, structure and functioning of the natural vegetation.

A vegetation mapping project was undertaken from 2011-2014 to map vegetation with digital spatial accuracy, to determine height categories and to apply these consistently across the island. This information has been used to assist with the mapping vegetation within this report.

8.0 Fauna

There have been 22 terrestrial fauna species identified as significant. These include 3 seabirds; 7 forest birds; 6 reptiles and 3 land crabs. Of these 2 mammals, 6 birds and 2 reptiles are listed as Threatened under the EPBC Act.

9.0 Site Information

9.1 ML100 SPW MB15

ML100 SPW MB15 covers 5.5ha, the majority of this area has been cleared previously for mining purposes. The application area within ML100 SPW MB15 covers 0.1ha and lies along the eastern edge of the current cleared area, the application area is within close proximity to ML100 SPW NORTH4 which has been approved for clearing within CPS3472/6.

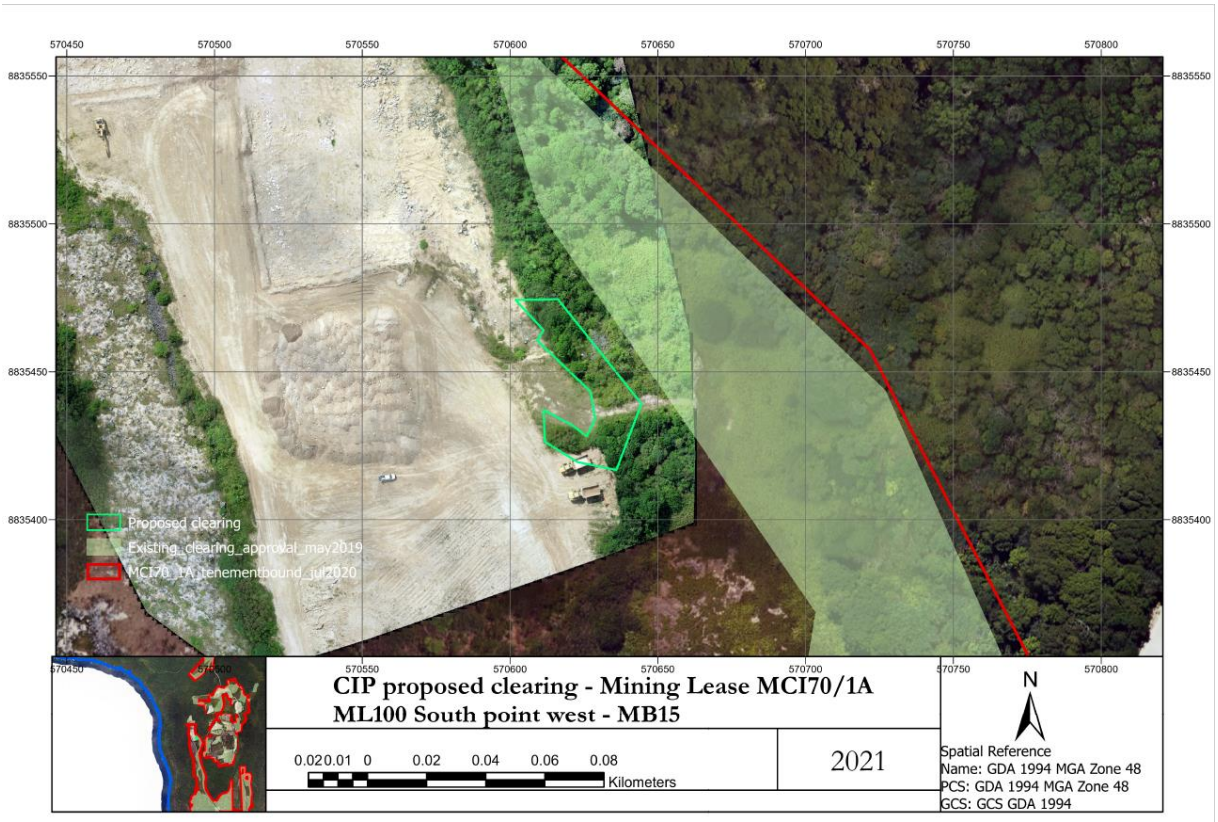

Figure 1 – ML100 SPW MB15 Location Plan

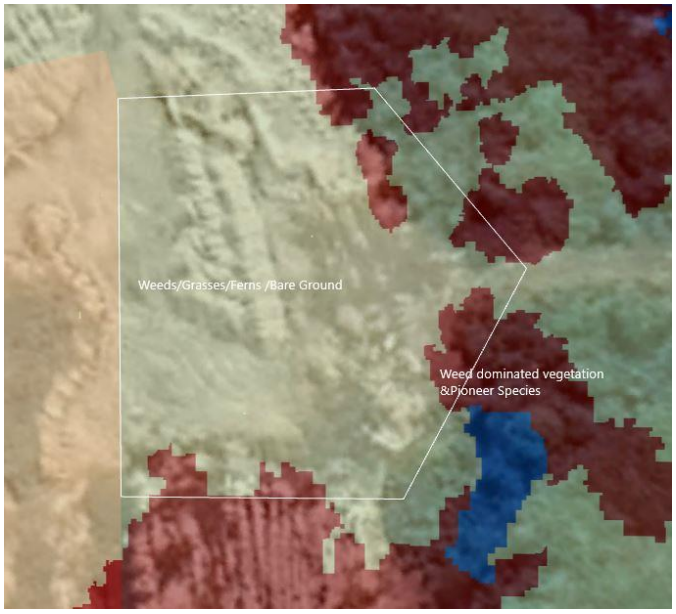

Figure 2 – ML100 SPW MB15 – Vegetation Map - Digital Spatial Data 2014

Vegetation within the application area is a compiled of weed dominated regrowth with some pioneer species. The following species were found within the application area - Macaranga tanarius, Dysoxylum gaudichaudianum, Mariscus javanicus and Nephrolepis biserrata, dominant weed species within the area include Leaucenea leucocephala, Mutungia calabra and Cordia curassavica.

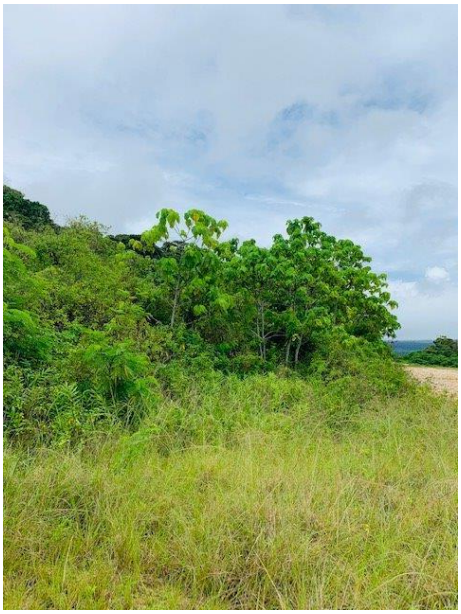

Plate 1 – 570618 8836489 SSE

Plate 2 – 570618 8836489 N

Plate 3 – 570642 8835441 WNW

Plate 4 – 570642 8835441 S

Plate 5 – 570590 8835437 ENE

Plate 6 – 570627 8835449 NE

9.2 ML100 SPW MB18

ML100 MB18 covers 4.6ha, the majority of the area has been cleared previously for mining. This application area covers 0.72ha and is situated along the edge of the mining field access road. A section within the southern end of the application area has been approved within CPS 4506/2 and is contained within ML100 SWP MB1.

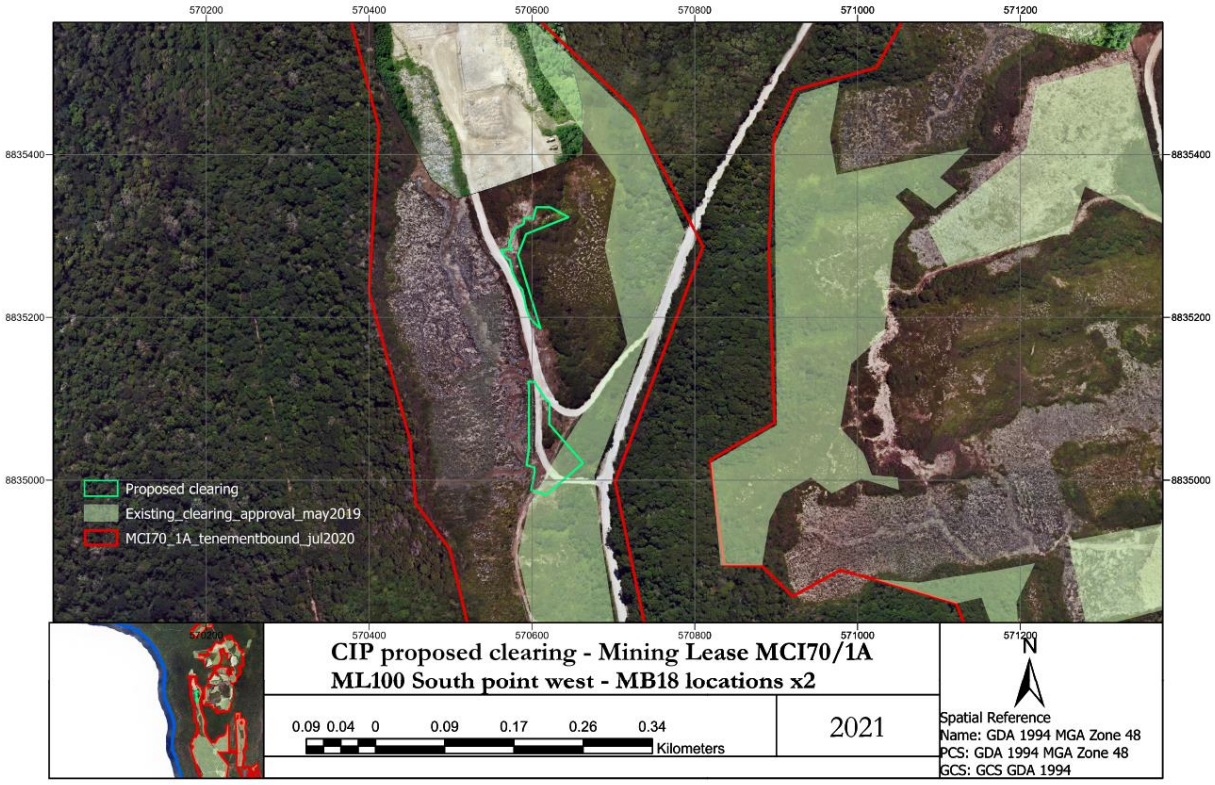

Figure 3 – ML100 SPW MB18 Location Plan

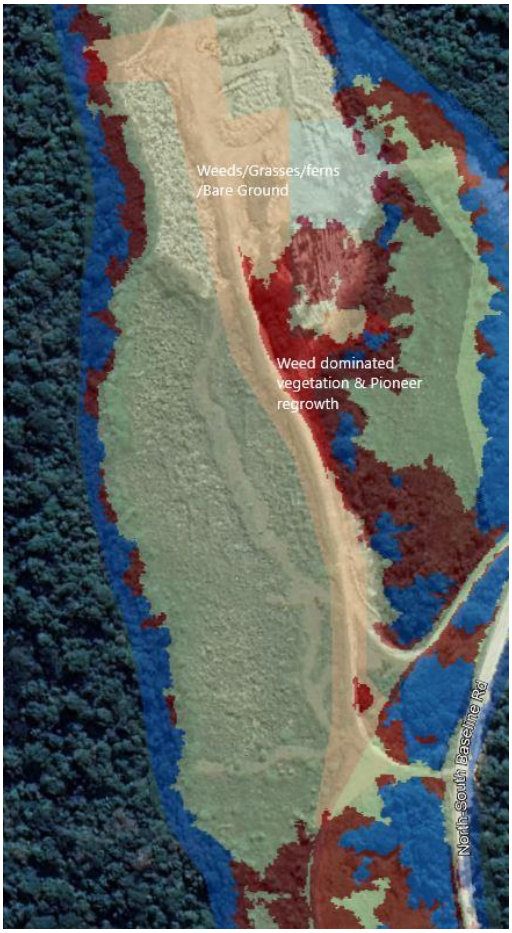

Figure 4 – ML100 SPW MB18 - Vegetation Map - Digital Spatial Data 2014

Vegetation within the application area is a compiled of weed dominated regrowth with some pioneer species. The following species were found within the application area - Macaranga tanarius, Dysoxylum gaudichaudianum, Mariscus javanicus, Melochia umbellate, Terminalia catappa, Microsorum scolopendria and Nephrolepis biserrata, dominant weed species within the area include Leaucenea leucocephala, Mutungia calabra, Mimosa pudica and Ipomoea cairica.

Plate 7 – 570483 8835489 SSE

Plate 8 – 570508 8835440 SSW

Plate 9 – 570523 8835379 SSE

Plate 10 – 570536 8835293 SSE

Plate 11 – 576270 8835303 NE

Plate 12 – 576270 8835303 SW

Plate 13 – 570583 8835243 NE

Plate 14 – 570583 8835243 SE

Plate 15 – 570612 8835117 NW

Plate 16 – 570612 8835117 SSE

Plate 17 – 570612 8835117 SSW

Plate 18 – 570622 8835040 SW

9.3 ML101 F17 MB4

ML101 MB4 is located within the Field 17 region and covers 3.6ha, the area is made up of remnant stockpile and limestone pinnacles. The area applied for within this application covers 2.36ha, the remaining area contained within MB4 is approved within CPS 3472and CPS 2132.

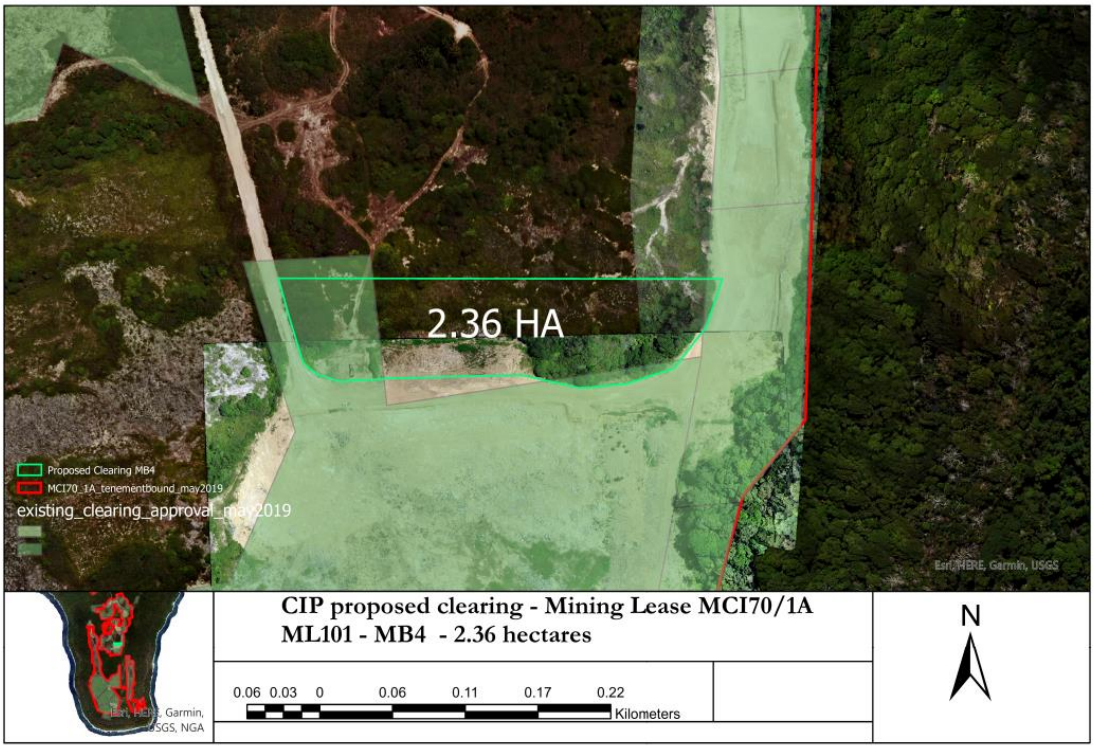

Figure 5 – ML101 F17 MB4 Location Plan

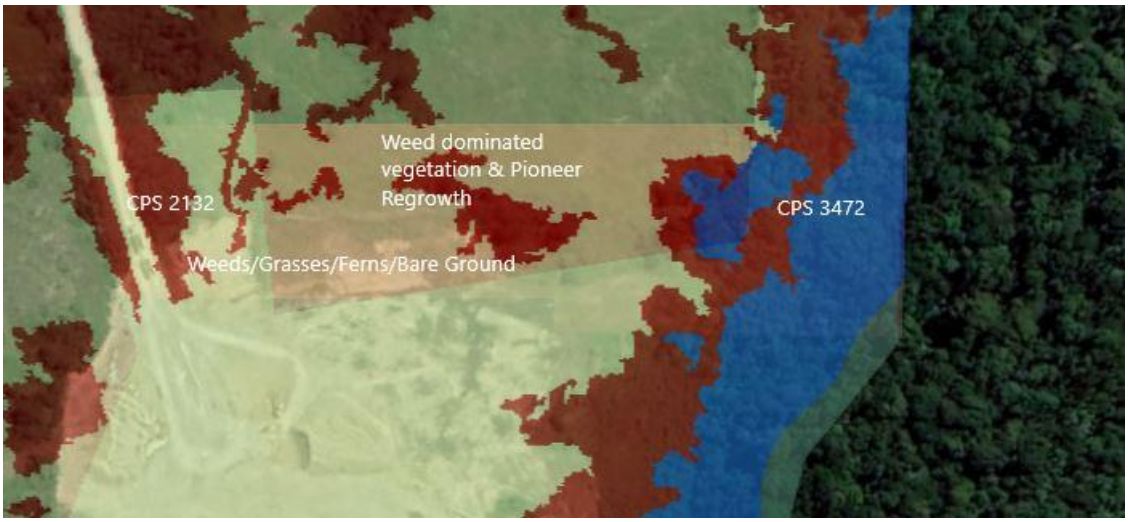

Figure 6 – ML101 F17 MB4 - Vegetation Map - Digital Spatial Data 2014

Vegetation within the application area is a compiled of weed dominated regrowth with some pioneer species. The following species were found within the application area - Macaranga tanarius, Dysoxylum gaudichaudianum, Mariscus javanicus, Melochia umbellate, Terminalia catappa, Microsorum scolopendria and Nephrolepis biserrata, dominant weed species within the area include Leaucenea leucocephala, Mutungia calabra, Cordia curassavica and Psidium guajava.

Plate 19 – 571759 8835120 W

Plate 20 – 571691 8835107 NNW

Plate 21 – 571662 8835120 E

Plate 22 – 571662 8835120 W

Plate 23 – 572576 8835117 NNW

Plate 24 – 571459 8835109 NNE

9.4 ML101 F17 MB12

ML101 MB12 is located within the Field 17 region and covers 0.63ha, the area is made up of remnant stockpile and limestone pinnacles. This application covers the total area within MB12.

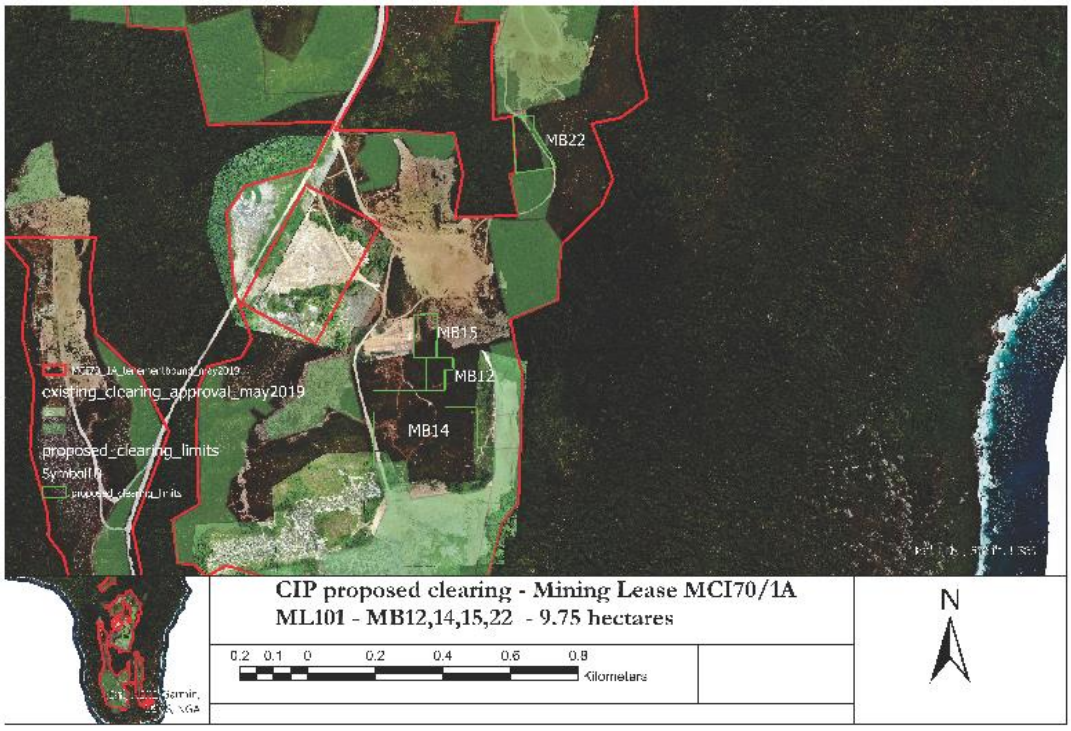

Figure 7 ML101 F17 MB12, MB14, MB15 and MB22 Location Plan

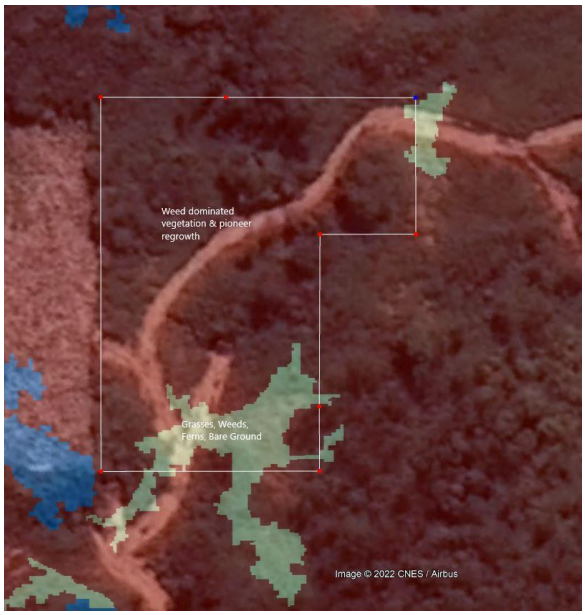

Figure 8 ML101 F17 MB12 - Vegetation Map - Digital Spatial Data 2014

Vegetation within the application area is a compiled of weed dominated regrowth with some pioneer species. The following species were found within the application area - Macaranga tanarius, Mariscus javanicus, Melochia umbellate, and Nephrolepis biserrata, Maclura cochinchinensis, dominant weed

species within the area include Leaucenea leucocephala, Mutungia calabra, Cordia curassavica and Papaya.

Plate 25 – 571563 8835458 S

Plate 26 – 571574 8835519 S

Plate 27 – 571579 8835503 S

Plate 28 – 571630 8835482 SE

Plate 29 – 571630 8835482 SW

Plate 30 – 571591 8835471 SE

Plate 31 – 571598 8835450 SE

9.5 ML101 F17 MB14

ML101 MB14 is located within the Field 17 region and covers 6.84ha, the area is made up of remnant stockpile and limestone pinnacles. This application covers the total area within MB14.

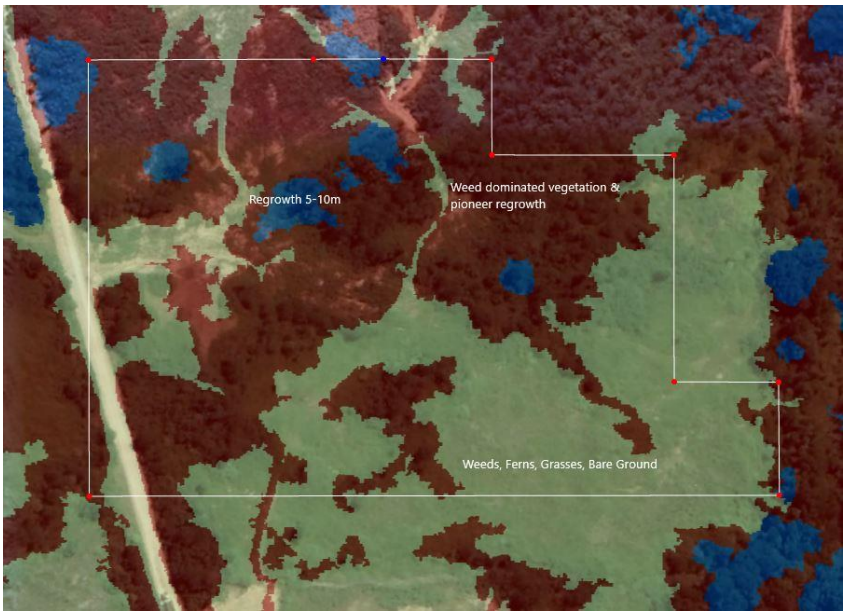

Figure 9 ML101 F17 MB14 - Vegetation Map - Digital Spatial Data 2014

Vegetation within the application area is a compiled of weed dominated regrowth with some pioneer species. The following species were found within the application area - Macaranga tanarius, , Schefflera elliptica, Dysoxylum gaudichaudianum, Claoxylon indicum, and Nephrolepis biserrata, Maclura cochinchinensis, dominant weed species within the area include Leaucenea leucocephala, Mutungia calabra and Cordia curassavica.

Plate 32 – 571766 8835183 NNW

Plate 33 – 571782 8835208 NW

Plate 34 – 571438 8835305 E

Plate 35 – 571438 8835305 N

Plate 36 – 571438 8835305 S

Plate 37- 571466 8835309 E

Plate 38- 571466 8835309 N

Plate 39- 571466 8835309 S

Plate 40 – 571528 8835287 ESE

Plate 41 – 571528 8835287 NE

Plate 42 – 571528 8835287 S

Plate 43 – 571528 8835214 ESE

Plate 44 – 571528 8835214 NNE

Plate 45 – 571528 8835214 NW

Plate 46 – 571570 8835206 ESE

Plate 47 – 571570 8835206 NNE

Plate 48 – 571570 8835206 S

Plate 49 – 571589 8835266 ESE

Plate 50 – 571589 8835266 N

Plate 51 – 571589 8835266 S

Plate 52 – 571629 8835309 NE

Plate 53 – 571629 8835309 SE

9.6 ML101 F17 MB15

ML101 MB15 is located within the Field 17 region and covers 6.66ha, the area is made up of remnant stockpile and limestone pinnacles. The area applied for within this application covers 0.89ha.

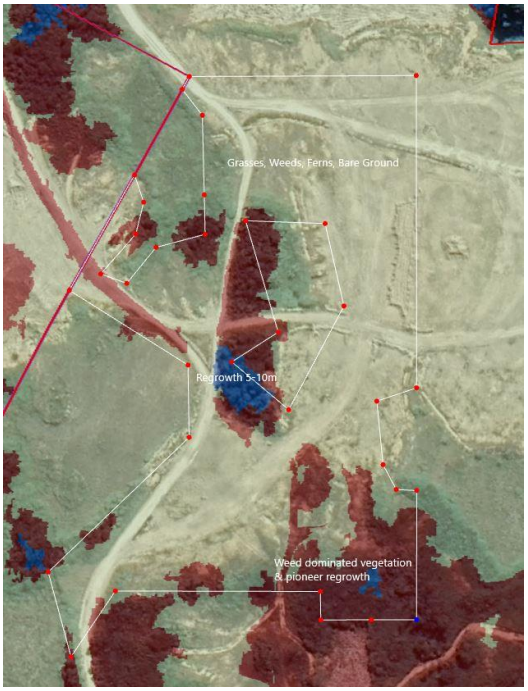

Figure 10 ML101 F17 MB15 - Vegetation Map - Digital Spatial Data 2014

Vegetation within the application area is a compiled of weed dominated regrowth with some pioneer species. The following species were found within the application area - Macaranga tanarius and Nephrolepis biserrata, dominant weed species within the area include Leaucenea leucocephala, Mutungia calabra, Papaya and Cordia curassavica.

Plate 54 – 571548 8835567 E

Plate 55 – 571548 8835567 N

Plate 56 – 571566 8835569 NNE

Plate 57 – 571570 8835518 S

Plate 58 – 571584 8835539 S

Plate 59 571535 8835524 SW

9.7 ML101 F17 MB22

ML101 MB22 is located within the Field 17 region and covers 2.4ha, the area is made up of remnant stockpile and limestone pinnacles. The area applied for within this application covers 1.39ha.

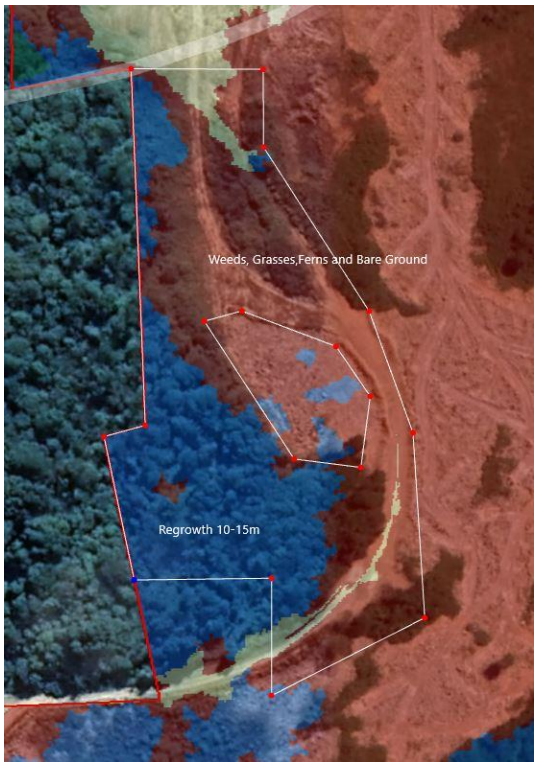

Figure 11 ML101 F17 MB22 - Vegetation Map - Digital Spatial Data 2014

Vegetation within the application area is a compiled of weed dominated regrowth with some pioneer species. The following species were found within the application area - Macaranga tanarius, Dysoxylum gaudichaudianum, Mariscus javanicus, Arenga listeri, Barringtonia racemose, Pandanas elatus and Nephrolepis biserrata, dominant weed species within the area include Leaucenea leucocephala, Mutungia calabra, Cordia curassavica, Candlenut and Psidium guajava.

Plate 60 – 571850 883621 SSE

Plate 61 – 571924 8836102 SSW

Plate 62 – 571924 8836102 NNW

Plate 63 – 571924 8836102 W

Plate 64 – 571896 8836114 W

Plate 65 – 571904 8836083 SW

Plate 66 – 571948 8836071 W

9.8 ML101 MB49

ML101 MB49 is located within the Field 17 region and covers 3.9ha, this application for clearing covers 1.28ha. A section within the south eastern edge of the application area is approved within CPS 3472/6 and is contained within ML101 STP17C.

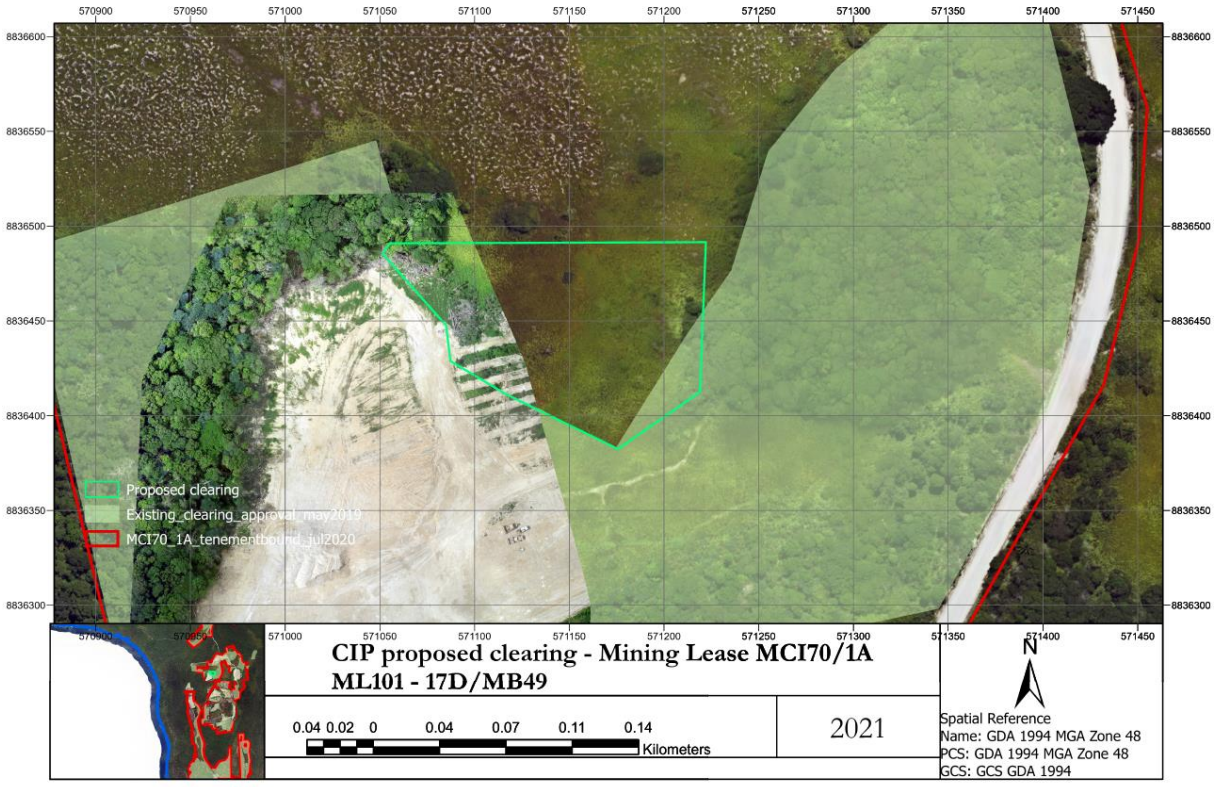

Figure 12 – ML101 F17D MB49

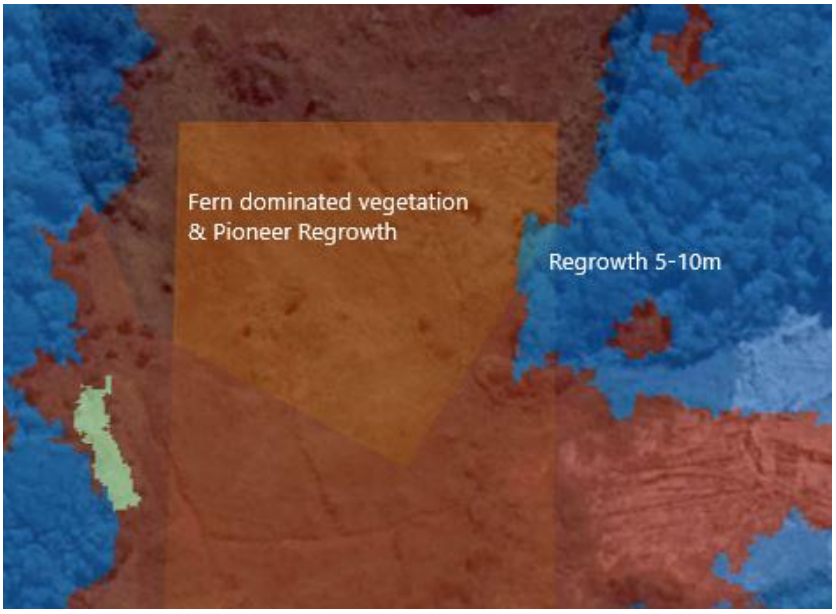

Figure 13 – ML101 F17D MB49 - Vegetation Map - Digital Spatial Data 2014

Vegetation within the application area is a compiled of weed dominated regrowth with some pioneer species. The following species were found within the application area - Macaranga tanarius, Terminalia catappa, Arenga listeri, Maclura cochinchinensis and Nephrolepis biserrata, dominant weed species within the area include Leaucenea leucocephala, Cordia curassavica and Mimosa pudica.

Plate 67 – 571186 8836462 N

Plate 68 – 571186 8836462 WNW

Plate 69 – 571181 8836453 W

Plate 70 – 571155 88.6459 NNW

Plate 71 – 571118 8836458 N

9.9 ML133 MB11/MB12

ML133 MB11/MB12 is within the area previously known as ML133A STP7P/STP7PA approved within CPS2870/3 and expired in 2016. These areas have been progressively cleared for mining purposes. Total area of these mining blocks (MB11 – 5.3ha, MB12 – 2.6ha) is 7.9ha. The current application covers 1.69ha overlapping between the two mining blocks.

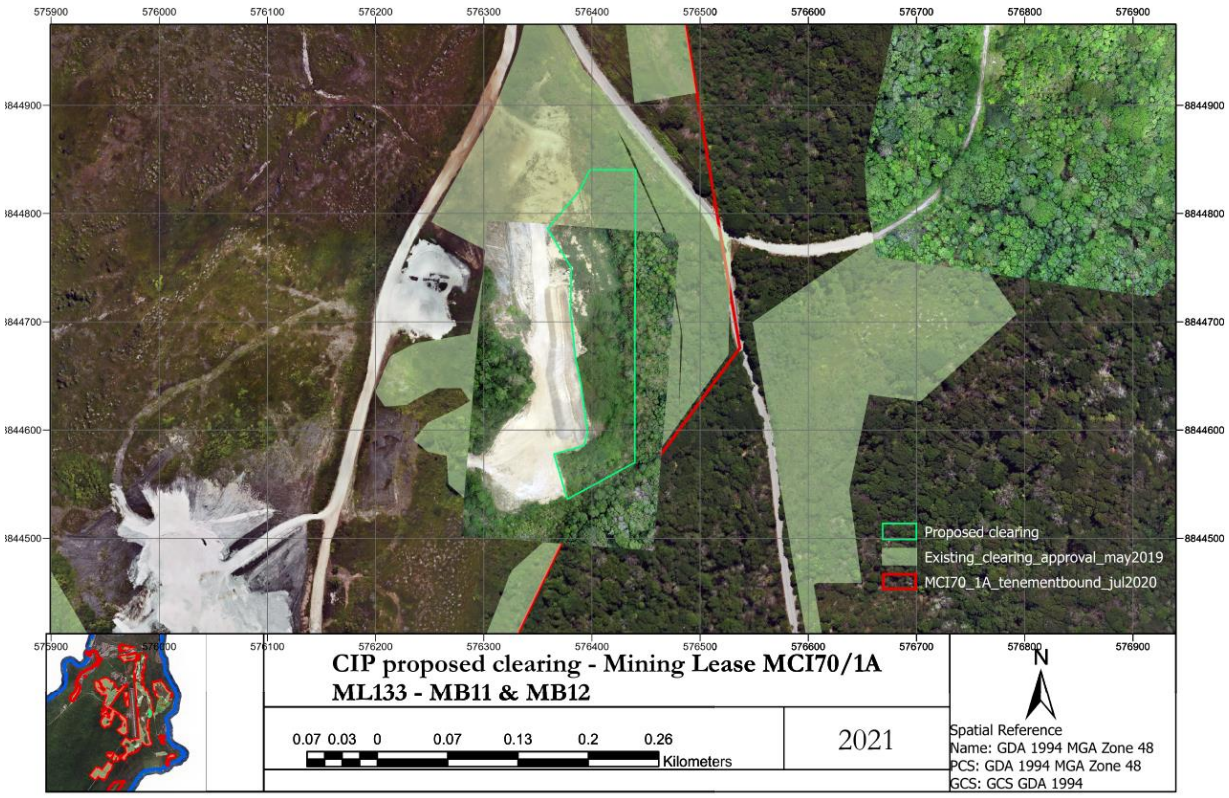

Figure 14 – ML133 MB11/MB12

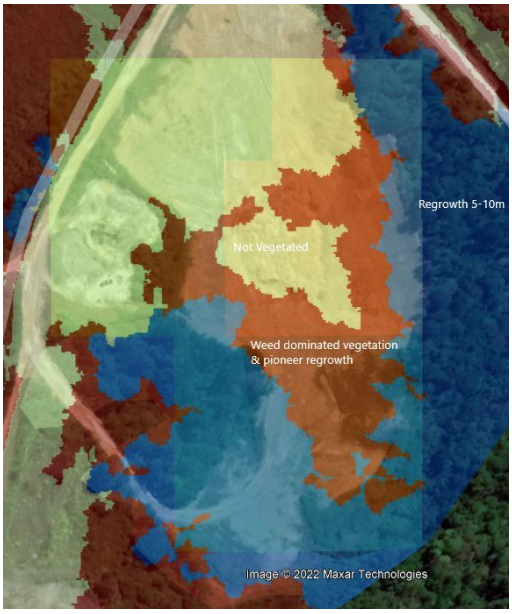

Figure 15 – ML133 MB11/MB12 - Vegetation Map - Digital Spatial Data 2014

Vegetation within the application area is compiled of weed dominated regrowth with some pioneer species. The following species were found within the application area - Macaranga tanarius, Dysoxylum gaudichaudianum and Mariscus javanicus dominant weed species within the area include Leaucenea leucocephala, Mutungia calabra, Cordia curassavica and Mimosa pudica.

Plate 72 – 576413 8844733 SSW

Plate 73 – 576439 8844690 SE

Plate 74 – 576382 8844591 SE

Plate 75 – 567328 8844544 ESE

Plate 76 – 567328 8844544 S

Plate 77 – 576386 8844831 NNW

Plate 78 – 576386 8844831 NE

Plate 79 – 576386 8844831 ESE

9.10 ML140 MB1

ML140 MB1 covers 3.4ha and is within the area previously known as ML140 STP26E (2012) which was approved within CPS3472, the area was removed from the clearing permit as clearing had been completed, due to regeneration within the intervening time a permit is required to re-access the area, the area covered by this application is 3ha.

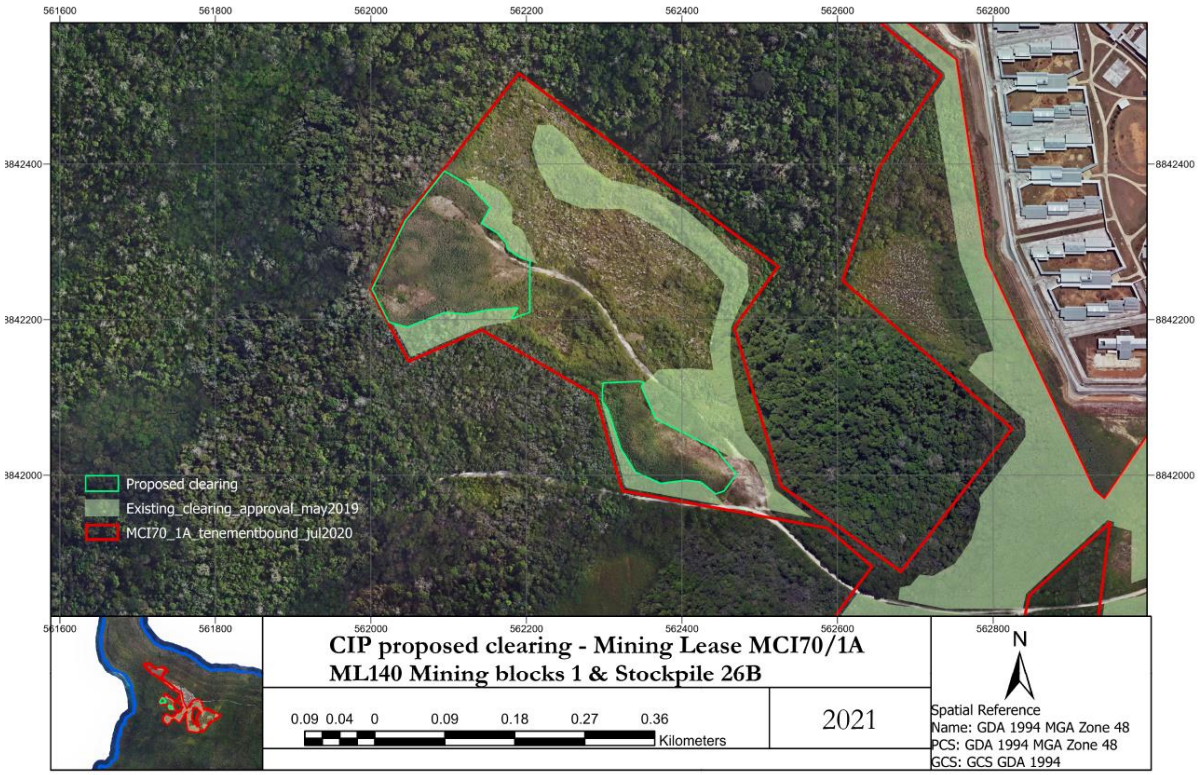

Figure 16 – ML140 MB1/STP26B

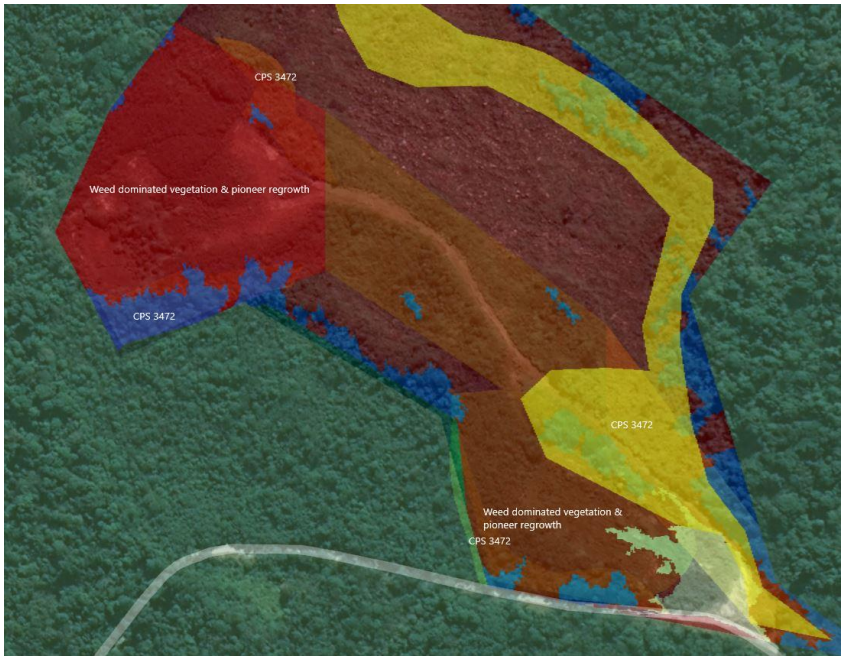

Figure 16 – ML140 MB1/STP26B - Vegetation Map - Digital Spatial Data 2014

Vegetation within the application area is a compiled of weed dominated regrowth with some pioneer species. The following species were found within the application area - Macaranga tanarius and Mariscus javanicus, dominant weed species within the area include Leaucenea leucocephala, Mutungia calabra and Cordia curassavica.

Plate 80- 652205 8842267 WSW

Plate 81 – 562157 8842299 WSW

Plate 82 – 562157 8842299 S

Plate 83 – 562158 8842279 SW

Plate 84 – 562158 8842249 NNW

Plate 85 – 562158 8842249 SSE

9.11 ML140 STP26B

ML140 STP26B was built by CIP during the mining operations conducted at ML140 MB1 (STP26E) and covers 1.9ha, area applied for within this permit is 1.5ha.

Vegetation within the application area is a compiled of weed dominated regrowth with some pioneer species. The following species were found within the application area - Claoxylon indicum, Macaranga tanarius, Mariscus javanicus and Melochia umbellate dominant weed species within the area include Leaucenea leucocephala, Mutungia calabra, Mimosa pudica and Cordia curassavica.

Plate 86 – 562361 8842062 WNW

Plate 87 – 562361 8842062 SSE

Plate 88 – 652345 8842014 SE

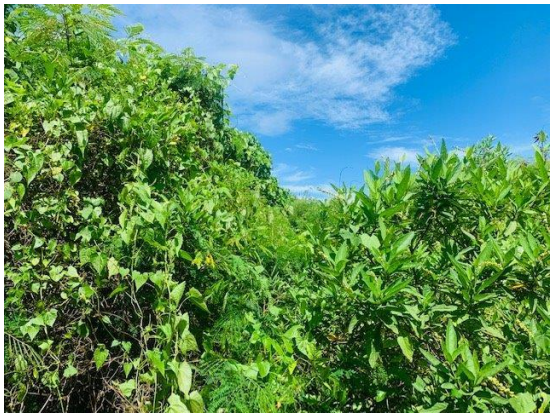

Plate 89 – 652345 8842014 WNW

Plate 90 – 562392 8842018 NNW

Plate 91 – 562392 8842018 SE

Plate 92 – 562392 8842018 WNW

Plate 93 – 562333 8841992 WNW

Plate 94 – 562504 8842092 WNW

Plate 95 – 562434 8842005 SW

Plate 96 – 562459 8841991 WNW