



**CHRISTMAS ISLAND**  
PHOSPHATES

**Clearing Permit Referral Supporting Documentation**

**December 2021**

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## 1.0 Introduction

Phosphate Resources Limited (PRL) was granted Mining Lease MCI 70/1A on the 4<sup>th</sup> 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 3 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 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 sparse native vegetation regeneration

Total area applied for is 10ha. Clearing will be conducted by mechanical removal using either loader, dozer or excavators.

Location	Application Area	Mine Block Area ha
ML100 SPW MB15	0.2	5.5
ML100 SPW MB18	0.6	4.6
ML101 MB4	3.0	3.6
ML101 MB49	0.6	3.9
ML133 MB11	0.4	1.9
ML133 MB12	0.3	1.76
ML133 MB14	0.4	1.45
ML138 MB1	3.0	3.4
ML140 STP26B	1.5	1.9

**Table 1 Proposed Clearing Information**

## 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.

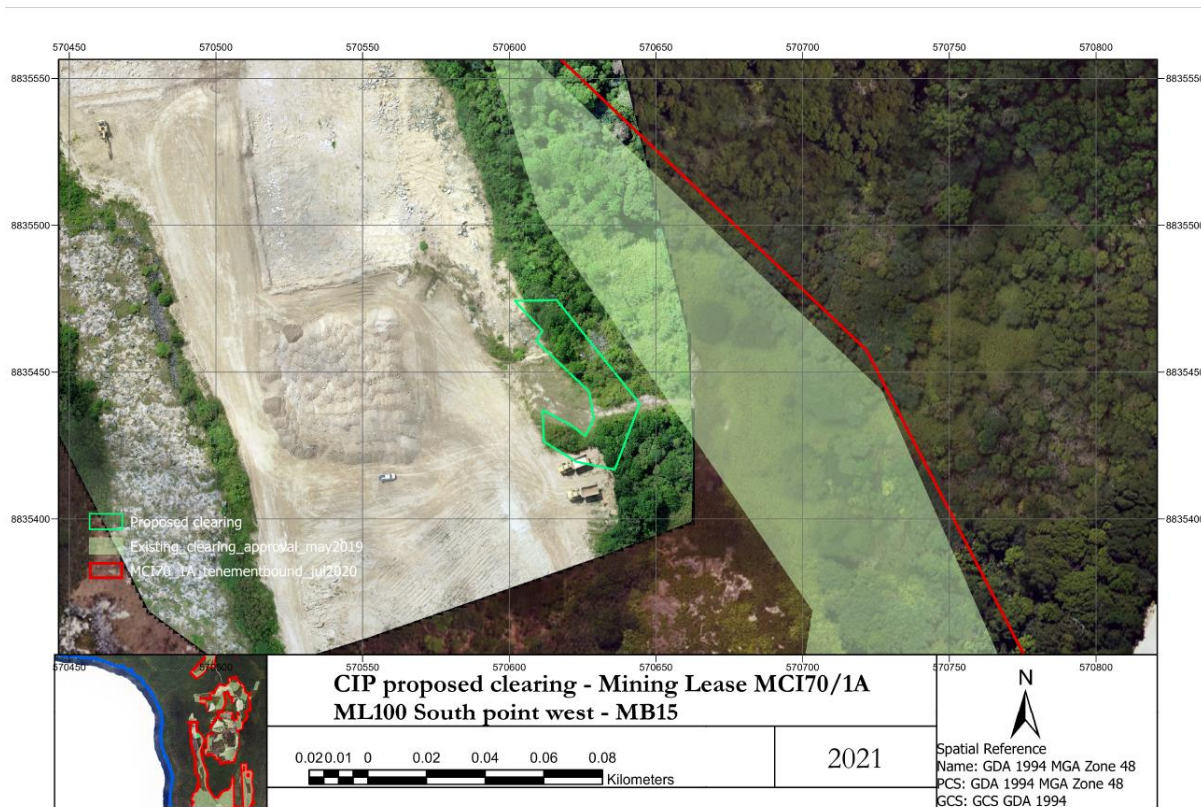
#### **8.0 Fauna**

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 covers 0.2ha and lies along the eastern edge of the current cleared area and is within close proximity to ML100 SPWNORTH4 which has been approved for clearing within CPS3472/6.



**Figure 1 – ML100 SPW MB15**

Vegetation within the application area contains the following species *Macaranga tanarius*, *Dysoxylum gaudichaudianum*, *Mariscus javanicus* and *Nephrolepis biserrata*, the area also includes a number weed species dominated with *Leucanea leucocephala*, *Mutungia calabra* and *Cordia curassavica*.

A field survey was conducted within the nominated area and photographs were taken at various locations (northing, easting and orientations were recorded).





**Plate 1 – 570818E 8836689N – SSE**



**Plate 2 – 570818E 8836689N – N**



**Plate 3 – 570442E 8835441N – WNW**



**Plate 4 – 570442E 8835441N – S**

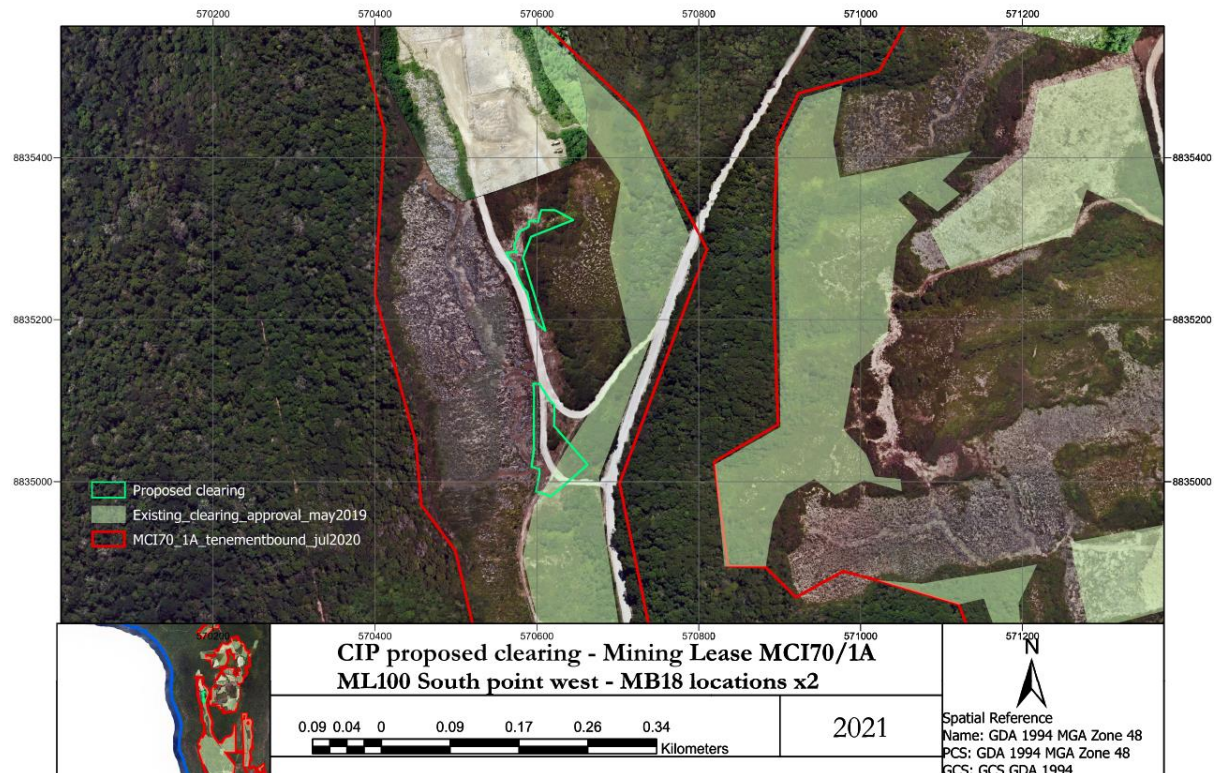


**Plate 5 – 570590E 8835437N – ENE**



## 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 remnant covers 0.6ha and is situated along the mining field access road edge. A section within the southern end of the application area has been previously approved within CPS 4506/2 and is contained within the mine block ML100 SWP MB1.



**Figure 2 – ML100 SPW MB18**

Vegetation within the application area contains the following species *Macaranga tanarius*, *Dysoxylum gaudichaudianum*, *Mariscus javanicus*, *Melochia umbellate*, *Terminalia catappa*, *Microsorium scolopendria* and *Nephrolepis biserrata*, the area also includes a number weed species dominated with *Leaucenea leucocephala*, *Mutungia calabra*, *Mimosa pudica* and *Ipomoea cairica*.

A field survey was conducted within the nominated area and photographs were taken at various locations (northing, easting and orientations were recorded).



**Plate 6 – 570783E 8835489N – SSE**



**Plate 7 – 570508E 8835440N – SSW**





**Plate 8 – 570523E 8835379N – SSE**



**Plate 9 – 570012E 8834604N – SSE**



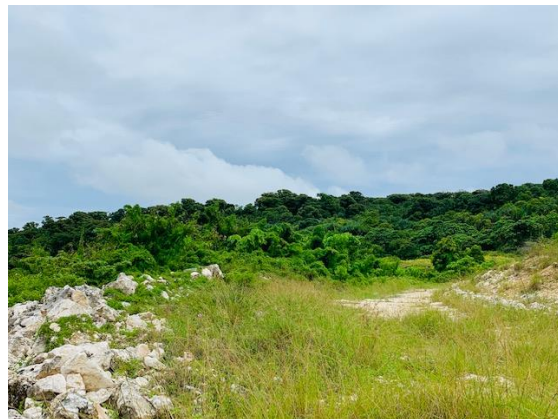
**Plate 10 – 576270E 8835286N - NE**



**Plate 11 – 576270E 8835286N - SW**



**Plate 12 – 570583E 8835243N - NE**



**Plate 13 – 570583E 8835243N - SE**



**Plate 14 – 570612E 8835117N - NW**



**Plate 15 – 570612E 8835117N – SSE**



**Plate 16 – 570612E 8835117N – SSW**

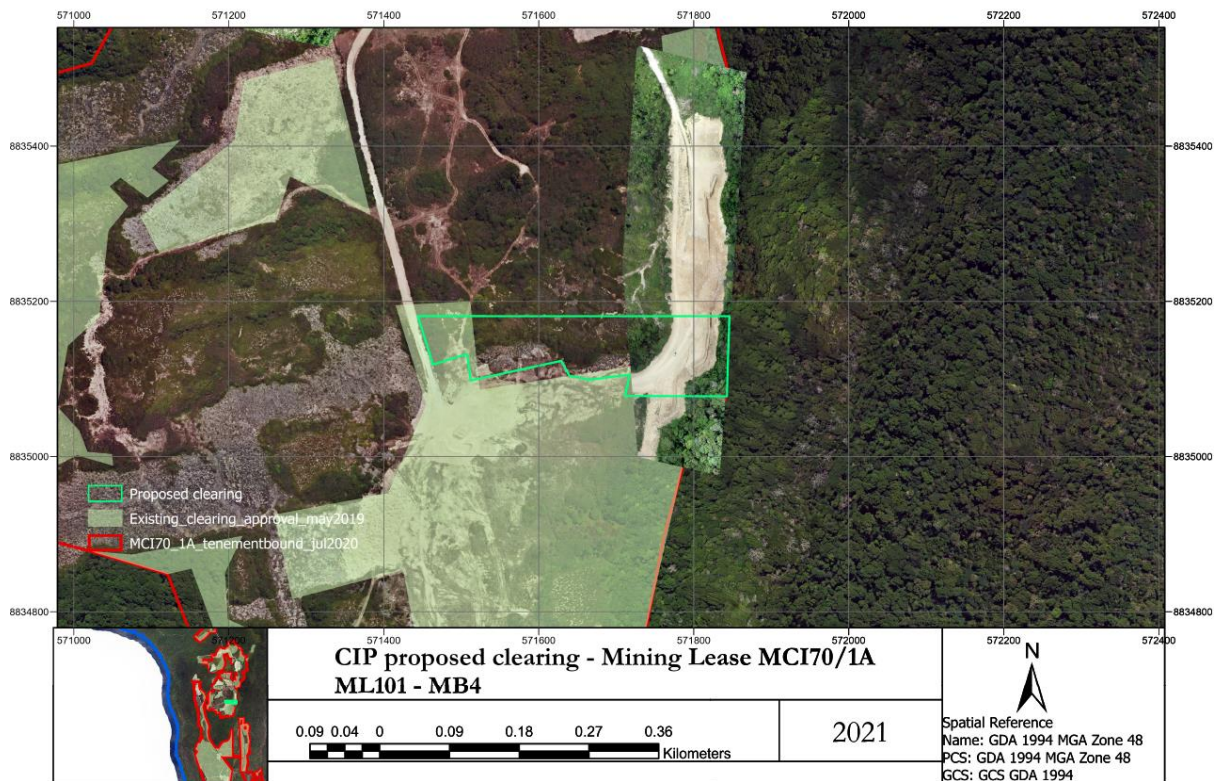


**Plate 17 – 570651E 8835078N – SW**



### 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 3ha, a section within the southern end of the application area has been previously approved within CPS 2132/2 and is contained within ML101 17 South.



**Figure 3 – ML101 F17 MB4**

Vegetation in the area contains the following native vegetation species *Macaranga tanarius*, *Dysoxylum gaudichaudianum*, *Mariscus javanicus*, *Melochia umbellate*, *Terminalia catappa*, *Microsorium scolopendria* and *Nephrolepis biserrata*, the area also includes a number weed species dominated with *Leaucenea leucocephala*, *Mutungia calabra*, *Cordia curassavica* and *Psidium guajava*.

A field survey was conducted within the nominated area and photographs were taken at various locations (northing, easting and orientations were recorded).





**Plate 18 – 571759E 88355120N - W**



**Plate 19 – 571691E 8835107N – NNW**



**Plate 20 – 571625E 8835120N - E**



**Plate 21 -571625E8835120N -W**



**Plate 22 – 572876E8835701N – NNW**



**Plate 23 – 571459E 8835109N- NNE**



#### 9.4 ML101 MB49

ML101 MB49 is located within the Field 17 region and covers 3.9ha, this application for clearing covers 0.56ha. A section within the south eastern edge of the application area has been previously approved within CPS 3472/6 and is contained within ML101 STP17C.

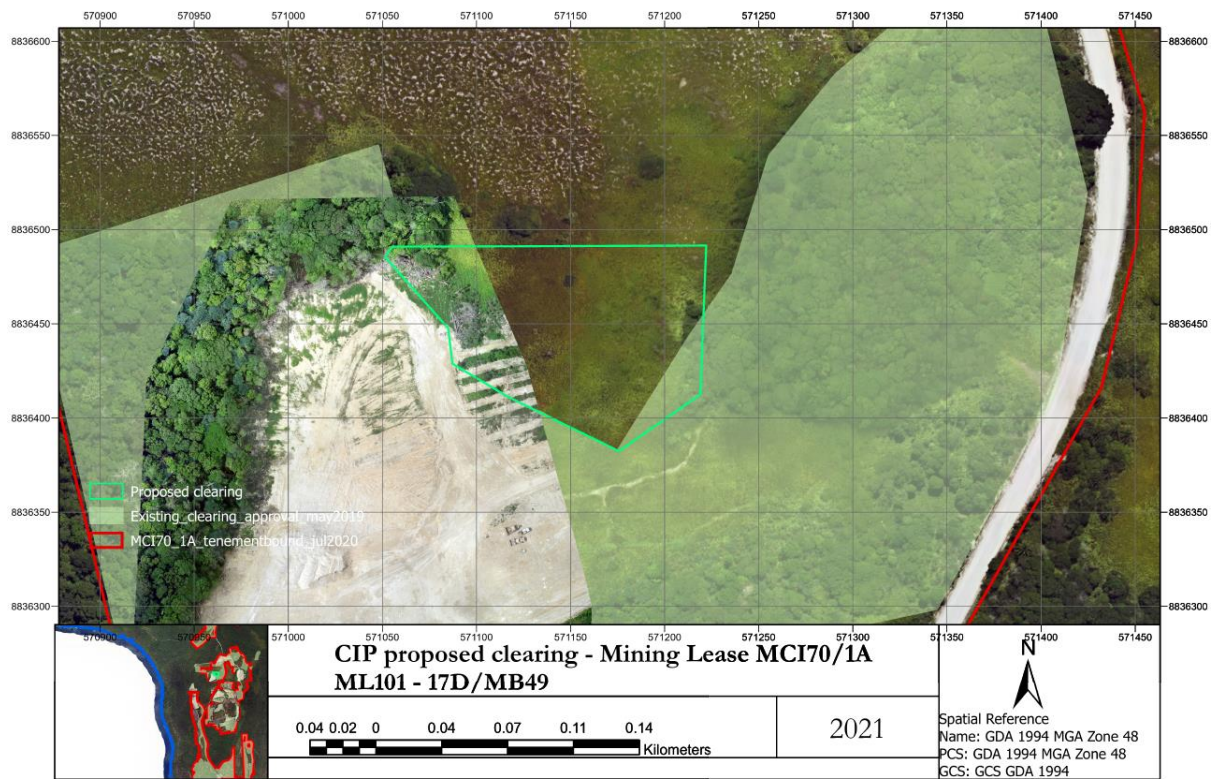


Figure 4 – ML101 F17D MB49

Vegetation in the area contains the following native vegetation species *Macaranga tanarius*, *Terminalia catappa*, *Arenga listeri*, *Maclura cochinchinensis* and *Nephrolepis biserrata*, the area also includes a number of weed species dominated with *Leaucenea leucocephala*, *Cordia curassavica* and *Mimosa pudica*.

A field survey was conducted within the designated area and photographs taken at various locations to show vegetation diversity and coverage.





**Plate 24 – 571186E 8836462N - N**



**Plate 25 – 571186E 8836462N – WNW**



**Plate 26- 571181E 8836453N - W**



**Plate 27 – 571155E 8836459N - NNW**

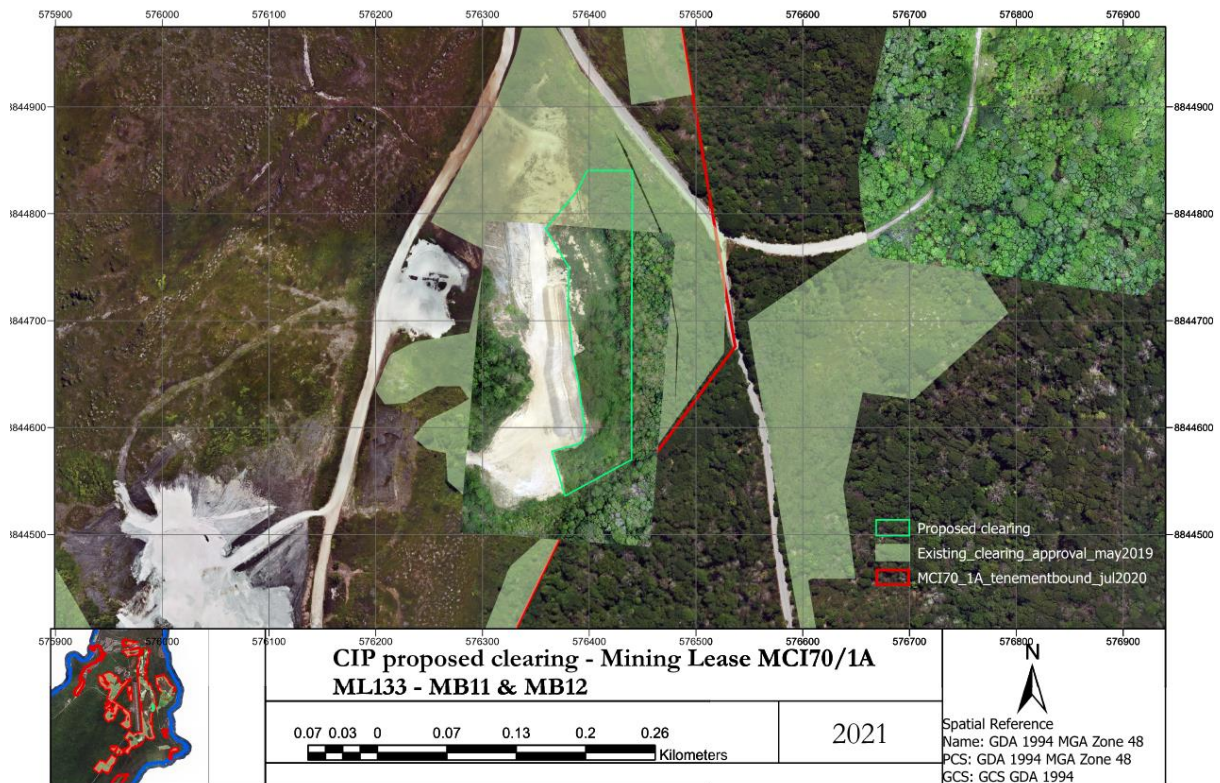


**Plate 28 – 571118E 8836458N - N**



## 9.5 ML133 MB11

ML133 MB11 is within the area previously known as ML133A STP7P/STP7PA which was approved within CPS2870/3 and expired in 2016, the new application area covers 0.4ha.



**Figure 5 – ML133 MB11/MB12**

Vegetation in the area contains the following native vegetation species *Macaranga tanarius*, *Dysoxylum gaudichaudianum* and *Mariscus javanicus*, the area also includes a number of weed species dominated *Leaucenea leucocephala*, *Mutungia calabra*, *Cordia curassavica* and *Mimosa pudica*.

A field survey was conducted within the designated area and photographs taken at various locations to show vegetation diversity and coverage.



**Plate 29 – 576413E 8844733N - SSW**



**Plate 30 – 576409E 8844726N – SE**



**Plate 31 – 576382E 8844591N- SE**



**Plate 32 – 567328E 8844544N- ESE**



**Plate 33 – 576328E 8844544N- S**



## 9.6 ML133 MB12

ML133 MB12 is within the area previously known as ML133A STP7P/STP7PA which was approved within CPS2870/3 and expired in 2016, the area applied for clearing within this document is 0.3ha.

Vegetation in the area contains the following native vegetation species *Macaranga tanarius*, *Dysoxylum gaudichaudianum* and *Mariscus javanicus*, the area also includes a number of weed species dominated with *Leaucenea leucocephala*, *Mutungia calabra*, *Mimosa pudica* and *Cordia curassavica*.

A field survey was conducted within the designated area and photographs taken at various locations to show vegetation diversity and coverage.



Plate 34 – 576386E 8844831N - NNW



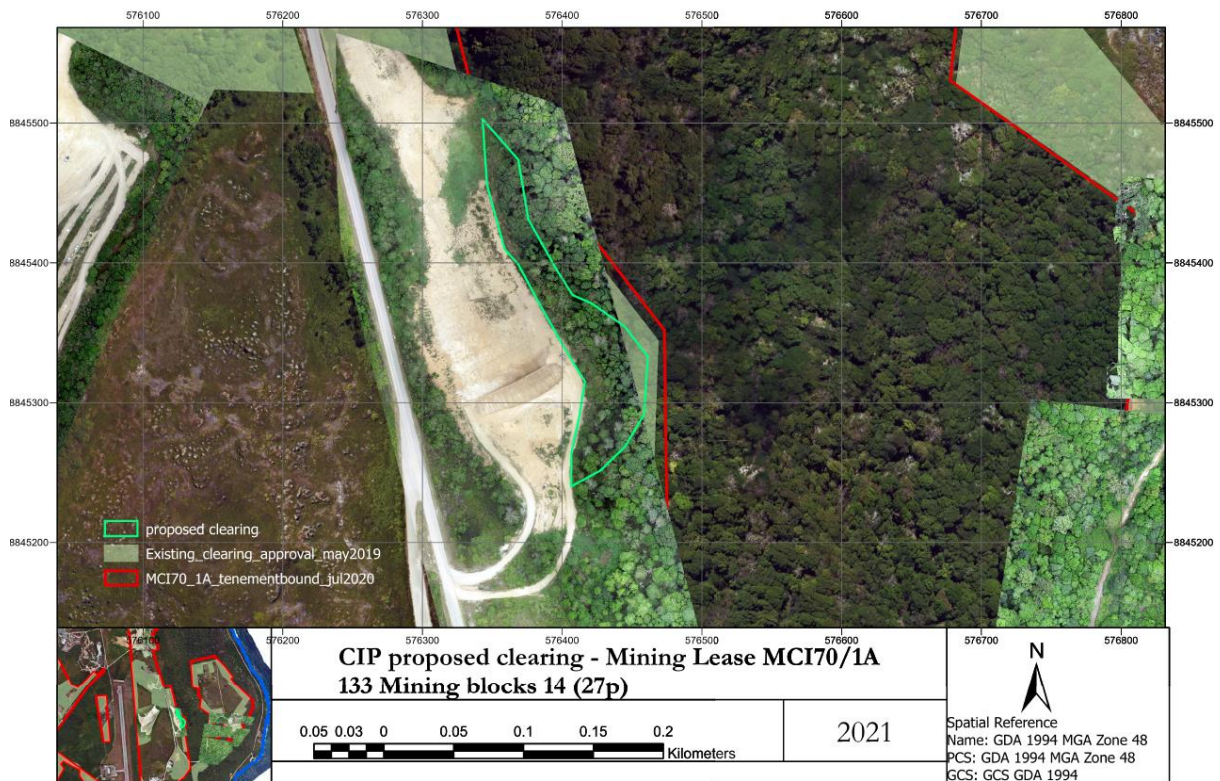
Plate 35 – 576386E 8844831N - NE



Plate 36 – 576386E 8844831N - ESE

## 9.7 ML133 MB14

ML133 MB14 covers 1.45ha and is within the area previously known as ML133A STP27P which was approved within CPS2870/3 and expired in 2016. Clearing within this area is to be conducted within the southern section below the bund and covers 0.4ha as mining and rehabilitation works have been completed in the northern section.



**Figure 6 – ML133 MB14**

Vegetation in the area contains the following native vegetation species *Macaranga tanarius*, *Dysoxylum gaudichaudianum*, *Maclura cochinchinensis* and *Nephrolepis biserrata*, the area also includes a number of weed species dominated with *Leucanea leucocephala* and *Mutungia calabra*.

A field survey was conducted within the designated area and photographs taken at various locations to show vegetation diversity and coverage.



**Plate 37 – 576411E 8845325N - NW**



**Plate 38 - – 576411E 8845325N - SSE**





**Plate 39 – 576416E 8845302N - SE**



**Plate 40 – 576410E 8845265N - NNE**

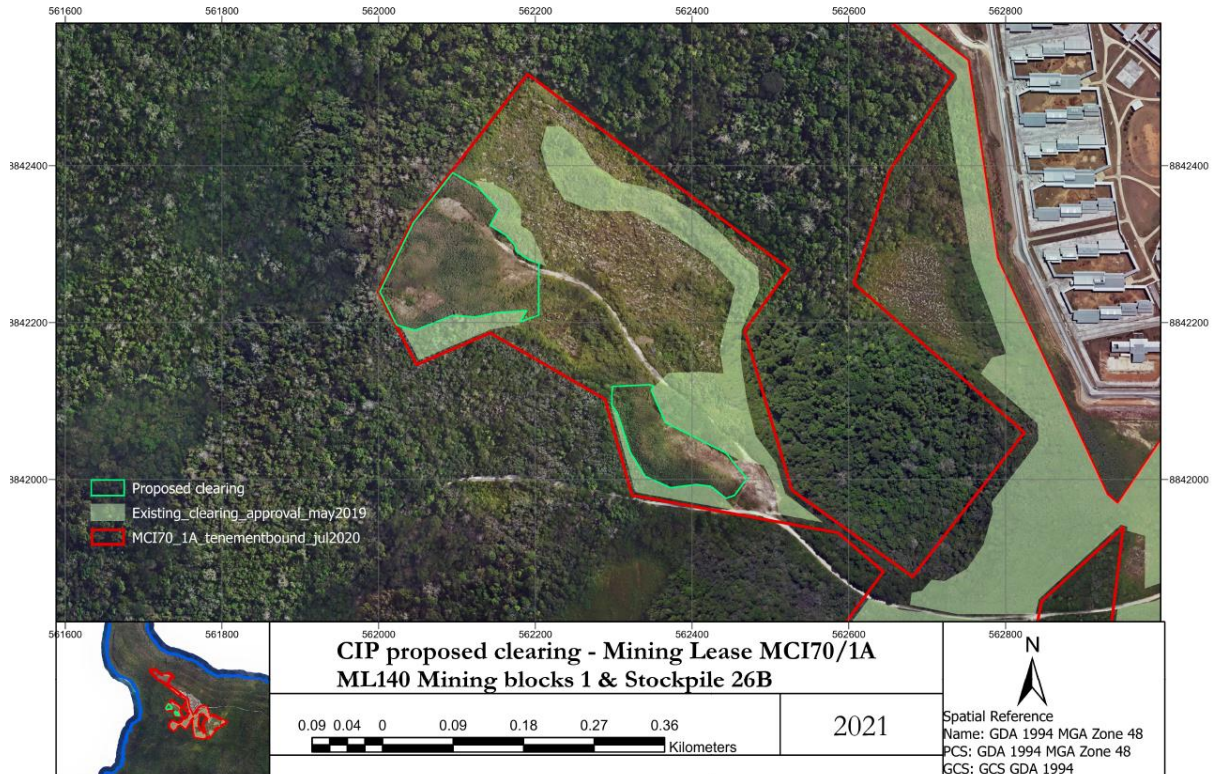


**Plate 41 – 576406E 8845263N – N**



## 9.8 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.



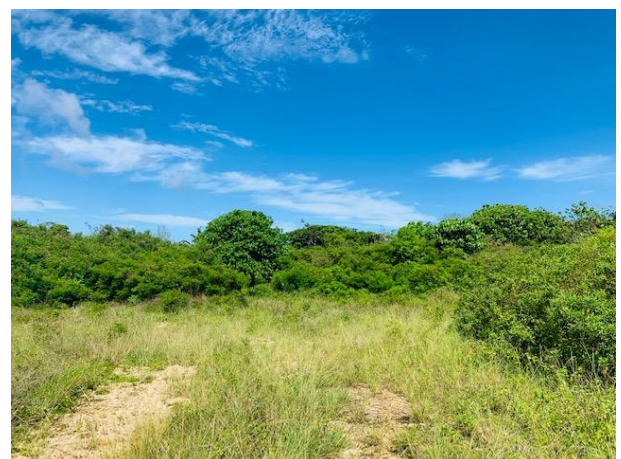
**Figure 7 – ML140 MB1/STP26B**

Vegetation in the area contains the following native vegetation species *Macaranga tanarius* and *Mariscus javanicus*, the area also includes a number of weed species dominated with *Leucocena leucocephala*, *Mutungia calabra* and *Cordia curassavica*.

A field survey was conducted within the designated area and photographs taken at various locations to show vegetation diversity and coverage.



**Plate 42 -652205E 8842267N - WSW**



**Plate 43 – 562157E 8842299N - WSW**





**Plate 44 – 562157E 8842299N - S**



**Plate 45 – 562158E 8842299N -SW**



**Plate 46 – 562158E 8842249N - NNW**



**Plate 47 – 562158E 8842249N - SSE**



### 9.9 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 in the area contains the following native vegetation species *Claoxylon indicum*, *Macaranga tanarius*, *Mariscus javanicus* and *Melochia umbellata* the area also includes a number of weed species dominated with *Leaucenea leucocephala*, *Mutungia calabra*, *Mimosa pudica* and *Cordia curassavica*.

A field survey was conducted within the designated area and photographs taken at various locations to show vegetation diversity and coverage.



Plate 48 – 562467E 8842009N - WNW



Plate 49 – 562467E 8842009N - ESE



Plate 50 – 562480E 8841990N - SE



Plate 51 – 562480E 8841990N - WNW





**Plate 52 – 562480E 8841990N - WNW**



**Plate 53 – 562476E 8841977N – NNW**



**Plate 54 – 562476E 8841977N - SE**



**Plate 55 – 562476E 8841977N - WNW**



**Plate 56 – 562497E 8841970N - WNW**



**Plate 57 – 562504E 8841993N - WNW**





**Plate 58 – 562499E 8842012N - SW**



**Plate 59 – 562487E 8842025N - WNW**