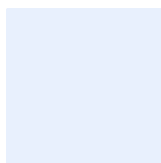


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Project: Fairview Ecological Assessment Report
Lot 55 FTY1153

Prepared for:
Santos Ltd
4 August 2011

Santos Document No: 0020-GLNG-4-1.3-0072 rev0



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Appendices

Appendix A Flora Species List



1 Background

1.1 Project description

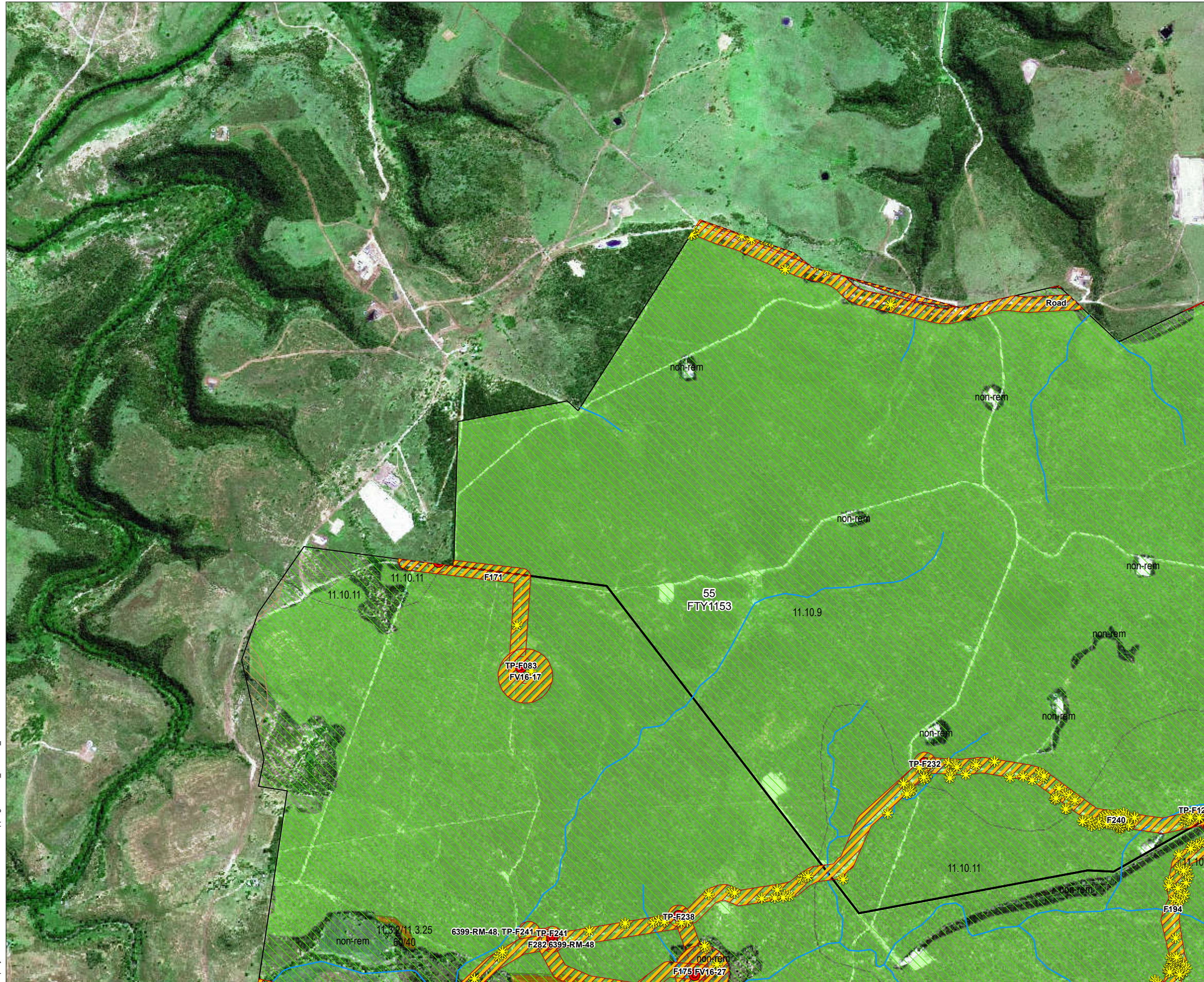
Santos Ltd (Santos) have commissioned Aurecon Australia Pty Ltd (Aurecon) to undertake ecological investigations of proposed areas of development for the expansion of the Fairview Gas Fields. The Fairview gas fields are situated approximately 40 km from Injune in southern Queensland. This area is characterised by elevated sandstone ranges including the Carnarvon and Expedition Ranges and part of the Mount Hutton and Kongabula Ranges. The Dawson River and other smaller watercourses drain this area and the vegetation is dominated by Eucalyptus and White Cypress Pine woodland, Brigalow and Semi-evergreen Vine Thicket (Eddie, 2007). Much of this area has been subjected to cattle grazing and other agricultural practices as well as previous development associated with the gas fields. This report is specific to the proposed development areas listed below and shown in Figures A1, A2, A3, B1, B2 and B3.

- Corridors: F203, F202, F218, F219, F220, F222, F224, F227, F221, F223, F226, F225, F245, F293, F240, F283, F189, F194, F190, F198, F200, F197, F282, F175, F176, F171, F239, F181, F179, F180, F348, F347, F188, F187 and F194
- Powerline easements: between 6399-TP-74 and Corridor F218, including 6399-TP-71 & 6399-TP-72, including 6399-TP-66 & 6399-RM-57, including 6399-TP-67, 6399-TP-21 & 6399-RM-56, between Corridors F282 & F239, and between TP-F100 and Injune-Taroom Road

These areas are collectively referred to as the 'proposed development area', and are located entirely within Lot 55 FTY1153. Proposed development areas occurring on road reserves and/or stock routes adjacent to Lot 55 FTY1153 are not included in this report, but will be captured in a later report containing all proposed development areas within the road reserves of the Fairview gasfields. Where the majority of a proposed development footprint occurs on another lot but partially extends into Lot 55 FTY1153, the development area will be included in the report of the other lot.

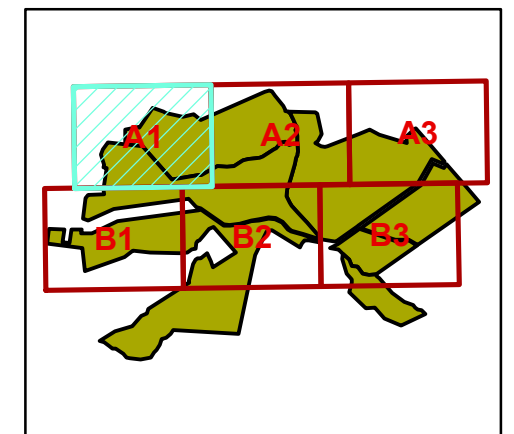
1.2 Purpose of report

The aim of this report is to provide an ecological assessment of the proposed development areas located on Lot 55 FTY1153 (Figures A1, A2, A3, B1, B2 and B3), and to identify areas and species of notable ecological or conservation value. This report does not make any recommendations regarding the development in relation to any Santos environmental authorities or other approvals.



Legend

- Notable Species
 - Geotech Borehole Locations
 - Ground Truthed Areas
 - Drainage (100K)
 - ESA Category A
 - ESA Category B
 - ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
 - Endangered - Sub-dominant
 - Endangered - Dominant
 - Of Concern - Sub-dominant
 - Of Concern - Dominant
 - Not Of Concern
 - Plantation forest
 - Water

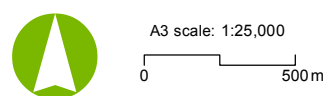


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Coordinate system: GDA 1994 MGA Zone 55



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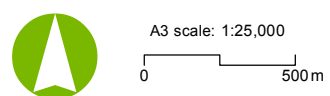


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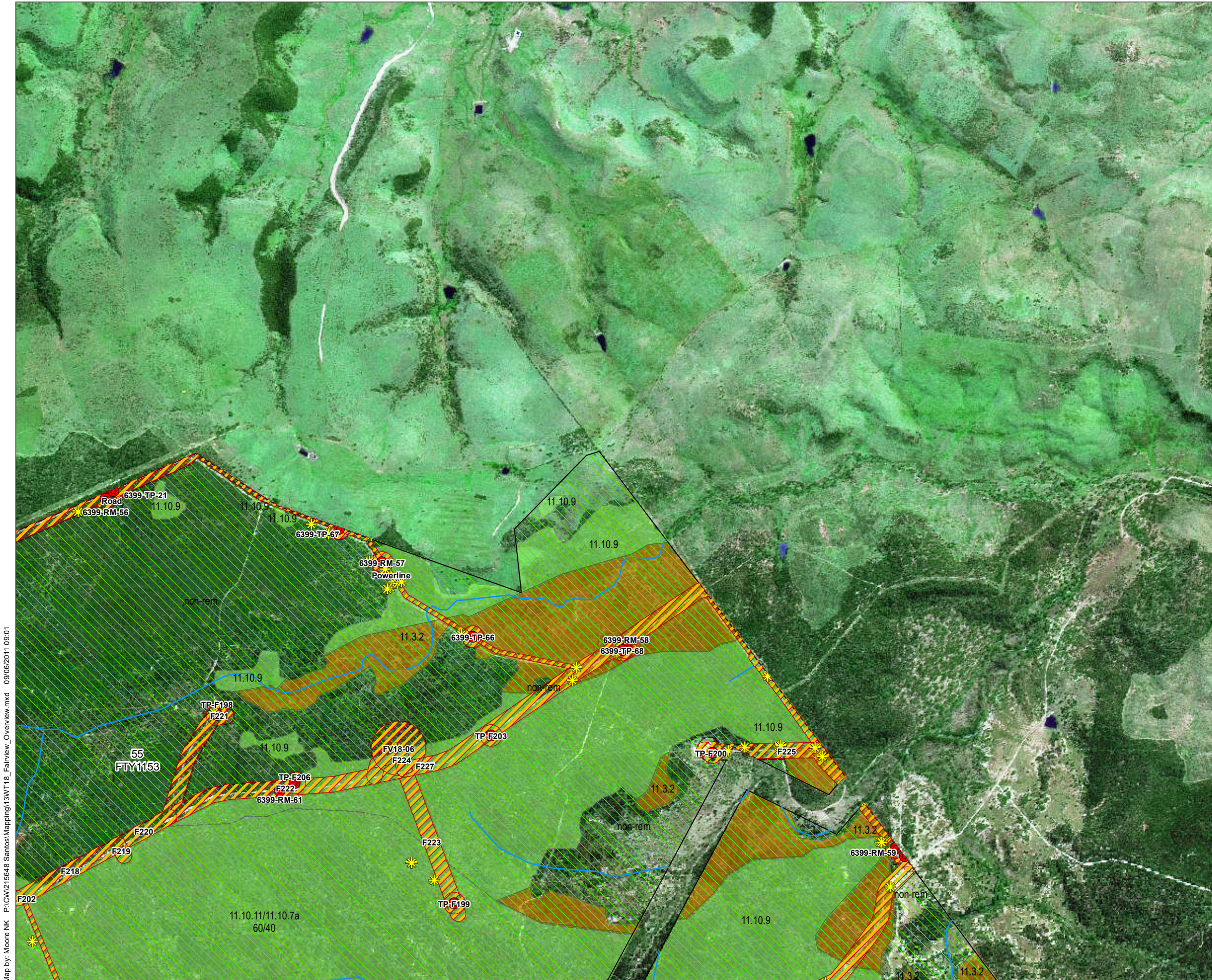
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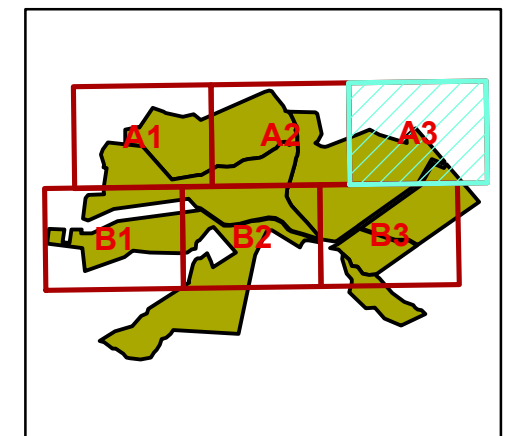


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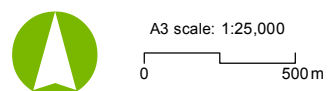


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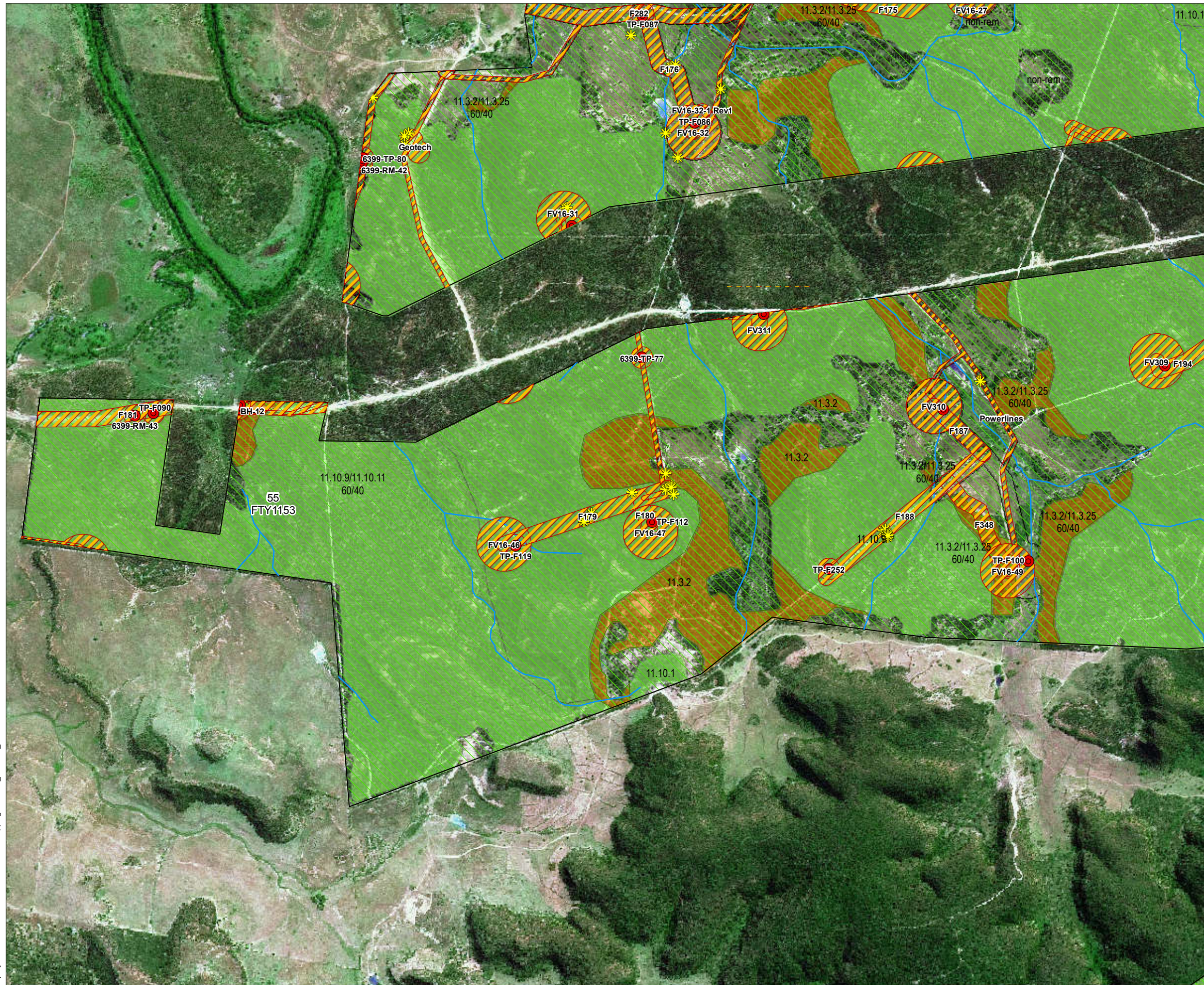
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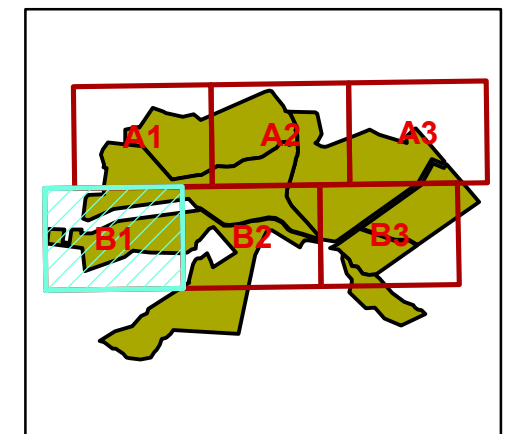


Job No: 215648
Coordinate system: GDA 1994 MGA Zone 55



Legend

- Notable Species
 - Geotech Borehole Locations
 - Ground Truthed Areas
 - Drainage (100K)
 - ESA Category A
 - ESA Category B
 - ESA Category C
- Regional Ecosystem Mapping**
- Non-remnant / regrowth
 - Endangered - Sub-dominant
 - Endangered - Dominant
 - Of Concern - Sub-dominant
 - Of Concern - Dominant
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 - Water

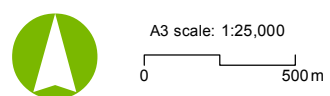


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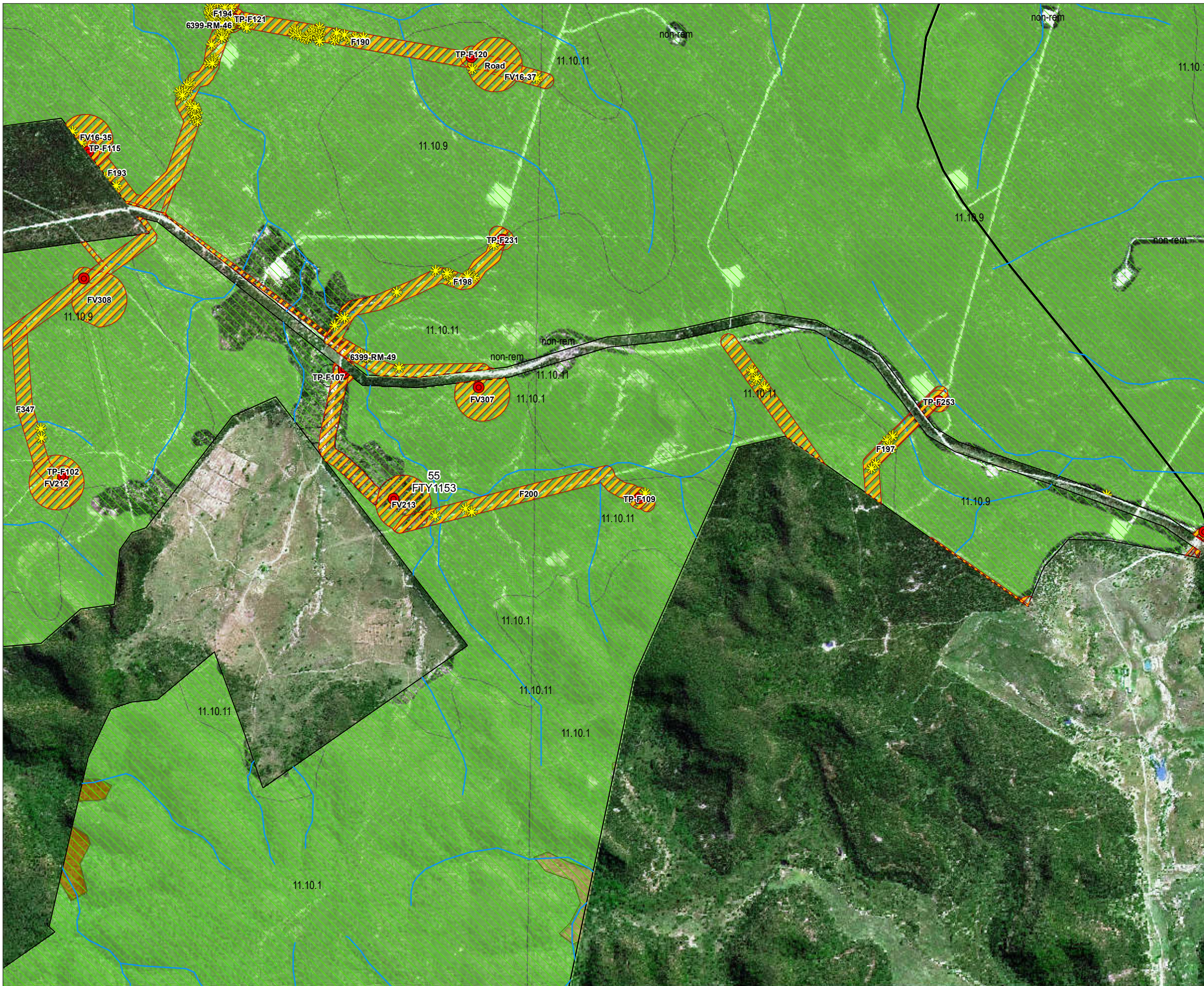
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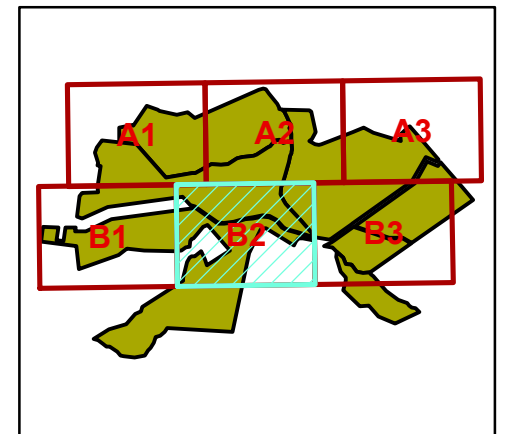
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Coordinate system: GDA 1994 MGA Zone 55



Legend

- Notable Species
 - Geotech Borehole Locations
 - Ground Truthed Areas
 - Drainage (100K)
 - ESA Category A
 - ESA Category B
 - ESA Category C
- ### Regional Ecosystem Mapping
- Non-remnant / regrowth
 - Endangered - Sub-dominant
 - Endangered - Dominant
 - Of Concern - Sub-dominant
 - Of Concern - Dominant
 - Not Of Concern
 - Plantation forest
 - Water



Notes:

Date: 05/07/2011

Version: 1

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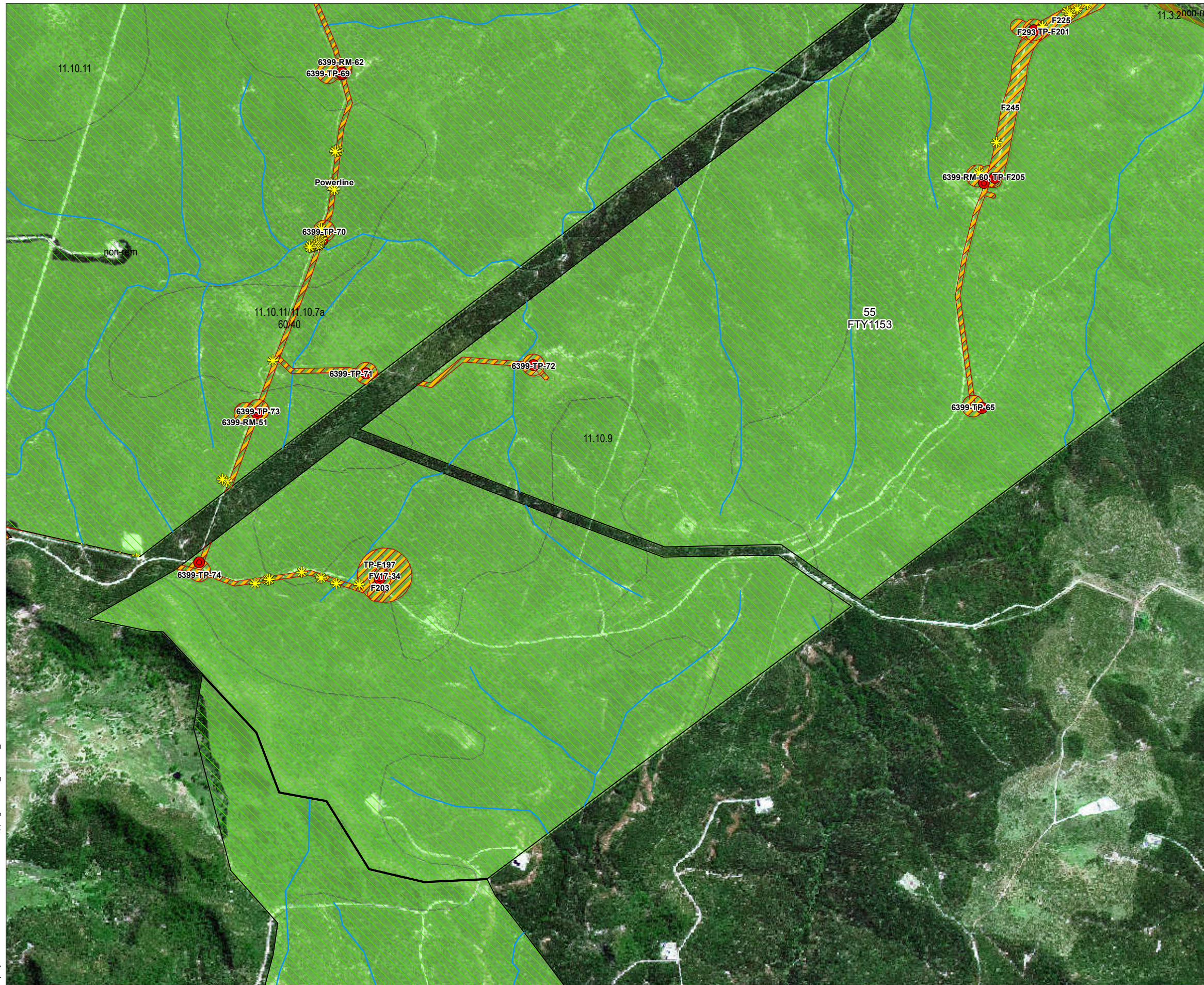
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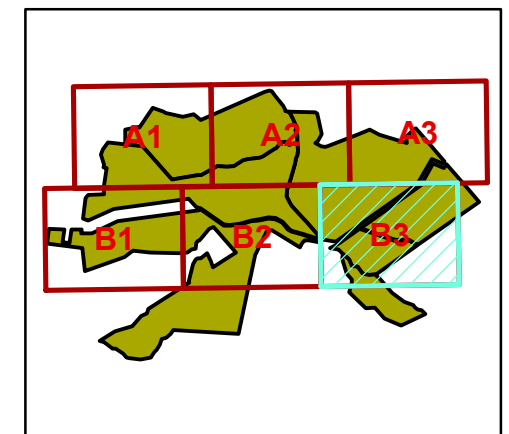
Santos Lot 55 on FTY1153

Map B2 of 55FTY1153



Legend

- Notable Species
 - Geotech Borehole Locations
 - Ground Truthed Areas
 - Drainage (100K)
 - ESA Category A
 - ESA Category B
 - ESA Category C
- Regional Ecosystem Mapping**
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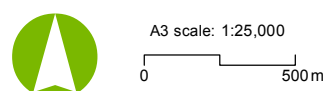


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Coordinate system: GDA 1994 MGA Zone 55



2 Methodology

2.1 Desktop methodology

Proposed development areas have been projected on a range of maps provided by Santos. These maps include Regional Ecosystem (RE) Mapping (version 6.0; Department of Environment and Resource Management [DERM]), Environmentally Sensitive Areas (ESA) mapping, drainage mapping and aerial photography. Where available ahead of time, these resources were reviewed to determine target areas for the field inspection. It is important to note that the RE classifications used in this report are based on the 'biodiversity status' of the vegetation and not the '*Vegetation Management Act 1999* (VM Act) status' of the vegetation.

2.2 Field methodology

The proposed development areas were assessed by eleven (11) ecologists (Grant Paterson, Vanessa Boettcher, Sarah Glauert, Leesa Leathbridge, Hayley Poole, Bree Wilson, Dan Pedersen, Aaron Mulcahy, Luke Foster, Samara Schulz and Gilbert Whyte) between 8th – 30th June 2011. These assessments were to determine the existing vegetation communities and habitat value of the proposed clearing within the development areas as well as to verify the RE mapping as produced by DERM.

GIS environmental constraints layers (eg RE Mapping, ESA mapping etc) and high resolution aerial photography were uploaded onto a toughbook (C5 mobile clinical assistant CFT-001 – Motion computing), with an integrated GPS used to locate surveys areas. Handheld Garmin GPS units (GPS map 76) were also used during the field investigations. It should be noted that while efforts were made to ensure the GPS co-ordinates provided in this report are accurate, a margin of error approximately +/- 15 m is expected due to the limitations of the devices used and the recording environment.

The pipeline corridors were 100 m wide and of varying lengths, and the powerline corridors were 30 m wide. The circular well pad areas had a radius of 175 m. Geotechnical survey locations were also assessed as part of the survey areas (a 50 m buffer zone around each survey location was assessed).

The ground-truthing of the proposed development areas included undertaking detailed flora species surveys including sampling of unknown flora, and recording all incidental fauna observations. All species known to be of conservation significance (such as endangered, vulnerable, near threatened or Type A species under the *Nature Conservation Act 1992* [NC Act] or endangered, vulnerable or rare species under the *Environment Protection and Biodiversity Conservation Act 1999* [EPBC Act]) were recorded using the toughbook.

A list of flora species observed in the proposed development areas has been included in **Appendix A**. Incidental fauna observations are provided in the relevant sections throughout this report.

3 Ecological assessment

3.1 Corridor 203

General

Corridor F203 occurs in the south east of Lot 55 FTY1153, it is associated with TP-F197, FV17-34 and a powerline corridor that includes geo-tech site 6399-TP-74. The western section of the power line corridor occurs within the road casement. The findings presented in this section of this report include the power line and mentioned geo-tech sites as these proposed disturbance sites are within or connected to corridor F203.

Corridor 203 and associated development areas are located entirely within remnant vegetation that is mapped as RE 11.10.9 and 11.10.11/11.10.7a. These regional ecosystems are listed as 'no concern at present'. Recent field investigation found the RE mapping in this area to be correct. The site is generally flat with a slight eastern slope that increases towards the gully which occurs on the western side of TP-F197. The only observable disturbance in the area is the Injune-Taroom Rd which runs parallel with the powerline corridor and dissects Corridor 203.

The vast majority of the proposed development area is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

One watercourse (classified by DERM as stream order 1) intersects the TP-F197 development footprint.

Figure 3.1 below illustrates Corridor F203 and proposed development areas.



Figure 3.1 Aerial photograph of Corridor F203 and associated development areas

A photograph showing representative vegetation within the site can be seen in Photo 3.1.



Photo 3.1 Site photograph of Corridor F203 (*Callitris glaucophylla* / eucalypt forest)

Floristics

The remnant vegetation that occurs within Corridor F203 and the power line is White Cypress Pine Woodland. The dominant canopy species are *Callitris glaucophylla* (White Cypress Pine) with some *Eucalyptus melanophloia* (Silver Leaved Ironbark) and *Eucalyptus populnea* (Poplar Box). The mid-storey layer is largely absent, while few areas are sparsely vegetated with woody shrubs including *Acacia leiocalyx* (Black Wattle), *Petalostigma pubescens* (Quinine) and *Grevillea striata* (Beefwood). Lower shrub species include *Sida subspicata* (Queensland Hemp) and *Pterocaulon sphacelatum* (Applebush). The groundcover consisted of a dense native grass layer dominated by *Themeda triandra* (Kangaroo Grass), *Perotis rara* (Comet Grass) and *Aristida caput medusa* (Curly Head Wire Grass). A range of native herbs were also present, including *Cheilanthes aspersa* (Bristly Cloak Fern) and *Wahlenbergia gracilis* (Sprawling Bluebell).

Weed species such as *Opuntia stricta* (Prickly Pear), *Opuntia tomentosa* (Velvety Tree Pear) and *Pennisetum ciliare* (Buffel) were present, but in low densities.

The vegetation within 6399-TP-74 is the same composition as in Corridor F203, with a patch of *Corymbia citriodora* subsp. *variegata* (Spotted Gum) occurring within the site. The vegetation within TP-F197 is predominantly White Cypress Pine Woodland. The area to the south-west of the site changes slightly due to the presence of the gully, and *Eucalyptus chloroclada* (Dirty Gum) becomes the dominant canopy species and the shrub layer and ground cover are dominated by *Juncus usitatus* (Rush) and *Capillipedium spicigerum* (Scented Top Grass). In the north-west portion of the TP-F197 there is a gully that is dominated by *Eucalyptus chloroclada* (Dirty Gum).

Eleven (11) Type A restricted plants were recorded on the site including, *Cymbidium canaliculatum* (Black Orchid), *Brachychiton australis* (Broad Leaf Bottle Tree), *Brachychiton populneus* (Kurrajong) and *Brachychiton rupestris* (Narrow Leaf Bottle Tree), occurred within Corridor F203. The locations of these species are indicted in Table 3.1.

Table 3.1 Species of conservation significance for Corridor F203

Species name	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Cymbidium canaliculatum</i>	705865	7142083
<i>Cymbidium canaliculatum</i>	706960	7141997
<i>Brachychiton australis</i>	707058	7141963
<i>Brachychiton populneus</i>	705844	7142092
<i>Brachychiton populneus</i>	705848	7142087
<i>Brachychiton populneus</i>	706627	7141987
<i>Brachychiton populneus</i>	706835	7142032
<i>Brachychiton populneus</i>	707203	7141954
<i>Brachychiton rupestris</i>	706536	7141963
<i>Brachychiton rupestris</i>	706618	7141983
<i>Brachychiton rupestris</i>	706628	7141989

No other species of conservation significance under the NC Act or EPBC Act were observed.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

The habitat value of Corridor F203 was identified as high due to the presence of extensive remnant vegetation. The vegetation consisted of mature trees and had a relatively complex structure (T1, T2, and dense grassy ground cover). Weed abundance was high adjacent to roadsides (especially *Chloris* species) but native grasses were dominant within forested areas (especially where overstorey and midstorey was dense).

Dead stags and tree hollows were identified as potential habitat for arboreal mammals and foraging/nesting birds. Fallen timber and woody debris was identified as potential habitat for reptiles and other terrestrial species. The habitat value of the Corridor is enhanced by the presence of a creek that created a wetland area with a high potential for frog habitat. The vegetation and features within the remnant vegetation of Corridor F203 provides suitable habitat for a range of native avian, reptile and mammalian fauna.

Common local fauna species such as Apostle Birds (*Struthidea cinerea*) were observed in the area and numerous bird calls were heard. A group of Squatter Pigeons (*Geophaps scripta scripta*) were seen foraging in the area. Squatter Pigeons are listed as vulnerable under the EPBC Act and the NC Act.

3.2 Powerline Corridor (between 6399-TP-74 and Corridor F218)

General

The Powerline Corridor is approximately 4 km long and 30 m wide and is situated at the southern end of Lot 55 FTY1153 running north-south (Figure 3.2). The findings include gas well pads connected to the corridor (6399-RM-51, 6399-TP-73, 6399-TP-70, 6399-TP-69 and 6399-RM-62).

The Powerline Corridor is located primarily within remnant vegetation. The remnant vegetation within the corridor is mapped as RE 11.10.9 and 11.10.11/11.10.7a, which are listed as 'no concern at present'. Recent field investigations found the RE mapping in this area to be correct. There is some evidence of previous land clearing as part of forestry operations and gas pipeline infrastructure within this corridor.

The vast majority of the proposed development area is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

There are two mapped watercourses which cross the powerline corridor, one north of site 6399-RM-62 and the other just south of site 6399-TP-70. These watercourses are classed as stream orders 1 and 2 respectively.

An access track runs along the entire length of the Powerline Corridor.

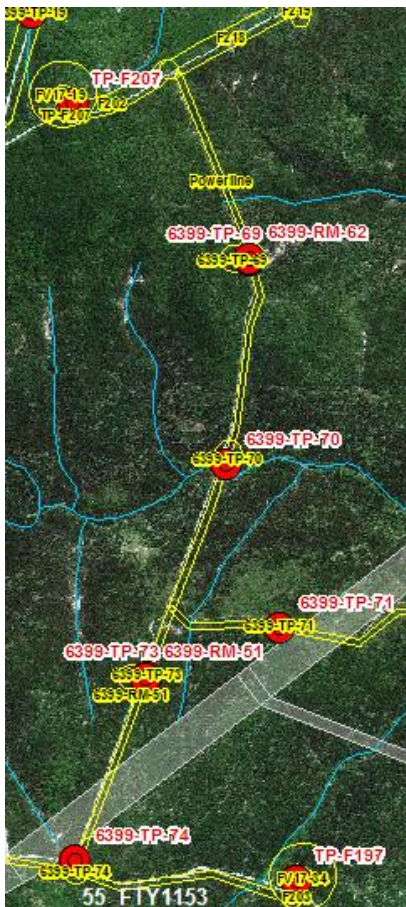


Figure 3.2 Aerial photograph of the Powerline Corridor between 6399-TP-74 and Corridor F218

A photograph showing representative vegetation within the site can be seen in Photo 3.2.



Photo 3.2 Site photograph of the Powerline Corridor between 6399-TP-74 and Corridor F218 (*Callitris glaucophylla* / eucalypt forest)

Floristics

The area is densely vegetated with *Callitris glaucophylla* (White Cypress)/eucalypt forest. *Eucalyptus populnea* (Poplar Box) and *Eucalyptus melanophloia* (Silver Leaved Ironbark) are the dominant eucalypt species. Other tree species which occur to a lesser extent throughout the area include *Corymbia citriodora* (Lemon Scented Gum), *Corymbia tessellaris* (Moreton Bay Ash) and *Corymbia clarksoniana* (Clarkson's Bloodwood). *Eucalyptus tereticornis* (Queensland Blue Gum) was also identified in wetter areas such as drainage lines.

The midstorey layer is densely vegetated with woody shrubs and is dominated by *Acacia leiocalyx* (Black Wattle). Other less dominant shrubs include *Petalostigma pubescens* (Quinine) and *Grevillea striata* (Beefwood). Lower shrub species include *Sida subspicata* (Queensland Hemp) and *Pterocaulon sphacelatum* (Applebush).

Ground cover is dominated by both introduced and native grasses/herbs. The dominant introduced grasses include *Pennisetum ciliare* (Buffel Grass), *Chloris virgata* (Feathertop Rhodes Grass) and *Eragrostis* species (Lovegrasses). The dominant native grasses include *Themeda triandra* (Kangaroo Grass), *Perotis rara* (Comet Grass) and *Aristida caput medusa* (Curly Head Wire Grass). The dominant herb species include *Cheilanthes aspersa* (Bristly Cloak Fern), *Calotis cuneifolia* (Purple Burr Daisy) and *Podolepis jaceoides* (Showy Copper Wire Daisy).

Twenty seven (27) Type A restricted plants were observed within the proposed corridor. These included *Brachychiton populneus* (Kurrajong), *Brachychiton rupestris* (Narrow Leaved Bottle Tree) and *Xanthorrhoea johnsonii* (Grass Tree). The locations of each of the species were recorded by GPS (coordinates in Table 3.2).

Table 3.2 Species of conservation significance in the Powerline Corridor between 6399-TP-74 and Corridor F218

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	707036	7144511
<i>Brachychiton populneus</i>	706953	7144164
<i>Brachychiton populneus</i>	706966	7144172
<i>Brachychiton populneus</i>	706945	7144120
<i>Brachychiton populneus</i>	706943	7144126
<i>Brachychiton populneus</i>	706936	7144126
<i>Brachychiton populneus</i>	706934	7144127
<i>Brachychiton populneus</i>	706933	7144128
<i>Brachychiton populneus</i>	706948	7144114
<i>Brachychiton populneus</i>	706946	7144151
<i>Brachychiton populneus</i>	706944	7144137
<i>Brachychiton populneus</i>	706941	7144144
<i>Brachychiton populneus</i>	706950	7144164
<i>Brachychiton rupestris</i>	707065	7144733
<i>Brachychiton rupestris</i>	707037	7144840
<i>Xanthorrhoea johnsonii</i>	707030	7144525
<i>Xanthorrhoea johnsonii</i>	707035	7144517
<i>Xanthorrhoea johnsonii</i>	707029	7144515
<i>Xanthorrhoea johnsonii</i>	707032	7144509
<i>Xanthorrhoea johnsonii</i>	707031	7144509
<i>Xanthorrhoea johnsonii</i>	707029	7144508
<i>Xanthorrhoea johnsonii</i>	707043	7144483
<i>Xanthorrhoea johnsonii</i> (x4)	706928	7144840
<i>Xanthorrhoea johnsonii</i>	707035	7144528

No other species of conservation significance under the NC Act or EPBC Act were observed.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

The habitat value of the Powerline Corridor was identified as high due to the presence of extensive remnant vegetation. The vegetation consisted of mature trees and had a relatively complex structure (T1, T2, S1 and dense grassy ground cover). Weed abundance was high adjacent to roadsides (especially *Chloris* species) but native grasses were dominant within forested areas (especially where overstorey and midstorey is dense).

Dead stags and tree hollows were identified as potential habitat for arboreal mammals and foraging or nesting habitat for birds. A greater density of stags was identified at the northern end of the corridor.

Fallen timber and woody debris was identified as potential habitat for reptiles and other terrestrial species.

Fauna identified within the area included the Squatter Pigeon (*Geophaps scripta scripta*) which is listed as vulnerable under the EPBC Act and is also listed as vulnerable under the NC Act.

3.3 Powerline Corridor (including 6399-TP-71 & 6399-TP-72)

General

The Powerline Corridor is situated at the southern end of Lot 55 FTY1153 and extends to the east of the Powerline Corridor mentioned previously in section 3.2. The corridor is 30 m wide and includes test pit 6399-TP-71 and 6399-TP-72. A designated road reserve cuts through the corridor to the east of test pit 6399-TP-71.

The Powerline Corridor is located entirely within remnant vegetation. The remnant vegetation within the corridor is mapped as RE 11.10.11/11.10.7a, which is listed as 'no concern at present'. Recent field investigations found the RE mapping in this area to be correct.

The vast majority of the proposed development area is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

There are two mapped watercourses which cross the powerline corridor, one to the east of site 6399-TP-71 and the other to the east of site 6399-TP-72. These watercourses are classed as stream orders 1 and 2 respectively.

A minor access track runs parallel to the corridor on the northern side.



Figure 3.3 Aerial photograph of Powerline Corridor, including sites 6399-TP-71 and 6399-TP-72.

A photograph showing representative vegetation within the site can be seen in Photo 3.3.



Photo 3.3 Site photograph of the Powerline Corridor (*Callitris glaucophylla* / eucalypt forest)

Floristics

The area is densely vegetated with *Callitris glaucophylla* (White Cypress)/ eucalypt forest. *Eucalyptus populnea* (Poplar Box) and *Eucalyptus melanophloia* (Silver Leaved Ironbark) are the dominant eucalypt species.

The midstorey layer is densely vegetated with woody shrubs, the dominant species being *Eremophila mitchellii* (False Sandalwood) which is denser at the eastern end of the corridor. Other shrubs include *Acacia leiocalyx* (Black Wattle), *Acacia excelsa* (Iron Wood) and *Grevillea striata* (Beefwood). Lower shrub species include *Sida subspicata* (Queensland Hemp) and *Pterocaulon sphacelatum* (Applebush).

Ground cover is dominated by both introduced and native grasses/herbs. The dominant introduced grasses include *Pennisetum ciliare* (Buffel Grass), *Chloris virgata* (Feathertop Rhodes Grass) and *Eragrostis* species (Lovegrasses). The dominant native grasses include *Themeda triandra* (Kangaroo Grass), *Perotis rara* (Comet Grass) and *Dichanthium sericeum* (Queensland Blue Grass). The dominant herb species include *Cheilanthes aspersa* (Bristly Cloak Fern) and *Wahlenbergia gracilis* (Sprawling Bluebell).

A small drainage line was identified within the area which contained an assemblage of 'water loving' species such as *Juncus usitatus* (Juncus), *Marsilea drummondii* (Common Nardoo) and *Eleocharis* sp. (Spike Rush).

No species of conservation significance under the NC Act or EPBC Act were observed.

A flora species list for this corridor is presented in **Appendix A**.



Habitat Values

The habitat value of the Powerline Corridor was identified as high due to the presence of extensive remnant vegetation. The vegetation consisted of mature trees and had a relatively complex structure (T1, T2, and dense grassy ground cover). Weed abundance was high adjacent to roadsides (especially *Chloris* species) but native grasses were dominant within forested areas (especially where overstorey and midstorey was dense).

Dead stags and tree hollows were identified as potential habitat for arboreal mammals and foraging/nesting birds and were more abundant at the eastern end of the corridor. Fallen timber and woody debris was identified as potential habitat for reptiles and other terrestrial species.

An adult Rufous Bettong (*Aepyprymnus rufescens*) was identified within a drainage line in the area. No EVNT fauna under the EPBC Act or NC Act were observed within the proposed development area.

3.4 Corridors F202, F218, F219, F220, F222, F224 & F227

General

Corridors F202, F218, F219, F220, F222, F224 and F227 combine to form a corridor approximately 6 km long and 100 m wide and is situated in the north-east corner of Lot 55 FTY1153 running northeast-southwest (Figure 3-4). The findings include gas well pads connected to the corridor (FV17-19, TP-F207, 6399-RM-61, TP-F206, FV18-06, TP-F203, 6399-TP-68, 6399-RM-58).

The proposed development area is located within mapped remnant and non-remnant vegetation. The remnant vegetation is mapped as 'no concern at present' RE 11.10.9 and RE 11.10.11/11.10.7a, and 'of concern' RE 11.3.2. Recent field investigations did not find any change between the vegetation mapped as 'no concern at present' and the area mapped as 'of concern' RE 11.3.2. The area mapped as RE 11.3.2 is considered to be incorrect and is discussed further.

The whole proposed development area is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest and the area mapped as an 'of concern' regional ecosystem.

There are no mapped watercourses within the proposed development area, however there is a watercourse (stream order 1) located approximately 10 m to the west of the FV17-19 development footprint.

There is an access road which follows the length of the proposed development area.



Figure 3.4 Aerial photograph of Corridors F202, F218, F219, F220, F222, F224 & F227

A photograph showing representative vegetation within the site can be seen in Photo 3.4



Photo 3.4 Site photograph of the proposed development area (*Callitris glaucophylla* / eucalypt forest, *Brachychiton* sp.)

Floristics

The area is densely vegetated with *Callitris glaucophylla* (White Cypress)/ eucalypt forest. *Eucalyptus populnea* (Poplar Box) and *Eucalyptus melanophloia* (Silver Leaved Ironbark) are the dominant eucalypt species. Other tree species which occur to a lesser extent include *Corymbia tessellaris* (Moreton Bay Ash), *Eucalyptus chloroclada* (Dirty Gum) and *Eucalyptus tereticornis* (Queensland Blue Gum).

The midstorey layer is densely vegetated with woody shrubs including *Acacia leiocalyx* (Black Wattle), *Acacia harpophylla* (Brigalow) and *Carissa ovata* (Currant Bush). In some areas small patches ($\leq 1\text{ha}$) of *Acacia harpophylla* (Brigalow) are the dominant species. Dense shaded areas with closed canopies contain shade tolerant shrub species such as *Pittosporum undulatum* (Sweet Pittosporum) and *Breynia oblongifolia* (Coffee Bush). Lower shrub species include *Sida subspicata* (Queensland Hemp) and *Pterocaulon sphacelatum* (Applebush).

Ground cover is dominated by both introduced and native grasses/herbs. The dominant introduced grasses include *Pennisetum ciliare* (Buffel Grass), *Chloris virgata* (Feathertop Rhodes Grass) and *Eragrostis* species (Lovegrasses). The dominant native grasses include *Themeda triandra* (Kangaroo Grass), *Cymbopogon refractus* (Barbed Wire Grass) and *Aristida caput medusa* (Curly Head Wire Grass). The dominant herb species included *Cheilanthes aspersa* (Bristly Cloak Fern) and *Wahlenbergia gracilis* (Sprawling Bluebell).

The vegetation found within the area mapped as 'of concern' RE 11.3.2 was no different to the white cypress pine dominated woodland that was present throughout the rest of the corridor mapped as 'no concern at present'. There was no change in landzone and was not considered alluvial (landzone 3). Therefore the vegetation is considered to be 'no concern at present' and is incorrectly mapped as an 'of concern' RE.

Fourteen (14) Type A restricted plants were observed in the proposed corridors, including *Brachychiton populneus* (Kurrajong), *Brachychiton rupestris* (Narrow-leaved bottle tree), *Brachychiton australis* (Broad-leaved bottle tree) and *Cymbidium canaliculatum* (Black orchard). The locations of these species were recorded by GPS (coordinates in Table 3.3).

Table 3.3 Species of conservation significance in Corridors F202, F218, F219, F220, F222, F224 & F227

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton rupestris</i>	706346	7145987
<i>Brachychiton rupestris</i>	706355	7145991
<i>Brachychiton rupestris</i>	706368	7146015
<i>Brachychiton rupestris</i>	706360	7145991
<i>Brachychiton rupestris</i>	706393	7146006
<i>Brachychiton rupestris</i>	706392	7146024
<i>Brachychiton rupestris</i>	706402	7146021
<i>Brachychiton rupestris</i>	706412	7146037
<i>Brachychiton australis</i>	706417	7146027
<i>Brachychiton rupestris</i>	706442	7146033
<i>Brachychiton populneus</i>	710241	7147623
<i>Brachychiton populneus</i>	709104	7147187
<i>Brachychiton populneus</i>	710522	7147802
<i>Cymbidium canaliculatum</i>	710265	7147705

No other species of conservation significance under the NC Act or EPBC Act were observed.

A flora species list for this corridor is presented in **Appendix A**.



Habitat Values

The habitat value of the proposed development area was identified as high due to the presence of extensive remnant vegetation. The vegetation consisted of mature trees and had a relatively complex structure (T1, T2, and dense grassy ground cover). Weed abundance was high adjacent to roadsides (especially *Chloris* species) but native grasses were dominant within forested areas (especially where overstorey and midstorey was dense).

Dead stags and tree hollows were identified as potential habitat for arboreal mammals and foraging/nesting birds. Fallen timber and woody debris was identified as potential habitat for reptiles and other terrestrial species.

Common local fauna species such as Apostle Birds (*Struthidea cinerea*) were observed in the area, but no EVNT fauna under the EPBC Act or NC Act were observed.

3.5 Corridor F221

General

Corridor F221 is approximately 900 m long and 100 m wide and is situated in the north-east corner of Lot 55 FTY1153 running north-south (Figure 3.5). The findings include gas well pads connected to the corridor (TP-F198).

The vast majority of Corridor F221 is mapped as non-remnant vegetation. There is one small section at the southern end of the corridor which is mapped as remnant 'no concern at present' RE 11.10.9. Recent field investigations found the RE mapping in this area to be correct. Previous land clearing as part of forestry operations and gas pipeline infrastructure has resulted in the non-remnant status of the remaining vegetation within this corridor.

The entire area of Corridor F221 is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

There are no mapped watercourses within the proposed development area. The closest watercourse (stream order 2) is situated approximately 125 m north-west of the corridor.

An access road located inside the corridor follows the length from south to north-west.



Figure 3.5 Aerial photograph of Corridor F221

A photograph showing representative vegetation within the site can be seen in Photo 3.5.



Photo 3.5 Site photograph of Corridor F221 (*Callitris glaucophylla* / eucalypt forest, *Acacia harpophylla* shrub layer)

Floristics

The area is densely vegetated with *Callitris glaucophylla* (White Cypress)/ eucalypt forest. *Eucalyptus populnea* (Poplar Box) and *Eucalyptus melanophloia* (Silver Leaved Ironbark) are the dominant eucalypt species. Other tree species which occur to a lesser extent include *Eucalyptus crebra* (Narrow Leaved Ironbark) and *Corymbia tessellaris* (Moreton Bay Ash).

The midstorey layer is densely vegetated with woody shrubs including *Acacia leiocalyx* (Black Wattle) *Spartothamnella puberula* (Spiky Bush) and *Acacia harpophylla* (Brigalow).

Ground cover is dominated by both introduced and native grasses/herbs. The dominant introduced grasses include *Pennisetum ciliare* (Buffel Grass), *Chloris virgata* (Feathertop Rhodes Grass) and *Eragrostis* species (Lovegrasses). The dominant native grasses include *Themeda triandra* (Kangaroo Grass), *Perotis rara* (Comet Grass) and *Aristida caput medusa* (Curly Head Wire Grass). The dominant herb species included *Cheilanthes aspersa* (Bristly Cloak Fern) and *Wahlenbergia gracilis* (Sprawling Bluebell).

One Type A restricted plant was observed in the proposed corridor, being *Brachychiton populneus* (Kurrajong). The location of the species was recorded by GPS (coordinates in Table 3.4).

Table 3.4 Species of conservation significance in Corridor F221

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	707881	7147487

A stand of *Acacia harpophylla* (Brigalow) was recorded in the northern portion of the corridor. The height of the Brigalow was approximately 1.5 – 2 m high. Brigalow ecological communities are listed as endangered under the EPBC Act. No other species of conservation significance under the NC Act or EPBC Act were observed.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

The habitat value of Corridor F221 was identified as high due to the presence of extensive remnant vegetation. The vegetation consisted of mature trees and had a relatively complex structure (T1, T2, and dense grassy ground cover). Weed abundance was high adjacent to roadsides (especially *Chloris* species) but native grasses were dominant within forested areas (especially where overstorey and midstorey was dense).

Dead stags and tree hollows were identified as potential habitat for arboreal mammals and foraging/nesting birds. Fallen timber and woody debris was identified as potential habitat for reptiles and other terrestrial species.

Common local fauna species such as Apostle Birds (*Struthidea cinerea*) were observed in the area but no threatened fauna were identified.

3.6 Corridor F223

General

Corridor F223 is approximately 1 km long and 100 m wide and is situated in the north-east corner of Lot 55 FTY1153 running north-west to south-east (Figure 3.6). The findings include gas well pads connected to the corridor (TP-F199).

Corridor F223 is located entirely within remnant vegetation. The remnant vegetation is mapped as RE 11.10.9 and 11.10.11/11.10.7a, which are listed as 'no concern at present'. Recent field investigations found the RE mapping in this area to be correct. Previous land clearing as part of forestry operations and gas pipeline infrastructure has resulted in the non-remnant status of the remaining vegetation within this corridor.

The entire area of Corridor F223 is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

There are no mapped watercourses located within Corridor F223. The closest watercourse (stream order 1) is located approximately 250 m to the east of the proposed development area.



Figure 3.6 Aerial photograph of Corridor F223

A photograph showing representative vegetation within the site can be seen in Photo 3.6.



Photo 3.6 Site photograph of Corridor F223 (*Callitris glaucophylla* / eucalypt forest)

Floristics

The area is densely vegetated with mature *Callitris glaucophylla* (White Cypress)/ eucalypt forest. *Eucalyptus populnea* (Poplar Box) and *Eucalyptus melanophloia* (Silver Leaved Ironbark) are the dominant eucalypt species. Other tree species which occur to a lesser extent include *Corymbia tessellaris* (Moreton Bay Ash) and *Alphitonia excelsa* (Red Ash).

The midstorey layer is sparsely vegetated with woody shrubs including *Petalostigma pubescens* (Quinine) and *Alstonia constricta* (Bitter Bark). Lower shrub species include *Sida subspicata* (Queensland Hemp) and *Pterocaulon sphacelatum* (Applebush). Vine species associated with the midstorey included *Pandorea pandorana* (Wonga Wonga Vine) and the introduced species- *Araujia sericifera* (Moth Vine).

Ground cover is dominated by both introduced and native grasses/herbs. The dominant introduced grasses include *Pennisetum ciliare* (Buffel Grass), *Chloris virgata* (Feathertop Rhodes Grass) and *Eragrostis* species (Lovegrasses). The dominant native grasses include *Themeda triandra* (Kangaroo Grass), *Perotis rara* (Comet Grass) and *Aristida caput medusa* (Curly Head Wire Grass). The dominant herb species include *Wahlenbergia gracilis* (Sprawling Bluebell) and *Calotis cuneifolia* (Purple Burr Daisy).

One Type A restricted plant was observed near Corridor F223 - *Brachychiton populneus* (Kurrajong), however the species did not occur within the actual proposed development footprint. No other species of conservation significance under the NC Act or EPBC Act were observed.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

The habitat value of Corridor F223 was identified as high due to the presence of extensive remnant vegetation. The vegetation consisted of mature trees and had a relatively complex structure (T1, T2, and dense grassy ground cover). Weed abundance was high adjacent to roadsides (especially *Chloris* species) but native grasses were dominant within forested areas (especially where overstorey and midstorey was dense).

Dead stags and tree hollows were identified as potential habitat for arboreal mammals and foraging/nesting birds. Fallen timber and woody debris was identified as potential habitat for reptiles and other terrestrial species.

Common local fauna species such as Apostle Birds (*Struthidea cinerea*) were observed in the area but no threatened fauna were identified.

3.7 Powerline Corridor (including 6399-TP-66 & 6399-RM-57)

General

The Powerline Corridor is approximately 1.4 km, long and 30 m wide and is situated in the north-east corner of Lot 55 FTY1153 running northwest-southeast (Figure 3.7). The findings include gas well pads connected to the corridor (6399-TP-66 and 6399-RM-57).

The majority of the proposed development area is located within remnant vegetation. The remnant vegetation within the corridor is mapped as 'no concern at present' RE 11.10.9 and 'of concern' RE 11.3.2.

The entire area of the Powerline Corridor is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

There is one mapped watercourse (stream order 2) which crosses the Powerline Corridor.



Figure 3.7 Aerial photograph of the Powerline Corridor

A photograph showing representative vegetation within the site can be seen in Photo 3.7.



Photo 3.7 Site photograph of the Powerline Corridor

Floristics

The area is densely vegetated with *Callitris glaucophylla* (White Cypress)/eucalypt forest. *Eucalyptus populnea* (Poplar Box) and *Eucalyptus melanophloia* (Silver Leaved Ironbark) are the dominant eucalypt species. Other tree species which occur to a lesser extent include *Corymbia tessellaris* (Moreton Bay Ash) and *Eucalyptus chloroclada* (Dirty Gum).

The midstorey layer is vegetated with woody shrubs including *Acacia leiocalyx* (Black Wattle), *Petalostigma pubescens* (Quinine) and *Acacia excelsa* (Iron Wood). A mature patch of *Acacia harpophylla* (Brigalow) was identified at the northern end of the corridor. Lower shrub species include *Sida subspicata* (Queensland Hemp) and *Pterocaulon sphacelatum* (Applebush).

Ground cover is dominated mainly by introduced grasses. The dominant grass species along the roadside was *Chloris virgata* (Feathertop Rhodes Grass). The dominant grass within the vegetation was *Pennisetum ciliare* (Buffel Grass) (>90%). The dominant herb species included *Cheilanthes aspersa* (Bristly Cloak Fern) and *Wahlenbergia gracilis* (Sprawling Bluebell). *Sclerolaena birchii* (Galvanised Burr) was especially abundant along the roadside.

Four (4) Type A restricted plants were observed in the proposed corridor. These included *Brachychiton populneus* (Kurrajong) and *Brachychiton rupestris* (Narrow-leaved Bottle Tree). Each individual of these species was recorded by GPS (coordinates are below).

Table 3.5 Species of conservation significance in the Powerline Corridor

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	709037	7148338
<i>Brachychiton populneus</i>	709089	7148256
<i>Brachychiton ruprestris</i>	709100	7148247
<i>Brachychiton ruprestris</i>	709116	7148245

A stand of *Acacia harpophylla* (Brigalow) was also observed and recorded within the corridor. Brigalow ecological communities are listed as endangered under the EPBC Act. No other species of conservation significance under the NC Act or EPBC Act were observed.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

The habitat value of the Powerline Corridor was identified as moderate due to the presence of both remnant vegetation and cleared areas. Although the vegetation consisted of mature trees and had a relatively complex structure (T1, T2, and dense grassy ground cover), weed abundance was relatively high in the ground layer.

Dead stags and tree hollows were identified as potential habitat for arboreal mammals and foraging/nesting birds. Fallen timber and woody debris was identified as potential habitat for reptiles and other terrestrial species.

Common local fauna species such as Apostle Birds (*Struthidea cinerea*) were observed in the area but no threatened fauna were identified. A wild dog (*Canis lupus familiaris*) was also identified within the area.

3.8 Corridors F226 & F225 (south)

General

Together Corridors F226 and F225 are approximately 1.7 km long and are situated along the north-eastern boundary of Lot 55 FTY1153 (Figure 3.8). The findings include a powerline extending to the north-west of Corridor F226 to the north and gas well pads connected to Corridor F225 (TP-F202 & 6399-RM-59).

Corridors F226 and F225 are located primarily within remnant vegetation. The remnant vegetation within the corridor is mapped as RE 11.10.9 and 11.3.2, which is listed as *No concern at present* and *Of Concern* respectively. Recent field investigations (June) found the RE mapping for RE 11.10.9 to be correct however mapping of 11.3.2 to be incorrect due to inconsistencies in the land zone classification, with the area analogous with RE 11.10.9. Previous land clearing as part of forestry operations and gas pipeline infrastructure has resulted in the non-remnant status of the remaining vegetation within this corridor.

The majority of the proposed corridors are mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

The corridor also intersects a drainage line which is mapped as a Stream Order 1 watercourse.

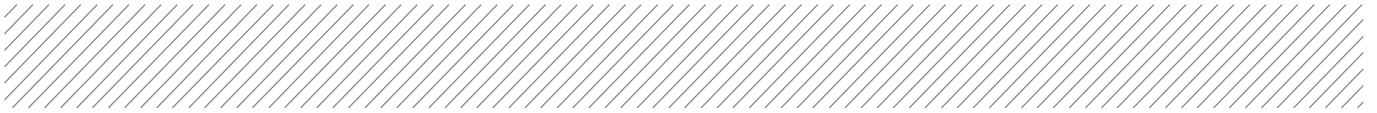


Figure 3.8 Aerial photograph of Corridors F226 and F225 (south) overlaid with RE mapping

A photograph showing representative vegetation within the site can be seen in Photo 3.8 and Photo 3.9.



Photo 3.8 Site photograph of vegetation representative of Corridor F225 and F226



Photo 3.9 Site photograph of Corridor F225 and F226 (Creek line with *Angophora floribunda*)

Floristics

The area is densely vegetated with *Callitris glaucophylla* (White Cypress)/ eucalypt forest. *Eucalyptus populnea* (Poplar Box) and *Eucalyptus melanophloia* (Silver Leaved Ironbark) are the dominant eucalypt species. Other tree species which occur to a lesser extent include *Angophora floribunda* (Rough Barked Apple), *Corymbia citriodora* (Lemon Scented Gum), *Corymbia tessellaris* (Moreton Bay Ash), *Eucalyptus chloroclada* (Dirty Gum) and *Eucalyptus crebra* (Narrow Leaved Ironbark).

The midstorey layer is sparsely vegetated with woody shrubs including *Acacia leiocalyx* (Black Wattle) and *Acacia oswaldii* (Nilea Miljee). *Acacia excelsa* (Iron Wood) is the dominant shrub species at the southern end of the corridor. *Acacia pendula* (Weeping Myall) occurred on a rocky crest within the corridor.

Ground cover is dominated by both introduced and native grasses/herbs. The dominant introduced grasses include *Pennisetum ciliare* (Buffel Grass) and *Chloris virgata* (Feathertop Rhodes Grass). The dominant native grasses include *Themeda triandra* (Kangaroo Grass) and *Cymbopogon refractus* (Barbed Wire Grass). The dominant herb species included *Cheilanthes seiberi* (Rock Fern) and *Wahlenbergia gracilis* (Sprawling Bluebell).

Floristic variation within the site occurred due to changes in topography. A creek line was identified within which, *Angophora floribunda* (Rough Barked Apple) was the dominant overstorey species. *Eleocharis* (Spike Rush) and *Juncus usitatus* (Juncus) also occurred within the creek.

Four (4) Type A restricted plants were observed in the proposed corridor. These included two (2) *Cymbidium canaliculatum* (Black Orchid) and two (2) *Brachychiton populneus* (Kurrajong). Each individual of these species was recorded by GPS (coordinates in Table 3.6).

Table 3.6 Species of conservation significance in Corridor F225 and F226

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	712106	7146844
<i>Brachychiton populneus</i>	711850	7147132
<i>Cymbidium canaliculatum</i>	711804	7147188
<i>Cymbidium canaliculatum</i>	711499	7147647

No other species of conservation significance under the NC Act or EPBC Act were observed.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

The habitat value of Corridor F225 and F226 was identified as high due to the presence of extensive remnant vegetation. The vegetation consisted of mature trees and had a relatively complex structure (T1, T2, and dense grassy ground cover). Weed abundance was relatively low compared to other areas within the lot.

Dead stags and tree hollows were identified as potential habitat for arboreal mammals and foraging/nesting birds. Fallen timber and woody debris was identified as potential habitat for reptiles and other terrestrial species. The creek was identified as potential habitat for amphibian species.

Common local fauna species such as Apostle Birds (*Struthidea cinerea*) were observed in the area but no threatened fauna were identified.

3.9 Corridor F225 (west)

General

Corridor F225 (west) is approximately 2,500 m long and 100 m wide and is situated in the north-east corner of Lot 55 FTY1153 running east-west (Figure 3.9). The findings include assessment of TP-F200.

Corridor F225 (west) is located primarily within remnant vegetation. The remnant vegetation within the corridor is mapped as RE 11.10.9 and 11.3.2, which is listed as *No concern at present* and *Of Concern* respectively. Recent field investigations (June) found the RE mapping for RE 11.10.9 to be correct however mapping of 11.3.2 to be incorrect due to inconsistencies in the land zone classification, with the area analogous with RE 11.10.9. Previous land clearing as part of forestry operations and gas pipeline infrastructure has resulted in the non-remnant status of the remaining vegetation within this corridor.

The majority of the proposed corridors are mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

There are no mapped watercourses located within the proposed corridor.

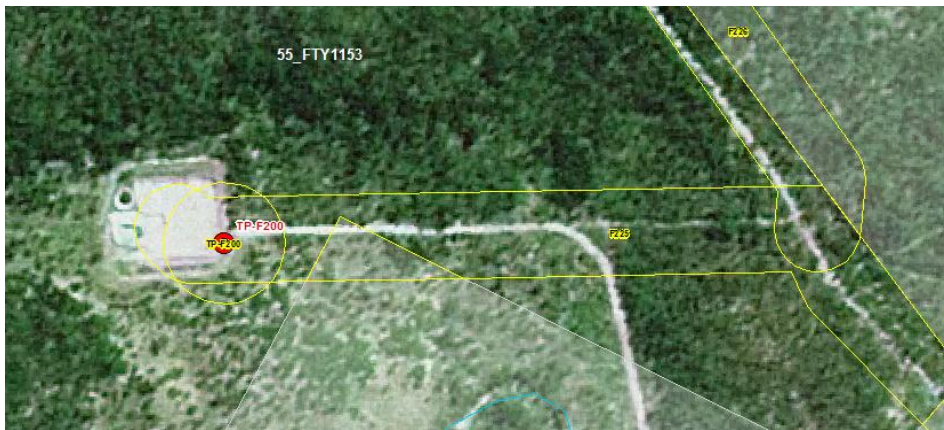


Figure 3.9 Aerial photograph of Corridor F225 (west)

A photograph showing representative vegetation within the site can be seen in Photo 3.10



Photo 3.10 Site photograph of Corridor F225 (west) (*Callitris glaucophylla* / eucalypt forest)

Floristics

The corridor contains both cleared areas and areas densely vegetated with *Callitris glaucophylla* (White Cypress)/ eucalypt forest. *Eucalyptus populnea* (Poplar Box) and *Eucalyptus melanophloia* (Silver Leaved Ironbark) are the dominant eucalypt species. Other tree species which occur to a lesser extent include *Corymbia citriodora* (Lemon Scented Gum), *Corymbia tessellaris* (Moreton Bay Ash) and *Eucalyptus tereticornis* (Queensland Blue Gum).

The midstorey layer is largely absent, while few areas are sparsely vegetated with woody shrubs including *Acacia excelsa* (Iron Wood), *Acacia harpophylla* (Brigalow) and *Carissa ovata* (Currant Bush). Lower shrub species include (*Gamochaeta Americana* Cudweed) and *Pterocaulon sphacelatum* (Applebush).

Ground cover is dominated by both introduced and native grasses. The dominant introduced grasses include *Pennisetum ciliare* (Buffel Grass) and (*Chloris truncata*) Windmill Grass. The dominant native grasses include *Themeda triandra* (Kangaroo Grass), *Perotis rara* (Comet Grass) and *Aristida caput medusa* (Curly Head Wire Grass).

Four (4) Type A restricted plants were observed in the proposed corridor – all were *Brachychiton populneus* (Kurrajong). The location of these plants is detailed in Table 3.7.

Table 3.7 Species of conservation significance in Corridor F225

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	711583	7147202
<i>Brachychiton populneus</i>	711569	7147199
<i>Brachychiton populneus</i>	711352	7147193
<i>Brachychiton populneus</i>	711245	7147167

No other species of conservation significance under the NC Act or EPBC Act were observed.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

The habitat value of Corridor F225 was identified as moderate due to the presence of extensive remnant vegetation. The vegetation consisted of mature trees and had a relatively complex structure (T1, T2, and dense grassy ground cover). Weed abundance was high and *Pennisetum ciliare* (Buffel Grass) was dominant in the groundcover.

Dead stags and tree hollows were identified as potential habitat for arboreal mammals and foraging/nesting birds. Fallen timber and woody debris was identified as potential habitat for reptiles and other terrestrial species.

A Green Tree Frog (*Litoria caerulea*) and a large Cane Toad (*Bufo marinus*) were observed overwintering beneath a log within the corridor. No threatened fauna were identified.

3.10 Corridors F225, F245 & F293

General

Corridors F225, F245 and F293 occur on the east side of Lot 55 FTY1153 and include geo-tech sites TP-F201, 6399-RM-60 and TP-F205. A powerline corridor is also associated with F245 and includes geo-tech 6399-TP-65. The findings presented in this section of this report include these proposed geo-tech sites and the powerline corridor as the disturbance areas are within or connected to Corridors F225, F245 and F293.

Corridors F225, F245 and F293 are located within an area of remnant vegetation that has been mapped as RE 11.10.9 which is listed as 'no concern at present' vegetation and 'of concern' vegetation 11.3.2. Field surveys in June confirmed the RE mapping of 11.10.9, but not 11.3.2, which is

discussed further below. A small area of non-remnant vegetation is mapped at the north-east end of Corridor F225.

The corridors have a flat aspect and follow the Injune-Taroom Road. The road occurs within the length Corridor F225 and F245 and adjacent to the powerline corridor. Corridor F293 and the geo-tech sites TP-F205, 6399-RM-60 and TP-F205 are intersected by the road. The proposed powerline corridor occurs predominantly within an area that has been previously cleared for pipeline corridors (refer to Figure 3.10).

The majority of the proposed corridors are mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

There are no watercourses occurring within the corridor or the geotechnical sites. Figure 3.10 below illustrates Corridors F225, F245 and F293.

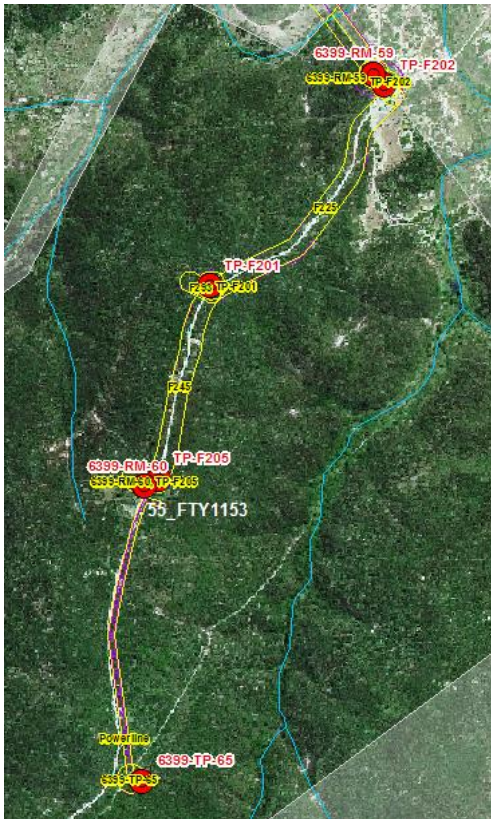


Figure 3.10 Aerial photograph of Corridors F225, F245 and F293

A photograph showing representative vegetation within the site can be seen in Photo 3.11.



Photo 3.11 An example of the vegetation within the proposed development area. This proposed powerline corridor occurs in an area which has previously been cleared for a pipeline corridor

Floristics

The vegetation that occurs within Corridors F225, F245 and F293 is a White Cypress Pine Woodland. The dominant canopy species are *Callitris glaucophylla* (White Cypress Pine) with some *Eucalyptus melanophloia* (Silver Leaved Ironbark) and *Eucalyptus populnea* (Poplar Box). The mid-stratum and shrub layers was sparse due to dense stands of *C. glaucophylla*, the predominant species were Acacias (*Acacia complanata*, *Acacia excels* and *Acacia leiocalyx*). The groundcover consisted of a dense native grass layer with a range of native herbs also present. Weed species such as *Opuntia stricta* (Prickly Pear) and *Pennisetum ciliare* (Buffel) were present but in low densities.

The north-eastern end of Corridor F225 is mapped as 'of concern' RE 11.3.2, which is described as '*Eucalyptus populnea* woodland on alluvial plains'. However, field inspection confirmed that *E. populnea* was not the dominant canopy species and the land type was consistent with the surrounding land type 10 (sandstone ranges). The vegetation described above occurs across all corridors and geo-tech sites and is consistent with the description of RE 11.10.9. Therefore the area mapped as RE 11.3.2 is incorrect, and should be a continuation of RE 11.10.9.

Ten (10) Type A restricted species, *Brachychiton populneus* (Kurrajong) and *Brachychiton rupestris* (Narrow Leaved Bottle Tree) occurred within the proposed corridors. The locations of these species are indicted in Table 3.8.

Table 3.8 Species of conservation significance for Corridors F225, 245 and F293

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	711180	7144593
<i>Brachychiton populneus</i>	711290	7144787
<i>Brachychiton populneus</i>	711760	7145609
<i>Brachychiton populneus</i>	711762	7145623
<i>Brachychiton rupestris</i>	711585	7145531
<i>Brachychiton rupestris</i>	711585	7145531
<i>Brachychiton rupestris</i>	711745	7145625
<i>Brachychiton rupestris</i>	711808	7145643
<i>Brachychiton rupestris</i>	711873	7145676
<i>Brachychiton rupestris</i>	712289	7146293

No other species of conservation significance under the NC Act or EPBC Act were observed.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

Overall, the habitat value of Corridors F225, F245 and F293 is considered to be moderate to high. There has previously been major disturbance in the corridor area with the presence of the Injune-Taroom Road through the majority of the corridors, and the already existing pipeline corridor within the powerline corridor. The remnant vegetation within the proposed disturbance area has some structure and diversity; these areas have a dense canopy layer with some mid-stratum and a dense ground layer. The corridors contained large amounts of standing and fallen dead wood with hollows present, fissured tree bark, low number and abundance of exotic species and leaf litter. The vegetation and features within the remnant vegetation of the proposed corridors provides suitable habitat for a range of native avian, reptile and mammalian fauna.

No EVNT fauna under the NC Act or EPBC Act was observed within the proposed development area.

3.11 Powerline Corridors (including 6399-TP-67, 6399-TP-21 & 6399-RM-56)

General

Powerline Corridors (including 6399-TP-67, 6399-TP-21 and 6399-RM-56) is situated in the north-east corner of Lot 55 FTY1153 (refer to Figure 3.11). The following findings include assessment of a proposed powerline corridor, TP-F219, TP-21, TP-67, and RM-56.

A small portion of this corridor is mapped as the *No concern at present* RE 11.10.9. Recent field investigations (June) found the RE mapping in this area to be correct. Previous land clearing as part of forestry operations and gas pipeline infrastructure has resulted in the non-remnant status of the remaining vegetation within this corridor.

The majority of the proposed corridors are mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

There is one mapped watercourse of stream order 1 located within the western end of the proposed corridor.



Figure 3.11 Aerial photograph of the proposed Powerline Corridors (including 6399-TP-67, 6399-TP-21 & 6399-RM-56)

A photograph showing representative vegetation within the site can be seen in Photo 3.12 and Photo 3.13



Photo 3.12 Site photograph of Powerline Corridors (*Callitris glaucophylla* / eucalypt remnant with exotic grassy understorey)



Photo 3.13 Site photograph of Powerline Corridors (Thicket dominated by *Acacia longispicata*)

Floristics

The area is sparsely vegetated with *Callitris glaucophylla* (White Cypress)/ eucalypt forest. *Eucalyptus populnea* (Poplar Box) and *Eucalyptus melanophloia* (Silver Leaved Ironbark) are the dominant eucalypt species. Other tree species which occur to a lesser extent include *Corymbia citriodora* (Lemon Scented Gum) and *Corymbia clarksoniana* (Clarkson's Bloodwood) and *Eucalyptus tereticornis* (Queensland Blue Gum).

The midstorey layer is largely absent, while few areas are sparsely vegetated with woody shrubs including *Alstonia constricta* (Bitter Bark), *Eremophila mitchellii* (False Sandalwood) and *Petalostigma pubescens* (Quinine). Lower shrub species include *Sida subspicata* (Queensland Hemp) and *Pterocaulon sphacelatum* (Applebush).

Small areas (≤ 1 ha) were identified within the corridor in which *Acacia harpophylla* and *Acacia longispicata* (Slender Flowered Wattle) were the dominant species. These species tended to exclude other shrub and groundcover species.

Ground cover is dominated by introduced include *Pennisetum ciliare* (Buffel Grass). Native grasses were less abundant and included *Setaria surgens* (Annual Setaria), *Perotis rara* (Comet Grass) and *Aristida caput medusa* (Curly Head Wire Grass). The dominant herb species included *Cheilanthes aspersa* (Bristly Cloak Fern) and *Calotis cuneifolia* (Purple Burr Daisy).

Four (4) Type A restricted plants were observed within the proposed development area. This included three (3) *Brachychiton rupestris* (Narrow-leaved bottle tree) and a *Brachychiton populneus* (Kurrajong). The location of these plants is detailed below in Table 3.9.

Table 3.9 Species of conservation significance in Powerline Corridors

Species	Easting (GDA 94, MGA Zone 55)	Northing (GDA 94, MGA Zone 55)
<i>Brachychiton rupestris</i>	707058	7148706
<i>Brachychiton rupestris</i>	706036	7148265
<i>Brachychiton rupestris</i>	706036	7148265
<i>Brachychiton populneus</i>	706121	7148346

A stand of *Acacia harpophylla* (Brigalow) was identified within the development footprint of TP-F219. Brigalow ecological communities are listed as endangered under the EPBC Act.

No other species of conservation significance under the NC Act or EPBC Act were observed in the proposed corridor.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

The habitat value of Powerline Corridors was identified as moderate due to the presence of remnant vegetation. The vegetation consisted of mature trees and had a relatively complex structure (T1, T2, and exotic grassy ground cover). Weed abundance was high both adjacent to roadsides (*Chloris* species) and within the vegetation (Buffel Grass).

Dead stags and tree hollows were identified as potential habitat for arboreal mammals and foraging/nesting birds. Fallen timber and woody debris was identified as potential habitat for reptiles and other terrestrial species.

Common local fauna species such as Apostle Birds (*Struthidea cinerea*) were observed in the area but no threatened fauna were identified.

3.12 Corridor F240 (north)

General

Corridor 240 is situated to the north of Lot 55 FTY1153 and runs north-south. The findings presented in this section of the report also include gas well pads (6399-TP-20, TP-F234 and 6399-TP-19) as these proposed disturbance areas are within or connected to Corridor 240.

Corridor 240 is located within both remnant and non-remnant vegetation. The remnant vegetation within the corridor is mapped as RE 11.10.9, which is listed as ‘no concern at present’. Recent field investigations in June found the RE mapping in this area to be correct. Previous land clearing as part of forestry operations and gas pipeline infrastructure has resulted in the non-remnant status of the remaining vegetation within this corridor.

An existing compressor station is situated on the eastern side of the corridor. An existing access road (10 m wide) also extends through the middle of the corridor.

The proposed corridor is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

One watercourse (classified by DERM as stream order 1) intersects the proposed corridor in two places.

Figure 3.12 below illustrates Corridor 240.

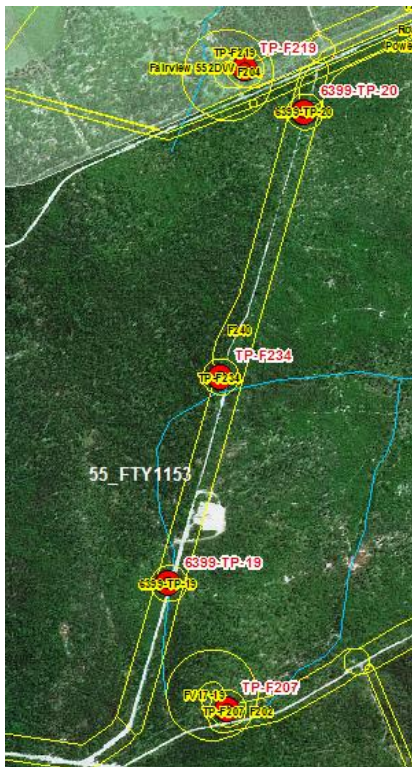


Figure 3.12 Aerial photograph of proposed Corridor F240 (northern portion)

Floristics

The area of disturbance within Corridor F240 is primarily within both remnant and non-remnant vegetation. Within the area of remnant vegetation in the corridor, the predominant vegetation consists of Eucalyptus and Cypress Pine Woodland. The dominant canopy species in this area is *Callitris glaucophylla* (White Cypress Pine), with other species including *Eucalyptus melanophloia* (Silver-leaved Ironbark), *Eucalyptus populnea* (Poplar Box) and *Angophora leiocarpa* (Smooth-barked Apple) and *Eucalyptus chloroclada* (Dirty Gum) occurring less frequently throughout.

The mid-stratum and shrub layers were comprised primarily of Acacia species such as *Acacia leiocalyx* (Black Wattle), *A.complanata* (Flat-stemmed Wattle), *A.excelsa* (Ironwood), with other species such as *Allocasuarina leuhmannii* (Bull Oak), *Eremophila mitchellii* (False Sandalwood), *Geijera parviflora* (Wilga), and *Petalostigma pubescens* (Quinine) also present in lower abundance. The groundcover was primarily shrubby throughout the remnant vegetation in the corridor.

The non-remnant area of the corridor is located on land which has been previously cleared and/or logged during forestry operations. This area consists primarily of dense Acacias (*Acacia leiocalyx* and *A.complanata*) and *Callitris glaucophylla* (White Cypress Pine) regrowth, with some mature trees (*Angophora leiocarpa*, *Eucalyptus melanophloia*) also scattered very sparsely throughout the non-remnant areas. Some grassy areas were also present and primarily consisted of exotic grasses including *Pennisetum ciliare* (Buffel Grass) and *Melinis repens* (Red Natal Grass).

Nineteen (19) Type A restricted plants, including *Brachychiton populneus* (Kurrajong), *Brachychiton rupestris* (Narrow-leaved Bottle Tree) and *Cymbidium canaliculatum* (Black Orchid), were observed within the corridor. The location of these species is indicated in Table 3.10.

Table 3.10 Species of conservation significance located within Corridor F240

Species	Easting (GDA 94, MGA Zone 55)	Northing (GDA 94, MGA Zone 55)
<i>Brachychiton populneus</i>	706483	7148430
<i>Brachychiton populneus</i>	706469	7148396
<i>Brachychiton populneus</i>	706432	7148301
<i>Brachychiton populneus</i>	706377	7148148
<i>Brachychiton populneus</i>	706424	7148068
<i>Brachychiton populneus</i>	706284	7147797
<i>Brachychiton populneus</i>	706331	7147726
<i>Brachychiton populneus</i>	706273	7147693
<i>Brachychiton populneus</i>	706254	7147520
<i>Brachychiton populneus</i>	706050	7146960
<i>Brachychiton populneus</i>	706043	7146951
<i>Brachychiton populneus</i>	705896	7146352
<i>Brachychiton populneus</i>	705887	7146350
<i>Brachychiton populneus</i>	705892	7146193
<i>Brachychiton populneus</i>	705833	7146114
<i>Brachychiton rupestris</i>	706539	7148460
<i>Brachychiton rupestris</i>	706518	7148429
<i>Brachychiton rupestris</i>	706316	7147661
<i>Cymbidium canaliculatum</i>	706340	7147765

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

Numerous incidental sightings of fauna species were observed in Corridor F240 and are presented in Table 3.11.

Table 3.11 Fauna species observed within Corridor F240

Species name	Common name
<i>Phaps chalcoptera</i>	Common Bronzewing
<i>Geopelia striata</i>	Peaceful Dove
<i>Pomatostomus temporalis</i>	Grey-crowned Babbler
<i>Corcorax melanorhamphos</i>	White-winged Chough
<i>Taeniopygia bichenovii</i>	Double Barred Finch
<i>Coturnix ypsilophora</i>	Brown Quail

Species name	Common name
<i>Platycercus adscitus</i>	Pale-headed Rosella
<i>Strepera fuliginosa</i>	Black Currawong

Evidence of macropods (eg scats and tracks) was widespread throughout the corridor.

Overall, the habitat value of Corridor F240 is considered to be moderate to high. The majority of this corridor consists of remnant vegetation which has a relatively high structural complexity and floristic diversity; these areas have canopy, mid-stratum, shrub and ground layers present. The remnant vegetation within this corridor consists largely of an undisturbed environment and therefore retains the intrinsic habitat values associated with the RE. There was also a low number and abundance of exotic species. Other habitat features observed within this corridor includes hollow-bearing trees, fissured tree bark, fallen timber, logs and leaf litter. The habitat value of the corridor is also enhanced by the presence of a small watercourse with sparse fringing riparian vegetation. The vegetation and features within the remnant vegetation of Corridor F240 provides suitable habitat for a range of native avian, reptile and mammalian fauna.

The habitat value of the non-remnant vegetation is considered to be moderate. The non-remnant vegetation areas typically consist of dense Acacia shrubland and scattered mature trees. The structural complexity and floristic diversity of the vegetation was moderate. The groundcover is dominated by exotic grass species in some areas; however, there are also areas where native grasses and forbs comprise the ground layer. The non-remnant vegetation provides some important habitat features such as some hollow-bearing trees, fallen woody debris and shrubs. Due to the moderate level of cover offered by the dense shrub layer and other habitat features, the non-remnant vegetation within Corridor F240 provides suitable habitat for some avian, reptile and mammalian species.

3.13 Corridor F283

General

Corridor F283 covers an area approximately 600 m long and 100 m wide and is situated in the north-east corner of Lot 55 FTY1153 running north-south (Figure 3.13). The test pit site TP-F214 is also addressed in this section, as it is located within Corridor F283. A powerline corridor with a width of 30 m is also located within Corridor F283.

The portion of Corridor F283 which is located on Lot 55 FTY1153 is mapped as non-remnant vegetation. Field inspection confirmed that this mapping is correct, as the area has been previously cleared and is now dominated by *Pennisetum ciliare* (Buffel Grass).

The area is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

There are no mapped watercourses within Corridor F283. The closest mapped watercourse (stream order 1) is located approximately 200 m to the east. Although not mapped, a minor drainage line was found to exist in the proposed development area (see Figure 3.13)

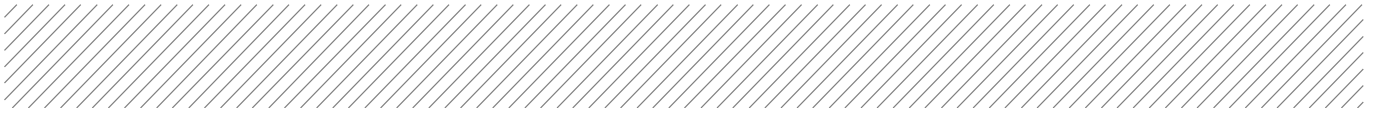


Figure 3.13 Aerial photograph of Corridor F283

A photograph showing representative vegetation within the site can be seen in Photo 3.14 and Photo 3.15.



Photo 3.14 Site photograph of Corridor F283 (Buffel Grass dominated paddock)



Photo 3.15 Site photograph of Corridor F283 (rocky drainage line)

Floristics

The area is predominantly a cleared paddock dominated by *Pennisetum ciliare* (Buffel Grass).

The midstorey layer is largely absent; however few solitary woody shrubs were identified including *Acacia harpophylla* (Brigalow) and *Geijera parviflora* (Wilga).

Other introduced grasses include *Sorghum halepense* (Johnson Grass) and *Eragrostis curvula* (African Love Grass). Native grasses were uncommon in the paddock and included *Dichanthium sericeum* (Queensland Blue Grass), *Heteropogon contortus* (Black Spear Grass) and *Themeda australis* (Kangaroo Grass).

A rocky drainage line was identified centrally within the corridor which contained a more diverse assemblage of flora than the surrounding paddock. Overstorey species within the drainage line included *Eucalyptus melanophloia* (Silver Leaved Ironbark) and *Eucalyptus populnea* (Poplar Box). Dominant shrub species included *Geijera parviflora* (Wilga) and *Alstonia constricta* (Bitter Bark). Lower shrubs included *Grewia latifolia* (Dysentery Plant). Ground cover species included ferns such as *Adiantum aethiopicum* (Common Maidenhair) and *Cheilanthes aspersa* (Bristly Cloak Fern) and native grasses such as *Dichanthium sericeum* (Queensland Blue Grass), *Heteropogon contortus* (Black Spear Grass) and *Themeda australis* (Kangaroo Grass).

One (1) Type A restricted plant, a juvenile *Brachychiton rupestris* (Narrow-leaved Bottle Tree), was observed within the corridor. The location of this species is indicated in Table 3.12.

Table 3.12 Species of conservation significance located within Corridor F283

Species	Easting (GDA 94, MGA Zone 55)	Northing (GDA 94, MGA Zone 55)
<i>Brachychiton rupestris</i>	704992	7148977

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

The habitat value of areas dominated by *Pennisetum ciliare* (Buffel Grass) were identified as low due to the lack of native species, a lack of dead stags, tree hollows, fallen timber and woody debris or other potential habitat for native fauna. The habitat value of the drainage line was identified as high due to the presence of native vegetation which had a relatively complex structure (T1 and T2).

A population of Bynoe's Gecko (*Heteronotia binoei*) was identified within the drainage line. The geckos were found overwintering beneath exfoliating basalt slabs. One Eastern Striped Skink (*Ctenotus robustus*) was also identified.

3.14 Corridor F240 (centre)

General

Corridor F240 is a long corridor 100 m wide and is situated in the middle of Lot 55 FTY1153 running east-west. The findings presented in this section of the report also include gas well pads (TP-F208, TP-F209 and TP-F210) as these proposed disturbance areas are within or connected to Corridor F240.

Corridor F240 is located primarily within remnant vegetation, with some non-remnant vegetation. The remnant vegetation within the corridor is mapped as RE 11.10.9 and 11.10.11, which are listed as 'no concern at present'. Recent field investigations in June found the RE mapping in this area to be correct. Previous land clearing as part of forestry operations and gas pipeline infrastructure has resulted in the non-remnant status of the remaining vegetation within this corridor.

The entire area of Corridor F240 is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

Several existing compressor stations are situated in the western portion of the corridor. An existing access road and gas pipeline easement (collectively 10-15 m wide) also extends through the middle of the corridor.

The corridor is intersected in four places by mapped watercourses, which are classified as stream order 1 & 2 by DERM mapping.

Figure 3.14 below illustrates Corridor F240.

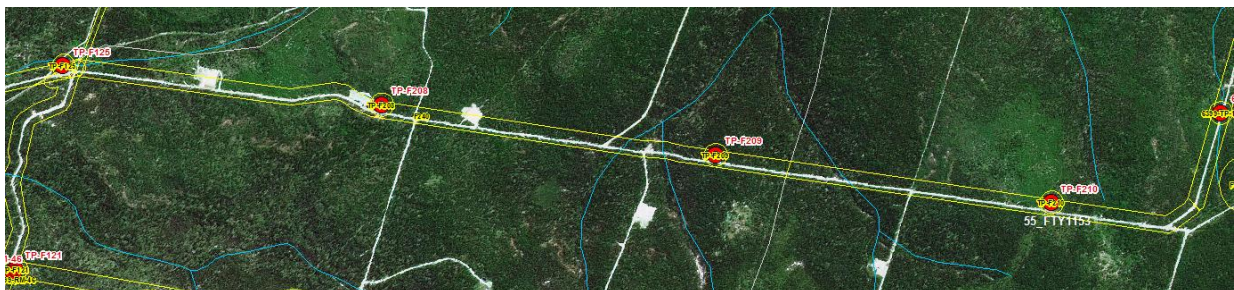


Figure 3.14 Aerial photograph of proposed Corridor F240 (central portion)

Floristics

The area of disturbance within Corridor F240 is within both remnant and non-remnant vegetation. Within the area of remnant vegetation in the corridor, the predominant vegetation consists of

Eucalyptus and Cypress Pine Woodland. The dominant canopy species in this area is primarily *Callitris glaucophylla* (White Cypress Pine), with a number of other species including *Eucalyptus melanophloia* (Silver-leaved Ironbark), *Eucalyptus populnea* (Poplar Box), *Corymbia tessellaris* (Moreton Bay Ash), *Angophora leiocarpa* (Smooth-barked Apple) and *Eucalyptus chloroclada* (Dirty Gum) occurring less frequently throughout.

The mid-stratum and shrub layers varied from sparse to dense across the corridor and were comprised of *Acacia leiocalyx* (Black Wattle), *A. complanata* (Velvet Wattle), *Allocasuarina leuhmannii* (Bull Oak), *Grevillea striata* (Beefwood), *Hakea lorea* (Bootlace Hakea) and *Dodonea viscosa* (Sticky Hopbush). The ground layer was mostly grassy throughout the remnant vegetation and was comprised of native grasses, forbs and sedges including *Perotis rara* (Comet Grass), *Eragrostis brownii* (Brown's Love Grass), *Bothriochloa decipiens* (Pitted Blue Grass), *Enteropogon ramosus* (Curly Windmill Grass), *Calotis cunefolia* (Purple Burr-daisy), *Wahlenbergia communis* (Large Bluebells) and *Lomandra leucocephala* Woolly Mat-rush).

The non-remnant area of the corridor is located on land which has been previously cleared for gas pipeline infrastructure or cleared/logged during forestry operations. This area consists primarily of *Callitris glaucophylla* (White Cypress Pine) and/or dense *Acacia* (*A. leiocalyx*, *A. complanata*) regrowth. Some mature trees (*Angophora leiocarpa*, *Eucalyptus melanopholia*) were also scattered very sparsely throughout the non-remnant areas. The groundcover varied between grassy and shrubby in the non-remnant areas, with some areas dominated by exotic species including *Pennisetum ciliare* (Buffel Grass), *Melinis repens* (Red Natal Grass) and *Chloris virgata* (Feathertop Rhodes Grass).

Twenty-one (21) Type A restricted plants, including *Brachychiton australis* (Broad-leaved Bottle Tree), *Brachychiton populneus* (Kurrajong), *Brachychiton rupestris* (Narrow-leaved Bottle Tree), *Cymbidium canaliculatum* (Black Orchid) and *Xanthorrhoea johnsonii* (Johnson's Grasstree) were observed within the corridor. The location of these species is indicated in Table 3.13.

Table 3.13 Species of conservation significance for Corridor F240

Species name	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Cymbidium canaliculatum</i>	705510	7145872
<i>Cymbidium canaliculatum</i>	704660	7145985
<i>Cymbidium canaliculatum</i>	701887	7146397
<i>Brachychiton populneus</i>	703825	7146066
<i>Brachychiton populneus</i>	705279	7145848
<i>Brachychiton populneus</i>	704692	7146010
<i>Brachychiton populneus</i>	704555	7145976
<i>Brachychiton populneus</i>	704138	7146052
<i>Brachychiton populneus</i>	702511	7146341
<i>Brachychiton populneus</i>	702407	7146321
<i>Brachychiton populneus</i> (x2)	702377	7146315
<i>Brachychiton populneus</i>	700325	7146655
<i>Brachychiton populneus</i>	700106	7146679
<i>Brachychiton populneus</i>	700047	7146690

Species name	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton australis</i>	704757	7145973
<i>Brachychiton australis</i>	701701	7146428
<i>Brachychiton australis</i>	700103	7146593
<i>Brachychiton rupestris</i>	704766	7145992
<i>Brachychiton rupestris</i>	704700	7145989
<i>Xanthorrhoea johnsonii</i>	700439	7146643

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

Numerous incidental sightings of fauna species were observed in Corridor 240 and are presented in Table 3.14.

Table 3.14 Fauna species observed within Corridor 240

Species name	Common name
<i>Geophaps scripta scripta</i>	Squatter Pigeon
<i>Pomatostomus temporalis</i>	Grey-crowned Babbler
<i>Struthidea cinerea</i>	Apostlebird
<i>Grallina cyanoleuca</i>	Magpie-lark
<i>Rhipidura fuliginosa</i>	Grey Fantail
<i>Taeniopygia bichenovii</i>	Double Barred Finch
<i>Malurus cyaneus</i>	Superb Fairy Wren
<i>Platycercus adscitus</i>	Pale-headed Rosella
<i>Manorina melanocephala</i>	Noisy Miner
<i>Gymnorhina tibicen</i>	Australian Magpie
<i>Litoria caerulea</i>	Green Tree Frog
<i>Bufo marinus</i>	Cane Toad

Squatter Pigeons (*Geophaps scripta scripta*) were observed within the corridor; this species is listed as Vulnerable under the NC Act and EPBC Act. All other species observed within the corridor are not listed as threatened species under the provisions for NC Act or EPBC Act.

Evidence of macropods and Dingoes (eg scats and tracks) was widespread throughout the corridor.

Overall, the habitat value of Corridor F240 is considered to be moderate to high. The majority of this corridor consists of remnant vegetation which has a moderate structural complexity and floristic diversity; these areas have a canopy layer, sparse mid-storey and shrub layers, and a ground layer present. The remnant vegetation within this corridor consists largely of an undisturbed environment and therefore retains the intrinsic habitat values associated with the RE. There was also a low number and abundance of exotic species; infestations of exotic grasses were largely confined to the edges of the access road. Other habitat features observed within this corridor includes hollow-bearing trees, small creek lines, fissured tree bark, fallen timber and logs and leaf litter. The vegetation and features

within the remnant vegetation of Corridor F240 provides suitable habitat for a range of native avian, reptile and mammalian fauna.

The habitat value of the non-remnant vegetation is considered to be low to moderate. The non-remnant vegetation areas typically consist of Cypress Pine regrowth or dense Acacia shrubland. Very few mature trees remain in these areas due to previous clearing and logging. The structural complexity and floristic diversity of the vegetation was moderate to low. The groundcover is dominated by exotic grass species in some areas; however, there are also areas where native grasses and forbs comprise the ground layer. The non-remnant vegetation provides some important habitat features such as a few hollow-bearing trees, fallen woody debris and shrubs. The dense shrub layer in some areas within the non-remnant vegetation and other habitat features offer sheltering, foraging and nesting opportunities for some avian, reptile and mammalian species.

3.15 Corridor F189

General

Corridor F189 is located within land parcel 55 FTY1153 which is State Forest land forming part of Hallett State Forest. This area has one (1) proposed test pit (TP-F122) and one (1) proposed resistivity measurement test site (6399-RM-47) within the corridor (refer Figure 3.15).

Due to the fact that Corridor F189 falls within Hallett State Forest it is mapped as ESA Category C however Santos has approval to mine within this area. ESA mapping does not identify any Category A or B areas within 1 km of Corridor F189.

DERM RE mapping indicates that most of Corridor F189 is mapped as RE 11.10.9 with a Biodiversity Status of 'Not of concern at present'. Ground-truthing of the area confirmed that the vegetation is true to this mapping.

There are no mapped watercourses within this corridor.

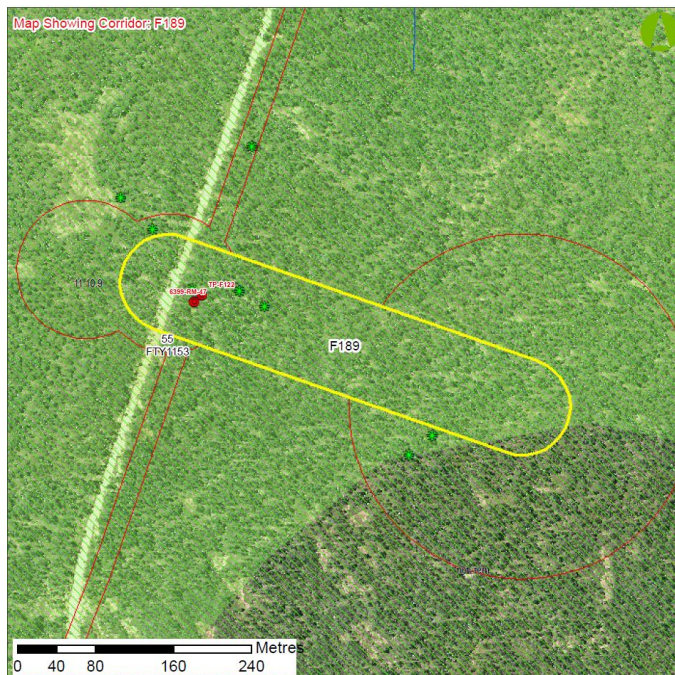


Figure 3.15 Aerial photograph of proposed Corridor F189

Floristics

This corridor can be classified as woodland to open forest dominated by *Eucalyptus melanophloia* (Silver-leaved ironbark), *Callitris glaucophylla* (White cypress), *Eucalyptus populnea* (Poplar box) and *Acacia harpophylla* (Brigalow), and a scattered and a sparse ground layer. There is a shrub layer dominated by *Eremophila mitchellii* (False sandalwood) and *Dodonea viscosa* (Sticky hopbush) and several species of native grasses.

Three (3) *Brachychiton populneus* (Kurrajong) and one (1) *Brachychiton rupestris* (Bottle tree) were found within the corridor. The locations of these individuals are detailed in table 3.15.

Table 3.15 Species of conservation significance for Corridor F189

Species name	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton rupestris</i>	699514	7147818
<i>Brachychiton populneus</i>	699487	7147834
<i>Brachychiton populneus</i>	699487	7147834
<i>Brachychiton populneus</i>	699439	7147836

Habitat Values

The habitat value of this corridor is high, with many stags, numerous fallen hollow logs and habitat trees. There is an open shrub layer which will provide habitat for smaller birds, and fibrous bark which is likely to provide habitat for small reptiles and insect species.

Fauna species observed within Corridor F189 during investigations are included in Table 3.16.

Table 3.16 Fauna species observed within Corridor 189

Species name	Common name
<i>Acanthiza pusilla</i>	Brown Thornbill
<i>Colluricincla harmonica</i>	Grey Shirke-thrush
<i>Corvus coronoides</i>	Australian Raven
<i>Coturnix sp.</i>	Quail
<i>Geophaps scripta scripta</i>	Squatter Pigeon
<i>Gymnorhina tibicen</i>	Australian Magpie
<i>Pomatostomus temporalis</i>	Grey-crowned Babbler
<i>Rhipidura fuliginosa</i>	Rufous Fantail
<i>Strepera graculina</i>	Pied Currawong

Squatter pigeons, listed as Vulnerable under the EPBC Act, were observed within this corridor during field investigations.

A flora species list for this corridor is presented in **Appendix A**.

3.16 Corridor F194

General

Corridor F194 is located within land parcel 55 FTY1153 which is State Forest land forming part of Hallett State Forest. This area has 4 proposed test pits (TP-F121) and resistivity measurement site (6399-RM-46) within the corridor (refer Figure 3.16).

Due to the fact that Corridor F194 falls within Hallett State Forest it is mapped as ESA Category C however Santos has approval to mine within this area. ESA mapping does not identify any Category A or B areas within 1 km of Corridor F194.

DERM RE mapping indicates that all of Corridor F194 is mapped as RE 11.10.9 and 11.10.11, both of which have a Biodiversity Status of 'Not of concern at present'. Ground-truthing of the area confirmed that the vegetation is true to this mapping.

There are three (3) watercourses crossing this corridor, the watercourse in the south has a stream order of 1, further north the stream order of 3 and the northern watercourse has a stream order of 2.

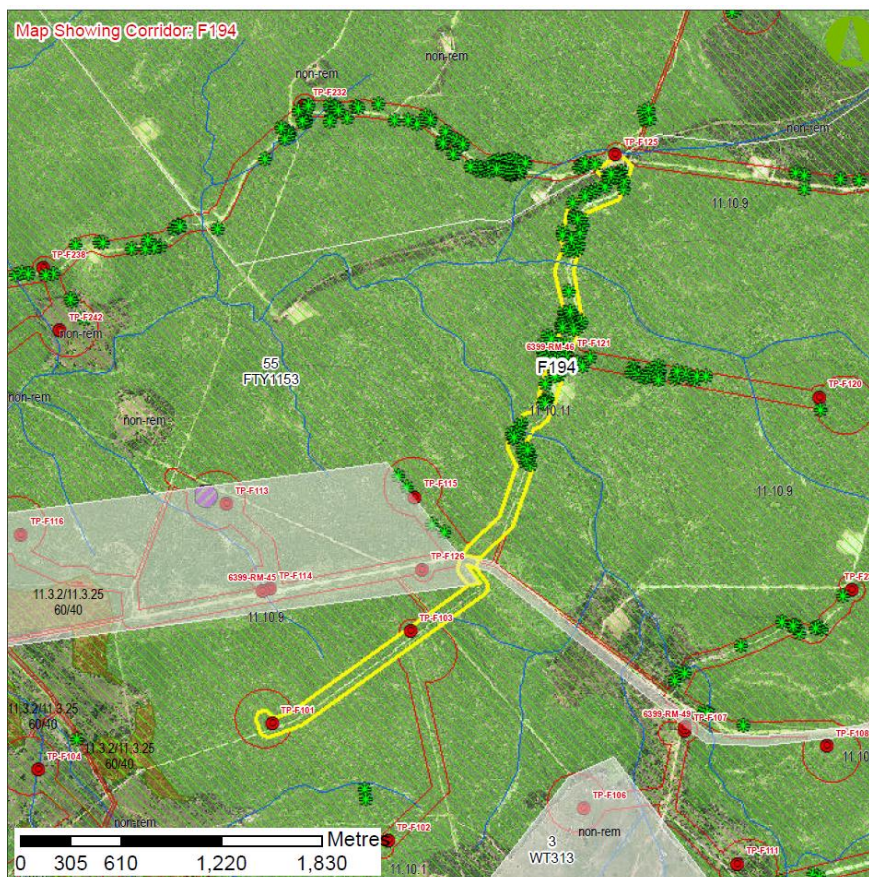


Figure 3.16 Aerial photograph of proposed Corridor F194

Floristics

This corridor can be classified as woodland to open forest dominated by *Callitris glaucophylla* (White cypress), *Eucalyptus melanophloia* (Silver-leaved ironbark) with scattered *Eucalyptus chloroclada* (Dirty gum) and *Angorophora leiocarpa* (Smooth-barked apple) and a sparse ground layer. There is no true shrub layer throughout the corridor and the groundcover consists predominantly of native species.

Over 100 *Xanthorrhoea johnsonii* (Native grass tree) were located along the corridor and three (3) *Brachychiton populneus* (Kurrajong) and one (1) *Cymbidium canaliculatum* (Black orchid) were found within the corridor. The locations of the type A species have been recorded in Table 3.17.

Table 3.17 Species of conservation significance for Corridor F194

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Xanthorrhoea johnsonii</i>	698412	7144936
<i>Xanthorrhoea johnsonii</i>	698424	7144955
<i>Xanthorrhoea johnsonii</i>	698421	7144970
<i>Xanthorrhoea johnsonii</i>	698398	7144998
<i>Xanthorrhoea johnsonii</i>	698394	7145028
<i>Xanthorrhoea johnsonii</i>	698335	7145082
<i>Xanthorrhoea johnsonii</i>	698342	7145091
<i>Xanthorrhoea johnsonii</i>	698372	7145111
<i>Xanthorrhoea johnsonii</i>	698356	7145117
<i>Brachychiton populneus</i>	698369	7145151
<i>Xanthorrhoea johnsonii</i>	698389	7145169
<i>Xanthorrhoea johnsonii</i>	698513	7145295
<i>Xanthorrhoea johnsonii</i>	698531	7145296
<i>Xanthorrhoea johnsonii</i>	698538	7145301
<i>Xanthorrhoea johnsonii</i>	698526	7145302
<i>Xanthorrhoea johnsonii</i>	698526	7145302
<i>Xanthorrhoea johnsonii</i>	698549	7145326
<i>Xanthorrhoea johnsonii</i>	698528	7145414
<i>Xanthorrhoea johnsonii</i>	698595	7145456
<i>Xanthorrhoea johnsonii</i>	698611	7145464
<i>Xanthorrhoea johnsonii</i>	698603	7145470
<i>Xanthorrhoea johnsonii</i>	698583	7145486
<i>Xanthorrhoea johnsonii</i>	698594	7145493
<i>Brachychiton populneus</i>	698594	7145493
<i>Xanthorrhoea johnsonii</i>	698597	7145513
<i>Xanthorrhoea johnsonii</i>	698648	7145519
<i>Xanthorrhoea johnsonii</i>	698641	7145521
<i>Xanthorrhoea johnsonii</i>	698594	7145525
<i>Xanthorrhoea johnsonii</i>	698642	7145529
<i>Xanthorrhoea johnsonii</i>	698655	7145538
<i>Xanthorrhoea johnsonii</i>	698603	7145549



Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Xanthorrhoea johnsonii</i>	698613	7145554
<i>Xanthorrhoea johnsonii</i>	698614	7145556
<i>Xanthorrhoea johnsonii</i>	698594	7145557
<i>Xanthorrhoea johnsonii</i>	698616	7145561
<i>Xanthorrhoea johnsonii</i>	698569	7145563
<i>Xanthorrhoea johnsonii</i>	698661	7145570
<i>Xanthorrhoea johnsonii</i>	698661	7145570
<i>Xanthorrhoea johnsonii</i>	698533	7145571
<i>Xanthorrhoea johnsonii</i>	698667	7145571
<i>Xanthorrhoea johnsonii</i>	698595	7145574
<i>Xanthorrhoea johnsonii</i>	698610	7145576
<i>Xanthorrhoea johnsonii</i>	698550	7145577
<i>Xanthorrhoea johnsonii</i>	698592	7145579
<i>Xanthorrhoea johnsonii</i>	698543	7145583
<i>Xanthorrhoea johnsonii</i>	698523	7145585
<i>Xanthorrhoea johnsonii</i>	698614	7145591
<i>Xanthorrhoea johnsonii</i>	698644	7145600
<i>Xanthorrhoea johnsonii</i>	698608	7145603
<i>Xanthorrhoea johnsonii</i>	698628	7145611
<i>Xanthorrhoea johnsonii</i>	698516	7145614
<i>Xanthorrhoea johnsonii</i>	698514	7145627
<i>Xanthorrhoea johnsonii</i>	698614	7145651
<i>Xanthorrhoea johnsonii</i>	698519	7145652
<i>Xanthorrhoea johnsonii</i>	698653	7145653
<i>Xanthorrhoea johnsonii</i>	698565	7145686
<i>Xanthorrhoea johnsonii</i>	698706	7145737
<i>Xanthorrhoea johnsonii</i>	698704	7145741
<i>Xanthorrhoea johnsonii</i>	698632	7145756
<i>Xanthorrhoea johnsonii</i>	698729	7145758
<i>Xanthorrhoea johnsonii</i>	698729	7145758
<i>Xanthorrhoea johnsonii</i>	698639	7145758
<i>Xanthorrhoea johnsonii</i>	698696	7145759
<i>Xanthorrhoea johnsonii</i>	698637	7145769
<i>Xanthorrhoea johnsonii</i>	698701	7145770

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Xanthorrhoea johnsonii</i>	698648	7145774
<i>Xanthorrhoea johnsonii</i>	698629	7145775
<i>Xanthorrhoea johnsonii</i>	698659	7145783
<i>Xanthorrhoea johnsonii</i>	698675	7145799
<i>Xanthorrhoea johnsonii</i>	698728	7145805
<i>Xanthorrhoea johnsonii</i>	698651	7145806
<i>Xanthorrhoea johnsonii</i>	698654	7145820
<i>Xanthorrhoea johnsonii</i>	698672	7145820
<i>Xanthorrhoea johnsonii</i>	698666	7145821
<i>Xanthorrhoea johnsonii</i>	698656	7145824
<i>Xanthorrhoea johnsonii</i>	698684	7145829
<i>Xanthorrhoea johnsonii</i>	698687	7145840
<i>Xanthorrhoea johnsonii</i>	698646	7145847
<i>Xanthorrhoea johnsonii</i>	698676	7145848
<i>Xanthorrhoea johnsonii</i>	698685	7145853
<i>Cymbidium canaliculatum</i>	698677	7145976
<i>Xanthorrhoea johnsonii</i>	698702	7146214
<i>Xanthorrhoea johnsonii</i>	698669	7146223
<i>Xanthorrhoea johnsonii</i>	698729	7146233
<i>Xanthorrhoea johnsonii</i>	698706	7146270
<i>Xanthorrhoea johnsonii</i>	698693	7146294
<i>Brachychiton populneus</i>	698719	7146302
<i>Xanthorrhoea johnsonii</i>	698634	7146311
<i>Xanthorrhoea johnsonii</i>	698746	7146331
<i>Xanthorrhoea johnsonii</i>	698638	7146341
<i>Xanthorrhoea johnsonii</i>	698742	7146392
<i>Xanthorrhoea johnsonii</i>	698729	7146410
<i>Xanthorrhoea johnsonii</i>	698750	7146413
<i>Xanthorrhoea johnsonii</i>	698704	7146420
<i>Xanthorrhoea johnsonii</i>	698704	7146420
<i>Xanthorrhoea johnsonii</i>	698704	7146430
<i>Xanthorrhoea johnsonii</i>	698699	7146511
<i>Xanthorrhoea johnsonii</i>	698776	7146550
<i>Xanthorrhoea johnsonii</i>	698781	7146566

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Xanthorrhoea johnsonii</i>	698810	7146572
<i>Xanthorrhoea johnsonii</i>	698810	7146572
<i>Xanthorrhoea johnsonii</i>	698837	7146588
<i>Xanthorrhoea johnsonii</i>	698837	7146588
<i>Xanthorrhoea johnsonii</i>	698890	7146609
<i>Xanthorrhoea johnsonii</i>	699010	7146643
<i>Xanthorrhoea johnsonii</i>	698943	7146661
<i>Xanthorrhoea johnsonii</i>	698958	7146663
<i>Xanthorrhoea johnsonii</i>	698970	7146668
<i>Xanthorrhoea johnsonii</i>	698974	7146676
<i>Xanthorrhoea johnsonii</i>	698972	7146679
<i>Xanthorrhoea johnsonii</i>	698972	7146679
<i>Xanthorrhoea johnsonii</i>	698930	7146686
<i>Xanthorrhoea johnsonii</i>	698989	7146702
<i>Xanthorrhoea johnsonii</i>	698989	7146702

Habitat Values

The habitat value of this corridor is considered to be medium. There are several stags and some fallen hollow logs providing some sheltering opportunities for fauna species. Only a few habitat trees were noted within this area. The fauna species identified within Corridor F194 during field investigations are listed in Table 3.18.

Table 3.18 Fauna species observed within Corridor 194

Species name	Common name
<i>Acanthiza lineata</i>	Striated Thornbill
<i>Acanthiza nana</i>	Yellow Thornbill
<i>Acanthiza pusilla</i>	Brown Thornbill
<i>Climacteris affinis</i>	White-browed Treecreeper
<i>Colluricincla harmonica</i>	Grey Shirke-thrush
<i>Corvus coronoides</i>	Australian Raven
<i>Coturnix sp.</i>	Quail
<i>Dacelo novaeguineaa</i>	Laughing Kookaburra
<i>Dromaius nocaehollandieae</i>	Emu
<i>Geophaps scripta scripta</i>	Squatter Pigeon
<i>Gymnorhina tibicen</i>	Australian Magpie
<i>Pomatostomus temporalis</i>	Grey-crowned Babbler

Species name	Common name
<i>Rhipidura fuliginosa</i>	Rufous Fantail
<i>Rhipidura leucophrys</i>	Willie Wagtail
<i>Struthidea cinera</i>	Apostlebird
<i>Taeniopygia bichenovii</i>	Double-barred Finch

Squatter pigeons were observed within the proposed development area. This species is listed as Vulnerable under the EPBC Act.

A flora species list for this corridor is presented in **Appendix A**.

3.17 Corridor F190

General

Corridor F190 is located in the middle of Lot 55 FTY1153 running east-west. The findings presented in this section of the report also include gas well pads 6399-RM-46 and FV16-37, test pits TP-F121 and TP-F120, and a road corridor as these proposed disturbance areas are within or connected to corridor F190.

Corridor F190 is located entirely within remnant vegetation. The remnant vegetation within the corridor is mapped as RE 11.10.9 and 11.10.11, which are listed as 'no concern at present'. Recent field investigations (June) found the RE mapping in this area to be correct.

The entire area of Corridor F190 is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

An existing road extends through the northern end of the corridor.

A small watercourse (classified by DERM as stream order 1) intersects the middle of the proposed corridor.

Figure 3.17 below illustrates Corridor F190.



Figure 3.17 Aerial photograph of proposed Corridor F190

Floristics

The area of disturbance within Corridor F190 is within remnant vegetation. Within the area of remnant vegetation of this corridor, the predominant vegetation consists of Eucalyptus and Cypress Pine Woodland. The dominant canopy species in this area is primarily *Callitris glaucophylla* (White Cypress

Pine), with a number of other species including *Eucalyptus melanophloia* (Silver-leaved Ironbark), *Eucalyptus populnea* (Poplar Box), *Corymbia trachypholia*, *Corymbia tessellaris* (Moreton Bay Ash) and *Eucalyptus chloroclada* (Dirty Gum) occurring less frequently.

The mid-stratum and shrub layers are sparse and comprised of *Acacia leiocalyx* (Black Wattle), *Allocasuarina leuhmannii* (Bull Oak), *Acacia spectabilis*, *Dodonaea viscosa* (Sticky Hop-bush) and *Cassinia laevis* (Cough Bush). The understorey is comprised of native grasses, forbs and sedges including *Perotis rara* (Comet Grass), *Eragrostis brownii* (Brown's Love Grass), *Alloteropsis semialata* (Cockatoo Grass), *Calotis cunefolia* (Purple Burr-daisy), *Sida subspicata* (Queensland Hemp) and *Lomandra leucocephala*. Some exotic grass species were present throughout the remnant vegetation including *Pennisetum ciliare* (Buffel Grass) and *Melinis repens* (Red Natal Grass).

Sixty six (66) Type A restricted plants, including *Brachychiton populneus* (Kurrajong) and *Xanthorrhoea johnsonii* (Johnson's Grasstree), were observed within the corridor. The location of these species is indicated in Table 3.19.

Table 3.19 Species of conservation significance for Corridor F190

Species name	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	700200	7145257
<i>Brachychiton populneus</i>	700614	7145199
<i>Xanthorrhoea johnsonii</i>	699221	7145436
<i>Xanthorrhoea johnsonii</i>	699319	7145441
<i>Xanthorrhoea johnsonii</i>	699440	7145439
<i>Xanthorrhoea johnsonii</i>	699418	7145444
<i>Xanthorrhoea johnsonii</i>	699214	7145450
<i>Xanthorrhoea johnsonii</i>	699141	7145452
<i>Xanthorrhoea johnsonii</i>	699127	7145453
<i>Xanthorrhoea johnsonii</i>	699454	7145459
<i>Xanthorrhoea johnsonii</i>	699344	7145463
<i>Xanthorrhoea johnsonii</i>	699152	7145467
<i>Xanthorrhoea johnsonii</i>	699100	7145468
<i>Xanthorrhoea johnsonii</i>	699503	7145462
<i>Xanthorrhoea johnsonii</i>	699219	7145471
<i>Xanthorrhoea johnsonii</i>	699053	7145480
<i>Xanthorrhoea johnsonii</i>	699382	7145478
<i>Xanthorrhoea johnsonii</i>	699202	7145481
<i>Xanthorrhoea johnsonii</i>	699079	7145483
<i>Xanthorrhoea johnsonii</i>	699167	7145484
<i>Xanthorrhoea johnsonii</i>	699226	7145489
<i>Xanthorrhoea johnsonii</i>	699330	7145489



Species name	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Xanthorrhoea johnsonii</i>	699181	7145507
<i>Xanthorrhoea johnsonii</i>	699064	7145511
<i>Xanthorrhoea johnsonii</i>	698754	7145523
<i>Xanthorrhoea johnsonii</i>	699222	7145522
<i>Xanthorrhoea johnsonii</i>	698655	7145538
<i>Xanthorrhoea johnsonii</i>	698721	7145545
<i>Xanthorrhoea johnsonii</i>	698726	7145546
<i>Xanthorrhoea johnsonii</i>	698603	7145549
<i>Xanthorrhoea johnsonii</i>	698613	7145554
<i>Xanthorrhoea johnsonii</i>	698614	7145556
<i>Xanthorrhoea johnsonii</i>	698594	7145557
<i>Xanthorrhoea johnsonii</i>	698616	7145561
<i>Xanthorrhoea johnsonii</i>	698661	7145570
<i>Xanthorrhoea johnsonii</i>	698661	7145570
<i>Xanthorrhoea johnsonii</i>	698667	7145571
<i>Xanthorrhoea johnsonii</i>	698800	7145570
<i>Xanthorrhoea johnsonii</i>	698595	7145574
<i>Xanthorrhoea johnsonii</i>	698610	7145576
<i>Xanthorrhoea johnsonii</i>	698592	7145579
<i>Xanthorrhoea johnsonii</i>	698614	7145591
<i>Xanthorrhoea johnsonii</i>	698644	7145600
<i>Xanthorrhoea johnsonii</i>	698608	7145603
<i>Xanthorrhoea johnsonii</i>	698628	7145611
<i>Xanthorrhoea johnsonii</i>	698648	7145519
<i>Xanthorrhoea johnsonii</i>	698641	7145521
<i>Xanthorrhoea johnsonii</i>	698642	7145529
<i>Xanthorrhoea johnsonii</i>	698655	7145538
<i>Xanthorrhoea johnsonii</i>	698721	7145545
<i>Xanthorrhoea johnsonii</i>	698726	7145546
<i>Xanthorrhoea johnsonii</i>	698603	7145549
<i>Xanthorrhoea johnsonii</i>	698613	7145554
<i>Xanthorrhoea johnsonii</i>	698614	7145556
<i>Xanthorrhoea johnsonii</i>	698594	7145557
<i>Xanthorrhoea johnsonii</i>	698616	7145561

Species name	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Xanthorrhoea johnsonii</i>	698661	7145570
<i>Xanthorrhoea johnsonii</i>	698661	7145570
<i>Xanthorrhoea johnsonii</i>	698667	7145571
<i>Xanthorrhoea johnsonii</i>	698595	7145574
<i>Xanthorrhoea johnsonii</i>	698610	7145576
<i>Xanthorrhoea johnsonii</i>	698592	7145579
<i>Xanthorrhoea johnsonii</i>	698614	7145591
<i>Xanthorrhoea johnsonii</i>	698644	7145600
<i>Xanthorrhoea johnsonii</i>	698608	7145603
<i>Xanthorrhoea johnsonii</i>	698628	7145611

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

Numerous incidental sightings of fauna species were observed in Corridor F190 and are presented in table 3.20.

Table 3.20 Fauna species observed within Corridor F190

Species name	Common name
<i>Struthidea cinerea</i>	Apostlebird
<i>Phaps chalcoptera</i>	Common Bronzewing
<i>Taeniopygia bichenovii</i>	Double-barred Finch
<i>Rhipidura leucophrys</i>	Willie Wagtail
<i>Cracticus nigrogularis</i>	Pied Butcherbird
<i>Rhipidura fuliginosa</i>	Grey Fantail

None of these species are listed as threatened under the NC Act or EPBC Act.

Evidence of macropods and Dingoes (ie tracks and scats) were present around the creek in the corridor.

Overall, the habitat value of Corridor F190 is considered to be moderate to high as the corridor is entirely situated within remnant vegetation. The majority of this corridor consists of remnant vegetation which has a moderate structural complexity and floristic diversity; these areas have canopy layer, sparse mid-storey and shrub layers, and a ground layer present. The remnant vegetation within this corridor consists largely of an undisturbed environment and therefore retains the intrinsic habitat values associated with the RE.

There was also a low number and abundance of exotic species; infestations of exotic grasses were largely confined to the edges of the access road. Other habitat features observed within this corridor includes hollow-bearing trees, watercourses with fringing riparian vegetation, fissured tree bark, fallen timber and logs and leaf litter. The vegetation and features within the remnant vegetation of corridor F190 provides suitable habitat for a range of native avian, reptile and mammalian fauna.

3.18 Corridor F198

General

Corridor F198 is situated on the southern side of Lot 55 FTY1153. The findings presented in this section of the report also includes test pits TP-F231, TP-F108 and gas well pad FV307 as these proposed disturbance areas are connected to Corridor F198.

Corridor F198 is located primarily within remnant vegetation, with a small area of non-remnant vegetation at the southern end of the corridor. The remnant vegetation within the corridor is mapped as RE 11.10.09 and 11.10.11, which are both listed as 'no concern at present'. Previous land clearing as part of forestry operations has resulted in the non-remnant status of the remaining vegetation within this corridor.

The vast majority of Corridor F198 is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

An existing access track extends through the middle of the entire corridor. One watercourse (classified by DERM as stream order 3) intersects the western end of the proposed corridor.

Figure 3.18 below illustrates Corridor F198.

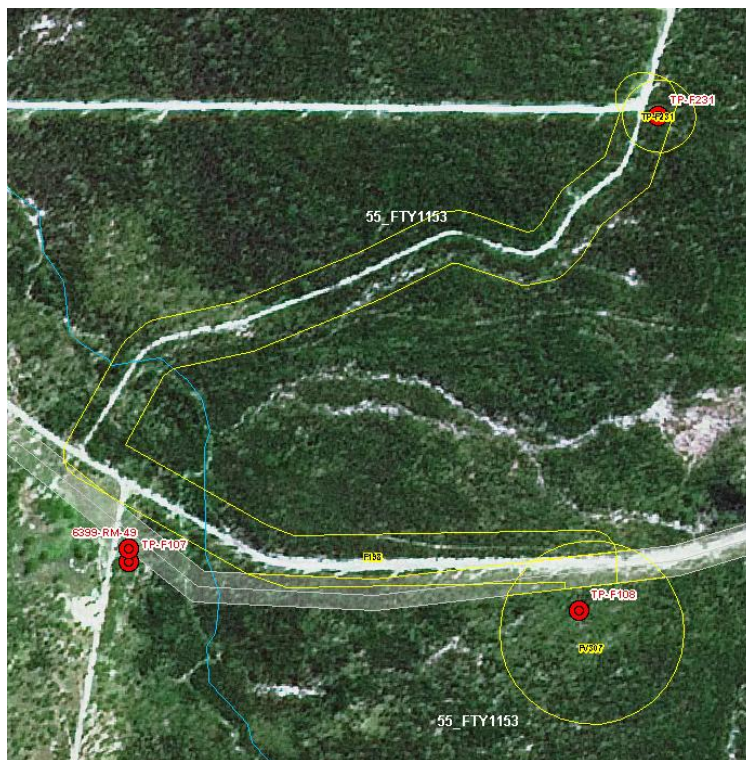


Figure 3.18 Aerial photograph of proposed Corridor F198

Floristics

The area of disturbance within Corridor F198 is primarily within remnant vegetation, with a small area of non-remnant vegetation at the western end of the corridor. Within the remnant vegetation adjacent to the corridor, the predominant vegetation consists of Eucalyptus and Cypress Pine Woodland. The dominant species in this area include *Eucalyptus melanophloia* (Silver-leaved Ironbark), *Eucalyptus populnea* (Poplar Box), *Corymbia tessellaris* (Moreton Bay Ash), *Callitris glaucophylla* (White Cypress Pine) and *Allocasuarina leuhmannii* (Bull Oak). *Angophora floribunda* (Rough-barked Apple) and

Eucalyptus chloroclada (Dirty Gum) were dominant along the watercourse. The midstorey and shrub layer was comprised of *Acacia leiocalyx* (Black Wattle), *Eremophila mitchellii* (False Sandalwood) and *Grevillea striata* (Beefwood). The understorey varied between grassy and shrubby throughout the remnant vegetation in the corridor.

The non-remnant area of the corridor is located on land which has been historically cleared during forestry operations. This area consists primarily of White Cypress Pine regrowth with scattered shrubs throughout. The understorey of the non-remnant vegetation was dominated by native and exotic grasses including *Pennisetum ciliare* (Buffel Grass), *Melinis repens* (Red Natal Grass), *Sporobolus creber* (Western Rats Tail Grass), *Themeda triandra* (Kangaroo Grass), and *Bothriochloa bladhii* (Forest Blue Grass).

Nineteen (19) Type A restricted plants including *Brachychiton populneus* (Kurrajong), *Brachychiton rupestris* (Narrow-leaved Bottle Tree) and *Cymbidium canaliculatum* (Black Orchid) were observed within the corridor. The location of these species is indicated in Table 3.21.

Table 3.21 Species of conservation significance for Corridor F198

Species name	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	699730	7143343
<i>Brachychiton populneus</i>	699530	7143409
<i>Brachychiton populneus</i>	699519	7143409
<i>Brachychiton populneus</i>	699518	7143417
<i>Brachychiton populneus</i>	699318	7143614
<i>Brachychiton populneus</i>	699381	7143662
<i>Brachychiton populneus</i>	699716	7143827
<i>Brachychiton populneus</i>	700211	7143922
<i>Brachychiton populneus</i>	700170	7143931
<i>Brachychiton populneus</i>	700175	7143934
<i>Brachychiton rupestris</i>	699520	7143411
<i>Brachychiton rupestris</i>	699492	7143426
<i>Cymbidium canaliculatum</i>	699358	7143664
<i>Cymbidium canaliculatum</i>	700071	7143904
<i>Cymbidium canaliculatum</i>	700185	7143941
<i>Cymbidium canaliculatum</i>	700053	7143945
<i>Cymbidium canaliculatum</i>	700039	7143947
<i>Cymbidium canaliculatum</i>	699966	7143967
<i>Cymbidium canaliculatum</i>	700338	7144130

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

Numerous incidental sightings of fauna species were observed in Corridor F198 and are presented in Table 3.22.

Table 3.22 Fauna species observed within Corridor F198

Species name	Common name
<i>Struthidea cinerea</i>	Apostlebird
<i>Manorina melanocephala</i>	Noisy Miner
<i>Pomatostomus temporalis</i>	Grey-crowned Babbler
<i>Dacelo novaeguineae</i>	Kookaburra
<i>Ocyphaps lophotes</i>	Crested Pigeon

None of these species are listed as threatened under the NC Act or EPBC Act.

The habitat value of Corridor F198 is moderate to high as the majority of this corridor consists of remnant vegetation. The remnant vegetation has a moderate structural complexity and floristic diversity. The remnant vegetation within this corridor consists largely of an undisturbed environment and therefore retains the intrinsic habitat values associated with the RE. There was also a low number and abundance of exotic species. Other habitat features observed within this corridor include a watercourse with fringing riparian vegetation, hollow-bearing trees, fissured tree bark, fallen timber and leaf litter. The vegetation and features within the remnant vegetation of this corridor provides suitable habitat for a range of native avian, reptile and mammalian fauna.

The small area of non-remnant vegetation has moderate habitat value. This vegetation has a low to moderate structural complexity, consisting primarily of White Cypress Pine regrowth and lacks mature trees. There was a moderate level of weed infestations in these areas. Other habitat features present include some fallen timber and fissured bark, some leaf litter, and nesting opportunities in the shrub layer. Therefore, the vegetation and habitat features present in the non-remnant area would provide habitat for a limited range of native fauna.

3.19 Corridor F200

General

Corridor F200 and associated well pads is located south of the Injune-Taroom Road in Lot 55. Well pads associated with this corridor include FV213 and TP-F109.

The majority of the corridor is vegetated, particularly in the eastern portion. Past disturbance resulting from historical clearing is evident throughout the corridor; however clearing is particularly evident in the western portion of the corridor where it joins on to a neighbouring farm. A major access road (approximately 25 m wide) traverses the entire corridor and ends at TP-F109. This access road appears to have been constructed recently.

Corridor F200 contains remnant and non-remnant vegetation. The remnant vegetation is mapped as RE 11.10.1 and 11.10.11, both of which are classed as 'no concern at present'. July surveys found that this mapping is correct.

Corridor F200 is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

There are mapped watercourses within the proposed corridor, which are classed as stream order 1 and 2 by DERM mapping.

The western end of the corridor joining on to the Injune-Taroom Road is located within a cleared area adjacent to a neighbouring property. This area shows signs of recent disturbance such as clearing for road works and/or test pit locations.

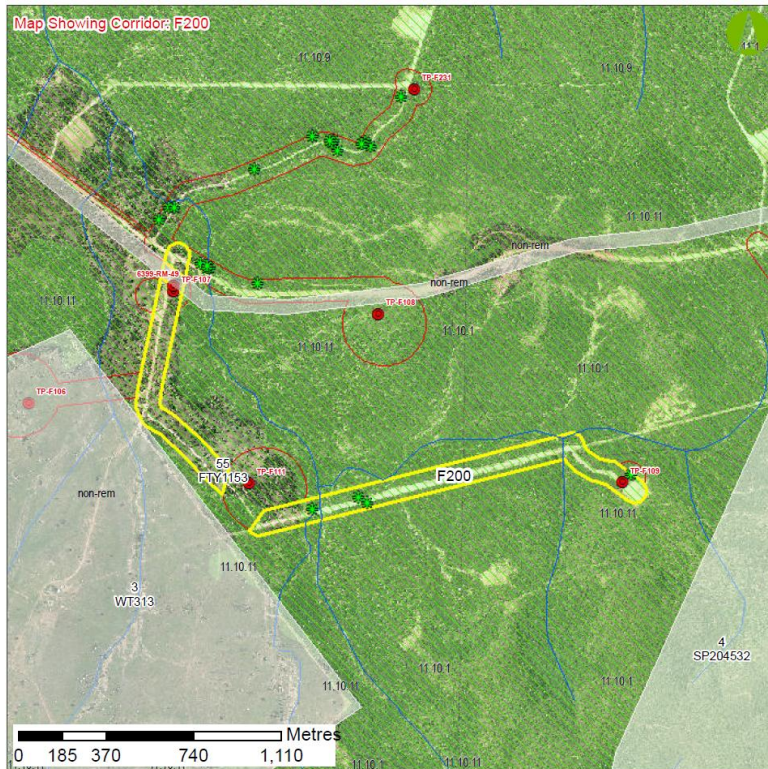


Figure 3.19 Aerial photograph of proposed Corridor F200

Floristics

Surveys found that the RE mapping of this corridor was correct. The remnant vegetation present within the corridor is dominated by *Eucalyptus populnea* (Poplar Box), *Eucalyptus melanophloia* (Silver-leaved Ironbark), and *Callitris glaucophylla* (White Cypress Pine). The mid-storey is generally quite dense and is dominated by various *Acacia* species, *Bursaria spinosa* (Black thorn) and regrowth Eucalypts.

The ground layer is generally dominated by native grass species including *Themeda triandra* (Kangaroo Grass), *Sporobolus creber* (Western Rats Tail Grass) and *Perotis rara* (Comet Grass).

In the eastern end of the corridor, the vegetation slightly changes and canopy species including *Corymbia citriodora* (Lemon-scented Gum), *Eucalyptus crebra* (Narrow Leaf Iron Bark), and *Corymbia tessellaris* (Moreton Bay Ash) are present.

A total of five (5) Type A Restricted plants (*Brachychiton populneus*) were identified within Corridor F200 and associated well pads. The details of these individuals are shown below in Table 3.23.

Table 3.23 Location of Type A Restricted Plants recorded within Corridor F200

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	699963	7142394
<i>Brachychiton populneus</i>	700197	7142421
<i>Brachychiton populneus</i>	700159	7142442
<i>Brachychiton populneus</i>	701309	7142540
<i>Brachychiton populneus</i>	701309	7142540

No species of conservation significance under the EPBC or NC Acts were present within this corridor.

A flora species list for this corridor is presented in **Appendix A**.

Habitat values

The vegetated areas within this corridor and associated pads are considered to be of high habitat value. The presence of key habitat attributes such as fallen timber, mature trees, arboreal and terrestrial hollows, fissured bark, and a complex vegetation structure. These attributes provide high quality habitat for a range of fauna species.

The historically cleared areas in the western portion of the corridor, although partially disturbed, represent moderate to high habitat value. This is due to the close proximity of these areas to surrounding remnant, and the presence of fallen timber, scattered mature trees, dense ground cover and rocky areas.

A number of incidental fauna sightings were recorded during surveys. Species were detected by either sight, calls, scats or tracks. Recorded species include:

Dingo (*Canis lupis*), Australian Magpie (*Gymnorhina tibicen*), Pale-headed Parrot (*Platycercus adscitus*), Eastern Rosellas (*Platycercus eximius*), Sulfur-crested Cockatoo (*Cacatua galerita*), Richard's Pipit (*Anthus novaeseelandiae*), Feral Pig (*Sus scrofa*), Torresian Crow (*Corvus orru*), Eastern Grey Kangaroo (*Macropus giganteus*), Red-necked Wallaby (*Macropus rufogriseus*), Galah (*Cacatua roseicapilla*), Grey Butcher Bird (*Cracticus torquatus*), Pied Butcher Bird (*Cracticus nigrogularis*), Apostle Bird (*Struthidea cinerea*), and European Rabbits (*Oryctolagus cuniculus*).

No evidence of EVNT fauna listed under the EPBC or NC Acts were observed.

3.20 Corridor F197

General

Corridor F197 is located near the southern boundary of Lot 55 FTY1153. There is a test pit (TP-F253) located at the northern end of Corridor F197, and a road corridor to the east. Both Corridor F197 and the road corridor extend over the southern boundary of Lot 55 FTY1153, however these outlier areas will be captured in the report for Lot 4 SP204532.

The entire area of the road corridor is mapped as remnant 'no concern at present' regional ecosystem 11.10.11. This regional ecosystem also covers the southern half of Corridor F197, while the northern half is mapped as remnant 'no concern at present' regional ecosystem 11.10.9. There is one small section of Corridor F197 along the Injune-Taroom Road which is mapped as non-remnant vegetation.

The vast majority of the proposed development area is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

There are two mapped watercourses which cross Corridor F197 and both are classed as stream order 1.

The Injune-Taroom Road dissects Corridor F197 and also the northern end of the road corridor. Another access track heading north from the Injune-Taroom Road crosses the northern tip of Corridor F197.

Figure 3.20 below illustrates Corridor F197

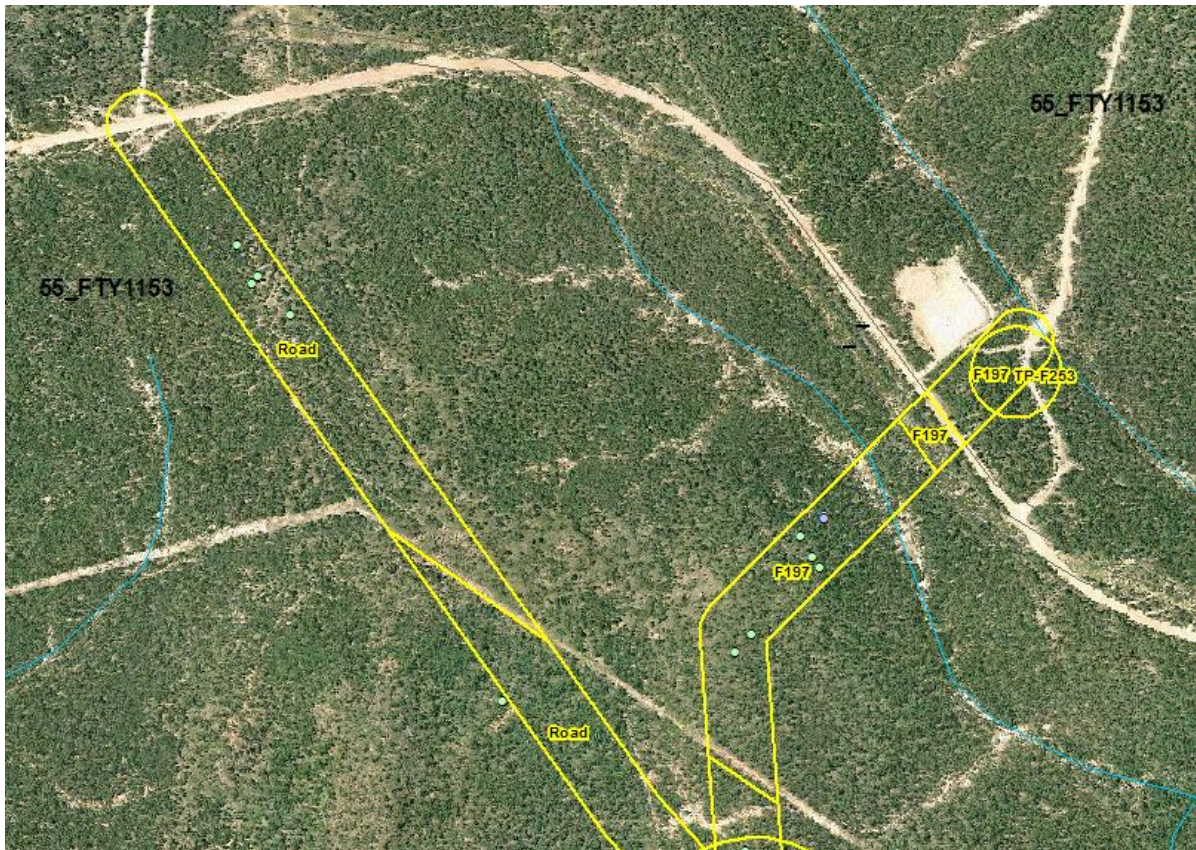


Figure 3.20 Aerial photograph of proposed Corridor F197

Floristics

The proposed development area is located within a *Callitris glaucophylla* (White cypress pine) dominated woodland with associated *Eucalyptus melanophloia* (Silver-leaved ironbark) and *Eucalyptus populnea* (Poplar box). Some scattered *Angophora floribunda* (Rough barked apple), *Corymbia clarksoniana* (Clarkson's bloodwood) and *Corymbia tessellaris* (Moreton bay ash) were also present. The ground cover was dense and dominated by native grasses such as *Heteropogon contortus* (Black speargrass), *Chloris sp.* (Windmill grasses) and *Aristida sp.* (Wiregrasses). The vegetation present in the proposed development area matches the descriptions of RE 11.10.11 and 11.10.9, therefore the RE mapping is correct.

A photograph showing representative vegetation within the site can be seen in Photo 3.16.



Photo 3.16 An example of the vegetation present within Corridor F197.

Eleven (11) Type A restricted plants were observed within the proposed development area. These species included *Brachychiton populneus* (Kurrajong), *Brachychiton rupestris* (Narrow-leaved bottle tree) and *Cymbidium canaliculatum* (Black orchard). These species are classed as Type A restricted plants under the NC Act. The location of these species is outlined in Table 3.24.

Table 3.24 Species of conservation significance located within Corridor F197

Species	Easting (GDA 94, MGA Zone 55)	Northing (GDA 94, MGA Zone 55)
<i>Brachychiton populneus</i>	701993	7143324
<i>Brachychiton populneus</i>	702015	7143265
<i>Brachychiton populneus</i>	702024	7143276
<i>Brachychiton populneus</i>	702075	7143217
<i>Brachychiton populneus</i>	702860	7142877
<i>Brachychiton populneus</i>	702878	7142844
<i>Brachychiton populneus</i>	702890	7142829
<i>Brachychiton populneus</i>	702786	7142726
<i>Brachychiton populneus</i>	702760	7142698

Species	Easting (GDA 94, MGA Zone 55)	Northing (GDA 94, MGA Zone 55)
<i>Cymbidium canaliculatum</i>	702896	7142904
<i>Brachychiton rupestris</i>	702898	7142908

No other species of conservation significance under the NC Act or EPBC Act were observed within the proposed development area.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Value

The habitat value of the proposed development area was high. Although the vegetation has been subjected to historical selective logging due to it being located on a Forestry Lease, the canopy layer was relatively intact and there was varying strata containing a diversity of species of different age classes.

The mature trees in the area contained some hollows, which provided nesting opportunities for arboreal fauna. There was an abundance of logs and woody debris on the ground which could provide habitat for reptiles and other terrestrial fauna.

The call of Noisy Minors (*Manorina melanocephala*) was heard within the proposed development area. Willy Wagtails (*Rhipidura leucophrys*) and Double Barred Finches (*Taeniopygia bichenovii*) were observed during the field inspection of the area.

No evidence of ENVT fauna under the NC Act or the EPBC Act was observed within the proposed development areas.

3.21 Corridor F240 (west) & F282

General

Corridors F240 and F282 form a long corridor 100 m wide and is situated on the western side of Lot 55 FTY1153 running east-west. The findings presented in this section of the report also include gas well pads (TP-F087, 6399-RM-48, TP-F241, TP-F238, TP-F232 & TP-F125) as these proposed disturbance areas are within or connected to Corridors F240 and F282.

Corridors F240 and F282 are located primarily within remnant vegetation, with some non-remnant vegetation. The remnant vegetation within the corridor is mapped as RE 11.10.9 and 11.10.11, which are listed as 'no concern at present'. Recent field investigations (June) found the RE mapping in this area to be correct. Previous land clearing for agriculture, forestry operations and gas pipeline infrastructure has resulted in the non-remnant status of the remaining vegetation within this corridor.

The vast majority of the proposed development area is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

Several existing compressor stations are situated along the corridor. An existing access road and gas pipeline easement (collectively 10-15 m wide) also extends through the middle of the corridor.

The corridor also intersects a number of mapped watercourses. According to DERM mapping, the stream orders of these watercourses are 1, 2 and 4.

Figure 3.21 below illustrates Corridors F240 and F282.

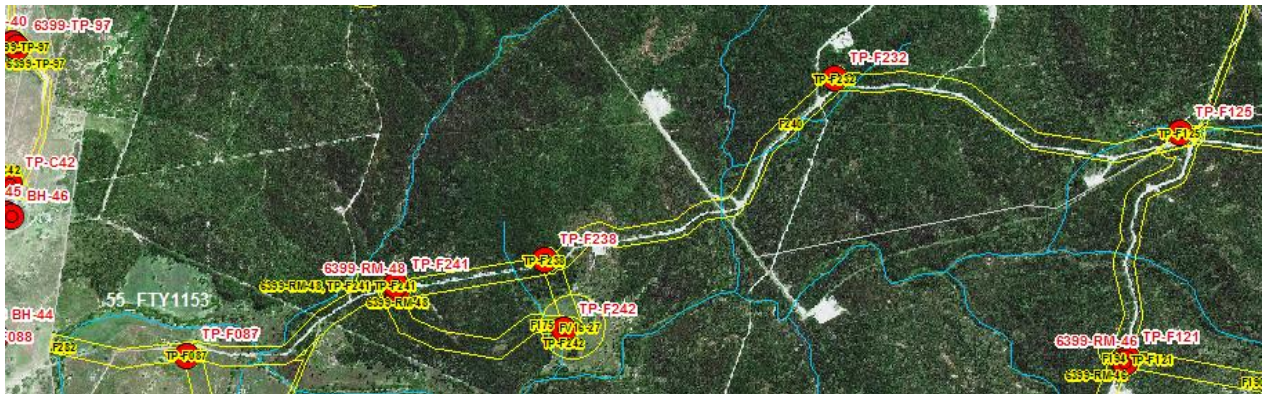


Figure 3.21 Aerial photograph of proposed Corridors F240 & F282

Floristics

The area of disturbance within Corridors F240 and F282 are within both remnant and non-remnant vegetation. Within the area of remnant vegetation of this corridor, the predominant vegetation consists of Eucalyptus and Cypress Pine Woodland. The dominant canopy species in this area is primarily *Callitris glaucophylla* (White Cypress Pine), with a number of other species including *Eucalyptus melanophloia* (Silver-leaved Ironbark), *Eucalyptus populnea* (Poplar Box), *Corymbia trachypholia*, *Angophora leiocarpa* (Smooth-barked Apple) and *Eucalyptus chloroclada* (Dirty Gum) occurring less frequently throughout. *Angophora floribunda* (Rough-barked Apple) and *Eucalyptus tereticornis* (Queensland Blue Gum) were dominant along the creek lines.

The mid-stratum and shrub layers varied from sparse to dense across the corridor and were comprised of *Acacia leiocalyx* (Black Wattle), *A.complanata* (Velvet Wattle), *Allocasuarina leuhmannii* (Bull Oak), *Acacia excelsa* (Ironwood), and *Eremophila mitchellii* (False Sandalwood). The understorey was comprised of native grasses, forbs and sedges including *Perotis rara* (Comet Grass), *Eragrostis brownii* (Brown's Love Grass), *Cymbopogon refractus* (Barbwire Grass), *Imperata cylindrica* (Blady Grass), *Calotis cunefolia* (Purple Burr-daisy), *Pandorea pandorana* (Wonga Vine) and *Lomandra multiflora* (Many-flowered Mat-rush).

The non-remnant area of the corridor is located primarily on land which has been previously cleared for agriculture and cattle grazing. Other small non-remnant vegetation areas occur on land previously cleared for gas pipeline infrastructure and forestry operations. These areas are typically dominated by both native and exotic grasses including *Pennisetum ciliare* (Buffel Grass), *Melinis repens* (Red Natal Grass), *Heteropogon contortus* (Black Speargrass), *Themeda triandra* (Kangaroo Grass), and *Sporobolus creber* (Western Rat-tail Grass), with some scattered native trees and shrubs such as *Eucalyptus populnea* (Poplar Box) and *Acacia decora* (Pretty Wattle).

Ninety-two (92) Type A restricted plants were recorded within the corridor, including *Brachychiton populneus* (Kurrajong), *Brachychiton rupestris* (Narrow-leaved Bottle Tree), *Cymbidium canaliculatum* (Black Orchid) and *Xanthorrhoea johnsonii* (Johnson's Grasstree). The location of these species is indicated in Table 3.25.

Table 3.25 Species of conservation significance located within Corridor F240 & F282

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Cymbidium canaliculatum</i>	694325	7145857
<i>Cymbidium canaliculatum</i>	694347	7145875
<i>Cymbidium canaliculatum</i>	694349	7145891
<i>Cymbidium canaliculatum</i>	694910	7146022
<i>Brachychiton populneus</i>	695137	7146061
<i>Brachychiton populneus</i>	695137	7146070
<i>Brachychiton populneus</i>	695319	7146074
<i>Brachychiton populneus</i>	695354	7146088
<i>Cymbidium canaliculatum</i>	695389	7146082
<i>Brachychiton populneus</i>	695389	7146082
<i>Cymbidium canaliculatum</i>	695499	7146075
<i>Brachychiton populneus</i>	695538	7146081
<i>Brachychiton populneus</i>	695675	7146256
<i>Brachychiton populneus</i>	695822	7146273
<i>Cymbidium canaliculatum</i>	695843	7146267
<i>Brachychiton populneus</i>	696017	7146229
<i>Brachychiton populneus</i>	696101	7146235
<i>Brachychiton populneus</i>	696117	7146288
<i>Brachychiton populneus</i>	696153	7146237
<i>Brachychiton populneus</i>	696162	7146249
<i>Brachychiton rupestris</i>	696194	7146246
<i>Brachychiton populneus</i>	696274	7146355
<i>Brachychiton populneus</i>	696297	7146374
<i>Brachychiton populneus</i>	696301	7146370
<i>Brachychiton populneus</i>	696314	7146371
<i>Brachychiton populneus</i>	696928	7146969
<i>Brachychiton populneus</i>	696970	7146931
<i>Brachychiton populneus</i>	696971	7146941
<i>Xanthorrhoea johnsonii</i>	697031	7147070
<i>Xanthorrhoea johnsonii</i>	697058	7147009
<i>Xanthorrhoea johnsonii</i>	697088	7147089
<i>Xanthorrhoea johnsonii</i>	697092	7147100
<i>Brachychiton populneus</i>	697220	7147100

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Xanthorrhoea johnsonii</i>	697231	7147030
<i>Xanthorrhoea johnsonii</i>	697252	7147090
<i>Xanthorrhoea johnsonii</i>	697259	7147089
<i>Xanthorrhoea johnsonii</i>	697271	7147074
<i>Xanthorrhoea johnsonii</i>	697384	7147092
<i>Xanthorrhoea johnsonii</i>	697396	7147085
<i>Xanthorrhoea johnsonii</i>	697514	7147110
<i>Brachychiton populneus</i>	697698	7147012
<i>Brachychiton populneus</i>	697755	7146989
<i>Xanthorrhoea johnsonii</i>	697805	7147037
<i>Xanthorrhoea johnsonii</i>	697826	7147000
<i>Xanthorrhoea johnsonii</i>	697831	7147017
<i>Xanthorrhoea johnsonii</i>	697905	7146880
<i>Xanthorrhoea johnsonii</i>	697909	7146876
<i>Xanthorrhoea johnsonii</i>	697928	7146940
<i>Xanthorrhoea johnsonii</i>	697969	7146900
<i>Xanthorrhoea johnsonii</i>	697995	7146890
<i>Xanthorrhoea johnsonii</i>	698022	7146863
<i>Xanthorrhoea johnsonii</i>	698030	7146863
<i>Xanthorrhoea johnsonii</i>	698114	7146734
<i>Xanthorrhoea johnsonii</i>	698137	7146724
<i>Xanthorrhoea johnsonii</i>	698180	7146719
<i>Xanthorrhoea johnsonii</i>	698212	7146755
<i>Xanthorrhoea johnsonii</i>	698216	7146722
<i>Xanthorrhoea johnsonii</i>	698224	7146719
<i>Xanthorrhoea johnsonii</i>	698228	7146759
<i>Xanthorrhoea johnsonii</i>	698235	7146712
<i>Xanthorrhoea johnsonii</i>	698244	7146766
<i>Xanthorrhoea johnsonii</i>	698250	7146713
<i>Xanthorrhoea johnsonii</i>	698250	7146713
<i>Xanthorrhoea johnsonii</i>	698263	7146711
<i>Xanthorrhoea johnsonii</i>	698271	7146759
<i>Xanthorrhoea johnsonii</i>	698278	7146708
<i>Xanthorrhoea johnsonii</i>	698285	7146763

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Xanthorrhoea johnsonii</i>	698287	7146708
<i>Xanthorrhoea johnsonii</i>	698302	7146694
<i>Xanthorrhoea johnsonii</i>	698302	7146769
<i>Xanthorrhoea johnsonii</i>	698304	7146705
<i>Brachychiton populneus</i>	698304	7146706
<i>Xanthorrhoea johnsonii</i>	698313	7146766
<i>Xanthorrhoea johnsonii</i>	698319	7146693
<i>Xanthorrhoea johnsonii</i>	698319	7146757
<i>Xanthorrhoea johnsonii</i>	698321	7146689
<i>Xanthorrhoea johnsonii</i>	698334	7146696
<i>Xanthorrhoea johnsonii</i>	698343	7146778
<i>Xanthorrhoea johnsonii</i>	698360	7146757
<i>Xanthorrhoea johnsonii</i>	698373	7146735
<i>Xanthorrhoea johnsonii</i>	698374	7146752
<i>Xanthorrhoea johnsonii</i>	698375	7146699
<i>Xanthorrhoea johnsonii</i>	698375	7146699
<i>Xanthorrhoea johnsonii</i>	698379	7146696
<i>Xanthorrhoea johnsonii</i>	698411	7146756
<i>Brachychiton populneus</i>	698413	7146750
<i>Xanthorrhoea johnsonii</i>	698736	7146725
<i>Xanthorrhoea johnsonii</i>	698747	7146741
<i>Xanthorrhoea johnsonii</i>	698754	7146736
<i>Xanthorrhoea johnsonii</i>	698765	7146736
<i>Xanthorrhoea johnsonii</i>	698774	7146754
<i>Xanthorrhoea johnsonii</i>	698832	7146748

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

Numerous incidental sightings of fauna species were observed in Corridors F240 and F282 and are presented in Table 3.26.

Table 3.26 Fauna species observed within Corridors F240 and F282

Species name	Common name
<i>Geophaps scripta scripta</i>	Squatter Pigeon
<i>Pomatostomus temporalis</i>	Grey-crowned Babbler
<i>Struthidea cinerea</i>	Apostlebird

Species name	Common name
<i>Cacatua galerita</i>	Sulphur-crested Cockatoo
<i>Cracticus nigrogularis</i>	Pied Butcherbird
<i>Platycercus adscitus</i>	Pale-headed Rosella
<i>Manorina melanocephala</i>	Noisy Miner
<i>Gymnorhina tibicen</i>	Australian Magpie

Squatter Pigeons (*Geophaps scripta scripta*) were observed within the corridor; this species is listed as Vulnerable under the NC Act and EPBC Act. All other species observed within the corridor are not listed as threatened species under the provisions for NC Act or EPBC Act.

Evidence of macropods and Dingoes (eg scats and tracks) were widespread throughout the corridor.

Overall, the habitat value of Corridor F240 and F282 is considered to be moderate to high as the corridor is primarily situated within remnant vegetation. The majority of this corridor consists of remnant vegetation which has a moderate structural complexity and floristic diversity; these areas have a canopy layer, sparse mid-storey and shrub layers, and a ground layer present. The remnant vegetation within this corridor consists largely of an undisturbed environment and therefore retains the intrinsic habitat values associated with the RE. There was also a low number and abundance of exotic species; infestations of exotic grasses were largely confined to the edges of the access road. Other habitat features observed within this corridor includes hollow-bearing trees, watercourses with riparian vegetation, fissured tree bark, fallen timber and logs and leaf litter. The vegetation and features within the remnant vegetation of Corridor F240 and F282 provides suitable habitat for a range of native avian, reptile and mammalian fauna.

The habitat value of the non-remnant vegetation within Corridor F240 and F282 is considered to be low. The non-remnant vegetation at the western end of the corridor has a very low structural complexity consisting primarily of dense groundcover vegetation (ie grassy tussocks) and sparsely scattered native trees and shrubs. The groundcover was largely dominated by exotic grass species and the floristic diversity was low. This site generally lacks important habitat features such hollow-bearing trees, fissured bark, fallen woody debris and shrubs. Due to the low level of cover and absence of important habitat features for sheltering and nesting, the species utilising this area of the site are most likely to be limited to common, generalist species that are able to adapt to significant habitat disturbances. Common birds of prey known from the area (ie Wedge-tailed eagle and Nankeen Kestrel) would also be expected to utilise this site and the surrounding areas for foraging purposes.

3.22 Corridor F175

General

Corridor F175 is situated on the western side of Lot 55 FTY1153. The findings presented in this section of the report also include gas well pads FV16-27 and test pit TP-F242 as these proposed disturbance areas are within or connected to Corridor F175.

Corridor F175 is located primarily within remnant vegetation, with a small area of non-remnant vegetation situated in the south-eastern portion of the corridor. The remnant vegetation within the corridor is mapped as RE 11.10.9 and 11.3.2/11.3.25, which are listed as 'no concern at present' and 'of concern', respectively. Recent field investigations (June) found the RE mapping in this area to be partially correct. The small area mapped as 11.3.2/11.3.25 in the south-west portion of the corridor is incorrect and is discussed further below.

The entire area is classed as 'Category C' ESA due to the area of mapped 'of concern' vegetation (11.3.2/11.3.25) and being location on a Forestry Lease within the Hallett State Forest. The area of 'of concern' remnant vegetation was found to be incorrect and is discussed further below.

Previous land clearing for agriculture has resulted in the non-remnant status of the remaining vegetation within this corridor.

An existing access road is situated on the north-east portion of the corridor.

Figure 3.22 below illustrates Corridor F175.



Figure 3.22 Aerial photograph of proposed Corridor F175

Floristics

The area of disturbance within Corridor F175 is primarily within remnant vegetation, with a small area of non-remnant vegetation. Within the area of remnant vegetation in the corridor, the predominant vegetation consists of Eucalyptus and Cypress Pine Woodland. The dominant canopy species consisted of *Callitris glaucophylla* (White Cypress Pine), *Eucalyptus melanophloia* (Silver-leaved Ironbark), *Eucalyptus populnea* (Poplar Box) and *Eucalyptus chloroclada* (Dirty Gum). The mid-stratum and shrub layers are comprised of *Acacia leiocalyx* (Black Wattle), *Eremophila mitchellii* (False Sandalwood), and *Geijera parviflora* (Wilga). The understorey was primarily grassy throughout the corridor.

The small remnant area mapped as RE 11.3.2/11.3.25, *Eucalyptus populnea* woodlands on alluvial plains and *Eucalyptus tereticornis* or *E.camaldulensis* woodland fringing drainage lines, in the south-west portion of the corridor is incorrect. The floristic composition of the vegetation in this area is not consistent with these communities and the vegetation was not situated on alluvial soils. The vegetation in this area is more closely aligned to RE 11.10.9, *Callitris glaucophylla* woodland on coarse-grained sedimentary rock, and this is a suitable classification for this remnant vegetation.

The non-remnant vegetation within the corridor is located primarily on land which has been previously cleared for agriculture and cattle grazing. These areas are typically dominated by exotic grasses and shrubs including *Pennisetum ciliare* (Buffel Grass), *Melinis repens* (Red Natal Grass) and *Sclerolaena birchii* (Galvanized Burr), with some native grasses also present throughout including *Heteropogon contortus* (Black Speargrass), *Themeda triandra* (Kangaroo Grass), and *Sporobolus creber* (Western Rat-tail Grass). Sparsely scattered native trees and shrubs such as *Eucalyptus populnea* (Poplar Box) and *Acacia decora* (Pretty Wattle) were also present.

Five (5) Type A restricted plants were observed within the corridor, including *Brachychiton populneus* (Kurrajong) and *Cymbidium canaliculatum* (Black Orchid). The locations of the plants are recorded in Table 3.27.

Table 3.27 Species of conservation significance for Corridor F175

Species name	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	695728	7145808
<i>Brachychiton populneus</i>	695656	7145913
<i>Brachychiton populneus</i>	695648	7145925
<i>Brachychiton populneus</i>	695538	7146081
<i>Cymbidium canaliculatum</i>	695499	7146075

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

Numerous incidental sightings of fauna species were observed in Corridor F175 and are presented in Table 3.28.

Table 3.28 Fauna species observed within Corridor F175

Species name	Common name
<i>Struthidea cinerea</i>	Apostlebird
<i>Pomatostomus temporalis</i>	Grey-crowned Babbler
<i>Taeniopygia bichenovii</i>	Double-barred Finch
<i>Rhipidura leucophrys</i>	Willie Wagtail
<i>Platycercus adscitus</i>	Pale-headed Rosella

None of these species are listed as threatened under the NC Act or EPBC Act.

Overall, the habitat value of Corridor F175 is considered to be moderate. The corridor is largely situated within remnant vegetation which has a moderate structural complexity and floristic diversity, consisting of a canopy layer, sparse mid-storey and shrub layers, and a ground layer. There were some areas of exotic grasses. Other habitat features observed within this corridor includes some hollow-bearing trees, fissured tree bark, fallen timber and logs and leaf litter. The vegetation and features within the remnant vegetation of Corridor F175 provides suitable habitat for a number of native avian, reptile and mammalian fauna.

The area of non-remnant vegetation within the corridor has low habitat value. This area has a very low structural complexity consisting primarily of dense groundcover vegetation (ie grassy tussocks) and sparsely scattered native trees and shrubs. The groundcover was largely dominated by exotic grass species and the floristic diversity was low. The non-remnant vegetation in this corridor lacks important features such hollow-bearing trees, fissured bark, fallen woody debris, watercourses, or leaf litter. Therefore, the non-remnant vegetation and habitat features in Corridor F175 are unlikely to provide suitable habitat for native fauna.

3.23 Corridor F176

General

Corridor F176 is situated on the western side of Lot 55 and is connected to Corridor F282. The findings presented in this section of the report also includes a powerline corridor and gas well pads (TP-F086 and FV16-32) as these proposed disturbance areas are within or connected to Corridor F176.

Corridor F176 is located entirely within an area of non-remnant vegetation. Remnant vegetation is located adjacent to the east and west of the corridor; these areas of remnant vegetation are mapped as RE 11.10.9 and 11.3.2/11.3.25, which are listed as 'no concern at present' and 'of concern', respectively. Recent field investigations (June) found the RE mapping in this area to be correct.

The vast majority of the proposed development area is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

Two watercourses (classified by DERM as stream order 2 and 4) bisect the corridor at two separate locations.

An existing access track extends through the eastern portion of the corridor.

Figure 3.23 below illustrates Corridor F176.

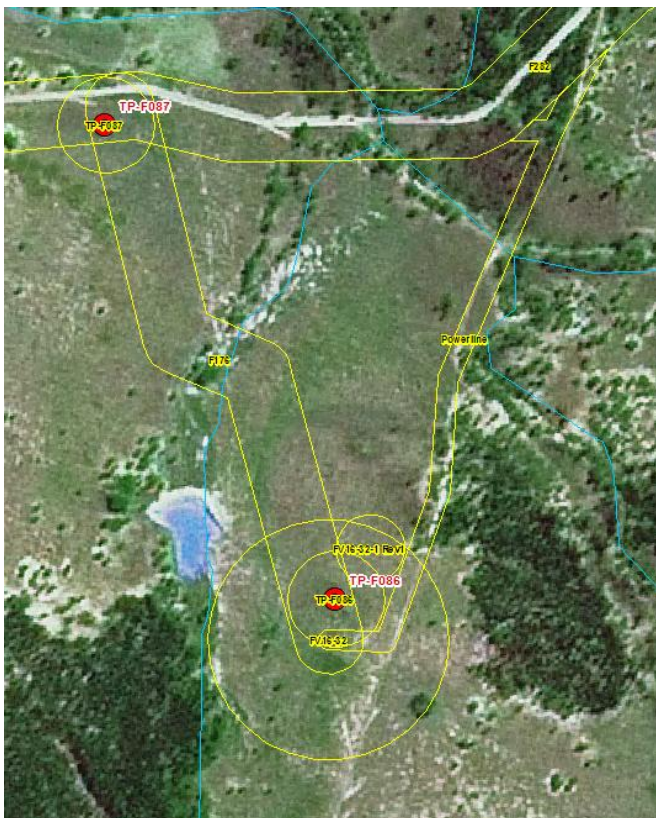


Figure 3.23 Aerial photograph of proposed Corridor F176

Floristics

The area of disturbance within Corridor F176 is within non-remnant vegetation. The non-remnant area of the corridor is located on land which has been historically cleared for agricultural purposes. This area consists of grasslands dominated by *Pennisetum ciliare* (Buffel Grass), with other exotic and native grass species also present including *Melinis repens* (Red Natal Grass), *Sporobolus creber*

(Western Rats Tail Grass), *Themeda Triandra* (Kangaroo Grass), and *Bothriochloa bladhii* (Forest Blue Grass). Several native tree and shrub species including *Eucalyptus populnea* (Poplar Box), *Eucalyptus chloroclada* (Dirty Gum), *Eucalyptus melanophloia* (Silver-leaved Ironbark), *Callitris glaucophylla* (White Cypress Pine) and *Acacia leiocalyx* (Black Wattle) were also present in some areas.

Within the remnant vegetation adjacent to the corridor, the predominant vegetation consists of Eucalyptus and Cypress Pine Woodland. The dominant species in this area include *Eucalyptus melanophloia*, *Eucalyptus populnea* (Poplar Box), *Eucalyptus chloroclada* (Dirty Gum) and *Callitris glaucophylla* (White Cypress Pine). *Angophora floribunda* (Rough-barked Apple) and *Eucalyptus tereticornis* (Queensland Blue Gum) were dominant along the creek line. The groundcover was primarily grassy throughout the remnant vegetation adjacent to the corridor.

A small patch (30 m x 30 m) of *Acacia harpophylla* (Brigalow) was identified on the outer edge of the development footprint for FV16-32.

Five (5) Type A restricted plants, including species *Brachychiton populneus* (Kurrajong) and *Cymbidium canaliculatum* (Black Orchid) were observed within the corridor. The locations of these plants are recorded in Table 3.29.

Table 3.29 Species of conservation significance for Corridor F176

Species name	Easting GDA 94, Zone 55J	Northing (GDA 94, Zone 55J)
<i>Cymbidium canaliculatum</i>	694022	7145129
<i>Cymbidium canaliculatum</i>	693669	7144846
<i>Brachychiton populneus</i>	396704	7145272
<i>Brachychiton populneus</i>	396731	7145282
<i>Brachychiton populneus</i>	693699	7145268

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

Two bird species were observed in the corridor, including Blue-faced Honeyeater (*Entomyzon cyanotis*) and Pheasant Coucal (*Centropus phasianinus*).

Overall, the habitat value of Corridor F176 is low. The corridor consists of non-remnant vegetation which has a low structural complexity consisting primarily of dense groundcover vegetation (ie grassy tussocks) and sparsely scattered native trees and shrubs. The groundcover was largely dominated by exotic grass species and the floristic diversity was low. This site generally lacks important habitat features such hollow-bearing trees, fissured bark, fallen woody debris and shrubs. Due to the low level of cover and absence of important habitat features for sheltering and nesting, the species utilising this area of the site are most likely to be limited to common, generalist species that are able to adapt to significant habitat disturbances (ie House mouse, macropods etc). Common birds of prey known from the area (ie Wedge-tailed eagle and Nankeen Kestrel) would also be expected to utilise this site and the surrounding areas for foraging purposes.

The remnant vegetation adjacent to the corridor has a moderate to high habitat value. The structural complexity and floristic diversity was moderate to high and possessed a number of habitat features such as hollow-bearing trees, some fallen timber and leaf litter. However, as this vegetation is situated outside the proposed corridor alignment, it will not be impacted.

3.24 Powerline Corridor (between Corridors F282 & F239)

General

The Powerline Corridor is situated on the western side of Lot 55 FTY1153, and runs from Corridor F282 in the north, to Corridor F239 to the west.

The Powerline Corridor is located primarily within non-remnant vegetation, with a small area of remnant vegetation situated in the middle of the corridor. The remnant vegetation within the corridor is mapped as RE 11.10.9 and 11.3.2/11.3.25, which are listed as 'no concern at present' and 'of concern', respectively. Recent field investigations (June) found the RE mapping in this area to be correct. Previous land clearing for agriculture has resulted in the non-remnant status of the remaining vegetation within this corridor.

The entire Powerline Corridor is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest. The small area of mapped 'of concern' remnant vegetation is also mapped as Category C ESA.

An existing access road is situated immediately adjacent to the corridor. The corridor intersects one mapped watercourse (classed as stream order 1) in the western portion of the corridor.

Figure 3.24 below illustrates the Powerline Corridor.

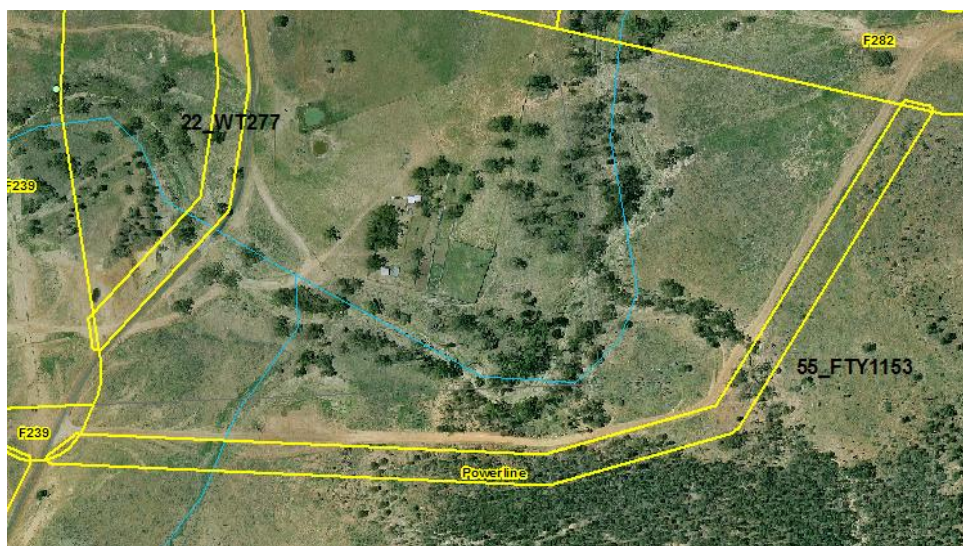



Figure 3.24 Aerial photograph of the proposed Powerline Corridor

Floristics

The area of disturbance within the Powerline Corridor is primarily within non-remnant vegetation, with a small area of remnant vegetation in the middle of the proposed corridor. The non-remnant vegetation within the corridor is located primarily on land which has been previously cleared for agriculture and cattle grazing. These areas are typically dominated by exotic grasses and shrubs including *Pennisetum ciliare* (Buffel Grass), *Melinis repens* (Red Natal Grass) and *Sclerolaena birchii* (Galvanized Burr), with some native grasses also present throughout including *Heteropogon contortus* (Black Speargrass), *Themeda triandra* (Kangaroo Grass), and *Sporobolus creber* (Western Rat-tail Grass). Sparsely scattered native trees and shrubs such as *Eucalyptus populnea* (Poplar Box) and *Acacia decora* (Pretty Wattle) were also present.

Within the small area of remnant vegetation in the middle of the corridor, the predominant vegetation consists of Eucalyptus and Cypress Pine Woodland. The dominant canopy species consisted of *Callitris glaucophylla* (White Cypress Pine), *Eucalyptus melanophloia* (Silver-leaved Ironbark),



Eucalyptus populnea (Poplar Box) and *Eucalyptus chloroclada* (Dirty Gum). The mid-stratum and shrub layers are comprised of *Acacia leiocalyx* (Black Wattle), *Eremophila mitchellii* (False Sandalwood), *Geijera parviflora* (Wilga), and *Petalostigma pubescens* (Quinine Tree). The understorey is comprised of native grasses, forbs and sedges including *Perotis rara* (Comet Grass), *Eragrostis brownii* (Brown's Love Grass), *Cymbopogon refractus* (Barbwire Grass), *Plectranthus parviflora* (Cockspur Flower), *Calotis cunefolia* (Purple Burr-daisy), and *Fimbristylis dichotoma* (Common Fringe).

No conservation significant flora or Type A restricted species have been recorded in this corridor.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

Three bird species were observed in the corridor including Crested Pigeon (*Ocyphaps lophotes*), Pied Currawong (*Strepera graculina*) and Richard's Pipit (*Anthus novaeseelandiae*).

Overall, the habitat value of the Powerline Corridor is considered to be low to moderate as the corridor is primarily situated within non-remnant vegetation. This majority of the corridor consists of non-remnant vegetation which has a low habitat value. These areas have a very low structural complexity consisting primarily of dense groundcover vegetation (ie grassy tussocks) and sparsely scattered native trees and shrubs. The groundcover was largely dominated by exotic grass species and the floristic diversity was low. This site generally lacks important habitat features such as hollow-bearing trees, fissured bark, fallen woody debris and shrubs. Due to the low level of cover and absence of important habitat features for sheltering and nesting, the species utilising this area of the site are most likely to be limited to common, generalist species that are able to adapt to significant habitat disturbances. Common birds of prey known from the area (ie Wedge-tailed eagle and Nankeen Kestrel) would also be expected to utilise this site and the surrounding areas for foraging purposes.

The habitat value of the small area of remnant vegetation within the corridor is moderate to high. This vegetation has a moderate structural complexity and floristic diversity, consisting of a canopy layer, sparse mid-storey and shrub layers, and a ground layer. The remnant vegetation within this corridor consists largely of an undisturbed environment and therefore retains the intrinsic habitat values associated with the RE. There was also a low number and abundance of exotic species; infestations of exotic grasses were largely confined to the outer edge closest to the access track. Other habitat features observed within this corridor includes hollow-bearing trees, watercourses with riparian vegetation, fissured tree bark, fallen timber and logs and leaf litter. The vegetation and features within the remnant vegetation of the Powerline Corridor provides suitable habitat for a range of native avian, reptile and mammalian fauna.

3.25 Corridor F171

General

Corridor F171 is located on Lot 55 FTY1153 which is a forestry lease within the Hallett State Forest.

The corridor is mapped as remnant 'no concern at present' RE 11.10.9, 11.10.11 and non-remnant vegetation on the DERM RE Mapping (see Figure 3.25).

The area is not located in or within 1 km of any Category A or B ESA areas. The proposed corridor is located within a Category C ESA due to its location within a State Forest.

No mapped watercourses occur within the proposed corridor. The nearest mapped watercourse is approximately 650 m south east of the corridor.

A minor access track occurs throughout the length of the corridor. Domestic livestock were observed grazing in the vicinity.

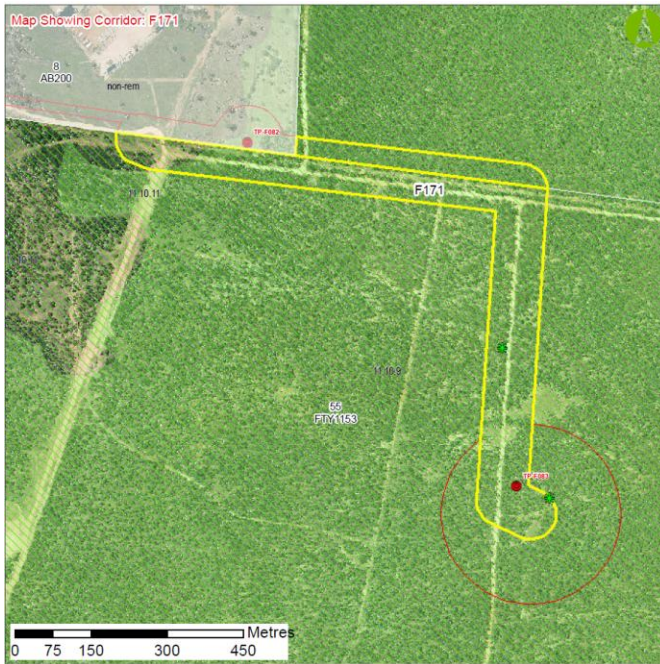


Figure 3.25 Aerial photograph of Corridor F171

Photo 3.17 below shows an example of the vegetation present within Corridor F171.



Photo 3.17 Site photograph of Corridor F171.

Floristics

The proposed corridor is located within a *Callitris glaucophylla* (White Cypress Pine) dominated woodland with associated *Eucalyptus populnea* (Poplar Box) and scattered *Eucalyptus melanophloia* (Silver Leaved Ironbark) and *Corymbia clarksoniana* (Long Fruited Bloodwood). This is analogous to the description of RE 11.10.9 and 11.10.11 and therefore the RE mapping is correct.

The area has been disturbed over time due to its location within a Forestry lease however the area is still remnant vegetation with a relatively intact canopy.

Two (2) Type A restricted plants were observed within the proposed corridor location – *Xanthorhea johnsonii* (Johnson's Grasstree) and a juvenile *Brachychiton rupestris* (Narrow-leaved Bottle Tree). The location of these two plants is recorded in Table 3.30 below.

Table 3.30 Species of conservation significance within Corridor F171

Species	Easting (GDA 94 MGA Zone 55)	Northing (GDA 94 MGA Zone 55)
<i>Xanthorhea johnsonii</i>	694543	7147697
<i>Brachychiton rupestris</i>	694441	7147989

No other species of conservation significance under the NC Act or the EPBC Act were observed within the proposed corridor.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

The habitat values of the proposed corridor were medium-high. The area has been disturbed historically due to selective forestry clearing however the vegetation is still considered remnant and had a relatively intact canopy.

The area contained mature trees including trees with hollows which can be utilised as nesting sites by arboreal fauna. A dense ground cover of native grasses and forbs was present and very few weed species were observed. A moderate amount of woody debris and fallen timber/logs were observed which can provide habitat for small native fauna.

A vast array of bird calls were heard in the vicinity of the area including Double Barred Finches (*Taeniopygia bichenovii*), Laughing Kookaburra (*Dacelo novaeguineae*), Pale Headed Rosella (*Platycercus adscitus*) and Apostle Birds (*Struthidea cinerea*) which were also observed.

No evidence of ENVT fauna under the NC Act or the EPBC Act was observed within the proposed corridor.

3.26 Corridor F239 and Powerline

General

Corridor F239 and associated powerline corridor are situated on the western side of Lot 55 FTY1153 running north-south. The findings presented in this section of the report also include geotech sites (6399-TP-80, 6399-RM-42 and 6399-TP-79) as these proposed disturbance areas are within or connected to the proposed corridors.

The proposed corridors are located primarily within remnant vegetation, with some non-remnant vegetation at the northern end of the corridor. The remnant vegetation within the corridor is mapped as

RE 11.10.9, which is listed as 'no concern at present'. Recent field investigations (June) found the RE mapping in this area to be correct. Previous land clearing for agriculture and gas pipeline infrastructure has resulted in the non-remnant status of the remaining vegetation within this corridor.

An existing sealed road (15 m wide) extends within and adjacent to the corridor.

The proposed corridor is located within a Category C ESA due to its location within a State Forest.

No mapped watercourses occur in or within Corridor F239 and associated development areas.

Figure 3.26 below illustrates Corridor F239.



Figure 3.26 Aerial photograph of proposed Corridor F239 and associated development areas.

Floristics

The area of disturbance within Corridor F239 and the powerline corridor is within both remnant and non-remnant vegetation. Within the area of remnant vegetation of this corridor, the predominant vegetation consists of Eucalyptus and Cypress Pine Woodland. The dominant canopy species in this area is primarily *Callitris glaucophylla* (White Cypress Pine), with a number of other species including *Eucalyptus melanophloia* (Silver-leaved Ironbark), *Eucalyptus populnea* (Poplar Box), *Corymbia trachypholia*, *Corymbia tessellaris* (Moreton Bay Ash) and *Eucalyptus chloroclada* (Dirty Gum) occurring less frequently. The mid-stratum and shrub layers are comprised of *Acacia leiocalyx* (Black Wattle), *Allocasuarina leuhmannii* (Bull Oak), *Eremophila mitchellii* (False Sandalwood), *Cassinia laevis* (Cough Bush), and *Psydrax oleifolia*. The understorey is comprised of native grasses, forbs and sedges including *Perotis rara* (Comet Grass), *Eragrostis brownii* (Brown's Love Grass), *Eulalia aurea*

(Silky Browntop), *Digitaria coenicola* (Finger Panic Grass), *Calotis cunefolia* (Purple Burr-daisy), *Sida subspicata* (Queensland Hemp) and *Lomandra multiflora* (Many-flowered Mat-rush).

The non-remnant area of vegetation to the north of the corridor is located primarily on land which has been previously cleared for agriculture and cattle grazing. This area is typically dominated by exotic grasses including *Pennisetum ciliare* (Buffel Grass), *Melinis repens* (Red Natal Grass), and *Chloris virgata* (Feathertop Rhodes Grass) with some native grasses also present including *Heteropogon contortus* (Black Speargrass), *Themeda triandra* (Kangaroo Grass), and *Sporobolus creber* (Western Rat-tail Grass). Some of the non-remnant vegetation also consists of *Callitris glaucophylla* (White Cypress Pine) and Acacia regrowth, with scattered *Eucalyptus populnea* (Poplar Box) and *Eucalyptus melanophloia* (Silver-leaved Ironbark).

Two (2) Type A restricted plants - *Brachychiton populneus* (Kurrajong) were observed within the corridor. The location of these plants is indicated in Table 3.31.

Table 3.31 Species of conservation significance for Corridor F239 and associated development areas

Species name	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	692020	7144847
<i>Brachychiton populneus</i>	691996	7144771

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

Numerous incidental sightings of fauna species were observed in the Corridor F239 proposed development areas and are presented in Table 3.32.


Table 3.32 Fauna species observed within Corridor F239

Species name	Common name
<i>Geophaps scripta scripta</i>	Squatter Pigeon
<i>Grallina cyanoleuca</i>	Magpie-lark
<i>Struthidea cinerea</i>	Apostlebird
<i>Phaps chalcoptera</i>	Common Bronzewing
<i>Taeniopygia bichenovii</i>	Double-barred Finch
<i>Dromaius novaehollandiae</i>	Emu
<i>Cacatua roseicapilla</i>	Galah
<i>Canis lupus</i>	Dingo

Squatter Pigeons (*Geophaps scripta scripta*) were observed within the corridor; this species is listed as Vulnerable under the NC Act and EPBC Act. All other species observed within the corridor are not listed as threatened species under the provisions for NC Act or EPBC Act.

Evidence of macropods (ie tracks and scats) was widespread throughout the corridor.

Overall, the habitat value of the proposed development area is considered to be moderate to high as the corridor is primarily situated within remnant vegetation. The majority of this corridor consists of remnant vegetation which has a moderate structural complexity and floristic diversity; these areas have canopy layer, sparse mid-storey and shrub layers, and a ground layer present. The remnant



vegetation within this corridor consists largely of an undisturbed environment and therefore retains the intrinsic habitat values associated with the RE. There was also a low number and abundance of exotic species; infestations of exotic grasses were largely confined to the edges of the access road. Other habitat features observed within this corridor includes hollow-bearing trees, watercourses with riparian vegetation, fissured tree bark, fallen timber and logs and leaf litter. The vegetation and features within the remnant vegetation of the proposed development area provides suitable habitat for a range of native avian, reptile and mammalian fauna.

The habitat value of the non-remnant vegetation within Corridor F239 and associated development areas is considered to be low. The non-remnant vegetation at the northern end of the corridor has a very low structural complexity consisting primarily of dense groundcover vegetation (ie grassy tussocks) and sparsely scattered native trees and shrubs. The groundcover was largely dominated by exotic grass species and the floristic diversity was low. Some smaller areas of non-remnant vegetation consisted of *Callitris glaucophylla* (White Cypress Pine) and Acacia regrowth. The non-remnant vegetation in this corridor generally lacks important habitat features such hollow-bearing trees, fissured bark, fallen woody debris and shrubs. Due to the low level of cover and absence of important habitat features for sheltering and nesting, the species utilising this area of the site are most likely to be limited to common, generalist species that are able to adapt to significant habitat disturbances. Common birds of prey known from the area (ie Wedge-tailed eagle and Nankeen Kestrel) would also be expected to utilise this site and the surrounding areas for foraging purposes.

3.27 Corridor F181 (north)

General

The northern portion of Corridor F181 is situated along the western boundary of Lot 55 FTY1153. This corridor consists of a narrow strip which is part of the larger corridor situated primarily in the adjacent 'Basin Road' reserve. Geotech sites 6399-TP-80 and 6399-RM-42 are also addressed in this section, as they are located within Corridor F181.

Corridor F181 is located within both remnant and non-remnant vegetation. The remnant vegetation within the corridor is mapped as RE 11.10.9, which is listed as 'no concern at present'. Recent field investigations (June) found the RE mapping in this area to be correct. Previous land clearing for agriculture and gas pipeline infrastructure has resulted in the non-remnant status of the remaining vegetation within this corridor.

The proposed corridor is located within a Category C ESA due to its location within a State Forest. No mapped watercourses occur in or within Corridor F181.

Existing access tracks intersect the proposed corridor at the north and south ends.

Figure 3.27 below illustrates Corridor F181.



Figure 3.27 Aerial photograph and associated RE mapping of proposed Corridor F181

Floristics

The area of disturbance within Corridor F181 is within both remnant and non-remnant vegetation. Within the area of remnant vegetation of this corridor, the predominant vegetation consists of Eucalyptus and Cypress Pine Woodland. The dominant canopy species in this area is primarily *Callitris glaucophylla* (White Cypress Pine), with a number of other species including *Eucalyptus melanophloia* (Silver-leaved Ironbark), *Eucalyptus populnea* (Poplar Box), and *Corymbia trachypholia* occurring less frequently throughout. The mid-stratum and shrub layers varied from sparse to dense across the corridor and were comprised of *Acacia leiocalyx* (Black Wattle), *Allocasuarina leuhmannii* (Bull Oak), *Acacia excelsa* (Ironwood), and *Eremophila mitchellii* (False Sandalwood). The understorey was primarily shrubby throughout the corridor.

The non-remnant area of the corridor is located primarily on land which has been previously cleared for agriculture and cattle grazing. These areas are typically dominated by both native and exotic grasses including *Pennisetum ciliare* (Buffel Grass), *Melinis repens* (Red Natal Grass), *Heteropogon contortus* (Black Speargrass), *Themeda triandra* (Kangaroo Grass), and *Sporobolus creber* (Western Rat-tail Grass), with some scattered native trees and shrubs such as *Eucalyptus populnea* (Poplar Box) and *Acacia decora* (Pretty Wattle).

One (1) Type A restricted plant, *Brachychiton populneus* (Kurrajong), was observed within the corridor. The location of this plant is indicated in Table 3.33.

Table 3.33 Species of conservation significance for Corridor F181

Species name	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	691792	7145076

A flora species list for this corridor is presented in **Appendix A**.



Habitat Values

Several bird species were observed in Corridor F181 including Apostlebirds (*Struthidea cinerea*), Galahs (*Cacatua roseicapilla*), Pied Butcherbird (*Cracticus nigrogularis*) and Noisy Miner (*Manorina melanocephala*). None of these species are listed as threatened under the NC Act or EPBC Act.

Overall, the habitat value of Corridor F181 is considered to be moderate. The remnant vegetation within the corridor has moderate to high habitat value. The remnant vegetation within the corridor has a moderate structural complexity and floristic diversity; these areas have a canopy layer, a dense shrub layer, and a ground layer present. The remnant vegetation within this corridor consists largely of an undisturbed environment and therefore retains the intrinsic habitat values associated with the RE. There was also a low number and abundance of exotic species. Other habitat features observed within this corridor includes hollow-bearing trees, rocky areas, fissured tree bark, fallen timber and logs and leaf litter. The vegetation and features within the remnant vegetation of Corridor F181 provides suitable habitat for a range of native avian, reptile and mammalian fauna.

The habitat value of the non-remnant vegetation within Corridor F181 is considered to be low. The non-remnant vegetation has a very low structural complexity consisting primarily of dense groundcover vegetation (ie grassy tussocks) and sparsely scattered native trees and shrubs. The groundcover was largely dominated by exotic grass species and the floristic diversity was low. This site generally lacks important habitat features such hollow-bearing trees, fissured bark, fallen woody debris and shrubs. Due to the low level of cover and absence of important habitat features, the non-remnant vegetation in this corridor is unlikely to provide suitable habitat for native fauna.

3.28 Corridor F181 (south)

General

The southern portion of Corridor F181 is situated along the Injune-Taroom Road near the western boundary of Lot 55 FTY1153. The findings presented in this section of the report also include geotech sites (6399-RM-43, TP-F090, BH-12 and BH-13) as these proposed disturbance areas are within or connected to Corridor F181. There is also a powerline corridor extending to the east along the Injune-Taroom Road.

Corridor F181 is mapped as remnant 'of concern' RE 11.3.2/11.10.11, 'no concern at present' RE 11.10.9/11.10.11 and some minor areas of non-remnant vegetation. The area mapped as RE 11.3.2/11.10.11 is a heterogeneous polygon and is mapped as 'of concern' due to the presence of the RE 11.3.2. RE 11.10.11 is a 'no concern at present' regional ecosystem. No RE 11.3.2 was located within the area, which is discussed further below.

The entire section of the corridor is mapped as ESA 'Category C' due to its location within a State Forest and a mapped heterogeneous 'of concern' regional ecosystem. As discussed further below, the proposed corridor does not occur within the 'of concern' RE and therefore should not be mapped as a 'Category C' area for this reason. However, the area is within a designated State Forest, therefore the 'Category C' ESA is correct.

There is one mapped watercourse within the proposed corridor. This watercourse is classed as a stream order 2 by DERM mapping.

Corridor F181 follows the Injune-Taroom Road. Domestic livestock were observed grazing in the vicinity.

Figure 3.28 below illustrates Corridor F181.



Figure 3.28 Aerial photograph of proposed Corridor F181 and associated development areas
An example of the vegetation present within Corridor F181 is shown in Photo 3.18.



Photo 3.18 Site photograph of the vegetation present within Corridor F181. This photograph was taken within the area mapped as 'of concern' RE 11.3.2/11.10.1.

Floristics

Corridor F181 occurs primarily within remnant vegetation, with some very minor areas of mapped non-remnant vegetation. The remnant area is predominately mapped as 11.10.9/11.10.11 which are both 'no concern at present' regional ecosystems. The vegetation observed within these areas was mainly *Callitris glaucophylla* (White cypress pine), *Eucalyptus populnea* (Poplar box), *Eucalyptus melanophloia* (Silver-leaved ironbark) and *Allocasuarina luehmannii* (Bulloak). Occasional *Angophora leiocarpa* (Smooth bark apple) were also observed. The vegetation is consistent with the mapped RE descriptions.

The areas mapped as heterogeneous 'of concern' 11.3.2/11.10.11 consisted of similar vegetation. RE 11.3.2 is described as '*Eucalyptus populnea* woodland on alluvial plains'. Poplar box was not the dominant species in the area, and the land type was not consistent with an alluvial plain or land zone

3. The species observed in the area included *Callitris glaucophylla* (White cypress pine), *Eucalyptus populnea* (Poplar box), *Eucalyptus melanophloia* (Silver-leaved ironbark), *Allocasuarina luehmannii* (Bulloak) and occasional *Hakea chordophylla* (Bootlace Oak). The vegetation and land zone was consistent with regional ecosystem 11.10.11. Therefore the area should be treated as a 'no concern at present' regional ecosystem.

Eight (8) *Desmodium macrocarpum* (Large-podded Trefoil) plants were identified within the proposed footprint of test pit TP-F090. This species is listed as Near Threatened under the *Nature Conservation Act 1992*. The location of the plants is listed in Table 3.28.

Table 3.28 Species of conservation significance for Corridor F181

Species name	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Desmodium macrocarpum</i> (x7)	690373	7143014
<i>Desmodium macrocarpum</i>	690368	7143001

No other species of conservation significance under the NCA or EPBC Act were observed within the proposed corridor.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

The habitat value of the area was moderate to high, as the vast majority of the corridor consisted of remnant vegetation. Attributing characteristics included presence of mature vegetation, differing strata, dense groundcover dominated by native pastures and abundance of woody debris. There was also a low number and abundance of exotic species.

A vast array of bird calls were heard within the vicinity of the area, including *Cacatua galerita* (Sulphur-Crested Cockatoo) and *Pardalotus sp.* (Pardalote). Avian fauna observed included *Eolophus roseicapilla* (Galah), *Rhipidura leucophrys* (Willie Wagtail), *Coturnix ypsilophora* (Brown Quail), *Grallina cyanoleuca* (Magpie-lark), *Cracticus sp.* (Butcherbird) and *Corvus orru* (Torresian Crow).

No EVNT fauna under the NC Act or EPBC Act was observed within Corridor F181.

3.29 Corridor F179 & F180

General

Corridors F179, F180 and adjoining pads are located to the south of the Injune-Taroom Road in the south-west corner of Lot 55 FTY1153. A powerline easement runs south from the road and joins Corridor F179 which runs to the west and ends at FV16-46. Corridor F180 runs south off Corridor F179 and ends at FV16-47. Test pit sites TP-F119, TP-F112 and 6399-TP-77 are also included in the assessment, as they are located within the proposed corridors.

The majority of the proposed development area occurs within remnant vegetation, which is mapped as 'no concern at present' RE 11.10.9/11.10.11 and 11.10.9, and 'of concern' RE 11.3.2. A small area of the powerline easement is mapped as non-remnant vegetation. During recent field surveys, it was noted that the vegetation mapping for the area is correct. The majority of the area is mapped as RE 11.10.9 with only very small areas of the other RE units located on the outer edges.

Both corridors and pad areas are situated on undulating land with no major escarpments present. The powerline easement has a drainage-line running parallel to the existing access track; however this drainage line is highly eroded due to earthworks relating to road maintenance and the laying of infrastructure related cables.

FV16-46 is situated within a large natural soak. At the time of surveys, the area was heavily infiltrated by water and a large eroded creek at the northern edge of the pad was flowing.

Both corridors and adjoining pads have been heavily grazed by cattle, as noted by the presence of cattle and the abundance of tracks and damage to foliage.

There is one mapped watercourse which traverses site FV16-46, at the western end of Corridor F179. This watercourse is classed as a stream order 1 by DERM mapping.

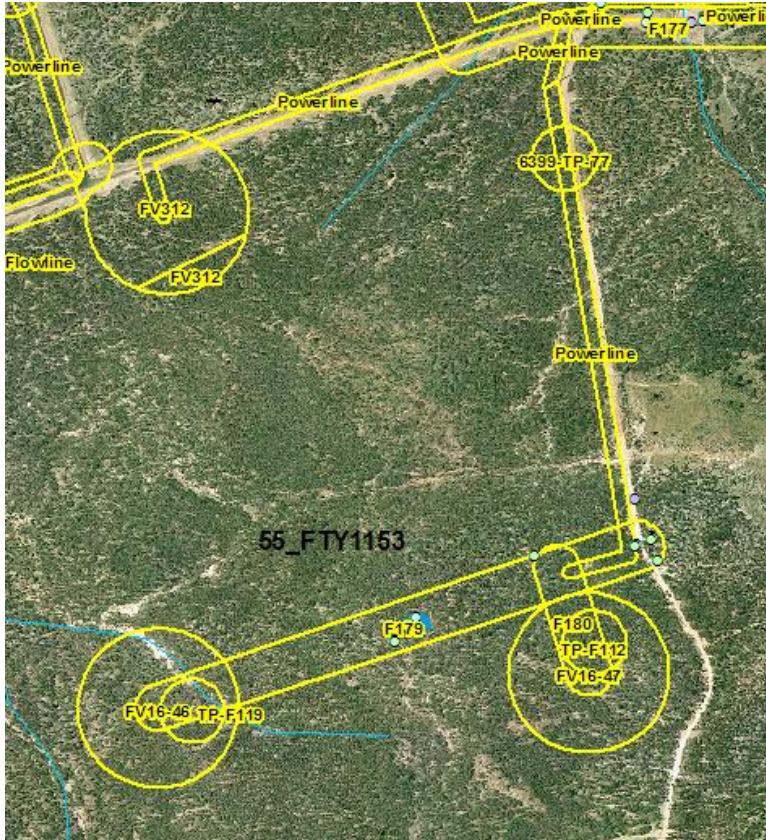


Figure 3.29 Aerial photograph of proposed Corridor F179 and 180

Floristics

Both corridors and adjoining pads are situated within remnant vegetation. The powerline easement is located on an existing access road and as such has been cleared.

The remnant vegetation within these areas is dominated by *Callitris glaucophylla* (White Cypress Pine), with scattered emergent species including *Angophora leiocarpa* (Smooth-barked Apple), *Eucalyptus melanophloia* (Silver-leaved Ironbark), and *Eucalyptus chloroclada* (Dirty Gum). Scattered *Allocasuarina leuhmannii* (Bull Oak) and *Corymbia tessellaris* (Moreton bay Ash) were also located throughout both corridors and adjoining pads.

The mid-storey of the surveyed areas was typically scarce due to the dense *Callitris* canopy layer; however scattered groups of *Grevillea striata* (Beefwood), *Canthium oleifolium* (Hatstand) and *Petalostigma pubescens* (Quinine).

Groundcover was dominated by *Pennisetum ciliare* (Buffel Grass) on the outer edges of the corridor towards the road, however native grass species including *Sporobolus creber* (Western Rats Tail Grass), *Aristida vagans* (Three-awned Speargrass), *Chloris gayana* (Rhodes Grass), *Enteropogon acicularis* (Curly Windmill Grass), and *Enteropogon ramosus* (Twirly Windmill Grass) were present.

The soak area situated within FV16- 46 contained wetter habitat species including numerous *Juncus* species, three *Drosera* species, and the non-threatened *Gonocarpus micranthus subsp. Ramosissimus* (*Gonocarpus*).

A total of 11 Type A restricted plants were identified within the proposed development area, including *Brachychiton populneus* (Kurrajong) and *Brachychiton rupestris* (Narrow-leaved Bottle Tree). The details and locations of these species are given below in Table 3.34.

A small patch of remnant *Acacia harpophylla* (Brigalow), including some Semi Evergreen Vine Thicket (SEVT) species was recorded within Corridor F179. This area was approximately 50 m in diameter, and the location is also recorded in the Table 3.34 below.

Table 3.34 Species of conservation significance for Corridor F179 and F180

Species	Easting (GDA 94, Zone 55J)	Northing (GDA 94, Zone 55J)
<i>Brachychiton populneus</i>	0693146	7142358
<i>Brachychiton populneus</i>	0693146	7142359
<i>Brachychiton populneus</i>	0693719	7142531
<i>Brachychiton populneus</i>	0693452	7142544
<i>Brachychiton populneus</i>	0693670	7142564
<i>Brachychiton populneus</i>	0693672	7142568
<i>Brachychiton populneus</i>	0693706	7142578
<i>Brachychiton populneus</i>	0693710	7142581
<i>Brachychiton populneus</i>	0693706	7142586
<i>Brachychiton rupestris</i>	0693176	7142387
<i>Brachychiton rupestris</i>	0693195	7142409
<i>Acacia harpophylla</i> (patch of 15m radius)	0693177	7142389

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

Due to the remnant vegetation throughout Corridors F179 and F180 and adjoining pads, the habitat value is considered to be high. Fallen timber was abundant throughout all surveyed areas, as was other key habitat attributes such as large mature trees, hollow bearing trees, rocky areas, creek lines, a natural soak, a complex vegetation structure and large trees with fissured bark.

Fauna species recorded during surveys include:

Emu (*Dromaius novaehollandiae*), Australian Magpie (*Gymnorhina tibicen*), Pale-headed Parrot (*Platycercus adscitus*), Eastern Rosellas (*Platycercus eximius*), Sulfer-crested Cockatoo (*Cacatua galerita*), Richard's Pipit (*Anthus novaeseelandiae*), Feral Pig (*Sus scrofa*), Torresian Crow (*Corvus orru*), European Rabbits (*Oryctolagus cuniculus*), Yellow Thornbill (*Acanthiza nana*), Grey Butcherbird (*Cracticus torquatus*), Wedge-tailed Eagle (*Aquila audax*), and Apostle Birds (*Struthidea cinerea*). Several nests made by rodents were also observed.

3.30 Corridor F348

General

Corridor F348 is situated in the south east of Lot 55 FTY1153 and runs in a north-south direction (refer to Figure 3.30). The following description of Corridor F348 includes assessment of TP-F100 and FV 16-49 which are located at the southernmost point of Corridor F348.

The proposed development area transverse two areas of remnant vegetation, the 'No concern at present' RE 11.10.9 and the 'Of concern' RE 11.3.2/11.3.25. RE 11.10.9 is defined as *Callitris glaucophylla* woodland on coarse-grained sedimentary rocks opposed to RE 11.3.2/11.3.25 which is mapped as *Eucalyptus populnea* woodland on alluvial plains/*Eucalyptus tereticornis* or *Eucalyptus camaldulensis* woodland fringing drainage lines. Field investigations of the area confirmed the mapping of RE 11.10.9 however do not support the mapping the *Of concern* RE 11.3.2/11.3.25 due to inconsistencies with the land zone classification. Further information is provided in the Floristics section below.

The entire area of Corridor F348 is mapped as Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

There are no mapped watercourses within the proposed development area. The closest watercourse (stream order 1) is situated approximately 80 m north-west of the corridor.



Figure 3.30 Aerial photograph of proposed Corridor F348

A photograph showing representative vegetation within the site can be seen in Photo 3.19.



Photo 3.19 An example of the vegetation present within Corridor F348

Floristics

Corridor F348 is mapped as 'No concern at present' RE 11.10.9 and the 'Of Concern' RE 11.3.2/11.3.25. The canopy vegetation present throughout Corridor F348 is analogous with RE 11.10.9. This includes that present within areas mapped as 11.3.2/11.3.25. The vegetation community is defined by *Callitris glaucophylla* (White Cypress Pine) at an approximate height of 12-14 m with emergent *Angophora leiocarpa* (Smooth-barked Apple), *Eucalyptus melanophloia* (Silver Leaved Ironbark) and *Eucalyptus populnea* (Poplar Box) at a height of approximately 18 m. The mid-storey layer is largely absent, and dominated by *C.glaucophylla* regrowth. There was limited evidence of Eucalypt regeneration within the area. The groundcover consisted of a dense grass layer (approximately 90%) dominated by *Pennisetum ciliare* (Buffel Grass), *Aristida calycina* (Wiregrass) and *Melinis repens* (Red Natal Grass). Evidence of cattle disturbance was recorded throughout the corridor, with a number of cattle tracks woven throughout the area (10% bare ground).

No species of listed conservation significance, including Type A restricted plants, under the provisions of the NC Act or EPBC Act were recorded within Corridor F348.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

Corridor F348 is considered to be of moderate habitat value. The majority of this corridor supports remnant vegetation which has a low to moderate structural complexity and floristic diversity. Signs of moderate disturbance and weed proliferation due to frequent cattle access in this area are proliferate in this area.

A moderate quantity of fallen timber and woody debris which provide a potential habitat resource for reptilian and other terrestrial species was recorded from the proposed development area. Additionally a number of hollow bearing trees which provide habitat for arboreal species were also recorded.

Pale-headed rosella (*Platycercus adscitus*) were observed feeding from *Eucalyptus melanophloia* (Silver Leaved Ironbark) within the proposed development area.

3.31 Corridor F347

General

Corridor F347 is situated in the south east of Lot 55 FTY1153 and runs in a north-south direction (refer to Figure 3.31). The following description of Corridor F347 includes assessment of TP-F102 and FV212 which are located at the southernmost point of Corridor F347.

Corridor F347 is mapped as the *No concern at present* RE 11.10.9; that is *Callitris glaucophylla* woodland on coarse-grained sedimentary rocks. Field investigations of the area confirmed the RE mapping of this area.

Corridor F347 is also mapped as a Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

One (1) watercourse traverses the proposed development area (stream order 1) (refer to Figure 3.31).



Figure 3.31 Aerial photograph of proposed Corridor F347

Floristics

Corridor F347 is mapped as the 'No concern at present' RE 11.10.9. Field investigations of the area found the RE mapping to be consistent with the landzone and floristic composition of the vegetation community present within the area.

The dominant canopy species consisted of *Callitris glaucophylla* (White Cypress Pine), *Eucalyptus melanophloia* (Silver-leaved Ironbark), *Eucalyptus populnea* (Poplar Box) and *Eucalyptus chloroclada*

(Dirty Gum). The mid-stratum and shrub layers are comprised of *Acacia leiocalyx* (Black Wattle), *Eremophila mitchellii* (False Sandalwood), and *Geijera parviflora* (Wilga). The ground stratum was characterised by approximately 98% grass cover, 1% bare ground and 1% leaf litter with the dominate species including *Cymbopogon refractus* (Barbwire Grass), *Eragrostis brownii* (Browns Lovegrass) and *Themeda triandra* (Kangaroo grass).

Two (2) *Cymbidium canaliculatum* (Black Orchid) were recorded within the proposed development area, their location detailed in Table 3.35. *C.canaliculatum* is listed as a Type A restricted species under the provisions of the NC Act.

Table 3.35 Species of conservation significance for Corridor F347

Species	Easting (GDA 94, MGA Zone 55)	Northing (GDA 94, MGA Zone 55)
<i>Cymbidium canaliculatum</i>	697432	7142952
<i>Cymbidium canaliculatum</i>	697437	7142893

No further species of listed conservation significance under the provisions of either the NC Act and/or the EPBC Act were observed within the proposed disturbance footprint.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

The habitat value of Corridor F347 is considered to be moderate to high due to the presence of remnant vegetation across of the site. The vegetation communities supported by Corridor F347 are of moderate structure complexity and floristic diversity. The remnant vegetation within this corridor consists largely of an undisturbed environment and therefore retains the intrinsic habitat values associated with the RE. Weed proliferation within the vegetation community was minor. Habitat features associated with the proposed development area include:

- Canopy cover suitable for shelter, foraging and perching
- Tree hollows
- Fissured/exfoliating tree bark
- Dense groundcover vegetation (ie grassy tussocks)
- Woody debris (ie fallen/felled timber, including hollow-bearing logs)

Incidental fauna observations noted during field assessments of Corridor F347 included Noisy Miner birds (*Manorina melanocephala*), Kookaburra (*Dacelo novaeguineae*), Grey-crowned babbler (*Pomatostomus temporalis*), Apostle Birds (*Struthidea cinerea*), White-winged chough (*Corcorax melanorhamphos*), Double Barred Finches (*Taeniopygia bichenovii*), Pale-headed rosella (*Platyercus adscitus*) and the Dingo (*Canis familiaris dingo*). A nest of a large bird of prey, most likely a Wedge-tailed eagle (*Aquila audax*), was recorded in an *Angophora leiocarpa* (Smooth barked apple) within the proposed development area (697294.9687 m E, 7143239.079 m N).

3.32 Corridor F188 & F187

General

Corridor F188 is situated in the south east of Lot 55 FTY 1153 and includes TP-F104, TP-F252 and Corridor F187 (refer to Figure 3.32). Corridor F188 is 100 m in width, with an access track which runs through the middle of the corridor for its length. A construction pad has been developed within the TP-F252 area and thus this section of the corridor is void of vegetation.

A large portion of Corridor F188 is mapped as the 'No concern at present' RE 11.10.9 with a small area of TP-F104 extending into a area mapped as 'Of concern' RE 11.3.2/11.3.25. Field investigations of the area confirmed the mapping of the RE 11.10.9 however found the mapping of RE 11.3.2/11.3.25 to be incorrect due to inconsistencies in landzone and floristic composition. Further information is provided in the Floristics section below.

Corridor F188 and its associated development areas are mapped as the Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

A watercourse (stream order 1) runs through Corridor F188 and TP-F104. The riparian zone associated with the watercourse is highly fragmented and disturbed.

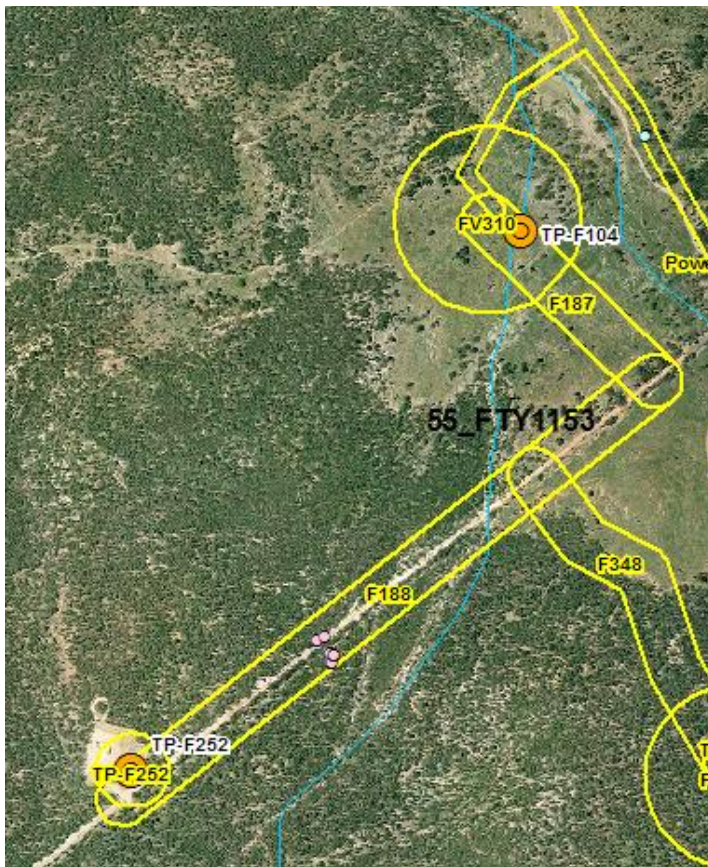


Figure 3.32 Aerial photograph of proposed Corridor F187 & F188

Floristics

The majority of Corridors F188 and F187 are mapped as the 'No concern at present' RE 11.10.9 and non-remnant vegetation, with a small portion of TP-F104 mapped as the 'Of concern' RE 11.3.2/11.3.25. Field investigations of the area confirmed the mapping of the RE 11.10.9 however found the mapping of RE 11.3.2/11.3.25 to be incorrect due to inconsistencies in landzone and floristic composition.

Within the area of remnant vegetation in the corridor mapped as RE 11.10.9, the dominant canopy species consisted of *Callitris glaucophylla* (White Cypress Pine), *Eucalyptus melanophloia* (Silver-leaved Ironbark), *Eucalyptus populnea* (Poplar Box) and *Eucalyptus chloroclada* (Dirty Gum). The mid-stratum and shrub layers are comprised of *Acacia leiocalyx* (Black Wattle), *Eremophila mitchellii* (False Sandalwood), and *Geijera parviflora* (Wilga). The ground stratum was characterised by approximately 98% grass cover, 1% bare ground and 1% leaf litter with the dominate species

including *Cymbopogon refractus* (Barbwire Grass), *Eragrostis brownii* (Browns Lovegrass) and *Themeda triandra* (Kangaroo Grass).

The mapping of the small remnant area of vegetation as RE 11.3.2/11.3.25 was found to be incorrect. The floristic composition of the vegetation in this area is not consistent with these communities and the vegetation was not situated on alluvial soils. The vegetation in this area is more closely aligned to RE 11.10.9. *Callitris glaucophylla* (White Cypress Pine) is the dominant canopy species within these areas at an approximate height of 10 - 12 m. *Eucalyptus populnea* (Poplar Box), *Eucalyptus chloroclada* (Baradine Red Gum) and *Angophora floribunda* (Rough-barked apple) were also present. The midstorey was largely absent with the exception of juvenile *C.glaucophylla*.

Sixteen (16) *Xanthorrhoea johnsonii* (Johnson's Grasstree) were recorded within the proposed development area, and the locations are detailed in Table 3.36. *X.johnsonii* is listed as a Type A restricted species under the provisions of the NC Act.

Table 3.36 Species of conservation significance for Corridor F188

Species	Easting (GDA 94, MGA Zone 55)	Northing (GDA 94, MGA Zone 55)
<i>Xanthorrhoea johnsonii</i>	695063	7142299
<i>Xanthorrhoea johnsonii</i>	695078	7142308
<i>Xanthorrhoea johnsonii</i>	695089	7142274
<i>Xanthorrhoea johnsonii</i>	695089	7142274
<i>Xanthorrhoea johnsonii</i>	695089	7142274
<i>Xanthorrhoea johnsonii</i>	695089	7142274
<i>Xanthorrhoea johnsonii</i>	695089	7142274
<i>Xanthorrhoea johnsonii</i>	695089	7142274
<i>Xanthorrhoea johnsonii</i>	695095	7142270
<i>Xanthorrhoea johnsonii</i>	695094	7142269
<i>Xanthorrhoea johnsonii</i>	695091	7142262
<i>Xanthorrhoea johnsonii</i>	695091	7142261
<i>Xanthorrhoea johnsonii</i>	695088	7142257
<i>Xanthorrhoea johnsonii</i>	695088	7142257
<i>Xanthorrhoea johnsonii</i>	695088	7142257
<i>Xanthorrhoea johnsonii</i>	695093	7142255

No further species of listed conservation significance under the provisions of either the NC Act and/or the EPBC Act were observed within the proposed disturbance footprint.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

The habitat value of Corridor F188 is considered to be moderate to high as a large portion of this corridor consists of remnant vegetation. The remnant vegetation has a moderate structural complexity and floristic diversity. An access track segregates the remnant vegetation within the proposed development area however weed proliferation generally associated with linear disturbances is minor within this area. Other habitat features observed within this corridor include a watercourse, hollow-

bearing trees, fissured tree bark, fallen timber and leaf litter. The vegetation and habitat features within the remnant vegetation of this corridor provides suitable habitat for a range of native avian, reptile and mammalian fauna.

Corridor F187, TP-F104 and the northern portion of Corridor F188 have been cleared and are largely void of canopy vegetation and thus are considered to be of low habitat value. A large amount of Eucalypt sp. dieback and weed proliferation was recorded within these areas. Habitat features present include some fallen timber and fissured bark, leaf litter, and nesting opportunities in the stags. The vegetation and habitat features present in the non-remnant area would provide habitat for a limited range of native fauna and disturbance tolerant species.

Rabbit (*Oryctolagus cuniculus*) diggings were recorded throughout the proposed development area.

3.33 Corridor F194

General

Corridor F194 is situated in the south east of Lot 55 FTY1153. The following description of Corridor F194 includes assessment of TP-F101, TP-F103, FV-308 and FV-309.

Corridor F194 is mapped as the *No concern at present* RE 11.10.9; that is *Callitris glaucophylla* woodland on coarse-grained sedimentary rocks. Field investigations of the area confirmed the RE mapping of this area.

Corridor F194 is mapped as a Category C ESA due to its location on a Forestry Lease within the Hallett State Forest.

A watercourse (stream order 1) is mapped within the north-eastern section of the proposed development area.

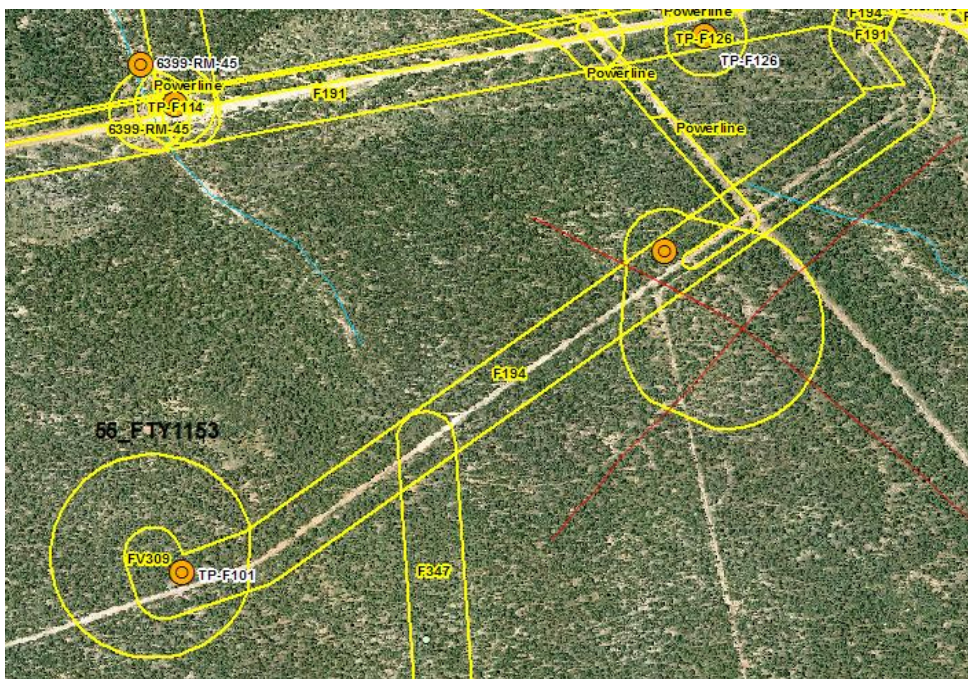


Figure 3.33 Aerial photograph of proposed Corridor F194

A photograph showing representative vegetation within the site can be seen in Photo 3.20.



Photo 3.20 An example of the vegetation present within Corridor F194

Floristics

Corridor F194 is mapped as 'no concern at present' RE 11.10.9. The RE description for 11.10.9 is *Callitris glaucophylla* woodland to open-forest often associated with *Eucalyptus melanophloia* in the tree canopy and a sparse ground layer. Field investigations of the area found the RE mapping to be consistent with the landzone and floristic composition of the vegetation community present within the area.

The dominant canopy species in this area were *Callitris glaucophylla* (White Cypress Pine) at an approximate height of 8 - 12 m with emergent *Eucalyptus melanophloia* (Silver Leaved Ironbark) and *Eucalyptus populnea* (Poplar Box) at a height of approximately 15 m. The mid-storey layer is defined by *C.glaucophylla* regrowth, with limited evidence of *Eucalypt* regeneration within the area. The groundcover consisted of a dense native grass layer (approximately 100%) dominated by *Aristida caput medusae* (Curly Head Wire Grass), *Cymbopogon refractus* (Barbwire Grass), *Eragrostis brownii* (Browns Lovegrass), *Heteropogon contortus* (Black Spear Grass) and *Themeda triandra* (Kangaroo Grass).

No EVNT or Type A restricted species as protected under the provisions of either the NC Act and/or the EPBC Act were recorded within the proposed development area.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

The habitat value of Corridor F194 is considered to be moderate to high as remnant vegetation extends across the extent of the proposed development area. The remnant vegetation has a moderate structural complexity and floristic diversity. As such, the area provides habitat features suitable for small mammals, birds and reptile species such as canopy cover, tree hollows, exfoliating bark and woody debris.

Incidental fauna observations recorded during field investigations of Corridor F194 included Crested Pigeon (*Ocyphaps lophotes*), Double Barred Finches (*Taeniopygia bichenovii*), Pale-headed rosella (*Platycercus adscitus*) and Noisy Miner birds (*Manorina melanocephala*).

3.34 Powerline Corridor (between TP-F100 & Injune-Taroom Rd)

General

The proposed powerline corridor is located to the south of the Injune-Taroom Road, in the southeast portion of Lot 55 FTY1153. The corridor runs in a north-south direction, directly parallel to an existing access track.

With the exception of a small area of vegetation in the eastern portion of the corridor, the proposed powerline corridor is mapped as non-remnant vegetation.

The 'Of Concern' RE 11.3.2/11.3.25 has been mapped directly adjacent to the proposed powerline corridor, with a small area of mapping extending into the corridor. Field investigations of the area found the mapping to be incorrect due to inconsistencies in landzone classification. Further information is provided in the Floristics section below.

The proposed powerline corridor is mapped as a Category C ESA, due to the area being located on a Forestry Lease within the Hallett State Forest.

An ephemeral watercourse is mapped within the proposed powerline corridor (stream order 3) and was dry at the time of the survey. The riparian vegetation associated with the watercourse has been heavily disturbed and fragmented.



Figure 3.34 Aerial photograph of Powerline Corridor between TP-F100 and Injune-Taroom Rd

A photograph showing representative vegetation within the site can be seen in Photo 3.21.



Photo 3.21 An example of the vegetation present within powerline corridor

Floristics

The vegetation within the proposed powerline corridor has been previously cleared. The vegetation is dominated by *Pennisetum ciliare* (Buffel Grass) with a range of other grasses and forbs also present including *Verbena tenuisecta* (Mayne's Curse), *Chrysocephalum apiculatum* (Yellow Buttons), and *Dichanthium sericeum* (Queensland Bluegrass).

The small areas of remnant vegetation mapped within the proposed powerline corridor are mapped as the *Of Concern* RE 11.3.2/11.3.25. Field investigations of the area found the RE mapping to be incorrect as the floristic composition of the vegetation in this area is not consistent with these communities and the vegetation was not situated on alluvial soils. The vegetation in this area is more closely aligned to RE 11.10.9, that is *Callitris glaucophylla* woodland on coarse-grained sedimentary rock.

The highly disturbed and fragmented edge environments of the mapped 'Of Concern' RE 11.3.2/11.3.25 occur within the proposed powerline corridor. As previously discussed, the RE classification of this remnant vegetation is incorrect. *Callitris glaucophylla* (White Cypress Pine) is the dominant canopy species within these areas at an approximate height of 10 - 12 m. Juvenile *Eucalyptus melanophloia* (Silver Leaved Ironbark), at a height of approximately 5 m were recorded within the area. The midstorey was largely absent. The ground stratum was defined by introduced and native grass species including *Pennisetum ciliare* (Buffel Grass), *Dichanthium sericeum* (Queensland Bluegrass) and *Melinis repens* (Red Natal Grass).

A *Brachychiton rupestris* (Narrow Leaved Bottle Tree) was recorded within the proposed development area, its located detailed in Table 3.37. *B. rupestris* is listed as a Type A restricted species under the provisions of the NC Act.

Table 3.37 Species of conservation significance for Powerline Corridor

Species	Easting (GDA 94, MGA Zone 55)	Northing (GDA 94, MGA Zone 55)
<i>Brachychiton rupestris</i>	695686	7143256

No further species of listed conservation significance under the provisions of either the NC Act and/or the EPBC Act was observed within the proposed disturbance footprint.

A flora species list for this corridor is presented in **Appendix A**.

Habitat Values

The habitat values of the Powerline Corridor are considered to be low due to the low species richness, dominance of *Pennisetum ciliare* (Buffel grass) and lack of mature vegetation. The area has been extensively cleared and disturbed by stock grazing and invasion of exotic pastures species. Canopy vegetation associated with the RE mapped in the eastern portion of the corridor provides some habitat for avian and arboreal fauna. The remainder of the area contains very little woody debris or other habitat features and is likely to provide limited habitat for native fauna species.

A Dingo (*Canis familiaris dingo*) was observed walking along the access track directly adjacent to the proposed development corridor during site investigations.



4 Conclusion

The proposed development areas on Lot 55 FTY1153 occurred across a variety of landscape and vegetation types, including both remnant and non-remnant vegetation. There is a high proportion of remnant vegetation within Lot 55 FTY1153, due to it being a Forestry Lease area of the Hallett State Forest. As a result, most of the proposed corridors were mapped as Category C ESA.

Some incorrect regional ecosystem mapping was identified, particularly within areas mapped as remnant 'of concern' regional ecosystems 11.3.2 and 11.3.25. In many cases the landzone and vegetation composition was incorrect in these areas, and was more closely matched to surrounding mapped 'no concern at present' regional ecosystems 11.10.9 and 11.10.11.

Multiple watercourses occur within, or in close proximity to, development areas. The watercourses within the proposed development areas have stream orders ranging from 1 to 4.

Multiple Type A restricted plant species were observed within the proposed development areas. These species included *Brachychiton rupestris* (Narrow Leaved Bottle Tree), *Brachychiton populneus* (Kurrajong), *Brachychiton australis* (Broad Leaved Bottle Tree), *Xanthorrhoea johnsonii* (Johnson's Grasstree) and *Cymbidium canaliculatum* (Black Orchid). *Desmodium macrocarpum* (Large-podded Trefoil) was also identified within the proposed development area, which is listed as Near Threatened under the *Nature Conservation Act 1992*.

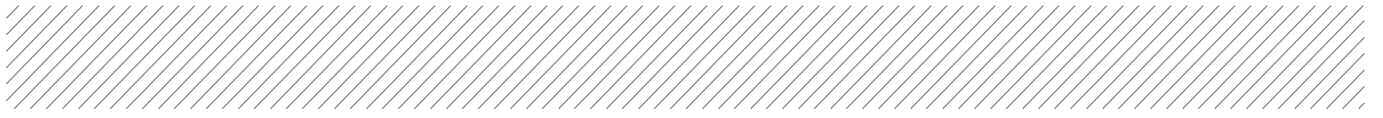
Squatter pigeons (*Geophaps scripta*) classed as Vulnerable under the provisions of the EPBC Act were observed at several locations within the proposed development areas during site investigations. No other threatened species under the NC Act and/or EPBC Act were sighted during site inspections.



5 References

Eddie, C (2007) Field Guide to Trees and Shrubs of Eastern Queensland Oil and Gas Fields, First Edition, Santos Ltd, Adelaide.

Regional Ecosystem Mapping, Version 6.0, Queensland Government Department of Environment and Resource Management (DERM).

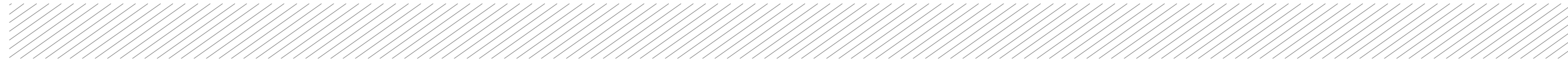


Appendix A

Flora Species List



Scientific Name	Common Name	Corridors																																					
		F203	Powerline (between 6399-TP-74 and F218)	Powerline (including 6399-TP-71 & 6399-TP-72)	F202, F218, F219, F220, F222, F224 & F227	F221	F223	Powerline (including 6399-TP-66 & 6399-RM-57)	F226 & F2225 (south)	F225 (west)	F225, F245 & F293	Powerline (including 6399-TP-67, 6399-TP-21 & 6399-RM-56)	F240 (north)	F283	F240 (centre)	F189	F194	F190	F198	F200	F197	F240 (west) & F282	F175	F176	Powerline (between F282 & F239)	F171	F239	F181 (north)	F181 (south)	F179 & F180	F193	F348	F347	F188	Powerline				
<i>Chloris ventricosa</i>	Tall Chloris				x			x						x								x	x														x		
<i>Chloris virgata</i>	Silky Topped Rhodes Grass	x	x	x	x	x	x	x	x			x		x		x					x	x	x	x	x	x	x	x	x									x	
<i>Chrysocephalum apiculatum</i>	Yellow Buttons	x	x	x				x	x		x		x		x		x				x	x	x	x		x												x	
<i>Cirsium vulgare</i>	Spear Thistle, Black Thistle																																						
<i>Cissus opaca</i>	Native Grape																				x																		
<i>Clerodendrum parviflora</i>	Lolly Bush												x																										
<i>Commelina diffusa</i>	Wandering jew																																						
<i>Convolvulus arvensis</i>	Bind Weed																																						
<i>Conyza bonariensis</i>	Fleabane	x		x	x		x		x	x	x	x		x		x																							
<i>Conyza canadensis</i>	Canadian fleabane																																						
<i>Conyza parva</i>	Fleabane																																						
<i>Corymbia citriodora</i>	Lemon scented gum	x	x				x		x		x																												
<i>Corymbia clarksoniana</i>	Clarkson's Bloodwood		x		x	x	x				x																												
<i>Corymbia hendersonii</i>	Henderson's Bloodwood																																						
<i>Corymbia intermedia</i>	Pink Bloodwood																																						
<i>Corymbia tessellaris</i>	Moreton Bay Ash	x	x		x	x	x	x	x	x																													
<i>Corymbia trachyphloia</i>	small fruited bloodwood																																						
<i>Crotalaria dissitiflora</i>	Grey Rattlepod																																						
<i>Crotalaria mitchellii</i>	Hairy RattlePod			x			x	x	x	x																													
<i>Crotalaria novae-hollandiae</i>	New Holland Rattlepod																																						
<i>Croton insularis</i>	Silver Croton																																						
<i>Cymbidium canaliculatum</i>	Black Orchid	x																																					
<i>Cymbopogon bombycinus</i>	Lemon Grass																																						
<i>Cymbopogon obtectus</i>	Fluffy Tops																																						
<i>Cymbopogon refractus</i>	Barbwire Grass	x	x	x	x		x	x	x																														
<i>Cynodon dactylon</i>	Green Couch	x	x																																				
<i>Cyperus bifax</i>	Star Sedge																																						
<i>Cyperus difformis</i>	Dirty Dora																																						
<i>Cyperus gracilis</i>	Bunchy Sedge		x																																				
<i>Cyperus ira</i>	Variable sedge																																						
<i>Cyperus polystachyos</i>	Bunchy Sedge																																						



Scientific Name	Common Name	Corridors																																			
		F203	Powerline (between 6399-TP-74 and F218)	Powerline (including 6399-TP-71 & 6399-TP-72)	F202, F218, F219, F220, F222, F224 & F227	F221	F223	Powerline (including 6399-TP-66 & 6399-RM-57)	F226 & F2225 (south)	F225 (west)	F225, F245 & F293	Powerline (including 6399-TP-67, 6399-TP-21 & 6399-RM-56)	F240 (north)	F283	F240 (centre)	F189	F194	F190	F198	F200	F197	F240 (west) & F282	F175	F176	Powerline (between F282 & F239)	F171	F239	F181 (north)	F181 south)	F179 & F180	F193	F348	F347	F188	Powerline		
<i>Xylomelum cunninghamianum</i>	Woody pear													x																							
<i>Zinnia multiflora</i>	Zinnia	x																					x		x			x									



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