LEVEL 1 FLORA AND VEGETATION SURVEY

OF THE FORTESCUE RIVER GAS PIPELINE

(FRGP) PROJECT

Prepared for

DBP

Prepared by

Mattiske Consulting Pty Ltd

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Mattiske Consulting Pty Ltd

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1. SUMMARY

Mattiske Consulting Pty Ltd was commissioned in September 2013 to undertake a Level 1 flora and vegetation survey of the Fortescue River Gas Pipeline (FRGP) Project Area. A total of 238 survey sites, both pre-selected and opportunistic, were used in the 2013 survey.

A total of 353 vascular plant taxa which are representative of 135 plant genera and 43 plant families were recorded within the 2013 survey. The majority of the taxa recorded were representative of the Fabaceae (77 taxa), Poaceae (63 taxa) and Malvaceae (40 taxa) families. Of the 353 taxa recorded 69.4% were perennial, 17.8% were annual and 12.7% were both annual and perennial depending on local conditions.

No Declared Threatened Flora species were recorded within the survey area. One Priority 3 Flora species, *Astrebla lappacea* was recorded within the survey area.

No Threatened Ecological Communities were inferred to occur within the survey area. One Priority Ecological Community was inferred to occur within the survey area, namely the Priority 3 Mitchell grass plains (*Astrebla* spp.) on gilgai; part of the 'Four plant assemblages of the Wona Land System'. Floristic aspects of the Mitchell grass plains (*Astrebla* spp.) on gilgai PEC were inferred to occur within the FL15 community. Approximately 362 hectares of the FL15 community was mapped between KP 148 and KP 162. This community was recorded in excellent to pristine condition and contained an intact tussock grassland dominated by *Astrebla lappacea* (P3).

Seven taxa recorded within the survey represent range extensions from current known locations. Of particular note, given factors such as the number of WAH records and spatial divergence of those records across the state in relation to the survey area were *Aristida anthoxanthoides, *Jatropha gossypiifolia, Notoleptopus decaisnei* var. *decaisnei* and *Sclerolaena limbata*.

Eleven introduced (exotic) taxa were recorded within the survey area. Of these, one taxon **Jatropha gossypiifolia* is a Declared Pest (s22) with a Control Category of C3 for the whole state. **Cenchrus ciliaris* and to a lesser extent **Vachellia farnesiana* were recorded in high densities in a small number of creeklines and flood-out zones. Both species contain high environmental weed ratings, however, it is recognised by DPaW that direct management of these species (i.e. control and/or eradication) may be unfeasible.

Thirty vegetation communities were delineated and mapped across the survey area. Much of the survey area contains a mosaic of sparse *Acacia* spp. shrubland and open *Triodia* spp. hummock grassland associations on flats to low natural relief, interspersed with creek and flow line associations of predominantly *Eucalyptus victrix | Eucalyptus camaldulensis* dominated macro-channels and *Corymbia hamersleyana|Acacia* spp. dominated micro-channels and flood-out zones. Mid slope and ridge associations, although comprising similar species to lower slope associations, generally contained common upland/breakaway species such as *Eucalyptus leucophloia* subsp. *leucophloia*, *Acacia inaequilatera*, *Acacia maitlandii* and *Grevillea pyramidalis*. Soft spinifex (e.g. *Triodia pungens*) and /or mixed tussock grasses were a common feature of vegetation on flats and lower slopes, with hard spinifex (e.g. *Triodia wiseana*) becoming more dominant higher in the landscape.

Vegetation of the survey area was mostly in excellent to pristine condition. Structurally vegetation communities rarely showed visible signs of disturbance affecting individual species and weed densities were mostly low. The exception being a small number of minor creeklines and flood-out zones where weed species, particularly **Cenchrus ciliaris* and **Vachellia farnesiana*, were recorded in relatively high densities. Degraded areas were confined to small cleared areas adjacent to CS1 and within the Pannawonica town site.

The majority of recorded taxa are widespread throughout the region and percentage impact figures for Pre-European vegetation associations and Rangeland Land System land units within the survey area are low.

Client: dbp

N

0 20km

Scale 1:1,500,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_Loc_01.dgn
Date: Nov 2013 | Rev: A | A4

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Fortescue River Gas Pipeline Project

LOCALITY

Figure: **1**

2. INTRODUCTION

Mattiske Consulting Pty Ltd was commissioned in September 2013 to undertake a Level 1 flora and vegetation survey of the Fortescue River Gas Pipeline (FRGP) Project Area.

2.1 Location and Scope of Proposal

The FRGP Project Area extends 263 km east from CS1 to the Solomon Mine Hub (Figure 1).

The survey area lies in the Fortescue Botanical District region of the Eremaean Botanical Province (Beard, 1990). More recently, the vegetation of Western Australia has been assigned to bioregions and subregions under the Interim Biogeographic Regionalisation for Australia (IBRA). The Pilbara IBRA Region is comprised of four biogeographical subregions, namely the Chichester, Fortescue Plains, Hamersley and Roebourne subregions. The survey area traverses, to varying extents, each of the aforementioned subregions.

The aim of the current survey was to conduct a Level 1 flora and vegetation survey of the Fortescue River Gas Pipeline (FRGP) Project Area. More specifically, review desktop information and define, qualify and quantify botanical values assessed within the survey area. The survey area being defined as a boundary ±250 m from the centre corridor (13338.37 ha). It is therefore recognised that the survey area bounds far exceed what would actually be impacted by clearing associated with the current pipeline proposal.

2.2 Climate

The survey area extends from the desert tropical climate with summer rain (250 – 300 mm per annum) associated with the Onslow Coastal Plain and Stuart Hills regions to the semi-desert tropical climate with summer rainfall (300 mm per annum) associated with the Chichester Plateau, Fortescue Valley, Hamersley Plateau regions (Beard, 1975). Rainfall is highly variable, although there is a pronounced summer peak associated with north-west monsoons. Tropical cyclones typically occur between January and March which can result in the average annual rainfall being exceeded in one event (Payne and Tille, 1992).

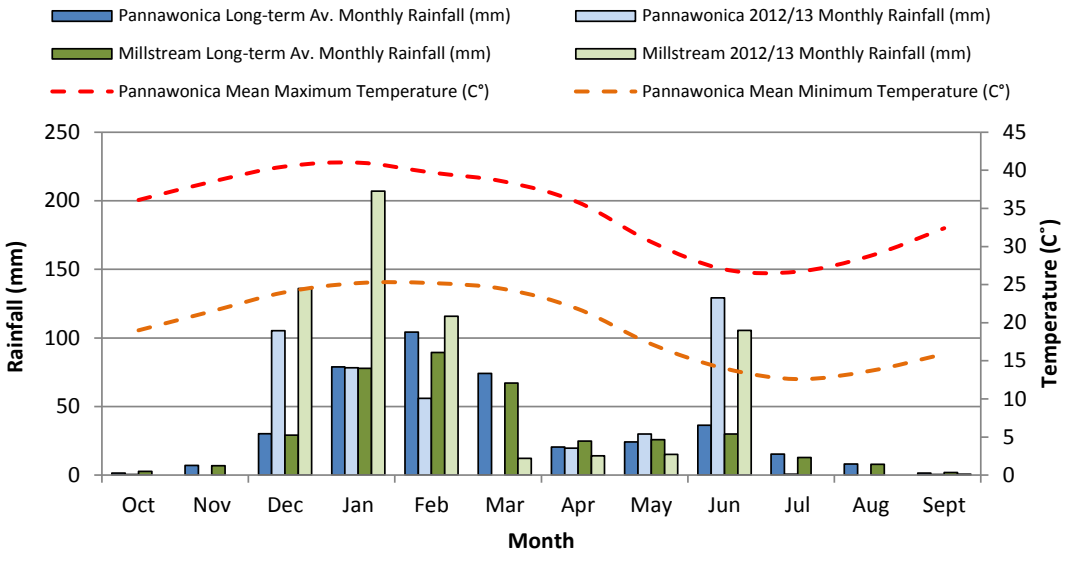

Figure 2: Rainfall and temperature data for the Pannawonica and Millstream recording stations
Long-term average rainfall and monthly rainfall and average maximum and minimum temperature data for the year preceding the current field survey (Bureau of Meteorology, 2013).

2.3 Western Australia's Flora – A Legislative Perspective

Western Australia has a unique and diverse flora, and is recognised as one of the world's 34 biodiversity hotspots (Myers *et al.* 2000). In this context, Western Australia possesses a high degree of species richness and endemism. This is particularly pronounced in the south-west region of the state. There are currently over 12,000 plant species known to occur within Western Australia (Department of Parks and Wildlife 2013a), and scientific knowledge of many of these species is limited.

The legislative protection of flora within Western Australia is principally governed by three Acts. These are:

- The *Wildlife Conservation Act 1950*;
- The *Environmental Protection Act 1986*; and
- Commonwealth *Environment Protection and Biodiversity Conservation Act 1999*.

The unique flora of Western Australia is potentially under threat due to historical clearing practices associated with agricultural, mining and human habitation activities. As a consequence of these historical clearing practices a number of flora species have become threatened or have the potential to become threatened as their habitat is impacted by human activity. In addition, some areas of the State have been affected by past clearing practices such that entire ecological communities are under threat. The following sections describe these threatened and priority flora and ecological communities, and outline the legislative protection afforded to them.

At the State level, the *Wildlife Conservation Act 1950* provides for taxa of native flora (and fauna) to be specially protected because they are subject to identifiable threats. Protection of these taxa has been identified as being warranted because they may become extinct, are threatened, or are otherwise in need of special protection. Ecological communities that are deemed to be threatened are afforded protection under the *Environmental Protection Act 1986*. Listings of threatened species and communities are reviewed annually by the Western Australian Threatened Species Scientific Committee (TSSC), which is a body appointed by the Minister for the Environment and supported by the Department of Parks and Wildlife. The TSSC reviews threatened and specially protected flora (and fauna) listings on an annual basis. Recommendation for additions or deletions to the listings of specially protected flora (and fauna) is made to the Minister for the Environment by the TSSC, via the Director General of the Department of Parks and Wildlife, and the WA Conservation Commission. Under Schedule 1 of the *Wildlife Conservation Act 1950*, the Minister for the Environment may declare that a class or description of flora to be threatened flora throughout the State, by notice published in the *Government Gazette* (Department of Parks and Wildlife 2013b).

At the Commonwealth level, under the *Environment Protection and Biodiversity Conservation Act 1999*, a nomination process exists, to list a threatened species or ecological community. Additions or deletions to the lists of Threatened species and communities are made by the Minister for the Department of the Environment, on advice from the Federal Threatened Species Scientific Committee. *Environment Protection and Biodiversity Conservation Act 1999* lists of Threatened flora and ecological communities are published on the Department of the Environment website (2013a, 2013b).

2.3.1 Threatened and Priority Flora

Flora within Western Australia that is considered to be under threat may be classed as either threatened flora or priority flora. Where flora has been gazetted as threatened flora under the *Wildlife Conservation Act 1950*, it is an offence "to take" such flora without the written consent of the Minister. The *Wildlife Conservation Act 1950* states that "to take" flora includes to gather, pluck, cut, pull up, destroy, dig up, remove or injure the flora or to cause or permit the same to be done by any means.

Priority flora constitute species which are considered to be under threat, but for which there is insufficient information available concerning their distribution and/or populations to make a proper evaluation of their conservation status. Such species are considered to potentially be under threat, but do not have legislative protection afforded under the *Wildlife Conservation Act 1950*. The Department of Parks and Wildlife categorises priority flora according to their conservation priority, using five categories, P1 to P5, to denote the conservation priority status of such species, with P1 listed species being the most threatened, and P5 the least. Priority flora species are regularly reviewed, and may have their priority status changed when more information on the species becomes available. Appendix A1 sets out definitions of both threatened and priority flora (Department of Parks and Wildlife 2013c).

At the Commonwealth level, under the *Environment Protection and Biodiversity Conservation Act 1999*, threatened species can be listed as extinct, extinct in the wild, critically endangered, endangered, vulnerable, or conservation dependent, by the Commonwealth Minister for the Department of the Environment. Refer to Appendix A2 for a description of each of these categories of threatened species. Under the *Environment Protection and Biodiversity Conservation Act 1999*, a person must not take an action that has or will have a significant impact on a listed threatened species without approval from the Commonwealth Minister for the Department of the Environment, unless those actions are not prohibited under the Act.

The current *Environment Protection and Biodiversity Conservation Act 1999* list of Threatened flora may be found on the Department of the Environment (2013a) website.

2.3.2 Threatened and Priority Ecological Communities

An ecological community is defined as a naturally occurring biological assemblage that occurs in a particular type of habitat composed of specific abiotic and biotic factors. At the State level, ecological communities may be considered as threatened once they have been identified as such by the Western Australian Threatened Ecological Communities Scientific Advisory Committee. A threatened ecological community is defined, under the *Environmental Protection Act 1986*, as an ecological community listed, designated or declared under a written law or a law of the Commonwealth as threatened, endangered or vulnerable. There are four State categories of threatened ecological communities, or TECs: presumed totally destroyed (PD); critically endangered (CR); endangered (EN); and vulnerable (VU) (Department of Parks and Wildlife 2013d). A description of each of these categories of TECs is presented in Appendix A3. Threatened ecological communities are gazetted as such (Department of Parks and Wildlife 2013e).

At the Commonwealth level, some Western Australian TECs are listed as threatened, under the *Environment Protection and Biodiversity Conservation Act 1999*. Under the *Environment Protection and Biodiversity Conservation Act 1999*, a person must not take an action that has or will have a significant impact on a listed threatened ecological community without approval from the Commonwealth Minister for the Department of the Environment, unless those actions are not prohibited under the Act. A description of each of these categories of TECs is presented in Appendix A4. The current *Environment Protection and Biodiversity Conservation Act 1999* list of threatened ecological communities can be located on the Department of the Environment (2013b) website.

Ecological communities identified as threatened, but not listed as threatened ecological communities, can be classified as priority ecological communities (PECs). These communities are under threat, but there is insufficient information available concerning their distribution to make a proper evaluation of their conservation status. The Department of Parks and Wildlife categorises priority ecological communities according to their conservation priority, using five categories, P1 to P5, to denote the conservation priority status of such ecological communities, with P1 communities being the most threatened and P5 the least. Appendix A5 sets out definitions of priority ecological communities (Department of Parks and Wildlife 2013d). A list of current priority ecological communities can be viewed at the Department of Parks and Wildlife (2013f) website.

2.3.3 Clearing of Native Vegetation

Under the *Environmental Protection Act 1986*, the clearing of native vegetation requires a permit to do so, from the Department of Parks and Wildlife or the Department of Mines and Petroleum, unless that clearing is exempted under specific provisions listed in Schedule 6 of the Act, or are prescribed in the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*. Under the *Environmental Protection Act* (1986), "native vegetation" means indigenous aquatic or terrestrial vegetation, and includes dead vegetation unless that dead vegetation is of a class declared by regulation to be excluded from this definition but does not include vegetation in a plantation. Under the *Environmental Protection Act 1986*, Section 51A, "clearing" means the killing or destruction of, the removal of, the severing or ringbarking of trunks or stems of, or the doing of any other substantial damage to, some or all of the native vegetation in an area, and includes the draining or flooding of land, the burning of vegetation, the grazing of stock, or any other act or activity, that causes any of the aforementioned consequences or results.

Under the *Environmental Protection Act 1986*, ten principles are set out, under which native vegetation should not be cleared. These principles state that native vegetation should not be cleared, if:

a. it comprises a high level of biological diversity;
b. it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia;
c. it includes, or is necessary for the continued existence of, threatened flora;
d. it comprises the whole or a part of, or is necessary for the maintenance of, a threatened ecological community;
e. it is significant as a remnant of native vegetation in an area that has been extensively cleared;
f. it is growing in, or in association with, an environment associated with a watercourse or wetland;
g. the clearing of the vegetation is likely to cause appreciable land degradation;
h. the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area;
i. the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water; or
j. the clearing of the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

The *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, under Regulation 5, sets out prescribed clearing actions that do not require a clearing permit, as defined in Section 51C of the *Environmental Protection Act 1986*.

Under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004*, under Regulation 6 –"Environmentally sensitive areas" are defined as "the area covered by vegetation within 50 m of threatened flora, to the extent to which the vegetation is continuous with the vegetation in which the threatened flora is located".

Under the *Environmental Protection (Clearing of Native Vegetation) Regulations 2004* - Regulation 6 (Environmentally sensitive areas), the area covered by a threatened ecological community, is similarly considered an Environmentally sensitive area and therefore non-permitted, unless Ministerial approval is granted.

2.4 Declared (Plant) Pest Organisms

The *Biosecurity and Agriculture Management Act 2007* (BAM Act), Section 22, makes provision for a plant taxa to be listed as a declared pest organism in respect of parts of, or the entire State. According to the BAM Act, a declared pest is defined as a prohibited organism (Section 12), or an organism for which a declaration under section 22 (2) of the Act is in force.

Under section 26 (1) of the *Biosecurity and Agriculture Management Act 2007*, a person who finds a declared plant pest must report, in accordance with subsection (2), the presence or suspected presence of the declared pest to the Director General or an inspector of the Department of Agriculture and Food Western Australia.

Under the *Biosecurity and Agriculture Management Regulations 2013*, declared plant pests are placed in one of three control categories, C1 (exclusion), C2 (eradication) or C3 (management), which determines the measures of control which apply to the declared pest (Appendix A6). According to section 30 (3) of the BAM Act, the owner or occupier of land, or a person who is conducting an activity on the land, must take the prescribed control measures to control the declared pest if it is present on the land.

The current listing of declared pest organisms and their control category is available on the Western Australian Organism List (WAOL), at the Biosecurity and Agriculture Management website of the Department of Agriculture and Food Western Australia (Department of Agriculture and Food 2013).

2.5 Local and Regional Significance

Flora or vegetation may be locally or regionally significant in addition to statutory listings by the State or Federal Government.

In regards to flora; species, subspecies, varieties, hybrids and ecotypes may be significant other than as threatened flora or priority flora, for a variety of reasons, including:

- a keystone role in a particular habitat for threatened species, or supporting large populations representing a significant proportion of the local regional population of a species;
- relic status
- anomalous features that indicate a potential new discovery;
- being representative of the range of a species (particularly, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range);
- the presence of restricted subspecies, varieties, or naturally occurring hybrids;
- local endemism/a restricted distribution; and
- being poorly reserved (Environmental Protection Authority 2004).

Vegetation may be significant because the extent is below a threshold level and a range of other reasons, including:

- scarcity;
- unusual species;
- novel combinations of species;
- a role as a refuge;
- a role as a key habitat for threatened species or large populations representing a significant proportion of the local to regional total population of a species;
- being representative of the range of a unit (particularly, a good local and/or regional example of a unit in "prime" habitat, at the extremes of range, recently discovered range extensions, or isolated outliers of the main range);
- a restricted distribution (Environmental Protection Authority 2004).

Vegetation communities are locally significant if they contain Priority Flora species or contain a range extension of a particular taxon outside of the normal distribution. They may also be locally significant if they are very restricted to one or two locations or occur as small isolated communities. In addition, vegetation communities that exhibit unusually high structural and species diversity are also locally significant.

Vegetation communities are regionally significant where they are limited to specific landform types, are uncommon or restricted plant community types within the regional context, or support populations of threatened Flora.

Determining the significance of flora and vegetation may be applied at various scales, for example, a vegetation community may be nationally significant and governed by statutory protection as well as being locally and regionally significant.

3. OBJECTIVES

The aim of the current survey was to undertake a Level 1 flora and vegetation assessment of the Fortescue River Gas Pipeline (FRGP) Project Area. Specifically:

- Collect and identify vascular plant species present in the survey area;
- Collect and identify Declared Threatened and Priority vascular plant species ;
- Review the conservation status of vascular plant species recorded by reference to current literature and current listings by the Department of Parks and Wildlife (2013b) and plant collections held at the Western Australian State Herbarium (Department of Parks and Wildlife 2013h), and listed by the Department of the Environment (2013a) under the *Environmental Protection and Biodiversity Conservation Act 1999*;
- Record information regarding the GPS co-ordinates and number of plants for any known or potential Declared Threatened Flora and Priority Flora located during the survey;
- Undertake the flora survey to standards outlined in Guidance Statement 51 (Environmental Protection Authority 2004);
- Lodge Threatened and Priority Flora Report Forms with the Department of Parks and Wildlife for all recorded localities of Declared Threatened Flora and Priority Flora species;
- Define and map the native vegetation communities;
- Detail the condition of vegetation within the survey area;
- Provide details on the type and extent of weed species;
- Review and detail the local and regional significance of vegetation, with specific reference to Threatened and Priority Ecological Communities, Rangeland Land Systems and Pre-European mapping; and
- Prepare a report summarising the findings.

4. METHODS

Prior to the field survey, a desktop search for Declared Threatened and Priority flora and Threatened and Priority Ecological Communities that have the potential to occur within the survey area was undertaken using Florabase and NatureMap (Department of Parks and Wildlife 2013c; 2013g).

Assessment of flora and vegetation of the survey area was undertaken by four experienced botanists from the 2nd to the 7th October 2013, and two experienced botanists from the 7th to the 12th of October 2013. A total of 238 sampling sites were selected using high resolution aerial photographic maps of the survey area as supplied by CAD Resources and opportunistic field selection (Appendix C). Survey sites consisted of 50 x 50 m quadrats. All geographical coordinates cited in this report are based on the GDA94 datum and refer to the north-west corner of survey quadrats. Where necessary quadrat shape was adjusted to sample uniquely shaped habitats e.g. breakaways and micro-channels. The survey was undertaken in accordance with the recommendations made in Guidance Statement 51 (Environmental Protection Authority 2004).

The flora and vegetation was described and sampled systematically at each survey site, and additional opportunistic collecting was undertaken wherever previously unrecorded plants were observed. At each site the following floristic and environmental parameters were recorded:

- GPS location;
- topography;
- percentage and type of litter cover;
- soil type and colour;
- percentage of bare ground;
- outcropping rocks and their type;
- notes on disturbance and vegetation condition;
- site photograph;
- time since fire; and
- number, height and percentage cover of species.

All plant specimens collected during the field surveys were dried and fumigated in accordance with the requirements of the Western Australian Herbarium. Plant species were identified through comparisons with pressed specimens housed at the Western Australian Herbarium. Where appropriate, plant taxonomists with specialist skills were consulted. Nomenclature of the species recorded is in accordance with the Department of Parks and Wildlife (2013e; 2013f).

4.1 Statistical Analysis and Vegetation Mapping

PRIMER v6 (Plymouth Routines in Multivariate Ecological Research) statistical analysis software was used to analyse species-by-site data and discriminate survey sites on the basis of their species composition (Clarke and Gorley, 2006). To down weight the relative contributions of quantitatively dominant species a 4th root transformation was applied to the data set. Singletons were removed from the data set prior to analysis. Annuals were removed from the data in analysis due to the likelihood of substantial differences between years based on seasonality of local rainfall events. Computation of similarity matrices was based on the Bray-Curtis similarity measure. Data were analysed using a series of multivariate analysis routines including SIMPROF analysis, Hierarchical Clustering (CLUSTER), Analysis of Similarity (ANOSIM) and Similarity Percentages (SIMPER). Results were used to inform and support interpretation of aerial photography and delineation of individual plant communities.

4.2 Vegetation Descriptions

Vegetation descriptions were based on Alpin's (1979) modification of the vegetation classification system of Specht (1970), to align with the National Vegetation Information System. Vegetation communities were described at the association level of the NVIS classification framework, as defined by the Executive Steering Committee for Australian Vegetation Information (ESCAVI, 2003). Vegetation community descriptions, topographic and edaphic information and representative photos are shown in Appendix G.

4.3 Survey Limitations and Constraints

An assessment of the survey against a range of factors which may have had an impact on the outcomes of the present survey was made (Table 1). Based on this assessment, the present survey has not been subject to constraints which would affect the thoroughness of the survey, and the conclusions which have been formed.

Table 1: Potential Flora and Vegetation Survey Limitations for Survey Area

Potential Survey Limitation	Impact on Survey
Sources of information and availability of contextual information (i.e. pre-existing background versus new material).	**Not a constraint**: Adequate background information was sourced to provide detailed contextual information for the current project. Adequate supplementary material was utilised to compare and contrast current data with that of previous work in the locality including but not limited to Rangeland Land System surveys, Beard (1975) mapping, DPaW databases and previous work undertaken by botanical consultancies.
Scope (i.e. what life forms, etc., were sampled).	**Not a constraint**: Vascular flora was the focus of the survey. These were thoroughly sampled.
Proportion of flora collected and identified (based on sampling, timing and intensity).	**Not a constraint:** The proportion of flora collected and identified was considered adequate. It was estimated that approximately 92% of the flora potentially present within the survey area were sampled (via species accumulation plot). This figure was primarily a result of the high survey intensity achieved from CS1 to KP 140 and the relatively homogeneous nature of much of the vegetation i.e. similar species were recorded across the survey area, the structure and dominance of those species however differed greatly.
Completeness and further work which might be needed (i.e. was the relevant survey area fully surveyed).	**Potential constraint:** Sites were pre-selected using high resolution aerial photography to ensure all vegetation communities subjectively identified were sampled, with multiple replications. Where necessary, additional sites were chosen in the field. Site selection and replication was considered adequate to accurately analyse and discriminate sites based on species composition and subsequently delineate vegetation community boundaries, particularly from CS1 to KP 140. Accessibility, however, was limited from KP 140 to the Solomon Mine Hub terminus compromising mapping reliability.
Mapping reliability.	**Potential constraint:** More than adequate coverage of the survey area was achieved from CS1 to KP 140. Lack of accessibility from KP 140 to the Solomon Mine Hub terminus however, meant that less than adequate coverage was achieved. As a result, a greater degree of extrapolation was required when delineating vegetation community boundaries throughout this area, as large sections of the survey corridor were not traversed. High quality aerial maps (Scale: 1:10, 000) were used for both the survey work and subsequent vegetation community mapping. Vegetation community boundaries were often discontinuous with interfaces resembling admixtures of one or more communities. This is a recognised and unavoidable limitation of vegetation mapping, particularly across mosaic *Acacia* / *Triodia* associations.
Timing, weather, season, cycle.	**Potential constraint:** Below average rainfall was recorded in the three month period leading into the October survey. Vegetation however, was in reasonable condition given the large rainfall events that occurred in June (over three times the long-term average). Annuals accounted for approximately 17.8 percent of the total species recorded, with a further 12.7 percent being annual or perennial depending on local site conditions. . There were no interruptions to field work due to weather or timing issues.
Disturbances (fire, flood, accidental human intervention, etc.).	**Not a constraint**: Areas between KP 7 and KP 13 have been subject to recent fire events (<1 year). The homogenous nature of vegetation across this area and the vigorous re-growth of key species did not lower the confidence of delineating communities in these areas.
Intensity (in retrospect, was the intensity adequate).	**Potential constraint:** Survey intensity was considered to have been thorough from CS1 to KP 140 with more than adequate replication being achieved via pre-planned sites, opportunistic field selection and relevé sites. Survey intensity from KP 140 the Solomon Mine Hub terminus was considered less than adequate, with large sections of this area being inaccessible

Table 1: Potential Flora and Vegetation Survey Limitations for Survey Area (cont.)

Potential Survey Limitation	Impact on Survey
Resources (i.e. were there adequate resources to complete the survey to the required standard).	**Not a constraint:** Resources, in terms of time, equipment, support and personnel were adequate to undertake and complete the survey.
Access problems (i.e. ability to access survey area).	**Constraint**: The survey area was easily accessible from CS1 to KP 140. From KP 140 to the Solomon Mine Hub terminus, however, access was restricted to a small number of existing tracks and areas negotiated by DBP and relevant stakeholders for helicopter landings.
Experience levels (e.g. degree of expertise in plant identification to taxon level).	**Not a constraint:** Ecologists and botanists have undertaken previous surveys in the wider area and were familiar with the flora and vegetation. Collected specimens that were unable to be identified in the Mattiske herbarium were taken to the Western Australian Herbarium for positive identification.

5. RESULTS

5.1 Desktop Survey

5.1.1 Geology and Soils

The FRGP traverses a wide range of geological formations, encompassing diverse topography and soils. Given this variability, broad descriptions based primarily on Beard (1975) physiogeographic units have been presented.

The FRGP traverses two dominant low-lying geological formations, namely those associated with the Onslow Coastal Plain and those of the Fortescue Valley. The Onslow Coastal Plain consists primarily of broad, low-lying plains formed on Quaternary alluvium with coastal fringes being dominated by salt flats, tidal swamps and coastal sand dunes. The transition zone between the coastal plain and inland areas consists of low hills and gently undulating plains formed on complex Proterozoic rocks (Beard, 1975; Van Vreeswyk *et al.*, 2004). The Fortescue Valley consists of a long narrow trough formed on Quaternary alluvium, colluvium and sand plains occurring between the Chichester and Hamersley Plateaux. Extensive plains primarily comprising earthy clays and shallow loams dominate the Valley. Sand plains occur to the east of the Fortescue Valley, bordered by alluvial plains dominated by cracking clays. Flood-out zones frequently occur, comprising highly calcareous earths. The transition zone between the Fortescue Valley and the Hamersley escarpment consists predominantly of gently undulating plains with coarse gravels (Beard, 1975; Van Vreeswyk *et al.*, 2004).

The FRGP traverses three dominant geological formations primarily associated with Proterozoic rocks, namely the Chichester Plateau, Hamersley Plateau and Stuart Hills. The Chichester Plateau consists of a long narrow watershed formed on Lower Proterozoic rocks (mainly basalt) occurring between coastal flowing rivers to the north and Fortescue drainage to the south. The summit of the plateau consists predominately of a gently undulating plain dominated by cracking and non-cracking clays and hard red alkaline soils. Deeply dissected country occurs to the east of the Plateau comprising steep ranges on basaltic lavas (Beard, 1975). The Hamersley Plateau consists of outcrops of Lower Proterozoic rocks, predominately jaspilite and dolomite. This plateau is characterised by steep-side gorges, rounded hills, ranges and steeply dissected pediments with skeletal soils. Alluvial plains occur locally, dominated by earthy loams and earthy clays. The Stuart Hills consist of plains, gently undulating and incised pediplains and stony hills formed on Lower Proterozoic rocks (mainly shale, greywacke and dolomite). Soils are primarily skeletal, with occasional shallow calcareous loams occurring on patches of calcrete (Beard, 1975; Van Vreeswyk *et al.*, 2004).

5.1.2 Rangeland Land Systems

Rangeland Land Systems mapping prepared by the Western Australian Department of Agriculture and Food (formerly Western Australian Department of Agriculture), provides and inventory and condition survey of lands in the Pilbara region (Van Vreeswyk *et al.,* 2004) at a 1: 250 000 scale; Figure 3. These surveys describe the biophysical characteristics of each region and subsequently divide each region into land systems; land systems being defined as repeating patterns of topography, soils and vegetation.

Table 2: Rangeland Land Systems of the FRGP Project: Total Extent, Extent within Survey Area and Percentage Impact.

Land System	Total Extent of Land System (ha)	Total Mapped Area (ha)	% Impact
Boolgeeda	1005897.56	4492.48	0.45
Brockman	74560.09	485.56	0.65
Calcrete	167431.57	10.74	0.01
Cane	82923.20	224.85	0.27
Capricorn	892036.88	30.06	<0.01
Egerton	394197.81	86.05	0.02
Horseflat	332116.14	135.32	0.04
Hooley	59503.05	84.53	0.14
Jurrawarrina	66863.16	241.99	0.36
Kanjenjie	15310.83	248.23	1.62
Kumina	15219.41	188.32	1.24
McKay	429133.28	235.52	0.05
Newman	2013195.38	301.06	0.01
Nanutarra	79617.48	552.79	0.69
Oakover	153011.45	62.54	0.04
Paraburdoo	145976.92	32.40	0.02
Peedamulla	60000.66	178.48	0.30
Robe	131881.24	47.33	0.04
Rocklea	2906738.07	1833.72	0.06
Sherlock	39028.40	35.66	0.09
Urandy	133072.30	3289.13	2.47
Wona	196037.21	541.60	0.28

The survey area contains twenty-two land systems as described by Van Vreeswyk *et al.* (2004). Extent of land systems mapped in Western Australia, extent of land system within the survey area and percentage impact data is presented in Table 2. A description of each land system is provided below:

Boolgeeda Land System (RGEBGD)

The Boolgeeda Land System comprises four land units:

1. Low hills and rises: Sparse hummock grasslands of *Triodia wiseana* and occasional shrubs *Acacia pyrifolia* and *Acacia orthocarpa*.
2. Stony upper plains and slopes: Hummock grasslands of *Triodia wiseana* (hard spinifex) with scattered shrubs *Acacia inaequilatera*, *Acacia pyrifolia*, *Acacia bivenosa*, *Acacia ancistrocarpa* and *Cassia* spp; occasionally *Corymbia* spp.
3. Stony lower plains: Similar to Unit 2, with occasional *Hakea lorea* and *Acacia xiphophylla*.
4. Narrow drainage floors and channels: Hummock grassland of *Triodia wiseana* and/or *Triodia pungens* with numerous shrub species including *Acacia* spp., *Corchorus* spp. and *Indigofera* spp.

Brockman Land System (RGEBRO)

The Brockman Land System comprises six land units:

1. Hardpan plains: Very scattered *Acacia aneura* tall shrublands with low shrubs such as *Ptilotus obovatus*, occasionally sparse *Triodia* spp.
2. Gilgai plains: Tussock grasslands of *Eragrostis xerophila*, *Astrebla pectinata*, *Themeda triandra* or mixtures including *Chrysopogon fallax* and *Eriachne benthamii*.
3. Stony plains: Hummock grassland of *Triodia wiseana* with isolated *Acacia* spp. shrubs. Occasionally *Triodia pungens*.
4. Narrow drainage tracts and channels: Tussock grasslands of *Eragrostis xerophila* and other perennial grasses, or scattered tall shrublands of *Acacia* spp. over perennial grasses. Larger

creeklines with fringing woodlands of *Eucalyptus camaldulensis*, *Eucalyptus victrix*, *Acacia coriacea* and *Acacia citrinoviridus*.

5. Groves: Moderately closed to closed tall shrublands/woodlands of *Acacia aneura* with patchy understorey of low shrubs and tussock grasses such as *Chrysopogon fallax*.
6. Swamps: Scattered low woodlands of *Eucalyptus victrix* with ground layers of tussock grasses such as *Eriachne benthamii*.

Calcrete Land System (RGECAL)

The Calcrete Land System comprises five land units:

1. Calcrete plains, platforms and low rises: Hummock grassland of *Triodia wiseana*, *Triodia plurinervata* and less frequently *Triodia pungens*, with *Acacia bivenosa* and other *Acacia* spp.; occasional *Corymbia hamersleyana*.
2. Drainage foci: Similar to unit 1, some additional grasses and/or low shrubs.
3. Sandy plains/sandplains: Hummock grasslands of *Triodia* spp. with scattered *Acacia* spp. shrubs.
4. Drainage tracts: Variable scattered to moderately closed shrublands with numerous *Acacia* spp. occasional eucalypts, *Hakea lorea* and scattered hummock and tussock grasses.
5. Channels: Scattered to moderately closed tall shrublands of *Corymbia hamersleyana*, *Acacia holosericea*, *Acacia trachycarpa*, *Acacia tumida* and *Triodia pungens*.

Cane Land System (RGECAN)

The Cane Land System comprises five land units:

1. Loamy plains: Hummock grasslands of *Triodia lanigera* with occasional *Acacia* spp. shrubs.
2. Stony plains and stony gilgai plains: Scattered tall of mid shrublands of *Acacia xiphophylla* with patchy tussock grasses particularly *Eragrostis xerophila*. Also tussock grasslands of *Eragrostis xerophila*.
3. Flood plains: Hummock grasslands of *Triodia pungens* and less frequently *Triodia lanigera*. Also scattered mid *Acacia xiphophylla* shrublands with understorey of spinifex or *Atriplex* spp.
4. Tracts receiving more concentrated flow: Scattered to moderately closed woodlands of *Eucalyptus victrix* or *Acacia* spp. with grass understoreys including *Chrysopogon fallax* and *Eriachne benthamii*.
5. Channels: Banks, terraces and levees with scattered to moderately closed grassy woodlands including *Eucalyptus victrix*, *Eucalyptus camaldulensis* and *Melaleuca* spp.

Capricorn Land System (RGECPN)

The Capricorn Land System comprises four land units:

1. Ridges, hills and upper slopes: Hummock grasslands of *Triodia wiseana*, *Triodia brizoides* or *Triodia pungens* with scattered *Acacia inaequilatera* and other *Acacia* spp. and *Grevillea wickhamii*.
2. Lower footslopes: As for unit 1.
3. Hummock grasslands of *Triodia wiseana* or *Triodia pungens* with scattered *Acacia* spp. shrubs.
4. Narrow drainage floors and channels: Scattered tall shrublands or low woodlands with *Acacia* spp., *Corymbia hamersleyana*, numerous other shrubs and soft spinifex.

Egerton Land System (RGEEGE)

The Egerton Land System comprises four land units:

1. Hardpan plains: Very scattered to scattered tall shrublands of *Acacia aneura* and other *Acacia* spp. with prominent ground layer of *Triodia* spp.
2. Dissected slopes: Hummock grasslands of *Triodia brizoides*, *Triodia wiseana* with isolated acacia shrubs and eucalypts.
3. Calcrete drainage margins: Hummock grasslands of *Triodia wiseana* with sparse *Eucalyptus socialis* trees or mallees and isolated low shrubs.
4. Drainage floor and channels: Moderately closed woodlands/tall shrublands of *Acacia aneura* with other shrubs including *Senna* spp., *Ptilotus obovatus*, *Eremophila forrestii* with *Triodia* spp. ground layer.

Horseflat Land System (RGEHOF)

The Horseflat Land System comprises eight land units:

1. Stony rises and low hills: Hummock grasslands of *Triodia wiseana*, *Triodia brizoides* with isolated shrubs.
2. Calcrete plains: Hummock grasslands of *Triodia wiseana* with isolated shrubs.
3. Gilgaied plains: Mostly tussock grasslands dominated by *Eragrostis xerophila* but also other grasses such as *Chrysopogon fallax* and *Eriachne benthamii*. Occasional patches of very scattered to scattered mid height shrublands of *Acacia xiphophylla* with tussock grasses.
4. Non gilgaied, sometimes stony plains: Very scattered to scattered tall and mid height shrublands of *Acacia xiphophylla* with tussock grasses mostly *Eragrostis xerophila*; also patchy tussock and annual grasslands and hummock grasslands of *Triodia wiseana* and *Triodia longiceps*.
5. Alluvial plains: Tussock grasslands with *Eragrostis xerophila*, *Eriachne benthamii*, *Chrysopogon fallax*, **Cenchrus ciliaris*; also tussock grasslands with shrub *Atriplex bunburyana* and occasionally *Triodia* spp. hummock grasslands.
6. Dissected slopes: Very scattered tall and mid height shrublands of *Acacia xiphophylla* with patchy tussock grasses; also very sparse tussock grasslands and annual grasslands/herbfields.
7. Linear drainage depressions: Dense tussock grasslands including *Eriachne benthamii*, *Chrysopogon fallax* with occasional trees including *Eucalyptus camaldulensis* and *Hakea lorea* and shrubs such as **Vachellia farnesiana*.
8. Channels and minor river terraces: Fringing woodlands of *Eucalyptus camaldulensis*, *Eucalyptus victrix* and *Acacia coriacea* and grasses **Cenchrus ciliaris*, *Chrysopogon fallax* and *Triodia pungens*.

Hooley Land System (RGEHOY)

The Hooley Land System comprises three land units:

1. Stony Plains: Hummock grasslands of *Triodia pungens* and *Triodia* spp. with isolated shrubs or scattered tall shrubs of *Acacia xiphophylla* with sparse tussock grasses.
2. Gilgai plains: Mainly tussock grasslands predominately with *Eragrostis xerophila* but also *Chrysopogon fallax* and *Astrebla pectinata*. Also, scattered tall shrublands/woodlands of *Acacia aneura* or *Acacia xiphophylla* with sparse tussock grasses.
3. Drainage tracts: Tussock grasslands of *Eragrostis xerophila* or tall moderately closed shrublands/woodlands with *Acacia aneura*, *Acacia xiphophylla*, *Acacia coriacea*, *Eucalyptus victrix* and tussock grasses.

Jurrawarrina Land System (RGEJUR)

The Jurrawarrina Land System comprises six land units:

1. Stony plains: Very scattered tall shrublands of *Acacia aneura* and/or *Acacia xiphophylla* with *Triodia pungens* and less frequently hard spinifex.
2. Hardpan plains: Very scattered to scattered tall shrublands of *Acacia aneura* with sparse *Eremophila* and *Ptilotus* spp. low shrubs. Also scattered tall shrublands of *Acacia xiphophylla* and sparse tussock grasses.
3. Drainage tracts: Scattered to moderately closed tall shrublands/woodlands of *Acacia aneura* and other acacias with tussock grasses. Less frequently with *Triodia pungens* ground layer.
4. Groves and drainage foci: Closed tall shrublands/woodlands of *Acacia aneura* with very scattered low shrubs and grasses such as *Chrysopogon fallax* and *Triodia pungens*.
5. Gilgai plains: Tussock grasslands of *Eragrostis xerophila*, *Chrysopogon fallax*, *Astrebla* spp. with isolated or very scattered shrubs.
6. Channels: Moderately closed fringing tall shrublands/woodlands with *Acacia aneura*, other acacias and eucalypts with tussock grass ground layer.

Kanjenjie Land System (RGEKAN)

The Kanjenjie Land System comprises four land units:

1. Calcrete platforms: Hummock grasslands of *Triodia wiseana* with very scattered shrubs including *Acacia bivenosa* and *Acacia xiphophylla*.
2. Scattered tall shrublands dominated by *Acacia xiphophylla*, numerous other shrubs and tussock grasses *Astrebla pectinata*, *Chrysopogon fallax*, *Eragrostis xerophila*, or hummock grass *Triodia wiseana*.

3. Stony gilgai plains: Scattered to moderately closed tall shrublands dominated by *Acacia xiphophylla*, numerous other shrubs and tussock grasses *Astrebla* spp., *Chrysopogon fallax* and *Eragrostis xerophila*.
4. Drainage tracts: As for unit 3.

Kumina Land System (RGEKUM)

The Kumina Land System comprises three land units:

1. Stony plains: Shrubby hummock grasslands with *Triodia wiseana*, *Triodia angusta*, *Triodia* spp. with scattered *Acacia atkinsiana*, *Acacia ancistrocarpa* and other acacias and low shrubs, occasional small eucalypt trees.
2. Low rises: As for unit 1.
3. Drainage tracts: Scattered to moderately closed tall shrublands with *Acacia aneura*, other acacias and occasional eucalypt trees. *Triodia* spp. hummock grass ground layer.

McKay Land System (RGEMCK)

The McKay Land System comprises five land units:

1. Hills, ridges and plateaux remnants: Hummock grasslands of *Triodia lanigera*, *Triodia wiseana* with isolated to scattered *Acacia* spp. shrubs or *Eucalyptus leucophloia*.
2. Breakaways: Very scattered to scattered shrublands with *Acacia aneura* or other acacias and *Triodia* spp. understorey. Also *Triodia* spp. hummock grasslands.
3. Lower footslopes: Hummock grasslands of *Triodia* spp. with isolated to very scattered *Acacia* spp. shrubs and occasional *Eucalyptus leucophloia* trees. Less frequently with *Triodia pungens*.
4. Stony plains: Hummock grasslands of *Triodia wiseana*, *Triodia* spp. with isolated to very scattered *Acacia* spp. and eucalypt trees. Occasionally hummock grasslands of *Triodia pungens*.
5. Drainage floors: Scattered tall shrublands/woodlands with *Acacia* and *Eucalyptus* spp. and hummock grass *Triodia* spp. understorey.

Nanutarra Land System (RGENNT)

The Nanutarra Land System comprises four land units:

1. Low plateaux, mesas, buttes and hills: Hummock grasslands of *Triodia pungens* with isolated *Acacia* and *Senna* spp. shrubs.
2. Upper footslopes: Hummock grasslands of *Triodia wiseana* with very scattered to scattered *Acacia* spp. shrubs. Less frequently hummock grasslands of *Triodia pungens*.
3. Hummock grasslands of *Triodia* spp. with very scattered *Acacia* and *Eremophila* spp. shrubs. Also scattered tall shrublands of *Acacia xiphophylla* with hummock grass understorey.
4. Narrow drainage zones: Scattered shrublands of *Acacia xiphophylla* and other acacias with sparse low shrubs and *Triodia lanigera*.

Newman Land System (RGENEW)

The Newman Land System comprises four land units:

1. Plateaux, ridges, mountains and hills: Hummock grasslands of *Triodia wiseana*, *Triodia brizoides*, and *Triodia plurinervata* with very scattered to scattered shrubs and trees including *Acacia* and *Senna* spp., *Grevillea wickhamii*, *Eucalyptus leucophloia* and other eucalypts. Occasionally hummock grass is *Triodia biflora*.
2. Lower slopes: Similar to unit 1.
3. Stony plains: Hummock grasslands of *Triodia wiseana*, *Triodia* spp. with isolated to very scattered shrubs of *Acacia* and *Senna* spp. and occasional eucalypt trees. Occasionally hummock grasslands of *Triodia pungens*.
4. Narrow drainage floors with channels: Smaller floors support hummock grassland of *Triodia pungens* with very scattered shrubs. Larger floors and channels support tall shrublands/woodlands of *Acacia* spp. and *Eucalyptus victrix* with tussock or hummock grass understoreys.

Oakover Land System (RGEOAK)

The Oakover Land System comprises four land units:

1. Plateaux and mesa tops with breakaways: Hummock grasslands of *Triodia wiseana* with scattered shrubs *Acacia*, *Senna*, *Corchorus* spp.
2. Footslopes: Hummock grasslands of *Triodia wiseana* with isolated to very scattered shrubs such as *Acacia bivenosa* and *Senna* spp.
3. Calcareous plains: Hummock grasslands of *Triodia wiseana* with isolated shrubs *Acacia bivenosa*, acacias and *Senna* spp.
4. Drainage lines: Small drainage lines support hummock grasslands of *Triodia pungens* or *Triodia wiseana* with isolated or very scattered shrubs. Larger floors with channels support acacia or eucalypt rall shrublands/woodlands with hummock or tussock grass understoreys.

Paraburdoo Land System (RGEPAR)

The Paraburdoo Land System comprises seven land units:

1. Low basalt hills and ridges: Low shrublands with *Corchorus walcottii*, *Ptilotus obovatus*, *Senna* spp. Also hummock grasslands of *Triodia wiseana* and very scattered shrubs.
2. Upper interfluves and slopes: Scattered tall shrublands of *Acacia aneura* or *Acacia xiphophylla* with numerous low shrubs including *Senna* spp. and *Maireana* spp. Also hummock grasslands of *Triodia wiseana* with very scattered acacia shrubs.
3. Groves: Moderately closed to closed tall shrublands/woodlands of *Acacia aneura* with sparse undershrubs and tussock grasses such as *Chrysopogon fallax*.
4. Gilgai plains: Tussock grasslands with *Eragrostis xerophila* and other perennial grasses and isolated or very scattered shrubs or scattered tall shrublands of *Acacia xiphophylla* with tussock grass understorey.
5. Drainage zones: Scattered tall shrublands with *Acacia aneura*, *Acacia xiphophylla*, *Acacia victoriae* with variable understoreys including *Senna* and *Maireana* spp. with tussock and/or hummock grasses. Also hummock grasslands of *Triodia* spp. with very scattered shrubs.
6. Braided creeklines and channels: Moderately closed tall shrublands/woodlands of *Acacia citrinoviridis* and other *Acacia* spp., *Eucalyptus camaldulensis* with variable low shrubs and tussock grasses.
7. Calcrete platforms: Hummock grasslands of *Triodia wiseana* with very scattered shrubs or shrublands of *Senna* and *Acacia* spp.

Peedamulla Land System (RGEPED)

The Peedamulla Land System comprises four land units:

1. Rises and low hills: Hummock grasslands of *Triodia wiseana*, *Triodia lanigera* with isolated to very scattered acacia shrubs.
2. Gravelly plains: Hummock grasslands of *Triodia wiseana*, *Triodia lanigera* with isolated to scattered shrubs including *Acacia atkinsiana*, *Acacia* spp. and *Grevillea wickhamii*. Occasionally hummock grasslands of *Triodia pungens* with shrubs. Also mid shrublands of *Acacia xiphophylla* with *Triodia* spp. understorey.
3. Stony gilgai plains: Tussock grasslands of *Eragrostis xerophila* and other perennial grasses or shrublands of *Acacia xiphophylla* with patchy tussock grass understorey.
4. Drainage floors: Scattered to closed tall shrublands or low woodlands of acacias and eucalypts with *Triodia pungens* or tussock grass understorey.

Robe Land System (RGEROB)

The Robe Land System comprises four land units:

1. Low plateaux, mesas and buttes: Hummock grasslands of *Triodia pungens* with isolated to scattered *Acacia* and *Senna* spp. and occasional *Eucalyptus leucophloia*.
2. Lower slopes: Hummock grasslands of *Triodia wiseana*, *Triodia longiceps* with isolated to very scattered *Acacia* and *Senna* spp. occasionally hummock grasslands of *Triodia pungens*.
3. Gravelly plains: As for unit 2.
4. Drainage floors and channels: Hummock grasslands of *Triodia pungens* with very scattered to moderately closed *Acacia* spp. Also moderately closed eucalypt or acacia woodlands/tall shrublands with *Triodia pungens* understorey.

Rocklea Land System (RGEROC)

The Rocklea Land System comprises five land units:

1. Basalt hills, ridges, plateaux remnants and upper slopes: Hummock grasslands of *Triodia wiseana*, *Triodia* spp., or less frequently of *Triodia pungens* with isolated to very scattered shrubs such as *Acacia pyrifolia, Acacia* spp. and *Cassia* spp. and trees *Ficus* spp. and *Terminalia canescens*.
2. Lower slopes and stony interfluves: Similar to Unit 1 but without tree species.
3. Gilgai plains: Patchy hummock grasslands of *Triodia wiseana* with scattered tussock grasslands of *Eragrostis xerophila* and numerous forbs and annual grasses.
4. Incised upper drainage lines: Hummock grasslands of *Triodia wiseana* or *Triodia pungens* with very scattered to scattered acacia shrubs and occasional *Corymbia hamersleyana* trees.
5. Drainage floors and channels: Scattered to moderately close tall shrublands or woodlands of *Acacia* spp., *Corymbia* spp. and *Eucalyptus* spp. with numerous undershrubs and hummock grass understoreys or tussock grass understoreys.

Sherlock Land System (RGESRK)

The Sherlock Land System comprises four land units:

1. Stony plains with spinifex: Hummock grasslands of *Triodia wiseana* with isolated or very scattered shrubs. Minor gilgai areas support annual grasslands or herbfields with very scattered tussocks of *Eragrostis xerophila*.
2. Stony alluvial plains with snakewood: Mid or tall *Acacia xiphophylla* shrublands with low shrubs such as *Enchylaena tomentosa* and *Senna artemisoides*, and tussock grasses *Eragrostis xerophila* and *Enteropogon acicularis* or hummock grass *Triodia pungens*. Also, hummock grasslands of *Triodia pungens* with isolated to scattered *Acacia* spp.
3. Gilgai plains: Tussock grasslands of *Eragrostis xerophila* and *Eriachne benthamii* or shrublands of *Acacia xiphophylla* with tussock grass understorey.
4. Hummock grasslands of *Triodia pungens* with very scattered shrubs and trees. Also, scattered to moderately closed tall shrublands/woodlands with species such as *Acacia trachycarpa*, *Acacia pyrifolia, Eucalyptus victrix* and *Hakea lorea* with *Triodia pungens*.

Urandy Land System (RGEURY)

The Urandy Land System comprises three land units:

1. Stony plains: Hummock grasslands of *Triodia pungens* with very scattered to moderately closed shrubs such as *Acacia aneura*, *Acacia ancistrocarpa*, *Acacia bivenosa* and *Acacia xiphophylla*.
2. Alluvial plains: Hummock grasslands of *Triodia pungens* with isolated to scattered shrubs such as *Acacia victoriae*, *Acacia inaequilatera* and *Acacia atkinsiniana* and sparse eucalypt trees.
3. Drainage zones and channels: Hummock grasslands of *Triodia pungens* or tall shrublands/woodlands of *Acacia* and *Eucalyptus* spp. with hummock and tussock grass understoreys including *Chrysopogon fallax* and **Cenchrus ciliaris*.

Wona Land System (RGEWON)

The Wona Land System comprises four land units:

1. Low basalt hills: Hummock grasslands of *Triodia wiseana* with isolated to very scattered *Acacia* and *Senna* spp. Occasionally *Triodia pungens*.
2. Stony gilgai upland plains: Tussock grasslands with *Astrebla pectinata*, *Astrebla elymoides*, *Eragrostis xerophila*, *Aristida latifolia*, *Eriachne* spp. and *Sida fibulifera*. Also patches of *Acacia xiphophylla* with understorey of mixed tussock grasses and *Senna* spp.
3. Stony plains and slopes: Hummock grasslands of *Triodia wiseana* and less frequently *Triodia pungens* with isolated to very scattered tall shrubs such as *Acacia inaequilatera*, *Acacia aneura* and *Acacia xiphophylla*.
4. Drainage lines: Scattered to moderately closed tall shrublands of *Acacia xiphophylla* or other acacias with patchy tussock grasses.

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Legend

- Black System
- Bonney System
- Boolaloo System
- Boolgeeda System
- Brockman System
- Calcrete System
- Cane System
- Capricorn System
- Coolibah System
- Egerton System
- Granitic System
- Hooley System
- Horseflat System
- Houndstooth System
- Jurrawarrina System
- Kanjenjie System
- Kumina System
- Littoral System
- Macroy System
- Mallina System
- McKay System
- Nanutarra System
- Newman System
- Oakover System
- Onslow System
- Paraburdoo System
- Peedamulla System
- Platform System
- Pyramid System
- River System
- Robe System
- Rocklea System
- Ruth System
- Satirist System
- Sherlock System
- Stuart System
- Table System
- Talga System
- Uaroo System
- Urandy System
- Wannamunna System
- Wona System

Sheet Layout:

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_14_20131129

Date: Nov 2013 | Rev: A | A3

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Fortescue River Gas Pipeline (FRGP)
Land Systems
Sheet 1 of 3

Appendix: **3.1**

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Legend

- Black System
- Bonney System
- Boolaloo System
- Boolgeeda System
- Brockman System
- Calcrete System
- Cane System
- Capricorn System
- Coolibah System
- Egerton System
- Granitic System
- Hooley System
- Horseflat System
- Houndstooth System
- Jurrawarrina System
- Kanjenjie System
- Kumina System
- Littoral System
- Macroy System
- Mallina System
- McKay System
- Nanutarra System
- Newman System
- Oakover System
- Onslow System
- Paraburdoo System
- Peedamulla System
- Platform System
- Pyramid System
- River System
- Robe System
- Rocklea System
- Ruth System
- Satirist System
- Sherlock System
- Stuart System
- Table System
- Talga System
- Uaroo System
- Urandy System
- Wannamunna System
- Wona System

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MGA94 (Zone 50)

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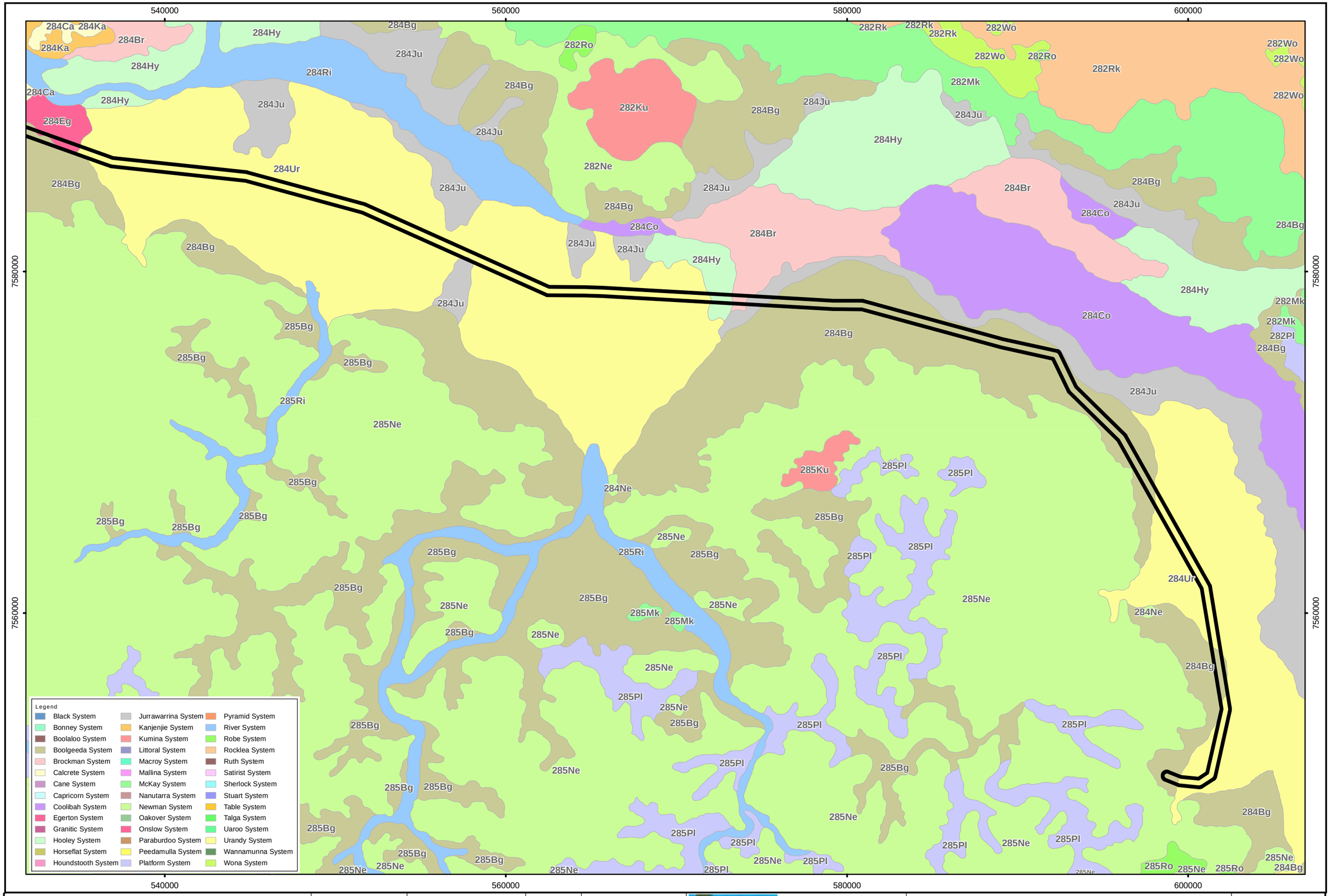
Fortescue River Gas Pipeline (FRGP)
Land Systems
Sheet 2 of 3

Appendix: **3.2**



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MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_14_20131129

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Fortescue River Gas Pipeline (FRGP)
Land Systems
Sheet 3 of 3

Appendix: **3.3**

5.1.3 Interim Biogeographic Regionalisation of Australia (IBRA)

The Interim Biogeographic Regionalisation for Australia (IBRA) currently recognises 89 bioregions and 419 subregions (Department of the Environment, 2013c). The Pilbara IBRA Region is comprised of four biogeographical subregions, namely the Chichester, Fortescue Plains, Hamersley and Roebourne subregions. The survey area traverses, to varying extents, each of the aforementioned subregions.

Chichester (PIL1) subregion

The Chichester subregion (PIL1) comprises the northern section of the Pilbara Craton consisting of undulating Archaean granite and basalt plains including significant areas of basaltic ranges. Basalt plains support shrub steppe communities characterised by *Triodia wiseana* hummock grasslands and sparse shrubs including *Acacia inaequilatera*. Drainage occurs to the north via numerous rivers including the De Grey, Oakover, Nullagine, Shaw, Yule and Sherlock. The Chichester subregion covers some nine million hectares (Kendrick and McKenzie, 2001).

Fortescue Plains (PIL2) subregion

The Fortescue Plains subregion (PIL2) predominately comprises alluvial plains and river frontage with deeply incised gorge systems in western parts of the subregion. Salt marshes, mulga-bunch grass and short grass communities dominate the alluvial plains, while river gum woodlands fringe drainage lines. An extensive calcrete aquifer feeds numerous permanent springs in central parts of the subregion, supporting permanent wetlands dominated by river gum and *Melaleuca* woodlands. The Fortescue subregion covers over 2 million hectares (Kendrick, 2001a).

Hamersley (PIL3) subregion

The Hamersley subregion (PIL3) comprises the southern section of the Pilbara Craton consisting of elevated areas of Proterozoic sedimentary ranges and plateaux, dissected by basalt, shale and dolerite gorges. Skeletal soils of the ranges are characterised by *Eucalyptus leucophloia* over *Triodia brizoides*, with valley floors being characterised by Mulga woodlands and/or tussock grasslands. The Hamersley subregion covers over six million hectares (Kendrick, 2001b).

Roebourne (PIL4) synopsis

The Roebourne (PIL4) synopsis comprises Quaternary alluvial and colluvial coastal and sub-coastal plains. These plains are characterised by mixed tussock and hummock grasslands and dwarf shrub steppe of *Acacia stellaticeps*, *Acacia pyrifolia* and *Acacia inaequilatera*. *Triodia* hummock grasslands dominate uplands with *Eucalyptus victrix* or *Corymbia hamersleyana* dominating Ephemeral drainage lines. Samphire and mangal communities occur on marine alluvial flats and deltas. The Roebourne synopsis covers some two million hectares (Kendrick and Stanley, 2001).

5.1.4 Historical Mapping of Beard

Beard (1975) broadly mapped vegetation of the Pilbara at a scale of 1: 1, 000, 000. The survey area lies within the Fortescue Botanical District (Pilbara Region) of the Eremaean Botanical Province, as defined by Beard (1975, 1990; Figure 4). The Fortescue Botanical District comprises nine physiogeographic units, of which, the survey area traverses vegetation associations of the Onslow Coastal Plain (3.43% of survey area), Chichester Plateau (20.09% of survey area), Fortescue Valley (3.82% of survey area), Hamersley Plateau (57.28% of survey area) and Stuart Hills (15.38% of survey area).

The Onslow Coastal Plain predominately consists an extensive mosaic of red earth plains of varying acidities with surface gravels, and cracking and non-cracking clay pans. The coastal fringe consists of salt flats, tidal swamps, coastal sand dunes and small areas of calcareous earths and shallow loams. Beard (1975) described vegetation of the Onslow Coastal Plain as a broad mosaic, with species composition and densities being primarily determined by abrupt soil changes. Various shrub steppe communities dominate the Plain generally comprising scattered shrubs of *Acacia* spp., *Hakea lorea* and *Corymbia* spp. over tussock and/or hummock grasses. Toward the coastal fringes, mangroves dominate the hyper-saline mud flats.

The Chichester Plateau consists of gently undulating plains with high natural relief in the form of ranges and plateaus. More deeply dissected country comprises steep ranges on basalt and stony fragments. High plains dominated by *Acacia pyrifolia* and *Triodia* spp. shrub steppe gradually transition to grass savannah communities on lower slopes. Stony ridges and steep dissected country are characterised by *Eucalyptus leucophloia* and hard spinifex such as *Triodia wiseana*. The southern section of the plateau comprises mulga in valleys, mulga over soft spinifex on lower slopes and *Eucalyptus leucophloia-Triodia wiseana* tree steppe on upper slopes. Other common tree steppe communities on low natural relief include admixtures of *Eucalyptus leucophloia*, *Eucalyptus gamophylla*, *Corymbia hamersleyana*, *Acacia* spp., *Grevillea wickhamii*, *Hakea lorea*, *Triodia wiseana* and *Triodia pungens*.

The Fortescue Valley consists predominately of extensive sand and alluvial plains occurring between the Chichester and Hamersley Plateaux. Deep cracking clays, earthy clays, shallow loams and highly calcareous earths also commonly occur across the plains. Beard (1975) broadly described vegetation of the Fortescue Valley as comprising five dominant complexes namely sand plains, outwash plains, valley plains, flood-out zones and the Millstream oasis. Sand plains comprise typical *Triodia* dominated shrub steppe vegetation with *Hakea lorea*, *Acacia* spp., *Corymbia* spp. and *Eucalyptus* spp. being common. The outwash plains are similar to the sand plains, however species such as *Triodia pungens*, *Acacia pyrifolia* and *Acacia xiphophylla* are more common. Valley plains typically comprise mulga country, with common associates being *Acacia victoriae*, *Acacia tetragonophylla* and *Acacia xiphophylla*. Flood-out zones comprise a diverse range of tree and grass savannah, shrub and grass steppe, Acacia scrub, riverine and salt marsh communities with occurrences of each reflecting changes in soil type and topographic position. The Millstream oasis consists of several permanent creeks and pools lined by *Eucalyptus camaldulensis*, *Melaleuca leucadendron* and *Livistona alfredii* with other common species including *Cyperus vaginatus*, *Melaleuca glomerata* and *Sesbania formosa*.

The Hamersley Plateau consists of plateaus, ranges and gorges of Proterozoic rocks with locally occurring alluvial plains and cracking clays in valleys. Beard (1975) broadly described vegetation of the Hamersley Plateau as comprising four dominant complexes namely ranges, valley plains, basalt hills and minor communities. Ranges comprise characteristic tree steppe communities dominated by *Eucalyptus leucophloia-Triodia wiseana* associations, with lower slopes and gorge floors dominated by mixed *Eucalyptus* spp., *Corymbia* spp., *Acacia* spp. and low shrubs and forbs. Valley plains predominately comprise low mulga country, with grassy plains commonly occurring on cracking clays. Basalt hills comprise a mosaic of low mulga and *Acacia pyrifolia-Triodia* shrub steppe, with other common species including *Acacia xiphophylla*, *Hakea lorea*, *Grevillea pyramidalis*, *Corymbia aspera* and *Eucalypt*us spp. Minor communities occur on restricted soil and landform types such as species poor *Acacia aneura-Acacia xiphophylla-Triodia* spp. communities on granite areas and *Acacia grasbyi* shrublands on calcrete soils of the Turee Creek headwaters.

The Stuart Hills consist principally of plains, undulating pediplains extending from breakaways and less frequently stony hills, steeply dissected ranges and mesas. Beard (1975) broadly described vegetation of the Stuart Hills as a species poor, sparse shrub steppe – particularly in the northern portion. Common shrub steppe species include *Acacia bivenosa*, *Triodia wiseana*, *Triodia basedowii*, *Senna* spp. and *Ptilotus* spp. Iron-capped mesas commonly have a sparse cover of *Ficus* spp., *Triodia wiseana* and *Corchorus walcotii*, while *Eucalyptus camaldulensis* and *Acacia citrinoviridus* line all major rivers.

Southern portions of the Stuart Hills comprise shrub steppe communities dominated by *Triodia pungens*, *Triodia wiseana*, *Acacia xiphophylla*, *Acacia pyrifolia*, *Acacia victoriae* and *Senna* spp., with common associates being *Acacia aneura*, *Grevillea pyramidalis* and *Corymbia hamersleyana*.

Beard (1975) mapped fourteen more detailed units that occur within the study area; Table 3 provides a brief description, area figures and priority status for each association. Priority status has been determined by reservation priorities of ecosystems as defined by Kendrick (2001a, b), Kendrick and McKenzie (2001) and Kendrick and Stanley (2001).

Table 3: Beard (1975) Vegetation Associations within the FRGP Project: Pre-European Extent, Current Extent, Extent within Survey Area, Percentage Impact and Priority Status.

Beard Vegetation Association	Vegetation Description	Total Current Extent (ha)	Extent within Survey Area (ha)	% Impact	Priority*
Chichester Plateau_173	Hummock grasslands, shrub steppe; kanji over soft spinifex & Triodia wiseana on basalt	1126272.93	2277.26	0.20	M
Chichester Plateau_175	Short bunch grassland - savanna/grass plain (Pilbara)	139593.60	402.83	0.29	H
Fortescue Valley_111	Hummock grasslands, shrub steppe; Eucalyptus gamophylla over hard spinifex	431597.55	384.53	0.09	L
Fortescue Valley_175	Short bunch grassland - savannah/grass plain (Pilbara)	68140.56	71.62	0.11	H
Fortescue Valley_29	Sparse low woodland; mulga, discontinuous in scattered groups	879210.08	18.33	<0.01	L
Fortescue Valley_629	Mosaic: Short bunch grassland - savannah/grass plain (Pilbara) / Hummock grasslands, grass steppe; hard spinifex Triodia wiseana	28648.08	34.69	0.12	H
Hammersley Plateau_175	Short bunch grassland - savannah/grass plain (Pilbara)	95385.51	25.97	0.03	H
Hammersley Plateau_609	Mosaic: Hummock grasslands, open low tree steppe; bloodwood with sparse kanji shrubs over soft spinifex /Hummock grasslands, open low tree steppe; snappy gum over Triodia wiseana lateritic crust	74131.95	543.07	0.73	M
Hammersley Plateau_644	Hummock grasslands, open low tree steppe; mulga & snakewood over soft spinifex & T. basedowii	27180.44	1140.95	4.20	H
Hammersley Plateau_645	Hummock grasslands, shrub steppe; kanji & snakewood over soft spinifex & T. wiseana	84608.17	5878.97	6.95	M
Hammersley Plateau_82	Hummock grasslands, low tree steppe; snappy gum over Triodia wiseana	2169364.77	51.07	<0.01	M
Onslow Coastal Plain_601	Mosaic: Sedgeland; various sedges with very sparse snakewood / Hummock grasslands, shrub-steppe; kanji over soft spinifex	108292.60	457.58	0.42	M
Stewart Hills_603	Hummock grasslands, sparse shrub steppe; Acacia bivenosa over hard spinifex	54798.66	440.33	0.80	M
Stewart Hills_605	Hummock grasslands, shrub steppe; Acacia pachycarpa & waterwood over soft spinifex	25726.16	1611.17	6.26	M

*Kendrick, 2001a, b; Kendrick and McKenzie, 2001; Kendrick and Stanley, 2001.

Reservation priorities of ecosystems assign each Beard vegetation association an appropriate management scenario, these being High, Medium or Low. Reservation priorities are primarily determined by CAR principles, these broadly being to effectively and efficiently develop and integrate regional conservation strategies which provide for the establishment and management of conservation reserves and complementary management of adjoining areas. Assignments of management scenarios highlight reservation priorities for stakeholders within each sub-region, they do not relate to levels of legislative protection. The level of reservation priority for each vegetation association is determined by

factors including: comprehensiveness, communities recognised by an agreed national scientific classification system; adequacy, maintenance of ecological viability and integrity of populations, species and communities and; representativeness, inclusion of vegetation in reserves should reasonably reflect the biotic diversity of the communities.

Five Beard vegetation association occurring within the project area were identified as being of high priority status (Table 3). The broad nature of Beard vegetation associations makes it unlikely that these association are locally restricted or indeed are restricted to the sub-region. This coupled with the low percentage impact figures make it unlikely that proposed works will reduce the adequacy and/or representativeness of these vegetation association across the landscape.

5.1.5 Previous Flora and Vegetation Studies in the Locality

Previous flora and vegetation assessments have been conducted in close proximity to the current survey area. These surveys were reviewed to provide contextual information both prior to field surveys and during report preparation. Relevant reports were as follows:

- Astron Environmental Services (2010) *West Pilbara Iron Ore Project Reconciliation of Vegetation Descriptions and Associated Vegetation Mapping*. Report prepared for API Management Pty Ltd;
- Biota Environmental Sciences (2005) *Vegetation and Flora Survey of Mesa A and Mesa G, near Pannawonica*. Report prepared for Robe River Iron Associates;
- Biota Environmental Sciences (2006) *A Vegetation and Flora Survey of the Proposed Mesa A Transport Corridor, Warramboo Deposit and Yarraloola Borefield*. Report prepared for Robe River Iron Associates;
- Biota Environmental Sciences (2007*) A Flora and Vegetation Survey of the Mesa K Mine site, near Pannawonica*. Report Prepared for Robe River Mining Pty Ltd;
- Biota Environmental Sciences (2011) *Greater Bungaroo and Coastal Water Project Biological Review*. Report prepared for Rio Tinto Pty Ltd;
- Biota Environmental Sciences (2012) *Koodaideri Western Rail Corridor Vegetation and Flora Corridor*. Report prepared for Rio Tinto Pty Ltd;
- Biota Environmental Sciences (2012) *Koodaideri Iron Ore Project Vegetation and Flora Integration Report*. Report Prepared for Rio Tinto Pty Ltd;
- Coffey Environments (2009) *Flora and Vegetation Assessment, Solomon Rail Project Volume 1*. Report prepared for Fortescue Metals Groups Ltd;
- Coffey Environments (2010) *Flora and Vegetation Assessment, Solomon Project and Investigator*. Report Prepared for Fortescue Metals Groups Ltd;
- Ecoscape (Australia) Pty Ltd (2010) *Solomon Project Rail Re-Alignment Flora and Vegetation Survey*. Report prepared for Fortescue Metals Groups Ltd;
- Ecoscape (Australia) Pty Ltd (2010) *Level Two Flora and Vegetation Assessment, Firetail Mining Area*. Report prepared for Fortescue Metals Groups Ltd;
- Ecoscape (Australia) Pty Ltd (2010) *Solomon Project Airstrip Flora and Vegetation Assessment*. Report prepared for Fortescue Metals Groups Ltd;
- ENV Australia Pty Ltd (2010) *Solomon Project: Kings Flora and Vegetation Assessment*. Report prepared for Fortescue Metals Group.
- Mattiske Consulting Pty Ltd (2013) *Phase 1: Desktop Review of Environmental Risk Areas within the Main DBNGP Easement Corridor*. Report prepared for DBP.
- Onshore Environmental Consultants Pty Ltd (2013) *Literature and Desktop Review – Flora and Vegetation, Proposed Cape Preston Transport Corridor*. Report prepared for Iron Ore Holdings Ltd.
- Western Botanical (2010) *Flora and Vegetation of the Proposed Mine and Associated Infrastructure Areas West Pilbara Iron Ore Project*. Report prepared for API Management Pty Ltd.

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SYSTEM
- CHICHESTER PLATEAU
- FORTESCUE VALLEY
- HAMMERSLEY
- ONSLOW COASTAL PLAIN
- STEWART HILLS

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_15_20131129

Date: Nov 2013 | Rev: A | A3

Mattiske Consulting Pty Ltd
28 Central Road, Kalamunda WA 6076 ~ Tel: 9257 1625 ~ Fax: 9257 1640
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Fortescue River Gas Pipeline (FRGP)
Pre European Vegetation
Sheet 1 of 3

Appendix: **4.1**

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7600000 7580000

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SYSTEM
- CHICHESTER PLATEAU
- FORTESCUE VALLEY
- HAMMERSLEY
- ONSLOW COASTAL PLAIN
- STEWART HILLS

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Client: dbp

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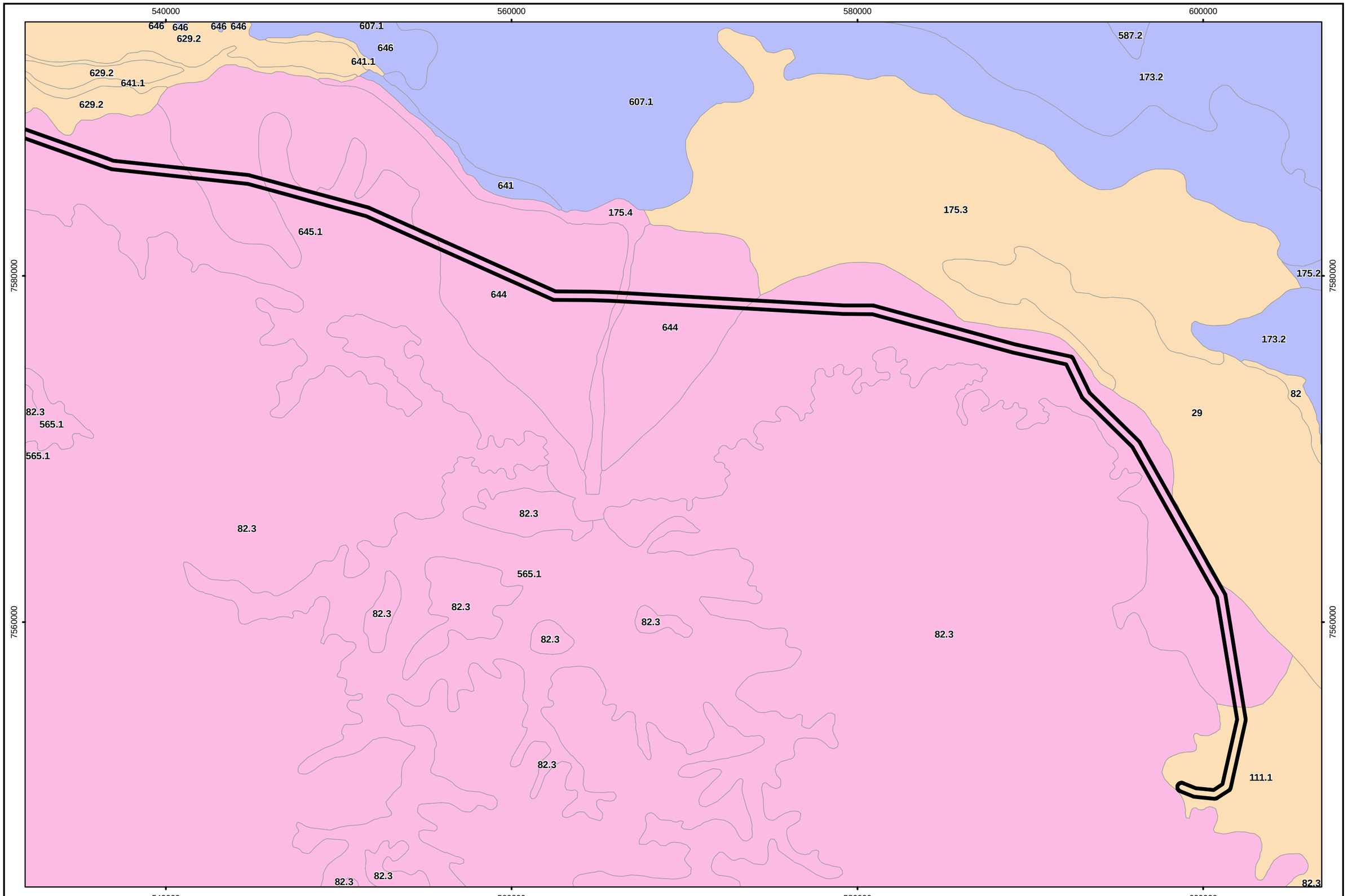
Fortescue River Gas Pipeline (FRGP)
Pre European Vegetation
Sheet 2 of 3

Appendix: **4.2**



SYSTEM
- CHICHESTER PLATEAU
- FORTESCUE VALLEY
- HAMMERSLEY
- ONSLOW COASTAL PLAIN
- STEWART HILLS

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Fortescue River Gas Pipeline (FRGP)
Pre European Vegetation
Sheet 3 of 3

Appendix: **4.3**

5.1.6 Threatened and Priority Ecological Communities

The Pilbara bioregion contains two Threatened Ecological Communities namely Themeda Grasslands - VU and Ethel Gorge aquifer stygobiont community - VU. No Threatened Ecological Communities are known to occur in close proximity to the survey area and thus are highly unlikely to occur within the survey area (DPaW, 2013e)

Four Priority Ecological Communities were identified as occurring within the broader locality these being:

- Subterranean invertebrate communities of mesas in the Robe Valley region (P1). "A series of isolated mesas occur in the Robe Valley in the states Pilbara Region. The mesas are remnants of old valley infill deposits of the palaeo Robe River. The troglobitic faunal communities occur in an extremely specialised habitat and appear to require the particular structure and hydrogeology associated with mesas to provide a suitable humid habitat. Short range endemism is common in the fauna. The habitat is the humidified pisolitic strata" (DPaW, 2013f).
- Subterranean invertebrate community of pisolitic hills in the Pilbara region (P1). "A series of isolated low undulating hills occur in the state's Pilbara region. The troglofauna are being identified as having very short range distributions" (DPaW, 2013f).
- Stygofaunal communities of the Western Fortescue Plains freshwater aquifer (P4). "A unique assemblage of aquatic subterranean fauna including eels, snails and other stygofauna" (DPaW, 2013f).
- Four plant assemblages of the Wona Land System (previously 'Cracking clays of the Chichester and Mungaroona Range'). "A system of basalt upland gilgai plains with tussock grasslands occurs throughout the Chichester Range in the Chichester-Millstream National Park, Mungaroona Range Nature Reserve and on adjacent pastoral leases" (DPaW, 2013f). There are four community types as described by DPaW (2013f) identified within the Wona Land System gilgai plains:
    - Cracking clays of the Chichester and Mungaroona Range. This grassless plain of stony gibber community occurs on the tablelands with very little vegetative cover during the dry season, however during the wet a suite of ephemerals/annuals and short-lived perennials emerge, many of which are poorly known and range-end taxa (P1);
    - Annual Sorghum grasslands on self-mulching clays. This community appears very rare and restricted to the Pannawonica-Robe valley end of the Chichester Range (P1);
    - Mitchell grass plains (*Astrebela* spp.) on gilgai (P3); and
    - Mitchell grass and Roebourne Plain grass (*Eragrostis xerophila*) plain on gilgai (typical type, heavily grazed; P3).

Proximity of DPaW buffers to the survey area and the restricted nature of Subterranean invertebrate communities of mesas in the Robe Valley region (P1), Subterranean invertebrate community of pisolitic hills in the Pilbara region (P1) and Stygofaunal communities of the Western Fortescue Plains freshwater aquifer (P4) make it highly unlikely that these communities will occur within survey area.

Arbitrary DPaW PEC buffers for the Four plant assemblages of the Wona Land System (as detailed above), extend across the survey area from approximately KP 217 to KP 239 (DPaW ID_2746). As a result, it is possible that floristic aspects of this PEC could occur within the survey area.

5.1.7 Declared Threatened and Priority Flora

Two Threatened Flora species pursuant to Schedule 1 of the *Wildlife Conservation Act 1950* and as listed by the Department of Parks and Wildlife (2013b) were recorded within the bounds of the desktop search (within ±10 km buffer from the centre alignment).

A total of ninety-nine Priority Flora species as listed by the Department of Parks and Wildlife (2013h) were identified by the desktop search as having potential to occur within the survey area. This included twenty-six Priority 1, twenty-two Priority 2, forty-four Priority 3 and seven Priority 4 flora species (Table 4).

The likelihood rating of each species occurring within the project area is based on proximity to current DPaW records and preferred habitat. A three point scale is applied from Unlikely, Possible and Likely.

Table 4: Threatened and Priority Flora Species with Potential to Occur within the Survey Area

SCC = State Conservation Code (Appendix A1); FCC = Federal Conservation Code (Appendix A1); [1] DPaW, 2013a; [2] Likelihood of occurrence rating based on current records and preferred habitat.

SPECIES	FAMILY	DESCRIPTION[1]	SCC	FCC	LIKLIHOOD[2]
Lepidium catapycnon	Brassicaceae	Open, woody perennial, herb or shrub, 0.2-0.3 m high, stems zigzag. Fl. white, Oct. Skeletal soils. Hillsides.	T	VU	Possible
Thryptomene wittweri	Myrtaceae	Spreading or rounded shrub, 0.5-1.5(-2.1) m high. Fl. white-cream, Apr or Jul or Aug. Skeletal red stony soils. Breakaways, stony creek beds.	T	VU	Unlikely
Abutilon sp. Onslow (F. Smith s.n. 10/9/61)	Malvaceae	Prostrate perennial herb. Fl. yellow. Red loamy sand. Sandy plains.	1		Unlikely
Bothriochloa decipiens var. *cloncurrensis*	Poaceae	Perennial, grass-like or herb, to 1.4 m high. Fl. green-yellow.	1	-	Possible
Brachyscome sp. Wanna Munna Flats (S. van Leeuwen 4662)	Asteraceae	Erect annual herb, to 0.3 m high, Fl. Purple.	1	-	Unlikely
Calotis squamigera	Asteraceae	Procumbent annual, herb, to 0.21 m high. Fl. yellow, Jul. Pebbly loam.	1	-	Unlikely
Eragrostis sp. Mt Robinson (S. van Leeuwen 4109)	Poaceae	Tussock-forming perennial, grass-like or herb, to 0.3 m high. Fl. Sep. Red-brown skeletal soils, ironstone. Steep slopes, summits.	1	-	Unlikely
Eremophila sp. Hamersley Range (K. Walker KW 136) PN	Scrophulariaceae	Erect shrub, to 2 m high. Fl. White-cream-yellow pink-purple. Red gravelly soils. Hill crests and slopes.	1	-	Unlikely
Eremophila sp. Snowy Mountain (S. van Leeuwen 3737)	Scrophulariaceae	Shrub, to 1 m tall. Skeletal soils. Summit of hills.	1	-	Unlikely
Eremophila sp. West Angelas (S. van Leeuwen 4068)	Scrophulariaceae	Spindly shrub, to 3 m high. Skeletal red-brown soils. Steep rock slopes and hill crests.	1	-	Unlikely
Eremophila spongiocarpa	Scrophulariaceae	Compact, succulent-leaved shrub, to 1 m high. Fl. white, May or Sep. Weakly saline alluvial plain on margins of marsh.	1	-	Unlikely
Eucalyptus lucens	Myrtaceae	Mallee, to 4.5 m high, bark smooth, white, sometimes slightly powdery; leaves glossy green. Ironstone. Rocky slopes and mountain tops, high in the landscape.	1	-	Unlikely
Goodenia pallida	Goodeniaceae	Erect herb, to 0.5 m high. Fl. purple, Aug. Red soils.	1	-	Unlikely
Grevillea sp. Turee (J. Bull & G. Hopkinson ONS JJ 01.01) PN	Proteaceae	Erect shrub or tree, to 6 m high. Red/brown sandy loam and skeletal soils. Hill crests and scree slopes.	1	-	Unlikely
Helichrysum oligochaetum	Asteraceae	Erect annual, herb, to 0.25 m high. Fl. yellow, Aug to Nov. Red clay. Alluvial plains	1		Possible
Hibiscus sp. Mt Brockman (E. Thoma ET 1354) PN	Malvaceae	Shrub, to 1.6 m high. Fl. Purple. Red/brown sand and skeletal soils. Ironstone outcropping and slopes.	1	-	Unlikely
Nicotiana heterantha	Solonaceae	Decumbent, short-lived annual or perennial, herb, to 0.5 m high. Fl. white-cream, Mar to Jun or Sep. Black clay. Seasonally wet flats	1		Unlikely

Table 4: Threatened and Priority Flora Species with Potential to Occur within the Survey Area (cont.)

SCC = State Conservation Code (Appendix A1); FCC = Federal Conservation Code (Appendix A1); [1] DPaW, 2013a; 2 Likelihood of occurrence rating based on current records and preferred habitat.

SPECIES	FAMILY	DESCRIPTION[1]	SCC	FCC	LIKLIHOOD[2]
Rhodanthe ascendens	Asteraceae	Ascending annual, herb, to 0.1 m high. Fl. yellow, Aug. Clay. Roadside verge.	1	-	Unlikely
Senna sp. Millstream (E. Leyland s.n. 30/8/1990)	Fabaceae	Shrub, to 1.2 m high. Fl. yellow. Silt over cracking clay. Creek banks.	1		Possible
Sida sp. Hamersley Range (K. Newbey 10692)	Malvaceae	Woody shrub, to 2 m high. Fl. Light orange. Red skeletal soil. Steep slopes and hill summits.	1	-	Possible
Sporobolus pulchellus	Poaceae	Erect, tufted, ephemeral grass-like or herb, 0.15-0.4 m high. Fl. Feb to Nov. Deep sands, sandstone, sandy ironstone. Rocky hillsides, roadsides.	1	-	Unlikely
Tecticornia globulifera	Chenopodiaceae	Shrub, to 0.5 m high. Saline clay loam. Salt lakes and saline flats	1	-	Unlikely
Tecticornia sp. Christmas Creek (K.A. Shepherd & T. Colmer et al. KS 1063)	Chenopodiaceae	Shrub, to 0.8 m high. Brown/grey clayey loam and red clayey sand. Floodways and depressions.	1	-	Unlikely
Tephrosia rosea var. Port Hedland (A.S. George 1114) PN	Fabaceae	Erect spreading shrub, to 1.2 m high. Deep sands of coastal dunes.	1	-	Unlikely
Tetratheca fordiana	Elaeocarpaceae	Dwarf shrub, 0.3-0.4 m high. Shale pocket amongst ironstone.	1	-	Unlikely
Teucrium pilbaranum	Lamiaceae	Upright shrub, 0.2 m high. Fl. white, May or Sep. Clay. Crab hole plain in a river floodplain, margin of calcrete table.	1	-	Possible
Triodia sp. Karijini (S. van Leeuwen 4111) PN	Poaceae	Hummock grass, to 1 m high. Skeletal red/brown loam with ironstone outcropping. Upper slopes and hill summits.	1	-	Unlikely
Vittadinia sp. Coondewanna Flats (S. van Leeuwen 4684)	Asteraceae	Annual herb, to 1 m high. Fl. cream. Red sand clay-loam with ironstone pebbles. Gilgai plains and flats.	1	-	Unlikely
Adiantum capillus-veneris	Pteridaceae	Rhizomatous, perennial, herb (fern), 0.1-0.2 m high. Moist, sheltered sites in gorges and on cliff walls.	2	-	Unlikely
Aristida calycina var. *calycina*	Poaceae	Loosely tufted perennial, grass-like or herb, 0.3-1.3 m high. Red earths, sands, alluvial soils.	2	-	Unlikely
Aristida lazaridis	Poaceae	Tufted perennial, grass-like or herb, 0.4-1.5 m high. Fl. green/purple, Apr. Sand or loam.	2	-	Unlikely
Cladium procerum	Cyperaceae	Densely tufted perennial, grass-like or herb (sedge), 2 m high. Fl. Nov. Perennial pools.	2	-	Unlikely
Dicladanthera glabra	Acanthaceae	Spreading perennial, herb or shrub, to 0.6(-1) m high. Fl. white/white-blue, Apr or Aug to Oct. Alluvium. Along watercourses, near rock pools	2	-	Unlikely
Eremophila forrestii subsp. Pingandy (M.E. Trudgen 2662)	Scrophulariaceae	Shrub, to 0.5 m high. Fl. yellow-cream to pinky-yellow. Red clay loam. Alluvial plains and creek lines.	2	-	Unlikely
Euphorbia australis var. *glabra*	Euphorbiaceae	Prostrate herb. Alluvial soils, red clay loam and cracking clay. Low areas and semi-permanent pools.	2	-	Possible

Table 4: Threatened and Priority Flora Species with Potential to Occur within the Survey Area (cont.)

SCC = State Conservation Code (Appendix A1); FCC = Federal Conservation Code (Appendix A1); [1] DPaW, 2013a; 2 Likelihood of occurrence rating based on current records and preferred habitat.

SPECIES	FAMILY	DESCRIPTION[1]	SCC	FCC	LIKLIHOOD[2]
Euphorbia inappendiculata var. *inappendiculata*	Euphorbiaceae	Prostrate herb. Red-brown cracking clays. Floodplains and flats.	2	-	Possible
Gompholobium karijini	Fabaceae	Shrub, to 0.8 m high. Fl. yellow. Red-brown gravelly loam. Ridges, hilltops and slopes.	2		Possible
Hibiscus sp. Gurinbiddy Range (M.E. Trudgen MET 15708) PN	Malvaceae	Shrub, to 3 m high. Fl. mauve. Skeletal red-brown stony soil. Hill summits and upper scree slopes.	2	-	Unlikely
Indigofera ixocarpa	Fabaceae	Shrub, to 1 m high. Fl. pink, May. Skeletal red soils over massive ironstone.	2	-	Unlikely
Ipomoea racemigera	Convolvulaceae	Creeping annual, herb or climber. Fl. white.	2		Unlikely
Isotropis parviflora	Fabaceae	Shrub, 0.1 m high. Fl. white/pink, Mar. Valley slope of ironstone plateau.	2	-	Unlikely
Oxalis sp. Pilbara (M.E. Trudgen 12725)	Oxalidaceae	Annual herb, to 0.3 m. Fl. yellow. Red-brown gravelly loam. Slopes.	2	-	Unlikely
Paspalidium retiglume	Poaceae	Tufted annual, grass-like or herb, 0.1-0.5 m high. Fl. Apr. Clay.	2	-	Possible
Pentalepis trichodesmoides subsp. *hispida*	Asteraceae	Shrub, to 1 m high. Fl. yellow. Skeletal brown soil and red-brown gravelly loam. Ridgelines and upper slopes.	2	-	Possible
Pilbara trudgenii	Asteraceae	Gnarled, aromatic shrub, to 1 m high. Fl. Sep. Skeletal, red stony soil over ironstone. Hill summits, steep slopes, screes, cliff faces.	2	-	Unlikely
Scaevola sp. Hamersley Range basalts (S. van Leeuwen 3675)	Goodeniaceae	Shrub, to 1 m high. Fl. Jul to Aug. Skeletal, brown gritty soil over basalt. Summits of hills, steep hills.	2	-	Unlikely
Spartothamnella puberula	Lamiaceae	Shrub, 0.35-1.5 m high. Fl. blue-white, Sep to Nov. Rocky loam, sandy or skeletal soils, clay. Sandplains, hills.	2	-	Possible
Stylidium weeliwolli	Stylidiaceae	Annual, herb, 0.1-0.25 m high. Fl. pink & red, Aug to Sep. Gritty sand soil, sandy clay. Edge of watercourses.	2		Possible
Trianthema sp. Python Pool (G.R. Guerin & M.E. Trudgen GG 1023)	Aizoaceae	Prostrate herb. Fl. pink. Brow clay loam and rocky soils. Floodplains	2	-	Unlikely
Vigna sp. central (M.E. Trudgen 1626)	Fabaceae	Prostrate shrub or herb. Fl. yellow. Cracking clay and brown sand. Sandplains and alluvial plains.	2	-	Unlikely
Acacia daweana	Fabaceae	Spreading shrub, 0.3-1.5(-2) m high. Fl. yellow, Jul to Sep. Stony red loamy soils. Low rocky rises, along drainage lines.	3	-	Possible
Acacia effusa	Fabaceae	Low, dense, spreading, somewhat viscid shrub, 0.3-1 m high, bark 'minni-ritchi'. Fl. yellow, May to Aug. Stony red loam. Scree slopes of low ranges.	3	-	Unlikely
Acacia glaucocaesia	Fabaceae	Dense, glabrous shrub or tree, 1.8-6 m high. Fl. yellow, Jul to Sep. Red loam, sandy loam, clay. Floodplains.	3	-	Unlikely
Acacia subtiliformis	Fabaceae	Spindly, slender, erect shrub, to 3.5 m high. Fl. yellow, Jun. On rocky calcrete plateau.	3	-	Unlikely

Table 4: Threatened and Priority Flora Species with Potential to Occur within the Survey Area (cont.)

SCC = State Conservation Code (Appendix A1); FCC = Federal Conservation Code (Appendix A1); [1] DPaW, 2013a; 2 Likelihood of occurrence rating based on current records and preferred habitat.

SPECIES	FAMILY	DESCRIPTION[1]	SCC	FCC	LIKLIHOOD[2]
Ampelopteris prolifera	Thelypteridaceae	Rhizomatous, perennial, herb (fern), to 4 m high. Near water or in wet ground.	3	-	Unlikely
Astrebla lappacea	Poaceae	Tufted perennial, grass-like or herb, 0.3-0.8 m high. Fl. green/purple, Jun to Jul. Clay, loam.	3	-	Likely
Calotis latiuscula	Asteraceae	Erect herb, to 0.5 m high. Fl. yellow, Jun to Oct. Sand, loam. Rocky hillsides, floodplains, rocky creeks or river beds.	3	-	Possible
Dampiera anonyma	Goodeniaceae	Multistemmed perennial, herb, to 0.5(-1) m high. Fl. blue-purple, Jun to Sep. Skeletal red-brown to brown gravelly soil over banded ironstone, basalt, shale and jaspilite. Hill summits, upper slopes.	3	-	Unlikely
Dampiera metallorum	Goodeniaceae	Rounded, multistemmed perennial, herb, to 0.5 m high. Fl. blue, Apr or Jun to Oct. Skeletal red-brown gravelly soil over banded ironstone. Steep slopes, summits of hills.	3	-	Unlikely
Eragrostis crateriformis	Poaceae	Annual, grass-like or herb, 0.17-0.42 m high. Fl. Jan to May or Jul. Clayey loam or clay. Creek banks, depressions.	3	-	Unlikely
Eragrostis surreyana	Poaceae	Annual grass, to 0.05 m high. Red-brown sandy clay/loam. Drainage lines and sump areas.	3	-	Possible
Eremophila magnifica subsp. *velutina*	Scrophulariaceae	Shrub, 0.5-1.5 m high. Fl. blue-purple, Aug to Sep. Skeletal soils over ironstone. Summits.	3	-	Possible
Euphorbia stevenii	Euphorbiaceae	Somewhat succulent perennial, herb, 0.1-0.5 m high. Clay, sandy soils.	3	-	Unlikely
Fimbristylis sieberiana	Cyperaceae	Shortly rhizomatous, tufted perennial, grass-like or herb (sedge), 0.25-0.6 m high. Fl. brown, May to Jun. Mud, skeletal soil pockets. Pool edges, sandstone cliffs.	3	-	Possible
Geijera salicifolia	Rutaceae	Tree, 1.5-6 m high. Fl. white, Sep. Skeletal soils, stony soils. Massive rock scree, gorges.	3	-	Unlikely
Glycine falcate	Fabaceae	Mat-forming perennial, herb, to 0.2 m high. Fl. blue-purple, May or Jul. Black clayey sand. Along drainage depressions in crabhole plains on river floodplains.	3	-	Unlikely
Goodenia sp. East Pilbara (A.A. Mitchell PRP 727)	Goodeniaceae	Open, erect annual or biennial, herb, to 0.2 m high. Fl. yellow. Red-brown clay soil, calcrete pebbles. Low undulating plain, swampy plains.	3		Possible
Gymnanthera cunninghamii	Apocynaceae	Erect shrub, 1-2 m high. Fl. cream-yellow-green, Jan to Dec. Sandy soils.	3		Possible
Indigofera sp. Bungaroo Creek (S. van Leeuwen 4301)	Fabaceae	Perennial shrub, to 1 m high. Fl. pink. Red-brown sandy loam. Drainage lines.	3	-	Possible

Table 4: Threatened and Priority Flora Species with Potential to Occur within the Survey Area (cont.)

SCC = State Conservation Code (Appendix A1); FCC = Federal Conservation Code (Appendix A1); [1] DPaW, 2013a; 2 Likelihood of occurrence rating based on current records and preferred habitat.

SPECIES	FAMILY	DESCRIPTION[1]	SCC	FCC	LIKLIHOOD[2]
Indigofera sp. Gilesii (M.E. Trudgen 15869) PN	Fabaceae	Shrub, to 2 m high. Fl. pink. Red-brown skeletal soil with ironstone pebbles. Hilltops, gullies and sandplains.	3	-	Unlikely
Iotasperma sessilifolium	Asteraceae	Erect herb. Fl. pink. Cracking clay, black loam. Edges of waterholes, plains.	3	-	Possible
Nicotiana umbratica	Solanaceae	Erect, short-lived annual or perennial, herb, 0.3-0.7 m high. Fl. white, Apr to Jun. Shallow soils. Rocky outcrops.	3	-	Unlikely
Oldenlandia sp. Hamersley Station (A.A. Mitchell PRP 1479)	Rubiaceae	Spreading annual, herb, 0.05-0.1 m high. Fl. blue, Mar. Cracking clay, basalt. Gently undulating plain with large surface rocks, flat crabholed plain.	3	-	Likely
Olearia mucronata	Asteraceae	Densely branched, unpleasantly aromatic shrub, 0.6-1 m high. Fl. white & yellow, Aug to Dec or Jan. Schistose hills, along drainage channels.	3	-	Unlikely
Owenia acidula	Meliaceae	Tree, 3-8 m high. Fl. white-brown/cream. Clay.	3	-	Possible
Phragmites karka	Poaceae	Erect rhizomatous reed, to 2.5 m high. Clay-loams. Edge of permanent pools.	3		Unlikely
Phyllanthus aridus	Phyllanthaceae	Erect, much-branched shrub, to 0.25 m high. Fl. cream-green, May to Jun. Sandstone, gravel, red sand.	3	-	Unlikely
Pleurocarpaea gracilis	Asteraceae	Shrub, to 0.5 m high. Fl. purple. Skeletal soil. Mesa tops and steep slopes.	3	-	Unlikely
Polymeria distigma	Convolvulaceae	Prostrate trailing herb. Fl. pink, Apr to Jul. Sandy soils.	3	-	Unlikely
Ptilotus subspinescens	Amaranthaceae	Compact shrub, to 0.8 m high. Gentle rocky slopes, screes and the bases of screes.	3	-	Unlikely
Rhagodia sp. Hamersley (M. Trudgen 17794)	Chenopodiaceae	Shrub, to 2.5 m high. Fl. yellow. Red-brown clay and loams with ironstone. Plains and valley floors.	3	-	Unlikely
Rostellularia adscendens var. *latifolia*	Acanthaceae	Herb or shrub, 0.1-0.3 m high. Fl. blue-purple-violet, Apr to May. Ironstone soils. Near creeks, rocky hills.	3	-	Possible
Sida sp. Barlee Range (S. van Leeuwen 1642)	Malvaceae	Spreading shrub, to 0.5 m high. Fl. yellow, Aug. Skeletal red soils pockets. Steep slope.	3	-	Possible
Solanum albostellatum	Solanaceae	Low shrub or herb, to 0.15 m high. Fl. mauve. Sandy loam, cacking clay and silty clay loam. Floodplains.	3	-	Likely
Solanum kentrocaule	Solanaceae	Shrub, to 2.5 m high. Fl. blue. Red-brown stony loam and skeletal soil. Hill summits, upper slopes and creek lines.	3	-	Unlikely
Stackhousia clementii	Celastraceae	Dense broom-like perennial, herb, to 0.45 m high. Fl. green/yellow/brown. Skeletal soils. Sandstone hills.	3		Unlikely
Swainsona thompsoniana	Fabaceae	Prostrate annual herb. Fl. mauve. Red-brown loam and clay. Creeklines, claypans and plains.	3	-	Likely

Table 4: Threatened and Priority Flora Species with Potential to Occur within the Survey Area (cont.)

SCC = State Conservation Code (Appendix A1); FCC = Federal Conservation Code (Appendix A1); [1] DPaW, 2013a; 2 Likelihood of occurrence rating based on current records and preferred habitat.

SPECIES	FAMILY	DESCRIPTION[1]	SCC	FCC	LIKLIHOOD[2]
Tecticornia medusa	Chenopodiaceae	Erect shrub, to 0.8 m. Red clayey sand. Floodplains.	3	-	Unlikely
Terminalia supranitifolia	Combretaceae	Spreading, tangled shrub or tree, 1.5-3 m high. Fl. green-yellow, May or Jul or Dec. Sand. Among basalt rocks	3		Unlikely
Themeda sp. Hamersley Station (M.E. Trudgen 11431)	Poaceae	Tussocky perennial, grass-like or herb, 0.9-1.8 m high. Fl. Aug. Red clay. Clay pan, grass plain.	3	-	Likely
Triodia sp. Mt Ella (M.E. Trudgen 12739)	Poaceae	Perennial, grass-like or herb, 0.4 m high. Light orange-brown, pebbly loam. Amongst rocks & outcrops, gully slopes.	3	-	Unlikely
Triodia sp. Robe River (M.E. Trudgen et al. MET 12367)	Poaceae	Perennial grass, to 0.6 m high. Sandy red loam and ironstone gravel. Creeklines and hill slopes.	3	-	Possible
Triumfetta echinata	Malvaceae	Prostrate shrub, to 0.3 m high. Fl. Aug. Red sandy soils. Sand dunes.	3	-	Unlikely
Whiteochloa capillipes	Poaceae	Annual or perennial, grass-like or herb, 0.4-1 m high. Fl. red-brown, Feb to Jun.	3	-	Possible
Acacia bromilowiana	Fabaceae	Tree or shrub, to 12 m high. Fl. yellow/pink, Jul to Aug. Red skeletal stony loam, orange-brown pebbly, gravel loam, laterite, banded ironstone, basalt. Rocky hills, breakaways, scree slopes, gorges, creek beds.	4	-	Unlikely
Eremophila magnifica subsp. *magnifica*	Scrophulariaceae	Shrub, 0.5-1.5 m high. Fl. blue, Aug to Nov. Skeletal soils over ironstone. Rocky screes.	4	-	Unlikely
Eremophila youngii subsp. *lepidota*	Scrophulariaceae	Dense, spreading shrub, (0.2-) 1-3 m high. Fl. purple-red-pink, Jan or Mar or Jun or Aug to Sep. Stony red sandy loam. Flats plains, floodplains, sometimes semi-saline, clay flats	4	-	Unlikely
Goodenia berringbinensis	Goodeniaceae	Ascending annual, herb, 0.1-0.3 m high. Fl. yellow, Oct. Red sandy loam. Along watercourses	4		Unlikely
Goodenia nuda	Goodeniaceae	Erect to ascending herb, to 0.5 m high. Fl. yellow, Apr to Aug.	4		Likely
Livistona alfredii	Arecaceae	Tree-like monocot (palm), to 10 m high. Fl. cream, Jul to Sep. Edges of permanent pools.	4		Unlikely
Rhynchosia bungarensis	Fabaceae	Compact, prostrate shrub, to 0.5 m high. Fl. yellow. Pebbly, shingly coarse sand amongst boulders. Banks of flow line in the mouth of a gully in a valley wall.	4	-	Likely

5.2 Field Survey

A total of 238 survey sites, both pre-selected and opportunistic, were used in the 2013 survey. Refer to Appendix C for a list of the geographic locations for each survey site.

5.2.1 Flora

A total of 353 vascular plant taxa which are representative of 135 plant genera and 43 plant families were recorded within the 2013 survey. The majority of the taxa recorded were representative of the Fabaceae (77 taxa), Poaceae (63 taxa) and Malvaceae (40 taxa) families (Appendix C). Of the 353 taxa recorded 245 (69.4%) were perennial, 63 (17.8%) were annual and 45 taxa (12.7%) were both annual and perennial depending on local conditions.

5.2.2 Accumulated Species – Sites Surveyed (Species-Area Curve)

A species accumulation plot, based on accumulated species versus sites surveyed was prepared to provide an indication as to the level of adequacy of the survey effort. As the number of survey sites increases, and correspondingly the size of the area surveyed increases, there should be a diminishing number of new species recorded. At some point, the number of new species recorded becomes essentially asymptotic. When the number of new species being recorded for survey effort expended approaches this asymptotic value, the survey effort can be considered to be adequate.

The species accumulation curve (Figure 5), based on the species accumulation analysis of Colwell (2006) was used to evaluate the adequacy of sampling. The asymptotic value was determined using Michaelis-Menten modelling. Using this analysis, the incidence based coverage estimator of species richness (Chao, 2004) was calculated to be 383.49. Based on this value, and the total of 353 species recorded during the current survey, approximately 92% of the flora species potentially present within the survey area were recorded. Though seemingly high for such a large survey area, a figure of 92% is reflective of the survey as vegetation communities comprised similar species, the assemblage and structure of these species, however, differed substantially.

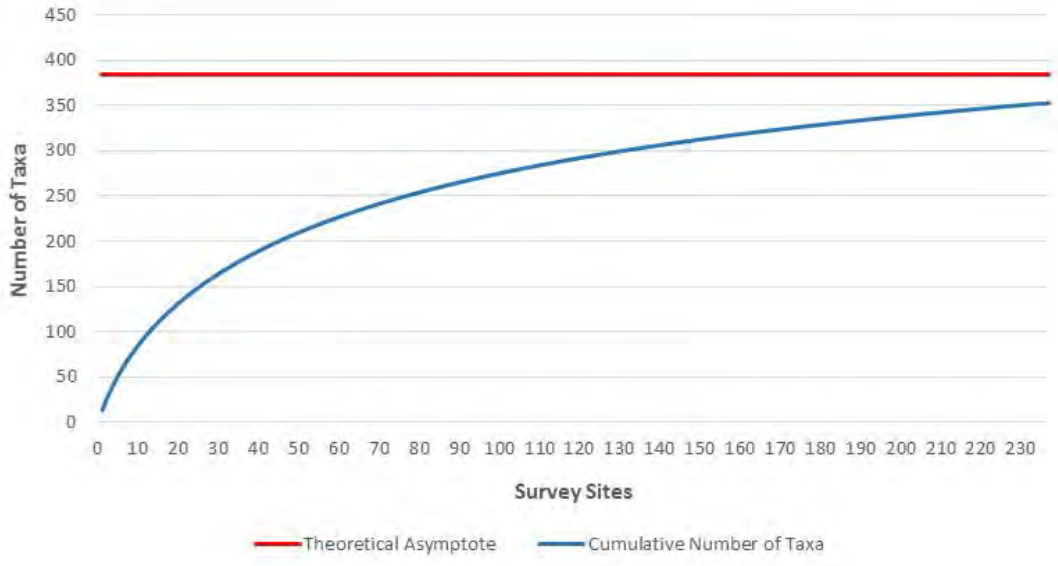

Figure 5: Averaged randomised species accumulation curve
Field survey data was used to calculate both a species accumulation curve and a theoretical maximum number of species (asymptotic value) within the survey area.

5.2.3 Threatened and Priority Flora

No Declared Threatened Flora species pursuant to subsection (2) of section 23F of the *Wildlife Conservation Act 1950* [WA] and as listed by the Department of Parks and Wildlife (2013a) were recorded within the survey area.

One Priority Flora species pursuant to subsection (2) of section 23F of the *Wildlife Conservation Act 1950* [WA] and as listed by the Department of Parks and Wildlife (2013a) was recorded within the survey area. One Priority 3 species *Astrebla lappacea* was recorded within the survey area; a brief description of this taxa and a table of locations are listed below (Table 5).

***Astrebla lappacea* (Priority 3) – POACEAE**

This species is described as a tufted perennial grass, 0.3-0.8 m high, producing green/purple flowers from June to July. It is known to occur on clay and loam soils. There are six records of this taxon in the database of the Western Australian Herbarium (Department of Parks and Wildlife 2013a). *Astrebla lappacea* (P3) was recorded at five locations (Table 5) in the current survey, mapped within the FL15 community (Section 5.2.4). The FL15 community is inferred to represented floristic aspects of the Mitchell grass plains (*Astrebla* spp.) on gilgai (P3) Priority Ecological Community (Section 5.2.4).

Table 5: Locations of *Astrebla lappacea* (P3) recorded within the FRGP Project Area

Survey Site	Location (GDA94; Zone 50K)		Population Number
	Easting (mE)	Northing (mN)	
2-8	510350	7599600	50
2-9	511515	7598886	35
2-10	511640	7598846	50
2-12	519620	7594282	>350
2-13	519718	7594196	>400

5.2.4 Threatened and Priority Ecological Communities

No Threatened Ecological Communities as listed by the Department of Parks and Wildlife (2013a) or by the Department of the Environment (2013a) were inferred to occur within or in close proximity to the FRGP Project Area.

One Priority Ecological Community, namely the 'Four plant assemblages of the Wona Land System', as listed by the Department of Parks and Wildlife (2013b) was inferred to occur within the FRGP Project Area. The four plant assemblages that comprise the Wona Land System include Cracking clays of the Chichester and Mungaroona Range (P1); Annual Sorghum grasslands on self-mulching clays (P1); Mitchell grass plains (*Astrebla* spp.) on gilgai (P3) and; Mitchell grass and Roebourne Plain grass (*Eragrostis xerophila*) plain on gilgai (P3). Arbitrary PEC buffers for the 'Four plant assemblages of the Wona Land System' (as detailed above) extend across the survey area from approximately KP 217 to KP 239 (DPaW ID_2746).

Following the field survey and subsequent data analysis it has been inferred that floristic aspects of the Mitchell grass plains (*Astrebla* spp.) on gilgai (P3) PEC occur within the survey area from approximately KP 148 to KP 162; represented by vegetation community FL15. FL15 was described as an *Astrebla lappacea* (P3), *Aristida latifolia*, *Panicum decompositum* low tussock grassland, occurring on red clayey loams to red cracking clays. Other common grass species within FL15 included *Astrebla pectinata*, *Aristida* spp., *Eragrostis* spp., *Urochloa occidentalis*, *Brachyachne convergens*, *Dichanthium sericeum* and *Bothriochloa ewartiana*. Approximately 362 hectares of the FL15 community was mapped within the survey area.

Vegetation within FL15 was recorded in excellent to pristine condition, with an intact tussock grassland present. Weed species recorded within FL15, namely **Vachellia farnesiana*, **Malvastrum americanum* and **Tribulus terrestris*, were found in low densities.

5.2.5 Taxa with Extensions to their Range

Seven species recorded during the field survey represented extensions to the currently known range for those species (Table 6). The occurrence and scale of range extensions were determined by comparing recorded locations in the current survey with that of species' distributions presented by WAH Florabase records. Four species are considered to be moderate range extensions and three are considered to be minor range extensions.

Table 6: Summary of Flora Species Representing Range Extensions within the FRGP Project Area

Family	Species	Known IBRA region distribution	No. WA Herbarium records	Range extension comments
Poaceae	*Aristida anthoxanthoides*	Carnarvon, Gascoyne, Great Victoria Desert, Pilbara (east)	9	Moderate range extension. Nearest WAH record occurs approx. 150 km to the south of the Solomon Mine Hub. This species was recorded once at survey site 1-177. Site descriptions at this location are consistent with that of known WAH records.
Malvaceae	*Corchorus sidoides* subsp. *vermicularis*	Carnarvon, Central Kimberley, Dampierland, Gascoyne, Great Sandy Desert, Little Sandy Desert, Ord Victoria Plain, Pilbara (south-west)	22	Minor range extension. Nearest WAH record occurs approx. 60 km to the south-west of the survey area. This species was recorded once at survey site 1-41. Site descriptions at this location are consistent with that of known WAH records.
Myrtaceae	*Corymbia aspera*	Carnarvon, Central Kimberley, Gascoyne, Great Sandy Desert, Little Sandy Desert, Ord Victoria Plain, Pilbara (south-west and south-east), Tanami, Victoria Bonaparte	51	Minor range extension. Nearest WAH record occurs approx. 70 km to the south of the survey. This species was recorded twice at survey sites 1-26 and 1-61. Site descriptions at these locations are consistent with that of known WAH records.
Euphorbiaceae	**Jatropha gossypiifolia*	Dampierland, Northern Kimberley, Ord Victoria Plain, Victoria Bonaparte	19	Moderate range extension. Nearest WAH record occurs approx. 200 km to the north of the survey. This species was recorded once at survey site 1-108. This species was recorded in a disturbed creekline near the town of Pannawonica, details consistent with that of known WAH records.
Phyllanthaceae	*Notoleptopus decaisnei* var. *decaisnei*	Northern Kimberley, Pilbara (north), Victoria Bonaparte	3	Moderate range extension. Nearest WAH record occurs approx. 150 km to the north-east of the survey. This species was recorded twice at survey sites 1-3 and 1-76. Too few WAH records of this species exist to compare site descriptions.
Chenopodiaceae	*Sclerolaena limbata*	Carnarvon.	3	Moderate range extension. Nearest WAH record occurs approx. 200 km to the south-west of the survey area. This species was recorded three times at survey sites 1-56, 1-67 and 1-68. Too few WAH records of this species exist to compare site descriptions.
Solanaceae	*Solanum ?dioicum*	Central Kimberley, Dampierland, Gascoyne, Great Sandy Desert, Northern Kimberley, Ord Victoria Plain, Pilbara (east), Tanami, Victoria Bonaparte.	220	Minor range extension. Nearest WAH record occurs approx. 160 km to the east of the survey area. This species was recorded twice at survey sites 1-114 and 1-125. Habitat preference for this species is highly variable, and not at odds with current recordings.

5.2.6 Introduced (Exotic) Plant Species

Eleven introduced (exotic) taxa were recorded within the FRGP Project survey area. Of these, one species **Jatropha gossypiifolia* is a state-wide Declared Pest (Plant) pursuant to section 22 of the *Biosecurity and Agriculture Management Act 2007 (BAM Act)* according to the Western Australian Department of Agriculture and Food (2013; Table 7). The recording of **Jatropha gossypiifolia* in the survey area also represents a moderate range extension (Section, 5.2.5). Approximately 50 individuals of this species were recorded in a minor creekline 0.5 km ENE of the Pannawonica town site (GDA94; Zone 50K; 431169, 7607080)

Table 7 identifies weed management priorities for weed species identified within the survey area. With a view to provide information for prioritising the control of spread, prevent introductions and control existing weeds. Weed locations are shown in Appendix B and Appendix I. Note that these are physical locations recorded at survey sites to show the geographic extent of each weed species across the survey area, not to highlight actual distribution and/or densities.

The *Environmental Weed Strategy for WA* (DEC, 2012) assesses and rates weeds in terms of their environmental impact on biodiversity using the same criteria as those used in the *National Weed Strategy* (ARMCANZ, 1997). These ratings have been applied to weed species identified within the survey area to determine weed management priorities. The environmental weed rating system is outlined as follows:

- High – These weeds should have priority for control and/or research.
- Moderate – Control and/or research funds should be directed toward these weeds.
- Mild – These weeds should be monitored and controlled where appropriate.
- Low – Low level of monitoring required for these weeds.

**Cenchrus ciliaris* has a high environmental weed rating and was recorded in high densities in a large number of creeklines and flow-out zones (Appendix I). Regarding **Cenchrus* species it should be noted that as outlined by (DEC, 2012), "Control of some widespread weeds may not be practicable, particularly if they are plants valued by the pastoral industry. Chemical control of these species would be a very costly and probably futile exercise".

In addition to **Cenchrus ciliaris*, **Aerva javanica*, **Cynodon dactylon, *Setaria verticillata* and **Vachellia farnesiana* also have high environmental weed ratings. **Aerva javanica* was recorded within two survey sites (Appendix I), in the vicinity of the Pannawonica town site. This species has medium distribution in the Pilbara and high to medium feasibility of control (Table 7).

Table 7: Summary Management Details of Weed Species Recorded within the FRGP Project Area. Note: Physical locations of weeds recorded are shown in Appendix B and listed in Appendix I.

Weed Species	Environmental Weed Rating[1]	Permitted & Quarantine Plant Species[2]	Current Distribution in Pilbara[1]	Feasibility of Control[1]	Comments[3]
Aerva javanica (kapok bush)	High	Permitted (s11)	Medium	High-Medium	Widespread in many types of vegetation from the Kimberly to Carnarvon, preferring calcareous soils.
Cenchrus ciliaris (buffel grass)	High	Permitted (s11)	High	Low	Widespread weed of roadsides, creek lines, river edges and most vegetation types in the Pilbara.
Cynodon dactylon (couch grass)	High	Permitted (s11)	High	Low	Widespread in many types of vegetation, particularly common in wetlands and river edges.
Flaveria trinervia (speedy weed)	n/a	Permitted (s11)	n/a	n/a	Widespread weed frequently on flood-prone land.

Table 7: Summary Management Details of Weed Species Recorded within the Survey Area (cont.). Note: Physical locations of weeds recorded are shown in Appendix B and listed in Appendix I.

Weed Species	Environmental Weed Rating[1]	Permitted & Quarantine Plant Species[2]	Current Distribution in Pilbara[1]	Feasibility of Control[1]	Comments[3]
Jatropha gossypiifolia (cotton-leaf physic-nut)	High	Prohibited (s22)	Low	Medium	Scattered weed of grazed woodlands, creeklines and wasteland areas in the Kimberly and around Port Hedland.
Malvastrum americanum (spiked malvastrum)	Moderate	Permitted (s11)	High	Low	Weed of river and creek margins, wasteland and many arid zone habitats throughout the Pilbara.
Melochia pyramidata (broom-wood)	Low	Permitted (s11)	Low	Undetermined	Weed of rivers, creeks and irrigated crops in the Pilbara and Kimberly.
Ocimum basilicum (sweet basil)	n/a	Permitted (s11)	n/a	n/a	Naturalised at Broome, Derby, on Kimberly Downs Station and in Perth. Occurs on roadsides and near settlements.
Setaria verticillata (whorled pigeon grass)	High	Permitted (s11)	Medium	Low	Common weed of disturbed land, riverine edges and shrublands throughout the Kimberly and Pilbara.
Tribulus terrestris (yellow vine)	Low	Permitted (s11)	Low	High	Widespread in the Kimberly and arid zone.
Vachellia farnesiana (mimosa bush)	High	Permitted (s11)	High	Low	Widespread weed of roadsides, creeks, rivers and disturbed floodplains.

[1] DEC (2012); [2] DAFWA (2013b); [3] Hussey *et al.,* (1997).

**Cynodon dactylon* was recorded within one survey site (Appendix I), in a creekline 3 km south of the Pannawonica town site. This species occurs throughout the Pilbara and has a low feasibility of control (Table 7). **Setaria verticillata* was recorded within four survey quadrats (Appendix I). Recorded locations were within micro-channels and flood-out zones. This species is widespread across the state and has a low feasibility of control. **Vachellia farnesiana* was recorded within eighteen survey quadrats (Appendix I). Recorded locations were mostly within creeklines and open clay flats. This species occurs throughout the Pilbara and has a low feasibility of control (Table 7).

5.2.7 Statistical Analysis

Similarity Profile Analysis (SIMPROF) identified forty significantly associated groups of quadrats (Pi = 3.76; p = <0.001). Where appropriate, outliers and small groupings were assigned to broader comparative vegetation units based on factors including species composition and site descriptions; this is particularly relevant where survey quadrats were established on ecotones. For the purposes of vegetation mapping, i.e. extrapolating quadrat data to generalise vegetation communities over broad areas, an inclusive rather than exclusive approach was adopted for outliers.

Thirty significantly dissimilar vegetation communities were delineated within the FRGP Project survey area (Global R = 0.86; p = <0.001). Three vegetation communities were represented by one survey quadrat, these being FL11, MR2 and MR7. Subjective assessments of aerial photography and topography indicated that these vegetation communities were most likely restricted within the bounds of the project area and do not appear to be outliers solely based on sampling effort. FL11 comprised a unique tussock grassland assemblage, with MR2 and MR7 comprising a dominant *Acacia monticola* and *Eremophila longifolia* shrubland, respectively.

Vegetation of flats to lower slopes typically comprised a mosaic of open *Acacia* spp. shrublands with open/sparse Myrtaceous and/or Proteaceous shrubs/trees over *Triodia* spp. open/sparse hummock grassland and sparse/isolated mixed tussock grassland (FL1 – FL15). Further delineation of these communities was primarily based on changes in the dominance of upper and mid storey species and/or the increasing dominance of tussock grasses to the exclusion of *Triodia* spp. Soft spinifex (e.g. *Triodia pungens*) was generally the dominant hummock grass species within these lowland communities, with tussock grasses occasionally becoming dominant in the ground layer (e.g. FL15).
Vegetation of mid slopes to ridges, although comprising similar species to that of lower slope associations, were structurally different and contained an increasing dominance of characteristic upland species including, but not limited to, *Eucalyptus leucophloia* subsp. *leucophloia*, *Acacia inaequilatera*, *Acacia maitlandii* and *Grevillea pyramidalis* (MR1 – MR7). Hard spinifex (e.g. *Triodia wiseana*) was generally the dominant hummock grass species within these upland communities.

Vegetation of creeklines, flowlines and drainage areas typically comprised low open woodlands dominated by *Corymbia* and/or *Eucalyptus* species (CD1 – CD8). Other characteristic species of these communities included *Acacia tumida, Acacia trachycarpa, Acacia ancistrocarpa, Acacia pyrifolia, Gossypium australe* and *Grevillea wickhamii*. Mixed tussock grasses and soft spinifex tend to dominate the understorey.

A summary of the thirty vegetation communities, species by vegetation community, is detailed in Appendix F. A photographic record and further details of vegetation communities delineated within the survey area is detailed in Appendix G. A dendrogram of the survey sites with assigned vegetation communities is depicted in Appendix H.

5.2.8 Vegetation

Thirty vegetation communities were defined and mapped within the survey area (see Appendix B). Further vegetation community descriptions, condition, soils and landform and representative photographs are detailed in Appendix G. Vegetation communities are summarised below.

Vegetation of Flats to Lower Slopes

FL1: *Acacia xiphophylla*, *Acacia synchronicia*, *Acacia bivenosa* tall sparse shrubland and *Senna notabilis*, *Senna artemisioides* subsp. *oligophylla*, *Senna glutinosa* subsp. *glutinosa* mid isolated shrubs over *Salsola australis*, *Enchylaena tomentosa*, *Maireana planifolia* low isolated chenopod shrubs with *Triodia pungens*, *Triodia wiseana* low open hummock grassland and *Eragrostis xerophila*, *Sporobolus australasicus* low isolated tussock grasses.

FL2: *Corymbia hamersleyana* low isolated clumps of trees over *Acacia inaequilatera*, *Acacia bivenosa*, *Acacia tumida* var. *pilbarensis* tall sparse shrubland and *Cullen martini*, *Senna notabilis*, *Trichodesma zeylanicum* var. *zeylanicum* mid isolated shrubs over *Tephrosia uniovulata*, *Isotropis atropurpurea*, *Corchorus tectus* low sparse shrubs and *Triodia wiseana* low sparse hummock grassland.

FL3: *Acacia xiphophylla*, *Acacia synchronicia*, *Acacia bivenosa* tall sparse shrubland over *Senna glutinosa* subsp. *glutinosa*, *Sarcostemma viminale*, *Hibiscus sturtii* var. *platychlamys* mid isolated shrubs over *Triodia wiseana* low sparse hummock grassland.

FL4: *Streptoglossa bubakii*, *Phyllanthus maderaspatensis*, *Sida trichopoda* low sparse forbland with *Triodia wiseana* low open hummock grassland and *Aristida latifolia*, *Brachyachne convergens*, *Eragrostis xerophila* low sparse tussock grassland.

FL5: *Sida spinosa*, *Phyllanthus maderaspatensis*, *Cullen cinereum* low sparse shrubland with *Panicum decompositum*, *Enneapogon caerulescens* low sparse tussock grassland and *Stemodia kingii*, *Heliotropium crispatum*, *Desmodium muelleri* low sparse forbland.

FL6: *Acacia inaequilatera* tall open shrubland over *Senna glutinosa* subsp. *glutinosa*, *Senna glutinosa* subsp. *pruinosa*, **Vachellia farnesiana* mid sparse shrubland over *Triodia brizoides* low open hummock grassland and *Eriachne aristidea*, *Enneapogon caerulescens*, *Aristida anthoxanthoides* low sparse tussock grassland.

FL7: *Acacia ancistrocarpa*, *Acacia colei* var. *colei*, *Acacia dictyophleba* tall sparse shrubland over *Ptilotus astrolasius*, *Pterocaulon sphacelatum*, *Indigofera boviperda* subsp. *boviperda* low sparse shrubland over *Triodia pungens*, *Triodia wiseana* low open hummock grassland.

FL8: *Acacia ancistrocarpa*, *Acacia bivenosa*, *Acacia synchronicia* tall sparse shrubland over *Gossypium australe*, *Eremophila longifolia*, *Senna artemisioides* subsp. *helmsii* mid sparse shrubland over *Triodia pungens* low sparse hummock grassland and *Eulalia aurea*, *Chrysopogon fallax*, *Bothriochloa ewartiana* low open tussock grassland.

FL9: *Acacia atkinsiana*, *Acacia ancistrocarpa*, *Acacia bivenosa* tall sparse shrubland over *Senna artemisioides* subsp. *oligophylla*, *Senna glutinosa* subsp. *glutinosa*, *Scaevola spinescens* mid sparse shrubland over *Triodia wiseana*, *Triodia longiceps* low open hummock grassland.

FL10: *Corymbia hamersleyana* low open woodland over *Acacia trachycarpa*, *Acacia ancistrocarpa, Acacia dictyophleba* tall open shrubland and *Gossypium australe*, *Grevillea wickhamii*, *Senna artemisioides* subsp. *helmsii* mid sparse shrubland over *Triodia pungens*, *Triodia wiseana* low open hummock grassland and *Eulalia aurea*, *Aristida latifolia*, *Themeda triandra* low sparse tussock grassland.

FL11: *Corymbia hamersleyana* low open woodland over *Acacia trachycarpa*, *Cullen lachnostachys*, *Grevillea wickhamii* mid sparse shrubland over *Themeda triandra*, *Eulalia aurea*, *Paraneurachne muelleri* low sparse tussock grassland.

FL12: *Corymbia hamersleyana* low open woodland over *Grevillea wickhamii*, *Acacia ancistrocarpa*, *Acacia bivenosa* tall sparse shrubland and *Gossypium australe*, *Hakea chordophylla*, *Acacia dictyophleba* mid sparse shrubland over *Bonamia erecta*, *Corchorus tectus*, *Ptilotus obovatus* var. *obovatus* low sparse shrubland and *Triodia pungens*, *Triodia wiseana* low open hummock grassland.

FL13: *Acacia bivenosa*, *Acacia synchronicia* tall isolated shrubs over *Triodia longiceps*, *Triodia pungens* low sparse hummock grassland.

FL14: *Acacia xiphophylla*, *Acacia atkinsiana* tall sparse shrubland and *Senna artemisioides* subsp. *helmsii*, *Senna notabilis*, *Hibiscus sturtii* mid sparse shrubland over *Triodia pungens* low open hummock grassland and *Eulalia aurea*, *Sporobolus australasicus*, *Chrysopogon fallax* low sparse tussock grassland.

FL15: *Astrebla lappacea* (P3), *Aristida latifolia*, *Panicum decompositum* low tussock grassland.

Vegetation of Mid Slopes to Ridges

MR1: *Eucalyptus leucophloia* subsp. *leucophloia*, *Corymbia hamersleyana* low isolated trees over *Acacia bivenosa*, *Acacia ancistrocarpa*, *Acacia inaequilatera* tall sparse shrubland and *Senna glutinosa* subsp. *glutinosa*, *Senna glutinosa* subsp. *pruinosa*, *Acacia maitlandii* mid isolated shrubs over *Triodia wiseana* low open hummock grassland.

MR2: *Acacia monticola*, *Acacia pyrifolia*, *Acacia trachycarpa* tall sparse shrubland over *Petalostylis cassioides*, *Senna glutinosa* subsp. *glutinosa* mid isolated shrubs over *Triodia wiseana* low hummock grassland.

MR3: *Acacia inaequilatera*, *Acacia ancistrocarpa*, *Acacia bivenosa* tall sparse shrubland and *Senna glutinosa* subsp. *pruinosa*, *Senna glutinosa* subsp. *glutinosa*, *Trichodesma zeylanicum* var. *zeylanicum* mid sparse shrubland over *Ptilotus nobilis*, *Ptilotus calostachyus*, *Corchorus tectus* low isolated shrubs and *Triodia wiseana* low open hummock grassland.

MR4: *Grevillea pyramidalis* subsp. *leucadendron*, *Acacia inaequilatera*, *Acacia colei* var. *ileocarpa* tall isolated shrubs and *Trichodesma zeylanicum* var. *zeylanicum*, *Cajanus cinereus*, *Abutilon lepidum* mid sparse shrubland over *Corchorus tectus*, *Triumfetta clementii*, *Tribulus platypterus* low sparse shrubland and *Triodia wiseana* low open hummock grassland.

MR5: *Acacia inaequilatera*, *Grevillea pyramidalis* subsp. *leucadendron*, *Hakea lorea* tall sparse shrubland over *Senna glutinosa* subsp. *pruinosa*, *Senna glutinosa* subsp. *glutinosa*, *Trichodesma zeylanicum* var. *zeylanicum* mid sparse shrubland over *Triodia wiseana* low open hummock grassland and *Aristida holathera* var. *holathera*, *Enneapogon caerulescens*, *Eriachne flaccida* low isolated tussock grasses.

MR6: *Acacia bivenosa*, *Hakea lorea* tall isolated shrubs over *Triodia wiseana* low sparse hummock grassland.

MR7: *Eremophila longifolia*, *Acacia maitlandii*, *Acacia atkinsiana* mid sparse shrubland over *Abutilon lepidum*, *Gomphrena cunninghamii*, *Tephrosia rosea* var. *Fortescue creeks* (M.I.H. Brooker 2186) low sparse shrubland and *Triodia wiseana* low hummock grassland.

Vegetation of Creeklines, Flowlines and Drainage Areas

CD1: *Acacia tumida* var. *pilbarensis*, *Acacia ancistrocarpa*, *Acacia trachycarpa* tall open shrubland and *Gossypium robinsonii*, *Acacia pyrifolia*, *Senna glutinosa* subsp. *glutinosa* mid sparse shrubland over *Hybanthus aurantiacus*, *Ptilotus obovatus* var. *obovatus*, *Ptilotus nobilis* low isolated shrubs with *Triodia pungens* low open hummock grassland and *Themeda triandra*, *Cymbopogon obtectus* low sparse tussock grassland.

CD2: *Corymbia candida*, *Corymbia hamersleyana*, *Eucalyptus camaldulensis* low open woodland over *Acacia tumida* var. *pilbarensis*, *Gossypium robinsonii*, *Acacia ancistrocarpa* tall sparse shrubland over *Eragrostis tenellula*, *Sporobolus australasicus*, *Eragrostis cumingii* low sparse tussock grassland and *Alternanthera nodiflora*, *Ipomoea muelleri*, *Waltheria indica* low sparse forbland.

CD3: *Eucalyptus victrix* mid open woodland over *Acacia ampliceps*, *Acacia trachycarpa*, *Sesbania cannabina* tall sparse shrubland over *Cyperus vaginatus* mid sparse sedgeland and *Eriachne benthamii*, *Enneapogon caerulescens*, *Cymbopogon obtectus* low sparse tussock grassland.

CD4: *Eucalyptus victrix*, *Eucalyptus camaldulensis* mid open woodland over *Acacia pyrifolia*, *Grevillea wickhamii*, *Acacia trachycarpa* tall open shrubland over *Pterocaulon sphacelatum*, *Phyllanthus maderaspatensis*, *Hybanthus aurantiacus* mid sparse shrubland with *Cyperus vaginatus* mid sparse sedgeland and *Sporobolus australasicus*, *Chrysopogon fallax*, *Enteropogon ramosus* low sparse tussock grassland.

CD5: *Corymbia hamersleyana* low open woodland over *Acacia tumida* var. *pilbarensis*, *Acacia atkinsiana*, *Acacia inaequilatera* tall sparse shrubland over *Bonamia erecta*, *Goodenia stobbsiana*, *Ptilotus obovatus* var. *obovatus* low isolated shrubs and *Triodia wiseana* low open hummock grassland.

CD6: *Acacia bivenosa*, *Jasminum didymium* subsp. *lineare*, *Acacia ampliceps* tall sparse shrubland over *Trichodesma zeylanicum* var. *zeylanicum*, *Senna artemisioides* subsp. *oligophylla*, *Indigofera monophylla* mid sparse shrubland over *Triodia wiseana* isolated hummock grasses and *Cymbopogon obtectus*, *Aristida contorta*, *Eriachne aristidea* low isolated tussock grasses.

CD7: *Corymbia hamersleyana* low open woodland over *Acacia ancistrocarpa*, *Acacia trachycarpa*, *Acacia dictyophleba* tall sparse shrubland and *Cullen lachnostachys*, *Gossypium australe*, *Grevillea wickhamii* mid sparse shrubland over *Pterocaulon sphacelatum*, *Pluchea dunlopii*, *Senna artemisioides* subsp. *helmsii* low open shrubland with *Triodia pungens* low open hummock grassland and *Eulalia aurea*, *Chrysopogon fallax*, *Eriachne pulchella* low sparse tussock grassland.

CD8: *Eucalyptus victrix* low open woodland over *Grevillea wickhamii*, *Acacia tumida* var. *pilbarensis*, *Acacia pyrifolia* tall open shrubland and *Tephrosia rosea*, *Corchorus lasiocarpus*, *Indigofera monophylla* mid sparse shrubland over *Triodia pungens* low open hummock grassland and *Eriachne aristidea*, *Eriachne pulchella*, **Cenchrus ciliaris* low open tussock grassland.

5.2.9 Area Coverage of Vegetation Communities

The total area mapped and percentage cover for each delineated vegetation community (Appendix B) is shown in Table 8.

Table 8: Area (ha) and Percentage Coverage of each Vegetation Community Type within the FRGP Project Area

Vegetation Community	Area (ha)	Percentage of Survey Area
FL1	939.64	7.04
FL2	723.20	5.42
FL3	62.87	0.47
FL4	371.26	2.78
FL5	19.59	0.15
FL6	28.46	0.21
FL7	1529.25	11.47
FL8	193.31	1.45
FL9	522.57	3.92
FL10	4632.23	34.73
FL11	8.25	0.06
FL12	103.49	0.78
FL13	11.76	0.09
FL14	189.90	1.42
FL15	361.89	2.71
MR1	1076.52	8.07
MR2	19.26	0.14
MR3	360.54	2.70
MR4	117.98	0.88
MR5	915.33	6.86
MR6	22.14	0.17
MR7	1.60	0.01
CD1	51.13	0.38
CD2	57.74	0.43
CD3	58.79	0.44
CD4	160.53	1.20
CD5	34.10	0.26
CD6	126.03	0.94
CD7	254.21	1.91
CD8	309.74	2.32
Cleared	75.09	0.56
TOTAL	**13338.37**	**100**

Vegetation associations of flats to lower slopes accounted for approximately seventy-three percent of the survey area; mid slope to ridge associations accounted for approximately nineteen percent and; creekline and flow line associations accounted for approximately eight percent.

The FL10 community accounted for almost thirty-five percent of the total mapped area. This community occurred on flats to low natural relief, particularly on valley floors of the Hamersley Plateau and its interface with the Fortescue Valley. FL10 comprised a mosaic *Corymbia hamersleyana* low open woodland over mixed *Acacia* spp. tall open shrubland over *Triodia* spp. low open hummock grassland and mixed low sparse tussock grasses. This community shows broad similarities with Rangeland Land System vegetation units defined in the local area, namely the Urandy and Boolgeeda units. Boundaries

of the FL10 community were often discontinuous, with boundaries containing admixtures of one or more community.

5.2.10 Vegetation Condition

Vegetation of the survey area was predominantly in excellent to pristine condition. Structurally vegetation communities rarely showed visible signs of disturbance affecting individual species and weed densities were mostly low. The exception being a small number of minor creeklines and flood-out zones in the Pannawonica locality where weed species, particularly **Cenchrus ciliaris* and **Vachellia farnesiana*, were recorded in relatively high densities. Degraded areas were confined to small cleared areas adjacent to CS1 and near the Pannawonica town site. As a result it was seen as unnecessary to map homogenous vegetation condition across a 263 km (13338.37 ha) survey area. Specific condition ratings for each delineated vegetation community are presented in Appendix G.

Recent fire had burnt much of the vegetation between KP 7 and KP 13. This short-term impact however, did not result decreased condition ratings, given the vigorous and healthy regrowth of key species across the burnt areas. Fire is a common and frequent occurrence throughout these systems and the burn was not thought to have resulted in a permanent negative impact, which would have required lower condition ratings. In addition, such vigorous re-growth of key community defining species did not constrain or reduce the accuracy of vegetation mapping in the area.

6. DISCUSSION

The FRGP Project Area comprises three broad vegetation associations based on landscape position, each consisting of further subdivisions in the form of more detailed vegetation communities. Much of the survey area contains a mosaic of *Acacia* spp. sparse shrubland and *Triodia* spp. open hummock grassland associations on flats to low natural relief, interspersed with creek and flow line associations of predominantly *Eucalyptus camaldulensis*/*Eucalyptus victrix* dominated macro-channels and *Corymbia hamersleyana*/*Acacia* spp. dominated micro-channels and flood-out zones. Mid slope and ridge associations, although comprising comparable species to lower slope associations, generally contained characteristic upland/breakaway species such as *Eucalyptus leucophloia* subsp. *leucophloia*, *Acacia inaequilatera*, *Acacia maitlandii* and *Grevillea pyramidalis*. Transitions between communities, though occasionally abrupt as a result of topographic and/or soil profile changes, were generally discontinuous with margins resembling admixtures of two or more vegetation communities. This was particularly evident for communities of *Acacia* spp. shrubland and *Triodia* spp. hummock grassland associations. Soft spinifex (e.g. *Triodia pungens*) and /or mixed tussock grasses were a common feature of vegetation on flats and lower slopes, with hard spinifex (e.g. *Triodia wiseana*) becoming more dominant higher in the landscape.

A total of 353 vascular plant taxa which are representative of 135 plant genera and 43 plant families were recorded within the 2013 survey. Of the 353 taxa recorded 245 (69.4%) were perennial, 63 (17.8%) were annual and 45 taxa (12.7%) were both annual and perennial depending on local conditions. Despite dry conditions in the months leading into the survey, the proportion of annuals present during the survey was considered adequate.

No Declared Threatened Flora species were recorded within the survey area. One Priority 3 Flora species *Astrebela lappacea* was recorded at five locations within the survey area in habitats consistent with information available from DPaW (2013a). *Astrebela lappacea* (P3) was a dominant species within the FL15 community, a community inferred to represent floristic aspects of the Mitchell grass plains (*Astrebla* spp.) on gilgai Priority Ecological Community (P3).

No Threatened Ecological Communities were inferred to occur within the survey area. One Priority Ecological Community was inferred to occur within the survey area, namely the Priority 3 Mitchell grass plains (*Astrebla* spp.) on gilgai; part of the 'Four plant assemblages of the Wona Land System', as listed by the Department of Parks and Wildlife (2013f). Floristic aspects of the Mitchell grass plains (*Astrebla* spp.) on gilgai (P3) PEC were inferred to occur within the survey area represented by vegetation community FL15. FL15 was described as an *Astrebla lappacea* (P3), *Aristida latifolia*, *Panicum decompositum* low tussock grassland, occurring on red clayey loams to red cracking clays. Other common grass species within FL15 included *Astrebla pectinata*, *Aristida* spp., *Eragrostis* spp., *Urochloa occidentalis*, *Brachyachne convergens*, *Dichanthium sericeum* and *Bothriochloa ewartiana*. The aforementioned species composition and structure of FL15, coupled with arbitrary PEC buffers for the

'Four plant assemblages of the Wona Land System' that extend across the survey area from approximately KP 217 to KP 239 (DPaW ID_2746), have led to this inference being made.

A total of 362 hectares of the FL15 community was mapped within the survey area from approximately KP 148 to KP 162. Mapped areas of FL15 were generally observed in excellent to pristine condition, with an intact tussock grassland present. Though Priority Ecological Communities are currently not afforded legislative protection, it is considered advisable that DPaW be consulted regarding proposed impact(s) to areas inferred to support the FL15 community, and appropriate management protocols be established to prevent the spread of invasive species within these areas (Section 7).

Seven species were identified as representing an extension, to varying degrees, from current known locations. Records of *Corchorus sidoides* subsp. *vermicularis*, *Solanum* ?*dioicum* and *Corymbia aspera* occur across the broader Pilbara region and as such are considered minor range extensions (i.e. serve to fill gaps between known populations, rather than a clear spatial divergence). Moderate range extensions were recorded for *Aristida anthoxanthoides*, **Jatropha gossypiifolia*, *Notoleptopus decaisnei* var. *decaisnei* and *Sclerolaena limbata.* Records of both *Aristida anthoxanthoides* and *Notoleptopus decaisnei* var. *decaisnei* occur over a wide area and are thus not locally restricted, indicating that these species are most likely under collected across the broader Pilbara region. Records of **Jatropha gossypiifolia* occur sparsely throughout the Kimberley, with one record near the town of Port Hedland. In the current survey this species was recorded once in a disturbed creekline near the town of Pannawonica, site information consistent with WAH records. Only three WAH records of *Sclerolaena limbata* occur, two near Shark Bay and one approximately 450 km north near Exmouth. This species was recorded at three sites in the current survey, extending this species range a further 200 km north.

Reservation priorities of ecosystems assign each Beard vegetation association an appropriate management scenario, these being High, Medium or Low. Reservation priorities are primarily determined by CAR principles, these broadly being to effectively and efficiently develop and integrate regional conservation strategies which provide for the establishment and management of conservation reserves and complementary management of adjoining areas. Assignments of management scenarios highlight reservation priorities for each sub-region. The level of reservation priority for each vegetation association is determined by factors including: comprehensiveness, communities recognised by an agreed national scientific classification system; adequacy, maintenance of ecological viability and integrity of populations, species and communities and; representativeness, inclusion of vegetation in reserves should reasonably reflect the biotic diversity of the communities (Kendrick, 2001a, b; Kendrick and McKenzie, 2001; Kendrick and Stanley, 2001).

The survey area contains fourteen Beard (1975) vegetation associations, five of which are considered to be of a high priority status. It should be noted that a significant bias for such vegetation associations being assigned a high priority status is lack of representation in DPaW managed estate. With the exception of Beard association Hamersley Plateau_644 (Hummock grassland, open low tree steppe; mulga and snakewood over soft spinifex and *Triodia basedowii*), percentage impact figures are well below half a percent. Regarding impacts to Beard association Hamersley Plateau_644 (4.20%) it should be noted that the survey area and thus percentage impact figures exceed what would actually be impacted by the proposed easement corridor. As a result, the impact of proposed earthworks on this vegetation association would more than likely be under one percent. The broad nature of Beard vegetation associations makes it unlikely that relevant associations are locally restricted or indeed are restricted to the sub-region(s). This coupled with very low percentage impact figures make it doubtful that proposed works will reduce the adequacy and/or representativeness of these vegetation associations across the landscape.

A total of thirty vegetation communities were defined and mapped in the survey area. The majority of the survey area comprised mosaic *Acacia* spp. sparse shrubland over *Triodia* spp. open hummock grassland, a broad association consistent with both Pre-European and Land System Mapping of the area. More specifically, individual vegetation communities delineated in the current study show clear parallels with land units defined within associated Rangeland Land Systems. With the exception of Kanjenjie (1.6%), Kumina (1.2%) and Urandy (2.5%), percentage impact figures for the remaining nineteen Rangeland Land Systems traversed were less than one percent. Similarly to Beard associations, Rangeland Land System percentage impact figures exceed what would actually be impacted by proposed works and thus all figures would be expected to be under one percent.

The survey area was for the most part in excellent to pristine condition. Factors such as weed density, proximity to roads, clearing associated with infrastructure and cattle movements were observed as primary causes of decreasing vegetation condition. Structurally, however, vegetation communities rarely

showed visible signs of disturbance affecting individual species and weed densities were typically low. A small number of creeklines in the Pannawonica locality were only observed in good condition due to high densities of weed species (**Cenchrus ciliaris* and **Vachellia farnesiana*) and increased cattle movements.

A total of eleven introduced (exotic) species were recorded within the survey area. Of these, one taxon **Jatropha gossypiifolia* is a Declared Pest (s22) with a C3 Control Category pursuant to the Biosecurity and Agricultural Management Act 2007. This species was recorded in small creekline to the north of the Pannawonica town site. In relation to the C3 Control Category, "Pests will be assigned to this category if they are established in Western Australia but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density or moving from an area in which it is established into an area which currently is free of that pest" (DAFWA, 2013). In the event proposed works associated with the current project occur near the recorded location of **Jatropha gossypiifolia* (see Appendix B and I), control measures to prevent the spread of this species must be implemented.

Five weed species recorded within the survey area have high environmental weed ratings (i.e. have a high priority for control and/or research), these being **Aerva javanica*, **Cenchrus ciliaris*, **Prosopis pallida*, **Stylosanthes hamata* and**Vachellia farnesiana*. **Cenchrus ciliaris*, and to a lesser extent **Vachellia farnesiana,* were recorded in high densities in a small number of creeklines and flood-out zones near Pannawonica. It is noted however, that both these species occur in high densities throughout the Pilbara region; this coupled with a rapid invasiveness rating have led to a low feasibility of control (DEC, 2012).

7. CONCLUSIONS

For the purposes of a Level 1 flora and vegetation survey, adequate data has been collected to define and assess the presence, extent and significance of vegetation communities within the survey area. Issues relating to access constrained the field survey from KP 140 to the Solomon Mine Hub terminus and thus reduced mapping confidence within these areas. The majority of recorded taxa are widespread throughout the region and the percentage impact to vegetation associations as defined by both Beard (1975) and Rangeland Land Systems mapping (Van Vreeswyk *et al.,* 2004) is low.

Specific remarks regarding the survey area are as follows:

1. No Declared Threatened Flora species were recorded. One Priority 3 Flora species *Astrebela lappacea* was recorded, this species was recorded in high densities within the FL15 vegetation community.
2. No Threatened Ecological Communities were inferred to occur within the survey area. One Priority Ecological Community was inferred to occur within the survey area, namely the Mitchell grass plains (*Astrebla* spp.) on gilgai (P3); part of the 'Four plant assemblages of the Wona Land System'. Floristic aspects of the Mitchell grass plains (*Astrebla* spp.) on gilgai PEC were inferred to occur within the FL15 community. Approximately 362 hectares of the FL15 community was mapped within the survey area between KP 148 and KP 162.
3. One Declared Pest (s22), **Jatropha gossypiifolia*, was recorded once in a small creekline north-east of Pannawonica, this species has a Control Category of C3 for the whole state.
4. Five species recorded in the survey area contain high environmental weed ratings, two of which **Cenchrus ciliaris* and **Vachellia farnesiana* occur in high densities in a small number of creeklines near Pannawonica. Efforts should be made to reduce the spread of these species, however direct management may be unfeasible.
5. Thirty vegetation communities were delineated across the survey area. General comparisons of vegetation communities delineated in the current survey with Pre-European and Rangeland Land System mapping underline that these communities are generally well represented in the local and broader region. This coupled with very low percentage impact figures make it unlikely that proposed works would reduce the representativeness of vegetation across the landscape.
6. Vegetation throughout the survey area is generally in excellent to pristine condition, efforts should be made maintain this by means of:
   - 6a. Ground disturbance and clearing of vegetation should be limited to that which is essential;
   - 6b. Maintain standard vehicle hygiene practices to minimise the risk of spreading introduced (exotic) weeds;

6c. Retain and stockpile topsoil for use in the later rehabilitation of roads and other areas cleared in the process of expansion;
6d. Maintain existing drainage systems, i.e. do not allow access tracks etc. to disrupt or divert historic water flow patterns. Where drainage systems are interrupted by earthworks, the use of culverts to assist in maintaining natural water flow patterns should be implemented;
6e. Avoid driving vehicles across undisturbed ground;
6f. The creation of new tracks should be restricted to that which is absolutely necessary, ensuring equipment blades are set above ground level to minimize disturbance to topsoil, rootstock and to reduce soil erosion.

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9. LIST OF PERSONNEL

The following Mattiske Consulting Pty Ltd personnel were involved in this project:

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APPENDIX A1: STATE DEFINITION OF THREATENED AND PRIORITY FLORA SPECIES

Note: Adapted from Department of Parks and Wildlife (2013c).

CATEGORY	DEFINITION
T – Threatened flora (Declared Rare Flora – Extant)	Taxa that have been adequately searched for and are deemed to be in the wild either rare, in danger of extinction, or otherwise in need of special protection, and have been gazetted as such (Schedule 1 of the *Wildlife Conservation (Rare Flora) Notice* under the WC Act). Threatened flora (Schedule 1) are further ranked by the DEC according to their level of threat using IUCN Red List criteria: • **CR:** Critically Endangered – considered to be facing an extremely high risk of extinction in the wild; • **EN:** Endangered – considered to be facing a very high risk of extinction in the wild; or • **VU:** Vulnerable – considered to be facing a high risk of extinction in the wild.
X – Presumed Extinct Flora (Declared Rare Flora – Extinct)	Taxa that have been adequately searched for and there is no reasonable doubt that the last individual has died, and have been gazetted as such (Schedule 2 of the *Wildlife Conservation (Rare Flora) Notice* under the WC Act).
P1 – Priority 1 (Poorly known taxa)	Taxa that are known from one or a few collections or sight records (generally less than five), all on lands not managed for conservation, e.g. agricultural or pastoral lands, urban areas, Shire, Westrail and Main Roads WA road, gravel and soil reserves, and active mineral leases and under threat of habitat destruction or degradation. Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under immediate threat from known threatening processes.
P2 – Priority 2 (Poorly known taxa)	Taxa that are known from one or a few collections or sight records, some of which are on lands not under imminent threat of habitat destruction or degradation, e.g. national parks, conservation parks, nature reserves, State forest, vacant Crown land, water reserves, etc. Taxa may be included if they are comparatively well known from one or more localities but do not meet adequacy of survey requirements and appear to be under threat from known threatening processes.
P3 – Priority 3 (Poorly known taxa)	Taxa that are known from collections or sight records from several localities not under imminent threat, or from few but widespread localities with either large population size or significant remaining areas of apparently suitable habitat, much of it not under imminent threat. Taxa may be included if they are comparatively well known from several localities but do not meet adequacy of survey requirements and known threatening processes exist that could affect them.
P4 – Priority 4 (Rare, Near Threatened and other taxa in need of monitoring)	**1. Rare** - Taxa that are considered to have been adequately surveyed, or for which sufficient knowledge is available, and that are considered not currently threatened or in need of special protection, but could be if present circumstances change. These species are usually represented on conservation lands. **2. Near Threatened** - Taxa that are considered to have been adequately surveyed and that do not qualify for Conservation Dependent, but that are close to qualifying for Vulnerable. **3.** Taxa that have been removed from the list of threatened species during the past five years for reasons other than taxonomy.
P5 – Priority 5 (Conservation Dependent taxa)	Taxa that are not threatened but are subject to a specific conservation program, the cessation of which would result in the species becoming threatened within five years.

APPENDIX A2: FEDERAL DEFINITION OF THREATENED FLORA SPECIES

Note: Threatened flora [and fauna] may be listed in six categories as defined in section 179 of the *Environment Protection and Biodiversity Conservation Act 1999*. Adapted from Department of the Environment (2013a).

CATEGORY	DEFINITION
Ex - Extinct	Taxa which at a particular time if, at that time, there is no reasonable doubt that the last member of the species has died.
ExW - Extinct in the Wild	Taxa which is known only to survive in cultivation, in captivity or as a naturalised population well outside its past range; or it has not been recorded in its known and/or expected habitat, at appropriate seasons, anywhere in its past range, despite exhaustive surveys over a time frame appropriate to its life cycle and form.
CE - Critically Endangered	Taxa which at a particular time if, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future, as determined in accordance with the prescribed criteria.
E - Endangered	Taxa which is not critically endangered and it is facing a very high risk of extinction in the wild in the immediate or near future, as determined in accordance with the prescribed criteria.
V - Vulnerable	Taxa which is not critically endangered or endangered and is facing a high risk of extinction in the wild in the medium-term future, as determined in accordance with the prescribed criteria.
CD – Conservation Dependent	Taxa which at a particular time if, at that time, the species is the focus of a specific conservation program, the cessation of which would result in the species becoming vulnerable, endangered or critically endangered within a period of 5 years.

APPENDIX A3: STATE DEFINITION OF THREATENED ECOLOGICAL COMMUNITIES

Note: Adapted from Department of Environment and Conservation (2010 – currently Department of Parks and Wildlife).

CATEGORY	DEFINITION
PD – Presumed Totally Destroyed	An ecological community will be listed as PD if there are no recent records of the community being extant **and either** of the following applies: **1.** Records within the last 50 years have not been confirmed despite thorough searches or known likely habitats; or **2.** All occurrences recorded within the last 50 years have since been destroyed.
CR – Critically Endangered	An ecological community will be listed as CR when it has been adequately surveyed and is found to be facing an extremely high risk of total destruction in the immediate future, meeting **any one or more of** the following criteria: **1.** The estimated geographic range and distribution has been reduced by at least 90 % and is either continuing to decline with total destruction imminent, or is unlikely to be substantially rehabilitated in the immediate future due to modification; **2.** The current distribution is limited i.e. highly restricted, having very few small or isolated occurrences, or covering a small area; or **3.** The ecological community is highly modified with potential of being rehabilitated in the immediate future.
EN – Endangered	An ecological community will be listed as EN when it has been adequately surveyed and is not CR, but is facing a very high risk of total destruction in the near future. The ecological community must meet **any one or more of** the following criteria: **1.** The estimated geographic range and distribution has been reduced by at least 70 % and is either continuing to decline with total destruction imminent in the short term future, or is unlikely to be substantially rehabilitated in the short term future due to modification; **2.** The current distribution is limited i.e. highly restricted, having very few small or isolated occurrences, or covering a small area; or **3.** The ecological community is highly modified with potential of being rehabilitated in the short term future.
VU - Vulnerable	An ecological community will be listed as VU when it has been adequately surveyed and is not Critically Endangered or Endangered but is facing high risk of total destruction in the medium to long term future. The ecological community must meet **any one or more of** the following criteria: **1.** The ecological community exists largely as modified occurrences that are likely to be able to be substantially restored or rehabilitated; **2.** The ecological community may already be modified and would be vulnerable to threatening process, and restricted in range or distribution; or **3.** The ecological community may be widespread but has potential to move to a higher threat category due to existing or impending threatening processes.

APPENDIX A4: FEDERAL DEFINITION OF THREATENED ECOLOGICAL COMMUNITIES

Note: Three categories exist for listing threatened ecological communities under the *Environment Protection and Biodiversity Conservation Act 1999*. Adapted from Department of the Environment (2013b).

CATEGORY	DEFINITION
Critically Endangered	If, at that time, it is facing an extremely high risk of extinction in the wild in the immediate future.
Endangered	If, at that time, it is not critically endangered and is facing a very high risk of extinction in the wild in the near future.
Vulnerable	If, at that time, it is not critically endangered or endangered, and is facing a high risk of extinction in the wild in the medium-term future.

APPENDIX A5: STATE DEFINITION OF PRIORITY ECOLOGICAL COMMUNITIES

Note: Adapted from Department of Environment and Conservation (2010 – currently Department of Parks and Wildlife).

CATEGORY	DEFINITION
P1 – Priority 1 (Poorly known ecological communities)	Ecological communities that are known from very few, restricted occurrences (generally ≤ 5 occurrences or a total area of ≤ 100 ha). Most of these occurrences are not actively managed for conservation (e.g. located within agricultural or pastoral lands, urban areas, or active mineral leases) and for which immediate threats exist.
P2 – Priority 2 (Poorly known ecological communities)	Communities that are known from few small occurrences (generally ≤ 10 occurrences or a total area of ≤ 200 ha). At least some occurrences are not believed to be under immediate threat of destruction or degradation.
P3 – Priority 3 (Poorly known ecological communities)	**1.** Communities that are known from several to many occurrences, a significant number or area of which are not under threat of habitat destruction or degradation; **2.** Communities known from a few widespread occurrences, which are either large or within significant remaining areas of habitat in which other occurrences may occur, much of it not under imminent threat; or **3.** Communities made up of large, and/or widespread occurrences, that may or not be represented in the reserve system, but are under threat of modification across much of their range from processes such as grazing and inappropriate fire regimes.
P4 – Priority 4 (Ecological communities that are adequately known, rare but not threatened or meet criteria for Near Threatened, or that have been recently removed from the threatened list. These communities require regular monitoring)	**1.** Rare – Communities known from few occurrences that are considered to have been adequately surveyed, sufficient knowledge is available, and are considered not to be currently threatened. **2.** Near Threatened – Communities considered to have been adequately surveyed and do not qualify for Conservation Dependent, but are close to qualifying for Vulnerable. **3.** Communities that have been removed from the list of threatened communities during the past five years.
P5 – Priority 5 (Conservation Dependent ecological communities)	Ecological communities that are not threatened but are subject to a specific conservation program, the cessation of which would result in the community becoming threatened within five years.

APPENDIX A6: CATEGORIES AND CONTROL MEASURES OF DECLARED PEST (PLANT) ORGANISMS IN WESTERN AUSTRALIA

Note: Adapted from *Biosecurity and Agriculture Management Regulations 2013*.

CONTROL CATEGORY	CONTROL MEASURES
C1 (Exclusion) '(a) Category 1 (C1) — Exclusion: if in the opinion of the Minister introduction of the declared pest into an area or part of an area for which it is declared should be prevented' Pests will be assigned to this category if they are not established in Western Australia and control measures are to be taken, including border checks, in order to prevent them entering and establishing in the State.	In relation to a category 1 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to destroy, prevent or eradicate the declared pest.
C2 (Eradication) '(b) Category 2 (C2) — Eradication: if in the opinion of the Minister eradication of the declared pest from an area or part of an area for which it is declared is feasible' Pests will be assigned to this category if they are present in Western Australia in low enough numbers or in sufficiently limited areas that their eradication is still a possibility.	In relation to a category 2 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to destroy, prevent or eradicate the declared pest.
C3 (Management) '(c) Category 3 (C3) — Management: if in the opinion of the Minister eradication of the declared pest from an area or part of an area for which it is declared is not feasible but that it is necessary to — (i) alleviate the harmful impact of the declared pest in the area; or (ii) reduce the number or distribution of the declared pest in the area; or (iii) prevent or contain the spread of the declared pest in the area.' Pests will be assigned to this category if they are established in Western Australia but it is feasible, or desirable, to manage them in order to limit their damage. Control measures can prevent a C3 pest from increasing in population size or density or moving from an area in which it is established into an area which currently is free of that pest.	In relation to a category 3 declared pest, the owner or occupier of land in an area for which an organism is a declared pest or a person who is conducting an activity on the land must take such of the control measures specified in subregulation (1) as are reasonable and necessary to — (a) alleviate the harmful impact of the declared pest in the area for which it is declared; or (b) reduce the number or distribution of the declared pest in the area for which it is declared; or (c) prevent or contain the spread of the declared pest in the area for which it is declared.

APPENDIX A7: DEFINITION OF VEGETATION CONDITION SCALE

Note: Adapted from Keighery (1994).

CATEGORY	DEFINITION
P - Pristine	Pristine or nearly so, no obvious sign of disturbance.
EX - Excellent	Vegetation structure intact, disturbance affecting individual species and weeds are non-aggressive species.
VG - Very Good	Vegetation structure altered obvious signs of disturbance. For example, disturbance to vegetation structure caused by repeated fires, the presence of some more aggressive weeds, dieback, logging and grazing.
G - Good	Vegetation structure significantly altered by obvious signs of multiple disturbances. Retains basic vegetation structure or ability to regenerate it. For example, disturbance to vegetation structure caused by very frequent fires, the presence of some very aggressive weeds at high density, partial clearing, dieback, grazing.
D - Degraded	Basic vegetation structure severely impacted by disturbance. Scope for regeneration but not to a state approaching good condition without intensive management. For example, disturbance to vegetation structure caused by very frequent fires, the presence of very aggressive weeds, partial clearing, dieback and grazing.
CD - Completely Degraded	The structure of the vegetation is no longer intact and the area is completely or almost completely without native species. These areas are often described as 'parkland cleared' with the flora comprising weed or crop species with isolated native trees or shrubs.

Legend

Vegetation of Flats to Lower Slopes

FL1: *Acacia xiphophylla*, *Acacia synchronicia*, *Acacia bivenosa* tall sparse shrubland and *Senna notabilis*, *Senna artemisioides* subsp. *oligophylla*, *Senna glutinosa* subsp. *glutinosa* mid isolated shrubs over *Salsola australis*, *Enchylaena tomentosa*, *Maireana planifolia* low isolated chenopod shrubs with *Triodia pungens*, *Triodia wiseana* low open hummock grassland and *Eragrostis xerophila*, *Sporobolus australasicus* low isolated tussock grasses.

FL2: *Corymbia hamersleyana* low isolated clumps of trees over *Acacia ineaquilatera*, *Acacia bivenosa*, *Acacia tumida* var. *pilbarensis* tall sparse shrubland and *Cullen martini*, *Senna notabilis*, *Trichodesma zeylanicum* var. *zeylanicum* mid isolated shrubs over *Tephrosia uniovulata*, *Isotropis atropurpurea*, *Corchorus tectus* low sparse shrubs and *Triodia wiseana* low sparse hummock grassland.

FL3: *Acacia xiphophylla*, *Acacia synchronicia*, *Acacia bivenosa* tall sparse shrubland over *Senna glutinosa* subsp. *glutinosa*, *Sarcostemma viminale*, *Hibiscus sturtii* var. *platychlamys* mid isolated shrubs over *Triodia wiseana* low sparse hummock grassland.

FL4: *Streptoglossa bubakii*, *Phyllanthus maderaspatensis*, *Sida trichopoda* low sparse forbland with *Triodia wiseana* low open hummock grassland and *Aristida latifolia*, *Brachyachne convergens*, *Eragrostis xerophila* low sparse tussock grassland.

FL5: *Sida spinosa*, *Phyllanthus maderaspatensis*, *Cullen cinereum* low sparse shrubland with *Panicum decompositum*, *Enneapogon caerulescens* low sparse tussock grassland and *Stemodia kingii*, *Heliotropium crispatum*, *Desmodium muelleri* low sparse forbland.

FL6: *Acacia inaequilatera* tall open shrubland over *Senna glutinosa* subsp. *glutinosa*, *Senna glutinosa* subsp. *pruinosa*, **Vachellia farnesiana* mid sparse shrubland over *Triodia brizoides* low open hummock grassland and *Eriachne aristidea*, *Enneapogon caerulescens*, *Aristida anthoxanthoides* low sparse tussock grassland.

FL7: *Acacia ancistrocarpa*, *Acacia colei* var. *colei*, *Acacia dictyophleba* tall sparse shrubland over *Ptilotus astrolasius*, *Pterocaulon sphacelatum*, *Indigofera boviperda* subsp. *boviperda* low sparse shrubland over *Triodia pungens*, *Triodia wiseana* low open hummock grassland.

FL8: *Acacia ancistrocarpa*, *Acacia bivenosa*, *Acacia synchronicia* tall sparse shrubland over *Gossypium australe*, *Eremophila longifolia*, *Senna artemisioides* subsp. *helmsii* mid sparse shrubland over *Triodia pungens* low sparse hummock grassland and *Eulalia aurea*, *Chrysopogon fallax*, *Bothriochloa ewartiana* low open tussock grassland.

FL9: *Acacia atkinsiana*, *Acacia ancistrocarpa*, *Acacia bivenosa* tall sparse shrubland over *Senna artemisioides* subsp. *oligophylla*, *Senna glutinosa* subsp. *glutinosa*, *Scaevola spinescens* mid sparse shrubland over *Triodia wiseana*, *Triodia longiceps* low open hummock grassland.

FL10: *Corymbia hamersleyana* low open woodland over *Acacia trachycarpa*, *Acacia ancistrocarpa, Acacia dictyophleba* tall open shrubland and *Gossypium australe*, *Grevillea wickhamii*, *Senna artemisioides* subsp. *helmsii* mid sparse shrubland over *Triodia pungens*, *Triodia wiseana* low open hummock grassland and *Eulalia aurea*, *Aristida latifolia*, *Themeda triandra* low sparse tussock grassland.

FL11: *Corymbia hamersleyana* low open woodland over *Acacia trachycarpa*, *Cullen lachnostachys*, *Grevillea wickhamii* mid sparse shrubland over *Themeda triandra*, *Eulalia aurea*, *Paraneurachne muelleri* low sparse tussock grassland.

FL12: *Corymbia hamersleyana* low open woodland over *Grevillea wickhamii*, *Acacia ancistrocarpa*, *Acacia bivenosa* tall sparse shrubland and *Gossypium australe*, *Hakea chordophylla*, *Acacia dictyophleba* mid sparse shrubland over *Bonamia erecta*, *Corchorus tectus*, *Ptilotus obovatus* var. *obovatus* low sparse shrubland and *Triodia pungens*, *Triodia wiseana* low open hummock grassland.

FL13: *Acacia bivenosa*, *Acacia synchronicia* tall isolated shrubs over *Triodia longiceps*, *Triodia pungens* low sparse hummock grassland.

FL14: *Acacia xiphophylla*, *Acacia atkinsiana* tall sparse shrubland and *Senna artemisioides* subsp. *helmsii*, *Senna notabilis*, *Hibiscus sturtii* mid sparse shrubland over *Triodia pungens* low open hummock grassland and *Eulalia aurea*, *Sporobolus australasicus*, *Chrysopogon fallax* low sparse tussock grassland.

FL15: *Astrebla lappacea* (P3), *Aristida latifolia*, *Panicum decompositum* low tussock grassland.

Vegetation of Mid Slopes to Ridges

MR1: *Eucalyptus leucophloia* subsp. *leucophloia*, *Corymbia hamersleyana* low isolated trees over *Acacia bivenosa*, *Acacia ancistrocarpa*, *Acacia inaequilatera* tall sparse shrubland and *Senna glutinosa* subsp. *glutinosa*, *Senna glutinosa* subsp. *pruinosa*, *Acacia maitlandii* mid isolated shrubs over *Triodia wiseana* low open hummock grassland.

MR2: *Acacia monticola*, *Acacia pyrifolia*, *Acacia trachycarpa* tall sparse shrubland over *Petalostylis cassioides*, *Senna glutinosa* subsp. *glutinosa* mid isolated shrubs over *Triodia wiseana* low hummock grassland.

MR3: *Acacia inaequilatera*, *Acacia ancistrocarpa*, *Acacia bivenosa* tall sparse shrubland and *Senna glutinosa* subsp. *pruinosa*, *Senna glutinosa* subsp. *glutinosa*, *Trichodesma zeylanicum* var. *zeylanicum* mid sparse shrubland over *Ptilotus nobilis*, *Ptilotus calostachyus*, *Corchorus tectus* low isolated shrubs and *Triodia wiseana* low open hummock grassland.

MR4: *Grevillea pyramidalis* subsp. *leucadendron*, *Acacia ineaquilatera*, *Acacia colei* var. *ileocarpa* tall isolated shrubs and *Trichodesma zeylanicum* var. *zeylanicum*, *Cajanus cinereus*, *Abutilon lepidum* mid sparse shrubland over *Corchorus tectus*, *Triumfetta clementii*, *Tribulus platypterus* low sparse shrubland and *Triodia wiseana* low open hummock grassland.

MR5: *Acacia inaequilatera*, *Grevillea pyramidalis* subsp. *leucadendron*, *Hakea lorea* tall sparse shrubland over *Senna glutinosa* subsp. *pruinosa*, *Senna glutinosa* subsp. *glutinosa*, *Trichodesma zeylanicum* var. *zeylanicum* mid sparse shrubland over *Triodia wiseana* low open hummock grassland and *Aristida holathera* var. *holathera*, *Enneapogon caerulescens*, *Eriachne flaccida* low isolated tussock grasses.

MR6: *Acacia bivenosa*, *Hakea lorea* tall isolated shrubs over *Triodia wiseana* low sparse hummock grassland.

MR7: *Eremophila longifolia*, *Acacia maitlandii*, *Acacia atkinsiana* mid sparse shrubland over *Abutilon lepidum*, *Gomphrena cunninghamii*, *Tephrosia rosea* var. *Fortescue creeks* (M.I.H. Brooker 2186) low sparse shrubland and *Triodia wiseana* low hummock grassland.

Vegetation of Creeklines, Flowlines and Drainage Areas

CD1: *Acacia tumida* var. *pilbarensis*, *Acacia ancistrocarpa*, *Acacia trachycarpa* tall open shrubland and *Gossypium robinsonii*, *Acacia pyrifolia*, *Senna glutinosa* subsp. *glutinosa* mid sparse shrubland over *Hybanthus aurantiacus*, *Ptilotus obovatus* var. *obovatus*, *Ptilotus nobilis* low isolated shrubs with *Triodia pungens* low open hummock grassland and *Themeda triandra*, *Cymbopogon obtectus* low sparse tussock grassland.

CD2: *Corymbia candida*, *Corymbia hamersleyana*, *Eucalyptus camaldulensis* low open woodland over *Acacia tumida* var. *pilbarensis*, *Gossypium robinsonii*, *Acacia ancistrocarpa* tall sparse shrubland over *Eragrostis tenellula*, *Sporobolus australasicus*, *Eragrostis cumingii* low sparse tussock grassland and *Alternanthera nodiflora*, *Ipomoea muelleri*, *Waltheria indica* low sparse forbland.

CD3: *Eucalyptus victrix* mid open woodland over *Acacia ampliceps*, *Acacia trachycarpa*, *Sesbania cannabina* tall sparse shrubland over *Cyperus vaginatus* mid sparse sedgeland and *Eriachne benthamii*, *Enneapogon caerulescens*, *Cymbopogon obtectus* low sparse tussock grassland.

CD4: *Eucalyptus victrix*, *Eucalyptus camaldulensis* mid open woodland over *Acacia pyrifolia*, *Grevillea wickhamii*, *Acacia trachycarpa* tall open shrubland over *Pterocaulon sphacelatum*, *Phyllanthus maderaspatensis*, *Hybanthus aurantiacus* mid sparse shrubland with *Cyperus vaginatus* mid sparse sedgeland and *Sporobolus australasicus*, *Chrysopogon fallax*, *Enteropogon ramosus* low sparse tussock grassland.

CD5: *Corymbia hamersleyana* low open woodland over *Acacia tumida* var. *pilbarensis*, *Acacia atkinsiana*, *Acacia inaequilatera* tall sparse shrubland over *Bonamia erecta*, *Goodenia stobbsiana*, *Ptilotus obovatus* var. *obovatus* low isolated shrubs and *Triodia wiseana* low open hummock grassland.

CD6: *Acacia bivenosa*, *Jasminum didymium* subsp. *lineare*, *Acacia ampliceps* tall sparse shrubland over *Trichodesma zeylanicum* var. *zeylanicum*, *Senna artemisioides* subsp. *oligophylla*, *Indigofera monophylla* mid sparse shrubland over *Triodia wiseana* isolated hummock grasses and *Cymbopogon obtectus*, *Aristida contorta*, *Eriachne aristidea* low isolated tussock grasses.

CD7: *Corymbia hamersleyana* low open woodland over *Acacia ancistrocarpa*, *Acacia trachycarpa*, *Acacia dictyophleba* tall sparse shrubland and *Cullen lachnostachys*, *Gossypium australe*, *Grevillea wickhamii* mid sparse shrubland over *Pterocaulon sphacelatum*, *Pluchea dunlopii*, *Senna artemisioides* subsp. *helmsii* low open shrubland with *Triodia pungens* low open hummock grassland and *Eulalia aurea*, *Chrysopogon fallax*, *Eriachne pulchella* low sparse tussock grassland.

CD8: *Eucalyptus victrix* low open woodland over *Grevillea wickhamii*, *Acacia tumida* var. *pilbarensis*, *Acacia pyrifolia* tall open shrubland and *Tephrosia rosea*, *Corchorus lasiocarpus*, *Indigofera monophylla* mid sparse shrubland over *Triodia pungens* low open hummock grassland and *Eriachne aristidea*, *Eriachne pulchella*, **Cenchrus ciliaris* low open tussock grassland.

Cleared

Weeds

Code	Species
Aj	**Aerva javanica*
Cc	**Cenchrus ciliaris*
Cd	**Cynodon dactylon*
Ft	**Flaveria trinervia*
Ma	**Malvastrum americanum*
Mp	**Melochia pyramidata*
Ob	**Ocimum basilicum*
Sv	**Setaria verticillata*
Tt	**Tribulus terrestris*
Vf	**Vachellia farnesiana*

Weed - Prohibited Species

Code	Species
Jg	**Jatropha gossypiifolia*

Threatened & Priority Flora

Code	Species
Al	*Astrebla lappacea* (P3)

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CAD Ref: g2117_DBP_FVGP_04_00.dgn
Date: Nov 2013 | Rev: A | A4

Fortescue River Gas Pipeline (FRGP)

Vegetation Legend

Figure: **B0**

7628000 392000 7627000 7626000 393000 7625000

KP0 KP1 KP2 KP3 KP4 KP5

FL1 Cleared FL1 Cleared FL1

Cc Vf Ma CD4 Cc Vf Cc Ma

DAMPIER TO BUNBURY NATURAL GAS PIPELINE

7628000 391000 390000 393000 392000 391000 7624000

7627000 7626000 390000 7625000 7624000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 1 of 77

Appendix: **B1**

394000 7625000 7624000 7623000 395000 7622000

395000 394000 393000 392000

KP5 KP6 KP7 KP8

FL1 FL2 FL1 FL2 FL3 FL14 Cc

7624000 392000 7623000 7622000 7621000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

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Scale: 1:10,000

MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)

Vegetation Mapping

Sheet 2 of 77

Appendix: **B2**

7622000 395000 7621000 7620000 7619000 396000

KP9 KP10 KP11

Cc FL3 FL2 FL3 FL3 FL9 FL9 FL9 MR5 FL3 FL3 FL12 MR5 CD5 FL9 FL9 FL9 FL3

7621000 7620000 7619000 7618000

7622000 396000 395000 394000 393000 394000 7618000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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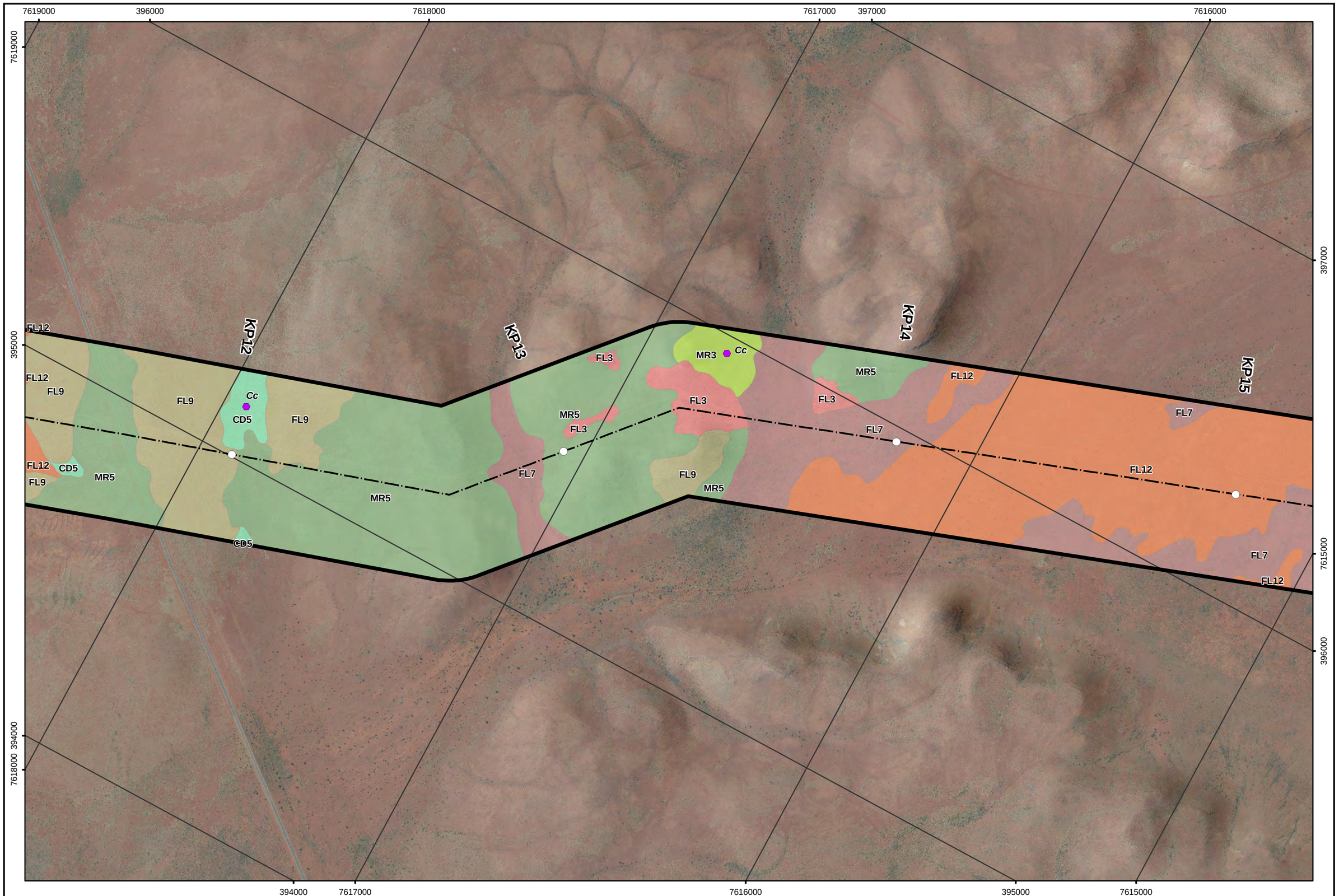
Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 3 of 77

Appendix: **B3**



Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 4 of 77

Appendix: **B4**

7615000 398000 7614000 7613000

397000 398000 7612000 396000

KP15 KP16 KP17 KP18

FL7 FL12 FL9 MR1 Cc CD2 MR6

7615000 7614000 7613000 396000 7612000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 5 of 77

Appendix: **B5**

7612000 399000 7611000 7610000

398000 7609000

KP19 KP20 KP21

FL9 MR1 Cc FL7 Cc Vf FL7 MR1 MR1 FL7 FL9 MR1 CD2 FL7 FL7 FL7 FL13 MR1 FL13 FL13 FL7 MR1 FL13 FL3 FL13 FL3 FL13 FL3 FL3 Vf Ma Cc FL9 FL7 MR6 FL7

399000 398000

397000 7612000

7611000 7610000 397000 7609000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

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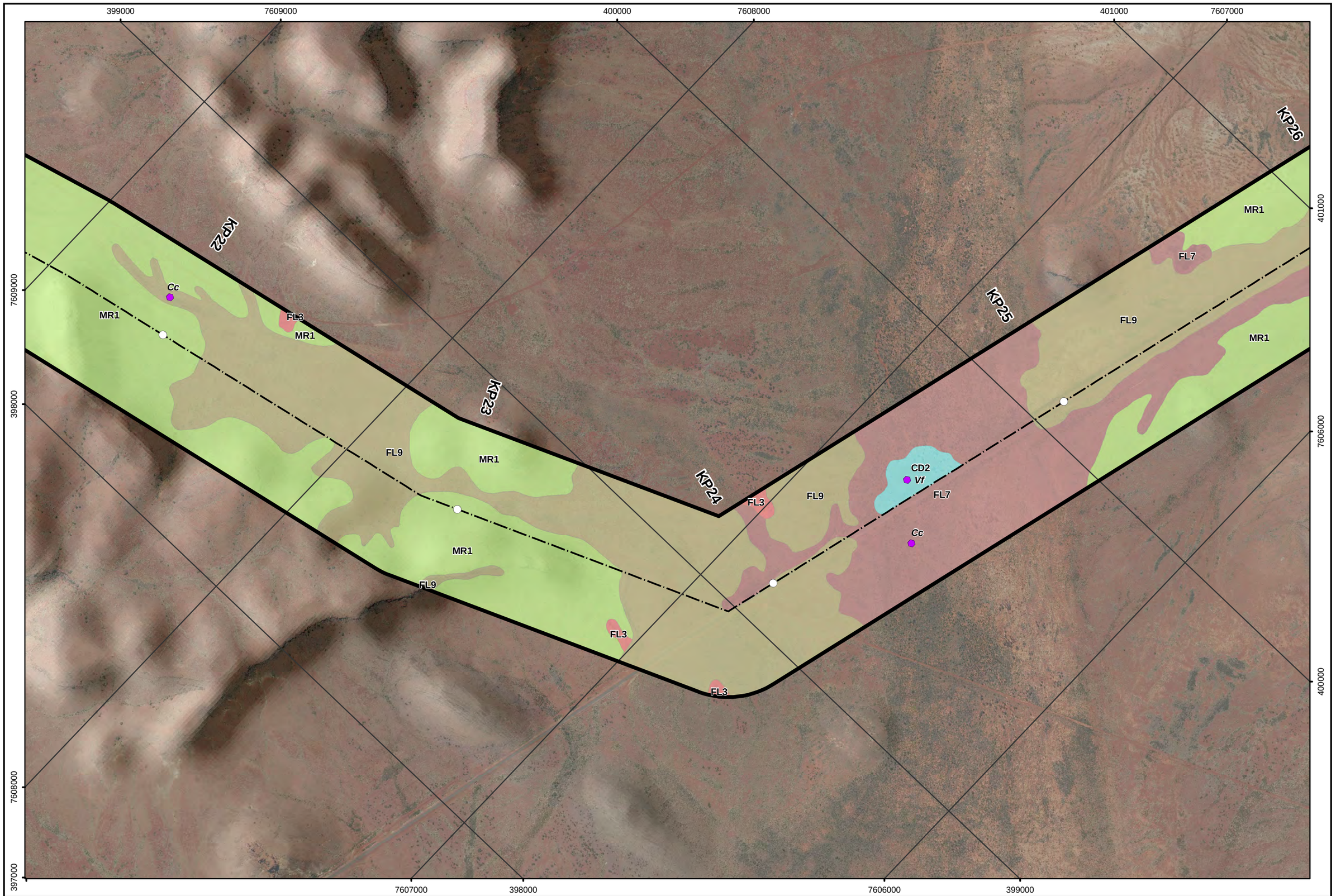
Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 6 of 77

Appendix: **B6**



Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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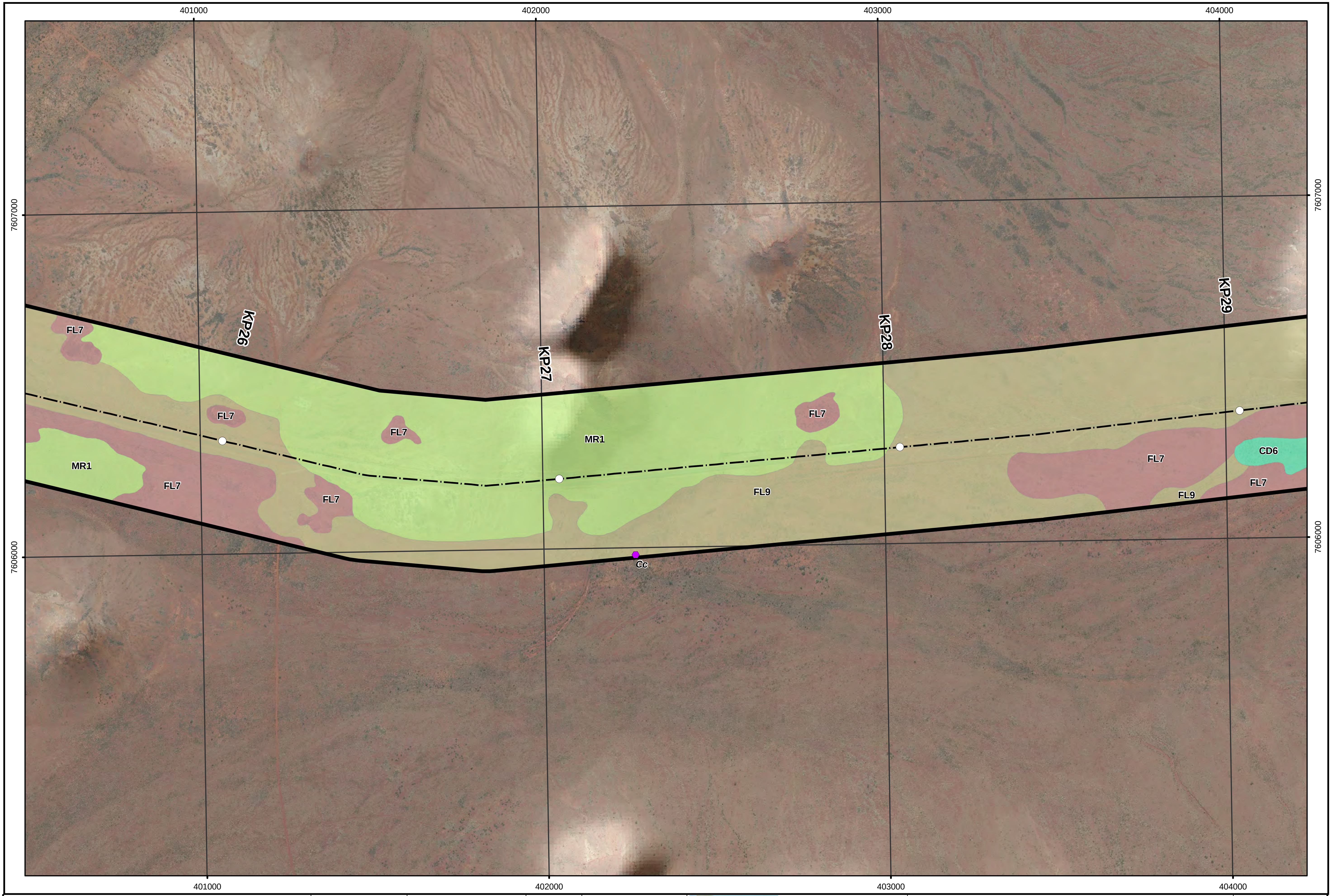
Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 7 of 77

Appendix:

B7



Legend

○ FVGP Route 11/10/2013 KP

▬ FVGP Route 11/10/2013

▭ FVGP Route 11/10/2013 250m Buffer

⬢ Weeds

⬢ Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B8

405000 406000 407000

404000 7607000 7607000 7606000 7606000 7605000

KP29 KP30 KP31 KP32

CD6 FL9 FL7 MR1 MR6 Cc

404000 405000 406000 7605000 407000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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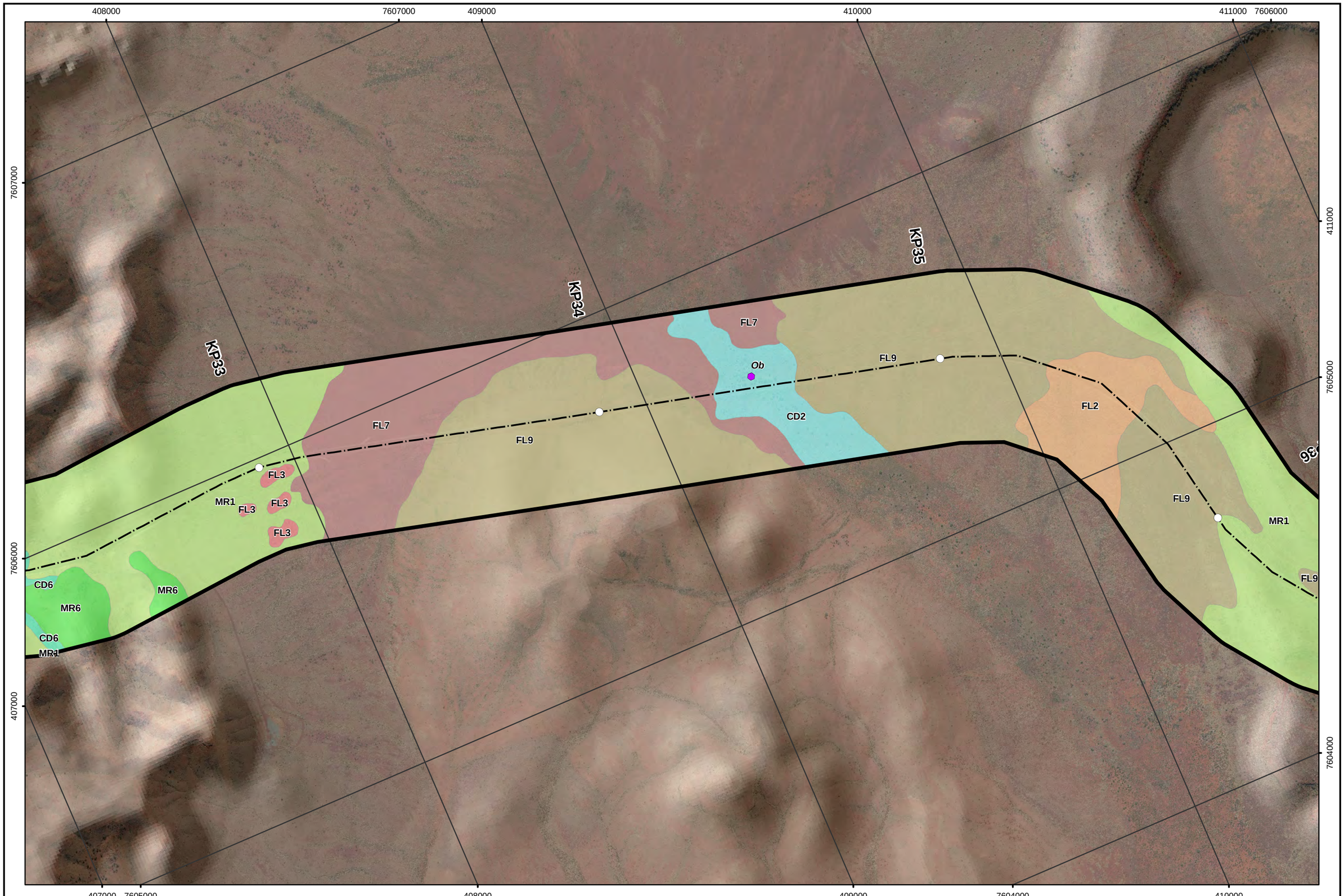
Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 9 of 77

Appendix: **B9**



Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

Date: Nov 2013 | Rev: A | A3

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 10 of 77

Appendix:

B10

7605000 412000 7604000 413000

411000 7603000

7605000 413000

KP36 KP37 KP38 KP39

MR1 FL9 FL9 CD2 FL9 FL2 FL3 FL3

7602000

410000 7604000

410000 7603000 411000 7602000 412000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

Date: Nov 2013 | Rev: A | A3

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix: **B11**

413000
414000
415000
7604000
7603000
416000
7602000
7601000

KP39
KP40
KP41
KP42
KP43

FL3
FL2
MR1
CD4
FL9
Ma
Cc
Sv

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m
Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

Date: Nov 2013 | Rev: A | A3

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:
B12

7604000 416000 417000 7605000 418000

KP43 KP44 KP45 KP46

FL2 FL9 MR1 FL10 CD4 FL3 MR1 FL3 CD4 FL2 FL3 MR1 FL9 FL10 Ma Sv Cc Mp FL10 FL3 FL3 MR1

416000 419000 7605000 7602000 7604000

417000 418000 7603000 419000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

Date: Nov 2013 | Rev: A | A3

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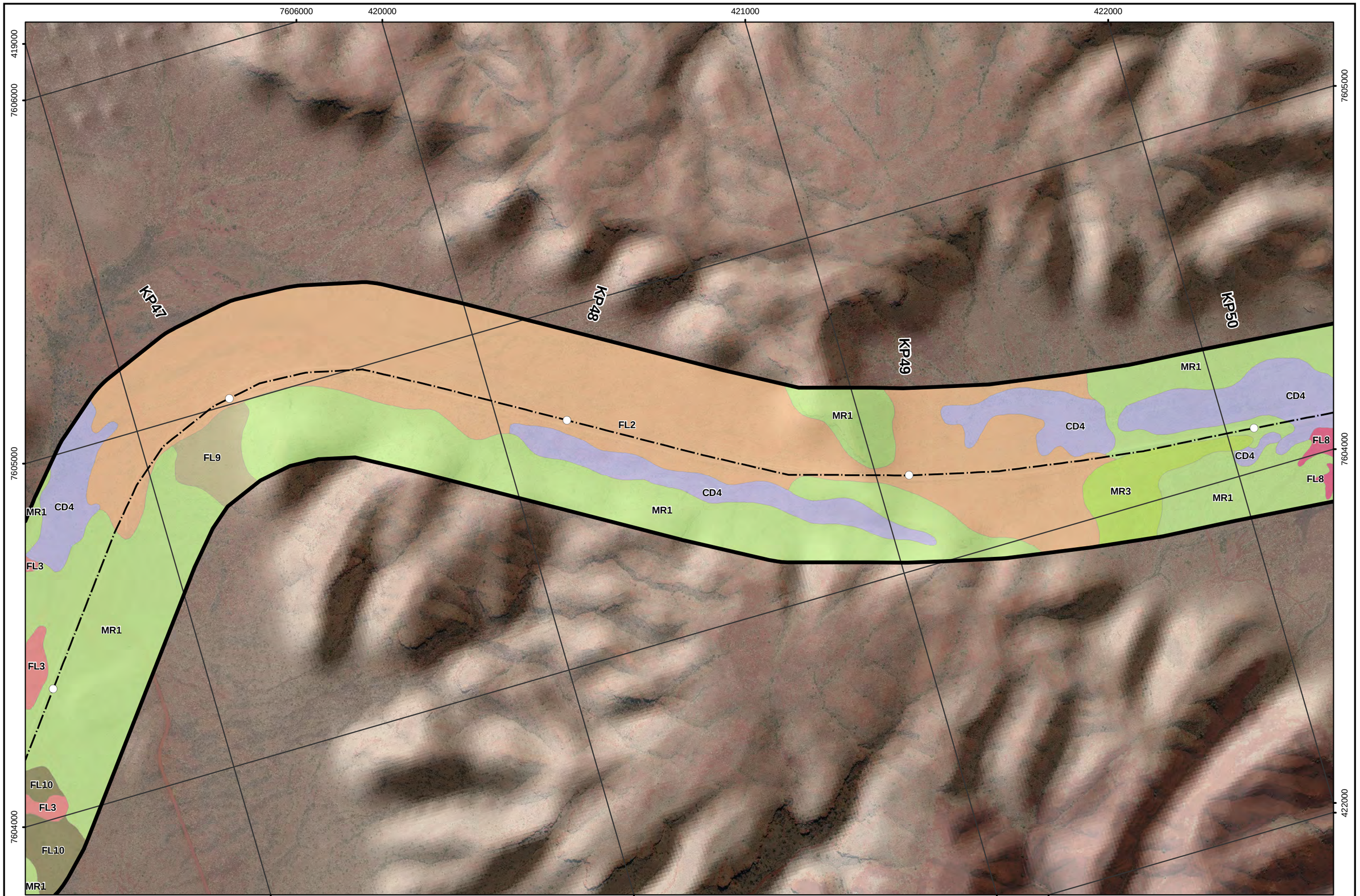
Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 13 of 77

Appendix:
B13



Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

Date: Nov 2013 | Rev: A | A3

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B14

422000 423000 424000 425000

7605000

7604000

7603000

KP50 KP51 KP52 KP53

MR1 CD4 MR1 MR3 CD4 MR1 FL8 MR7 MR1 FL2 Cleared MR1 MR5 MR1 MR5 CD1

423000 424000 425000 7603000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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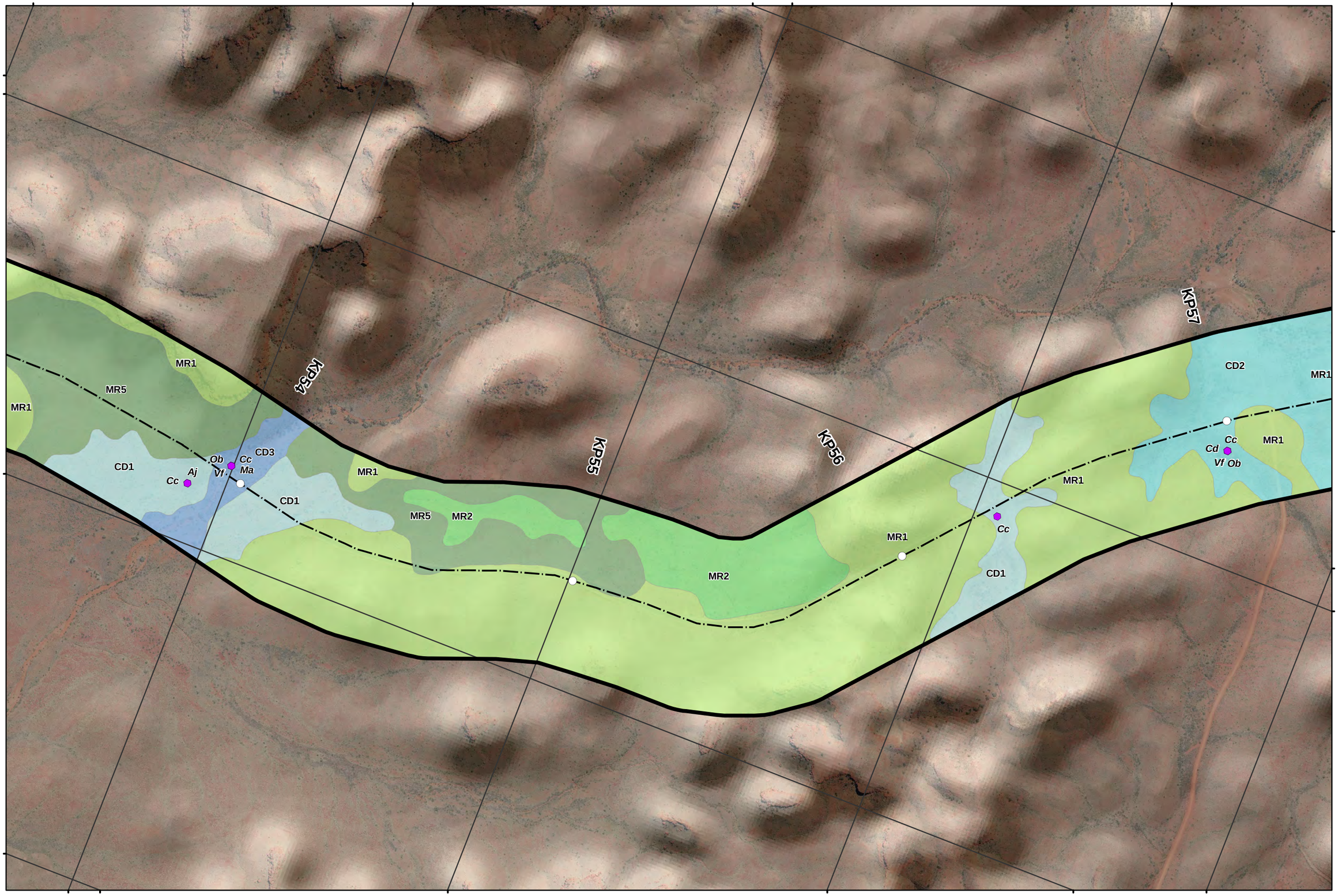
Appendix: **B15**

425000 426000 7606000 427000 428000

425000 7606000 7604000 429000 7605000 7603000



426000 7603000 427000 428000 7604000 429000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B16

428000 7607000 429000 430000 7608000 431000

7606000 428000 7608000

KP58 KP59 KP60

CD2 Cleared MR1 Cleared Cleared MR4 MR3 MR1 CD1

Vf Cc

MR1 MR1 CD1 Vf Jg Cc Ob Ma MR3

MR1 CD1 MR1

MR1

7605000 429000 432000

430000 7605000 431000 7606000 432000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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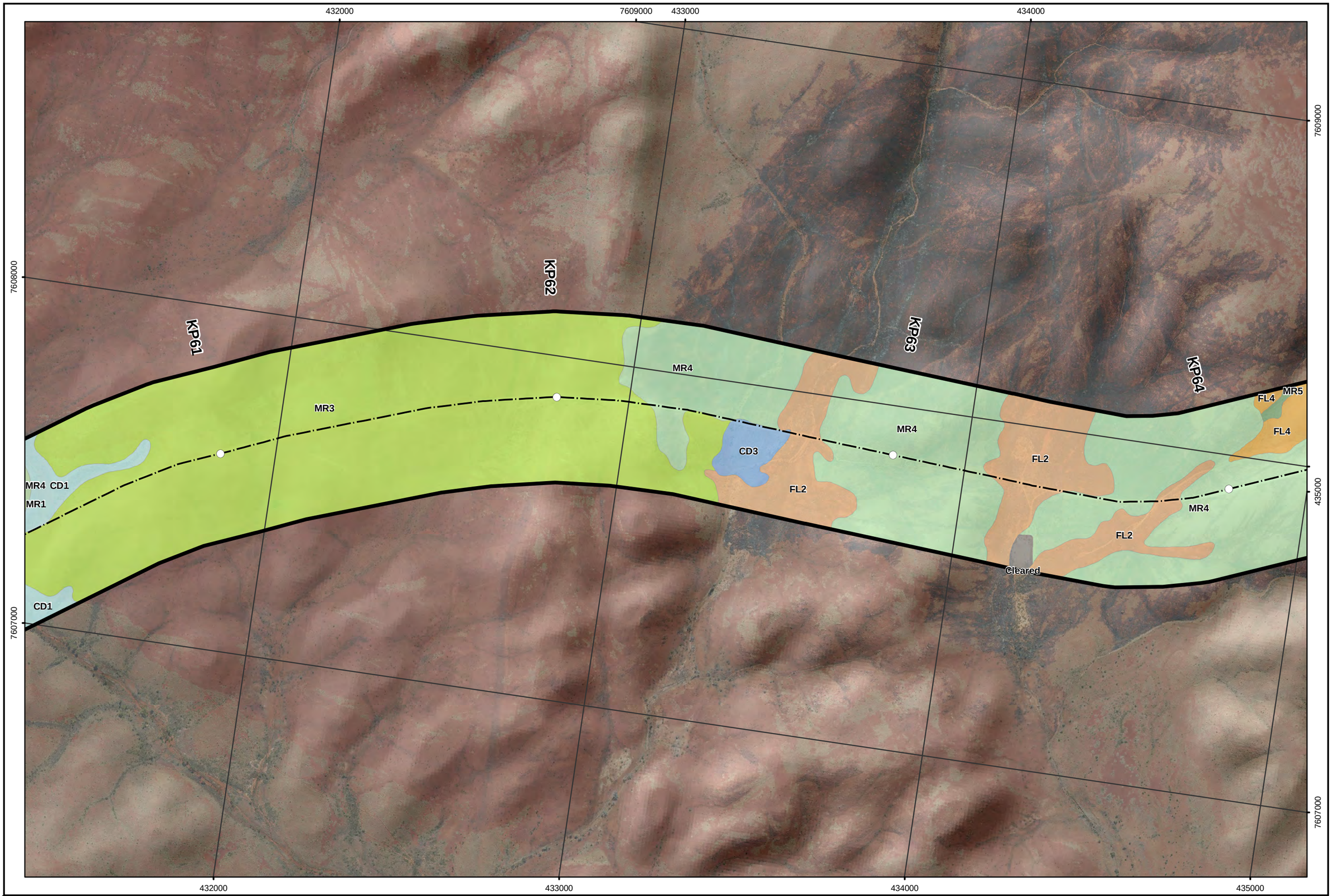
Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 17 of 77

Appendix: **B17**



Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 18 of 77

Appendix:

B18

7609000 435000 436000 7610000 437000

7608000 7610000

KP64 KP65 KP66 KP67

FL4 MR5 FL4 MR5 FL2 MR4 FL2 FL4 MR4 FL4 Aj MR5 MR4 FL4 Ma Vf MR5 MR4 MR5 FL4

7607000 435000 7609000 438000

7607000 436000 437000 7608000 438000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 19 of 77

Appendix:
B19

438000 7611000 439000 440000 441000

7611000 7610000 7609000

KP68 KP69 KP70 KP71

FL4 CD3 MR4 MR5

7609000 438000 439000 440000 441000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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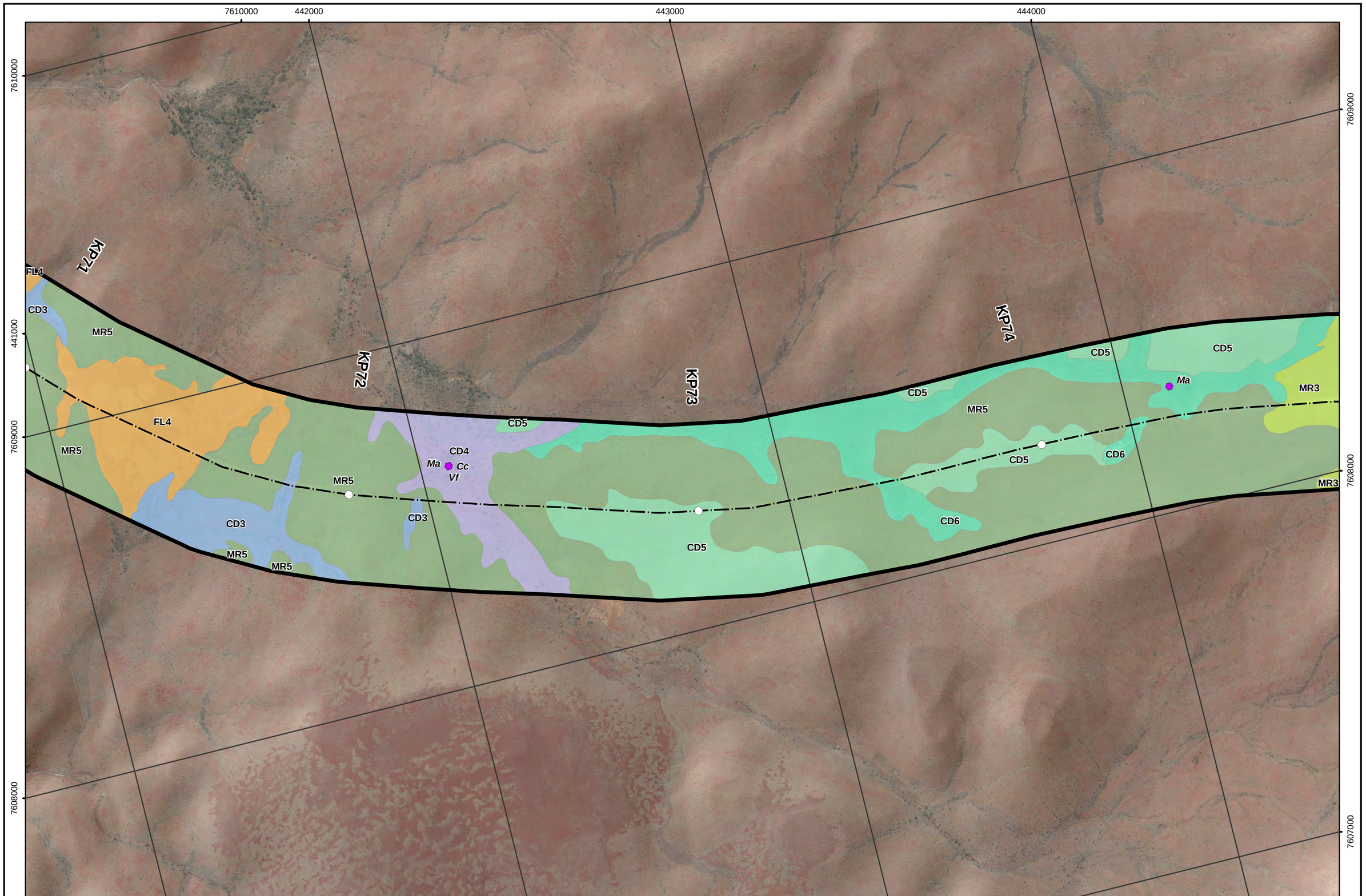
Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 20 of 77

Appendix: **B20**



Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B21

445000 446000 447000 7609000 448000

7609000 448000 7608000 7607000 444000

KP75 KP76 KP77 KP78

CD5 CD6 CD6 CD6 FL4 CD4 CD6 CD6 CD6 MR3 MR5 MR5 MR5 MR5 MR5 MR5 FL4

444000 7607000 445000 446000 447000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 22 of 77

Appendix:

B22

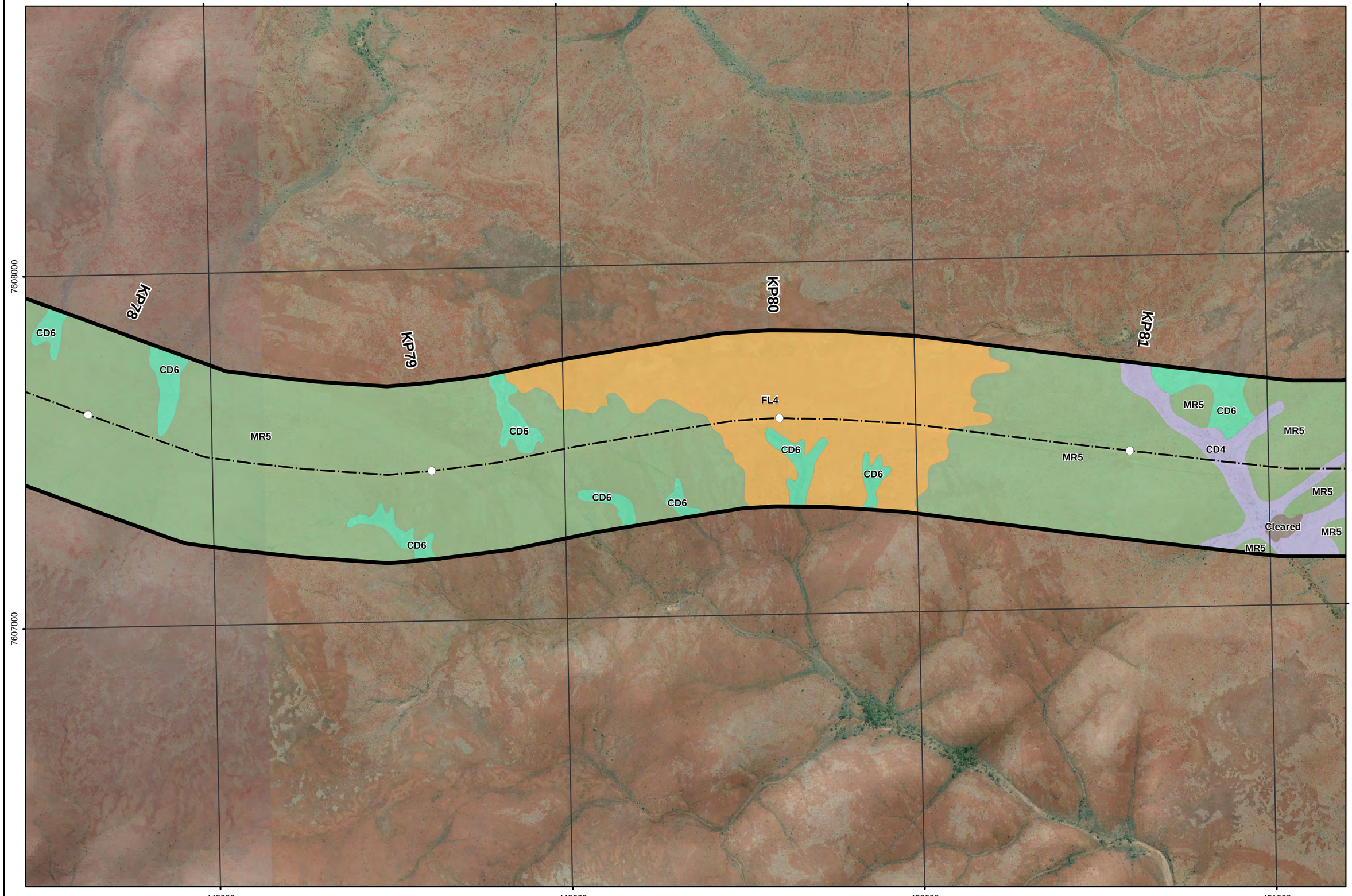
448000 449000 450000 451000

7608000

7607000

KP78 KP79 KP80 KP81

CD6 MR5 FL4 CD4 Cleared



Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 23 of 77

Appendix: **B23**

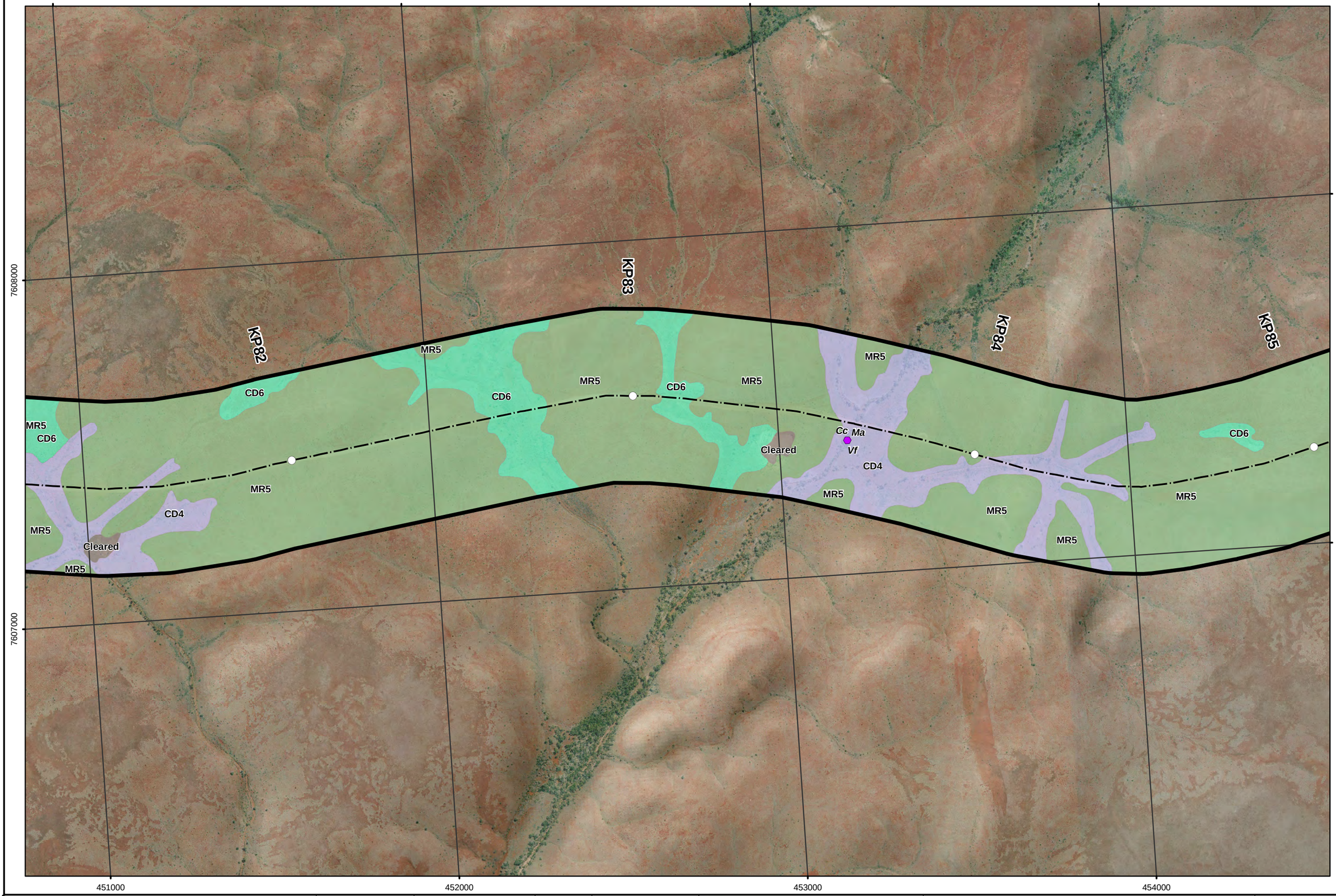
451000 452000 453000 454000

7608000

7607000

KP82 KP83 KP84 KP85

MR5 CD6 Cleared CD4 Cc Ma Vf



451000 452000 453000 454000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B24

455000 456000 457000

7608000

KP85 KP86 KP87 KP88

FL2 MR5 MR5 CD6 MR5 MR5

CD6 MR5 MR5

CD4 FL2 CD6

FL2 CD3

FL4 CD4

7607000

455000 456000 457000 458000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B25

458000 7609000 459000 460000

7608000 461000

KP88 KP89 KP90 KP91

MR5 MR5 FL2 MR5 CD3 CD6 MR5 MR5 CD6 MR3 MR5 Ma Vf MR5 MR3 MR5 FL2 MR5 MR3 FL2 CD6 FL2 FL2 MR5 FL4 MR5 MR5 CD3

7607000 458000 459000 460000 7607000 461000 7608000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:
B26

7610000 462000 463000 464000 7609000

7610000 461000 7609000 7608000

KP92 KP93 KP94 KP95

FL4 FL4 FL2 FL6 FL4 FL6

MR5 MR3 MR3 MR3 MR5 MR5

FL2 FL2

7608000 7607000 464000

461000 462000 7607000 463000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B27

465000 7608000 466000 467000 7607000

KP95 KP96 KP97 KP98

7608000 7606000 467000 7605000

464000 7607000

FL7 FL7 MR3 FL7 FL4 MR3 MR3 FL4 FL7 MR3 Ma Vf FL6 MR3 MR3 FL4 FL6 MR3 MR3

464000 7606000 465000 466000 7605000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 28 of 77

Appendix:

B28

7607000468000 469000 7606000 470000

7607000 7605000 467000 7606000 4700007604000

KP99 KP100 KP101 KP102

FL1 CD1 MR1 MR3 MR2 FL4 FL3 Cc Sv Vf CD4 FL7

7605000 467000 468000 469000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B29

7605000 471000 472000 473000 7604000

7605000 470000

KP102 KP103 KP104 KP105

MR1 MR1 FL7 MR1

CD7 CD7 CD7

7604000 7603000

7603000 473000 7602000

470000 471000 7602000 472000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B30

7604000
474000
7603000
475000
476000
7604000
473000
7603000
7601000
476000
7600000
475000
7602000
473000
7601000
474000
7600000

KP106
KP107
KP108
MR1
FL8
FL8
Ma
FL8
FL8
FL8
FL7
FL9
CD7

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m
Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
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Appendix:
B31

7601000 477000 7599000 7598000

476000 7601000 477000 475000 7597000 476000

KP109 KP110 KP111 KP112

FL7 FL1 CD5 CD4 Ft Vf Ma MR1 FL10 FL1 MR1 FL9 MR1 MR1 MR1 FL1

7600000 7599000 475000 7598000 7597000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
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Appendix:

B32

477000 478000 479000 480000

7598000 7597000 7596000

FL1 FL1 FL1 FL1 FL1 FL10 FL5 FL5

MR1

KP112 KP113 KP114 KP115 KP116

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix: **B33**

481000 482000 483000

7598000 7597000 7596000

KP116 KP117 KP118 KP119

FL1 FL5 FL10 FL11

480000 481000 7596000 482000 483000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000

MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)

Vegetation Mapping

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Appendix:

B34

483000 7598000 484000 485000 7599000 486000

7599000 483000 7597000 7598000 7596000 487000 7597000

KP119 KP120 KP121 KP122 KP123

FL1 FL1 FL10

Cc

484000 485000 7596000 486000 487000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B35

7599000 487000 488000 489000

7598000 490000

KP123 KP124 KP125 KP126

FL10 FL7 FL10

Cleared

7597000 7598000

487000 488000 7597000 489000 490000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B36

7600000
490000
491000
492000
7599000
7601000
7598000
493000
KP127
KP128
KP129
FL1
FL7

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

0 100 200 m
Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:
B37

492000 7602000 493000 494000

492000 7601000 7603000 495000

KP130 KP131 KP132 KP133

FL1 FL10 FL7 Cleared

7600000 493000 7600000 494000 495000 7601000 496000 7602000 496000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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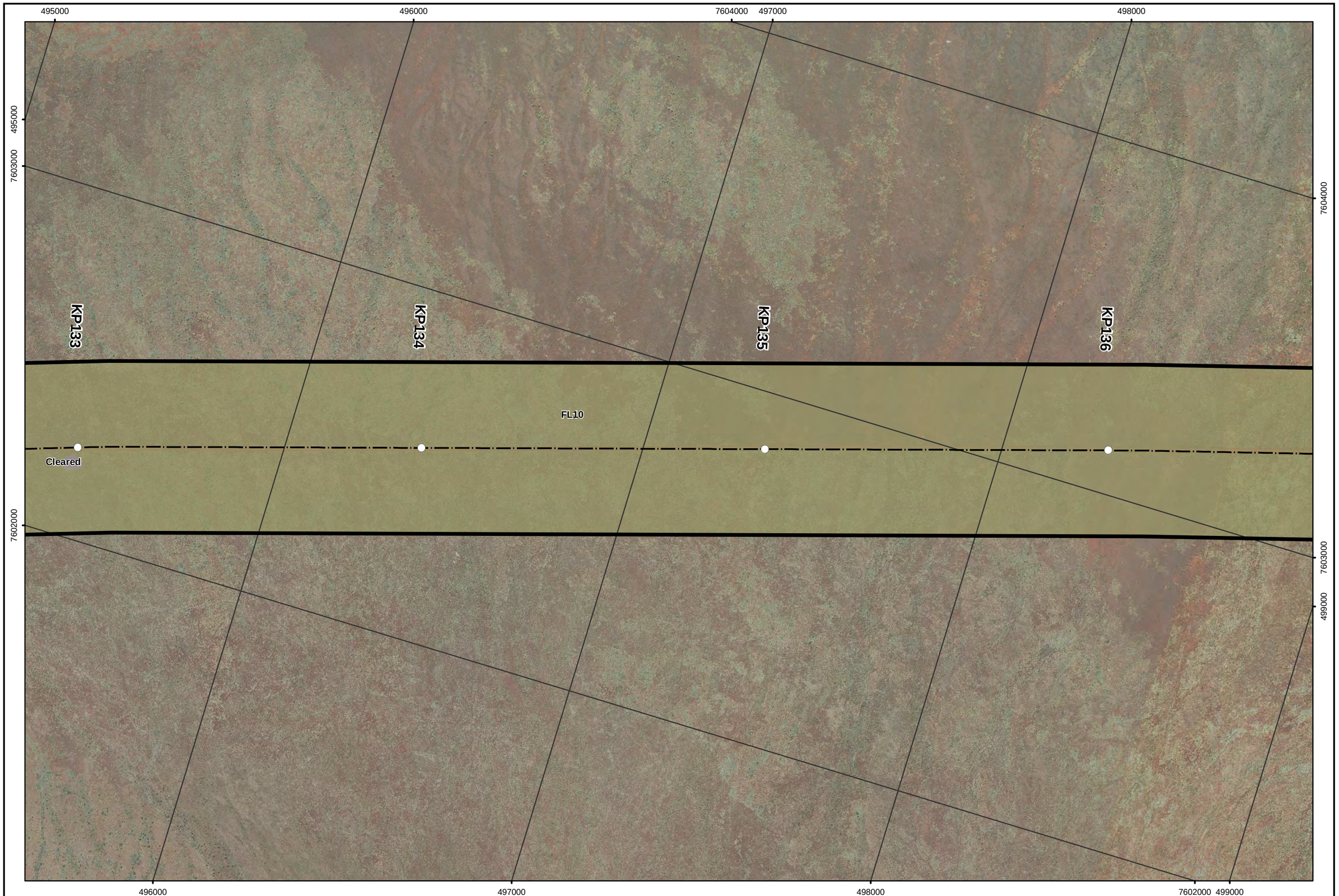
Appendix:

B38



Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B39

499000
500000
7605000
501000
7604000
7605000
7603000
502000
KP137
KP138
KP139
FL10
FL7
7603000
7604000
499000
500000
501000
502000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m
Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:
B40

7605000 503000 504000 7604000 505000

502000

KP140 KP141 KP142 KP143

Cc CD7 Cc

FL10 FL10 FL7 FL10

7603000 505000 7602000

7604000

7603000 502000 503000 7602000 504000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B41

506000 7603000 507000 508000 7602000

505000 7603000

KP143 KP144 KP145 KP146

FL10

7601000 508000

7602000

7600000

505000 506000 7600000 507000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B42

7602000 509000 510000 7601000 511000

7602000 508000 7601000 7600000

7600000 511000 7599000

KP147 KP148 KP149 KP150

FL10 FL7 FL15

Ma Al Tt Ma

508000 7599000 509000 510000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

Date: Nov 2013 | Rev: A | A3

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Fortescue River Gas Pipeline (FRGP)
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Appendix:

B43

512000
513000
7599000
514000
511000
7598000
7597000
KP150
KP151
KP152
KP153
FL10
FL15
Ma
Al
Ft
Vf
Ma
Al
Legend
FVGP Route 11/10/2013 KP
FVGP Route 11/10/2013
FVGP Route 11/10/2013 250m Buffer
Weeds
Weeds - Prohibited Species
Note: For detailed legend refer figure B0
THREATEND AND PRIORITY SPECIES
Priority DEFL Herbarium MCPL
Threatend
1
2
3
4
Note: Aerial Photography Supplied by Landgate
Sheet Layout:
Client:
dbp
N
0 100 200 m
Scale: 1:10,000
MGA94 (Zone 50)
CAD Ref: g2117_DBP_FVGP_04_20131129
Date: Nov 2013 Rev: A A3
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Fortescue River Gas Pipeline (FRGP)
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Appendix:
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515000
7598000
516000
517000
7597000
514000
7598000
517000
7596000
7597000
7595000
513000
514000
7596000
515000
516000

KP154
KP155
KP156

FL15
FL15
FL10
FL15
FL15
FL10

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m
Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:
B45

7597000 518000 519000 7596000 520000

517000 7597000

7595000

520000

KP157 KP158 KP159 KP160

FL1 FL10 FL15 FL10 FL15 FL10 FL10

Ma Al Ma Vf Ma Al

7596000

7594000

516000

516000 517000 7594000 518000 519000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B46

521000 7595000 522000 523000

520000 7595000 523000

KP160 KP161 KP162 KP163

FL1 FL10 FL8 FL15 Ma Al Vf Ma Al Ma FL1 FL1 FL8 FL1 FL1 FL8 FL10 FL8 FL10

7594000 7592000 519000

519000 7593000 520000 521000 7592000 522000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B47

524000 7593000 525000 526000

523000 7592000 526000 7591000 7590000

522000 523000 7591000 524000 525000 7590000

KP164 KP165 KP166

FL1 FL8 FL14 FL10 FL10 FL8 FL10

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 48 of 77

Appendix:

B48

7592000 527000 528000 7591000 529000

526000

7592000

KP167 KP168 KP169 KP170

529000

FL10 CD7 FL10 CD7 FL10

7591000

7589000

525000

525000 7590000 526000 527000 528000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
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Appendix:

B49

529000 530000 7590000 531000 532000

7590000 7589000 7588000 7587000

528000 7588000 529000 530000 531000

KP170 KP171 KP172 KP173

CD7

FL1 FL1 FL1 FL1 FL1

Cc

FL10 FL14

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

Date: Nov 2013 | Rev: A | A3

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B50

532000 533000 7589000 534000 535000

7589000 7588000 535000 7586000

7587000 532000 533000 534000 7586000

KP174 KP175 KP176 KP177

FL14 FL10 FL14 FL14 CD7 FL10 FL10 FL10 CD7

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
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Appendix:

B51

535000
536000
7588000
537000
538000
7588000
7587000
7586000
7585000
KP177
KP178
KP179
KP180
FL10
CD7
CD7
FL10

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m
Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Vegetation Mapping
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Appendix:
B52

539000
540000
7587000
541000
538000
7586000
KP181
KP182
KP183
FL10
7585000
538000
539000
540000
541000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m
Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 53 of 77

Appendix:
B53

542000 543000 544000 545000

7586000 7585000 7584000

KP184 KP185 KP186 KP187

Sv

FL10

541000 542000 543000 7584000 544000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
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Appendix:

B54

545000
546000
547000
548000
7586000
7585000
7584000
KP187
KP188
KP189
KP190
FL10
CD7
CD8
Cc
545000
546000
547000
7585000
7584000
548000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m
Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:
B55

549000 550000 551000 7585000

548000

7585000

KP191

KP192

KP193

FL10

FL10

Cc

CD7

CD8

FL10

7584000

7584000

7583000

548000 7583000 549000 550000 551000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B56

7585000 552000 553000 554000 7584000 555000

7585000 555000 7583000 7584000 7582000 551000

KP194 KP195 KP196 KP197

FL10

551000 552000 7582000 553000 554000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 57 of 77

Appendix:
B57

555000
556000
7583000
557000
558000
7583000
7582000
558000
7581000
554000
7581000
555000
556000
7580000
557000
7580000

KP197
KP198
KP199
KP200

FL1
FL1
FL10
Cc

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m
Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:
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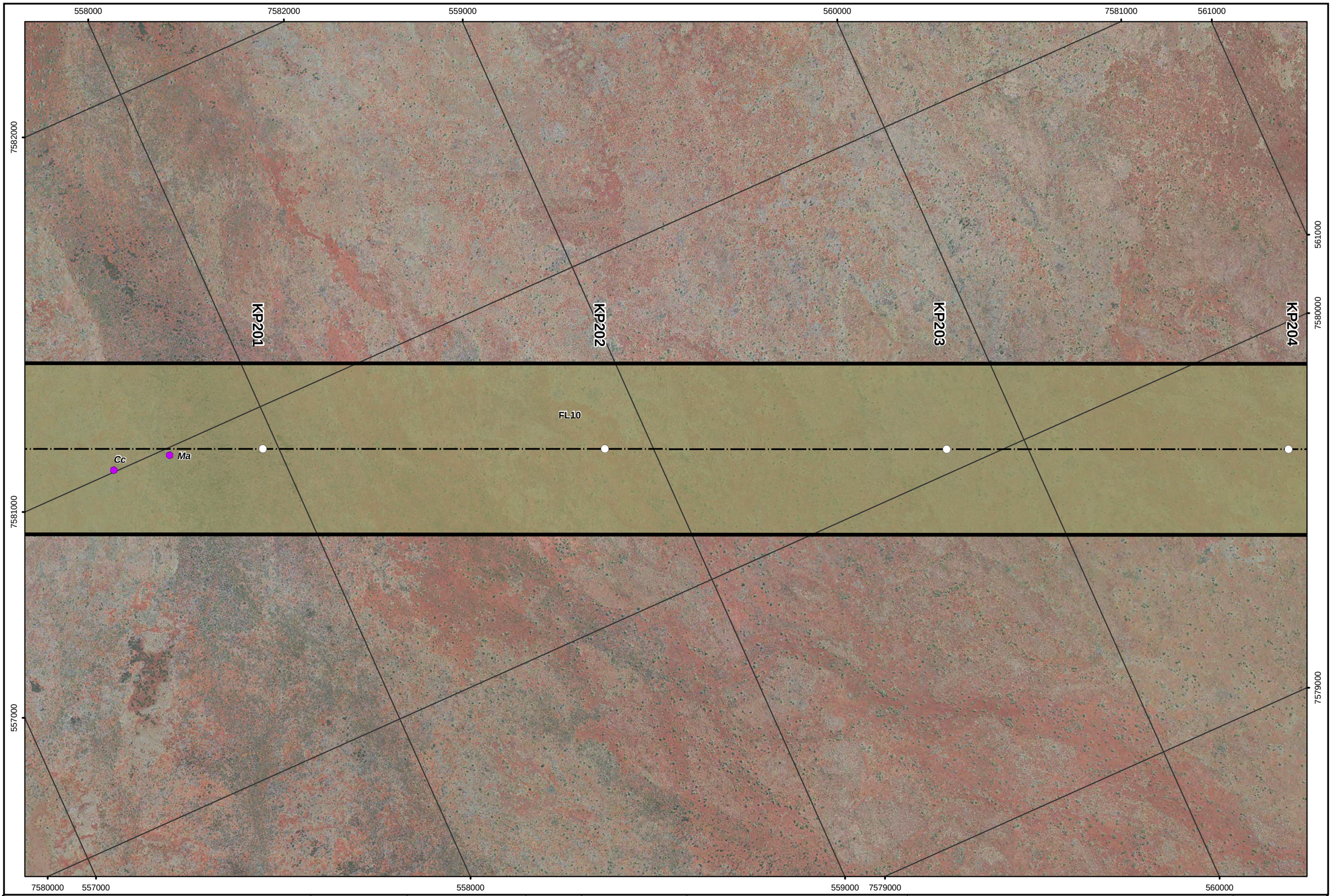

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B59

561000 562000 563000 7580000 564000

7580000 7579000 564000 7578000

561000 7578000 562000 563000

KP204 KP205 KP206 KP207

FL10 FL1 CD7

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 60 of 77

Appendix:

B60

564000 565000 566000 567000

7580000

7579000

7578000

KP208 KP209 KP210

CD7 CD7 Cc FL14 FL14 FL14 FL14 FL10 CD7 FL10 CD7 FL10

FL10 FL10 Cleared Cleared FL8 Cc CD7 FL10 FL10

564000 565000 566000 567000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 61 of 77

Appendix:

B61

567000 568000 569000 570000

7579000

KP211 KP212 KP213 KP214

FL10 CD7 FL10 CD7 CD7 Cc CD7 FL10 FL10

7578000

567000 568000 569000 570000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 62 of 77

Appendix:

B62

571000 572000 573000 574000

7579000

KP214 KP215 KP216 KP217

FL1 FL10 CD7

7578000

571000 572000 573000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:
B63

574000 575000 576000 577000

7579000 7578000 7577000

KP218 KP219 KP220

FL10 CD7 FL10 FL1 FL10 FL1

574000 575000 7577000 576000 577000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
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Appendix:

B64

578000 579000 580000

7579000 7578000 7577000

KP221 KP222 KP223 KP224

FL1 CD8 FL7 FL7 CD8 FL7 FL7 FL7 CD8 FL7 FL7 FL1 FL1 FL7 CD8 FL7

577000 578000 579000 580000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
Sheet 65 of 77

Appendix:

B65

581000 582000 583000 584000

7579000 7578000 7577000

KP224 KP225 KP226 KP227

FL10 FL7 FL1 CD8

584000

581000 582000 583000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B66

584000 585000 7578000 586000 587000

7578000 7577000

KP228 KP229 KP230 KP231

CD8 CD8 CD8 FL7 FL7 CD8 FL7 FL10 FL1 CD8 FL7 FL7 FL7 FL7 FL1

7577000 7576000

7576000 584000 585000 586000

587000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B67

588000 589000 7577000 590000

7577000 587000 7576000 7575000

KP231 KP232 KP233 KP234

FL12 FL10 FL10 FL7

CD8

587000 7575000 588000 589000 590000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200m

Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

B68

592000 7576000 593000 7575000 594000

591000 594000 7576000 7574000 590000 593000 7575000 7573000

KP235 KP236 KP237

FL7 CD8

590000 591000 592000 7573000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

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Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

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0 100 200 m

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

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597000 7570000 598000 7569000

596000

598000

KP242 KP243 KP244

FL7 CD8

595000

597000

7568000

7570000 595000 7569000 596000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

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7569000 7568000 599000 7567000 7566000 600000

KP245 KP246 KP247 KP248

FL7 CD8 FL7 FL10 CD8 FL10 FL7 FL7 FL7

7567000 597000 7566000 7565000

7569000 598000 600000 599000 597000 7568000 7565000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
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Appendix:
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7566000 600000 7565000 601000 7564000 7563000

7566000 600000

KP248 KP249 KP250 KP251

Cc Cc

FL10 FL10 CD8 FL10

CD8

7565000 598000 7564000 7563000 599000 7562000

7562000 600000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:
B73

602000 7562000 7561000 7560000

601000 600000

KP252 KP253 KP254

FL10

Cc

7562000 7561000 600000 7560000 7559000

602000 601000 7559000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

Date: Nov 2013 | Rev: A | A3

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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7559000 7558000 603000 7557000 7556000

602000 603000

KP255 KP256 KP257 KP258

FL1 FL10 FL7 FL8

601000 602000

7559000 7558000 7557000 7556000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

N

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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Appendix:

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7555000 7554000 603000 7553000 7552000

603000

KP259 KP260 KP261 KP262

FL1 CD8 FL1

FL10

Cc Ma Cc

FL7 FL8 FL7 FL7 FL8 FL7 FL7 FL8 FL7

602000

000209

7552000

601000

601000 7555000 7554000 7553000

Legend

- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend	●	■	▲
1	●	■	▲
2	●	■	▲
3	●	■	▲
4	●	■	▲

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

0 100 200 m

Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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7551000 602000 7550000 601000 7549000 600000

KP263 KP264 KP265 KP266

FL1 FL1 FL1 FL1 FL1 FL1 Cleared FL1 FL1 CD8 CD8 CD8 CD8 FL1 FL1 Cleared FL10 FL10 FL10 FL1 FL7 Cleared

602000 7552000 7549000 599000 7550000

601000 600000 599000 7551000

Legend
- FVGP Route 11/10/2013 KP
- FVGP Route 11/10/2013
- FVGP Route 11/10/2013 250m Buffer
- Weeds
- Weeds - Prohibited Species

Note: For detailed legend refer figure B0

THREATEND AND PRIORITY SPECIES

Priority	DEFL	Herbarium	MCPL
Threatend			
1			
2			
3			
4			

Note: Aerial Photography Supplied by Landgate

Sheet Layout:

Client: dbp

0 100 200 m
Scale: 1:10,000
MGA94 (Zone 50)

CAD Ref: g2117_DBP_FVGP_04_20131129

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Fortescue River Gas Pipeline (FRGP)
Vegetation Mapping
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APPENDIX C: GPS LOCATION OF SURVEY SITES WITHIN THE FRGP PROJECT AREA, 2013

SURVEY SITE	(GDA94_50K)	
	EASTING	NORTHING
1-001	391246	7627340
1-002	390826	7627064
1-003	390828	7626956
1-004	390589	7626527
1-005	390367	7626210
1-006	391986	7625234
1-007	393075	7623393
1-008	393379	7623466
1-009	393370	7623362
1-010	393149	7622863
1-011	393753	7621912
1-012	393825	7621040
1-013	394176	7620985
1-014	393970	7620665
1-015	394175	7620184
1-016	394399	7619139
1-017	394300	7619390
1-018	394604	7618833
1-019	394905	7618425
1-020	395148	7617936
1-021	395038	7617434
1-022	395809	7616864
1-023	395701	7616748
1-024	395557	7616743
1-025	395950	7616778
1-026	395712	7616543
1-027	396055	7615802
1-028	396131	7615185
1-029	396812	7614251
1-030	396626	7614127
1-031	397168	7612335
1-032	397353	7612268
1-033	397499	7611788
1-034	397427	7611539
1-035	397793	7611678
1-036	397831	7611416
1-037	397540	7611632
1-038	397526	7611221
1-039	397833	7610877
1-040	398011	7610928
1-041	398175	7610019
1-042	398029	7609677
1-043	398290	7608888
1-044	398354	7608777
1-045	398517	7608679
1-046	398589	7608290
1-047	398414	7607963
1-048	398569	7607681
1-049	398665	7607390
1-050	398965	7606687
1-051	399195	7606751
1-052	399490	7606618
1-053	399615	7606754
1-054	399781	7606470
1-055	400258	7606636
1-056	400728	7606287
1-057	401196	7606036
1-058	401677	7605944
1-059	401607	7606170
1-060	402272	7606269
1-061	402268	7605979
1-062	403529	7606372
1-063	404922	7606335
1-064	405618	7606303
1-064a	405622	7606400

APPENDIX C: GPS LOCATION OF SURVEY SITES WITHIN THE FRGP PROJECT AREA, 2013

SURVEY SITE	(GDA94_50K)	
	EASTING	NORTHING
1-065	405793	7606303
1-066	406382	7606451
1-067	407443	7605740
1-068	407565	7605820
1-069	408225	7605954
1-070	408693	7605667
1-071	409310	7605652
1-071a	410805	7604217
1-072	412137	7602758
1-073	412456	7602473
1-074	413216	7602179
1-075	413178	7601861
1-076	413494	7601794
1-077	413818	7601748
1-078	413977	7601739
1-079	416422	7603189
1-080	417009	7603357
1-081	417847	7603753
1-082	417981	7603779
1-083	418503	7604404
1-084	418655	7604326
1-085	419183	7604930
1-086	419483	7604936
1-087	420353	7604517
1-088	420809	7604317
1-089	421764	7604106
1-090	422120	7603999
1-091	422431	7603993
1-092	422968	7603950
1-093	425116	7604240
1-094	425539	7604231
1-095	425897	7604161
1-096	425995	7604252
1-097	427005	7604238
1-098	427206	7604212
1-099	427730	7604278
1-100	427687	7604303
1-101	427574	7604543
1-102	427798	7604748
1-103	428041	7604828
1-104	428065	7604906
1-105	428604	7605315
1-106	429136	7605663
1-107	429437	7605890
1-108	431169	7607080
1-109	431404	7607172
1-110	431665	7607423
1-111	433318	7607821
1-112	433461	7607823
1-113	433749	7607893
1-114	436075	7608505
1-115	436291	7608496
1-116	436472	7608561
1-117	436707	7608695
1-118	436819	7608809
1-119	436950	7608847
1-120	437133	7608966
1-121	437303	7609188
1-122	437569	7609354
1-123	439403	7609681
1-124	439566	7609824
1-125	439636	7609761
1-126	440206	7609914
1-127	440981	7609092
1-128	441012	7609253

APPENDIX C: GPS LOCATION OF SURVEY SITES WITHIN THE FRGP PROJECT AREA, 2013

SURVEY SITE	(GDA94_50K)	
	EASTING	NORTHING
1-129	441805	7608520
1-130	442081	7608628
1-131	442339	7608497
1-132	442446	7608349
1-133	443959	7608225
1-134	444132	7608351
1-135	444625	7608142
1-136	444835	7608084
1-137	452572	7607418
1-139	453196	7607385
1-13a	394224	7620899
1-140	453517	7607165
1-142	458180	7607556
1-143	458317	7607571
1-144	460334	7608397
1-145	460592	7608542
1-146	463861	7607612
1-147	464583	7607364
1-149	466177	7606312
1-150	466453	7606155
1-151	467640	7605485
1-152	467894	7605486
1-153	468306	7605164
1-154	468860	7604851
1-155	469097	7604841
1-156	469289	7604823
1-157	469588	7604416
1-158	469560	7604241
1-159	470564	7603501
1-160	471242	7603335
1-160a	471412	7603271
1-161	473573	7602640
1-162	474403	7602347
1-163	474494	7602019
1-164	474763	7601617
1-165	475261	7600813
1-166	475466	7600356
1-167	475470	7600123
1-168	475859	7599806
1-169	475837	7599489
1-170	475908	7599166
1-171	477927	7596554
1-172	479494	7597214
1-173	481584	7597390
1-174	482545	7597137
1-175	483813	7596722
1-176	484067	7596723
1-177	484790	7597544
1-178	485180	7597642
1-179	486188	7597603
1-180	490614	7577226
1-181	493934	7601440
2-001	500997	7604009
2-002	501044	7603796
2-003	502150	7603808
2-004	502251	7604040
2-005	503792	7603267
2-006	503869	7503161
2-007	510176	7599571
2-008	510350	7599600
2-009	511515	7598886
2-010	511640	7598846
2-011	516475	7596184
2-012	519620	7594282
2-013	519718	7594196

APPENDIX C: GPS LOCATION OF SURVEY SITES WITHIN THE FRGP PROJECT AREA, 2013

SURVEY SITE	(GDA94_50K)	
	EASTING	NORTHING
2-014	521274	7593472
2-015	521688	7593350
2-016	523020	7592619
2-017	523287	7592726
2-018	523375	7592386
2-019	527261	7590354
2-020	527678	7590323
2-021	530776	7588759
2-022	531000	7588783
2-023	536814	7586553
2-024	537068	7586498
2-025	543006	7585959
2-026	543165	7585870
2-027	546690	7584936
2-028	546916	7584966
2-029	548687	7584564
2-030	548753	7584535
2-031	552644	7583240
2-032	552785	7583239
2-033	554841	7582416
2-034	554977	7582362
2-035	557533	7581005
2-036	557700	7580978
2-037	564122	7578920
2-038	564876	7578764
2-039	565024	7578721
2-040	565253	7578706
2-041	569310	7578682
2-042	569645	7578635
2-043	578597	7577941
2-044	578650	7577967
2-045	588015	7576135
2-046	588323	7575994
2-047	596012	7570343
2-048	596067	7570367
2-049	599808	7563995
2-050	599997	7563800
2-051	600019	7563629
2-052	600958	7560660
2-053	600960	7560933
2-054	600969	7560797
2-055	602163	7554948
2-056	602209	7555038

APPENDIX D: SUMMARY OF VASCULAR PLANT SPECIES RECORDED WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species;
T denotes Threatened Flora and P1-P5 denote Priority Flora Species (DPaW, 2013c).

FAMILY	SPECIES
ACANTHACEAE	*Rostellularia adscendens*
	Rostellularia adscendens var. *clementii*
AIZOACEAE	*Trianthema cussackiana*
AMARANTHACEAE	*Achyranthes aspera*
	* *Aerva javanica*
	Alternanthera nana
	Alternanthera nodiflora
	Amaranthus undulatus
	Gomphrena affinis subsp. *pilbarensis*
	Gomphrena canescens
	Gomphrena cunninghamii
	Gomphrena sp.
	Ptilotus aervoides
	Ptilotus appendiculatus
	Ptilotus astrolasius
	Ptilotus axillaris
	Ptilotus calostachyus
	Ptilotus carinatus
	Ptilotus clementii
	Ptilotus gomphrenoides
	Ptilotus gomphrenoides var. *gomphrenoides*
	Ptilotus murrayi
	Ptilotus nobilis
	Ptilotus obovatus
	Ptilotus obovatus var. *obovatus*
	Ptilotus polystachyus
	Ptilotus rotundifolius
	Ptilotus sp.
APOCYNACEAE	*Carissa lanceolata*
	Marsdenia australis
	Sarcostemma viminale
ARALIACEAE	*Trachymene oleracea*
ASTERACEAE	*Angianthus acrohyalinus*
	Calocephalus knappii
	Calocephalus sp. Wittenoom (A.S. George 1082)
	Centipeda minima subsp. *macrocephala*
	* *Flaveria trinervia*
	Pentalepis trichodesmoides
	Pluchea dentex
	Pluchea dunlopii
	Pluchea rubelliflora
	Pluchea sp.
	Pterocaulon sphacelatum
	Streptoglossa bubakii
	Streptoglossa tenuiflora
	Asteraceae sp.
BORAGINACEAE	*Ehretia saligna*
	Ehretia sp.
	Heliotropium crispatum
	Heliotropium cunninghamii
	Heliotropium heteranthum

APPENDIX D: SUMMARY OF VASCULAR PLANT SPECIES RECORDED WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species;
T denotes Threatened Flora and P1-P5 denote Priority Flora Species (DPaW, 2013c).

FAMILY	SPECIES
BORAGINACEAE (continued)	*Heliotropium ?inexplicitum*
	Heliotropium ?ovalifolium
	Trichodesma zeylanicum
	Trichodesma zeylanicum var. *zeylanicum*
BRASSICACEAE	*Lepidium pedicellosum*
CARYOPHYLLACEAE	*Polycarpaea corymbosa*
	Polycarpaea holtzei
	Polycarpaea longiflora
CHENOPODIACEAE	*Dysphania kalpari*
	Enchylaena tomentosa
	Maireana melanocoma
	Maireana planifolia
	Maireana sp.
	Maireana tomentosa subsp. *tomentosa*
	Rhagodia eremaea
	Salsola australis
	Salsola sp.
	Sclerolaena cornishiana
	Sclerolaena densiflora
	Sclerolaena limbata
CLEOMACEAE	*Cleome viscosa*
CONVOLVULACEAE	*Bonamia erecta*
	Bonamia pannosa
	Bonamia sp.
	Bonamia sp. Dampier (A.A. Mitchell PRP 217)
	Duperreya commixta
	Evolvulus alsinoides
	Evolvulus alsinoides var. *villosicalyx*
	Ipomoea muelleri
	Ipomoea sp.
	Operculina aequisepala
	Polymeria ambigua
	Polymeria sp.
CUCURBITACEAE	*Austrobryonia pilbarensis*
	Citrullus sp.
	Cucumis maderaspatanus
	Cucumis sp.
CYPERACEAE	*Cyperus hesperius*
	Cyperus vaginatus
	Schoenoplectus subulatus
EUPHORBIACEAE	*Euphorbia australis*
	Euphorbia boophthona
	Euphorbia coghlanii
	Euphorbia drummondii
	Euphorbia tannensis subsp. *eremophila*
	Euphorbia vaccaria var. *vaccaria*
	**Jatropha gossypiifolia*

APPENDIX D: SUMMARY OF VASCULAR PLANT SPECIES RECORDED WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species;
T denotes Threatened Flora and P1-P5 denote Priority Flora Species (DPaW, 2013c).

FAMILY	SPECIES
FABACEAE	*Acacia acradenia*
	Acacia ampliceps
	Acacia ancistrocarpa
	Acacia aneura
	Acacia aneura group
	Acacia atkinsiana
	Acacia bivenosa
	Acacia citrinoviridis
	Acacia colei
	Acacia colei var. *colei*
	Acacia colei var. *ileocarpa*
	Acacia coriacea
	Acacia dictyophleba
	Acacia ?elachantha
	Acacia inaequilatera
	Acacia maitlandii
	Acacia monticola
	Acacia orthocarpa
	Acacia pruinocarpa
	Acacia pyrifolia
	Acacia sclerosperma subsp. *sclerosperma*
	Acacia ?sibirica
	Acacia spondylophylla
	Acacia synchronicia
	Acacia tenuissima
	Acacia trachycarpa
	Acacia tumida
	Acacia tumida var. *pilbarensis*
	Acacia wanyu
	Acacia xiphophylla
	Acacia sp.
	Alysicarpus muelleri
	Cajanus cinereus
	Crotalaria cunninghamii
	Crotalaria medicaginea
	Crotalaria medicaginea var. *neglecta*
	Cullen cinereum
	Cullen lachnostachys
	Cullen leucanthum
	Cullen martinii
	Desmodium muelleri
	Glycine canescens
	Indigofera boviperda subsp. *boviperda*
	Indigofera colutea
	Indigofera linifolia
	Indigofera monophylla
	Indigofera rugosa
	Indigofera trita
	Indigofera trita subsp. *trita*
	Isotropis atropurpurea
	Isotropis forrestii
	Lotus cruentus
	Neptunia dimorphantha
	Petalostylis cassioides
	Petalostylis labicheoides
	Rhynchosia minima
	Rhynchosia sp.

APPENDIX D: SUMMARY OF VASCULAR PLANT SPECIES RECORDED WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species;
T denotes Threatened Flora and P1-P5 denote Priority Flora Species (DPaW, 2013c).

FAMILY	SPECIES
FABACEAE (continued)	*Senna artemisioides* subsp. *helmsii*
	Senna artemisioides subsp. *oligophylla*
	Senna ferraria
	Senna ?glutinosa
	Senna glutinosa subsp. *glutinosa*
	Senna glutinosa subsp. *pruinosa*
	Senna notabilis
	Senna ?symonii
	Sesbania cannabina
	Swainsona formosa
	Swainsona stenodonta
	Tephrosia ?clementii
	Tephrosia rosea
	Tephrosia rosea var. *clementii*
	Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)
	Tephrosia sp.
	Tephrosia sp. B Kimberley Flora (C.A. Gardner 7300)
	Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)
	Tephrosia uniovulata
	* *Vachellia farnesiana*
GOODENIACEAE	*Dampiera candicans*
	Goodenia lamprosperma
	Goodenia microptera
	Goodenia muelleriana
	Goodenia pascua
	Goodenia scaevolina
	Goodenia sp.
	Goodenia stobbsiana
	Goodenia tenuiloba
	Scaevola parvifolia
	Scaevola spinescens
	Velleia connata
GYROSTEMONACEAE	*Codonocarpus cotinifolius*
HALORAGACEAE	*Haloragis gossei* var. *gossei*
LAMIACEAE	* *Ocimum basilicum*
LAURACEAE	*Cassytha ?capillaris*
	Cassytha sp.
MALVACEAE	* *Malvastrum americanum*
	* *Melochia pyramidata*
	Abutilon cunninghamii
	Abutilon ?fraseri
	Abutilon lepidum
	Abutilon ?malvifolium
	Corchorus lasiocarpus
	Corchorus lasiocarpus subsp. *parvus*
	Corchorus sidoides subsp. *vermicularis*
	Corchorus sp.
	Corchorus tectus
	Corchorus walcottii
	Gossypium australe
	Gossypium robinsonii

APPENDIX D: SUMMARY OF VASCULAR PLANT SPECIES RECORDED WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species;
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FAMILY	SPECIES
MALVACEAE (continued)	*Hibiscus austrinus* var. *austrinus*
	Hibiscus brachysiphonius
	Hibiscus burtonii
	Hibiscus coatesii
	Hibiscus leptocladus
	Hibiscus sp.
	Hibiscus sturtii
	Hibiscus sturtii var. *campylochlamys*
	Hibiscus sturtii var. *platychlamys*
	Hibiscus verdcourtii
	Keraudrenia ?velutina
	Keraudrenia sp.
	Melhania oblongifolia
	Sida clementii
	Sida echinocarpa
	Sida fibulifera
	Sida rohlenae subsp. *rohlenae*
	Sida spinosa
	Sida trichopoda
	Sida sp.
	Triumfetta appendiculata
	Triumfetta clementii
	Triumfetta maconochieana
	Waltheria indica
	Waltheria virgata
	Malvaceae sp.
MARSILEACEAE	*Marsilea hirsuta*
MOLLUGINACEAE	*Mollugo molluginea*
MORACEAE	*Ficus aculeata*
	Ficus ?brachypoda
MYRTACEAE	*Corymbia aspera*
	Corymbia candida
	Corymbia candida subsp. *candida*
	Corymbia ferriticola
	Corymbia hamersleyana
	Corymbia sp.
	Eucalyptus camaldulensis
	Eucalyptus leucophloia
	Eucalyptus leucophloia subsp. *leucophloia*
	Eucalyptus victrix
	Eucalyptus sp.
	Melaleuca bracteata
	Melaleuca lasiandra
NYCTAGINACEAE	*Boerhavia burbidgeana*
	Boerhavia coccinea
	Boerhavia gardneri
	Boerhavia sp.
OLEACEAE	*Jasminum didymum*
	Jasminum didymum subsp. *lineare*

APPENDIX D: SUMMARY OF VASCULAR PLANT SPECIES RECORDED WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species;
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FAMILY	SPECIES
PHYLLANTHACEAE	*Notoleptopus decaisnei* var. *decaisnei*
	Phyllanthus maderaspatensis
PLANTAGINACEAE	*Stemodia grossa*
	Stemodia kingii
POACEAE	*Amphipogon sericeus*
	Aristida anthoxanthoides
	Aristida contorta
	Aristida holathera
	Aristida holathera var. *holathera*
	Aristida latifolia
	Aristida obscura
	Astrebla lappacea (P3)
	Astrebla pectinata
	Bothriochloa ewartiana
	Brachyachne convergens
	* *Cenchrus ciliaris*
	Chloris pumilio
	Chrysopogon fallax
	Cymbopogon ambiguus
	Cymbopogon obtectus
	Cymbopogon sp.
	* *Cynodon dactylon*
	Dactyloctenium radulans
	Dichanthium sericeum
	Dichanthium sericeum subsp. *humilius*
	Dichanthium sp.
	Digitaria brownii
	Enneapogon caerulescens
	Enneapogon lindleyanus
	Enneapogon sp.
	Enteropogon ramosus
	Eragrostis cumingii
	Eragrostis dielsii
	Eragrostis setifolia
	Eragrostis tenellula
	Eragrostis xerophila
	Eriachne aristidea
	Eriachne benthamii
	Eriachne flaccida
	Eriachne mucronata
	Eriachne obtusa
	Eriachne pulchella
	Eriachne pulchella subsp. *pulchella*
	Eriachne sp.
	Eulalia aurea
	Heteropogon contortus
	Iseilema ?eremaeum
	Iseilema membranaceum
	Iseilema sp.
	Iseilema vaginiflorum
	Panicum decompositum
	Panicum sp.
	Paraneurachne muelleri
	Paspalidium basicladum
	Setaria sp.

APPENDIX D: SUMMARY OF VASCULAR PLANT SPECIES RECORDED WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species;
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FAMILY	SPECIES
POACEAE (continued)	* *Setaria verticillata*
	Sorghum timorense
	Sporobolus australasicus
	Themeda triandra
	Triodia brizoides
	Triodia longiceps
	Triodia ?melvillei
	Triodia pungens
	Triodia sp.
	Triodia wiseana
	Urochloa occidentalis
	Poaceae sp.
PORTULACACEAE	*Portulaca oleracea*
	Portulaca pilosa
PROTEACEAE	*Grevillea pyramidalis*
	Grevillea pyramidalis subsp. *leucadendron*
	Grevillea wickhamii
	Hakea chordophylla
	Hakea lorea
	Proteaceae sp.
PTERIDACEAE	*Cheilanthes sieberi*
RUBIACEAE	*Oldenlandia crouchiana*
SANTALACEAE	*Santalum spicatum*
SAPINDACEAE	*Atalaya hemiglauca*
	Dodonaea coriacea
SCROPHULARIACEAE	*Eremophila fraseri*
	Eremophila latrobei
	Eremophila longifolia
SOLANACEAE	*Nicotiana occidentalis*
	Solanum centrale
	Solanum ?dioicum
	Solanum diversiflorum
	Solanum lasiophyllum
	Solanum morrisonii
	Solanum sp.
SURIANACEAE	*Stylobasium spathulatum*
THYMELAEACEAE	*Pimelea ammocharis*
VIOLACEAE	*Hybanthus aurantiacus*
ZYGOPHYLLACEAE	*Tribulus astrocarpus*
	Tribulus hirsutus
	Tribulus platypterus
	Tribulus suberosus
	* *Tribulus terrestris*

APPENDIX E: SUMMARY OF VASCULAR PLANT SPECIES RECORDED AT EACH SURVEY SITE WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species; T denotes Threatened Flora Species; P1, P2, P3 and P4 denote Priority Flora Species (DPaW, 2013g)

	SITES																																																	
SPECIES	1-001	1-002	1-003	1-004	1-005	1-006	1-007	1-008	1-009	1-010	1-011	1-012	1-013	1-014	1-015	1-016	1-017	1-018	1-019	1-020	1-021	1-022	1-023	1-024	1-025	1-026	1-027	1-028	1-029	1-030	1-031	1-032	1-033	1-034	1-035	1-036	1-037	1-038	1-039	1-040	1-041	1-042	1-043	1-044	1-045	1-046	1-047	1-048	1-049	1-050
Abutilon cunninghamii																																																		
Abutilon ?fraseri																																																		
Abutilon lepidum									x		x																																							
Abutilon ?malvifolium																																																		
Acacia acradenia																																																		
Acacia ampliceps																																																		
Acacia ancistrocarpa																	x	x	x					x		x	x	x	x	x	x		x		x						x		x		x	x	x	x	x	x
Acacia aneura																																																		
Acacia aneura group																																																		
Acacia atkinsiana							x		x							x	x	x	x	x				x		x		x	x	x	x	x				x					x					x				x
Acacia bivenosa												x	x			x	x	x	x				x	x	x		x			x	x	x	x			x		x	x	x	x	x	x	x	x	x	x	x	x	x
Acacia citrinoviridis			x																														x																	
Acacia colei																x										x																								
Acacia colei var. *colei*																																																		
Acacia colei var. *ileocarpa*																																																		
Acacia coriacea		x																																																
Acacia dictyophleba																																																		
Acacia ?elachantha																																			x															
Acacia inaequilatera							x			x		x		x		x			x		x									x											x					x		x		x
Acacia maitlandii																																																		
Acacia monticola																																																		
Acacia orthocarpa																																																		
Acacia pruinocarpa																																																		
Acacia pyrifolia		x	x																							x							x																	
Acacia sclerosperma subsp. *sclerosperma*																																																		
Acacia ?sibirica									x																																									
Acacia sp.								x		x			x	x						x					x		x																	x	x					
Acacia spondylophylla																																																		
Acacia synchronicia				x	x	x				x												x						x											x	x			x							
Acacia tenuissima																																																		
Acacia trachycarpa		x	x																																															
Acacia tumida																																																		
Acacia tumida var. *pilbarensis*																				x				x			x						x		x	x					x									
Acacia wanyu																														x																				
Acacia xiphophylla	x			x	x	x					x				x							x	x						x													x								
Achyranthes aspera																																																		
*Aerva javanica																																																		
Alternanthera nana																																	x																	
Alternanthera nodiflora																																	x																	
Alysicarpus muelleri																																																		
Amaranthus undulatus																																																		
Amphipogon sericeus																																																		
Angianthus acrohyalinus				x	x								x																																					
Aristida anthoxanthoides																																																		
Aristida contorta																																																		
Aristida holathera																																									x									
Aristida holathera var. *holathera*																					x		x																											
Aristida latifolia																																																		
Aristida obscura																																																		
Asteraceae sp.																																																		
Astrebla lappacea (P3)																																																		
Astrebla pectinata																																																		

APPENDIX E: SUMMARY OF VASCULAR PLANT SPECIES RECORDED AT EACH SURVEY SITE WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species; T denotes Threatened Flora Species; P1, P2, P3 and P4 denote Priority Flora Species (DPaW, 2013g)

	SITES																																																	
SPECIES	1-001	1-002	1-003	1-004	1-005	1-006	1-007	1-008	1-009	1-010	1-011	1-012	1-013	1-014	1-015	1-016	1-017	1-018	1-019	1-020	1-021	1-022	1-023	1-024	1-025	1-026	1-027	1-028	1-029	1-030	1-031	1-032	1-033	1-034	1-035	1-036	1-037	1-038	1-039	1-040	1-041	1-042	1-043	1-044	1-045	1-046	1-047	1-048	1-049	1-050
Atalaya hemiglauca																																																		
Austrobryonia pilbarensis																																																		
Boerhavia burbidgeana																																																		
Boerhavia coccinea			x																																															
Boerhavia gardneri																																																		
Boerhavia sp.																																																		
Bonamia erecta							x							x		x	x	x	x	x						x	x	x			x																			
Bonamia pannosa							x						x																																					
Bonamia sp.								x																																										
Bonamia sp. Dampier (A.A. Mitchell PRP 217)									x			x				x																																		
Bothriochloa ewartiana																																																		
Brachyachne convergens																																																		
Cajanus cinereus																																																		
Calocephalus knappii		x			x			x																																										
Calocephalus sp. Wittenoom (A.S. George 1082)																																																		
Carissa lanceolata																																																		
Cassytha ?capillaris																																																		
Cassytha sp.																																																		
**Cenchrus ciliaris*		x	x	x	x				x				x							x					x						x		x		x	x									x					
Centipeda minima subsp. *macrocephala*																																																		
Cheilanthes sieberi																																	x																	
Chloris pumilio																																																		
Chrysopogon fallax		x					x																				x																							
Citrullus sp.																																																		
Cleome viscosa			x															x																																
Codonocarpus cotinifolius																																																		
Corchorus lasiocarpus																																																		
Corchorus lasiocarpus subsp. *parvus*																																																		
Corchorus sidoides subsp. *vermicularis*																																									x									
Corchorus sp.																																																		
Corchorus tectus			x				x	x	x	x	x	x	x	x		x		x			x				x	x	x																						x	
Corchorus walcottii																																																		
Corymbia aspera																										x																								
Corymbia candida							x																				x						x			x														
Corymbia candida subsp. *candida*																																																		
Corymbia ferriticola																																																		
Corymbia hamersleyana							x									x		x		x	x					x	x																							
Corymbia sp.														x																																				
Crotalaria cunninghamii			x																																															
Crotalaria medicaginea																																									x									
Crotalaria medicaginea var. *neglecta*																																																		
Cucumis maderaspatanus			x																														x																	
Cucumis sp.																																									x									
Cullen cinereum																																																		
Cullen lachnostachys																																																		
Cullen leucanthum																																																		
Cullen martinii								x					x																																					
Cymbopogon ambiguus																																																		
Cymbopogon obtectus																								x																							x			
Cymbopogon sp.																																						x												
**Cynodon dactylon*																																																		
Cyperus hesperius																																																		

APPENDIX E: SUMMARY OF VASCULAR PLANT SPECIES RECORDED AT EACH SURVEY SITE WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species; T denotes Threatened Flora Species; P1, P2, P3 and P4 denote Priority Flora Species (DPaW, 2013g)

	SITES																																																	
SPECIES	1-001	1-002	1-003	1-004	1-005	1-006	1-007	1-008	1-009	1-010	1-011	1-012	1-013	1-014	1-015	1-016	1-017	1-018	1-019	1-020	1-021	1-022	1-023	1-024	1-025	1-026	1-027	1-028	1-029	1-030	1-031	1-032	1-033	1-034	1-035	1-036	1-037	1-038	1-039	1-040	1-041	1-042	1-043	1-044	1-045	1-046	1-047	1-048	1-049	1-050
Cyperus vaginatus																																																		
Dactyloctenium radulans																																																		
Dampiera candicans																																																		
Desmodium muelleri																																																		
Dichanthium sericeum																																																		
Dichanthium sericeum subsp. *humilius*																																																		
Dichanthium sp.					x																																													
Digitaria brownii																																																		
Dodonaea coriacea																																																		
Duperreya commixta																																	x																	
Dysphania kalpari				x		x	x	x		x								x								x																								
Ehretia saligna																																																		
Ehretia sp.																																																		
Enchylaena tomentosa				x																				x																										
Enneapogon caerulescens																																																		
Enneapogon lindleyanus																																																		
Enneapogon sp.																																																		
Enteropogon ramosus																																																		
Eragrostis cumingii																																																		
Eragrostis dielsii																																																		
Eragrostis setifolia																																																		
Eragrostis tenellula																																																		
Eragrostis xerophila	x				x																																													
Eremophila fraseri																																																		
Eremophila latrobei																																																		
Eremophila longifolia																											x				x		x																	
Eriachne aristidea																																																		
Eriachne benthamii																																															x			
Eriachne flaccida													x																																					
Eriachne mucronata																		x																															x	
Eriachne obtusa																																																		
Eriachne pulchella			x																																															
Eriachne pulchella subsp. *pulchella*												x																																						
Eriachne sp.																																						x			x									
Eucalyptus camaldulensis		x	x																														x																	
Eucalyptus leucophloia		x																																																
Eucalyptus leucophloia subsp. *leucophloia*																																																		
Eucalyptus sp.																																																		
Eucalyptus victrix																																																		
Eulalia aurea																																																		
Euphorbia australis																																																		
Euphorbia boophthona																																																		
Euphorbia coghlanii			x		x																																													
Euphorbia drummondii			x							x																																								
Euphorbia tannensis subsp. *eremophila*																																																		
Euphorbia vaccaria var. *vaccaria*							x																																											
Evolvulus alsinoides										x			x																																					
Evolvulus alsinoides var. *villosicalyx*									x																																									
Ficus aculeata																																																		
Ficus ?brachypoda																		x																																
**Flaveria trinervia*																																																		
Glycine canescens		x																																																

APPENDIX E: SUMMARY OF VASCULAR PLANT SPECIES RECORDED AT EACH SURVEY SITE WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species; T denotes Threatened Flora Species; P1, P2, P3 and P4 denote Priority Flora Species (DPaW, 2013g)

	SITES																																																	
SPECIES	1-001	1-002	1-003	1-004	1-005	1-006	1-007	1-008	1-009	1-010	1-011	1-012	1-013	1-014	1-015	1-016	1-017	1-018	1-019	1-020	1-021	1-022	1-023	1-024	1-025	1-026	1-027	1-028	1-029	1-030	1-031	1-032	1-033	1-034	1-035	1-036	1-037	1-038	1-039	1-040	1-041	1-042	1-043	1-044	1-045	1-046	1-047	1-048	1-049	1-050
Gomphrena affinis subsp. *pilbarensis*					x																																													
Gomphrena canescens																																																		
Gomphrena cunninghamii																																															x		x	
Gomphrena sp.																											x																							
Goodenia lamprosperma		x	x																																															
Goodenia microptera								x	x							x												x																						
Goodenia muelleriana																										x														x										
Goodenia pascua																																																		
Goodenia scaevolina																x					x			x																	x									
Goodenia sp.																																																		
Goodenia stobbsiana																		x		x					x																									
Goodenia tenuiloba							x						x																																					
Gossypium australe																		x																																
Gossypium robinsonii																																	x																	
Grevillea pyramidalis																																																		
Grevillea pyramidalis subsp. *leucadendron*																																																		
Grevillea wickhamii																x		x						x		x	x																							
Hakea chordophylla																																																		
Hakea lorea																																																		
Haloragis gossei var. *gossei*												x													x																									
Heliotropium crispatum																		x																																
Heliotropium cunninghamii																																																		
Heliotropium heteranthum				x	x	x				x		x	x																																					
Heliotropium ?inexplicitum																																																		
Heliotropium ?ovalifolium																																																		
Heteropogon contortus																																																		
Hibiscus austrinus var. *austrinus*		x																																																
Hibiscus brachysiphonius																																																		
Hibiscus burtonii													x																																					
Hibiscus coatesii																																															x			
Hibiscus leptocladus																																																		
Hibiscus sp.																																																		
Hibiscus sturtii																																														x				
Hibiscus sturtii var. *campylochlamys*									x	x																																								
Hibiscus sturtii var. *platychlamys*								x			x																																							
Hibiscus verdcourtii																																																		
Hybanthus aurantiacus			x															x																																
Indigofera boviperda subsp. *boviperda*																		x						x		x	x																				x			
Indigofera colutea																																																		
Indigofera linifolia		x			x																																													
Indigofera monophylla														x							x				x																							x	x	
Indigofera rugosa																																																		
Indigofera trita																																																		
Indigofera trita subsp. *trita*																																																		
Ipomoea muelleri		x																															x								x									
Ipomoea sp.																																																		
Iseilema ?eremaeum																																																		
Iseilema membranaceum																																																		
Iseilema sp.																																																		
Iseilema vaginiflorum																																																		
Isotropis atropurpurea														x				x		x						x	x	x																						
Isotropis forrestii																																																		

APPENDIX E: SUMMARY OF VASCULAR PLANT SPECIES RECORDED AT EACH SURVEY SITE WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species; T denotes Threatened Flora Species; P1, P2, P3 and P4 denote Priority Flora Species (DPaW, 2013g)

	SITES																																																	
SPECIES	1-001	1-002	1-003	1-004	1-005	1-006	1-007	1-008	1-009	1-010	1-011	1-012	1-013	1-014	1-015	1-016	1-017	1-018	1-019	1-020	1-021	1-022	1-023	1-024	1-025	1-026	1-027	1-028	1-029	1-030	1-031	1-032	1-033	1-034	1-035	1-036	1-037	1-038	1-039	1-040	1-041	1-042	1-043	1-044	1-045	1-046	1-047	1-048	1-049	1-050
Jasminum didymum																																																		
Jasminum didymum subsp. *lineare*																																	x																	
**Jatropha gossypiifolia*																																																		
Keraudrenia sp.																																																		
Keraudrenia ?velutina																																																		
Lepidium pedicellosum																							x																											
Lotus cruentus					x																																													
Maireana melanocoma																						x																				x								
Maireana planifolia				x																																														
Maireana sp.																																																		
Maireana tomentosa subsp. *tomentosa*																						x																												
Malvaceae sp.																																																		
**Malvastrum americanum*		x			x																												x																	
Marsdenia australis																																																		
Marsilea hirsuta																																	x																	
Melaleuca bracteata																																																		
Melaleuca lasiandra																																																		
Melhania oblongifolia		x																																																
**Melochia pyramidata*																																																		
Mollugo molluginea																		x																							x						x			
Neptunia dimorphantha																																																		
Nicotiana occidentalis					x																																													
Notoleptopus decaisnei var. *decaisnei*			x																																															
**Ocimum basilicum*																																																		
Oldenlandia crouchiana																																																		
Operculina aequisepala																																																		
Panicum decompositum																																																		
Panicum sp.																																																		
Paraneurachne muelleri																										x																								
Paspalidium basicladum																																																		
Pentalepis trichodesmoides																																																		
Petalostylis cassioides																																																		
Petalostylis labicheoides			x																								x																							
Phyllanthus maderaspatensis			x															x		x																														
Pimelea ammocharis																																																		
Pluchea dentex																																																		
Pluchea dunlopii																																																		
Pluchea rubelliflora																																																		
Pluchea sp.																																																		
Poaceae sp.																																																		
Polycarpaea corymbosa			x																																														x	
Polycarpaea holtzei																																																		
Polycarpaea longiflora																																															x			
Polymeria ambigua																																																		
Polymeria sp.																																																		
Portulaca oleracea																																																		
Portulaca pilosa		x																																																
Proteaceae sp.																																																		
Pterocaulon sphacelatum		x																								x															x					x				
Ptilotus aervoides																																																		
Ptilotus appendiculatus																															x															x				
Ptilotus astrolasius																												x							x						x									

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Ptilotus axillaris						x	x											x																							x									
Ptilotus calostachyus									x							x				x	x				x		x																					x		
Ptilotus carinatus																					x																													
Ptilotus clementii										x															x																									
Ptilotus gomphrenoides																																																		
Ptilotus gomphrenoides var. *gomphrenoides*																				x																														
Ptilotus murrayi					x																																													
Ptilotus nobilis					x			x	x									x					x		x		x						x				x													
Ptilotus obovatus																		x							x		x																							
Ptilotus obovatus var. *obovatus*								x																																										
Ptilotus polystachyus																																																		
Ptilotus rotundifolius																																																		
Ptilotus sp.																																																		
Rhagodia eremaea																																																		
Rhynchosia minima		x			x																										x		x					x			x									
Rhynchosia sp.																																																		
Rostellularia adscendens																																																		
Rostellularia adscendens var. *clementii*																																																		
Salsola australis				x																																														
Salsola sp.									x																																									
Santalum spicatum																																																		
Sarcostemma viminale															x							x																												
Scaevola parvifolia																																																		
Scaevola spinescens																								x		x					x																		x	
Schoenoplectus subulatus																																																		
Sclerolaena cornishiana																																																		
Sclerolaena densiflora																							x														x													
Sclerolaena limbata																																																		
Senna artemisioides subsp. *helmsii*																																																		
Senna artemisioides subsp. *oligophylla*							x																	x		x	x	x	x	x	x				x			x			x				x	x				
Senna ferraria																																																		
Senna ?glutinosa				x				x			x				x						x	x	x									x										x								
Senna glutinosa subsp. *glutinosa*						x															x			x	x				x														x	x			x			
Senna glutinosa subsp. *pruinosa*																					x		x		x							x							x			x	x	x			x	x		
Senna notabilis					x		x	x	x	x		x	x	x																																				
Senna ?symonii																																																		
Sesbania cannabina																																																		
Setaria sp.																																																		
**Setaria verticillata*																																																		
Sida clementii																																																		
Sida echinocarpa								x	x																																									
Sida fibulifera		x																																																
Sida rohlenae subsp. *rohlenae*																																																		
Sida sp.													x	x						x																														
Sida spinosa		x					x																																											
Sida trichopoda	x				x																																													
Solanum centrale																																																		
Solanum ?dioicum																																																		
Solanum diversiflorum							x	x	x				x	x																											x									
Solanum lasiophyllum				x																																														
Solanum morrisonii																																																		
Solanum sp.																																																		

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	SITES																																																	
SPECIES	1-001	1-002	1-003	1-004	1-005	1-006	1-007	1-008	1-009	1-010	1-011	1-012	1-013	1-014	1-015	1-016	1-017	1-018	1-019	1-020	1-021	1-022	1-023	1-024	1-025	1-026	1-027	1-028	1-029	1-030	1-031	1-032	1-033	1-034	1-035	1-036	1-037	1-038	1-039	1-040	1-041	1-042	1-043	1-044	1-045	1-046	1-047	1-048	1-049	1-050
Sorghum timorense																																																		
Sporobolus australasicus		x	x						x									x																																
Stemodia grossa			x																																															
Stemodia kingii					x																																													
Streptoglossa bubakii					x																																	x			x									
Streptoglossa tenuiflora																																																		
Stylobasium spathulatum																																																		
Swainsona formosa																																									x									
Swainsona stenodonta																																																		
Tephrosia ?clementii																																																		
Tephrosia rosea																																									x									
Tephrosia rosea var. *clementii*																																																		
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)																																																		
Tephrosia sp.																																																		
Tephrosia sp. B Kimberley Flora (C.A. Gardner 7300)																																																		
Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)													x																																					
Tephrosia uniovulata							x					x		x		x		x						x			x														x									
Themeda triandra																																	x																	
Trachymene oleracea			x									x																																						
Trianthema cussackiana	x																																																	
Tribulus astrocarpus																																																		
Tribulus hirsutus																																																		
Tribulus platypterus																																																		
Tribulus suberosus																																																		
**Tribulus terrestris*																																																		
Trichodesma zeylanicum							x						x																x												x									
Trichodesma zeylanicum var. *zeylanicum*																																																		
Triodia brizoides																																																		
Triodia longiceps																															x						x		x											
Triodia ?melvillei																																																		
Triodia pungens					x	x	x	x	x																	x	x	x		x					x				x	x	x									
Triodia sp.																																																		
Triodia wiseana				x						x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x		x		x	x		x	x			x	x	x		x	x	x	x	x	x	x	x	x
Triumfetta appendiculata			x																																															
Triumfetta clementii							x	x	x	x																																								
Triumfetta maconochieana																																																		
Urochloa occidentalis																																																		
**Vachellia farnesiana*		x				x																											x			x														
Velleia connata																																																		
Waltheria indica			x																														x																	
Waltheria virgata																																																		

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	SITES																																																
SPECIES	1-051	1-052	1-053	1-054	1-055	1-056	1-057	1-058	1-059	1-060	1-061	1-062	1-063	1-064a	1-065	1-066	1-067	1-068	1-069	1-070	1-071	1-071a	1-072	1-073	1-074	1-075	1-076	1-077	1-078	1-079	1-080	1-081	1-082	1-083	1-084	1-085	1-086	1-087	1-088	1-089	1-090	1-091	1-092	1-093	1-094	1-095	1-096	1-097	1-098
Abutilon cunninghamii																																																	
Abutilon ?fraseri															x																																		
Abutilon lepidum																																											x						
Abutilon ?malvifolium																																						x											
Acacia acradenia															x																																		
Acacia ampliceps																																																	
Acacia ancistrocarpa	x	x		x	x			x		x	x	x							x	x			x				x	x					x				x	x		x		x		x	x				
Acacia aneura																																																	
Acacia aneura group																																																	
Acacia atkinsiana	x	x		x	x	x	x	x			x	x						x		x			x							x			x			x							x						
Acacia bivenosa	x			x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x			x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x		x		x		x	x
Acacia citrinoviridis																																																	
Acacia colei																																																	
Acacia colei var. *colei*																																																	
Acacia colei var. *ileocarpa*																																																	
Acacia coriacea																																																	
Acacia dictyophleba																																																	
Acacia ?elachantha		x																																															
Acacia inaequilatera											x		x					x	x											x			x		x	x				x	x		x		x				x
Acacia maitlandii																				x																			x		x		x						
Acacia monticola																																																	
Acacia orthocarpa																																							x									x	x
Acacia pruinocarpa																																																	
Acacia pyrifolia		x														x											x											x								x			
Acacia sclerosperma subsp. *sclerosperma*																																														x			
Acacia ?sibirica																																																	
Acacia sp.				x															x						x																								
Acacia spondylophylla																																																	
Acacia synchronicia	x					x				x		x	x										x		x								x	x								x							
Acacia tenuissima																																																	
Acacia trachycarpa																																x	x													x	x		
Acacia tumida																								x	x																								
Acacia tumida var. *pilbarensis*		x									x									x	x						x					x						x				x							
Acacia wanyu																																																	
Acacia xiphophylla																	x									x								x															
Achyranthes aspera																																																	
**Aerva javanica*																																														x			
Alternanthera nana																					x																												
Alternanthera nodiflora		x	x																		x																												
Alysicarpus muelleri																																																	
Amaranthus undulatus																																															x		
Amphipogon sericeus																																									x			x					
Angianthus acrohyalinus																																																	
Aristida anthoxanthoides																																																	
Aristida contorta																																																	
Aristida holathera	x																																																
Aristida holathera var. *holathera*	x																																																
Aristida latifolia																																																	
Aristida obscura																																																	
Asteraceae sp.																																																	
Astrebla lappacea (P3)																																																	
Astrebla pectinata																																																	

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	SITES																																																
SPECIES	1-051	1-052	1-053	1-054	1-055	1-056	1-057	1-058	1-059	1-060	1-061	1-062	1-063	1-064a	1-065	1-066	1-067	1-068	1-069	1-070	1-071	1-071a	1-072	1-073	1-074	1-075	1-076	1-077	1-078	1-079	1-080	1-081	1-082	1-083	1-084	1-085	1-086	1-087	1-088	1-089	1-090	1-091	1-092	1-093	1-094	1-095	1-096	1-097	1-098
Atalaya hemiglauca																																																	
Austrobryonia pilbarensis																																																	
Boerhavia burbidgeana																																																	
Boerhavia coccinea																																																	
Boerhavia gardneri																																						x		x									
Boerhavia sp.																																																	
Bonamia erecta																																																	
Bonamia pannosa																																																	
Bonamia sp.																																													x				
Bonamia sp. Dampier (A.A. Mitchell PRP 217)																																																	
Bothriochloa ewartiana																																																	
Brachyachne convergens																																																	
Cajanus cinereus																																						x											
Calocephalus knappii																																																	
*Calocephalus s*p. Wittenoom (A.S. George 1082)																																																	
Carissa lanceolata																																																	
Cassytha ?capillaris																																																	
Cassytha sp.															x																																		
**Cenchrus ciliaris*		x									x					x											x					x														x	x		
Centipeda minima subsp. *macrocephala*			x																																														
Cheilanthes sieberi																																																	
Chloris pumilio																																																	
Chrysopogon fallax																					x																												
Citrullus sp.																																																	
Cleome viscosa																																x						x											
Codonocarpus cotinifolius													x																																				
Corchorus lasiocarpus																																																	
Corchorus lasiocarpus subsp. *parvus*																																																	
Corchorus sidoides subsp. *vermicularis*																																																	
Corchorus sp.																																																	
Corchorus tectus																								x	x							x															x		
Corchorus walcottii																																																	
Corymbia aspera											x																																						
Corymbia candida		x	x					x													x	x																											
Corymbia candida subsp. *candida*																					x																												
Corymbia ferriticola																						x																											
Corymbia hamersleyana		x	x				x									x							x										x																
Corymbia sp.																																																	
Crotalaria cunninghamii																																																	
Crotalaria medicaginea																																																	
Crotalaria medicaginea var. *neglecta*																																																	
Cucumis maderaspatanus							x																																										
Cucumis sp.																																						x											
Cullen cinereum																																																	
Cullen lachnostachys																																																	
Cullen leucanthum																																x																	
Cullen martinii																								x	x																								
Cymbopogon ambiguus																											x																						
Cymbopogon obtectus																x																x						x					x						
Cymbopogon sp.																																																	
**Cynodon dactylon*																																																	
Cyperus hesperius																												x															x						

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Cyperus vaginatus																																x															x		
Dactyloctenium radulans																x																																	
Dampiera candicans																																																	
Desmodium muelleri																																																	
Dichanthium sericeum																																																	
Dichanthium sericeum subsp. *humilius*																																																	
Dichanthium sp.																																																	
Digitaria brownii																																																	
Dodonaea coriacea																																																	
Duperreya commixta																																																	
Dysphania kalpari												x																														x							
Ehretia saligna																																																	
Ehretia sp.																																																	
Enchylaena tomentosa																																																	
Enneapogon caerulescens																																		x															
Enneapogon lindleyanus																																																	
Enneapogon sp.																																																	
Enteropogon ramosus																																																	
Eragrostis cumingii			x																		x																												
Eragrostis dielsii																																																	
Eragrostis setifolia																			x																														
Eragrostis tenellula			x																		x																												
Eragrostis xerophila																																																	
Eremophila fraseri																																																	
Eremophila latrobei																																																	
Eremophila longifolia					x						x																																x						
Eriachne aristidea																																																	
Eriachne benthamii															x													x										x			x								
Eriachne flaccida	x																																																
Eriachne mucronata																															x												x						
Eriachne obtusa																																																	
Eriachne pulchella																																																	
Eriachne pulchella subsp. *pulchella*																																																	
Eriachne sp.																																																	
Eucalyptus camaldulensis																						x																											
Eucalyptus leucophloia																																			x														
Eucalyptus leucophloia subsp. *leucophloia*							x	x						x	x	x							x																										
Eucalyptus sp.																																																	
Eucalyptus victrix														x																		x															x		
Eulalia aurea																																																	
Euphorbia australis																																																	
Euphorbia boophthona																					x																												
Euphorbia coghlanii																											x																				x		
Euphorbia drummondii																																																	
Euphorbia tannensis subsp. *eremophila*																																																	
Euphorbia vaccaria var. *vaccaria*																																																	
Evolvulus alsinoides																																x										x					x		
Evolvulus alsinoides var. *villosicalyx*																																																	
Ficus aculeata																																																	
Ficus ?brachypoda													x	x	x													x																			x		
*Flaveria trinervia																																																	
Glycine canescens																																																	

APPENDIX E: SUMMARY OF VASCULAR PLANT SPECIES RECORDED AT EACH SURVEY SITE WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species; T denotes Threatened Flora Species; P1, P2, P3 and P4 denote Priority Flora Species (DPaW, 2013g)

	SITES																																																
SPECIES	1-051	1-052	1-053	1-054	1-055	1-056	1-057	1-058	1-059	1-060	1-061	1-062	1-063	1-064a	1-065	1-066	1-067	1-068	1-069	1-070	1-071	1-071a	1-072	1-073	1-074	1-075	1-076	1-077	1-078	1-079	1-080	1-081	1-082	1-083	1-084	1-085	1-086	1-087	1-088	1-089	1-090	1-091	1-092	1-093	1-094	1-095	1-096	1-097	1-098
Gomphrena affinis subsp. *pilbarensis*																																																	
Gomphrena canescens																																																	
Gomphrena cunninghamii																																											x						
Gomphrena sp.																									x																	x							
Goodenia lamprosperma			x																																														
Goodenia microptera																																																	
Goodenia muelleriana							x																																										
Goodenia pascua																																																	
Goodenia scaevolina																																																	
Goodenia sp.																																																	
Goodenia stobbsiana																																			x														
Goodenia tenuiloba																					x																												
Gossypium australe																				x					x									x												x			
Gossypium robinsonii																								x	x		x					x						x					x			x			
Grevillea pyramidalis																																			x										x				
Grevillea pyramidalis subsp. *leucadendron*																																x	x																
Grevillea wickhamii																								x														x											
Hakea chordophylla													x																		x																		
Hakea lorea							x										x																		x	x						x			x	x			
Haloragis gossei var. *gossei*																																																	
Heliotropium crispatum																																																	
Heliotropium cunninghamii																																																	
Heliotropium heteranthum																																																	
Heliotropium ?inexplicitum																																																	
Heliotropium ?ovalifolium																																																	
Heteropogon contortus																																																	
Hibiscus austrinus var. *austrinus*																																																	
Hibiscus brachysiphonius																																																	
Hibiscus burtonii																																																	
Hibiscus coatesii																																																	
Hibiscus leptocladus																									x																								
Hibiscus sp.																																																	
Hibiscus sturtii							x																	x																									
Hibiscus sturtii var. *campylochlamys*																																																	
Hibiscus sturtii var. *platychlamys*																																																	
Hibiscus verdcourtii																																																	
Hybanthus aurantiacus							x																	x			x					x						x											
Indigofera boviperda subsp. *boviperda*		x					x	x											x		x			x																									
Indigofera colutea																																																	
Indigofera linifolia																																															x		
Indigofera monophylla																x									x					x			x																
Indigofera rugosa																																					x												
Indigofera trita																																																	
Indigofera trita subsp. *trita*																																																	
Ipomoea muelleri			x																		x																												
Ipomoea sp.																																																	
Iseilema ?eremaeum																																																	
Iseilema membranaceum																																																	
Iseilema sp.																																																	
Iseilema vaginiflorum																																																	
Isotropis atropurpurea																					x			x																									
Isotropis forrestii																																																	

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SPECIES	SITES																																															
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Jasminum didymum																																																	
Jasminum didymum subsp. *lineare*											x					x												x										x											
**Jatropha gossypiifolia*																																																	
Keraudrenia sp.																																																	
Keraudrenia ?velutina																																																	
Lepidium pedicellosum																																																	
Lotus cruentus																																																	
Maireana melanocoma									x			x																																					
Maireana planifolia																																		x															
Maireana sp.																																																	
Maireana tomentosa subsp. *tomentosa*																																																	
Malvaceae sp.																																																	
**Malvastrum americanum*																											x					x															x		
Marsdenia australis																											x																						
Marsilea hirsuta																																																	
Melaleuca bracteata																																																	
Melaleuca lasiandra																																x																	
Melhania oblongifolia																																																	
**Melochia pyramidata*																																x																	
Mollugo molluginea																x																								x					x				
Neptunia dimorphantha																																																	
Nicotiana occidentalis																																																	
Notoleptopus decaisnei var. *decaisnei*																											x																						
**Ocimum basilicum*																					x																										x		
Oldenlandia crouchiana																																																	
Operculina aequisepala																																																	
Panicum decompositum																																																	
Panicum sp.																																																	
Paraneurachne muelleri																																																	
Paspalidium basicladum																																																	
Pentalepis trichodesmoides																																																	
Petalostylis cassioides																															x																		
Petalostylis labicheoides																								x		x	x																						
Phyllanthus maderaspatensis																					x						x	x		x	x	x						x									x		
Pimelea ammocharis																																																	
Pluchea dentex																																																	
Pluchea dunlopii																																																	
Pluchea rubelliflora																																																	
Pluchea sp.																																																	
Poaceae sp.					x																																	x											
Polycarpaea corymbosa																																																	
Polycarpaea holtzei																																																	
Polycarpaea longiflora																																																	
Polymeria ambigua																																																	
Polymeria sp.																																								x									
Portulaca oleracea	x																																																
Portulaca pilosa																																																	
Proteaceae sp.			x																																														
Pterocaulon sphacelatum							x																			x	x											x											
Ptilotus aervoides																																																	
Ptilotus appendiculatus		x					x	x															x																										
Ptilotus astrolasius	x							x					x						x																			x		x					x				

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	SITES																																																
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Ptilotus axillaris																																										x							
Ptilotus calostachyus																																								x	x	x		x					
Ptilotus carinatus																																																	
Ptilotus clementii																																																	
Ptilotus gomphrenoides																																																	
Ptilotus gomphrenoides var. *gomphrenoides*																																																	
Ptilotus murrayi																																																	
Ptilotus nobilis		x		x				x								x										x	x			x		x		x				x		x	x	x		x	x	x			
Ptilotus obovatus																														x												x		x					
Ptilotus obovatus var. *obovatus*																																									x								
Ptilotus polystachyus																																																	
Ptilotus rotundifolius																																																	
Ptilotus sp.																																																	
Rhagodia eremaea																																																	
Rhynchosia minima												x															x					x										x					x		
Rhynchosia sp.																																																	
Rostellularia adscendens																																																	
Rostellularia adscendens var. *clementii*																																																	
Salsola australis																																		x						x									
Salsola sp.																																																	
Santalum spicatum																																																	
Sarcostemma viminale																																																	
Scaevola parvifolia																																																	
Scaevola spinescens					x																																												
Schoenoplectus subulatus																																																	
Sclerolaena cornishiana																																																	
Sclerolaena densiflora																																																	
Sclerolaena limbata						x											x	x																															
Senna artemisioides subsp. *helmsii*																																																	
Senna artemisioides subsp. *oligophylla*		x		x	x	x	x	x			x				x	x			x		x		x											x						x		x							
Senna ferraria																																																	
Senna ?glutinosa																		x															x								x								
Senna glutinosa subsp. *glutinosa*									x			x	x		x					x			x		x	x			x	x					x		x			x			x	x				x	x
Senna glutinosa subsp. *pruinosa*									x	x								x							x			x	x		x				x	x			x	x	x				x				
Senna notabilis																								x	x																								
Senna ?symonii																																																	
Sesbania cannabina			x																																												x		
Setaria sp.																																																	
**Setaria verticillata*																											x					x																	
Sida clementii																																																	
Sida echinocarpa																																										x							
Sida fibulifera																																																	
Sida rohlenae subsp. *rohlenae*																																										x							
Sida sp.																																																	
Sida spinosa																																																	
Sida trichopoda																																										x							
Solanum centrale																																																	
Solanum ?dioicum																																																	
Solanum diversiflorum									x															x	x																	x							
Solanum lasiophyllum																																																	
Solanum morrisonii																																																	
Solanum sp.																																																	

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	SITES																																																
SPECIES	1-051	1-052	1-053	1-054	1-055	1-056	1-057	1-058	1-059	1-060	1-061	1-062	1-063	1-064a	1-065	1-066	1-067	1-068	1-069	1-070	1-071	1-071a	1-072	1-073	1-074	1-075	1-076	1-077	1-078	1-079	1-080	1-081	1-082	1-083	1-084	1-085	1-086	1-087	1-088	1-089	1-090	1-091	1-092	1-093	1-094	1-095	1-096	1-097	1-098
Sorghum timorense																																																	
Sporobolus australasicus			x																		x																												
Stemodia grossa																																																	
Stemodia kingii																																																	
Streptoglossa bubakii																																																	
Streptoglossa tenuiflora																																																	
Stylobasium spathulatum																																														x			
Swainsona formosa																																																	
Swainsona stenodonta																																																	
Tephrosia ?clementii																																																	
Tephrosia rosea																																																	
Tephrosia rosea var. *clementii*																																x																	
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)																																											x			x			
Tephrosia sp.																																																	
Tephrosia sp. B Kimberley Flora (C.A. Gardner 7300)																																						x											
Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)																				x					x																								
Tephrosia uniovulata																								x	x																								
Themeda triandra																																																	
Trachymene oleracea																																																	
Trianthema cussackiana																																																	
Tribulus astrocarpus																																																	
Tribulus hirsutus																																																	
Tribulus platypterus																																																	
Tribulus suberosus																		x											x																				
**Tribulus terrestris*																																																	
Trichodesma zeylanicum																x					x			x	x																								
Trichodesma zeylanicum var. *zeylanicum*																																																	
Triodia brizoides																																																	
Triodia longiceps																																																	
Triodia ?melvillei													x		x																																		
Triodia pungens	x	x		x			x						x						x		x												x									x			x	x			
Triodia sp.																									x																								
Triodia wiseana	x	x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x			x	x		x	x	x	x	x	x	x		x	x	x	x	x	x	x	x		x	x	x			x	x
Triumfetta appendiculata																																																	
Triumfetta clementii																										x						x																	
Triumfetta maconochieana																									x																								
Urochloa occidentalis																																																	
**Vachellia farnesiana*			x																																												x		
Velleia connata																																																	
Waltheria indica			x																													x															x		
Waltheria virgata																																																	

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	SITES																																														
SPECIES	1-099	1-100	1-101	1-102	1-103	1-104	1-105	1-106	1-107	1-108	1-109	1-110	1-111	1-112	1-113	1-114	1-115	1-116	1-117	1-118	1-119	1-120	1-121	1-122	1-123	1-124	1-125	1-126	1-127	1-128	1-129	1-130	1-131	1-132	1-133	1-134	1-135	1-136	1-137	1-139	1-13a	1-140	1-142	1-143	1-144	1-145	1-146	1-147
Abutilon cunninghamii																																																
Abutilon ?fraseri																																																
Abutilon lepidum									x		x				x	x																				x						x						
Abutilon ?malvifolium																																																
Acacia acradenia																																																
Acacia ampliceps																										x									x					x			x					
Acacia ancistrocarpa						x	x		x																					x							x								x			
Acacia aneura																																																
Acacia aneura group																																																
Acacia atkinsiana																																																
Acacia bivenosa		x		x	x	x	x	x	x	x				x												x						x			x	x				x				x				
Acacia citrinoviridis																																x																
Acacia colei							x																																					x				
Acacia colei var. *colei*																																																
Acacia colei var. *ileocarpa*																																x				x												
Acacia coriacea							x																									x																
Acacia dictyophleba																																																
Acacia ?elachantha																																																
Acacia inaequilatera					x	x	x	x	x		x	x				x		x				x			x		x	x	x	x	x		x		x	x	x	x	x			x		x	x		x	
Acacia maitlandii				x	x	x		x																																								
Acacia monticola			x			x																																										
Acacia orthocarpa								x																																								
Acacia pruinocarpa																																																
Acacia pyrifolia			x			x							x	x		x																x	x	x						x								
Acacia sclerosperma subsp. *sclerosperma*																																																
Acacia ?sibirica																																																
Acacia sp.						x					x																																					
Acacia spondylophylla																																																
Acacia synchronicia																			x																													
Acacia tenuissima																																																
Acacia trachycarpa			x			x	x																																	x								
Acacia tumida																																																
Acacia tumida var. *pilbarensis*										x																							x			x				x								
Acacia wanyu																																																
Acacia xiphophylla	x																				x																				x							
Achyranthes aspera																																x																
**Aerva javanica*																	x																															
Alternanthera nana							x																																									
Alternanthera nodiflora							x																																									
Alysicarpus muelleri																													x																x			
Amaranthus undulatus																																																
Amphipogon sericeus																																																
Angianthus acrohyalinus																																																
Aristida anthoxanthoides							x																																									
Aristida contorta							x																										x		x		x								x		x	
Aristida holathera																																																
Aristida holathera var. *holathera*												x					x											x			x		x	x		x						x						
Aristida latifolia																				x			x	x																								
Aristida obscura																																																
Asteraceae sp.																																																
Astrebla lappacea (P3)																																																
Astrebla pectinata																																																

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	SITES																																															
SPECIES	1-099	1-100	1-101	1-102	1-103	1-104	1-105	1-106	1-107	1-108	1-109	1-110	1-111	1-112	1-113	1-114	1-115	1-116	1-117	1-118	1-119	1-120	1-121	1-122	1-123	1-124	1-125	1-126	1-127	1-128	1-129	1-130	1-131	1-132	1-133	1-134	1-135	1-136	1-137	1-139	1-13a	1-140	1-142	1-143	1-144	1-145	1-146	1-147
Atalaya hemiglauca																																																
Austrobryonia pilbarensis																																																
Boerhavia burbidgeana																								x																								x
Boerhavia coccinea						x										x					x	x			x						x		x	x			x								x			
Boerhavia gardneri												x			x													x	x																			
Boerhavia sp.																																																
Bonamia erecta																																	x								x							
Bonamia pannosa																																																
Bonamia sp.																															x											x						
Bonamia sp. Dampier (A.A. Mitchell PRP 217)																																																
Bothriochloa ewartiana																																																
Brachyachne convergens																			x					x																								
Cajanus cinereus															x	x		x								x	x																					
Calocephalus knappii																																																
*Calocephalus s*p. Wittenoom (A.S. George 1082)																																																
Carissa lanceolata																																																
Cassytha ?capillaris																											x																					
Cassytha sp.																																				x												
**Cenchrus ciliaris*						x	x		x	x																						x								x								
Centipeda minima subsp. *macrocephala*																																																
Cheilanthes sieberi																																																
Chloris pumilio																																																
Chrysopogon fallax																																																
Citrullus sp.																																																
Cleome viscosa																x																x																
Codonocarpus cotinifolius																																																
Corchorus lasiocarpus																																																
Corchorus lasiocarpus subsp. *parvus*																																			x													
Corchorus sidoides subsp. *vermicularis*																																																
Corchorus sp.																																																
Corchorus tectus											x	x		x	x	x						x							x	x				x		x	x	x						x				
Corchorus walcottii																																															x	
Corymbia aspera																																																
Corymbia candida																																																
Corymbia candida subsp. *candida*																																																
Corymbia ferriticola																																																
Corymbia hamersleyana					x		x		x	x	x															x							x											x				
Corymbia sp.																																																
Crotalaria cunninghamii																x																																
Crotalaria medicaginea																																x								x								
Crotalaria medicaginea var. *neglecta*															x																																	
Cucumis maderaspatanus																x		x																						x								
Cucumis sp.															x																																	
Cullen cinereum																																																
Cullen lachnostachys																																																
Cullen leucanthum																																																
Cullen martinii																																																
Cymbopogon ambiguus																																																
Cymbopogon obtectus	x						x								x	x		x								x	x						x		x									x				
Cymbopogon sp.																																																
**Cynodon dactylon*							x																																									
Cyperus hesperius																																																

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SPECIES	SITES																																															
	1-099	1-100	1-101	1-102	1-103	1-104	1-105	1-106	1-107	1-108	1-109	1-110	1-111	1-112	1-113	1-114	1-115	1-116	1-117	1-118	1-119	1-120	1-121	1-122	1-123	1-124	1-125	1-126	1-127	1-128	1-129	1-130	1-131	1-132	1-133	1-134	1-135	1-136	1-137	1-139	1-13a	1-140	1-142	1-143	1-144	1-145	1-146	1-147
Cyperus vaginatus							x			x			x													x						x								x			x					
Dactyloctenium radulans																																																
Dampiera candicans																																																
Desmodium muelleri																																														x		
Dichanthium sericeum																																																
Dichanthium sericeum subsp. *humilius*																																																
Dichanthium sp.																																																
Digitaria brownii																																																
Dodonaea coriacea																																																
Duperreya commixta																																																
Dysphania kalpari							x	x			x	x																								x									x			
Ehretia saligna																																																
Ehretia sp.																																																
Enchylaena tomentosa																																																
Enneapogon caerulescens																									x	x							x		x										x			
Enneapogon lindleyanus																																																
Enneapogon sp.																																																
Enteropogon ramosus																																x																
Eragrostis cumingii																																																
Eragrostis dielsii																																																
Eragrostis setifolia																																																
Eragrostis tenellula																																																
Eragrostis xerophila																					x																											
Eremophila fraseri												x																																				
Eremophila latrobei																																																
Eremophila longifolia																										x																						
Eriachne aristidea																																			x	x											x	
Eriachne benthamii													x																																			
Eriachne flaccida																												x																				
Eriachne mucronata																																																
Eriachne obtusa																																																
Eriachne pulchella	x																																												x			
Eriachne pulchella subsp. *pulchella*																																																
Eriachne sp.	x																																															
Eucalyptus camaldulensis							x																																	x								
Eucalyptus leucophloia	x																																															
Eucalyptus leucophloia subsp. *leucophloia*				x																																												
Eucalyptus sp.																																																
Eucalyptus victrix													x																			x								x			x					
Eulalia aurea																																																
Euphorbia australis																																x													x			
Euphorbia boophthona																																																
Euphorbia coghlanii																x				x			x													x				x								
Euphorbia drummondii																											x																					
Euphorbia tannensis subsp. *eremophila*																										x																						
Euphorbia vaccaria var. *vaccaria*																																																
Evolvulus alsinoides						x																											x			x								x	x		x	
Evolvulus alsinoides var. *villosicalyx*																																																
Ficus aculeata																																																
Ficus ?brachypoda																																																
**Flaveria trinervia*																																																
Glycine canescens																																								x								

APPENDIX E: SUMMARY OF VASCULAR PLANT SPECIES RECORDED AT EACH SURVEY SITE WITHIN THE FRGP PROJECT AREA, 2013

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SPECIES	SITES																																															
	1-099	1-100	1-101	1-102	1-103	1-104	1-105	1-106	1-107	1-108	1-109	1-110	1-111	1-112	1-113	1-114	1-115	1-116	1-117	1-118	1-119	1-120	1-121	1-122	1-123	1-124	1-125	1-126	1-127	1-128	1-129	1-130	1-131	1-132	1-133	1-134	1-135	1-136	1-137	1-139	1-13a	1-140	1-142	1-143	1-144	1-145	1-146	1-147
Gomphrena affinis subsp. *pilbarensis*																																																
Gomphrena canescens																																													x			
Gomphrena cunninghamii																x		x																														
Gomphrena sp.						x					x	x			x	x									x			x																x				
Goodenia lamprosperma													x																																			
Goodenia microptera																																																
Goodenia muelleriana																															x					x	x											
Goodenia pascua												x																																x				x
Goodenia scaevolina																																																
Goodenia sp.																																																
Goodenia stobbsiana													x																																			
Goodenia tenuiloba																																																
Gossypium australe																										x			x			x	x	x		x				x								
Gossypium robinsonii						x	x		x	x																																						
Grevillea pyramidalis																x											x						x	x								x						
Grevillea pyramidalis subsp. *leucadendron*															x														x							x								x				
Grevillea wickhamii																																																
Hakea chordophylla					x				x																				x																			
Hakea lorea																									x										x			x										
Haloragis gossei var. *gossei*																																																
Heliotropium crispatum																	x			x	x		x	x			x																			x		x
Heliotropium cunninghamii																																																
Heliotropium heteranthum																												x																				
Heliotropium ?inexplicitum																				x			x																									
Heliotropium ?ovalifolium																																																
Heteropogon contortus																																																
Hibiscus austrinus var. *austrinus*																																x																
Hibiscus brachysiphonius																								x																								
Hibiscus burtonii																																																
Hibiscus coatesii																																												x				
Hibiscus leptocladus																																																
Hibiscus sp.																																								x								
Hibiscus sturtii																																																
Hibiscus sturtii var. *campylochlamys*																																																
Hibiscus sturtii var. *platychlamys*																													x																			
Hibiscus verdcourtii																																																
Hybanthus aurantiacus						x																																										
Indigofera boviperda subsp. *boviperda*																																																
Indigofera colutea																																																
Indigofera linifolia															x											x			x							x								x	x			
Indigofera monophylla						x																																x										
Indigofera rugosa															x												x																					
Indigofera trita																						x					x																					
Indigofera trita subsp. *trita*																			x	x			x	x																								
Ipomoea muelleri																																x				x												
Ipomoea sp.																																																
Iseilema ?eremaeum																																																
Iseilema membranaceum																																																
Iseilema sp.	x																																															
Iseilema vaginiflorum																																																
Isotropis atropurpurea																																																
Isotropis forrestii																																																

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	SITES																																															
SPECIES	1-099	1-100	1-101	1-102	1-103	1-104	1-105	1-106	1-107	1-108	1-109	1-110	1-111	1-112	1-113	1-114	1-115	1-116	1-117	1-118	1-119	1-120	1-121	1-122	1-123	1-124	1-125	1-126	1-127	1-128	1-129	1-130	1-131	1-132	1-133	1-134	1-135	1-136	1-137	1-139	1-13a	1-140	1-142	1-143	1-144	1-145	1-146	1-147
Jasminum didymum																																																
Jasminum didymum subsp. *lineare*									x																																							
**Jatropha gossypiifolia*										x																																						
Keraudrenia sp.																																																
Keraudrenia ?velutina																																																
Lepidium pedicellosum																																																
Lotus cruentus																	x				x																											
Maireana melanocoma																																																
Maireana planifolia																																									x							
Maireana sp.																																																
Maireana tomentosa subsp. *tomentosa*																																																
Malvaceae sp.																																																
**Malvastrum americanum*										x											x											x				x				x						x		
Marsdenia australis																																																
Marsilea hirsuta																																x																
Melaleuca bracteata																																x																
Melaleuca lasiandra																																								x								
Melhania oblongifolia																																																
**Melochia pyramidata*																																																
Mollugo molluginea																																																
Neptunia dimorphantha																			x	x	x																											
Nicotiana occidentalis																					x			x																								
Notoleptopus decaisnei var. *decaisnei*																																																
**Ocimum basilicum*							x			x																																						
Oldenlandia crouchiana												x																x																				
Operculina aequisepala																								x																								
Panicum decompositum																																																
Panicum sp.																	x																															
Paraneurachne muelleri																																				x												
Paspalidium basicladum																																																
Pentalepis trichodesmoides																																																
Petalostylis cassioides			x																																													
Petalostylis labicheoides						x																																										
Phyllanthus maderaspatensis																	x		x	x	x	x	x	x								x								x						x		x
Pimelea ammocharis																																																
Pluchea dentex																																																
Pluchea dunlopii																																																
Pluchea rubelliflora													x																																			
Pluchea sp.																																																
Poaceae sp.																	x								x																					x		
Polycarpaea corymbosa																																																
Polycarpaea holtzei	x																																															
Polycarpaea longiflora																																																
Polymeria ambigua																																																
Polymeria sp.																												x																				
Portulaca oleracea																					x																											
Portulaca pilosa																																																
Proteaceae sp.																																																
Pterocaulon sphacelatum																x																x								x								
Ptilotus aervoides											x																	x			x														x			
Ptilotus appendiculatus																										x																						
Ptilotus astrolasius											x	x																x			x			x		x												

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	SITES																																															
SPECIES	1-099	1-100	1-101	1-102	1-103	1-104	1-105	1-106	1-107	1-108	1-109	1-110	1-111	1-112	1-113	1-114	1-115	1-116	1-117	1-118	1-119	1-120	1-121	1-122	1-123	1-124	1-125	1-126	1-127	1-128	1-129	1-130	1-131	1-132	1-133	1-134	1-135	1-136	1-137	1-139	1-13a	1-140	1-142	1-143	1-144	1-145	1-146	1-147
Ptilotus axillaris												x				x																				x												
Ptilotus calostachyus						x					x	x				x	x				x							x							x	x	x								x			
Ptilotus carinatus																				x		x	x																									x
Ptilotus clementii											x			x																																		
Ptilotus gomphrenoides																																																
Ptilotus gomphrenoides var. *gomphrenoides*																	x		x		x	x		x																								
Ptilotus murrayi																																																
Ptilotus nobilis						x	x				x	x		x					x									x		x			x	x	x		x		x						x		x	
Ptilotus obovatus						x										x																	x				x											
Ptilotus obovatus var. *obovatus*																																			x													
Ptilotus polystachyus																																																
Ptilotus rotundifolius																																																
Ptilotus sp.																					x																											
Rhagodia eremaea																																																
Rhynchosia minima						x	x								x	x	x		x	x			x			x			x			x			x	x				x								x
Rhynchosia sp.																																												x				
Rostellularia adscendens																																																
Rostellularia adscendens var. *clementii*																																																
Salsola australis						x																																										
Salsola sp.																																																
Santalum spicatum																																																
Sarcostemma viminale																																																
Scaevola parvifolia																																																
Scaevola spinescens																													x																			
Schoenoplectus subulatus																																											x					
Sclerolaena cornishiana																																																
Sclerolaena densiflora																																																
Sclerolaena limbata																																																
Senna artemisioides subsp. *helmsii*																																																
Senna artemisioides subsp. *oligophylla*					x																					x							x	x														
Senna ferraria																									x																							
Senna ?glutinosa									x											x			x							x																		
Senna glutinosa subsp. *glutinosa*	x	x	x	x	x	x		x			x	x		x	x			x							x	x				x			x						x								x	
Senna glutinosa subsp. *pruinosa*		x			x	x		x				x													x	x	x	x		x	x						x		x								x	
Senna notabilis												x		x	x	x										x										x								x	x			
Senna ?symonii																																																
Sesbania cannabina													x																											x								
Setaria sp.																																																
**Setaria verticillata*																																																
Sida clementii																																		x														
Sida echinocarpa												x		x																	x				x		x					x						
Sida fibulifera						x																																						x				
Sida rohlenae subsp. *rohlenae*									x	x											x											x																
Sida sp.											x																																					x
Sida spinosa																			x	x		x	x	x																						x		
Sida trichopoda																	x		x	x	x	x	x	x								x		x														
Solanum centrale																																																
Solanum ?dioicum																x											x																					
Solanum diversiflorum						x								x				x																x		x								x	x			
Solanum lasiophyllum																	x																															
Solanum morrisonii																																																
Solanum sp.						x					x					x		x						x																								

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	SITES																																															
SPECIES	**1-099**	**1-100**	**1-101**	**1-102**	**1-103**	**1-104**	**1-105**	**1-106**	**1-107**	**1-108**	**1-109**	**1-110**	**1-111**	**1-112**	**1-113**	**1-114**	**1-115**	**1-116**	**1-117**	**1-118**	**1-119**	**1-120**	**1-121**	**1-122**	**1-123**	**1-124**	**1-125**	**1-126**	**1-127**	**1-128**	**1-129**	**1-130**	**1-131**	**1-132**	**1-133**	**1-134**	**1-135**	**1-136**	**1-137**	**1-139**	**1-13a**	**1-140**	**1-142**	**1-143**	**1-144**	**1-145**	**1-146**	**1-147**
Sorghum timorense																																																x
Sporobolus australasicus																																													x			
Stemodia grossa													x																											x								
Stemodia kingii																																														x		
Streptoglossa bubakii																	x		x	x	x	x	x	x																								x
Streptoglossa tenuiflora																																																
Stylobasium spathulatum																																																
Swainsona formosa																														x																		
Swainsona stenodonta																											x																	x				
Tephrosia ?clementii														x																																		
Tephrosia rosea																										x						x				x				x								
Tephrosia rosea var. *clementii*																																																
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)																																																x
Tephrosia sp.																									x																							
Tephrosia sp. B Kimberley Flora (C.A. Gardner 7300)																																																
Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)																																																
Tephrosia uniovulata																																																
Themeda triandra										x																														x								
Trachymene oleracea																																																
Trianthema cussackiana																																																
Tribulus astrocarpus																																																
Tribulus hirsutus											x																																					
Tribulus platypterus						x						x			x	x												x									x								x			
Tribulus suberosus																																																
**Tribulus terrestris*																																																
Trichodesma zeylanicum										x					x	x	x									x	x			x						x		x				x			x			
Trichodesma zeylanicum var. *zeylanicum*																																			x													
Triodia brizoides																																															x	
Triodia longiceps																																																
Triodia ?melvillei																																																
Triodia pungens						x				x			x																																			
Triodia sp.																																																
Triodia wiseana	x	x	x	x	x			x	x		x	x		x	x	x	x	x	x		x	x			x		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		x	x			
Triumfetta appendiculata																																																
Triumfetta clementii									x						x																x					x						x		x	x			
Triumfetta maconochieana																																																
Urochloa occidentalis																																																
**Vachellia farnesiana*							x		x	x												x										x								x						x		
Velleia connata																																																
Waltheria indica							x																									x				x												
Waltheria virgata																																																

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	SITES																																														
SPECIES	1-149	1-150	1-151	1-152	1-153	1-154	1-155	1-156	1-157	1-158	1-159	1-160	1-160a	1-161	1-162	1-163	1-164	1-165	1-166	1-167	1-168	1-169	1-170	1-171	1-172	1-173	1-174	1-175	1-176	1-177	1-178	1-179	1-180	1-181	2-001	2-002	2-003	2-004	2-005	2-006	2-007	2-008	2-009	2-010	2-011	2-012	2-013	2-014
Abutilon cunninghamii							x																								x																	
Abutilon ?fraseri																																																
Abutilon lepidum																																																
Abutilon ?malvifolium																																																
Acacia acradenia																																																
Acacia ampliceps																																																
Acacia ancistrocarpa					x				x					x		x				x		x		x		x		x			x	x			x	x	x	x	x	x					x			
Acacia aneura																																																
Acacia aneura group																																					x											
Acacia atkinsiana																								x				x					x												x			
Acacia bivenosa			x	x	x		x	x	x	x		x		x	x	x	x	x				x	x								x																	
Acacia citrinoviridis																																																
Acacia colei											x					x								x				x																				
Acacia colei var. *colei*																																		x			x	x										
Acacia colei var. *ileocarpa*																						x				x									x	x	x											
Acacia coriacea																																																
Acacia dictyophleba																						x		x				x	x			x	x		x	x	x	x		x					x			
Acacia ?elachantha																																																
Acacia inaequilatera		x											x		x				x	x						x		x	x			x	x		x	x			x									
Acacia maitlandii															x		x		x	x	x																											
Acacia monticola											x								x		x																											
Acacia orthocarpa																																																
Acacia pruinocarpa																																																
Acacia pyrifolia							x								x	x			x			x																	x		x							
Acacia sclerosperma subsp. *sclerosperma*																													x																			
Acacia ?sibirica																																																
Acacia sp.																																																
Acacia spondylophylla																																																
Acacia synchronicia				x													x																x															x
Acacia tenuissima																																																
Acacia trachycarpa							x																	x		x	x	x			x	x		x	x	x				x					x			
Acacia tumida																																																
Acacia tumida var. *pilbarensis*					x															x																												
Acacia wanyu																																																
Acacia xiphophylla			x			x																								x												x		x				x
Achyranthes aspera							x																																									
**Aerva javanica*																																																
Alternanthera nana																x																																
Alternanthera nodiflora																																																
Alysicarpus muelleri	x	x																																							x							
Amaranthus undulatus																																																
Amphipogon sericeus																				x																												
Angianthus acrohyalinus																														x																		
Aristida anthoxanthoides		x																												x																		
Aristida contorta	x																							x									x															
Aristida holathera																																					x	x		x		x		x				
Aristida holathera var. *holathera*							x																					x	x																			
Aristida latifolia																										x			x												x	x	x	x		x	x	
Aristida obscura																																									x	x	x	x				
Asteraceae sp.																																					x	x			x							
Astrebla lappacea (P3)																																										x	x	x		x	x	
Astrebla pectinata																																										x						

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	SITES																																															
SPECIES	1-149	1-150	1-151	1-152	1-153	1-154	1-155	1-156	1-157	1-158	1-159	1-160	1-160a	1-161	1-162	1-163	1-164	1-165	1-166	1-167	1-168	1-169	1-170	1-171	1-172	1-173	1-174	1-175	1-176	1-177	1-178	1-179	1-180	1-181	2-001	2-002	2-003	2-004	2-005	2-006	2-007	2-008	2-009	2-010	2-011	2-012	2-013	2-014
Atalaya hemiglauca																																									x							
Austrobryonia pilbarensis																									x																							
Boerhavia burbidgeana		x																																														
Boerhavia coccinea																																																
Boerhavia gardneri																																																
Boerhavia sp.																																										x		x			x	
Bonamia erecta					x		x																						x					x											x			
Bonamia pannosa																																																
Bonamia sp.													x															x				x																
Bonamia sp. Dampier (A.A. Mitchell PRP 217)																																																
Bothriochloa ewartiana																																					x	x			x		x			x		
Brachyachne convergens																																									x		x	x			x	
Cajanus cinereus																																																
Calocephalus knappii		x																																														
*Calocephalus s*p. Wittenoom (A.S. George 1082)																																											x	x				
Carissa lanceolata																						x																										
Cassytha ?capillaris								x																																								
Cassytha sp.									x																																							
**Cenchrus ciliaris*							x																						x										x	x								
Centipeda minima subsp. *macrocephala*																																																
Cheilanthes sieberi																																																
Chloris pumilio																																														x		
Chrysopogon fallax																x						x		x															x					x				
Citrullus sp.																									x																							
Cleome viscosa		x					x																						x				x						x		x				x	x	x	
Codonocarpus cotinifolius																							x													x				x					x			
Corchorus lasiocarpus																																																
Corchorus lasiocarpus subsp. *parvus*																										x																					
Corchorus sidoides subsp. *vermicularis*																																																
Corchorus sp.																								x																								
Corchorus tectus					x			x														x							x																x			
Corchorus walcottii																																																
Corymbia aspera																																																
Corymbia candida																																																
Corymbia candida subsp. *candida*																																																
Corymbia ferriticola																																																
Corymbia hamersleyana											x	x	x	x	x	x						x	x	x	x		x	x		x					x							x							
Corymbia sp.																																																
Crotalaria cunninghamii																																																
Crotalaria medicaginea																																																
Crotalaria medicaginea var. *neglecta*																																																
Cucumis maderaspatanus							x																												x				x									
Cucumis sp.																																																
Cullen cinereum																									x																x			x		x		
Cullen lachnostachys																										x																					
Cullen leucanthum																																																
Cullen martinii																																																
Cymbopogon ambiguus																																																
Cymbopogon obtectus					x								x						x									x																				
Cymbopogon sp.																																																
**Cynodon dactylon*																																																
Cyperus hesperius																																																

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Cyperus vaginatus																																																
Dactyloctenium radulans																																																
Dampiera candicans													x																																			
Desmodium muelleri																																																
Dichanthium sericeum																																												x			x	
Dichanthium sericeum subsp. *humilius*																																										x						
Dichanthium sp.																																																
Digitaria brownii																																																
Dodonaea coriacea									x																			x	x								x											
Duperreya commixta																																			x													
Dysphania kalpari																																													x			
Ehretia saligna													x																																			
Ehretia sp.																																									x							
Enchylaena tomentosa																																																x
Enneapogon caerulescens		x																							x																							
Enneapogon lindleyanus																																																
Enneapogon sp.																																																
Enteropogon ramosus																						x																										
Eragrostis cumingii																x																																
Eragrostis dielsii																																									x		x					
Eragrostis setifolia																																										x		x				
Eragrostis tenellula																																																
Eragrostis xerophila		x																																							x	x	x	x			x	
Eremophila fraseri																																																
Eremophila latrobei																																																x
Eremophila longifolia							x															x																										
Eriachne aristidea																																							x	x						x		
Eriachne benthamii																																																
Eriachne flaccida																																																
Eriachne mucronata																																																
Eriachne obtusa																																												x				
Eriachne pulchella																																	x						x	x								x
Eriachne pulchella subsp. *pulchella*																																																
Eriachne sp.											x																																					
Eucalyptus camaldulensis																						x																										
Eucalyptus leucophloia					x						x																																					
Eucalyptus leucophloia subsp. *leucophloia*									x	x					x		x	x	x																													
Eucalyptus sp.																									x																							
Eucalyptus victrix																																							x									
Eulalia aurea													x			x						x		x		x	x	x	x		x	x		x	x		x		x	x					x			
Euphorbia australis							x																																									
Euphorbia boophthona		x																																														
Euphorbia coghlanii																x						x																										
Euphorbia drummondii																						x																										
Euphorbia tannensis subsp. *eremophila*																																																
Euphorbia vaccaria var. *vaccaria*																																																
Evolvulus alsinoides					x								x									x							x																			
Evolvulus alsinoides var. *villosicalyx*																																					x	x										
Ficus aculeata																						x																										
Ficus ?brachypoda																																																
**Flaveria trinervia*																						x																					x					
Glycine canescens																																																

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Gomphrena affinis subsp. *pilbarensis*																																																
Gomphrena canescens																																																
Gomphrena cunninghamii																																							x									x
Gomphrena sp.																																																
Goodenia lamprosperma																																																
Goodenia microptera							x																																									
Goodenia muelleriana		x																																														
Goodenia pascua																																																
Goodenia scaevolina																																																
Goodenia sp.																																							x		x	x						
Goodenia stobbsiana							x								x						x		x						x																			
Goodenia tenuiloba																													x																			
Gossypium australe							x						x			x						x													x										x			
Gossypium robinsonii							x							x								x																	x									
Grevillea pyramidalis													x									x																										
Grevillea pyramidalis subsp. *leucadendron*																																																
Grevillea wickhamii											x								x			x		x			x	x	x				x	x	x	x	x	x		x								
Hakea chordophylla													x	x						x																												
Hakea lorea															x						x													x			x	x										
Haloragis gossei var. *gossei*																																																
Heliotropium crispatum																																																
Heliotropium cunninghamii		x																																	x							x		x			x	
Heliotropium heteranthum																														x																		
Heliotropium ?inexplicitum																																																
Heliotropium ?ovalifolium																							x																									
Heteropogon contortus							x															x																										
Hibiscus austrinus var. *austrinus*																																																
Hibiscus brachysiphonius																									x																							
Hibiscus burtonii																																																
Hibiscus coatesii																																																
Hibiscus leptocladus																																																
Hibiscus sp.																																																
Hibiscus sturtii																																																
Hibiscus sturtii var. *campylochlamys*																																																
Hibiscus sturtii var. *platychlamys*																																																
Hibiscus verdcourtii																																															x	
Hybanthus aurantiacus					x		x															x																	x									
Indigofera boviperda subsp. *boviperda*																																																
Indigofera colutea																																									x		x					
Indigofera linifolia	x																																															
Indigofera monophylla					x											x					x	x																							x			
Indigofera rugosa																																																
Indigofera trita																																									x	x	x	x		x	x	
Indigofera trita subsp. *trita*																																																
Ipomoea muelleri																																																
Ipomoea sp.																																																
Iseilema ?eremaeum																																										x		x		x	x	
Iseilema membranaceum																																											x					
Iseilema sp.		x																																							x							
Iseilema vaginiflorum																																																
Isotropis atropurpurea																																																
Isotropis forrestii																																																

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Jasminum didymum																																																
Jasminum didymum subsp. *lineare*																																																
**Jatropha gossypiifolia*																																																	
Keraudrenia sp.																																																
Keraudrenia ?velutina																								x																								
Lepidium pedicellosum																																																
Lotus cruentus																																																
Maireana melanocoma			x																																													
Maireana planifolia																																																
Maireana sp.				x																																												
Maireana tomentosa subsp. *tomentosa*																																																
Malvaceae sp.																																					x	x										
**Malvastrum americanum*		x														x						x																			x	x	x	x		x	x	
Marsdenia australis																						x																										
Marsilea hirsuta																																																
Melaleuca bracteata																																																
Melaleuca lasiandra																																																
Melhania oblongifolia																						x																										
**Melochia pyramidata*																																																
Mollugo molluginea								x																																								
Neptunia dimorphantha		x																																							x	x	x					
Nicotiana occidentalis																																																
Notoleptopus decaisnei var. *decaisnei*																																																
**Ocimum basilicum*																																																
Oldenlandia crouchiana																																																
Operculina aequisepala																																										x	x	x		x	x	
Panicum decompositum																									x																	x	x	x		x	x	
Panicum sp.																																																
Paraneurachne muelleri																										x	x																					
Paspalidium basicladum																																																
Pentalepis trichodesmoides																																																
Petalostylis cassioides																																																
Petalostylis labicheoides			x											x						x	x																											
Phyllanthus maderaspatensis							x															x			x								x						x									
Pimelea ammocharis																																					x		x									
Pluchea dentex																						x																										
Pluchea dunlopii																																																
Pluchea rubelliflora							x																																x									
Pluchea sp.																																																
Poaceae sp.		x																																														
Polycarpaea corymbosa																																																
Polycarpaea holtzei																																																
Polycarpaea longiflora																																																
Polymeria ambigua																																											x			x		
Polymeria sp.																																																
Portulaca oleracea	x	x																																														
Portulaca pilosa																																																
Proteaceae sp.																																																
Pterocaulon sphacelatum							x						x									x															x	x									x	
Ptilotus aervoides	x	x																																							x							x
Ptilotus appendiculatus																																																
Ptilotus astrolasius								x	x			x		x												x		x																				

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Ptilotus axillaris																																																
Ptilotus calostachyus	x									x																									x	x				x						x		
Ptilotus carinatus																																																
Ptilotus clementii																																																
Ptilotus gomphrenoides																																									x					x	x	
Ptilotus gomphrenoides var. *gomphrenoides*																																																
Ptilotus murrayi																																																
Ptilotus nobilis	x			x		x	x	x	x					x				x									x		x	x	x		x		x	x	x	x	x	x	x	x	x	x	x		x	x
Ptilotus obovatus																						x							x						x	x				x								
Ptilotus obovatus var. *obovatus*						x			x	x																	x				x																	
Ptilotus polystachyus																																									x							
Ptilotus rotundifolius																																																
Ptilotus sp.																																																
Rhagodia eremaea																																																x
Rhynchosia minima	x						x									x						x													x				x		x	x	x	x	x	x	x	
Rhynchosia sp.																																																
Rostellularia adscendens																																															x	
Rostellularia adscendens var. *clementii*																																											x			x		
Salsola australis																														x											x	x	x	x		x		x
Salsola sp.																																																
Santalum spicatum																						x																										
Sarcostemma viminale						x																																										
Scaevola parvifolia																																					x	x										
Scaevola spinescens																																																
Schoenoplectus subulatus																																																
Sclerolaena cornishiana																																																
Sclerolaena densiflora			x			x		x																																								
Sclerolaena limbata																																																
Senna artemisioides subsp. *helmsii*																																								x	x	x	x	x			x	
Senna artemisioides subsp. *oligophylla*		x																				x							x																			x
Senna ferraria																																																
Senna ?glutinosa																																																
Senna glutinosa subsp. *glutinosa*				x	x				x		x			x	x			x	x																													
Senna glutinosa subsp. *pruinosa*				x					x	x		x																					x												x			
Senna notabilis							x																		x		x		x	x							x	x	x									
Senna ?symonii														x																																		
Sesbania cannabina																																																
Setaria sp.																																									x							
**Setaria verticillata*							x																																									
Sida clementii																																																
Sida echinocarpa																								x					x			x																
Sida fibulifera																										x																x		x				
Sida rohlenae subsp. *rohlenae*																																																
Sida sp.																																							x	x	x		x					
Sida spinosa																									x																						x	
Sida trichopoda		x																																														
Solanum centrale																																									x		x					
Solanum ?dioicum																																																
Solanum diversiflorum							x																				x														x							
Solanum lasiophyllum																													x						x													
Solanum morrisonii																																													x			
Solanum sp.																																																

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Sorghum timorense																																																
Sporobolus australasicus							x									x						x													x	x					x							x
Stemodia grossa							x															x																	x									
Stemodia kingii																									x																	x		x			x	
Streptoglossa bubakii		x																																								x	x	x			x	
Streptoglossa tenuiflora																														x																		
Stylobasium spathulatum																						x																										
Swainsona formosa																																																
Swainsona stenodonta																																																
Tephrosia ?clementii																																																
Tephrosia rosea							x															x																			x							
Tephrosia rosea var. *clementii*																																																
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)																																																
Tephrosia sp.								x					x											x																								
Tephrosia sp. B Kimberley Flora (C.A. Gardner 7300)																																																
Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)																											x																					
Tephrosia uniovulata																																																
Themeda triandra					x											x						x		x		x	x							x	x	x			x		x							
Trachymene oleracea																																					x	x										
Trianthema cussackiana																																																
Tribulus astrocarpus																														x																		
Tribulus hirsutus																																																
Tribulus platypterus																																																
Tribulus suberosus																																																
**Tribulus terrestris*																																									x							
Trichodesma zeylanicum	x						x	x														x											x		x	x	x	x	x		x				x			
Trichodesma zeylanicum var. *zeylanicum*																																																
Triodia brizoides																																																
Triodia longiceps																																																
Triodia ?melvillei																																																
Triodia pungens					x		x				x		x			x						x		x		x		x	x	x	x	x	x	x	x	x	x	x	x		x				x			
Triodia sp.						x																																										
Triodia wiseana	x		x	x				x	x	x	x	x		x	x		x	x	x	x	x	x	x										x			x	x	x		x					x			
Triumfetta appendiculata																																																
Triumfetta clementii	x																																															
Triumfetta maconochieana																																																
Urochloa occidentalis																																									x	x		x			x	
**Vachellia farnesiana*		x					x															x																					x			x		
Velleia connata																											x																					
Waltheria indica																																																
Waltheria virgata																		x		x																											

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SPECIES	SITES																																										
	2-015	2-016	2-017	2-018	2-019	2-020	2-021	2-022	2-023	2-024	2-025	2-026	2-027	2-028	2-029	2-030	2-031	2-032	2-033	2-034	2-035	2-036	2-037	2-038	2-039	2-040	2-041	2-042	2-043	2-044	2-045	2-046	2-047	2-048	2-049	2-050	2-051	2-052	2-053	2-054	2-055	2-056
Abutilon cunninghamii																																											
Abutilon ?fraseri																																											
Abutilon lepidum																																				x							
Abutilon ?malvifolium																																											
Acacia acradenia																																											
Acacia ampliceps																																											
Acacia ancistrocarpa	x	x		x	x						x	x			x		x	x	x	x	x	x	x		x	x	x	x				x					x		x	x	x
Acacia aneura	x																		x				x	x																		
Acacia aneura group																	x																						x		x		
Acacia atkinsiana						x															x		x						x										x		
Acacia bivenosa												x							x		x								x			x	x					x		x	x
Acacia citrinoviridis				x				x														x			x					x								x			
Acacia colei																																										
Acacia colei var. *colei*						x																													x			x	x	x		x
Acacia colei var. *ileocarpa*																							x		x												x					
Acacia coriacea																																										
Acacia dictyophleba					x				x		x		x	x		x	x	x					x				x	x			x	x	x		x		x	x	x	x		
Acacia ?elachantha																																										
Acacia inaequilatera												x		x				x		x	x					x		x			x		x		x		x	x	x		
Acacia maitlandii																																										
Acacia monticola																																									x	
Acacia orthocarpa																																										
Acacia pruinocarpa					x																		x						x	x	x		x				x				
Acacia pyrifolia											x																		x	x		x		x		x					
Acacia sclerosperma subsp. *sclerosperma*																																										
Acacia ?sibirica																																										
Acacia sp.																																										
Acacia spondylophylla																														x		x										
Acacia synchronicia	x	x																																								
Acacia tenuissima																			x																							
Acacia trachycarpa		x		x		x			x	x	x	x				x	x	x	x	x	x	x			x	x															
Acacia tumida											x		x												x					x		x		x							
Acacia tumida var. *pilbarensis*																															x										
Acacia wanyu																																										
Acacia xiphophylla							x																																			
Achyranthes aspera																																										
**Aerva javanica*																																										
Alternanthera nana																									x							x								x	
Alternanthera nodiflora																																										x
Alysicarpus muelleri																																										
Amaranthus undulatus																																										
Amphipogon sericeus																																										
Angianthus acrohyalinus																																										
Aristida anthoxanthoides																																										
Aristida contorta																					x			x																	
Aristida holathera		x			x				x							x					x									x								x			
Aristida holathera var. *holathera*																																										
Aristida latifolia	x	x		x	x		x	x				x																									x					
Aristida obscura																																										
Asteraceae sp.																																									x	
Astrebla lappacea (P3)																																										
Astrebla pectinata																																										

APPENDIX E: SUMMARY OF VASCULAR PLANT SPECIES RECORDED AT EACH SURVEY SITE WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species; T denotes Threatened Flora Species; P1, P2, P3 and P4 denote Priority Flora Species (DPaW, 2013g)

SPECIES	SITES																																											
	2-015	2-016	2-017	2-018	2-019	2-020	2-021	2-022	2-023	2-024	2-025	2-026	2-027	2-028	2-029	2-030	2-031	2-032	2-033	2-034	2-035	2-036	2-037	2-038	2-039	2-040	2-041	2-042	2-043	2-044	2-045	2-046	2-047	2-048	2-049	2-050	2-051	2-052	2-053	2-054	2-055	2-056
Atalaya hemiglauca																																				x						
Austrobryonia pilbarensis																																											
Boerhavia burbidgeana																																											
Boerhavia coccinea																																											
Boerhavia gardneri																																											
Boerhavia sp.		x										x											x			x																	
Bonamia erecta					x	x			x	x	x	x					x	x	x	x	x							x			x	x			x		x	x	x	x			
Bonamia pannosa																																											
Bonamia sp.																																											
Bonamia sp. Dampier (A.A. Mitchell PRP 217)																																											
Bothriochloa ewartiana	x					x				x							x					x										x								x		
Brachyachne convergens			x																			x	x																				
Cajanus cinereus																																											
Calocephalus knappii																																											
*Calocephalus s*p. Wittenoom (A.S. George 1082)																																											
Carissa lanceolata																																											
Cassytha ?capillaris																																											
Cassytha sp.						x																																					
**Cenchrus ciliaris*							x						x	x		x					x		x			x	x								x	x		x		x	x		
Centipeda minima subsp. *macrocephala*																																											
Cheilanthes sieberi																																											
Chloris pumilio																						x																					
Chrysopogon fallax	x		x					x						x								x				x															x	x	
Citrullus sp.																																											
Cleome viscosa	x						x		x	x	x	x		x	x	x					x		x								x											
Codonocarpus cotinifolius					x																											x										
Corchorus lasiocarpus														x																x				x		x						
Corchorus lasiocarpus subsp. *parvus*																																											
Corchorus sidoides subsp. *vermicularis*																																											
Corchorus sp.																												x				x										
Corchorus tectus									x							x					x					x					x	x					x	x		x		
Corchorus walcottii																x									x																	
Corymbia aspera																																											
Corymbia candida																																											
Corymbia candida subsp. *candida*																																											
Corymbia ferriticola																																											
Corymbia hamersleyana					x	x			x			x		x			x	x	x	x					x			x			x	x			x	x	x		x	x		
Corymbia sp.																																											
Crotalaria cunninghamii																																											
Crotalaria medicaginea																																											
Crotalaria medicaginea var. *neglecta*																							x			x																	
Cucumis maderaspatanus														x									x		x	x	x				x											
Cucumis sp.																																											
Cullen cinereum																																			x								
Cullen lachnostachys																							x			x	x															
Cullen leucanthum																																											
Cullen martinii														x																													
Cymbopogon ambiguus																																				x							
Cymbopogon obtectus																																											
Cymbopogon sp.																																											
**Cynodon dactylon*																																											
Cyperus hesperius																																											

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Cyperus vaginatus															x																											
Dactyloctenium radulans																																										
Dampiera candicans																																										
Desmodium muelleri																																										
Dichanthium sericeum		x																																								
Dichanthium sericeum subsp. *humilius*																																										
Dichanthium sp.																																										
Digitaria brownii																						x																				
Dodonaea coriacea					x																																					
Duperreya commixta				x		x			x										x						x				x													
Dysphania kalpari																											x			x	x							x		x		
Ehretia saligna																																										
Ehretia sp.																																										
Enchylaena tomentosa		x																																								
Enneapogon caerulescens																																										
Enneapogon lindleyanus							x																																			
Enneapogon sp.		x																																								
Enteropogon ramosus																																										
Eragrostis cumingii														x		x									x																	
Eragrostis dielsii																																										
Eragrostis setifolia																																										
Eragrostis tenellula								x																	x																	
Eragrostis xerophila			x				x																																			
Eremophila fraseri																																										
Eremophila latrobei																																										
Eremophila longifolia																																									x	x
Eriachne aristidea															x	x					x			x	x		x															
Eriachne benthamii																																										
Eriachne flaccida																																										
Eriachne mucronata																																										
Eriachne obtusa																																										
Eriachne pulchella										x					x				x				x	x	x																	
Eriachne pulchella subsp. *pulchella*																																										
Eriachne sp.																																										
Eucalyptus camaldulensis																																										
Eucalyptus leucophloia																																		x							x	
Eucalyptus leucophloia subsp. *leucophloia*																																										
Eucalyptus sp.																																										
Eucalyptus victrix													x		x	x																				x						
Eulalia aurea	x	x	x	x		x	x	x			x	x		x			x				x	x			x							x					x					x
Euphorbia australis																					x											x				x						
Euphorbia boophthona																x																										
Euphorbia coghlanii																																										
Euphorbia drummondii															x															x												
Euphorbia tannensis subsp. *eremophila*																																										
Euphorbia vaccaria var. *vaccaria*																																										
Evolvulus alsinoides												x																														x
Evolvulus alsinoides var. *villosicalyx*		x						x			x					x						x			x																	
Ficus aculeata																																										
Ficus ?brachypoda																																										
**Flaveria trinervia*																																										
Glycine canescens																																										

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Gomphrena affinis subsp. *pilbarensis*																																										
Gomphrena canescens	x	x																																								
Gomphrena cunninghamii			x												x									x																		
Gomphrena sp.																																										
Goodenia lamprosperma																									x																		
Goodenia microptera																																										
Goodenia muelleriana																																										
Goodenia pascua																																										
Goodenia scaevolina																																										
Goodenia sp.									x	x	x					x					x		x	x								x			x							
Goodenia stobbsiana																																										
Goodenia tenuiloba																																										
Gossypium australe	x	x									x	x				x	x	x	x		x	x	x			x	x				x					x	x	x	x	x	x	
Gossypium robinsonii																														x					x	x						
Grevillea pyramidalis																									x																		
Grevillea pyramidalis subsp. *leucadendron*																									x	x											x						
Grevillea wickhamii					x	x			x	x		x	x	x	x	x		x	x						x	x			x	x	x	x	x	x	x	x	x					
Hakea chordophylla																																										
Hakea lorea												x		x				x	x		x	x	x	x		x											x					
Haloragis gossei var. *gossei*																																										
Heliotropium crispatum																																										
Heliotropium cunninghamii																																										
Heliotropium heteranthum																																										
Heliotropium ?inexplicitum																																										
Heliotropium ?ovalifolium																																										
Heteropogon contortus																																										
Hibiscus austrinus var. *austrinus*																																										
Hibiscus brachysiphonius																																										
Hibiscus burtonii																																										
Hibiscus coatesii																																										
Hibiscus leptocladus																																										
Hibiscus sp.																																										
Hibiscus sturtii		x																																								
Hibiscus sturtii var. *campylochlamys*																																										
Hibiscus sturtii var. *platychlamys*																																										
Hibiscus verdcourtii																																										
Hybanthus aurantiacus															x										x																		
Indigofera boviperda subsp. *boviperda*																x																											
Indigofera colutea																																x			x							
Indigofera linifolia		x																																								
Indigofera monophylla					x						x						x	x	x		x	x			x				x	x		x		x		x		x				x
Indigofera rugosa																																										
Indigofera trita																																										
Indigofera trita subsp. *trita*																																										
Ipomoea muelleri																																										
Ipomoea sp.																							x																			
Iseilema ?eremaeum		x																																								
Iseilema membranaceum																																										
Iseilema sp.			x								x																															
Iseilema vaginiflorum																							x																			
Isotropis atropurpurea																																										
Isotropis forrestii																																										x

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Jasminum didymum																	x								x										x							
Jasminum didymum subsp. *lineare*																																										
**Jatropha gossypiifolia*																																										
Keraudrenia sp.						x																																				
Keraudrenia ?velutina																																										
Lepidium pedicellosum																																										
Lotus cruentus																																										
Maireana melanocoma																																										
Maireana planifolia																																										
Maireana sp.																																										
Maireana tomentosa subsp. *tomentosa*																																										
Malvaceae sp.																																			x				x			
**Malvastrum americanum*	x																					x																				x
Marsdenia australis																																x										
Marsilea hirsuta			x																																							
Melaleuca bracteata																																										
Melaleuca lasiandra																																										
Melhania oblongifolia																																										
**Melochia pyramidata*																																										
Mollugo molluginea																																x			x			x	x			
Neptunia dimorphantha																										x																
Nicotiana occidentalis																																										
Notoleptopus decaisnei var. *decaisnei*																																										
**Ocimum basilicum*																																										
Oldenlandia crouchiana																																										
Operculina aequisepala																																										
Panicum decompositum																																										
Panicum sp.																																										
Paraneurachne muelleri																																										
Paspalidium basicladum											x																															
Pentalepis trichodesmoides																							x			x										x						
Petalostylis cassioides																																										
Petalostylis labicheoides															x																											
Phyllanthus maderaspatensis																									x																	
Pimelea ammocharis																																										
Pluchea dentex																																										
Pluchea dunlopii																							x		x	x	x															
Pluchea rubelliflora														x																												
Pluchea sp.	x																																									
Poaceae sp.																																										
Polycarpaea corymbosa																									x																	
Polycarpaea holtzei																													x													
Polycarpaea longiflora															x								x																			
Polymeria ambigua																										x				x												
Polymeria sp.																																		x								
Portulaca oleracea																																										
Portulaca pilosa																																										
Proteaceae sp.																																										
Pterocaulon sphacelatum	x	x		x										x									x		x	x	x								x							x
Ptilotus aervoides																																										
Ptilotus appendiculatus																																										
Ptilotus astrolasius																																										

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Ptilotus axillaris																																											
Ptilotus calostachyus					x				x																x						x	x					x	x		x		
Ptilotus carinatus																																											
Ptilotus clementii																																											
Ptilotus gomphrenoides			x																																							
Ptilotus gomphrenoides var. *gomphrenoides*																																											
Ptilotus murrayi																																											
Ptilotus nobilis	x		x				x	x	x	x	x	x		x					x		x		x	x			x		x			x	x					x		x			
Ptilotus obovatus		x			x				x	x							x		x				x								x	x				x	x	x	x			
Ptilotus obovatus var. *obovatus*	x																																										
Ptilotus polystachyus																																x										
Ptilotus rotundifolius																																						x					
Ptilotus sp.																																											
Rhagodia eremaea							x																																				
Rhynchosia minima	x	x									x											x	x			x								x	x						x	x	
Rhynchosia sp.																																											
Rostellularia adscendens								x														x																					
Rostellularia adscendens var. *clementii*																																x										
Salsola australis	x	x						x								x							x								x											
Salsola sp.																																											
Santalum spicatum																																											
Sarcostemma viminale																																											
Scaevola parvifolia						x											x														x	x										
Scaevola spinescens																	x																										
Schoenoplectus subulatus																																											
Sclerolaena cornishiana																								x			x																
Sclerolaena densiflora																																											
Sclerolaena limbata																																											
Senna artemisioides subsp. *helmsii*	x	x	x				x					x		x		x	x		x	x	x	x	x	x	x						x										x	
Senna artemisioides subsp. *oligophylla*											x																																
Senna ferraria																																											
Senna ?glutinosa																																			x								
Senna glutinosa subsp. *glutinosa*																			x																								
Senna glutinosa subsp. *pruinosa*																																								x			
Senna notabilis						x			x		x		x			x								x																			
Senna ?symonii																																											
Sesbania cannabina																																											
Setaria sp.																																											
**Setaria verticillata*											x																																
Sida clementii																																											
Sida echinocarpa																																											
Sida fibulifera		x																																									
Sida rohlenae subsp. *rohlenae*																																											
Sida sp.			x				x		x		x	x					x					x		x														x		x			
Sida spinosa																																											
Sida trichopoda																																											
Solanum centrale																																											
Solanum ?dioicum																																											
Solanum diversiflorum									x							x											x																
Solanum lasiophyllum					x														x									x									x					
Solanum morrisonii																			x													x										
Solanum sp.																																											

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Sorghum timorense																																										
Sporobolus australasicus	x	x	x								x	x		x							x	x		x			x															
Stemodia grossa																							x			x	x					x										
Stemodia kingii																																										
Streptoglossa bubakii																																										
Streptoglossa tenuiflora																																										
Stylobasium spathulatum																																										
Swainsona formosa																																										
Swainsona stenodonta																																										
Tephrosia ?clementii																																										
Tephrosia rosea															x	x										x				x						x						
Tephrosia rosea var. *clementii*													x																													
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186)																																										
Tephrosia sp.																																										
Tephrosia sp. B Kimberley Flora (C.A. Gardner 7300)																																										
Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)									x																																	
Tephrosia uniovulata																																										
Themeda triandra								x																																		
Trachymene oleracea																																x		x								
Trianthema cussackiana																																										
Tribulus astrocarpus																																										
Tribulus hirsutus																																										
Tribulus platypterus																																										
Tribulus suberosus																																										
**Tribulus terrestris*																																										
Trichodesma zeylanicum														x	x	x		x														x		x	x							
Trichodesma zeylanicum var. *zeylanicum*																																										
Triodia brizoides																																										
Triodia longiceps																																										
Triodia ?melvillei																																										
Triodia pungens	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x
Triodia sp.																																										
Triodia wiseana					x																								x				x									
Triumfetta appendiculata																																										
Triumfetta clementii																																										
Triumfetta maconochieana																																										
Urochloa occidentalis	x		x				x									x						x																				
**Vachellia farnesiana*																																										
Velleia connata																																										
Waltheria indica															x																											
Waltheria virgata																																										

APPENDIX F: VASCULAR PLANT SPECIES BY VEGETATION COMMUNITY WITHIN THE FRGP PROJECT AREA, 2013

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	VEGETATION COMMUNITY																														
SPECIES	**CD1**	**CD2**	**CD3**	**CD4**	**CD5**	**CD6**	**CD7**	**CD8**	**CD6**	**FL1**	**FL10**	**FL11**	**FL12**	**FL13**	**FL14**	**FL15**	**FL2**	**FL3**	**FL4**	**FL5**	**FL6**	**FL7**	**FL8**	**FL9**	**MR1**	**MR2**	**MR3**	**MR4**	**MR5**	**MR6**	**MR7**
Abutilon cunninghamii				x							x																				
Abutilon ?fraseri																									x						
Abutilon lepidum								x							x			x							x		x	x	x		x
Abutilon ?malvifolium				x																											
Acacia acradenia																									x						
Acacia ampliceps			x	x					x																						
Acacia ancistrocarpa	x	x		x			x	x			x		x									x	x	x	x		x		x		
Acacia aneura							x				x				x								x								
Acacia aneura group											x											x	x								
Acacia atkinsiana		x			x		x				x		x		x		x					x	x	x	x				x		x
Acacia bivenosa	x	x	x	x		x			x		x		x	x			x	x				x	x	x	x		x	x	x	x	
Acacia citrinoviridis		x		x			x	x			x				x								x								
Acacia colei		x									x						x					x	x					x			
Acacia colei var. *colei*											x											x	x								
Acacia colei var. *ileocarpa*				x			x				x											x					x				
Acacia coriacea		x		x																											
Acacia dictyophleba				x			x	x			x		x									x									
Acacia ?elachantha																						x									
Acacia inaequilatera	x	x			x		x		x		x						x				x	x		x	x		x	x	x		x
Acacia maitlandii	x				x																			x	x						x
Acacia monticola	x				x																	x	x		x	x					
Acacia orthocarpa																									x						
Acacia pruinocarpa							x				x											x									
Acacia pyrifolia	x	x	x	x	x	x	x	x			x		x			x	x					x	x		x	x		x	x		
Acacia sclerosperma subsp. *sclerosperma*	x										x																				
Acacia ?sibirica															x																
Acacia sp.	x				x								x		x		x					x			x		x				
Acacia spondylophylla								x					x																		
Acacia synchronicia	x									x	x			x			x	x	x			x	x	x	x						
Acacia tenuissima											x																				
Acacia trachycarpa	x	x	x	x			x	x			x	x											x			x					

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Acacia tumida							x	x			x		x				x														
Acacia tumida var. *pilbarensis*	x	x		x	x						x		x									x		x				x			
Acacia wanyu																						x									
Acacia xiphophylla										x					x	x		x	x					x	x					x	
Achyranthes aspera				x																											
**Aerva javanica*	x																		x												
Alternanthera nana		x					x						x										x								
Alternanthera nodiflora		x																				x	x								
Alysicarpus muelleri																x					x					x		x			
Amaranthus undulatus			x																												
Amphipogon sericeus																								x	x						
Angianthus acrohyalinus										x							x														
Aristida anthoxanthoides		x								x											x										
Aristida contorta		x			x				x		x				x						x	x					x				
Aristida holathera								x			x					x						x	x	x								
Aristida holathera var. *holathera*				x	x						x							x	x					x			x	x	x		
Aristida latifolia											x				x	x			x				x								
Aristida obscura																x															
Asteraceae sp.																x						x	x								
Astrebla lappacea (P3)																x															
Astrebla pectinata																x															
Atalaya hemiglauca								x								x															
Austrobryonia pilbarensis																				x											
Boerhavia burbidgeana																			x		x										
Boerhavia coccinea	x			x	x														x								x	x	x		
Boerhavia gardneri				x																							x	x	x		
Boerhavia sp.							x				x					x							x								
Bonamia erecta	x			x	x						x		x				x	x				x		x					x		
Bonamia pannosa																	x														
Bonamia sp.							x				x				x														x		
Bonamia sp. Dampier (A.A. Mitchell PRP 217)															x		x												x		

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Bothriochloa ewartiana											x		x			x						x	x								
Brachyachne convergens							x								x	x			x				x								
Cajanus cinereus			x	x																								x	x		
Calocephalus knappii				x						x					x						x										
Calocephalus sp. Wittenoom (A.S. George 1082)																x															
Carissa lanceolata				x																											
Cassytha ?capillaris																									x			x			
Cassytha sp.											x														x			x			
**Cenchrus ciliaris*	x	x	x	x	x	x	x	x		x	x				x		x					x	x	x	x		x				
Centipeda minima subsp. *macrocephala*		x																													
Cheilanthes sieberi		x																													
Chloris pumilio																x							x								
Chrysopogon fallax		x		x			x				x		x		x	x	x						x								
Citrullus sp.																				x											
Cleome viscosa				x			x	x			x		x		x	x					x	x	x					x			
Codonocarpus cotinifolius											x		x												x						
Corchorus lasiocarpus							x	x																							
Corchorus lasiocarpus subsp. *parvus*									x			x																			
Corchorus sidoides subsp. *vermicularis*																						x									
Corchorus sp.											x		x																		
Corchorus tectus	x		x	x			x	x			x		x		x		x	x				x			x		x	x	x		
Corchorus walcottii							x	x													x										
Corymbia aspera																						x		x							
Corymbia candida		x											x				x					x		x							
Corymbia candida subsp. *candida*		x																													
Corymbia ferriticola		x																													
Corymbia hamersleyana	x	x	x	x	x	x	x	x			x	x	x			x	x					x	x	x	x		x		x		
Corymbia sp.																	x														
Crotalaria cunninghamii				x																								x			
Crotalaria medicaginea				x																		x									
Crotalaria medicaginea var. *neglecta*							x																					x			

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Cucumis maderaspatanus		x		x			x	x			x											x						x	x		
Cucumis sp.				x																		x						x			
Cullen cinereum								x								x				x											
Cullen lachnostachys							x					x																			
Cullen leucanthum				x																											
Cullen martinii							x								x		x														
Cymbopogon ambiguus				x				x																							
Cymbopogon obtectus	x	x	x	x	x	x	x		x		x						x							x	x			x	x		x
Cymbopogon sp.																									x						
**Cynodon dactylon*		x																													
Cyperus hesperius																									x						x
Cyperus vaginatus	x	x	x	x				x																							
Dactyloctenium radulans						x																									
Dampiera candicans							x																								
Desmodium muelleri																				x											
Dichanthium sericeum																x							x								
Dichanthium sericeum subsp. *humilius*																x															
Dichanthium sp.										x																					
Digitaria brownii																							x								
Dodonaea coriacea											x											x			x						
Duperreya commixta		x					x				x											x									
Dysphania kalpari	x	x					x	x		x	x		x		x		x					x		x	x		x	x			
Ehretia saligna							x																								
Ehretia sp.																x															
Enchylaena tomentosa										x													x	x							
Enneapogon caerulescens			x		x				x									x		x	x					x		x			
Enneapogon lindleyanus															x																
Enneapogon sp.																							x								
Enteropogon ramosus				x																											
Eragrostis cumingii		x					x	x															x								
Eragrostis dielsii																x															

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Eragrostis setifolia																x						x									
Eragrostis tenellula		x					x								x																
Eragrostis xerophila										x					x	x			x		x										
Eremophila fraseri																											x				
Eremophila latrobei										x																					
Eremophila longifolia		x	x	x									x										x	x							x
Eriachne aristidea							x	x	x		x				x	x					x							x			
Eriachne benthamii			x	x																					x						
Eriachne flaccida																	x							x					x		
Eriachne mucronata													x												x						x
Eriachne obtusa																x															
Eriachne pulchella				x			x	x		x	x				x							x			x		x				
Eriachne pulchella subsp. *pulchella*																	x														
Eriachne sp.																						x			x						
Eucalyptus camaldulensis		x		x																											
Eucalyptus leucophloia	x			x				x														x	x		x						
Eucalyptus leucophloia subsp. *leucophloia*						x																x		x	x						
Eucalyptus sp.																				x											
Eucalyptus victrix			x	x			x	x																	x						
Eulalia aurea				x			x				x	x	x		x							x	x								
Euphorbia australis				x				x			x		x														x				
Euphorbia boophthona		x						x													x										
Euphorbia coghlanii			x	x						x									x				x					x			
Euphorbia drummondii				x				x									x											x			
Euphorbia tannensis subsp. *eremophila*			x																												
Euphorbia vaccaria var. *vaccaria*																	x														
Evolvulus alsinoides	x		x	x	x		x				x						x				x		x				x	x			
Evolvulus alsinoides var. *villosicalyx*							x	x			x				x							x	x								
Ficus aculeata				x																											
Ficus ?brachypoda			x										x												x						
**Flaveria trinervia*				x												x															

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Glycine canescens				x																											
Gomphrena affinis subsp. *pilbarensis*										x																					
Gomphrena canescens																							x				x				
Gomphrena cunninghamii							x	x		x					x										x			x	x		x
Gomphrena sp.	x												x				x										x	x	x		
Goodenia lamprosperma		x	x	x			x																								
Goodenia microptera				x											x							x							x		
Goodenia muelleriana																					x	x					x	x	x		
Goodenia pascua																	x		x								x				
Goodenia scaevolina																						x		x					x		
Goodenia sp.							x	x			x		x		x	x															
Goodenia stobbsiana			x	x	x						x		x												x		x				
Goodenia tenuiloba		x									x						x														
Gossypium australe	x		x	x	x		x	x			x		x				x	x					x	x				x	x		
Gossypium robinsonii	x	x		x			x	x			x						x								x						x
Grevillea pyramidalis				x	x		x																		x			x	x		
Grevillea pyramidalis subsp. *leucadendron*				x			x				x						x											x	x		
Grevillea wickhamii				x			x	x			x	x	x				x					x		x	x				x		
Hakea chordophylla							x																	x	x				x		
Hakea lorea	x				x		x		x		x				x							x	x	x	x				x	x	
Haloragis gossei var. *gossei*																	x										x				
Heliotropium crispatum													x						x	x								x			
Heliotropium cunninghamii											x					x					x										
Heliotropium heteranthum										x							x												x		
Heliotropium ?inexplicitum																			x												
Heliotropium ?ovalifolium																									x						
Heteropogon contortus				x																											
Hibiscus austrinus var. *austrinus*				x																											
Hibiscus brachysiphonius																			x	x											
Hibiscus burtonii																	x														
Hibiscus coatesii																	x								x						

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Hibiscus leptocladus																	x														
Hibiscus sp.				x																											
Hibiscus sturtii																	x					x	x	x							
Hibiscus sturtii var. *campylochlamys*															x		x														
Hibiscus sturtii var. *platychlamys*															x			x											x		
Hibiscus verdcourtii																x															
Hybanthus aurantiacus	x			x			x	x					x				x					x									
Indigofera boviperda subsp. *boviperda*		x											x				x					x		x	x						
Indigofera colutea								x			x		x			x															
Indigofera linifolia			x	x						x							x						x				x	x	x		
Indigofera monophylla	x			x	x	x	x	x			x		x				x					x	x	x	x		x		x		
Indigofera rugosa																									x			x			
Indigofera trita																x												x	x		
Indigofera trita subsp. *trita*																			x												
Ipomoea muelleri		x		x																		x						x			
Ipomoea sp.							x																								
Iseilema ?eremaeum																x							x								
Iseilema membranaceum																x															
Iseilema sp.											x				x	x					x				x						
Iseilema vaginiflorum							x																								
Isotropis atropurpurea		x			x								x				x					x									
Isotropis forrestii																							x								
Jasminum didymum							x				x																				
Jasminum didymum subsp. *lineare*		x		x		x																		x	x						
**Jatropha gossypiifolia*	x																														
Keraudrenia sp.											x																				
Keraudrenia ?velutina											x																				
Lepidium pedicellosum																		x													
Lotus cruentus										x									x												
Maireana melanocoma																		x						x	x						
Maireana planifolia										x								x													

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Maireana sp.																									x						
Maireana tomentosa subsp. *tomentosa*																		x													
Malvaceae sp.											x											x									
**Malvastrum americanum*	x	x	x	x						x						x			x	x	x		x					x			
Marsdenia australis				x									x																		
Marsilea hirsuta		x		x											x																
Melaleuca bracteata				x																											
Melaleuca lasiandra				x																											
Melhania oblongifolia				x																											
**Melochia pyramidata*				x																											
Mollugo molluginea						x					x		x									x			x		x		x		
Neptunia dimorphantha							x									x			x		x										
Nicotiana occidentalis										x									x												
Notoleptopus decaisnei var. *decaisnei*				x																											
**Ocimum basilicum*	x	x	x																												
Oldenlandia crouchiana																											x		x		
Operculina aequisepala																x			x												
Panicum decompositum																x				x											
Panicum sp.																			x												
Paraneurachne muelleri											x	x										x						x			
Paspalidium basicladum											x																				
Pentalepis trichodesmoides							x	x																							
Petalostylis cassioides																									x	x					
Petalostylis labicheoides	x			x	x			x					x				x	x							x	x					
Phyllanthus maderaspatensis		x	x	x	x		x						x						x	x		x		x	x				x		
Pimelea ammocharis																						x									
Pluchea dentex				x																											
Pluchea dunlopii							x																								
Pluchea rubelliflora			x	x			x																								
Pluchea sp.																							x								
Poaceae sp.				x															x	x	x			x					x		

APPENDIX F: VASCULAR PLANT SPECIES BY VEGETATION COMMUNITY WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species; T - Threatened Flora, P1 - P5 denotes Priority Flora Species (DPaW, 2013g)

	VEGETATION COMMUNITY																														
SPECIES	**CD1**	**CD2**	**CD3**	**CD4**	**CD5**	**CD6**	**CD7**	**CD8**	**CD6**	**FL1**	**FL10**	**FL11**	**FL12**	**FL13**	**FL14**	**FL15**	**FL2**	**FL3**	**FL4**	**FL5**	**FL6**	**FL7**	**FL8**	**FL9**	**MR1**	**MR2**	**MR3**	**MR4**	**MR5**	**MR6**	**MR7**
Polycarpaea corymbosa				x			x																		x						
Polycarpaea holtzei																						x			x						
Polycarpaea longiflora							x	x																	x						
Polymeria ambigua							x	x								x															
Polymeria sp.								x																			x		x		
Portulaca oleracea																			x		x			x			x				
Portulaca pilosa				x																											
Proteaceae sp.		x																													
Pterocaulon sphacelatum				x			x				x					x		x				x	x	x				x			
Ptilotus aervoides										x						x					x						x		x		
Ptilotus appendiculatus			x																			x		x							
Ptilotus astrolasius				x							x											x		x	x		x	x	x		
Ptilotus axillaris	x									x			x				x					x					x	x			
Ptilotus calostachyus	x				x		x		x		x		x		x	x			x						x		x	x	x		
Ptilotus carinatus																			x										x		
Ptilotus clementii																	x										x				
Ptilotus gomphrenoides															x	x															
Ptilotus gomphrenoides var. *gomphrenoides*					x														x										x		
Ptilotus murrayi										x																					
Ptilotus nobilis	x	x		x	x	x	x		x	x	x	x	x	x	x	x	x	x	x		x	x	x	x	x		x		x		
Ptilotus obovatus	x			x	x		x				x		x										x	x	x		x	x			
Ptilotus obovatus var. *obovatus*									x	x	x	x			x								x		x						
Ptilotus polystachyus													x			x															
Ptilotus rotundifolius											x																				
Ptilotus sp.																			x												
Rhagodia eremaea										x					x																
Rhynchosia minima	x	x	x	x			x	x	x	x	x					x			x			x	x	x	x		x	x	x		
Rhynchosia sp.																	x														
Rostellularia adscendens															x	x							x								
Rostellularia adscendens var. *clementii*													x			x															
Salsola australis	x						x	x		x			x		x	x		x					x				x				

APPENDIX F: VASCULAR PLANT SPECIES BY VEGETATION COMMUNITY WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species; T - Threatened Flora, P1 - P5 denotes Priority Flora Species (DPaW, 2013g)

	VEGETATION COMMUNITY																														
SPECIES	**CD1**	**CD2**	**CD3**	**CD4**	**CD5**	**CD6**	**CD7**	**CD8**	**CD6**	**FL1**	**FL10**	**FL11**	**FL12**	**FL13**	**FL14**	**FL15**	**FL2**	**FL3**	**FL4**	**FL5**	**FL6**	**FL7**	**FL8**	**FL9**	**MR1**	**MR2**	**MR3**	**MR4**	**MR5**	**MR6**	**MR7**
Salsola sp.															x																
Santalum spicatum				x																											
Sarcostemma viminale										x								x													
Scaevola parvifolia											x		x									x									
Scaevola spinescens											x											x		x	x				x		
Schoenoplectus subulatus			x																												
Sclerolaena cornishiana							x								x																
Sclerolaena densiflora										x				x				x							x						
Sclerolaena limbata																									x					x	
Senna artemisioides subsp. *helmsii*							x	x			x				x	x							x								
Senna artemisioides subsp. *oligophylla*	x	x	x	x	x	x				x	x		x				x	x			x	x		x	x		x		x		
Senna ferraria																													x		
Senna ?glutinosa										x	x				x			x	x						x				x		
Senna glutinosa subsp. *glutinosa*	x		x		x					x	x						x	x			x	x		x	x	x	x	x	x		x
Senna glutinosa subsp. *pruinosa*	x		x								x			x			x	x			x	x		x	x		x	x	x		
Senna notabilis			x	x			x	x		x	x	x			x		x			x		x					x	x			
Senna ?symonii																									x						
Sesbania cannabina		x	x	x																											
Setaria sp.																x															
**Setaria verticillata*				x							x																				
Sida clementii																													x		
Sida echinocarpa	x								x		x				x		x										x		x		
Sida fibulifera	x			x							x					x	x						x								
Sida rohlenae subsp. *rohlenae*	x			x															x						x						
Sida sp.					x		x				x				x	x	x		x								x				
Sida spinosa				x												x	x		x	x									x		
Sida trichopoda	x			x						x									x		x								x		
Solanum centrale																x															
Solanum ?dioicum																												x			
Solanum diversiflorum	x			x			x	x			x	x			x	x	x					x			x		x	x	x		
Solanum lasiophyllum								x		x	x								x												

APPENDIX F: VASCULAR PLANT SPECIES BY VEGETATION COMMUNITY WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species; T - Threatened Flora, P1 - P5 denotes Priority Flora Species (DPaW, 2013g)

	VEGETATION COMMUNITY																														
SPECIES	**CD1**	**CD2**	**CD3**	**CD4**	**CD5**	**CD6**	**CD7**	**CD8**	**CD6**	**FL1**	**FL10**	**FL11**	**FL12**	**FL13**	**FL14**	**FL15**	**FL2**	**FL3**	**FL4**	**FL5**	**FL6**	**FL7**	**FL8**	**FL9**	**MR1**	**MR2**	**MR3**	**MR4**	**MR5**	**MR6**	**MR7**
Solanum morrisonii											x		x																		
Solanum sp.	x																		x								x	x	x		
Sorghum timorense																			x												
Sporobolus australasicus		x		x			x			x	x		x		x	x							x				x				
Stemodia grossa			x	x			x						x														x				
Stemodia kingii										x						x				x											
Streptoglossa bubakii										x						x			x		x	x			x				x		
Streptoglossa tenuiflora										x																					
Stylobasium spathulatum	x			x																											
Swainsona formosa																						x							x		
Swainsona stenodonta																	x											x			
Tephrosia ?clementii																	x														
Tephrosia rosea			x	x			x	x								x						x						x			
Tephrosia rosea var. *clementii*				x				x																							
Tephrosia rosea var. Fortescue creeks (M.I.H. Brooker 2186	x																		x												x
Tephrosia sp.							x				x														x				x		
*Tephrosia s*p. B Kimberley Flora (C.A. Gardner 7300)				x																											
Tephrosia sp. Bungaroo Creek (M.E. Trudgen 11601)											x	x					x							x							
Tephrosia uniovulata													x				x					x		x					x		
Themeda triandra	x	x		x			x				x	x			x	x							x								
Trachymene oleracea				x				x					x				x					x									
Trianthema cussackiana										x																					
Tribulus astrocarpus										x																					
Tribulus hirsutus																											x				
Tribulus platypterus	x																										x	x	x		
Tribulus suberosus																									x						
**Tribulus terrestris*																x															
Trichodesma zeylanicum	x	x	x	x		x	x	x			x		x			x	x		x			x		x	x		x	x	x		
Trichodesma zeylanicum var. *zeylanicum*									x																						
Triodia brizoides																					x										
Triodia longiceps														x										x							

APPENDIX F: VASCULAR PLANT SPECIES BY VEGETATION COMMUNITY WITHIN THE FRGP PROJECT AREA, 2013

Note: * denotes introduced species; T - Threatened Flora, P1 - P5 denotes Priority Flora Species (DPaW, 2013g)

	VEGETATION COMMUNITY																													
SPECIES	**CD1**	**CD2**	**CD3**	**CD4**	**CD5**	**CD6**	**CD7**	**CD8**	**CD6**	**FL1**	**FL10**	**FL11**	**FL12**	**FL13**	**FL14**	**FL15**	**FL2**	**FL3**	**FL4**	**FL5**	**FL6**	**FL7**	**FL8**	**FL9**	**MR1**	**MR2**	**MR3**	**MR4**	**MR5**	**MR6**	**MR7**
Triodia ?melvillei																									x						
Triodia pungens	x	x	x	x			x	x		x	x		x	x	x	x	x					x	x	x					x		
Triodia sp.										x							x														
Triodia wiseana				x	x	x			x	x	x		x	x			x	x	x			x		x	x	x	x	x	x	x	x
Triumfetta appendiculata				x																											
Triumfetta clementii				x											x		x	x							x		x	x	x		
Triumfetta maconochieana																	x														
Urochloa occidentalis								x							x	x							x								
**Vachellia farnesiana*	x	x	x	x						x						x				x	x				x				x		
Velleia connata												x																			
Waltheria indica		x	x	x				x																				x			
Waltheria virgata					x																				x						

APPENDIX G: VEGETATION COMMUNITY DESCRIPTIONS FOR THE FORTESCUE RIVER GAS PIPELINE (FRGP) PROJECT, 2013

Mapping Code	Vegetation Community Description	Representative Plate of Community
FL1	*Acacia xiphophylla*, *Acacia synchronicia*, *Acacia bivenosa* tall sparse shrubland and *Senna notabilis*, *Senna artemisioides* subsp. *oligophylla*, *Senna glutinosa* subsp. *glutinosa* mid isolated shrubs over *Salsola australis*, *Enchylaena tomentosa, Maireana planifolia* low isolated chenopod shrubs with *Eragrostis xerophila*, *Sporobolus australasicus* low isolated tussock grasses and *Triodia pungens*, *Triodia wiseana* low open hummock grassland. **Other Associated Species:** *Angianthus acrohyalinus, Dysphania kalpari, Heliotropium heteranthum, Ptilotus nobilis* and *Sida trichopoda*. **Soils and Landform:** Red/brown clay loam with sparse pebbles on flats. **Outcropping:** N/A **Condition:** Very Good to Pristine **Plate Details:** Survey Site 1-6 **No. of Quadrats:** 7 **Similarity Percentage:** 35.9	
FL2	*Corymbia hamersleyana* low isolated clumps of trees over *Acacia inaequilatera*, *Acacia bivenosa*, *Acacia tumida* var. *pilbarensis* tall sparse shrubland and *Cullen martini*, *Senna notabilis*, *Trichodesma zeylanicum* var. *zeylanicum* mid isolated shrubs over *Tephrosia uniovulata*, *Isotropis atropurpurea*, *Corchorus tectus* low sparse shrubs and *Triodia wiseana* low sparse hummock grassland. **Other Associated Species:** *Acacia synchronicia, Bonamia erecta, Bonamia pannosa, Evolvulus alsinoides, Goodenia tenuiloba, Indigofera monophylla, Solanum diversiflorum* and *Triumfetta clementii*. **Soils and Landform:** Red/brown sandy loam with occasional red clayey loam on flats to lower slopes. **Outcropping:** N/A **Condition:** Good to Excellent **Plate Details:** Survey Site 1-143 **No. of Quadrats:** 9 **Similarity Percentage:** 28.2	

APPENDIX G: VEGETATION COMMUNITY DESCRIPTIONS FOR THE FORTESCUE RIVER GAS PIPELINE (FRGP) PROJECT, 2013

Mapping Code	Vegetation Community Description	Representative Plate of Community
FL3	*Acacia xiphophylla*, *Acacia synchronicia*, *Acacia bivenosa* tall sparse shrubland over *Senna glutinosa* subsp. *glutinosa*, *Sarcostemma viminale*, *Hibiscus sturtii* var. *platychlamys* mid isolated shrubs over *Triodia wiseana* low sparse hummock grassland. **Other Associated Species:** *Aristida holathera* var. *holathera, Enneapogon caerulescens, Maireana planifolia, Maireana melanocoma, Maireana tomentosa* subsp. *tomentosa* and *Salsola australis*. **Soils and Landform:** Red sandy loam with compact pebbles and rock fragments on flats to lower slopes. **Outcropping:** Occasional breakaways with ironstone outcropping **Condition:** Excellent to Pristine **Plate Details:** Survey Site 1-151 **No. of Quadrats:** 9 **Similarity Percentage:** 60.8	
FL4	*Streptoglossa bubakii*, *Phyllanthus maderaspatensis, Sida trichopoda* low sparse forbland with *Aristida latifolia, Brachyachne convergens, Eragrostis xerophila* low sparse tussock grassland and *Triodia wiseana* low open hummock grassland. **Other Associated Species:** *Euphorbia coghlanii, Heliotropium crispatum, Indigofera trita* subsp. *trita, Ptilotus carinatus, Ptilotus gomphrenoides* subsp. *gomphrenoides, Rhynchosia minima* and *Sida spinosa*. **Soils and Landform:** Deep, red clayey loam with compact rock fragments on flats. **Outcropping:** N/A **Condition:** Good to Excellent **Plate Details:** Survey Site 1-121 **No. of Quadrats:** 7 **Similarity Percentage:** 33.5	

APPENDIX G: VEGETATION COMMUNITY DESCRIPTIONS FOR THE FORTESCUE RIVER GAS PIPELINE (FRGP) PROJECT, 2013

Mapping Code	Vegetation Community Description	Representative Plate of Community
FL5	*Sida spinosa, Phyllanthus maderaspatensis, Cullen cinereum* low sparse shrubland with *Stemodia kingii, Heliotropium crispatum, Desmodium muelleri* low sparse forbland and *Panicum decompositum, Enneapogon caerulescens* low sparse tussock grassland. **Other Associated Species:** *Hibiscus brachysiphonius, *Malvastrum americanum, Senna notabilis* and **Vachellia farnesiana.* **Soils and Landform:** Red clayey loam with scattered ironstone rocks on flats **Outcropping:** N/A **Condition:** Good **Plate Details:** Survey Site 1-145 **No. of Quadrats:** 2 **Similarity Percentage:** 38.0	
FL6	*Acacia ineaquilatera* tall open shrubland over *Senna glutinosa* subsp. *glutinosa, Senna glutinosa* subsp. *pruinosa, *Vachellia farnesiana* mid sparse shrubland over *Eriachne aristidea*, *Enneapogon caerulescens*, *Aristida anthoxanthoides* low sparse tussock grassland and *Triodia brizoides* low open hummock grassland. **Other Associated Species:** *Boerhavia burbidgeana, Calocephalus knappii, Corchorus walcottii, Evolvulus alsinoides, Heliotropium cunninghamii, Ptilotus aervoides* and *Sida trichopoda.* **Soils and Landform:** Red loamy clay with compact ironstone and quartz pebbles on flats and lower slopes. **Outcropping:** N/A **Condition:** Very Good to Excellent **Plate Details:** Survey Site …1-146 **No. of Quadrats:** 2 **Similarity Percentage:** 12.5	

APPENDIX G: VEGETATION COMMUNITY DESCRIPTIONS FOR THE FORTESCUE RIVER GAS PIPELINE (FRGP) PROJECT, 2013

Mapping Code	Vegetation Community Description	Representative Plate of Community
FL7	*Acacia ancistrocarpa*, *Acacia colei* var. *colei*, *Acacia dictyophleba* tall sparse shrubland over *Ptilotus astrolasius*, *Pterocaulon sphacelatum*, *Indigofera boviperda* subsp. *boviperda* low sparse shrubland over *Triodia pungens*, *Triodia wiseana* low open hummock grassland. **Other Associated Species:** *Acacia atkinsiana, Acacia bivenosa, Acacia pyrifolia, Acacia tumida* var. *pilbarensis, Corymbia hamersleyana, Grevillea wickhamii and Senna artemisioides* subsp. *oligophylla*. **Soils and Landform:** Red/brown clayey loam with occasionally cracking clay or scattered pebbles on flats. **Outcropping:** N/A **Condition:** Very Good to Pristine **Plate Details:** Survey Site 1-54 **No. of Quadrats:** 17 **Similarity Percentage:** 43%	
FL8	*Acacia ancistrocarpa*, *Acacia bivenosa*, *Acacia synchronicia* tall sparse shrubland over *Gossypium australe*, *Eremophila longifolia*, *Senna artemisioides* subsp. *helmsii* mid sparse shrubland over *Triodia pungens* low sparse hummock grassland and *Eulalia aurea*, *Chrysopogon fallax*, *Bothriochloa ewartiana* low open tussock grassland. **Other Associated Species:** *Acacia aneura, Acacia colei* var. *colei, Acacia trachycarpa, Aristida latifolia, Corymbia hamersleyana, Indigofera monophylla, Rhynchosia minima* and *Sporobolus australasicus*. **Soils and Landform:** Red/Brown clayey loam on flats. **Outcropping:** N/A **Condition:** Excellent to Pristine. **Plate Details:** Survey Site 2-56 **No. of Quadrats:** 6 **Similarity Percentage:** 40.6%	

APPENDIX G: VEGETATION COMMUNITY DESCRIPTIONS FOR THE FORTESCUE RIVER GAS PIPELINE (FRGP) PROJECT, 2013

Mapping Code	Vegetation Community Description	Representative Plate of Community
FL9	*Acacia atkinsiana*, *Acacia ancistrocarpa*, *Acacia bivenosa* tall sparse shrubland over *Senna artemisioides* subsp. *oligophylla*, *Senna glutinosa* subsp. *glutinosa*, *Scaevola spinescens* mid sparse shrubland over *Triodia wiseana*, *Triodia longiceps* low open hummock grassland. **Other Associated Species:** *Acacia inaequilatera, Acacia synchronicia, Acacia tumida* var. *pilbarensis, Eremophila longifolia, Hibiscus sturtii, Ptilotus appendiculatus* and *Tephrosia rosea*. **Soils and Landform:** Red/brown clayey loam to red clay with pebbles on flats. **Outcropping:** N/A **Condition:** Excellent to Pristine **Plate Details:** Survey Sites 1-62 **No. of Quadrats:** 17 **Similarity Percentage:** 54.7%	
FL10	*Corymbia hamersleyana* low open woodland over *Acacia trachycarpa*, *Acacia ancistrocarpa, Acacia dictyophleba* tall open shrubland and *Gossypium australe*, *Grevillea wickhamii*, *Senna artemisioides* subsp. *helmsii* mid sparse shrubland over *Triodia pungens*, *Triodia wiseana* low open hummock grassland and *Eulalia aurea*, *Aristida latifolia*, *Themeda triandra* low sparse tussock grassland. **Other Associated Species:** *Acacia colei* var. *colei*, *Acacia inaequilatera*, *Bonamia erecta*, *Corchorus tectus*, *Indigofera monophylla*, *Ptilotus nobilis*, *Ptilotus obovatus* var. *obovatus* and *Ptilotus calostachyus.* **Soils and Landform:** Red/brown clay loam with ironstone pebbles on flats. **Outcropping:** N/A **Condition:** Excellent to Pristine **Plate Details:** Survey Site 2-31 **No. of Quadrats:** 31 **Similarity Percentage:** 39.2%	

APPENDIX G: VEGETATION COMMUNITY DESCRIPTIONS FOR THE FORTESCUE RIVER GAS PIPELINE (FRGP) PROJECT, 2013

Mapping Code	Vegetation Community Description	Representative Plate of Community
FL11	*Corymbia hamersleyana* low open woodland over *Acacia trachycarpa*, *Cullen lachnostachys*, *Grevillea wickhamii* mid sparse shrubland over *Themeda triandra*, *Eulalia aurea*, *Paraneurachne muelleri* low sparse tussock grassland. **Other Associated Species:** *Corchorus lasiocarpus subsp. parvus, Senna notabilis* and *Solanum diversiflorum.* **Soils and Landform:** Red/brown sandy clay loam on flats. **Outcropping:** N/A **Condition:** Excellent **Plate Details:** Survey Site 1-174 **No. of Quadrats:** 1 **Similarity Percentage:** N/A	
FL12	*Corymbia hamersleyana* low open woodland over *Grevillea wickhamii*, *Acacia ancistrocarpa*, *Acacia bivenosa* tall sparse shrubland and *Gossypium australe*, *Acacia dictyophleba* mid sparse shrubland over *Bonamia erecta*, *Corchorus tectus*, *Ptilotus obovatus* var. *obovatus* low sparse shrubland and *Triodia pungens*, *Triodia wiseana* low open hummock grassland. **Other Associated Species:** *Acacia tumida* var. *pilbarensis, Indigofera boviperda* subsp. *boviperda, Isotropis atropurpurea, Ptilotus calostachyus, Ptilotus nobilis, Tephrosia uniovulata.* **Soils and Landform:** Red/brown clay loam on flats. **Outcropping:** N/A **Condition:** Excellent to Pristine **Plate Details:** Survey Site 2-46 **No. of Quadrats:** 3 **Similarity Percentage:** 43.4%	

APPENDIX G: VEGETATION COMMUNITY DESCRIPTIONS FOR THE FORTESCUE RIVER GAS PIPELINE (FRGP) PROJECT, 2013

Mapping Code	Vegetation Community Description	Representative Plate of Community
FL13	*Acacia bivenosa*, *Acacia synchronicia* tall isolated shrubs over *Triodia longiceps*, *Triodia pungens* low sparse hummock grassland. **Other Associated Species:** *Ptilotus nobilis, Sclerolaena densiflora, Senna glutinosa* subsp. *pruinosa and Triodia wiseana*. **Soils and Landform:** Red clay loam with gravel on flats. **Outcropping:** N/A **Condition:** Excellent **Plate Details:** Survey Site 1-39 **No. of Quadrats:** 2 **Similarity Percentage:** 39.7%	
FL14	*Acacia xiphophylla*, *Acacia atkinsiana* tall sparse shrubland and *Senna artemisioides* subsp. *helmsii*, *Senna notabilis*, *Hibiscus sturtii* mid sparse shrubland over *Triodia pungens* low open hummock grassland and *Eulalia aurea*, *Sporobolus australasicus*, *Chrysopogon fallax* low sparse tussock grassland. **Other Associated Species:** *Aristida latifolia, Corchorus tectus, Eragrostis xerophila, Goodenia microptera, Ptilotus nobilis* and *Urochloa occidentalis* **Soils and Landform:** Red clay loam on flats. **Outcropping:** N/A **Condition:** Very Good to Pristine **Plate Details:** Survey Site 2-21 **No. of Quadrats:** 6 **Similarity Percentage:** 27.7%	

APPENDIX G: VEGETATION COMMUNITY DESCRIPTIONS FOR THE FORTESCUE RIVER GAS PIPELINE (FRGP) PROJECT, 2013

Mapping Code	Vegetation Community Description	Representative Plate of Community
FL15	*Astrebla lappacea* (P3), *Aristida latifolia*, *Panicum decompositum* low tussock grassland. **Other Associated Species:** *Aristida holathera* var. *holathera, Aristida obscura, Astrebla pectinata, Bothriochloa ewartiana, Brachyachne convergens, Dichanthium sericeum, Eragrostis setifolia, Eragrostis xerophila, Indigofera trita* subsp. *trita, Iseilema eremaeum, Operculina aequisepala, Ptilotus nobilis, Rhynchosia minima, Senna artemisioides* subsp. *helmsii* and *Urochloa occidentalis.* **Soils and Landform:** Red/brown clayey loam with cracking clay on flats. **Outcropping:** N/A **Condition:** Excellent to Pristine **Plate Details:** Survey Site 2-13 **No. of Quadrats:** 6 **Similarity Percentage:** 45.2%	
MR1	*Eucalyptus leucophloia* subsp. *leucophloia*, *Corymbia hamersleyana* low isolated trees over *Acacia bivenosa*, *Acacia ancistrocarpa*, *Acacia inaequilatera* tall sparse shrubland and *Senna glutinosa* subsp. *glutinosa*, *Senna glutinosa* subsp. *pruinosa*, *Acacia maitlandii* mid isolated shrubs over *Triodia wiseana* low open hummock grassland. **Other Associated Species:** *Acacia orthocarpa, Acacia synchronicia* and *Ptilotus nobilis* **Soils and Landform:** Red/brown sandy loam with numerous ironstone pebbles on slopes and ridges. **Outcropping: Moderate mixed** **Condition:** Excellent to Pristine **Plate Details:** Survey Site 1-158 **No. of Quadrats:** 42 **Similarity Percentage:** 52.2%	

APPENDIX G: VEGETATION COMMUNITY DESCRIPTIONS FOR THE FORTESCUE RIVER GAS PIPELINE (FRGP) PROJECT, 2013

Mapping Code	Vegetation Community Description	Representative Plate of Community
MR2	*Acacia monticola*, *Acacia pyrifolia*, *Acacia trachycarpa* tall sparse shrubland over *Petalostylis cassioides*, *Senna glutinosa* subsp. *glutinosa* mid isolated shrubs over *Triodia wiseana* low hummock grassland. **Other Associated Species:** N/A **Soils and Landform:** Brown sandy loam with quarts pebbles on slopes. **Outcropping:** N/A **Condition:** Pristine **Plate Details:** Survey Site 1-101 **No. of Quadrats:** 1 **Similarity Percentage:** N/A	
MR3	*Acacia inaequilatera*, *Acacia ancistrocarpa*, *Acacia bivenosa* tall sparse shrubland and *Senna glutinosa* subsp. *pruinosa*, *Senna glutinosa* subsp. *glutinosa*, *Trichodesma zeylanicum* var. *zeylanicum* mid sparse shrubland over *Ptilotus nobilis*, *Ptilotus calostachyus*, *Corchorus tectus* low isolated shrubs and *Triodia wiseana* low open hummock grassland. **Other Associated Species:** *Alysicarpus muelleri, Aristida contorta, Dysphania kalpari, Ptilotus aervoides, Ptilotus astrolasius, Ptilotus obovatus* var. *obovatus* and *Tribulus platypterus.* **Soils and Landform:** Red/brown clay loam with ironstone pebbles on slopes. **Outcropping:** Occasional Ironstone **Condition:** Excellent **Plate Details:** Survey Site 1-144 **No. of Quadrats:** 7 **Similarity Percentage:** 41.3%	

APPENDIX G: VEGETATION COMMUNITY DESCRIPTIONS FOR THE FORTESCUE RIVER GAS PIPELINE (FRGP) PROJECT, 2013

Mapping Code	Vegetation Community Description	Representative Plate of Community
MR4	*Grevillea pyramidalis* subsp. *leucadendron*, *Acacia inaequilatera*, *Acacia colei* var. *ileocarpa* tall isolated shrubs and *Trichodesma zeylanicum* var. *zeylanicum*, *Cajanus cinereus*, *Abutilon lepidum* mid sparse shrubland over *Corchorus tectus*, *Triumfetta clementii*, *Tribulus platypterus* low sparse shrubland and *Triodia wiseana* low open hummock grassland. **Other Associated Species:** *Cucumis maderaspatanus, Cymbopogon obtectus, Euphorbia coghlanii, Indigofera linifolia, Indigofera rugosa, Ptilotus axillaris, Rhynchosia minima, Senna notabilis* and *Solanum dioicum.* **Soils and Landform:** Red sandy loam with ironstone pebbles on slopes. **Outcropping:** Moderate Ironstone **Condition:** Excellent to Pristine **Plate Details:** Survey Site 1-125 **No. of Quadrats:** 4 **Similarity Percentage:** 39.7%	
MR5	*Acacia inaequilatera*, *Grevillea pyramidalis* subsp. *leucadendron*, *Hakea lorea* tall sparse shrubland over *Senna glutinosa* subsp. *pruinosa*, *Senna glutinosa* subsp. *glutinosa*, *Trichodesma zeylanicum* var. *zeylanicum* mid sparse shrubland over *Triodia wiseana* low open hummock grassland and *Aristida holathera* var. *holathera*, *Enneapogon caerulescens*, *Eriachne flaccida* low isolated tussock grasses. **Other Associated Species:** *Boerhavia coccinea, Corchorus tectus, Indigofera monophylla, Ptilotus astrolasius, Ptilotus calostachyus, Ptilotus nobilis, Sida echinocarpa* and *Triumfetta clementii.* **Soils and Landform:** Red/brown sandy loam with ironstone and quartz pebbles on slopes. **Outcropping:** Occasional moderate ironstone **Condition:** Very Good to Pristine **Plate Details:** Survey Site 1-140 **No. of Quadrats:** 14 **Similarity Percentage:** 51.5%	

APPENDIX G: VEGETATION COMMUNITY DESCRIPTIONS FOR THE FORTESCUE RIVER GAS PIPELINE (FRGP) PROJECT, 2013

Mapping Code	Vegetation Community Description	Representative Plate of Community
MR6	*Acacia xiphophylla, Acacia bivenosa*, *Hakea lorea* tall isolated shrubs over *Triodia wiseana* low sparse hummock grassland. **Other Associated Species:** *Sclerolaena limbata* **Soils and Landform:** Red/brown sandy loam with loose ironstone gravel on slopes and breakaways **Outcropping:** Moderate exposed Granite **Condition:** Excellent **Plate Details:** Survey Site 1-67 **No. of Quadrats:** 2 **Similarity Percentage:** 40.4	
MR7	*Eremophila longifolia*, *Acacia maitlandii*, *Acacia atkinsiana* mid sparse shrubland over *Abutilon lepidum*, *Gomphrena cunninghamii*, *Tephrosia rosea* var. *Fortescue creeks* (M.I.H. Brooker 2186) low sparse shrubland and *Triodia wiseana* low hummock grassland. **Other Associated Species:** *Acacia inaequilatera, Cymbopogon obtectus, Cyperus hesperius, Eriachne mucronata, Gossypium robinsonii* and *Senna glutinosa* subsp. *glutinosa* **Soils and Landform:** Red/brown sandy loam with loose ironstone gravel on ridges. **Outcropping:** Moderate **Condition:** Pristine **Plate Details:** Survey Site 1-92 **No. of Quadrats:** 1 **Similarity Percentage:** N/A	

APPENDIX G: VEGETATION COMMUNITY DESCRIPTIONS FOR THE FORTESCUE RIVER GAS PIPELINE (FRGP) PROJECT, 2013

Mapping Code	Vegetation Community Description	Representative Plate of Community
CD1	*Acacia tumida* var. *pilbarensis*, *Acacia ancistrocarpa*, *Acacia trachycarpa* tall open shrubland and *Gossypium robinsonii*, *Acacia pyrifolia*, *Senna glutinosa* subsp. *glutinosa* mid sparse shrubland over *Hybanthus aurantiacus*, *Ptilotus obovatus* var. *obovatus*, *Ptilotus nobilis* low isolated shrubs with *Triodia pungens* low open hummock grassland and *Themeda triandra*, *Cymbopogon obtectus* low sparse tussock grassland. **Other Associated Species:** *Acacia bivenosa, Evolvulus alsinoides, Hakea lorea, Indigofera monophylla, Ptilotus calostachyus, Rhynchosia minima* and *Sida rohlenae* subsp. *rohlenae.* **Soils and Landform:** Red/brown sandy loam on minor channels and gullies. **Outcropping:** N/A **Condition:** Excellent **Plate Details:** Survey Site 1-95 **No. of Quadrats:** 5 **Similarity Percentage:** 31.4%	
CD2	*Corymbia candida*, *Corymbia hamersleyana*, *Eucalyptus camaldulensis* low open woodland over *Acacia tumida* var. *pilbarensis*, *Gossypium robinsonii*, *Acacia ancistrocarpa* tall sparse shrubland over *Eragrostis tenellula*, *Sporobolus australasicus*, *Eragrostis cumingii* low sparse tussock grassland and *Alternanthera nodiflora*, *Ipomoea muelleri*, *Waltheria indica* low sparse forbland. **Other Associated Species:** *Acacia bivenosa, Alternanthera nana* and *Ptilotus nobilis* **Soils and Landform:** Red clay and sandy loam on open channels and floodplains. **Outcropping:** N/A **Condition:** Very Good **Plate Details:** Survey Site 1-71 **No. of Quadrats:** 6 **Similarity Percentage:** 19.7%	

APPENDIX G: VEGETATION COMMUNITY DESCRIPTIONS FOR THE FORTESCUE RIVER GAS PIPELINE (FRGP) PROJECT, 2013

Mapping Code	Vegetation Community Description	Representative Plate of Community
CD3	*Eucalyptus victrix* mid open woodland over *Acacia ampliceps*, *Acacia trachycarpa*, *Sesbania cannabina* tall sparse shrubland over *Cyperus vaginatus* mid sparse sedgeland and *Eriachne benthamii*, *Enneapogon caerulescens*, *Cymbopogon obtectus* low sparse tussock grassland. **Other Associated Species:** *Indigofera linifolia* and *Rhynchosia minima* **Soils and Landform:** Red/brown clay on minor channels. **Outcropping:** N/A **Condition:** Excellent **Plate Details:** Survey Site 1-142 **No. of Quadrats:** 4 **Similarity Percentage:** 32.0%	
CD4	*Eucalyptus victrix*, *Eucalyptus camaldulensis* mid open woodland over *Acacia pyrifolia*, *Grevillea wickhamii*, *Acacia trachycarpa* tall open shrubland over *Pterocaulon sphacelatum*, *Phyllanthus maderaspatensis*, *Hybanthus aurantiacus* mid sparse shrubland with *Cyperus vaginatus* mid sparse sedgeland and *Sporobolus australasicus*, *Chrysopogon fallax*, *Enteropogon ramosus* low sparse tussock grassland. **Other Associated Species:** *Acacia bivenosa, Acacia tumida* var. *pilbarensis, Cleome viscosa, Cucumis maderaspatanus, Euphorbia coghlanii, Gossypium robinsonii, Rhynchosia minima, Stemodia grossa, Tephrosia rosea* and *Triodia wiseana* **Soils and Landform:** Red/brown sandy ironstone gravel on major channels. **Outcropping:** Occasional Ironstone **Condition:** Very Good **Plate Details:** Survey Site 1-169 **No. of Quadrats:** 9 **Similarity Percentage:** 26.8%	

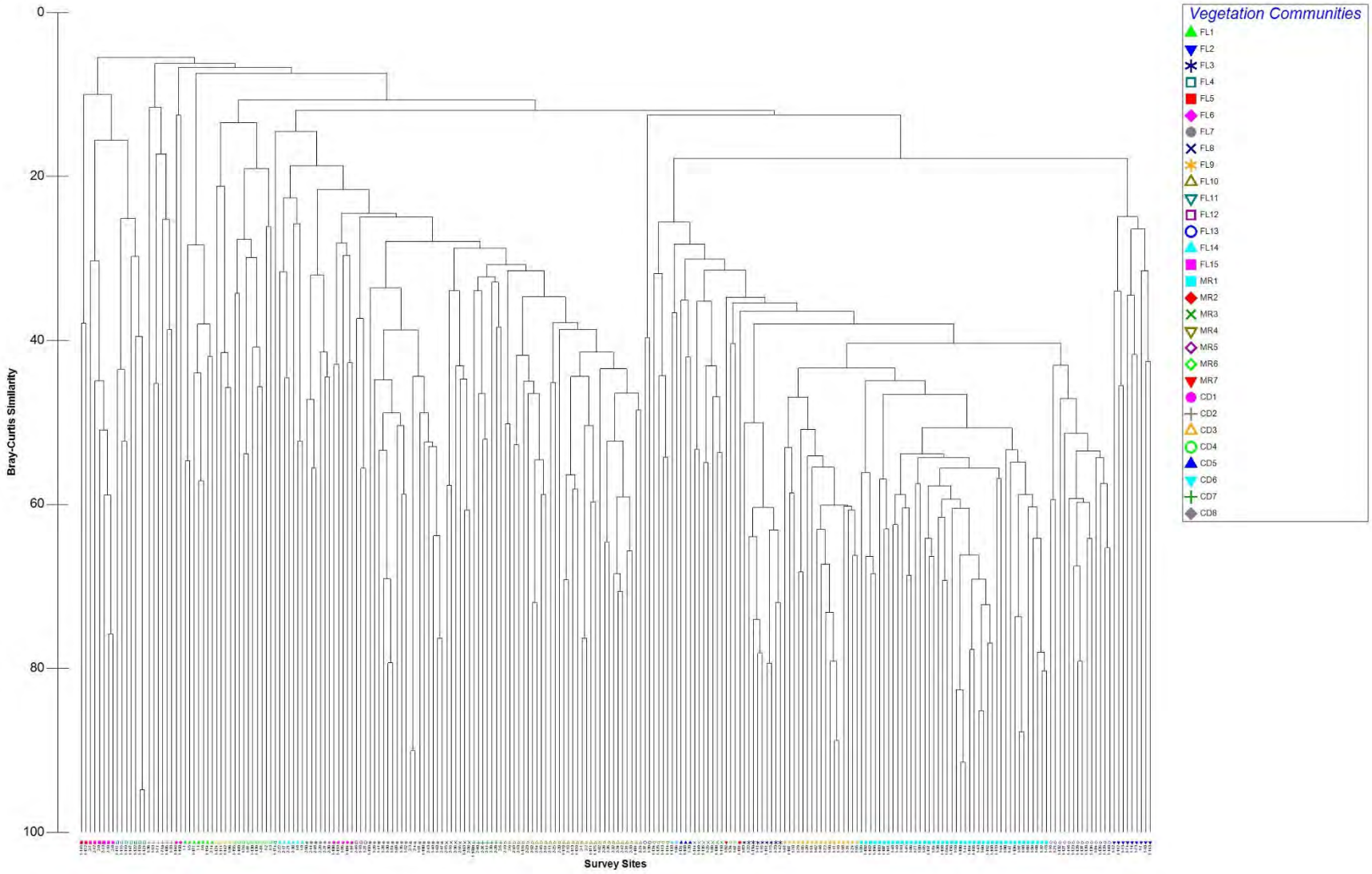
APPENDIX G: VEGETATION COMMUNITY DESCRIPTIONS FOR THE FORTESCUE RIVER GAS PIPELINE (FRGP) PROJECT, 2013

Mapping Code	Vegetation Community Description	Representative Plate of Community
CD5	*Corymbia hamersleyana* low open woodland over *Acacia tumida* var. *pilbarensis*, *Acacia atkinsiana*, *Acacia inaequilatera* tall sparse shrubland over *Bonamia erecta*, *Goodenia stobbsiana*, *Ptilotus obovatus* var. *obovatus* low isolated shrubs and *Triodia wiseana* low open hummock grassland. **Other Associated Species:** *Acacia maitlandii, Aristida contorta, Cymbopogon obtectus, Grevillea pyramidalis, Isotropis atropurpurea, Petalostylis labicheoides* and *Senna artemisioides* subsp. *oligophylla* **Soils and Landform:** Red/brown clay with ironstone pebbles on gullies. **Outcropping:** Occasional Granite **Condition:** Excellent **Plate Details:** Survey Site 1-168 **No. of Quadrats:** 3 **Similarity Percentage:** 37.4%	
CD6	*Acacia bivenosa*, *Jasminum didymium* subsp. *lineare*, *Acacia ampliceps* tall sparse shrubland over *Trichodesma zeylanicum* var. *zeylanicum*, *Senna artemisioioides* subsp. *oligophylla*, *Indigofera monophylla* mid sparse shrubland over *Triodia wiseana* isolated hummock grasses and *Cymbopogon obtectus*, *Aristida contorta*, *Eriachne aristidea* low isolated tussock grasses. **Other Associated Species:** **Cenchrus ciliaris, Acacia inaequilatera, Acacia pyrifolia, Corymbia hamersleyana* and *Eucalyptus leucophloia* subsp. *leucophloia* **Soils and Landform:** Red/brown sandy loam on minor channels and gullies. **Outcropping:** N/A **Condition:** Very Good **Plate Details:** Survey Site 1-66 **No. of Quadrats:** 2 **Similarity Percentage:** 36.7%	

APPENDIX G: VEGETATION COMMUNITY DESCRIPTIONS FOR THE FORTESCUE RIVER GAS PIPELINE (FRGP) PROJECT, 2013

Mapping Code	Vegetation Community Description	Representative Plate of Community
CD7	*Corymbia hamersleyana* low open woodland over *Acacia ancistrocarpa*, *Acacia trachycarpa*, *Acacia dictyophleba* tall sparse shrubland and *Cullen lachnostachys*, *Gossypium australe*, *Grevillea wickhamii* mid sparse shrubland over *Pterocaulon sphacelatum*, *Pluchea dunlopii*, *Senna artemisioides* subsp. *helmsii* low open shrubland with *Triodia pungens* low open hummock grassland and *Eulalia aurea*, *Chrysopogon fallax*, *Eriachne pulchella* low sparse tussock grassland. **Other Associated Species:** *Acacia inaequilatera, Cucumis maderaspatanus, Eriachne aristidea, Grevillea pyramidalis* subsp. *leucadendron, Hakea lorea, Ptilotus nobilis, Rhynchosia minima* and *Stemodia grossa* **Soils and Landform:** Red/brown clay loam on floodplains. **Outcropping:** N/A **Condition:** Excellent **Plate Details:** Survey Site 2-5 **No. of Quadrats:** 7 **Similarity Percentage:** 35.1%	
CD8	*Eucalyptus victrix* low open woodland over *Grevillea wickhamii*, *Acacia tumida* var. *pilbarensis*, *Acacia pyrifolia* tall open shrubland and *Tephrosia rosea*, *Corchorus lasiocarpus*, *Indigofera monophylla* mid sparse shrubland over *Triodia pungens* low open hummock grassland and *Eriachne aristidea*, *Eriachne pulchella*, **Cenchrus ciliaris* low open tussock grassland. **Other Associated Species:** *Acacia dictyophleba, Cleome viscosa, Gossypium robinsonii, Polymeria ambigua, Senna notabilis* and *Trichodesma zeylanicum* var. *zeylanicum* **Soils and Landform:** Red/brown clay loam with scattered ironstone on major channels. **Outcropping:** N/A **Condition:** Very Good **Plate Details:** Survey Site 2-50 **No. of Quadrats:** 6 **Similarity Percentage:** 37.7%	

APPENDIX H: CLUSTER DENDROGRAM OF SITES SURVEYED WITHIN THE FORTESCUE RIVER GAS PIPELINE (FRGP) PROJECT AREA.



APPENDIX I: SUMMARY OF WEED LOCATIONS RECORDED WITHIN THE FRGP PROJECT AREA, 2013

FAMILY	SPECIES	GDA94_50K	
		EASTING	NORTHING
AMARANTHACEAE	**Aerva javanica*	425897	7604161
		436291	7608496
POACEAE	**Cenchrus ciliaris*	390367	7626210
		390589	7626527
		390826	7627064
		390828	7626956
		393370	7623362
		394176	7620985
		395148	7617936
		395950	7616778
		397168	7612335
		397499	7611788
		397793	7611678
		397831	7611416
		398517	7608679
		399490	7606618
		402268	7605979
		406382	7606451
		413494	7601794
		417847	7603753
		425897	7604161
		425995	7604252
		428065	7604906
		428604	7605315
		429437	7605890
		431169	7607080
		442081	7608628
		453196	7607385
		469097	7604841
		484067	7596723
		503792	7603267
		503869	7503161
		530776	7588759
		546690	7584936
		546916	7584966
		548753	7584535
		557533	7581005
		564122	7578920
		565253	7578706
		569310	7578682
		599808	7563995
		599997	7563800
		600960	7560933
		602163	7554948
		602209	7555038
POACEAE	**Cynodon dactylon*	428604	7605315
ASTERACEAE	**Flaveria trinervia*	475837	7599489
		511515	7598886
EUPHORBIACEAE	**Jatropha gossypiifolia*	431169	7607080

APPENDIX I: SUMMARY OF WEED LOCATIONS RECORDED WITHIN THE FRGP PROJECT AREA, 2013

FAMILY	SPECIES	GDA94_50K	
		EASTING	NORTHING
MALVACEAE	**Malvastrum americanum*	390367	7626210
		390826	7627064
		397499	7611788
		413494	7601794
		417847	7603753
		425995	7604252
		431169	7607080
		436950	7608847
		442081	7608628
		444132	7608351
		453196	7607385
		460592	7608542
		466453	7606155
		474494	7602019
		475837	7599489
		510176	7599571
		510350	7599600
		511515	7598886
		511640	7598846
		519620	7594282
		519718	7594196
		521688	7593350
		557700	7580978
		602209	7555038
MALVACEAE	**Melochia pyramidata*	417847	7603753
LAMIACEAE	**Ocimum basilicum*	409310	7605652
		425995	7604252
		428604	7605315
		431169	7607080
POACEAE	**Setaria verticillata*	413494	7601794
		417847	7603753
		469097	7604841
		543006	7585959
ZYGOPHYLLACEAE	**Tribulus terrestris*	510176	7599571
FABACEAE	**Vachellia farnesiana*	390826	7627064
		391986	7625234
		397499	7611788
		397831	7611416
		399615	7606754
		425995	7604252
		428604	7605315
		429437	7605890
		431169	7607080
		437133	7608966
		442081	7608628
		453196	7607385
		460592	7608542
		466453	7606155
		469097	7604841
		475837	7599489
		511515	7598886
		519620	7594282