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# Memorandum

|         |  |                             |                               |
|---------|--|-----------------------------|-------------------------------|
| To      | <b>Andrew Stannard</b>                                       | From                        | <b>Jane Stark c/o Aurecon</b> |
| Copy    |  | Reference                   | <b>225678</b>                 |
| Date    | <b>13 August 2012</b>  | Pages (including this page) | <b>6</b>                      |
| Subject | <b>Roma Ecological Assessment – Addendum Lot 22 on WV432</b> |                             |                               |

Mr Stannard

This memorandum documents the results of an ecological investigation of a proposed development area within Lot 22 on WV432 (Figure 1.1).

Ecological investigations of the area were conducted on 14 June 2012 by two Aurecon ecologists (Cassandra Arkinstall and John Lynn).

A report specific to additional proposed development areas has been previously prepared and submitted to Santos (Ecological Assessment Report - Roma Lots 22,23 and 24 on WV432, Document Reference: 0020-GLNG-4-1.3-0062 and associated addendums).

This memorandum should be treated as an addendum to the report listed above. This memorandum is specific to the ecology of the proposed development area illustrated in Figure 1.1.

## 1 Ecological Assessment

### 1.1 General

The proposed development area is situated within an environment which has been modified/disturbed as a result of previous land management activities (eg grazing of livestock).

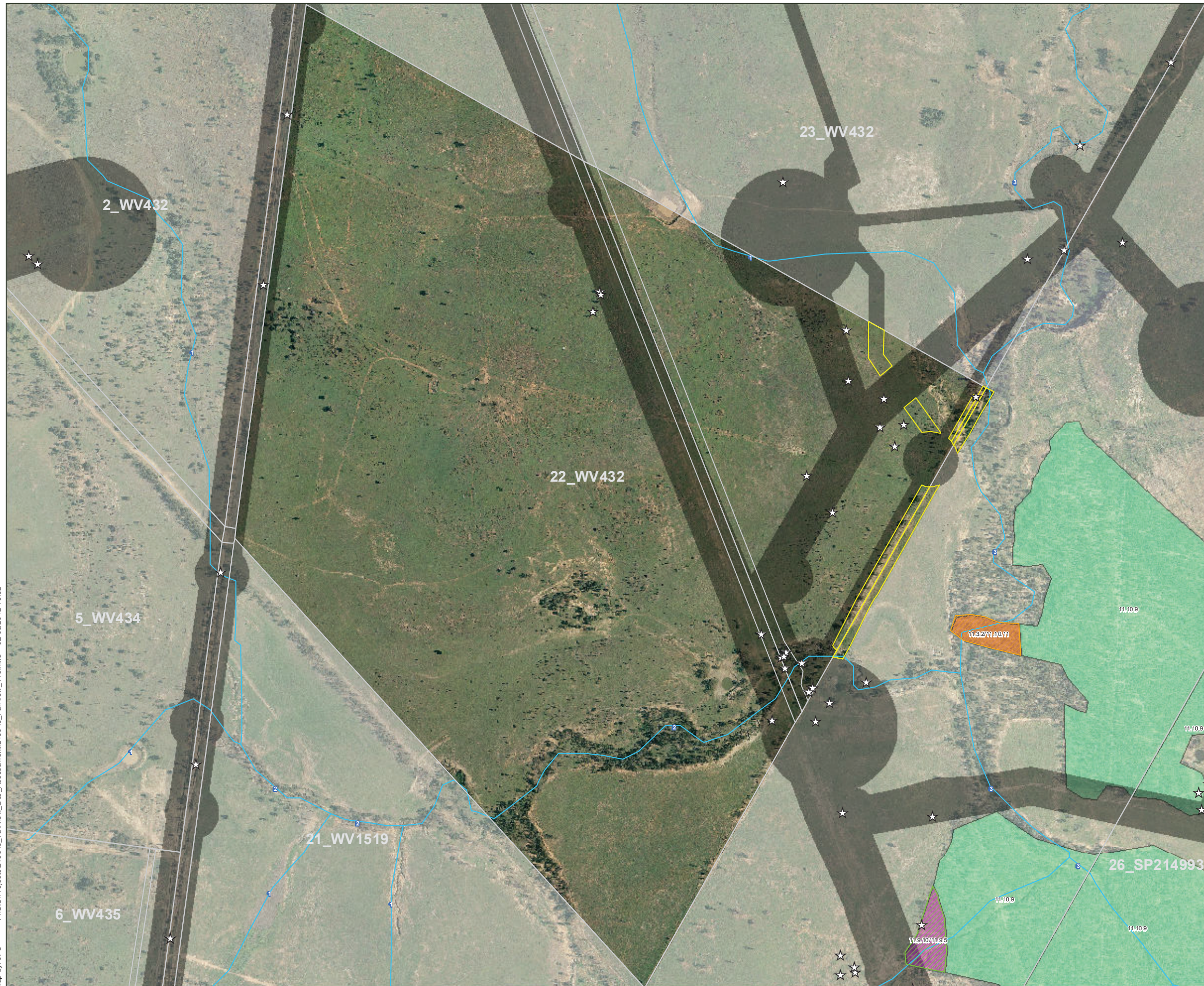
The proposed development area is comprised of seven separate investigation polygons of varying sizes. The investigation polygons are all situated near the eastern property border of Lot 22 on WV432 and two polygons overlap an adjacent property (Lot 25 on SP214993).

The entire proposed development area is mapped as 'non-remnant' on the Department of Environment and Heritage Protection (DEHP) certified Regional Ecosystem (RE) mapping. There are no Environmentally Sensitive Areas (ESAs) mapped within the proposed development area; with the nearest ESA located approximately 200 m to the east (ESA 'Category C' 'Of Concern' vegetation associated with a 'watercourse').

One 'watercourse' as mapped on the DEHP hydrology layer (V2.1, 2011) is located within the proposed development area. This 'stream order 3' 'watercourse' flows north to south and traverses the north-eastern corner of the proposed development area.

The landform of the proposed development area is flat to gently undulating and contained sandy loam soils.





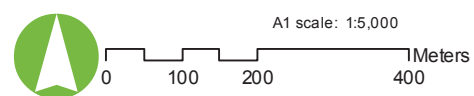
**Legend**

- ☆ EVNT and Type A Species
- EVNT Region
- Additional Areas Assessed
- Corridors - Ground Truth
- Watercourse
  
- Amended Regional Ecosystem (Biodiversity Status)**
- Endangered - Dominant
- Endangered - Sub-dominant
- Of Concern - Dominant
- Of Concern - Sub-dominant
- Not of Concern
  
- ESA Mapping**
- ▨ Category A
- ▨ Category B
- ▨ Category C

Source:  
 Cadastre: DERM, 2011.  
 Regional Ecosystems: Version 6.1, The State of Queensland (Department of Environment and Resource Management), Sept 2011. As amended by Aurecon, 2011.  
 ESAs: Coordinator-General's Evaluation Report for an Environmental Impact Statement – Gladstone Liquefied Natural Gas GLNG Project (May 2010) and the Santos GLNG Project CSG Fields – Environmental Protocol for Constraints Planning and Field Development (September 2011). Note: No ESA buffers have been included on this figure.

Date: 02/08/2012

Version: 1



Job No : 225678  
 Coordinate system: GDA\_1994\_MGA\_Zone\_55



## 1.2 Floristics

The proposed development area is situated in a highly disturbed environment that has resulted from previous land management practices (eg vegetation clearing) (refer Photo 1.1). Mature woody vegetation is therefore relatively sparse and occurs sporadically throughout the proposed development area.



**Photo 1.1** Landscape facing east within the proposed development area depicting typical vegetation. The tree line in the distance is the start of the 'Category C' ESA discussed in the 'General' section

The canopy stratum was dominated by *Eucalyptus melanophloia* (Silver Leaf Ironbark) which had a height range of 11 to 18 m. The canopy cover ranged between 5 and 10%. Higher percentage canopy cover occurred along the extent of the fence line along the eastern border of the property (Lot 22 WV432).

The sub-canopy was dominated by *Eucalyptus populnea* (Poplar Box) which had a height range of 5 to 8 m and a cover approximating 10%.

The shrub stratum covered less than 5% of the proposed development area and contained species such as *Eremophila mitchellii* (False Sandalwood), *Alstonia stricta* (Bitterbark) and *Geijera parviflora* (Wilga). Recently recruited canopy and sub-canopy species (eg *E. populnea* [Poplar Box], *Callitris glaucophylla* [White Cypress Pine] and *Eucalyptus camaldulensis* [River Red Gum]) were observed within the shrub stratum. The shrub layer had a height range of 1 to 4 m.

The ground stratum contained a high proportion of exotic species including *Pennisetum ciliare* (Buffel Grass) and *Urochloa mosambicensis* (Sabi Grass). Native grass species such as *Bothriochloa bladhii* (Forest Blue Grass) and *Panicum spp.* (Native Panic grasses) were also evident in the ground stratum. The ground cover was between 80 and 90% throughout the proposed development area.

No 'Type A Restricted Plant' species as listed under the provisions of the Queensland *Nature Conservation Act 1992* (NC Act) were recorded in the proposed development area. No species of conservation significance (ie 'endangered', 'vulnerable' and 'near threatened' species as listed under the provisions of the NC Act or 'critically endangered', 'endangered' and 'vulnerable' as listed under the provisions of the Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* [EPBC Act]) were recorded within the proposed development area.

A complete botanical species list is provided in Table 1.2.

### 1.3 Habitat Value

Thirteen (13) fauna species were recorded during site investigations (refer Table 1.1). Fauna species recorded were all birds which occur commonly in the area and are typically generalist species (Pizzey & Knight 1997; Menkhorst & Knight 2010).

Table 1.1 Incidental fauna species recorded within the proposed development area

| Class | Common Name           | Scientific Name                |
|-------|-----------------------|--------------------------------|
| Birds | Australian Magpie     | <i>Gymnorhina tibicen</i>      |
|       | Australian Raven      | <i>Corvus coronoides</i>       |
|       | Galah                 | <i>Eolophus roseicapilla</i>   |
|       | Laughing Kookaburra   | <i>Dacelo novaeguineae</i>     |
|       | Magpie-Lark           | <i>Grallina cyanoleuca</i>     |
|       | Masked Lapwing        | <i>Vanellus miles</i>          |
|       | Noisy Miner           | <i>Manorina melanocephala</i>  |
|       | Pale-headed Rosella   | <i>Platycercus adscitus</i>    |
|       | Pied Butcherbird      | <i>Cracticus nigrogularis</i>  |
|       | Red-backed Fairy-wren | <i>Malurus melanocephalus</i>  |
|       | Striated Pardalote    | <i>Pardalotus striatus</i>     |
|       | Weebill               | <i>Smicromis brevirostris</i>  |
|       | White-winged Chough   | <i>Corcorax melanorhamphos</i> |

The canopy/sub-canopy cover throughout the proposed development area could provide suitable shelter, foraging and perching sites for bird species. Habitat opportunities were increased with increasing proximity to the mapped 'watercourse' as this area provided increased vegetative cover.

The ground stratum contained limited amounts of woody debris and dense areas of grassy ground cover. Such habitat features have the potential to provide shelter, foraging and nesting sites for small mammals, reptiles and ground-dwelling birds (eg Quail species).

No species of conservation significance as listed under the provisions of the NC Act and/or the EPBC Act were recorded within the proposed development area during site investigations.

The overall habitat value of the proposed development area is considered to be relatively low/medium due to the levels of historic disturbance and resultant vegetation clearing.

Table 1.2 Flora species recorded in the proposed development area

| Family         | Scientific Name                 | Common Name             | Notes      |
|----------------|---------------------------------|-------------------------|------------|
| Apocynaceae    | <i>Alstonia constricta</i>      | Bitter Bark             |            |
| Asteraceae     | <i>Conyza bonariensis</i>       | Fleabane                | Non-native |
| Asteraceae     | <i>Podolepis jaceoides</i>      | Showy Copper Wire Daisy |            |
| Asteraceae     | <i>Sonchus oleraceus</i>        | Sow Thistle             |            |
| Asteraceae     | <i>Cirsium vulgare</i>          | Black Spear Thistle     | Non-native |
| Asteraceae     | <i>Xerochrysum bracteatum</i>   | Everlasting Daisy       |            |
| Asteraceae     | <i>Pterocaulon sphacelatum</i>  | Apple Bush              |            |
| Asteraceae     | <i>Calotis sp</i>               | Burr Daisy              |            |
| Chenopodiaceae | <i>Maireana microphylla</i>     | Small-leaf Bluebush     |            |
| Chenopodiaceae | <i>Sclerolaena muricata</i>     | Black Roly-poly         |            |
| Chenopodiaceae | <i>Sclerolaena birchii</i>      | Galvanised Burr         |            |
| Cupressaceae   | <i>Callitris glaucophylla</i>   | White Cypress Pine      |            |
| Cyperaceae     | <i>Cyperus bifax</i>            | Star Sedge              |            |
| Cyperaceae     | <i>Fimbristylis dichotoma</i>   | Fimbristylis            |            |
| Juncaceae      | <i>Juncus usitatus</i>          | Juncus                  |            |
| Laxmanniaceae  | <i>Lomandra longifolia</i>      | Lomandra                |            |
| Malvaceae      | <i>Abutilon oxycarpum</i>       | Chinese Lantern         |            |
| Mimosaceae     | <i>Acacia excelsa</i>           | Ironwood                |            |
| Myoporaceae    | <i>Eremophila mitchellii</i>    | False Sandalwood        |            |
| Myrtaceae      | <i>Eucalyptus melanophloia</i>  | Silver Leaved Ironbark  |            |
| Myrtaceae      | <i>Eucalyptus populnea</i>      | Poplar Box              |            |
| Myrtaceae      | <i>Eucalyptus sp</i>            |                         | Juvenile   |
| Myrtaceae      | <i>Eucalyptus camaldulensis</i> | River Red Gum           |            |
| Poaceae        | <i>Pennisetum ciliare</i>       | Buffel Grass            | Non-native |
| Poaceae        | <i>Eragrostis brownii</i>       | Browns Lovegrass        |            |
| Poaceae        | <i>Aristida sp</i>              |                         |            |
| Poaceae        | <i>Bothriochloa bladhii</i>     | Forest Blue Grass       |            |
| Poaceae        | <i>Urochloa mosambicensis</i>   | Sabi Grass              | Non-native |
| Poaceae        | <i>Panicum decompositum</i>     | Hairy Panic             |            |
| Poaceae        | <i>Eragrostis fallax</i>        | Tall Lovegrass          |            |
| Poaceae        | <i>Chloris truncata</i>         | Windmill Grass          |            |
| Poaceae        | <i>Eragrostis sororia</i>       | Blue Eragrostis         |            |
| Poaceae        | <i>Aristida jerichoensis</i>    | Jericho Wire Grass      |            |
| Poaceae        | <i>Dichanthium sericeum</i>     | Queensland Blue Grass   |            |
| Poaceae        | <i>Panicum simile</i>           | Two-coloured Panic      |            |

| Family        | Scientific Name                 | Common Name              | Notes                 |
|---------------|---------------------------------|--------------------------|-----------------------|
| Poaceae       | <i>Themeda triandra</i>         | Kangaroo Grass           |                       |
| Poaceae       | <i>Themeda avenacea</i>         | Wild Oats Grass          |                       |
| Poaceae       | <i>Sporobolus creber</i>        | Western Rat's Tail Grass |                       |
| Poaceae       | <i>Eragrostis lacunaria</i>     | Tall Lovegrass           |                       |
| Poaceae       | <i>Heteropogon contortus</i>    | Black Spear Grass        |                       |
| Poaceae       | <i>Cymbopogon refractus</i>     | Barbwire Grass           |                       |
| Poaceae       | <i>Digitaria brownii</i>        | Tall Digitaria           |                       |
| Poaceae       | <i>Aristida calycina</i>        |                          |                       |
| Poaceae       | <i>Aristida caput-medusae</i>   | Curly Head Wire Grass    |                       |
| Poaceae       | <i>Perotis rara</i>             | Comet Grass              |                       |
| Poaceae       | <i>Austrostipa verticillata</i> | Slender Bamboo Grass     |                       |
| Proteaceae    | <i>Grevillea striata</i>        | Beefwood                 |                       |
| Rutaceae      | <i>Geijera parviflora</i>       | Wilga                    |                       |
| Sterculiaceae | <i>Brachychiton populneus</i>   | Kurrajong                | NC Act Type A Species |
| Verbenaceae   | <i>Verbena tenuisecta</i>       | Mayne's Curse            | Non-native            |
| Verbenaceae   | <i>Verbena litoralis</i>        | Tall Verbena             | Non-native            |

## 2 References

Pizzey G and Knight F, 1997, *Field Guide to the Birds of Australia*, Harper Collins Publishers, Australia

Menkhorst P and Knight F, 2010, *A Field Guide to the Mammals of Australia*, Oxford University Press, United Kingdom