Chevron's Clearing Assessment Report

1. APPLICATION DETAILS

1.1 Permit application details

Permit Application No.: n/a

Permit Type Purpose Permit

1.2 Proponent details

Proponent`s Name Chevron Australia Pty Ltd as operator of the Thevenard Island Joint Venture

Project Contact [redacted]

1.3 Property Details

Property Entirety of terrestrial lands on Thevenard Island above the maximum-tide elevation

Local Government Area Shire of Ashburton

1.4 Application / Area under assessment

Clearing Area (ha)	No. Trees	Method of Clearing	For the Purpose of
Up to 0.95 ha	n/a	Vehicle access, mechanical / scrub rolling, excavation, pulling of cable	Refer to Part 4 of the clearing permit application form.

Site Plan Attached Yes, refer to attached figures (Figures 1A Aerials – 6A and Figures 1B to 6B Vegetation Units). Total clearing will not exceed 0.95ha and clearing will not occur in vegetation associations other than in those detailed in Section 2 Vegetation Description. Post-clearing, all disturbance will be logged and reported as per clearing permit conditions.

Shape file created Yes

1.5 Avoid/Minimise clearing:

The need for clearing has been minimised by: Location of the sites has, where possible, taken into consideration areas where access and disturbance has occurred previously including use of existing access tracks.

Environmental and social issues associated with the project have been investigated through: Review of Thevenard Island biological survey data.

2. Background / Site Information

Existing environment and information:

Site visit undertaken Yes

Site Report Attached No

Vegetation Description

In 1987 three broad vegetation formations were described for Thevenard Island by Le Provost et al (1987):

- *Spinifex longifolius* coastal grassland on dunes
- *Acacia coriacea* central shrubland on ridge system
- Mixed low shrubland and mixed grassland on coastal shelf.

In 1997 four broad vegetation formations consisting of 13 more detailed vegetation associations were identified on Thevenard Island. The fourth vegetation formation, being additional to those described by LeProvost et al. (1987), is associated with disturbed habitat. In 2017 the Department of Biodiversity, Conservation and Attractions advised there is an occurrence of Priority Ecological Community (PEC) #24, previously recorded on Barrow Island. This PEC, which is on the western side of the island, is further described as 'Coastal dune native tussock grassland dominated by *Whiteochloa airoides* (Priority 3)'. A Priority 3 PEC is defined as a poorly known ecological community that does not meet adequacy of survey requirements and/or is not adequately defined. There are additional occurrences of this PEC that are protected within the A-class Barrow Island Nature Reserve. This PEC is outside of the locations planned to be disturbed for the removal of the shipping marker. The PEC is the 15th vegetation association recorded on Thevenard Island.

Vegetation associations were amalgamated to correlate with landform mapping units and vegetation monitoring in 2020 (Astron 2020). Vegetation formations and their associations that may be disturbed include:

Inland ridge

- Ir1 - *Acacia coriacea* tall open shrubland over *Acacia sclerosperma* shrubland to open heath with mixed shrubs over **Cenchrus ciliaris* tussock grassland.

Coastal plain

- Cp4 – *Acacia coriacea* subsp. *coriacea* tall open shrubland over *Olearia* sp. Kennedy Range (B. Byrne 66), *Cynanchum viminale* subsp. *australe*, *Rhagodia preisseii* subsp. *obovata* low open to low shrubland over *Eulalia aurea* tussock grassland and *Carpobrotus* sp. Thevenard Island ground creeper

- Cp2 – *Scaevola crassifolia* and *S. cunninghamii* low shrubland to low open heath over *Eulalia aurea* very open tussock grassland

Coastal foredune

- Cf1 – *Spinifex longifolius* tussock grassland, sometimes with small populations of *Whiteochloa airoides* and *Eulalia aurea*

Disturbed areas

- D1 - *Cenchrus ciliaris* (buffel grass) closed tussock grassland over open *Ipomoea pes-caprae, Canavalia rosea liane.*

Other

- Intertidal zone

Figures 1A to 6A (aerials) and Figures 1B to 6B represents the indicative areas to be disturbed, to a total of 0.95ha. All potentially impacted vegetation associations are common and widespread across Thevenard Island, with the exception of Cp2 which is limited to a thin band around the south coast of Thevenard Island but represented in nearby areas of the nature reserve.

Terrestrial Ecological Monitoring (Astron Environmental Services, 2020) reported that buffel grass was the most widespread and abundant weed species and has displaced much of the native grassland, annual herb land and mid-level perennial shrub strata from these associations.

3. Assessment of Application Against the 10 Clearing Principles

(a) Native vegetation should not be cleared if it comprises a high level of biological diversity.

Comments: **Proposal is not likely to be at variance to this Principle**

As detailed in Section 2, the vegetation associations that may be disturbed include those associated with the Inland Ridge, Coastal plain and Coastal foredune and Disturbed Area formations. All are represented in other areas of Thevenard Island and/or regionally on other islands and the mainland.

No flora listed as Threatened under the *Environment Protection and Biodiversity Act 1999* (EPBC Act) or Declared Rare Flora under the *Biodiversity Conservation Act 2016* (BC Act) are known to occur on Thevenard Island. One Priority 3 species, *Carpobrotus* sp. Thevenard Island (M. White 050) has been recorded, however the species is widely distributed on Thevenard Island and other Pilbara islands and will not be disproportionately impacted by the proposed activity.

As such the proposed vegetation disturbance is not considered to be at variance to this Principle.

(b) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of, a significant habitat for fauna indigenous to Western Australia.

Comments: **Proposal is not likely to be at variance to this Principle**

Thevenard Island is a Nature Conservation Reserve (Reserve No. 33174) vested in the Conservation Commission of WA, primarily for the protection of seabird and shorebird populations utilising coastal habitats.

A total of 72 bird species have been recorded on Thevenard Island since fauna monitoring began. Of the species previously recorded, 28 are listed under Commonwealth and/or State legislation, specifically the EPBC Act and BC Act. This includes six species listed as threatened (Endangered (En)/Vulnerable (Vu)) under the EPBC Act and under the BC Act; and 22 species listed as migratory under the EPBC Act and the BC Act. Migratory shorebird and seabird species are present in the foredune system and to a lesser extent in the inland ridge, however both systems are well represented on Thevenard Island and the amount of disturbance compared to the available habitat is very small. A number of avian species are seasonal migrants and would only be present on Thevenard Island during the southward or northward journey of their annual migration (Astron, 2017).

Eight species of ground-dwelling reptiles are confirmed for Thevenard Island, none of which are conservation significant according to State or Commonwealth lists. A single mammal species, the Thevenard Island form of the Priority 4 listed Northern Short-tailed Mouse (*Leggadina lakedownensi*) was previously thought to be a distinct species between the mainland species and those found on Mackerel Islands. However, research has shown that this is simply a larger form of the species present on the mainland (Cooper et al. 2003). The introduced house mouse (*Mus musculus*) has become abundant on Thevenard Island since it was first recorded in 1987.

The native vegetation proposed to be disturbed does not comprise core habitat specific to the Northern Short-tailed Mouse or other fauna species that reside on Thevenard Island or use it during seasonal migration. As such the proposed vegetation disturbance is not considered to be at variance to this Principle.

(c) Native vegetation should not be cleared if it includes, or is necessary for the continued existence of, rare flora.

Comments: **Proposal is not likely to be at variance to this Principle**

No Declared Rare, or Threatened flora species have been recorded, or would be expected to occur, on Thevenard Island. As such, the proposed vegetation disturbance is not at variance to this Principle.

(d) Native vegetation should not be cleared if it comprises the whole or a part of, or is necessary for the maintenance of a threatened ecological community.

Comments: **Proposal is not likely to be at variance to this Principle**

No Threatened Ecological Communities have been recorded, or are expected to occur, on Thevenard Island. The proposed vegetation disturbance is therefore not at variance to this Principle.

(e) Native vegetation should not be cleared if it is significant as a remnant of native vegetation in an area that has been extensively cleared.

Comments: **Proposal is not likely to be at variance to this Principle**

Thevenard Island is a Nature Reserve and of the 614 ha Island, it is conservatively calculated that 49 ha (7.98%) is currently cleared. Therefore, given that native vegetation on the Island has not been extensively cleared, the native vegetation remaining is not considered significant as a remnant and the proposed vegetation disturbance is not considered to be at variance to this Principle.

(f) Native vegetation should not be cleared if it is growing in, or in association with, an environment associated with a watercourse or wetland.

Comments: **Proposal is not likely to be at variance to this Principle**

There is no vegetation growing in or in association with a watercourse or wetland in the survey area. Therefore, vegetation disturbance is not at variance to this Principle.

(g) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause appreciable land degradation.

Comments: **Proposal is not likely to be at variance to this Principle**

No natural drainage patterns exist on Thevenard Island. Rainfall infiltrates the sandy soils and directly recharges the shallow unconfined superficial groundwater aquifer. The unconfined groundwater aquifer is present within the Aeolian sands at depths between 1 – 7 m below grade (Golder 2011). Although vegetation disturbance may temporarily disturb small areas, given the nature of the soils, topography of the proposed disturbance footprint, small scale of the activity, it is unlikely that the proposed clearing would cause appreciable land degradation. As such, the proposed vegetation disturbance is not considered to be at variance to this Principle.

(h) Native vegetation should not be cleared if the clearing of the vegetation is likely to have an impact on the environmental values of any adjacent or nearby conservation area.

Comments: **Proposal is not likely to be at variance to this Principle**

Thevenard Island is a Nature Conservation Reserve (Reserve No. 33174) and as such, the proposed vegetation disturbance would occur within a conservation reserve, however disturbance activities are self-contained, and the activity will not impact on any adjacent nature reserves or conservation areas.

Ten environmental weed and 20 Non-Indigenous Species (NIS) have been recorded on Thevenard Island since monitoring began in 1987 (Astron Environmental 2017). An additional two species, **Eragrostis minor* (smaller stinkgrass) and **Flaveria trinervia* (speedy weed), are also listed as environmental weed species but are considered to be naturalised by DBCA. Buffel grass is the dominant ground cover species in the nature reserve, where in swales it occurs in very dense, tall stands, prohibiting the presence of any other species. Terrestrial Ecological Monitoring (Astron Environmental Services, 2017) reported that buffel grass has displaced much of the native grassland, annual herb land and mid-level perennial shrub strata.

Given the existing disturbance caused by weed species on the nature reserve, and the occurrence of the mapped vegetation associations elsewhere on Thevenard Island; the proposed vegetation disturbance is not likely to be at variance to this Principle and measures will be implemented to limit the spread of weeds and prevent new weeds from entering the reserve. The vegetation disturbed by this activity will regenerate over time.

(i) Native vegetation should not be cleared if the clearing of the vegetation is likely to cause deterioration in the quality of surface or underground water.

Comments: **Proposal is not likely to be at variance to this Principle**

The disturbance footprint is small at a maximum of 0.95 ha. During and after significant rainfall events, short-term ponding may occur post vegetation disturbance. Given the relatively flat topography of the disturbance area and the high infiltration capacity of the surface sands, it is anticipated that this surface water will largely infiltrate in-situ.

The unconfined groundwater aquifer is present within the Aeolian sands at depths between 1 – 7 m below grade (Golder 2011). Following rainfall recharge, a thin lens of fresh to brackish water (depending on the interval since the last recharge event) may accumulate across the island, and the disturbance of vegetation is unlikely to affect the quality of this. The proposed vegetation disturbance is therefore not likely to be at variance to this Principle.

(j) Native vegetation should not be cleared if clearing the vegetation is likely to cause, or exacerbate, the incidence or intensity of flooding.

Comments: **Proposal is not likely to be at variance to this Principle**

Thevenard Island covers an area of approximately 550 hectares with an average height above sea level of 5 m Australian Height Datum. The disturbance footprint is relatively small at a maximum of 0.95 ha.

Rainfall infiltrates the sandy soils and directly recharges the shallow unconfined superficial groundwater.

Given the limited area of proposed vegetation disturbance, the low topographic relief coupled with high infiltration capacities of the soil, it is unlikely that the proposed vegetation disturbance will exacerbate the incidence or intensity of flooding in the area.

Therefore, the proposed vegetation disturbance is not likely to be at variance to this Principle.

5. Summary

The proposed clearing is;

Seriously at variance with 0 principles

May be at variance with 0 principles

Is not considered to be at variance with 10 principles

6. References

Astron, 2013, Biodiversity Values Assessment Thevenard Island Operations Terrestrial Environment. Astron Environmental Services. November 2013, Report prepared for Chevron Australia Pty Ltd

Astron, 2020, Thevenard Island Operations Terrestrial Ecological Monitoring Report. Astron Environmental Services. May 2017, Report prepared for Chevron Australia Pty Ltd

Golder, 2011, Thevenard Island Conceptual Site Model. Golder Associates, Perth Western Australia (Ref 087643491-023-R-Rev3).

LeProvost, C, Maldonado-Leal, BG and Owen, G, 1987 'Saladin Oil Field Development ERMP, Appendix 1, The regional geomorphic framework of Thevenard Island', unpublished report.

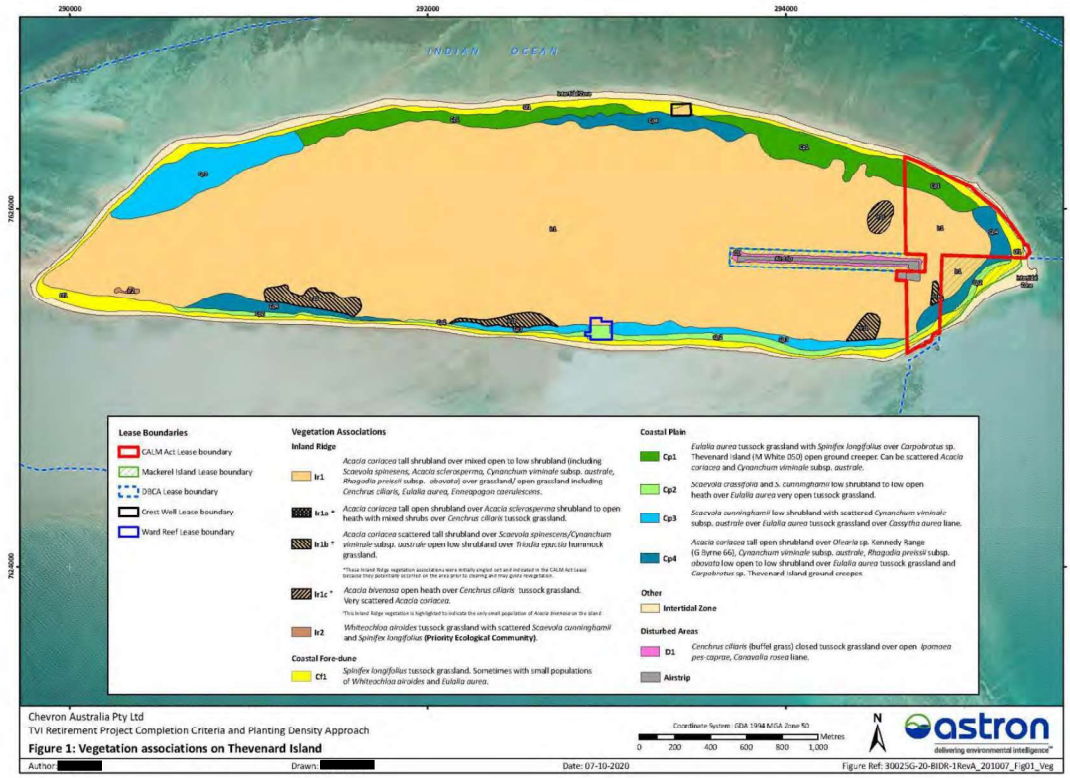


Figure 1: Vegetation Associations of Thevenard Island (Astron 2020)

FIGURE 1A
ESTIMATED DISTURBANCE FOR THE ACCESS AND REMOVAL OF THE SHIPPING MARKER ON THEVENARD ISLAND

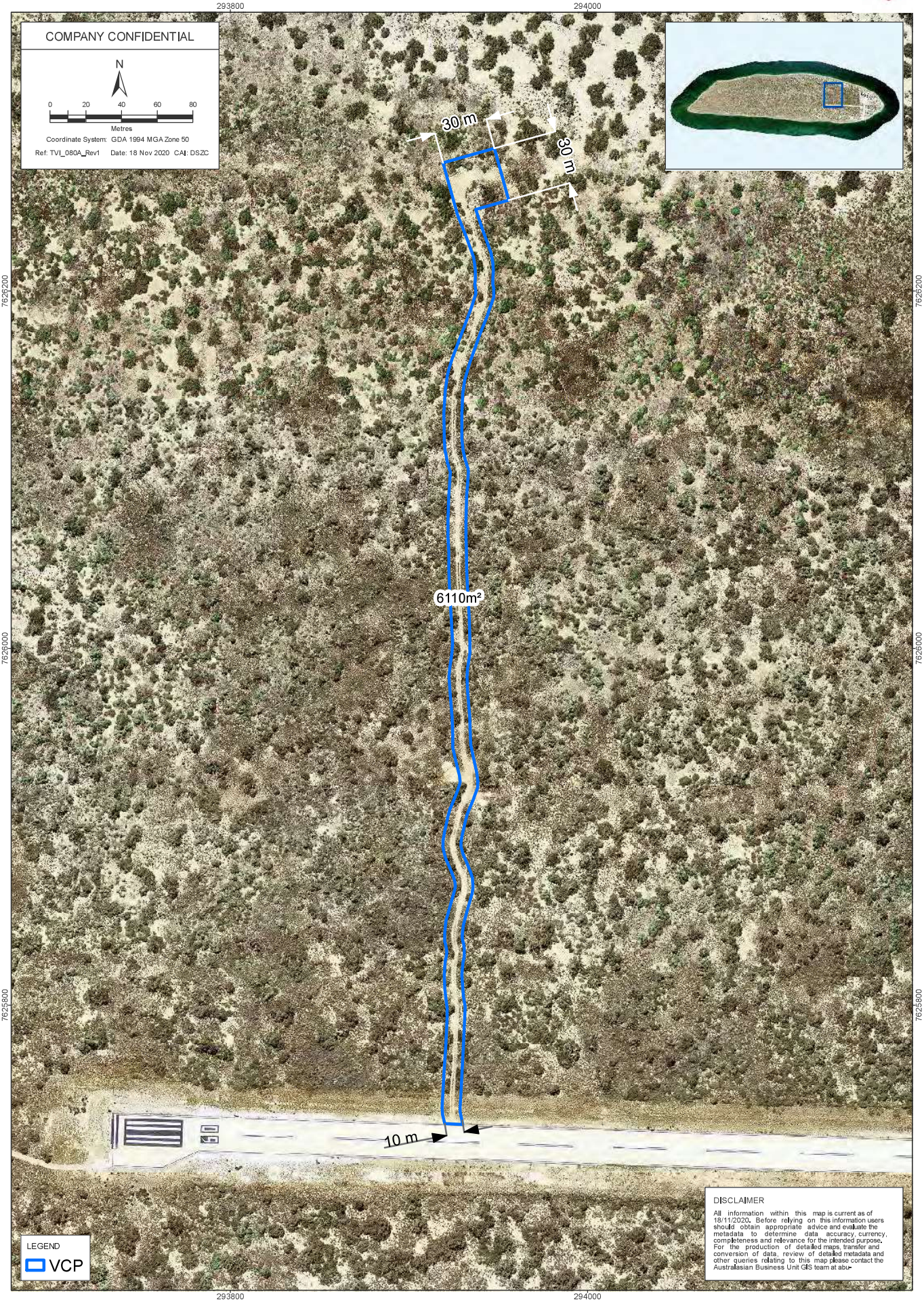


FIGURE 2A
ESTIMATED DISTURBANCE FOR THE EXCAVATION OF THE FIREWATER PIPELINE ON THEVENARD ISLAND

FIGURE 3A
ESTIMATED DISTURBANCE FOR THE ACCESS AND REMOVAL OF GROUND WATER MONITORING BORES

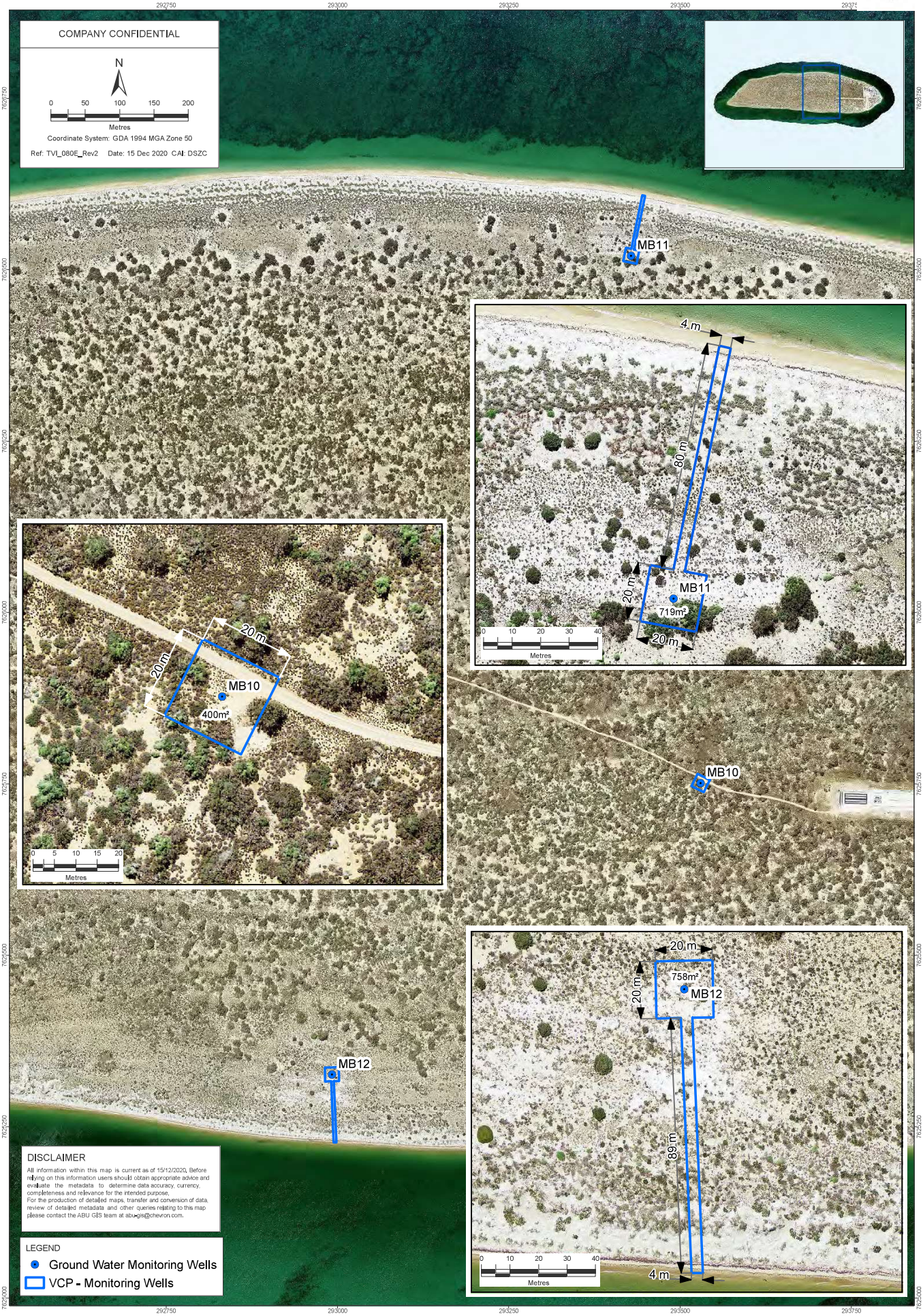
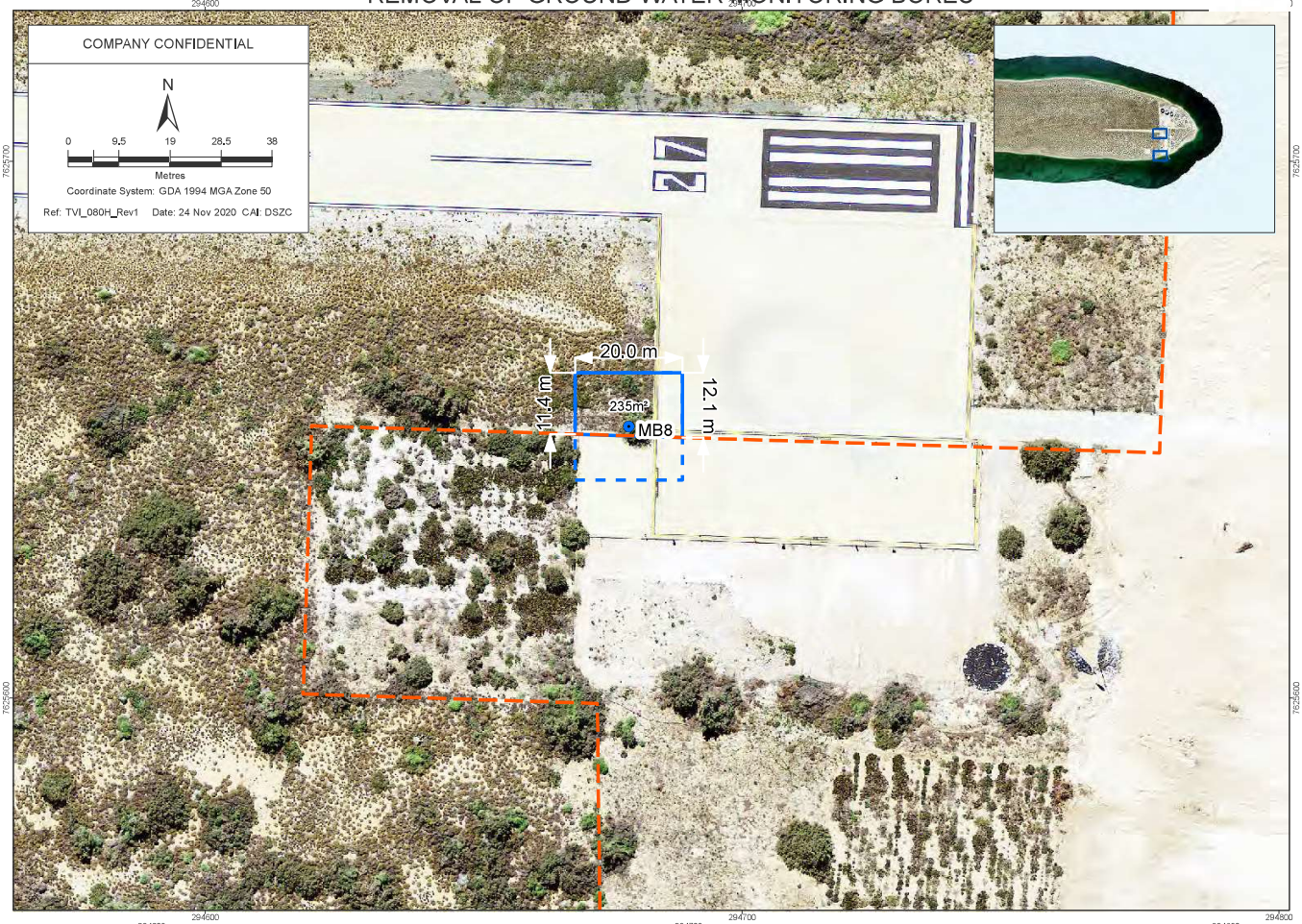


Figure 4A: ESTIMATED DISTURBANCE FOR THE ACCESS AND REMOVAL OF GROUND WATER MONITORING BORES

FIGURE 5A:
ESTIMATED DISTURBANCE FOR THE ACCESS AND REMOVAL OF GROUND WATER MONITORING BORES



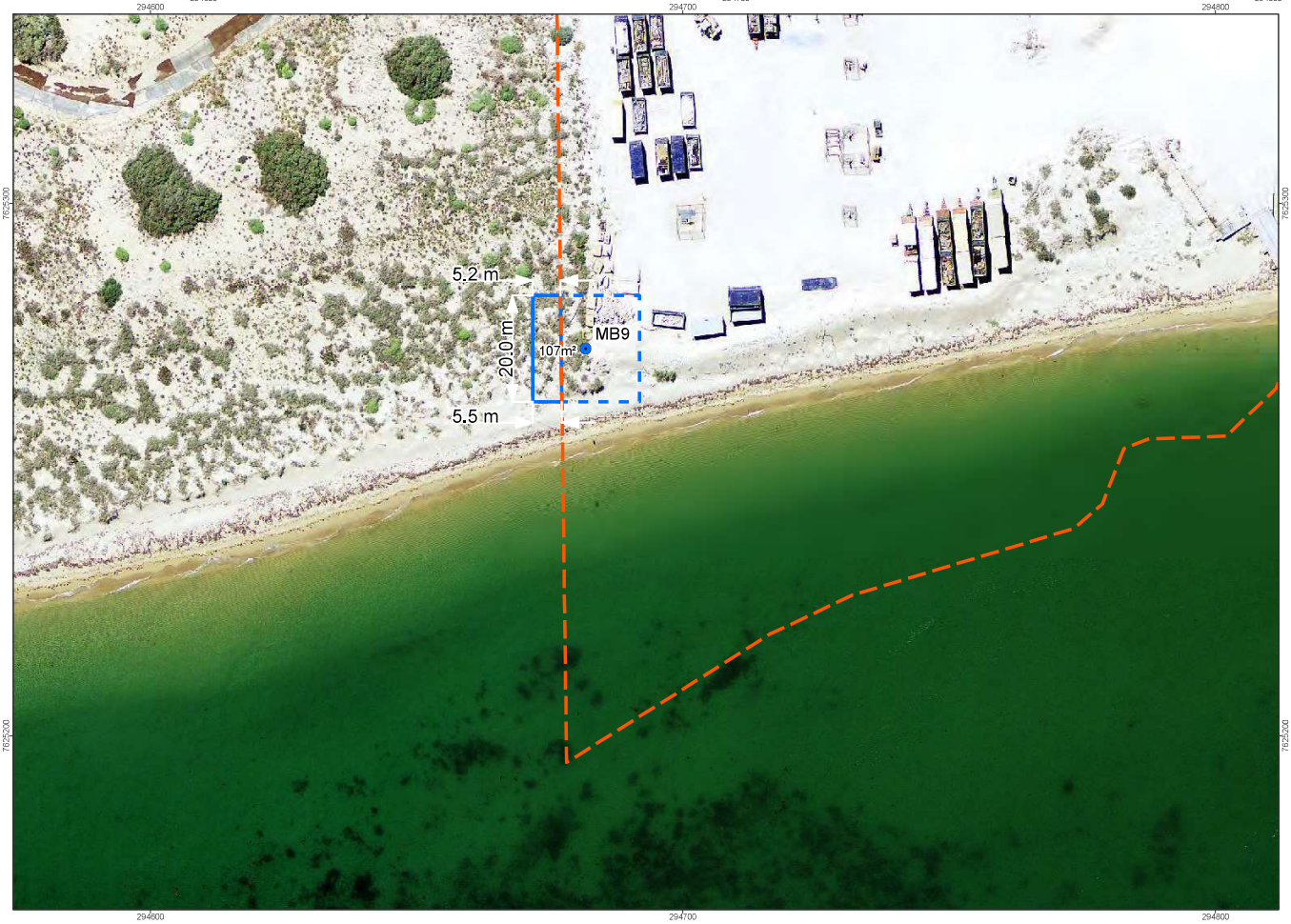


FIGURE 6A: ESTIMATED DISTURBANCE FOR THE ACCESS AND REMOVAL OF WATER SOURCE WELLS

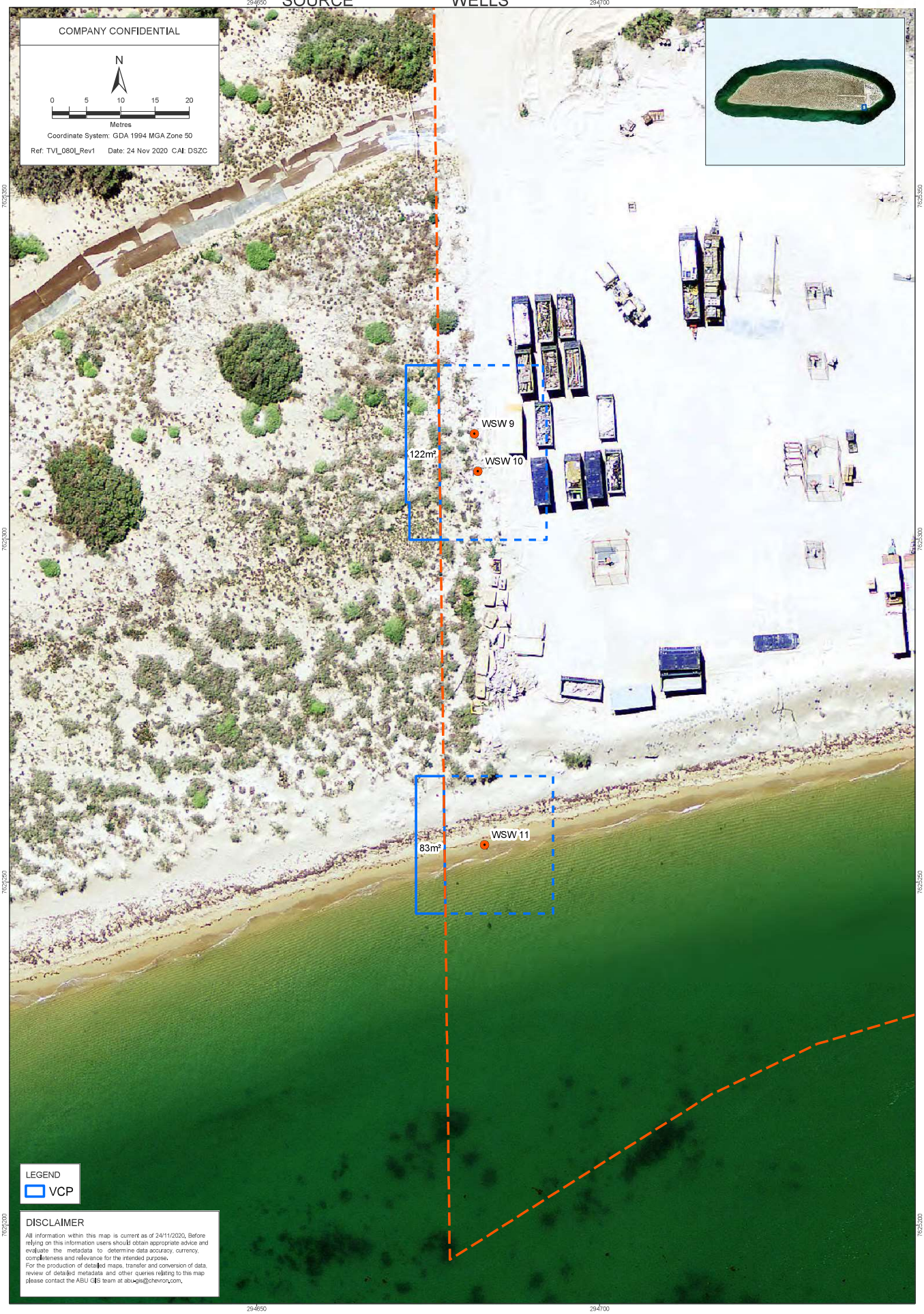


FIGURE 1B
ESTIMATED DISTURBANCE FOR THE ACCESS AND REMOVAL OF THE SHIPPING MARKER ON THEVENARD ISLAND

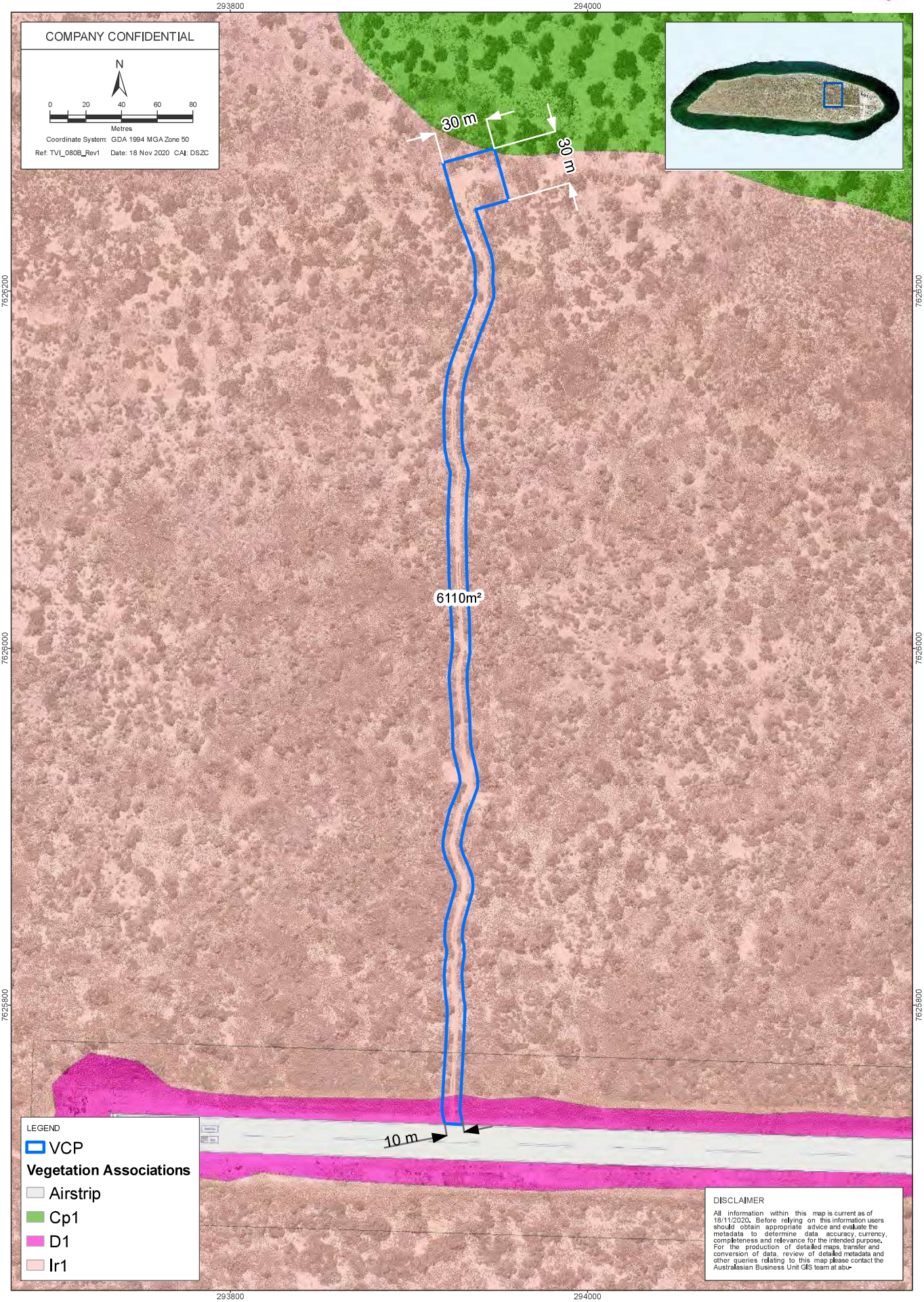


FIGURE 2B
ESTIMATED DISTURBANCE FOR THE EXCAVATION OF THE FIREWATER PIPELINE ON THEVENARD ISLAND

FIGURE 3B
ESTIMATED DISTURBANCE FOR THE ACCESS AND REMOVAL OF GROUND WATER MONITORING BORES

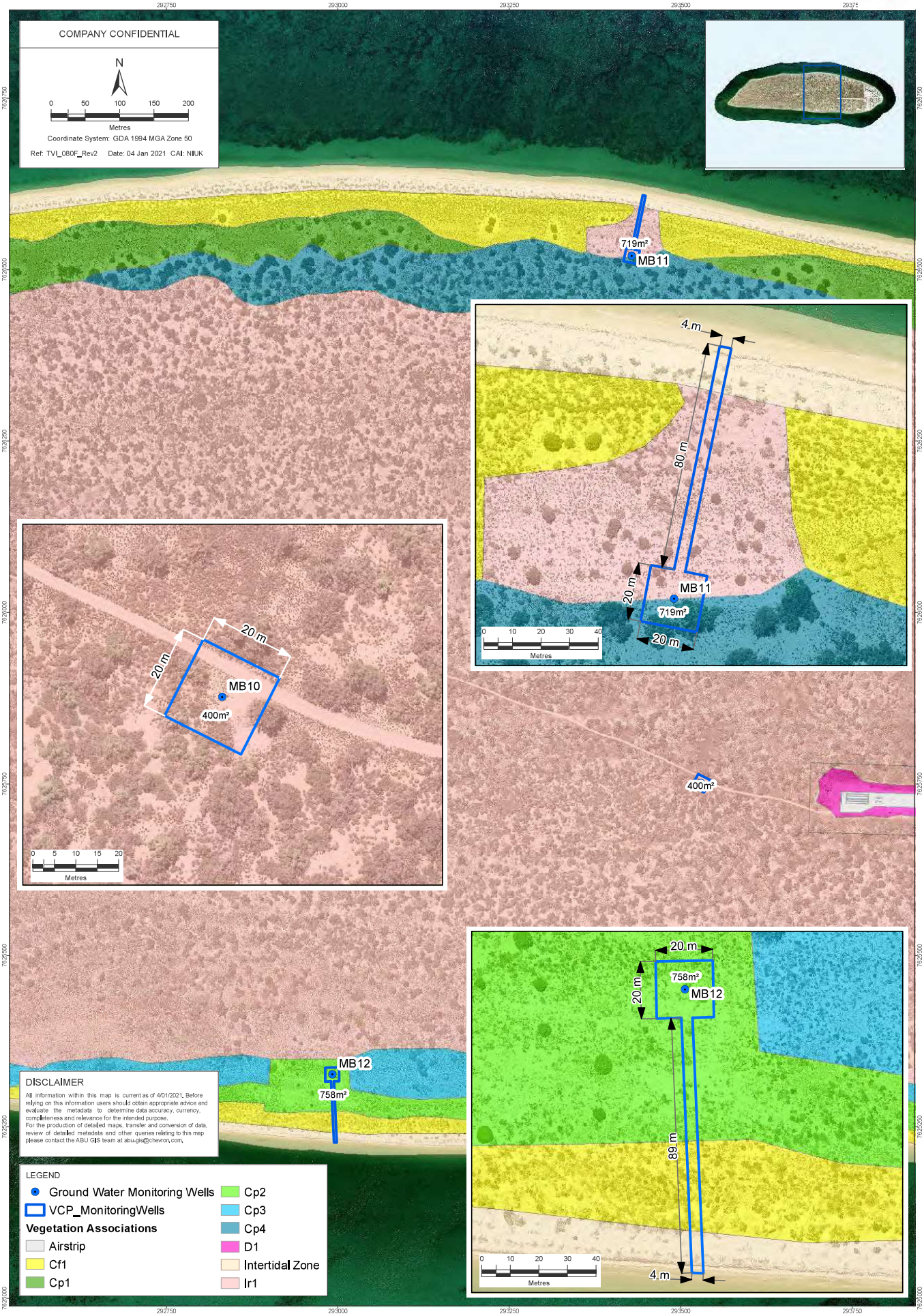
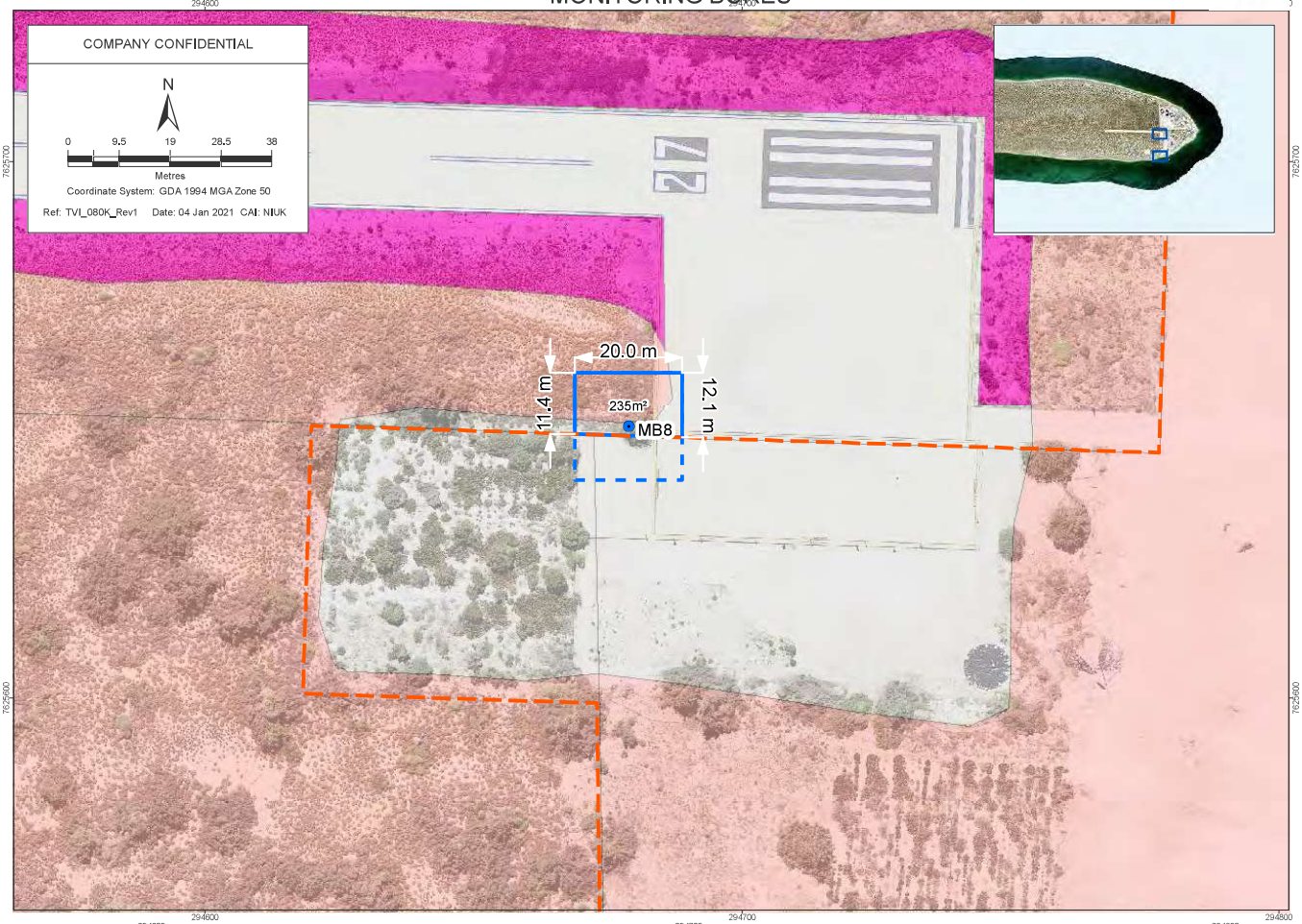


FIGURE 4B: ESTIMATED DISTURBANCE FOR THE ACCESS AND REMOVAL OF GROUND WATER MONITORING BORES

FIGURE 5B: ESTIMATED DISTURBANCE FOR THE ACCESS AND REMOVAL OF GROUND WATER MONITORING BORES



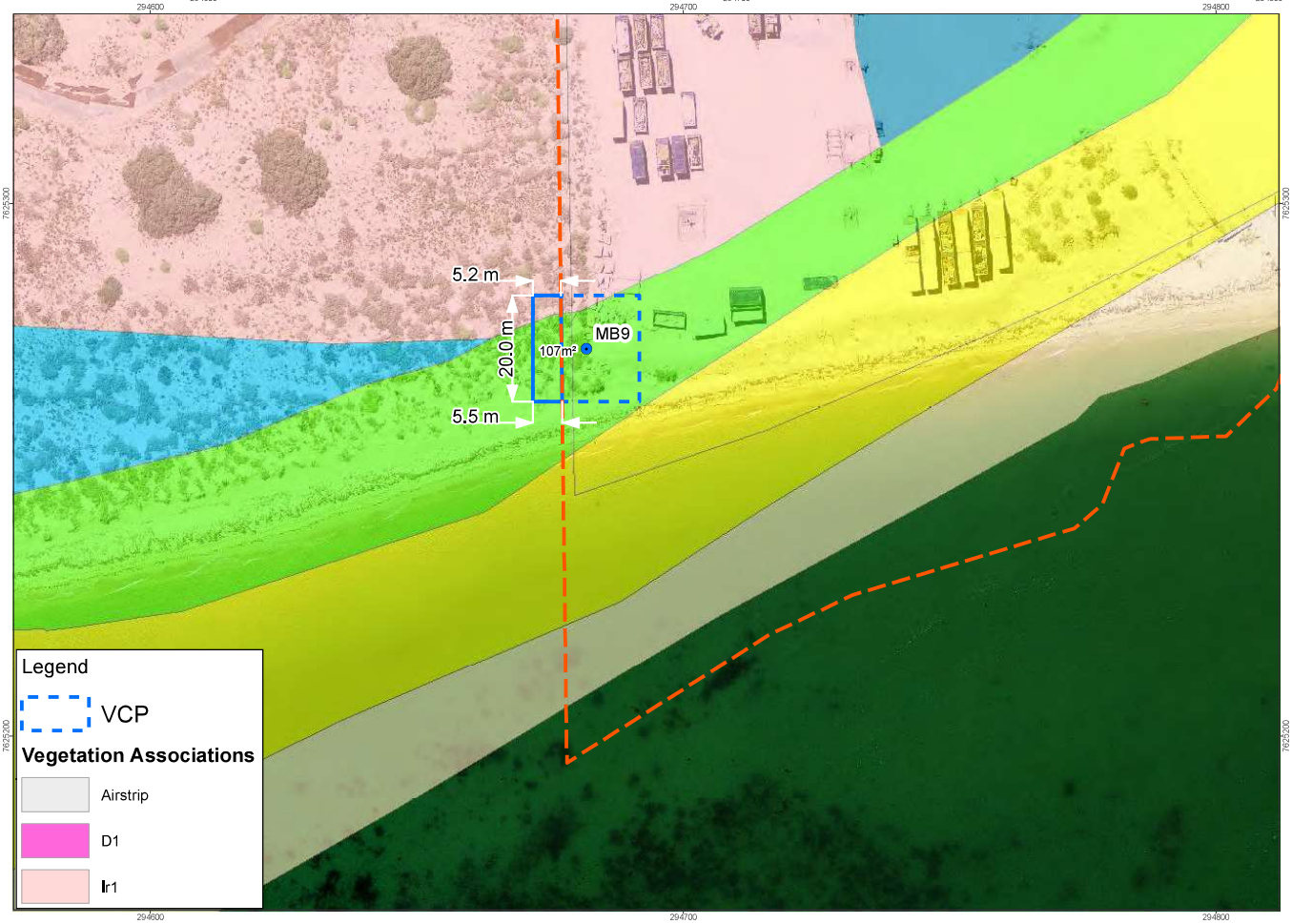


FIGURE 6B:
ESTIMATED DISTURBANCE FOR THE ACCESS AND REMOVAL OF WATER SOURCE WELLS