Appendices

Appendix A - Assessment Guidelines

A1 Assessment investigation levels

Environmental protection in Victoria is legislated under the *Environment Protection Act 1970* (EP Act). Subordinate legislation within the EP Act includes State environment protection policies (SEPPs) that prescribe beneficial uses and objectives that are to be met to protect the various segments of the environment.

A1.1 Beneficial uses of the land to be protected

The relevant SEPP for the land segment, is the *State environment protection policy (Prevention and Management of Contamination of Land)* 2002. Commonly referred to as the 'Land SEPP' the policy applies to all land in the State of Victoria and is enforceable under Section 16 of the Environment Protection Act 1970. The Land SEPP was varied on 26 September 2013 to reflect changes to national guidelines (NEPC 1999). The variation should be read in conjunction with the SEPP.

The Land SEPP provides beneficial uses to be protected under a number of different land use scenarios, and provides indicators and objectives for protection of land. The Land SEPP provides a framework for deciding which beneficial uses need to be protected having regard for the existing and intended uses of a site: The land use categories and relevant beneficial uses to be protected are provided in a replication of *Table 1 from the Land SEPP* below in Table A1 below.

Table A1 Protected beneficial uses of land

Beneficial Use	Land Use						
			Sensitive Use				
	Parks & Reserves	Agricultural	High Density	Other	Recreation / Open space	Commercial	Industrial
Maintenance of Ecosystems							
Natural Ecosystems	✓						
Modified Ecosystems	✓	✓		✓	✓		
Highly Modified Ecosystems		✓	✓	✓	✓	✓	✓
Human Health	✓	✓	✓	✓	✓	✓	✓
Buildings & Structures	✓	✓	✓	✓	✓	✓	✓
Aesthetics	✓		✓	✓	✓	✓	
Production of Food, Flora & Fibre	✓	✓		✓			

The Land SEPP further defines sensitive uses as including child care centre, pre-school, primary school and residential, any of which may take place in:

- Sensitive Use (High Density) - A high density area (where development makes maximum use of available land space and there is minimal access to soil)
- Sensitive Use (Other) - A lower density area (where there is generally substantial access to soil)

All beneficial uses must be considered when completing an environmental audit.

The proposed land use at the site comprises development of the following:

- Single Dwelling Residential: to provide for single dwellings on individual lots, i.e. Sensitive Use (Other)
- Multiple Dwelling Residential: to provide for a range of housing options to a maximum height of two storeys above ground level, i.e. Sensitive Use (High Density)

The protected Beneficial Uses at the site are therefore:

- Maintenance of Modified Ecosystems
- Human Health
- Buildings & Structures
- Aesthetics
- Production of Food, Flora & Fibre

A1.2 Investigation levels adopted – land

The Land SEPP refers to the National Environment Protection (Assessment of Site Contamination) Measure 1999 (commonly referred to as the NEPM) which was formulated by National Environment Protection Council (NEPC) under the *National Environment Protection Council Act 1994.* The NEPM 1999 was amended in May 2013 and is now referenced as NEPM (1999 as amended 2013).

Schedule B (1) of the NEPM, 'Guideline on the Investigation Levels for Soil and Groundwater' provides a range of investigation levels for soil, groundwater and air in the assessment of site contamination. These NEPM investigation levels are referred to in the Land SEPP as the principal objectives to be met to protect the beneficial uses of land.

Where investigation levels were not available in the NEPM reference has been made to the following documents:

- Dutch Target and Intervention values in the Soil Remediation Circular 2009 (MIE 2012)
- Regional Screening Levels (RSL) for Chemical Contaminants at Superfund Sites. (Regions 3, 6 and 9). United States Environmental Protection Agency, June 2015 (USEPA, 2015)

A1.2.1 Maintenance of ecosystems

In accordance with the Land SEPP, contamination must not adversely affect the maintenance of relevant ecosystems. The Ecological Investigation levels (EILs) and Ecological Screening Levels (ESLs) provided in the NEPM (1999 as amended 2013) have been adopted to assess the need for further investigation or evaluation to protect the relevant ecosystems and are applicable for assessing risk to terrestrial ecosystems.

At this stage EILs have been only been derived for arsenic, copper, chromium (III), DDT, naphthalene, nickel, lead and zinc. ESLs have been developed for four petroleum hydrocarbon chain fractions based on the fractions adopted in the *Canada-wide standard for petroleum hydrocarbons (PHC) in soil* (CCME, 2008) referred to as (F1 – F4), BTEX and benzo(a)pyrene.

Both EILs and ESLs have been developed to provide the basis of a Tier 1 risk assessment, which involves comparing site data with adopted generic investigation and screening levels under various land use scenarios to consider the requirement for further site assessment and/or development of an appropriate management strategy. EILs and ESLs generally apply to the top 2 m of soil, which corresponds to the root zone and habitation zone of many species.

Derivation of site specific EILs

EILs can vary greatly from site to site, and the methodology for calculating site specific EILs assumes the ecosystem is adapted to the ambient background concentration (ABC) for the locality and only adding contaminants over and above this background concentration has the potential to have an adverse effect on the environment.

An added contaminant limit (ACL) is the added concentration (above the ABC) of a contaminant above which further appropriate investigation and evaluation of the impact on ecological values may be required. ACLs are based on site-specific soil characteristics including pH, cation exchange capacity (CEC) and clay content.

Given the nature of the site and the surrounding area, background samples were not collected during this investigation and neither ABCs determined or ACLs derived. NEPM (1999 as amended 2013) EILs for aged contamination were adopted for site characterisation on the basis that contamination has been present on the site for greater than two years.

Adopted ESLs

For this site, the relevant land use scenario is urban residential.

For soil texture, values are based on the lithology of the top 2 m of soil at the site Section 3.6.1. The lithology varies between a silty sand and sandy gravel, with variable clay component between the ground surface and approximately 1 m depth. Given this variability, the Auditor has selected the more conservative Tier 1 values, which are predominantly those for coarse soils, except in the case of xylenes, where the fine textured soil value was adopted (amend as appropriate). While the assessor chose to adopt ESLs based on fine textured soil, the Auditor notes that none of the more conservative thresholds were exceeded for C_6-C_{10} (less BTEX) [F1], >C_{10}-C_{16} [F2], >C_{16}-C_{34} [F3] or >C_{34}-C_{40} [F4].

A1.2.2 Human health protection

The land SEPP states that contamination must not cause an adverse effect on human health. The Health Investigation Levels (HILs) provided in the NEPM (1999 as amended 2013) have been adopted to assess the need for further investigation and evaluation and are applicable for assessing risk to human health.

The HILs are generic to all soil types and generally apply to the top 3 m of soil. Concentrations of volatile contaminants in groundwater that could affect use of the land also require consideration.

Specific HILs have been derived based on four generic land use scenarios (NEPM 1999 as amended 2013, Schedule B7). The land use categories have been developed with consideration of the sensitive populations and intensity, frequency and means of exposure to soil contaminants.

Based on the proposed development the relevant land use category for protection of human health relating to this Site is:

- HIL A – residential with garden/accessible soil (home grown produce <10% fruit and vegetable intake (no poultry), also includes children's day care centres, preschools and primary schools

In addition to the HILs, health screening levels (HSLs) have been developed for selected petroleum compounds (see Table 1A(3) of NEPM (1999 as amended 2013)) to assess human health risks from the inhalation of vapours and from direct contact with contaminants in soil and groundwater under the following land use scenarios.

- Low –high density residential (HSL A and HSL B)
- Recreational / open space (HSL C)
- Commercial / industrial (HSL D)

The relevant land use scenario for this investigation is Low –high density residential (HSL A and HSL B).

Vapour intrusion

The NEPM (1999 as amended 2013) provides soil HSLs for vapour intrusion including BTEX, naphthalene and two TPH chain fractions based on the fractions adopted in the *Canada-wide standard for petroleum hydrocarbons (PHC) in soil* (CCME, 2008). These are referred to as fractions F1 and F2 (TPH C_6-C_{10} (minus BTEX) and TPH C_{10}-C_{16} (minus naphthalene) respectively).

TPH >C_{16}-C_{34} and >C_{34}-C_{40} fractions are considered non-volatile and therefore not of concern for vapour intrusion.

The HSLs for vapour intrusion depend on the soil properties and the characteristics of the building structures as these affect the potential migration of vapour from soil to a receptor. The HSLs are selected based on the soil type, land uses and depth of the contamination source at the site. With respect to soil texture, the NEPM states that HSLs are applicable to sand, silt and clay soils.

With respect to groundwater, the NEPM provides HSLs for a range of depths to the water table (2 m to <4 m, 4 m to <8 m, and >8 m) and soil types. Factors that can account for biodegradation are also provided; a degradation factor of 10 may be applied to source depths from 2 to <4 m, and a factor of 100 may be applied to source depths greater than 4 m, where the maximum soil gas concentration is no greater than 100 mg/L (100,000 mg/m^3). Other assumptions that must be valid before applying these attenuation factors are:

1. The maximum length of the shorter side of the concrete slab and surrounding pavement cannot exceed 15 m, to allow oxygen to penetrate the centre of the slab.
2. Oxygen must be measured at >5% at a depth of at least 1 m below ground level and the vapour source must be at least twice the depth of the oxygen measurement. On this basis the source must therefore be at least 2 m below the surface.

Assumptions applied in developing the standard criteria are:

1. The soil organic carbon is 0.3% (soil HSL only). Higher concentrations can allow an increase to the HSL.
2. The air exchange rate is at least 0.6 building volumes per hour for a residential building and 0.83 building volumes per hour for a commercial building.
3. Baseline moisture contents (percent by dry weight) typical of dry conditions have been presumed, which are specified as follows:
   - Sand 8%
   - Silt 22%
   - Clay 20%

Variations from these and other conditions may require adjustment of the HSLs. Reference should be made to Section 4 of the CRC CARE (2011) Technical Report No. 10, Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater, Part 2: Application document.

As summarised in Section 3.6.1, the soil lithology of the site varies between a silty sand and sandy gravel, with the more conservative 'sand' classification being considered as the most appropriate for the Tier 1 screening.

The depth to groundwater is considered to be in the order of 50 mbgl.

Direct contact

Direct contact HSLs apply for TPH >C_{16}-C_{34} and >C_{34}-C_{40}, and are referenced in Friebel and Nadebaum (2011) *Health Screening Levels for Petroleum Hydrocarbons in Soil and Groundwater. Part 1: Technical Development Document.* HSLs for direct contact are selected based on land use. Exposure can occur via oral ingestion, dermal contact and dust inhalation of soil particles. HSLs for direct contact should be applied where direct contact is considered likely, for example:

- Surface soils up to 1 m below ground level
- Where bulk soil movement may occur such as excavation where soil at depth may be relocated to the surface
- Intrusive maintenance works to the depth of a trench floor. For trench workers, a site specific assessment should be carried out to assess the risk from direct contact.

Soil vapour

The NEPM provides interim soil vapour HILs for selected volatile organic chlorinated compounds, and HSLs for BTEX, naphthalene and TPH fractions F1 and F2 (TPH C_6-C_{10} (minus BTEX) and TPH C_{10}-C_{16} (minus naphthalene) respectively).

Management limits

The NEPM specifies Management Limits to protect against fire and explosion hazards (as well as protect against the formation of NAPL and effects on buried infrastructure). They are not specific to any land use, but may have less relevance at an operational industrial site.

A1.2.3 Aesthetics

There are no published criteria specific to assessment of aesthetic impact. However, the Land SEPP includes the aesthetic as a protected beneficial use of the land and also states (Table 2 of the SEPP) "contamination must not cause the land to be offensive to the senses of human beings". Schedule B (1) of the NEPM also specifies no specific numeric aesthetic guidelines; however site assessment requires balanced consideration of the quantity, type and distribution of foreign material or odours in relation to the specific land use and its sensitivity. General assessment considerations include:

- That chemically discoloured soils or large quantities of various types of inert refuse, particularly if unsightly, may cause ongoing concern to site users
- The depth of the materials, including chemical residues, in relation to the final surface of the site

A1.2.4 Buildings and structures

The Land SEPP requires that "*Contamination must not cause the land to be corrosive to or adversely affect the integrity of structures or building materials*." The Land SEPP specifies that "*pH, sulfate, redox potential, salinity or any chemical substances or waste that may have a detrimental impact on the structural integrity of buildings and / or other structures*" as indicators.

Investigation levels are not specified and reference has been made to AS2159-2009 Piling – Design and installation. The criteria for soil exposure to both steel and concrete piles will be considered.

A1.2.5 Production of food, flora and fibre

The Land SEPP requires that "Contamination of land must not:

(i) adversely affect produce quality or yield; and

(ii) affect the level of any indicator in food, flora and fibre produced at the site (or that may be produced) such that the level of that indicator is greater than that specified by the *Australia, New Zealand Food Authority, Food Standards Code.*"

A1.3 Beneficial uses of groundwater to be protected

NT EPA has not published guidance specific to the conduct of environmental audits. In the absence of such guidance, the audit has been carried out generally in accordance with the Victorian environmental audit system, consisting of Part IXD of the *Victorian Environment Protection Act, 1970*, and the associated policies and guidelines. The Victorian Environment Protection Authority (the Authority) will determine the segment to which groundwater in an aquifer belongs. The beneficial uses to be protected for each of the groundwater segments are defined in Table 2 of the *State environment protection policy* (*Groundwaters of Victoria) 1997*, herein referred to as the Groundwater SEPP. Water of higher quality (lower salinity) has more beneficial uses than low quality (more saline) groundwater.

Beneficial uses to be protected for each segment are marked by a tick.

Table A4 Protected beneficial uses of groundwater segments

Beneficial Uses	Segments (mg/L TDS)				
	A1 (0-500)	A2 (501-1000)	B (1001-3500)	C (3501-13,000)	D (greater than 13,000)
Maintenance of ecosystems	✓	✓	✓	✓	✓
Potable water supply					
Desirable	✓				
Acceptable		✓			
Potable mineral water supply	✓	✓	✓		
Agriculture, parks & gardens	✓	✓	✓		
Stock watering	✓	✓	✓	✓	
Industrial water use	✓	✓	✓	✓	✓
Primary contact recreation (e.g. Bathing, swimming)	✓	✓	✓	✓	
Buildings and structures	✓	✓	✓	✓	✓

The Authority may also determine that these beneficial uses do not apply to groundwater where:

- there is insufficient yield to sustain the beneficial use;
- the background level of a water quality indicator other than TDS precludes a beneficial use;
- the soil characteristics preclude a beneficial use; or
- a groundwater quality restricted use zone has been declared.

Clause 5.(1) of the Groundwater SEPP also states that "The goal of the policy is to maintain and where necessary improve groundwater quality sufficient to protect existing and potential beneficial uses of groundwaters throughout Victoria."

EPAV (2015) *Guidelines for Issue of Certificates and Statement of Environmental Audit*[6] provides further explanation:

- Section 9.2 states, "Any assessment of the likelihood of particular beneficial uses being realised should be based on an evaluation of whether an owner / occupier of the site or in the vicinity of the site *may reasonably expect* to use or be able to use groundwater for those purposes."
- Section 13.3 states, "Beneficial uses of groundwater may be considered 'relevant' for the purpose of determining whether to issue a Certificate in the following circumstances.
    a. The beneficial use is 'existing' in the vicinity of the site. A beneficial use may be considered 'existing' where an existing receptor (bore, spring, creek) is or could plausibly be impacted by the pollution or reasonably foreseeable conditions (including altered groundwater flow resulting from abstraction, injection or other means).
    b. where the beneficial use is 'likely' to be realised in the vicinity of the site. A beneficial use may be considered 'likely' in circumstances including but not limited to:
        (i) use of groundwater in the same hydrogeological setting nearby or elsewhere in Victoria, and
        (ii) the existing and likely future land uses both at the site and in the vicinity of the site are compatible with the beneficial use".

In this case, the Authority has not been consulted to determine the groundwater protected beneficial uses, but these have been determined based on the Groundwater SEPP for the purposes of this report.

As discussed in Section 7.3.1 and summarised in Table 9, the salinity of groundwater at the site ranges between 18 mg/L and 93 mg/L, therefore the relevant beneficial uses of groundwater to be protected are:

- Maintenance of ecosystems
- Potable water supply (desirable)
- Potable mineral water supply
- Agriculture, parks & gardens
- Stock watering
- Industrial water use
- Primary contact recreation (e.g. bathing, swimming)
- Buildings & Structures

[6] Publication 759.3 December 2015 replaces publication 759.2, issued February 2014

A1.4 Investigation criteria adopted - groundwater

Given the depth to regional groundwater and the demonstrated absence of a viable shallow aquifer, groundwater was not assessed at the site.

A1.5 Beneficial uses of the air environment

Table 1 in the *State environment protection* policy (Prevention and Management of Contamination of Land), 2002 specifies the protection of human health and ecosystems for all specified land uses. Aesthetics must be considered under all land uses except industrial and agricultural settings. With respect to potential health impacts of air, this applies to the scenario where vapours arising from contamination of soil and / or groundwater impact the beneficial uses of the land. Assessment of vapour impacts may include subsurface source concentrations (soil, groundwater and soil vapour), indoor air environments and ambient (outdoor) air environments.

The *State environment protection policy (Air Quality Management)* (AQM SEPP) specifies the beneficial uses are protected in the ambient (outdoor) air environment throughout the State of Victoria-

a) life, health and well-being of humans

b) life, health and well-being of other forms of life, including the protection of ecosystems and biodiversity

c) local amenity and aesthetic enjoyment

d) visibility

e) the useful life and aesthetic appearance of buildings, structures, property and materials

f) climate systems that are consistent with human development, the life, health and well-being of humans, the protection of ecosystems and biodiversity

Table A6 below outlines the likely impact scenarios and provides a screening analysis of the beneficial uses of air for further consideration, as relevant to this site. While these scenarios specifically refer to the outdoor environment, the requirements of the Land SEPP require that we also consider the indoor environment. The requirements of the AQM SEPP particularly apply during any remedial works, including offsite emissions, dust and odour control.

Table A6 Relevance of beneficial uses of air

Beneficial Use	Possible Exposure Scenarios	Requires Further Consideration?
Life, health and well-being of humans	Vapours may arise from contaminated soil and groundwater and associated remediation processes are unlikely to impact the indoor and other living area air spaces to the point that human health is impacted.	No
Life, health and well-being of other forms of life, including the protection of ecosystems and biodiversity	Vapours may arise from contaminated soil and groundwater and associated remediation processes are unlikely to impact the indoor and other living area air spaces to the point that flora and fauna is impacted.	No
Local amenity and aesthetic enjoyment	Soil and groundwater contamination may give rise to objectionable odours.	No
Visibility	Would generally only need to be considered where remediation activities may give rise to significant dust.	No

Beneficial Use	Possible Exposure Scenarios	Requires Further Consideration?
Useful life and aesthetic appearance of buildings, structures, property and materials	Vapours arising from site contamination is unlikely to impact this beneficial use.	No
Climate systems that are consistent with human development, the life, health and well-being of humans, the protection of ecosystems and biodiversity	Impact on climate systems (net environmental benefit) should be considered in selection of a suitable remediation system (if relevant).	No

A1.6 Investigation criteria adopted - air

Consideration of former land uses did not identify volatile hydrocarbons as contaminants of concern, neither did the site investigation. All contaminants of potential concern have been demonstrated as possessing low volatility. As a result, no investigation criteria for air were adopted.

A1.7 Beneficial uses of sediments to be protected

There are no sediments present at the site (or off site where they may be impacted by contamination from the site) therefore this beneficial use is not considered further.

A1.9 Beneficial uses of surface water to be protected

The *State environment protection policy (SEPP) Waters of Victoria,* herein referred to as Waters of Victoria SEPP, requires that surface waters be of a suitable quality and quantity to support that use or value. The beneficial uses for each segment of the water environment are marked in **Table A7** by a tick.

Table A7 Protected beneficial uses of surface water

Beneficial use	Aquatic Reserves	Wetlands and Lakes	Rivers and Streams					Marine and Estuarine				
			Highlands	Forests-A	Forests-B	Cleared hills and Coastal Plains	Murray and Western Plains	Estuaries and Inlets	Open Coasts	Port Phillip Bay	Western Port Bay	Gippsland Lakes
Aquatic Ecosystems that are:												
Largely unmodified	✓		✓	✓	✓				✓	F6	F8	F3
Slightly to moderately modified		✓				✓	✓	✓				
Highly modified												
Water suitable for:												
Primary contact recreation	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Secondary contact recreation	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Aesthetic enjoyment	✓	✓	✓	✓	✓	✓	✓	✓	✓			

Beneficial use	Aquatic Reserves	Wetlands and Lakes	Rivers and Streams					Marine and Estuarine				
			Highlands	Forests-A	Forests-B	Cleared hills and Coastal Plains	Murray and Western Plains	Estuaries and Inlets	Open Coasts	Port Phillip Bay	Western Port Bay	Gippsland Lakes
Indigenous culture and spiritual values	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Non-indigenous culture and spiritual values	✓	✓	✓	✓	✓	✓	✓	✓	✓			
Agriculture and irrigation		✓	✓	✓	✓	✓	✓					
Aquaculture		✓		✓	✓	✓	✓	✓	✓			
Industrial and commercial use				✓	✓	✓	✓	✓	✓			
Human consumption after appropriate treatment		✓	✓	✓	✓	✓	✓					
Fish, crustacea, molluscs for human consumption		✓	✓	✓	✓	✓	✓	✓	✓			

A1.10 Investigation criteria adopted – surface water

No surface water was identified at the site and therefore no surface water was assessed.

Appendix B - Report on Preliminary Environmental Site Investigation, Revision 1, Lot 3 Freds Pass Road, Humpty Doo, NT. Apr 2015 (DP Ref: 78156.00, Rev 1)

Douglas Partners
Geotechnics / Environment / Groundwater

Integrated Practical Solutions

Report on
Preliminary Environmental Site Investigation
Revision 1

Lot 3 Freds Pass Road
Humpty Doo, NT

Prepared for
Tolinchlo Pty Ltd

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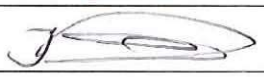
The undersigned, on behalf of Douglas Partners Pty Ltd, confirm that this document and all attached drawings, logs and test results have been checked and reviewed for errors, omissions and inaccuracies.

	Signature		Date
Author		Jessica Paulsen	16 April 2015
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Report on Preliminary Environmental Site Investigation
Lot 3 Freds Pass Road, Humpty Doo, NT

1. Introduction

This report presents the results of a preliminary environmental site investigation (PSI) which was carried out at Lot 3 Freds Pass Road, Humpty Doo, NT. The investigation was commissioned by Mr Peter Poniris of Tolinchlo Pty Ltd (Tolinchlo), owner of the site. It is understood that the site will be developed into a 59 lot residential subdivision and that this PSI will form the basis of an environmental audit, as required by the Northern Territory Development Consent Authority (DCA).

The proposed development will comprise the site being divided into two sections. The northern corner will be developed into several multiple dwelling (MD) lots and the remaining site area will be developed into single dwelling (SD) lots. The proposed development is shown in client drawings which are provided in Appendix B.

The assessment process is subject to a site audit by a 'Qualified Person' under the NSW or VIC contaminated land auditor systems. Mr John Throssell of GHD Pty Ltd has been appointed as the Site Auditor for the project.

The objectives of the PSI were to:

- Identify potential sources of contamination and determine the contaminants of concern; and
- Identify areas of potential contamination;

It should be noted that this PSI does not include any intrusive soil or groundwater sampling.

Douglas Partners Pty Ltd (DP) has not been made aware of any previous contamination assessment at the site.

2. Scope of Work

The scope of work comprised the following.

- A desk review of site history;
- A site walkover was carried out by a geo-environmental scientist from DP to observe any indicators of potential contamination; and
- Preparation of this report.

3. Site Location and Description

The irregular shaped site is located on the south-eastern corner of Freds Pass Road and Beaumont Road, Humpty Doo, NT and has maximum plan dimensions of approximately 404 m by 278 m and covers an area of approximately 81,100 m^2 (8.11 ha) as shown on Drawing 1 in Appendix A. The site is bounded by Freds Pass Road to the north, Beaumont Road to the west and by rural residential allotments to the east and south.

A site walkover was undertaken by a geo-environmental scientist from DP on 23 February 2015. No visible signs of concern with respect to contamination were noted during the inspection. No surface staining or soil discolouration was noted.

At the time of the walkover, the site sloped down slightly toward the south. The site surface had been stripped of topsoil and some parts were covered by patches of short grass. A few large trees were present. Refer to Drawing 2 and Photographs 1 to 7 in Appendix A.

The following structures occupied the north-western corner of the site:

- A concrete slab which had two shipping containers and one demountable shed on it. Refer to photograph 1;
- Double garage. Refer to photograph 2; and
- Above ground water storage tank. Refer to photographs 1 to 4.

Several items of earthmoving machinery also occupied the north-western corner of the site. Refer to photographs 1, 3 and 4.

According to the *Darwin and Surrounds Map* dated Feb 2015*, Northern Territory Planning Scheme* (NTPS, 2015) and discussions with Litchfield Council, the site is zoned MZ – Multi Zone. ..

MZ simply means that the site has more than on planning zone. The site is split into two planning zones, these being SD (single dwelling) and MD (multiple dwelling). The northern corner is zoned MD and the remaining site area is zoned SD. This is consistent with the proposed development as discussed in Section 5.5 of this report and plans presented in Appendix B.

All the surrounding land is zoned either:

- RL1 – Rural Living 1 with its purpose being described as *to provide opportunity for low density rural living and a range of rural land uses* (LAP, 2004). Minimum lot size of 2 ha ; or
- RL2 – Rural Living 2 with its purpose being described as *to provide land for agriculture, horticulture and intensive animal husbandry* (LAP, 2004). Minimum lot size of 8 ha ; or

The surrounding land uses are discussed in Section 5.1. In general, surrounding land was most likely occupied by virgin bushland prior to being partly cleared for rural residential purposes. Some orchards appear in the surrounding area.

4. Regional Geology and Proximity to Surface Water

Reference to the Noonamah 1:100 000 Geological Series map (Sheet 5172) indicates the site is underlain by Quaternary age soil deposits of nodular and pisolitic laterite gravel and ferricrete. These soil materials overlie early Proterozoic age siltstone, shale and argillite belonging to the Wildman Siltstone Unit.

Based on investigations completed by DP in the surrounding area, lateritic soils are generally encountered at depths of between 0.5 m and 1 m and become cemented at a depth of approximately 2 m. DP have rarely encountered the underlying rock formation, but siltstone is generally encountered at depths greater than 5 m.

The site and surrounding area sloped down slightly toward the south. Edwins Creek is located approximately 1 km east of the site and Horns Creek is located approximately 2.5 km south-west of the site. The creeks drain into the Howard and Elizabeth Rivers, respectively.

According to the Northern Territory Government Natural Resource Maps (2004), groundwater quality in the vicinity of the site is suitable for most purposes and bore yields could be expected to be 0.5 – 15 L/s.

4.1 Groundwater Database Search

A search of the Northern Territory Natural Resource Maps groundwater database identified three registered groundwater bores located on the site and 12 registered groundwater bores on the surrounding lots. A map and bore logs are provided in Appendix A.

One of the bores located on site (registered bore number RN007082), was drilled in 1970 for farming purposes to a depth of 85 m below ground level (m BGL). The log indicates groundwater was encountered at 14.6 m BGL. The yield as stated as 2.25 L/s and the water is described as being suitable for human consumption.

The second bore located on site (registered bore number RN009550) was drilled in 1979 for farming purposes to a depth of 55 m BGL. The log indicates groundwater was encountered at 3 m BGL. The yield is stated as 5 to 10 L/s and the water is described as being suitable for use as drinking water. Interestingly, the lot is described as being a mango and banana farm.

The third bore located on site (registered bore number RN009500) was drilled in 1979 for production purposes to depth of 60 m BGL. The log indicates groundwater was encountered at 4.5 m BGL. The yield is stated as 1 to 2 L/s. The water is not considered suitable for human consumption due to the iron content and pH level.

The client has confirmed that all three bores remain on site and are operational. The location of the bores are shown on Drawing 2 in Appendix A.

5. Site History

A review of site history was conducted based on historical aerial photograph records, historical title deeds, development consent authority information, Council's records and anecdotal information.

5.1 Aerial Photographs

Historical aerial photographs for 1995, 1996 and 1997 were sourced from NT Department of Lands, Planning and the Environment. The 2004, 2012 and 2014 aerial photographs were sourced from Google Earth Pro. The six photographs were examined to determine whether there had been any site disturbance or potentially contaminating activities occurring on the site or surrounding property in the recent past. There were no photographs available prior to 1995. The photos are presented in Appendix B.

1995 - The site appears to be operating as a mango orchard. Several structures and virgin bushland appear to occupy the north-west corner of the site. The majority of the site is covered by mango trees and grassed areas. The surrounding area to the north and east appear occupied by rural residential allotments which have been partly cleared of virgin bushland and other orchards. The surrounding area to the south and west appear occupied by rural residential allotments which have been partly cleared of virgin bushland.

1996 - The site and surrounding area appear similar to the 1995 photograph.

1997 - The site and surrounding area appear similar to the 1996 photograph, although there appears to be an additional orchard in the surrounding area to the west of the site.

2004 – The site and surrounding area appear similar to the 1997 photograph.

2012 – The site and surrounding area appear similar to the 2004 photograph.

2014 – This photograph shows that the site has changed considerably since 2012. All the mango trees have been removed with the exception of one tree in about the centre of the site. The site appears to have been stripped back with the exception of the north-west corner. The north-west corner of the site appears similar to the 2012 photograph in that the same structures and vegetation appear to occupy this area. The surrounding area appears similar to the 2012 photograph apart from an additional development of a site to the north-east which appears to be occupied by a few larger (possibly commercial) buildings.

Overall, the aerial photographs indicate that the site has been occupied by a mango orchard from at least 1995 until sometime between 2012 and 2014 when the trees were removed. The surrounding area has been occupied by orchards, rural residential allotments and virgin bushland between 1995 and 2014.

5.2 Historical Title Deeds

A historical title deeds search was undertaken for the site and a full copy of the information received is presented in Appendix B.

The titles indicate that the site is zoned Multi Zone (MZ) and is located within the Litchfield Municipality. The registered owner is Tolinchlo with an address registered in Woolner, NT.

The site has been transferred five times in 1970, 1979, 1981, 1998 and 2012. The following valuation improvements are noted in the titles:

- 1995: house, garage, shed and rural other; and
- 1979: shed and house.

The Deeds also indicate that an investigation / enforcement of ''alleged excavation without prior consent – removal of tree roots stored at the end of the site.'' was undertaken, but the records do not record the date of the investigation. It is likely that this event occurred following the topsoil stripping which was undertaken about six years ago, according to the anecdotal information (see Section 5.5).

An application for a subdivision was approved in September 2014 described as ''subdivision to create 59 lots in 4 stages''. An application to ''rezone Sections 2257, 2258, 2259, 2260 and 2844 and Lot 3 from Zone RL (rural living) to Zones SD (single dwelling residential) and RR (rural residential) to facilitate residential subdivision of Humpty Doo East'' was deferred in April 2011, until the district plan was completed.

A development was approved in August 1994 for a cool room / shed. The site inspection indicates that this structure has since been removed.

Given the above, it could be inferred that it is likely the site was unallocated crown land prior to 1970 which would confirm the likelihood of native bushland occupying the site before the mango orchard.

5.3 Development Consent Authority Information

The Development Consent Authority (DCA) informed DP that there are two permits recorded for the site, these being DP94/217, dated 16 September 1994 and DP14/0679 dated 25 September 2014.

DP94/217 was approved and comprised the construction of a cool room / shed to ''*facilitate the packing and freight control of produce (mangoes) grown on the property''.* Three plans are attached to the permit showing the site layout at the time and the proposed shed which appear generally consistent with the current site layout, although the residential dwelling and cool room / shed have since been demolished.

DP14/0679 was also approved and describes the approved purpose as ''*to use and develop the land for the purpose of subdivision to create 59 lots in 4 stages, in accordance with the attached schedule of conditions and the endorsed plans''.* The 'endorsed plans' were not provided to DP. Preparation of this report is one of the conditions of the permit.

The DCA information is presented in Appendix B.

5.4 Council Records

The site is within the Litchfield Municipality local government area. A search of the Council records did not reveal any information pertaining to the site other than that it has been used as a mango orchard. There are no development details, complaints or other historical information held by the Council. An email detailing Council's response is presented in Appendix B.

5.5 Anecdotal Information

A representative of Tolinchlo (Mr Tony Whear) provided anecdotal information to DP on site when the site walkover was carried out. The interview revealed the following information:

- The site has been owned and operated by Mr Whear's family for three generations. The exact year that the family acquired the land is unknown. Tolinchlo have owned and operated the site for about the past 19 years. Up until about 6 years ago the site was operating as a mango orchard. It is unclear when the mango orchard was established but was operating for at least 10 years prior to Tolinchlo. It is unclear whether other pesticides were used at the site prior to about 19 years ago.
- Part of the site operated as a banana orchard in the 1970s. The bananas were replaced by tomatoes in the late 1980s. The tomatoes were replaced by mangoes in about the 1990s.
- It is unclear what the site use was prior to Mr Whear's family's occupation.
- All topsoil had been stripped and removed off site when operations ceased (about 6 years ago). The topsoil was stripped in preparation for the proposed earthworks and filling process which will be conducted prior to subdivision of the land.
- The cool room / shed was demolished and removed about 6 years ago.
- The residential dwelling was demolished and removed in early 2015. The dwelling contained some asbestos materials which were removed by a licensed asbestos removalist. An asbestos clearance certificate was provided by Tolinchlo and is presented in Appendix B. The certificate indicated that the asbestos removal work was carried out on the 29th and 30th of January 2015 and *"declared that*
    - *The former enclosure, asbestos removal work area and the surrounding area are free from any visible asbestos;*
    - *The transit route and waste routes are free from any visible asbestos; and*
    - *All asbestos in the scope of the removal work has been removed and any known asbestos is intact".*
- Two septic tanks were located at the site. One was removed along with the soil surrounding it about 6 years ago. DP was not informed whether a validation assessment was completed. The remaining septic tank is located close to the location of the former residential dwelling, which has

since been demolished. The locations are shown on Drawing 2 in Appendix A. The client plans to leave the septic on site at least until the MD part of the site is developed.

- Pesticides would have been applied to the land in the past. Tolinchlo stopped using pesticides about 16 years ago with the aim of converting to organic mangoes.

- Within the cool room / shed, three chemicals were stored and used, these being detergent, dimethoate and Sportak. The fruit was washed with detergent and treated before being packed. The fruit was dipped in dimethoate, and then dipped in Sportak fungicide. The waste chemicals (spent drip) were dispersed on the site. Mr Whear informed DP that he thought these chemicals had a half-life of ten days and were not thought to persist in the environment. DP completed some research which revealed information which is not consistent with Mr Whear's thoughts on the persistence of these chemicals which is discussed further below.

- According to Mr Whear, chemicals (pesticides, fertilisers, herbicides and poisons) were not kept on site for long periods of time and there was no 'storage area'. There was only ever one drum at a time which was stored in the cool room / shed. Once this was emptied, another was brought to the site to replace it.

- No detailed information was provided on the name of other pesticide/s and fertiliser/s which were used at the site in the past.

- Two groundwater bores are located on site and are currently operational. One is connected to the above ground water storage tank located in the north-west corner of the site. This water was used in the previous residential dwelling, including for drinking water and irrigation purposes.

- No underground storage tanks or associated equipment have been known to occupy the site.

- No fuel was stored on the site.

- No chemical spills had occurred in the past, other than the planned dispersion of the waste chemicals from the spent drip following washing the fruit which would have been dilute. It should be noted that planned dispersion of the dilute solution is unlikely to have caused contamination. However, if the dispersion occurred in the same place each time, this might have caused a build-up, although the pesticides in question have short half-lives, meaning that they were unlikely to persist in the dispersion area(s).

A google search revealed that Sportak is a Group C fungicide which is used to treat mangos post-harvest. Its active constituent is 450g / L Prochloraz. Disposal of spent dip is described as being readily adsorbed on to organic matter and degraded by biological activity.

The google search also revealed that dimethoate is a Group 1B insecticide which is commonly used to control fruit fly. Its active constituent is 400g / L dimethoate. According to ADAMA, formerly Farmoz (Australian agro-chemical supplier), the spent drip should be mixed with lime and left for at least two hours to neutralise. Following neutralisation, it can be poured into a trench or sprayed on grass.

Tolinchlo also provided DP with two documents showing the proposed development plans entitled *Concept Plan Option 3* and *Earthworks Management Plan* which are provided in Appendix B. The Concept Plan shows 57 SD lots and 47 MD lots. The Earthworks Management Plan shows that a

retention basin is planned for approximately the centre of the site which will be cut between 0.0 m and 1.0 m below current surface level with the remaining site area to be filled between 0.0 m and 1.5 m above current surface level.

5.6 Dial Before You Dig Search

The Dial Before You Dig search results are presented in Appendix B. The plans provided by the search revealed that Telstra services run beneath Beaumont and Freds Pass Road and enter the site from Beaumont Road in the northern corner. This is most likely where the residential dwelling was located. The plans also indicate that the power and water services run along Freds Pass Road and enter the site in the northern corner, also where the residential dwelling was located. The power lines are overhead.

5.7 Summary of Site History

The site history information indicates the following occurred at the approximate dates below:

- Prior to 1970 – site was likely unallocated crown land and occupied by virgin bushland.
- 1970 - site was first transferred, followed by 1979, 1981, 1998 and 2012.
- 1979 - site was occupied by one shed and one house.
- 1994 – approved the construction of a cool room / shed.
- Prior to 1995 – The site had been occupied by an operational mango orchard. It is unclear when this site use commenced, although it may have been in 1970 when the site was first transferred. Pesticides and insecticides are thought to have been used.
- 1995 – site occupied by house, garage, shed and other rural structures.
- 1996 - 1998 – Tolinchlo (current owners) begun operating the mango orchard.
- 1999 – stopped using pesticides and insecticides.
- 2011 – rezoning the site to residential land use was refused.
- 2012 – mango orchard ceased operation.
- 2012 – 2014 – trees were removed and the site surface was stripped.
- 2012 - 2015 – all structures removed from site apart from garage and concrete slab from cool room.
- 2014 – rezoning to residential land use and the proposed development were approved.

Very limited information is available regarding the use and storage of chemicals (pesticides, fertilisers, herbicides and poisons) prior to the Whear's Family's occupation of the site.

6. Potential for Contamination

Based on the findings of the site history investigation and site inspection, potential for contamination at the site is considered to be low to moderate. The site may be potentially contaminated with pesticides, insecticides and petroleum hydrocarbons from the historical use of the site as a mango orchard.

The topsoil was primarily stripped in preparation for the earthworks (filling) prior to subdivision of the site. Given that the topsoil has been stripped, stockpiled and removed off site, any potential surface contamination would have been removed from the site. Having said this, intrusive sampling is still required to validate that any potential contamination has been removed.

The groundwater database search indicates that the three bores which were installed on site between 1970 and 1979 encountered groundwater at depths of between 3 m and 14.6 m below ground level. Given that shallow groundwater was encountered beneath the site in the 1970s, there is potential for the groundwater to have been impacted.

Having said this, there is no up to date information available on the depth to groundwater beneath the site at present. The results of the intrusive soil sampling should also be considered. If results indicate that the soil is not impacted, then it is unlikely that the groundwater has been impacted.

7. Conceptual Site Model

A conceptual site model (CSM) is a representation of site-related information regarding contamination sources, receptors and exposure pathways between those sources and receptors (linkages). The CSM provides the framework for identifying how the site became contaminated and how potential receptors may be exposed to contamination either in the present or the future i.e. it enables an assessment of the potential source – pathway – receptor linkages.

7.1 Potential Contamination Sources

Based on the findings of the site history review and site inspection, the potential sources of contamination have been identified and summarised in the following table.

Table 1: Potential Contamination Sources and Contaminants of Concern

Potential Source	Description of Potential Contaminating Activity	Contaminants of Concern
Contaminated soil. Likely to be limited to shallower depth.	Historical operation of the site as mango, banana and tomato orchard.	Pesticides, herbicides, insecticides, petroleum hydrocarbons and asbestos.

The potential contamination source (S) on the site is therefore:

- S1 – impacted soil.

7.2 Potential Receptors

The following potential receptors have been identified:

- R1 - site users (current and future)
- R2 – adjacent site users
- R3 – construction / maintenance workers
- R4 – groundwater and surface water
- R4a Users of groundwater
- R5 – ecological – plants and gardens on future subdivided allotments

7.3 Potential Pathways

Potential pathways for contamination include the following:

- P1 – direct contact with soil (ingestion and dermal)
- P2 – inhalation of dust and / or vapours
- P3 – leaching of contaminants and vertical migration into groundwater
- P4 – surface water runoff
- P5 - lateral migration of groundwater into surrounding watercourses
- P6 – direct contact of contaminated soil with ecological receptors
- P7 extraction of contaminated groundwater

7.4 Summary of Preliminary Conceptual Site Model

A ‘source–pathway–receptor’ approach has been used to assess the potential risks of harm being caused to human, water or environmental receptors from contamination sources on or in the vicinity of the site, via exposure pathways. The possible pathways between the above source (S1) and receptors (R1 to R5) are provided in Table 2 below.

Table 2: Preliminary CSM

Potential Source	Transport Pathway	Receptor	Risk Management Action recommended	Screening Criteria
Impacted soil	P1 – direct contact with soil(ingestion and dermal) P2 – inhalation of dust and / or vapours	R1 – site users (current and future)	An intrusive investigation is required to quantify and characterise possible contamination including chemical testing of soils. If the site is contaminated, mitigation measures will be required.	TRH, OCP, OPP, PCB (soil and potentially groundwater) Asbestos – presence in soil
	P2 – inhalation of dust and / or vapours	R2 – adjacent site users	An intrusive investigation is required to quantify and characterise possible contamination including chemical testing of soils.	TRH, OCP, OPP, PCB (soil and potentially groundwater) Asbestos – presence in soil
	P3 – leaching of contaminants and vertical migration into groundwater & P4 – surface water runoff	R4 – groundwater and surface water R4a – Users of groundwater	Leachability testing is not proposed at this stage. If the intrusive investigation identifies contaminated soil and a viable pathway, then leachability testing may be required.	Not applicable at this stage
	P5 – lateral migration of groundwater into surrounding watercourses	R4 – groundwater and surface water R4a – Users of groundwater	An intrusive investigation is required to quantify and characterise possible contamination including chemical testing of soils and groundwater.	TRH, OCP, OPP, PCB (soil and potentially groundwater) Asbestos – presence in soil
	P6 – direct contact of contaminated soil with ecological receptors	R5 – ecological - plants and gardens on future subdivided allotments	An intrusive investigation is required to quantify and characterise possible contamination including chemical testing of soil.	TRH, OCP, OPP, PCB (soil) Asbestos – presence in soil
	P7 – extraction of contaminated groundwater	R1 – site users (current and future R2 – adjacent site users	An intrusive investigation is required to quantify and characterise possible contamination including chemical testing of soil and groundwater.	TRH, OCP, OPP, PCB (soil) Asbestos – presence in soil

8. Conclusions

DP was engaged by Tolinchlo to undertake a PSI to provide information on the potential for contamination at the site.

The site history investigation indicated the site has been used as a mango orchard. It is unclear when the mango orchard was first established, although it may have been at around 1970. Prior to the mango orchard, the site is likely to have been unallocated crown land and occupied by virgin bushland.

Pesticides and insecticides are thought to have been used at the site up until about 1999. Tolinchlo indicated that spent drip was dispersed on site. DP's research indicates that these disposal practices may not have been in accordance with the manufactures instructions.

The mango orchard ceased operation in about 2012. All trees and structures were removed and the site surface was stripped between 2012 and 2015. The residential dwelling was removed in early 2015. The dwelling contained asbestos which was removed by a licensed asbestos removalist who also provided a clearance certificate.

Given the above, the potential for contamination at the site is consisted to be low to moderate and arise from the historical use of the site as a mango orchard. The site may be potentially contaminated with p pesticides, herbicides, insecticides, petroleum hydrocarbons and asbestos.

The client's plan to remove the existing septic system prior to development of the MD section of the site is suitable, although, the tank pit excavation must be validated and the excavated material must be classified by DP prior to off-site disposal.

It should be noted that testing would need to be conducted in order to confirm the contamination status. It is recommended that intrusive soil sampling be undertaken so that the contamination status can be confirmed. If soil contamination is found, then it is recommended that groundwater sampling be undertaken given that the last record of groundwater beneath the site in the 1970s indicates that groundwater was encountered at depths of between 3 m and 14.6 m below ground level.

9. Limitations

Douglas Partners (DP) has prepared this report for Lot 3 Freds Pass Road, Humpty Doo, NT in accordance with DP's proposal dated 3 October 2014 and acceptance received from Tolinchlo Pty Ltd dated 16 October 2014. The work was carried out under DP'S Conditions of Engagement. This report is provided for the exclusive use of Tolinchlo Pty Ltd for this project only and for the purposes as described in the report. It should not be used for other projects or by a third party. Any party so relying upon this report beyond its exclusive use and purpose as stated above, and without the express written consent of DP, does so entirely at its own risk and without recourse to DP for any loss or damage. In preparing this report DP has necessarily relied upon information provided by the client and/or their agents.

DP's advice is based upon the conditions encountered during this investigation. The accuracy of the advice provided by DP in this report may be affected by undetected variations in ground conditions across the site between and beyond the sampling and/or testing locations. The advice may also be limited by budget constraints imposed by others or by site accessibility.

This report must be read in conjunction with all of the attached and should be kept in its entirety without separation of individual pages or sections. DP cannot be held responsible for interpretations or conclusions made by others unless they are supported by an expressed statement, interpretation, outcome or conclusion stated in this report.

This report, or sections from this report, should not be used as part of a specification for a project, without review and agreement by DP. This is because this report has been written as advice and opinion rather than instructions for construction.

The contents of this report do not constitute formal design components such as are required, by the Health and Safety Legislation and Regulations, to be included in a Safety Report specifying the hazards likely to be encountered during construction and the controls required to mitigate risk. This design process requires risk assessment to be undertaken, with such assessment being dependent upon factors relating to likelihood of occurrence and consequences of damage to property and to life. This, in turn, requires project data and analysis presently beyond the knowledge and project role respectively of DP. DP may be able, however, to assist the client in carrying out a risk assessment of potential hazards contained in the Comments section of this report, as an extension to the current scope of works, if so requested, and provided that suitable additional information is made available to DP. Any such risk assessment would, however, be necessarily restricted to the environmental components set out in this report and to their application by the project designers to project design, construction, maintenance and demolition.

Douglas Partners Pty Ltd

Appendix A

Drawings & Photographs

Groundwater Bore Search Information

About this Report

Douglas Partners

Introduction

These notes have been provided to amplify DP's report in regard to classification methods, field procedures and the comments section. Not all are necessarily relevant to all reports.

DP's reports are based on information gained from limited subsurface excavations and sampling, supplemented by knowledge of local geology and experience. For this reason, they must be regarded as interpretive rather than factual documents, limited to some extent by the scope of information on which they rely.

Copyright

Borehole and Test Pit Logs

The borehole and test pit logs presented in this report are an engineering and/or geological interpretation of the subsurface conditions, and their reliability will depend to some extent on frequency of sampling and the method of drilling or excavation. Ideally, continuous undisturbed sampling or core drilling will provide the most reliable assessment, but this is not always practicable or possible to justify on economic grounds. In any case the boreholes and test pits represent only a very small sample of the total subsurface profile.

Interpretation of the information and its application to design and construction should therefore take into account the spacing of boreholes or pits, the frequency of sampling, and the possibility of other than 'straight line' variations between the test locations.

Groundwater

Where groundwater levels are measured in boreholes there are several potential problems, namely:

- In low permeability soils groundwater may enter the hole very slowly or perhaps not at all during the time the hole is left open;
- A localised, perched water table may lead to an erroneous indication of the true water table;
- Water table levels will vary from time to time with seasons or recent weather changes. They may not be the same at the time of construction as are indicated in the report; and
- The use of water or mud as a drilling fluid will mask any groundwater inflow. Water has to be blown out of the hole and drilling mud must first be washed out of the hole if water measurements are to be made.

More reliable measurements can be made by installing standpipes which are read at intervals over several days, or perhaps weeks for low permeability soils. Piezometers, sealed in a particular stratum, may be advisable in low permeability soils or where there may be interference from a perched water table.

Reports

The report has been prepared by qualified personnel, is based on the information obtained from field and laboratory testing, and has been undertaken to current engineering standards of interpretation and analysis. Where the report has been prepared for a specific design proposal, the information and interpretation may not be relevant if the design proposal is changed. If this happens, DP will be pleased to review the report and the sufficiency of the investigation work.

Every care is taken with the report as it relates to interpretation of subsurface conditions, discussion of geotechnical and environmental aspects, and recommendations or suggestions for design and construction. However, DP cannot always anticipate or assume responsibility for:

- Unexpected variations in ground conditions. The potential for this will depend partly on borehole or pit spacing and sampling frequency;
- Changes in policy or interpretations of policy by statutory authorities; or
- The actions of contractors responding to commercial pressures.

If these occur, DP will be pleased to assist with investigations or advice to resolve the matter.

About this Report

Site Anomalies

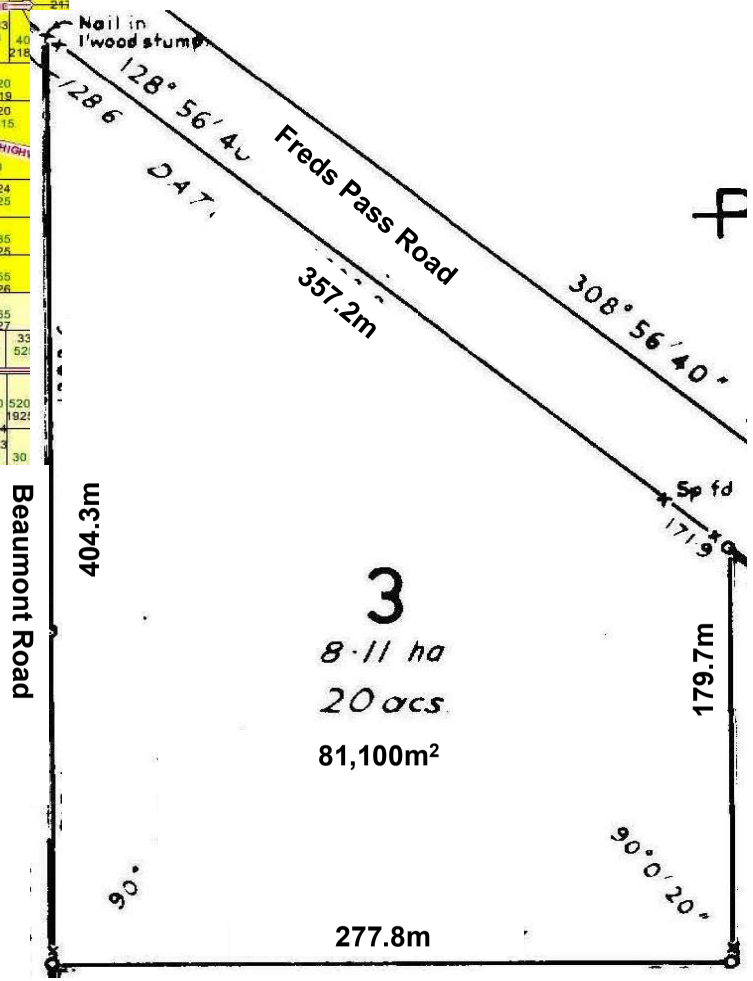
In the event that conditions encountered on site during construction appear to vary from those which were expected from the information contained in the report, DP requests that it be immediately notified. Most problems are much more readily resolved when conditions are exposed rather than at some later stage, well after the event.

Information for Contractual Purposes

Where information obtained from this report is provided for tendering purposes, it is recommended that all information, including the written report and discussion, be made available. In circumstances where the discussion or comments section is not relevant to the contractual situation, it may be appropriate to prepare a specially edited document. DP would be pleased to assist in this regard and/or to make additional report copies available for contract purposes at a nominal charge.

Site Inspection

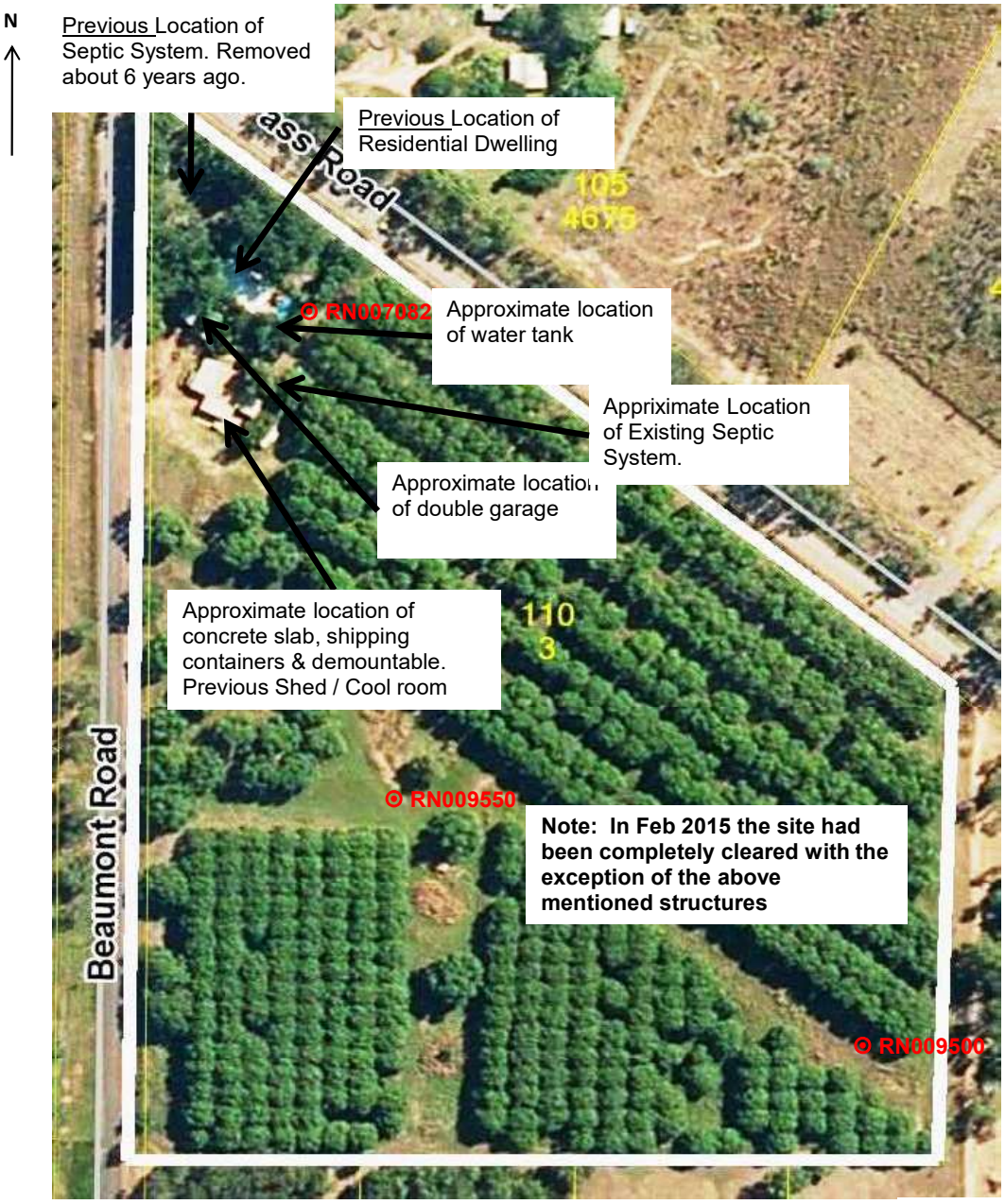
The company will always be pleased to provide engineering inspection services for geotechnical and environmental aspects of work to which this report is related. This could range from a site visit to confirm that conditions exposed are as expected, to full time engineering presence on site.



Drawing Not to Scale

Sourced from NT Atlas and Spatial Directory

Douglas Partners Geotechnics / Environment / Groundwater	Project No. 78156.00	Location of Site	Drawing No. 1
	Date: 22 Oct 2014	Lot 3 Feds Pass Road, Humpty Doo, NT Client: Tolinchlo Pty Ltd	Revision A



⊙ - Approximate Location of Registerered Groundwater Bore

Drawing Not to Scale

Sourced from Council Records. Original photo not dated, although likely to be dated 2012

Douglas Partners Geotechnics / Environment / Groundwater	**Site Features** **Proposed Residential Development** **Lot 3 Freds Pass Road** **Humpty Doo, NT**	PROJECT: 78156.00 DRAWING: 2 REV: A
	CLIENT: Tolinchlo Pty Ltd	DATE: 23/2/15

Photo 1 - Some of the structures in north-western corner, looking toward the south-south-west, 23 Feb 2015.

Photo 2 - Double Garage in north-western corner, looking toward the south-east, 23 Feb 2015.

Douglas Partners Geotechnics / Environment / Groundwater	Project No. 78156.00	Site Photographs
	Date: 23 Feb 2015	Lot 3 Freds Pass Road, Humpty Doo, NT
		Client: Tolinchlo Pty Ltd

Photo 3 - Above ground water tank in north-western corner, looking toward the south-east, 23 Feb 2015.

Photo 4 - Machinery in north-western corner, looking toward the south-west, 23 Feb 2015.

Douglas Partners Geotechnics / Environment / Groundwater	Project No. 78156.00	Site Photographs
	Date: 23 Feb 2015	Lot 3 Freds Pass Road, Humpty Doo, NT
		Client: Tolinchlo Pty Ltd

Photo 5 - Southern part of site, looking toward the south, 23 Feb 2015.

Photo 6 - Eastern part of site, looking toward the east, 23 Feb 2015.

Douglas Partners Geotechnics / Environment / Groundwater	Project No. 78156.00	Site Photographs
	Date: 23 Feb 2015	Lot 3 Freds Pass Road, Humpty Doo, NT
		Client: Tolinchlo Pty Ltd

Photo 7 - north-western corner of the south, north of structures.
Previous location of the residential dwelling, looking toward the north, 23 Feb 2015.

Natural Resource Maps NT

digital data request feedback

Layers Legend Search Select Find Location Refresh Map Spatial Data Search Technical Reports User Guide

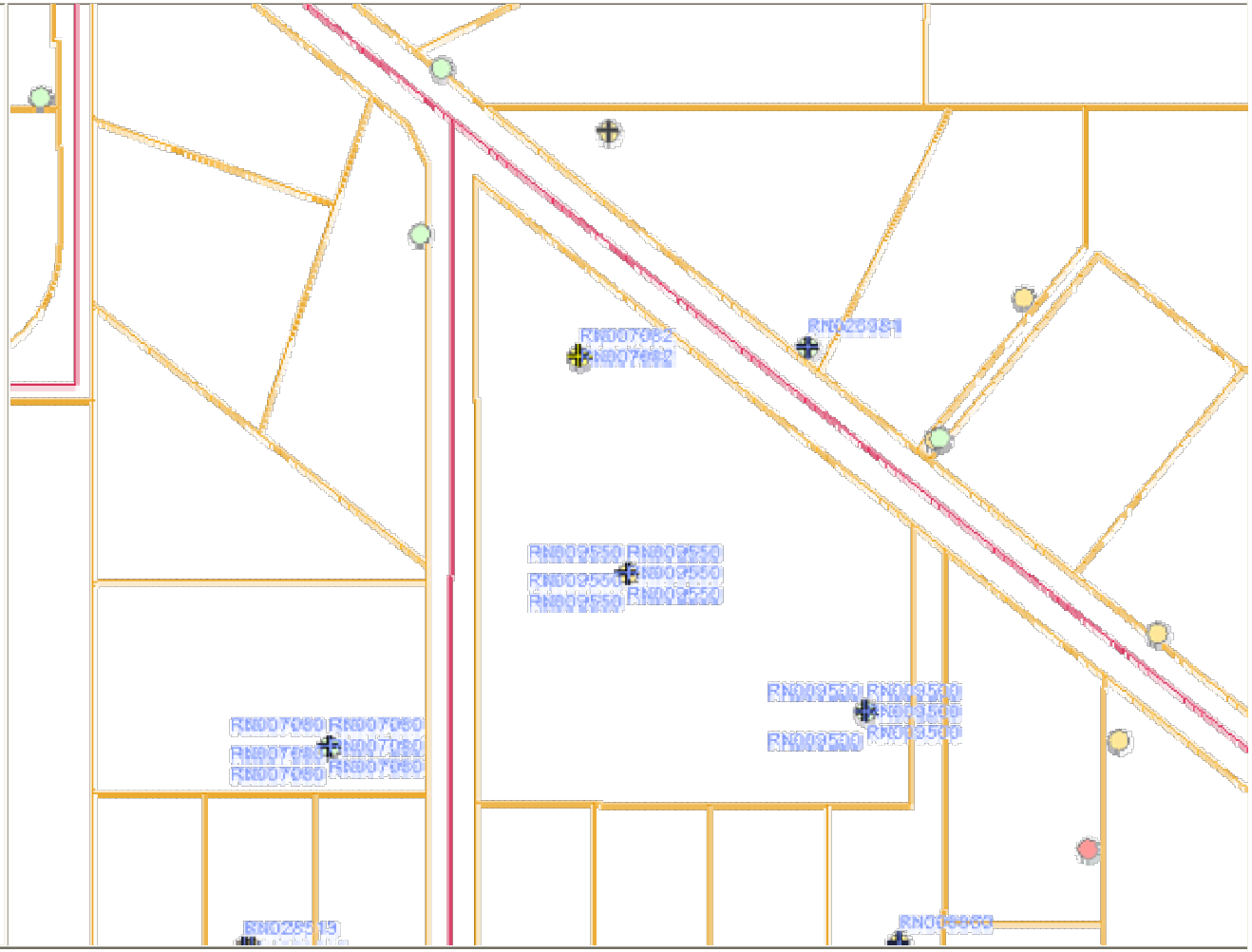
Query Results

Bores

RN007082 6774

RN Number	RN007082
UFI	6774
BORE_NAME	GREENHOHFF S
A=70/16 L=3 S=403	
BORE_RPT	More data
STATUS	NOT IN USE
PURPOSE	farming
YIELD	2.25
YIELDCLASS	2.0 - 5.0 L/s
COMPL_DATE	Jun 9, 1970
COMPLDEPTH	84.7
DRILLDEPTH	85.3
WATERLEVEL	14.6
TESTDATE	Jun 9, 1970
TESTTYPE	AL
GAMMA	No
POSACC	30-100 GPS
LATITUDE	-12.57894084
LONGITUDE	131.10679558
GRDATUM	MGA94
ZONE	52
EASTING	728889.8
NORTHING	8608510.1
MAP_INDEX	80

End of Result Set



Scale: 1: 3,489 go Map Tool: Pan

N.T.A. 181

THE NORTHERN TERRITORY OF AUSTRALIA

Control of Waters Ordinance

RN007082

Regulation 8.

FINAL STATEMENT OF BORE

1.N.80/544

From	To	Description of Strata
0' 0"	- 12' 0"	Topsoil
12' 0"	- 195' 0"	Mottled sandy clays
195'	- 250' 0"	Quartz sand, mottled clays, some black slate
250' 0"	- 252' 0"	Large cavity, no sample. Lost all circulation

Location of Bore (or supply sketch on back hereof)—

300' Miles (a) N NE S SE E NW W SW of (b) Griffin Staples bore

(a) Circle appropriate direction.
(b) Use known point such as existing bore, homestead, outstation, etc.

Additional information of interest about the bore—

THIS BORE REQUIRES GRAVEL PACKING,

Samples of strata and water supplies have been* ~~will be~~* left at the following trading place—

W.R.B. H/O

Signature

*Strike out which does not apply.

For office use only—

Name of Bore—
Greenhoff

Name of Property—
lot 3 "Sec" 403 Stramquay

Description of Property—
Farm

Name of Owner—
S. Greenhoff

Name of Contractor—
Drilling Services Pty. Ltd.

Name of Driller—
R. Kelly. F. Gluff

Date of Commencement—
7.6.'70

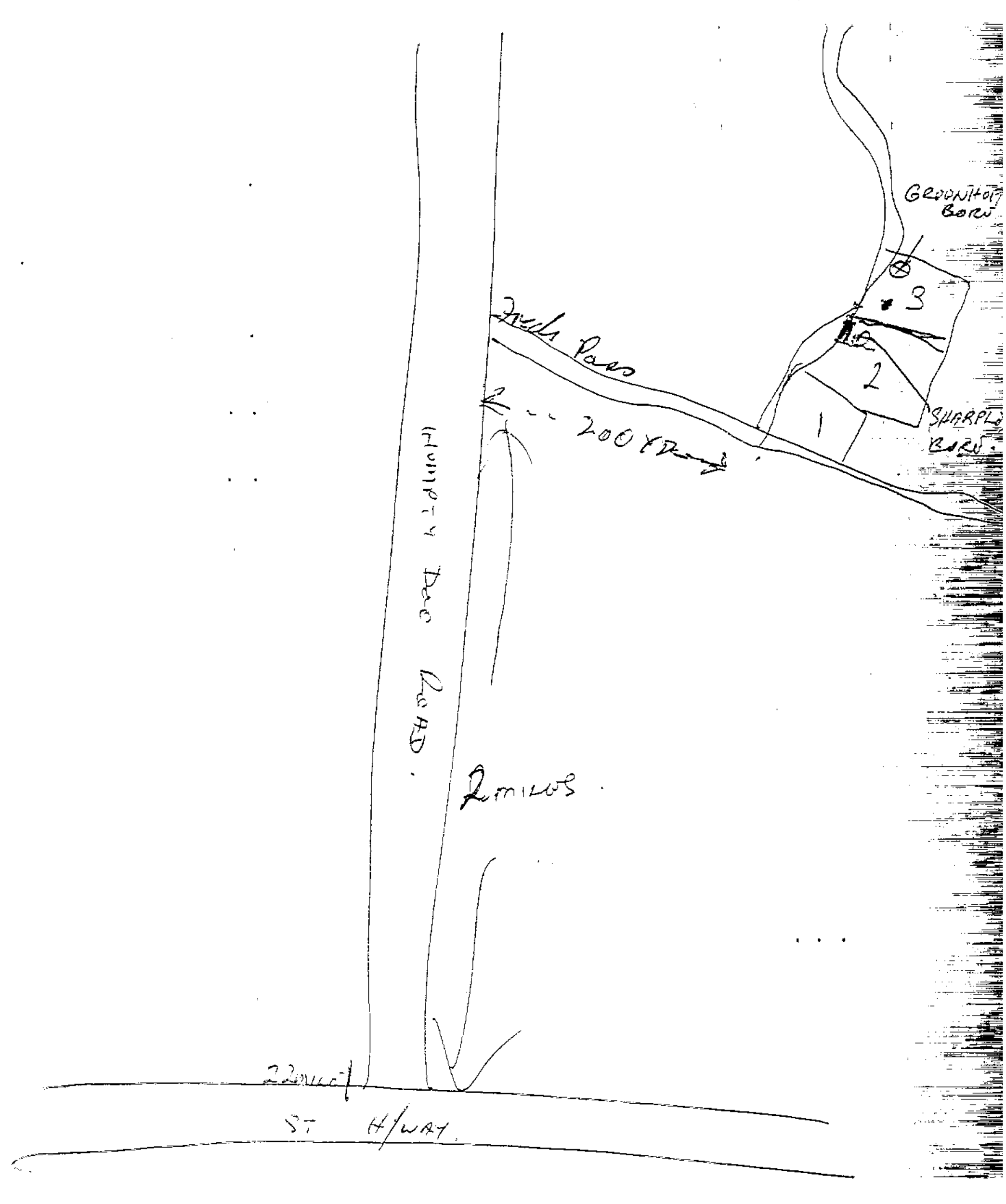
Date of Completion—
9.6.'70

Total Depth—
252' (280' Ray Weir of Humpty Doo measured on 1 Aug 1973)

Particulars of Casing—
278 x 5"

Particulars of Perforations or Screens—
40' slotted

Water	1st Supply	2nd Supply	3rd Supply
Struck at	76.2 250'		
Standing Water Level	14.6 48'		
Pumping Supply : G.P.H.	23 1,800'		
Duration of Pump Test			
Water Level During Test			
Quality : Good, Fair or Bad	Fair		



BORE
3
2
1
BORE
Freds Pass
200 YDS
HUMPTY DOO ROAD
2 miles
ST H/WAY

WATER RESOURCES BRANCH

BORE TAGGING CERTIFICATE

Field Use:

R.N. 7082 I.N. 80/544

Local bore name GREENHOFF N° 1 advice 16/70

Property/area HUMTY DOO

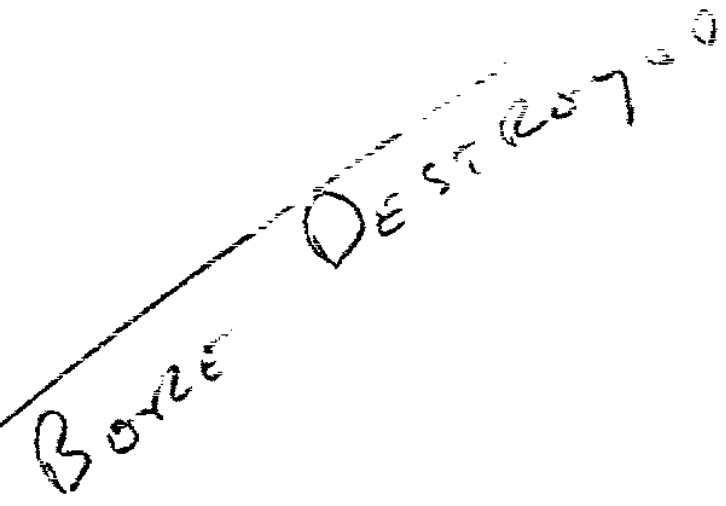
Method of location Lot 3 Sect 403 H of STRANGWAYS NOONAMAH SHEET 5

Tagged by: (Print) R. LINDON

Location sketch completed: Yes/[redacted]

Date 25-2-76 R. Lindon (Signature)

Location sketch (field use)



	INITIALS	DATE
RECEIVED	[illegible]	16/3/76
PROCESSED	[illegible]	16/3/76
PLOTTED	[illegible]	9-3-76
CHECKED	[illegible]	25/4/76

Office use:

Map No. Coordinates:

WATER ANALYSIS

ple No. 70/1033 Date received in Laboratory 31/7/70

e and date of sampling 1630 Hrs. 30-7-70

ation and details Humpty Doo Road. IN 80/544.

Greenoffs Bailed. RN 7082.

lysis in parts per million— p.p.m. (unless otherwise stated)—

ppearance		Taste and odour	
nductivity (Micromhos/cm²) at 25°C	125	pH	8.0
otal dissolved solids	80	Hardness, total	78
spended solids		Hardness, temporary	68
otal solids		Hardness, permanent	10

ns—		Cations—	
loride	6	Sodium	3
lphate	< 2	Potassium	1
trate	2	Calcium	12
trite		Magnesium	13
rbonate		Ammoniacal nitrogen	
carbonate	83	Iron	13
uoride	0.2	Aluminium	
ica	< 1	Selenium	
ron		Arsenic	
kalinity	68	Copper	
rbidity		Lead	
osphate	< 1	Manganese	

Analysed by John B. Jones.

24-8-70

Mines and Water Resources Branch
DARWIN N.T.

70/2350

29 July 1970

SENIOR ENGINEER GROUNDWATER :

BORE RIG N°. 7082 ON PORTION 3 SECTION 403 HUNDRED OF STRANGWAYS LEASEE S.A. GREENOFF

Following a complaint from Mr. S. A. Greenoff, it was suggested that the Branch conduct an inspection and pumping test to determine depth and yield of this bore. This was carried out on 25.6.70.

2. The results of the inspection revealed that the bore was drilled to 278 feet and is cased with 5" OD black bore casing, standing water level being 43.3 feet. At the time of inspection it was thought that the hole was not cleaned out by the driller and a quantity of silt and drill cuttings were still in the bottom of the bore.

3. To establish the yield of the bore, a 4½" flush cap pump was set at 132 feet and operated by a Southern Cross SDH pump head. When pumping commenced the water was very dirty and contained drill cuttings - this made conditions for a pumping test unsuitable, so a cleaning/development programme was commenced. Readings taken during this operation are as follows -

SWL - 43.3
Pump setting 132 ft.
Q = 1200 gal/hours
Pumping water level - 114 ft.
Available draw down - 121 ft.
Duration of pumping - 24 hours continuous

Pumping water level was reached soon after pumping commenced and remained steady throughout the 24 hours of pumping.

4. As this proved the bore was successful a pumping test was not considered necessary. All equipment was removed from the bore.

(M. VOGEL) 29/7
T/O II

31 July 1970

Mr S.A. Greenhoff,
53 Knuckey Street,
DARWIN. N.T. 5790.

Dear Sir,

I refer to your discussion with Messrs Watson and Finch of the Mines and Water Resources Branch during June and the consequent decision to test the bore constructed on your property by Drilling Services Pty Ltd.

The test was carried out on 25 June 1970. The bore is 278 feet deep and cased with 5 inch bore casing and the static water level at the time of the test was 43.3 feet. When pumping first commenced the water was very dirty but cleaned up considerably so at the end of the 24 hour test the water was only slightly discoloured. Further pumping should remove all discolouration from the water. The test was conducted at a rate of 1200 gallons per hour and the draw-down in water level at this rate stabilised at approximately 70 feet.

This testing showed that the bore fulfils the advice as issued.

The water has been tested and is chemically suitable for human consumption.

Yours faithfully,

(I.S. WATSON)
Delegate of Commissioner
of Water Development

Ian J. Jones 31.7.70

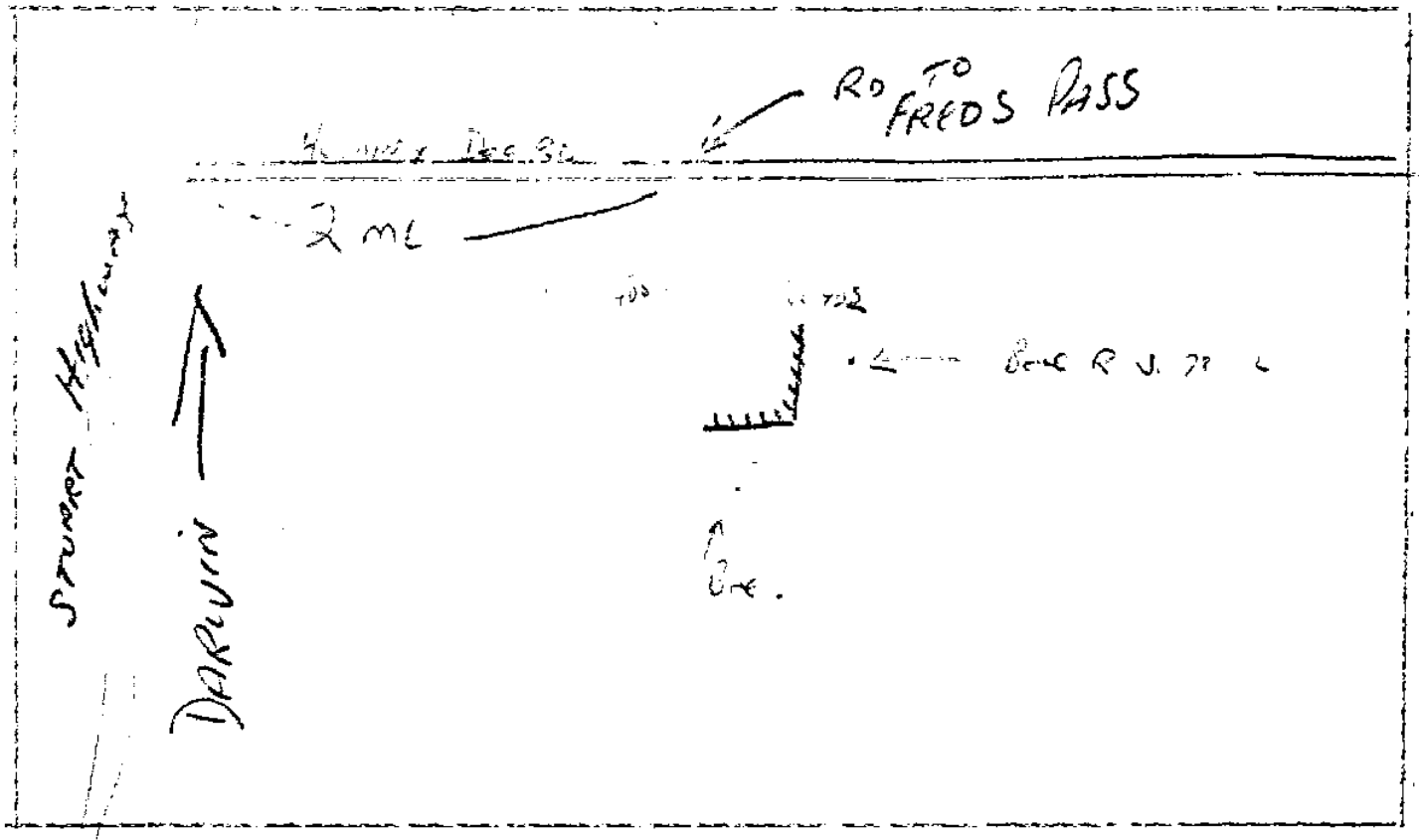
Greenhoff's Bore
pH 8.0 Cl 6
HCO3 83 Hdness 78.

Name of Bore:...GRIEHOFF...........Bore Location:..Ral. HUMPTY D...
Reg. No:..7032..........Index No:...60..../...544....Date of Test..25.

1. Type of Bore: Production/~~Observation~~
2. Standing water level at start of test:....43.3.....feet. GL
3. Total depth of bore:....270........feet.
4. Diameter of casing:.....5".........inches.
5. Pump suction set at:.....132.......feet.
6. Pumping Rate:..........1200..
7. Pumping water level maximum:.......114............feet.
8. Water temperature:.......86°..............°F.
9. Point from where measurements are taken...G.L....................
   see sketch over.
10. Draw-down measurements taken: Yes/~~No~~, method used...Megerline..
11. Recovery measurements taken: ~~Yes~~/No, method used:..........
12. All measurements recorded in technical notebook no...........
13. Type of pumping equipment used for test...Flush Cap Dr w Plunger...
14. Size of column and pump:....4" column 4½" pump.................
15. Power unit used:..Southern Cross Pump Jack..........H.P...7.........
16. Starting time of test:..................
17. Stopping time of test:..................
18. Duration of test:.....24 hours development.....~~minutes.~~
19. Water samples taken: at start of test, Bottle No..............
   Time..................
   at finish of test, Bottle No..............
   Time..................
20. Is bore capped:.....No.........How:............................
21. Is concrete block cast:.....No...........Size:....................
22. Height of casing above ground level:....GL..........................

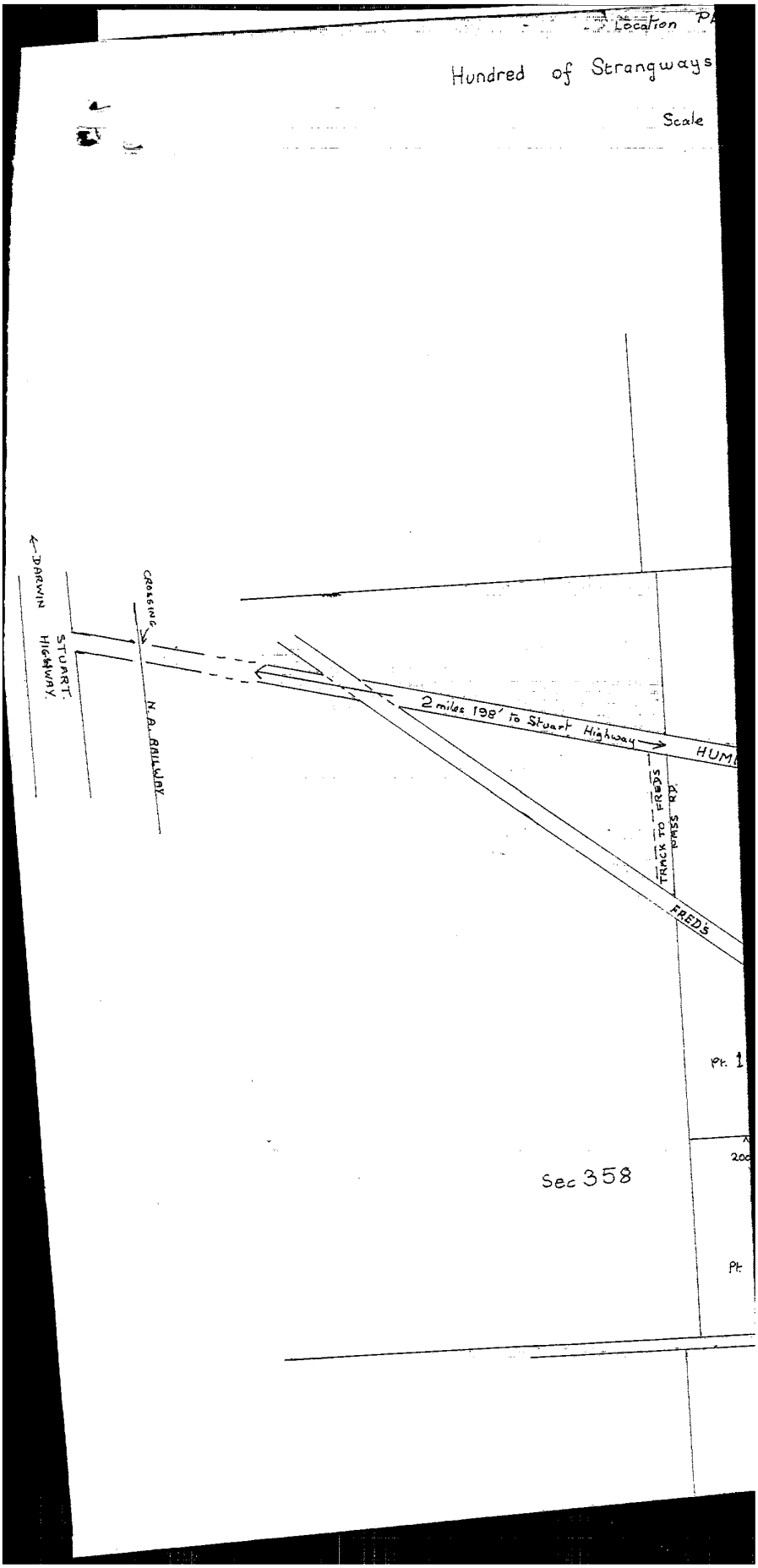
Comments: see reverse

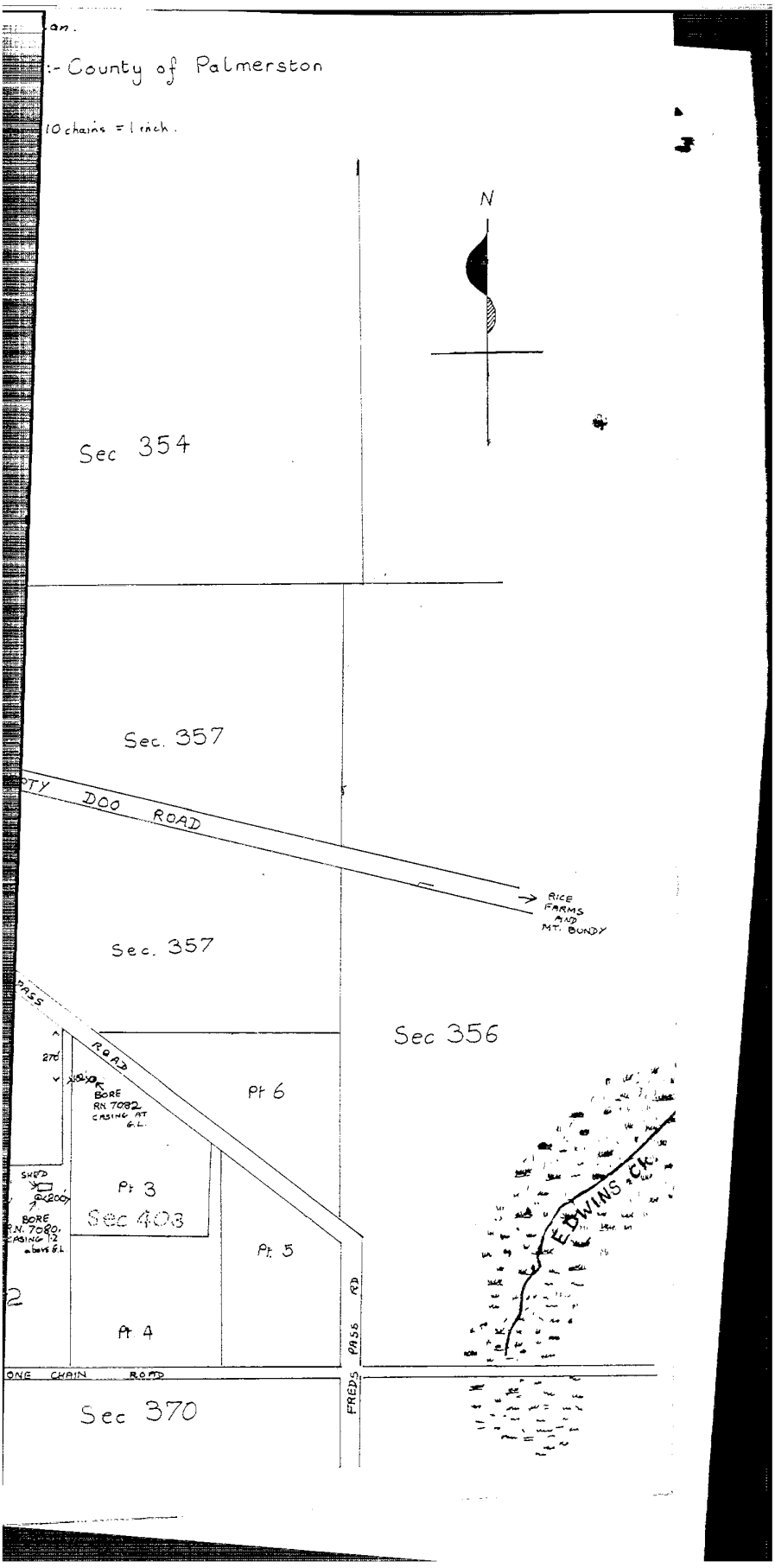
location sketch plan



bore characteristic sketch

Bore required development


Location
Hundred of Strangways
Scale
DARWIN
STUART HIGHWAY
CROSSING
N.A. RAILWAY
2 miles 198' to Stuart Highway
TRACK TO FREDS PASS RD
FREDS
Pt. 1
Sec 358
Pt.


:- County of Palmerston
10 chains = 1 inch.
N
Sec 354
Sec. 357
DOO ROAD
RICE FARMS AND MT. BUNDY
Sec. 357
PASS ROAD
Sec 356
BORE RN 7082 CASING AT G.L.
Pt 6
Pt 3
Sec 403
Pt 5
Pt 4
EDWINS CK.
PASS RD.
ONE CHAIN ROAD
FREDS
Sec 370

(No 2)

ADVOICE No 51/7

To	Description of Strata
E	TOPSOIL
FT.	IRONSTONE
ET.	SOFT CLAYS
90 FT.	HARD CLAY
94	SOFT CLAY GRAVEL & SAND.
199 FT	SAND.
199FT	QUARTS. (60.65m)

of Bore (or supply sketch on the eof)-

.....Miles

SE of (b).....
NW
SW .....

le appropriate direction.
known point such as existing bore, stead, outstation, etc.

tional information of interest about bore.

NOON 5 1:10 000

id Reference
p Number
mples of Strata and Water Supplies
have been* ~~will be*~~
ft at the following place -

.....
W.G. Connor.....
Signature
lete/ non applicable

ce use only -

RECEIVED
9 JAN 1979

DONE

ABAN

Name of Bore - GREENOFF

Name of Property - LOT 3 SECTION 403

Description of Property - AGRICULTURE

Name of Owner -

Name of Contractor - O' CONNOR

Name of Driller - BILL O' CONNOR

Date of Commencement - 22-12-78

Date of Completion - 5-1-79

Total Depth - 199 FT. 60.6

Particulars of Casing - ALL
6" GALV WAY

Particulars of Perforations or Scre
8 FT SLOTTED

Water	1st Supply	2nd Supply
Struck at	194 - 199 FT (59m - 60.6m)	
Standing Water Level	6½ M	
Pumping Supply Litres/sec	2 l/sec	
Duration of Pump Test	45 MIN	
Water Level During Test	6 M	
Quality: Good, Fair or Bad.	GOOD.	

CATION.....

analysis carried out in the laboratory by membrane filter technique unless otherwise stated.

Date / /
U/c – Uncoun
N/T – Not Tes
tmtc – [redacted]o mar

Detail Sample Point	Reg Sample Point No	Time Sampled	Transit Time Hours	Temp°C	DO mg/1	pH	CHLORINE mg/1		No. OF ORGANISMS DETECTED			PLATE COUNT ORGANISMS /ml	
							Free Residue	Total Residue	Coliform per 100ml	Ecoli per 100ml	Faecal Strept ococci per 100ml	20°C	37°C

partment of Health notified on

ginated for:

OIC Laboratory .....

...OCATION......LCI ... .

... analysis carried out in the laboratory by membrane filter technique unless otherwise stated.

Date / /
U/c – Uncou...
N/T – Not Te...
tmtc – [redacted]oo ma...

Detail Sample Point	Reg Sample Point No	Time Sampled	Transit Time Hours	Temp°C	DO mg/1	pH	CHLORINE mg/1		No. OF ORGANISMS DETECTED			PLATE COUNT ORGANISMS /ml	
							Free Residue	Total Residue	Coliform per 100ml	Ecoli per 100ml	Faecal Streptococci per 100ml	20°C	37°C
Bor. RW. 1:50	13114	22.0	[redacted]	27.5					2	0	10		84

...partment of Health notified on

...ginated for: OIC Laboratory ....

D	1394											
E No.	B5											
ON	RN 9550 Bore											
	1010											
TEMP. C	30											
TEST	—											
NATION	NO											
ESID. TEST	—											
RESID. TEST	—											
E POINT	8mm Black PVC											
E POINT ION	GWSTMS	C										
ER IONS	Fine											

EXAMPLE NOTES: SAMPLE POINT TYPE — tap, spigot, brass, copper size etc.
SAMPLE POINT CONDITION — sealed, leaking, damaged, corroded, encrusted, algal growth, etc.
WEATHER CONDITIONS — fine, raining, windy, dusty.

@ 27 = 29

2.1

	1394											
No.	F48											
ON	RN 9550 Bore											
	0928											
TEMP. C	30											
TEST	—											
NATION	ND											
ESID TEST	—											
RESID. TEST	—											
E POINT	50mm PVC PIPE											
E POINT ION	UNSTRUCTURE											
ER IONS	FINE											

EXAMPLE NOTES: SAMPLE POINT TYPE — tap, spigot, brass, copper size etc.
SAMPLE POINT CONDITION — sealed, leaking, damaged, corroded, encrusted, algal growth, etc.
WEATHER CONDITIONS — fine, raining, windy, dusty.

2 @ 25 = 32
1.7

	1394										
No.	1150										
N	RN 9550 BORE										
	0830										
TEMP.	29.5										
EST	—										
NATION	NO										
SID. EST	—										
RESID. EST	—										
E POINT	50 MM VALVE STOP										
E POINT ION	SEALED	CASTELLATED									
ER IONS	FINE										

EXAMPLE NOTES: SAMPLE POINT TYPE — tap, spigot, brass, copper size etc.
SAMPLE POINT CONDITION — sealed, leaking, damaged, corroded, encrusted, algal growth, etc.
WEATHER CONDITIONS — fine, raining, windy, dusty.

@ 27 = 32

2.7

CLEAR

	1394
No.	4487
ON	RN 9550 Bore
	0907
TEMP. C	30
EST	—
NATION	No
ESID. EST	—
RESID. TEST	—
E POINT	40mm STOP COCK
E POINT ION	UNSEALED
ER IONS	Fine

EXAMPLE NOTES. SAMPLE POINT TYPE — tap, spigot, brass, copper size etc.
SAMPLE POINT CONDITION — sealed, leaking, damaged, corroded, encrusted, algal growth, etc.
WEATHER CONDITIONS — fine, raining, windy, dusty.

© 28 = 28
1:1

CATION Lot 3 Sec 40

analysis carried out in the laboratory by membrane filter technique unless otherwise stated.

U/c — Uncoun
N/T — Not Tes
tmtc — too mar

Detail Sample Point	Reg Sample Point No	Time Sampled	Transit Time Hours	Temp°C	DO mg/1	pH	CHLORINE mg/1		No. OF ORGANISMS DETECTED			PLATE COUNT ORGANISMS /ml		
							Free Residue	Total Residue	Coliform per 100ml	Ecoli per 100ml	Faecal Strept ococci per 100ml	20°C	37°C	
Rd 1550		1005		30.5					6	0	32		16	5

partment of Health notified on

ginated for:

OIC Laboratory .....

	1394										
No.	B21										
ON	RN 9550 Bore										
	100c										
TEMP.	30.5										
EST	—										
NATION	NO										
ESID. EST	—										
RESID. TEST	—										
E POINT	50/M9 GATE VALVE										
E POINT ION	UNSTERILE										
ER IONS	FINE										

EXAMPLE NOTES: SAMPLE POINT TYPE — tap, spigot, brass, copper size etc.
SAMPLE POINT CONDITION — sealed, leaking, damaged, corroded, encrusted, algal growth, etc.
WEATHER CONDITIONS — fine, raining, windy, dusty.

0 @ 29 = 28
1.0

71810 +-0

S/N

o	1394											
No	M94											
ON	RN 9550 BORE											
	0935											
TEMP.	30											
EST	—											
NATION	NO											
ESID. EST	—											
RESID. TEST	—											
E POINT	60" PIPE SAND											
E POINT ION	UNSTERILE											
ER IONS	FINE											

2245

EXAMPLE NOTES: SAMPLE POINT TYPE — tap, spigot, brass, copper size etc.

23 @ 28:22 SAMPLE POINT CONDITION — sealed, leaking, damaged, corroded, encrusted, algal growth, etc.

9 WEATHER CONDITIONS — fine, raining, windy, dusty.

o.	1394											
e No	17781											
ON	RN 9550 Bore											
	1141											
TEMP. C	31											
TEST												
NATION	No											
ESID. TEST	-											
RESID. TEST	-											
E POINT	12 mm Brass											
E POINT ION	Sealed											
ER IONS	Fine											

EXAMPLE NOTES: SAMPLE POINT TYPE — tap, spigot, brass, copper size etc.
SAMPLE POINT CONDITION — sealed, leaking, damaged, corroded, encrusted, algal growth, etc.
WEATHER CONDITIONS — fine, raining, windy, dusty.

25
2

	1394											
No.	M84											
ON	RN 9550 Bore											
	11:00											
TEMP.	29.5											
TEST	—											
NATION	NO											
ESID. TEST	—											
RESID. TEST	—											
E POINT	VALVE											
E POINT TION	Valve to large to sterilize											
ER TIONS	G/CAST											

EXAMPLE NOTES: SAMPLE POINT TYPE — tap, spigot, brass, copper size etc.
50 M S @ 27.5° SAMPLE POINT CONDITION — sealed, leaking, damaged, corroded, encrusted, algal growth, etc.
WEATHER CONDITIONS — fine, raining, windy, dusty.

>100 Nt U.

	1394
No.	C93
N	RN 9550 BORE
	0940
TEMP.	30
EST	–
NATION	No
ESID. EST	–
RESID. TEST	–
E POINT	50MM VALVE
E POINT ION	UNSTABLE
ER IONS	FINE

20 @ 28

3.0 EXAMPLE NOTES: SAMPLE POINT TYPE — tap, spigot, brass, copper size etc.
SAMPLE POINT CONDITION — sealed, leaking, damaged, corroded, encrusted, algal growth, etc.
WEATHER CONDITIONS — fine, raining, windy, dusty.

CLEAR

NIL

2

o.	1394											
E No.	B21											
E ON	RN 9550 BORE											
	10.55											
TEMP. C	20.5°											
TEST	—											
NATION	NO											
ESID. TEST	-											
RESID TEST	—											
E POINT	[illegible]											
E POINT TION	[illegible]											
ER TIONS	[illegible]											

0.71

EXAMPLE NOTES: SAMPLE POINT TYPE — tap, spigot, brass, copper size etc.
SAMPLE POINT CONDITION — sealed, leaking, damaged, corroded, encrusted, algal growth, etc.
WEATHER CONDITIONS — fine, raining, windy, dusty.

COPY TO:

OCATION Lot 3 Otec nos Sheds Ross Rd

Date /
U/c – Unco
N/A – Not
tmtc – too r

ll analysis carried out in the laboratory by membrane filter technique unless otherwise stated.

Detail Sample Point	Reg Sample Point No	Time Sampled	Transit Time . Hours	Temp°C	DO mg/1	pH	CHLORINE mg/1 Free Residue	CHLORINE mg/1 Total Residue	No. OF ORGANISMS DETECTED Coliform per 100ml	Ecoli per 100ml	Faecal Streptococci per 100ml	PLATE COUNT ORGANISMS /ml 20°C	37°C
Bore RN 9550	1344	0935		30					72	0	56		

Department of Health

notified on

Originated for: [signature]

OIC Laboratory [signature]

CATION............Sec 103 Lot 52 .... Such Bo; Rd.

U/c -- Uncon
N/T -- Not T
tmtc -- too m

analysis carried out in the laboratory by membrane filter technique unless otherwise stated.

Detail Sample Point	Reg Sample Point No	Time Sampled	Transit Time Hours	Temp°C	DO mg/1	pH	CHLORINE mg/1		No. OF ORGANISMS DETECTED			PLATE COUNT ORGANISMS /ml	
							Free Residue	Total Residue	Coliform per 100ml	Ecoli per 100ml	Faecal Streptococci per 100ml	20°C	37°C
RN 9550	1394	1140		31					550	230	170		110

The supply is grossly contaminated and should be chlorinated.

partment of Health

notified on

gnated for: R. W. Ross

OIC Laboratory ....

CATION......Lot 3 Sec 1103 ......Leith Road(?)......

analysis carried out in the laboratory by membrane filter technique unless otherwise stated.

Date
U/c — Unco
N/T — Not T
tmtc — too m

Detail Sample Point	Reg Sample Point No	Time Sampled	Transit Time Hours	Temp°C	DO mg/1	pH	CHLORINE mg/1		No. OF ORGANISMS DETECTED			PLATE COUNT ORGANISMS /ml	
							Free Residue	Total Residue	Coliform per 100ml	Ecoli per 100ml	Faecal Streptococci per 100ml	20°C	37°C
RH 9550	1394	1000		29.5					100	10	32		22

The water supply does not satisfy current water quality criteria. Flushing of the system may improve quality.

partment of Health notified on

ignated for: [illegible] WHEAR

OIC Laboratory ......[signature]

CATION.....

analysis carried out in the laboratory by membrane filter technique unless otherwise stated.

N/T – Not Te
tmtc – too ma

Detail Sample Point	Reg Sample Point No	Time Sampled	Transit Time Hours	Temp°C	DO mg/1	pH	CHLORINE mg/1		No. OF ORGANISMS DETECTED			PLATE COUNT ORGANISMS /ml	
							Free Residue	Total Residue	Coliform per 100ml	Ecoli per 100ml	Faecal Strept ococci per 100ml	20°C	37°C
ore KN 9550		0940		30									
l the time of ality criteria													

artment of Health notified on

ginated for: Water Div

dysed by:

OIC Laboratory .....

CATION.......Lot 3 Section 403 Ted Sun Rd

analysis carried out in the laboratory by membrane filter technique unless otherwise stated.

U/c — Uncou
N/T — Not T
tmtc — too ma

Detail Sample Point	Reg Sample Point No	Time Sampled	Transit Time Hours	Temp°C	DO mg/1	pH	CHLORINE mg/1 Free Residue	CHLORINE mg/1 Total Residue	No. OF ORGANISMS DETECTED Coliform per 100ml	No. OF ORGANISMS DETECTED Ecoli per 100ml	No. OF ORGANISMS DETECTED Faecal Streptococci per 100ml	PLATE COUNT ORGANISMS /ml 20°C	PLATE COUNT ORGANISMS /ml 37°C
Bore RN 9550	1394	1055		30					0	0	0		0

the time of sampling the bacteriological water quality of the bore satisfied ... water quality

artment of Health

notified on

ginated for: Water Div

OIC Laboratory ....

lysed by:

ATION ..... Date / /

nalysis carried out in the laboratory by membrane filter technique unless otherwise stated.

U/c — Uncountable
N/T — Not Tested
tmtc — too many to

Detail Sample Point	Reg Sample Point No	Time Sampled	Transit Time Hours	Temp °C	DO mg/1	pH	CHLORINE mg/1		No OF ORGANISMS DETECTED			PLATE COUNT ORGANISMS/ml	
							Free Residue	Total Residue	Coliform per 100ml	Faecal Coliform per 100ml	Faecal Strept-ococci per 100ml	20 °C	37 °C
Bore RN 9550		1010		20					0	0	0		4
The above test results indicate that at the time of sampling the bacteriological quality of the bore satisfied existing water quality criteria.								1					

artment of Health notified on

inated for: water purpose

OIC Laboratory .....

ATION...

nalysis carried out in the laborato y by membrane filter technique unless otherwise stated.

N/T — Not
tmtc — too m

Detail Sample Point	Reg Sample Point No	Time Sampled	Transit Time Hours	Temp°C	DO mg/1	pH	CHLORINE mg/1		No. OF ORGANISMS DETECTED			PLATE COUNT ORGANISMS /ml	
							Free Residue	Total Residue	Coliform per 100ml	Ecoli per 100ml	Faecal Streptococci per 100ml	20°C	37°C
			1430										
Bore RN 9550		0930		30					0	0	0		40

rtment of Health

notified on

nated for: Water Division

OIC Laboratory

ysed by: D. C...

DARWIN RURAL AREA BACTERIOLOGICAL SAMPLING

DROLOGICAL UNIT No.

50 R.S.P. 1394 LOCATION CONTACT ADDRESS

DATE 1-10-81 TIME 1010 PUMPING ARRANGED YES/NO TELEPHONE

nhabitants Full-time/Part-time

k

es

ers

ALITY

logy Btle No. C14

tle No. —

e Bottle No. —

ure (celsius) 30

vity (mS) 25@32.5

y (N.T.U.) 2.5

ce CLEAR

NIL

SANITARY SURVEY

WELL/BORE PUMPING FREQUENCY

DISTANCE SEPTIC TANK m DISTANCE BOUNDARY

COPING

LINING

DEPTH

COVER

FENCE

SURFACE DRAINAGE AROUND BORE

SEPTIC TANK

ELEVATION (wrt bore)

DISTANCE BOUNDARY m

N S E W

REMARKS (inc. neighbouring blocks)

N S E W

1:94												
No	CIV											
ON	Fine RN 9550											
	1010											
TEMP.	30											
EST	—											
NATION	NO											
ESID EST	—											
RESID. EST	—											
E POINT	3 INCH STOP COCK											
E POINT ION	—											
ER IONS	FINE											

UNSTERILE

EXAMPLE NOTES: SAMPLE POINT TYPE — tap, spigot, brass, copper size etc.
SAMPLE POINT CONDITION — sealed, leaking, damaged, corroded, encrusted, algal growth, etc.
WEATHER CONDITIONS — fine, raining, windy, dusty.

COPY TO:

WATER

DARWIN RURAL AREA BACTERIOLOGICAL SAMPLING

KO

50 R.S.P. 1394 LOCATION LOT 3 FREDS PASS RD SEC 403 CONTACT _____ ADDRESS PO 3915 WINNELLIE

DATE 1-9-81 TIME 09:30 PUMPING ARRANGED YES/NO TELEPHONE 881127

nhabitants 5 Full-time/Part-time

k COWS, POULTRY

es MANCOZEB FUNGICIDE

ers TROPI GROW 10-97

ALITY

logy Btle No. 214

tle No. _____

e Bottle No. _____

ure (celsius) 30

vity (mS) _____

y (N.T.U.) _____

ce _____

_____

SANITARY SURVEY

WELL/BORE PUMPING FREQUENCY 8 HR/DAY

DISTANCE SEPTIC TANK 200 m DISTANCE BOUNDARY 100

COPING 0.5 m N S E (W)

LINING _____

DEPTH 200 FT

COVER _____

FENCE _____

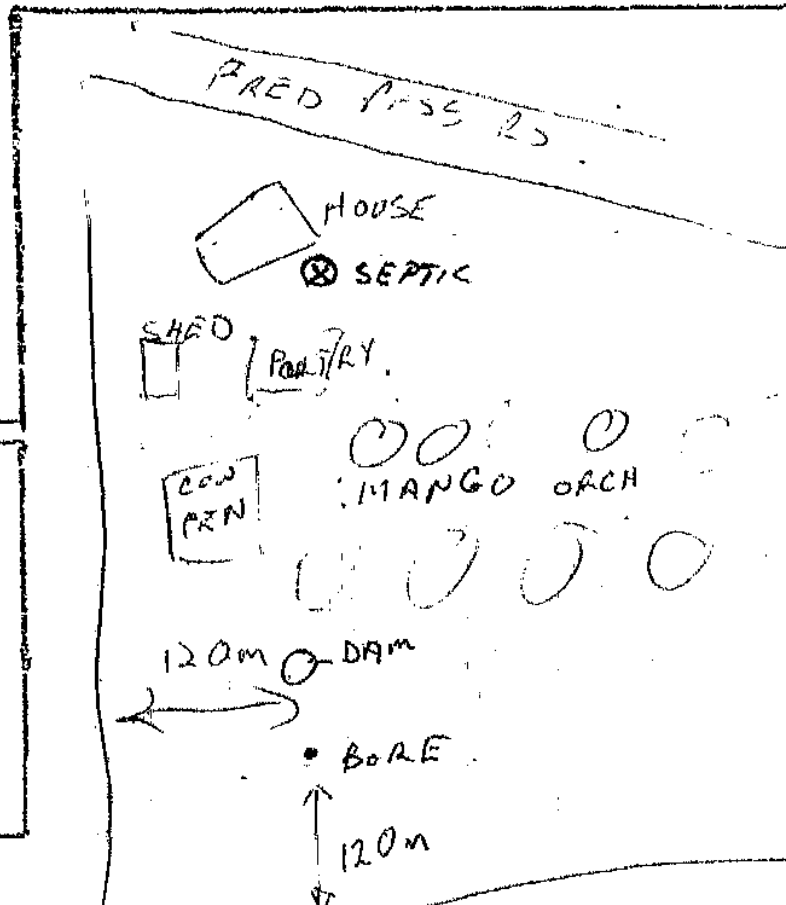
SURFACE DRAINAGE AROUND BORE NIL

SEPTIC TANK

ELEVATION (wrt bore) + 1 M

DISTANCE BOUNDARY 35 m

(N) S E W



REMARKS (inc. neighbouring

o	1394	
No.	214	∠
ON	K/N 9550	PHOTO N° 1-9-81
	09.30	~~[illegible]~~ 4 + 5TH
TEMP.	30	
EST	—	
NATION	NO.	~~MR. P. [illegible]~~
ESID. EST	—	~~[illegible] QUEEN [illegible]~~
RESID. EST	— 2	RAY WHEIAR
E POINT	1½ VALVE	
E POINT ION	LEAKING	
ER IONS	FINE	

CHEM DUH

EXAMPLE NOTES: SAMPLE POINT TYPE — tap, spigot, brass, copper size etc.
SAMPLE POINT CONDITION — sealed, leaking, damaged, corroded, encrusted, algal growth, etc.
WEATHER CONDITIONS — fine, raining, windy, dusty.

COPY TO:

LOCATION AND DETAILS
Lot 3 - Section 403 - 100 of Strangways - RN 9500 - I.N. 1238 RSP. 1394

Proposed water use:- Domestic, Stock, Irrigation, other [specify]

ANALYSIS-PHYSICAL 80/1238

pH	4.7	☐	Colour [Hazen units]
Specific conductance [microsiemens/cm at 25° C]	25	☐	Turbidity [NTU's]
Total dissolved solids [mg/l - by evaporation at 180° C]	31	☐	Suspended solids [mg/l]

ANALYSIS-CHEMICAL [mg/ 1]

Sodium, Na	2	☐	Chloride, Cl	3
Potassium, K	< 1	☐	Sulphate, SO_4	3
Calcium, Ca	< 1	☐	Nitrate, NO_3	4
Magnesium, Mg	< 1	☐	Bicarbonate, HCO_3	< 1
Total Hardness [as $CaCO_3$]	< 1	☐	Carbonate, CO_3	
Total Alkalinity [as $CaCO_3$]	< 1	☐	Fluoride, F	0.1
Iron, [total] Fe	0.2	☐	Orthosphosphate, PO_4	
Silica, SiO_2	18	☐	NaCl [calc. from chloride]	5

ANALYSIS-ADDITIONAL [mg/ 1]

Copper, Cu	☐	Lead, Pb	☐	Arsenic, As
Maganese, Mn	☐	Zinc, Zn	☐	Cadmium, Cd
	☐		☐	

Analysed By : K.COOPER

REMARKS

Date 10.10.80

Is sample as analysed is considered suitable for :-

Drinking water — Yes/No

Stock watering — Y

Irrigation — Yes/No

Others [specify] Y

WR 4/1A | LB 55 | | 15.3.80

LOCATION AND DETAILS
Lot 3 - Section 403 - 100 of Strangways RN 9500 RSP. 158

Proposed water use:- Domestic, Stock, Irrigation, other [specify]

80/1238

ANALYSIS-PHYSICAL

H	4.8	☐	Colour [Hazen units]	
pecific conductance microsiemens/cm at 25° C]	28	☐	Turbidity [NTU's]	
Total dissolved solids mg/l - by evaporation at 180° C]	31	☐	Suspended solids [mg/l]	

ANALYSIS-CHEMICAL [mg/ 1]

Sodium, Na	2	☐	Chloride, Cl	3
Potassium, K	<1	☐	Sulphate, SO_4	4
Calcium, Ca	<1	☐	Nitrate, NO_3	5
Magnesium, Mg	<1	☐	Bicarbonate, HCO_3	3
Total Hardness [as $CaCO_3$]	<1	☐	Carbonate, CO_3	
Total Alkalinity [as $CaCO_3$]	2	☐	Fluoride, F	<0.1
ron, [total] Fe	2.6	☐	Orthosphosphate, PO_4	
ilica, SiO_2	9	☐	NaCl [calc. from chloride]	5

ANALYSIS-ADDITIONAL [mg/ 1]

opper, Cu	☐	Lead, Pb	☐	Arsenic, As
aganese, Mn	☐	Zinc, Zn	☐	Cadmium, Cd
	☐		☐	

ysed By : C. Dickinson 18.4.80 Date

REMARKS

ample as analysed is considered suitable for :-

king water — ~~Yes~~/No Stock watering — Y

ation — Yes/No Others [specify] Y

With suitable treatment the Iron concentration may be lowered to an acceptable level.

With suitable treatment the pH may be adjusted to an acceptable level.

WR 4/1	DA 65	1.58	28.8.79

LOCATION AND DETAILS
Greenoff - Lot 3 - Section 403 - 100 of Strangways RN/9500 I.N. 1238

Temp: 34°c from bore

ANALYSIS - PHYSICAL

pH	4.6	Colour (Hazen units)	
Specific conductance (microsiemens/cm at 25°C)	25	Turbidty (A.P.H.A. units)	
Total dissolved solids (mg/l - by evaporation at 180°C)	25	Suspended solids (mg/l)	

ANALYSIS - CHEMICAL (mg/l)

Total dissolved solids (by summation)	28	Total alkalinity (as $CaCO_3$)	2
Sodium chloride (calc from chloride)	10	Total hardness (as $CaCO_3$)	< 1
Chloride, Cl	6	Sodium, Na	3
Sulphate, SO_4	< 1	Patassium, K	< 1
Nitrate NO_3	4	Calcium, Ca	< 1
Bicarbonate, HCO_3	3	Magnesium, Mg	< 1
Carbonate, CO_3		Iron (total), Fe	0.2
Fluoride, F	0.2	Silica, SiO_2	12

ANALYLIS - ADDITIONAL (mg/l)

ANALYSED BY: H. Henkel Date 8 / 10 / 79

REMARKS: The pH lies outside the range of 6.5 - 9.2, otherwise the sample as analysed is chemically suitable for human consumption according to the 1971 W.H.O. International Standards for drinking water.

WR 4/1	CZ 33	-	5.1.79

LOCATION AND DETAILS

Lot 3 Sect. 403 H. of Strangways RN 9500 Bailer B. O'Connor

80/1238 RSP 158

ANALYSIS - PHYSICAL

pH	5.7	Colour (Hazen units)	
Specific conductance (microsiemens/cm at 25°C)	29	Turbidty (A.P.H.A. units)	
Total dissolved solids (mg/l - by evaporation at 180°C)	93	Suspended solids (mg/l)	

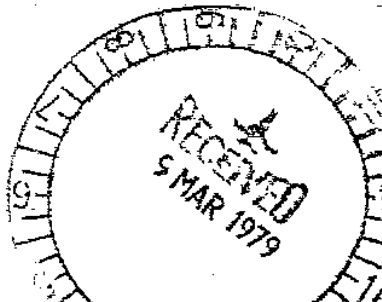
ANALYSIS - CHEMICAL (mg/l)

Total dissolved solids (by summation)	77	Total alkalinity (as $CaCO_3$)	5
Sodium chloride (calc from chloride)	10	Total hardness (as $CaCO_3$)	3
Chloride, Cl	6	Sodium, Na	4
Sulphate, SO_4	4	Patassium, K	1
Nitrate NO_3	2	Calcium, Ca	1
Bicarbonate, HCO_3	6	Magnesium, Mg	<1
Carbonate, CO_3		Iron (total), Fe	9.1
Fluoride, F	0.4	Silica, SiO_2	53

ANALYLIS - ADDITIONAL (mg/l)

ANALYSED BY: K. Cooper Date 1/3/79

REMARKS: The iron concentration exceeds the maxiumum permissible level ~~xxxxxxxxx~~ also the Ph lies outside the range of 6.5 -9 otherwise the sample as analysed is chemically suitable for human concumption according to 1971 W.H.O. international standards for drinking water.



Yes (No)

redeveloping hole:-

Peter Giles

Particulars:-

From:- 53.0 m To:- 53.0 m

Name of Contractor:-

BORE REHABILITATION & INSTALLATION SERVICES

Ironstone Silt
Small Gravel
Shale Stone

Date Redevelopment 21/06/01

Duration 1 Hrs

Collar:- PVC ■
Steel Casing □

Size of Collar:- 8"

Type of Pump
Centrifugal

Model:-
Grundfos SP16-8

Iron Fouling Found Yes/No

Casing Particulars:-

Iron Bacteria Found Yes/No

HP 5 **3 PH**

PVC □
Steel 6" ■

LPS:- set at _____ **Lps**

set at _____ **Psi**

OD 150 **mm**

ID 145 **mm**

Additional items of Interest about Bore:-

Bore Was in Good Order and Cleaned up Very Quickly, Producing Good Clean High Quality Water.

Pump Depth 47 m

Packer set at 3.8 m

Pump Screen Yes/No

Pump Shroud Yes/No

ABS Cap or Seal Yes/No

Particulars of Perforation

Slotted ■ 4 m
Screens □ m

Open Hole □ m

Non Return Valve at Bore Hea

Yes/No

Warning
Minimal Internal Diameter

Draw Down Indicator Fitted Yes/No

is 135 mm
is at 53 m

Set at _____ **KPA**

SWL 5.0 m

Draw Down Level _____ m
Above Pump

Water Quality Good ■
Fair □
Bad □

Total Depth:- 53 m

Advice Ref 51.78

To	Description of Strata
m	sandy clay and clay sands
2m	quartzé sand and clay
5	dolomite and quartz broken

Bore (or supply sketch on the
)-

..Miles

Centre of block.
of (b) Previous bores drilled
by other contractors in the
NE corner and SW corner were
appropriate direction. unsuccessful.
wn point such as existing bore,
ead, outstation, etc.

nal information of interest about
bore.

Reference
umber
es of Strata and Water Supplies
have been* ~~will be*~~
at the following place -

.....

.....
Signature
e non applicable

use only -
17/3/80

Name of Bore -
Success

Name of Property -
Mango and banana farm

Description of Property -
freehold block

Name of Owner -
S. Greenoff

Name of Contractor -
Hickey Drillers

Name of Driller -
John Hickey

Date of Commencement -
13.2.79

Date of Completion -
3.3.79

Total Depth -
55 m

Particulars of Casing - 3.8m 5" pe
casing lin
52 m 6" ID black steel.
Top of liner 51.7m. (8"PVC colla

Particulars of Perforations or Scree
see above

Water	1st Supply	2nd Supply	3 S
Struck at	52.5m	53-55m	
Standing Water Level	3m		
Pumping Supply Litres/sec	4l/s	6l/s	
Duration of Pump Test	10 hours		
Water Level During Test			
Quality: Good, Fair or Bad.	good		

WR 4/1A	Bottle No. DU 14	Time of sampling 0930	Date of sampling 1/9/81

TION AND DETAILS
OT 3 SECTION 403 HD S/WAYS TEMP 30c WRD 6074

9550 RSP 1394

ed water use:- Domestic, Stock, Irrigation, other (specify)

ANALYSIS — PHYSICAL

H	4.8	☐	Colour (Hazen units)
ecific conductance icrosiemens/cm at 25° C)	24	☐	Turbidity (NTU's)
al dissolved solids g/l - by evaporation at 180° C)	18	☐	Suspended solids (mg/l)

ANALYSIS — CHEMICAL (mg/1)

odium, Na	2	☐	Chloride, Cl
assium, K	< 1	☐	Sulphate, SO^4
cium, Ca	< 1	☐	Nitrate, NO^3
gnesium, Mg	< 1	☐	Bicarbonate, HCO^3
al Hardness (as $CaCO^3$)	< 1	☐	Carbonate, CO^3
al Alkalinity (as $CaCO^3$)	2	☐	Fluoride, F
, (total) Fe	0.4	☐	Orthosphosphate, PO^4
ca, SiO^2	11	☐	NaCl (calc. from chloride)

ANALYSIS — ADDITIONAL (mg/1)

pper, Cu	☐ Lead, Pb	☐ Arsenic, As
ganese, Mn	☐ Zinc, Zn	☐ Cadmium, Cd
	☐	☐

mple as analysed is considered suitable for:-

g water —	Yes/No	Stock watering —	Yes/No
n —	Yes/No	Others (specify)	Yes/No

With suitable treatment the pH may be adjusted to an acceptable level.

WR 4/1A	Bottle No. Z245	Time of sampling 0935	Date of sampling 1/3

TION AND DETAILS LOT 3 SECTION 403 FREDS PASS ROAD RN 955

mp 30°C WRD 6074 RSP 139

ed water use:- Domestic, Stock, Irrigation, other (specify)

ANALYSIS — PHYSICAL

H	4.9	☐ Colour (Hazen units)	
pecific conductance icrosiemens/cm at 25° C)	25	☐ Turbidity (NTU's)	
tal dissolved solids g/l - by evaporation at 180° C)	25	☐ Suspended solids (mg/l)	

ANALYSIS — CHEMICAL (mg/1)

odium, Na	2	☐ Chloride, Cl	2
tassium, K	<1	☐ Sulphate, SO^4	<1
lcium, Ca	<1	☐ Nitrate, NO^3	5
gnesium, Mg	<1	☐ Bicarbonate, HCO^3	3
tal Hardness (as $CaCO^3$)	1	☐ Carbonate, CO^3	
al Alkalinity (as $CaCO^3$)	2	☐ Fluoride, F	0.1
n, (total) Fe	0.5	☐ Orthosphosphate, PO^4	
ca, SiO^2	7	☐ NaCl (calc. from chloride)	3

ANALYSIS — ADDITIONAL (mg/1)

pper, Cu	☐ Lead, Pb	☐ Arsenic, As
ganese, Mn	☐ Zinc, Zn	☐ Cadmium, Cd
	☐	☐

nple as analysed is considered suitable for:-

g water —	Yes/~~No~~	Stock watering —	Yes/No
on —	Yes/No	Others (specify)	Yes/No

With suitable treatment the pH may be adjusted to an acceptable level.

	Bottle No.	Time of sampling	Date of sampling
WR 4/1A	ZZ45	0935	1/3/82

ION AND DETAILS
LOT 3 SECTION 403 FREDS PASS ROAD RN9550 TEMP 30 WRD 6074

80/1252 RSP 1394

water use:- Domestic, Stock, Irrigation, other (specify)

ANALYSIS — PHYSICAL

	4.9	☐	Colour (Hazen units)
ific conductance rosiemens/cm at 25° C)	25	☐	Turbidity (NTU's)
l dissolved solids l - by evaporation at 180° C)	25	☐	Suspended solids (mg/l)

ANALYSIS — CHEMICAL (mg/l)

ium, Na	2	☐	Chloride, Cl	2	
ssium, K	< 1	☐	Sulphate, SO^4	< 1	
um, Ca	< 1	☐	Nitrate, NO^3	5	
nesium, Mg	< 1	☐	Bicarbonate, HCO^3	3	
Hardness (as $CaCO^3$)	1	☐	Carbonate, CO^3		
Alkalinity (as $CaCO^3$)	2	☐	Fluoride, F	0.1	
(total) Fe	0.5	☐	Orthosphosphate, PO^4		
, SiO^2	7	☐	NaCl (calc. from chloride)	3	

ANALYSIS — ADDITIONAL (mg/l)

er, Cu	☐ Lead, Pb	☐ Arsenic, As
nese, Mn	☐ Zinc, Zn	☐ Cadmium, Cd
	☐	☐

le as analysed is considered suitable for:-

water —	Yes/No	Stock watering —	Yes/No
—	Yes/No	Others (specify)	Yes/No

With suitable treatment the pH may be adjusted to an acceptable level.

[redacted] WR 4/1A | Bottle No. DU 14 | Time of sampling 0930 | Date of sampling 1/9/81

ON AND DETAILS
T 3 SECTION 403 HD S/WAYS TEMP 30c WRD 6074

60/1252 RSP 1394

water use:- Domestic, Stock, Irrigation, other (specify)

ANALYSIS — PHYSICAL

	4.8	☐ Colour (Hazen units)
fic conductance osiemens/cm at 25° C)	24	☐ Turbidity (NTU's)
dissolved solids - by evaporation at 180° C)	18	☐ Suspended solids (mg/l)

ANALYSIS — CHEMICAL (mg/l)

um, Na	2	☐ Chloride, Cl
sium, K	<1	☐ Sulphate, SO^4
um, Ca	<1	☐ Nitrate, NO^3
esium, Mg	<1	☐ Bicarbonate, HCO^3
Hardness (as $CaCO^3$)	<1	☐ Carbonate, CO^3
Alkalinity (as $CaCO^3$)	2	☐ Fluoride, F
(total) Fe	0.4	☐ Orthosphosphate, PO^4
SiO^2	11	☐ NaCl (calc. from chloride)

ANALYSIS — ADDITIONAL (mg/l)

er, Cu	☐ Lead, Pb	☐ Arsenic, As
nese, Mn	☐ Zinc, Zn	☐ Cadmium, Cd
	☐	☐

e as analysed is considered suitable for:-

water —	Yes/~~No~~	Stock watering —	Yes/~~No~~
—	Yes/No	Others (specify)	Yes/No

With suitable treatment the pH may be adjusted to an acceptable level.

ory is registered by the National Testing Authorities, Australia. The test(s) have been performed in accordance with registration. This document shall not be ept in full.

WR 4/1A	Bottle No. DU 14	Time of sampling 0930	Date of sampling 1/9/81

ION AND DETAILS
T 3 SECTION 403 HD S/WAYS TSHP 30C WED 6074

RSP 1394

water use:- Domestic, Stock, Irrigation, other (specify) 80/1252

ANALYSIS — PHYSICAL

	4.8	☐ Colour (Hazen units)
ific conductance rosiemens/cm at 25° C)	24	☐ Turbidity (NTU's)
l dissolved solids l - by evaporation at 180° C)	18	☐ Suspended solids (mg/l)

ANALYSIS — CHEMICAL (mg/l)

ium, Na	2	☐ Chloride, Cl
ssium, K	< 1	☐ Sulphate, SO^4
um, Ca	< 1	☐ Nitrate, NO^3
nesium, Mg	< 1	☐ Bicarbonate, HCO^3
Hardness (as $CaCO^3$)	< 1	☐ Carbonate, CO^3
Alkalinity (as $CaCO^3$)	2	☐ Fluoride, F
(total) Fe	0.4	☐ Orthosphosphate, PO^4
, SiO^2	11	☐ NaCl (calc. from chloride)

ANALYSIS — ADDITIONAL (mg/1)

er, Cu	☐ Lead, Pb	☐ Arsenic, As
nese, Mn	☐ Zinc, Zn	☐ Cadmium, Cd
	☐	☐

le as analysed is considered suitable for:-

water —	Yes/~~No~~	Stock watering —	Yes/~~No~~
—	Yes/No	Others (specify)	Yes/No

With suitable treatment the pH may be adjusted to an acceptable level.

G. JOHNSTON 30 9 81

WR 4/1	DC 09	0845	5/2/79

[redacted]TION AND DETAILS

Humpty Doo RN 9550 Discharge 5.2 lps temp 30°C Mono Pump

RSP 7 Sampler T. Parker TN 80/1252 Missing

ANALYSIS - PHYSICAL

pH	4.9	Colour (Hazen units)	
Specific conductance (microsiemens/cm at 25°C)	23	Turbidty (A.P.H.A. units)	
Total dissolved solids (mg/l - by evaporation at 180°C)		Suspended solids (mg/l)	

ANALYSIS - CHEMICAL (mg/l)

Total dissolved solids (by summation)		Total alkalinity (as $CaCO_3$)	2
Sodium chloride (calc from chloride)	7	Total hardness (as $CaCO_3$)	5
Chloride, Cl	4	Sodium, Na	
Sulphate, SO_4		Patassium, K	
Nitrate NO_3		Calcium, Ca	
Bicarbonate, HCO_3	3	Magnesium, Mg	
Carbonate, CO_3		Iron (total), Fe	
Fluoride, F		Silica, SiO_2	

ANALYLIS - ADDITIONAL (mg/l)

ANALYSED BY: K. Cooper Date 9 / 4 / 79

REMARKS:

er's Name: Mc Kenna I.N. 80/1252

3. Section 403 N of Stanaway R.N. 9550

.....

e has been two other bores on this block 80/544

filled in: 80/1238 is not equipd. Water supply

d could not get it clear.

O OOO SHEET NAME: N Doo 06 09

o M.P. M. : M.P. to S.W.L. M. : TOTAL DEPTH FROM M.P.

Domestic/Irrigation/Public Supply)Other.....

OF BLOCK 8.08 Ha .....

IRRIGATED: 5. ha

is irrigated land used for: Domestic approx 2 Ha Ban

Ha. Hangers or drip system

ils of Motor: MAKE Tractor TYPE.....

ils of Pump: MAKE Keno Borehole TYPE 2½" outlet

ng Dia 6"

L WEEKLY OPERATION HOURS 24 hours

nated Total Annual Withdrawal 12,787,200 L/A

.....

od of maximum withdrawal: 40 weeks

DRILLERS NAME Drilling Services

Field Test: pH 8.75 S.Cond 35

Yield 3.70 4/5 L/sec(Est)

O OFFICER(S) L.J.Gale G McCann

28/8/79

FREDS PASS RD


5.50

ENTIFICATION

Bore name: Greenhoff No 3

Location:

Hundred of Strangways

Grid Reference: Sect'403,Lot 3

R.N. 9550

I.N. 80/1252

Advice No. 51/78

Map: Noonamah Sheet 5

COMMENDATIONS

Maximum continuous pumping rate: 5 l/s

Pump setting: 30 metres

Minimum bore diameter: 115mm (5 metres to 55 metres)

RE DATA

Total depth: 55 metres

Date bore completed: 3/3/79

S.W.L. 1.85metres at 6/ 3 /19 79

NSTRUCTION

Interval	Description
0 - 52m	150mm Blank bore casing
51m - 55m	125mm Liner with Grows of 3mm-6mm oxy slots

Casing straightness tested yes ~~xx~~ 40 ft. dolly/~~xxxxx~~ passed test yes ~~xx~~

Casing plumbness tested ~~xxx~~ no max. permissable deviation....../........... passed yes no

ER ANALYSIS

See attached sheet

MENTS

Prepared by: D. Williams

Approved by: Pete J. [signature]

BORE COMPLETION REPORT

IDENTIFICATION

Bore name: Greenhoff No 3
Location:
Hundred of Strangways
Grid Reference: Sect'403,Lot 3

R.N. 9550
I.N. 80/1252
Advice No. 51/78
Map: Noonamah Sheet 5

RECOMMENDATIONS

Maximum continuous pumping rate: 5 l/s
Pump setting: 30 metres
Minimum bore diameter: 115mm (5 metres to 55 metres)

BORE DATA

Total depth: 55 metres
Date bore completed: 3/3/79
S.W.L. 1.85metres at 6/ 3 /19 79

CONSTRUCTION

Interval	Description
0 - 52m	150mm Blank bore casing
51m - 55m	125mm Liner with Grows of 3mm-6mm oxy slots

Casing straightness tested yes xx 40 ft. dolly/~~xxxxx~~ passed test yes xx

Casing plumbness tested ~~xxx~~ no max. permissable deviation...../..... passed yes no

WATER ANALYSIS

See attached sheet

COMMENTS

Prepared by: D. Williams

Approved by: [signature]

Appendix B

Aerial Photographs

Title Deeds

DCA Information

Council Records

Anecdotal Evidence

DBYD search information

Photo 1 - 1995 Aerial Photograph.

Photo 2 - 1996 Aerial Photograph.

Douglas Partners Geotechnics / Environment / Groundwater	Project No. 78156.00	Aerial Photographs
	Date: 25 Feb 2015	Lot 3 Freds Pass Road, Humpty Doo, NT
		Client: Tolinchlo Pty Ltd

Photo 3 - 1997 Aerial Photograph.

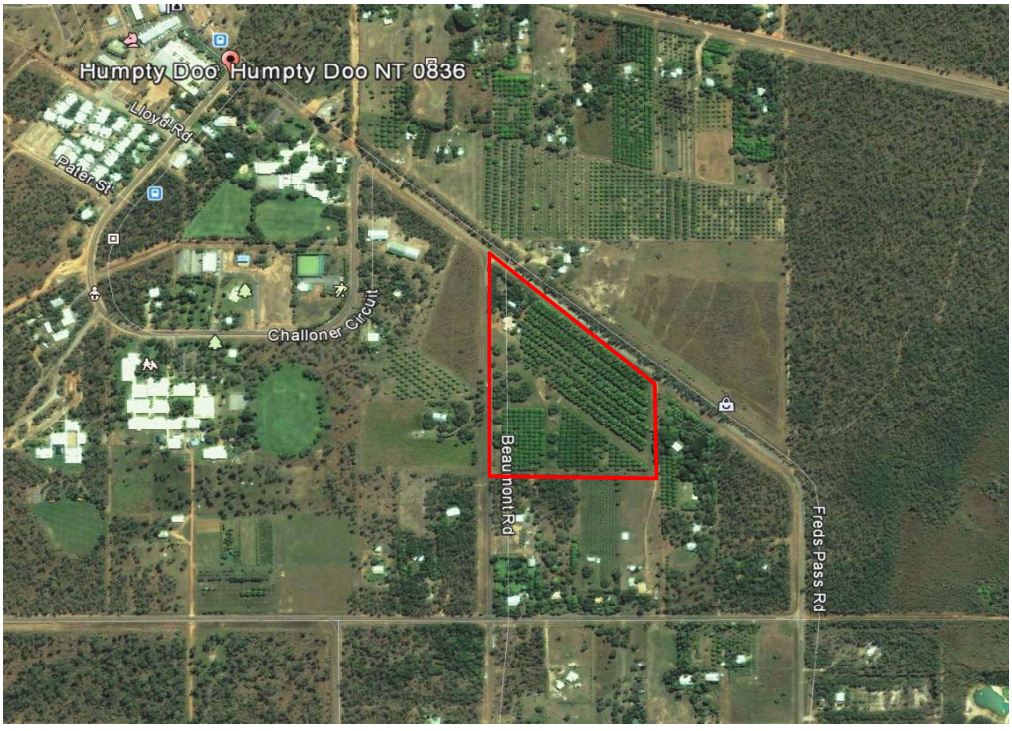


Photo 4 - 2004 Aerial Photograph.

Douglas Partners Geotechnics / Environment / Groundwater	Project No. 78156.00	Aerial Photographs
	Date: 25 Feb 2015	Lot 3 Freds Pass Road, Humpty Doo, NT
		Client: Tolinchlo Pty Ltd

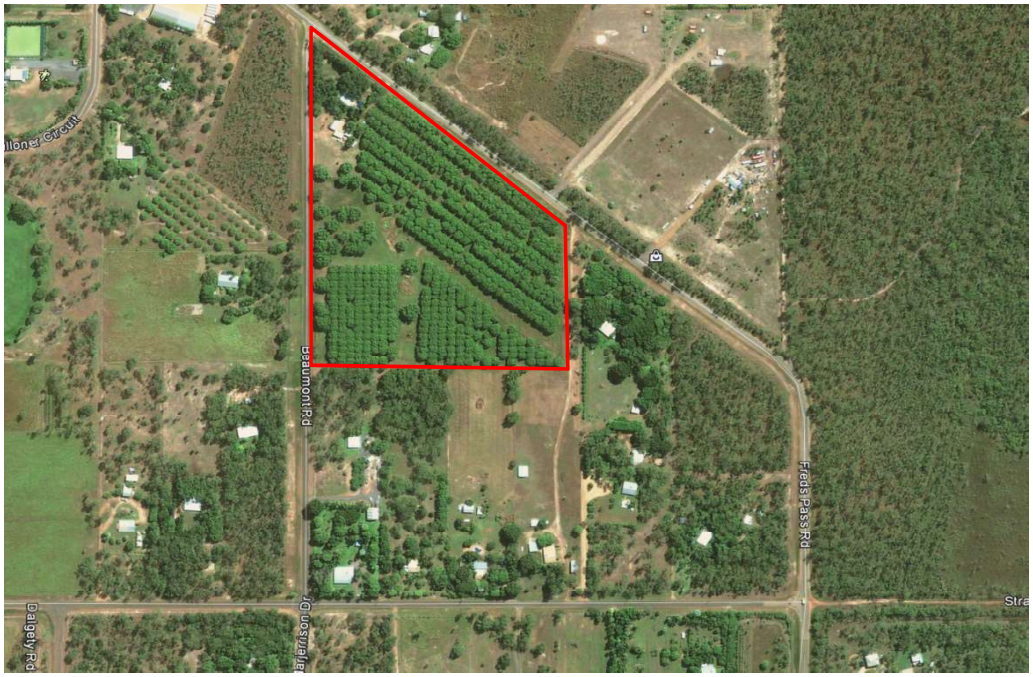


Photo 5 - 2012 Aerial Photograph.

Photo 6 - 2014 Aerial Photograph.

Douglas Partners Geotechnics / Environment / Groundwater	Project No. 78156.00	Aerial Photographs
	Date: 25 Feb 2015	Lot 3 Freds Pass Road, Humpty Doo, NT
		Client: Tolinchlo Pty Ltd

Date Registered: 04/07/2012 **Volume** 767 **Folio** 697

Duplicate Certificate as to Title issued? No

SEARCH CERTIFICATE

Lot 3 Hundred of Strangways from plan(s) LTO69/006
Area under title is 8 hectares 1100 square metres

Owner:
Tolinchlo Pty Ltd (ACN 158 399 234)
of Unit 20, 16 Charlton Court, Woolner NT 0820

Registered Date	Dealing Number	Description
		Previous title is **Volume** 736 **Folio** 174

End of Dealings

NORTHERN TERRITORY OF AUSTRALIA

Record of Administrative Interests and Information

Record of Administrative Interests and Information
The information contained in this record of Administrative Interests only relates to the below parcel reference.

Parcel Reference: Lot 00003 Hundred of Strangways plan(s) LTO69/006

(See section 38 of the Land Title Act)

Note: The Record of Administrative Interests and Information is not part of the Land Register and is not guaranteed by the Northern Territory of Australia, and the NT Government accepts no Liability for any omission, misstatement or inaccuracy contained in this statement.

Registrar General

Government Land Register
(none found)

Custodian - Registrar General (+61 8 8999 6252)

Current Title
CUFT 767 697 (order 1)

Tenure Type
ESTATE IN FEE SIMPLE

Tenure Status
Current

Area Under Title
8 hectares 1100 square metres

Owners
Tolinchlo Pty Ltd (ACN 158 399 234)
Unit 20, 16 Charlton Court, Woolner NT 0820

Easements
(none found)

Scheme Name
(none found)

Scheme Body Corporate Name
(none found)

Reserved Name(s)
(none found)

Unit Entitlements
(none found)

Transfers
04/07/2012 for $1,250,000
31/07/1998 for $385,000
20/02/1981 for $80,000
23/03/1979 for $170,000
15/08/1970 for n/a

Tenure Comments
(none found)

Historic Titles
CUFT 736 174 (order 1)
CUFT 634 226 (order 1)
CUFT 600 053 (order 1)
CUFT 005 157 (order 4)
CUFT 005 157 (order 3)
CUFT 005 157 (order 2)
CUFT 005 157 (order 1)
Visit the website http://www.nt.gov.au/justice/bdm/land_title_office/

Custodian - Surveyor General (+61 8 8995 5353)

Address
110 FREDS PASS RD, HUMPTY DOO

Survey Plan
LTO69/006

Survey Status
Approved

Parcel Status
CURRENT

Parcel Area
8 hectares, 1100 square metres

Map Reference
Code 373 Scale 2500 Sheet 22.33

Parent Parcels
(none found)

Parcel Comments
PART FORMER PT.SEC.403

Survey Comments
(none found)

Proposed Easements
(none found)

Municipality
LITCHFIELD MUNICIPALITY

Region
DARWIN

Custodian - Valuer General (+61 8 8943 9193)

Owner's Last Known Address
Tolinchlo Pty Ltd (ACN 158 399 234), UNIT 20 16 CHARLTON COURT WOOLNER NT 0820

Parcels in Valuation
Lot 00003 Hundred of Strangways

Unimproved Capital Value
$3,244,000 on 01/07/2012
$679,000 on 01/07/2009
$366,000 on 01/07/2006
$183,000 on 01/07/2003
$170,000 on 01/07/2000
$170,000 on 01/07/1997
$110,000 on 01/07/1994
$55,000 on 01/07/1991
$46,000 on 01/01/1989
$46,000 on 01/01/1986
$19,000 on 01/05/1979

Valuation Improvements
12/04/1995 House
12/04/1995 Garage
12/04/1995 Rural other
12/04/1995 Shed
11/06/1979 Shed
11/06/1979 House

Custodian - Property Purchasing (+61 8 8999 6631)

Acquisitions
(none found)

Custodian - Building Advisory Service (+61 8 8999 8965)

Building Control Areas
BBDAR001 - Building Control Area DARWIN BUILDING AREA

Building Permits
(none found)

Visit the website http://www.nt.gov.au/lands/building/

Custodian - Town Planning and Development Assessment Services (+61 8 8999 8965)

Planning Scheme Zone
MZ (Multi Zone)

Interim Development Control Orders
(none found)

Planning Notes
(none found)

Planning Applications

File Number
PA2013/0467

Type
Investigation/Enforcement

Date Received

Application Purpose
Alleged excavation without prior consent - removal of tree roots and soil stored at the end of the site.

Application Status
Completed

Other Affected Parcels
(none found)

Instrument Signed

Instrument Number

Instrument Issued
Not Complete

Instrument Status

File Number
PA2014/0552

Type
Subdivision

Date Received
22/07/2014

Application Purpose
Subdivision to create 59 lots in 4 stages

Application Status
Approved

Other Affected Parcels
(none found)

Instrument Signed
25/09/2014

Instrument Number
DP14/0679

Instrument Issued
Signed

Instrument Status
Current

File Number
PA2013/0193

Type
Planning Scheme Amendment

Date Received
19/03/2013

Application Purpose
Rezone from RL to Zones SD & MD Lot 00003 Hundred of Strangways

Application Status
Approved

Other Affected Parcels
(none found)

Instrument Signed

Instrument Number

Instrument Issued
Not Complete

Instrument Status
Current

File Number
PA2011/0266

Type
Planning Scheme Amendment

Date Received
27/04/2011

Application Purpose
To rezone Sections 2257, 2258, 2259, 2260 and 2844, and Lot 3 LTO 69/006 Hundred of Strangways from Zone RL to Zones SD & RR to facilitate residential subdivision of Humpty Doo East

Application Status
Refused

Other Affected Parcels
Section 02257 Hundred of Strangways
Section 02258 Hundred of Strangways
Section 02259 Hundred of Strangways
Section 02260 Hundred of Strangways
Section 02844 Hundred of Strangways

Instrument Signed

Instrument Number

Instrument Issued
Not Complete

Instrument Status
Completed

File Number
PA1994/0673

Type
Development

Date Received
26/08/1994

Application Purpose
COOLROOM/SHED

Application Status
Approved

Other Affected Parcels
(none found)

Instrument Signed
16/09/1994

Instrument Number
DP94/0217

Instrument Issued
Signed

Instrument Status

Custodian - Power and Water Corporation (1800 245 092)

Meters on Parcel

Power Water - Electricity	2
Power Water - Water	(none found)

For Account balances, contact the Power and Water Corporation.

Custodian - Pool Fencing Unit (+61 8 8924 3641)

Swimming Pool/Spa Status
(none found)

For more information, contact the Pool Fencing Unit (+61 8 8924 3641).

Custodian - Mines and Energy (+61 8 8999 5322)

For information on possible Exploration Licences, contact Mines & Energy or visit the website http://www.nt.gov.au/d/Minerals_Energy/

For information on possible Petroleum Titles, contact Mines & Energy for further details.

Custodian - NT Environment Protection Authority (+61 8 8924 4218)

Results of site contamination assessment
(none found)

For further information contact Environment Protection Agency or visit the website http://www.ntepa.nt.gov.au/waste-pollution/compliance/audits/contamination

Custodian - Heritage Branch (+61 8 8999 5039)

Heritage Listing:
(none found)

For further information on heritage places contact Heritage Branch or visit the website http://www.dlpe.nt.gov.au/heritage

Other Interests

For Account balances, contact Litchfield Council

NORTHERN TERRITORY OF AUSTRALIA

Planning Act - sections 54 and 55

DEVELOPMENT PERMIT

DP14/0679

DESCRIPTION OF LAND THE SUBJECT OF THE PERMIT

Lot 00003, LTO Plan 69006
Hundred of Strangways
110 FREDS PASS RD, HUMPTY DOO

APPROVED PURPOSE

To use and develop the land for the purpose of subdivision to create 59 lots in 4 stages, in accordance with the attached schedule of conditions and the endorsed plans.

VARIATIONS GRANTED

Clause 11.1.2 (Integrated Residential Development) of the NT Planning Scheme
Clause 11.2.2 (Instrastructure and Community Facilities in Residential Subdivisions) of the NT Planning Scheme

BASE PERIOD OF THE PERMIT

Subject to the provisions of sections 58, 59 and 59A of the Planning Act, this permit will lapse two years from the date of issue.

Steven Kubasiewicz
Delegate
Development Consent Authority

25/ 9 /2014

DEVELOPMENT PERMIT

DP14/0679

SCHEDULE OF CONDITIONS

CONDITIONS PRECEDENT

1. Prior to the endorsement of plans and prior to commencement of works (including site preparation), amended plans to the satisfaction of the consent authority must be submitted to and approved by the consent authority. When approved, the plans will be endorsed and will then form part of the permit. The plans must be drawn to scale with dimensions and two copies must be provided. The plans must be generally in accordance with the plans submitted with the application but modified to show:
   a) Provision of a footpath along the Beaumont Road frontage, and along Freds Pass Road to Section 4134 (50) Freds Pass Road, Humpty Doo;
   b) Fencing plan indicating 'good neighbour' fencing along the southern and eastern boundaries that adjoin Zone RL land;
   c) Provision of 17m wide road reserves to all internal roads, in accordance with Litchfield Council urban subdivision requirements;
   d) Provision of public car parking adjacent to the public open space;
   e) Delineation of building envelopes on lots 1-19 inclusive, in accordance with Table to Clause 11.2.3 of the NT Planning Scheme, orientated towards the front of the lots; and
   f) Identification of the public open space and drainage corridor as 'lot 59'.

2. Prior to the commencement of works an Erosion and Sediment Control Plan (ESCP), is to be submitted to and approved by the consent authority on the advice of the Department of Land Resource Management, and an endorsed copy of the Plan will form part of this permit. The plan should detail methods and treatments for minimising erosion and sediment loss from the site during both the construction and operational phases. The IECA Best Practice Erosion and Sediment Control Guidelines 2008 may be referenced as a guide to the type of information, detail and data that should be included in an ESCP. Information regarding erosion and sediment control and ESCP content is available at www.austieca.com.au and the DLRM website: http://lrm.nt.gov.au/soil/management.

3. Prior to the endorsement of plans and prior to the commencement of works, a schematic plan demonstrating the on-site collection of stormwater and its discharge into the Litchfield Council stormwater drainage system and the detention basin on Section 368 Hundred of Strangways, shall be submitted to and approved by Litchfield Council and the Department of Lands, Planning and the Environment (Land Administration) to the satisfaction of the consent authority. The plan shall include details of site levels and Council's stormwater drain connection point/s. The plan shall also indicate how stormwater will be collected on the site and connected underground to Council's system.

4. Prior to the commencement of works a qualified person, under section 68 of the Waste Management and Pollution Control Act, is to provide certification that the site is suitable for its intended uses(s), to the satisfaction of the consent authority on the advice of the NT Environment Protection Authority.

GENERAL CONDITIONS

5. The works carried out under this permit shall be in accordance with the drawings endorsed as forming part of this permit.

6. The subdivision must proceed in the order of stages as shown on the endorsed plan unless otherwise agreed in writing by the consent authority.

7. All existing and proposed easements and sites for existing and required utility services must be vested in the relevant authority for which the easement or site is to be created on the plan of subdivision submitted for approval by the Surveyor General.

8. Any developments on or adjacent to any easements on site shall be carried out to the requirements of the relevant service authority to the satisfaction of the consent authority.

9. The owner of the land must enter into agreements with the relevant authorities for the provision of water supply, drainage, sewerage and electricity facilities, and telecommunication networks to each lot shown on the endorsed plan in accordance with the authorities' requirements and relevant legislation at the time.

10. Stormwater is to be collected and discharged into the drainage network to the technical standards of and at no cost to Litchfield Council to the satisfaction of the consent authority.

11. The use and development must be managed so that the amenity of the area is not detrimentally affected, through the:
    a) transport of materials, goods or commodities to or from the land
    b) appearance of any building, works or materials
    c) emission of noise, artificial light, vibration, smell, fumes, smoke, vapour, steam, soot, ash, dust, waste water, waste products, grit or oil
    d) presence of vermin

12. All proposed roads to be created on the plan of subdivision submitted for approval by the Surveyor General must be dedicated to the relevant Northern Territory or local government authority.

13. Landscaping and development of open space and streets/roads shall be designed and constructed to the requirements of Litchfield Council to the satisfaction of the consent authority and all approved works constructed at the owner's expense.

14. No fence, hedge, tree or other obstruction exceeding a height of 0.6m is to be planted or erected so that it would obscure sight lines at the junction of the driveway and the public street.

15. Engineering design and specifications for the proposed and affected roads, street lighting, stormwater drainage, vehicular access, pedestrian/ cycle corridors and streetscaping are to be to the technical requirements of Litchfield Council to the satisfaction of the consent authority and all approved works constructed at the owner's expense.

16. All waste material not required for further on-site processing must be regularly removed from the site to an approved facility. All vehicles removing waste must have fully secured and contained loads so that no wastes are spilled or dust or odour is created to the satisfaction of the consent authority.

17 Before the issue of titles, the fencing as identified in the Fencing Plan is to be installed.

NOTES

1. This permit will expire if one of the following circumstances applies:
   a) the development is not started within two years of the date of this permit; or
   b) the development is not completed within four years of the date of this permit.
   The consent authority may extend the periods referred to if a request is made in writing before the permit expires.

2. The Power and Water Corporation advises that the Water and Sewer Services Development Section (landdevelopmentnorth@powerwater.com.au) and Power Network Engineering Section (powerconnections@powerwater.com.au) should be contacted via email a minimum of 1 month prior to construction works commencing in order to determine the Corporation's servicing requirements, and the need for upgrading of on-site and/or surrounding infrastructure.

3. The Northern Territory Environment Protection Authority advises that construction work should be conducted in accordance with the Agencys Noise Guidelines for Development Sites. The guidelines specify that on-site construction activities are restricted to between 7am and 7pm Monday to Saturday and 9am to 6pm Sunday and Public Holidays. For construction activities outside these hours refer to the guidelines for further information.

4. A "Permit to Work Within a Road Reserve" may be required from Litchfield Council before commencement of any work within the road reserve.

5. There are statutory obligations under the Weeds Management Act to take all practical measures to manage weeds on the property. For advice on weed management please contact the Department of Land Resource Management.

6. Professional advice regarding implementation of soil erosion control and dust control measures to be employed throughout the construction phase of the development are available from Department of Land Resource Management.

7. You are advised to contact the relevant service provider prior to construction works commencing in order to determine the relevant telecommunication network servicing requirements for the development, including the potential requirement to provide fibre ready telecommunication facilities

8. All new roads are required to be named under the Place Names Act. You should immediately make application to the Place Names Committee to commence the road naming process. Contact the Place Names Unit on 8995 5333 or placenames.dpi@nt.gov.au. Further information can be found at http://www.placenames.nt.gov.au.

9. The developer is encouraged to contact "Dial Before You Dig" on 1100 to obtain a location of the Telstra Network and arrange for any relocation if required. The Telstra contact for relocation work is the Network Integrity and Compliance Group on 1800 810 443.

NORTHERN TERRITORY PLANNING AUTHORITY

Planning Act

Section 52

DEVELOPMENT PERMIT

DP94/217

DESCRIPTION OF LAND THE SUBJECT OF THIS PERMIT

Lot No:	Lot 3, LTO 69/006
Town/Hundred:	Hundred of Strangways
Street Address:	110 Freds Pass Road

PURPOSE

Consent is hereby granted, in pursuance of section 52(1)(a)(i) of the *Planning Act* for the purpose of a coolroom/shed, subject to the conditions in the Schedule and for the reasons set out in the attached statement of reasons.

This permit is issued by JAMES MURRAY ROBERTSON, as delegate of the Northern Territory Planning Authority.

Dated this 16th day of September 1994

J M ROBERTSON
Delegate
Northern Territory
Planning Authority

STATEMENT OF REASONS FOR DETERMINATION

DEVELOPMENT PERMIT

DP94/217

Reason

1. The proposed coolroom/shed will facilitate the packing and freight control of produce (mangoes) grown on the property.

Variations Given

Clause 22.1 (Setbacks in the RL1 zone) of the Litchfield Area Plan 1992.

Right of Appeal

The applicant's attention is drawn to the right of appeal which exists in relation to the above decision in accordance with section 99 of the *Planning Act*. Within 28 days of receiving this Permit an appeal to the Appeals Committee may be lodged.

J M ROBERTSON
Delegate
Northern Territory
Planning Authority

SCHEDULE OF CONDITIONS

DEVELOPMENT PERMIT

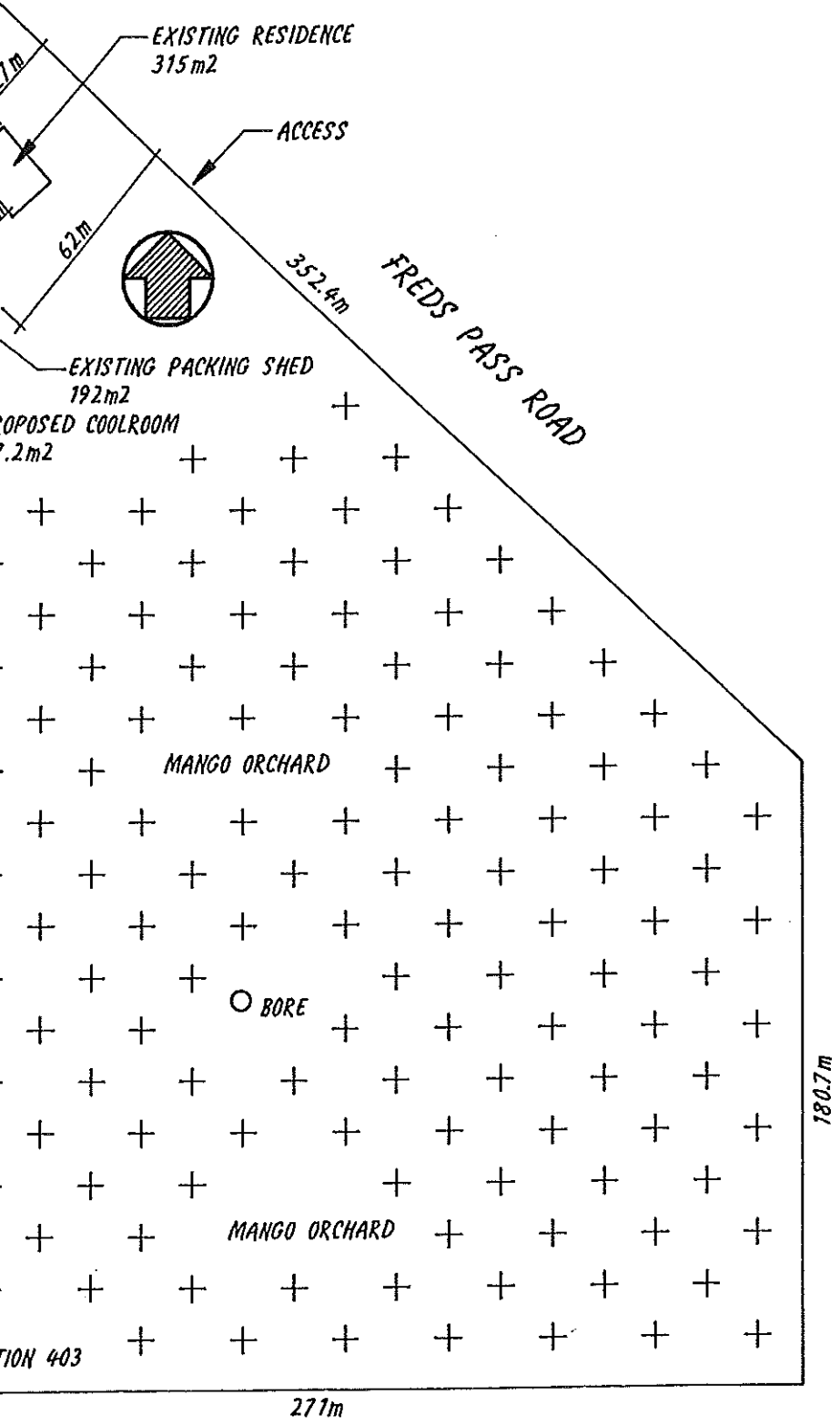
DP94/217

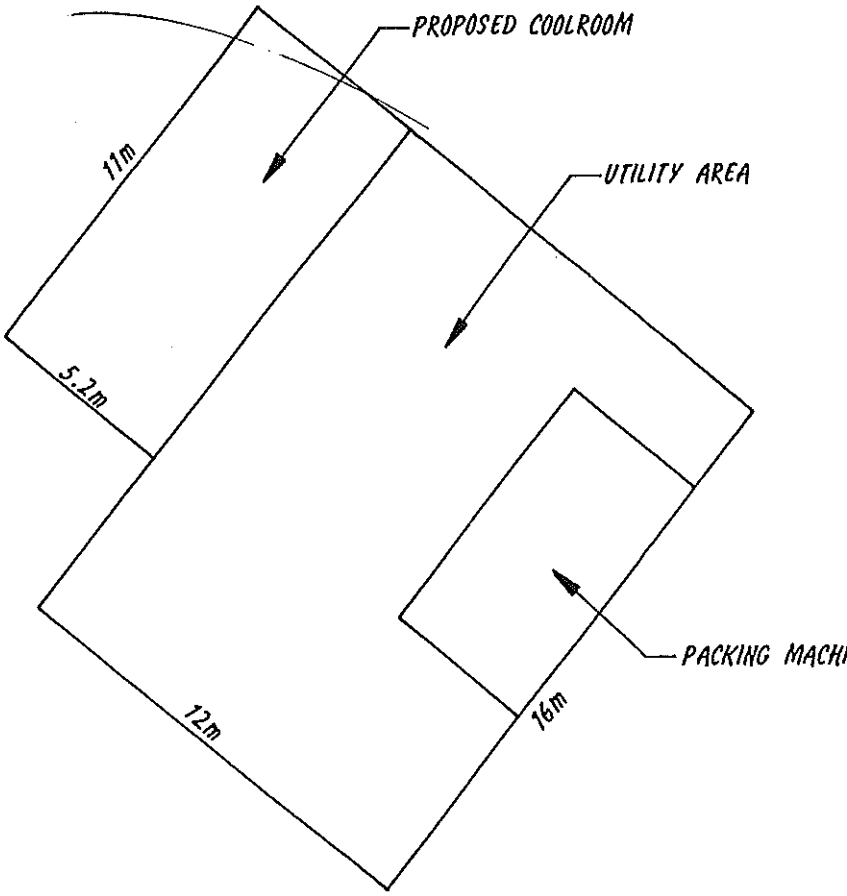
1. Works carried out under this permit shall be in accordance with drawings numbered EW1, LDS94/090 Sheets 1 of 2 and 2 of 2 and endorsed as forming part of this permit.

Base Period of Permit

As provided for under section 55 of the Act and subject to the provisions of sections 56 and 57, this permit will lapse two years from the date of issue.

J M ROBERTSON
Delegate
Northern Territory
Planning Authority





PACKING SHED LAYOUT 1:200

This is the dra ning refe
Development Permit N
DP04/0217
Northern Territory Pla
on 16.4.04
delegate/o

DRAWING NO

G1 AT 1000 C/C MAX.

OPEN

FIX CB1 TO EA. GIRT WITH No.14 TEK SCREW AND FULLY 6 C.F.W. WELD ENDS TO C1.

ELEVATION 2

ELEVATION 3

METLOK MSTAL SHEETING - FIX TO D.T.C.M. / 114 / 6,7

MIN. 1° PITCH

LAP NEW SHEETI P.M. FLASHING

R1

TYPICAL P1 OR Z20019 FASCIA AS PER DETAIL - IF P1 - PROVIDE 3-0 M.S. END CAP FULLY 6 C.F.W. WELDED TO R1.

KLIPLOCK WALL CLAD-ING - FIX TO D.T.C.M. / 101 / 7, 8, OR TRIMDECK FIXED TO D.T.C.M. / 101 / 9, 10.

2900

G1 AT 1000 C/C MAX.

100 TH. F/C = 25 MPa CONC. SLAB - F62 REINF. CENTR-ALLY PLACED - OVER P.V.C. / D.P.M.

200 x 200 EDGE THICKENING TO SLAB WHERE EXPOSED.

600 DIA. BORED PIER COLUMN FOOTIN

SECTION A-A - REFER TO SHT.

1

ed to in

ssued by the
ng Authority

e Authority

OM

SHED

STING

A

A

FIX CB2 TO U/S OF EA. PURLIN WITH No.14 TEK SCREW AND FULLY 6 C.F.W. WELD ENDS TO R1.

C1/F2

C1/F1

P1

P1

P1

PROPOSED

SHED

R2

R1

OPEN

P1

P1

P1

G1

MEMBER SCHEDULE

C1	100 x 100 x 4·0 R.H.S. COLUMN
R1	150 x 100 x 4·0 R.H.S. RAFTER
R2	200 x 100 x 4·0 R.H.S. RAFTER
CB1	50 x 6·0 M.S. STRAP WALL CROSS BRACE
CB2	50 x 6·0 M.S. STRAP ROOF CROSS BRACE
P1	Z20019 ROOF PURLINS AT 1000 C/C MAX.
G1	Z20019 WALL GIRTS AT 1000 C/C MAX.
F1	600 DIA. x 1000 D. COLUMN FOOTING
F2	600 DIA. x 1200 D. COLUMN FOOTING

CHARLES CHEW
CONSULTING CIVIL & ST
ENGINEERS, 37 KINGFISH
NULAGI N.T. 0812 TEL/F

PRESSED METAL BARGE CAPPING

C10016 TRIMMER FIX TO U/S OF EA. PURLIN WITH No.14 TEK SCREW

TYPICAL WALL CLADDING TO MATCH ROOF

75×6·0 M.S. CLEAT FULLY 6 C.R.W. WELDED TO COLUMN WITH WITH 2 M12 BOLTS TO WALL GIRT. - ALLSO TYPICAL FOR ROOF PURLINS.

DETAIL

SIDE OF WINDOW FIX T-B TO EXIST. WALL GIRTS WITH 50×6·0 M.S. 'L' CLEAT WITH No.M12 BOLTS EA.WAY

FIX WINDOW TO GIRTS AND MULLIONS TO MFCTRS SPEC.

WINDOW DETAIL - AS REQUIRED

EX.- 100 x 100 x - C.R.C. STUMP WITH WITH 150 x 150 x 8·0 TH. M.S. PL. FULLY 6 C.R.W. WELDED TOP & BOTTOM AND CAST INTO CONCRETE

F/C = 25 MPa CONCRETE - BORED PIER FOOTING

F1 / F2

600 DIA.

FOOTING DETAIL

6·0 TH. M.S. END PL. CLEAT FULLY 6 C.R.W. WELDED TO END OF RAFTER. - 2 M12 BOLTS TO C20019 EAVES PURLIN

TYPICAL DETAIL

d to in

sued by the
g Authority

Authority

HIGH F.L.

150 200

I.
N.G.L.

NOTES

CHARLES CHEW & ASSOC.
CONSULTING CIVIL & STRUCTURAL ENGINEERS, 37 KINGFISHER CRES, WULAGI N.T. 0812 TEL/FAX 27 8360

13/9/96

Jessica Paulsen

From: Joanne Mullins <Joanne.Mullins@lsc.nt.gov.au>
Sent: Wednesday, December 03, 2014 1:36 PM
To: Jessica Paulsen
Subject: Environmental Site Investigation - humpty Doo
Attachments: A4 Portrait 111143668.doc

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Jessica,
Apologies for not getting back to straight away,

- Details of any complaints or disputes; **Cannot provide any information without details such as date and type of complaint or dispute**.
- Historical information regarding site use; **See map indicating a mango farm**
- Any issues associated with potential contamination.**: Not Council's area of responsibility**

If you require futher information, please do not hesitate to contact Council.

Kind regards,

Joanne Mullins • **Planning Administration Assistant** • **Litchfield Council**
Tel 08 8983 0600 • **Fax** 08 8983 1165 • **Email** works.officer2@lsc.nt.gov.au
PO Box 446 Humpty Doo NT 0836 • 7 Bees Creek Road, Freds Pass NT 0820
www.litchfield.nt.gov.au

From: Jessica Paulsen [mailto:Jessica.Paulsen@douglaspartners.com.au]
Sent: Wednesday, 19 November 2014 3:50 PM
To: Joanne Mullins
Subject: FW: Environmental Site Investigation - humpty Doo

Hi Joanne,
How are you going with the site information for Humpty Doo?
Thank you.

Jessica Paulsen | Geo-environmental Scientist
Douglas Partners Pty Ltd | ABN 75 053 980 117 | www.douglaspartners.com.au
Unit 2, 14 Caryota Court Coconut Grove NT 0810 | PO Box 36858 Winnellie NT 0821
P: 08 8948 6800 | F: 08 8948 6899 | E: Jessica.Paulsen@douglaspartners.com.au

Contact Details

Ph: (08) 8983 0600
Fax: (08) 8983 1165
Email: council@lsc.nt.gov.au

7 Bees Creek Road
Freds Pass Northern Territory

PO Box 446
Humpty Doo NT 0836

N
W E
S

Visit Council Website: www.litchfield.nt.gov.au

Asbestos Clearance Certificate

ASBESTOS CLEARANCE INSPECTION DETAILS

This Clearance Certificate has been prepared by Northern Trade Solutions to the strictest controls provided in The Act, The Regulations, Codes of Practices and Australian Standards. Northern Trade Solutions has in the best interest provided all details to the company's professional and practical knowledge for this Asbestos Clearance Certificate in the details listed below.

1.Client details	
Name of client:	Peter Poniris
	Faith Constructions
Client contact details:	0418 894 582
	.
2.Removal work details	
Date removal work carried out:	29.01.2015 - 30.01.2015
Site address where removal work is being carried out:	110 Freds Pass Road Humpty Doo
Details of the specific asbestos removal work area(s):	Residential home
	All Asbestos removed in preparation for demolition
Name of licensed asbestos removalist:	Northern Trade Solutions Licence number 37309
	Vito Gigantelli, Yang Shao Fu, Nathan Bingham, Jiminy Ellis
Name and contact details of licensed asbestos removalist supervisor (if different to removalist):	Tracy Allen
3.Inspection details	
Name of Assessor/competent Person	Tracy Allen
Address of Assessor/Competent Person	4/51 Albatross St Winnellie
Phone Number of Assessor/Competent person	0407 953 833
Date of clearance inspection:	30.01.2015
Time of clearance inspection:	1.00 pm

Asbestos Clearance Certificate

4. Asbestos removal documentation	Yes	No
Do you have a copy of the asbestos removal SWMs?	✓	
Do you have a copy of the notification form?	✓	
Is the removal work consistent with the control plan and the notification form? (e.g. use of enclosures, decontamination facilities, waste facilities)	✓	

5.Visual Inspection	Yes	No
Inspection of the specific area detailed in section 2 did not find visible asbestos remaining as a result of the asbestos removal work carried out.	✓	
Is air monitoring required		✓
Can the area be reoccupied?	✓	
Has additional information been attached? (e.g. photos, drawings, plans)		✓

6.Air Monitoring	Yes	No
Air monitoring was carried out as part of the clearance inspection. The result was below 0.01 f/ml.		✓
Has the air monitoring sample been analysed by a NATA-accredited laboratory?	N.A.	
Is the air monitoring report attached?	N.A.	
Can the area be reoccupied?	✓	

Note: Where asbestos removal work requires a Class A licence, an independent licensed asbestos assessor must carry out the clearance inspection and complete clearance certificate if satisfied that the area is safe to reoccupy.

Asbestos Clearance Certificate

CLEARANCE DECLARATION

I declare that:

- the former enclosure, asbestos removal work area and the surrounding area are free from any visible asbestos
- the transit route and waste routes are free from any asbestos,
- all asbestos in the scope of the removal work has been removed and any known asbestos is intact.

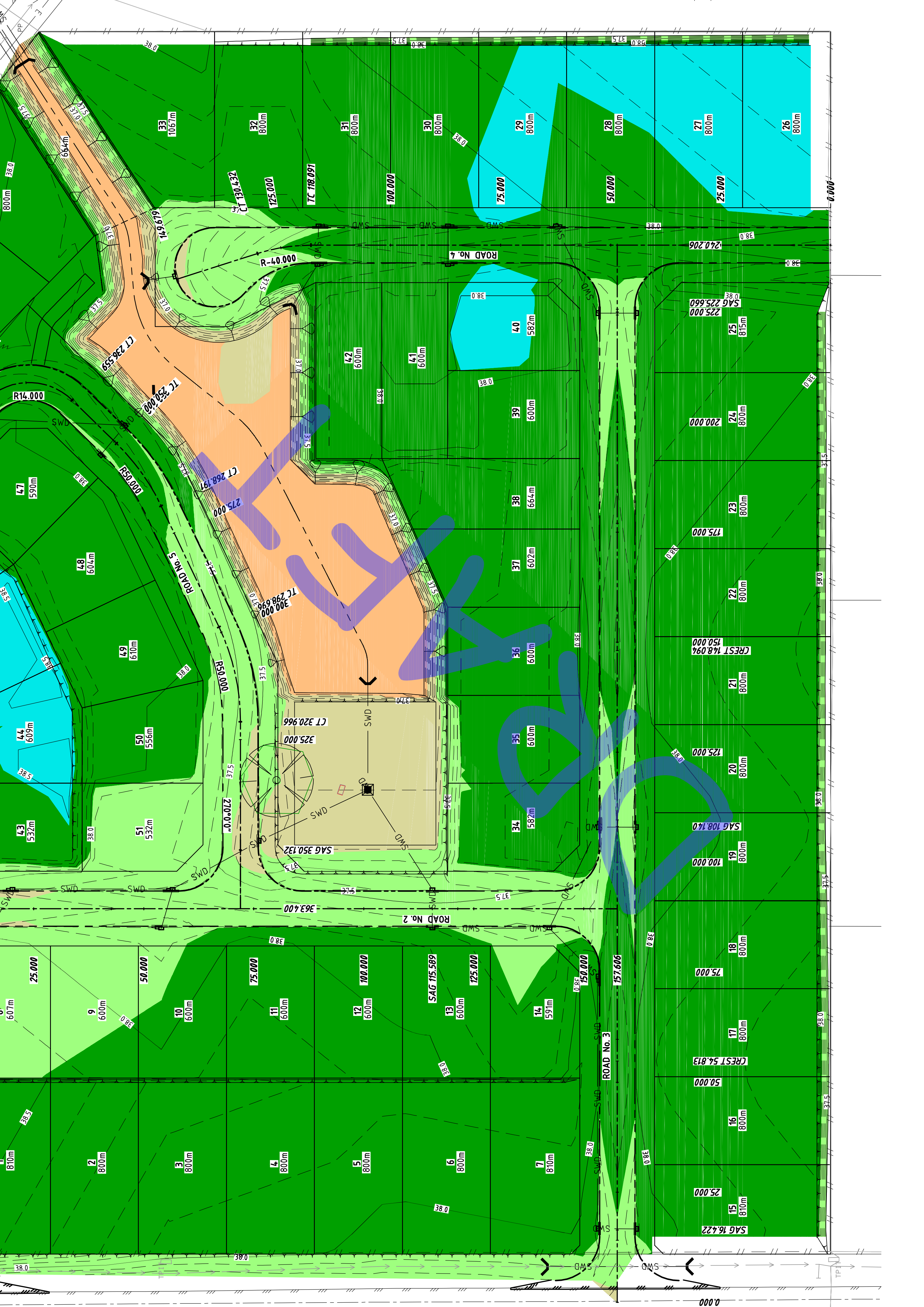
Tracy Allen

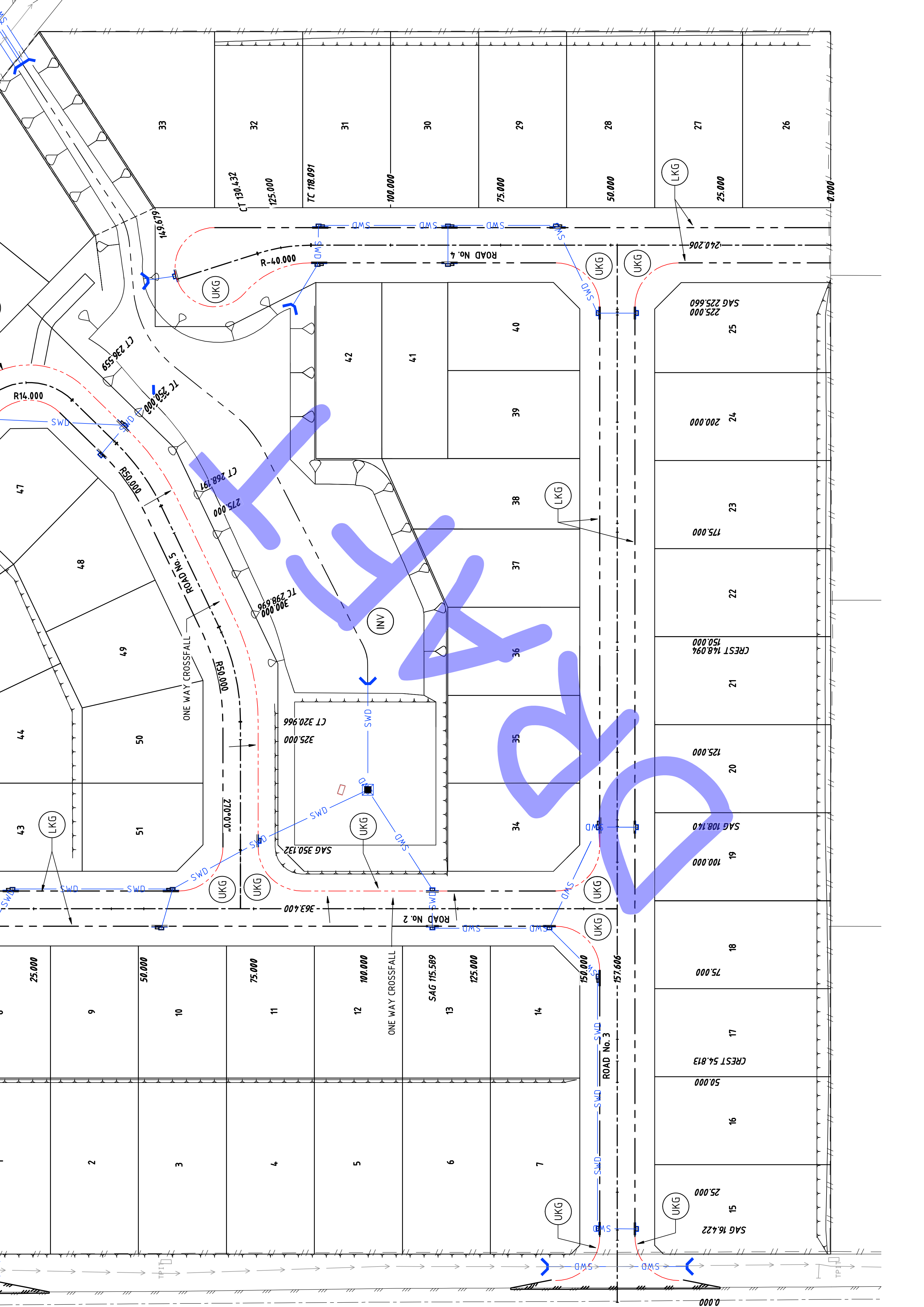
Name of Northern Trade Solutions Licensed Asbestos Supervisor/Competent Person

37309

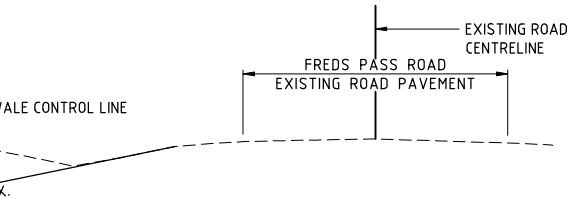
Northern Trade Solutions Competent Person Licence number (if applicable)

Signature of Licensed Asbestos/Competent Person

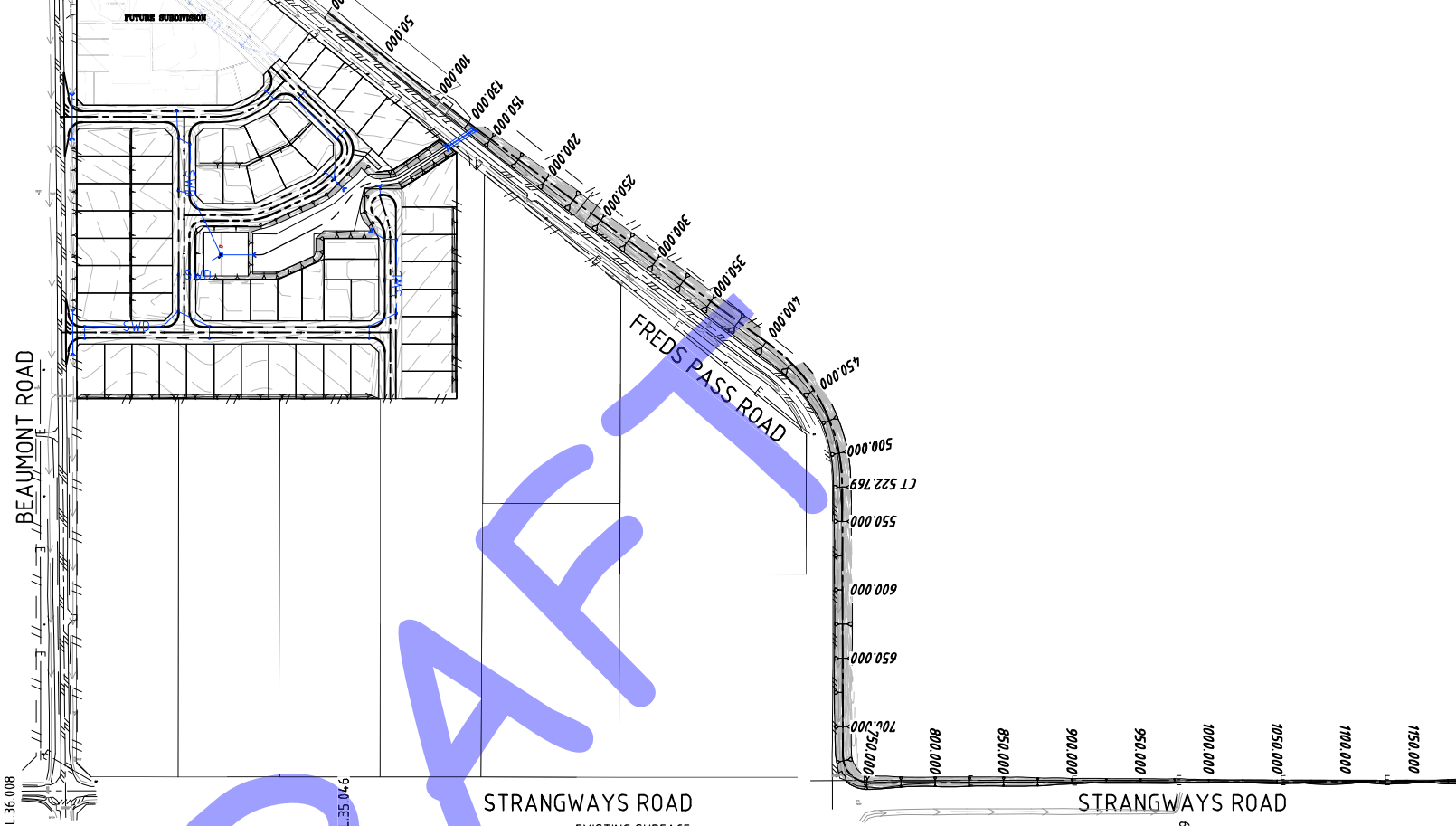

ROAD No. 4
ROAD No. 2
ROAD No. 3
ROAD No. 5
R-40.000
R14.000
R50.000
33 1067m
32 800m
31 800m
30 800m
29 800m
28 800m
27 800m
26 800m
25 815m
24 800m
23 800m
22 800m
21 800m
20 800m
19 800m
18 800m
17 800m
16 800m
15 810m
14 591m
13 600m
12 600m
11 600m
10 600m
9 600m
7 810m
6 800m
5 800m
4 800m
3 800m
2 800m
34 582m
35 600m
36 600m
37 602m
38 664m
39 600m
40 582m
41 600m
42 600m
43 532m
44 609m
47 590m
48 604m
49 610m
50 556m
51 532m
SAG 225.660
SAG 350.132
SAG 108.140
SAG 16.422
SAG 115.589
CREST 148.094
CREST 54.813
TC 118.091
CT 130.432
CT 236.559
TC 250.000
CT 268.191
TC 298.696
CT 320.966
149.679
240.206
363.400
157.606

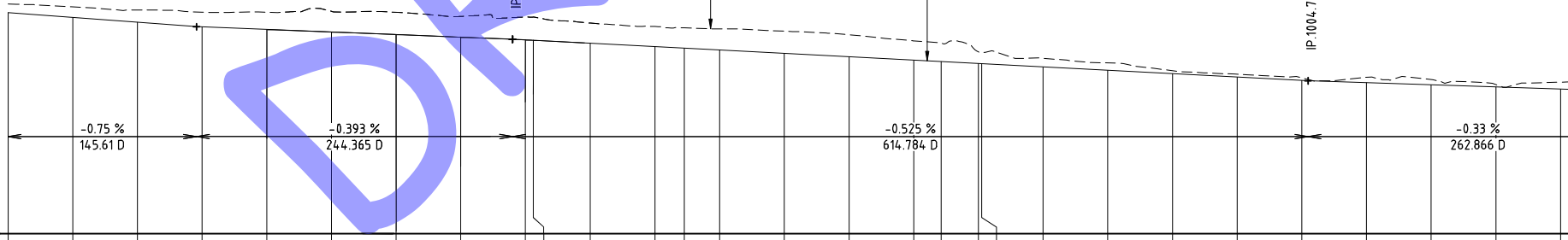


ROAD No. 4
ROAD No. 5
ROAD No. 2
ROAD No. 3
ONE WAY CROSSFALL
ONE WAY CROSSFALL
R-40.000
R14.000
R50.000
R50.000
INV
UKG
LKG
SWD
CT 130.432
TC 118.091
CT 236.559
TC 250.000
CT 268.191
275.000
TC 298.696
300.000
CT 320.966
325.000
SAG 350.132
SAG 225.660
225.000
200.000
175.000
CREST 148.094
150.000
125.000
SAG 108.140
100.000
75.000
CREST 54.813
50.000
25.000
SAG 16.422
240.206
363.400
157.606
149.679
SAG 115.589



TYPICAL SECTION
PROPOSED SWALE
FREDS PASS ROAD
SCALE 1:100





% GRADE		-0.75 %				-0.393 %												-0.525 %												-0.33 %		
GRADE DISTANCE		145.61 D				244.365 D												614.784 D												262.866 D		
PARABOLA LENGTH																																
PARABOLA RADIUS																																
DATUM R.L.20.000																																
EXISTING SURFACE	37.783	37.55	37.314	37.13	37.138	37.2	37.116	36.802	36.771	36.751	36.286	36.027	35.929	35.849	35.668	35.39	34.922	34.754	34.06	34.015	33.563	33.209	32.61	32.338	32.057	32.106	31.929	31.539	31.725		
CUT/FILL DEPTH	-0.683	-0.825	-0.964	-1.139	-1.344	-1.603	-1.716	-1.598	-1.778	-1.789	-1.554	-1.559	-1.58	-1.643	-1.725	-1.708	-1.503	-1.446	-0.904	-0.873	-0.669	-0.578	-0.241	-0.232	-0.213	-0.437	-0.424	-0.2	-0.55		
FINISHED CENTRELINE RL	37.1	36.725	36.35	35.991	35.794	35.597	35.4	35.204	34.994	34.962	34.731	34.469	34.349	34.206	33.944	33.681	33.419	33.308	33.156	33.143	32.894	32.631	32.369	32.106	31.844	31.67	31.505	31.34	31.175		
PEGGED CHAINAGE	0	50	100	150	200	250	300	350	400	405.982	450	500	522.769	550	600	650	700	721.151	750	752.576	800	850	900	950	1000	1050	1100	1150	1200			
HORIZ. CURVE RADIUS												125 R						-20 R													

8 10m


WELLINGS
FREDS PASS ROAD
300m²
300m²
300m²
300m²
300m²
300m²
300m²
300m²
306m²
306m²
319m²
1183m²
ZONE BOUNDARY
2000m²
6 DWELLINGS
1800m²
DWELLINGS
300m²
300m²
300m²
300m²
408m²
408m²
450m²
545m²
545m²
800m²
800m²
800m²
596m²
600m²
600m²
600m²
600m²
596m²
6057m²
587m²
580m²
587m²
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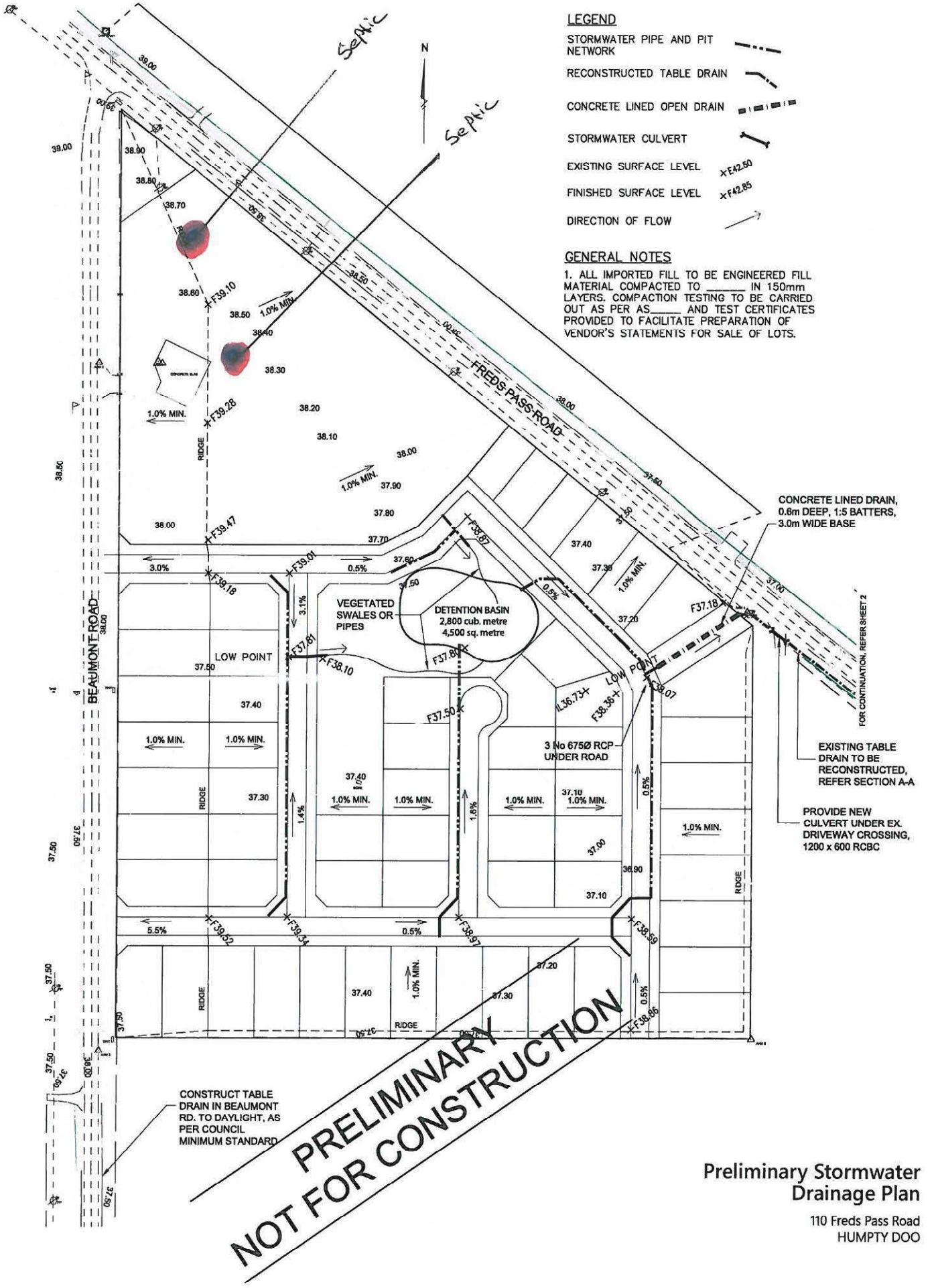
580m²
587m²
580m²
575m²
567m²
548m²
587m²
580m²
587m²
580m²
587m²
567m²
575m²
OPEN SPACE:
MASTERPLAN
TOWN + COUNTRY PLANNE
33/16 Charlton Court
Woolner NT 0820
P: (08) 8942 2600
masterplan.com.au
AG VG
© 4 JUN 2014 1229_1.0
REF: 1229_20140603_Concept Pl
1:1000 @ A3
0
20m



Preliminary Stormwater Drainage Plan

110 Freds Pass Road
HUMPTY DOO

1:1500 @ A3
0 20m

LH VG
© 10 NOV 2014 1229_1.0

33/16 Charlton Court
Woolner NT 0820

P: (08) 8942 2600
masterplan.com.au

MASTERPLAN
TOWN + COUNTRY PLANNERS

Job No 8459720

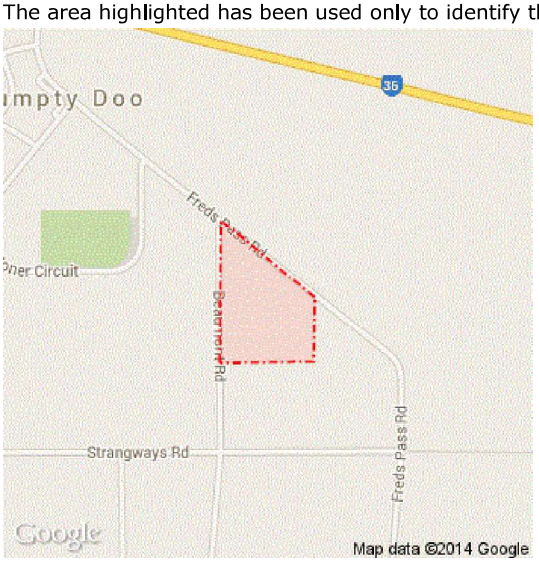
Phone: 1100
www.1100.com.au

Caller Details

Contact:	Mrs Jessica Paulsen	**Caller Id:** 1150862	**Phone:** 0889486800
Company:	Douglas Partners Pty Ltd	**Mobile:** 0419785123	**Fax:** 0889486899
Address:	Unit 2 14 Caryota Ct Coconut Grove NT 0810	**Email:**	jessica.paulsen@douglaspartners.com.au

Dig Site and Enquiry Details

WARNING: The map below only displays the location of the proposed dig site and does not display any asset owners' pipe or cables. The area highlighted has been used only to identify the participating asset owners, who will send information to you directly.



User Reference: 78156.00 Humpty Doo
Working on Behalf of:
Private

Enquiry Date:	Start Date:	End Date:
22/10/2014	27/10/2014	31/10/2014

Address:
110 (Lot 3) Freds Pass Road
Humpty Doo NT 0836

Job Purpose: Excavation
Onsite Activity: Mechanical Excavation
Location of Workplace: Private Property
Location in Road: Not Supplied

- Check that the location of the dig site is correct. If not you must submit a new enquiry.
- Should the scope of works change, or plan validity dates expire, you must submit a new enquiry.
- Do NOT dig without plans. Safe excavation is your responsibility. If you do not understand the plans or how to proceed safely, please contact the relevant asset owners.

Notes/Description of Works:
Lot 3, Street No. 110

Your Responsibilities and Duty of Care

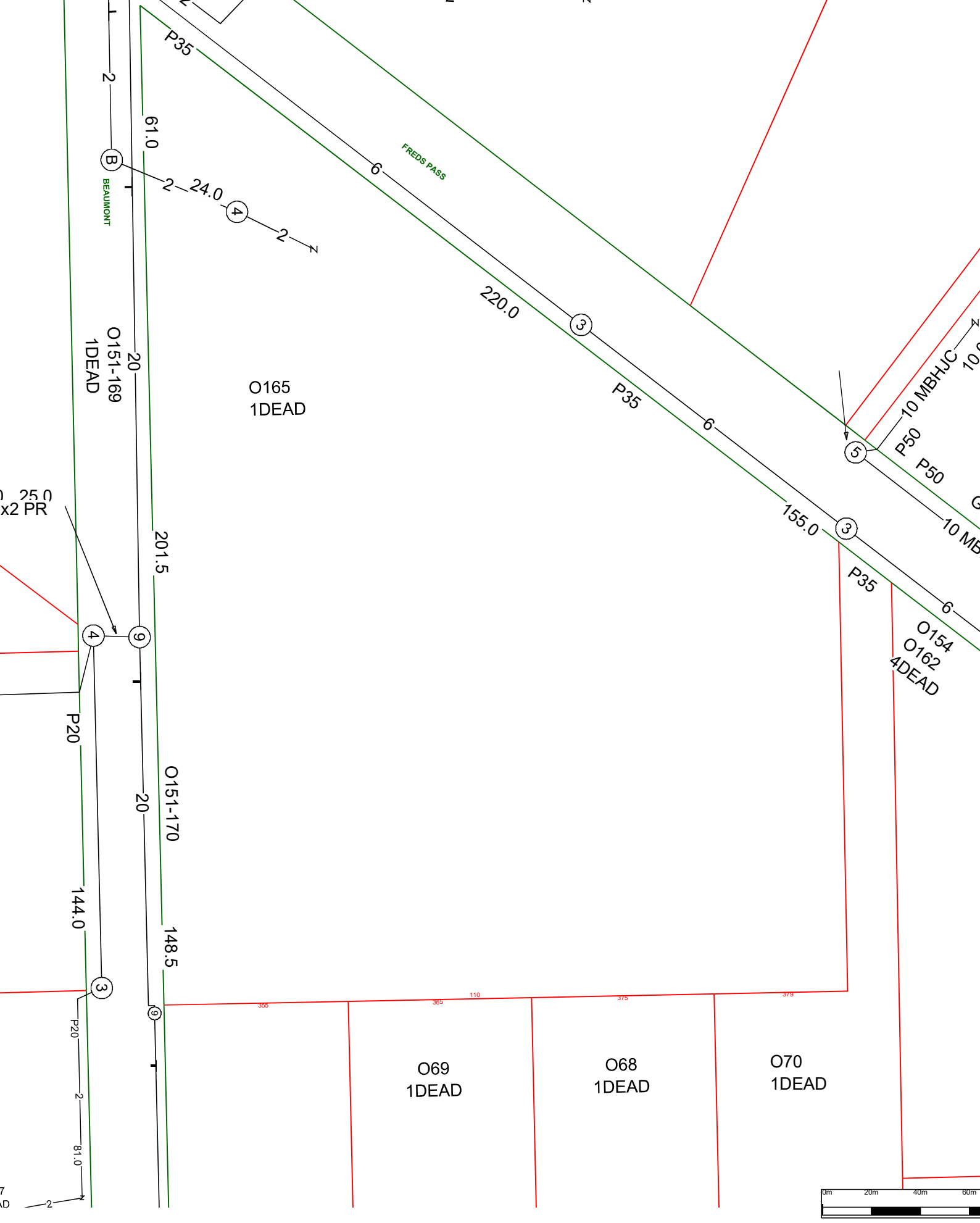
- If plans are not received within 2 working days, contact the asset owners directly & quote their Sequence No.
- ALWAYS perform an onsite inspection for the presence of assets. Should you require an onsite location, contact the asset owners directly. Please remember, plans do not detail the exact location of assets.
- Pothole to establish the exact location of all underground assets using a hand shovel, before using heavy machinery.
- Ensure you adhere to any State legislative requirements regarding Duty of Care and safe digging requirements.
- If you damage an underground asset you MUST advise the asset owner immediately.
- By using this service, you agree to Privacy Policy and the terms and disclaimers set out at **www.1100.com.au**
- **For more information on safe excavation practices, visit www.1100.com.au**

Asset Owner Details

The assets owners listed below have been requested to contact you with information about their asset locations within 2 working days. Additional time should be allowed for information issued by post. It is **your responsibility** to identify the presence of any underground assets in and around your proposed dig site. Please be aware, that not all asset owners are registered with the Dial Before You Dig service, so it is **your responsibility** to identify and contact any asset owners not listed here directly.
** Asset owners highlighted by asterisks ** require that you visit their offices to collect plans.
# Asset owners highlighted with a hash require that you call them to discuss your enquiry or to obtain plans.

Seq. No.	Authority Name	Phone	Status
42179377	Power & Water Corporation	1800245092	NOTIFIED
42179376	Telstra SANT	1800653935	NOTIFIED

END OF UTILITIES LIST

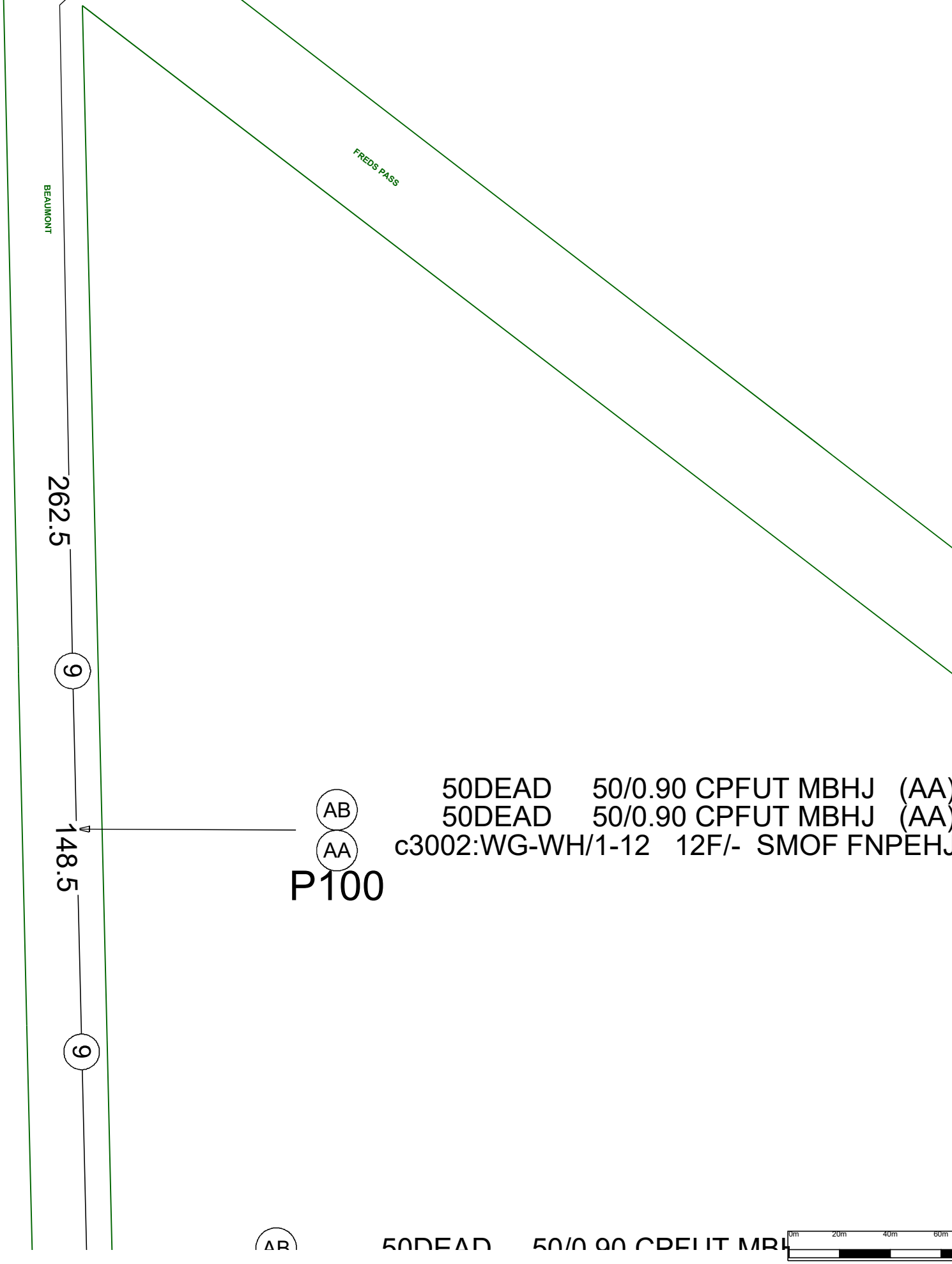


For all Telstra DBYD plan enquiries -
email - Telstra.Plans@team.telstra.com
For urgent onsite contact only - ph 1800 653 935 (bus hrs)

LSTRA CORPORATION LIMITED A.C.N. 051 775 556

Sequence Number: 42179376

CAUTION: Fibre optic and/ or major ne
in plot area. Please read the Duty of Ca
contact Telstra Plan Services should y



For all Telstra DBYD plan enquiries -
email - Telstra.Plans@team.telstra.com
For urgent onsite contact only - ph 1800 653 935 (bus hrs)

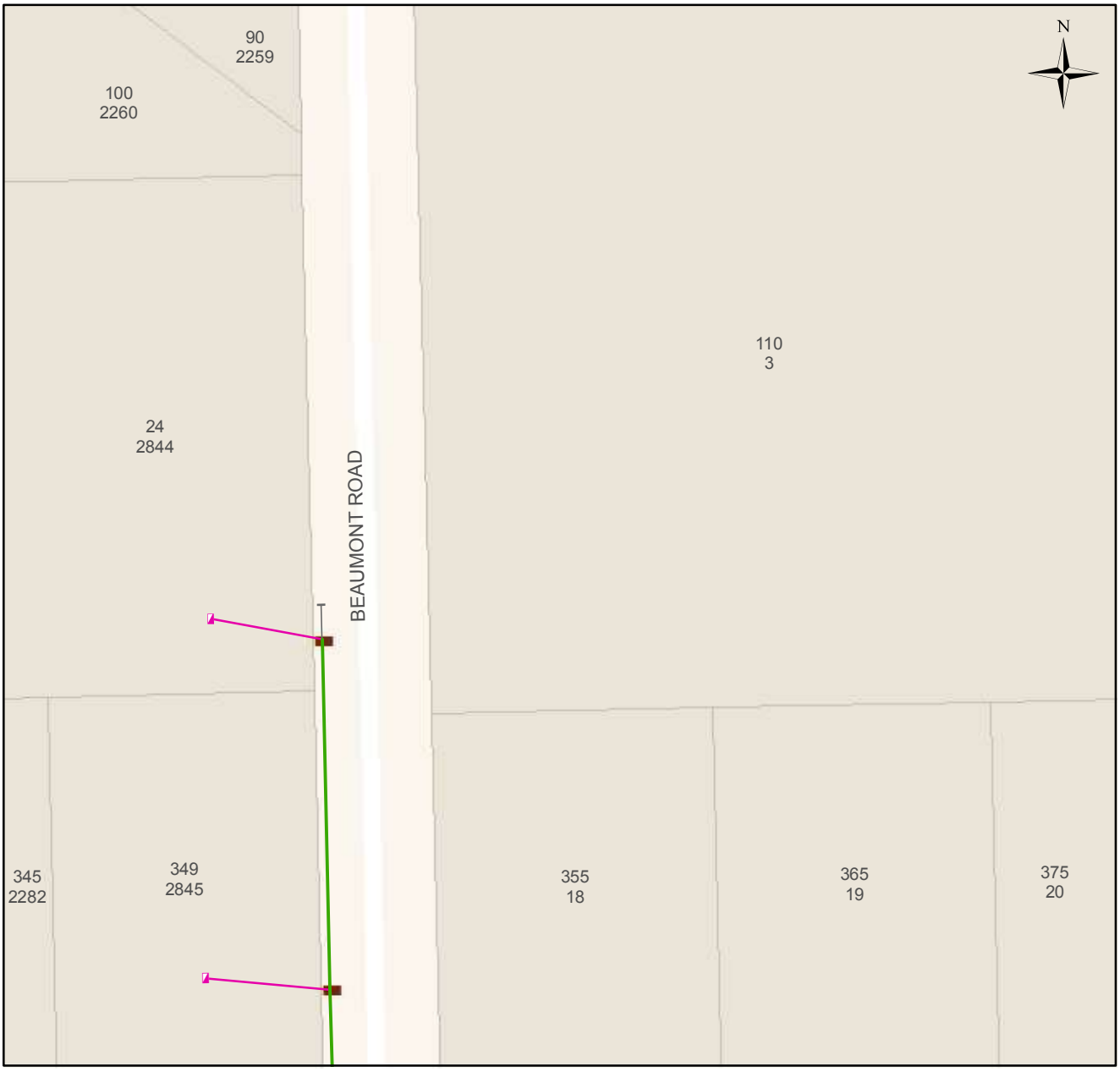
Sequence Number: 42179376

CAUTION: Fibre optic and/ or major ne
in plot area. Please read the Duty of Ca
contact Telstra Plan Services should y

If your activities are within 3 metres of Power or Communications infrastructure or 1.5 metres of Water or Sewerage infrastructure, you must obtain written approval prior to commencing work. For this approval or to report damage or an emergency please contact Power and Water on 1800 245 092.

LOCATION PLAN - Power

Not to scale



Cadastral data is provided by the Department of Lands, Planning and the Environment of the NTG
Cadastral data should not be used external to Power and Water.

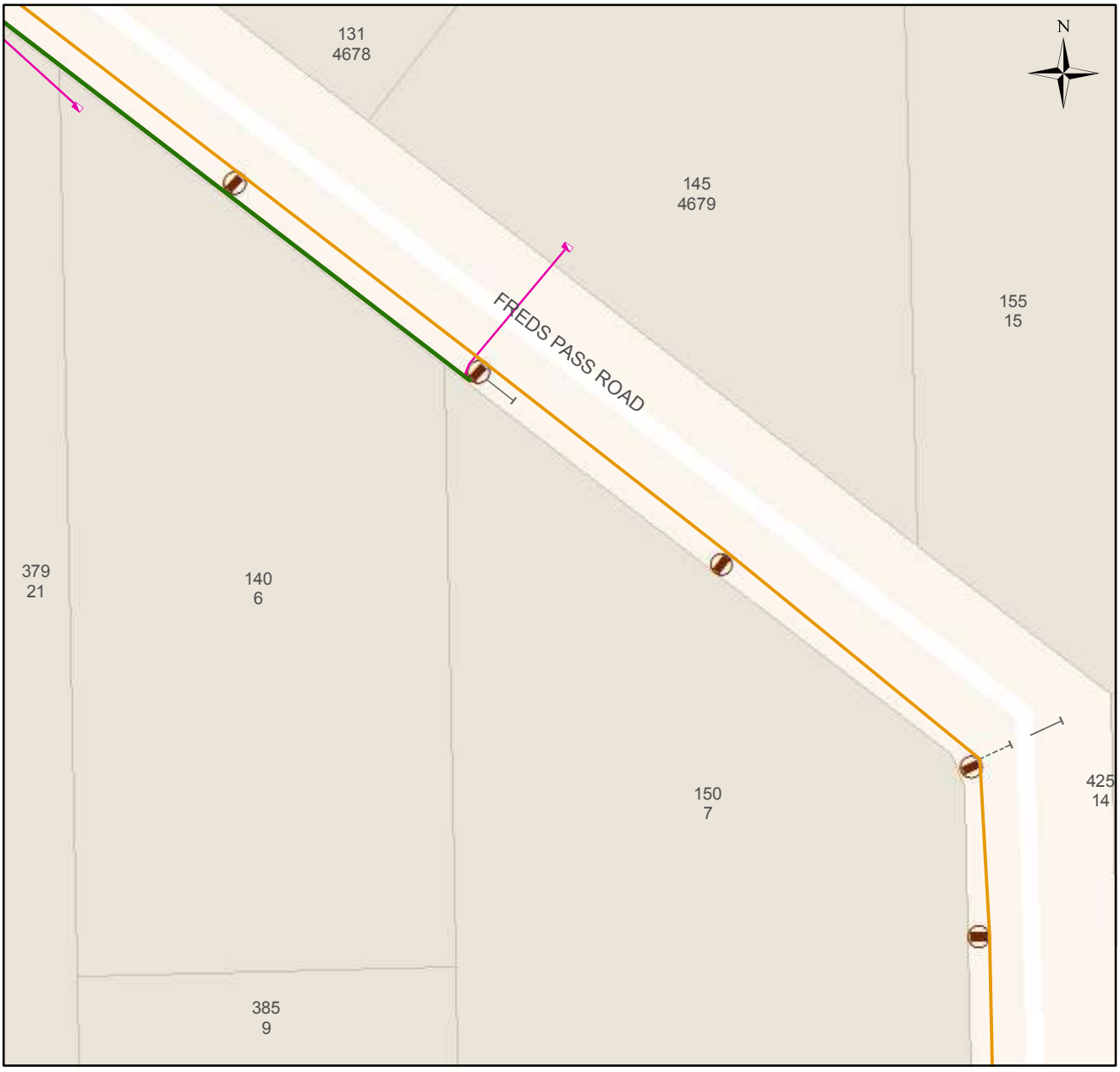
Document generated on Wednesday, 22 October 2014

POWER AND WATER CORPORATION

If your activities are within 3 metres of Power or Communications infrastructure or 1.5 metres of Water or Sewerage infrastructure, you must obtain written approval prior to commencing work. For this approval or to report damage or an emergency please contact Power and Water on 1800 245 092.

LOCATION PLAN - Power

Not to scale



Document generated on Wednesday, 22 October 2014

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Not to scale

Document generated on Wednesday, 22 October 2014

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Not to scale

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Document generated on Wednesday, 22 October 2014

If your activities are within 3 metres of Power or Communications infrastructure or 1.5 metres of Water or Sewerage infrastructure, you must obtain written approval prior to commencing work. For this approval or to report damage or an emergency please contact Power and Water on 1800 245 092.

Infrastructure Location Advice

The following information is generated from Power and Water's records in response to your request for the approximate location of the **Power, Water, Sewerage and Communications** infrastructure owned by Power and Water in the area you specified.

Comments:

JOB DETAILS

DBYD Job No:	8459720	**DBYD Sequence No:**	42179377
Activity:	Mechanical Excavation		
Enquiry Date:	22-Oct-2014	**Issue Date:**	22-Oct-2014

REQUESTOR DETAILS

Company:	Douglas Partners Pty Ltd	**Phone:**	0889486800	**Mobile:**	0419785123
Contact:	Mrs Jessica Paulsen	**Fax:**	0889486899	**Email:**	jessica.paulsen@douglaspartners.com.au
Address:	Unit 2 14 Caryota Ct Coconut Grove NT 0810				

WORK DETAILS

Address: Freds Pass Road Humpty Doo NT 0836

Map Ref: 67D16

Message: Lot 3, Street No. 110

Information: The approximate location of PWC assets in the area of enquiry are shown on the attached map(s). Please read the important information (overleaf).

Assets Searched For	Search Result
Electricity Network	**## Assets Found ##**
Communications Network	No Assets
Water Network	No Assets
Sewer Network	No Assets

Note: This information is valid from 22-Oct-2014 to 22-Jan-2015

PowerWater

If your activities are within 3 metres of Power or Communications infrastructure or 1.5 metres of Water or Sewerage infrastructure, you must obtain written approval prior to commencing work. For this approval or to report damage or an emergency please contact Power and Water on 1800 245 092.

Infrastructure Location Advice

DISCLAIMER

Power and Water plans are schematic in nature and indicate the presence of infrastructure in the general vicinity of the area shown relative to property lines and other points of reference as they existed at the time of installation. They are not necessarily corrected to take account of any subsequent alterations.

Whilst Power and Water has endeavoured to keep its records current, it does not provide any warranty as to the accuracy and completeness of the attached plans. Power and Water accepts no liability whatsoever for losses arising from the use of the attached plans except where:

a) Power and Water by its servants or agents attends the site (at the request of the user), prior to the commencement of any excavation work and marks the location of the relevant infrastructure; and

b) such servants or agents have been negligent. Power and Water does not ensure that the plans show more than the presence or absence of its infrastructure and will accept no liability for inaccuracies in the information shown on such plans from any cause whatsoever. Persons excavating are required to exercise care if infrastructure is indicated and will be held responsible for any damage cause through failure to exercise such care.

Additional underground infrastructure may be installed at any time. Users are advised to be alert for installations performed after the date of issue of the attached plans, and to apply to Power and Water for up to date location advice if their work is protracted.

No excavation, structures, material storage, heavy vehicle parking, blasting, change of surface level or other work is to be undertaken which will interfere with the reliability of, or access to Power and Water infrastructure. Power and Water will seek to recover restoration costs for damage caused to underground infrastructure arising from such interference.

FURTHER INFORMATION

On request, a representative of Power and Water will be available to visit the work site and arrange the approximate infrastructure location. These arrangements may be made by phoning **1800 245 092**. Appointments will only be accepted if the Infrastructure Location Advice job number is supplied. The location and marking of underground infrastructure will not take place unless this Infrastructure Location Advice and attached plans are on site.

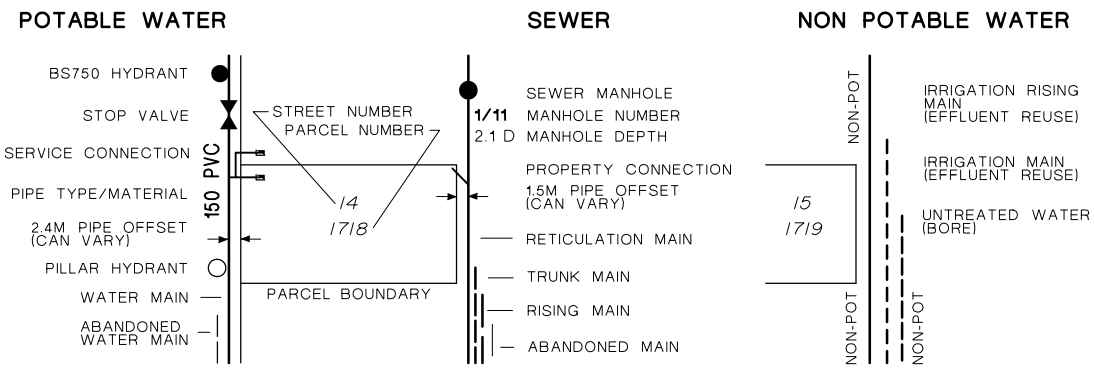
The fact that locations have been marked does not relieve the contractor of the responsibility of exposing and or working near the infrastructure without damage.

Power and Water recommends that pot holing techniques be used to first locate the pipes or cables before commencing full-scale excavation or implementing Power and Water's recommended specifications concerning minimum safety distances when excavating within the vicinity of Power and Water's networks.

Excavating of water mains 450mm or greater must be done by Power and Water at the contractor's expense.

Power and Water strongly advises that ALL cables, including those identified as 'abandoned', be treated as 'live' and dangerous until such time that they are proven 'de-energised' and safe.

KEY to WATER and SEWER NETWORK PLANS



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Infrastructure Location Advice

LEGISLATIVE AND OPERATIONAL RULES GOVERNING WORKS IN THE VICINITY OF UNDERGROUND POWER CABLES

Clause 21 of the Northern Territory of Australia Electricity Reform (Safety and Technical) Regulations specifies the necessary actions required to protect underground power cables.

21. Protection of underground lines

A person must not –

(a) place or maintain, or cause to be placed or maintained, a corrosive, abrasive, heavy or deleterious material or substance above an underground line;

(b) make an opening in the ground surface that may endanger an underground line; or

(c) remove, tamper with or cover any underground line marker, without the written authority of the operator of the electricity infrastructure of which the line forms part.

Penalty: 25 penalty units.

Clause 3 of the Northern Territory of Australia Penalty Unit Act specifies the current penalty unit equal to $110.00

3. Penalty units

(1) A reference to a penalty for an offence against a provision of an Act or to an amount that may be imposed as a fine or penalty under an Act expressed as a number of penalty units (whether fractional or whole) is to be read as a reference to an amount of money equal to the amount obtained by multiplying $110 by the number of penalty units.

Clause 11.1 of the Power and Water Corporation Electrical Safety Manual (Green Book) specifies that an authority to work in the vicinity of electrical apparatus (AWV) shall be used when excavation is being conducted within 3 metres of an underground cable, regardless if it is low voltage (<600V ac) or high voltage (>600V ac), with a site briefing by Power and Water Corporation officer.

Pertinent points worth noting are:

(1) Power and Water Corporation's High Voltage operators shall issue the AWV.

(2) Prior to issuing an AWV, Power and Water Corporation's High Voltage operator shall conduct a site briefing with all the people involved in the work and ensures that the recipient of the AWV understands his responsibility and associated duties.

(3) Power and Water Corporation's High Voltage Operator will notify System Control Centre with contact details of the recipient when issuing the AWV and on its cancellation.

(4) Each AWV has a maximum currency of 30 days from the date of issue.

(5) Recipients of an AWV need not be an authorised person with sufficient technical knowledge or experience approved by Power and Water Corporation.

(6) The recipient of AWV should be the person in charge of the work team and he/she shall remain in the general area of the work site covered by the AWV while work is in progress.

(7) When the recipient of the AWV is absent from the general area of the work site, work shall stop until he/she returns.

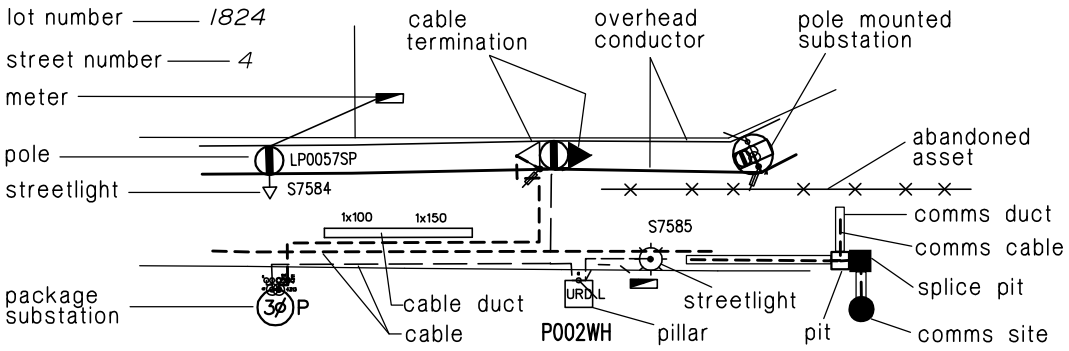
(8) Prior to cancellation of the AWV the recipient of AWV shall ensure all persons signed onto the AWV have signed off.

(9) If the maps provided by Power and Water Corporation show there are underground cables within three metres of the excavation site, exact alignment of the cable(s) must be marked by physically locating them. This service can be obtained by contacting Power and Water on 1800 245 092.

(10) After the cables have been marked the excavation operator shall contact Power and Water Corporation's System Control Centre on **1800 245 092** to book a site briefing and issuing of the AWV permit.

IT IS THE RESPONSIBILITY OF THE EXCAVATION OPERATORS TO COMPLY WITH THESE RULES.

KEY to POWER and COMMUNICATION NETWORK PLANS



Telstra Accredited Plant Locators - South Australia / Northern Territory.

If a physical location is required please contact a Telstra accredited locator from the list below (fees apply).

***Optic fibre cable locations** must be performed by a locator with Telstra optic fibre location accreditation. Locators with Telstra optic fibre cable location accreditation are indicated by a 'yes' in the 'Fibre' column.

Northern Territory

Company name and areas/districts covered	*Fibre	Contact details
AnywAir Pipe & Cable Locators - *Winnellie* *All Of NT, Broome, Kununurra, Kalumburu, Weipa, Normanton, Burketown*	Yes	Mob: 0418 890 071
Australian Underground Survey Solutions Pty Ltd - *Narre Warren* *All Areas*	No	(03) 9700 2311 or 0419 488 883 Fax: (03) 9314 1568
Danisam Pty Ltd - *Parap* *Covering Northern Territory and the top of WA*	Yes	0417 089 865 Fax: 08 89416435
Dig Hard Excavations - *Casuarina* *Remote Communities NT*	Yes	0411 591 153 Fax: (08) 8945 0727
iFind PIPES 'N' CABLES PTY LTD - *Winellie* *All of NT*	Yes	0419 612 476 Fax: (08) 8941 2615 k.phelps1970@hotmail.com
Northern Comms - *Casuarina*	Yes	Mob: 0407 904 319
No Wait 2 Locate - *Port Pirie* *Central Australia, Northern SA.*	Yes	1300 2 562283 (1300 2 LOCATE) Email: plans@kellercom.com.au
Pipeline Technology Services - *Marleston*	Yes	(08) 8351 7000 or 0419 878 220 Fax:(08) 8159 7537
Subscan - *Palmerston* *Covering Darwin and Remote Areas of the Northern Territory*	No	0414 863 874 Fax: (08) 8988 3093
Trenchless Pipelaying Contractors - *Plympton*	Yes	(08) 8376 5911 0418 881 175
Visionstream Australia Pty Ltd - *Perth Airport*	Yes	(08) 6211 0813 or 0439 799 657 Fax: (08) 6211 0899 Email: nick.jenkins@visionstream.com.au

South Australia

Company name and areas/districts covered	Fibre	Contact details
Accurate Locating Pipes & Cables previously trading under the name of ' State Wide Precise Detection Pipes & Cables' - *Barossa Valley* *Adelaide, Adelaide Hills, Barossa Valley and all regions of SA*	No	0407 464 882
Adelaide Hills Pipe & Cable Location - *Mt Barker* *Servicing Adelaide Hills & Regional South Australia*	No	0419 822 781
All Assets 2 Locate (Kellercom Pty Ltd) - *Port Pirie, Coffin Bay Eyre Peninsula, Yorke Peninsula, Far North, Flinders Ranges, Mid North, West Coast*	Yes	1300 2 562283 (1300 2 LOCATE) 0428 600 703 Email: plans@kellercom.com.au
Appcil Pty Ltd - *Winkie* *All Riverland areas of South Australia, plus Upper Mallee, North Western border areas of Vic and South Western NSW*	Yes	(08) 8583 7365 or 0439 822 102 Fax: (08) 8583 7356
Australian Underground Survey Solutions Pty Ltd - *Narre Warren*	No	(03) 9700 2311 or 0419 488 883 Fax: (03) 9314 1568
Baldock Earthmoving - *Normanville* *Covering - South Adelaide Hills, Fleurieu Peninsula*	No	(08) 8558 2686 or 0418 857 144 Fax: (08) 8558 2687
Barry Johnstone Locations and Communications - *Mt Gambier. South East Of South Australia (Limestone Coast), South West Victoria*	Yes	0418 834 804
BRP Products (Aust) Pty Ltd - *Thebarton* *Covering - All of SA*	No	(08) 8234 0633 Fax: (08) 8234 0920
Cable Search Services - *Echunga* *Rural Areas of SA excluding Adelaide metro area*	Yes	0417 866 121 Fax: (08) 8388 8643
Capogreco Excavations Pty Ltd - *Mildura South* *Mildura, Wentworth, Gol Gol, Dareton, Ouyen, Robinvale, Merbein*	No	(03) 5022 2070 or 0428 356 269 Fax (03) 5022 7003
Corny's Cabling & Phones Pty Ltd - *Port Lincoln* *Eyre Pennisula*	Yes	0409 814 464
D-TECH Ground and Overhead Services Ptd Ltd - *Notting Hill* *All of Vic*	No	0421 697 090 Email: tina@d-tech.net.au
Detect SA Ptd Ltd - *Redwood Park* *All Areas*	Yes	0407 649 759 Fax (08) 8264 9759
Dial-A-Trench - *Dernan Court*	No	0408 804 742
Drasol - *Brighton* *Metropolitan and Regional South Australia*	Yes	0419807 996
Far West Communication – *Broken Hill* *NSW Areas – Cobar, Menindee, Tibbaburra, Ivanhoe & surrounding areas* *S.A Areas – Eastern Regions of S.A including Mingary and Cockburn*	Yes	0439 350 355

Green Triangle Electronics – *Mt Gambier* *South East of South Australia and Western Victoria*	No	(08) 8724 2222 Fax: (08) 8723 0249
Independent Locating Services - *Meadows*	No	0418 812 325 Fax:(08) 8388 3180
Larsen Electrics - *Red Cliffs* *Mildura & Districts, NSW South, SA*	No	(03) 5024 1733 or 0428 385 610 Fax (03) 5024 1170
P.A Plumbers - *Golden Grove*	No	(08) 8251 1733 or 0408 442 210 Fax: (08) 8251 1833
P.D Excavations Pty Ltd - *Regency Park*	Yes	(08) 8347 0055 or 0408 820 408 Fax: (08) 8347 0150
Pipeline Technology Services - *Marleston*	Yes	(08) 8351 7000 or 0419 878 220 Fax:(08) 8159 7537
Plumbing & Pipeline Solutions (SA) Pty Ltd - *Marleston*	Yes	(08) 8297 1000 or 0408 809 928 Fax: (08) 8297 0088
Riverina Horizontal Boring Pty Ltd - *Wodonga*	No	(02) 6059 1788 or 0419 149 153 Fax: (02) 6059 5090
SADB Directional Boring - *Newton*	No	(08) 8168 7200 Fax: (08) 8168 7299
Service Locate Pty Ltd – *Mawson Lake*	No	0424 906 777
Subtrax - *Meningie* *Covering South Australia statewide*	Yes	(08) 8575 1434 or 0429 808 850
Sure Search - *Walkerville*	Yes	0418 896 772 Fax:(08) 8362 1179
Tatiara Trench Digger & Bobcat Hire - *Bordertown* *Covering districts - Bordertown and surrounding, Naracoote, Kingston, Meningie, Pinnaroo, Keith*	Yes	(08) 8752 1197 or 0428 587 596 Fax:(08) 8752 0406
Trenchless Pipelaying Contractors - *Plympton* *Covering all Metropolitan and Country Areas in S.A.*	Yes	(08) 8376 5911 or 0409 451 550
Tron Civil Contracting Pty. Ltd –*Salisbury South*	No	(08) 8281 3860 Fax:(08) 8281 0278
Vac-U-Digga - *Lonsdale* *Adelaide, Port Pirie, Whyalla, Port Augusta, Roxby Downs*	No	0447 466 036 or 1300 822 836
Wet Plumbing Service - *Park Holme*	No	0419 938 938

DUTY OF CARE

TELSTRA CORPORATON ACN 051 775 556

IMPORTANT:

Please read and understand all the information and disclaimers provided below.
Sketches and Plans provided by Telstra are circuit diagrams only and indicate the presence of telecommunications plant in the general vicinity of the geographical area shown; exact ground cover and alignments cannot be given with any certainty and cover may alter over time. Telecommunications plant seldom follow straight lines and careful on site investigation is essential to uncover and reveal its exact position.
Due to the nature of Telstra plant and the age of some cables and records, it is impossible to ascertain the location of all Telstra plant. The accuracy and/or completeness of the information cannot be guaranteed and, accordingly Telstra plans are intended to be indicative only.

"DUTY OF CARE"

When working in the vicinity of telecommunications plant you have a legal "Duty of Care" that must be observed.

It is the responsibility of the owner and any consultant engaged by the owner, including an architect, consulting engineer, developer, and head contractor to design for minimal impact and protection of Telstra plant. Telstra will provide plans and sketches showing the presence of its network to assist at this design stage.

It is the owner's (or constructor's) responsibility to:-

a) request plans of Telstra plant for a particular location at a reasonable time before construction begins. If you have any doubts as to the exact location of Telstra Plant, we strongly recommend that you engage an Accredited Plant Locator in your area;

b) visually locate Telstra plant by hand digging or using non destructive water jet method (pot holing) where construction activities may damage or interfere with Telstra plant (see "Essential Precautions and Approach Distances" section for more information); and

c) contact Telstra's **Plan Services** (see below for details) if Telstra plant is wholly or partly located near planned construction activities.

DAMAGE TO TELSTRA'S NETWORK MUST BE REPORTED TO 132203 IMMEDIATELY.

The owner is responsible for all plant damage when works commence prior to obtaining Telstra plans, or failure to follow agreed instructions.
Telstra reserves all rights to recover compensation for loss or damage to its cable network or other property including consequential losses.

Important note: *The construction of Telstra's network dates back over many years. Some of Telstra's pits and ducts were manufactured from asbestos-containing cement. You must take care in conducting any works in the vicinity of Telstra's pits and ducts. You must refrain from in any way disturbing or damaging Telstra's network infrastructure when conducting your works. We recommend that before you conduct any works in the vicinity of Telstra infrastructure that you ensure your processes and procedures eliminate any possibility of disturbing, damaging or interfering in any way with Telstra's infrastructure. Your processes and procedures should incorporate appropriate measures having regard to the nature of this risk.*

EMERGENCY SITUATIONS - RECEIVING TELSTRA PLANS

Telstra's automated mapping system will provide a fast response for emergency situations. (faster than an operator can provide manually). Automated responses are normally available 24/7.

To receive a fast automated response from Telstra your request must **-**

- be a web request lodged at DBYD (**www.1100.com.au**) The request will be then forwarded directly to Telstra.
- contain your email address so you can receive the automated email response.
- be for the purposes of 'mechanical excavation' or other ground breaking DBYD activity. (requests with activity types conveyancing, planning & design or other non digging activities may not be responded to until the next business day).
- be for an area less than 350 metres in size to obtain a PDF map. (over 350 metres will default to DWF due to size)
- be for an area less than 2500 metres in size to obtain a DWF map

NATURAL DISASTERS

Natural Disasters include (amongst other things) earthquakes, cyclones, floods and tsunamis.

In the case of such events, urgent requests for plans or information relating to the location of Telstra network can be made directly to Telstra Network Integrity Team Managers as follows:

NSW – John McInerney 0419 485 795

QLD – Glenn Swift 0419 660 147

VIC/TAS - David Povazan 0417 300 947

SA/NT - Mick Weaver 0419 828 703

WA - Angus Beresford-Peirse 0419 123 589

TELSTRA PLAN SERVICES

For all Telstra DBYD (Dial Before You Dig) map enquiries please contact Telstra Plan Services

email - **Telstra.Plans@team.telstra.com**

phone - **1800 653 935** (for urgent, onsite or optic fibre enquiries)

Please note - to make an enquiry the plans must be current (within 60 days of issue). If your plans have expired you will need to submit a new request via DBYD.

ASSET RELOCATIONS

You are not permitted to relocate or alter any Telstra assets or network under any circumstance.
For all enquiries relating to the relocation of Telstra assets please phone
1800 810 443 or email **F1102490@team.telstra.com**

DATA EXTRACTION FEES

In some instances a data extraction fee may be applicable for the supply of Telstra information. Typically a data extraction fee may apply to large projects or requests to be supplied in non standard formats,. For further details refer to the section at the end of this document.

PRIVACY NOTE

Your information has been provided to Telstra by DBYD to enable Telstra to respond to your DBYD request. Telstra keeps your information in accordance with its privacy statement entitled "Protecting Your Privacy" which can be obtained from Telstra either by calling 1800 039 059 or visiting our website at www.telstra.com.au/privacy

CONCERNING TELSTRA PLANS:

Please note the following:

- For plans of Telstra locations contact **Dial Before You Dig** at least 2 business days prior to digging. (**www.1100.com.au**)
- Fast response can be provided by Telstra if an email address is supplied. (if posted, this may take up to one week or longer to receive plans)
- Telstra plans and information provided are **valid for 60 days** from the date of issue.
- Telstra owns and retains the copyright in all plans and details provided in conjunction with the applicant's request. The applicant is authorised to use the plans and details only for the purpose indicated in the applicant's request. The applicant must not use the plans or details for any other purpose. The plans and details should be disposed of by shredding or any other secure disposal method after use.
- Telstra plans or other details are provided only for the use of the applicant, its servants, or agents. **The applicant may not give the plans or details to other parties, and may not generate profit from commercialising the plans or details.**
- Please contact Telstra **Plan Services** (see above for details) immediately should you locate Telstra assets not indicated on these plans.
- Telstra, its servants or agents shall not be liable for any loss or damage caused or occasioned by the use of plans and or details so supplied to the applicant, its servants and agents, and the applicant agrees to indemnify Telstra against any claim or demand for any such loss or damage.

Please ensure Telstra plans and information provided remains on-site at all times throughout your construction phase.

ESSENTIAL PRECAUTIONS and APPROACH DISTANCES:

NOTE: If the following clearances cannot be maintained, please contact Telstra Plan Services (see above for details) for advice on how best to resolve this situation.

1. On receipt of plans and sketches and before commencing excavation work or similar activities near Telstra's plant, **carefully locate this plant first** to avoid damage. Undertake prior manual exposure such as potholing when intending to excavate or work **closer** to Telstra plant than the following approach distances.

Where Telstra's plant is in an area where road and footpaths are well defined by kerbs or other features a minimum clear distance of 600mm must be maintained from where it could be reasonably presumed that plant would reside.

In non established or unformed reserves and terrain, this approach distance must be at least 1.5 metres.

In country/rural areas which may have wider variations in reasonably presumed plant presence, the following minimum approach distances apply:

a) Parallel to major plant: 10 metres (for IEN, optic fibre and copper cable over 300 pairs)
b) Parallel to other plant: 5 metres

NOTE: Even manual pot-holing needs to be undertaken with extreme care, commonsense and employing techniques least likely to damage cables. For example, orientate shovel blades and trowels parallel to the cable rather than digging across the cable.

If construction work is parallel to Telstra plant, then careful hand digging or using non destructive water jet method (pot-holing) at least every 5m is required to establish the location of all plant, hence confirming nominal locations before work can commence.

2. Maintain the following minimum clearance between construction activity and **actual location** of Telstra Plant.

Jackhammers/Pneumatic Breakers	*Not within 1.0m of **actual location.***
Vibrating Plate or Wacker Packer Compactor	*Not within 0.5m of Telstra ducts.* *300mm compact clearance cover before compactor can be used across Telstra ducts.*
Boring Equipment (in-line, horizontal and vertical)	*Not within 2.0m of **actual location**.* *Constructor to hand dig or use non-destructive water jet method (pot-hole) and expose plant.*
Heavy Vehicle Traffic (over 3 tonnes)	*Not to be driven across Telstra ducts (or plant) with less than 600mm cover.* *Constructor to check depth via hand digging.*
Mechanical Excavators, Farm ploughing and Tree Removal	*Not within 1.0m of **actual location.*** *Constructor to hand dig or use non-destructive water jet method (pot-hole) and expose plant.*

All Telstra pits and manholes should be a minimum of 1.2m in from the back of kerb after the completion of your work.

All Telstra conduit should have the following minimum depth of cover after the completion of your work:-

Footway 450mm

Roadway 450mm at drain invert and 600mm at road centre crown

For clearance distances relating to Telstra pillars, cabinets and RIMs/RCMs please contact Telstra Plan Services (see above for details).

FURTHER ASSISTANCE:

Assistance can be obtained by contacting Telstra Plan Services

Where on-site location is provided, the owner is responsible for all hand digging or use non-destructive water jet method (pot-holing) to visually locate and expose Telstra plant.

If plant location plans or visual location of Telstra plant by digging reveals that the location of Telstra plant is situated wholly or partly where the owner plans to work, then Telstra's Network Integrity Group must be contacted through Telstra Plan Services to discuss possible engineering solutions.

NOTE:

If Telstra relocation or protection works are part of the agreed solution, then payment to Telstra for the cost of this work shall be the responsibility of the principal developer or constructor. The principal developer or constructor will be required to provide Telstra with the details of their proposed work showing how Telstra's plant is to be accommodated and these details must be approved by the Regional Network Integrity Manager prior to the commencement of site works.

RURAL LANDOWNERS

Where Telstra owned cable crosses agricultural land, Telstra may provide a once-off free on-site electronic cable location. The Telstra Plan Services operator will provide assistance in determining whether a free on-site location is required.

Please note:

- The exact location, including depth of cables can only be verified by pot holing, which is not covered by this service.
- This service is only available to assist private rural land owners.
- This service covers one hour on-site only. Additional time can be purchased directly from the Accredited Plant Locator.

For further information including terms and conditions, please contact Plan Services on **1800 653 935**.

LEGEND

Exchange
(major cable present)

Footway access chamber
(can vary from 1-lid to 12-lid)

Roadway access chamber

Pillar/cabinet
(above the ground / free standing)

Above ground complex equipment housing (eg RIM)
Please Note: This equipment is powered by 240V electricity.

PT **Public telephone**
Please Note: This equipment is powered by 240V electricity.

Direct buried cable

Cable jointing pit
(number indicating pit type)

Buried cable jointing pit
(number indicating pit type)

Elevated cable joint
(above ground joint on buried cable)

Cable loop (direct buried)

Telstra Plant in shared utility trench

Aerial Cable
(above ground)

Aerial Cable
(attached to joint use pole e.g. power)

SMOF **Optical fibre cable direct buried**

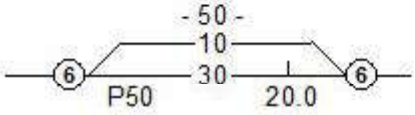
Single to multiple round conduit
Configurations 1, 2, 4, 9 respectively
(Attached text denotes conduit type and size)
P100

Multiple square conduit
Configurations 2, 4, 6 respectively
(Attached text denotes conduit type and size)
E85

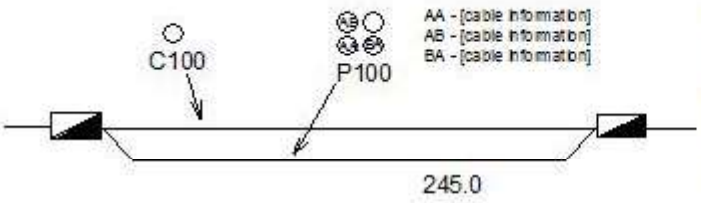
Some examples of conduit type and size:
A - Asbestos cement, P - PVC / plastic, C - Concrete, GI - Galvanised iron, E - Earthenware.
Conduit sizes *nominally* range from 20mm to 100mm.

P50	50mm PVC conduit
P100	100mm PVC conduit
A100	100mm asbestos cement conduit
E 85	85mm square earthenware conduit

Some examples of how to read Telstra plans:



One 50mm PVC conduit (P50) containing a 50-pair and a 10-pair cable between two 6-pits, 20.0m apart, with a direct buried 30-pair cable along the same route.



Two separate conduit runs between two footway access chambers (manholes) 245m apart. A nest of four 100mm PVC conduits (P100) containing assorted cables in three ducts (one being empty) and one empty 100mm concrete duct (C100) along the same route.

WARNING: Telstra's plans show only the presence of cables and plant. They only show their position relative to road boundaries, property fences etc. at the time of installation and Telstra does not warrant or hold out that such plans are accurate thereafter due to changes that may occur over time.
DO NOT ASSUME DEPTH OR ALIGNMENT of cables or plant as these vary significantly.
The customer has a DUTY OF CARE when excavating near Telstra cables and plant. Before using machine excavators TELSTRA PLANT MUST FIRST BE PHYSICALLY EXPOSED BY SOFT DIG (potholing) to identify its location.
Telstra will seek compensation for damages caused to its property and losses caused to Telstra and its customers.

ELECTRONIC PLANS - PDF AND DWF MAPS

If you have received Telstra maps via email you will have received the maps as either a PDF file (for smaller areas) or DWF file (for larger area requests). If you are unable to launch any one of the softcopy files for viewing and printing, you may need to download and install one or more of the free viewing and printing products such as Adobe Acrobat Reader (for PDF files) or Autodesk Design Review (for DWF files) available from the internet.

PDF files

PDF is the default softcopy format for all requests for areas up to approx *350m in length. (*depends on geographic location of request). The PDF file is formatted to A3 portrait sheet however it can be printed on any size sheet including from A4 to AO, either as the full sheet or selected areas to suit needs and legibility. (to print a selected area zoom up and print "current view"). If there are multiple layers of Telstra network you may receive up to 2 sheets in the single PDF file attachment supplied. There are three types or layers of network normally recorded - local network, mains cables or a combined layer of local and mains (usually displayed in rural or semi rural areas). If mains cable network is present in addition to local cables (i.e. as separate layer in a particular area), the mains will be shown on a separate sheet. The mains cable information should be read in conjunction with the local cable information.

DWF files

This is the default softcopy format for all requests for areas that are over 350m in length. Maximum length for a DWF automated response is approx 2500m - depending on geographic location of request (manually-processed plans may provide larger coverage). The DWF files differ from PDF in that DWF are vector files made up of layers that can be turned on or off and are not formatted to a specific sheet size. This makes them ideal for larger areas and for transmitting over email etc.

How to view Telstra DWF files -

Telstra DWF files come with all layers turned on. You may need to turn individual layers on or off for viewing and printing clarity. Individual layer names are CC (main cable/conduit), DA (distribution or local area network) and sometimes a combined layer - CAC. Layer details can be viewed by either picking off the side menu or by selecting 'window' then 'layers' off the top menu bar. Use 'layers' to turn individual layers off or on. (double click or right click on layer icon.)

How to print Telstra DWF files -

DWF files can be printed on any size sheet. They can be printed in their entirety or by selected areas of interest. Some DWF coverage areas are large and are not suited to printing legibly on a single A4 sheet - you may need several prints if you only have an A4 printer. Alternatively, an A3, A1 or larger printer could be used. To print, zoom in or out and then, by changing the 'print range' settings, you can print what is displayed on your screen to suit your paper size. If you only have a small printer, e.g. A4, you may need to zoom until the text is legible on your screen for it to be legible on the print. (which is why you may need several prints). To print what is displayed on your screen the 'view' setting should be changed from 'full page' to 'current view'. The 'current sheet' setting should also be selected. You may need to print layers separately for clarity and legibility. (details above on how to turn layers on or off)

How to change the background colour from white to black (when viewing) Telstra DWF files -

If using Autodesk Design Review the background colour can be changed by selecting "Tools" then "options" then "sheet". Tick the box "override published paper colors" and select the colour required using the tab provided.

Telstra Automated Mapping System

Telstra provides an automated plan response for the majority of DBYD requests received.

Requestors must supply a current email address on their request to DBYD and must also be able to accept a standard format of PDF or DWF. An automated response can be provided much faster than the alternative of a mailed hardcopy, and can avoid unnecessary delays in waiting for plans to arrive. Being softcopy, it can easily be sent directly to a worksite and can be available 7 days a week. The automated system can be configured for individual requestors to receive either PDF/DWF (where small requests are PDF and larger requests are DWF) or, alternatively, all in DWF (both small and large requests). Please contact Plan Services for further details or to have your preferences updated. Please note that all requests over *350m (approx.) in size can only be supplied in DWF format and there are size limits on what can be provided. (* actual size depends on geographic location of requested area)

ACCREDITED PLANT LOCATORS (For your area)

On-site assistance should be sought from an **Accredited Plant Locator** (Telstra accredited), if the telecommunications plant cannot be located within 2.5 metres of the locations indicated on the drawings provided.

On-site advice should be obtained from the Telstra Accredited Plant Locator who is highly skilled in locating Telstra plant. In the case where Telstra plant is outside a recognised road reserve Telstra recommends that Telstra Plan Services are contacted for assistance prior to engaging an Accredited Plant Locator.

Telstra does not permit external parties (non-Telstra) to conduct work on our network. Only Telstra staff or Telstra contractors that are correctly accredited are allowed to work on or enter our manholes, pits, ducts, cables etc.

Please note it is a criminal offence under the *Criminal Code Act 1995* (Cth) to tamper or interfere with communication facilities owned by a carrier. Heavy penalties may apply for breach of this prohibition, and any damages suffered, or costs incurred by Telstra as a result of any such unauthorised works may be claimed against you.

Should your projects require Telstra network location, any asset plant locator that is used MUST be Telstra accredited to be able to access and locate Telstra network. (a list of which is provided with the Dial Before You Dig plans). A Telstra Accredited Plant Locator must have a current identification card issued by Telstra.

For the assistance of customers an accredited Asset Plant Locator can perform any of the following activities if requested to do so by the owner:

- review Telstra's plans to assess the approximate location of Telstra plant;
- advise owners of the approximate location of Telstra plant according to the plans;
- advise owners of the best method for locating Telstra plant;
- advise owners of the hazards of unqualified persons attempting to find the exact location of Telstra plant and working in the vicinity of Telstra plant without first locating its exact position; and
- perform trial hole explorations by hand digging (pot-holing) to expose Telstra plant with a high degree of skill, competence and efficiency and utilising all necessary safety equipment.

A list of Accredited Plant Locators operating in your area is attached. Accredited Plant Locators are certified by Telstra to perform the tasks listed above. Owners may engage Accredited Plant Locators to perform these services, however Telstra does not give any warranty in relation to these services that Accredited Plant Locators are competent or experienced to perform any other services.

The attached list provides the names and contact details for Accredited Plant Locators who service your area and can provide you with assistance in locating Telstra plant on site. These organisations have been able to satisfy Telstra that they have a sound knowledge of telecommunications plant and its sensitivity to disturbance; appropriate equipment for locating telecommunications plant and competent personnel who are able to interpret telecommunications plans and sketches and understand safety issues relevant to working around telecommunications plant. They are also able to advise you on the actions which should be taken if the work you propose will/could result in a relocation of the telecommunications plant and/or its means of support.

We recommend that you engage the assistance of one of these Accredited Plant Locators as a step towards discharging your Duty of Care obligations when seeking the location of Telstra's telecommunications plant.

Please Note:

- Optic fibre cable locations must be performed by a locator with Telstra optic fibre cable location accreditation. (not all copper accredited locators have optic fibre accreditation). The locators with additional optic fibre cable location accreditation are indicated by a 'yes' in the column headed 'Fibre' in the lists of locators that are published with the DBYD plans.

- Each Accredited Plant Locator is NOT permitted to provide depth of communications plant unless physically exposed by hand digging.
- The details of any contract, agreement or retainer for site assistance to locate telecommunications plant shall be for you to decide and agree with the organisation engaged. Telstra is not a party to any contract entered into between an owner and an Accredited Plant Locator. The Accredited Plant Locators are able to provide guidance concerning the extent of site investigations required.
- Payment for the site assistance will be your responsibility and payment details should be agreed before the engagement is confirmed.
- Telstra does not accept any liability or responsibility for the performance of or advice given by an Accredited Plant Locator. Accreditation is an initiative taken by Telstra towards the establishment and maintenance of competency standards. However, performance and the advice given will always depend on the nature of the individual engagement.
- Each Accredited Plant Locator has been issued with a certificate which confirms the Accreditation. Every 2 years Telstra will reassess the accreditation and where appropriate will issue a letter confirming the accreditation for the next 2 years. You have the right to request the organisation you engage to show evidence of their ID card.
- Neither the Accredited Plant Locator nor any of its employees are an employee or agent for Telstra and Telstra is not liable for any damage or loss caused by the Accredited Plant Locator or its employees.
- The attached list contains the current names and contact details of Accredited Plant Locators who service your area, however, these details are subject to change.

IDEA FOR CONSIDERATION:

Telstra offer free Cable Awareness Presentations & Advanced Cable Reading Presentations, if you believe you or your company would benefit from this offer please contact Network Integrity on 1800 810 443 or **F1102490@team.telstra.com**

DATA EXTRACTION FEES - for non-ground breaking activities -

***Planning and design, conveyancing, tendering, educational or research, other data gathering**

Note - *The supply of any Telstra data for non ground breaking activities is at Telstra's discretion. Data supply may be refused on commercial, privacy, security or other reasons.*

Planning and design requests submitted by identified utilities intending works on their own assets ****may* *be exempt from the $55 (GST inc) extraction fee for Standard Telstra Responses for non ground breaking activities. This is at Telstra's discretion and conditions may apply. Data extraction fees for all non standard responses however will still apply. Eg for large projects or non standard formats.*

The supply of any data for non ground breaking activities is not subject to a 48hr response time; however Telstra will endeavour to respond within 48hrs for all standard responses.

Standard Telstra Response - for non ground breaking activities **$55** (GST inc)

Criteria - Each request only requires a single delivery from Telstra (as in 1 request 1 Delivery).
A single delivery is either -

- **1 x Email with 1 x PDF map file** containing one or two A3 map pages (depending on network). *Covers areas up to approx 500m in size.*

or-

- **1 x Email with 1 x DWF map file**. *Covers areas up to approx 3km in size.*

or-

- **1 x *Posted delivery**.- (*only if email unavailable or at Telstra's discretion)

  Posted is either -
  - Posted softcopy of standard response on disk

  or-
  - Posted printed hardcopy – maximum of 2 x A3 sheets only.

Non-Standard Response – for non ground breaking activities (fees apply)

Data Use Agreement (required for DXF format) **$110** (GST inc)

Projects - If a response takes more than 30mins to extract data in any format will be at an hourly rate **($110** per hour GST inc).
- Projects that take 1 day or longer will be quoted individually.
- (All data will be provided in softcopy only - not printed).

Note - *Multiple part requests through DBYD for one project will be amalgamated and considered a single project for data extraction charging purposes. Posted responses cannot be delivered within 48hrs, allow several days for delivery. Postage is by Australia Post standard delivery. Express delivery at additional cost. All prices and specifications are subject to change.*

DATA EXTRACTION FEES - for ground breaking activities -

***Manual or mechanical excavation, horizontal boring, vertical boring, blasting**

Standard Telstra Response – for ground breaking activities cost to requestor - $nil

Criteria - Each request only requires a single delivery from Telstra (as in 1 request 1 delivery).
A single delivery is defined as either -

- **1 x Email with 1 x PDF map file** containing one or two A3 map pages (depending on network). *Covers up to approx 500m.*

  or-

- **1 x Email with 1 x DWF map file**. *Covers up to approx 3km.*

  or-

- **1 x *Posted delivery** for customers requesting a response for their principal place of residence only, (and only when email delivery is unavailable or at Telstra's discretion).
  Either -
  - Posted softcopy on disk (standard response only)
  - Posted printed hardcopy (A3 sheets only- at Telstra's discretion)

Non-Standard Telstra Response – for ground breaking activities (fees apply)

An extraction fee is incurred if the response exceeds a standard response i.e. -

- Use of data requires a data use agreement (for example DXF format)
- If an individual job or project requires more than a single delivery (as defined above)
- Specific printing and/or posting of requests that are not for the principle place of residence
- Any other response other than a Standard Telstra Response for ground breaking activities

Data extraction costs for ground breaking activities -

- Posted softcopy on disk of standard response when not principle place of residence- **$22** (GST inc)
- Posted hardcopy of standard response i.e. when not principle place of residence – max of 2 x A3 sheets (at legible scale) - **$22** GST inc. Note - large areas will not be printed and posted.
- Requires Data Use Agreement – i.e. requirement for DXF files - **$110** (GST inc)
- Non standard response over 30 mins extraction time for softcopy will be at an hourly rate (**$110 per hour** GST inc).
- Projects that take 1 day or longer will be quoted individually.

Note - *Multiple part requests through DBYD for one project will be amalgamated and considered a single project for data extraction charging purposes. Printing/posting fee exemptions may be provided at Telstra's discretion. Postage is by Australia Post standard delivery. All posted plans will normally be extracted within 48 hrs; time in transit through post is additional and may take several days Express delivery at additional cost. All prices and specifications are subject to change. Data extraction fees are based on various criteria including the principal excavation activity selected by the customer on the DBYD website. Telstra reserves the right to vary its fees in circumstances where the principal excavation activity is varied or misrepresented by the customer.*